

THIS CONFORMED SET IS COMPOSED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS DRAWINGS & SPECIFICATIONS. ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCIES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

CONSULTANT:  
MANN  
STUDIOS  
ARCHITECTURE  
6511 Harford Road  
Baltimore, Maryland 21284  
Telephone: (410) 264-7500

CUMRUM FIRE DEPARTMENT  
PROPOSED WELSH ROAD STATION  
1775 WELSH ROAD  
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

PROJECT  
18-036  
PROJECT  
BID SET  
DATE  
11/30/2023

DRAWING  
TYPICAL DETAILS

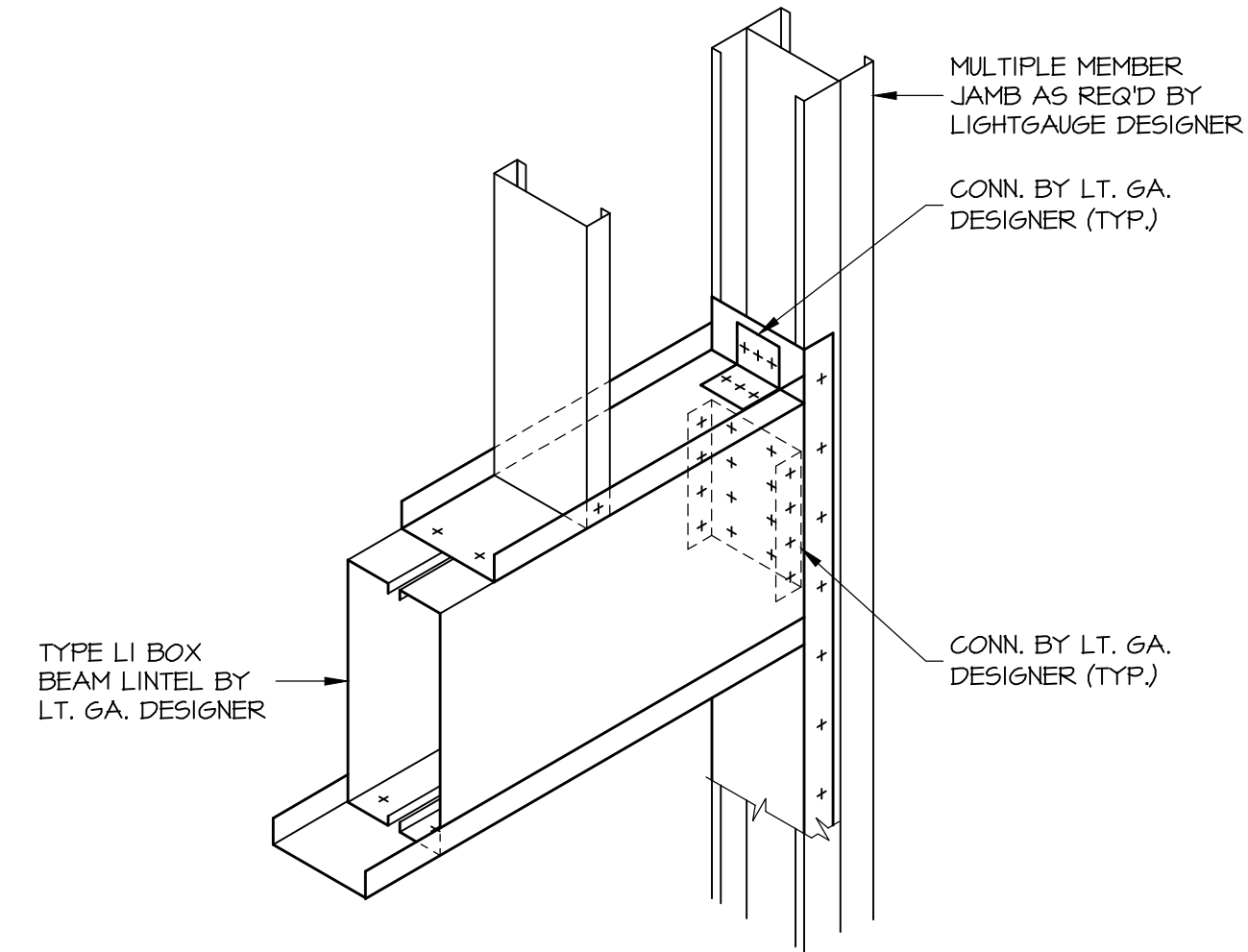
SHEET

**S303**

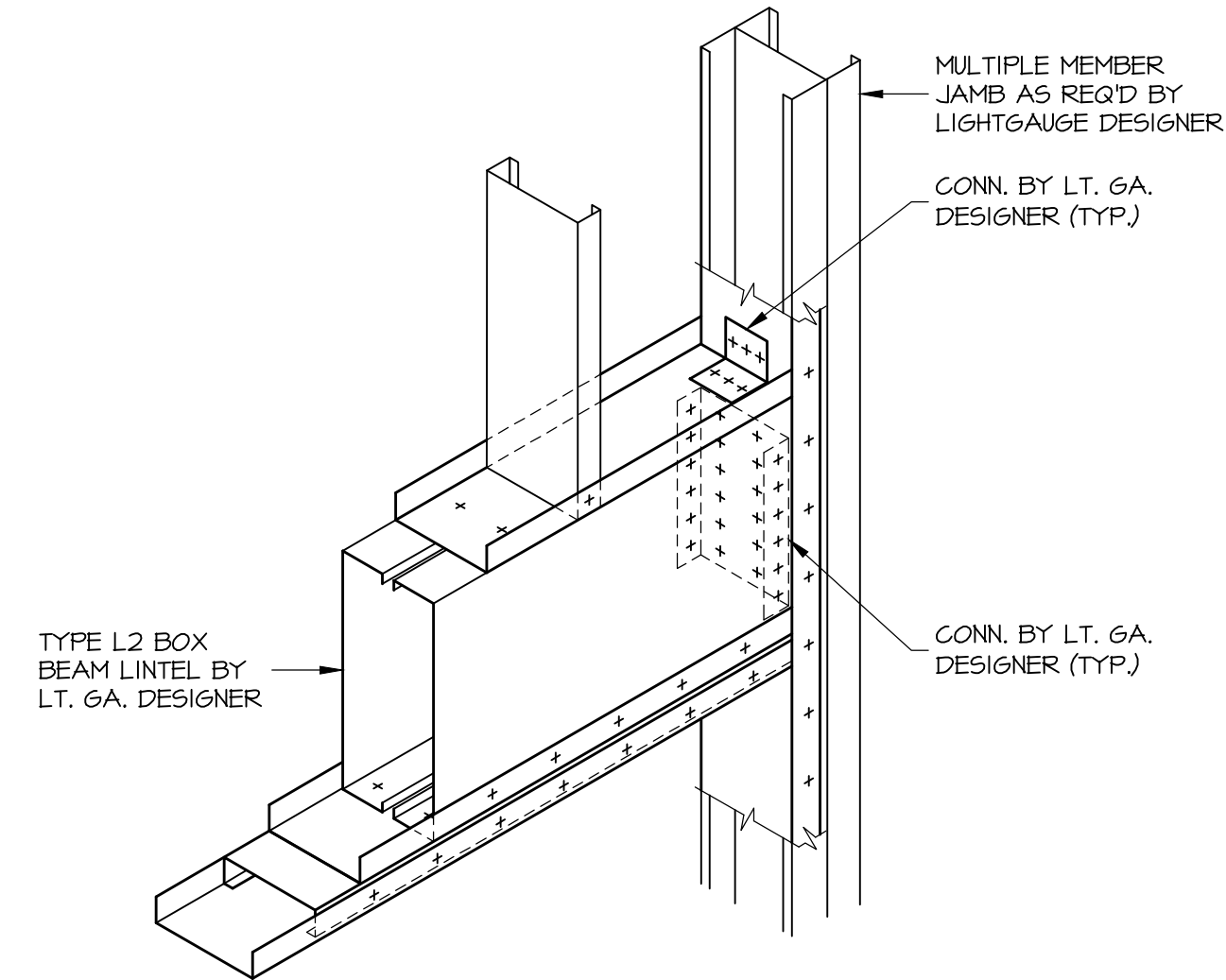
MPM #18150

STUD WALL LINTEL SCHEDULE				
MARK	TYPE	CONFIGURATION	FULL HEIGHT JAMBS	REMARKS
LL1	BY LT. GA. DESIGNER ASSUME (2)-8005162-54 + (2)-600T125-54		ASSUME MIN. (2)-STUDS + (1)-TRACK	CONNECTIONS BY LIGHTGAUGE DESIGNER.
LL2	BY LT. GA. DESIGNER. ASSUME (2)-8005162-54 + (3)-600T125-54 + (1)-8005162-54		ASSUME MIN. (2)-STUDS + (1)-TRACK	CONNECTIONS BY LIGHTGAUGE DESIGNER.
LL3	BY LT. GA. DESIGNER. ASSUME (2)-8005162-54 + (2)-800T125-54		ASSUME MIN. (2)-STUDS + (1)-TRACK	CONNECTIONS BY LIGHTGAUGE DESIGNER.

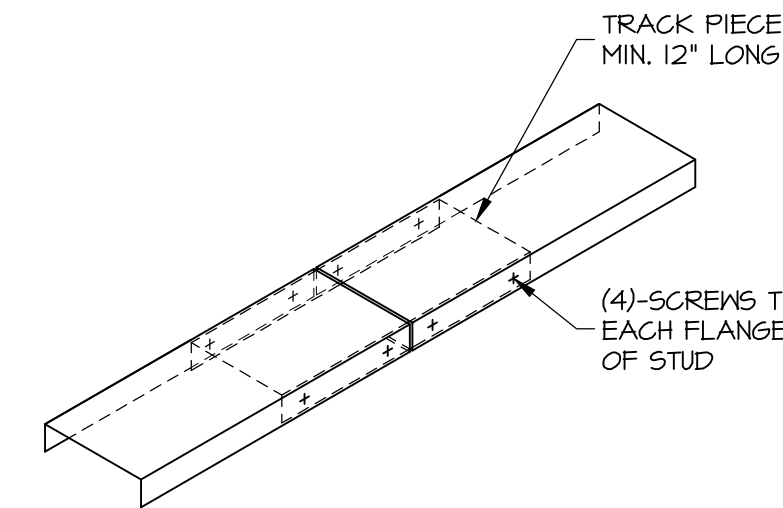
NOTE:  
LINTELS ARE TYPICALLY NOT SHOWN ON PLAN. USE LL3 AT ALL OPENINGS WHERE THE WALLS CONSIST OF 8" STUDS. COORDINATE ALL OTHER LINTELS WITH OPENING WIDTHS PER DETAILS K/S303 AND L/S303.



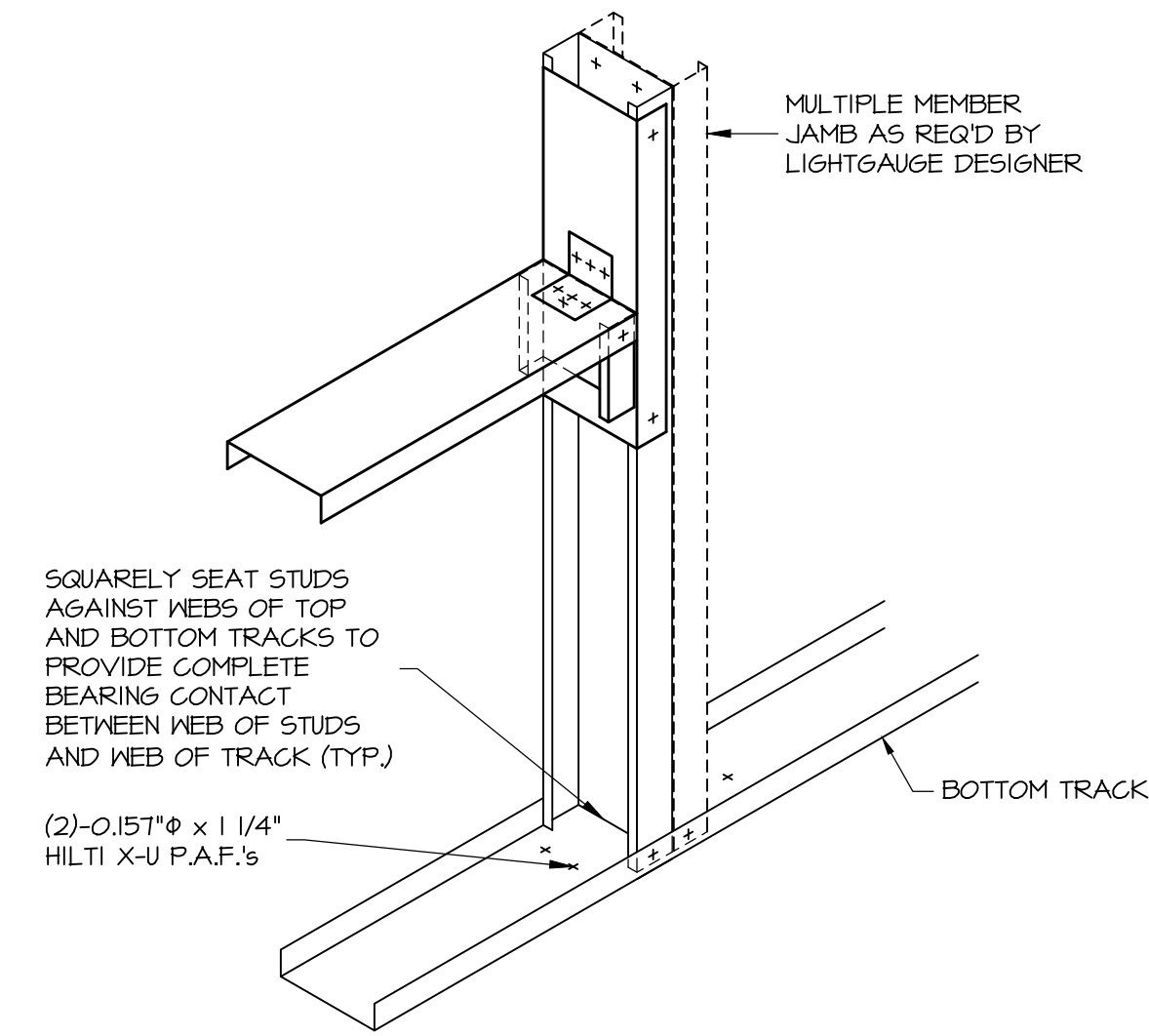
DETAIL **E** S303 N.T.S.  
JAMB & TYPE LL1 & LL3 LINTEL DETAILS FOR OPENING WIDTH OF 6'-0" OR LESS



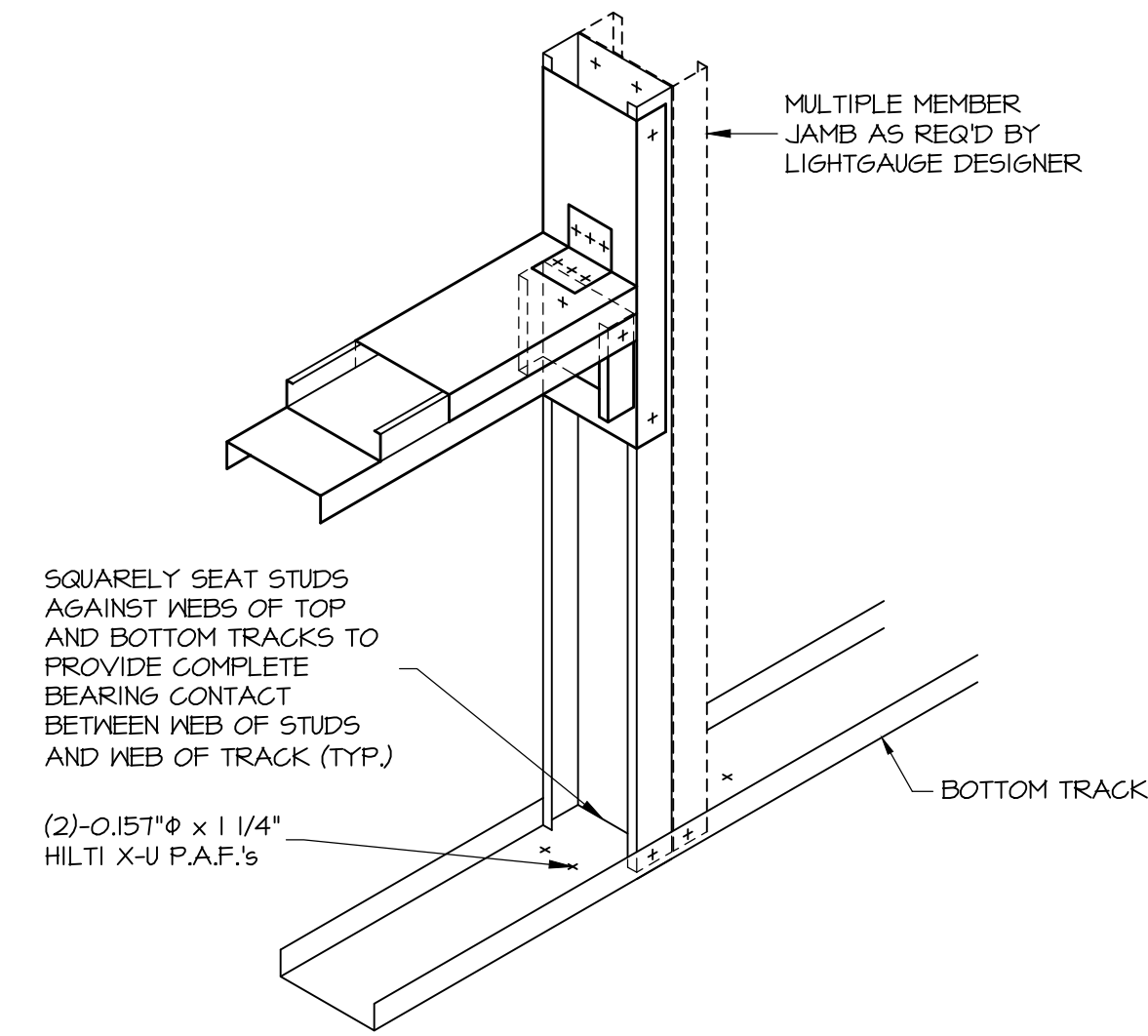
DETAIL **L** S303 N.T.S.  
JAMB & TYPE LL2 LINTEL DETAILS FOR OPENING WIDTH GREATER THAN 6'-0"



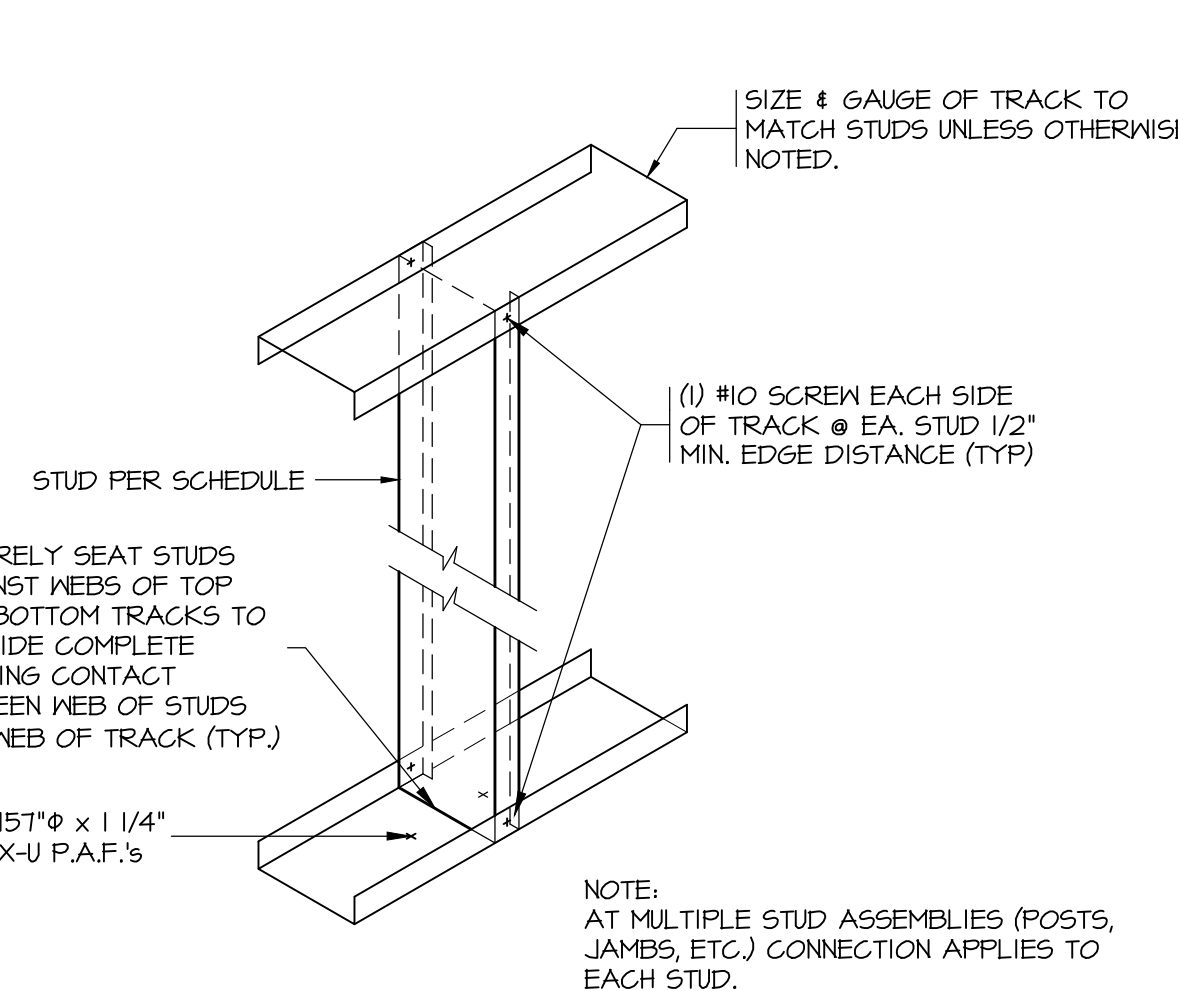
DETAIL **M** S303 N.T.S.  
TYPICAL TRACK SPlice CONNECTION



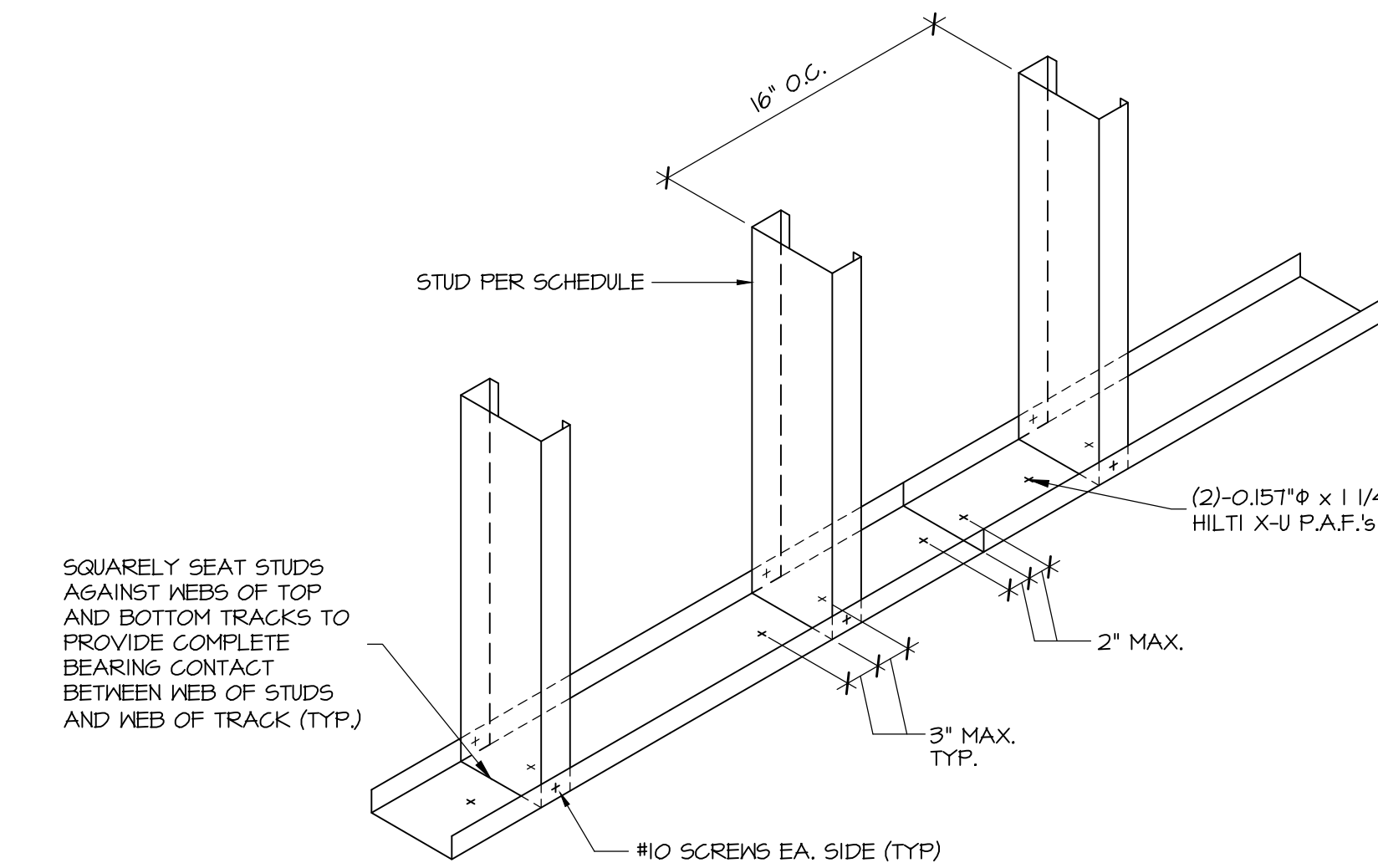
DETAIL **F** S303 N.T.S.  
JAMB & SILL DETAILS FOR OPENING WIDTH OF 6'-0" OR LESS



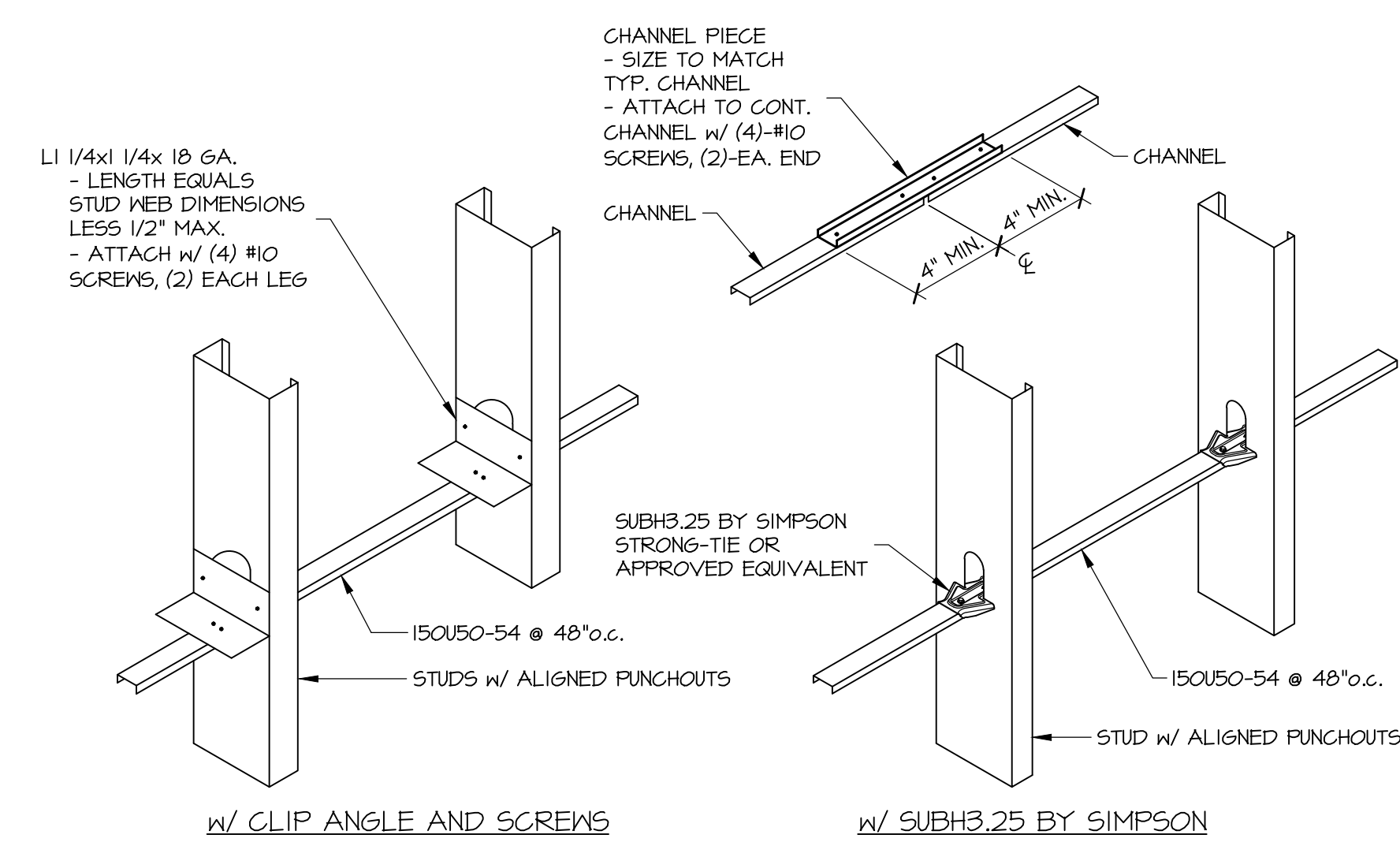
DETAIL **G** S303 N.T.S.  
JAMB & SILL DETAILS FOR OPENING WIDTH GREATER THAN 6'-0"



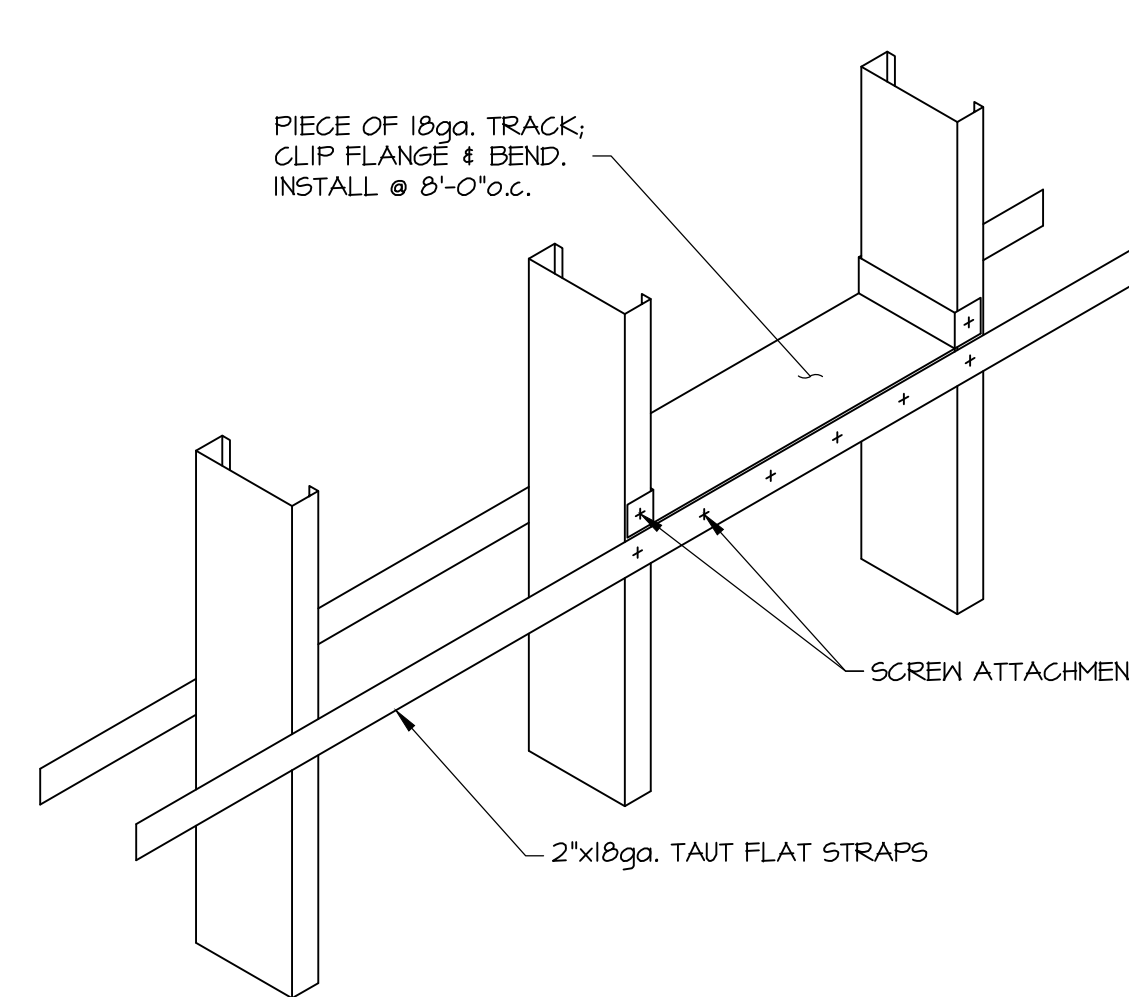
DETAIL **H** S303 N.T.S.  
TYPICAL TRACK TO STUD CONNECTION



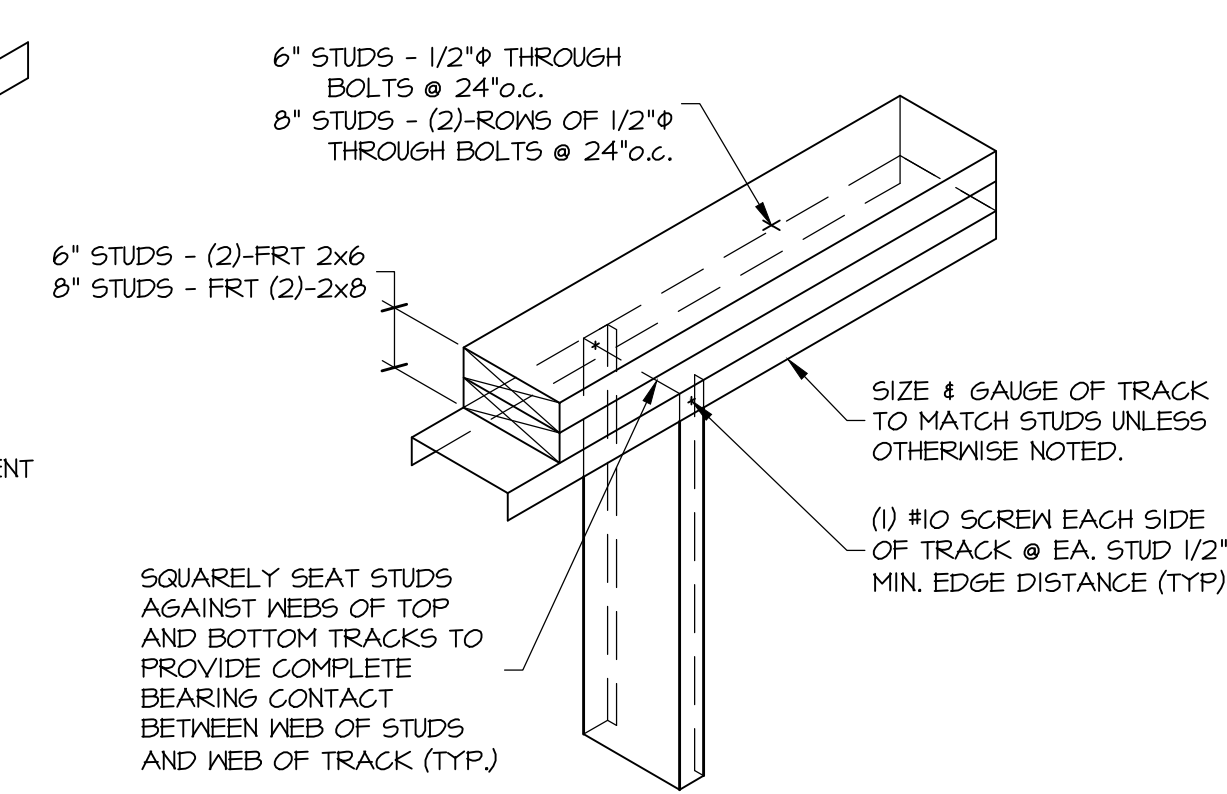
DETAIL **J** S303 N.T.S.  
TYPICAL TRACK CONNECTION TO CONCRETE SLAB/ GROUTED MASONRY/ STEEL BEAM/ METAL DECK



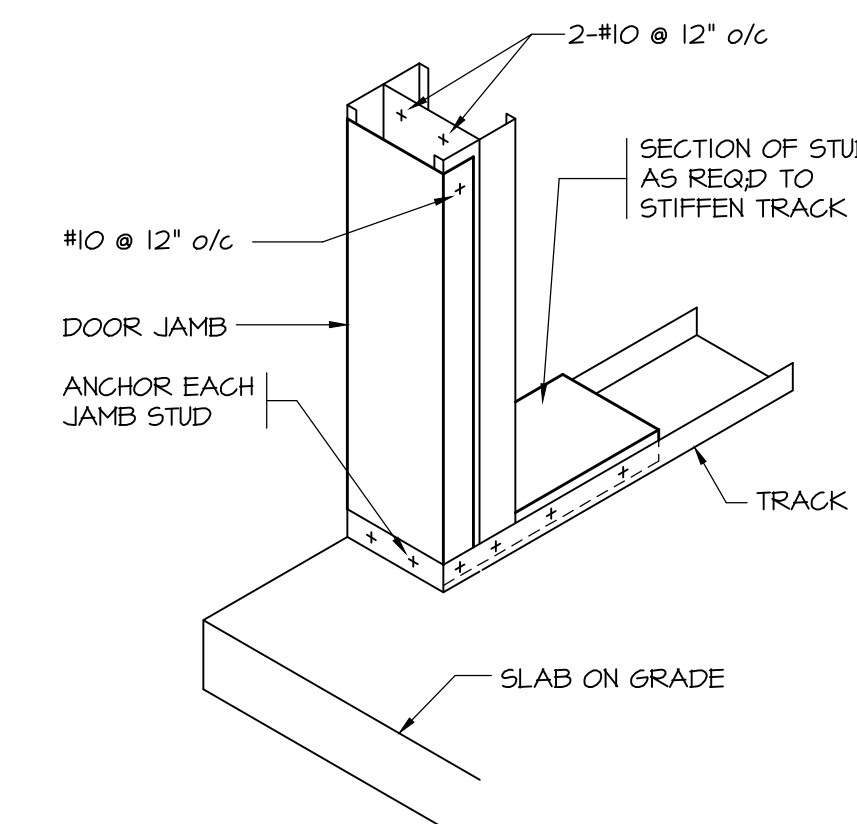
DETAIL **A** S303 N.T.S.  
CONTINUOUS CHANNEL BRIDGING AT 8" STUDS



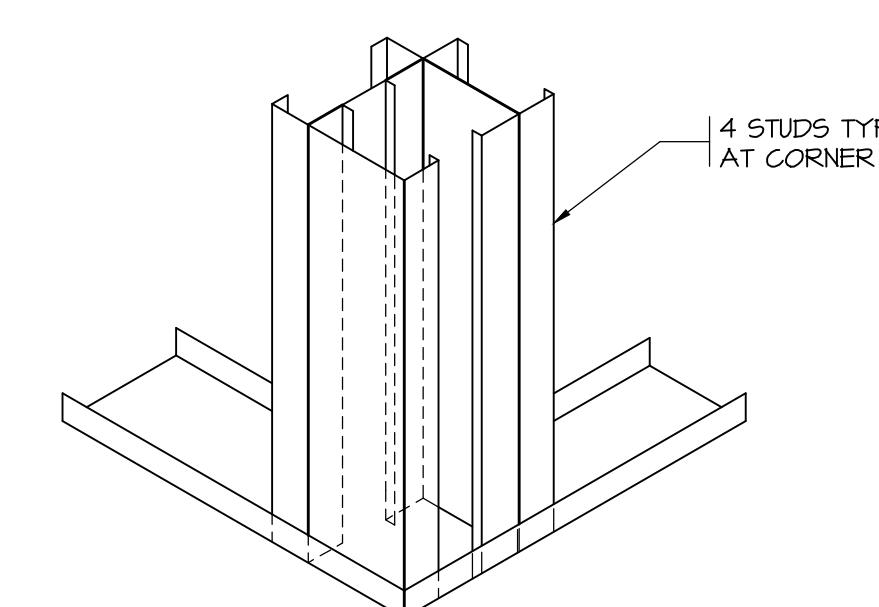
DETAIL **B** S303 N.T.S.  
CONTINUOUS CHANNEL BRIDGING AT 8" STUDS



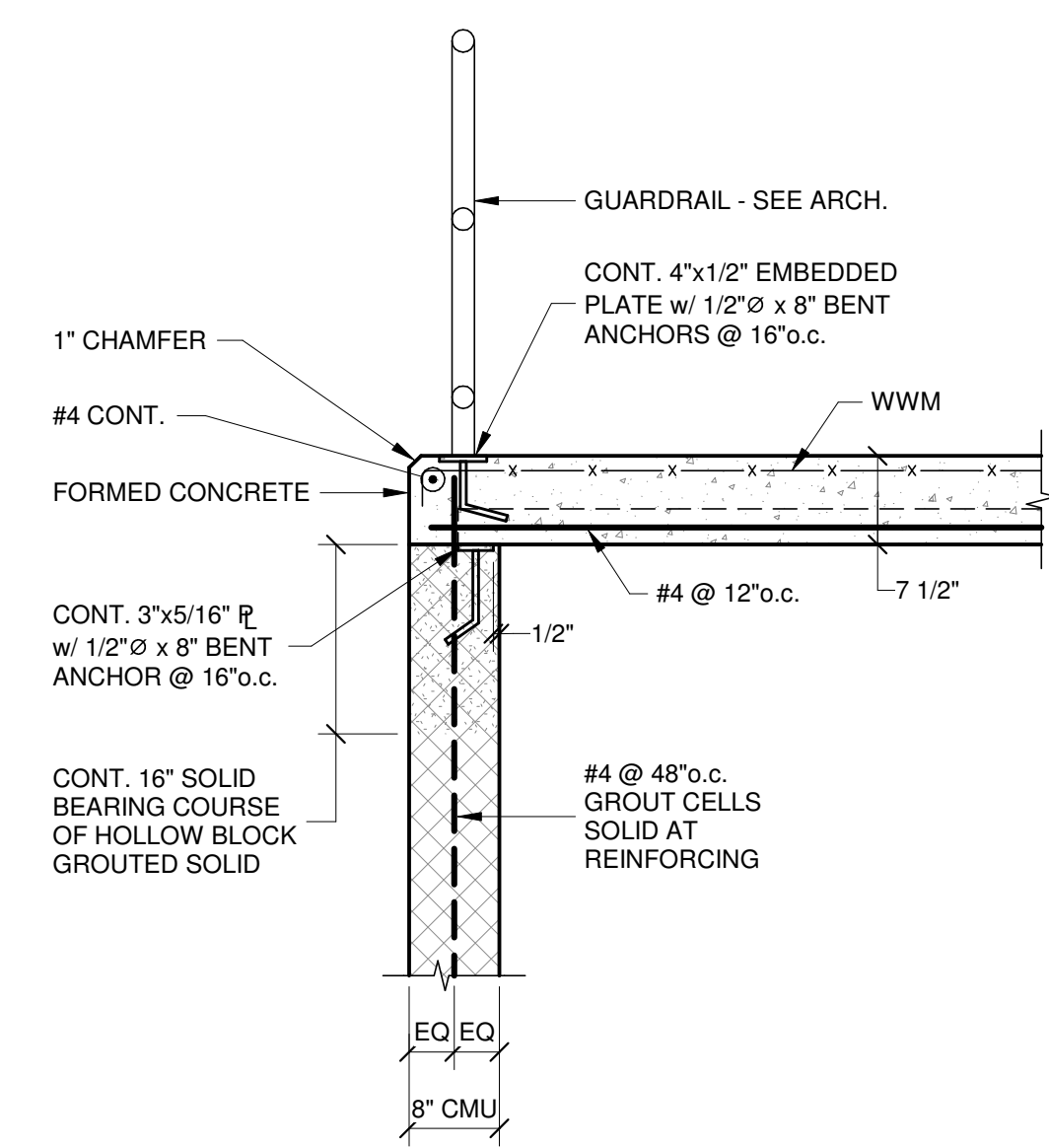
DETAIL **C** S303 N.T.S.  
TYPICAL CONNECTION OF TRACK TO (2)-2x6 OR (2)-2x8



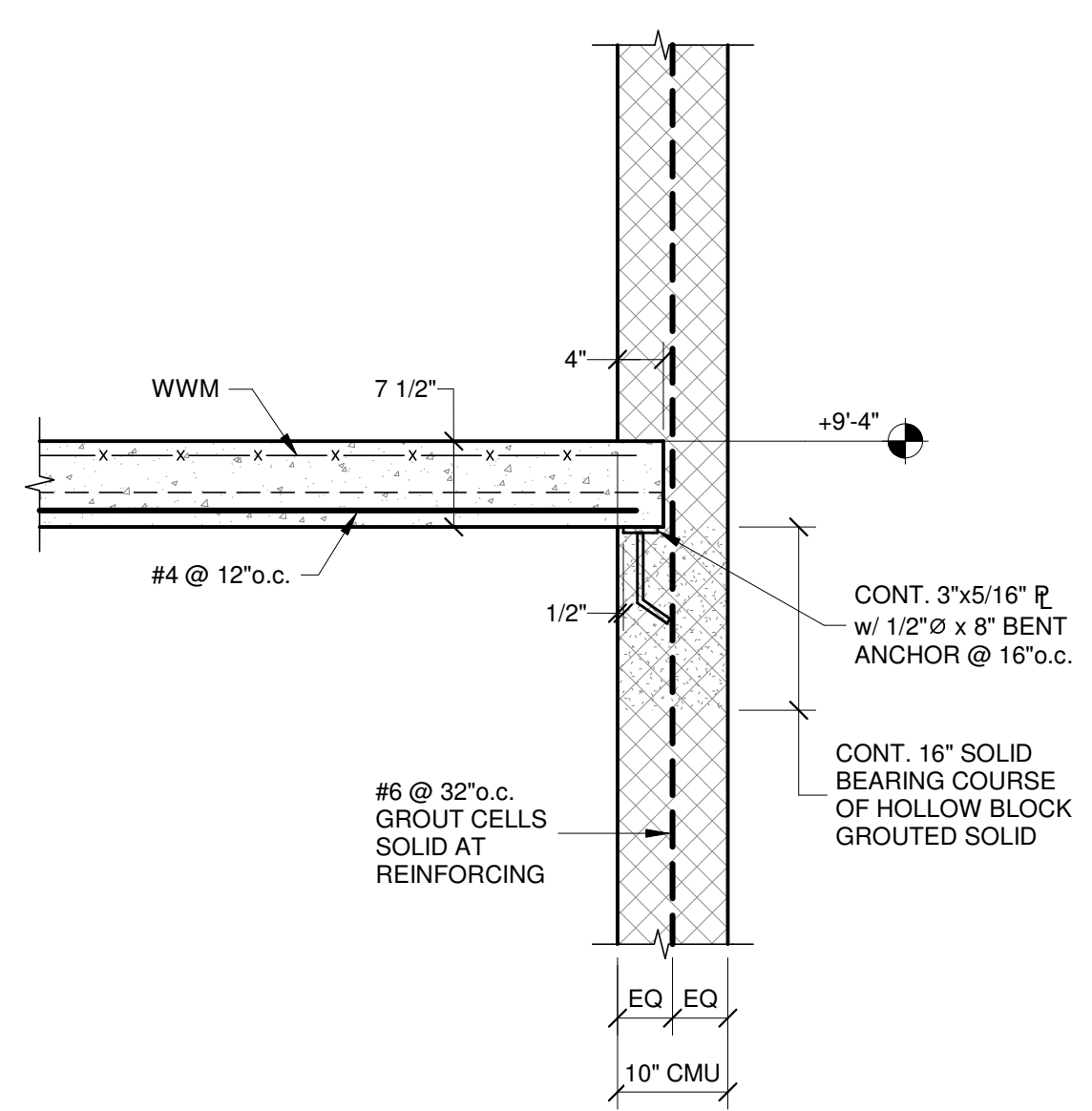
DETAIL **D** S303 N.T.S.  
DOOR JAMB BASE AT SLAB-ON-GRADE



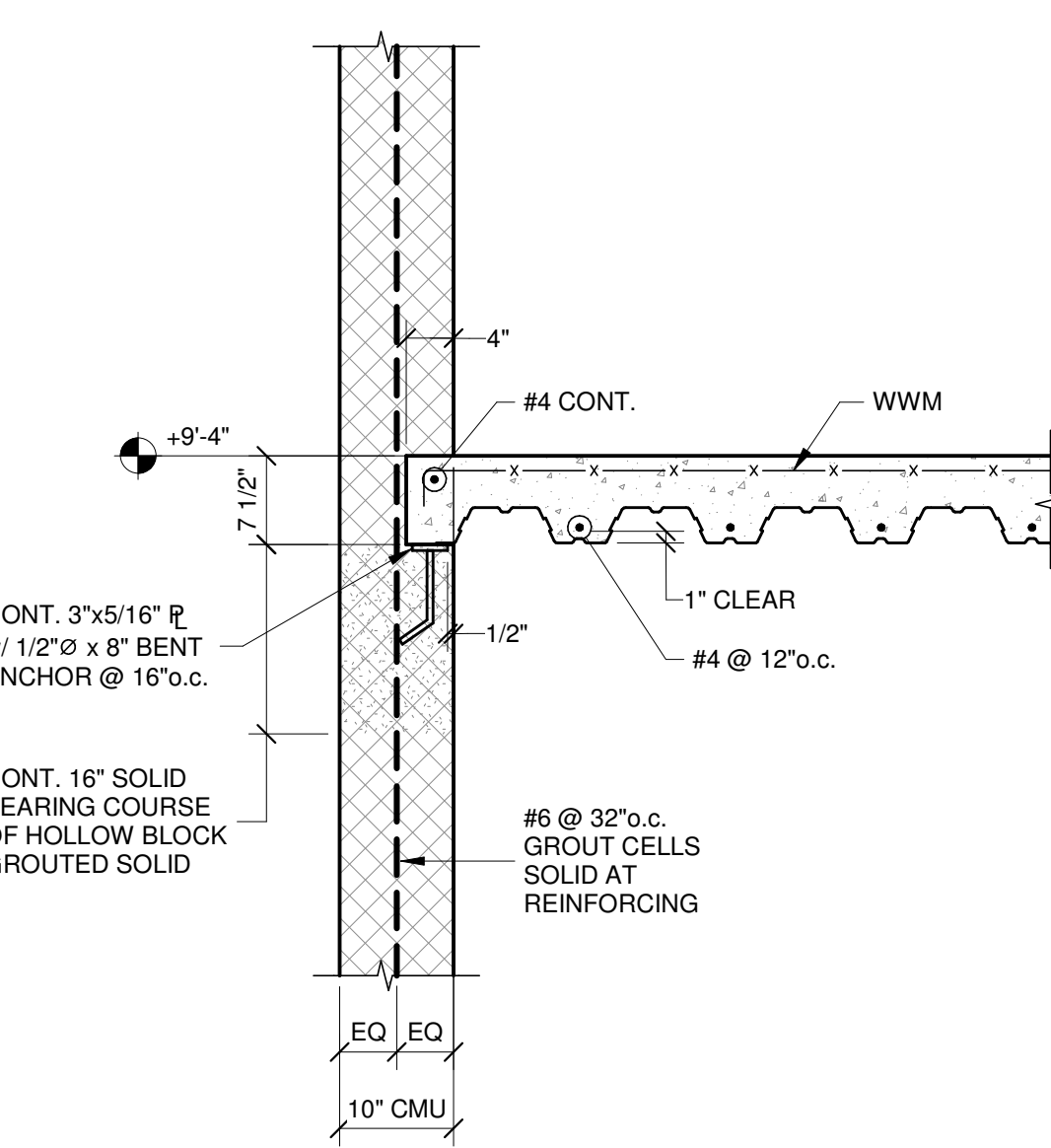
DETAIL **E** S303 N.T.S.  
TYPICAL CORNER



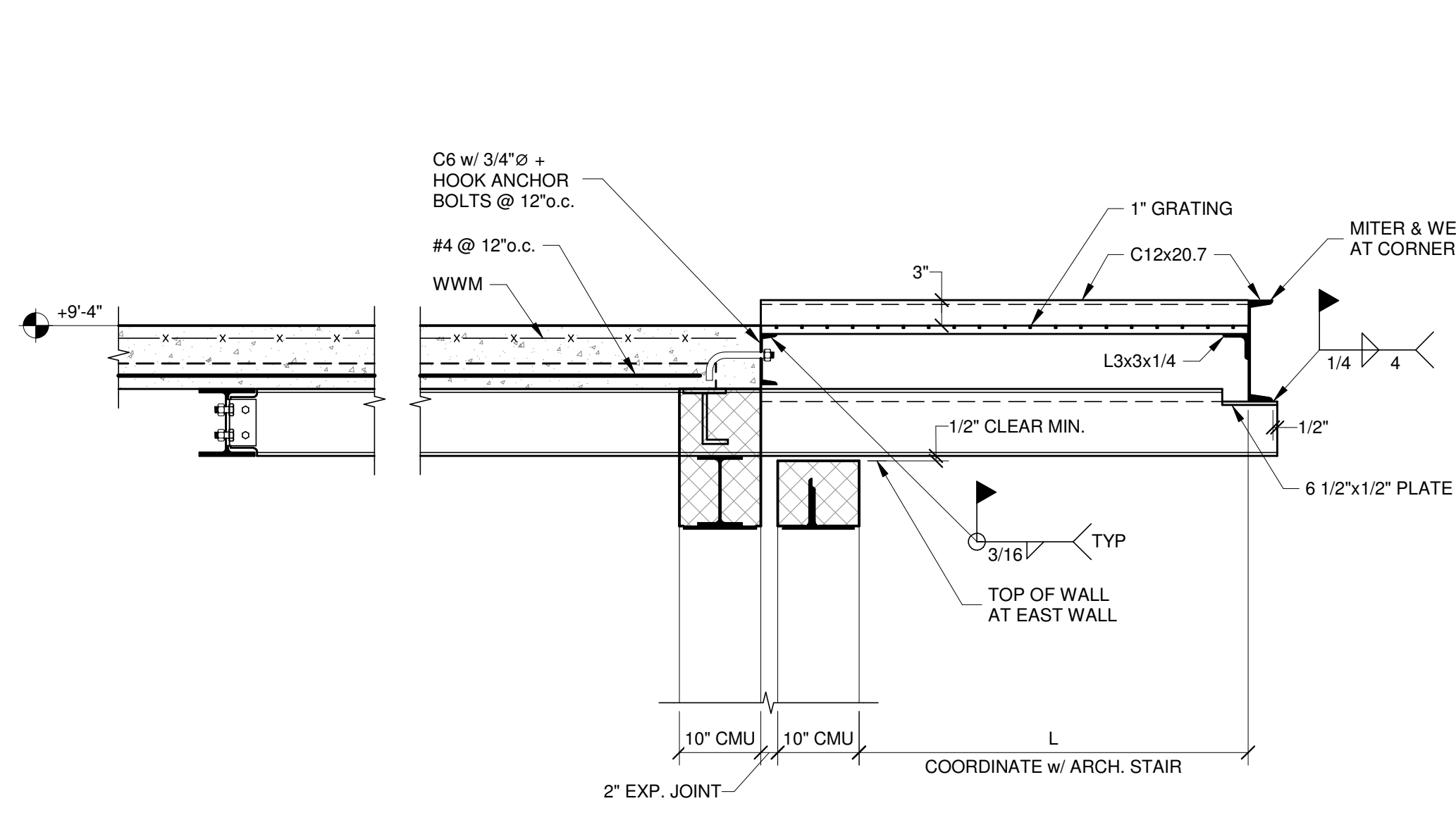
SECTION 11 S401 3/4" = 1'-0"



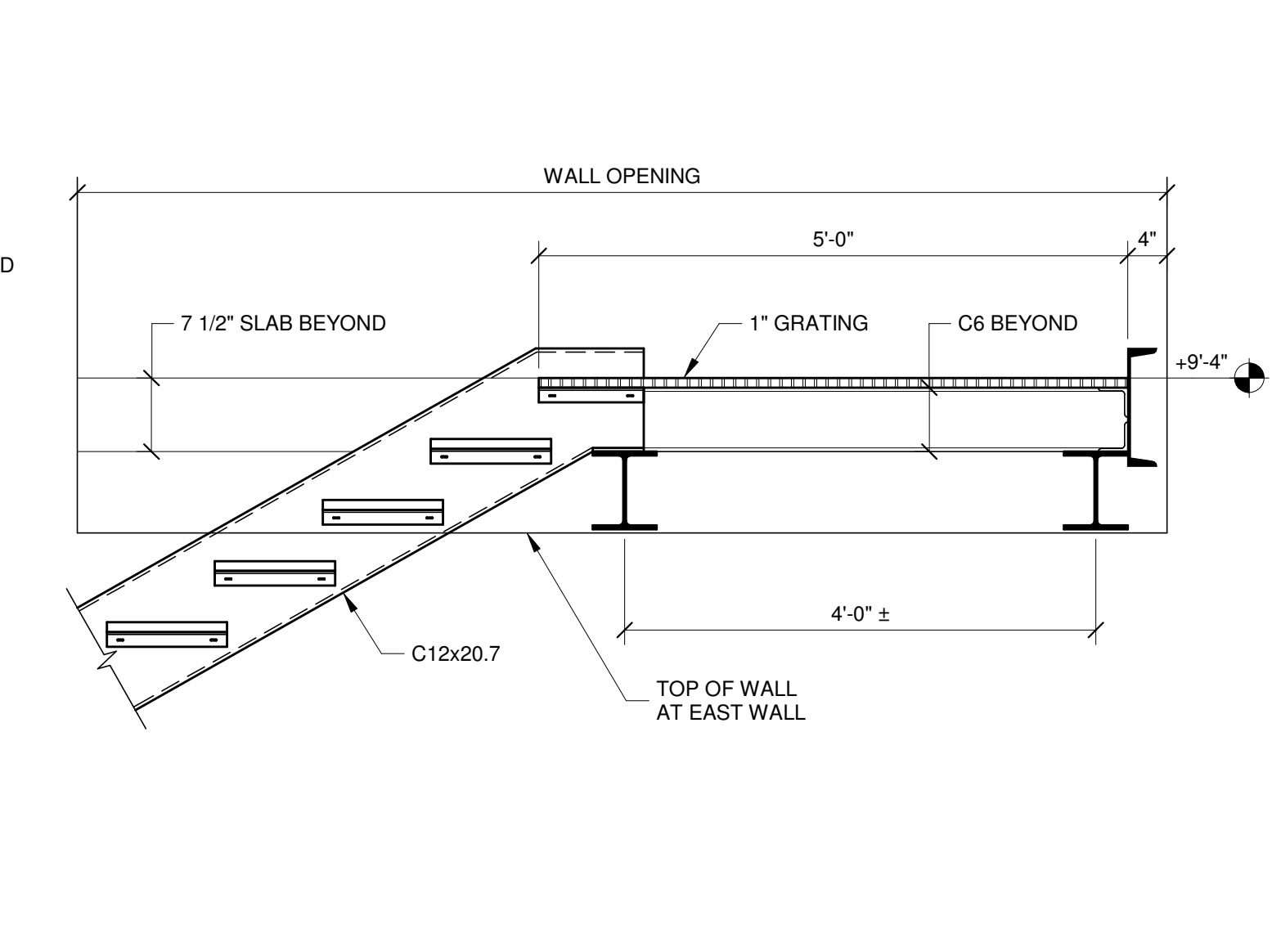
SECTION 12 S401 3/4" = 1'-0"



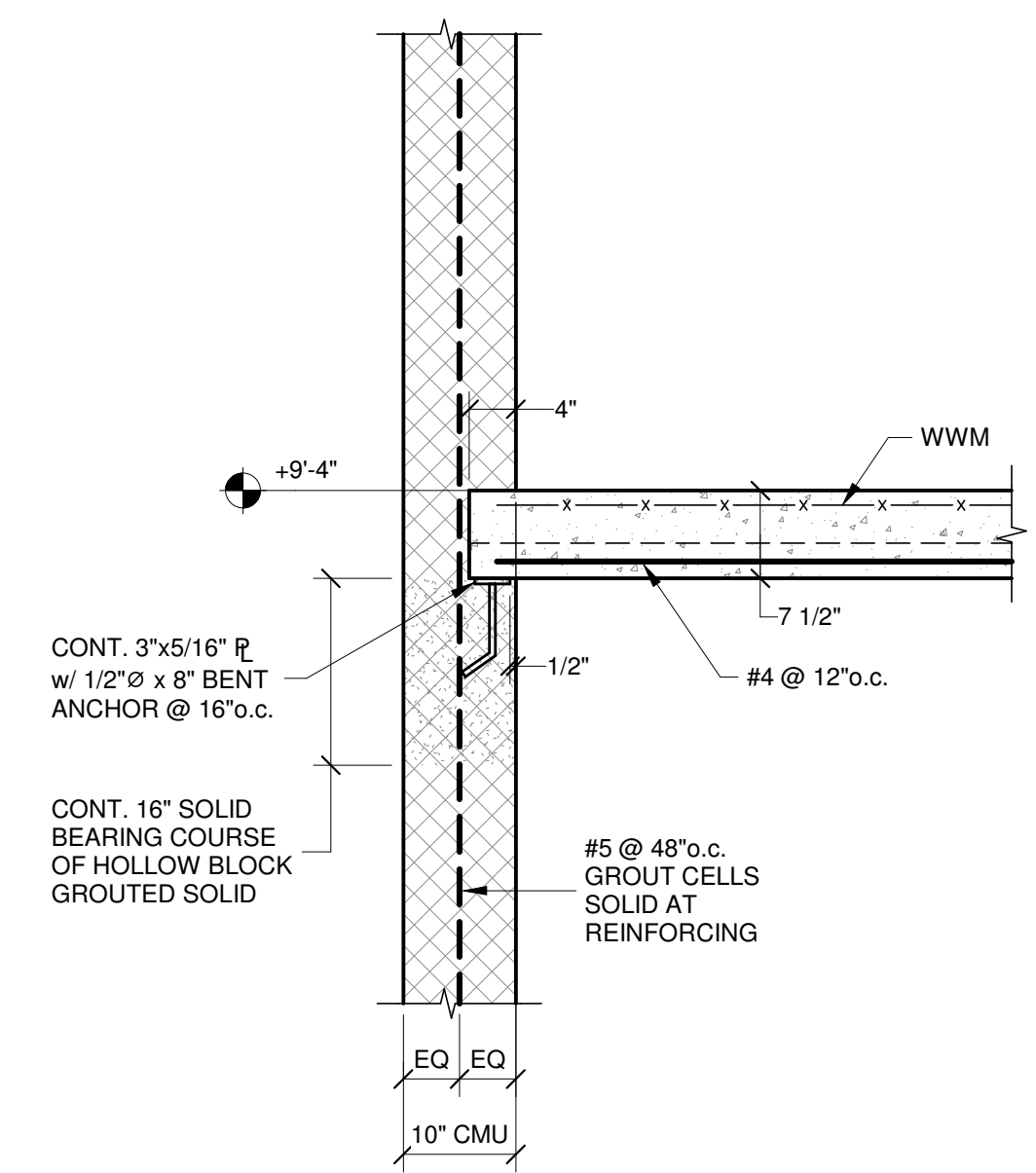
SECTION 13 S401 3/4" = 1'-0"



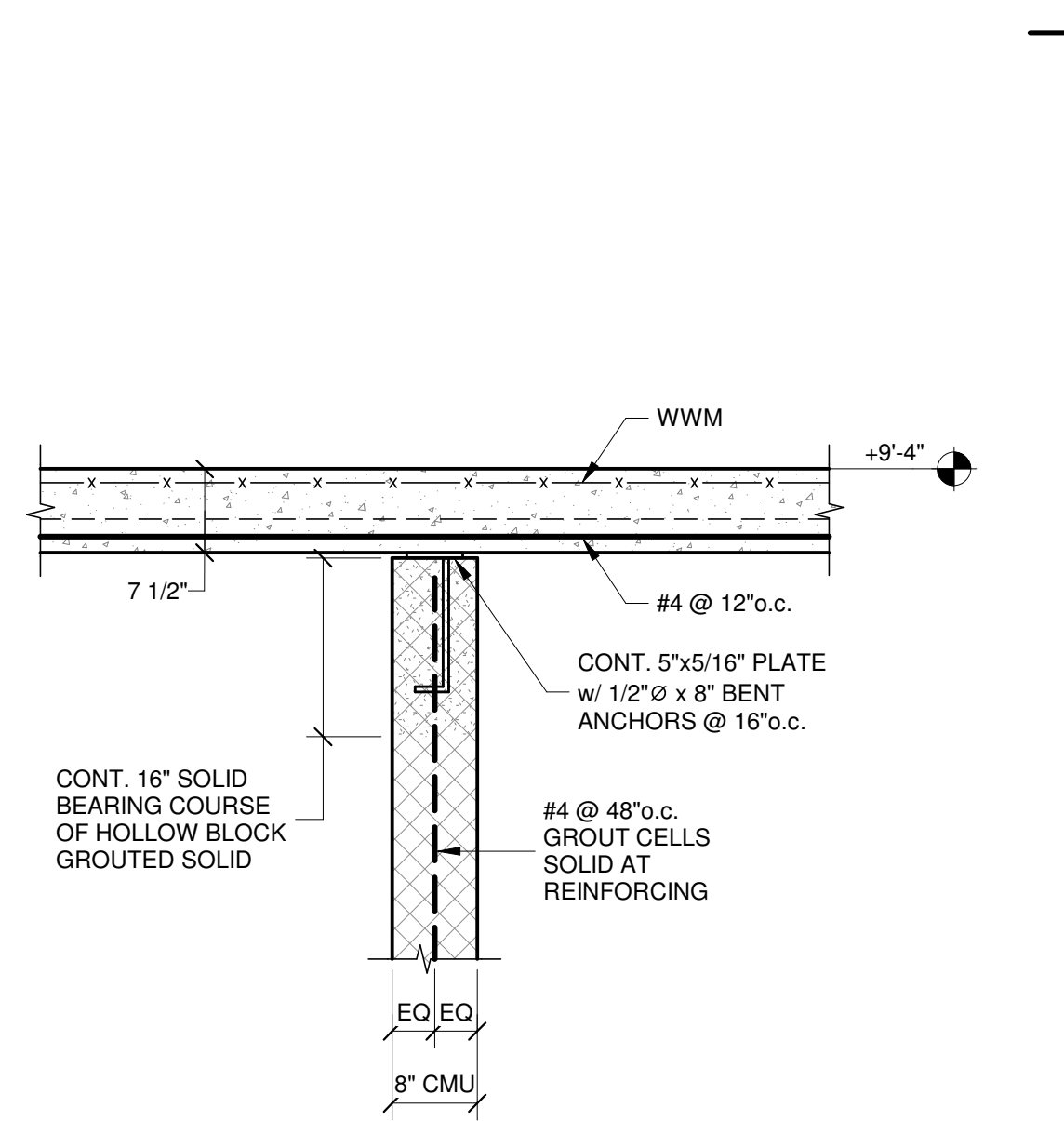
SECTION 14 S401 3/4" = 1'-0"



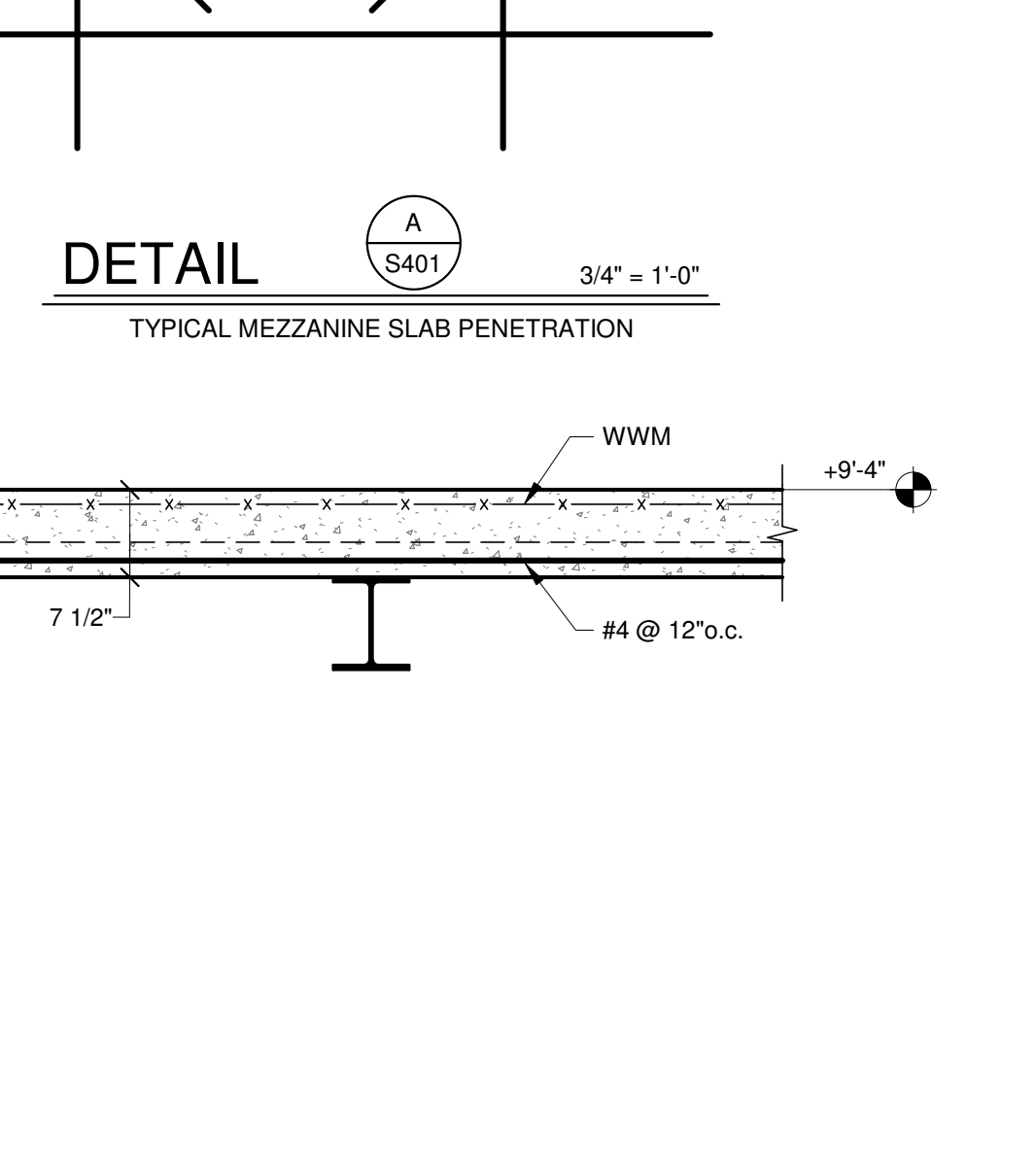
SECTION 15 S401 3/4" = 1'-0"



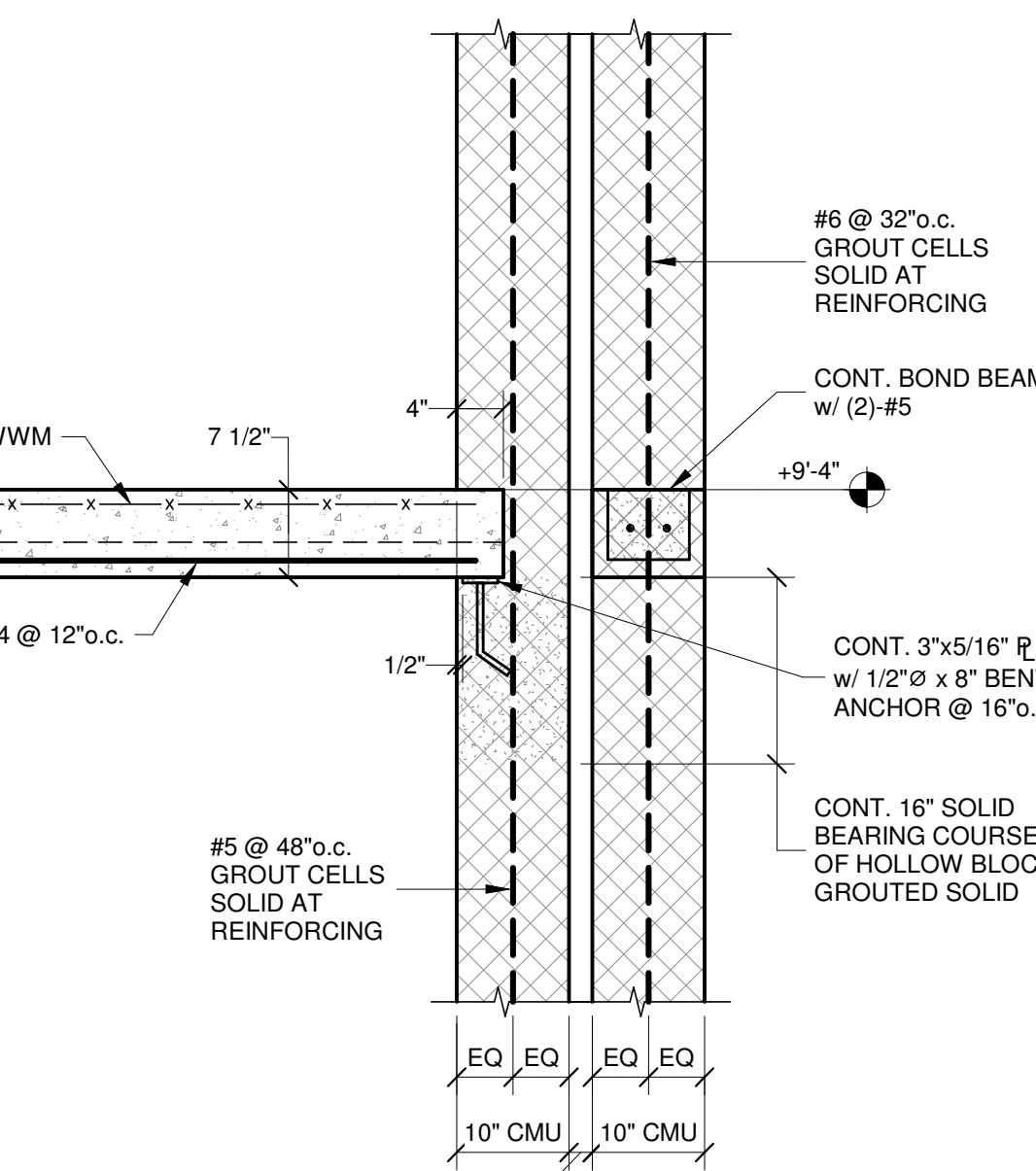
SECTION 6 S401 3/4" = 1'-0"



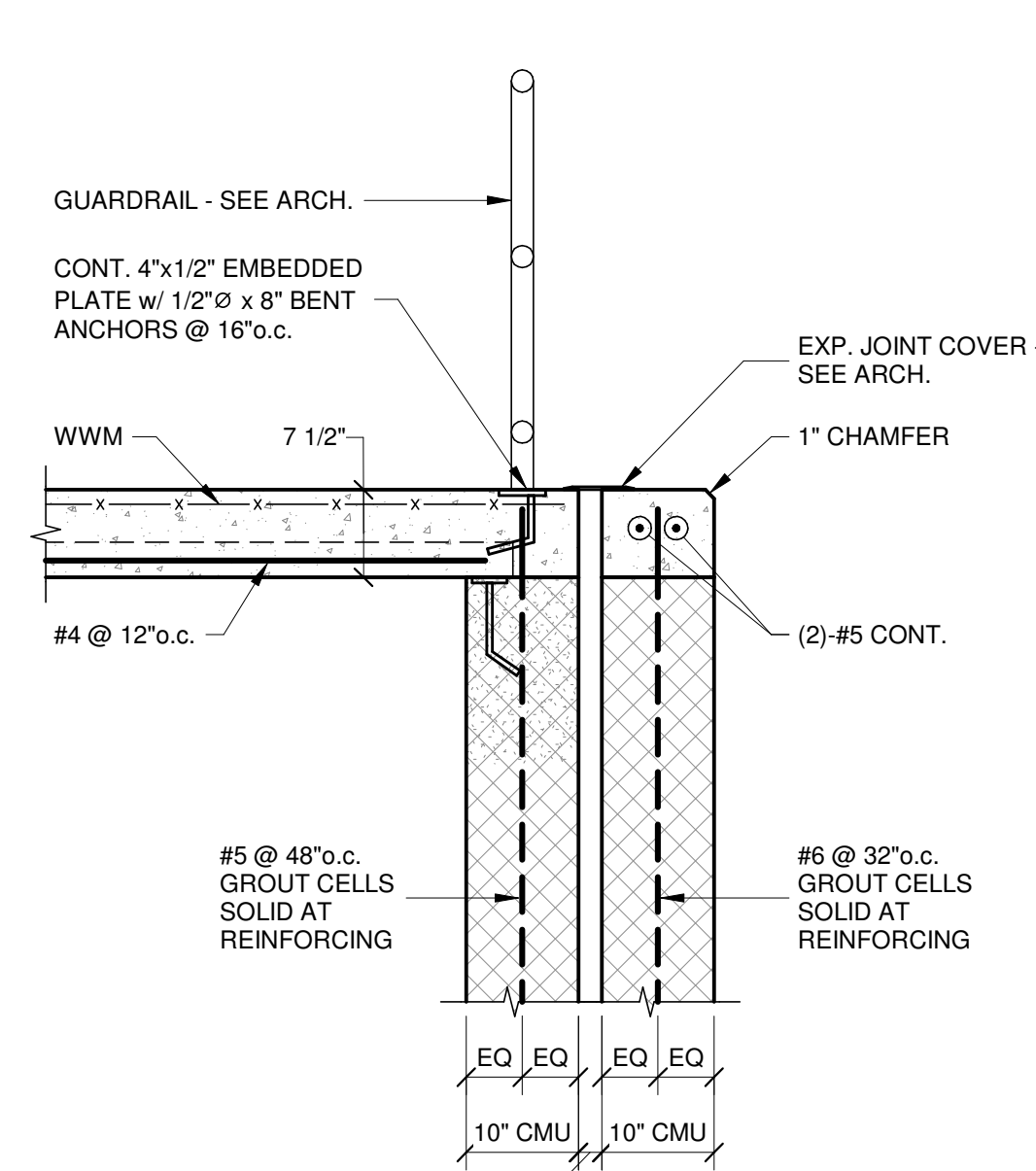
SECTION 7 S401 3/4" = 1'-0"



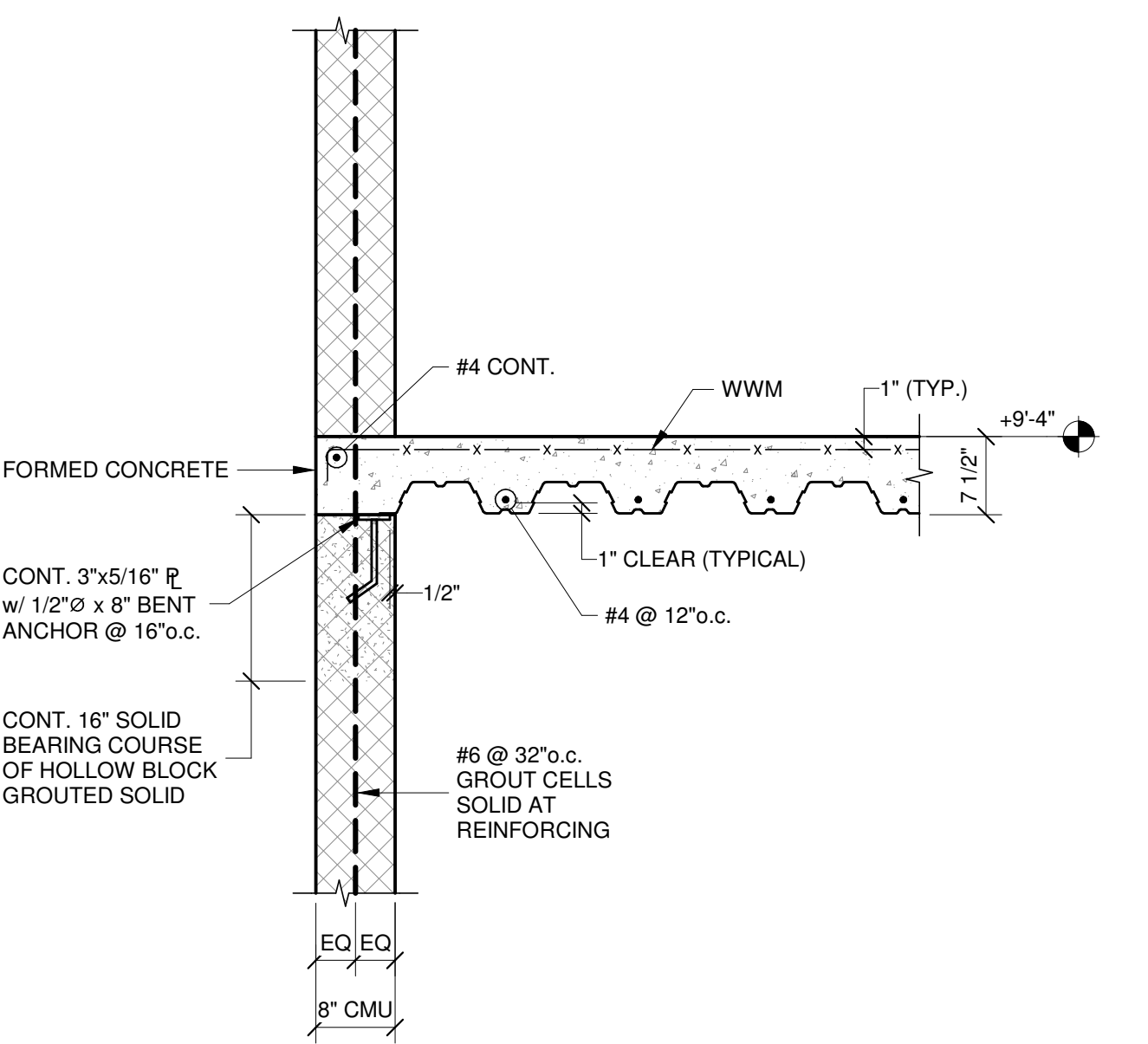
SECTION 8 S401 3/4" = 1'-0"



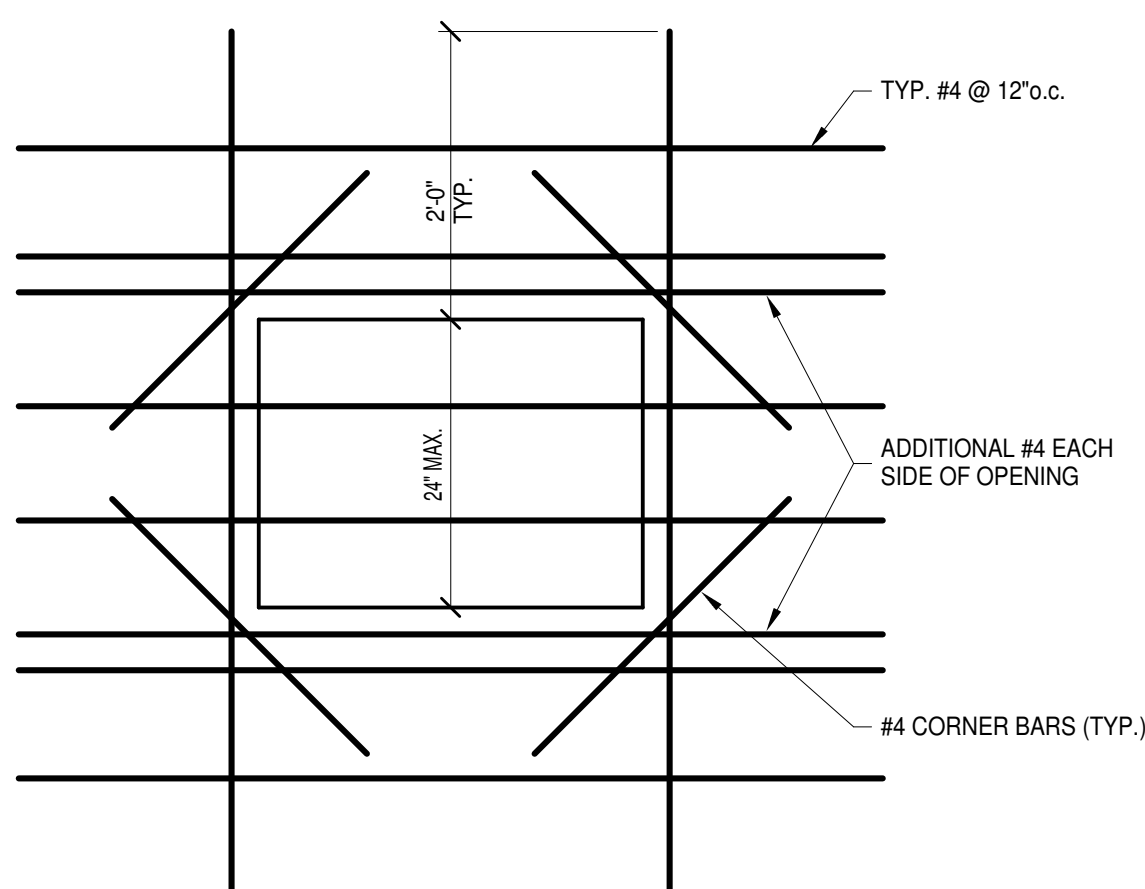
SECTION 9 S401 3/4" = 1'-0"



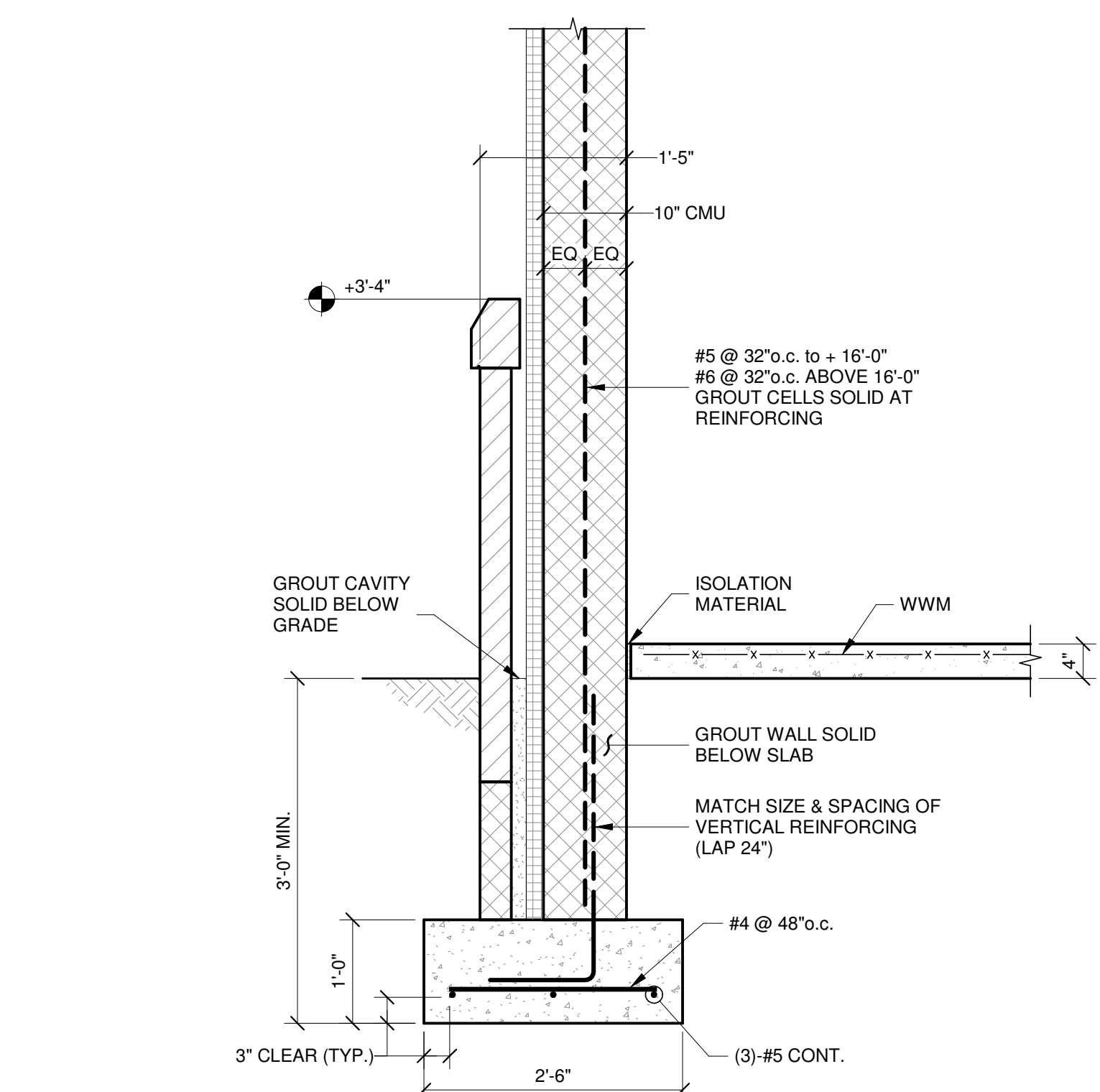
SECTION 9A S401 3/4" = 1'-0"



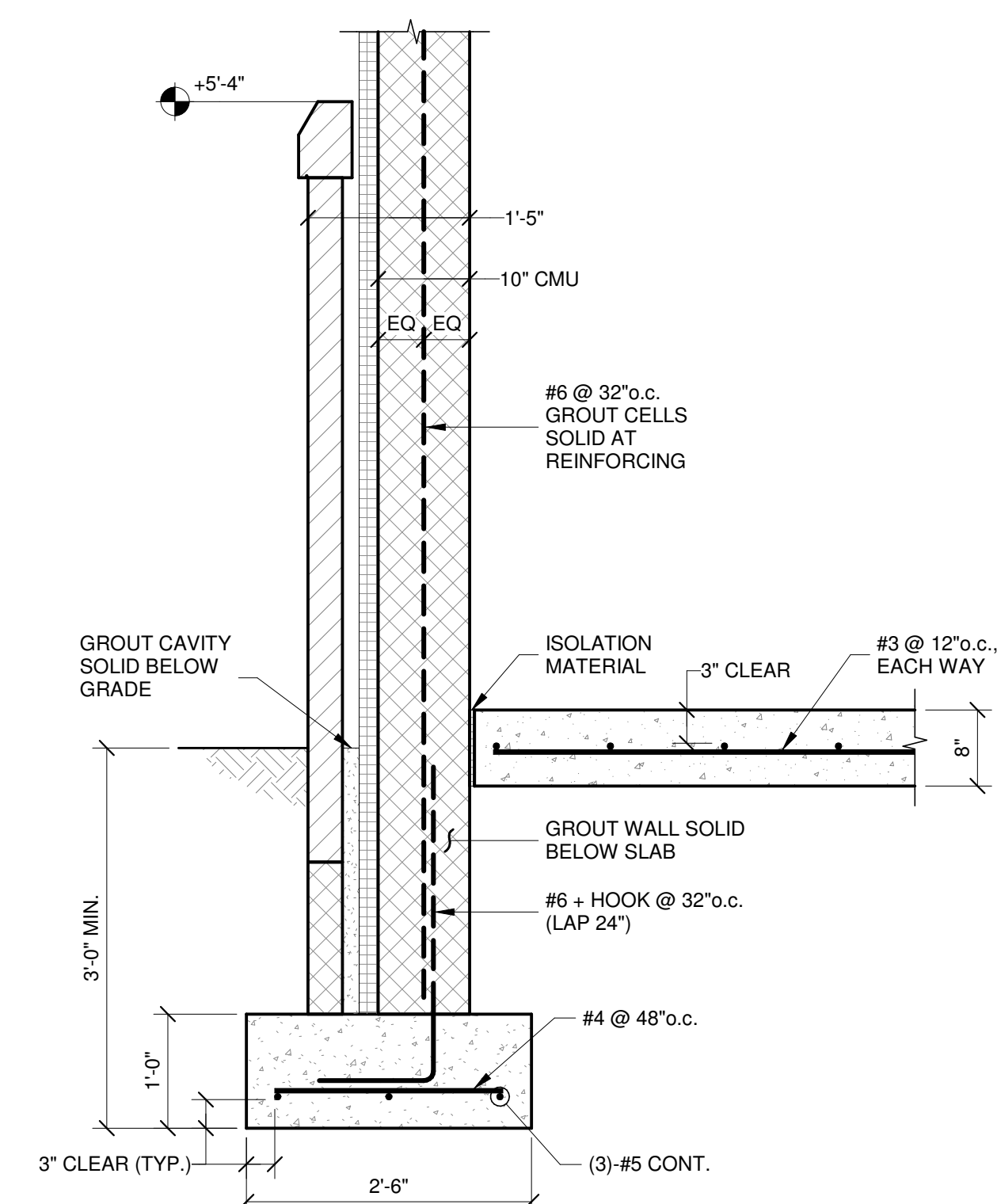
SECTION 10 S401 3/4" = 1'-0"



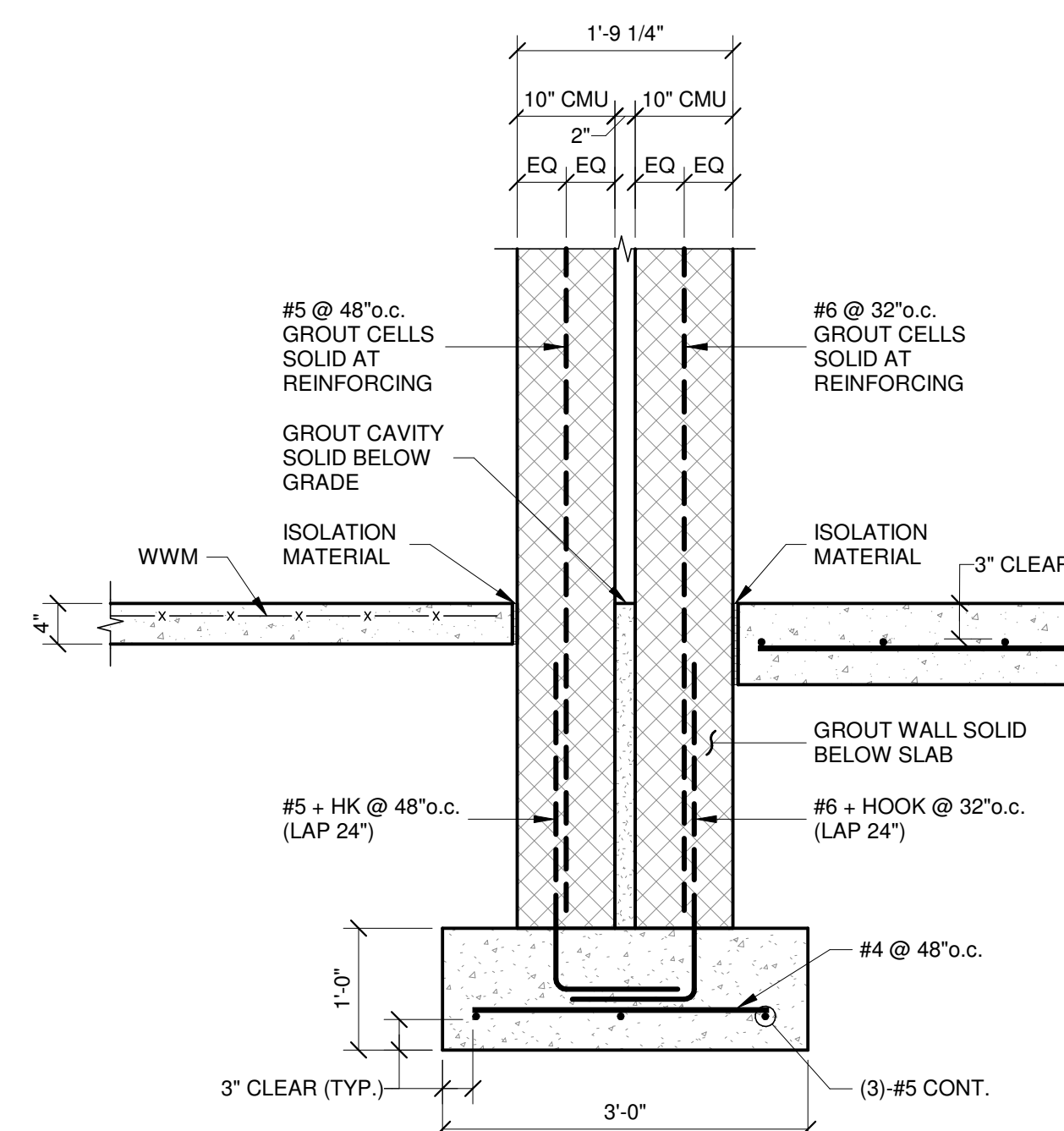
DETAIL A S401 3/4" = 1'-0"



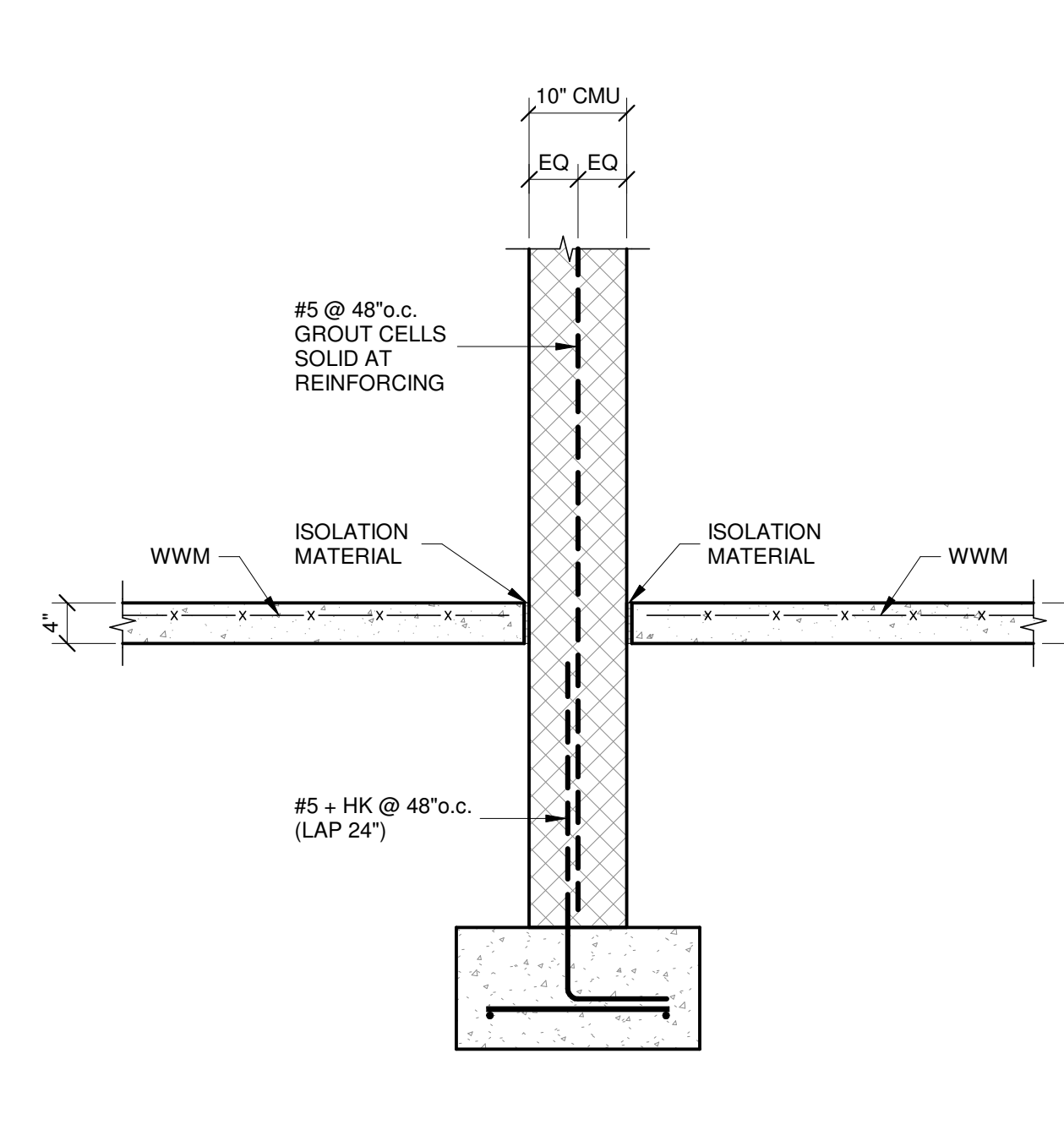
SECTION 1 S401 3/4" = 1'-0"



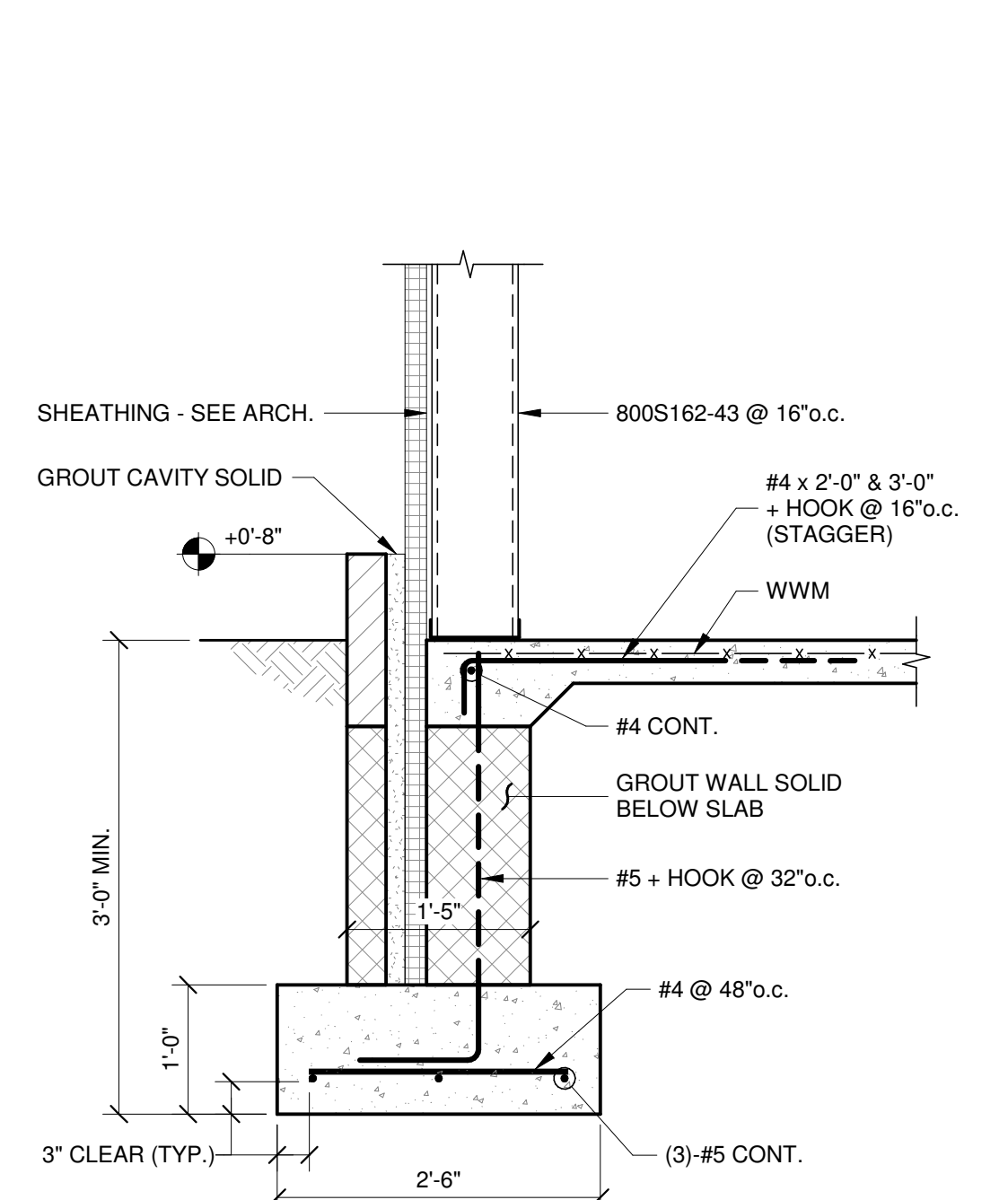
SECTION 2 S401 3/4" = 1'-0"



SECTION 3 S401 3/4" = 1'-0"



SECTION 4 S401 3/4" = 1'-0"



SECTION 5 S401 3/4" = 1'-0"

ALL DRAWINGS ARE PROTECTED BY FEDERAL COPYRIGHT BY MANNS WOODWARD STUDIOS, INC. AND CAN NOT BE REPRODUCED OR MODIFIED IN ANY MANNER WITHOUT WRITTEN PERMISSION. DOCUMENTS MAY NOT BE USED IN PART OR WHOLE TO DEVELOP THE DESIGN OF ANOTHER BUILDING WITHOUT EXPRESS WRITTEN PERMISSION BY MANNS WOODWARD STUDIOS.

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS BOTH THE DRAWINGS AND THE PROJECT MANUAL AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS DRAWINGS AND SPECIFICATIONS. ALL ADDENDA AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCIES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

CONSULTANT: MANN PATEL MILDAN INC. MPM 6511 Harford Road Baltimore, Maryland 21214 Telephone: (410) 264-7600

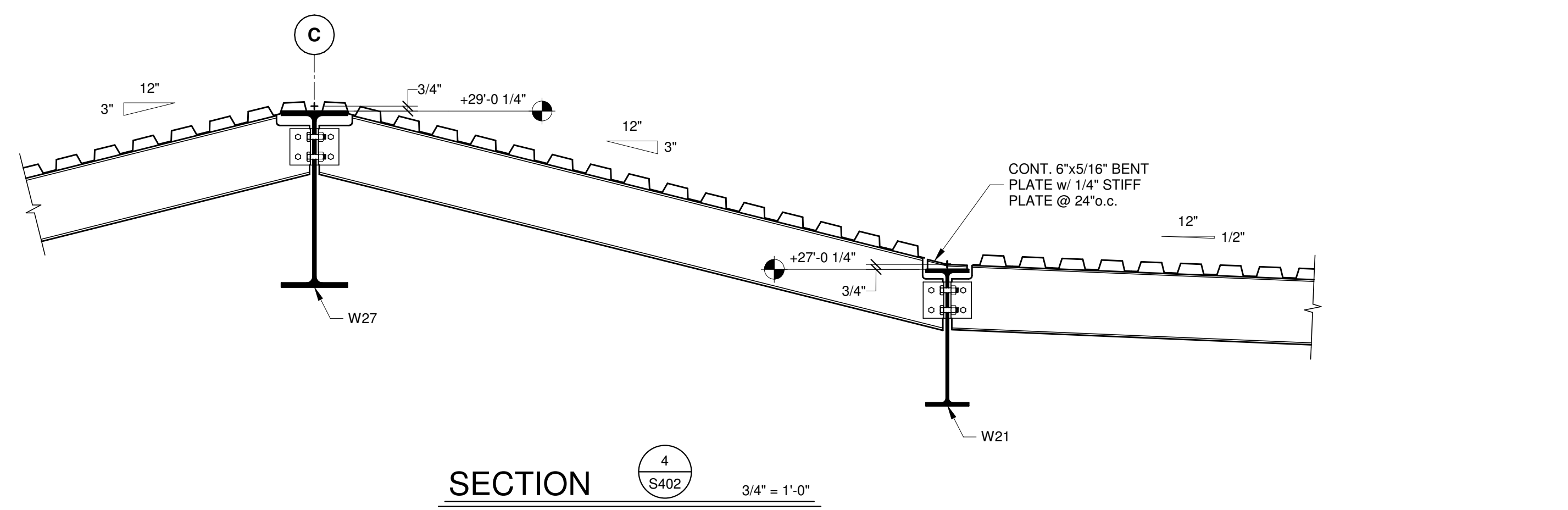
CUMRU FIRE DEPARTMENT PROPOSED WELSH ROAD STATION 1775 WELSH ROAD MOHNTON, PA 19540

NO.	DESCRIPTION	DATE
-----	-------------	------

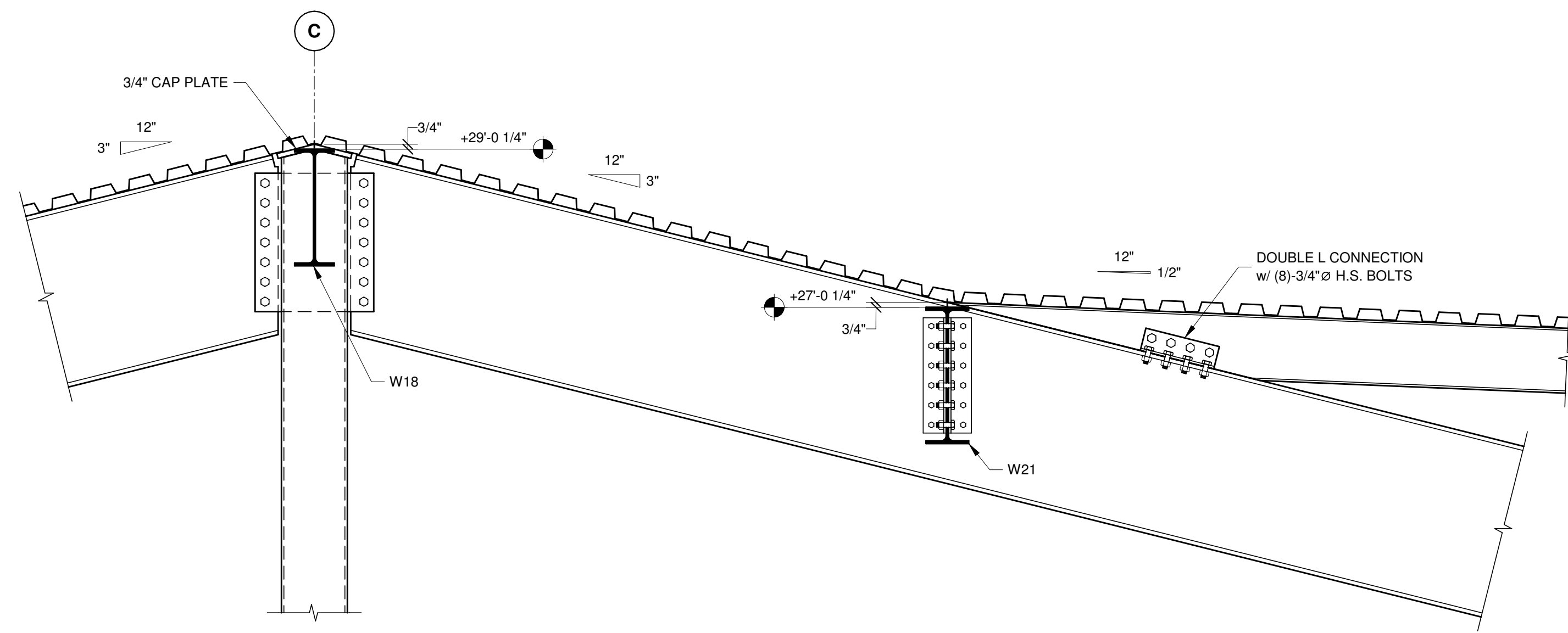
PROJECT 18-036 PROJECT BID SET DATE 11/30/2023

DRAWING SECTIONS

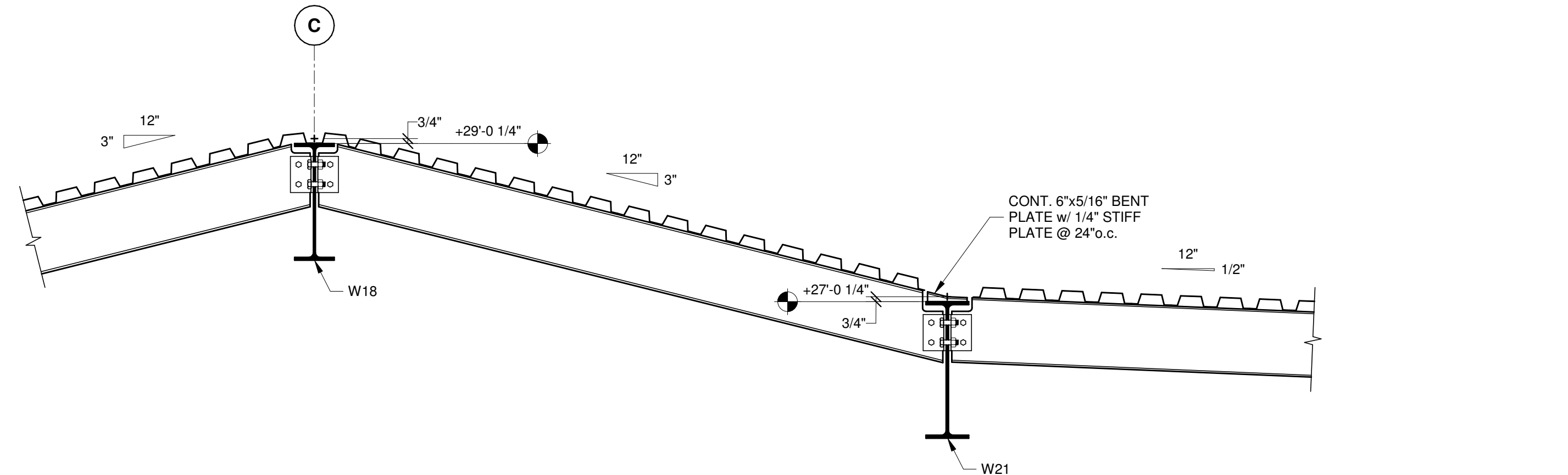
SHEET S401



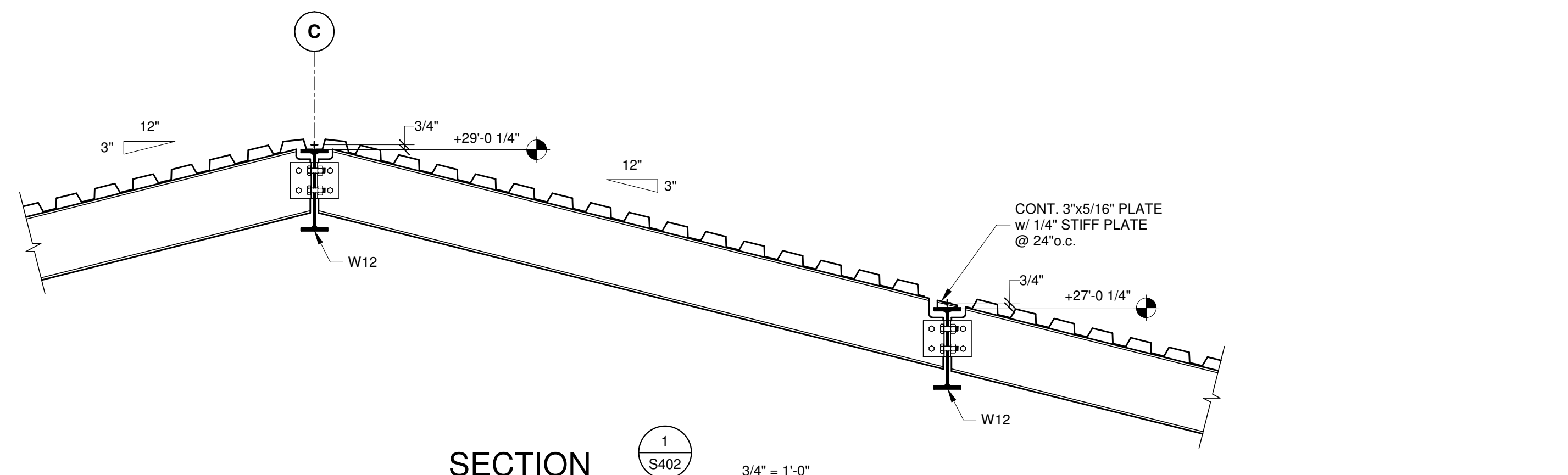
SECTION 4  
S402 3/4" = 1'-0"



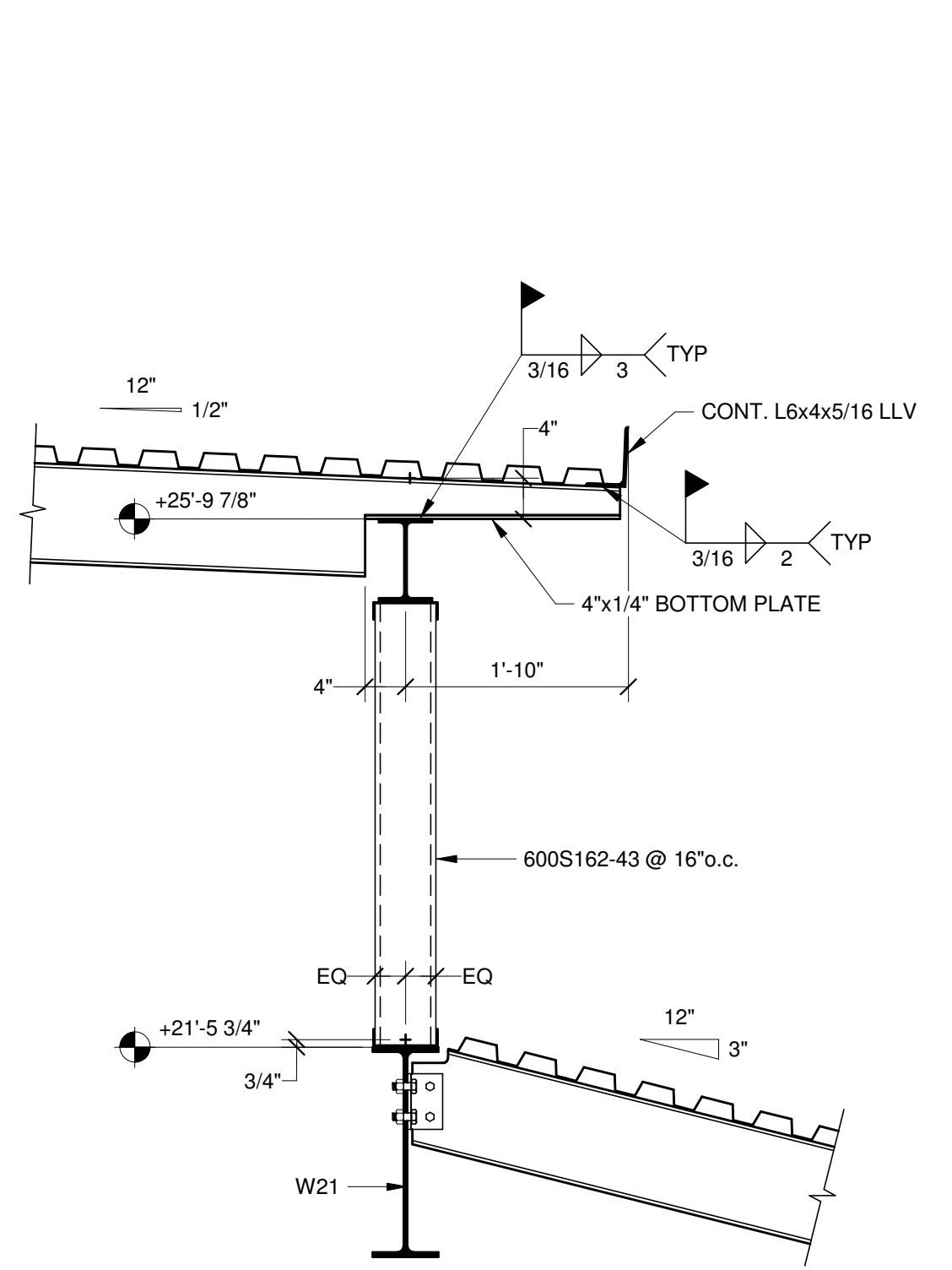
SECTION 3  
S402 3/4" = 1'-0"



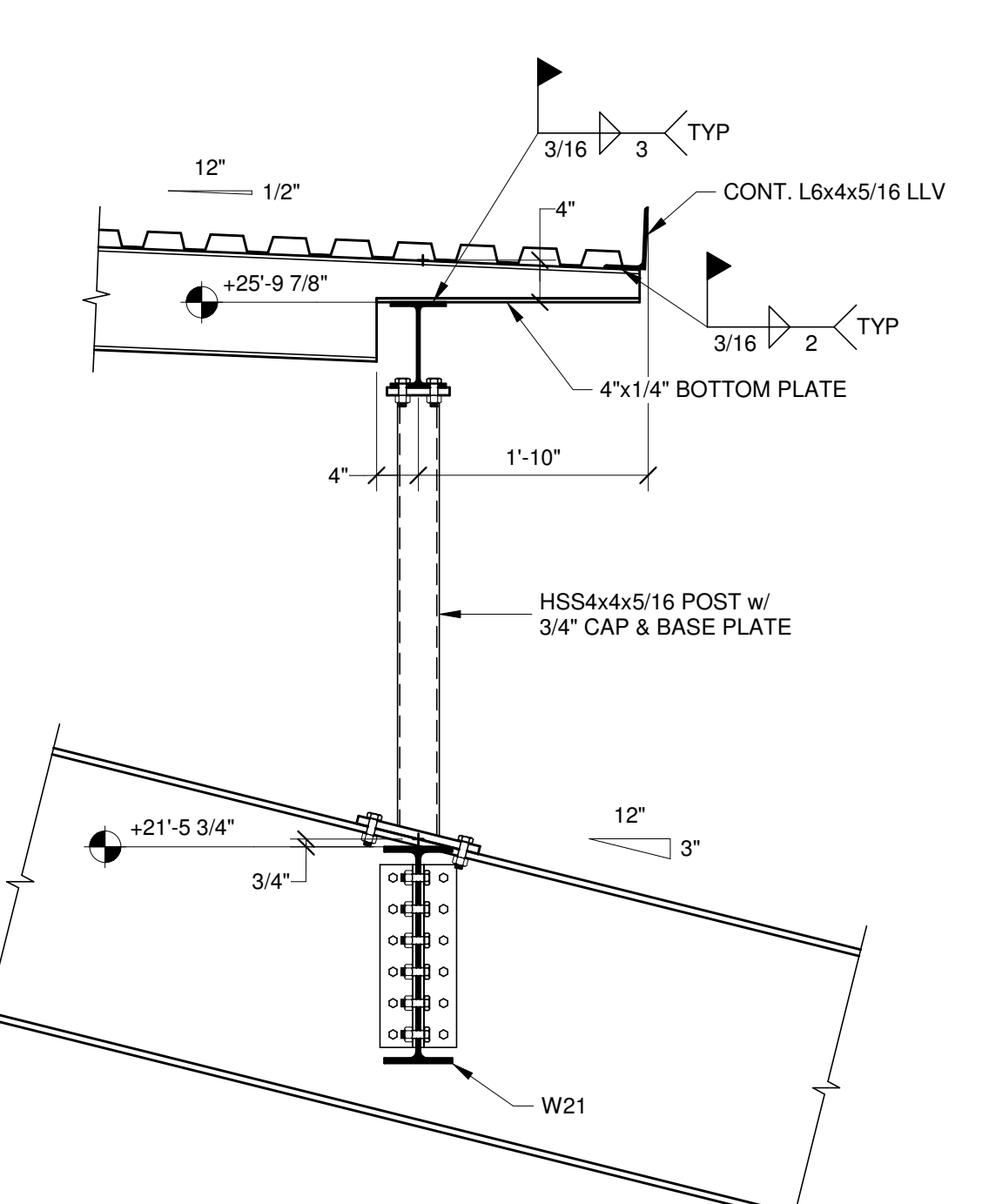
SECTION 2  
S402 3/4" = 1'-0"



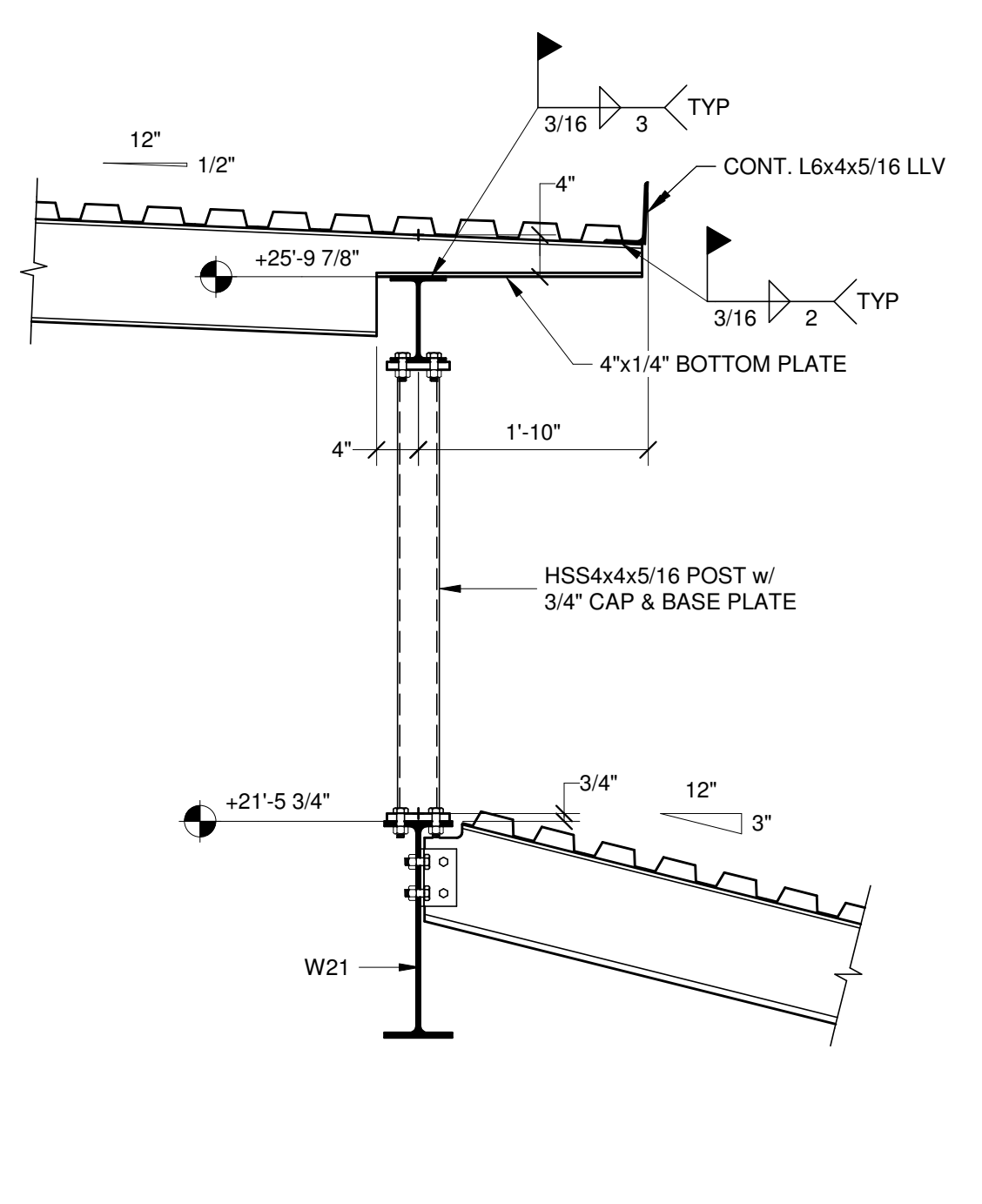
SECTION 1  
S402 3/4" = 1'-0"



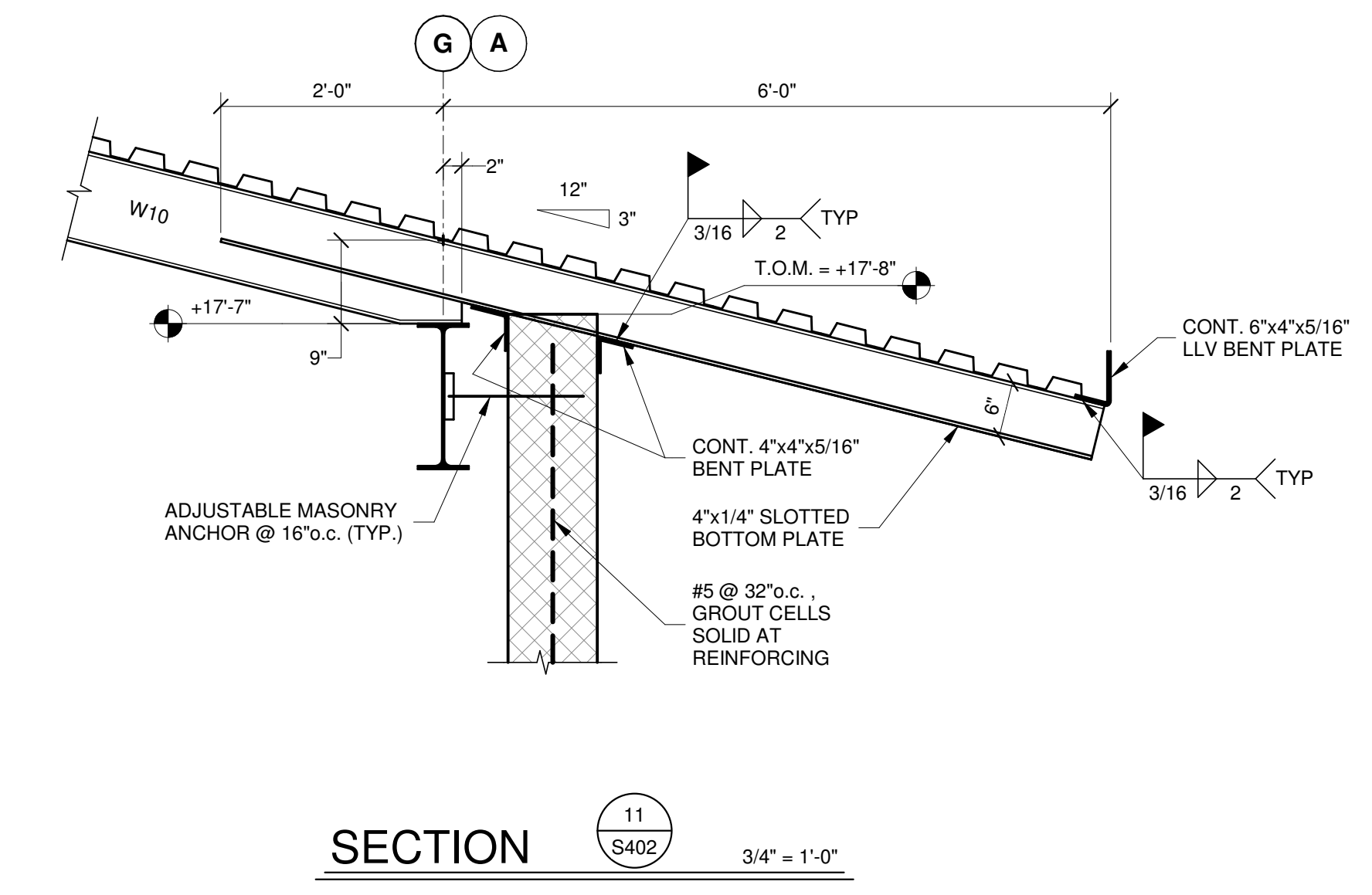
SECTION 7  
S402 3/4" = 1'-0"



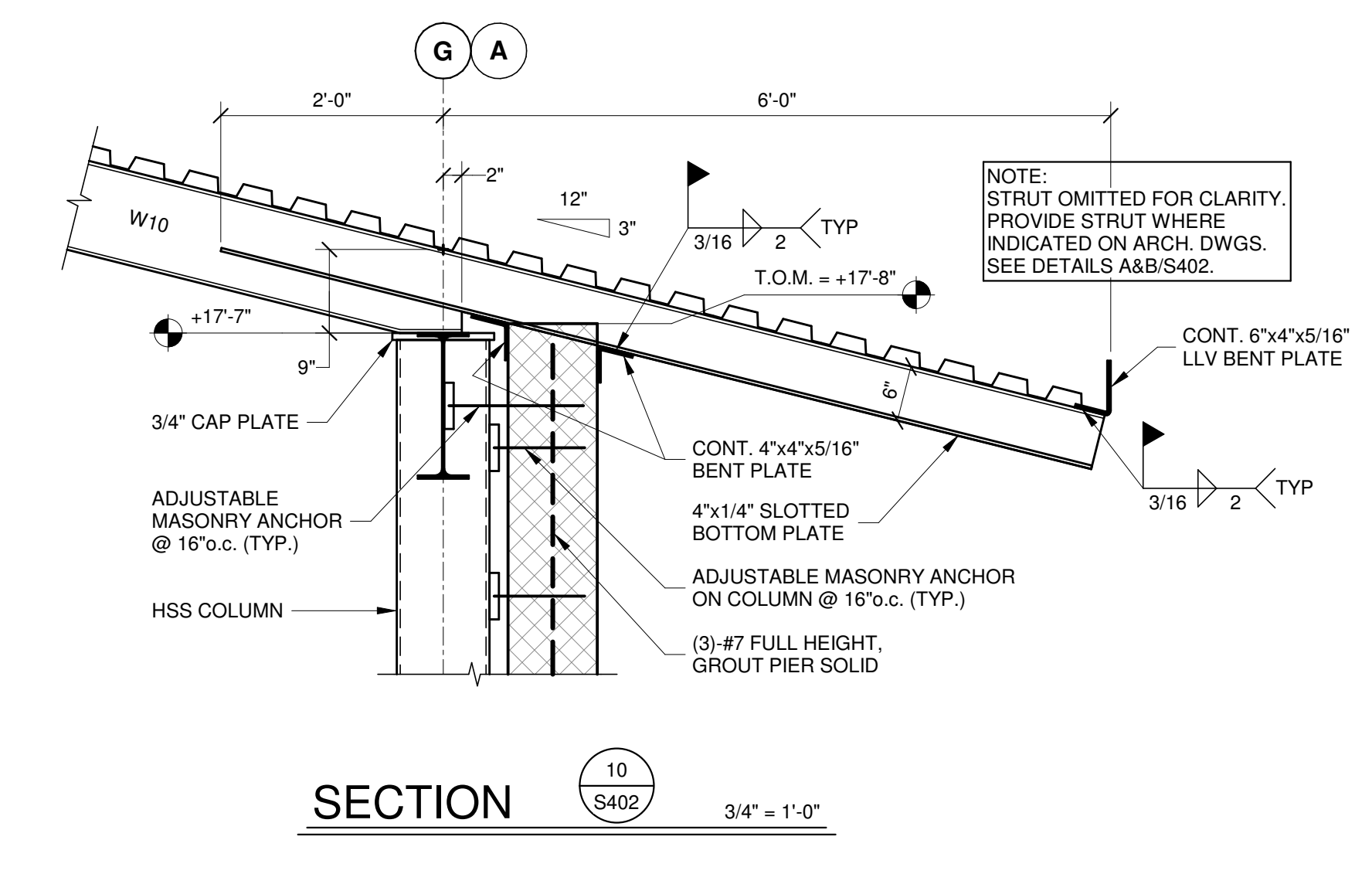
SECTION 6  
S402 3/4" = 1'-0"



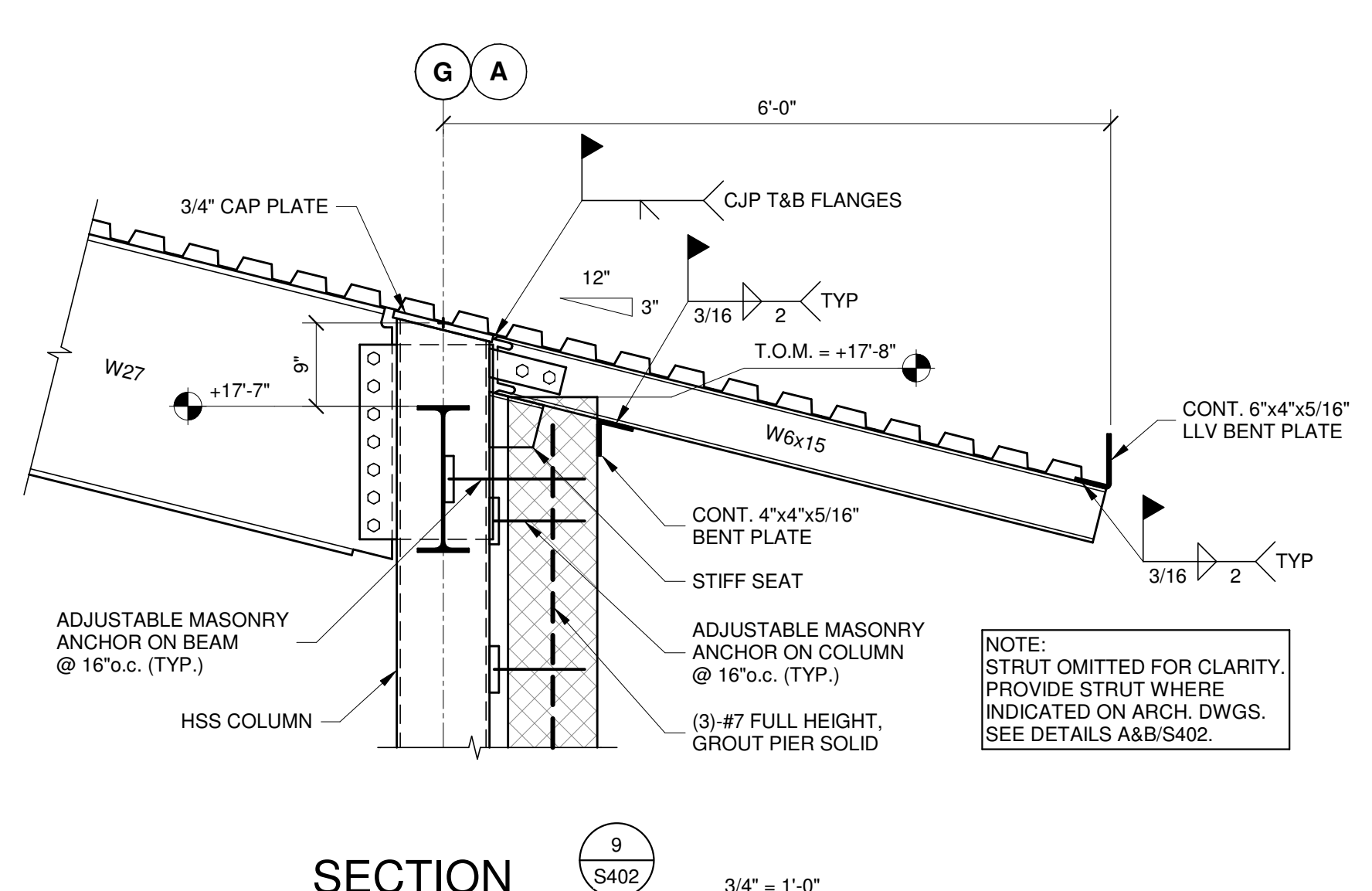
SECTION 5  
S402 3/4" = 1'-0"



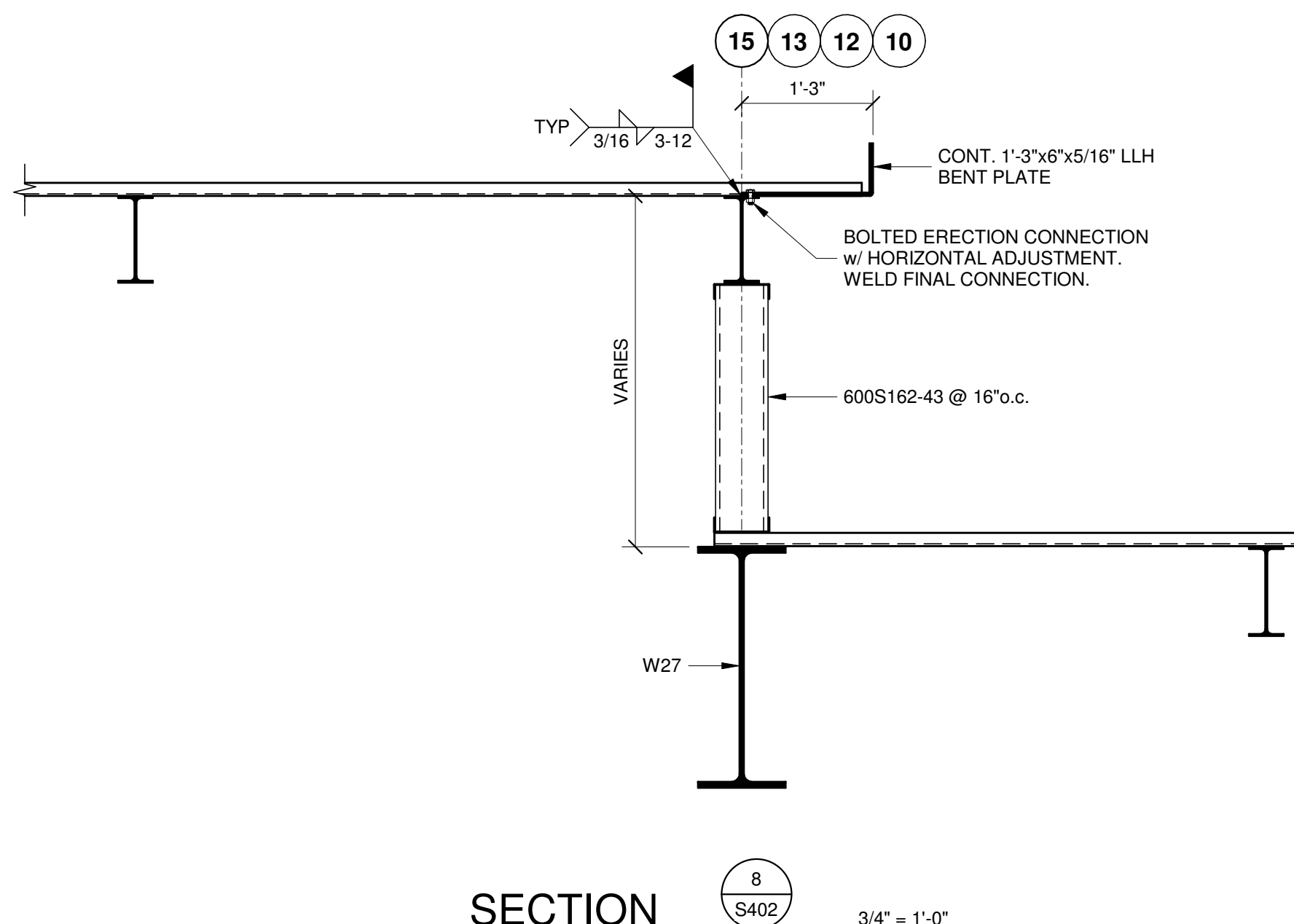
SECTION 11  
S402 3/4" = 1'-0"



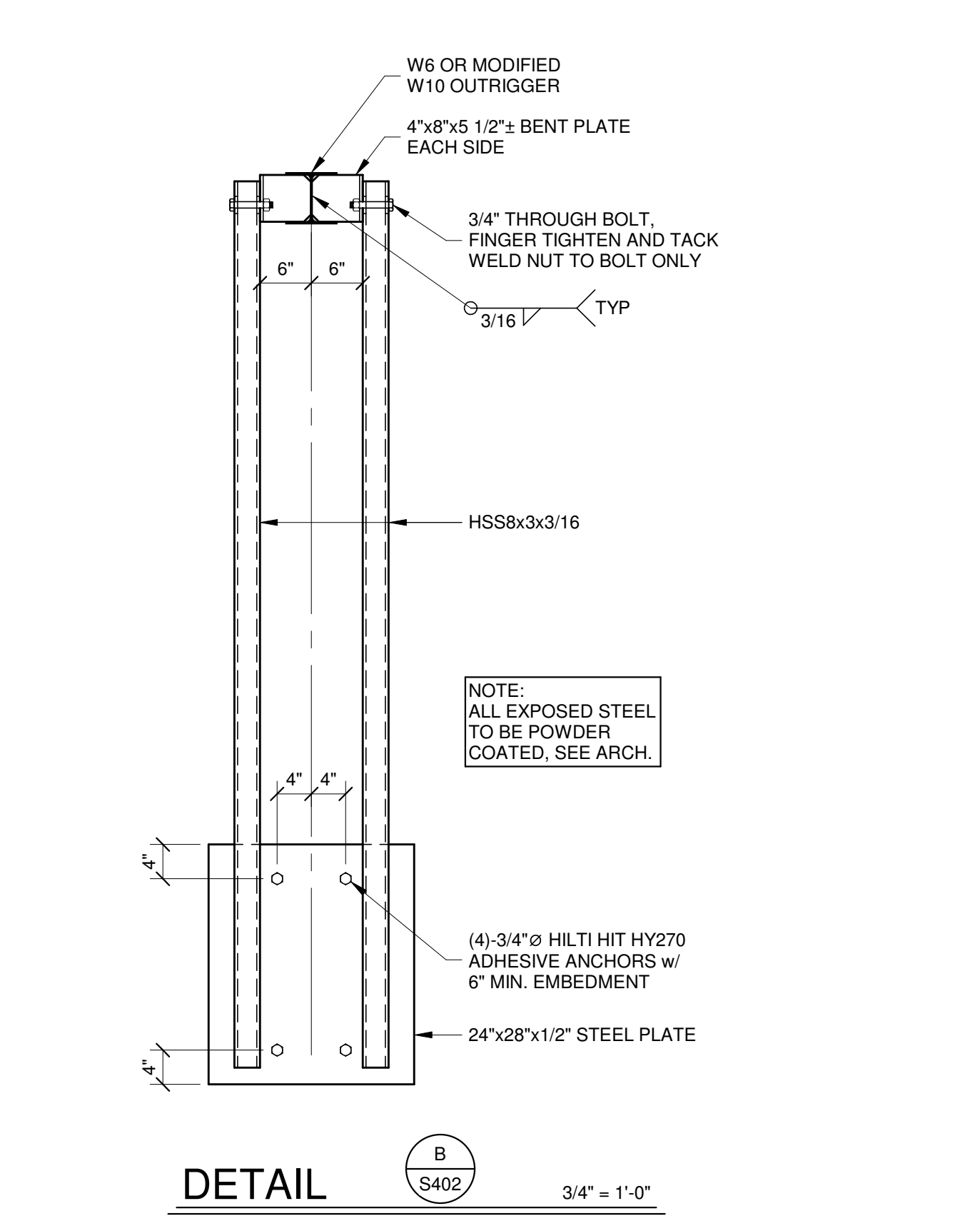
SECTION 10  
S402 3/4" = 1'-0"



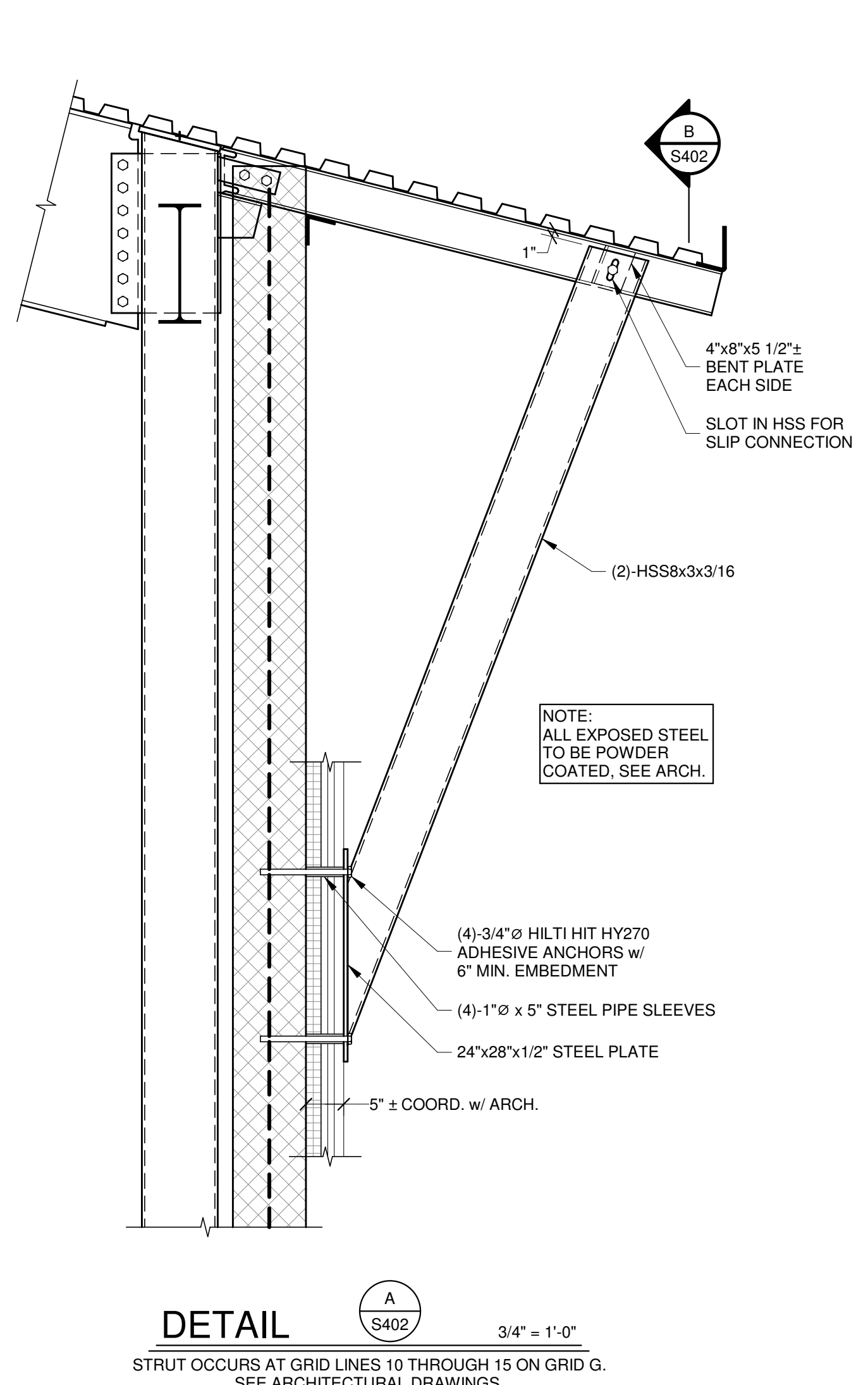
SECTION 9  
S402 3/4" = 1'-0"



SECTION 8  
S402 3/4" = 1'-0"



DETAIL B  
S402 3/4" = 1'-0"



DETAIL A  
S402 3/4" = 1'-0"

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS BOTH THE DRAWINGS AND THE PROJECT MANUAL AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS DRAWINGS & SPECIFICATIONS. ALL ADDENDA AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCIES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

**CUMRU FIRE DEPARTMENT  
PROPOSED WELSH ROAD STATION  
1775 WELSH ROAD  
MOHNTON, PA 19540**

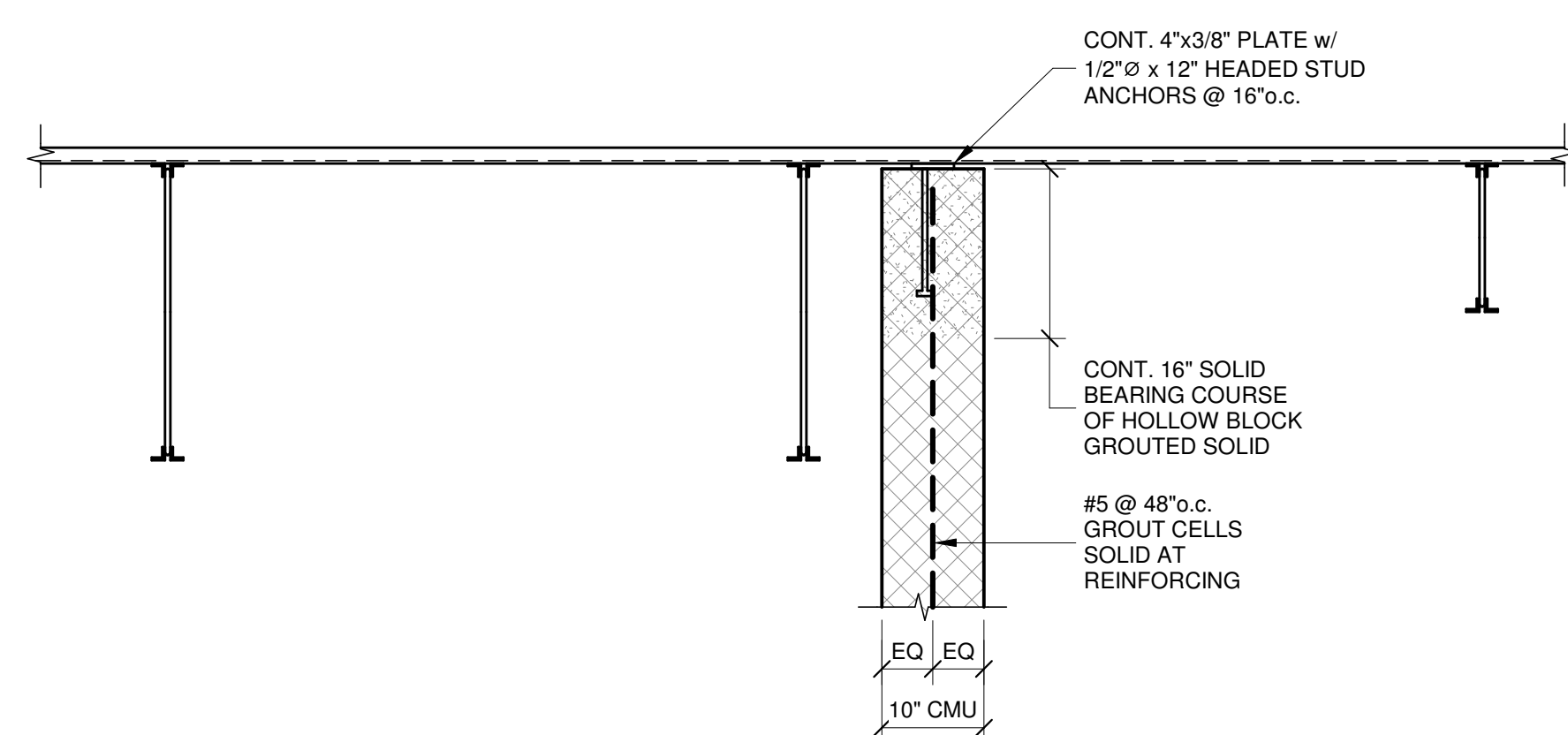
NO.	DESCRIPTION	DATE

PROJECT 18-036
PROJECT BID SET
DATE 11/30/2023

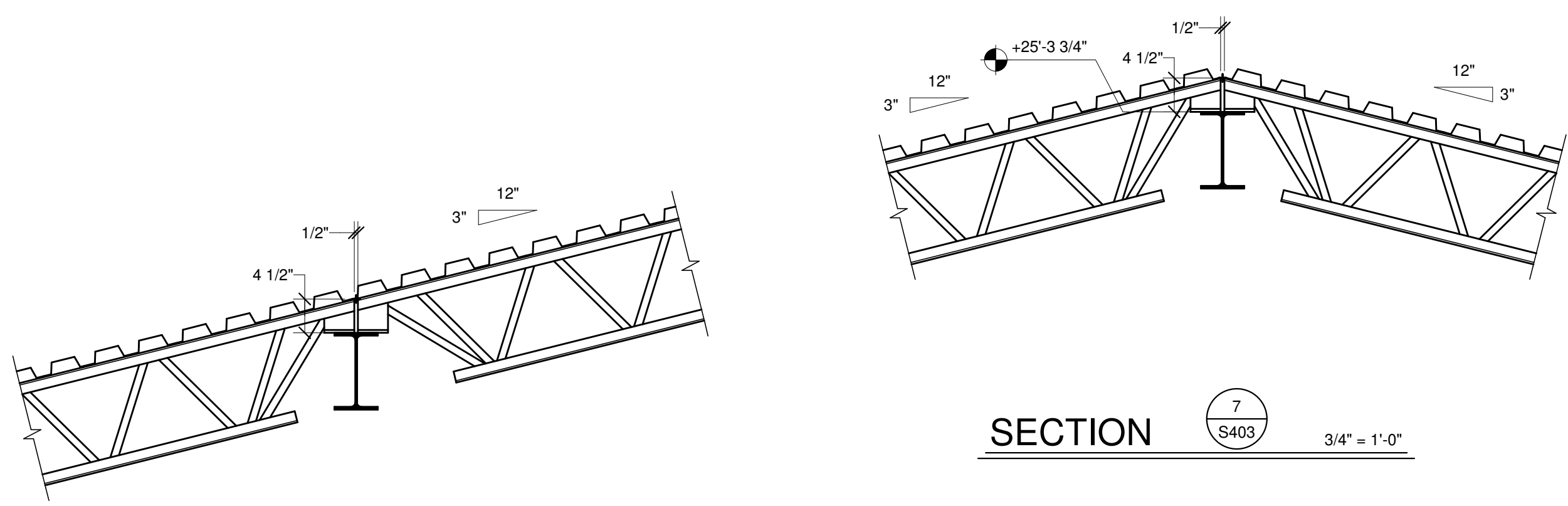
DRAWING SECTIONS
SHEET

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS BOTH THE DRAWINGS AND THE PROJECT MANUAL AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS DRAWINGS & SPECIFICATIONS. ALL ADDENDA AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCIES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

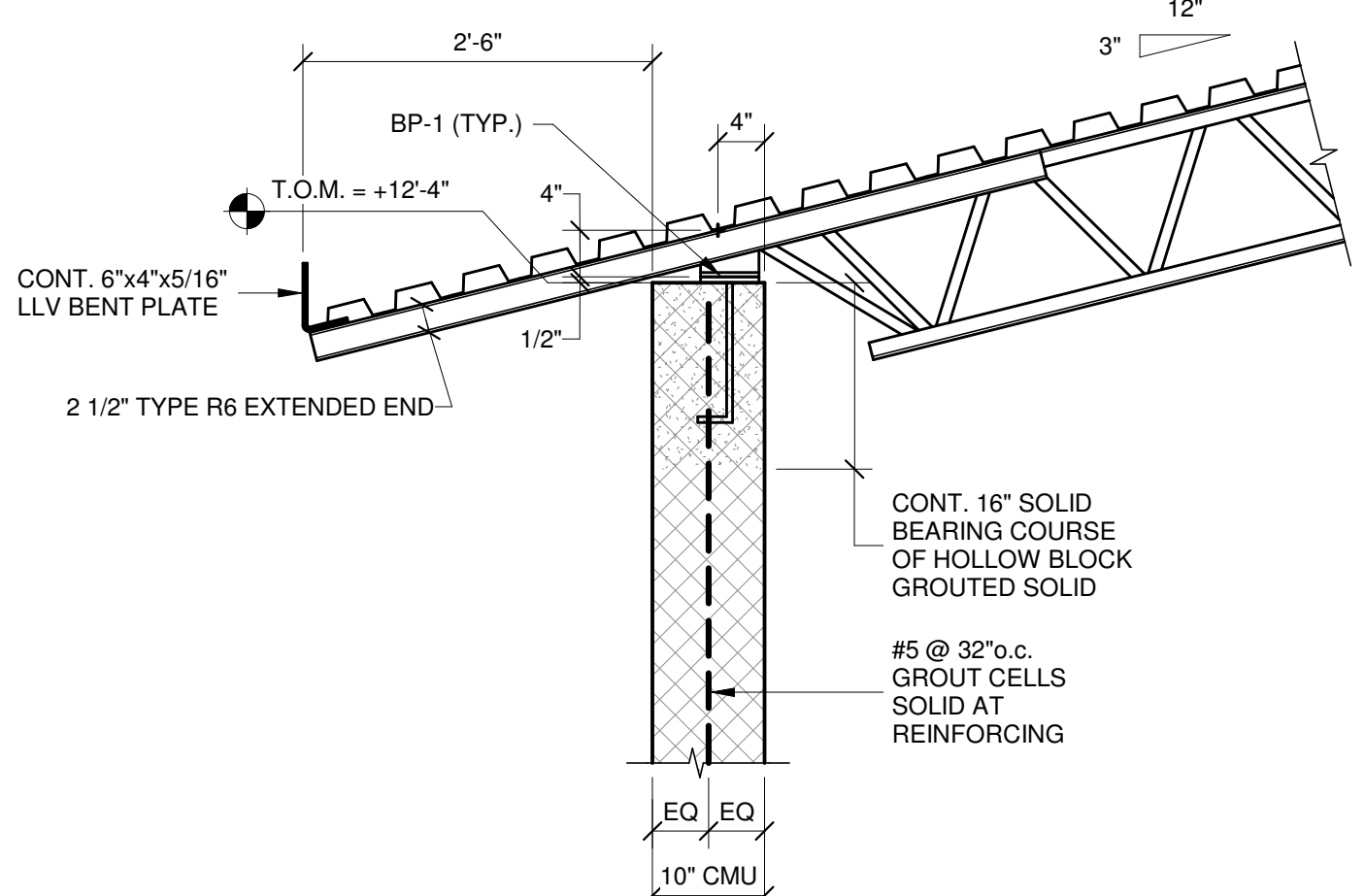
CONSULTANT:  
**MPM**  
 MANAN PATEL, PH.D., AIA, LEED AP  
 Consulting, Architectural, Planning  
 6511 Harford Road  
 Baltimore, Maryland 21214  
 Telephone: (410) 254-7600



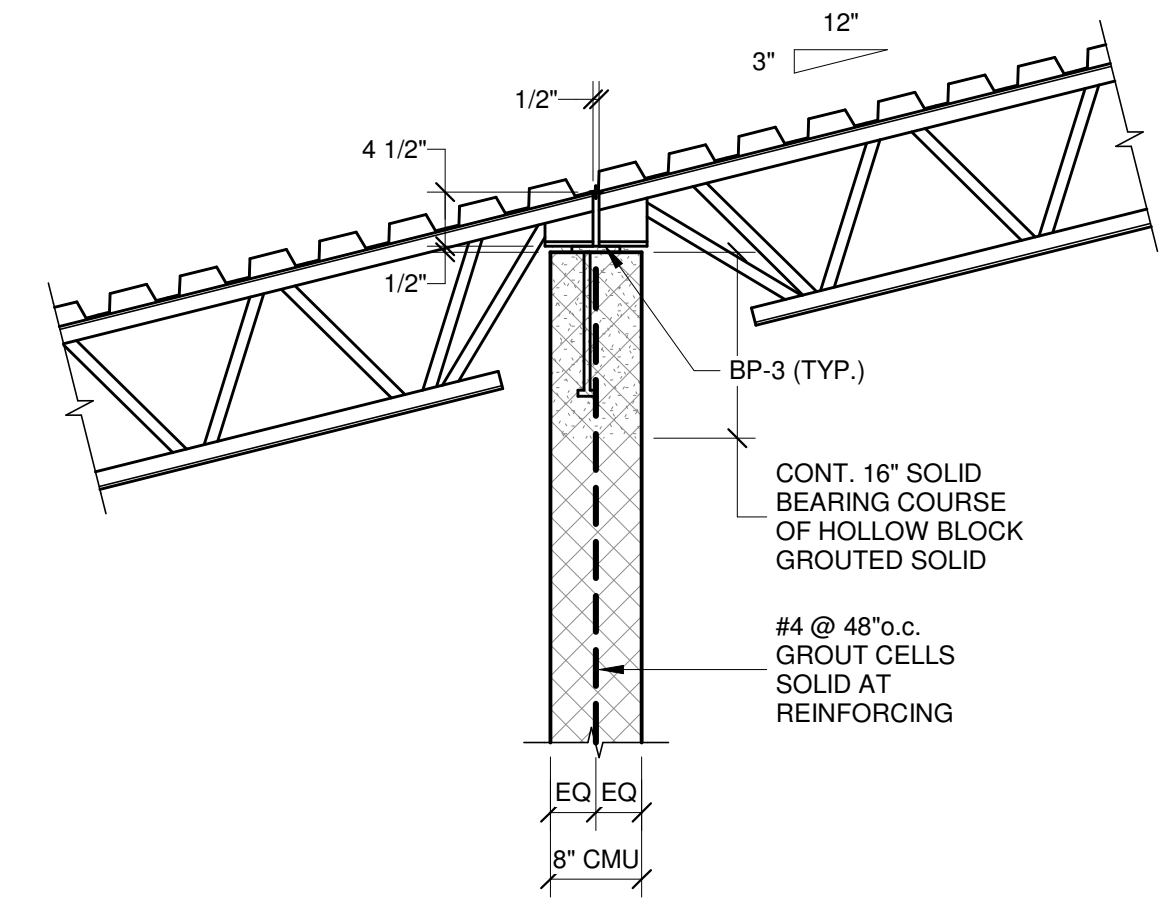
SECTION 11 S403 3/4" = 1'-0"



SECTION 7 S403 3/4" = 1'-0"

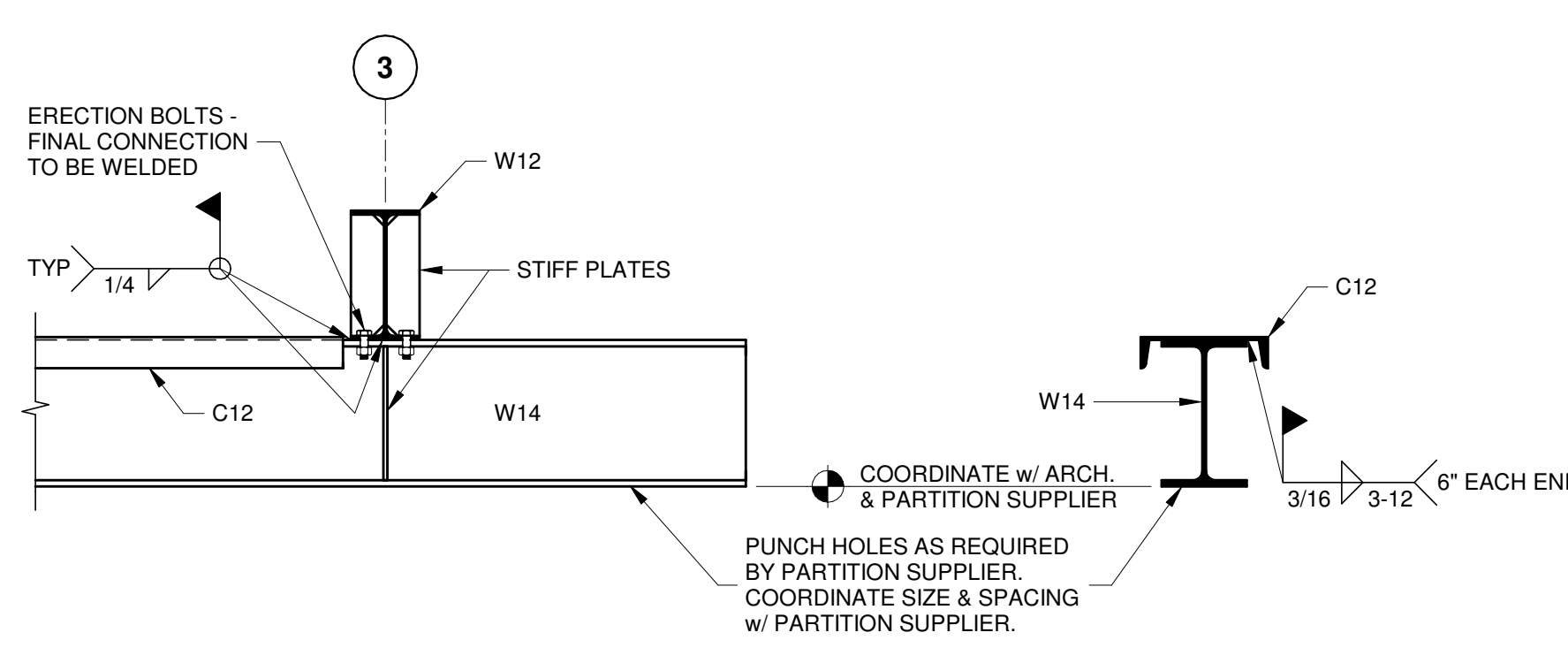


SECTION 4 S403 3/4" = 1'-0"

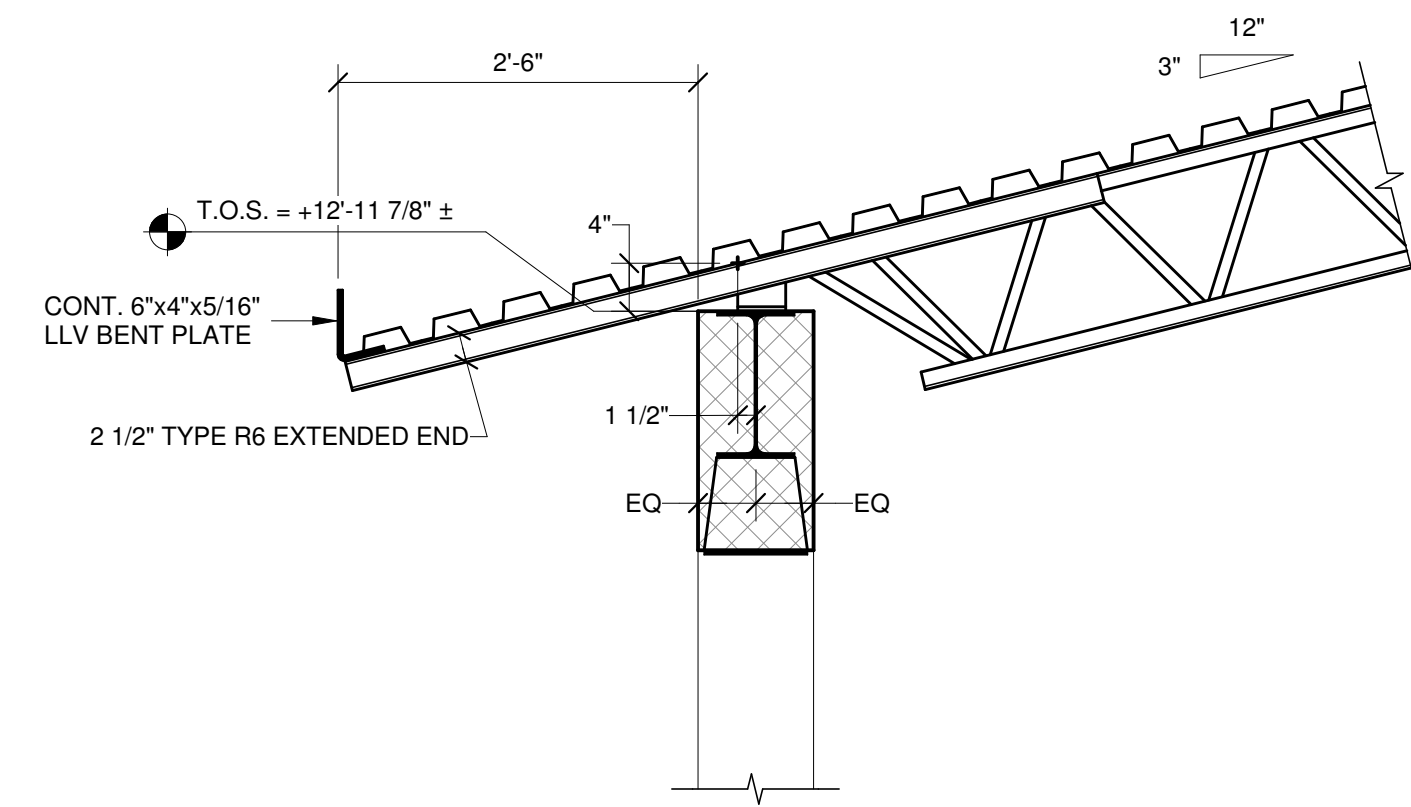


SECTION 5A S403 3/4" = 1'-0"

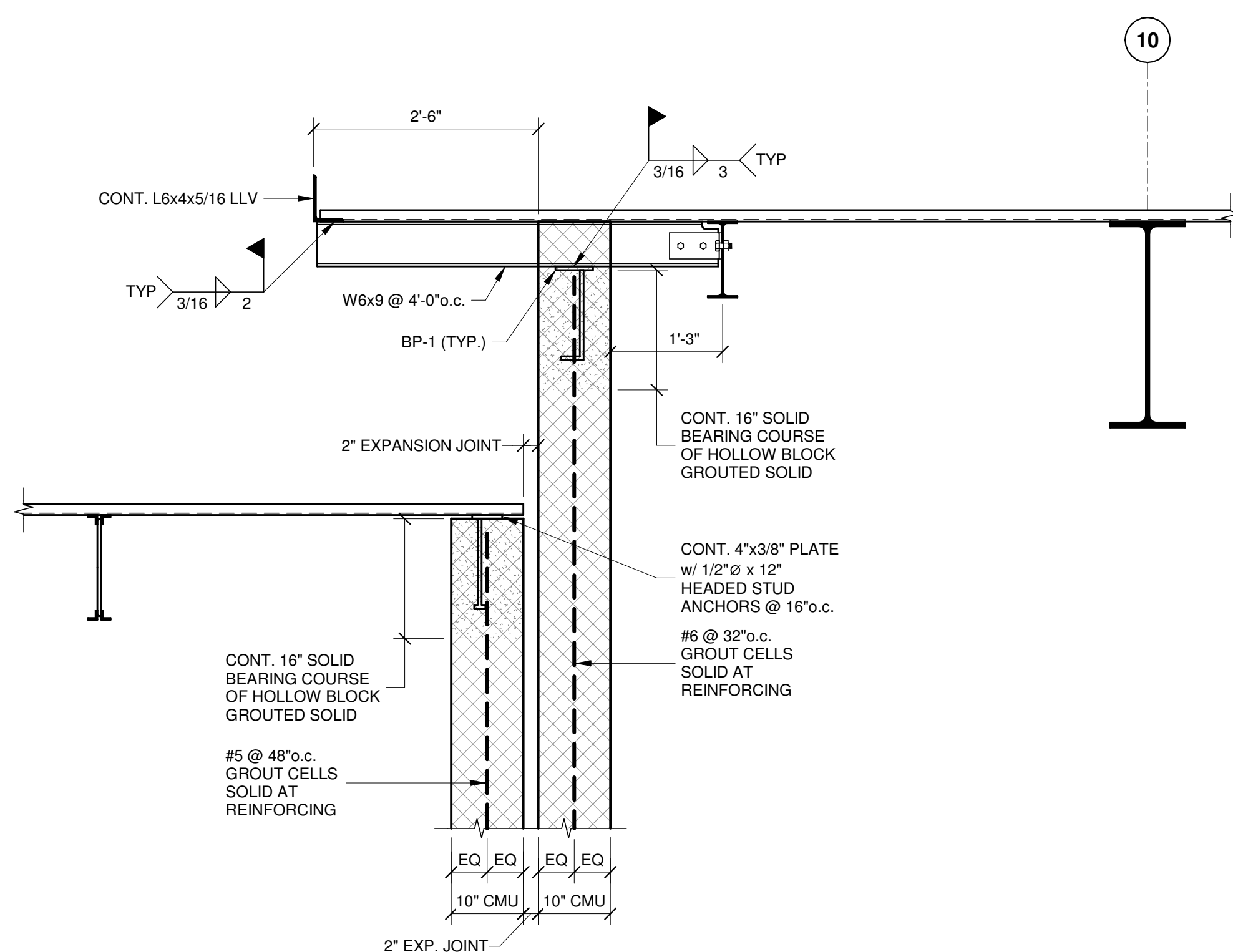
SECTION 6 S403 3/4" = 1'-0"



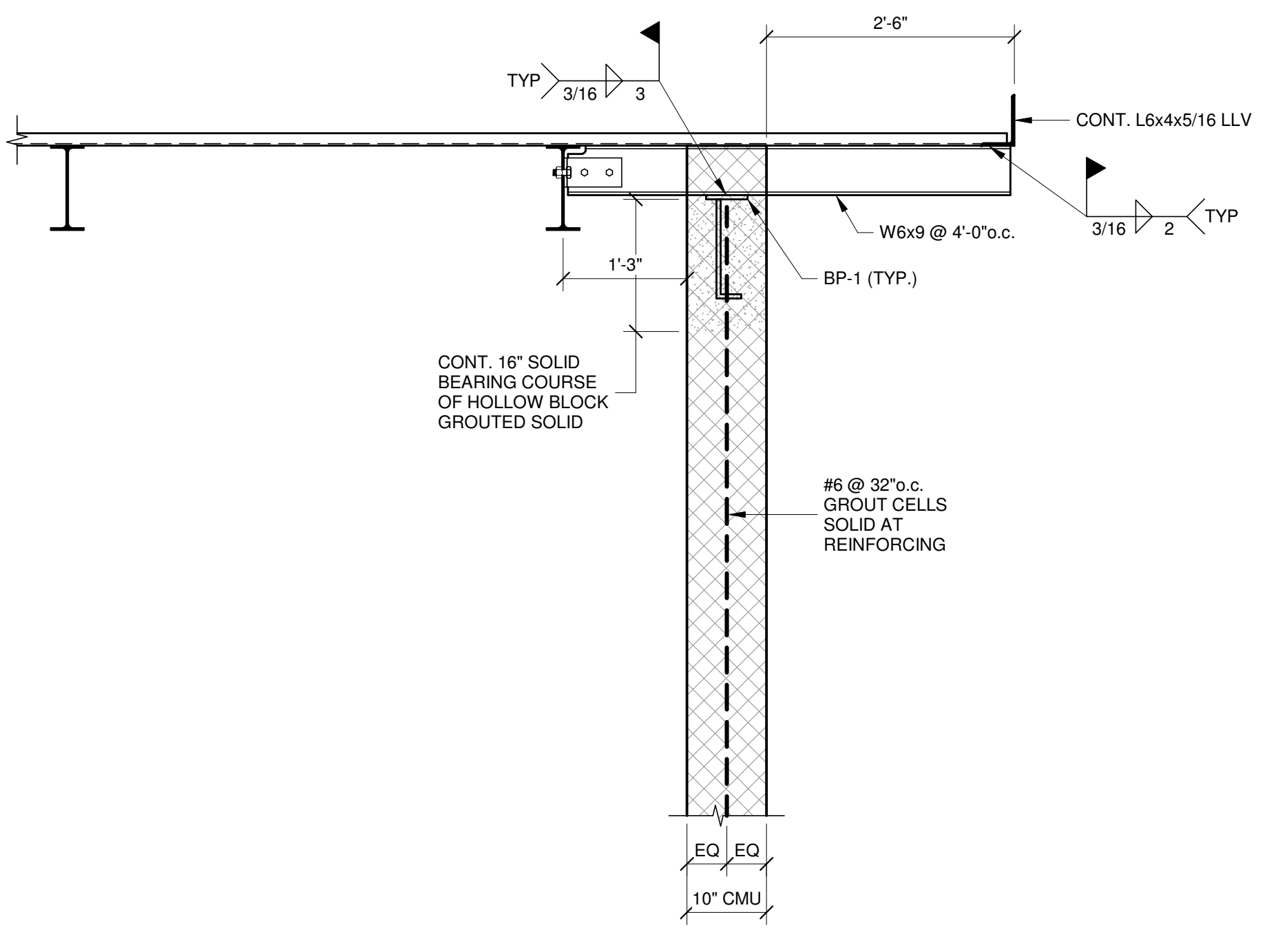
SECTION 3 S403 3/4" = 1'-0"



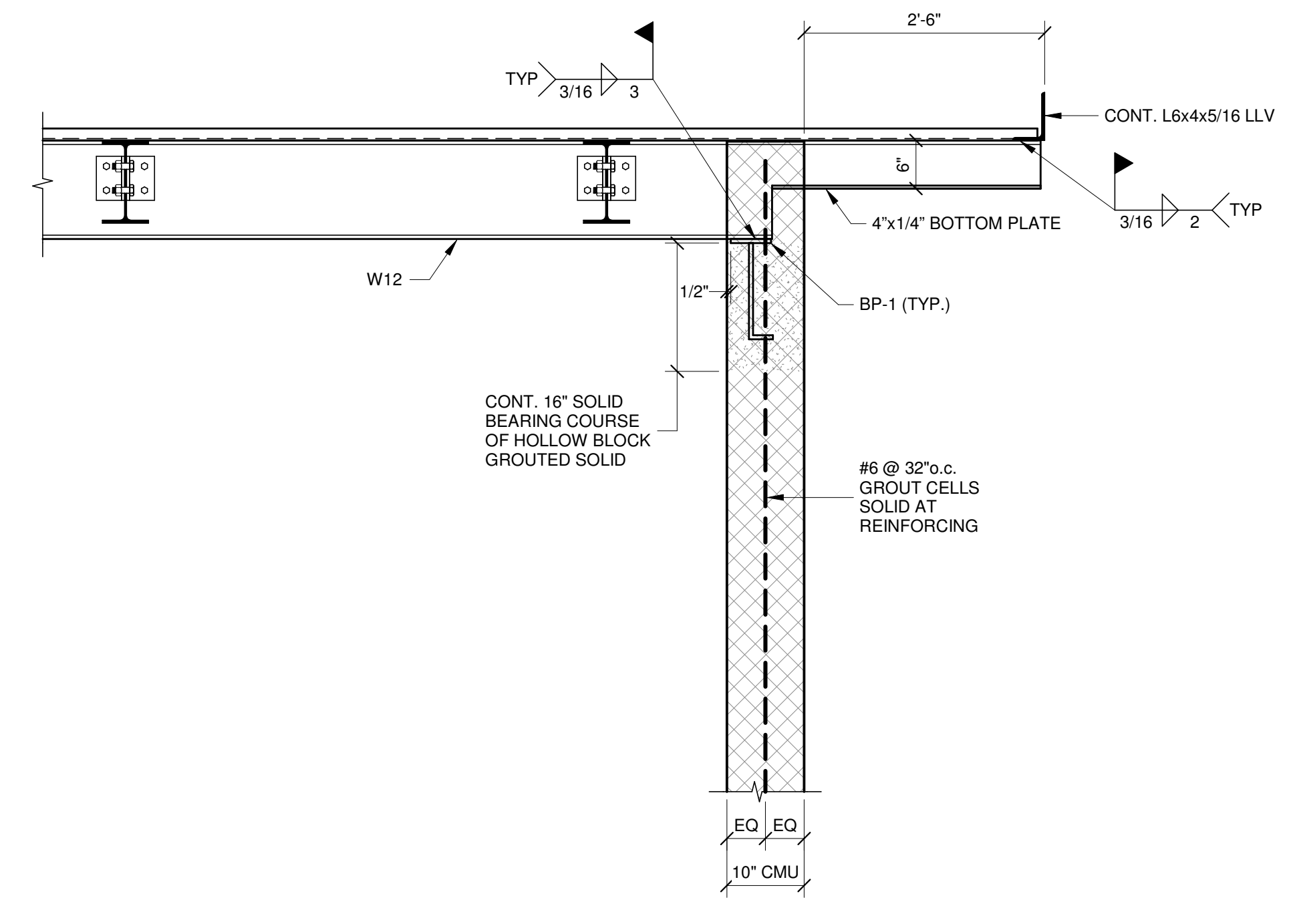
SECTION 10 S403 3/4" = 1'-0"



SECTION 1 S403 3/4" = 1'-0"



SECTION 2 S403 3/4" = 1'-0"



SECTION 3 S403 3/4" = 1'-0"

CUMRU FIRE DEPARTMENT  
 PROPOSED WELSH ROAD STATION  
 1775 WELSH ROAD  
 MOHNTON, PA 19540

NO.	DESCRIPTION	DATE
PROJECT	18-036	
PROJECT	BID SET	
DATE	11/30/2023	
DRAWING	SECTIONS	
SHEET	S403	

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS BOTH THE DRAWINGS AND THE PROJECT MANUAL AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED COMPLETE AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS DRAWINGS & SPECIFICATIONS. ALL ADDENDA AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCIES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

CONSULTANT:  
**MPM**  
MICHAEL PATRICK MULLAND, INC.  
6511 Harford Road  
Baltimore, Maryland 21214  
Telephone: (410) 264-7500

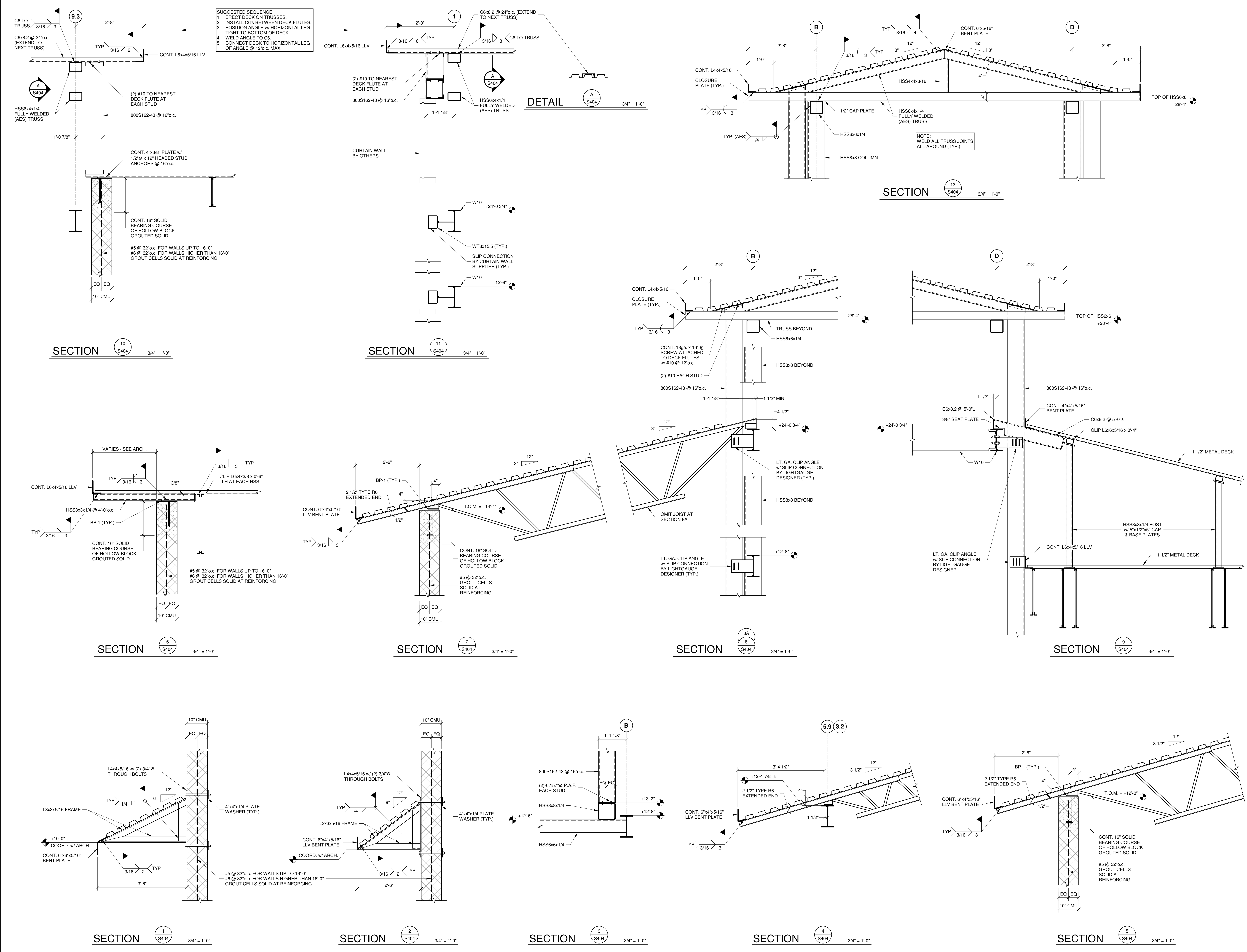
**CUMRU FIRE DEPARTMENT**  
**PROPOSED WELSH ROAD STATION**  
1775 WELSH ROAD  
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

PROJECT 18-036  
PROJECT BID SET  
DATE 11/30/2023  
DRAWING SECTIONS  
SHEET

**S404**  
MPM #18150

11/28/2023 6:10:13 AM



THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS BOTH THE DRAWINGS AND THE PROJECT MANUAL AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS DRAWINGS & SPECIFICATIONS. ALL ADDENDA AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCIES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

CONSULTANT:  
MANOJ PATEL, M.I.L.A.N.D., A.Y.P.  
**MPM**  
6511 Harford Road  
Baltimore, Maryland 21214  
Telephone: (410) 264-7600

CUMRU FIRE DEPARTMENT  
PROPOSED WELSH ROAD STATION  
1775 WELSH ROAD  
MOHNTON, PA 19540

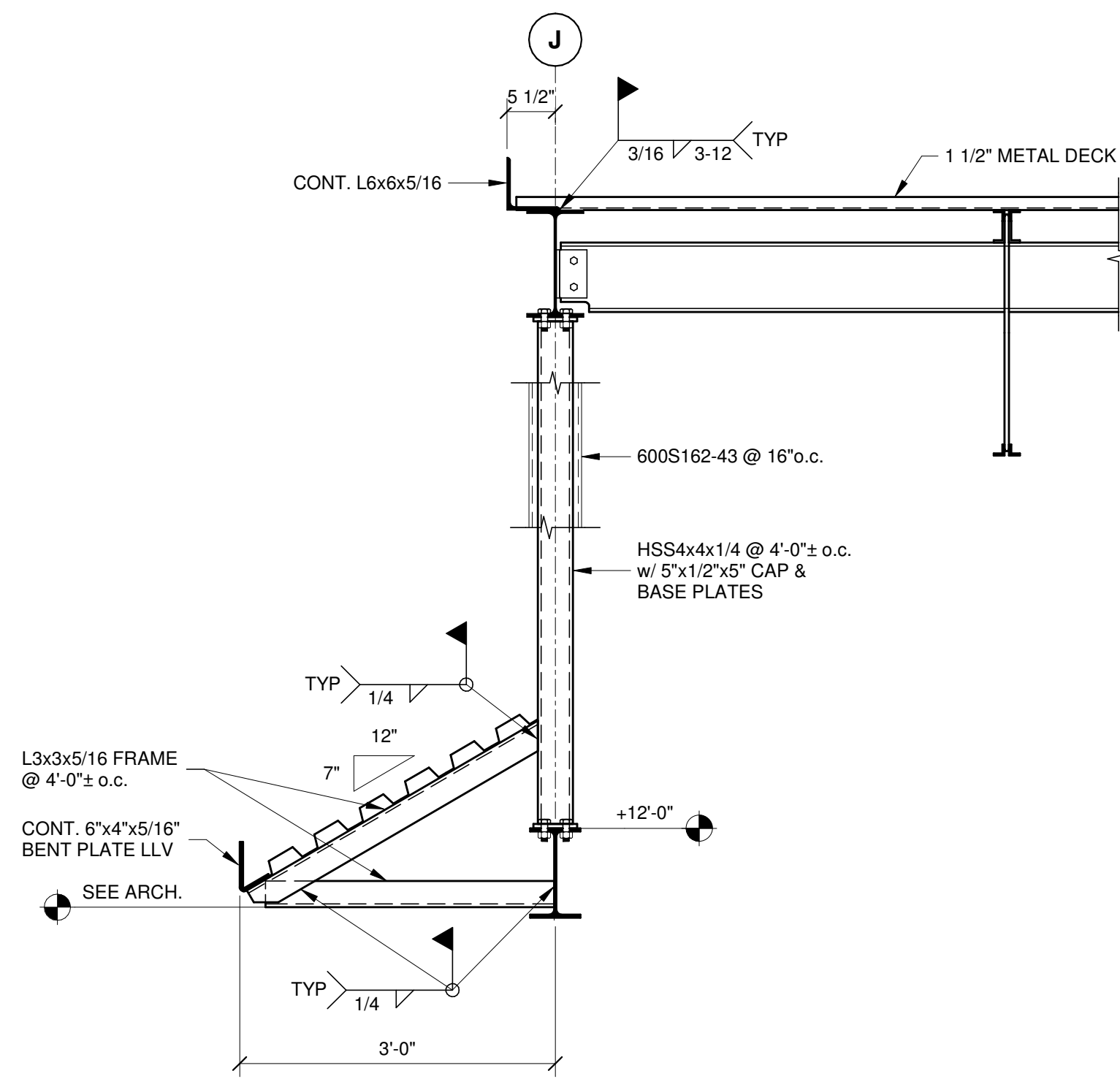
NO.	DESCRIPTION	DATE

PROJECT 18-036  
PROJECT BID SET  
DATE 11/30/2023

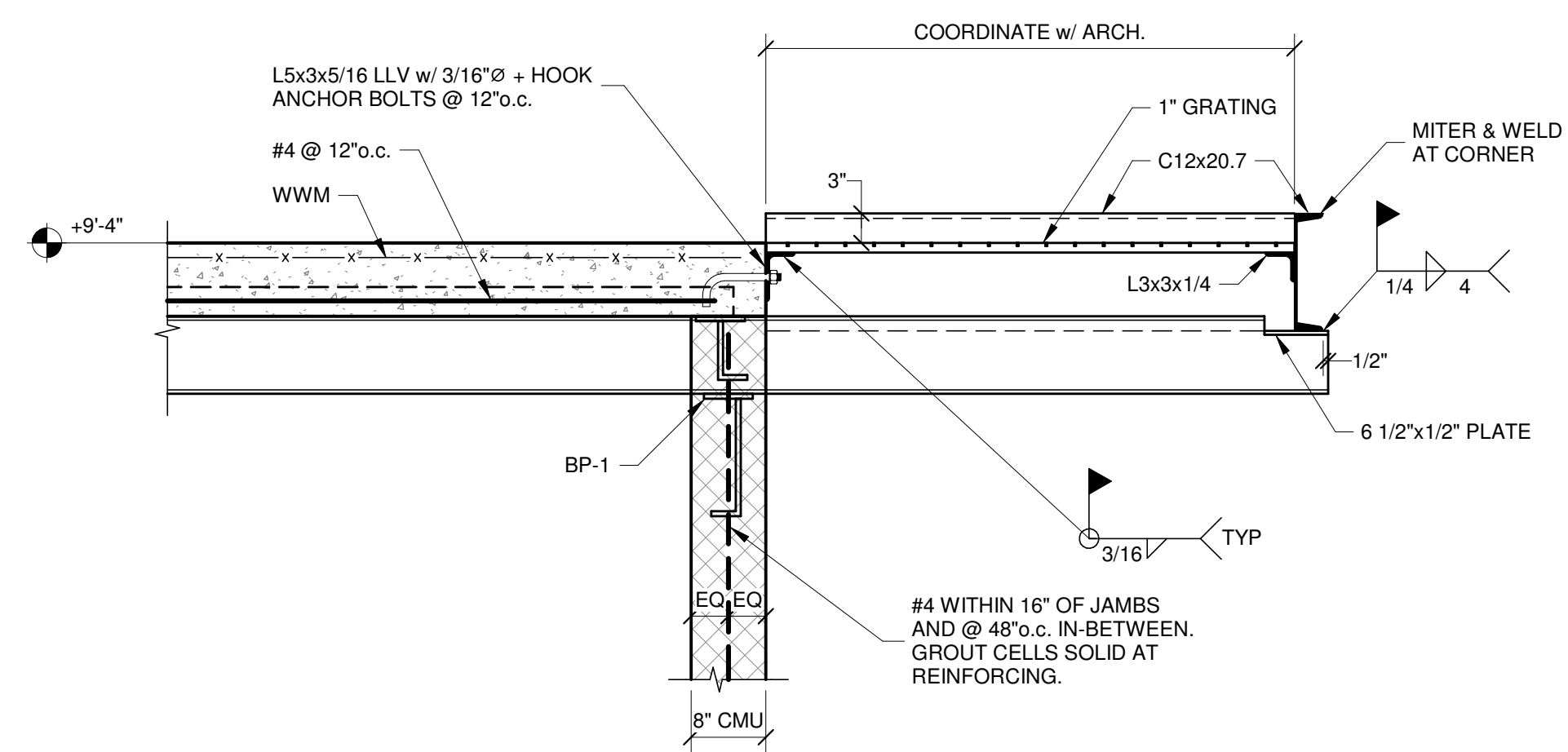
DRAWING SECTIONS  
SHEET S405

MPM #18150

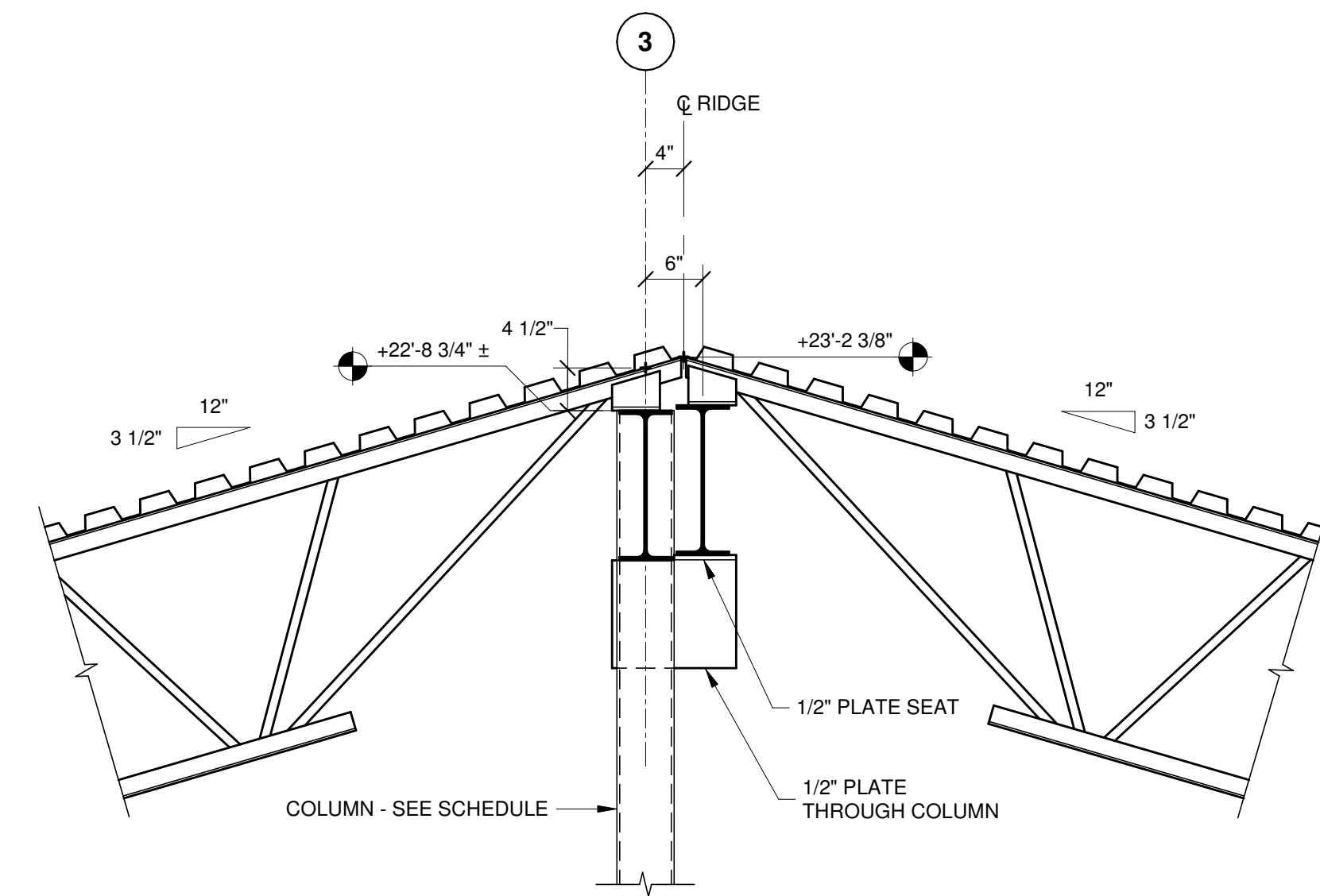
11/28/2023 6:10:16 AM



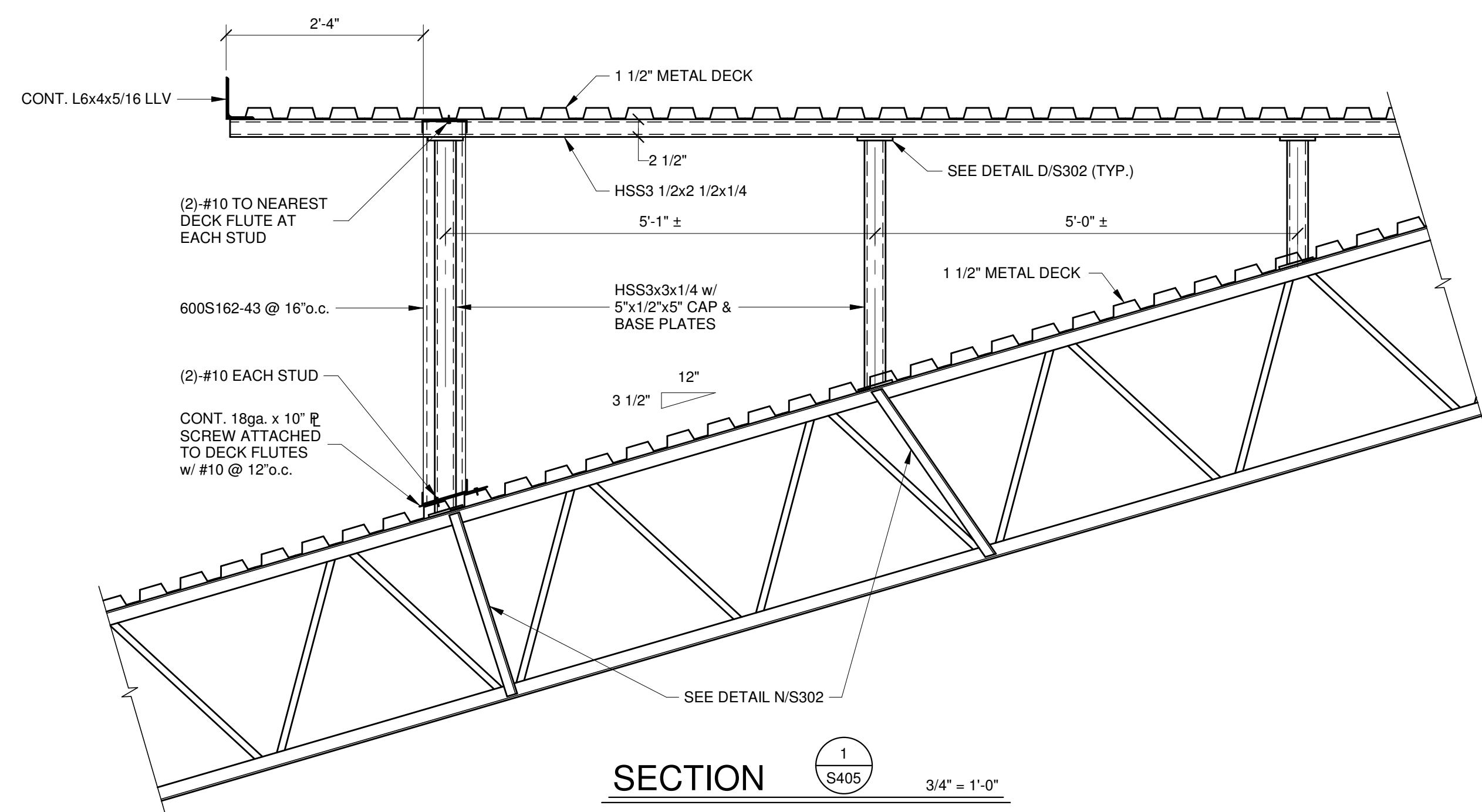
SECTION 6  
S405  
3/4" = 1'-0"



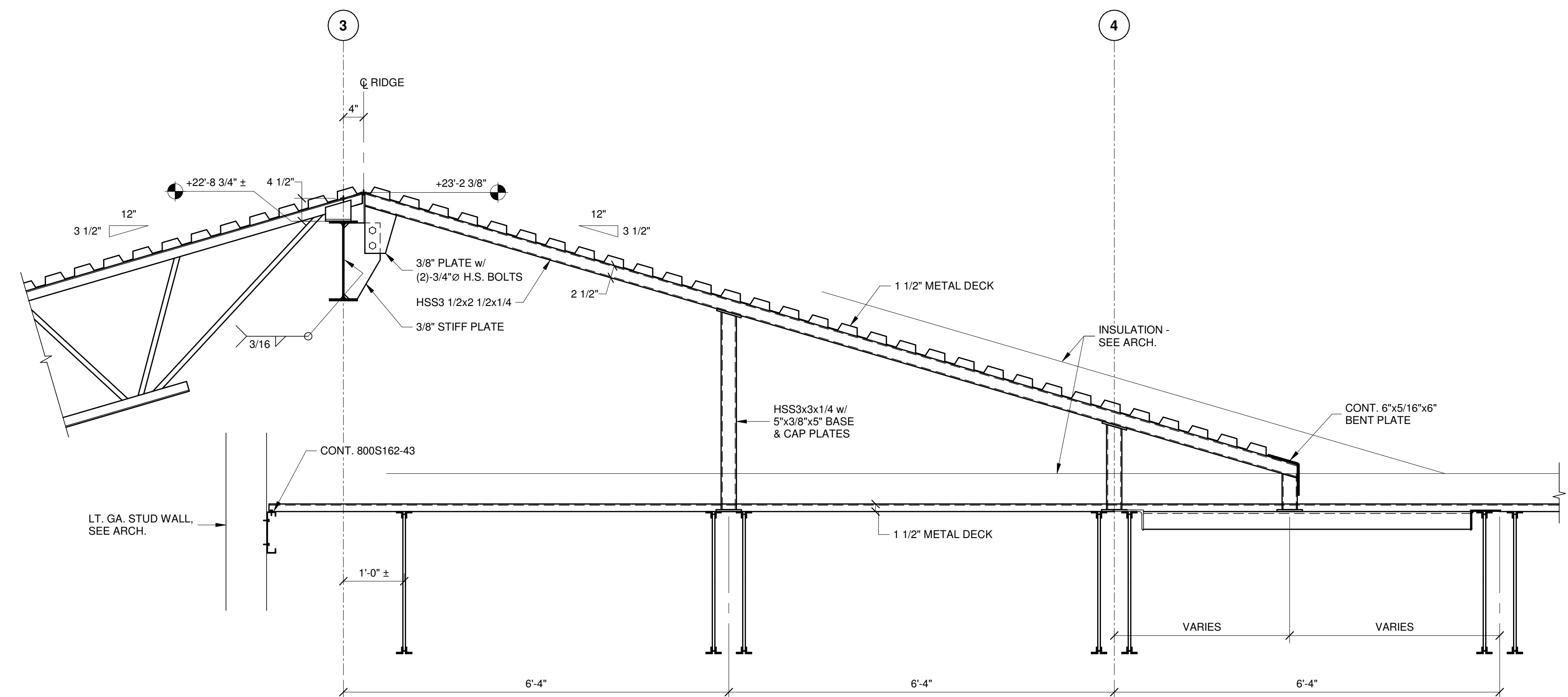
SECTION 3  
S405  
3/4" = 1'-0"



SECTION 4  
S405  
3/4" = 1'-0"



SECTION 1  
S405  
3/4" = 1'-0"



SECTION 2  
S405  
3/4" = 1'-0"

**MECHANICAL GENERAL NOTES**

- THE MECHANICAL AND PLUMBING CONTRACT DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO INDICATE SCOPE AND THE GENERAL ARRANGEMENT OF THE SYSTEMS. WHERE APPLICABLE THE FOLLOWING NOTES SHALL APPLY TO ALL MECHANICAL (HVAC, PLUMBING, PIPING AND FIRE PROTECTION) SYSTEMS.
- THOUGH SOME DUCTWORK AND PIPING OFFSETS AND TRANSITIONS ARE INDICATED, IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW ALL OFFSETS AND TRANSITIONS REQUIRED. THE CONTRACTOR SHALL FULLY COORDINATE THE MECHANICAL WORK WITHIN ITSELF AND WITH THE WORK OF ALL OTHER TRADES TO PROVIDE COMPLETE AND OPERABLE SYSTEMS WITHOUT INTERFERENCES.
- PROVIDE APPROVED FIRE STOPPING MATERIAL AROUND ALL DUCTWORK AND PIPING PENETRATIONS THROUGH FIRE RATED FLOORS AND WALLS. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF FIRE RATED FLOORS AND WALLS. PROVIDE FIRE DAMPERS AT ALL DUCT PENETRATIONS THROUGH FLOORS AND FIRE RATED WALLS AND FIRE/SMOKE DAMPERS AT ALL PENETRATIONS THROUGH SHAFT ENCLOSURES.
- SUPPORT ALL EQUIPMENT (I.E. DOAS, FANS, ETC.) FROM STRUCTURE WITH SPECIFIED VIBRATION ISOLATION.
- PROVIDE ACCESS PANELS WHERE REQUIRED FOR ADEQUATE ACCESS TO ALL CONCEALED EQUIPMENT, VALVES, DAMPERS AND CONTROLS.
- ALL DUCT SIZES REFER TO INTERNAL FREE AREA. REFER TO DRAWINGS AND SPECIFICATIONS FOR INTERNAL INSULATION AND SOUND LINING PRIOR TO FABRICATION.
- ALL DUCTWORK SHALL BE CONSTRUCTED OF RIGID SHEET METAL UNLESS OTHERWISE NOTED.
- REFER TO DOOR SCHEDULE ON ARCHITECTURAL DRAWINGS FOR UNDER CUT DIMENSIONS AND DOOR LOUVER SIZES.
- COORDINATE DIFFUSER, REGISTER AND GRILLE LOCATIONS AND BORDER TYPES WITH ARCHITECTURAL REFLECTED CEILING PLAN.
- INSTALL DUCTWORK AND PIPING MAINS TIGHT TO UNDERSIDE OF STRUCTURE UNLESS OTHERWISE INDICATED.
- REFER TO MECHANICAL DETAILS FOR TYPICAL EQUIPMENT CONNECTIONS.
- PROVIDE CONDENSATE DRAIN PIPING FROM EACH AIR HANDLING UNIT TO NEAREST FLOOR DRAIN. PROVIDE CLEAN OUT AT EACH ELBOW. SIZE PER MANUFACTURER.
- AIR CONDITIONING (A/C) CONDENSATE PIPING SHALL BE EXTENDED FROM ALL A/C CONDENSATE SOURCE EQUIPMENT (DOAS, VRF INDOOR UNITS, SPLIT SYSTEM A/C UNITS, ETC.) AND CONNECTED TO THE NEAREST STORM WATER PIPE/DRAIN LOCATION. SIZE PER MANUFACTURER.
- AS AN INTEGRAL PART OF THESE DOCUMENTS, THE CONTRACTOR SHALL REFER TO THE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- PRIOR TO THE BALANCING OF SYSTEMS BY THE AABC CERTIFIED BALANCING CONTRACTOR, ALL LOW PRESSURE SYSTEMS SHALL BE TESTED BY THE MECHANICAL CONTRACTOR FOR DUCT LEAKAGE. DUCT LEAKAGE SHALL NOT EXCEED 1% FOR A DURATION OF TEN (10) MINUTES. SEE SPECIFICATIONS FOR ADDITIONAL TESTING CRITERIA. INSULATION MATERIALS SHALL NOT BE APPLIED UNTIL SYSTEMS HAVE BEEN WITNESSED, DOCUMENTED AND SUBMITTED TO MEET THE ABOVE TESTING REQUIREMENTS. REFER SPECIFICATIONS FOR SYSTEMS INDICATED AS LOW PRESSURE. THE BALANCE CONTRACTOR SHALL WITNESS AND CERTIFY ALL DUCT PRESSURE TESTS.
- CONTRACTOR SHALL TEST/BALANCE ALL AIR AND HYDRONIC EQUIPMENT AND DEVICES INDICATED ON THE DOCUMENTS. AIR SYSTEM EQUIPMENT AND DEVICES SHALL INCLUDE, BUT NOT BE LIMITED TO: AIR HANDLING EQUIPMENT (DOAS UNITS, VRF INDOOR UNITS, ETC.), FANS, AIR VOLUME TERMINAL UNITS, AIR DEVICES, DUCT MOUNTED VOLUME DAMPERS, HOODS, ETC. HYDRONIC EQUIPMENT AND DEVICES SHALL INCLUDE, BUT NOT BE LIMITED TO: BOILERS, RADIANT FLOOR SYSTEMS, COLLS, BALANCING VALVES, ETC. BALANCE ALL EQUIPMENT AND DEVICES TO THE AIR/WATER FLOWS (CFM OR GPM) INDICATED ON THE DOCUMENTS (WHERE FLOWS ARE NOT CLEARLY INDICATED, CONTACT THE A/E FOR CLARIFICATION).
- SEE SPECIFICATIONS FOR SEISMIC REQUIREMENTS, WHERE APPLICABLE.
- WHERE PIPING PENETRATES CONCRETE WALL AND SLABS, PROVIDE GROUND PENETRATING RADAR (GPR) SCAN TO IDENTIFY THE LOCATION OF REBAR. SUBMIT RESULTS TO OWNER AND ENGINEER FOR REVIEW.
- SEE ARCHITECTURAL DOCUMENTS FOR ROOFING REQUIREMENTS.
- PROVIDE SURFACE PREPARATION, PRIMING AND PAINTING OF ALL MECHANICAL AND BOILER ROOM FLOORS TO PROVIDE A SMOOTH, CLEANABLE SURFACE. PRIMER AND PAINT SHALL BE APPROPRIATE FOR CONCRETE SLAB SURFACES. SEE SPECIFICATION SECTIONS "PAINTING" AND "HVAC RELATED WORK", WHERE APPLICABLE, FOR ADDITIONAL PAINTING REQUIREMENTS. COLOR SHALL BE SELECTED BY THE A/E.
- WHERE MOTOR STARTERS AND/OR VARIABLE FREQUENCY DRIVES (VFD'S) ARE INDICATED FOR MECHANICAL EQUIPMENT, THEY SHALL COMPLY WITH ALL REQUIREMENTS OUTLINED WITH THE ELECTRICAL SPECIFICATIONS FOR MOTOR STARTERS AND VFD'S. WHERE MOTOR STARTERS AND/OR VFD'S ARE PROVIDED BY THE MECHANICAL CONTRACTOR, OR AS A PORTION OF A PACKAGED MECHANICAL UNIT, THE ELECTRICAL SPECIFICATIONS SHALL ALSO APPLY. ALL VFD'S FOR THE PROJECT, WHETHER PROVIDED BY THE MECHANICAL OR ELECTRICAL CONTRACTOR, SHALL BE PROVIDED BY A SINGLE MANUFACTURER, AND SHALL INCLUDE THE SAME FEATURES AND OPTIONS.
- UNLESS INDICATED OTHERWISE, ALL EXPOSED PIPING IN ALL FINISHED AREAS SHALL BE COVERED WITH A 16-GAUGE STEEL PRIMED AND PAINTED METAL COVER. THE COVER SHALL BE SECURED TO AN ADJACENT STRUCTURE AND PAINTED TO MATCH ADJACENT SURFACES.
- EXPANSION LOOPS AND ANCHORS SHALL BE PROVIDED ON ALL HYDRONIC AND REFRIGERANT PIPING SYSTEMS WHICH CROSS BUILDING EXPANSION JOINTS AND ALL HORIZONTAL AND VERTICAL PIPE LENGTHS EXCEEDING 100 FEET. REFRIGERANT EXPANSION LOOPS SHALL BE INSTALLED IN ACCORDANCE WITH EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.

**SEISMIC DESIGN REQUIREMENTS**

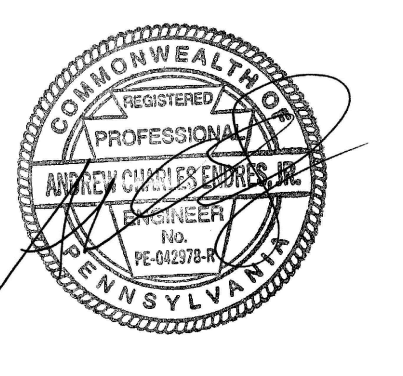
- THIS FIRE STATION IS ASSIGNED TO SEISMIC DESIGN CATEGORY D AND IS OCCUPANCY CATEGORY IV AS DEFINED BY CHAPTER 1 OF ASCE 7. SEE STRUCTURAL DRAWINGS FOR SEISMIC DESIGN DATA.
- ALL HVAC, PLUMBING & FIRE PROTECTION SYSTEMS AND EQUIPMENT ARE REQUIRED FOR THE CONTINUED OPERATION OF THE FIRE STATION AFTER AN EARTHQUAKE AND SHALL BE ASSIGNED A COMPONENT SEISMIC IMPORTANCE FACTOR OF 1.5 IN ACCORDANCE WITH CHAPTER 13 OF ASCE 7.
- THE MECHANICAL/PLUMBING/FIRE PROTECTION CONTRACTORS SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS PREPARED IN ACCORDANCE WITH THE IBC AND ASCE 7 BEARING THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF PENNSYLVANIA WHO IS QUALIFIED TO DESIGN SEISMIC RESTRAINT SYSTEMS. AS AN ALTERNATIVE TO EQUIPMENT SEISMIC CALCULATIONS, CONTRACTORS MAY SUBMIT EQUIPMENT SEISMIC CERTIFICATES BY A NATIONALLY RECOGNIZED TESTING STANDARD PROCEDURE. SHOP DRAWINGS SHALL INCLUDE SEPARATE DETAILS AND CALCULATIONS FOR EACH SEPARATE SYSTEM, DEVICE OR ELEMENT. THE APPROVAL OF SEISMIC BRACING SHOP DRAWINGS SHALL BE REQUIRED PRIOR TO THE INSTALLATION OF ANY BUILDING SYSTEMS OR COMPONENTS.

**MECHANICAL LEGEND**

2-PIPE VRF (CONSISTING OF REFRIGERANT SUCTION AND LIQUID)	-----	PIPING CAP		OPEN ENDED DUCT	
3-PIPE VRF (CONSISTING OF REFRIGERANT SUCTION, LIQUID, AND GAS)	-----	CONCENTRIC REDUCER		DUCTWORK WITH SOUND LINING	
REFRIGERANT SUCTION	RS	ECCENTRIC REDUCER		FLEXIBLE DUCT AND EQUIPMENT CONNECTOR	
REFRIGERANT LIQUID	RL	MANUAL AIR VENT		NEW DUCTWORK	
REFRIGERANT GAS	RG	AUTOMATIC AIR VENT		DUCT TRANSITION ROUND TO RECTANGULAR	
PUMPED DISCHARGE	PD	PIPE GUIDE OR SLEEVE		DUCT TRANSITION	
HEATING WATER SUPPLY	HS	PIPE ANCHOR		CHANGE IN DUCT ELEVATION (R-RISE, D-DROP)	
HEATING WATER RETURN	HR	GAS COCK		DUCT SIZE (FIRST FIGURE IS SIDE SHOWN)	
CHECK VALVE		PIPING ELBOW DOWN		LINEAR SLOT DIFFUSER	
BALL VALVE		PIPING ELBOW UP		BALANCING DAMPER	
GATE VALVE		PIPE CONNECTION BOTTOM		MOTOR OPERATED DAMPER	
BUTTERFLY VALVE		PIPE CONNECTION TOP		FIRE DAMPER WITH ACCESS PANEL	
GLOBE VALVE		FLOOR CLEANOUT		COMBINATION FIRE/SMOKE DAMPER WITH SMOKE DETECTORS AND ACCESS PANEL	
BALANCING VALVE W/ FLOW METER FITTING (VENTURI TYPE)		WALL CLEANOUT		BACKDRAFT DAMPER	
MULTI-PURPOSE VALVE		HOSE-END VALVE		SPLITTER DAMPER	
3-PORT MODULATING CONTROL VALVE		VALVE IN VERTICAL POSITION		ACCESS DOOR	
2-PORT MODULATING CONTROL VALVE		HEAT TRACED AND INSULATED PIPE		FIRE DETECTOR (FIRESTAT)	
RELIEF VALVE		FLOOR DRAIN		SMOKE DETECTOR	
BUCKET STRAINER		BALL AND TUBE MONITOR		THERMOSTAT	
Y-STRAINER WHOSE-END VALVE		WATER LEAK DETECTOR		CONNECT TO EXISTING	
FLANGED CONNECTION		GAS METER		CARBON DIOXIDE SENSOR	
GAUGE AND VALVE		SUPPLY AIR DUCT UP (DASHED LINES FOR DOWN)		FAN SWITCH	
INLINE CIRCULATING PUMP		RETURN DUCT UP (DASHED LINES FOR DOWN)		DOOR LOUVER	
TEMPERATURE/PRESSURE TEST PORT		OUTSIDE AIR & EXHAUST DUCT UP (DASHED LINES FOR DOWN)		UNDERCUT DOOR	
TEE		FLEXIBLE CONNECTION			
THERMOMETER		FLEXIBLE DUCT			
UNION		DOUBLE THICKNESS TURNING VANES			

**MECHANICAL ABBREVIATIONS**

AIR CHANGES / HOUR	AC / HR	ENTERING WATER TEMPERATURE	EWT	NOT IN CONTRACT	NIC
AIR COOLED CONDENSING UNIT	ACCU	FLEXIBLE CONNECTION / FORWARD CURVED	FC	NORMALLY OPEN / NUMBER	NO
ABOVE FINISHED FLOOR	AFF	FULL LOAD AMPS	FLA	NON-POTABLE COLD WATER	NPCW
AIR PRESSURE DROP	APD	FINS PER INCH	FPI	OUTSIDE AIR	OA
ARCHITECTURAL	ARCH	FEET PER MINUTE	FPM	OPEN END DUCT	OED
AUTOMATIC TEMPERATURE CONTROLS	ATC	FEET	FT	POUNDS PER SQUARE INCH	PSI
BUILDING AUTOMATION SYSTEM	BAS	FACE VELOCITY	FV	PRESSURE	PRESS
BACK-FLOW PREVENTER	BFP	GALLON(S)	GAL	PUMPED DISCHARGE	PD
BRAKE HORSEPOWER	BHP	GALLONS PER MINUTE	GPM	QUANTITY	QTY
BACKWARD INCLINED	BI	HEIGHT	H	RETURN AIR	RA
BRITISH THERMAL UNIT	BTU	HORSEPOWER	HP	RETURN AIR FAN	RAF
BRITISH THERMAL UNITS PER HOUR	BTUH	HEATING WATER SUPPLY	HS	RELATIVE HUMIDITY	RH
CAPACITY	CAP	HEATING WATER RETURN	HR	REVOLUTIONS PER MINUTE	RPM
CUBIC FEET PER HOUR	CFH	HEATER	HTR	REMOVE EXISTING	RX
CUBIC FEET PER MINUTE	CFM	HERTZ	HZ	SUPPLY AIR	SA
COLD WATER (DOMESTIC)	CW	INCH(ES)	IN	STATIC PRESSURE	SP
CONNECT TO EXISTING	CX	KILOWATT	KW	TESTING AND BALANCING	TAB
DRY BULB	DB	LENGTH	L	TOTAL STATIC PRESSURE	TSP
DIFFERENTIAL BYPASS VALVE	DBV	LEAVING AIR TEMPERATURE	LAT	TYPICAL	TYP
DESIGNATION	DESIG	POUNDS	LBS	UNLESS OTHERWISE NOTED	UON
DIAMETER	DIA	LOCKED ROTOR AMPS	LRA	VARIABLE REFRIGERANT FLOW	VRF
DOWN	DN	LEAVING WATER TEMPERATURE	LWT	VEHICLE EXHAUST AIR	VEA
DIFFERENTIAL PRESSURE SENSOR	DPS	MAXIMUM	MAX	VOLTS	V
DRAWING(S)	DWG	THOUSAND BRITISH THERMAL UNITS PER HOUR	MBH	VARIABLE FREQUENCY DRIVE	VFD
EXHAUST AIR	EA	MINIMUM CIRCUIT AMPACITY	MCA	WIDTH	W
ENTERING AIR TEMPERATURE	EAT	MECHANICAL EQUIPMENT ROOM	MER	WET BULB	WB
ENERGY EFFICIENCY RATIO	EER	MAXIMUM FUSE SIZE	MFS	WATER COLUMN	WC
ENERGY MANAGEMENT CONTROL SYSTEM	EMCS	MINIMUM	MIN	WATER GAUGE	WG
EXTERNAL STATIC PRESSURE	ESP	MAXIMUM OVERCURRENT PROTECTION	MOP	WATER PRESSURE DROP	WPD
EXISTING TO REMAIN	ETR	NORMALLY CLOSED	NC		



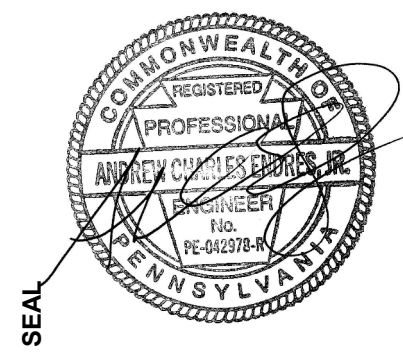
CONSULTANT:  
**bkm**  
Burdette, Koehler, Murphy & Associates, Inc.  
800 Blair Rd., Suite 400 | Baltimore, Maryland 21209  
P: 410-344-1460  
F: 443-403-2440  
E: INFO@MWSARCH.COM  
WWW.MWSARCH.COM

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGE TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS DRAWINGS & SPECIFICATIONS. ALL ADDENDA, AND THE OWNER'S ACCEPTED BID ALTERNATES AND CONTINGENCIES, THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

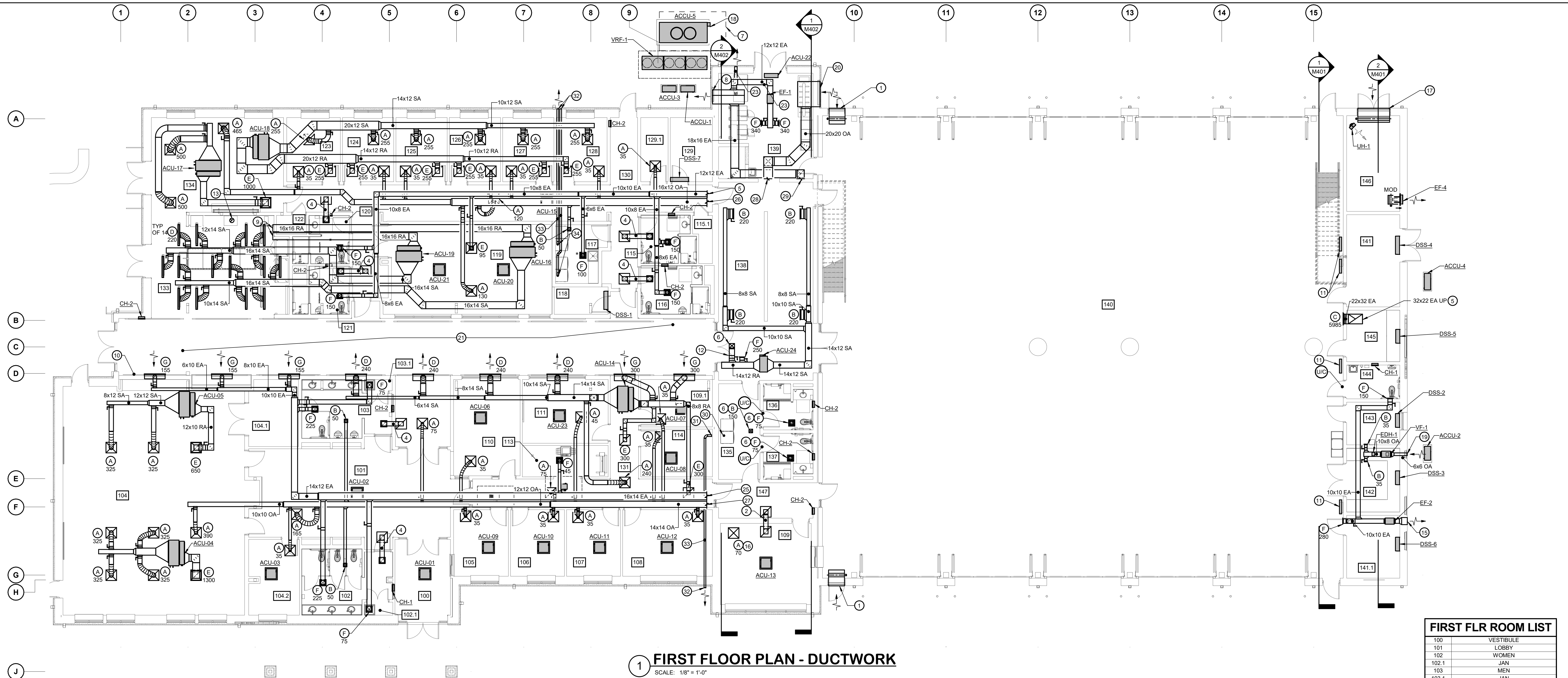
CUMRU FIRE DEPARTMENT  
1775 WELSH ROAD  
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

PROJECT NUMBER:  
18-036  
PROJECT SET:  
BID SET  
DATE ISSUED:  
11/30/2023  
DRAWING TITLE:  
MECHANICAL LEGEND,  
ABBREVIATIONS, AND  
GENERAL NOTES  
SHEET NUMBER:  
**M001**



THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE BY ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS DRAWINGS & SPECIFICATIONS. ALL ADDENDA AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.



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

**GENERAL NOTES:**

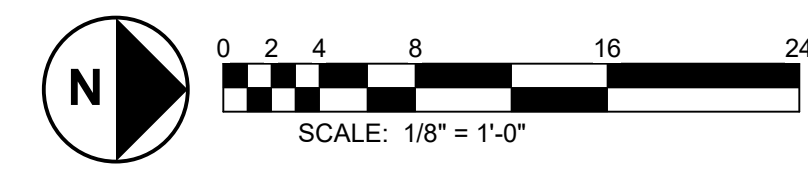
- REFER TO M001 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- ROUTE ALL DUCTWORK IN PLENUM SPACE BELOW TRUSSES UNLESS OTHERWISE NOTED.

**DRAWING NOTES:**

- 36x52 INTAKE LOUVER. PROVIDE WITH SHEET METAL PLENUM FULL SIZE OF LOUVER OPEN TO APPARATUS BAY. PROVIDE WITH MOTOR OPERATED DAMPER. REFER TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.
- 10x10 TRANSFER DUCT. AIR DEVICES SHALL BE TYPE E.
- REFER TO M301 FOR WORK IN THIS AREA.
- 10x10 TRANSFER DUCT. AIR DEVICE WITHIN TOILET ROOM SHALL BE TYPE F. OTHER DEVICE SHALL BE TYPE E.
- 12x12 EXHAUST AIR DUCT TO MEZZANINE 201. REFER TO M301 FOR CONTINUATION. PROVIDE SMOKE DAMPER AT PARTITION.
- 10x12 OUTSIDE AIR DUCT UP TO MEZZANINE 201. REFER TO M301 FOR CONTINUATION.
- EQUIPMENT CLEARANCE (TYPICAL).
- 32x32 EXHAUST LOUVER. PROVIDE WITH SHEET METAL PLENUM FULL SIZE OF LOUVER. PROVIDE PLENUM WITH BAFFLE SEPARATING THE TWO EXHAUST AIRFLOWS. REFER TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.
- OPENED ENDED DUCT IN KITCHEN PLENUM SPACE ABOVE CLOUD CEILING. PROVIDE WITH SCREEN.
- SPACE PRESSURE SENSOR FOR CONTROL OF DOAS-1 RELIEF FAN. MOUNT AT 8 FEET ABOVE FINISHED FLOOR.
- RADIANT FLOOR MANIFOLD CABINET MOUNTED ON WALL.
- BALANCE OUTDOOR AIR DAMPER TO 625 CFM.
- KITCHEN RANGE EXHAUST DUCT UP. TERMINATE AT ROOF.
- 10x8 OUTDOOR AIR DUCT UP.
- EXHAUST LOUVER. REFER TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.
- AIR DEVICE SERVED FROM MEZZANINE ABOVE. REFER TO M301 FOR CONTINUATION.
- 72x8 INTAKE LOUVER. PROVIDE WITH SHEET METAL PLENUM FULL SIZE OF LOUVER OPEN TO APPARATUS BAY. PROVIDE WITH MOTOR OPERATED DAMPER. REFER TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.
- CONCRETE PAD (TYP). REFER TO STRUCTURAL DRAWINGS FOR MORE INFORMATION.
- INTAKE LOUVER. REFER TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.
- 57X30 INTAKE LOUVER. PROVIDE WITH SHEET METAL PLENUM FULL SIZE OF LOUVER. REFER TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.
- CORRIDOR TO REMAIN FREE OF ANY EXPOSED DUCTWORK OR PIPING THAT DOES NOT PERTAIN TO THE IMMEDIATE FUNCTION OF THE CORRIDOR.
- RADIANT FLOOR MANIFOLD CABINET MOUNTED ON WALL UNDER STAIR CASE.
- CABINET DRYER EXHAUST. INSTALL AND CONFIGURE PER MANUFACTURER'S RECOMMENDATIONS. PAINT DUCTWORK OR DUCT INSULATION TO MATCH EXPOSED STRUCTURE.
- 18x14 EXHAUST AIR DUCT TO MEZZANINE 201. REFER TO M301 FOR CONTINUATION. PROVIDE SMOKE DAMPER AT PARTITION.
- 16x12 OUTSIDE AIR DUCT TO MEZZANINE 201. REFER TO M301 FOR CONTINUATION. PROVIDE SMOKE DAMPER AT PARTITION.
- 14x14 OUTSIDE AIR DUCT TO MEZZANINE 201. REFER TO M301 FOR CONTINUATION. PROVIDE SMOKE DAMPER AT PARTITION.
- 20x20 OUTSIDE AIR DUCT TO MEZZANINE 201. REFER TO M301 FOR CONTINUATION.
- 18x16 EXHAUST AIR DUCT TO MEZZANINE 201. REFER TO M301 FOR CONTINUATION.
- 4" RIGID DRYER EXHAUST DUCTWORK DOWN TO DRYER AND UP TO MEZZANINE 201. REFER TO M301 FOR CONTINUATION.
- 4" RIGID DRYER EXHAUST DUCTWORK TO MEZZANINE 201. REFER TO M301 FOR CONTINUATION.
- TERMINATE DRYER EXHAUST PER MANUFACTURER'S RECOMMENDATIONS.
- CONFIGURE DRYER EXHAUST PER MANUFACTURER'S RECOMMENDATIONS.
- 4" RIGID DRYER EXHAUST DUCTWORK DOWN TO DRYER.

**FIRST FLR ROOM LIST**

NO.	DESCRIPTION	DATE
100	VESTIBULE	
101	LOBBY	
102	WOMEN	
102.1	JAN	
103	MEN	
103.1	JAN	
104	MEETING	
104.1	STOR	
104.2	OFFICE	
105	OFFICE	
106	OFFICE	
107	OFFICE	
108	OFFICE	
109	WATCH OFFICE	
109.1	OFFICE	
110	CHIEF'S OFFICE	
111	CONFERENCE	
113	COPY	
114	OFFICE	
115	SHOWER	
115.1	MECH	
116	SHOWER	
117	LAUNDRY	
118	ELEC.	
119	FITNESS	
120	SHOWER	
121	SHOWER	
122	MECH	
123	BUNK	
124	BUNK	
125	BUNK	
126	BUNK	
127	BUNK	
128	BUNK	
129	IT	
129.1	ST.	
130	CORRIDOR	
131	CORRIDOR	
133	KITCHEN	
134	DAY ROOM	
135	CLEAN ROOM	
136	SHOWER	
137	SHOWER	
138	TURNOUT GEAR	
139	DECON	
140	APPARATUS BAY	
141	ELEC.	
141.1	STORAGE	
142	WORKSHOP	
143	ENGINEER	
144	TOILET	
145	SCBA	
146	UTILITY	
147	VESTIBULE	



**CUMRU FIRE DEPARTMENT**  
1775 WELSH ROAD  
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

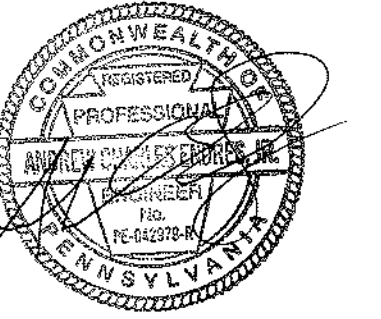
**PROJECT**  
18-036  
**PROJECT**  
BID SET  
**DATE**  
11/30/2023

**DRAWING**  
FIRST FLOOR PLAN  
DUCTWORK

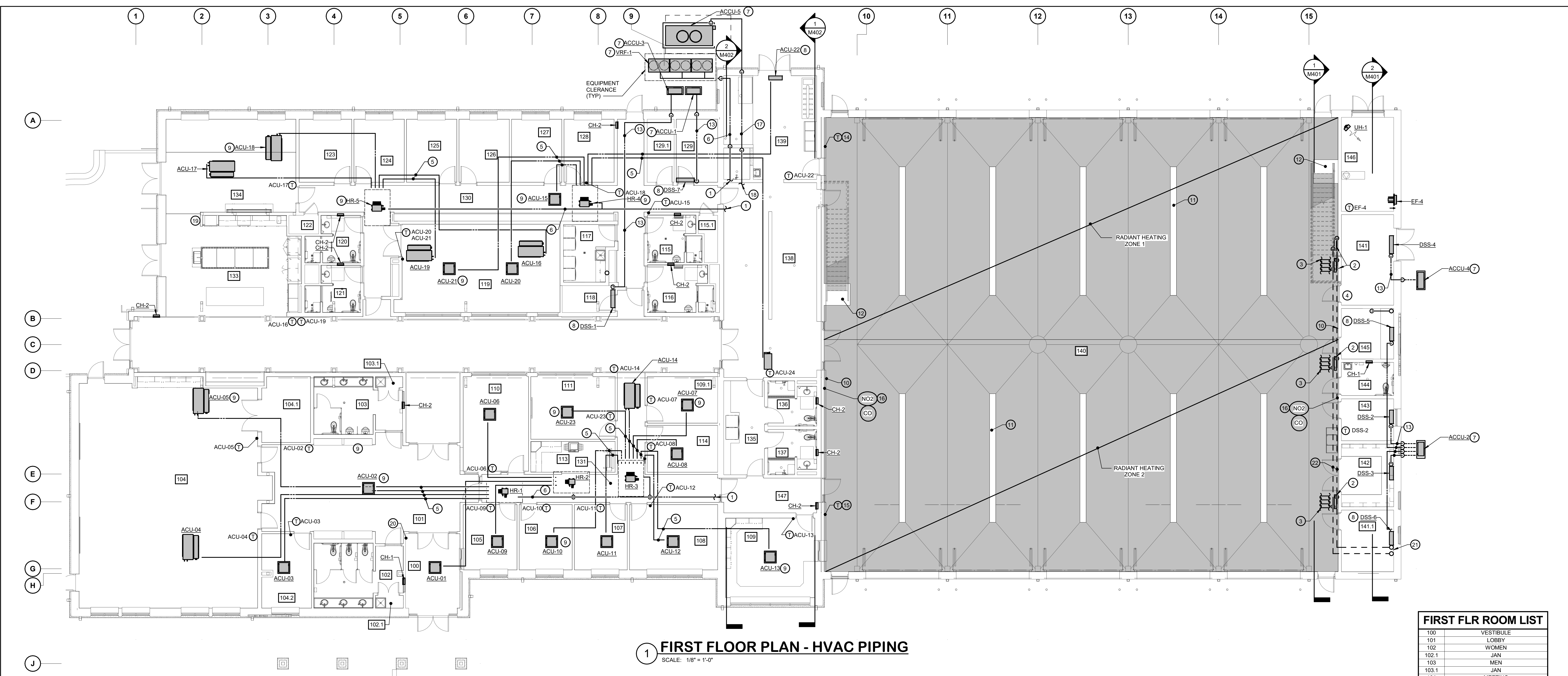
**SHEET**  
**M101**

11/27/2023 1:07:32 PM  
BKM# 19020.01





THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS. SINCE A PORTION OF THE BID DOCUMENTS DRAWINGS & SPECIFICATIONS, ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCIES, THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.



**1 FIRST FLOOR PLAN - HVAC PIPING**

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

**GENERAL NOTES:**

- REFER TO M001 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- THE HATCHED AREAS INDICATE ZONES TO BE HEATED BY IN-FLOOR RADIANT HEATING SYSTEM.
- SIZE AND CONFIGURE REFRIGERANT PIPING AND ACCESSORIES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PROVIDE HANGERS/SUPPORTS AND EXPANSION COMPENSATION DEVICES IN ACCORDANCE WITH SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS.

**DRAWING NOTES:**

- VRF-1 REFRIGERANT PIPING TO MEZZANINE LEVEL. REFER TO M301 FOR CONTINUATION.
- IN-SLAB RADIANT HEATING MANIFOLD PANEL.
- HEATING WATER TUBING TO UNDERFLOOR RADIANT HEAT SYSTEM. INSTALL TUBING TIGHT TO TOP SIDE OF REBAR. PROVIDE SLEEVES WHEN TUBING PENETRATES FLOOR SLAB AND AT EXPANSION JOINTS. INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. REFER TO STRUCTURAL DRAWINGS FOR MORE INFORMATION.
- REFER TO HEATING PIPING SCHEMATIC 4 / M-602.
- 2-PIPE VRF PIPING CONTAIN REFRIGERANT SUCTION AND LIQUID.
- 3-PIPE VRF PIPING CONTAIN REFRIGERANT SUCTION, LIQUID, AND GAS.
- ACCU MOUNTED AT GRADE ON EQUIPMENT PAD.
- A/C UNIT MOUNTED ON WALL (TYP).
- A/C UNIT SUSPENDED FROM STRUCTURE WITH VIBRATION ISOLATION (TYP).
- PROVIDE FREEZE PROTECTION T-STAT TO SIGNAL AN ALARM TO THE BAS IF THE SPACE TEMPERATURE FALLS BELOW 40 DEGREES F (ADJUSTABLE). INSTALL T-STAT AT SAME ELEVATION AS SPRINKLER PIPING.
- TRENCH DRAIN (TYP). RADIANT FLOOR TUBING SHALL AVOID THIS AREA.
- BOLT DOWN ZONE FOR STAIRS. RADIANT FLOOR TUBING SHALL AVOID THIS AREA.
- RS AND RL PIPING. SIZE PER MANUFACTURER'S RECOMMENDATIONS.
- RADIANT FLOOR ZONE 1 THERMOSTAT.
- RADIANT FLOOR ZONE 2 THERMOSTAT.
- PROVIDE CO AND NO2 SENSORS. MOUNT CO SENSOR ON WALL AT 5 FEET ABOVE FINISHED FLOOR. MOUNT NO2 SENSOR ON WALL AT 1 FOOT ABOVE FINISHED FLOOR. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- DOAS-1 REFRIGERANT PIPING.
- DOAS-1 REFRIGERANT PIPING TO MEZZANINE LEVEL. REFER TO M301 FOR CONTINUATION.
- PROVIDE ACU-19 REMOTE TEMPERATURE SENSOR.
- PROVIDE ACU-01 REMOTE TEMPERATURE SENSOR.
- HEATING WATER SUPPLY AND RETURN PIPING UP TO MEZZANINE 202. REFER TO M301 FOR CONTINUATION.
- HEATING WATER SUPPLY AND RETURN PIPING. REFER TO SCHEMATIC ON M502 FOR MORE INFORMATION.

**FIRST FLR ROOM LIST**

100	VESTIBULE
101	LOBBY
102	WOMEN
102.1	JAN
103	MEN
103.1	JAN
104	MEETING
104.1	STOR
104.2	OFFICE
105	OFFICE
106	OFFICE
107	OFFICE
108	OFFICE
109	WATCH OFFICE
109.1	OFFICE
110	CHIEF'S OFFICE
111	CONFERENCE
113	COPY
114	OFFICE
115	SHOWER
115.1	MECH
116	SHOWER
117	LAUNDRY
118	ELEC
119	FITNESS
120	SHOWER
121	SHOWER
122	MECH
123	BUNK
124	BUNK
125	BUNK
126	BUNK
127	BUNK
128	BUNK
129	IT
129.1	ST.
130	CORRIDOR
131	CORRIDOR
133	KITCHEN
134	DAY ROOM
135	CLEAN ROOM
136	SHOWER
137	SHOWER
138	TURNOUT GEAR
139	DECON
140	APPARATUS BAY
141	ELEC.
141.1	STORAGE
142	WORKSHOP
143	ENGINEER
144	TOILET
145	SCBA
146	UTILITY
147	VESTIBULE

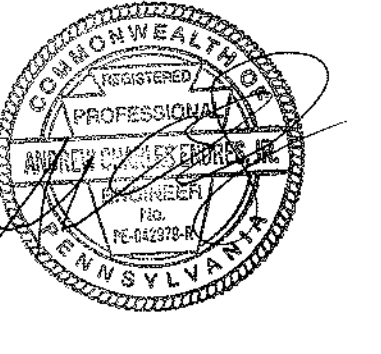


NO.	DESCRIPTION	DATE
2	ADDENDUM 2	1/5/2024

PROJECT	18-036
PROJECT BID SET	
DATE	11/30/2023

DRAWING  
FIRST FLOOR PLAN - HVAC PIPING

SHEET  
**M201**



CONSULTANT:  
**bkm**  
Burdette, Koehler, Murphy & Associates, Inc.  
1000 State Street, Suite 400 | Baltimore, Maryland 21209  
P: 410.528.0001 | www.bkm.com

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS. SINCE CONSIST OF THE BID DOCUMENTS DRAWINGS & SPECIFICATIONS, ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCES, THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

CUMRU FIRE DEPARTMENT  
1775 WELSH ROAD  
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE
2	ADDENDUM 2	1/5/2024

PROJECT  
18-036  
PROJECT  
BID SET  
DATE  
11/30/2023

DRAWING  
PART FLOOR PLANS  
HVAC  
SHEET

**M301**

BKM# 19020.01

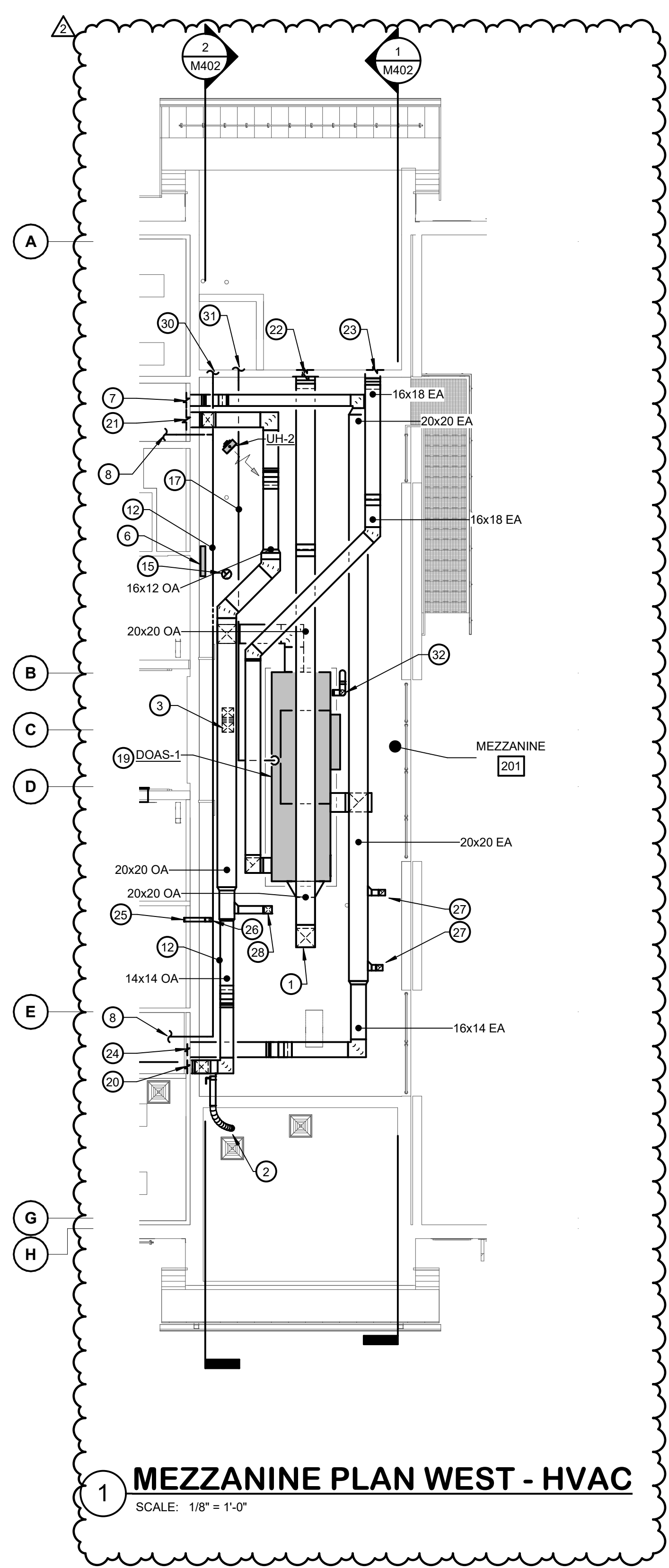
1/5/2024 9:28:16 AM

**GENERAL NOTES:**

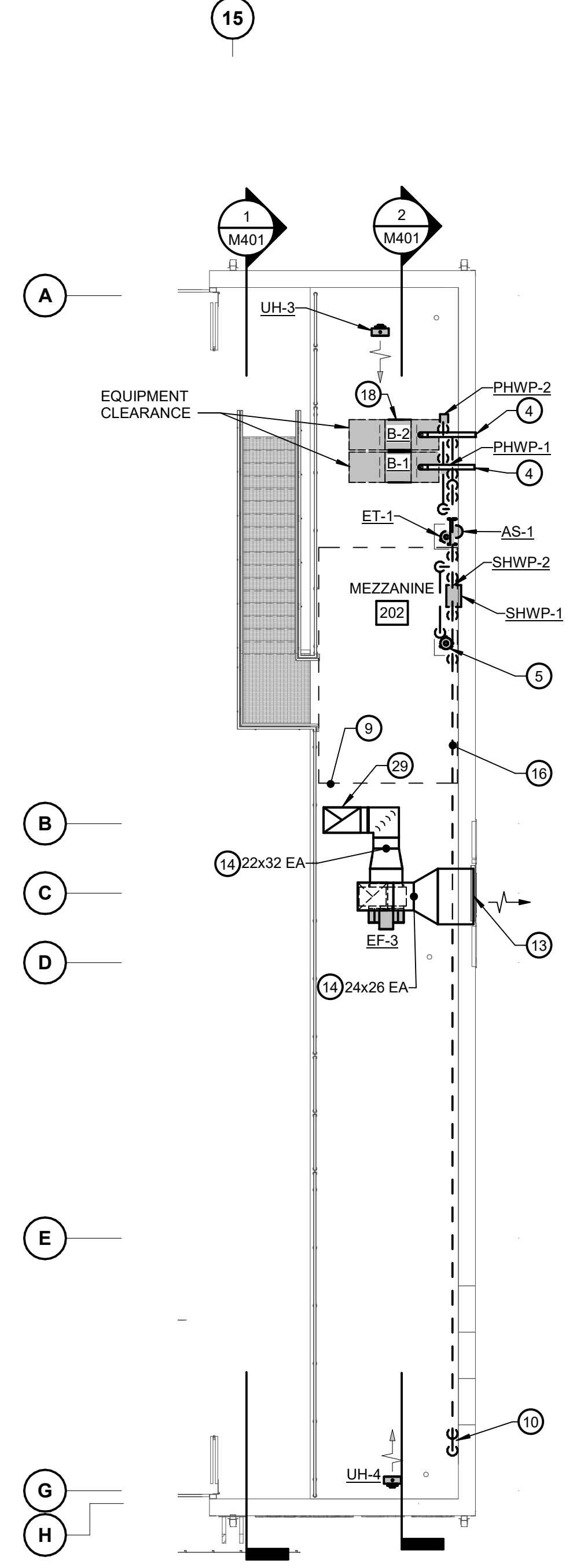
- REFER TO M001 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- SIZE AND CONFIGURE REFRIGERANT PIPING AND ACCESSORIES IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
- REFER TO M502 FOR HEATING WATER PIPE SIZES AND CONFIGURATION.

**DRAWING NOTES:**

- 20x20 OUTDOOR AIR DUCT DOWN TO DOAS-1.
- 6" OUTDOOR AIR DUCT DOWN TO DEVICE SERVING 109 - WATCH OFFICE. REFER TO M101 FOR CONTINUATION.
- 10x12 OUTSIDE AIR DUCT DOWN TO 138 TURNOUT GEAR. REFER TO M101 FOR CONTINUATION.
- CONCENTRIC BOILER VENT KIT.
- CHEMICAL BYPASS FEEDER.
- DOAS-1 DDC PANEL MOUNTED ON WALL.
- 12x12 EXHAUST AIR DUCT TO ADMINISTRATION AREA OF BUILDING. REFER TO M101 FOR CONTINUATION. PROVIDE SMOKE DAMPER AT PARTITION.
- VRE-1 REFRIGERANT PIPING TO ADMINISTRATION AREA OF BUILDING. REFER TO M201 FOR CONTINUATION.
- DASHED LINE REPRESENTS ELECTRICAL ROOM LOCATED BELOW MEZZANINE. NO MECHANICAL WORK SHALL PENETRATE MEZZANINE WITHIN THE DASHED LINE.
- 2 1/2" HEATING WATER SUPPLY/RETURN DOWN TO FIRST FLOOR. REFER TO M201 FOR CONTINUATION.
- REFRIGERANT SUCTION AND LIQUID PIPING. SIZE PER MANUFACTURER'S RECOMMENDATIONS.
- REFRIGERANT SUCTION, LIQUID, AND GAS PIPING. SIZE PER MANUFACTURER'S RECOMMENDATIONS.
- EXHAUST LOUVER. REFER TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.
- PROVIDE DUCTWORK WITH SOUND LINING.
- DOMESTIC WATER HEATER FLUE UP THROUGH ROOF. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- HEATING WATER SUPPLY AND RETURN PIPING RACKED ON WALL. REFER TO M401 AND M502 FOR MORE INFORMATION.
- DOAS-1 REFRIGERANT PIPING.
- MOUNT BOILERS ON SINGLE EQUIPMENT PAD.
- DOAS-1 SHALL BE MOUNTED ON EQUIPMENT PAD.
- 14x14 OUTSIDE AIR DUCT TO ADMINISTRATION AREA OF BUILDING. REFER TO M101 FOR CONTINUATION. PROVIDE SMOKE DAMPER AT PARTITION.
- 18x12 OUTSIDE AIR DUCT TO ADMINISTRATION AREA OF BUILDING. REFER TO M101 FOR CONTINUATION. PROVIDE SMOKE DAMPER AT PARTITION.
- 20x20 OUTSIDE AIR DUCT TO SPACE 139 DECON. REFER TO M101 FOR CONTINUATION.
- 16x18 EXHAUST AIR DUCT TO SPACE 139 DECON. REFER TO M101 FOR CONTINUATION.
- 16x14 EXHAUST AIR DUCT TO SPACE 139 DECON. REFER TO M101 FOR CONTINUATION. PROVIDE SMOKE DAMPER AT PARTITION.
- 4" RIGID DRYER EXHAUST TO ADMINISTRATION SIDE OF BUILDING. REFER TO M301 FOR CONTINUATION.
- 4" RIGID DRYER EXHAUST DUCTWORK DOWN TO 135 CLEAN ROOM. REFER TO M101 FOR CONTINUATION.
- 6x6 EXHAUST DUCT DOWN TO TOILET ROOM AIR DEVICE. REFER TO M101 FOR CONTINUATION.
- 8x8 OUTSIDE AIR DUCT DOWN TO 135 CLEAN ROOM. REFER TO M101 FOR CONTINUATION.
- 32x22 EXHAUST AIR DUCT DOWN TO 145 SCBA. REFER TO M101 FOR CONTINUATION.
- VRE-1 REFRIGERANT PIPING TO 139 DECON. REFER TO M201 FOR CONTINUATION.
- DOAS-1 REFRIGERANT PIPING TO 139 DECON. REFER TO M201 FOR MORE INFORMATION.
- DOAS-1 6" SCHEDULE 40 PVC FLUE PIPE UP THROUGH ROOF. TERMINATE WITH GOOSENECK AND BIRD SCREEN. SIZE, CONFIGURE, AND TERMINATE PER MANUFACTURER'S RECOMMENDATIONS. REFER TO MECHANICAL DETAILS FOR ADDITIONAL INFORMATION.

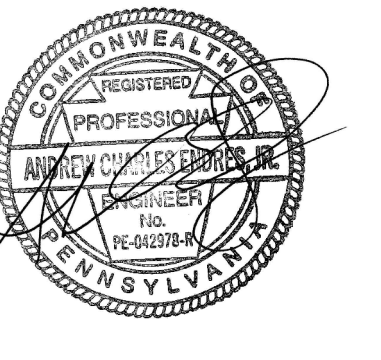


**1 MEZZANINE PLAN WEST - HVAC**  
SCALE: 1/8" = 1'-0"



**2 MEZZANINE PLAN EAST - HVAC**  
SCALE: 1/8" = 1'-0"





CONSULTANT:  
**bkm**  
Burdette, Koehler, Murphy & Associates, Inc.  
1000 State College Lane, Suite 400 | Baltimore, Maryland 21209  
P: 410.262.0001 | www.bkm.com

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS BOTH THE DRAWINGS AND THE PROJECT MANUAL AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS. NONE OF THE BID DOCUMENTS DRAWINGS & SPECIFICATIONS, ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

CUMRU FIRE DEPARTMENT  
1775 WELSH ROAD  
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE
PROJECT	18-036	
PROJECT	BID SET	
DATE	11/30/2023	
DRAWING	MECHANICAL SECTIONS	
SHEET	M401	

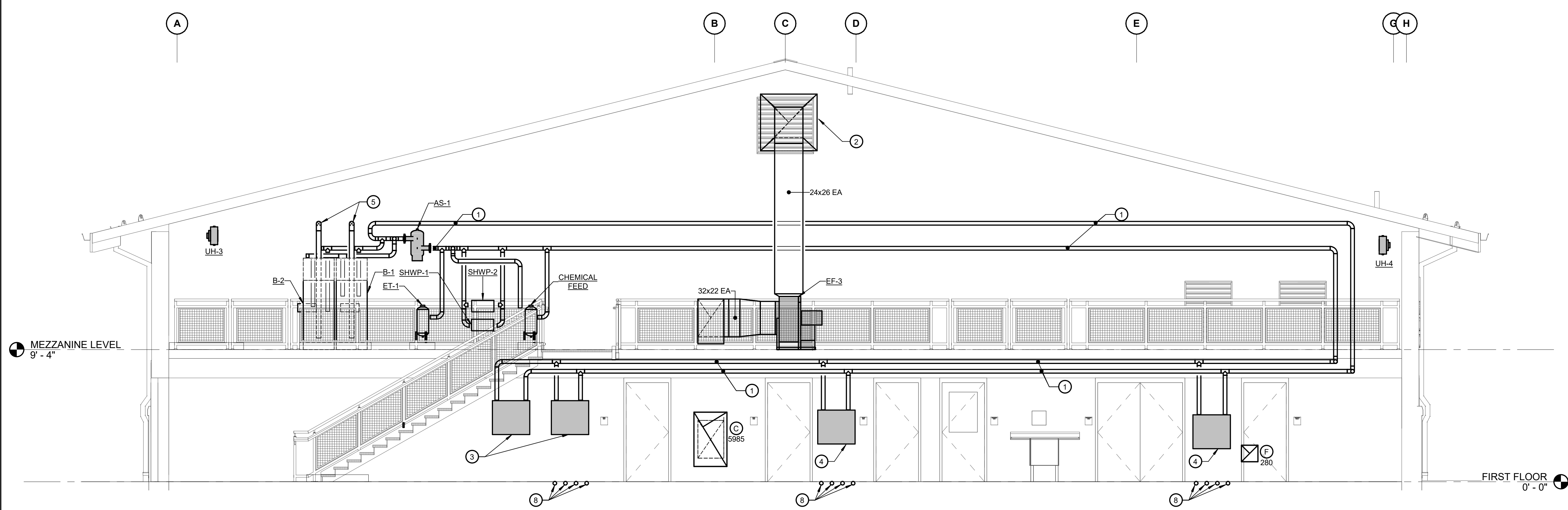
11/27/2023 1:07:46 PM  
BKM# 19020.01

**GENERAL NOTES:**

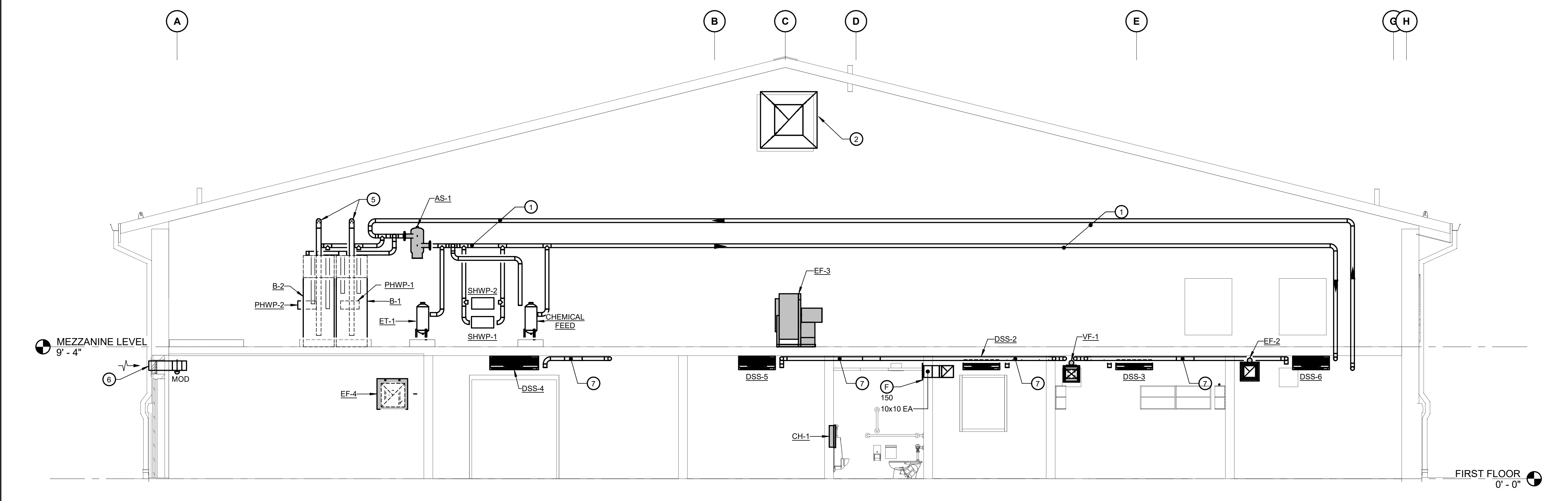
- REFER TO M001 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- SIZE AND CONFIGURE REFRIGERANT PIPING AND ACCESSORIES IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

**DRAWING NOTES:**

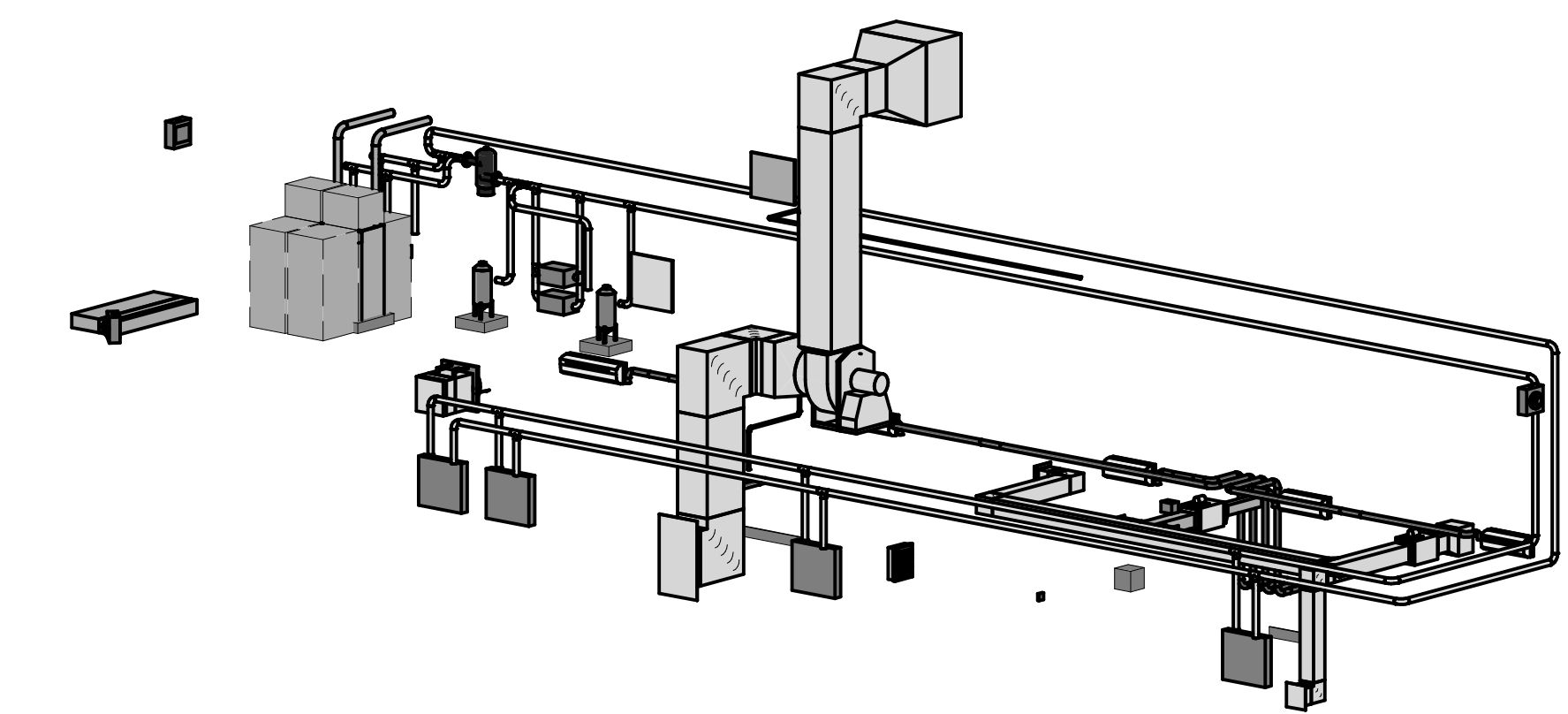
- HEATING WATER SUPPLY AND RETURN PIPING. REFER TO HEATING WATER SCHEMATIC ON M502 FOR PIPE SIZES AND ADDITIONAL INFORMATION.
- 48x48 EXHAUST AIR LOUVER. REFER TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.
- RADIANT FLOOR ZONE 1 MANIFOLD CABINET.
- RADIANT FLOOR ZONE 2 MANIFOLD CABINET.
- BOILER FLUE. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- 8x72 INTAKE LOUVER. REFER TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.
- REFRIGERANT PIPING. SIZE AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- HEATING WATER TUBING TO UNDERFLOOR RADIANT HEAT SYSTEM. INSTALL TUBING TIGHT TO TOP SIDE OF REBAR. PROVIDE SLEEVES WHEN TUBING PENETRATES FLOOR SLAB AND AT EXPANSION JOINTS. INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. REFER TO STRUCTURAL DRAWINGS FOR MORE INFORMATION.



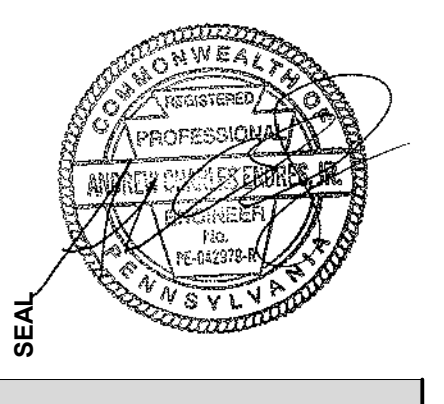
**1 MEZZANINE PLAN EAST SECTION 1**  
SCALE: 1/4" = 1'-0"



**2 MEZZANINE PLAN EAST SECTION 2**  
SCALE: 1/4" = 1'-0"



**3 MEZZANINE PLAN EAST - 3D**  
SCALE:



CONSULTANT:  
**bkm**  
Burdette, Koehler, Murphy & Associates, Inc.  
1000 State College Lane, Suite 400 | Baltimore, Maryland 21209  
P: 410.526.2061 | www.bkm.com

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS. SINCE CONSIST OF THE BID DOCUMENTS DRAWINGS & SPECIFICATIONS, ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCES, THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

CUMRU FIRE DEPARTMENT  
1775 WELSH ROAD  
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE
2	ADDENDUM 2	1/5/2024
PROJECT 18-036		
PROJECT BID SET		
DATE 11/30/2023		
DRAWING MECHANICAL SECTIONS		
SHEET M402		

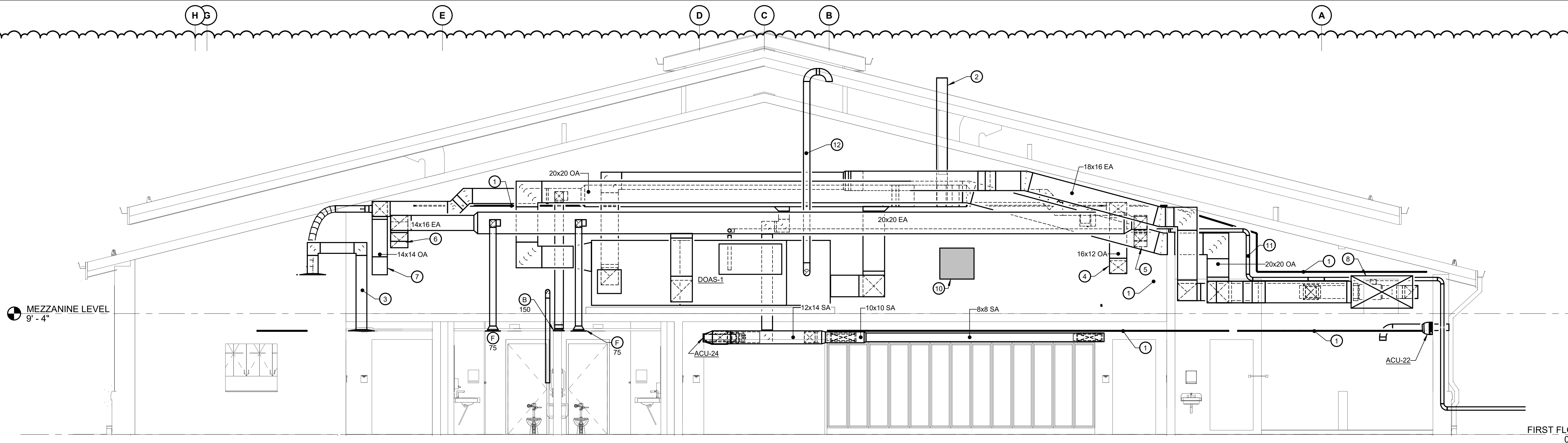
1/5/2024 9:31:48 AM  
BKM# 19020.01

**GENERAL NOTES:**

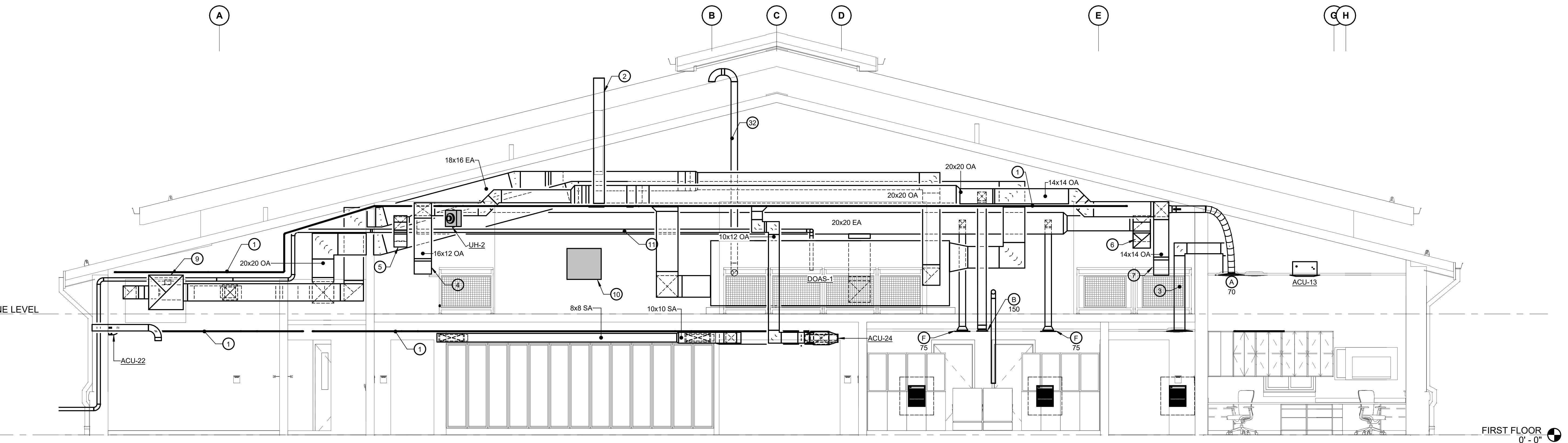
- REFER TO M001 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- SIZE AND CONFIGURE REFRIGERANT PIPING AND ACCESSORIES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

**DRAWING NOTES:**

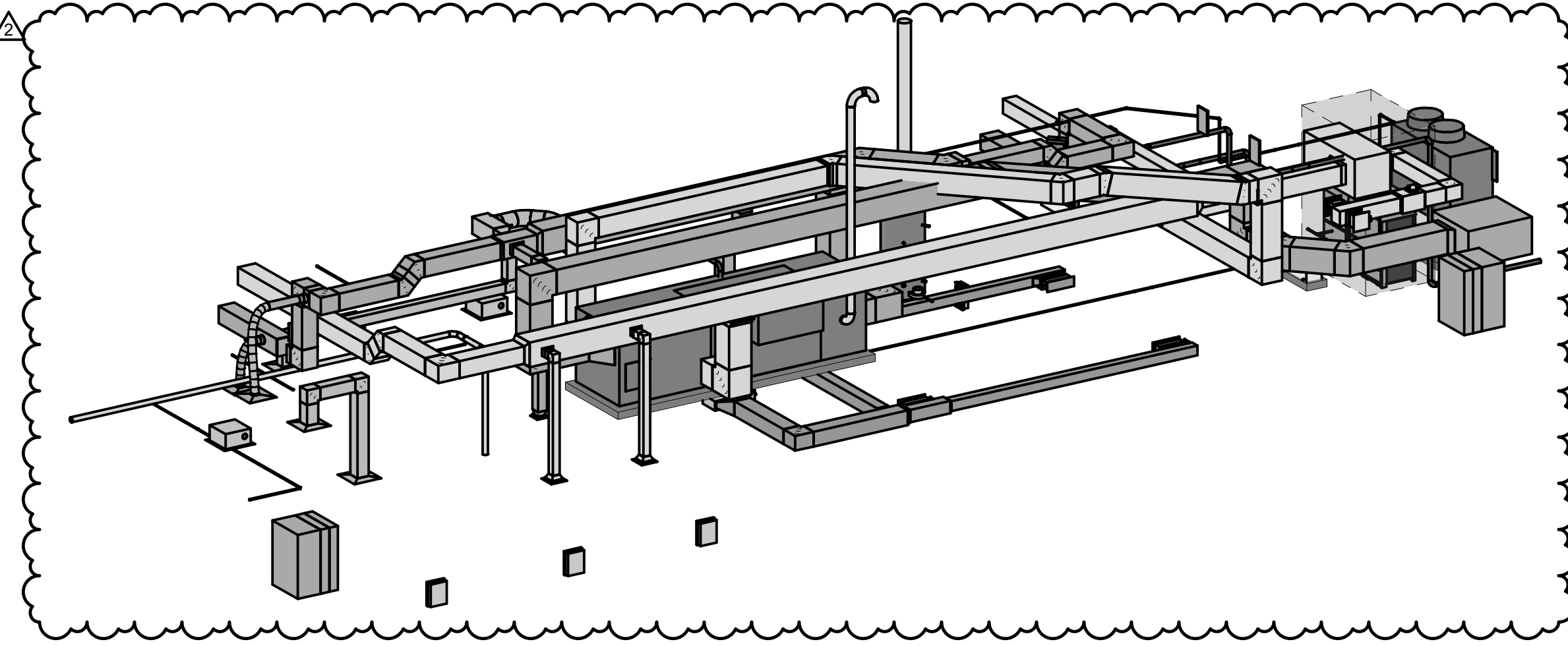
- VRF-1 REFRIGERANT PIPING, SIZE AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- WATER HEATER FLUE. INSTALL AND TERMINATE PER MANUFACTURER'S RECOMMENDATIONS.
- 10x10 TRANSFER DUCT. AIR DEVICES SHALL BE TYPE E.
- 12x16 OUTSIDE AIR DUCTWORK TO ADMINISTRATION/OFFICES. REFER TO M101 FOR CONTINUATION.
- 12x12 EXHAUST AIR DUCTWORK TO ADMINISTRATION/OFFICES. REFER TO M101 FOR CONTINUATION.
- 14x16 EXHAUST AIR DUCTWORK TO ADMINISTRATION/OFFICES. REFER TO M101 FOR CONTINUATION.
- 14x14 OUTSIDE AIR DUCTWORK TO ADMINISTRATION/OFFICES. REFER TO M101 FOR CONTINUATION.
- 58x30 OUTSIDE AIR INTAKE LOUVER. REFER TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.
- 32x32 EXHAUST AIR LOUVER. REFER TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.
- DOAS-1 DDC PANEL MOUNTED ON WALL.
- DOAS-1 REFRIGERANT PIPING.
- DOAS-1 6" SCHEDULE 40 PVC FLUE PIPE UP THROUGH ROOF. TERMINATE WITH GOOSENECK AND BIRD SCREEN. SIZE, CONFIGURE, AND TERMINATE PER MANUFACTURER'S RECOMMENDATIONS. REFER TO MECHANICAL DETAILS FOR ADDITIONAL INFORMATION.



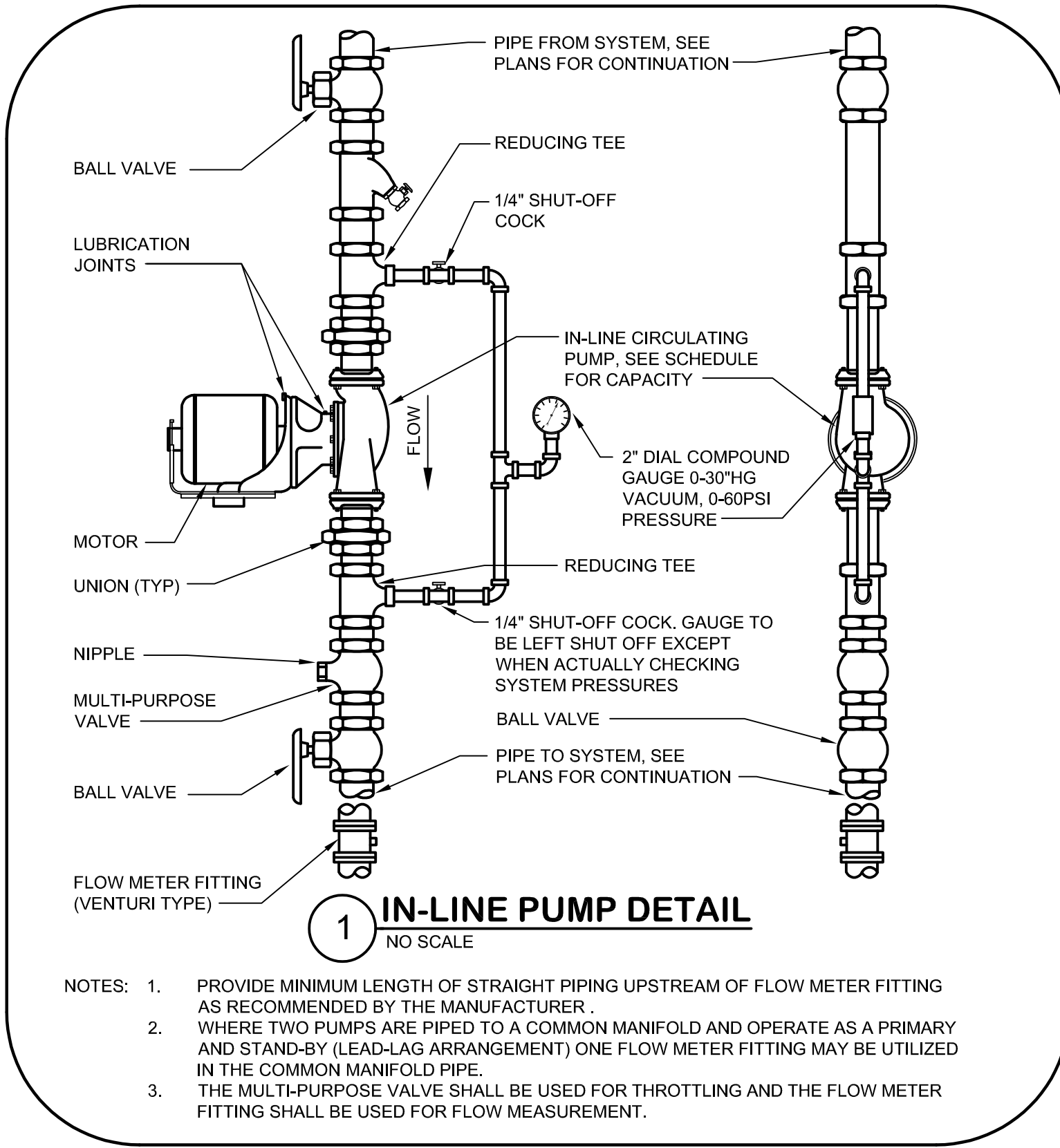
**1 MEZZANINE PLAN WEST SECTION 1**  
SCALE: 1/4" = 1'-0"



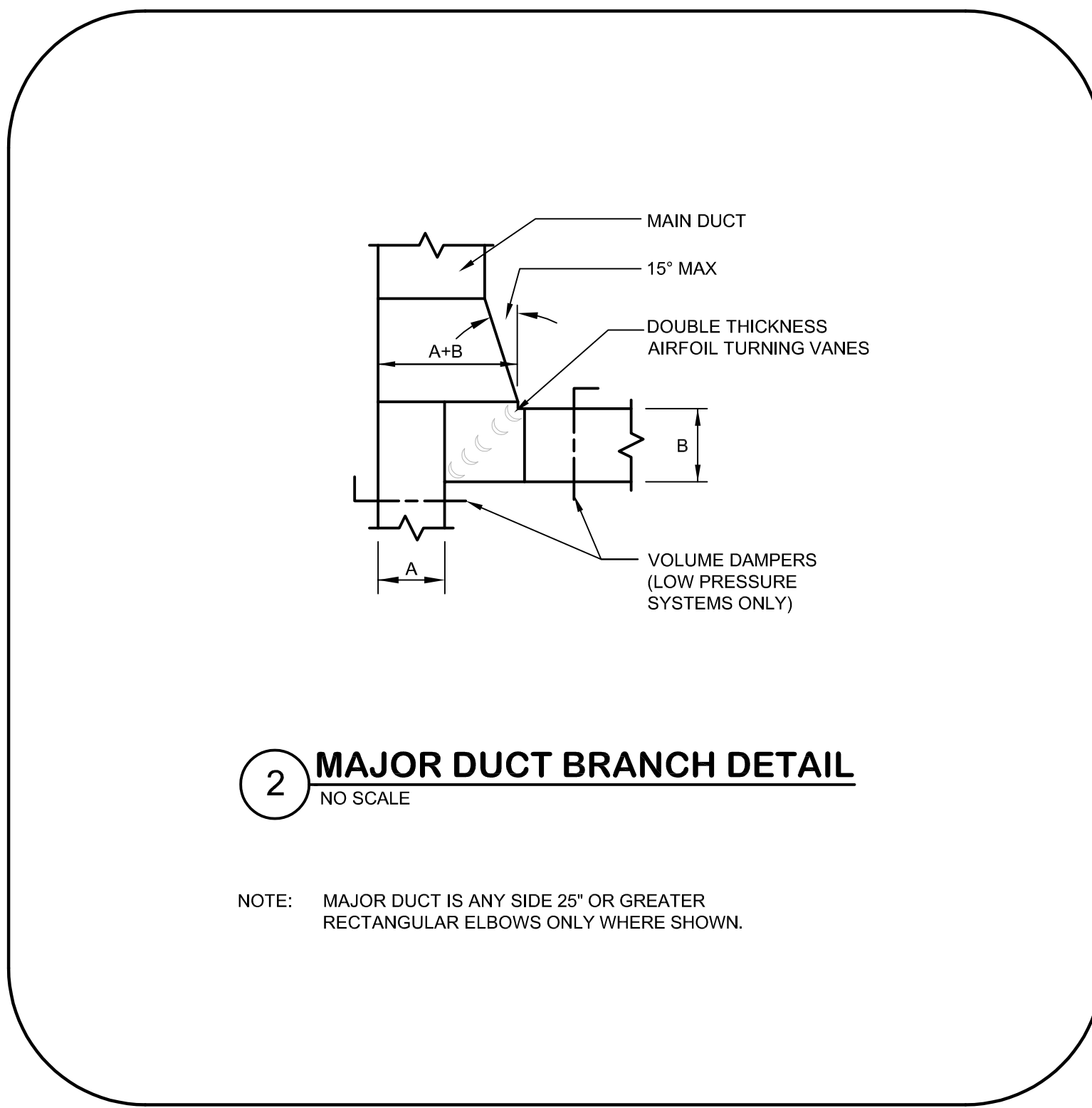
**2 MEZZANINE PLAN WEST SECTION 2**  
SCALE: 1/4" = 1'-0"



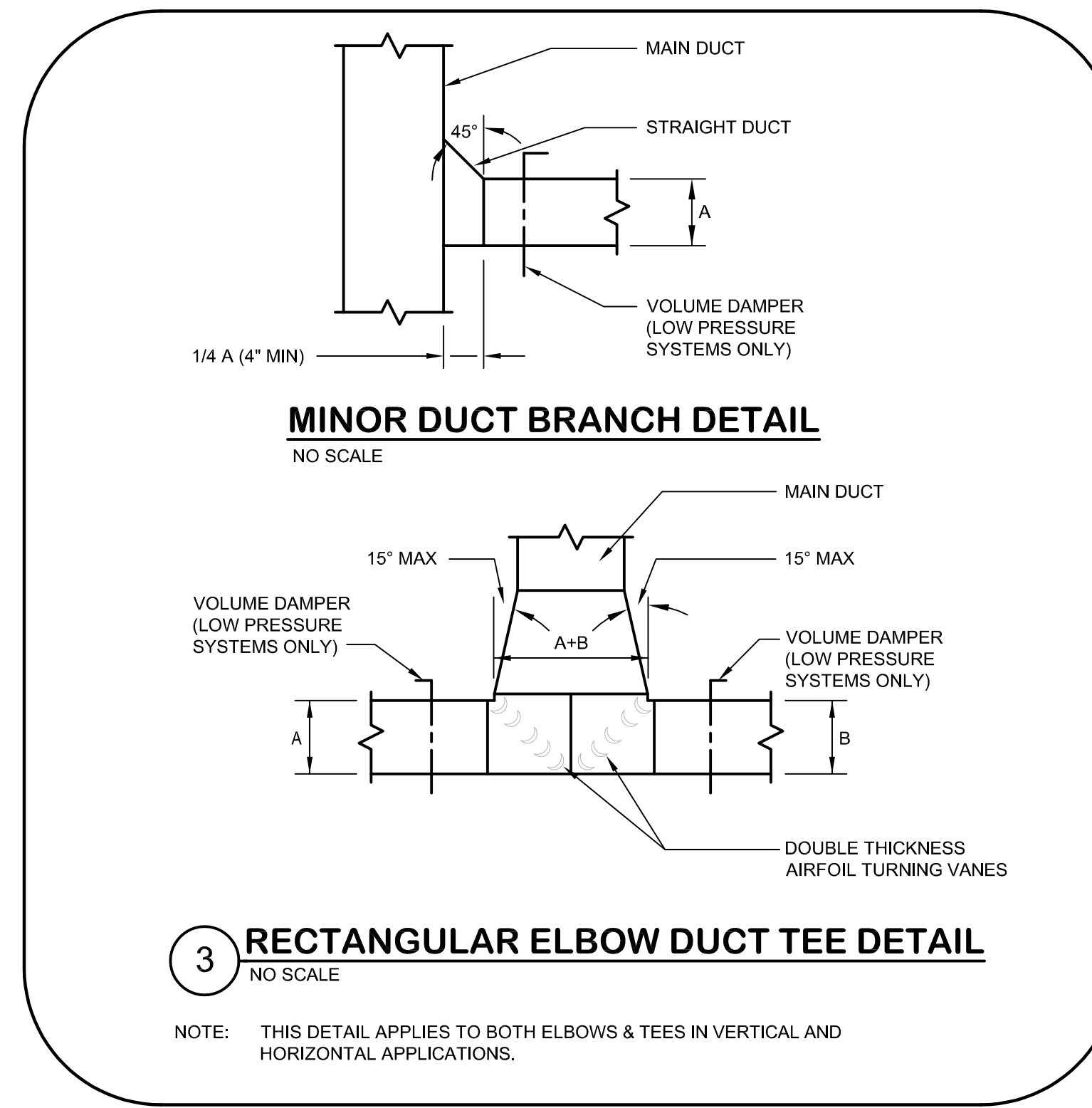
**3 MEZZANINE PLAN WEST - 3D**  
SCALE:



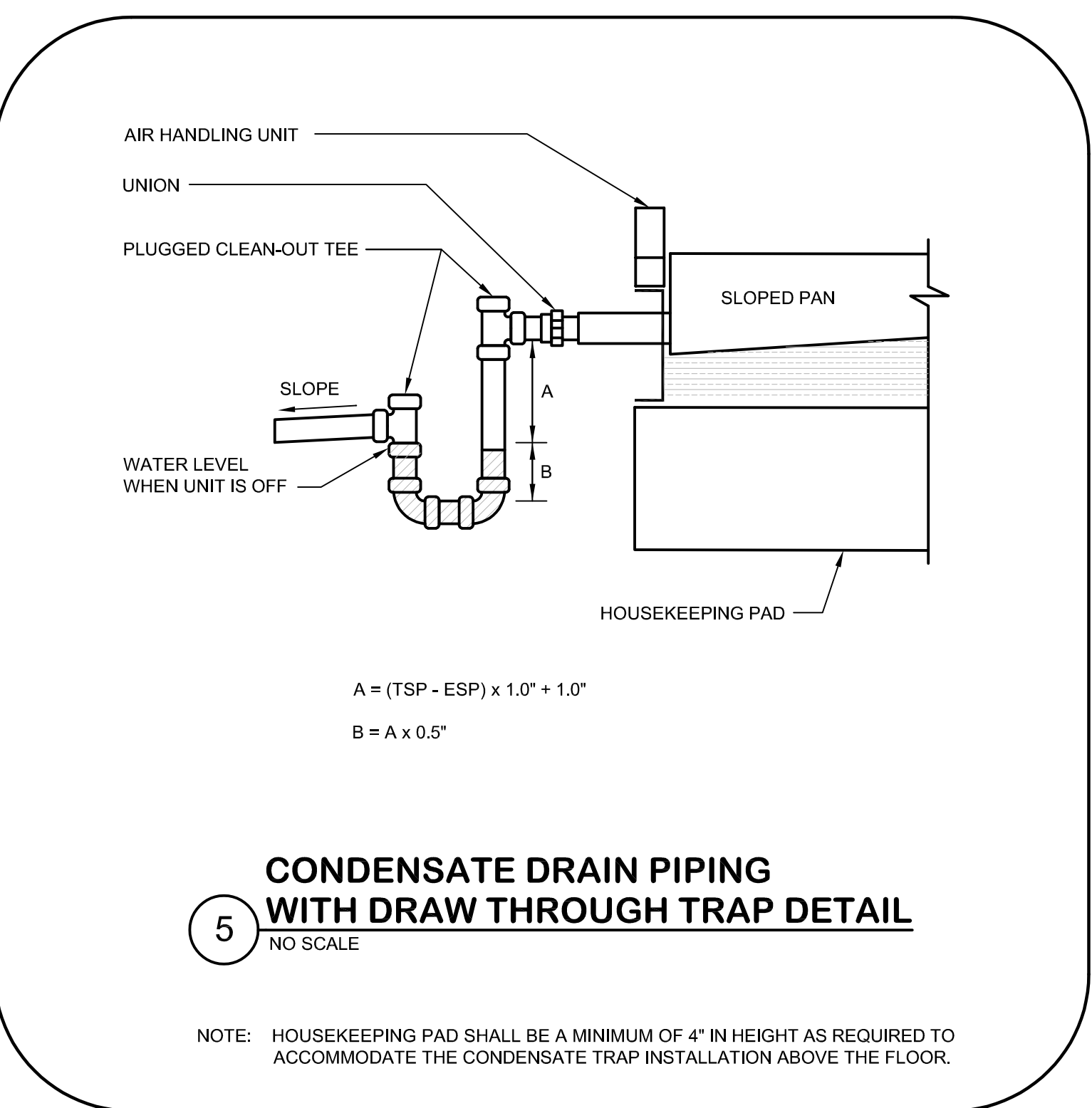
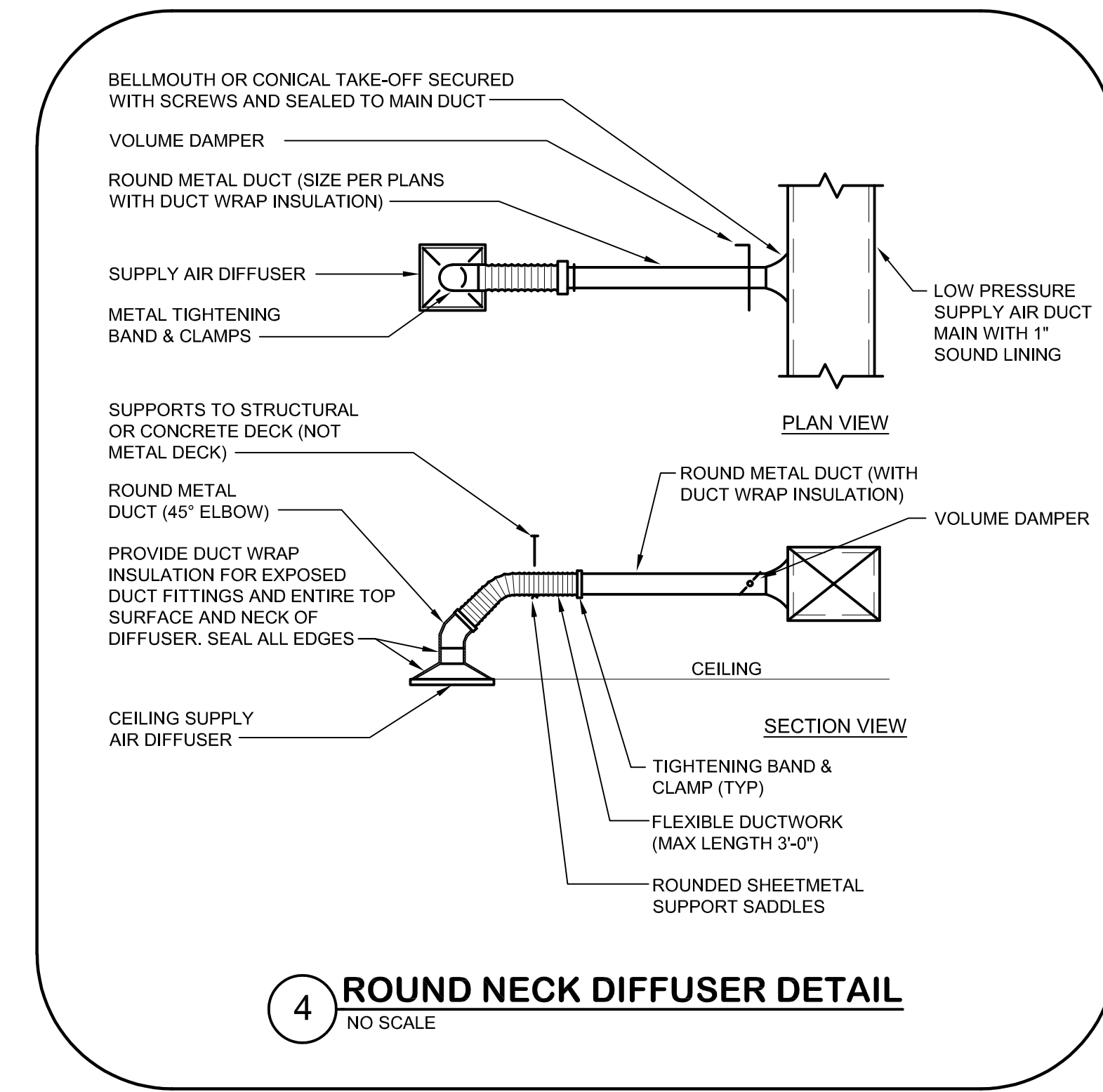
NOTES: 1. PROVIDE MINIMUM LENGTH OF STRAIGHT PIPING UPSTREAM OF FLOW METER FITTING AS RECOMMENDED BY THE MANUFACTURER.  
 2. WHERE TWO PUMPS ARE PIPED TO A COMMON MANIFOLD AND OPERATE AS A PRIMARY AND STANDBY (LEAD-LAG ARRANGEMENT) ONE FLOW METER FITTING MAY BE UTILIZED IN THE COMMON MANIFOLD PIPE.  
 3. THE MULTI-PURPOSE VALVE SHALL BE USED FOR THROTTLING AND THE FLOW METER FITTING SHALL BE USED FOR FLOW MEASUREMENT.



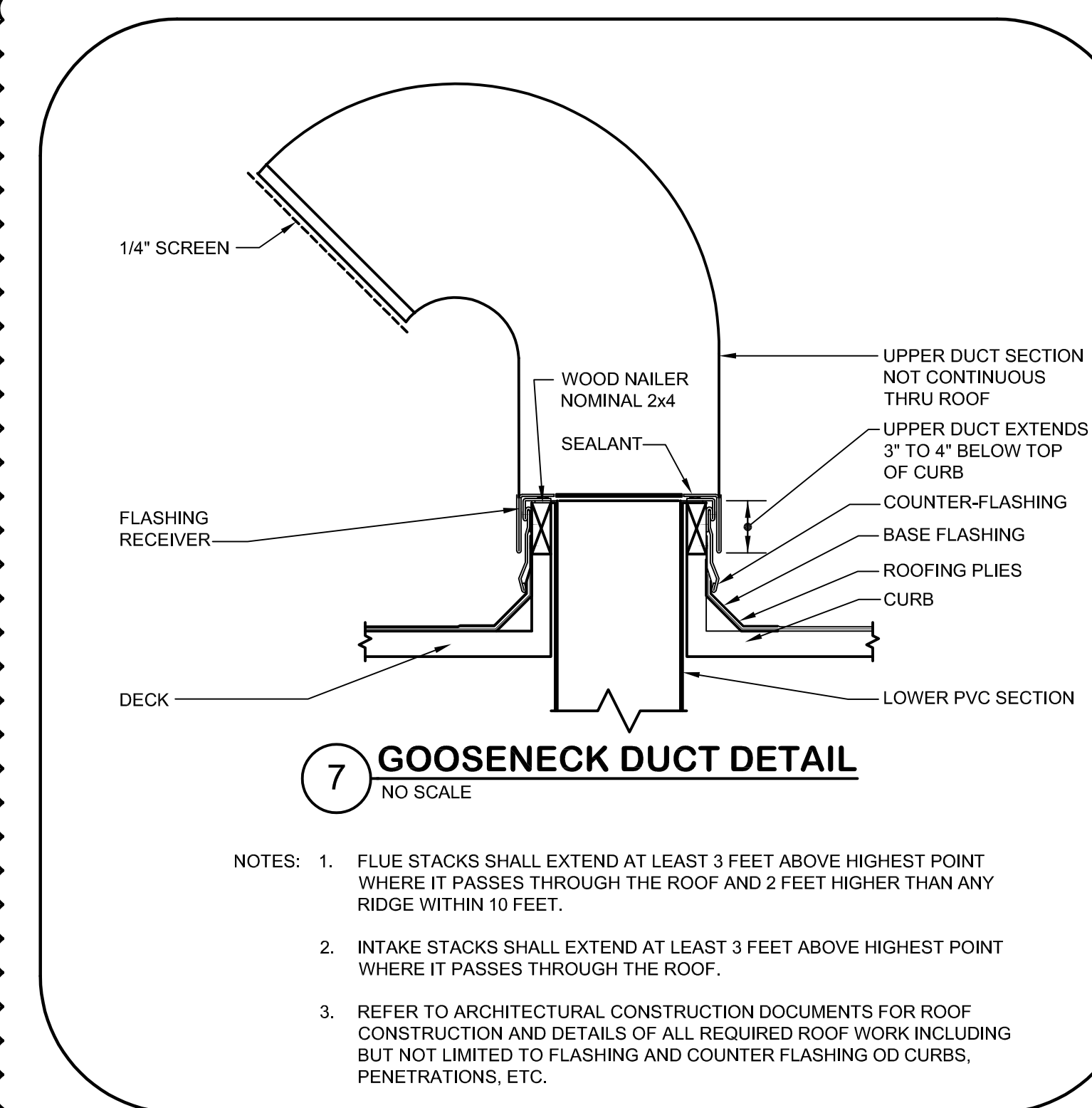
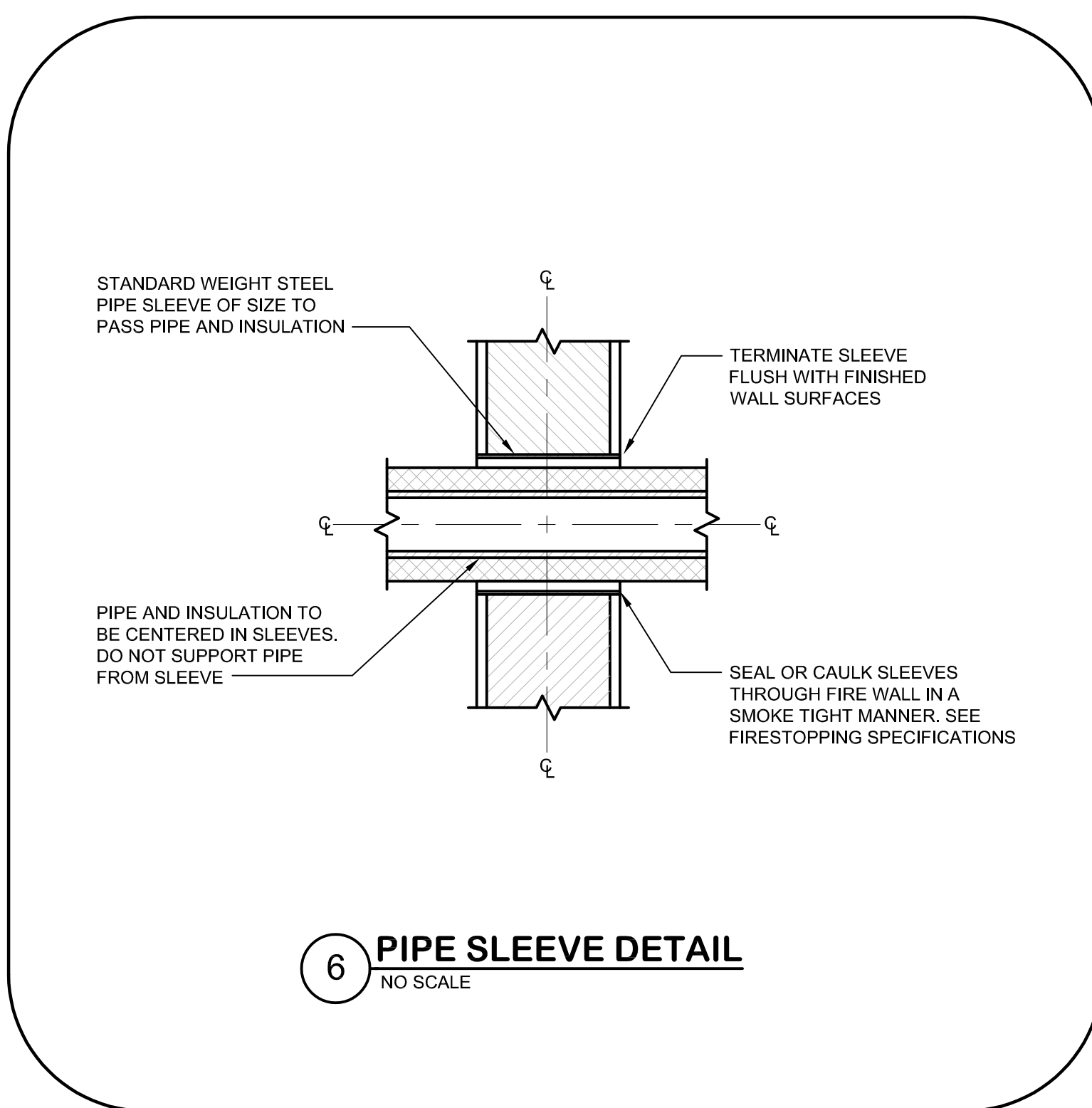
NOTE: MAJOR DUCT IS ANY SIDE 25\"/>



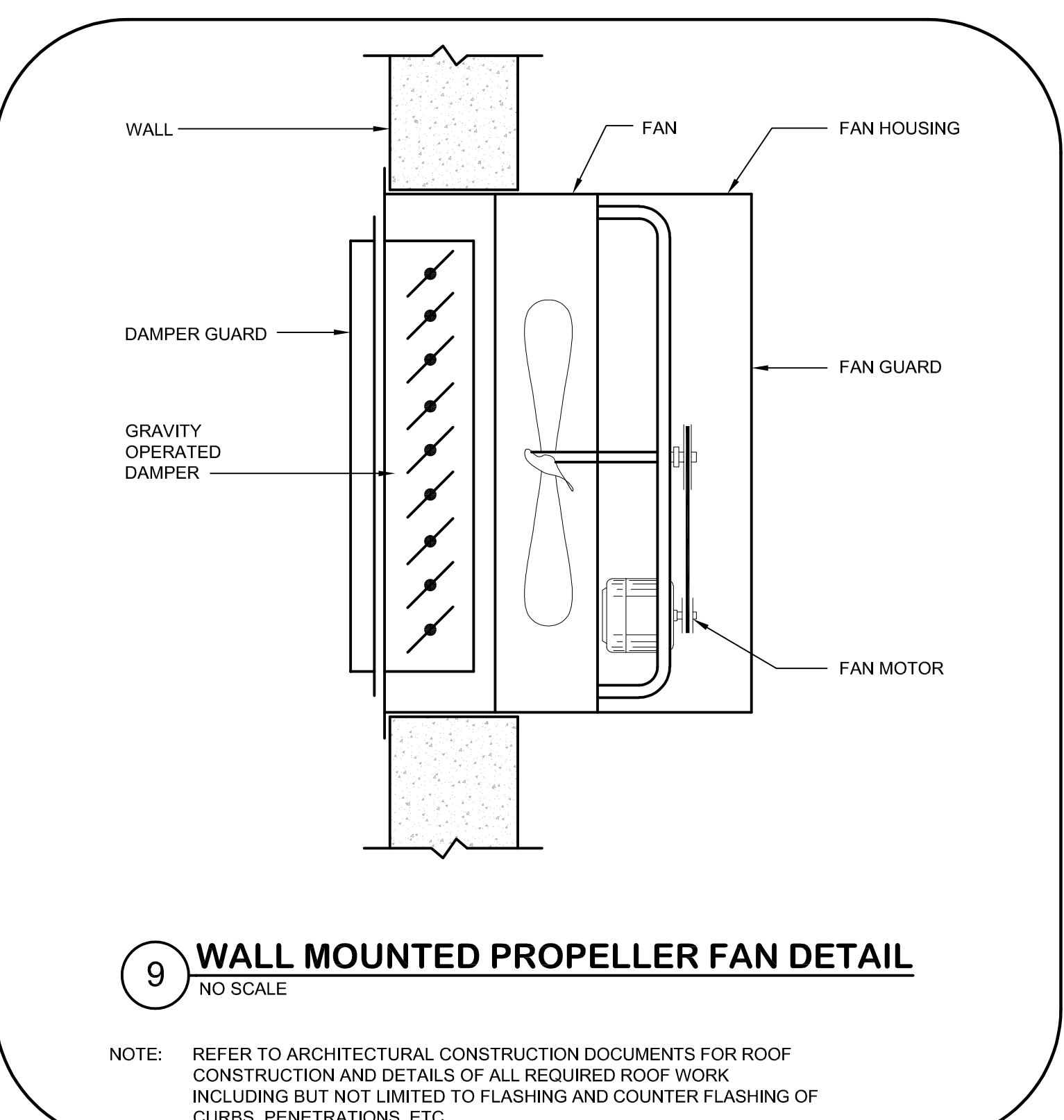
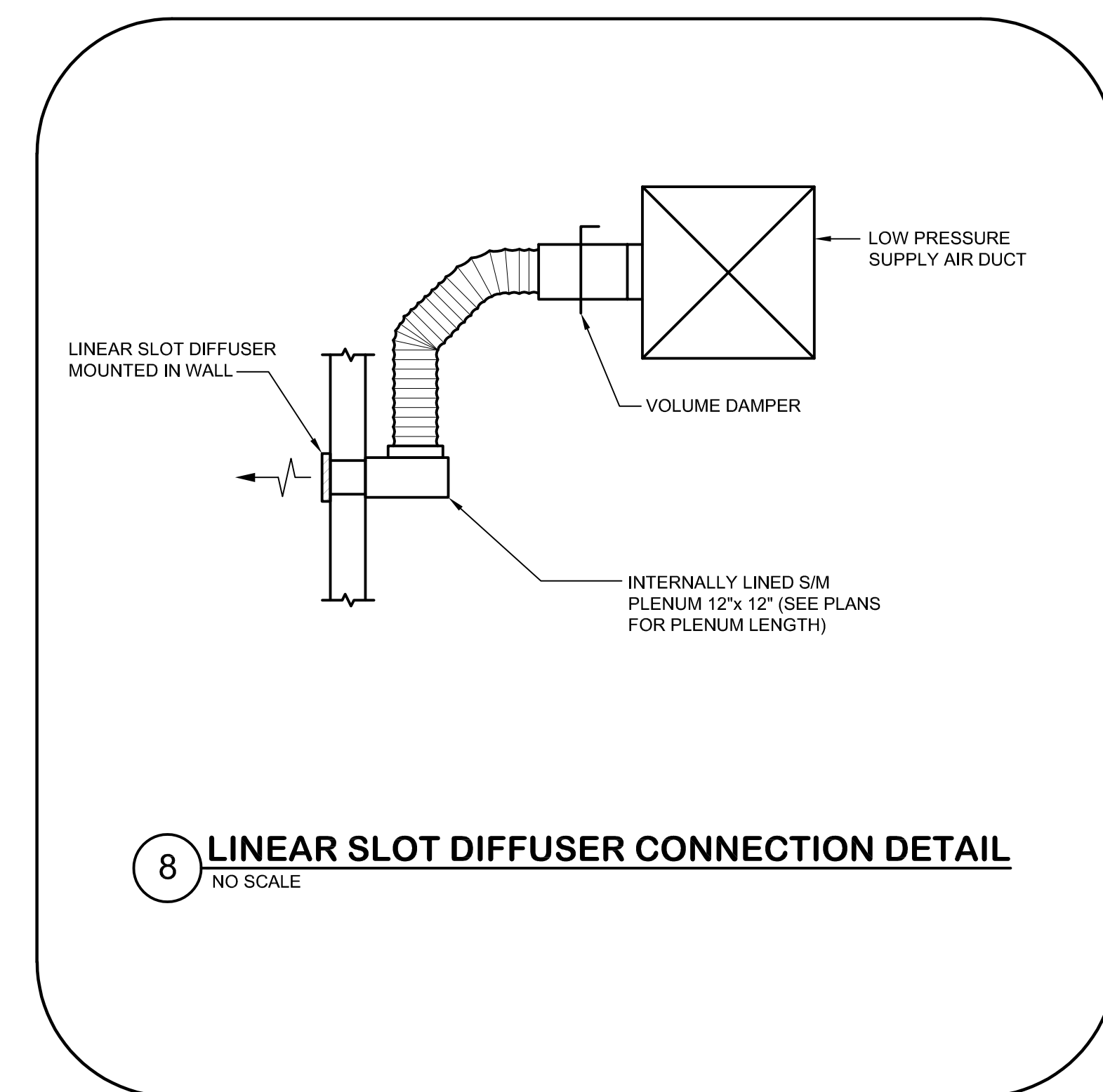
NOTE: THIS DETAIL APPLIES TO BOTH ELBOWS & TEES IN VERTICAL AND HORIZONTAL APPLICATIONS.



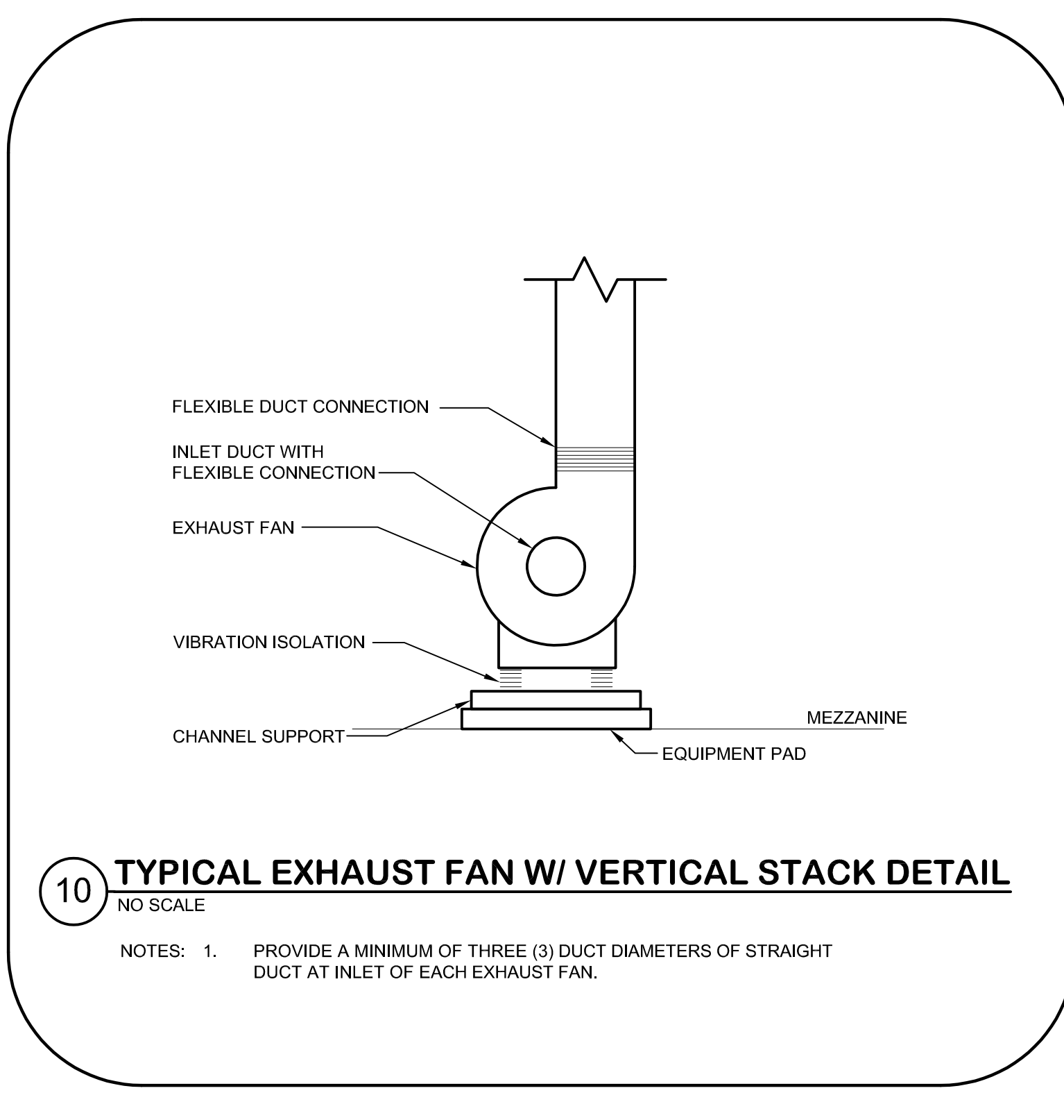
NOTE: HOUSEKEEPING PAD SHALL BE A MINIMUM OF 4\"/>



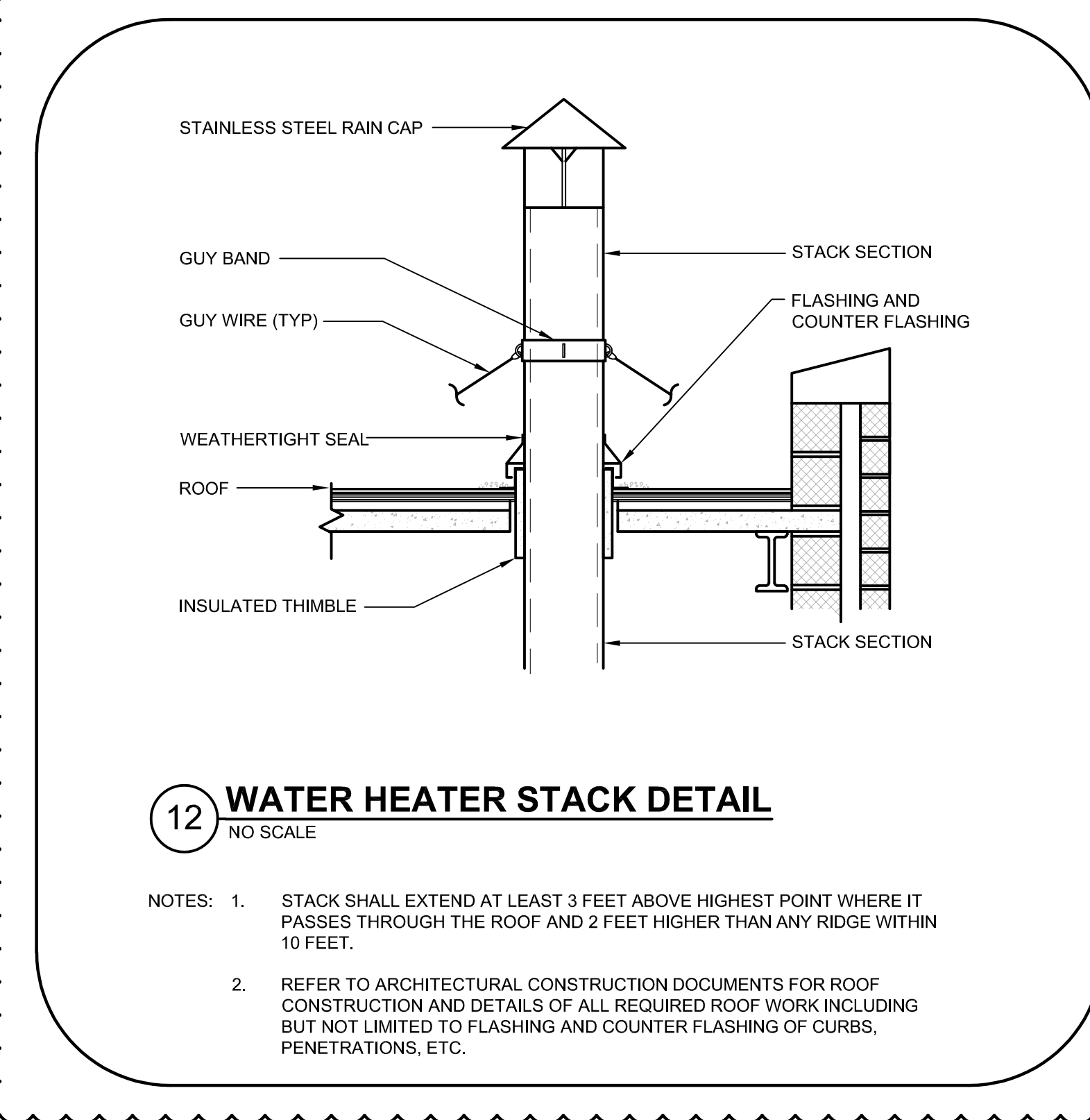
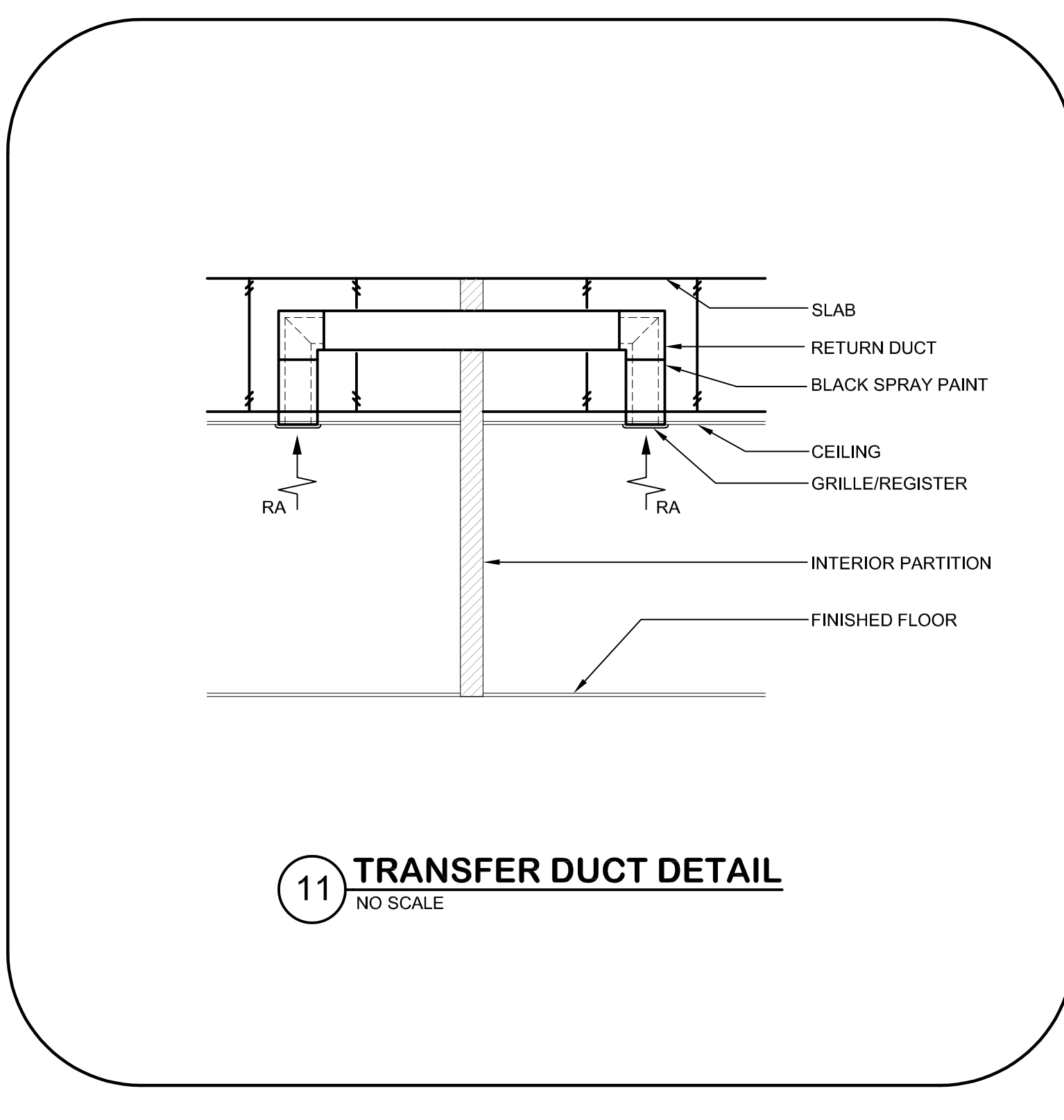
NOTES: 1. FLUE STACKS SHALL EXTEND AT LEAST 3 FEET ABOVE HIGHEST POINT WHERE IT PASSES THROUGH THE ROOF AND 2 FEET HIGHER THAN ANY RIDGE WITHIN 10 FEET.  
 2. INTAKE STACKS SHALL EXTEND AT LEAST 3 FEET ABOVE HIGHEST POINT WHERE IT PASSES THROUGH THE ROOF.  
 3. REFER TO ARCHITECTURAL CONSTRUCTION DOCUMENTS FOR ROOF CONSTRUCTION AND DETAILS OF ALL REQUIRED ROOF WORK INCLUDING BUT NOT LIMITED TO FLASHING AND COUNTER FLASHING OF CURBS, PENETRATIONS, ETC.



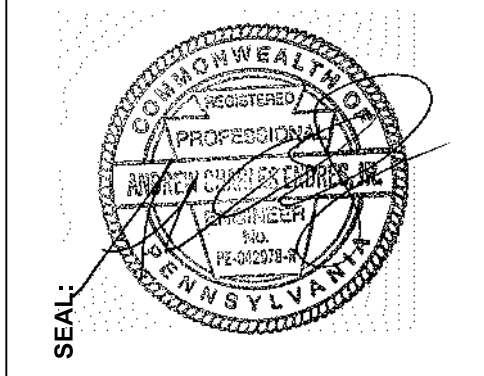
NOTE: REFER TO ARCHITECTURAL CONSTRUCTION DOCUMENTS FOR ROOF CONSTRUCTION AND DETAILS OF ALL REQUIRED ROOF WORK INCLUDING BUT NOT LIMITED TO FLASHING AND COUNTER FLASHING OF CURBS, PENETRATIONS, ETC.



NOTES: 1. PROVIDE A MINIMUM OF THREE (3) DUCT DIAMETERS OF STRAIGHT DUCT AT INLET OF EACH EXHAUST FAN.



NOTES: 1. STACK SHALL EXTEND AT LEAST 3 FEET ABOVE HIGHEST POINT WHERE IT PASSES THROUGH THE ROOF AND 2 FEET HIGHER THAN ANY RIDGE WITHIN 10 FEET.  
 2. REFER TO ARCHITECTURAL CONSTRUCTION DOCUMENTS FOR ROOF CONSTRUCTION AND DETAILS OF ALL REQUIRED ROOF WORK INCLUDING BUT NOT LIMITED TO FLASHING AND COUNTER FLASHING OF CURBS, PENETRATIONS, ETC.

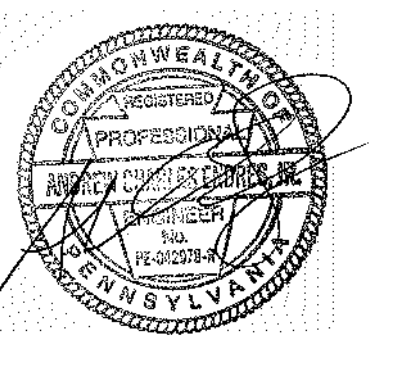


THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS BOTH THE DRAWINGS AND THE PROJECT MANUAL AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDUM 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS. DRAWINGS & SPECIFICATIONS, ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

CUMRU FIRE DEPARTMENT  
 1775 WELSH ROAD  
 MOHNTON, PA 19540

NO.	DESCRIPTION	DATE
2	ADDENDUM 2	1/5/2024

PROJECT NUMBER:  
 18-036  
 PROJECT SET:  
 BID SET  
 DATE ISSUED:  
 11/30/2023



THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS. SINCE THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

**CUMRU FIRE DEPARTMENT**  
1775 WELSH ROAD  
MOHNTON, PA 19540

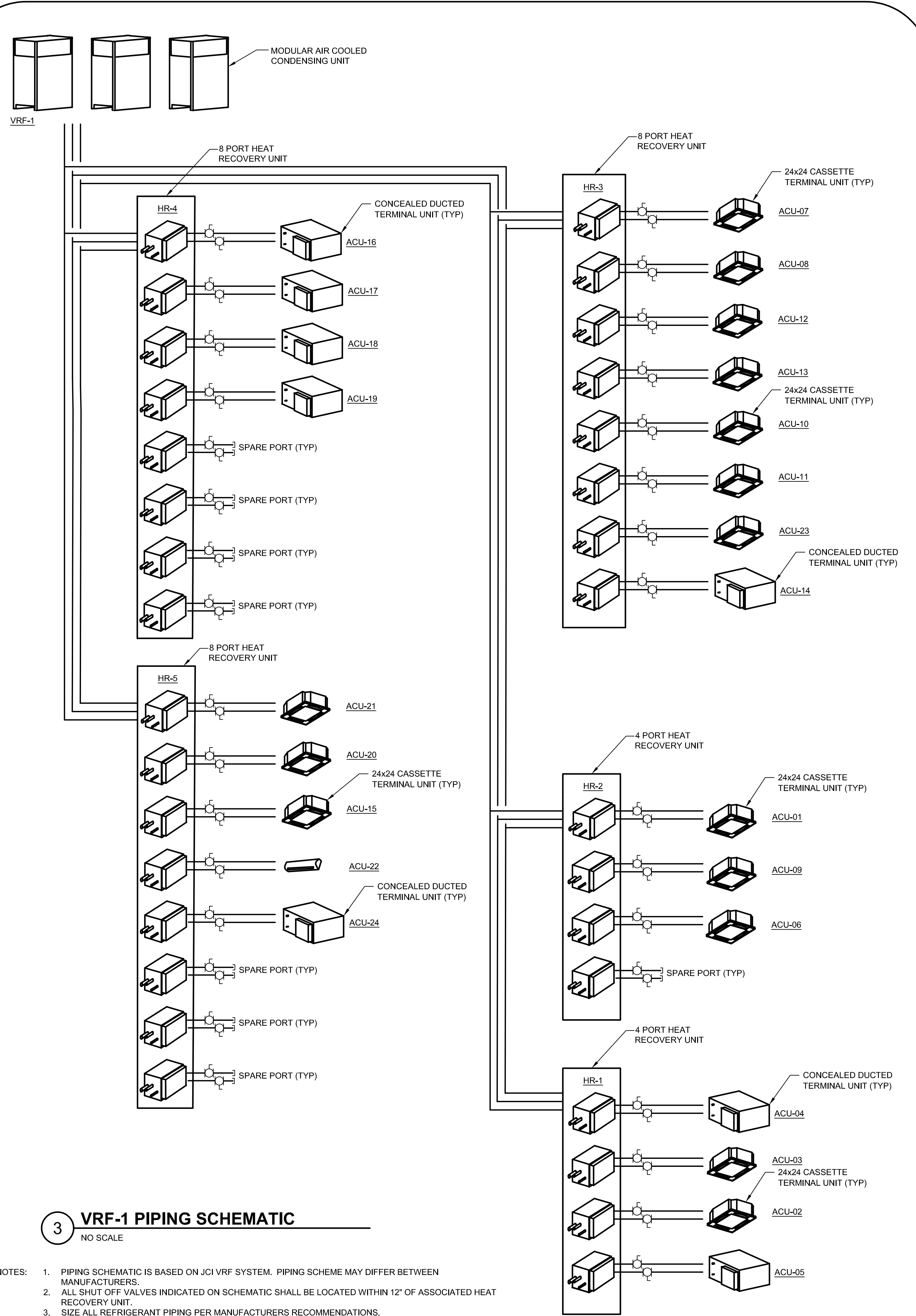
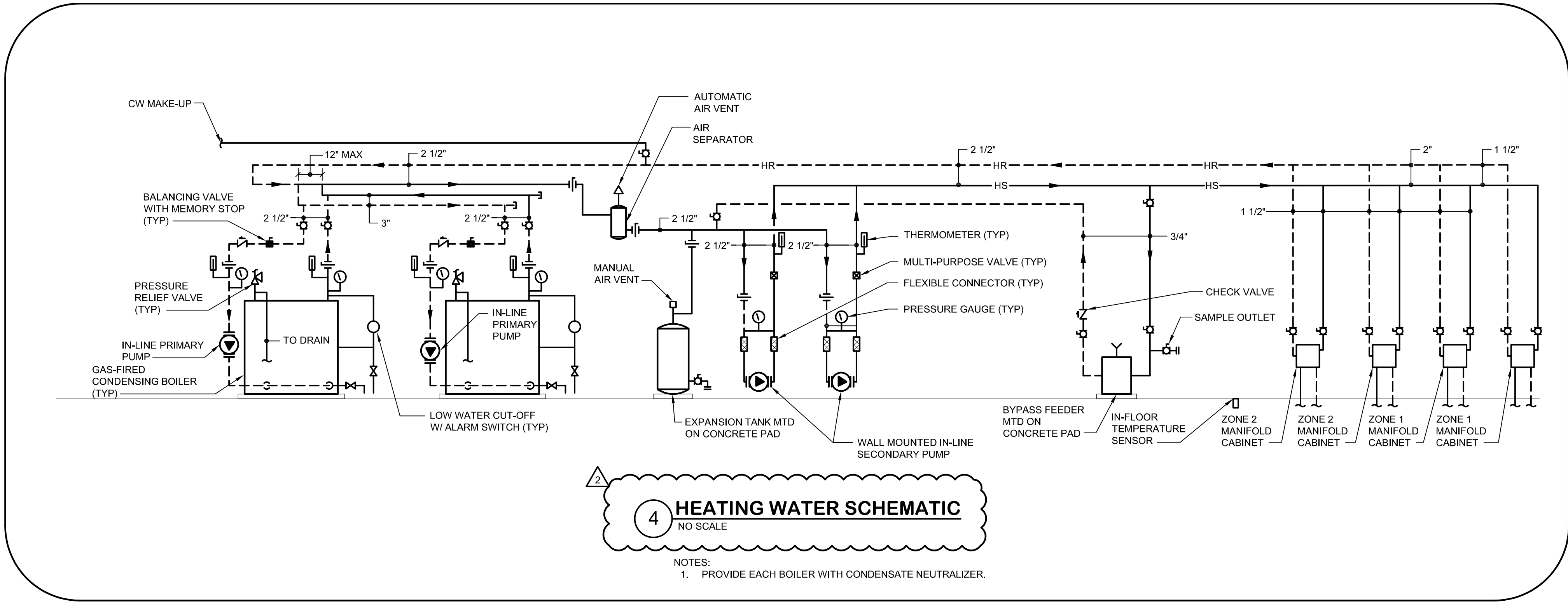
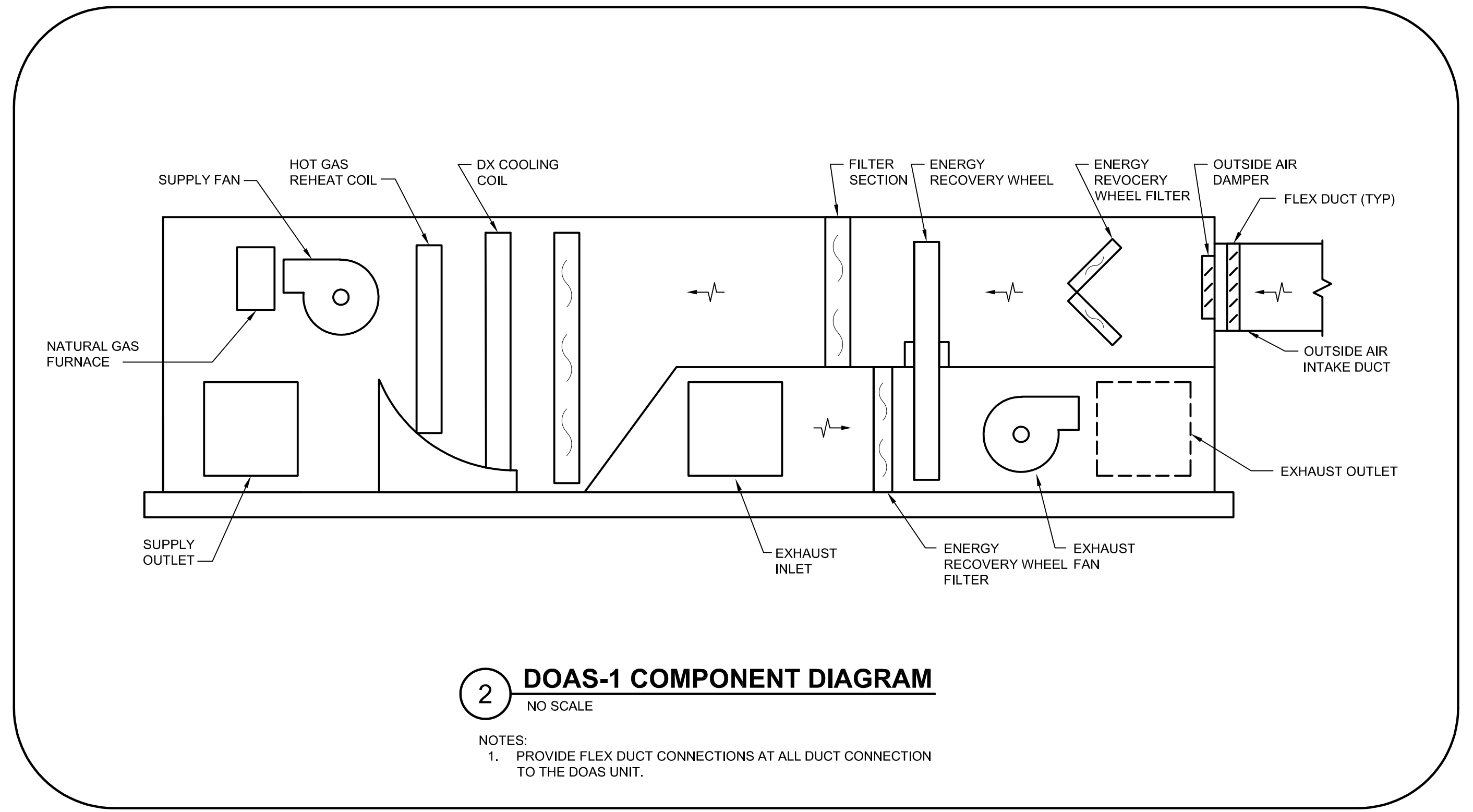
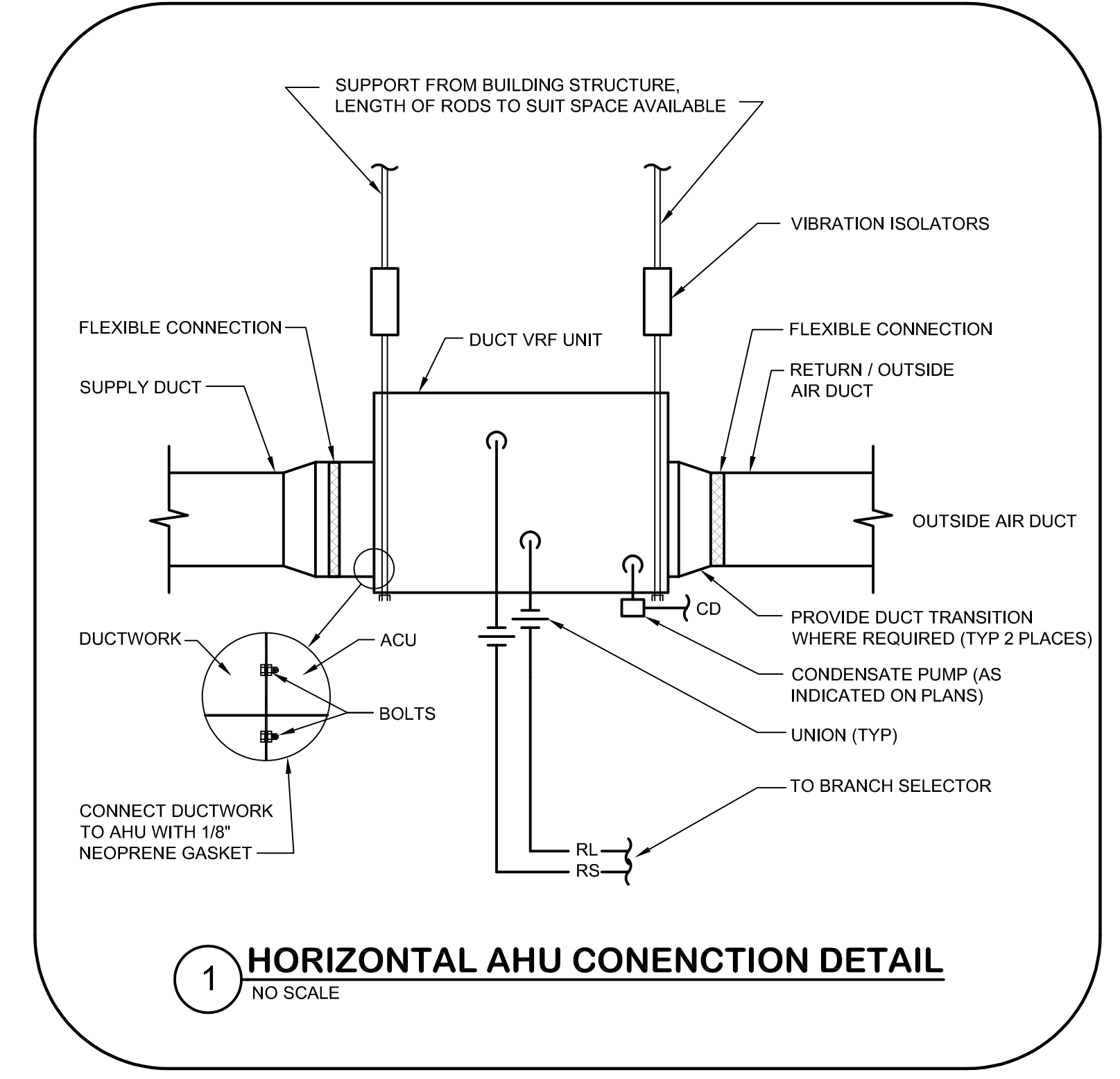
NO.	DESCRIPTION	DATE
2	ADDENDUM 2	1/5/2024

PROJECT NUMBER:  
18-036  
PROJECT SET:  
BID SET  
DATE ISSUED:  
11/30/2023

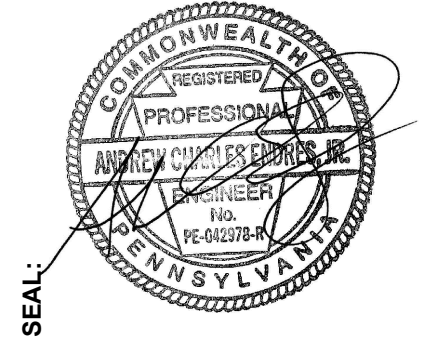
DRAWING TITLE:  
MECHANICAL DETAILS

SHEET NUMBER:  
**M502**

BKM# 190201



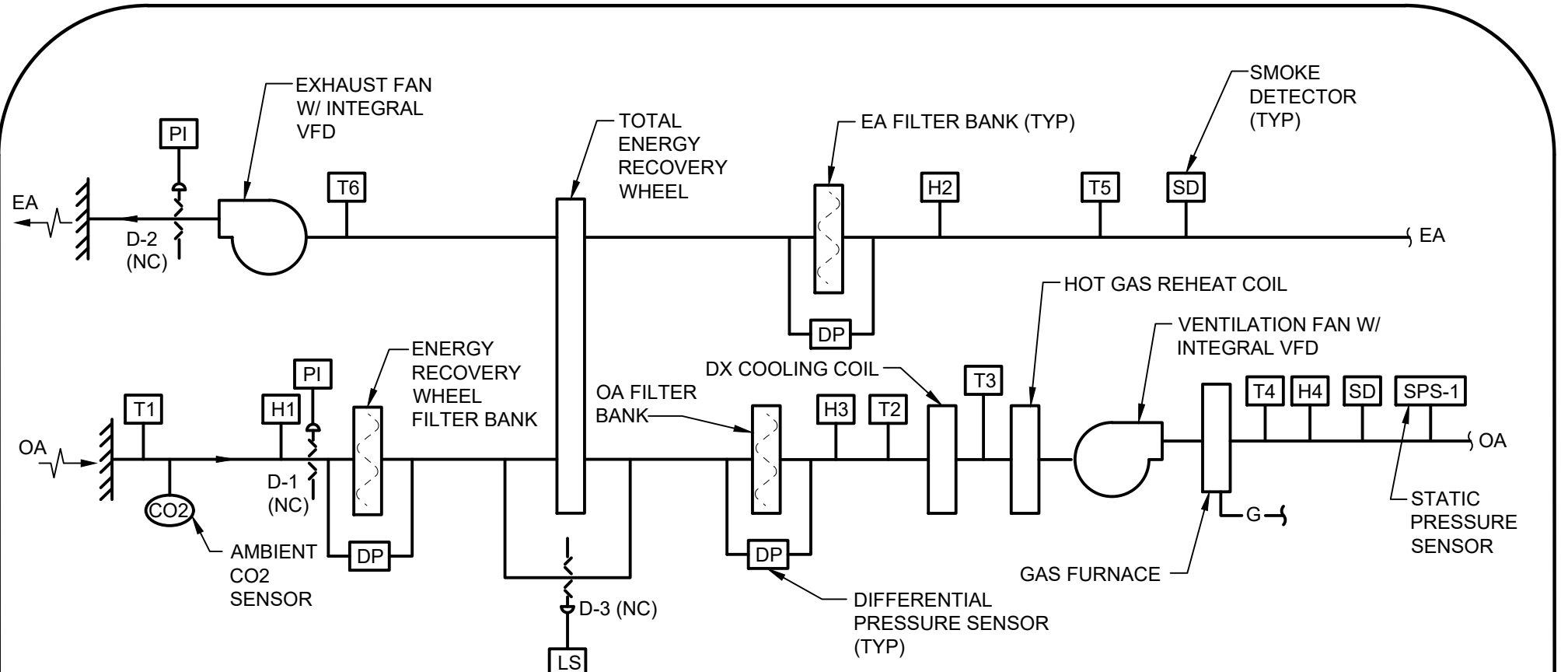
- NOTES:
1. PIPING SCHEMATIC IS BASED ON JCI VRF SYSTEM. PIPING SCHEME MAY DIFFER BETWEEN MANUFACTURERS.
  2. ALL SHUT OFF VALVES INDICATED ON SCHEMATIC SHALL BE LOCATED WITHIN 12" OF ASSOCIATED HEAT RECOVERY UNIT.
  3. SIZE ALL REFRIGERANT PIPING PER MANUFACTURERS RECOMMENDATIONS.
  4. WHERE SPARE PARTS ARE INDICATED IN THE SCHEMATIC ABOVE, PROVIDE PORT THAT CAN ACCOMMODATE AN ADDITIONAL 7.5 NOMINAL MBH TERMINAL UNIT.



SEAL

**CONSULTANT:**  
**bkm**  
 Burdette, Kottler, Murphy & Associates, Inc.  
 800 Baltimore Blvd., Suite 300 | Baltimore, Maryland 21201  
 P: 410-528-0001 | www.bkm.com

THIS CONFORMED SET IS COMPOSED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDUM 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SUPPLEMENTAL TO THE CONTRACT DOCUMENTS. SINCE THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM THE CONTRACT DOCUMENTS, IT IS NOT TO BE USED TO MODIFY THE CONTRACT DOCUMENTS.



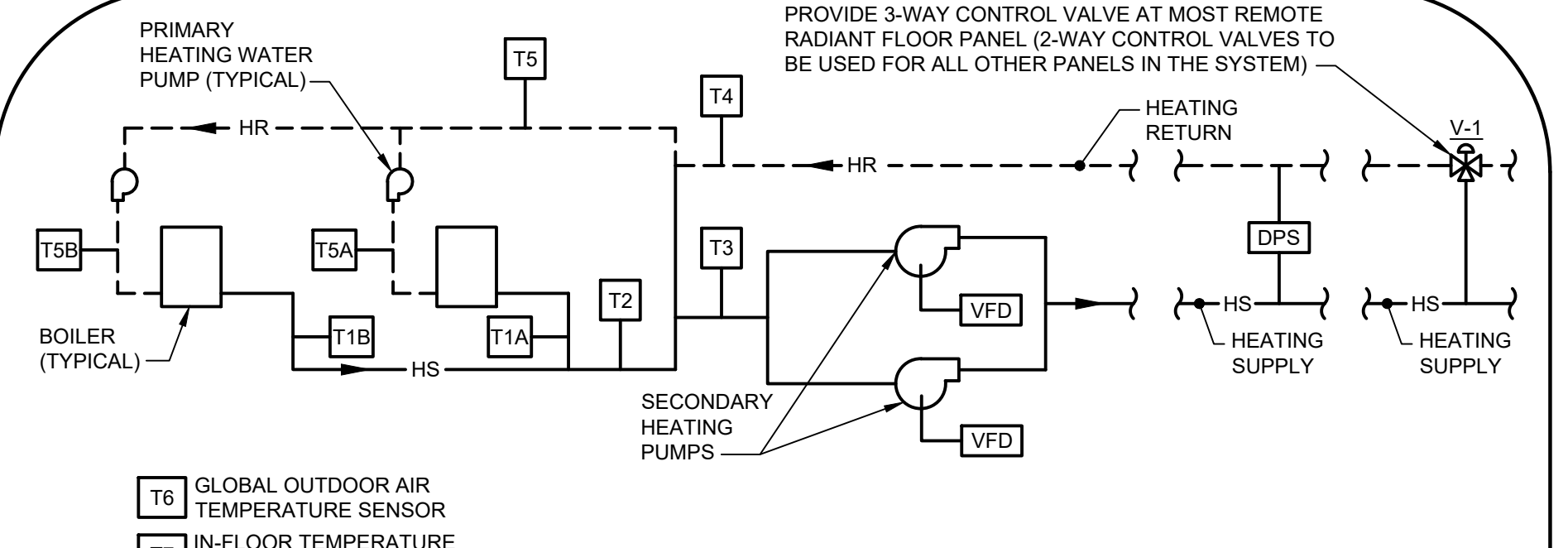
**DOAS-1 UNIT CONTROL**

**B** MANUAL FIRE DEPARTMENT HVAC SHUTDOWN (REFER TO FLOOR PLANS FOR LOCATION)  
**CO** SPACE CARBON MONOXIDE SENSOR (REFER TO FIRE ALARM DRAWINGS FOR MORE INFORMATION)

- GENERAL
  - DOAS-1 SHALL BE CAPABLE OF OPERATING IN OCCUPIED AND UNOCCUPIED MODES BASED ON PROGRAMMED ATC TIME SCHEDULE. HOWEVER, THE INITIAL OCCUPIED PERIOD SHALL BE SET TO 24 HOURS A DAY, 7 DAYS A WEEK (ADJUSTABLE).
  - VENTILATION FAN AND EXHAUST FAN OPERATION SHALL BE INTERLOCKED. VENTILATION AND EXHAUST FANS SHALL OPERATE CONTINUOUSLY IN THE OCCUPIED MODE. D-1 AND D-2 SHALL BE FULLY OPEN IN OCCUPIED MODE. VENTILATION FAN AND EXHAUST FAN SHALL BE DE-ENERGIZED IN UNOCCUPIED MODE AND DAMPERS D-1 AND D-2 SHALL BE FULLY CLOSED.
  - H-O-A SWITCH SHALL BE KEPT IN "AUTO" POSITION. IN "OFF" POSITION, D-1 AND D-2 SHALL BE FULLY CLOSED.
  - PROVIDE SEPARATE, INDEPENDENT LINKAGE CONTROL FOR EACH M.O.D. (D-1 & D-2).
- TEMPERATURE CONTROL
  - OCCUPIED:
    - VENTILATION TEMPERATURE SETPOINT: 60°F (ADJUSTABLE) AS MEASURED BY T4.
    - MODULATE THE DX SYSTEM OR GAS FIRED FURNACE AS REQUIRED TO MAINTAIN THE VENTILATION TEMPERATURE SETPOINT.
    - DEHUMIDIFICATION:
      - WHEN THE HUMIDITY, AS SENSED BY H2, RISES ABOVE 55% RH (ADJUSTABLE), THE DX SYSTEM SHALL ENERGIZE AND/OR MODULATE TO MAINTAIN A LEAVING AIR TEMPERATURE OF 55°F (ADJUSTABLE) AT T3 AND AND MODULATE HOT GAS REHEAT COIL AS REQUIRED TO MAINTAIN THE VENTILATION TEMPERATURE SETPOINT AT T4.
      - WHEN THE HUMIDITY, AS SENSED BY H2, FALLS BELOW 45% (ADJUSTABLE), RETURN TO OCCUPIED TEMPERATURE CONTROL INDICATED IN SECTION 2.1 ABOVE.
  - UNOCCUPIED:
    - THE VENTILATION FAN AND EXHAUST FAN SHALL BE DE-ENERGIZED AND DAMPERS D-1 AND D-2 SHALL BE CLOSED.
- AIR FLOW CONTROL
  - INITIAL OUTDOOR AIRFLOW SETPOINT SHALL BE AS INDICATED IN THE DEDICATED OUTDOOR AIR SYSTEM SCHEDULE.
- MISCELLANEOUS
  - THE BAS SHALL MONITOR FILTER LOADING ACROSS EACH FILTER BANK. ALARM AT THE BAS.
  - ON FAILURE OF VENTILATION FAN, EXHAUST FAN SHALL BE DE-ENERGIZED AND DAMPERS D-1 AND D-2 SHALL CLOSE. ALARM AT BAS.
  - ON FAILURE OF EXHAUST FAN, D-2 SHALL CLOSE. ALARM AT BAS.
  - DE-ENERGIZE VENTILATION AND EXHAUST FANS WHEN HVAC SHUTDOWN IS PRESSED. ALARM AT THE BAS.
  - CARBON MONOXIDE (CO) DETECTORS LOCATED IN FIRST SPACES SERVED BY THE DOAS UNIT SHALL SHUT DOWN GAS FIRED FURNACE AND DOAS UPON SENSING CARBON MONOXIDE. THE GAS FURNACE SHALL REMAIN DE-ENERGIZED UNTIL MANUALLY RESET.
  - SMOKE DETECTORS (SD) LOCATED IN THE OUTSIDE AIR AND EXHAUST AIR DUCTS SHALL DE-ENERGIZE FAN AND CLOSE ASSOCIATED SMOKE DAMPERS SHOULD PRODUCTS OF COMBUSTION BE SENSED. ALARM AT THE BAS. ERV-1 SHALL REMAIN DE-ENERGIZED UNTIL MANUALLY RESET.

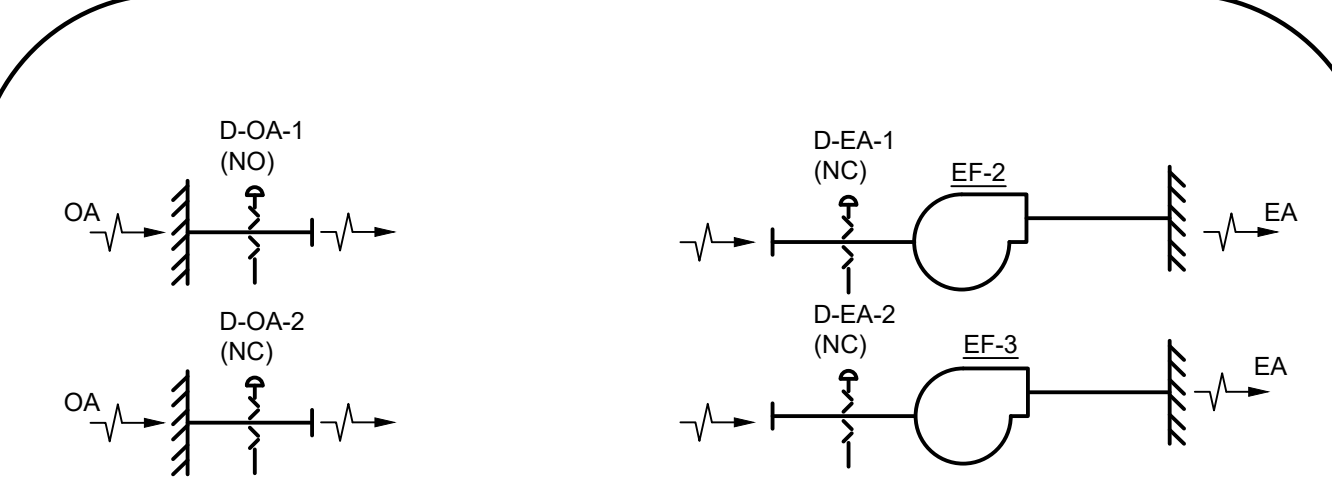
**EXHAUST FAN CONTROL**

- EXHAUST FAN EF-1:**
- IN OCCUPIED MODE FAN MOD SHALL OPEN AND FAN SHALL ENERGIZE AND RUN CONTINUOUSLY.
  - IN UNOCCUPIED MODE FAN SHALL DE-ENERGIZE AND FAN MOD SHALL CLOSE.
- EXHAUST FAN EF-4:**
- FAN MOD SHALL OPEN WHEN SPACE TEMPERATURE RISES TO 85°F (ADJUSTABLE) AND FAN SHALL ENERGIZE.
  - FAN SHALL RUN CONTINUOUSLY UNTIL SPACE TEMPERATURE FALLS BELOW 80°F (ADJUSTABLE); FAN SHALL DE-ENERGIZE AND MOD SHALL CLOSE.
  - SIGNAL AN ALARM TO THE BAS IF THE SPACE TEMPERATURE FALLS BELOW 40°F (ADJUSTABLE).
- VENTILATION FAN V-1 AND ELECTRIC DUCT HEATER EDH-1:**
- PROVIDE A DUCT MOUNTED THERMOSTAT FOR CONTROL OF EDH-1.
  - IN OCCUPIED MODE FAN MOD SHALL OPEN AND FAN SHALL ENERGIZE AND RUN CONTINUOUSLY.
  - IN UNOCCUPIED MODE FAN SHALL DE-ENERGIZE AND FAN MOD SHALL CLOSE.
  - EDH-1 SHALL OPERATE AS REQUIRED TO MAINTAIN A SUPPLY AIR TEMPERATURE OF 70°F (ADJUSTABLE).



**HEATING WATER CONTROL**

- THE BOILER PLANT SHALL BE ENERGIZED WHEN THE OUTDOOR AIR TEMPERATURE FALLS BELOW 55°F (ADJUSTABLE).
- BOILERS AND SECONDARY PUMPS SHALL BE CONFIGURED IN A LEADLAG CONFIGURATION. LEAD AND LAG DESIGNATIONS SHALL ALTERNATE EVERY 300 HOURS RUN TIME.
- WHEN THE BOILER PLANT IS ENERGIZED, THE LEAD BOILER AND ASSOCIATED PRIMARY PUMP SHALL OPERATE CONTINUOUSLY. PRIMARY PUMP SHALL BE ENERGIZED THROUGH THE BOILER BURNER PANEL SUCH THAT THE PUMP SHALL RUN CONTINUOUSLY WHENEVER THE BURNER CONTROLS ARE ENERGIZED. WHEN BOILER IS DE-ENERGIZED, PRIMARY PUMP SHALL OPERATE FOR 15 MINUTES (ADJUSTABLE) THEN DE-ENERGIZE.
- ENERGIZE LEAD SECONDARY PUMP AND OPERATE CONTINUOUSLY WHEN BOILER(S) ARE ENERGIZED. LAG PUMP SHALL START AUTOMATICALLY (AFTER 30 SECOND TIME DELAY) WHEN LOSS OF FLOW IS SENSED BY CURRENT SENSING RELAYS LOCATED ON EACH PUMP.
- DIFFERENTIAL PRESSURE CONTROL:
  - DIFFERENTIAL PRESSURE SENSOR (DPS) SHALL CONTROL THE SECONDARY PUMP VFD'S TO MAINTAIN SYSTEM DIFFERENTIAL PRESSURE SETPOINT. DIFFERENTIAL PRESSURE SETPOINT TO BE FIELD DETERMINED BY THE ATC CONTRACTOR. SHOULD VFD'S REACH MINIMUM TURNDOWN, DPS SHALL MODULATE V-1 TO MAINTAIN DIFFERENTIAL PRESSURE SETPOINT.
  - DIFFERENTIAL PRESSURE RESET: THE VALVE POSITION OF ALL CONTROL VALVES SHALL BE MONITORED THROUGH THE EMCS (VALVE POSITION SHALL BE POLLED EVERY 10 MINUTES - ADJUSTABLE). THE DIFFERENTIAL PRESSURE SETPOINT SHALL BE DECREASED INCREMENTALLY UNTIL AT LEAST ONE VALVE IS A MINIMUM OF 90% (ADJUSTABLE) OPEN. SHOULD ONE OR MORE OF THE VALVES BE GREATER THAN 95% (ADJUSTABLE) OPEN, THE SETPOINT SHALL BE INCREASED INCREMENTALLY, NOT TO EXCEED THE MAXIMUM SETPOINT.
- LEAD BOILER SHALL MODULATE TO MAINTAIN A LEAVING WATER SETPOINT OF 120°F (ADJUSTABLE) AS SENSED BY T3. ENERGIZE LAG BOILER IF LEAVING WATER TEMPERATURE FALLS TO 118 DEGREES F (ADJUSTABLE). DE-ENERGIZE LAG BOILER IF LOAD ON BOTH BOILERS FALLS BELOW 25% (ADJUSTABLE).
- BOILER INTERNAL TEMPERATURE SENSORS SHALL SIGNAL AN ALARM TO THE EMCS AND THE BOILERS SHALL BE DE-ENERGIZED WHEN A HIGH TEMPERATURE DIFFERENCE IS DETECTED BETWEEN THE BOILER ENTERING WATER AND THE BOILER LEAVING WATER.
- RADIANT FLOOR CONTROL:
  - THE RADIANT FLOOR ZONE TEMPERATURE SENSOR SHALL MODULATE THE ASSOCIATED CONTROL VALVES TO MAINTAIN ZONE TEMPERATURE SETPOINT (65°F ADJUSTABLE) AS SENSED BY SPACE THERMOSTATS. IN-FLOOR TEMPERATURE SENSOR SHALL MODULATE V-1 TO BYPASS IF THE FLOOR SURFACE TEMPERATURE RISES TO 85 DEG. F (ADJUSTABLE).
  - SIGNAL AN ALARM TO THE EMCS IF THE ZONE TEMPERATURE FALLS TO 5°F (ADJUSTABLE) BELOW ZONE TEMPERATURE SETPOINT.



**APPARATUS BAY EXHAUST FAN CONTROL**

- GENERAL
  - SYSTEM SHALL OPERATE IN NORMAL OPERATION MODE AND PURGE MODE BASED ON CO AND NO2 CONCENTRATION IN THE APPARATUS BAY.
  - SYSTEM SHALL ENTER PURGE MODE WHEN CO CONCENTRATION RISES TO 35 PPM (ADJUSTABLE) OR THE NO2 CONCENTRATION RISES TO 1.0 PPM (ADJUSTABLE) OR HIGHER.
- NORMAL OPERATION MODE
  - WHEN THE APPARATUS BAY CO AND NO2 CONCENTRATIONS ARE BELOW THE PURGE SETPOINTS, OPEN D-OA-1 AND D-EA-1 TO MINIMUM OPEN POSITIONS AND ENERGIZE EF-2. EF-2 SHALL RUN CONTINUOUSLY DURING NORMAL OPERATION MODE. D-OA-2 AND D-EA-2 SHALL BE CLOSED AND EF-3 SHALL BE DE-ENERGIZED.
- PURGE MODE
  - WHEN THE APPARATUS BAY CO OR NO2 CONCENTRATIONS RISE TO THE PURGE SETPOINTS, OPEN D-OA-1, D-OA-2, D-EA-1 AND D-EA-2 TO FULL OPEN POSITION. ENERGIZE EF-2 AND EF-3. EF-2, AND EF-3 SHALL RUN CONTINUOUSLY DURING PURGE MODE.
  - PURGE MODE SHALL LAST A MINIMUM OF 5 MINUTES (ADJUSTABLE). IF AFTER 5 MINUTES OF OPERATION THE APPARATUS BAY CO OR NO2 CONCENTRATIONS REMAIN ABOVE THE PURGE MODE SETPOINTS, PURGE MODE SHALL CONTINUE. IF AT ANY POINT AFTER 5 MINUTES OF OPERATION THE APPARATUS BAY CO AND NO2 CONCENTRATIONS FALL BELOW THE PURGE MODE SETPOINTS, PURGE MODE SHALL END. DE-ENERGIZE EF-3 AND CLOSE D-OA-2 AND D-EA-2 AND THE SYSTEM SHALL RETURN TO NORMAL OPERATION MODE.
- MISCELLANEOUS
  - SIGNAL A CRITICAL ALARM TO THE BAS IF THE CO CONCENTRATION RISES TO 100 PPM (ADJUSTABLE) OR THE NO2 CONCENTRATION RISES TO 5 PPM (ADJUSTABLE).
  - SIGNAL A CRITICAL ALARM TO THE BAS IF THE SPRINKLER PIPE FREEZE PROTECTION T-STATS DETECT A SPACE TEMPERATURE AT 40°F (ADJUSTABLE) OR LOWER.

**ATC GENERAL NOTES**

- THE ATC WORK SHALL INCLUDE PROVISIONS FOR A COMPLETE AND OPERABLE CONTROL SYSTEM, INCLUDING ALL REQUIRED TO ACHIEVE THE SEQUENCES AND FUNCTIONS INDICATED THROUGHOUT THE CONTRACT DOCUMENTS. ALL COMPONENTS MUST BE BACNET COMPATIBLE.
- VRF AND DEDICATED OUTDOOR AIR SYSTEMS TO BE PROVIDED WITH PACKAGED CONTROLS. CONTROLS MUST BE BACNET COMPATIBLE. BUILDING AUTOMATION SYSTEM (BAS) MUST BE CAPABLE OF MONITORING VRF AND DEDICATED OUTDOOR AIR SYSTEM PACKED CONTROLS.
- THE ATC CONTRACTOR SHALL FURNISH AND INSTALL ALL ELECTRICAL WIRING AND CONDUIT FROM POWER SOURCE, INCLUDING TERMINATION TO ALL REQUIRED ATO RELATED POWER CONNECTIONS INCLUDING, BUT NOT LIMITED TO, DDC CONTROLLERS (PROVIDE LOW VOLTAGE CONTROLLER FOR VRF INDOOR UNITS INCLUDING TRANSFORMERS AND DISCONNECT SWITCHES AS REQUIRED), SENSORS, VALVE AND DAMPER ACTUATORS (INCLUDING SMOKE DAMPERS), AIR FLOW MONITORS, ATC PANELS, ETC. THE ATC CONTRACTOR SHALL OBTAIN A SEPARATE ELECTRICAL PERMIT AS REQUIRED BY THE LOCAL AUTHORITY. THE ATC CONTRACTOR SHALL BE WHOLLY RESPONSIBLE FOR ALL POWER REQUIREMENTS NECESSARY FOR A COMPLETE INSTALLATION FROM THE POWER SOURCE TO ALL ATC RELATED CONNECTIONS.
- THE ATC CONTRACTOR SHALL COORDINATE AND VERIFY THAT ALL CONTROLLERS, DEVICES AND ACCESSORIES ARE PROVIDED AS REQUIRED TO ACCOMPLISH ALL CONTROL FUNCTIONS AND SEQUENCES INDICATED IN THE CONTRACT DOCUMENTS, WHERE CONTROL RELATED DEVICES ARE NOT PROVIDED BY AN EQUIPMENT MANUFACTURER, IT SHALL BE THE RESPONSIBILITY OF THE ATC CONTRACTOR TO PROVIDE THE CONTROL DEVICES REQUIRED TO ACCOMPLISH THE FUNCTIONS AND SEQUENCES INDICATED.
- DDC PANELS MUST INCLUDE ETHERNET PORT FOR A LAPTOP CONNECTION TO MONITOR AND ADJUST UNIT OPERATION. WHEN DDC PANELS ARE SHOWN ON DRAWINGS, PROVIDE MULTIPLE PANELS AS REQUIRED TO IMPLEMENT THE SEQUENCE OF OPERATIONS AND CONTROL POINTS. ALL CONTROL PANELS LOCATED ON THE ROOF MUST INCLUDE A WEATHER PROOF ENCLOSURE.
- PROVIDE CENTRAL WORKSTATION LOCATED IN THE ENGINEER'S OFFICE - 144 (OR AS INDICATED BY OWNER).
- ALARMS MUST BE INDICATED ON THE UNIT CONTROL PANELS AND AT THE CENTRAL WORKSTATION. ALARMS MUST BE IN PLAIN ENGLISH AND MUST CLEARLY DESCRIBE THE ALARM CONDITION WITHOUT THE NEED FOR ADDITIONAL REFERENCE INFORMATION. FOR EXAMPLE, THE ALARM FOR A DOAS FAN FAILURE MUST BE "DOAS-1 FAN FAILURE". NUMERIC OR ALPHANUMERIC ALARMS ARE NOT ACCEPTABLE.
- EACH AIR DISTRIBUTION SYSTEM SHALL BE PROVIDED WITH NOT LESS THAN ONE (1) MANUALLY OPERABLE MEANS TO STOP THE OPERATION OF THE SUPPLY, RETURN AND EXHAUST FAN(S) IN AN EMERGENCY. THE MEANS OF MANUAL OPERATION SHALL BE LOCATED AT A LOCATION APPROVED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ). TYPICALLY, PROVIDE A MANUAL FIRE DEPARTMENT HVAC SHUTDOWN VIA A KNOX KEY SWITCH (EPO) FOR ALL SUPPLY, RETURN, AND EXHAUST FAN(S) INCLUDING ALL VRF INDOOR UNITS AS REQUIRED BY THE LOCAL AHJ. SWITCH SHALL BE LOCATED ADJACENT TO THE FIRE ALARM ANNUNCIATOR PANEL AND SHUTDOWN CONTROL SHALL BE HARD-WIRED IN CONDUIT THROUGH THE ATC SYSTEM. ALL WORK SHALL COMPLY WITH NFPA 90A AND THE NATIONAL ELECTRICAL CODE. COORDINATE EXACT REQUIREMENTS WITH AHJ.
- PROVIDE EQUIPMENT STATUS FOR ALL MECHANICAL AND PLUMBING EQUIPMENT. EQUIPMENT FAILURES SHALL BE ALARMED AT THE BAS. PROVIDE END SWITCHES FOR ALL MOTOR OPERATED DAMPERS. END SWITCHES SHALL BE INTERFACED WITH THE BAS.
- PROVIDE CURRENT SENSING RELAYS FOR ALL MECHANICAL EQUIPMENT AS REQUIRED TO PROVIDE EQUIPMENT STATUS. EQUIPMENT STATUS SHALL BE INDICATED AT THE BAS.
- PROVIDE TEMPERATURE SENSORS TIED INTO THE BAS AT THE INLET AND OUTLET OF ALL HEAT EXCHANGE EQUIPMENT (AIR HANDLING UNITS, ETC.)
- GENERAL EXHAUST FANS, VENTILATION FANS, EXHAUST AND INTAKE HOODS SHALL BE PROVIDED WITH MOTOR OPERATED DAMPERS. UNLESS OTHERWISE NOTED, DAMPERS SHALL OPEN WHEN FAN IS ENERGIZED AND CLOSED WHEN FAN IS DE-ENERGIZED.
- ALL SAFETIES FOR AIR HANDLING EQUIPMENT (FREEZE/STATS, SMOKE DETECTORS, PRESSURE SWITCHES, ETC.) SHALL BE HARDWIRED TO THE FAN STARTER
- ALL AIR FLOW MONITORS (AFM) AND CO2 SENSORS SHALL GENERATE AN ALARM CONDITION AT THE BAS WHENEVER CONDITIONS EXCEED SETPOINT (ADJUSTABLE) BY 10% OR MORE.
- PROVIDE EMERGENCY SHUT-OFF (EPO) BUTTONS/SWITCHES FOR ALL FUEL BURNING EQUIPMENT (BOILERS, ETC.). COORDINATE WIRING TERMINATIONS WITH EQUIPMENT MANUFACTURERS. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- FOR AIR HANDLING EQUIPMENT (IE, DOAS UNITS, VRF INDOOR UNITS, ETC.) INSTALLED ABOVE A CEILING, PROVIDE LEAK DETECTION IN ACCORDANCE WITH UL 508 AND ALL APPLICABLE CODES. LEAK DETECTION SHALL ALARM AT THE BUILDING AUTOMATION SYSTEM (BAS) AND SHALL DE-ENERGIZE THE UNIT.
- PROVIDE A TEMPERATURE SENSOR FOR ALL MECHANICAL ROOMS AND ELECTRICAL ROOMS. MONITOR TEMPERATURE AT THE BAS; SHOULD TEMPERATURE RISE ABOVE 95°F (ADJUSTABLE) OR FALL BELOW 40°F (ADJUSTABLE), ALARM AT THE BAS.
- PROVIDE THERMOSTAT/SENSOR GUARDS IN ALL AREAS SUBJECT TO POTENTIAL DAMAGE. THERMOSTAT/SENSOR GUARDS SHALL BE CLEAR, IMPACT RESISTANT LOCKABLE PLASTIC OR APPROVED EQUIVALENT. THERMOSTAT/SENSOR GUARDS SHALL BE PROVIDED IN THE FOLLOWING AREAS AND OTHER SIMILAR TYPE SPACES SUBJECT TO POTENTIAL DAMAGE: APPARATUS BAY, KITCHEN, LAUNDRY ROOM, TURNOUT GEAR ROOM, DECON, FITNESS AREAS, WORKSHOP, MECHANICAL ROOMS, ELECTRICAL ROOMS, ETC.
- ALL SETPOINTS INDICATED ON THE SEQUENCES SHALL BE ADJUSTABLE.
- ALL ATC WIRING SHALL BE INSTALLED IN CONDUIT.
- REFER TO SPECIFICATIONS FOR FUNCTIONAL PERFORMANCE TEST VERIFICATION REQUIREMENTS.
- UNLESS OTHERWISE NOTED CARBON MONOXIDE (CO) DETECTION DEVICES SHALL BE PROVIDED AS PART OF THE FIRE ALARM SYSTEM FOR ALL FUEL BURNING EQUIPMENT (DOAS UNITS, BOILERS, KITCHEN EQUIPMENT, ETC.). REFER TO FIRE ALARM DRAWINGS AND SPECIFICATIONS FOR CO DETECTOR LOCATIONS AND ALARM REQUIREMENTS.
- PROVIDE ALL CONTROL PANELS WITH INTEGRAL UPS CAPABLE OF 24-HOUR BATTERY BACKUP IN THE EVENT OF LOSS OF POWER.
- ATC CONTRACTOR SHALL PROVIDE CO AND NO2 DETECTORS FOR CONTROL OF APPARATUS BAY VENTILATION SYSTEM.
- BAS SHALL SHUTDOWN DSF-1 AND DSF-2 UPON A FIRE EVENT SIGNAL FROM THE FIRE ALARM SYSTEM. FANS SHALL BE MANUALLY RESET THROUGH THE BAS.

**SPACE CONTROL**

- VRF TERMINAL UNIT:
  - THE UNIT SHALL MODULATE THE ELECTRONIC EXPANSION VALVE TO MAINTAIN THE ADJUSTABLE SPACE TEMPERATURE SETPOINT AS INDICATED IN DESIGN CONDITIONS SCHEDULE ON DRAWING M601.
  - SPACE TEMPERATURE SENSORS SHALL BE WALL MOUNTED WITH 2-HOUR LOCAL USER ADJUSTABILITY AND SETPOINT ADJUSTMENT AT BAS.
  - MORNING WARMUP/COOLDOWN - SYSTEM SHALL AUTOMATICALLY START HEATING OR COOLING AS REQUIRED TO REACH SPACE TEMPERATURE SETPOINT AT THE START OF THE SCHEDULED OCCUPIED PERIOD. CONTROLLER SHALL DETERMINE BEGINNING OF WARMUP/COOLDOWN PERIOD BASED ON SPACE TEMPERATURE, OCCUPIED SPACE TEMPERATURE SETPOINT, AND AMBIENT TEMPERATURE.
- DUCTED VRF UNIT:
  - THE UNIT SHALL MODULATE THE ELECTRONIC EXPANSION VALVE TO MAINTAIN ADJUSTABLE RETURN AIR TEMPERATURE SETPOINT AS INDICATED IN DESIGN CONDITIONS SCHEDULE ON DRAWING M601.
- DUCTLESS SPLIT SYSTEMS DSS-1, DSS-4, AND DSS-7:
  - PROVIDE COOLING ONLY DUCTLESS SPLIT SYSTEMS FOR IT AND ELECTRIC ROOMS.
  - SIGNAL AN ALARM TO THE BAS IF THE SPACE TEMPERATURE RISES 5°F ABOVE SETPOINT OR FALLS BELOW 40°F (ADJUSTABLE).
- DUCTLESS SPLIT SYSTEMS DSS-2, DSS-3, DSS-5, AND DSS-6:
  - PROVIDE HEAT PUMP DUCTLESS SPLIT SYSTEMS FOR APPARATUS BAY SPACES.
  - SIGNAL AN ALARM TO THE BAS IF THE SPACE TEMPERATURE RISES 5°F ABOVE SETPOINT OR FALLS BELOW 40°F (ADJUSTABLE).
- GENERAL:
  - OCCUPIED/UNOCCUPIED MODE SHALL BE DETERMINED BY THE BAS OR AS PROGRAMMED IN EACH INDIVIDUAL ROOM THERMOSTAT.

**CUMRUM FIRE DEPARTMENT**  
 1775 WELSH ROAD  
 MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

**PROJECT NUMBER:**  
18-036  
**PROJECT SET:**  
BID SET  
**DATE ISSUED:**  
11/30/2023

**DRAWING TITLE:**  
MECHANICAL CONTROLS

**SHEET NUMBER:**  
M601

Table with columns: DESIGN, AREA SERVED, VENTILATION FAN DATA, EXHAUST FAN, COOLING DATA, HEATING DATA, ENERGY RECOVERY WHEEL, ELECTRICAL, OPER WT, MANUFACTURER, NOTES.

- NOTES: 1. AIR CAPACITIES BASED ON A MAXIMUM DIRTY FILTER PRESSURE DROP AS INDICATED. 2. PROVIDE UNIT WITH HOT-GAS REHEAT FOR HUMIDITY CONTROL...

Table with columns: DESIGN, DUTY, SIZE (IN), MOUNTING, CFM RANGE, INLET/NECK SIZE (IN), MAX SP, MAX NC, DESCRIPTION, BASIS OF DESIGN (MANUFACTURER, MODEL).

- NOTES: 1. PROVIDE ALL AIR DEVICES WITH OPPOSED BLADE VOLUME DAMPER. 2. CONTRACTOR MAY PROVIDE ALUMINUM OR STEEL AIR DEVICES UNLESS OTHERWISE INDICATED...

Table with columns: INDOOR UNIT, ASSOCIATED OUTDOOR UNIT(S), HEAT RECOVERY UNIT, AREA SERVED, TYPE, NAMEPLATE SUPPLY AIR CFM, VOLTS/PH, COOLING COIL DATA, HEATING COIL, NOTES, BASIS OF DESIGN.

- GENERAL NOTES (NOTES APPLY TO ALL ACU): A. PROVIDE REFRIGERANT PIPING INCLUDING DOUBLE SUCTION RISERS WITH TRAPS IF REQUIRED... B. FULLY COORDINATED REFRIGERANT PIPING DRAWINGS SHALL BE INCLUDED WITH THE EQUIPMENT SUBMITTAL...

Table with columns: DESIGN, LOCATION, AREA SERVED, CFM, ESP (IN), HP, MOTORS, PHASE, VFD, RPM, MIN FAN DA, WHEEL TYPE, CLASS, DRIVE TYPE, METHOD OF CONTROL, MANUFACTURER, MODEL, NOTES.

- NOTES: 1. PROVIDE WITH FACTORY WIRED DISCONNECT SWITCH.

Table with columns: AREA SERVED, DESIGNATION, INDOOR UNIT, OUTDOOR UNIT, CFM, UNIT TYPE, COOLING, HEATING, ELECTRICAL CHARACTERISTICS, BASIS OF DESIGN, REMARKS.

- NOTES: 1. PROVIDE DOUBLE SUCTION REFRIGERANT PIPING RISERS AND TRAPS AS RECOMMENDED BY MANUFACTURER. 2. COOLING CAPACITIES INDICATED SHALL BE AT 75°F / 50% RH RETURN AIR AND 95°F OUTSIDE AIR...

Table with columns: ROOM DESCRIPTION, OCCUPIED HOURS (SUMMER, WINTER), UNOCCUPIED HOURS (SUMMER, WINTER), DB (DEG F), % RH.

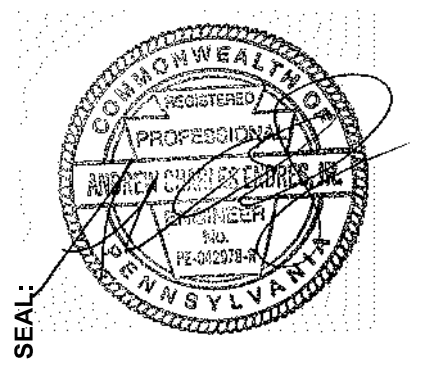
Table with columns: UNIT ID, LOCATION, NUMBER OF CONNECTED UNITS, ELECTRICAL, BASIS OF DESIGN (MANUFACTURER, MODEL).

Table with columns: SYSTEM, DUCT CONSTRUCTION CLASS (IN WC), DUCT SEAL CLASS, TEST PRESSURE (IN WC), MAX ALLOWABLE LEAKAGE, NOTES.

- NOTES: 1. SEE SPECIFICATIONS FOR ADDITIONAL DUCTWORK REQUIREMENTS AS WELL AS DETAILED PRODUCT AND INSTALLATION REQUIREMENTS... 2. SUCCESSFUL COMPLETION OF DUCT PRESSURE TESTING SHALL OCCUR PRIOR TO THE INSTALLATION OF INSULATION...

Table with columns: DESIGN, LOCATION, REFRIGERANT, COOLING, HEATING, ELECTRICAL, NOTES, BASIS OF DESIGN (MANUFACTURER, MODEL).

- NOTES: 1. CAPACITIES FOR REFERENCE ONLY. UNIT SHALL BE ABLE TO SERVE INDOOR UNITS WITH ALL DE-RATES ACCOUNTED FOR. 2. PROVIDE SELECTIONS FOR VRF SYSTEM BASED ON PROJECT SPECIFIC PIPING LENGTHS.



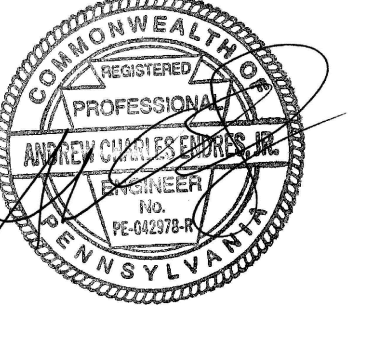
THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSISTENT WITH THE ORIGINAL BID DOCUMENTS, SUPPLEMENTAL TO THE CONTRACT DOCUMENTS, AND ANY ADDENDA, AND THE OWNER'S ACCEPTED BID ALTERNATES AND CONTINGENCIES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

ARL-CV190201-Drawing-Accompanying-Mechanical Schedules  
Plotted By: Iain Sawney | 1/2/2024 3:02 PM

CUMRU FIRE DEPARTMENT  
1775 WELSH ROAD  
MOHNTON, PA, 19540

NO. DESCRIPTION DATE  
2 ADDENDUM 2 1/5/2024  
PROJECT NUMBER: 18-036  
PROJECT SET: BID SET  
DATE ISSUED: 11/30/2023  
DRAWING TITLE: MECHANICAL SCHEDULES  
SHEET NUMBER: M701





**CONSULTANT:**  
**bkm**  
Burdette, Koehler, Murphy & Associates, Inc.  
800 Broadview Lane, Suite 400 | Baltimore, Maryland 21209  
P: 410-336-0801 | www.bkm.com

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS DRAWINGS & SPECIFICATIONS. ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCIES, THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.



**CUMRU FIRE DEPARTMENT**  
**1775 WELSH ROAD**  
**MOHNTON, PA 19540**

NO.	DESCRIPTION	DATE

**PROJECT NUMBER:**  
18-036  
**PROJECT SET:**  
BID SET  
**DATE ISSUED:**  
11/30/2023

**DRAWING TITLE:**  
**MECHANICAL SCHEDULES**

**SHEET NUMBER:**  
**M702**

**BOILER SCHEDULE**

DESIG	LOCATION	SYSTEM	TYPE	INPUT MBH	OUTPUT MBH	DESIGN PRESS (PSI)	OPER PRESS (PSI)	FUEL TYPE	NET MIN OUTPUT (MBH)	GAS PRESSURE (IN WG)	ELECTRICAL		BASIS OF DESIGN		REMARKS
											VOLTS	PHASE	MANUFACTURER	MODEL	
B-1	EAST MEZZANINE	HEATING WATER	CONDENSING	400	392	75	22	NATURAL GAS	390	14	120	1	LOCHINVAR	FTXL	1,2,3
B-2	EAST MEZZANINE	HEATING WATER	CONDENSING	400	392	75	22	NATURAL GAS	390	14	120	1	LOCHINVAR	FTXL	1,2,3

- NOTES:**
1. BOILER SHALL BE CONDENSING TYPE.
  2. PROVIDE BOILER WITH CONDENSATE NEUTRLIZATION KIT.
  3. PROVIDE BOILER WITH CONCENTRIC VENT KIT.

**EXPANSION / TANK SCHEDULE**

DESIG	LOCATION	SYSTEM	TYPE	TANK VOL (GAL)	MIN ACCEP VOLUME (GAL)	AIR CHANGE		DIMENSIONS			BASIS OF DESIGN		REMARKS	
						PRECHARGE PSIG	OPER PSIG	DIA (IN)	H/L (IN)	SYSTEM CONN (IN)	FIELD WEIGHT (LBS)	MANUFACTURER		MODEL
ET-1	EAST MEZZANINE	RADIANT FLOOR	DIAPHRAGM	10	2.3	12.0	22	10	37.0	1.0	144	BELL & GOSSETT	B-35	1,2,3,4

- NOTES:**
1. EXPANSION TANK SHALL BE FACTORY PRECHARGED TO CAPACITIES SHOWN.
  2. BLADDER SHALL BE REMOVABLE THRU ACCESS HANDHOLE.
  3. PROVIDE ALL PIPING SPECIALTIES AS SHOWN IN TYPICAL PIPING DIAGRAM.
  4. TANK SHALL BE A.S.M.E. STAMPED.

**PUMP SCHEDULE**

DESIG	SERVICE	LOCATION	GPM	HEAD (FT)	MOTOR				RPM	CONTROL	BASIS OF DESIGN		NOTES	TYPE	
					HP	MAX BHP	VOLTS	PHASE			VFD	MANUFACTURER			MODEL
PHWP-1	RADIANT FLOOR	EAST MEZZANINE	40	13.0	0.5	0.2	208	1	-	2637	ATC	BELL & GOSSETT	ECORCIRC XL	2	IN-LINE
PHWP-2	RADIANT FLOOR	EAST MEZZANINE	40	13.0	0.5	0.2	208	1	-	2637	ATC	BELL & GOSSETT	ECORCIRC XL	2	IN-LINE
SHWP-1	RADIANT FLOOR	EAST MEZZANINE	40	45.0	1.5	1.1	480	3	Y	3228	ATC	BELL & GOSSETT	E-90	1	IN-LINE
SHWP-2	RADIANT FLOOR	EAST MEZZANINE	40	45.0	1.5	1.1	480	3	Y	3228	ATC	BELL & GOSSETT	E-90	1	IN-LINE

- NOTES:**
1. VARIABLE SPEED PUMPS. PROVIDE PUMPS WITH GROUNDING RINGS AND INVERTER DUTY MOTORS. COORDINATE WITH THE ELECTRICAL CONTRACTOR FOR VARIABLE FREQUENCY DRIVE REQUIREMENTS. SELECT MOTORS SO THAT DRIVES OPERATE AT 60 HZ OR LESS AT THE CONDITIONS INDICATED.
  2. PROVIDE PUMP WITH ECM MOTOR OR INTEGRAL VFD.

**AIR SEPARATOR SCHEDULE**

DESIG	LOCATION	SYSTEM	SIZE (IN)	GPM	STRAINER	BASIS OF DESIGN		REMARKS
						MANUFACTURER	MODEL	
AS-1	MEZZANINE	RADIANT FLOOR HEATING	3.0	40	Y	BELL & GOSSETT	RL-3F	1,2,3

- NOTES:**
1. MAXIMUM PRESSURE DROP THRU AIR SEPARATORS SHALL BE ONE FOOT OF HEAD.
  2. PROVIDE HIGH CAPACITY AUTOMATIC AIR VENT ON AIR VENT PORT OF SEPARATOR.
  3. CONSTRUCTION SHALL BE A.S.M.E. STAMPED FOR 125 PSI WORKING PRESSURE.

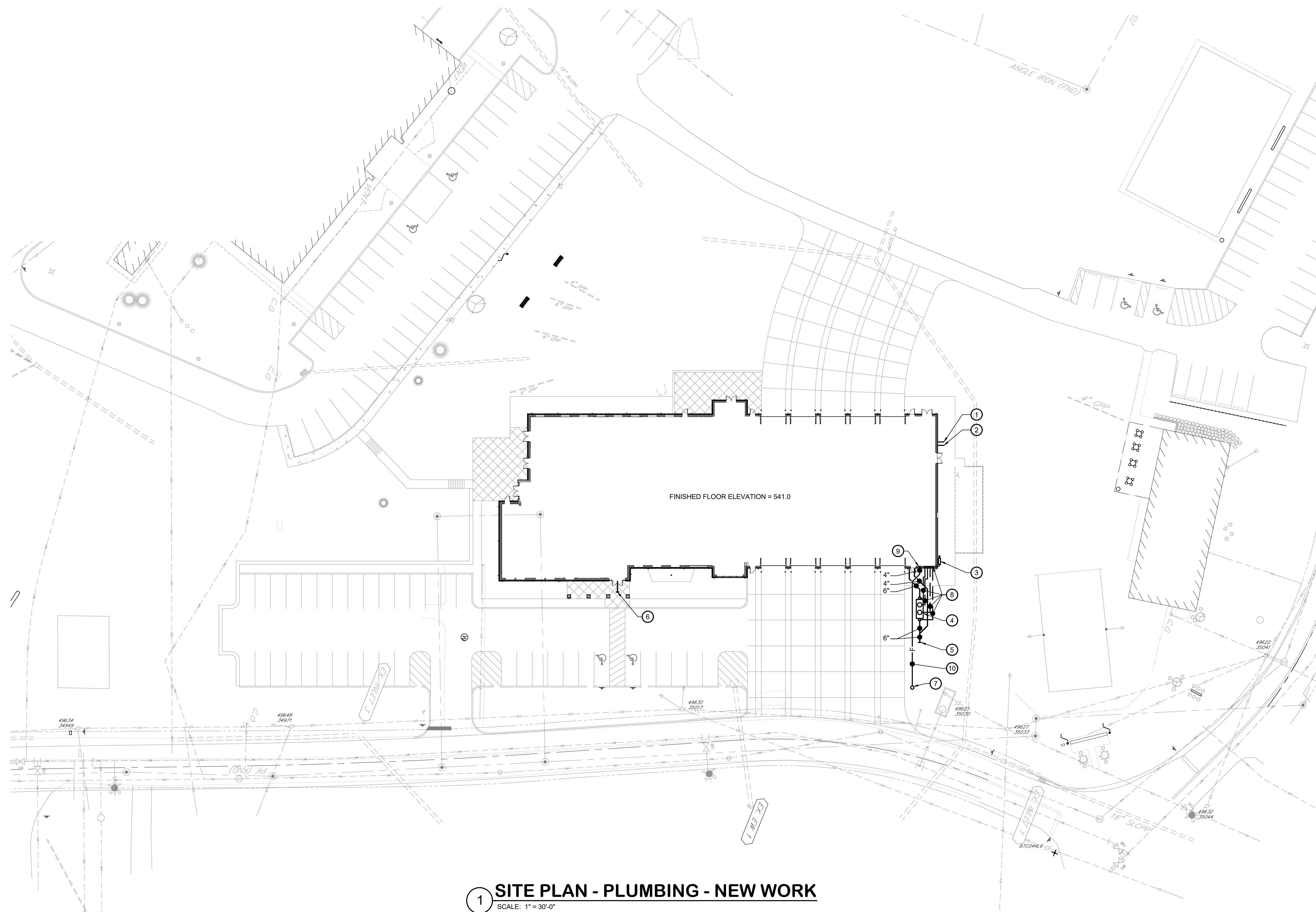
**ELECTRIC HEATER SCHEDULE**

DESIG	MOUNTING	CFM	BTU / HR	KW	FAN MOTOR			EAT (°F)	LAT (°F)	BASIS OF DESIGN		NOTES
					VOLTS	PHASE	CYCLE			MANUFACTURER	MODEL	
CH-1	RECESSED	100	3,413	1.0	120	1	60 HZ	68	99.6	QMARK	CWH	1
CH-2	RECESSED	100	1,706	0.5	120	1	60 HZ	68	83.8	QMARK	CWH	1
UH-1	SUSPENDED	350	10,200	3.0	208	1	60 HZ	65	92.1	QMARK	MUH	1
UH-2	SUSPENDED	350	7,500	2.2	208	1	60 HZ	65	84.9	QMARK	MUH	1
UH-3	SUSPENDED	350	7,500	2.2	208	1	60 HZ	65	84.9	QMARK	MUH	1
UH-4	SUSPENDED	350	7,500	2.2	208	1	60 HZ	65	84.9	QMARK	MUH	1
EDH-1	DUCT	70	5,460	1.6	120	1	60 HZ	0	70.0	INDEECO	QUA	1,2

- NOTES:**
1. PROVIDE FACTORY WIRED DISCONNECT SWITCH.
  2. PROVIDE WITH SCR CONTROLLER AND THERMOSTAT.

Arl G:\19020\01\Drawings\Accs\M702 MECHANICAL SCHEDULES  
Plotted By: Reed Castillo-Hernandez | 11/30/2021 8:09 PM  
BKM# 19020 01





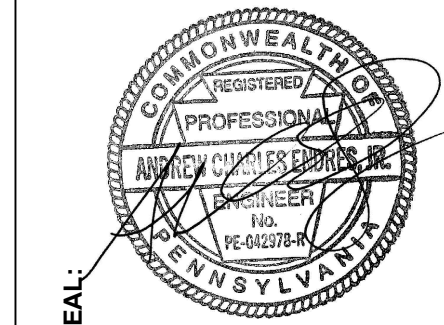
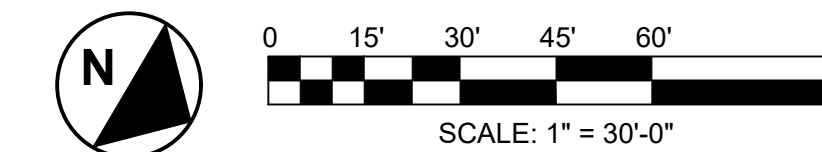
**1 SITE PLAN - PLUMBING - NEW WORK**  
 SCALE: 1" = 30'-0"

**GENERAL NOTES:**

1. REFER TO P001 FOR PLUMBING LEGEND, ABBREVIATIONS, SCHEDULES AND GENERAL NOTES.
2. REFER TO P100 FOUNDATION PLUMBING PLAN FOR ADDITIONAL PIPING RELATED TO THE STORM WATER SYSTEM.
3. INVERT ELEVATIONS ARE BASED ON A FINISHED FLOOR ELEVATION OF 541.0.
4. ALL EXTERIOR PIPING MATERIAL SHALL BE SDR 35 (PVC D 3034) PIPING OR AS APPROVED BY CUMRU TOWNSHIP BERKS COUNTY, PA.

**DRAWING NOTES:**

1. INCOMING 3" DOMESTIC WATER SERVICE. PROVIDE MINIMUM 3'-0" GROUND COVER. FOR CONTINUATION, REFER TO CIVIL DRAWINGS.
2. INCOMING 6" FIRE PROTECTION SERVICE. PROVIDE MINIMUM 3'-0" GROUND COVER. FOR CONTINUATION, REFER TO CIVIL DRAWINGS.
3. INCOMING GAS SERVICE AND GAS METER ASSEMBLY BY LOCAL GAS COMPANY.
4. 1000 GALLON OIL/SAND SEPARATOR WITH (2) MANHOLES, REFER TO DETAIL.
5. 6" SANITARY, INVERT ELEVATION @ 535.00+/-, FOR CONTINUATION, REFER TO CIVIL DRAWINGS.
6. 4" SANITARY, INVERT ELEVATION @ 536.00+/-, FOR CONTINUATION, REFER TO CIVIL DRAWINGS.
7. POST TYPE FIRE DEPARTMENT CONNECTION WITH 5" STORZ CONNECTION. PROVIDE BALL DRIP AT BASE OF RISER BELOW GRADE AND REQUIRED DRAINAGE PIT. COORDINATE FINAL LOCATION OF FIRE DEPARTMENT CONNECTION IN FIELD.
8. (4) 2" VENT (FROM OIL/SAND SEPARATOR'S INFLUENT TEE, TWO MANHOLES AND EFFLUENT TEE) LOCATED BELOW GRADE. FOR CONTINUATION, REFER TO FIRST FLOOR PLUMBING PLAN AND REFER TO DETAIL.
9. 4" FIRE, FOR CONTINUATION, REFER TO FOUNDATION PLAN - PLUMBING.
10. 4" FIRE, PROVIDE MINIMUM 3'-0" GROUND COVER, COORDINATE FINAL ROUTING OF PIPING WITH ALL UTILITIES BELOW GRADE.



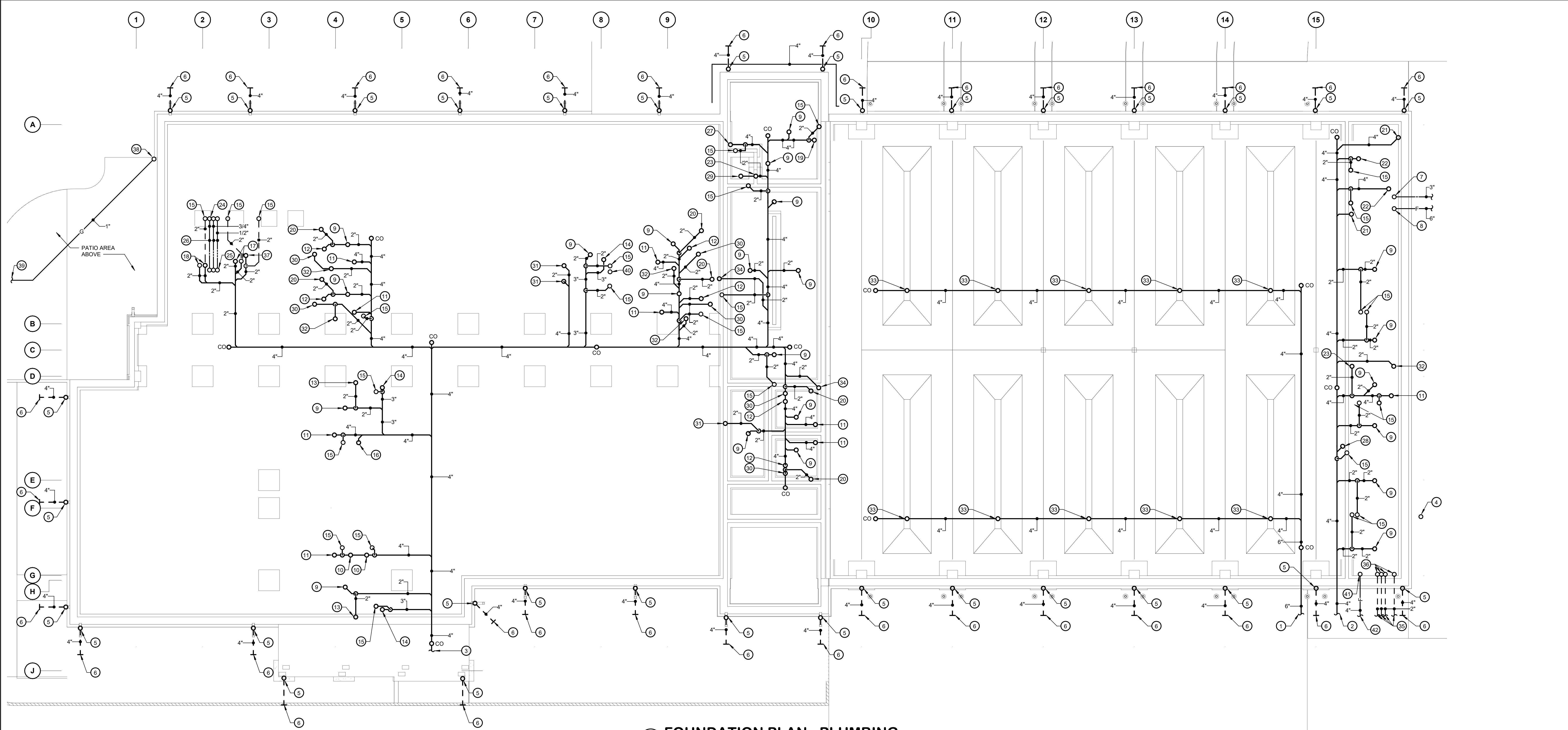
THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS BOTH THE DRAWINGS AND THE PROJECT MANUAL AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS. SINCE CONSIST OF THE BID DOCUMENTS DRAWINGS & SPECIFICATIONS, ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCES, THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

CUMRU FIRE DEPARTMENT  
 1775 WELSH ROAD  
 MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

PROJECT NUMBER:  
 18-036  
 PROJECT SET:  
 BID SET  
 DATE ISSUED:  
 11/30/2023

DRAWING TITLE:  
 SITE PLAN  
 PLUMBING  
 NEW WORK  
 SHEET NUMBER:  
**P002**



### 1 FOUNDATION PLAN - PLUMBING

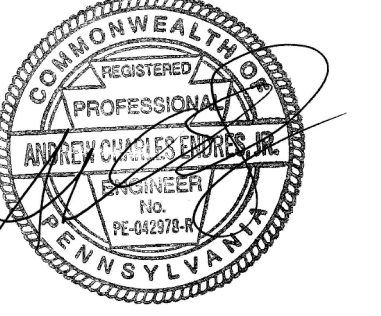
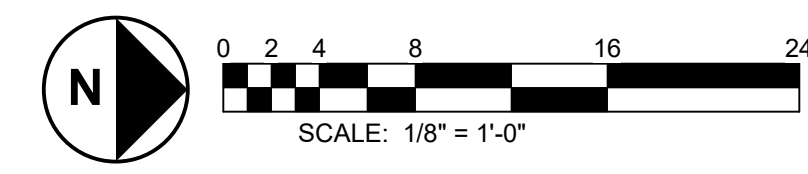
SCALE: 1/8" = 1'-0"

#### GENERAL NOTES:

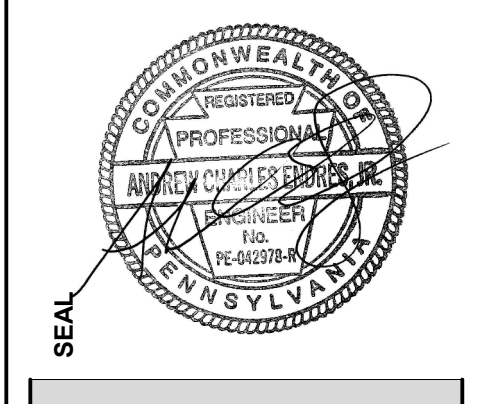
- REFER TO P001 FOR PLUMBING LEGEND, ABBREVIATIONS, SCHEDULES AND GENERAL NOTES.
- ALL WORK SHOWN ON THIS PLAN IS LOCATED BELOW FIRST FLOOR FLOOR SLAB.
- FLOOR DRAIN TRAP SEAL DEVICES SHALL HAVE IAMP/UPVC AND ASSE 1072 LISTINGS AND SHALL BE MI-FAB MI-GUARD OR EQUIVALENT.

#### DRAWING NOTES:

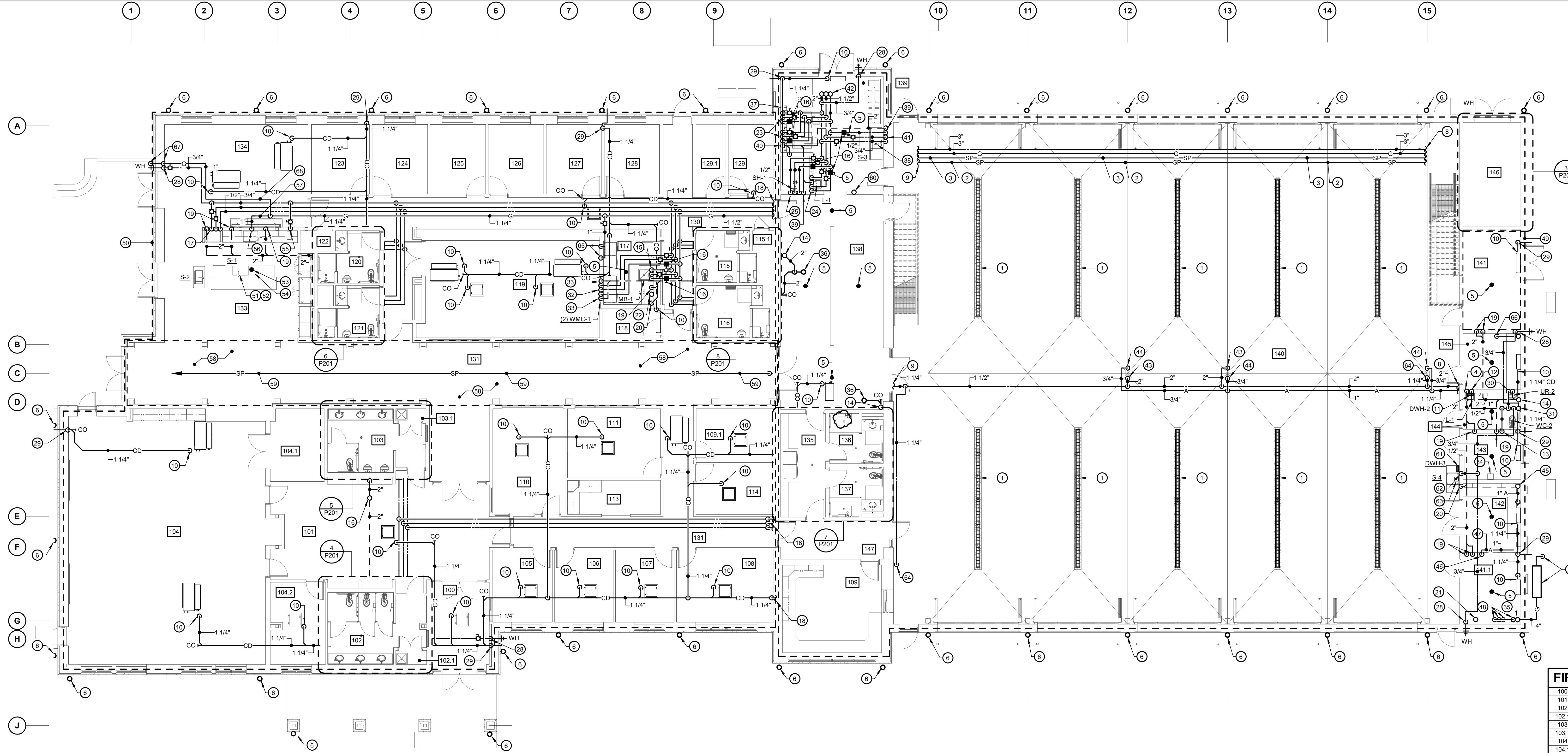
- 6" SANITARY TO 1000 GALLON OIL/WATER SEPARATOR, INVERT ELEVATION @ 537.00' +/-, FOR CONTINUATION, REFER TO PLUMBING SITE PLAN.
- 4" SANITARY, INVERT ELEVATION @ 537.50' +/-, FOR CONTINUATION, REFER TO PLUMBING SITE PLAN.
- 4" SANITARY, INVERT ELEVATION @ 536.00' +/-, FOR CONTINUATION, REFER TO CIVIL DRAWINGS.
- INCOMING GAS SERVICE UP TO GAS METER ASSEMBLY PROVIDED BY LOCAL GAS COMPANY.
- 4" STORM WATER UP TO 4" DOWNSPOUT BOOT, REFER TO DETAIL, BY 1A GENERAL CONTRACTOR.
- 4" STORM WATER, PROVIDE 3'-0" MIN. GROUND COVER, FOR CONTINUATION, REFER TO CIVIL DRAWINGS, BY 1A GENERAL CONTRACTOR.
- 3" INCOMING DOMESTIC WATER SERVICE, PROVIDE 3'-0" MIN. GROUND COVER, FOR CONTINUATION, REFER TO CIVIL DRAWINGS.
- 6" INCOMING FIRE PROTECTION SERVICE, PROVIDE 3'-0" MIN. GROUND COVER, FOR CONTINUATION, REFER TO CIVIL DRAWINGS.
- 2" SANITARY UP TO 2" FLOOR DRAIN WITH ASSE 1072 TRAP SEAL DEVICE.
- 4" SANITARY UP TO WC-1.
- 4" SANITARY UP TO WC-2.
- 2" SANITARY UP TO 2" SHOWER TRENCH DRAIN (SH-2) WITH ASSE 1072 TRAP SEAL DEVICE.
- 2" SANITARY UP TO (3) L-2.
- 3" SANITARY UP TO MB-1.
- 2" VENT UP.
- 3" SANITARY UP TO (1) UR-1 & (1) UR-2.
- 2" SANITARY & 2" ISLAND VENT UP TO S-1. REFER TO SANITARY RISER DIAGRAM.
- 2" SANITARY & 2" ISLAND VENT UP TO S-2. REFER TO SANITARY RISER DIAGRAM.
- 4" SANITARY UP TO 4" FLOOR SINK WITH ASSE 1072 TRAP SEAL DEVICE.
- 2" SANITARY UP TO L-2.
- 4" SANITARY UP TO 4" FLOOR DRAIN WITH ASSE 1072 TRAP SEAL DEVICE.
- 2" SANITARY UP TO L-1.
- 1/2" HWR, 3/4" HW & 3/4" CW UP.
- 1/2" HWR, 3/4" HW & 3/4" CW UP TO (1) S-1 & (1) S-2.
- 1/2" HWR, 3/4" HW & 3/4" CW LOCATED BELOW SLAB IN 6" PVC CONDUIT. PIPING SHALL BE INSULATED SEAMLESS SOFT COPPER TUBING WITH NO FITTINGS.
- 4" SANITARY UP TO 4" LINT TROUGH DRAIN FOR EXTRACTORS WITH ASSE 1072 TRAP SEAL DEVICE.
- 3" SANITARY UP TO 3" FLOOR SINK WITH ASSE 1072 TRAP SEAL DEVICE.
- 2" SANITARY UP TO 2" SHOWER BASE DRAIN (SH-1) WITH ASSE 1072 TRAP SEAL DEVICE.
- 2" SANITARY UP TO 2" SHOWER BASE DRAIN (SH-2) WITH ASSE 1072 TRAP SEAL DEVICE.
- 2" SANITARY UP TO WMC-1.
- 2" SANITARY UP TO UR-2.
- 4" SANITARY UP TO TRENCH DRAIN, REFER TO DETAIL.
- 2" SANITARY UP.
- (4) 2" VENT PIPING TO OIL/WATER SEPARATOR, REFER TO PLUMBING SITE PLAN AND DETAIL.
- (4) 2" VENT UP.
- 2" SANITARY UP TO 2" FUNNEL FLOOR DRAIN WITH ASSE 1072 TRAP SEAL DEVICE.
- 1" GAS UP.
- EXTEND 1" GAS BELOW PATIO FLOOR, RISE UP TO GAS GRILLE, REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF GAS GRILLE.
- 4" RADON UP, REFER TO DETAIL.
- 4" FIRE UP.
- 4" FIRE TO FIRE DEPARTMENT CONNECTION, FOR CONTINUATION REFER TO PLUMBING SITE PLAN.



THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS. SINCE CONSTITUTING THE BID DOCUMENTS DRAWINGS & SPECIFICATIONS, ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCES, THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.



THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS SINCE CONSIST OF THE BID DOCUMENTS DRAWINGS & SPECIFICATIONS. ALL AGREED AND THE OWNER'S ACCEPTED BID ALTERNATES AND CONTINGENCIES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.



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

**GENERAL NOTES:**

- REFER TO P001 FOR PLUMBING LEGEND, ABBREVIATIONS, SCHEDULES AND GENERAL NOTES.
- ALL VALVES SHALL BE ACCESSIBLE.
- FLOOR DRAIN TRAP SEAL DEVICES SHALL HAVE IAMPO/UPC AND ASSE 1072 LISTINGS AND SHALL BE MI-FAB MI-GUARD OR EQUIVALENT.
- ALL EXPOSED PIPING LOCATED IN APPARATUS BAY SHALL BE PAINTED TO MATCH CEILING PAINT COLOR. PAINTING SHALL BE PROVIDED UNDER ANOTHER DIVISION - REFER TO DIVISION 1A PRIME SCOPE OF WORK. PLUMBING PRIME CONTRACTOR SHALL PROVIDE PIPE IDENTIFICATION AND PIPE FLOW ARROWS PER SPECIFICATIONS.
- ALL EXPOSED INSULATED PIPING IN APPARATUS BAY SHALL BE PROVIDED WITH PVC JACKETS.

**DRAWING NOTES:**

- 4" TRENCH DRAIN, TD-1, REFER TO DETAIL.
- TO AUTOMATIC SPRINKLERS (EAST ZONE).
- TO AUTOMATIC SPRINKLERS (WEST ZONE).
- 2" VENT DOWN TO L-1 & 2" SANITARY.
- 2" FLOOR DRAIN WITH ASSE 1072 TRAP SEAL DEVICE.
- 4" DOWNSPOUT BOOT, REFER TO DETAIL.
- INCOMING GAS SERVICE & GAS METER ASSEMBLY PROVIDED BY LOCAL GAS COMPANY. PROVIDE SUPPORTS, CONCRETE PAD, ETC. PER REQUIREMENTS OF LOCAL GAS COMPANY.
- FOR CONTINUATION, REFER TO MEZZANINE EAST PLAN.
- FOR CONTINUATION, REFER TO MEZZANINE WEST PLAN.
- 1 1/4" CONDENSATE DRAIN TO MECHANICAL UNIT. MECHANICAL UNIT NOT PART OF PLUMBING PRIME WORK. PLUMBING PRIME TO SUPPLY MATERIAL AND LABOR FOR ROUGH-IN & FINAL CONNECTION OF DRAIN FROM UNIT TO TERMINUS. (TYPICAL)
- INSTANTANEOUS ELECTRIC WATER HEATER, DWH-2, LOCATED BELOW LAVATORY (L-1). REFER TO SCHEDULE AND DOMESTIC WATER PIPING DIAGRAM FOR PIPING TO L-1.
- 1/2" CW DOWN TO L-1.
- 1 1/4" CW DOWN TO WC-2.
- 2" VENT UP.
- 1/2" HWR, 3/4" HW & 3/4" CW DOWN TO MB-1.
- COMBINATION BALANCING & SHUT-OFF FITTING (SET @ 0.5 GPM).
- 1/2" HWR, 3/4" HW & 3/4" CW DOWN, TRANSITION TO 1/2" HWR, 3/4" HW & 3/4" CW INSULATED SEAMLESS SOFT COPPER TUBING IN 6" PVC CONDUIT LOCATED BELOW SLAB AND UP INTO 1/2" HEIGHT WALL TO SERVE ISLAND SINKS S-1 & S-2. REFER TO FOUNDATION PLAN FOR ROUTING BELOW SLAB. REFER TO DOMESTIC WATER RISER DIAGRAM FOR ADDITIONAL PIPING TO DISHWASHER AND UNDERCOUNTER ICE MACHINE.
- RISE PIPE TO ABOVE CEILING SPACE OF RM 109.
- 2" VENT DOWN TO 2" SANITARY.
- 2" VENT DOWN TO 3" SANITARY.
- 4" FIRE UP & 4" FIRE DOWN TO SIAMESE FIRE DEPARTMENT CONNECTION (FCD) WITH BALL DRIP. REFER TO FOUNDATION PLAN AND PLUMBING SITE PLAN FOR CONTINUATION OF PIPING LOCATION OF FCD.
- 4" RADON UP THROUGH ROOF AND 4" RADON DOWN, REFER TO DETAIL.
- 1/2" HWR, 3/4" HW & 3/4" CW DOWN TO EXTRACTOR, EXTRACTOR UNDER ANOTHER DIVISION. UNDER THIS DIVISION, PROVIDE HOSE CONNECTIONS, WATER HAMMER ARRESTORS, DUAL CHECK VALVES, ROUGH-IN & FINAL CONNECTIONS.
- 2" VENT, 1/2" HWR, 1/2" HW & 1/2" CW DOWN TO L-1 AND 2" SANITARY.
- 1/2" HWR, 1/2" HW & 1/2" CW DOWN TO SH-1.
- 4" SANITARY UP TO 4" FLOOR DRAIN WITH ASSE 1072 TRAP SEAL DEVICE.
- 4" SANITARY DOWN.
- 3/4" CW DOWN TO 3/4" NON-FREEZE WALL HYDRANT WITH VACUUM BREAKER IN RECESSED NICKEL BRONZE BOX WITH HINGED COVER AND LOCKABLE KEY LOCK.
- 1 1/4" CONDENSATE DOWN, EXTEND THROUGH EXTERIOR WALL AT 18" ABOVE FINISHED GRADE, DISCHARGE OVER SPLASHBLOCK.
- 1" CW & 2" VENT DOWN TO UR-2 & 2" SANITARY.
- 1 1/4" CW UP.
- 1/2" HWR, 3/4" HW & 3/4" CW DOWN TO (2) WMC-1.
- 3" VENT DOWN TO WMC-1 & 2" SANITARY.
- OIL WATER SEPARATOR ALARM CONTROL PANEL.
- 4" GAS UP.
- 2" SANITARY UP TO 2" FLOOR DRAIN WITH ASSE 1072 TRAP SEAL DEVICE.
- 12" X 12" X 1/2" DEEP X 12" LONG LINT TYPE 304 STAINLESS STEEL TROUGH WITH STAINLESS STEEL BAR GRATE AND SOLID COVER, DUAL REMOVABLE STAINLESS STEEL FILTER SCREENS AND A DOME BOTTOM STRAINER AND 4" DRAIN CONNECTION, JAY R SMITH MODEL SO-TD-850 OR EQUIVALENT. COORDINATE INSTALLATION WITH RAISED CONCRETE PLATFORM STRUCTURAL ELEMENTS.
- FLOOR SINK ASSE 1072 TRAP SEAL DEVICE.
- 2" VENT DOWN TO 4" SANITARY.
- 2" VENT UP TO 4" VENT THROUGH ROOF.
- 1/2" HWR, 3/4" HW & 3/4" CW DOWN TO S-3.
- 3/4" HWR, 1 1/2" HW & 2" CW UP.
- 2" CW DOWN WITH PIPE SUPPORTED ALONG COLUMN TO 36" ABOVE FINISHED FLOOR, PROVIDE 2" THREADED HOSE END CONNECTION WITH BALL VALVE. PLUMBING CONTRACTOR SHALL COORDINATE WITH OWNER ON THE SIZE AND TYPE OF HOSE END THREAD.
- 3/4" COMPRESSED AIR DOWN TO AIR HOSE REEL, PROVIDE REELCRAFT MODEL # D9388 OLPBW SERIES 8000 HOSE REEL OR EQUIVALENT, LOW PRESSURE, SPRING RETRACTABLE HOSE REEL ASSEMBLY WITH INLET CONNECTION HOSES FOR AIR, DUAL PEDESTAL BASE AND GUIDE ARM DESIGN, 100' X 3/4" LOW PRESSURE HOSE, STANDARD FINISH, SHUT-OFF BALL VALVE, ROUGH-IN AND FINAL CONNECTION, MOUNT HOSE REEL TO COLUMN AT 84" ABOVE FINISHED FLOOR.
- 1" COMPRESSED AIR UP.
- PROVIDE 1" COMPRESSED AIR WITH SHUT-OFF VALVE, REGULATOR AND QUICK DISCONNECT PROVIDE ROUGH-IN AND FINAL CONNECTION, MOUNT OUTLET AT 48" ABOVE FINISHED FLOOR WITHIN WORKSHOP RM 142.
- ROUTE 1 1/4" COMPRESSED AIR ALONG WALL ABOVE SHELVING.
- (1) 1/4" VENT UP AND (4) 2" VENT DOWN (PIPING ASSOCIATED WITH OIL/WATER SEPARATOR). REFER TO DETAIL.
- EAST SPRINKLER ZONE (INCLUDES APPARATUS BAY, MEZZANINE EAST & MEZZANINE WEST).
- WEST SPRINKLER ZONE (INCLUDES FIRST FLOOR WEST AREA).
- EXTEND 1/2" HW FROM SINK S-1 SUPPLY TO OWNER PROVIDED UNDERCOUNTER DISHWASHER, UNDER THIS DIVISION, PROVIDE SHUT-OFF BALL VALVE, BACKFLOW PREVENTER, ROUGH-IN AND FINAL CONNECTION.
- EXTEND 1/2" CW FROM SINK S-1 SUPPLY TO OWNER PROVIDED UNDERCOUNTER ICE MAKER, UNDER THIS DIVISION, PROVIDE SHUT-OFF BALL VALVE, BACKFLOW PREVENTER, ROUGH-IN AND FINAL CONNECTION.
- 2" FUNNEL FLOOR DRAIN WITH 1/2" TRAP PRIMING LINE FOR INDIRECT DRAIN FROM ICE MAKER. LOCATE FUNNEL FLOOR DRAIN WITHIN ICE MAKER SPACE.
- EXTEND 3/4" INDIRECT DRAIN FROM UNDERCOUNTER ICE MAKER TO FUNNEL FLOOR DRAIN WITH AIR GAP.
- 1/2" CW DOWN TO COFFEE MAKER, COFFEE MAKER PROVIDED UNDER ANOTHER DIVISION. UNDER THIS DIVISION, PROVIDE SHUT-OFF BALL VALVE, ASSE 1024 BACKFLOW PREVENTER, ROUGH-IN AND FINAL CONNECTION.
- 1" GAS DOWN TO GAS RANGE, RANGE PROVIDED UNDER ANOTHER DIVISION, UNDER THIS DIVISION, PROVIDE SHUT-OFF VALVE, GAS REGULATOR, FLEXIBLE HOSE CONNECTION, ROUGH-IN AND FINAL CONNECTION.
- PROVIDE GAS SOLENOID SHUT-OFF VALVE WITH MANUAL RESET FOR GAS RANGE, REFER TO NATURAL GAS RISER FOR ADDITIONAL VALVE AND SOLENOID VALVE CONTROL. VALVES SHALL BE LOCATED ABOVE AN EASILY ACCESSIBLE CEILING.

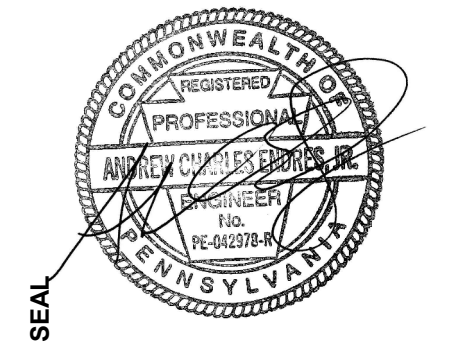
**FIRST FLR ROOM LIST**

100	VESTIBULE
101	LOBBY
102	WOMEN
102.1	JAN
103	MEN
103.1	JAN
104	MEETING
104.1	STOR
104.2	OFFICE
105	OFFICE
106	OFFICE
107	OFFICE
108	OFFICE
109	WATCH OFFICE
109.1	OFFICE
110	CHIEF'S OFFICE
111	CONFERENCE
113	COPY
114	OFFICE
115	SHOWER
115.1	MECH
116	SHOWER
117	LAUNDRY
118	ELEC
119	FITNESS
120	SHOWER
121	SHOWER
122	MECH
123	BUNK
124	BUNK
125	BUNK
126	BUNK
127	BUNK
128	BUNK
129	IT
129.1	ST
130	CORRIDOR
131	CORRIDOR
133	KITCHEN
134	DAY ROOM
135	CLEAN ROOM
136	SHOWER
137	SHOWER
138	TURNOUT GEAR
139	DECON
140	APPARATUS BAY
141	ELEC
141.1	STORAGE
142	WORKSHOP
143	ENGINEER
144	TOILET
145	SCBA
146	UTILITY
147	VESTIBULE

**CUMRU FIRE DEPARTMENT**  
1775 WELSH ROAD  
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE
1	Revision 1	DATE 1

PROJECT 18-036  
PROJECT BID SET  
DATE 11/30/2023  
DRAWING FIRST FLOOR PLAN - PLUMBING  
SHEET P101



THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS DRAWINGS & SPECIFICATIONS. ALL ADDENDA AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCIES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

NO.	DESCRIPTION	DATE

PROJECT 18-036  
 PROJECT BID SET  
 DATE 11/30/2023

DRAWING PART FLOOR PLANS PLUMBING

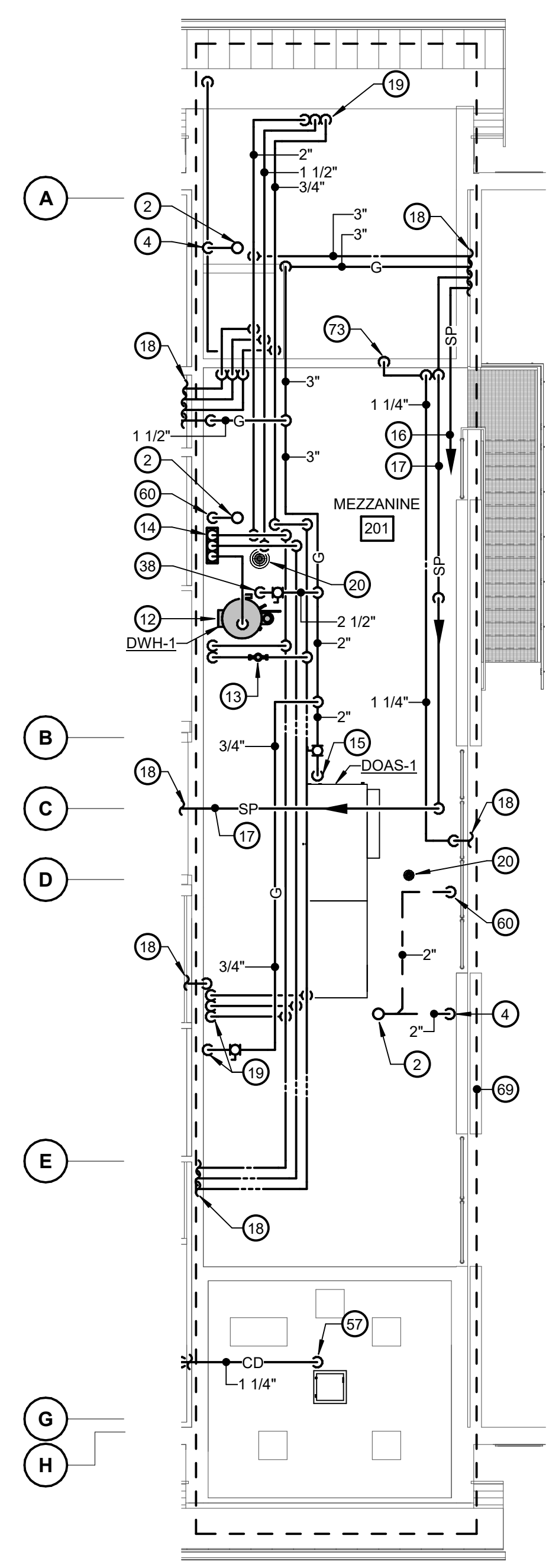
SHEET **P201**

**GENERAL NOTES:**

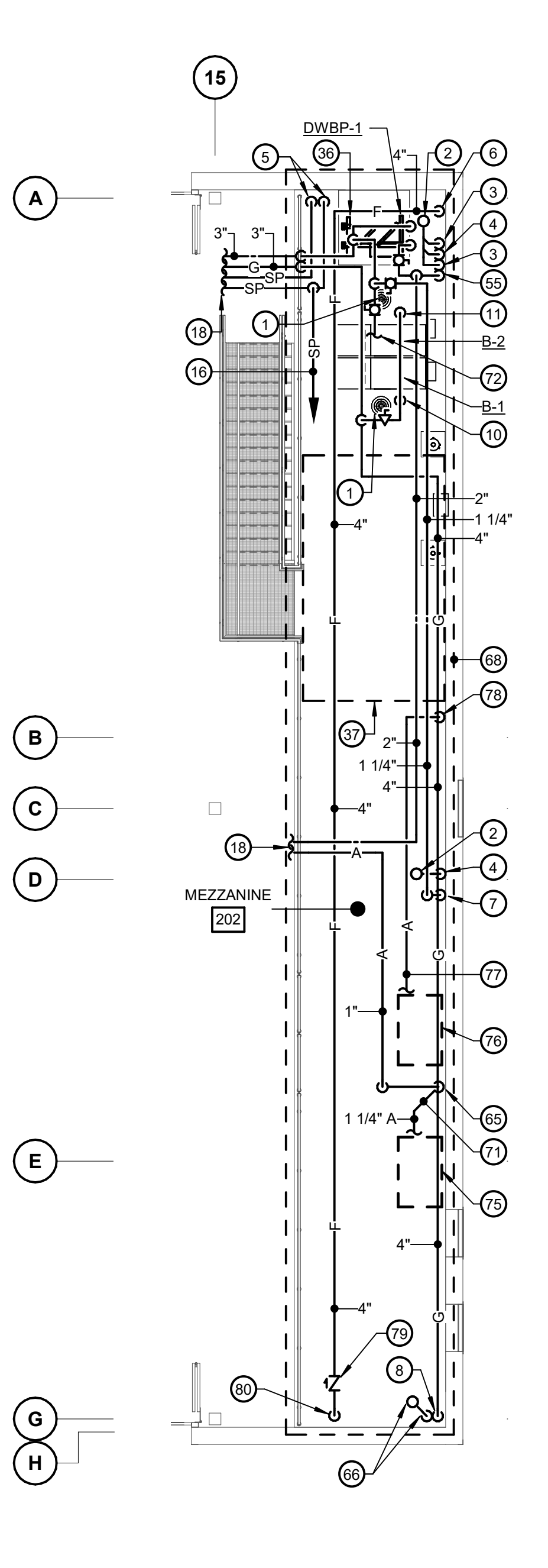
1. REFER TO P001 FOR PLUMBING LEGEND, ABBREVIATIONS, SCHEDULES AND GENERAL NOTES.
2. ALL VALVES SHALL BE ACCESSIBLE.
3. FLOOR DRAIN TRAP SEAL DEVICES SHALL HAVE IAMPO/UCP AND ASSE 1072 LISTINGS AND SHALL BE MI-FAB MI-GUARD OR EQUIVALENT.
4. CONTRACTOR SHALL COORDINATE LOCATION OF ACCESS PANELS UNDER VALVES FOR ACCESS TO VALVES WHERE HARD CEILINGS ARE LOCATED.

**DRAWING NOTES:**

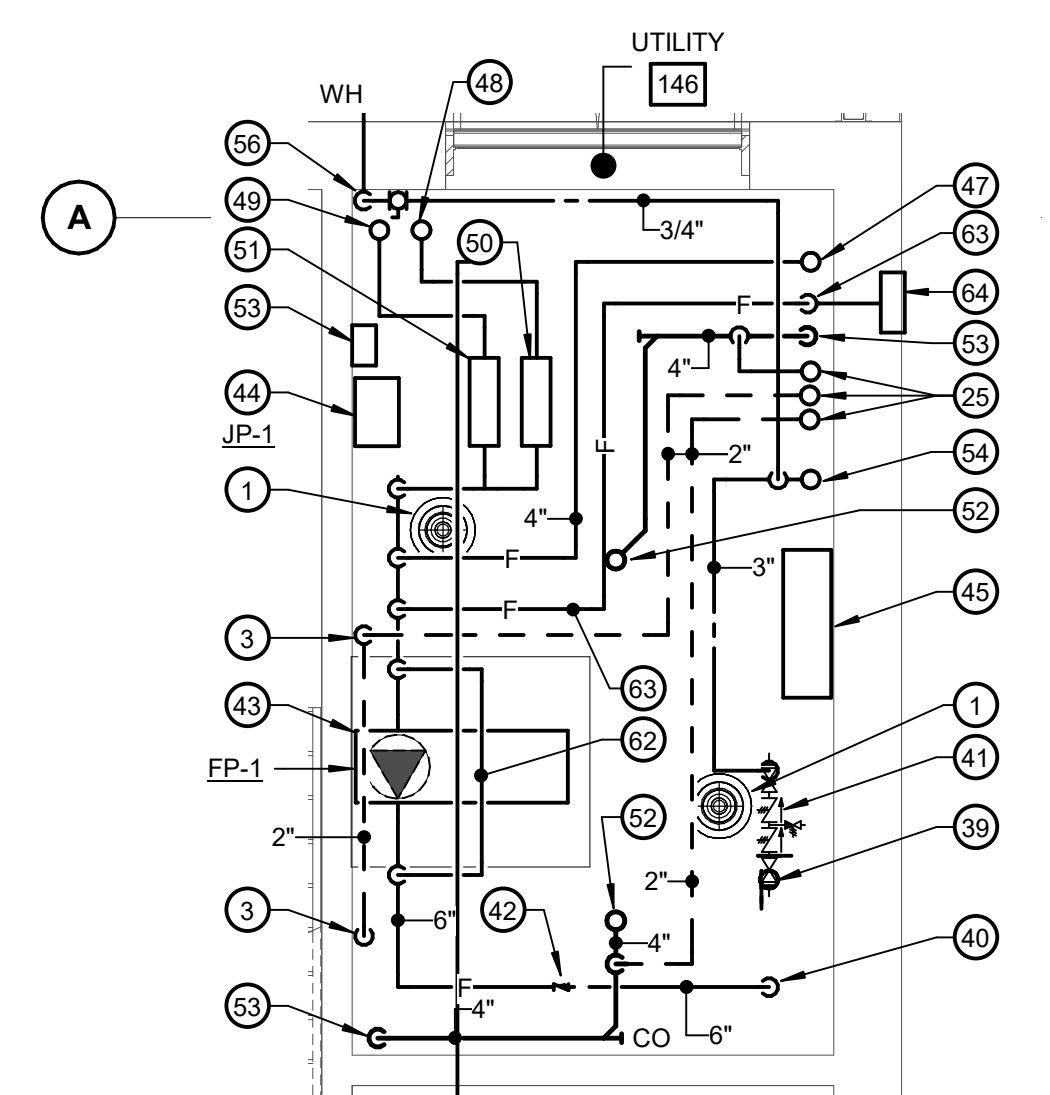
1. 4" FLOOR DRAIN WITH ASSE 1072 TRAP SEAL DEVICE.
2. 4" VENT THROUGH ROOF.
3. 2" VENT DOWN TO 4" SANITARY.
4. 2" VENT DOWN.
5. SPRINKLER MAIN (WEST SPRINKLER ZONE) AND SPRINKLER MAIN (EAST SPRINKLER ZONE) DOWN.
6. 4" FIRE DOWN.
7. 1 1/4" CW DOWN.
8. 4" GAS DOWN.
9. 1/2" HWR, 1/2" HW & 1/2" CW DOWN TO WMC-1.
10. 2" GAS DOWN TO BOILER B-1. PROVIDE SHUT-OFF VALVE AND GAS PRESSURE REGULATOR, ROUGH-IN AND FINAL CONNECTION, REFER TO GAS RISER DIAGRAM.
11. 2" GAS DOWN TO BOILER B-2. PROVIDE SHUT-OFF VALVE AND GAS PRESSURE REGULATOR, ROUGH-IN AND FINAL CONNECTION, REFER TO GAS RISER DIAGRAM.
12. DOMESTIC WATER HEATER, DW-H-1 ON 4" HOUSEKEEPING PAD, REFER TO SCHEDULE AND DETAIL.
13. DOMESTIC HOT WATER RECIRCULATING PUMP, DHWR-1, REFER TO SCHEDULE AND DETAIL.
14. DOMESTIC HOT WATER MASTER MIXING VALVE, DWMV-1, REFER TO SCHEDULE AND DETAIL.
15. 2" GAS DOWN TO DOAS-1. PROVIDE SHUT-OFF VALVE AND GAS PRESSURE REGULATOR, ROUGH-IN AND FINAL CONNECTION.
16. TO AUTOMATIC SPRINKLERS (EAST SPRINKLER ZONE).
17. TO AUTOMATIC SPRINKLERS (WEST SPRINKLER ZONE).
18. FOR CONTINUATION, REFER TO FIRST FLOOR PLAN - PLUMBING.
19. 3/4" GAS, 2" CW, 1 1/2" HW & 3/4" HWR DOWN.
20. 2" FLOOR DRAIN WITH ASSE 1072 TRAP SEAL DEVICE.
21. 2" SANITARY DOWN.
22. 1/2" HWR, 1/2" HW, 2" VENT & 1/2" CW DOWN TO L-2 & 2" SANITARY.
23. 1 1/4" CW DOWN TO WC-2.
24. 1/2" HWR, 1/2" HW & 1/2" CW DOWN TO SH-2.
25. 2" VENT UP.
26. 1/2" HWR DOWN TO 1/2" HW.
27. 3/4" HW & 3/4" CW DOWN TO (3) L-2.
28. 2" CW DOWN TO (1) WC-2, (1) UR-1 & (1) UR-2.
29. 2" CW DOWN TO (1) WC-2 & (2) WC-1.
30. 1/2" HWR, 3/4" HW & 3/4" CW DOWN TO MB-1.
31. 2" VENT DOWN TO L-2 & 2" SANITARY.
32. 2" VENT DOWN TO (2) L-2 & 2" SANITARY.
33. 2" VENT DOWN TO (1) UR-1 & (1) UR-2 & 3" SANITARY.
34. COMBINATION BALANCING & SHUT-OFF FITTING (SET @ 0.5 GPM).
35. 1/2" HWR, 1" HW & 1 1/2" CW UP.
36. DOMESTIC WATER BOOSTER PUMP, DWBP-1 ON 6" HOUSEKEEPING PAD, REFER TO SCHEDULE AND DETAIL.
37. ELECTRICAL ROOM LOCATED BELOW THIS DASHED AREA, PROVIDE NO PLUMBING PENETRATIONS DOWN THROUGH FLOOR WITHIN THIS DASHED AREA.
38. 2 1/2" GAS DOWN TO DW-H-1. PROVIDE SHUT-OFF VALVE AND GAS PRESSURE REGULATOR, ROUGH-IN AND FINAL CONNECTION.
39. 3" INCOMING DOMESTIC WATER DOWN WITH STRAINER AND MAIN SHUT-OFF VALVE.
40. 6" FIRE DOWN WITH OS&Y SHUT-OFF VALVE WITH TAMPER SWITCH.
41. 3" REDUCED PRESSURE PRINCIPLE BACK FLOW PREVENTER ASSEMBLY MOUNTED IN VERTICAL POSITION, ZURN 475V FOR DOMESTIC WATER SYSTEM, REFER TO DETAIL.
42. 6" DOUBLE CHECK BACKFLOW PREVENTER ASSEMBLY FOR FIRE PROTECTION SYSTEM, REFER TO DETAIL.
43. FIRE PUMP, FP-1, REFER TO SCHEDULE AND DETAIL.
44. JOCKEY PUMP, JP-1, REFER TO SCHEDULE AND DETAIL.
45. FIRE PUMP CONTROLLER.
46. JOCKEY PUMP CONTROLLER.
47. 4" FIRE UP (SERVING SIEMENS FIRE DEPARTMENT CONNECTION).
48. SPRINKLER MAIN UP (SERVING EAST SPRINKLER ZONE).
49. SPRINKLER MAIN UP (SERVING WEST SPRINKLER ZONE).
50. SPRINKLER ZONE VALVE ASSEMBLY (SERVING EAST SPRINKLER ZONE), REFER TO DETAIL.
51. SPRINKLER ZONE VALVE ASSEMBLY (SERVING WEST SPRINKLER ZONE), REFER TO DETAIL.
52. 4" SANITARY UP TO 4" FLOOR DRAIN WITH ASSE 1072 TRAP SEAL DEVICE.
53. 4" SANITARY DOWN.
54. 3" CW UP.
55. 3" CW DOWN.
56. 3/4" CW DOWN TO 3/4" NON-FREEZE WALL HYDRANT WITH VACUUM BREAKER. IN RECESSED NICKEL BRONZE BOX WITH HINGED COVER AND LOCKABLE KEY LOCK.
57. 1 1/4" CONDENSATE DRAIN TO MECHANICAL UNIT. MECHANICAL UNIT NOT PART OF PLUMBING PRIME WORK. PLUMBING PRIME TO SUPPLY MATERIAL AND LABOR FOR ROUGH-IN & FINAL CONNECTION OF DRAIN FROM UNIT TO TERMINUS. (TYPICAL)
58. 1 1/4" CONDENSATE DOWN, EXTEND THROUGH EXTERIOR WALL AT 18" ABOVE FINISHED GRADE, DISCHARGE OVER SPLASHBLOCK.
59. 1" CW & 2" VENT DOWN TO UR-1 & 2" SANITARY.
60. 2" VENT DOWN TO 2" SANITARY.
61. 2" VENT DOWN TO WMC-1 & 2" SANITARY.
62. 6" FIRE PUMP BYPASS.
63. 6" FIRE TO FIRE PUMP TEST HEADER CONNECTION.
64. TWO-WAY FLUSH FIRE PUMP TEST HEADER CONNECTION.
65. 1" COMPRESSED AIR DOWN.
66. 4" VENT UP THROUGH ROOF AND 4" VENT DOWN.
67. 2" SHOWER BASE FLOOR DRAIN (SH-2) WITH 1/2" TRAP PRIMING LINE.
68. EAST SPRINKLER ZONE (INCLUDES MEZZANINE EAST, MEZZANINE WEST, APPARATUS BAY, AND FIRST FLR SPACES BELOW MEZZANINE EAST).
69. WEST SPRINKLER ZONE (INCLUDES FIRST FLOOR WEST AREA AND FIRST FLR SPACES BELOW MEZZANINE WEST).
70. 2" VENT DOWN TO 3" SANITARY.
71. 1 1/4" COMPRESSED AIR TO AIR COMPRESSOR. AIR COMPRESSOR PROVIDED UNDER ANOTHER DIVISION. UNDER THIS DIVISION, PROVIDE SHUT-OFF BALL VALVE, AIR REGULATOR, AIR FILTER, ROUGH-IN & FINAL CONNECTION. COORDINATE WITH FINAL LOCATION OF AIR COMPRESSOR BY OWNER.
72. 2" COLD WATER MAKE-UP TO MECHANICAL EQUIPMENT. PROVIDE SHUT-OFF VALVE AND REDUCED PRESSURE ZONE BACKFLOW PREVENTER. EXTEND DRAIN FROM BACKFLOW PREVENTER AIR GAP FITTING OVER TO NEAREST FLOOR DRAIN, REFER TO DETAIL.
73. 1 1/4" CW DOWN.
74. 3/4" GAS UP AND DOWN TO GAS DRYER. GAS DRYER PROVIDED UNDER ANOTHER DIVISION. UNDER THIS DIVISION, PROVIDE SHUT-OFF VALVE, GAS REGULATOR, FLEXIBLE HOSE CONNECTION, ROUGH-IN AND FINAL CONNECTION.
75. AIR COMPRESSOR UNDER ANOTHER DIVISION, REFER TO NOTE 71 FOR ADDITIONAL INFORMATION.
76. SCBA FILL STATION UNDER ANOTHER DIVISION. UNDER THIS DIVISION, PROVIDE SHUT-OFF VALVE, AIR PRESSURE REGULATOR, ROUGH-IN AND FINAL CONNECTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WHERE THE AIR INTAKE PIPE FOR THE FILL STATION PENETRATES EXTERIOR WALL FOR OUTSIDE AIR INTAKE.
77. PROVIDE COMPRESSED AIR LINE FROM SCBA FILL STATION. REQUIRED FITTINGS, VALVES, ETC AND MAKE FINAL CONNECTION TO FILL STATION. SIZE AND MATERIAL OF PIPING SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.
78. COMPRESSED AIR LINE (FROM FILL STATION DOWN) DOWN THROUGH MEZZANINE FLOOR INTO SCBA ROOM LOCATED ON FIRST FLOOR.
79. CHECK VALVE APPROVED FOR FIRE PROTECTION SYSTEMS.
80. 4" FIRE DOWN.



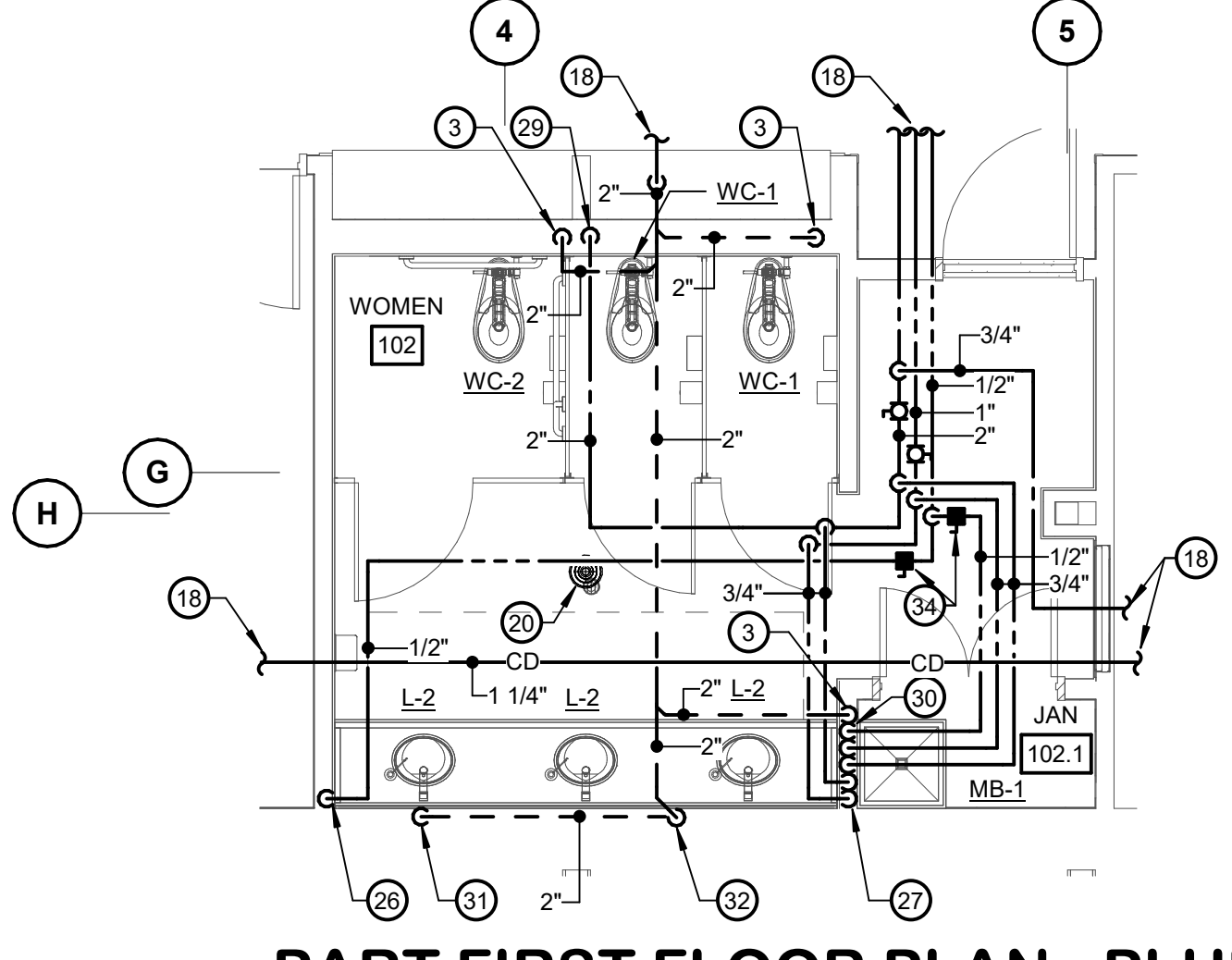
**1 MEZZANINE PLAN WEST - PLUMBING**  
 SCALE: 1/8" = 1'-0"



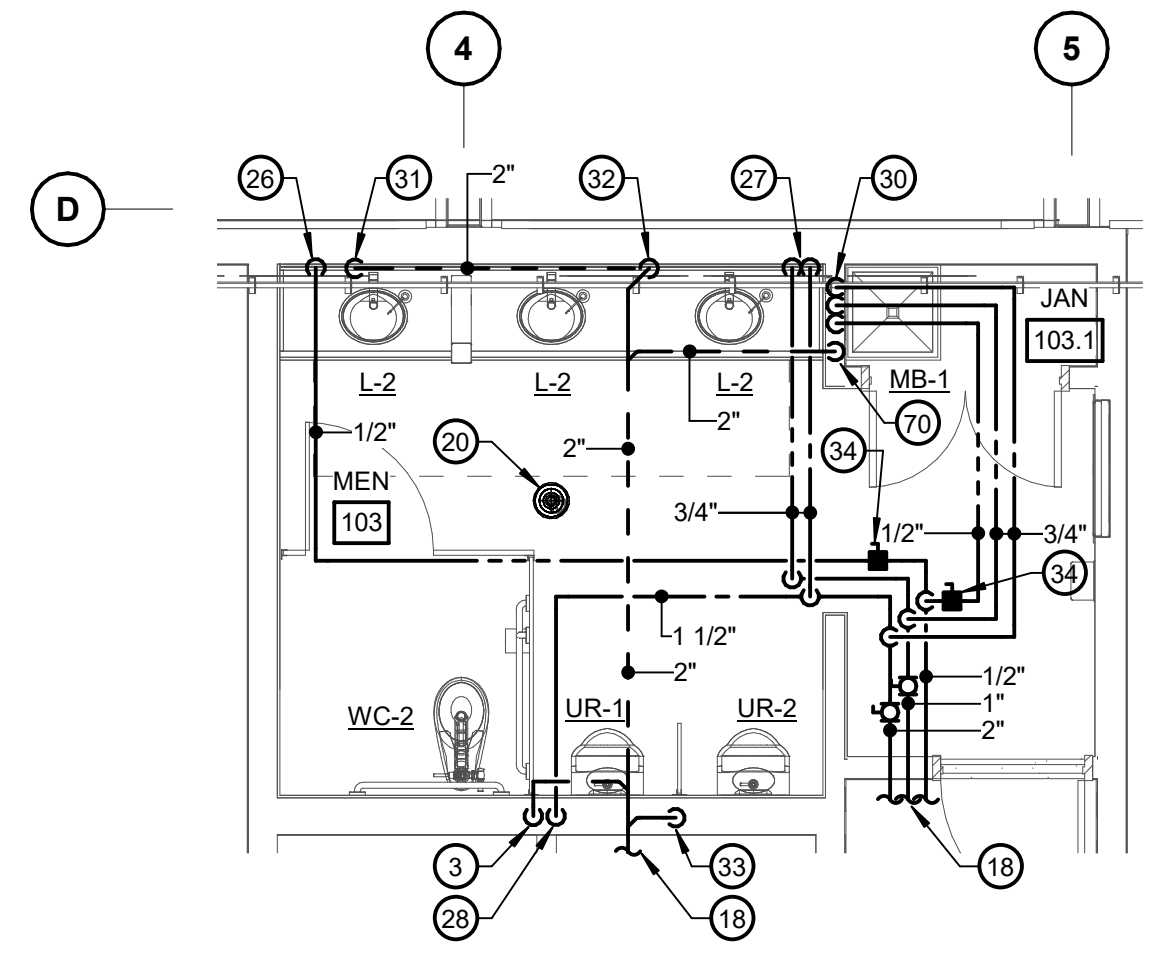
**2 MEZZANINE PLAN EAST - PLUMBING**  
 SCALE: 1/8" = 1'-0"



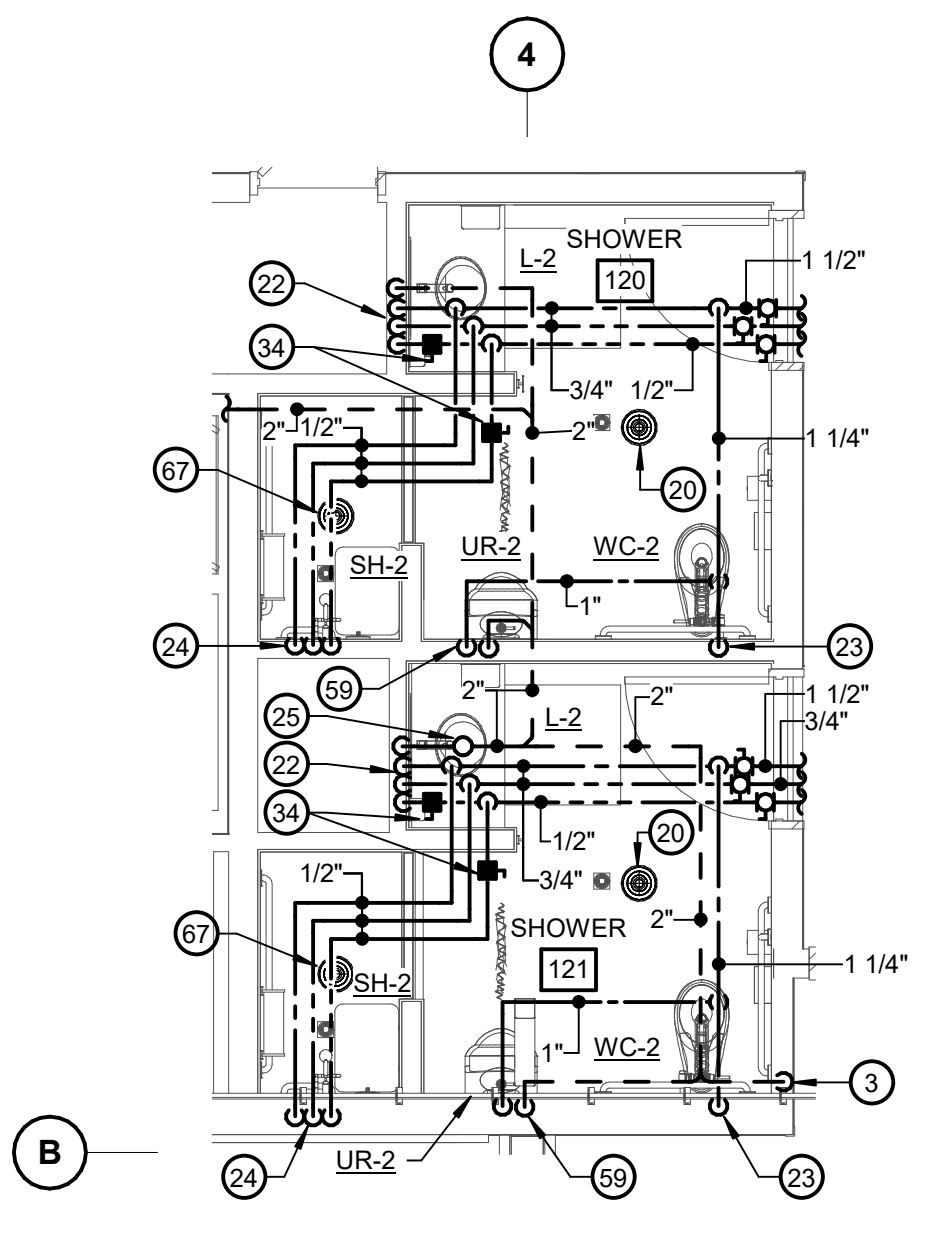
**3 PART FIRST FLOOR PLAN PLUMBING - ROOM 146**  
 SCALE: 1/4" = 1'-0"



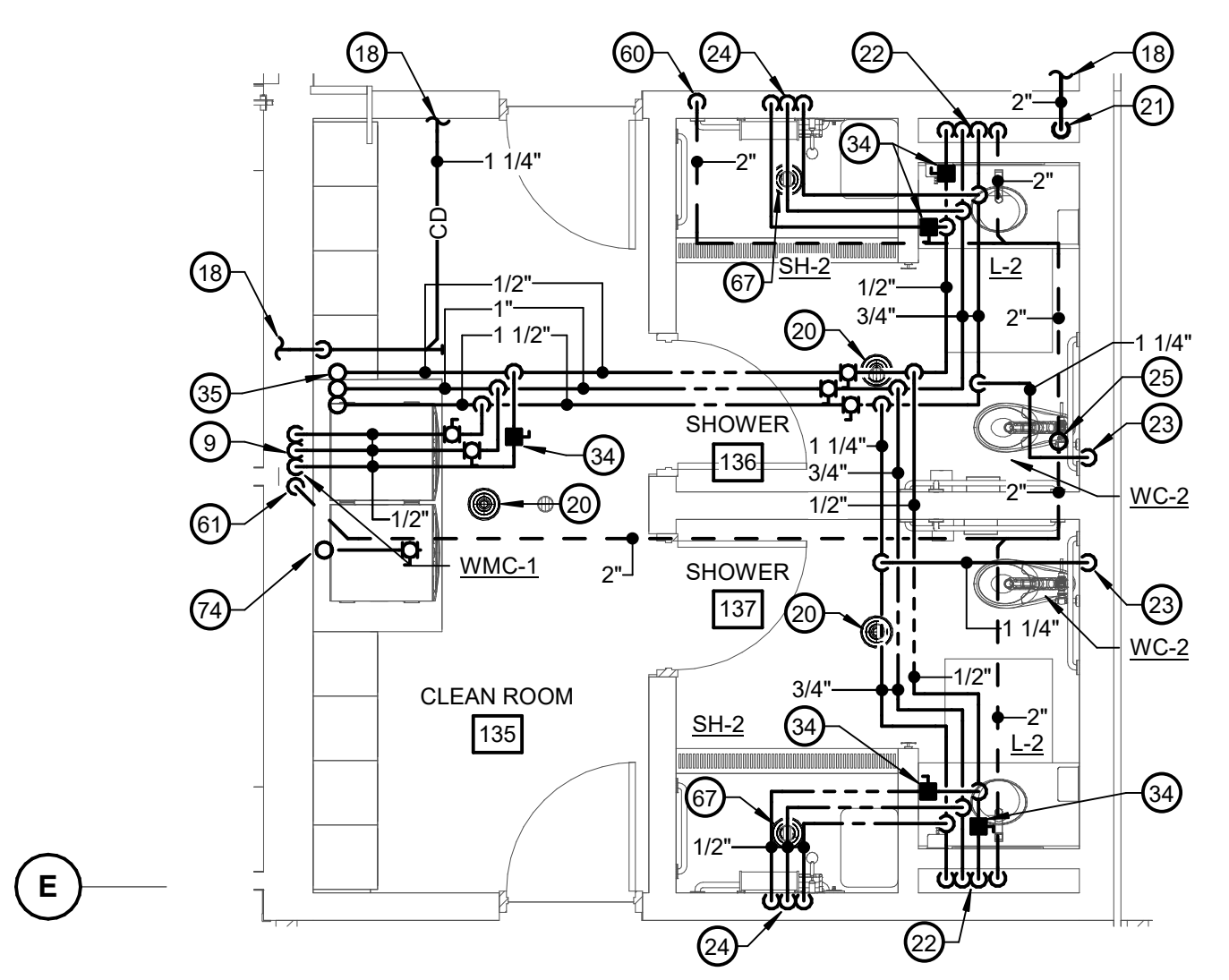
**4 PART FIRST FLOOR PLAN - PLUMBING ROOMS 102 & 102.1**  
 SCALE: 1/4" = 1'-0"



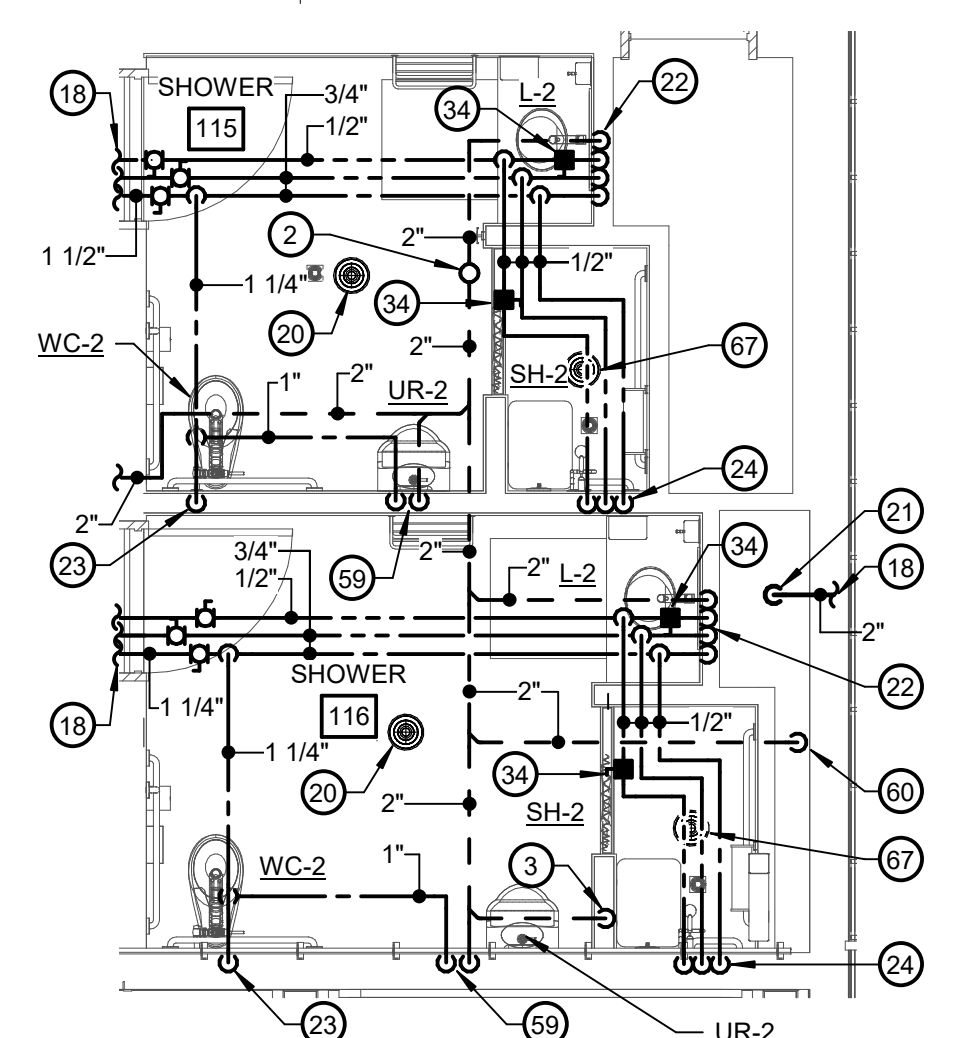
**5 PART FIRST FLOOR PLAN - PLUMBING ROOMS 103 & 103.1**  
 SCALE: 1/4" = 1'-0"



**6 PART FIRST FLOOR PLAN - PLUMBING ROOMS 120 & 121**  
 SCALE: 1/4" = 1'-0"

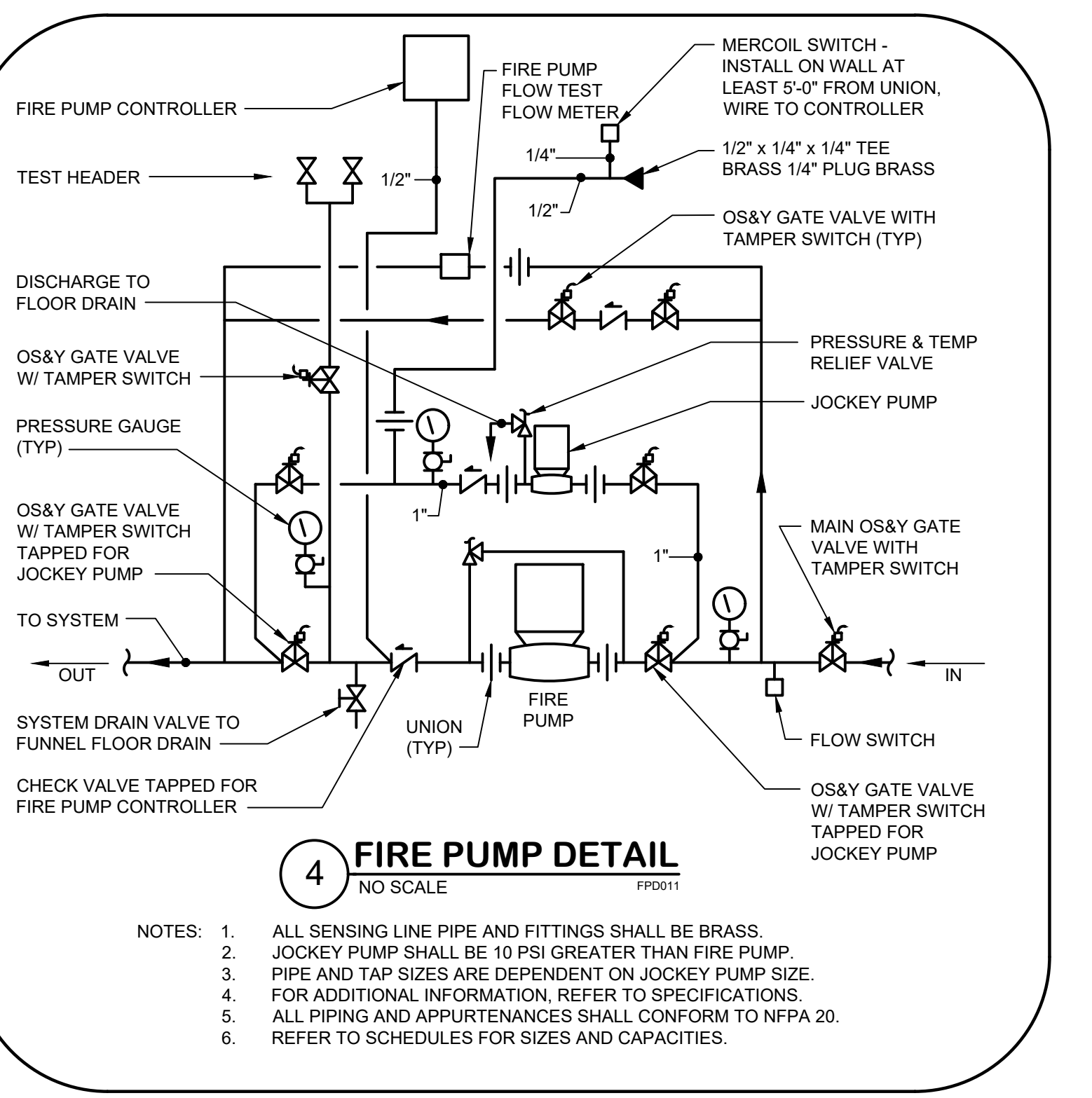
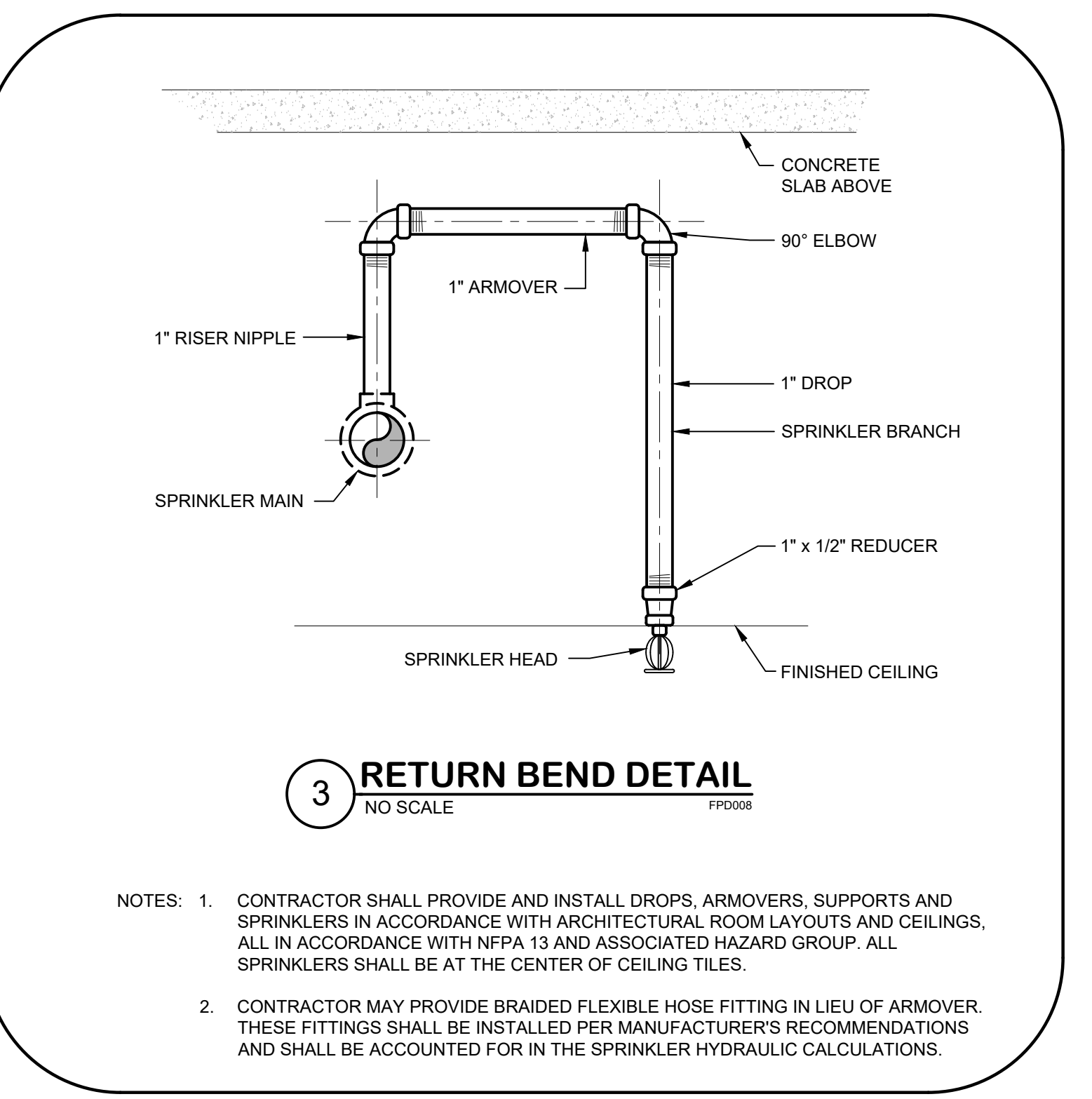
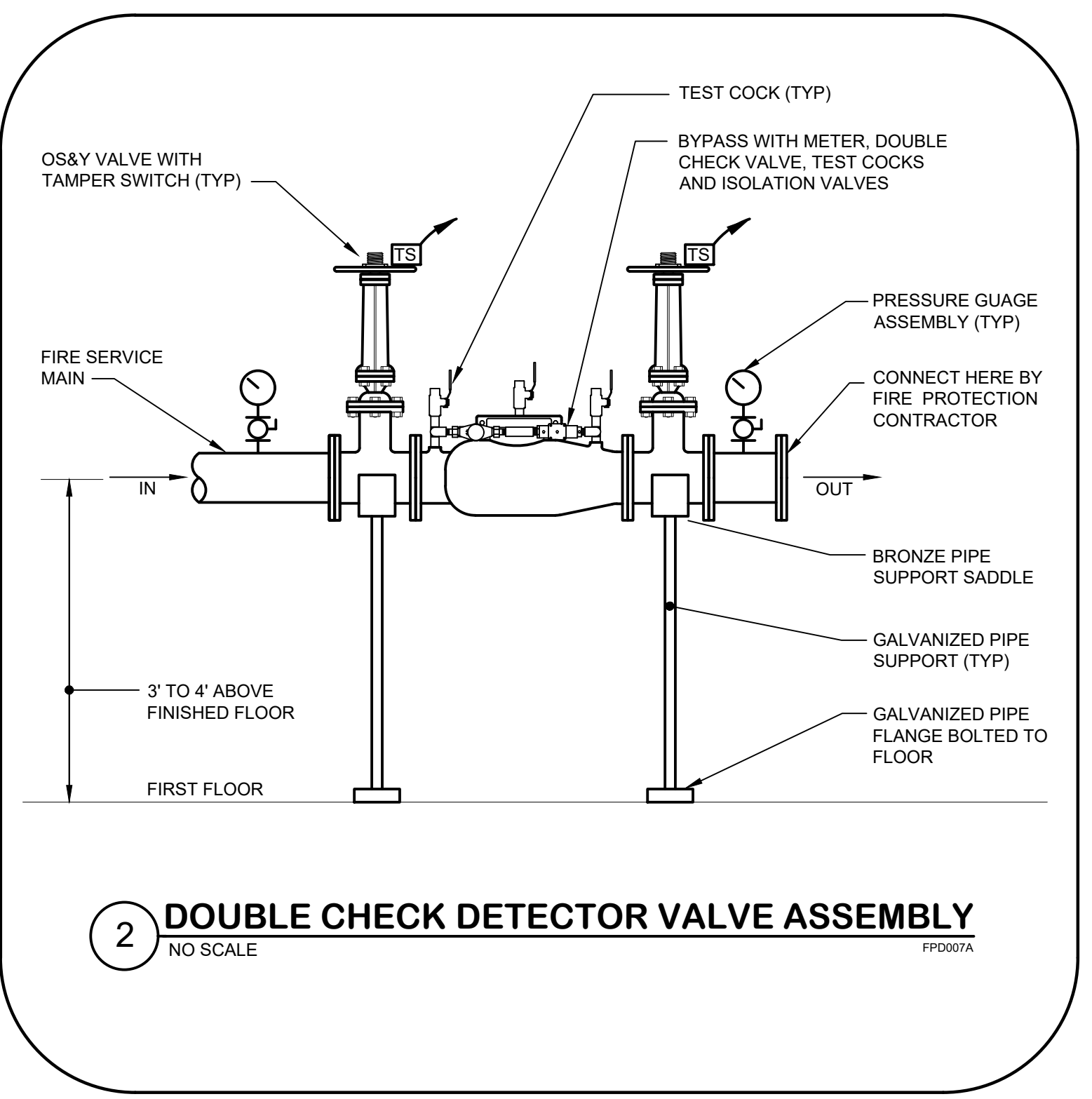
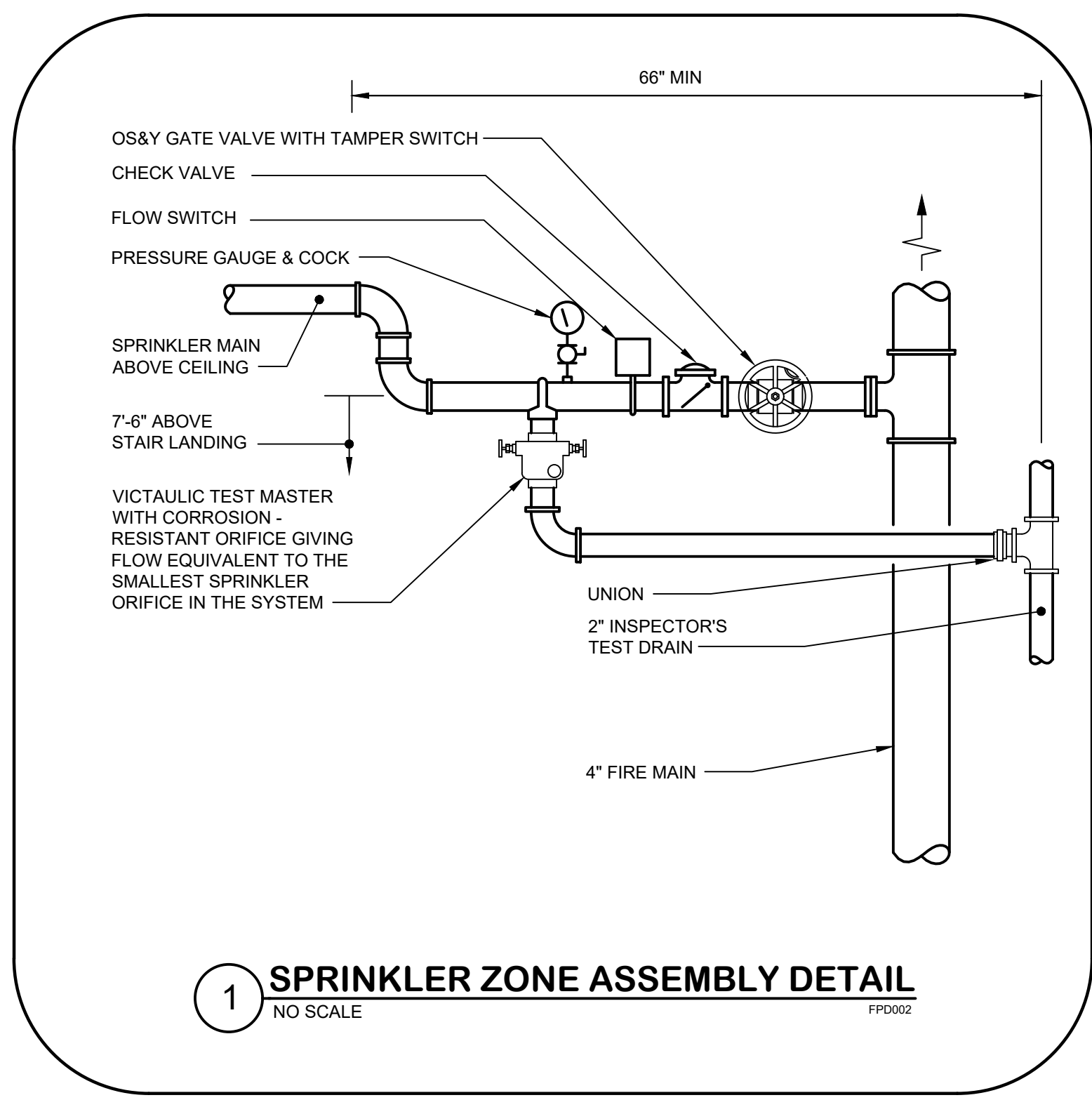


**7 PART FIRST FLOOR PLAN - PLUMBING ROOM 136 & 137**  
 SCALE: 1/4" = 1'-0"



**8 PART FIRST FLOOR PLAN - PLUMBING ROOMS 115 & 116**  
 SCALE: 1/4" = 1'-0"



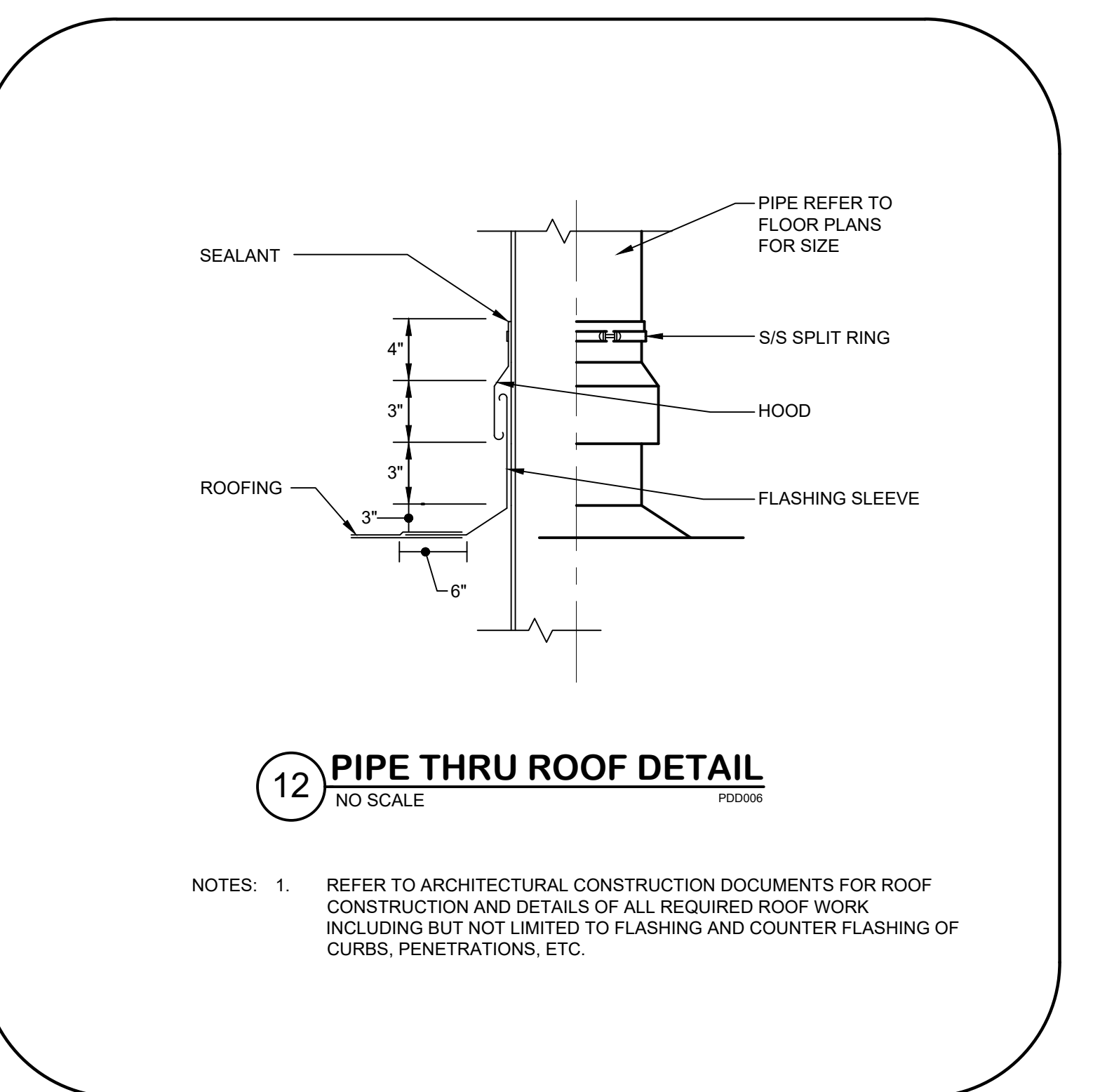
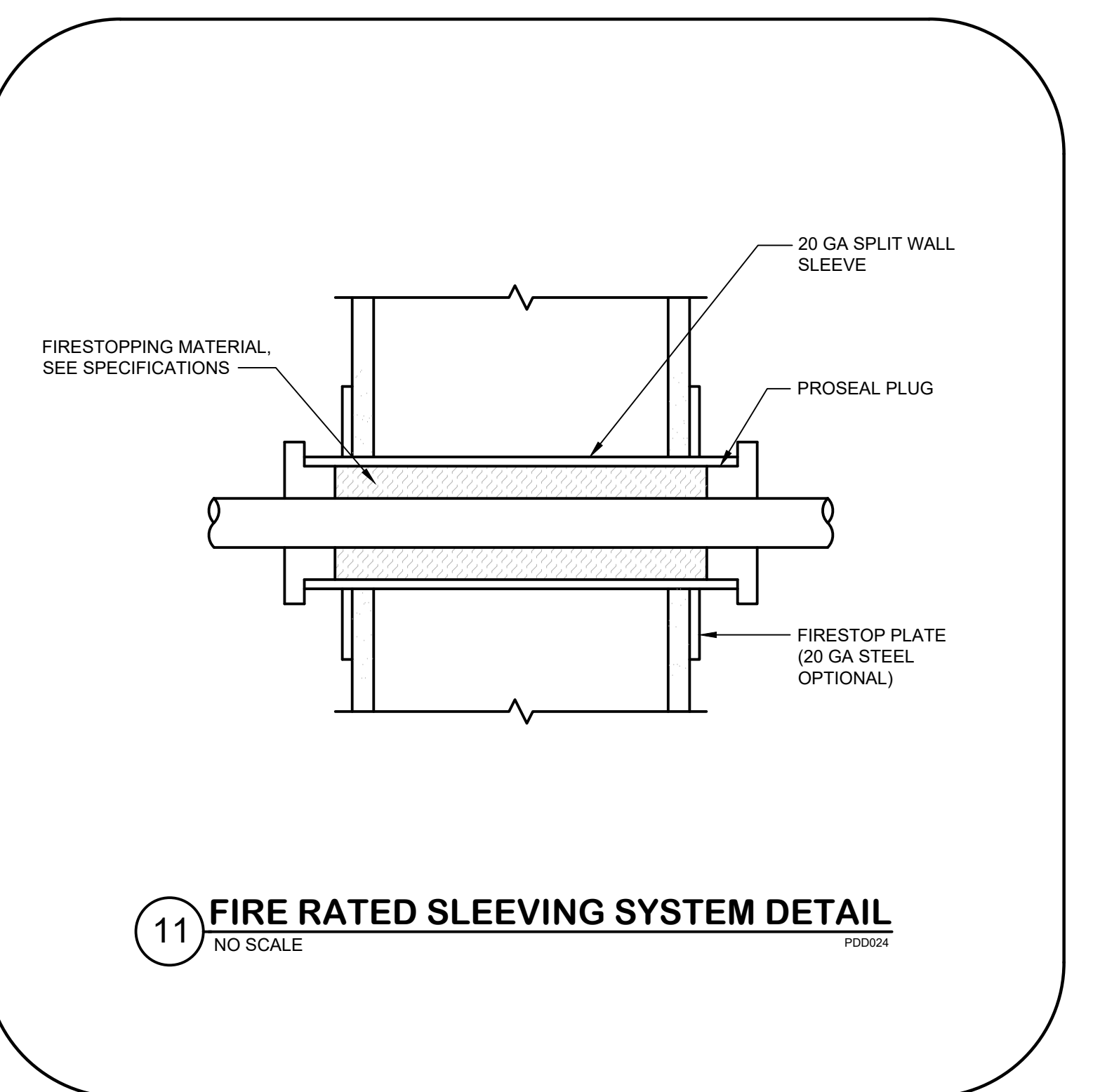
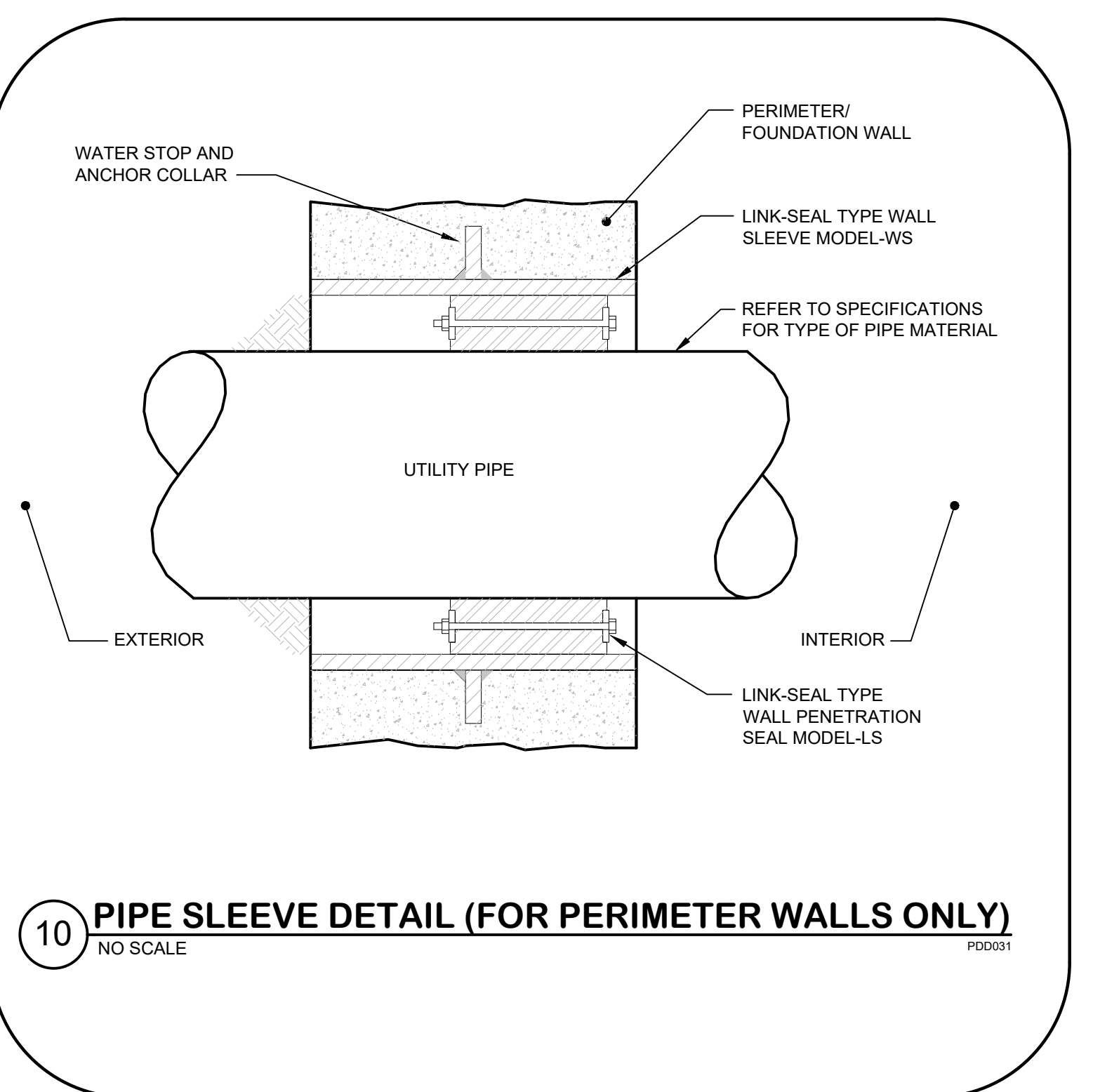
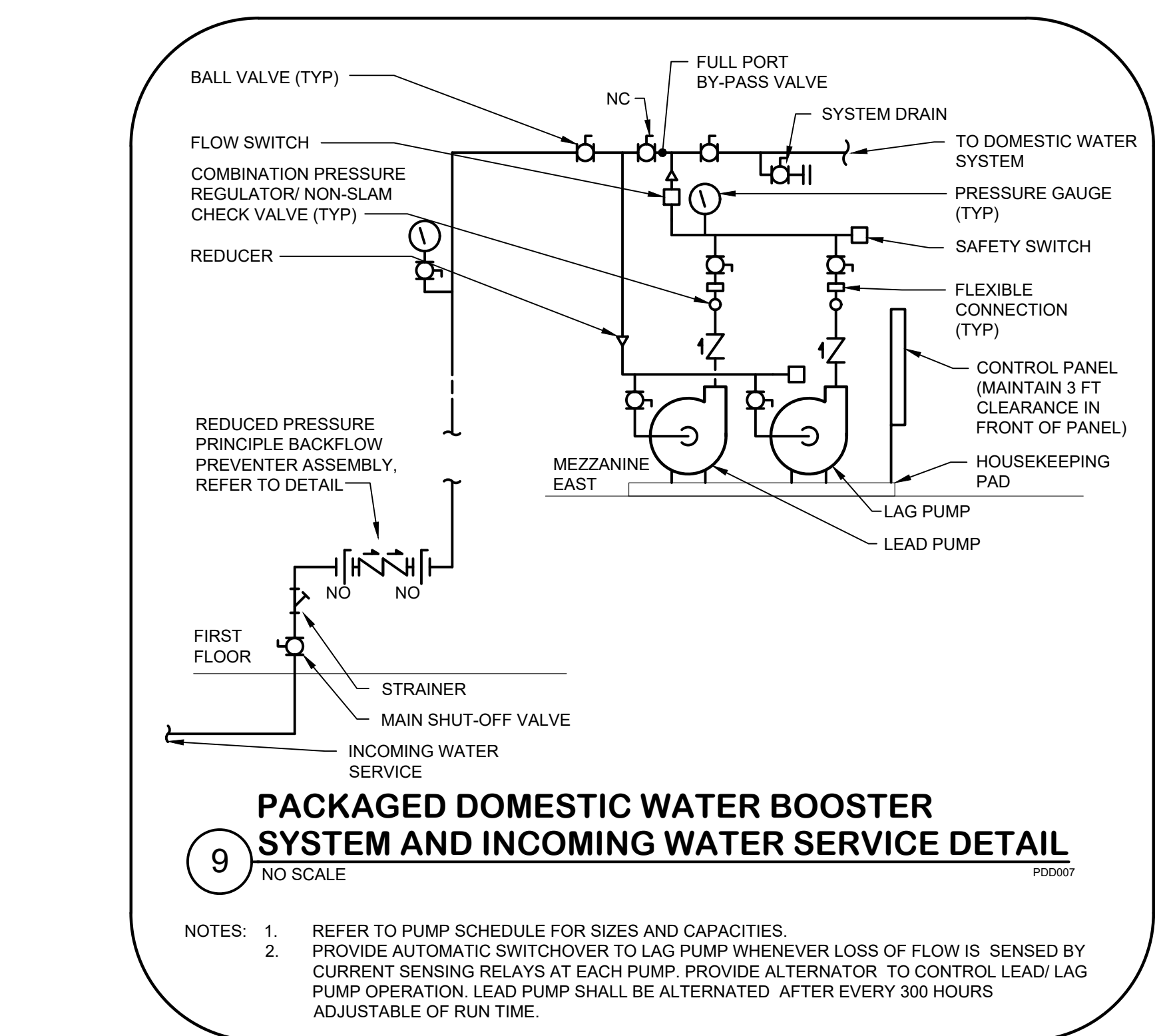
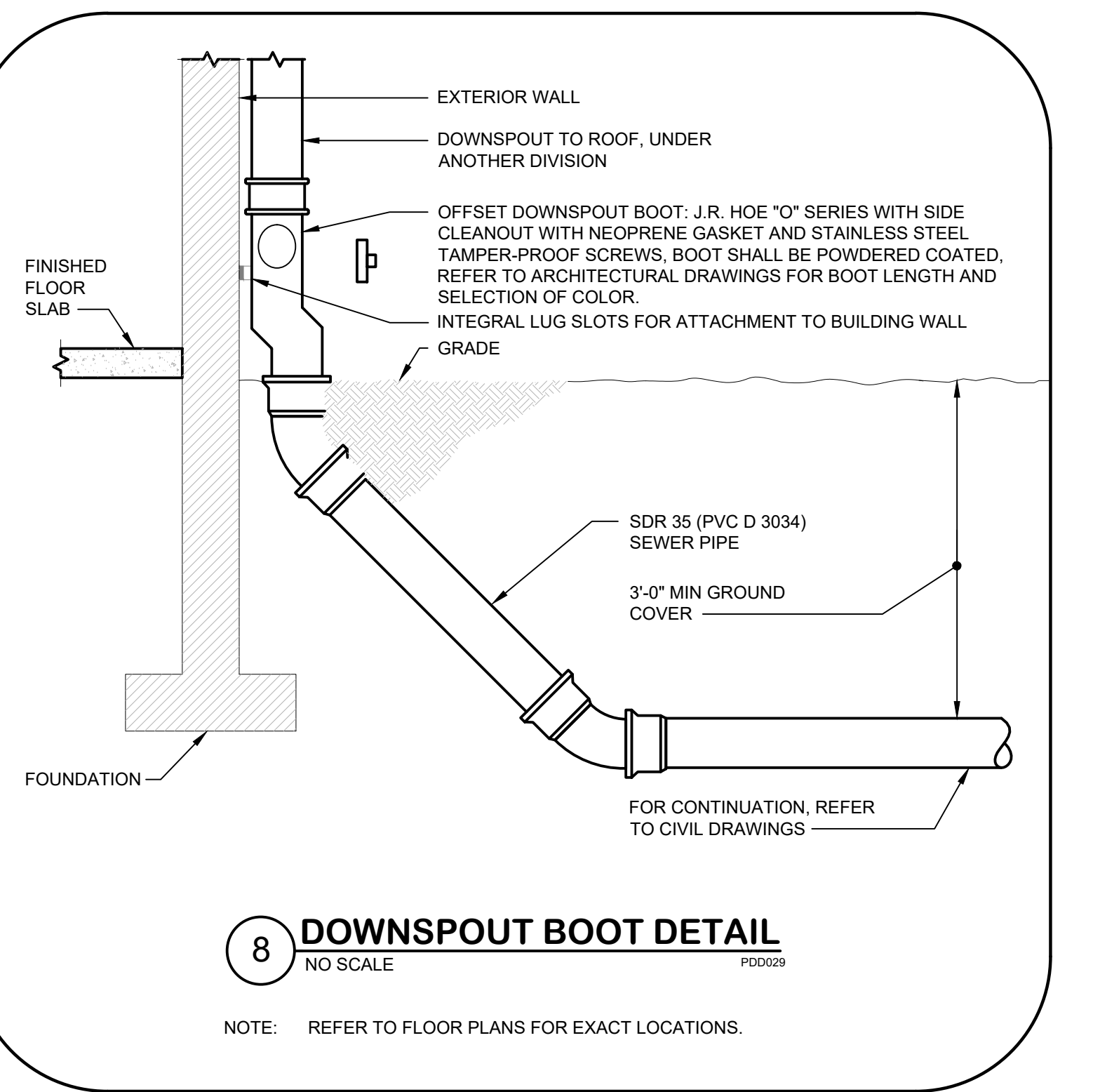
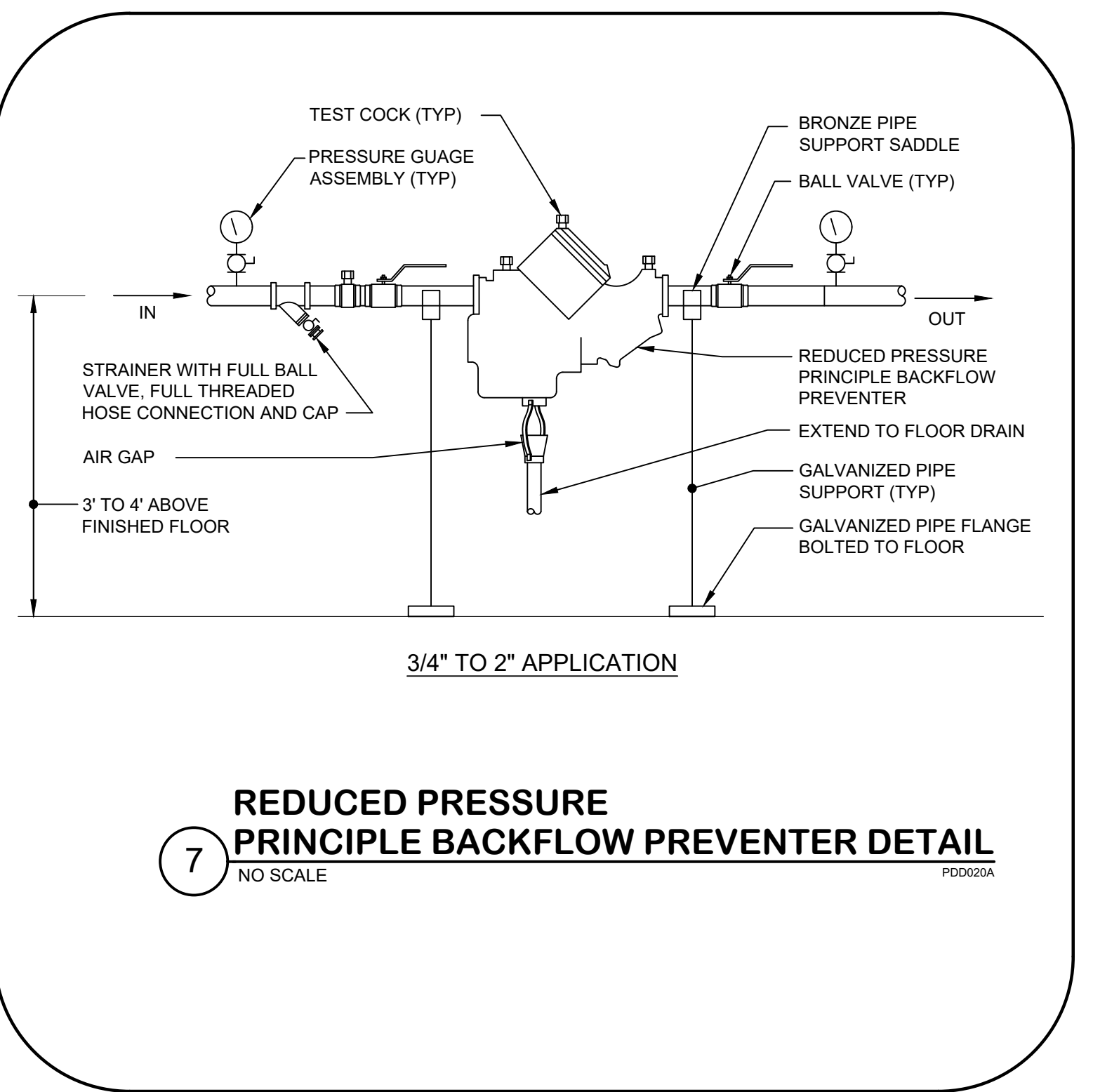
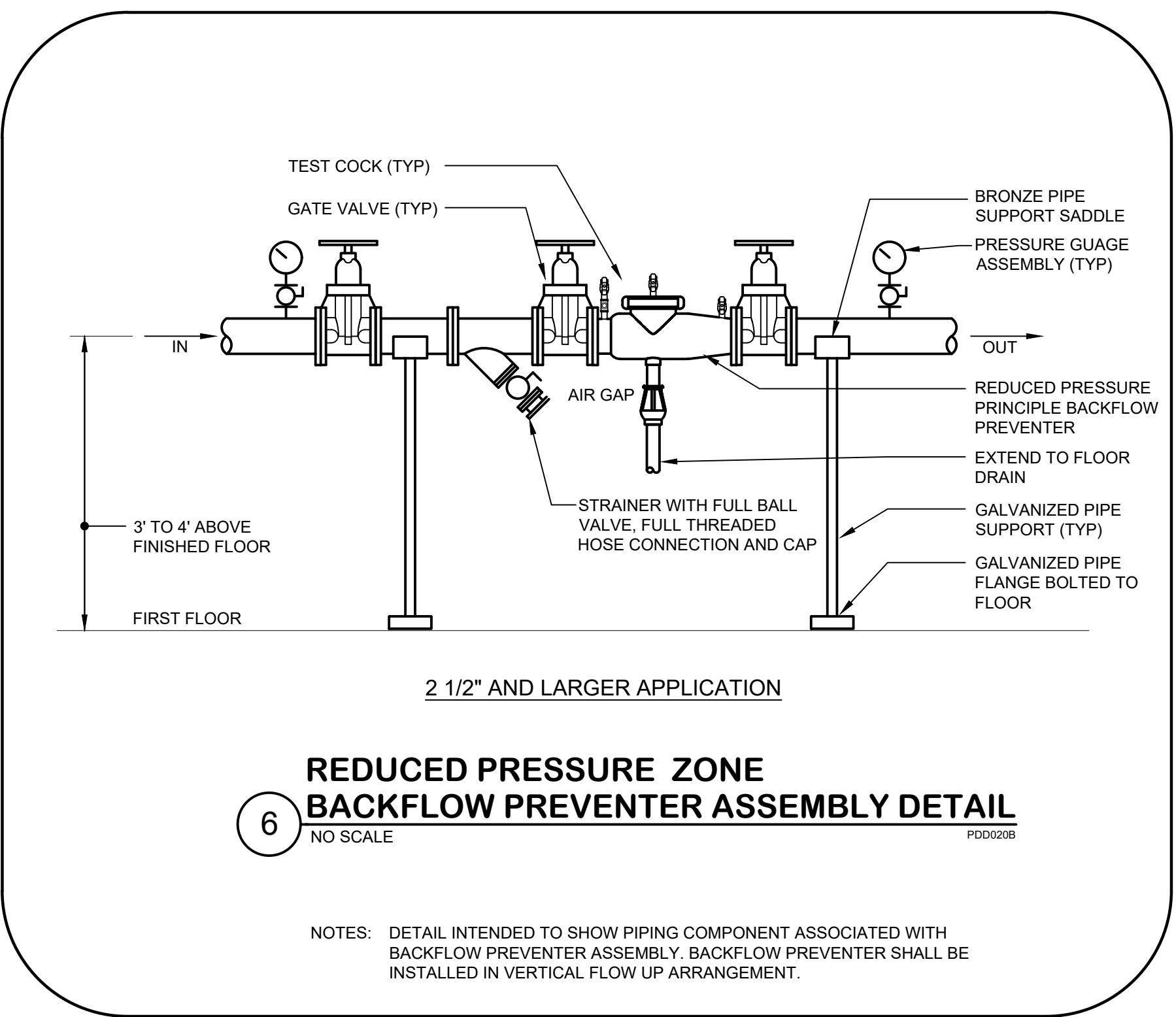
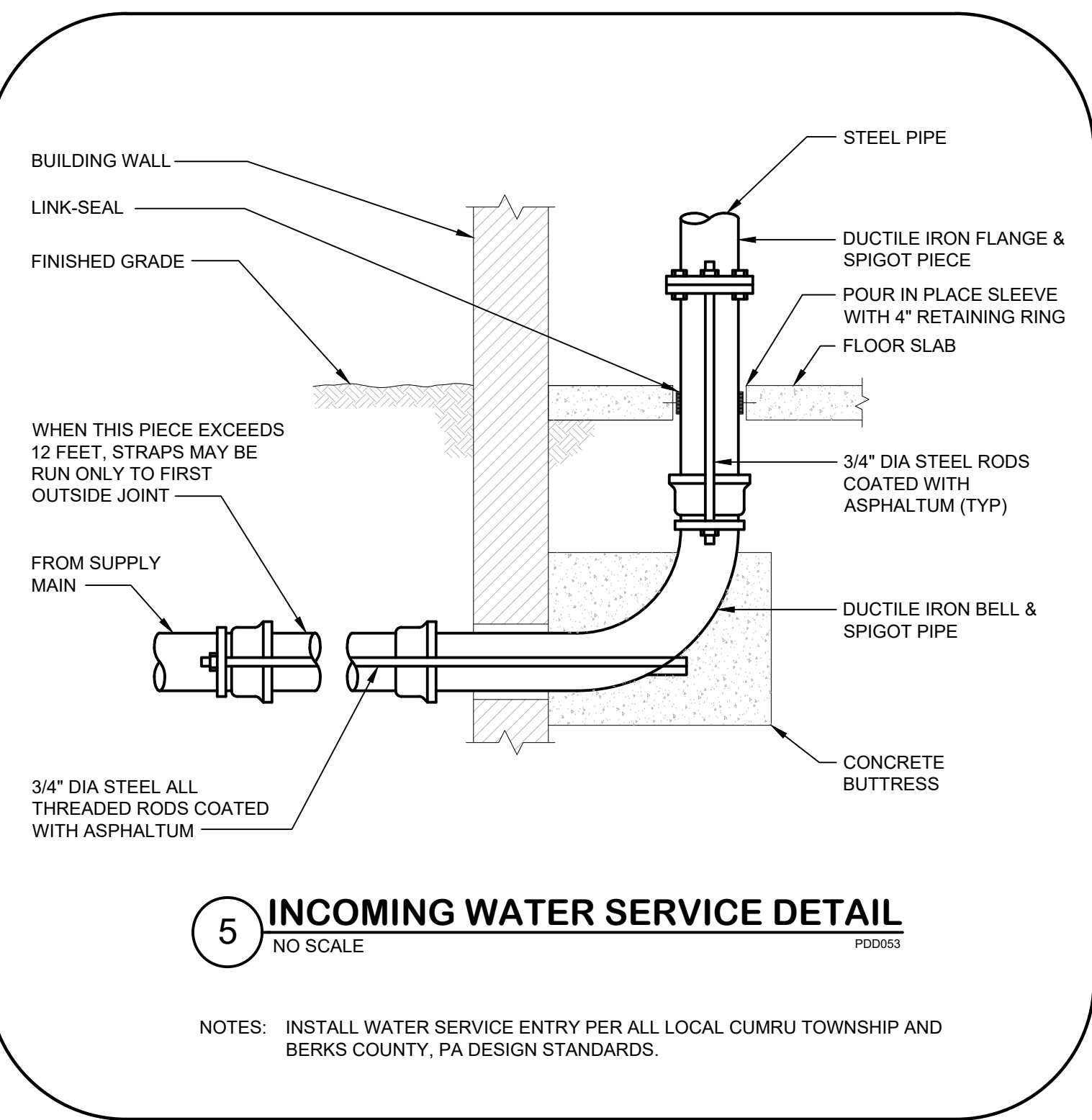


**MANNWOOD STUDIOS**  
ARCHITECTURE + MASTER PLANNING  
10839-D PHILADELPHIA RD  
WHITE MARSH, MD 21162  
(P) 410-344-1460  
(F) 443-405-2460  
(E) INFO@MWSARCH.COM  
WWW.MWSARCH.COM

SEAL: [Professional Engineer Seal]

CONSULTANT: **bkm**  
Burdette, Koehler, Murphy & Associates, Inc.  
500 South Hill Street, Suite 401 Baltimore, Maryland 21201  
P: 410.336.0100 | www.bkm.com

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS BOTH THE DRAWINGS AND THE PROJECT MANUAL AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS. SINCE CONSISTENT OF THE BID DOCUMENTS DRAWINGS & SPECIFICATIONS, ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCES, THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.



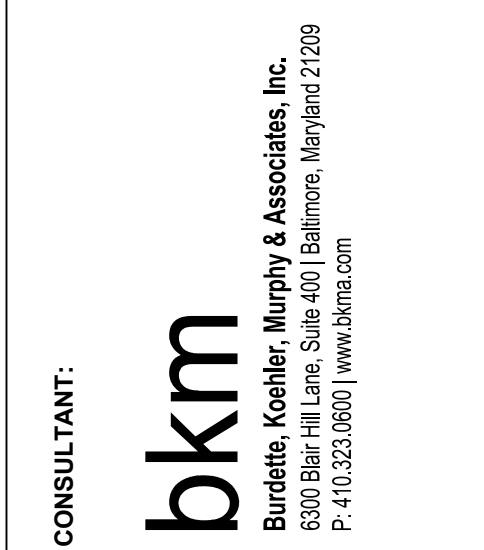
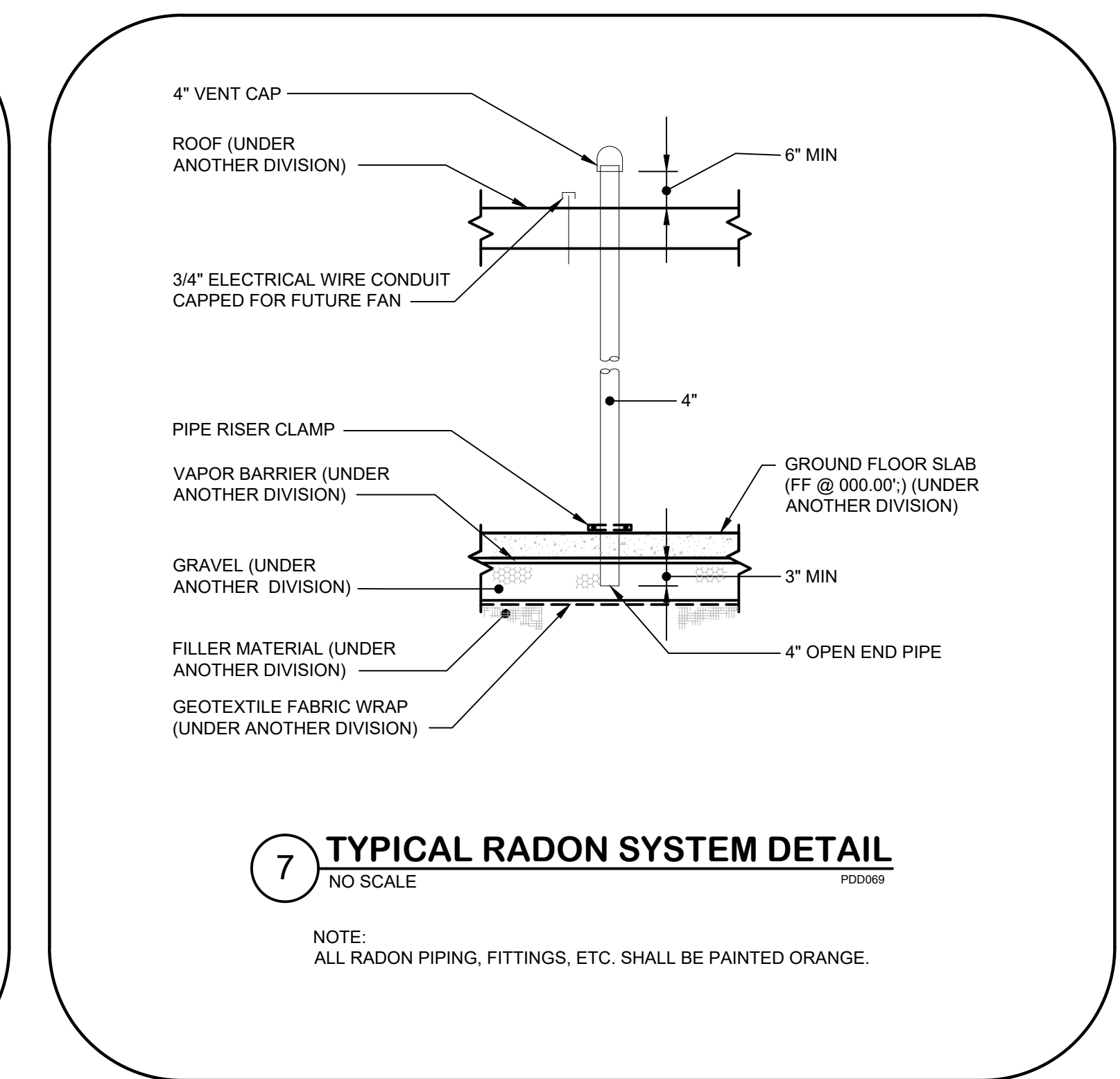
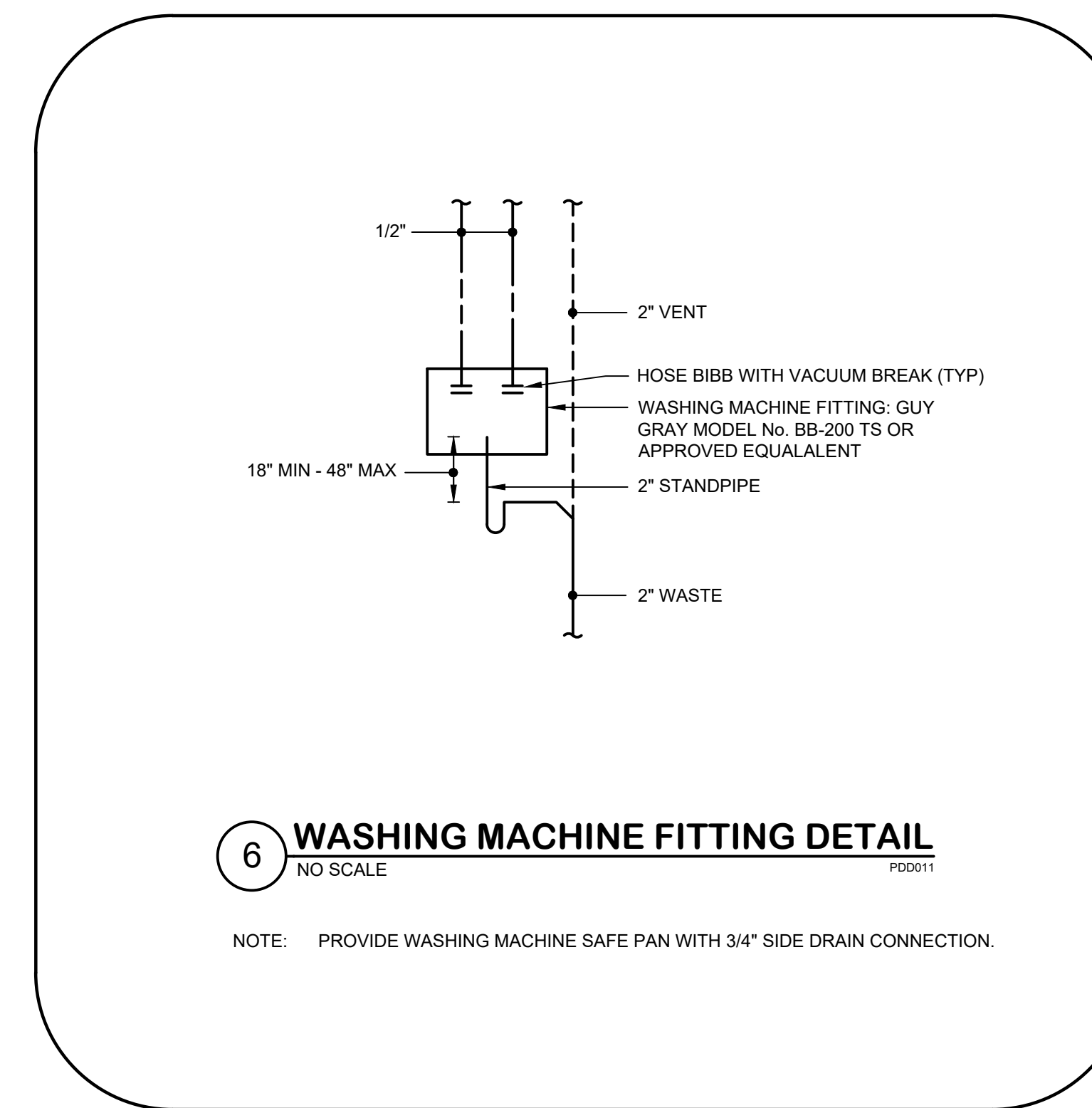
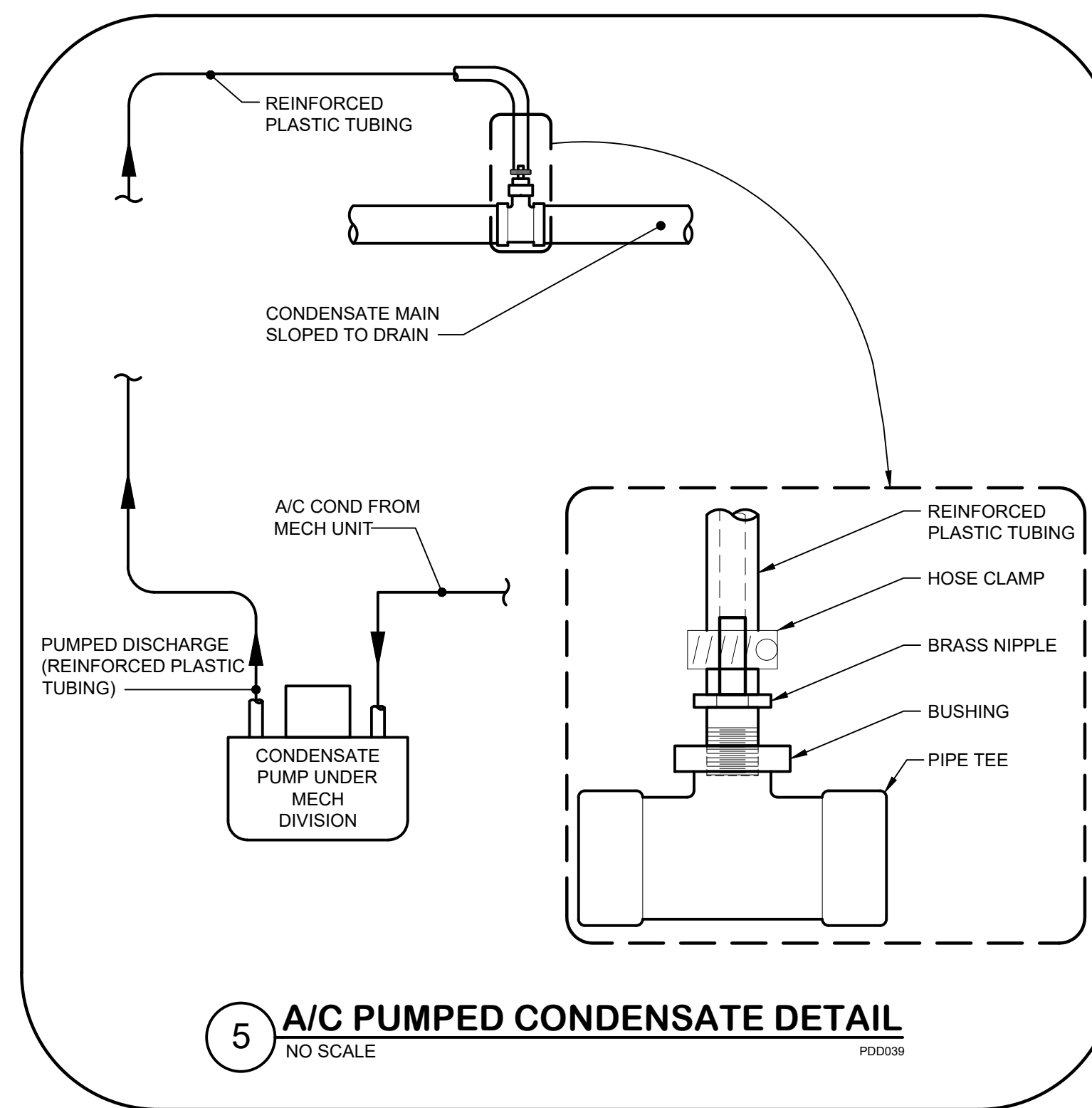
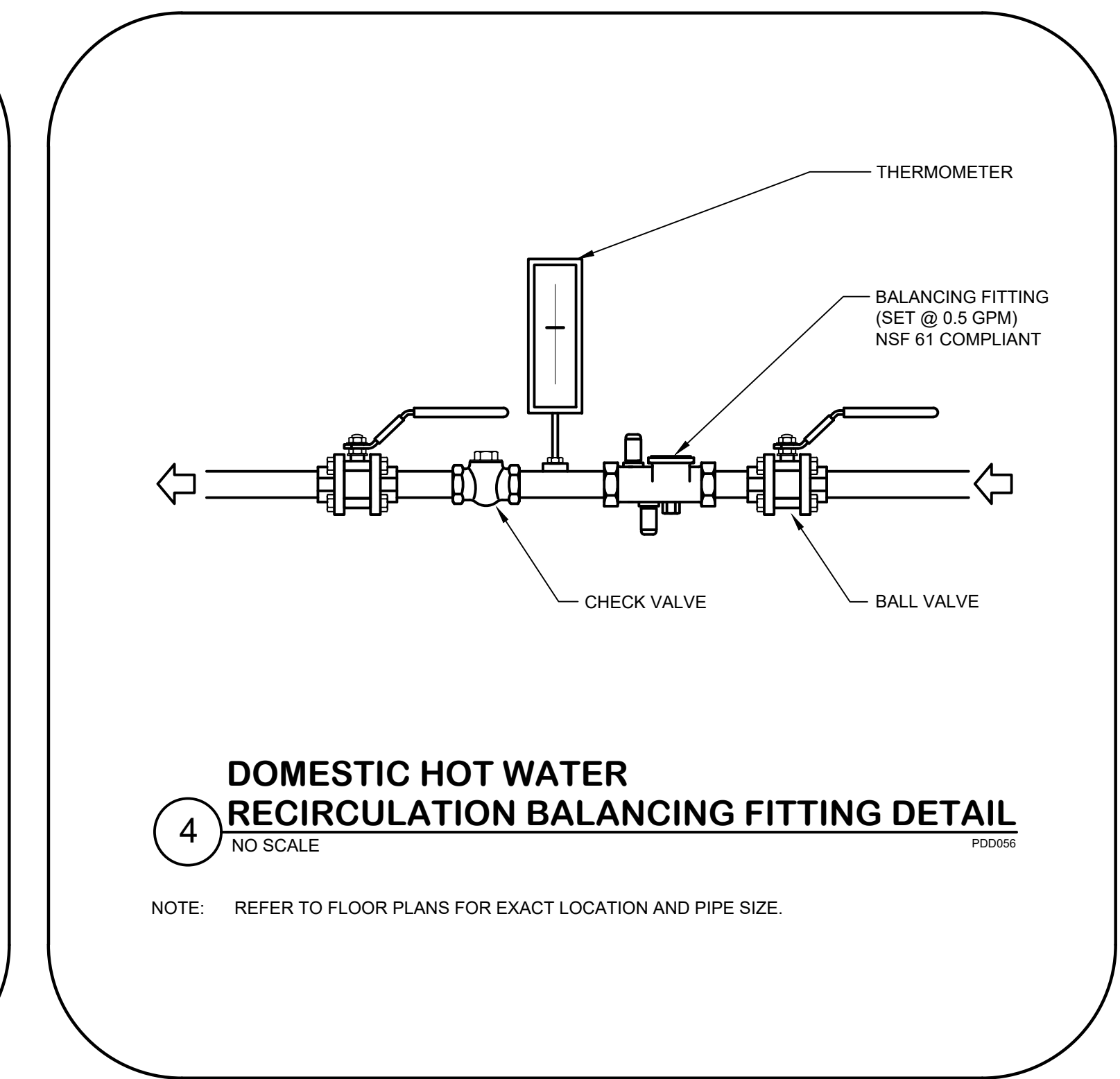
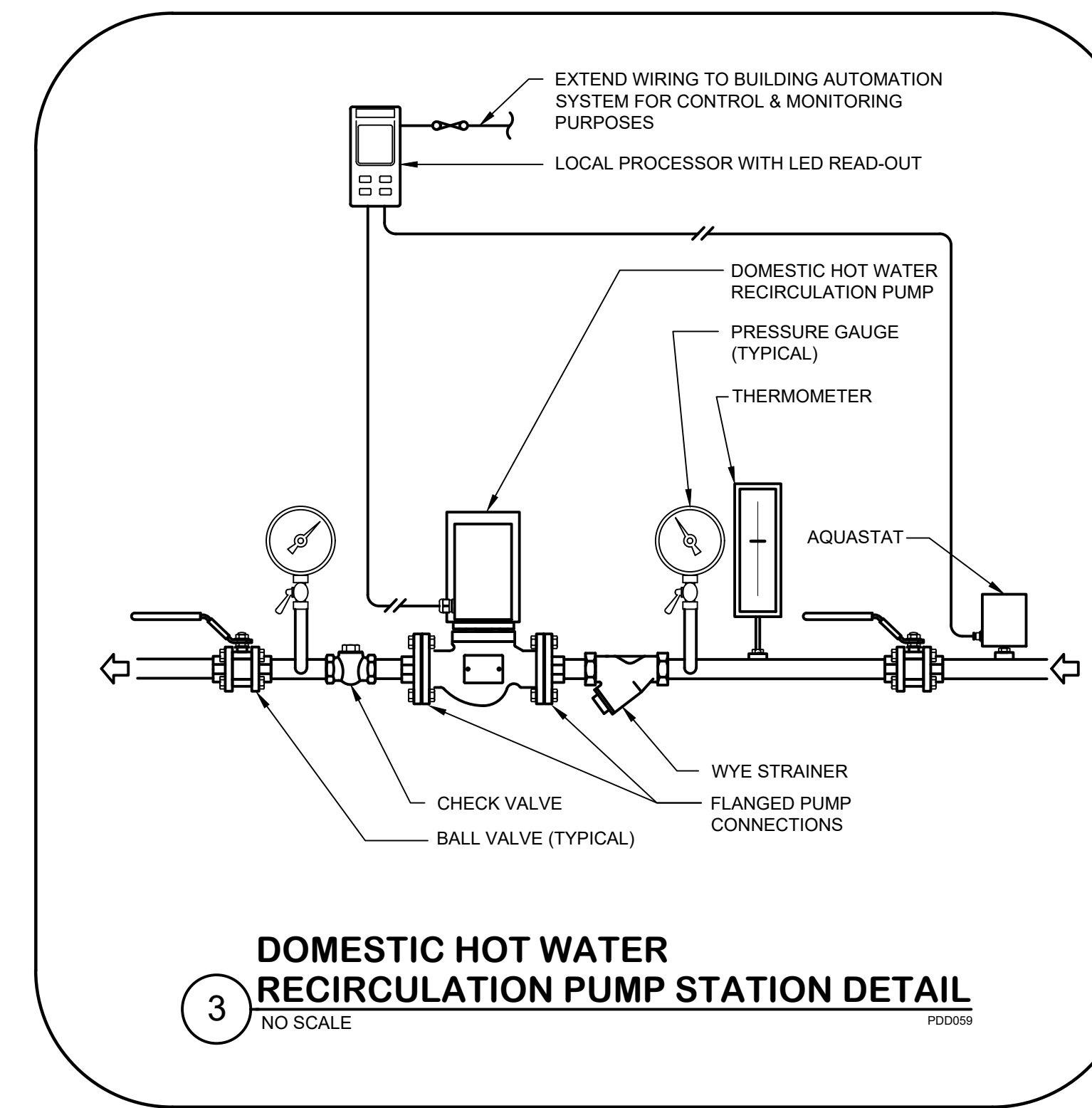
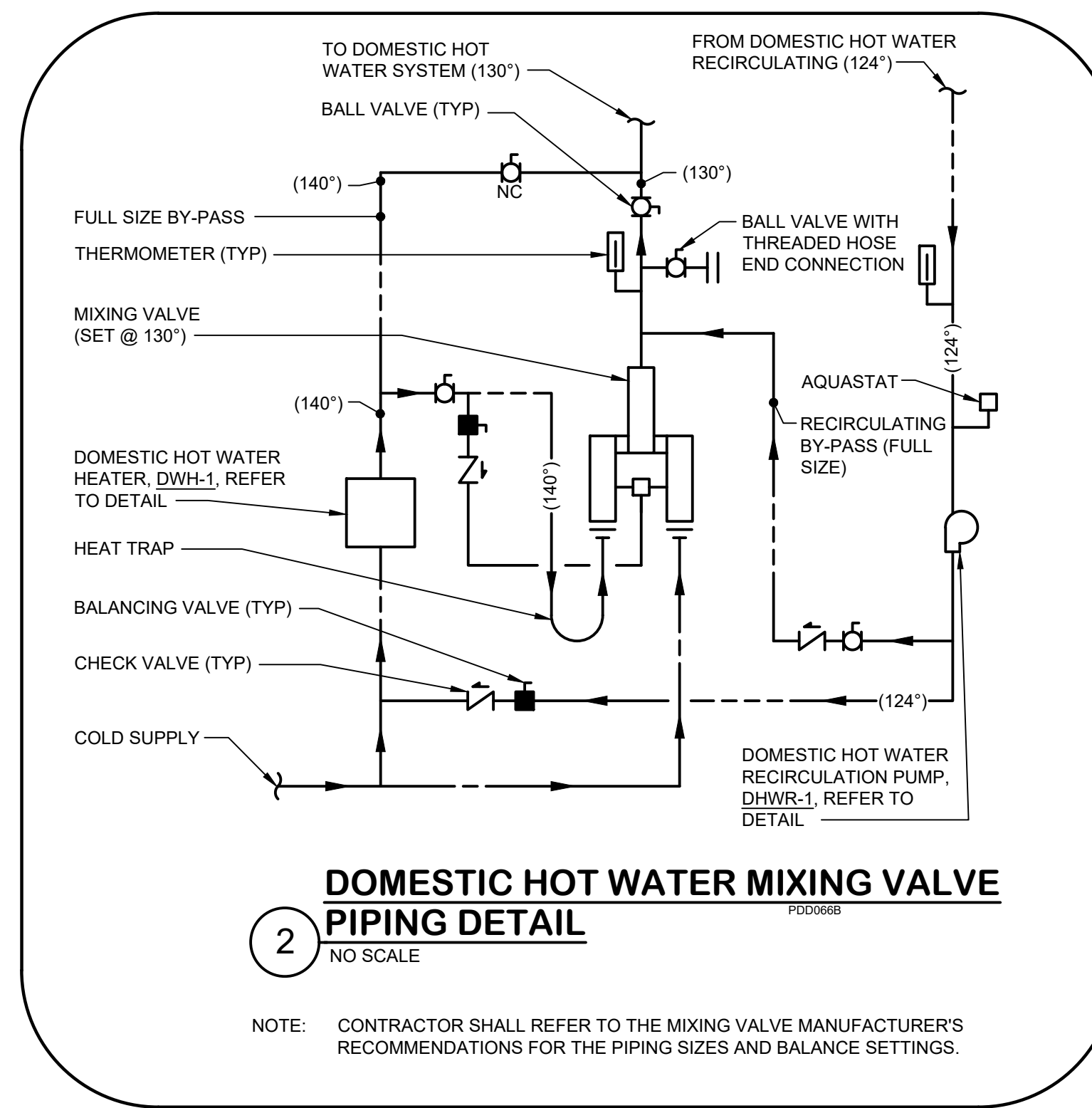
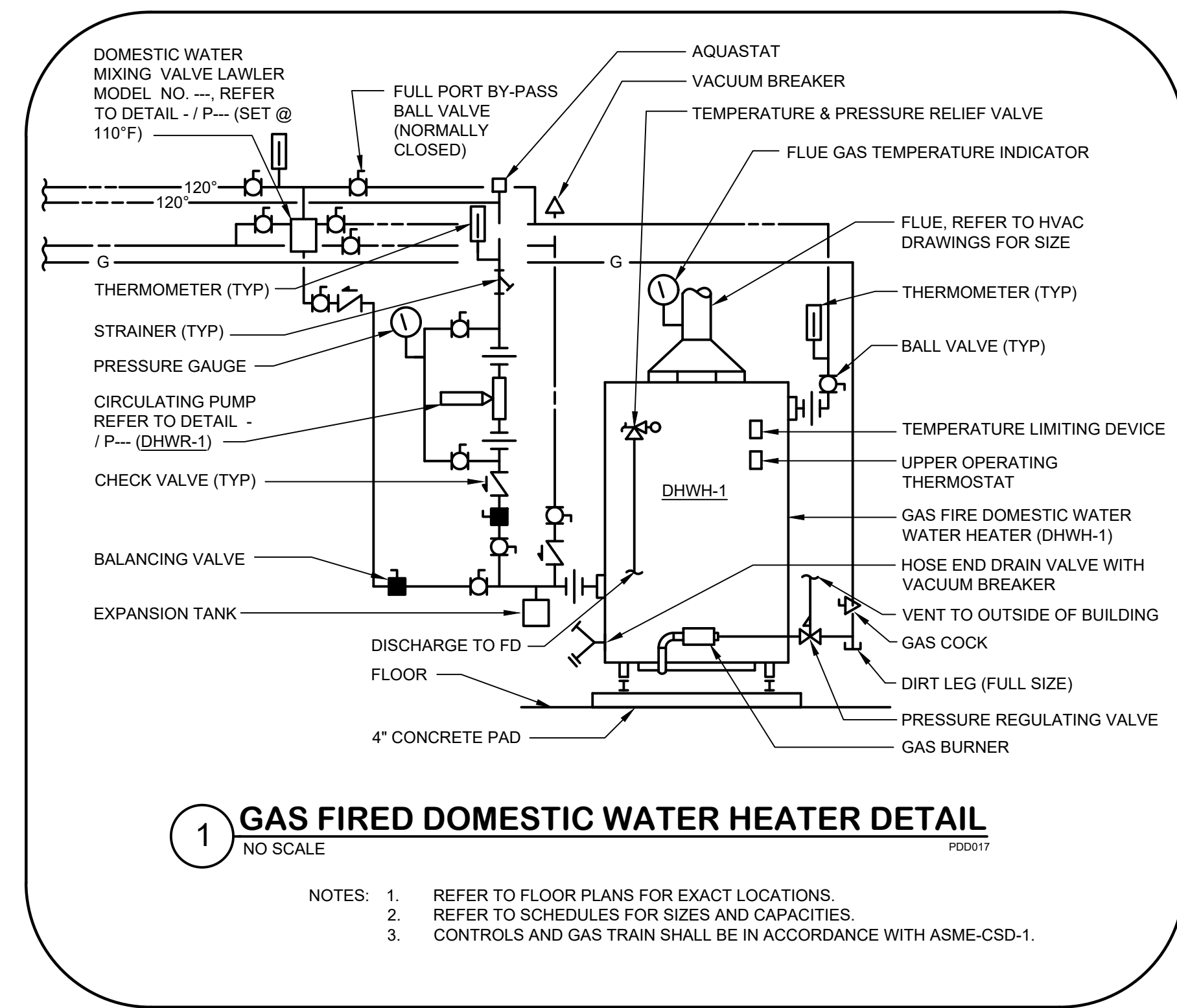
**CUMRU FIRE DEPARTMENT**  
1775 WELSH ROAD  
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

PROJECT NUMBER: 18-036  
PROJECT SET: BID SET  
DATE ISSUED: 11/30/2023  
DRAWING TITLE: PLUMBING DETAILS  
SHEET NUMBER: **P301**

ARL\_G:\19020\_01\Drawings\Asup\PP301  
Plotted By: Rose Castillo-Hernandez | 02/27/2023 2:59 PM

4/3/2019 8:48:38 AM  
BKM# 19020.01



THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

CUMRU FIRE DEPARTMENT  
 1775 WELSH ROAD  
 MOHNTON, PA 19540

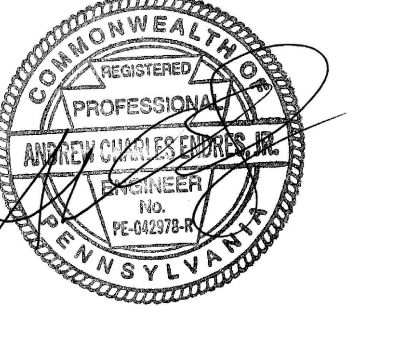
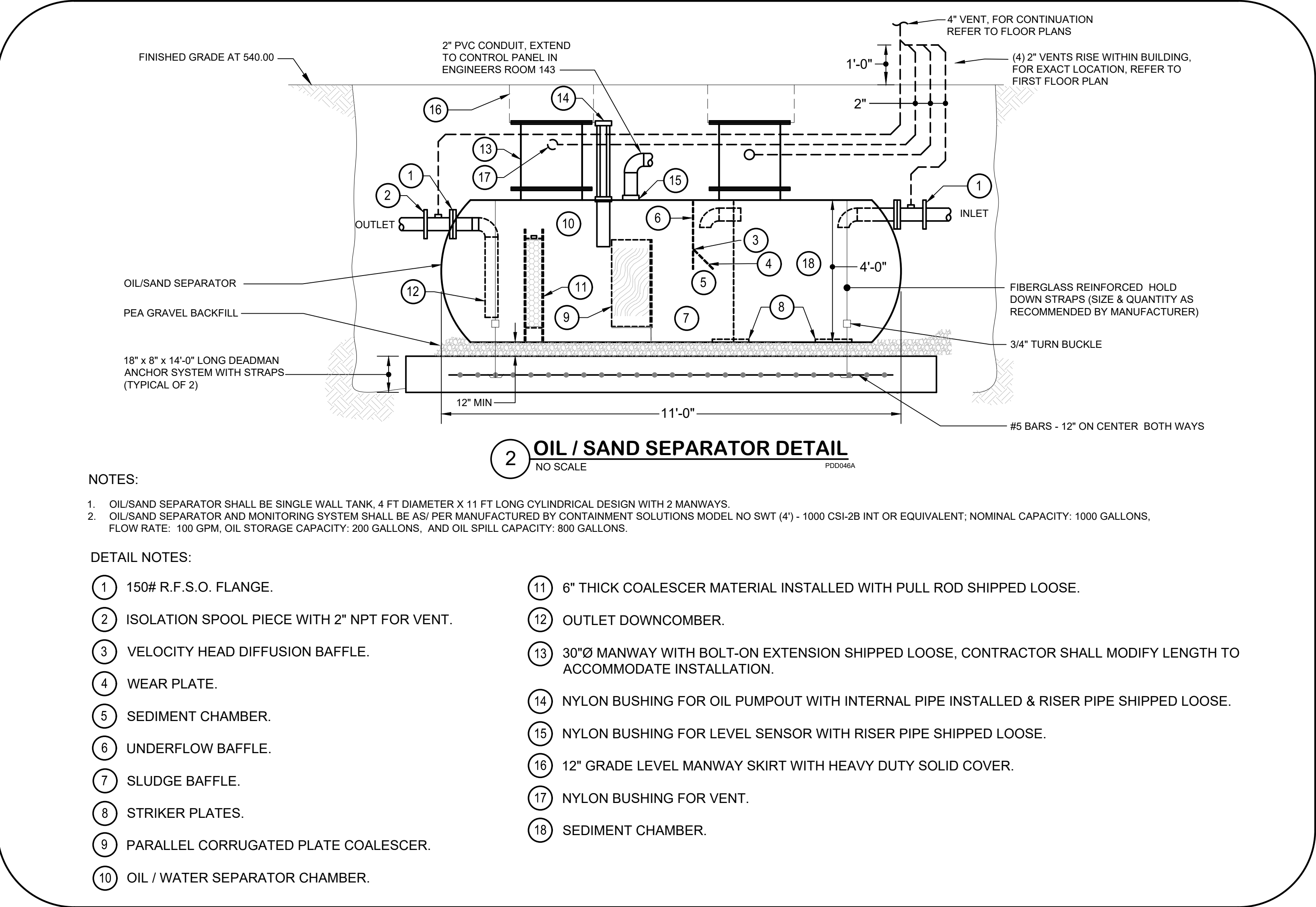
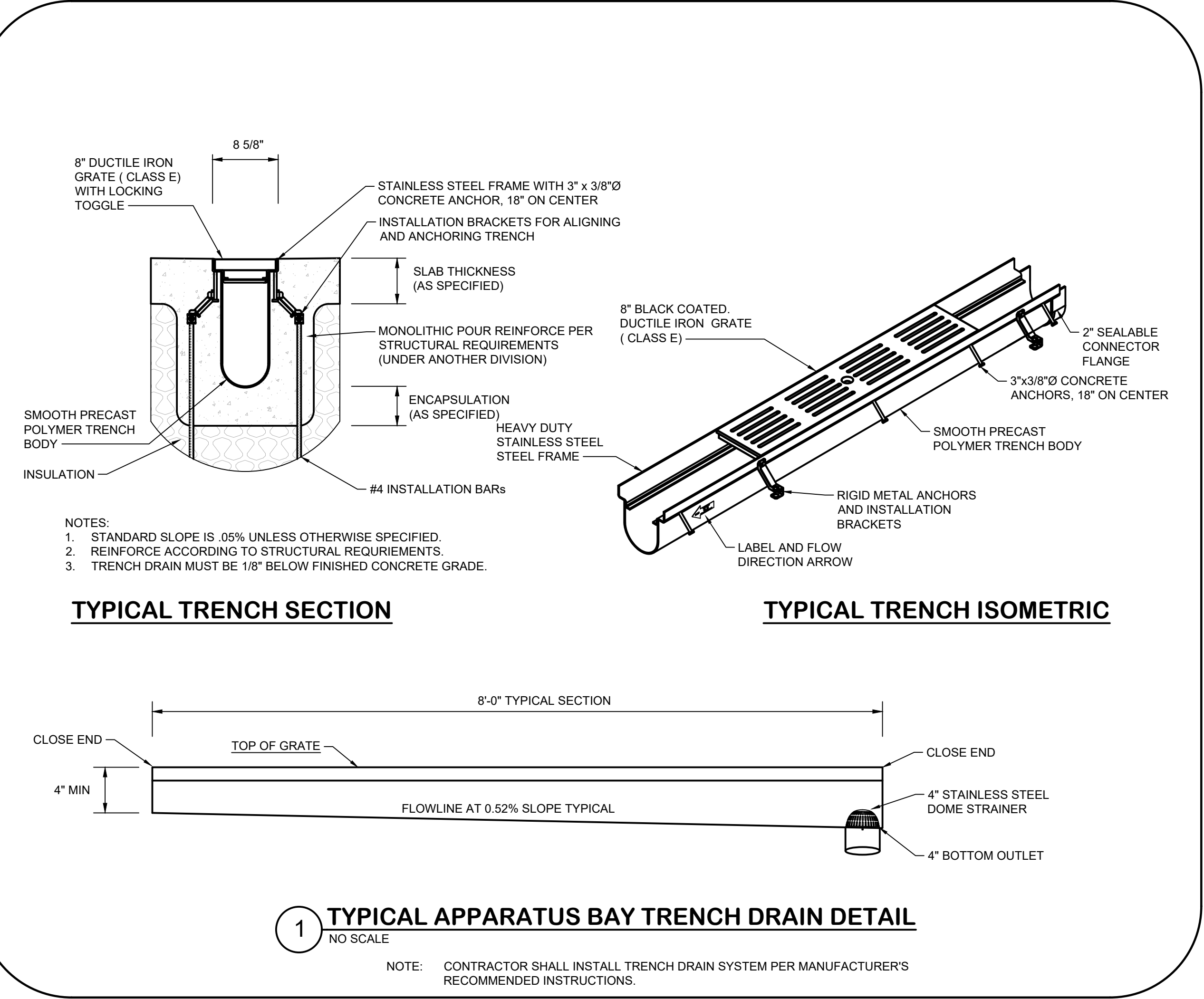
NO.	DESCRIPTION	DATE

PROJECT NUMBER:  
 18-036  
 PROJECT SET:  
 BID SET  
 DATE ISSUED:  
 11/30/2023

DRAWING TITLE:  
 PLUMBING DETAILS

SHEET NUMBER:  
**P302**



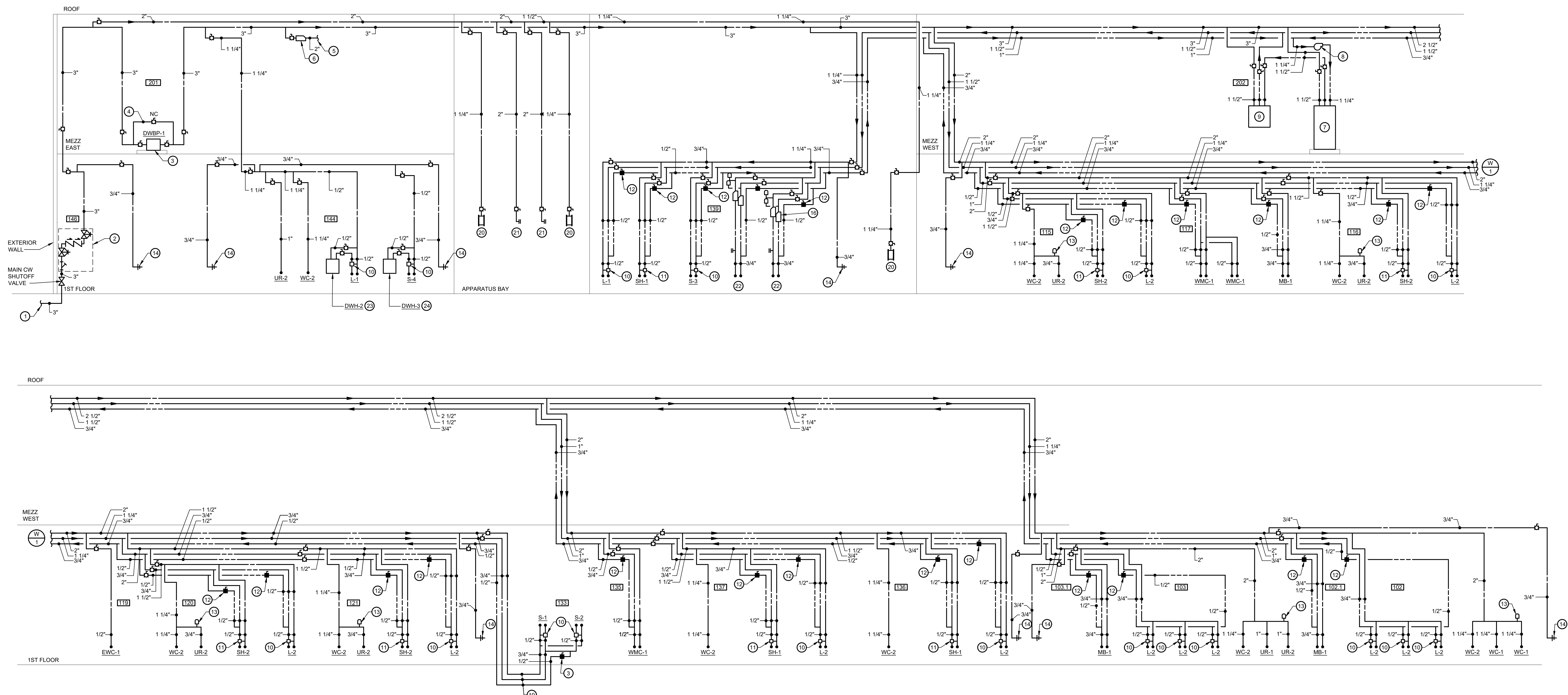


THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS. SINCE SOME OF THE BID DOCUMENTS DRAWINGS & SPECIFICATIONS, ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCES, THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

**CUMRU FIRE DEPARTMENT**  
**1775 WELSH ROAD**  
**MOHNTON, PA 19540**

NO.	DESCRIPTION	DATE

PROJECT NUMBER: 18-036  
PROJECT SET: BID SET  
DATE ISSUED: 11/30/2023  
DRAWING TITLE: PLUMBING DETAILS  
SHEET NUMBER: P303



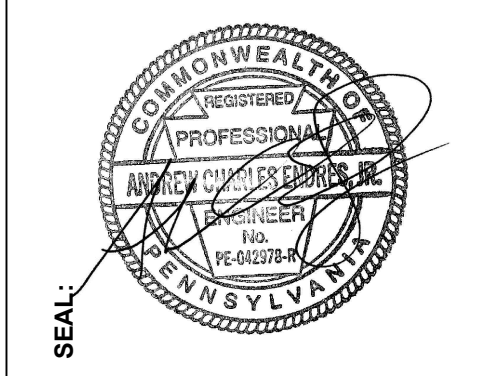
**1 DOMESTIC WATER RISER DIAGRAM**  
NO SCALE

**GENERAL NOTES:**

1. REFER TO P001 FOR PLUMBING LEGEND, ABBREVIATIONS, SCHEDULES AND GENERAL NOTES.
2. ALL VALVES SHALL BE INSTALL IN AN ACCESSIBLE AREA.

**DRAWING NOTES:**

1. 3" INCOMING DOMESTIC WATER SERVICE, FOR CONTINUATION, REFER TO CIVIL DRAWINGS.
2. 3" REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER ASSEMBLY WITH STRAINER (VERTICAL UP-VERTICAL UP POSITION), REFER TO DETAIL.
3. DOMESTIC WATER BOOSTER PUMP, DWBP-1, REFER TO DETAILS.
4. FULL LINE SIZE BYPASS WITH NORMALLY CLOSED VALVE.
5. 2" COLD WATER MAKEUP TO MECHANICAL EQUIPMENT, PROVIDE SHUT-OFF BALL VALVE AND REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER.
6. 2" REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER.
7. DOMESTIC WATER HEATER, DWH-1, REFER TO DETAIL.
8. DOMESTIC HOT WATER RECIRCULATING PUMP, DHWR-1, REFER TO DETAIL.
9. DOMESTIC HOT WATER MASTER MIXING VALVE, DWMV-1, REFER TO DETAIL.
10. POINT-OF-USE THERMOSTATIC MIXING VALVE, LAWLER MODEL NO. 570 (ASSE 1070).
11. COMBINED PRESSURE BALANCING/THERMOSTATIC SHOWER MIXING VALVE, ASSE 1016.
12. COMBINATION SHUT-OFF VALVE AND BALANCE FITTING (SET AT 0.5 GPM), REFER TO DETAIL.
13. WATER HAMMER ARRESTER, SIZE TO PDI WH-201.
14. 3/4" NON-FREEZE WALL HYDRANT WITH VACUUM BREAKER.
15. 3/4" NON-FREEZE COLD WATER HOSE BIBB WITH VACUUM BREAKER.
16. BACKFLOW PREVENTER, (TYPICAL)
17. ICE MAKER & FILTER ASSEMBLY PROVIDED UNDER ANOTHER DIVISION, UNDER THIS DIVISION PROVIDE SHUT-OFF BALL VALVES AND BACKFLOW PREVENTER, ROUGH-IN & FINAL CONNECTION.
18. AUTOMATIC TRAP PRIMING STATION TPS-1, REFER TO DETAIL.
19. 1/2" HWR, 3/4" HW & 3/4" CW INSULATED PIPING LOCATED IN 6" PVC CONDUIT, PROVIDE SEAMLESS SOFT COPPER TUBING WITH NO FITTINGS.
20. WATER HOSE REEL, PROVIDE REELCRAFT MODEL # D9399 OLPBW SERIES 8000 HOSE REEL OR EQUIVALENT, LOW PRESSURE, SPRING RETRACTABLE HOSE REEL ASSEMBLY WITH INLET CONNECTION HOSES FOR WATER, DUAL PEDESTAL BASE AND GUIDE ARM DESIGN, 100' X 3/4" LOW PRESSURE HOSE, STANDARD FINISH, SHUT-OFF BALL VALVE, ROUGH-IN AND FINAL CONNECTION, MOUNT HOSE REEL TO COLUMN AT 36" ABOVE FINISHED FLOOR.
21. 2" CW DOWN WITH PIPE SUPPORTED ALONG COLUMN TO 36" ABOVE FINISHED FLOOR, PROVIDE 2" THREADED HOSE END CONNECTION WITH BALL VALVE, PLUMBING CONTRACTOR SHALL COORDINATE WITH OWNER ON THE SIZE AND TYPE OF HOSE END THREAD.
22. 1/2" HWR, 1" HW & 1" CW DOWN TO EXTRACTOR, EXTRACTOR UNDER ANOTHER DIVISION, UNDER THIS DIVISION, PROVIDE ROUGH-IN & FINAL CONNECTION.
23. INSTANTANEOUS ELECTRIC DOMESTIC WATER HEATER, DWH-2, REFER TO SCHEDULE.
24. INSTANTANEOUS ELECTRIC DOMESTIC WATER HEATER, DWH-3, REFER TO SCHEDULE.



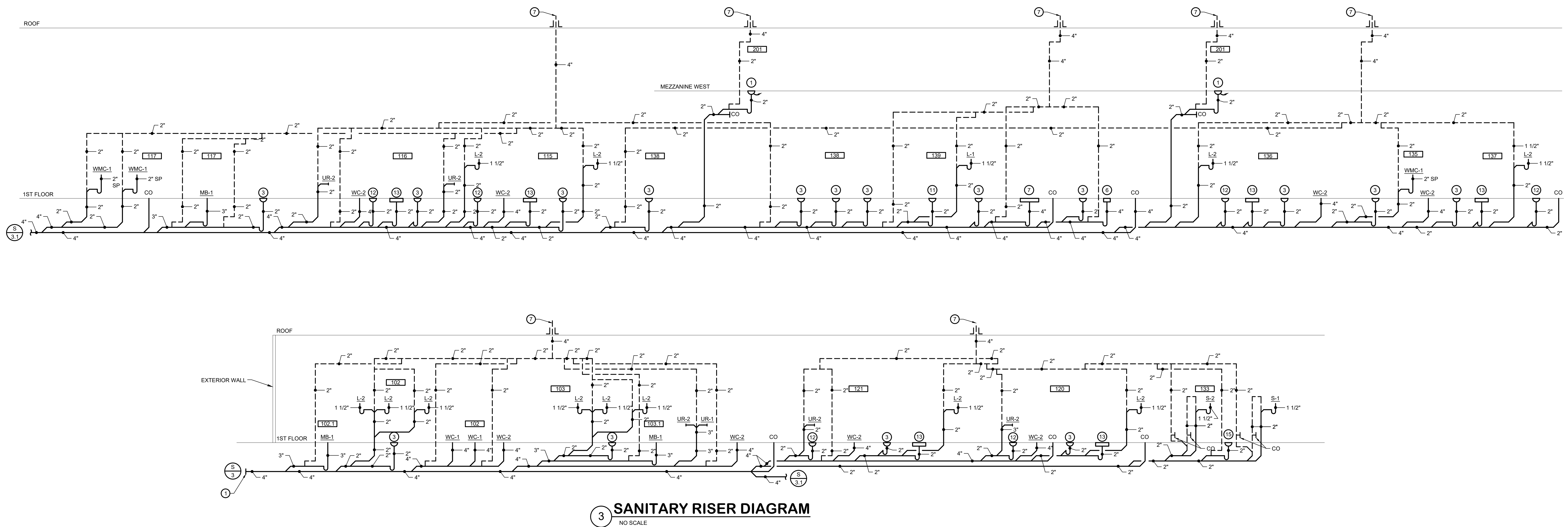
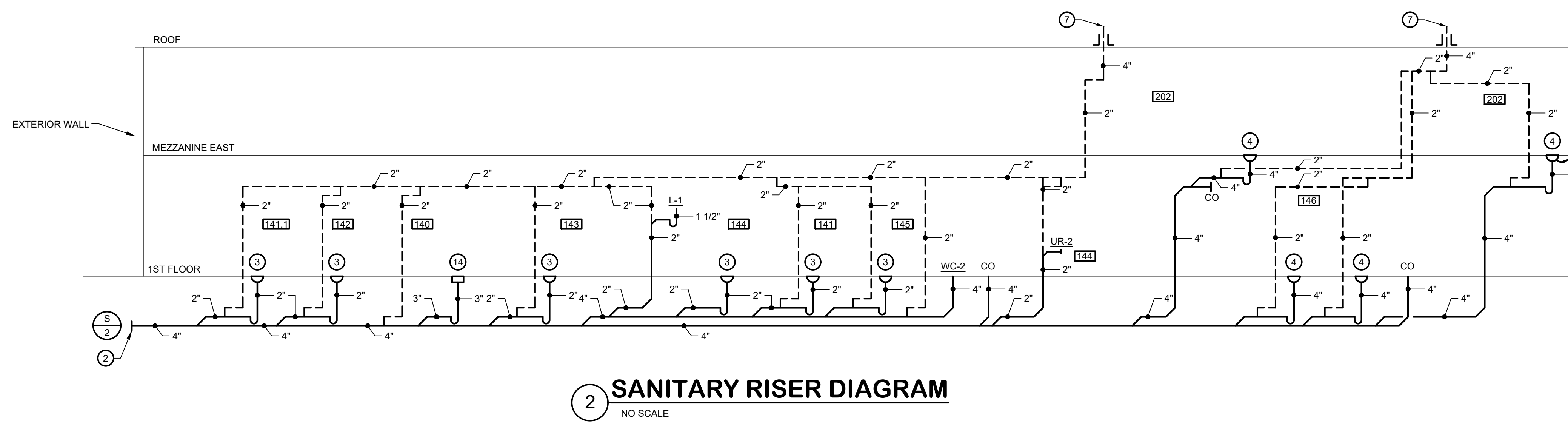
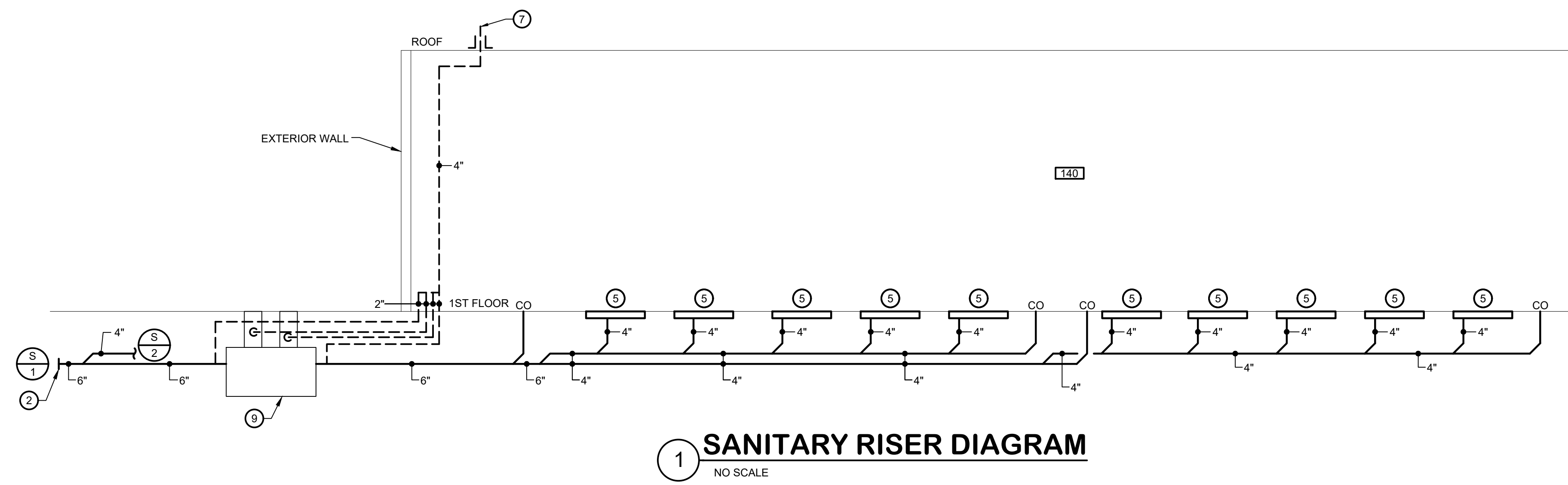
CONSULTANT:  
**bkm**  
Burdette, Collier, Murphy & Associates, Inc.  
800 Baltimore Loop, Suite 400 Baltimore, Maryland 21209  
P: 410.336.8661 | www.bkm.com

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS BOTH THE DRAWINGS AND THE PROJECT MANUAL AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS. SINCE CONSIST OF THE BID DOCUMENTS DRAWINGS & SPECIFICATIONS, ALL ADDENDA, AND THE OWNER'S ACCEPTED BID ALTERNATES AND CONTINGENCES, THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

CUMRU FIRE DEPARTMENT  
1775 WELSH ROAD  
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

PROJECT NUMBER:  
18-036  
PROJECT SET:  
BID SET  
DATE ISSUED:  
11/30/2023  
DRAWING TITLE:  
PLUMBING RISER  
DIAGRAMS  
SHEET NUMBER:  
**P401**

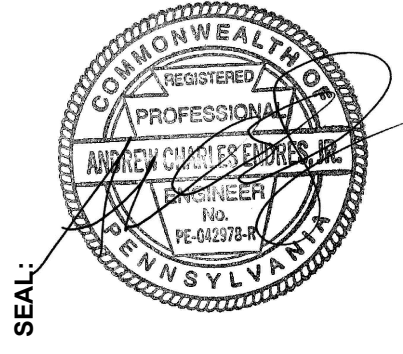


**GENERAL NOTES:**

1. REFER TO P001 FOR PLUMBING LEGEND, ABBREVIATIONS AND GENERAL NOTES.

**DRAWING NOTES:**

1. 4" SANITARY, FOR CONTINUATION, REFER TO CIVIL DRAWINGS.
2. 6" SANITARY, FOR CONTINUATION, REFER TO CIVIL DRAWINGS.
3. 2" FLOOR DRAIN WITH ASSE 1072 TRAP SEAL DEVICE.
4. 4" FLOOR DRAIN WITH ASSE 1072 TRAP SEAL DEVICE.
5. 4" TRENCH DRAIN, REFER TO DETAIL & SCHEDULE.
6. 4" FLOOR SINK WITH ASSE 1072 TRAP SEAL DEVICE.
7. 2" WIDE X 12-1/2" DEEP X 102" LONG LINT TYPE 304 STAINLESS STEEL TROUGH WITH STAINLESS STEEL BAR GRATE AND SOLID COVER, DUAL REMOVABLE STAINLESS STEEL FILTER SCREENS AND A DOME BOTTOM STRAINER AND 4" DRAIN CONNECTION, JAY R SMITH MODEL SQ-TD-850 OR EQUIVALENT.
8. 4" VENT THROUGH ROOF.
9. PROVIDE ISLAND FIXTURE VENT PER 2018 IPC 916.2.
10. 1000 GALLON OIL/SAND SEPARATOR, REFER TO DETAIL.
11. 2" SHOWER FLOOR DRAIN (SH-1) WITH ASSE 1072 TRAP SEAL DEVICE.
12. 2" SHOWER BASE FLOOR DRAIN (SH-2) WITH ASSE 1072 TRAP SEAL DEVICE.
13. 2" SHOWER TRENCH DRAIN (SH-2) WITH ASSE 1072 TRAP SEAL DEVICE.
14. 3" FLOOR SINK WITH ASSE 1072 TRAP SEAL DEVICE.
15. 2" FUNNEL FLOOR DRAIN WITH ASSE 1072 TRAP SEAL DEVICE FOR INDIRECT DRAIN FROM ICEMAKER.



**CONSULTANT:**  
**bkm**  
Burdette, Koehler, Murphy & Associates, Inc.  
800 Baltimore Loop, Suite 400 Baltimore, Maryland 21209  
P: 410.236.0601 | www.bkm.com

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS. SINCE CONSIST OF THE BID DOCUMENTS DRAWINGS & SPECIFICATIONS, ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCES, THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

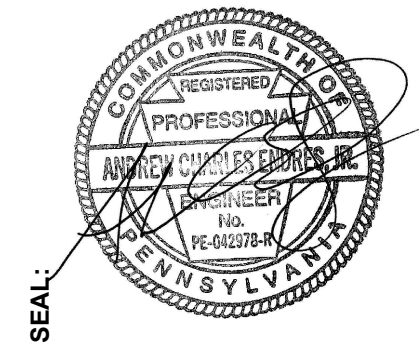
**CUMRU FIRE DEPARTMENT**  
**1775 WELSH ROAD**  
**MOHNTON, PA 19540**

NO.	DESCRIPTION	DATE

PROJECT NUMBER:  
18-036  
PROJECT SET:  
BID SET  
DATE ISSUED:  
11/30/2023

DRAWING TITLE:  
PLUMBING RISER DIAGRAMS

SHEET NUMBER:  
**P402**



**CONSULTANT:**  
**bkm**  
Burdette, Kottler, Murphy & Associates, Inc.  
800 South E. Lane, Suite 400 Baltimore, Maryland 21209  
P: 410.338.0600 www.bkm.com

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS. SINCE A PORTION OF THE BID DOCUMENTS DRAWINGS & SPECIFICATIONS, ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCIES, THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

**CUMRU FIRE DEPARTMENT**  
1775 WELSH ROAD  
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

**PROJECT NUMBER:**  
18-036  
**PROJECT SET:**  
BID SET  
**DATE ISSUED:**  
11/30/2023

**DRAWING TITLE:**  
PLUMBING  
RISER DIAGRAMS  
**SHEET NUMBER:**  
**P403**

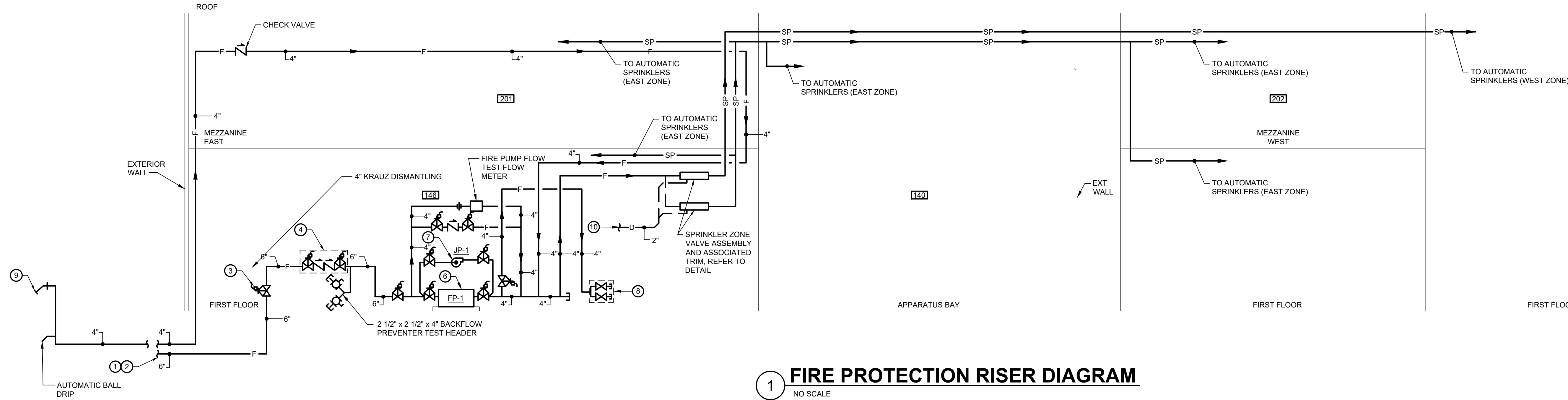
**4/3/2019 8:48:38 AM**  
BKM# 19020.01

**GENERAL NOTES:**

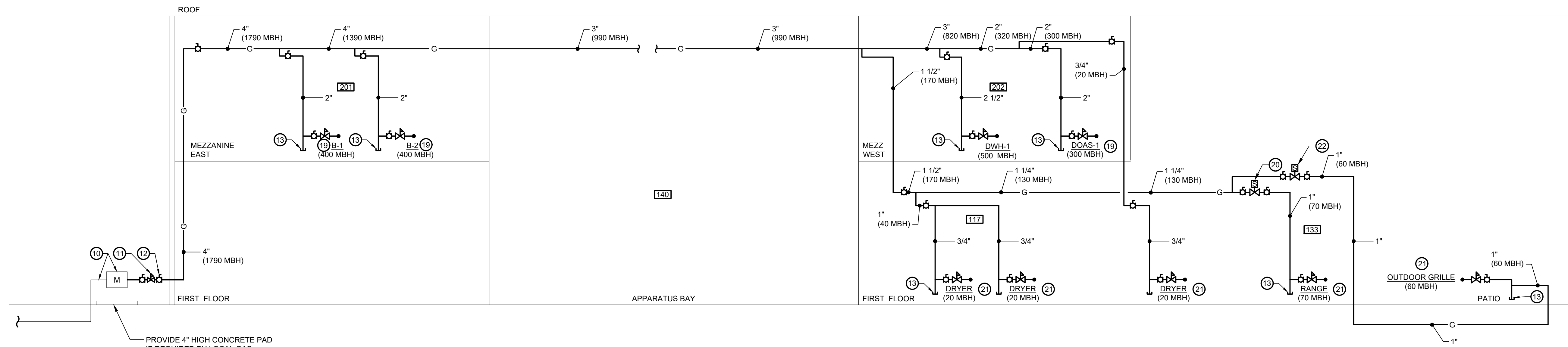
- REFER TO P001 FOR FIRE PROTECTION LEGEND, ABBREVIATIONS, SCHEDULES & GENERAL NOTES.
- ALL VALVES SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION.
- PROVIDE AIR RELEASE FITTINGS AS REQUIRED PER NFPA 13. DISCHARGE DRAIN THROUGH EXTERIOR WALL, COORDINATE LOCATIONS OF DRAINS WITH OWNER/ARCHITECT.
- ALL FIRE AND SPRINKLER PIPING AND APPURTENANCES SHALL CONFORM TO NFPA 13 & 20.
- ALL FIRE PIPING AND FITTINGS SHALL BE CLASS 250 PSI WORKING PRESSURE.
- ALL LOW POINTS IN THE COMPRESSED AIR SYSTEM SHALL BE PROVIDED WITH A DRAIN VALVE AND CAP. DRAIN VALVES SHALL BE ACCESSIBLE FROM FLOOR LEVEL.

**DRAWING NOTES:**

- 6" INCOMING FIRE PROTECTION WATER SERVICE.
- FOR CONTINUATION, REFER TO FLOOR PLANS.
- OS&Y GATE VALVE WITH TAMPER SWITCH (TYPICAL).
- REDUCED PRESSURE PRINCIPLE DETECTOR BACKFLOW PREVENTER, REFER TO DETAIL.
- SPRINKLER ZONE VALVE ASSEMBLY, REFER TO DETAIL.
- FIRE PUMP, REFER TO DETAIL.
- JOCKEY PUMP, REFER TO DETAIL.
- PROVIDE POST TYPE FIRE DEPARTMENT SIAMSE CONNECTION WITH 5" STORZ CONNECTION, MOUNT 36" ABOVE FINISHED GRADE, REFER TO PLUMBING SITE PLAN.
- INCOMING GAS SERVICE AND GAS METER ASSEMBLY, VALVES, REGULATORS AND ALL ASSOCIATED APPURTENANCES BY LOCAL GAS COMPANY.
- GAS PRESSURE REDUCING VALVE (INCHES TO INCHES), (TYPICAL)
- BUILDING MAIN GAS SHUT-OFF VALVE.
- FULL SIZE DIRT LEG.
- AIR COMPRESSOR, AIR COMPRESSOR PROVIDED UNDER ANOTHER DIVISION. UNDER THIS DIVISION, PROVIDE SHUT-OFF BALL VALVE, AIR REGULATOR, AIR FILTER, ROUGH-IN & FINAL CONNECTION.
- FULL SIZE BY-PASS VALVE (NORMALLY CLOSED).
- PRESSURE GAUGE.
- 1" COMPRESSED AIR WITH SHUT-OFF BALL VALVE, REGULATOR AND QUICK-DISCONNECT, PROVIDE ROUGH-IN AND FINAL CONNECTION. MOUNT OUTLET AT 48" ABOVE FINISHED FLOOR.
- 3/4" COMPRESSED AIR TO HOSE REEL, PROVIDE REELCRAFT MODEL # D9399 OLPBW HOSE REEL OR EQUIVALENT, LOW PRESSURE, SPRING RETRACTABLE HOSE REEL ASSEMBLY WITH INLET CONNECTION HOSES FOR AIR, DIAL, PISTON, BASE AND GUIDE ARM DESIGN, 100' X 3/4" LOW PRESSURE HOSE, STANDARD FINISH, SHUT-OFF BALL VALVE, REGULATOR, ROUGH-IN AND FINAL CONNECTION. MOUNT HOSE REEL TO COLUMN AT 84" ABOVE FINISHED FLOOR.
- EQUIPMENT PROVIDED UNDER ANOTHER DIVISION, UNDER THIS DIVISION, PROVIDE SHUT-OFF VALVE, REGULATOR, ROUGH-IN AND FINAL CONNECTION.
  - WHEN EXHAUST FAN IS ENERGIZED, SHUT-OFF VALVE SHALL OPEN.
  - WHEN EXHAUST FAN IS DE-ENERGIZED, SHUT-OFF VALVE SHALL CLOSE.
  - WHEN FIRE SUPPRESSION SYSTEM IS ACTIVATED, SHUT-OFF VALVE SHALL CLOSE.
  - WHEN FIRE DEPARTMENT CALL CENTER IS ACTIVATED, SHUT-OFF VALVE SHALL CLOSE.
  - COORDINATE WITH ATC, FIRE ALARM SYSTEM AND KITCHEN HOOD PROVIDER/INSTALLER.
- EQUIPMENT PROVIDED UNDER ANOTHER DIVISION. UNDER THIS DIVISION, PROVIDE SHUT-OFF VALVE, GAS REGULATOR, FLEXIBLE HOSE CONNECTION, ROUGH-IN AND FINAL CONNECTION.
- GAS SOLENOID SHUT-OFF VALVE WITH MANUAL RESET SHALL BE INSTALLED WITH KITCHEN EXHAUST HOOD FIRE SUPPRESSION SYSTEM, KITCHEN HOOD EXHAUST FAN AND FIRE DEPARTMENT CALL CENTER. VALVE SHALL BE LOCATED ABOVE ACCESSIBLE CEILING. SHUT-OFF VALVE SHALL BE INTERLOCKED AS FOLLOWS:
  - GAS SOLENOID SHUT-OFF VALVE WITH MANUAL RESET SHALL BE NORMALLY OPEN.
  - WHEN FIRE SUPPRESSION SYSTEM IS ACTIVATED, SHUT-OFF VALVE SHALL CLOSE.
  - WHEN FIRE DEPARTMENT CALL CENTER IS ACTIVATED, SHUT-OFF VALVE SHALL CLOSE.
  - COORDINATE WITH ATC, FIRE ALARM SYSTEM AND OUTDOOR GRILLE PROVIDER/INSTALLER.

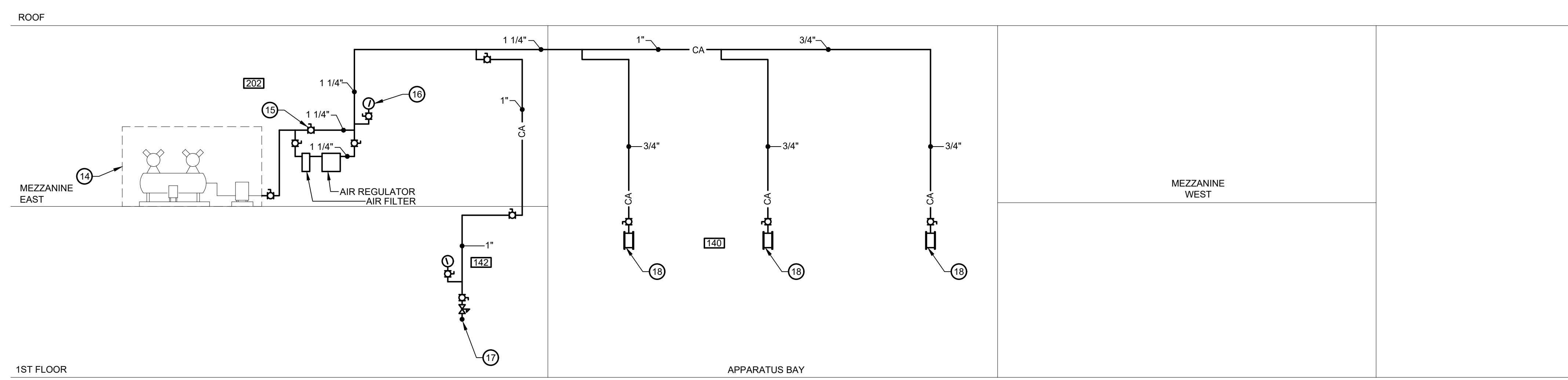


**1 FIRE PROTECTION RISER DIAGRAM**  
NO SCALE



**2 NATURAL GAS RISER DIAGRAM**  
NO SCALE

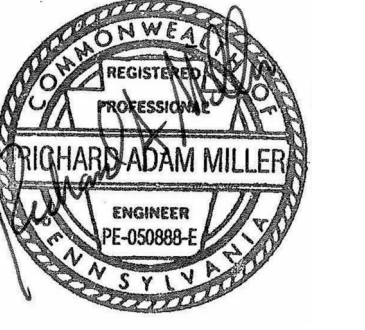
- NOTES:
- GAS DESIGN INFORMATION - NATURAL GAS DISTRIBUTED AT LESS THAN 2 PSI @ 0.5" W.C. PRESSURE DROP, STEEL PIPE SYSTEM, TOTAL GAS PIPE DEVELOPED LENGTH = 700'-0". TOTAL GAS LOAD - 1790 MBH.



**3 COMPRESSED AIR RISER DIAGRAM**  
NO SCALE

ARL: C:\19020.01\Drawings\Acad\P403 FP & NG & CA RISER  
Plotted By: Rose Castillo-Hernandez | 02/07/2023 5:27 PM

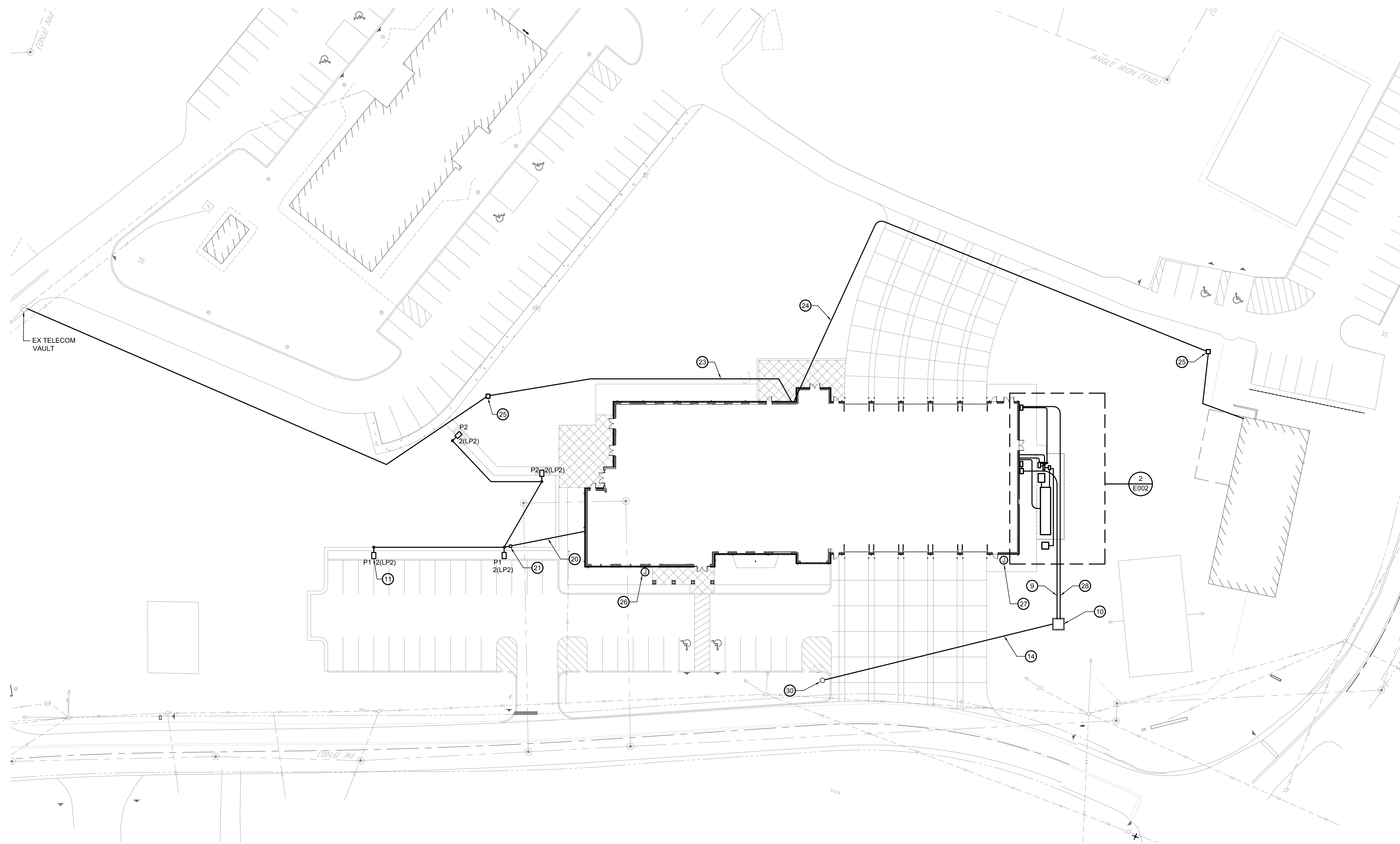




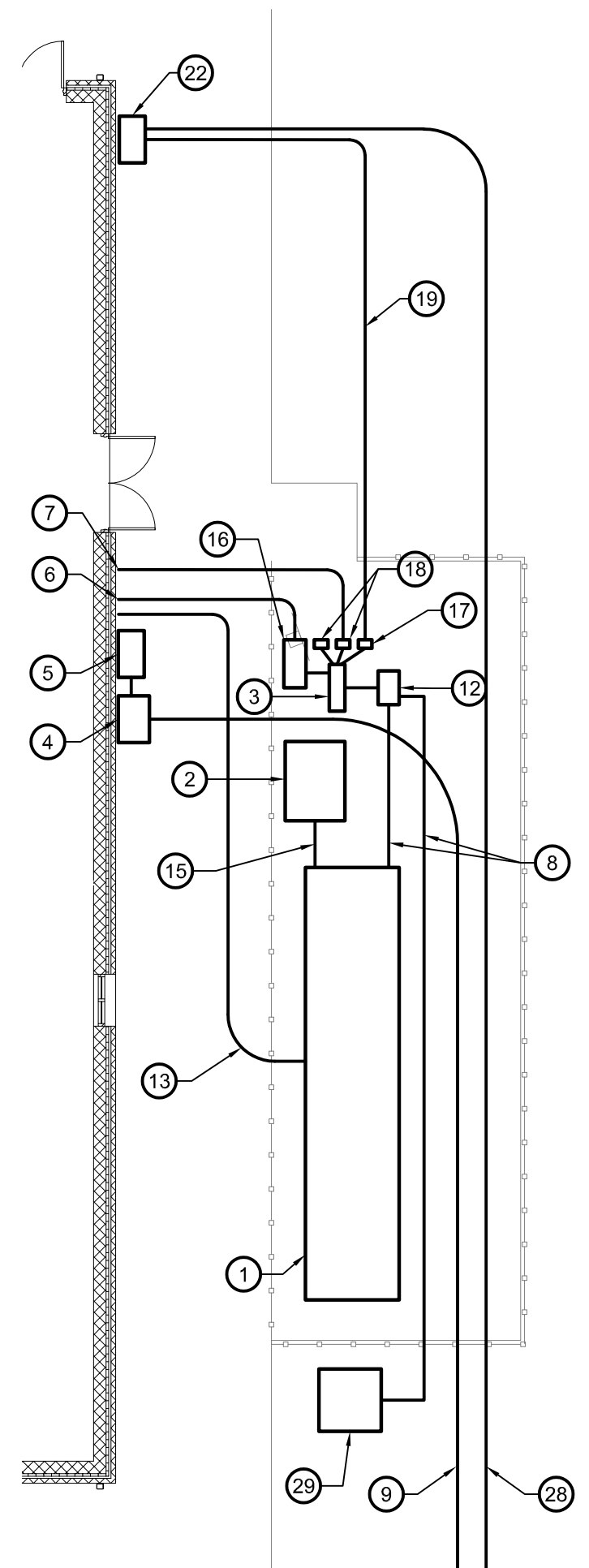
SEAL:

CONSULTANT:  
**bkm**  
Burdette, Koehler, Murphy & Associates, Inc.  
800 South Hill Lane, Suite 401 Baltimore, Maryland 21209  
P: 410.326.0661 | www.bkm.com

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS DRAWINGS & SPECIFICATIONS. ALL ADDENDA AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.



**1 SITE PLAN - ELECTRICAL - NEW WORK**  
SCALE: 1" = 30'-0"



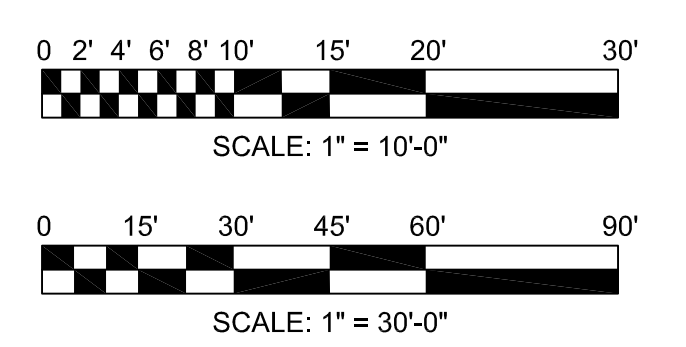
**2 ENLARGED SITE PLAN - ELECTRICAL - NEW WORK**  
SCALE: 1" = 10'-0"

**GENERAL NOTES:**

1. REFER TO E001 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
2. ALL EXTERIOR DISTRIBUTION EQUIPMENT SHALL BE LOCKED IN THE "ON" POSITION UNLESS OTHERWISE NOTED.

**DRAWING NOTES:**

1. 450KW, 480Y/277V, 3 PHASE, 4W, 0.8PF DIESEL GENERATOR WITH WEATHERPROOF, SOUND ATTENUATED ENCLOSURE.
2. 480Y/277V, 3 PHASE, 4W, 300KW AVTRON MODEL 4500 RESISTIVE LOAD BANK WITH CONTROLLER. UNIT SHALL INTERFACE WITH THE GENERATOR AND PROVIDE VARIABLE LOADING SUCH THAT THE GENERATOR IS APPROXIMATELY 50% LOADED AT ALL TIMES. PROVIDE ALL REQUIRED CONNECTIONS TO THE GENERATOR FOR CONTROL.
3. PROVIDE WIRE TROUGH IN NEMA 3R ENCLOSURE FOR CONNECTION TO MANUAL TRANSFER SWITCH.
4. PROVIDE CT CABINET AND METER SOCKET.
5. PROVIDE 480V, 3P, 800A SERVICE ENTRANCE RATED FSS IN NEMA 3R ENCLOSURE WITH 800A FUSES. REFER TO ONE-LINE DIAGRAM ON DRAWING E-501 FOR ADDITIONAL INFORMATION.
6. PROVIDE (2) 4" CONDUITS AND (1) 4" SPARE FROM WIRE TROUGH TO EM FSS TO ATS-1.
7. PROVIDE (1) 1" CONDUIT AND (1) 1" SPARE FROM WIRE TROUGH TO LS FSS TO ATS-2.
8. PROVIDE (2) 4" CONDUITS AND (1) 4" SPARE FROM GENERATOR TO MANUAL TRANSFER SWITCH. FROM MANUAL TRANSFER SWITCH TO WIRE TROUGH, AND MANUAL TRANSFER SWITCH TO PORTABLE GENERATOR CONNECTION CABINET.
9. PROVIDE (3) 4" CONDUITS AND (2) 4" SPARE FROM PAD MOUNTED UTILITY TRANSFORMER TO CT CABINET. PROVIDE CONDUIT AND SPARES FROM CT CABINET TO 800A SE RATED FSS.
10. NEW PAD MOUNTED TRANSFORMER BY UTILITY. PROVIDE CONCRETE PAD PER UTILITY REQUIREMENTS. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR PAD DETAILS.
11. PROVIDE POLE MOUNTED LIGHT FIXTURE. (TYP.)
12. PROVIDE MANUAL TRANSFER SWITCH FOR PORTABLE GENERATOR CONNECTION.
13. PROVIDE (4) 2" CONDUITS FOR CONTROLS TO MAIN ELECTRICAL ROOM. PROVIDE SEPARATE HANDHOLES AS NECESSARY FOR CONTROLS CONDUITS.
14. PROVIDE (4) 5" CONDUITS WITH PULL WIRE APPROXIMATELY 250' FROM TRANSFORMER PRIMARY TO EXISTING ELECTRIC UTILITY POLE ALONG WELSH ROAD. COORDINATE CONDUIT SIZE, QUANTITY, INSTALLATION AND TERMINATION WITH ELECTRIC UTILITY PROVIDER. FEEDERS SHALL BE PROVIDED AND INSTALLED BY ELECTRIC UTILITY PROVIDER.
15. PROVIDE (2) 2-1/2" CONDUITS AND (1) 2-1/2" SPARE FROM GENERATOR TO LOAD BANK.
16. PROVIDE 480V, 3P, 800A FSS WITH 800A FUSES IN NEMA 3R ENCLOSURE
17. PROVIDE 480V, 3P, 60A FSS WITH 40A FUSES IN NEMA 3R ENCLOSURE MOUNTED ON UNISTRUT SUPPORT STRUCTURE.
18. PROVIDE 480V, 3P, 60A FSS WITH 60A FUSES IN NEMA 3R ENCLOSURE MOUNTED ON UNISTRUT SUPPORT STRUCTURE.
19. PROVIDE (1) 1" CONDUIT AND (1) 1" SPARE FROM WIRE TROUGH TO FIRE PUMP CONTROLLER.
20. PROVIDE (2) #10 + (1) #10 GND IN 1" DIRECT BURIED CONDUIT WITH MINIMUM COVER OF 36" FOR CONNECTION TO SITE LIGHTING.
21. PROVIDE MINIMUM 6"x8"x8" HANDHOLE, BY QUAZITE OR APPROVED EQUAL, FOR SITE LIGHTING CONDUITS.
22. PROVIDE 480V, 3P, 150A ENCLOSED CIRCUIT BREAKER IN NEMA 3R ENCLOSURE FOR FIRE PUMP CONNECTION.
23. PROVIDE (4) 4" CONDUITS FROM IT ROOM TO EXISTING TELECOM VAULT. ELECTRICAL CONTRACTOR SHALL PROVIDE FIBER IN ACCORDANCE WITH DIVISION 27 SPECIFICATION REQUIREMENTS. OWNER TELECOM PROVIDER TO MAKE FINAL TERMINATIONS AND CONNECTIONS. TRENCHING AND BACKFILL SHALL BE PROVIDED BY CIVIL CONTRACTOR.
24. PROVIDE (4) 4" CONDUITS FROM IT ROOM TO EXISTING RECREATION BUILDING. FIELD COORDINATE TERMINATION WITHIN EXISTING BUILDING. ELECTRICAL CONTRACTOR SHALL PROVIDE FIBER IN ACCORDANCE WITH DIVISION 27 SPECIFICATION REQUIREMENTS. OWNER TELECOM PROVIDER TO MAKE FINAL TERMINATIONS AND CONNECTIONS. TRENCHING AND BACKFILL SHALL BE PROVIDED BY CIVIL CONTRACTOR.
25. PROVIDE MINIMUM 30"x48"x30" HANDHOLE BY QUAZITE OR APPROVED EQUAL.
26. PROVIDE POWER TO BUILDING MOUNTED LED SIGNAGE. CIRCUIT TO PANEL RP3-79. REFER TO DRAWING A-200 FOR ADDITIONAL INFORMATION.
27. PROVIDE POWER TO BUILDING MOUNTED LED SIGNAGE. CIRCUIT TO PANEL RP1-29. REFER TO DRAWING A-200 FOR ADDITIONAL INFORMATION. PROVIDE POWER VIA INTERIOR MOUNTED JUNCTION BOX. PROVIDE 3/4" CONDUIT POKED THRU EXTERIOR WALL FOR FINAL CONNECTION TO SIGNAGE. FIELD COORDINATE EXACT LOCATION OF POKE THRU TO ENSURE POWER CONNECTION IS FULLY CONCEALED BEHIND LED SIGNAGE.
28. PROVIDE (1) 1" CONDUIT AND (1) 1" SPARE FROM PAD MOUNTED UTILITY TRANSFORMER TO FIRE PUMP CONTROLLER.
29. PORTABLE GENERATOR CONNECTION CABINET UNIT. PROVIDE (3) SETS OF 400A CONNECTORS PER PHASE INCLUDING GROUND AND NEUTRAL. PROVIDE INTERNAL 800A MAIN CIRCUIT BREAKER IN CONNECTION CABINET AHEAD OF MAIN BUS AND DOWNSTREAM FROM CONNECTORS. PROVIDE CONNECTION FOR GENERATOR START UP SIGNAL AS WELL AS PHASE ROTATION MONITOR. PROVIDE CONTACT FOR CLOSED SIGNAL TO INHIBIT CLOSED TRANSITION ON CABINET.
30. NEW UTILITY POLE. VERIFY EXACT LOCATION IN FIELD.



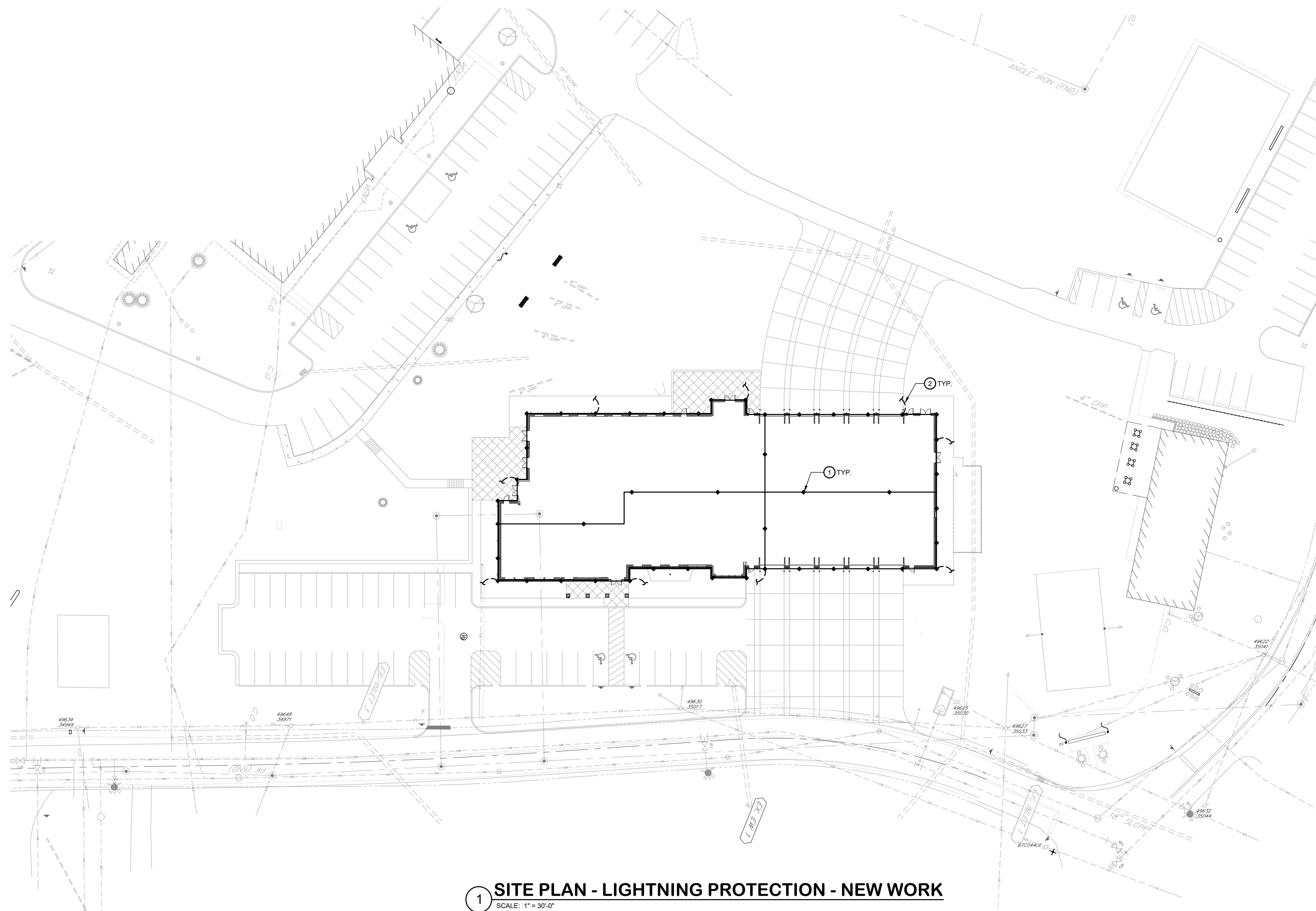
ARL:CV190201 Drawings/Access/Electrical Site Plan  
 Plotted By: Road Castellanos-Hernandez | 11/28/2023 4:40 PM  
 4/3/2019 8:48:38 AM

**CUMRU FIRE DEPARTMENT**  
**1775 WELSH ROAD**  
**MOHNTON, PA 19540**

NO.	DESCRIPTION	DATE

**PROJECT NUMBER:**  
18-036  
**PROJECT SET:**  
BID SET  
**DATE ISSUED:**  
11/30/2023

**DRAWING TITLE:**  
SITE PLAN  
ELECTRICAL  
NEW WORK  
**SHEET NUMBER:**  
**E002**



**1 SITE PLAN - LIGHTNING PROTECTION - NEW WORK**  
SCALE: 1" = 30'-0"

**GENERAL NOTES:**

- REFER TO DRAWING E001 FOR ELECTRICAL GENERAL NOTES, LEGEND AND ABBREVIATIONS.
- BOND ALL METALLIC NON CURRENT CARRYING MATERIALS WITHIN THE BOUNDS OF THIS PLAN TO GROUNDING ELECTRODES. MAKE CONNECTIONS UNDERGROUND AND USE EXOTHERMIC WELDS.

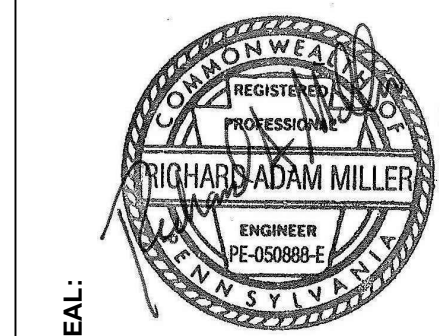
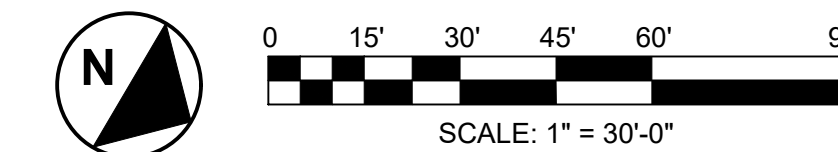
**DRAWING NOTES:**

- PROVIDE AIR TERMINAL.
- PROVIDE DOWN CONDUCTOR TO GROUND ROD.

**LIGHTNING PROTECTION NOTES:**

THE CONTRACTOR SHALL PROVIDE A DEDICATED ROOF LIGHTNING PROTECTION SYSTEM AS OUTLINED BELOW AND SPECIFIED.

- LIGHTNING PROTECTION SYSTEM SHALL BE INSTALLED TO ENSURE PROPER CODE COMPLIANCE AND SYSTEM CERTIFICATION BY AN APPROVED MASTER ELECTRICIAN AND UL LIGHTNING PROTECTION CERTIFIED INSTALLER.
- ROOF LIGHTNING AIR TERMINALS AND GROUNDING SHALL BE LAID OUT AND INSTALLED BY CERTIFIED LIGHTNING PROTECTION INSTALLER AS REQUIRED BY LATEST EDITION OF NFPA 780.
- PROVIDE OWNER WITH UL MASTER LIGHTNING PROTECTION CERTIFICATION LABEL.
- LIGHTNING PROTECTION SYSTEM TO BE TESTED IN ACCORDANCE WITH UL 96 REQUIREMENTS.
- ENSURE THAT ALL AIR TERMINALS ARE WITHIN 2 FEET OF OUTSIDE STRUCTURE EDGE, OUTSIDE CORNERS, AND RIDGE ENDS. MINIMUM PROJECTION ABOVE PROTECTED OBJECT IS 12 INCHES.
- MAINTAIN HORIZONTAL OR DOWNWARD COURSING OF MAIN CONDUCTOR AND ENSURE THAT ALL BENDS HAVE AT LEAST AN 8 INCH RADIUS AND DO NOT EXCEED 90 DEGREES.
- ATTACH ALL EXPOSED ROOF AND BONDING CABLES AT A MAXIMUM OF 3 FEET ON CENTER. VERIFY COMPATIBILITY OF ADHESIVE WITH MANUFACTURER ON ALL ROOF APPLICATIONS PRIOR TO INSTALLATION.
- REFER TO LIGHTNING PROTECTION SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- PROVIDE LIGHTNING PROTECTION CONNECTIONS TO ALL RTUS AND OTHER ROOF MOUNTED EQUIPMENT. REFER TO ELECTRICAL ROOF PLANS FOR EQUIPMENT LOCATIONS.



SEAL:

CONSULTANT:  
**bkm**  
Burdette, Koehler, Murphy & Associates, Inc.  
800 Baltimore Blvd., Suite 400 | Baltimore, Maryland 21209  
P: 410.326.0800 | www.bkm.com

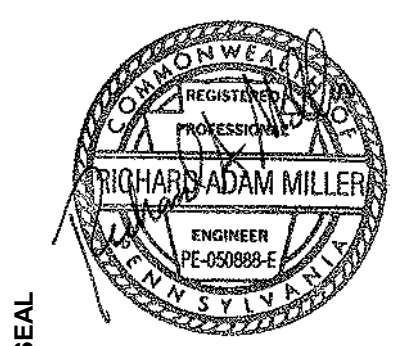
THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS BOTH THE DRAWINGS AND THE PROJECT MANUAL AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS. SINCE CONSIST OF THE BID DOCUMENTS DRAWINGS & SPECIFICATIONS, ALL ADDENDA, AND THE OWNER'S ACCEPTED BID ALTERNATES AND CONTINGENCES, THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

**CUMRU FIRE DEPARTMENT**  
1775 WELSH ROAD  
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

PROJECT NUMBER:  
18-036  
PROJECT SET:  
BID SET  
DATE ISSUED:  
11/30/2023

DRAWING TITLE:  
SITE PLAN  
LIGHTNING PROTECTION  
NEW WORK  
SHEET NUMBER:  
**E003**



THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS BOTH THE DRAWINGS AND THE PROJECT MANUAL AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE BY ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSISTENT WITH THE CONTRACT DOCUMENTS DRAWINGS AND SPECIFICATIONS. ALL ADDENDA AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCIES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

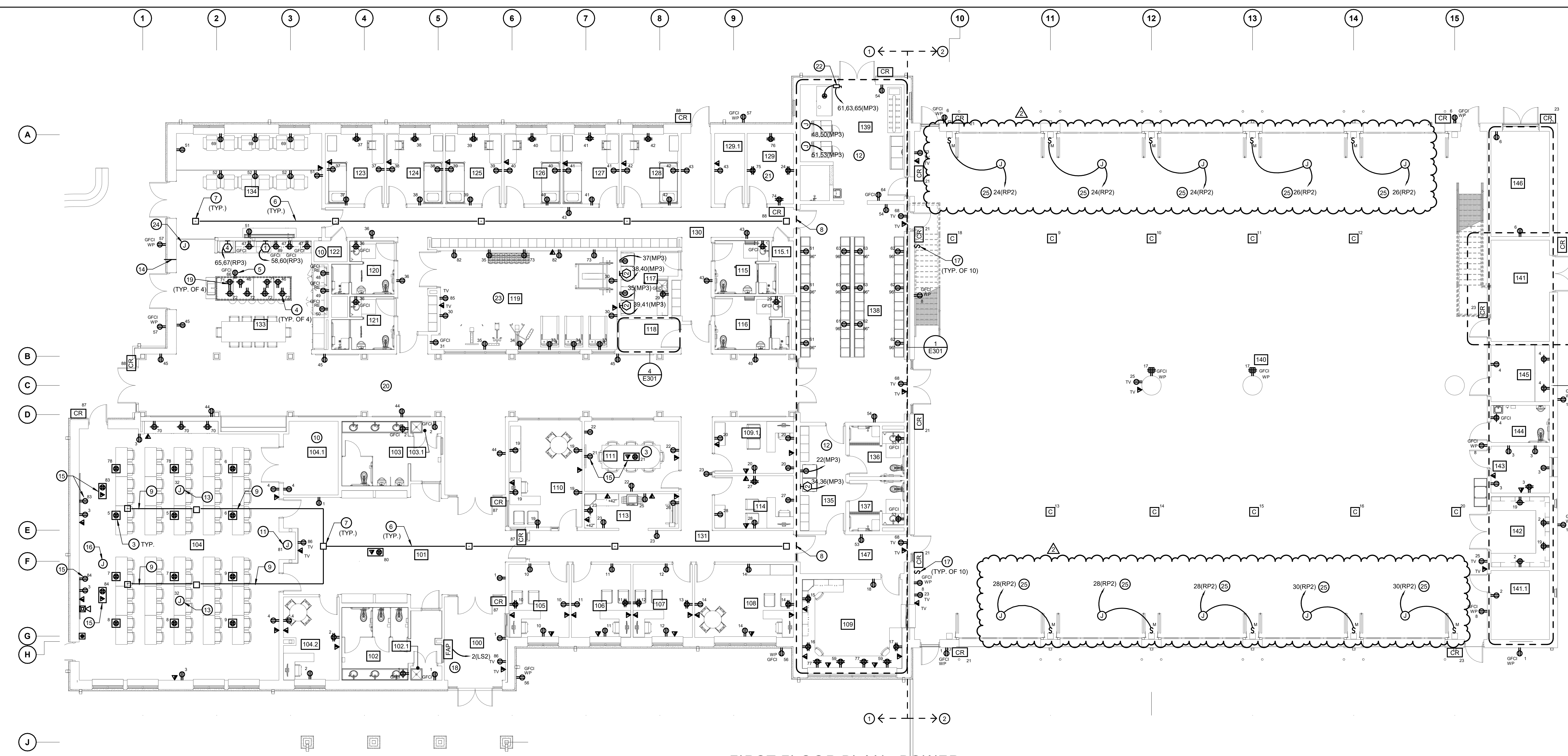
**CUMRU FIRE DEPARTMENT**  
1775 WELSH ROAD  
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE
2	ADDENDUM 2	1/5/2024

PROJECT  
18-036  
PROJECT  
BID SET  
DATE  
11/30/2023

DRAWING  
FIRST FLOOR PLAN  
POWER  
SHEET

**E101**



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

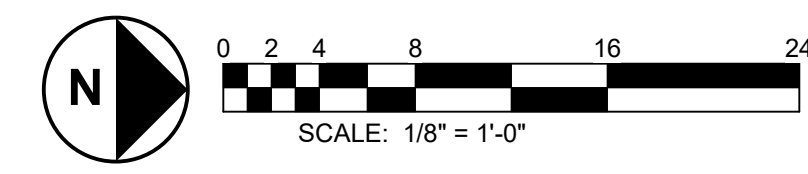
**GENERAL NOTES:**  
1. REFER TO E001 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.

- DRAWING NOTES:**
- UNLESS OTHERWISE NOTED, ALL RECEPTACLES ON THIS SIDE OF THE MATCH LINE SHALL BE CONNECTED TO PANEL RP3.
  - UNLESS OTHERWISE NOTED, ALL RECEPTACLES ON THIS SIDE OF THE MATCH LINE SHALL BE CONNECTED TO PANEL RP2.
  - PROVIDE LEGRAND EVOLUTION 4 GANG FLOOR BOX FOR POWER AND TELECOM/AV CONNECTIONS. TWO (2) DUPLEX RECEPTACLES, ONE (1) DATA JACK, AND ONE (1) AV.
  - PROVIDE COUNTERTOP GFCI RECEPTACLE WITH USB PORT MOUNTED AT 24" AFF. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
  - PROVIDE GFCI RECEPTACLE FOR DISH WASHER.
  - PROVIDE (4) 4" SPARE CONDUITS ABOVE CEILING FOR FUTURE USE.
  - PROVIDE MINIMUM 28"x28"x28" PULLBOX ABOVE CEILING FOR FUTURE USE.
  - PROVIDE (4) 4" CONDUIT SLEEVES THROUGH WALL FOR FUTURE USE. INSTALL AT 18"-0" AFF.
  - PROVIDE (2) 4" SPARE CONDUITS ABOVE CEILING FOR FUTURE USE.
  - PROVIDE (3) 4" SPARE CONDUITS UNDER SLAB FROM ROOM 104.1 TO ROOM 122 FOR FUTURE ELECTRICAL WORK. FIELD COORDINATE STUB UP LOCATIONS.
  - PROVIDE POWER FOR FUTURE OPERABLE PARTITION. PROVIDE CONNECTION TO BLANK RECESSED WALL BOX FOR FUTURE CONTROLS.
  - ALL RECEPTACLES IN THIS ROOM SHALL BE PROVIDED IN WATERPROOF ENCLOSURE.
  - PROVIDE CEILING MOUNTED RECEPTACLE AND DATA OUTLET FOR FUTURE PROJECTOR.
  - PROVIDE SPARE 3" CONDUIT FOR FUTURE OUTDOOR POWER SUPPLY. CONDUIT SHALL RUN FROM HANDHOLE AT BASE OF PATIO RETAINING WALL, UNDER PATIO, UP INTERIOR WALL, AND TERMINATE IN JUNCTION BOX ABOVE FINISHED CEILING.
  - PROVIDE MINIMUM 6-GANG FLOORBOX WITH (1) QUAD RECEPTACLE, (4) DATA JACKS, AND (4) HDMI PORTS. BASIS OF DESIGN EVOLUTION SERIES BY LEGRAND OR APPROVED EQUAL. CONNECT FLOORBOX TO MEDIA BOX LOCATED 22" AFF ON ADJACENT WALL USING (3) 2" CONDUIT. WALL MEDIA BOX TO INCLUDE (1) DUPLEX OUTLET, (4) DATA JACKS, AND (4) HDMI PORTS.

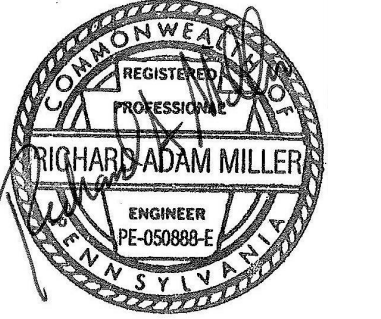
- DRAWING NOTES (CONTINUED):**
- PROVIDE SPARE 6-GANG AV FLOORBOX WITH (3) 2" CONDUIT FROM FLOOR BOX, UP WALL, AND TERMINATING IN JUNCTION BOX ABOVE FINISHED CEILING. BASIS OF DESIGN EVOLUTION SERIES BY LEGRAND OR APPROVED EQUAL.
  - PROVIDE TWO-WAY SWITCH FOR CONTROL OF APPARTUS BAY GARAGE DOORS. SWITCHES SHALL BE GANGED TOGETHER. PROVIDE CONDUIT AND WIRE FROM SWITCHES TO DOOR OPERATOR PER MANUFACTURER REQUIREMENTS.
  - PANEL SHALL BE RECESSED MOUNTED.
  - PROVIDE COUNTERTOP GFCI RECEPTACLE WITH USB PORT MOUNTED WITHIN BACK SPLASH. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.
  - MAIN CORRIDOR WALLS AND CEILING SHALL BE FREE OF ALL EXPOSED CONDUIT AND WIRE.
  - STUB UP (4) 4" CONDUITS IN THIS ROOM FOR TELECOM SERVICE. REFER TO SITE PLAN FOR ADDITIONAL INFORMATION. FIELD COORDINATE EXACT LOCATION.
  - PROVIDE 208V, 3P, 30A FSS IN NEMA 3R ENCLOSURE FOR CONNECTION TO OWNER PROVIDED GEAR DRYER. FUSE PER MANUFACTURER'S RECOMMENDATIONS. THE CIRCUIT FROM THE DISCONNECT TO THE UNIT AND THE HOMERUN SHALL BE A MINIMUM OF (3) #10 + (1) #10 GND IN 3/4" CONDUIT. PROVIDE ALL REQUIRED MOUNTING HARDWARE. ENSURE ALL NEC CLEARANCES ARE MET. COORDINATE LOCATION WITH OWNER PRIOR TO ROUGH-IN.
  - COORDINATE OUTLET LOCATIONS IN THIS ROOM WITH ARCHITECTURAL DRAWINGS.
  - PROVIDE 120V CONNECTION TO SOLENOID VALVE. COORDINATE INSTALLATION WITH PLUMBING INSTALLER.
  - PROVIDE CONNECTION TO DOOR CONTROL PANEL. PROVIDE CONDUITS FOR LOW VOLTAGE CONNECTIONS PER MANUFACTURER REQUIREMENTS.

**FIRST FLR ROOM LIST**

100	VESTIBULE
101	LOBBY
102	WOMEN
102.1	JAN
103	MEN
103.1	JAN
104	MEETING
104.1	STOR
104.2	OFFICE
105	OFFICE
106	OFFICE
107	OFFICE
108	OFFICE
109	WATCH OFFICE
109.1	OFFICE
110	CHIEF'S OFFICE
111	CONFERENCE
113	COPY
114	OFFICE
115	SHOWER
115.1	MECH
116	SHOWER
117	LAUNDRY
118	ELEC
119	FITNESS
120	SHOWER
121	SHOWER
122	MECH
123	BUNK
124	BUNK
125	BUNK
126	BUNK
127	BUNK
128	BUNK
129	IT
129.1	ST.
130	CORRIDOR
131	CORRIDOR
133	KITCHEN
134	DAY ROOM
135	CLEAN ROOM
136	SHOWER
137	SHOWER
138	TURNOUT GEAR
139	DECON
140	APPARATUS BAY
141	ELEC.
141.1	STORAGE
142	WORKSHOP
143	ENGINEER
144	TOILET
145	SCBA
146	UTILITY
147	VESTIBULE







**CONSULTANT:**  
**bkm**  
 Burdette, Koenig, Murphy & Associates, Inc.  
 10000 University Lane, Suite 400 | Baltimore, Maryland 21286  
 P: 410.326.1200 | www.bkm.com

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE BY ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS DRAWINGS & SPECIFICATIONS. ALL ADDENDA AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCIES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

**CUMRU FIRE DEPARTMENT**  
 1775 WELSH ROAD  
 MOHNTON, PA 19540

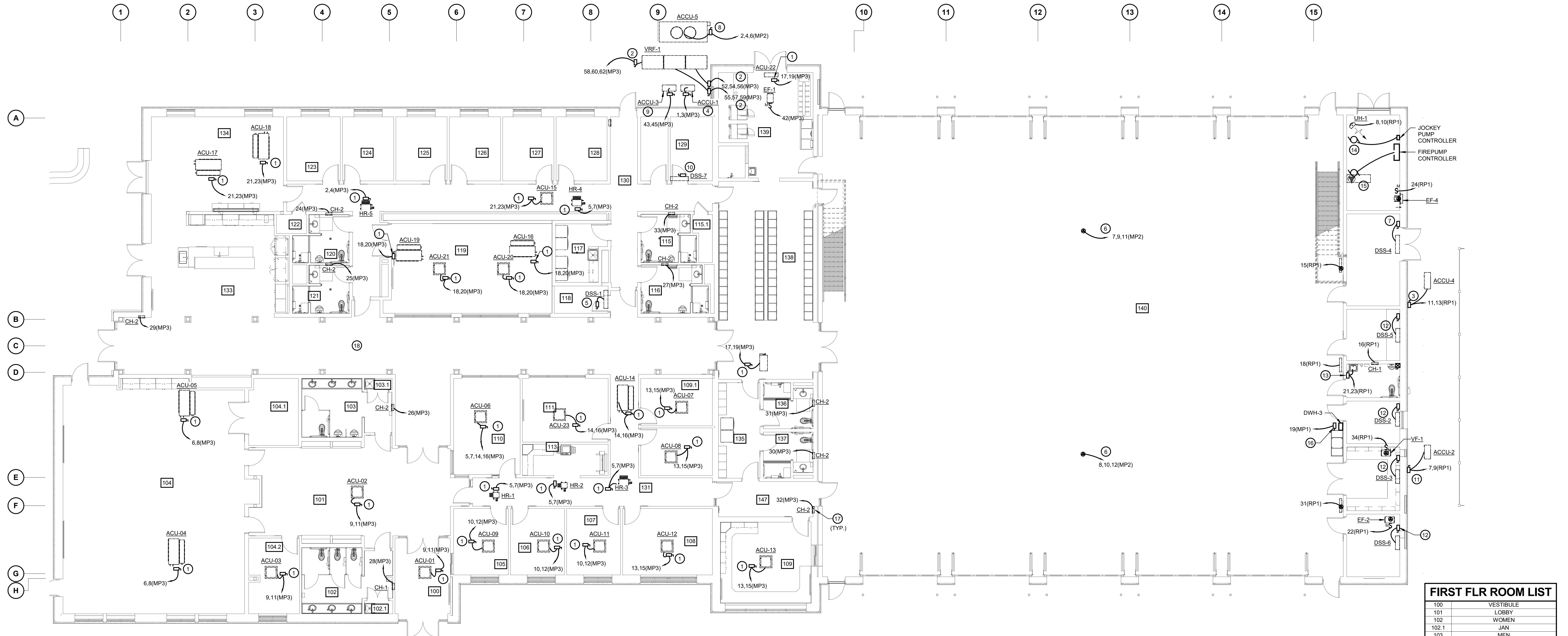
NO.	DESCRIPTION	DATE

PROJECT 18-036  
 PROJECT BID SET  
 DATE 11/30/2023

DRAWING FIRST FLOOR PLAN MECHANICAL POWER

SHEET **E102**

BKM# 19020.01



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

**GENERAL NOTES:**

- REFER TO E001 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- COORDINATE ELECTRICAL CONNECTIONS FOR EQUIPMENT SHOWN ON THIS PLAN WITH MECHANICAL AND PLUMBING DRAWINGS.

**DRAWING NOTES:**

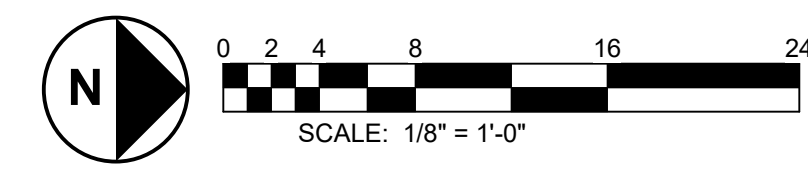
- PROVIDE 208V, 2P, 30A FSS IN NEMA 3R ENCLOSURE FOR CONNECTION TO MECHANICAL UNIT. FUSE PER MANUFACTURER'S RECOMMENDATIONS. THE CIRCUIT FROM THE DISCONNECT TO THE UNIT AND THE HOMERUN SHALL BE A MINIMUM OF (2)#12 + (1)#12 GND IN 3/4" CONDUIT. PROVIDE ALL REQUIRED MOUNTING HARDWARE. ENSURE ALL NEC CLEARANCES ARE MET.
- PROVIDE 480V, 3P, 100A FSS IN NEMA 4X ENCLOSURE FOR CONNECTION TO VRF. FUSE PER MANUFACTURER'S RECOMMENDATIONS. THE CIRCUIT FROM THE DISCONNECT TO THE UNIT AND THE HOMERUN SHALL BE A MINIMUM OF (3)#4 + (1)#8 GND IN 1" CONDUIT. PROVIDE ALL REQUIRED MOUNTING HARDWARE. ENSURE ALL NEC CLEARANCES ARE MET.
- PROVIDE 208V, 2P, 30A FSS IN NEMA 3R ENCLOSURE FOR CONNECTION TO ACU-4. FUSE PER SUPPLIER RECOMMENDATION. THE CIRCUIT FROM THE DISCONNECT TO THE UNIT AND THE HOMERUN SHALL BE A MINIMUM OF (3)#10 + (1)#10 GND IN 3/4" CONDUIT. PROVIDE ALL REQUIRED MOUNTING HARDWARE. ENSURE ALL NEC CLEARANCES ARE MET. PROVIDE ALL POWER CONNECTIONS FROM OUTDOOR SPLIT SYSTEM UNIT TO CORRESPONDING INDOOR UNIT.
- PROVIDE 208V, 2P, 30A FSS IN NEMA 3R ENCLOSURE FOR CONNECTION TO ACU-1. FUSE PER MANUFACTURER'S RECOMMENDATIONS. THE CIRCUIT FROM THE DISCONNECT TO THE UNIT AND THE HOMERUN SHALL BE A MINIMUM OF (2)#12 + (1)#12 GND IN 3/4" CONDUIT. PROVIDE ALL REQUIRED MOUNTING HARDWARE. ENSURE ALL NEC CLEARANCES ARE MET. PROVIDE ALL POWER CONNECTIONS FROM OUTDOOR SPLIT SYSTEM UNIT TO INDOOR UNIT DSS-1.
- POWER TO INDOOR UNIT MOUNTED ABOVE DOOR. INDOOR UNIT IS POWERED FROM OUTDOOR SPLIT SYSTEM UNIT. ACU-1. PROVIDE ALL POWER CONNECTIONS NECESSARY FROM CORRESPONDING OUTDOOR UNIT. PROVIDE 208V, 2P, 30A FSS IN NEMA 1 ENCLOSURE. FUSE PER MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE CIRCUIT AND JUNCTION BOX FOR FUTURE CEILING MOUNTED FAN. THE CIRCUIT SHALL BE A MINIMUM OF (3)#12 + (1)#12 GND IN 3/4" CONDUIT.
- POWER TO INDOOR UNIT MOUNTED ABOVE DOOR. INDOOR UNIT IS POWERED FROM OUTDOOR SPLIT SYSTEM UNIT. ACU-4. PROVIDE ALL POWER CONNECTIONS NECESSARY FROM CORRESPONDING OUTDOOR UNIT. PROVIDE 208V, 2P, 30A FSS IN NEMA 1 ENCLOSURE. FUSE PER MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE 480V, 3P, 30A FSS IN NEMA 3R ENCLOSURE FOR CONNECTION TO ACU-5. FUSE PER MANUFACTURER'S RECOMMENDATIONS. THE CIRCUIT FROM THE DISCONNECT TO THE UNIT AND THE HOMERUN SHALL BE A MINIMUM OF (3)#12 + (1)#12 GND IN 3/4" CONDUIT. PROVIDE ALL REQUIRED MOUNTING HARDWARE. ENSURE ALL NEC CLEARANCES ARE MET.
- PROVIDE 208V, 2P, 30A FSS IN NEMA 3R ENCLOSURE FOR CONNECTION TO ACU-3. FUSE PER MANUFACTURER'S RECOMMENDATIONS. THE CIRCUIT FROM THE DISCONNECT TO THE UNIT AND THE HOMERUN SHALL BE A MINIMUM OF (2)#12 + (1)#12 GND IN 3/4" CONDUIT. PROVIDE ALL REQUIRED MOUNTING HARDWARE. ENSURE ALL NEC CLEARANCES ARE MET. PROVIDE ALL POWER CONNECTIONS FROM OUTDOOR SPLIT SYSTEM UNIT TO INDOOR UNIT DSS-7.
- POWER TO INDOOR UNIT MOUNTED ABOVE DOOR. INDOOR UNIT IS POWERED FROM OUTDOOR SPLIT SYSTEM UNIT. ACU-3. PROVIDE ALL POWER CONNECTIONS NECESSARY FROM CORRESPONDING OUTDOOR UNIT. PROVIDE 208V, 2P, 30A FSS IN NEMA 1 ENCLOSURE. FUSE PER MANUFACTURER'S RECOMMENDATIONS.

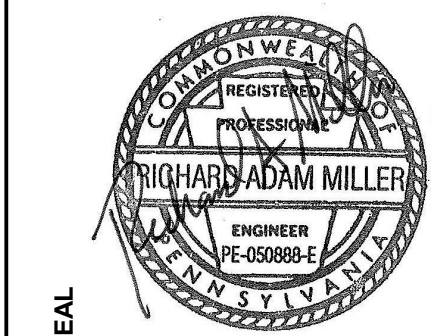
**DRAWING NOTES:**

- PROVIDE 208V, 2P, 60A FSS IN NEMA 3R ENCLOSURE FOR CONNECTION TO ACU-2. FUSE PER MANUFACTURER'S RECOMMENDATIONS. THE CIRCUIT FROM THE DISCONNECT TO THE UNIT AND THE HOMERUN SHALL BE A MINIMUM OF (2)#8 + (1)#10 GND IN 3/4" CONDUIT. PROVIDE ALL REQUIRED MOUNTING HARDWARE. ENSURE ALL NEC CLEARANCES ARE MET. PROVIDE ALL POWER CONNECTIONS FROM OUTDOOR SPLIT SYSTEM UNIT TO INDOOR UNIT DSS-2, DSS-3, DSS-5, AND DSS-6.
- POWER TO INDOOR UNITS. INDOOR UNIT IS POWERED FROM OUTDOOR SPLIT SYSTEM UNIT. ACU-2. PROVIDE ALL POWER CONNECTIONS NECESSARY FROM CORRESPONDING OUTDOOR UNIT. PROVIDE 208V, 2P, 30A FSS IN NEMA 1 ENCLOSURE. FUSE PER MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE 208V, 2P, 30A FSS IN NEMA 3R ENCLOSURE FOR CONNECTION TO DWH-2. FUSE PER MANUFACTURER'S RECOMMENDATIONS. HOMERUN BETWEEN THE DISCONNECT SWITCH AND UNIT SHALL BE A MINIMUM OF (2)#12 + (1)#12 GND IN 3/4" CONDUIT. PROVIDE ALL REQUIRED MOUNTING HARDWARE. ENSURE ALL NEC CLEARANCES ARE MET.
- PROVIDE CONNECTION FOR JP-1 VIA JOCKEY PUMP CONTROLLER. CIRCUIT TO PANEL INDICATED. CIRCUIT SHALL BE A MINIMUM OF (4)#12 + (1)#12 GND IN 3/4" CONDUIT.
- PROVIDE CONNECTION FOR FIRE PUMP VIA FIRE PUMP CONTROLLER. CONNECTION SHALL BE A MINIMUM OF (4)#8 + (1)#10 GND IN 1" CONDUIT.
- PROVIDE 277V, 1P, 90A FSS IN NEMA 1 ENCLOSURE FOR CONNECTION TO DWH-3. FUSE PER MANUFACTURER'S RECOMMENDATIONS. THE CIRCUIT FROM THE DISCONNECT TO THE UNIT AND THE HOMERUN SHALL BE A MINIMUM OF (2)#8 + (1)#8 GND IN 1-1/4" CONDUIT. PROVIDE ALL REQUIRED MOUNTING HARDWARE. ENSURE ALL NEC CLEARANCES ARE MET.
- PROVIDE CIRCUIT AS SHOWN TO DISCONNECT SWITCH PROVIDED BY MECHANICAL CONTRACTOR.
- MAIN CORRIDOR WALLS AND CEILING SHALL BE FREE OF ALL EXPOSED CONDUIT AND WIRE.

**FIRST FLR ROOM LIST**

100	VESTIBULE
101	LOBBY
102	WOMEN
102.1	JAN
103	MEN
103.1	JAN
104	MEETING
104.1	STOR
104.2	OFFICE
105	OFFICE
106	OFFICE
107	OFFICE
108	OFFICE
109	WATCH OFFICE
109.1	OFFICE
110	CHIEF'S OFFICE
111	CONFERENCE
113	COPY
114	OFFICE
115	SHOWER
115.1	MECH
116	SHOWER
117	LAUNDRY
118	ELEC
119	FITNESS
120	SHOWER
121	SHOWER
122	MECH
123	BUNK
124	BUNK
125	BUNK
126	BUNK
127	BUNK
128	BUNK
129	IT
129.1	ST.
130	CORRIDOR
131	CORRIDOR
133	KITCHEN
134	DAY ROOM
135	CLEAN ROOM
136	SHOWER
137	SHOWER
138	TURNOUT GEAR
139	DECON
140	APPARATUS BAY
141	ELEC.
142	STORAGE
143	WORKSHOP
144	TOILET
145	SCBA
146	UTILITY
147	VESTIBULE





CONSULTANT:  
**bkm**  
Burdette, Koehler, Murphy & Associates, Inc.  
1000 Locust Lane, Suite 400 | Baltimore, Maryland 21209  
P: 410.223.2000 | www.bkm.com

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS DRAWINGS & SPECIFICATIONS. ALL ADDENDA AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

**CUMRU FIRE DEPARTMENT**  
1775 WELSH ROAD  
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

PROJECT  
18-036  
PROJECT  
BID SET  
DATE  
11/30/2023

DRAWING  
FIRST FLOOR PLAN - FIRE ALARM

SHEET  
**E103**

BKM# 19020.01

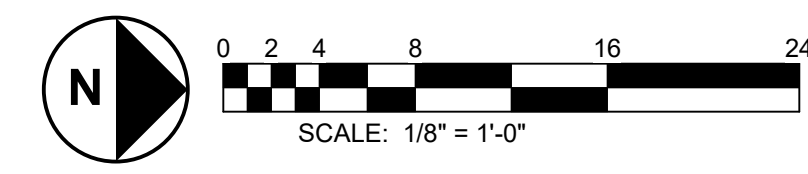


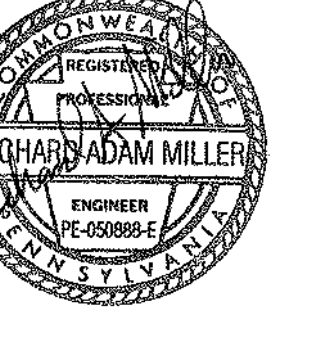
**1 FIRST FLOOR PLAN - FIRE ALARM**  
SCALE: 1/8" = 1'-0"

- GENERAL NOTES:**
- REFER TO E001 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- DRAWING NOTES:**
- PROVIDE LOW FREQUENCY TYPE AUDIBLE DEVICE PER NFPA 72.
  - PROVIDE COMBINATION CO DETECTOR / SMOKE DETECTOR.
  - MAIN CORRIDOR WALLS AND CEILING SHALL BE FREE OF ALL EXPOSED CONDUIT AND WIRE.
  - PROVIDE TAMPER AND FLOW SWITCHES AS INDICATED. REFER TO PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

**FIRST FLR ROOM LIST**

100	VESTIBULE
101	LOBBY
102	WOMEN
102.1	JAN
103	MEN
103.1	JAN
104	MEETING
104.1	STOR
104.2	OFFICE
105	OFFICE
106	OFFICE
107	OFFICE
108	OFFICE
109	WATCH OFFICE
109.1	OFFICE
110	CHIEF'S OFFICE
111	CONFERENCE
113	COPY
114	OFFICE
115	SHOWER
115.1	MECH
116	SHOWER
117	LAUNDRY
118	ELEC
119	FITNESS
120	SHOWER
121	SHOWER
122	MECH
123	BUNK
124	BUNK
125	BUNK
126	BUNK
127	BUNK
128	BUNK
129	IT
129.1	ST.
130	CORRIDOR
131	CORRIDOR
133	KITCHEN
134	DAY ROOM
135	CLEAN ROOM
136	SHOWER
137	SHOWER
138	TURNOUT GEAR
139	DECON
140	APPARATUS BAY
141	ELEC.
141.1	STORAGE
142	WORKSHOP
143	ENGINEER
144	TOILET
145	SCBA
146	UTILITY
147	VESTIBULE





CONSULTANT:  
**bkm**  
Burdette, Koenig, Murphy & Associates, Inc.  
10101 Riverchase Lane, Suite 400 | Baltimore, Maryland 21286  
P: 410.262.0200 | www.bkm.com

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS. THESE CONTRACT DOCUMENTS DRAWINGS & SPECIFICATIONS, ALL ADDENDA, AND THE OWNER'S ACCEPTED BID ALTERNATES AND CONTINGENCES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

CUMRU FIRE DEPARTMENT  
1775 WELSH ROAD  
MOHNTON, PA 19540

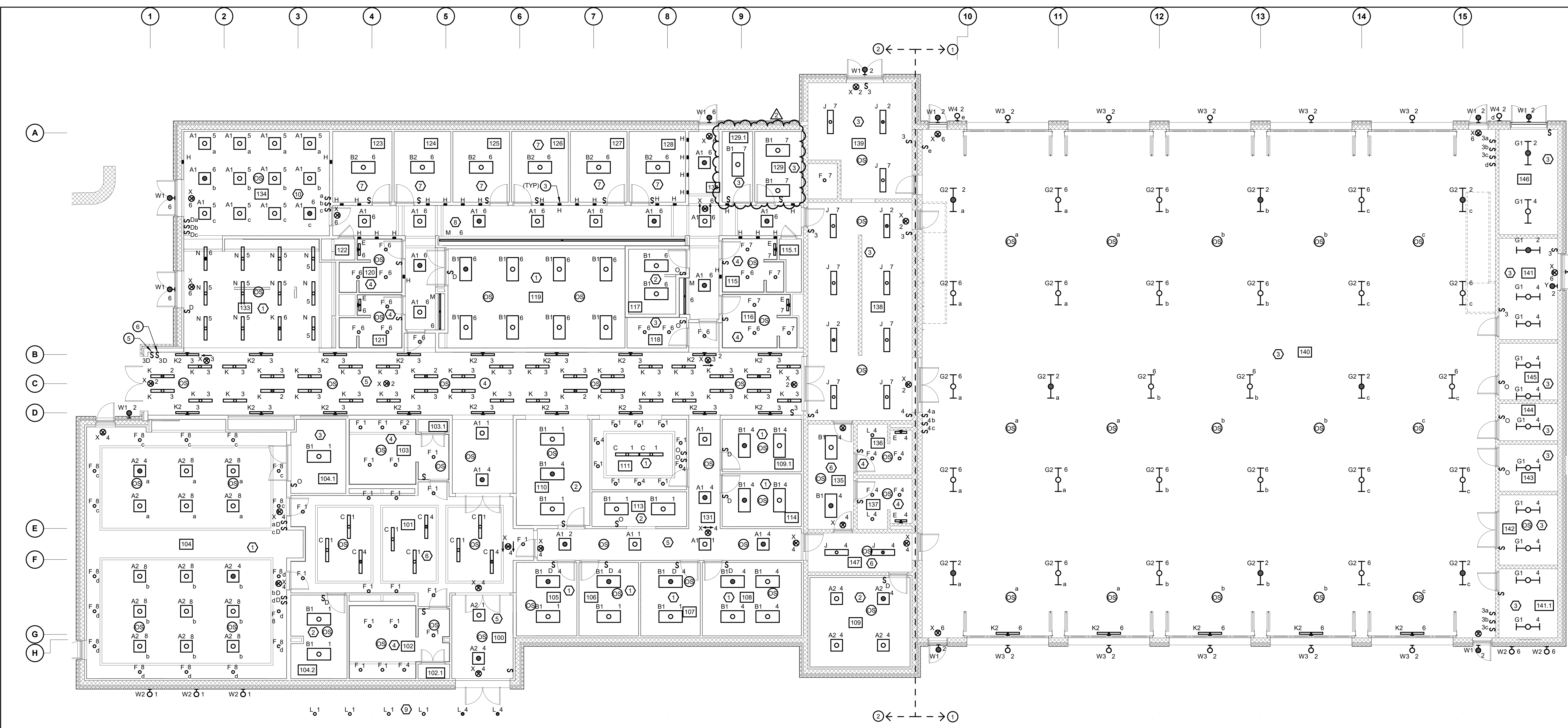
NO.	DESCRIPTION	DATE
2	ADDENDUM 2	1/5/2024

PROJECT 18-036  
PROJECT BID SET  
DATE 11/30/2023

DRAWING FIRST FLOOR PLAN LIGHTING  
SHEET

**E201**

1/4/2024 12:11:13 PM



# 1 FIRST FLOOR PLAN - LIGHTING

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

### GENERAL NOTES:

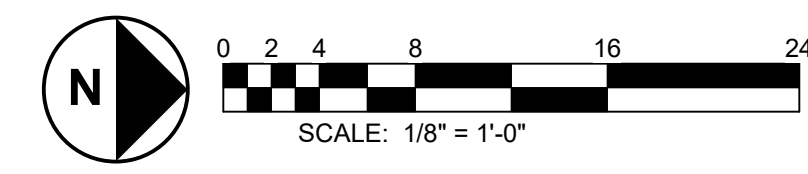
- 1. REFER TO E001 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- 2. ALL EMERGENCY LIGHT FIXTURES SHALL BE CONNECTED TO LIFE SAFETY PANEL LS1.

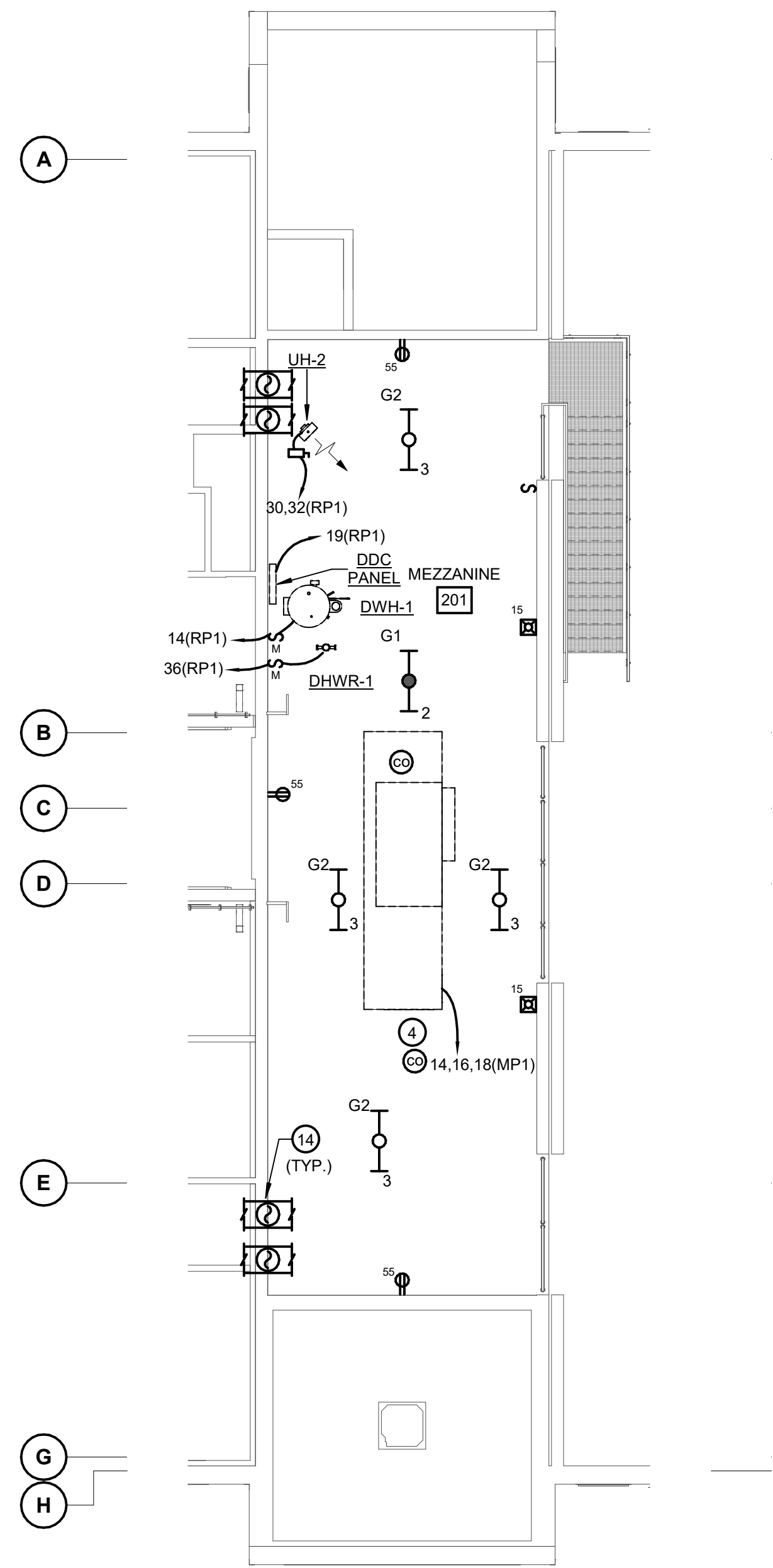
### DRAWING NOTES:

- 1. UNLESS OTHERWISE NOTED, ALL LIGHT FIXTURES ON THIS SIDE OF THE MATCH LINE SHALL BE CONNECTED TO PANEL LP1.
- 2. UNLESS OTHERWISE NOTED, ALL LIGHT FIXTURES ON THIS SIDE OF THE MATCH LINE SHALL BE CONNECTED TO PANEL LP2.
- 3. WALL RECESSED STEP LIGHT MOUNTED AT 18" AFF.
- 4. MAIN CORRIDOR WALLS AND CEILING SHALL BE FREE OF ALL EXPOSED CONDUIT AND WIRE.
- 5. SWITCH SHALL CONTROL TYPE "K" FIXTURES IN MAIN CORRIDOR.
- 6. SWITCH SHALL CONTROL TYPE "K3" FIXTURES IN MAIN CORRIDOR.
- 7. PROVIDE LED TAPE LIGHT UNDER LOCKERS. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING DETAIL. PROVIDE LOW VOLTAGE TRANSFORMER PER TAPE LIGHT MANUFACTURER RECOMMENDATION.

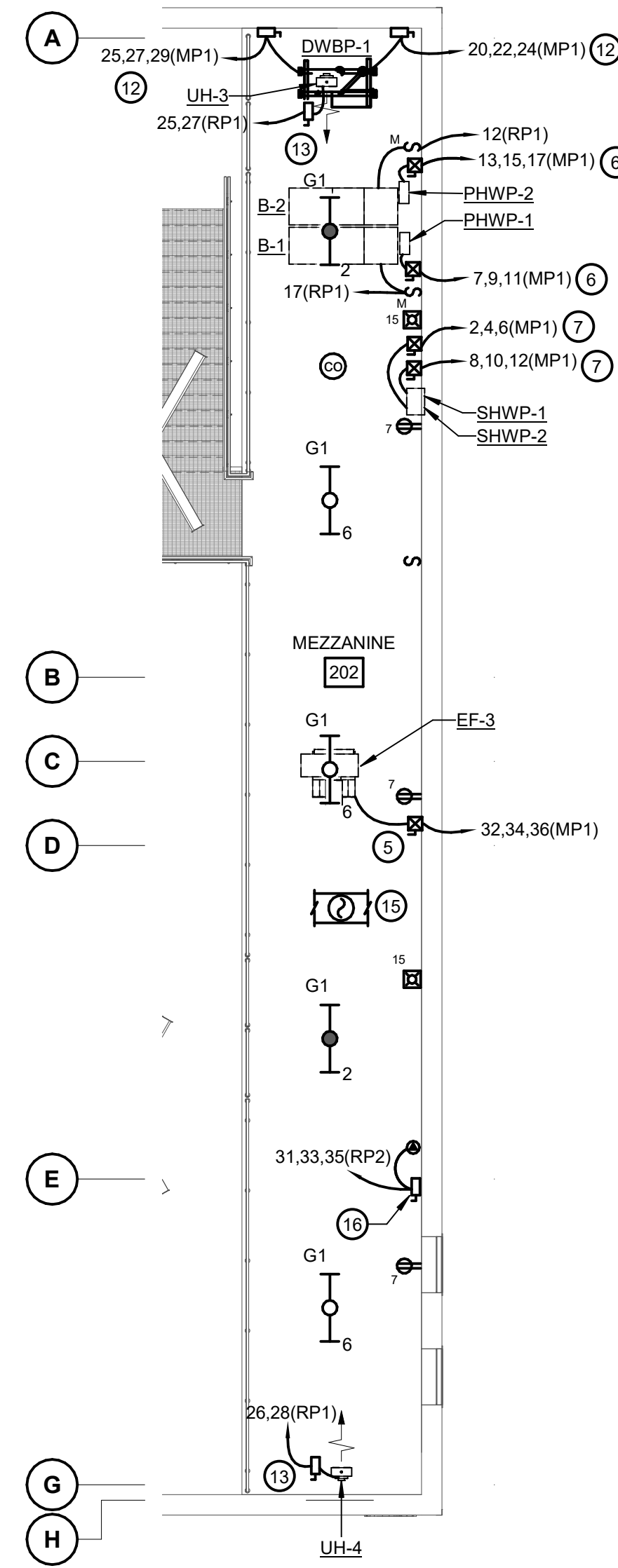
### FIRST FLR ROOM LIST

100	VESTIBULE
101	LOBBY
102	WOMEN
102.1	JAN
103	MEN
103.1	JAN
104	MEETING
104.1	STOR
104.2	OFFICE
105	OFFICE
106	OFFICE
107	OFFICE
108	OFFICE
109	WATCH OFFICE
109.1	OFFICE
110	CHIEF'S OFFICE
111	CONFERENCE
113	COPY
114	OFFICE
115	SHOWER
115.1	MECH
116	SHOWER
117	LAUNDRY
118	ELEC
119	FITNESS
120	SHOWER
121	SHOWER
122	MECH
123	BUNK
124	BUNK
125	BUNK
126	BUNK
127	BUNK
128	BUNK
129	IT
129.1	ST.
130	CORRIDOR
131	CORRIDOR
133	KITCHEN
134	DAY ROOM
135	CLEAN ROOM
136	SHOWER
137	SHOWER
138	TURNOUT GEAR
139	DECON
140	APPARATUS BAY
141	ELEC.
141.1	STORAGE
142	WORKSHOP
143	ENGINEER
144	TOILET
145	SCBA
146	UTILITY
147	VESTIBULE

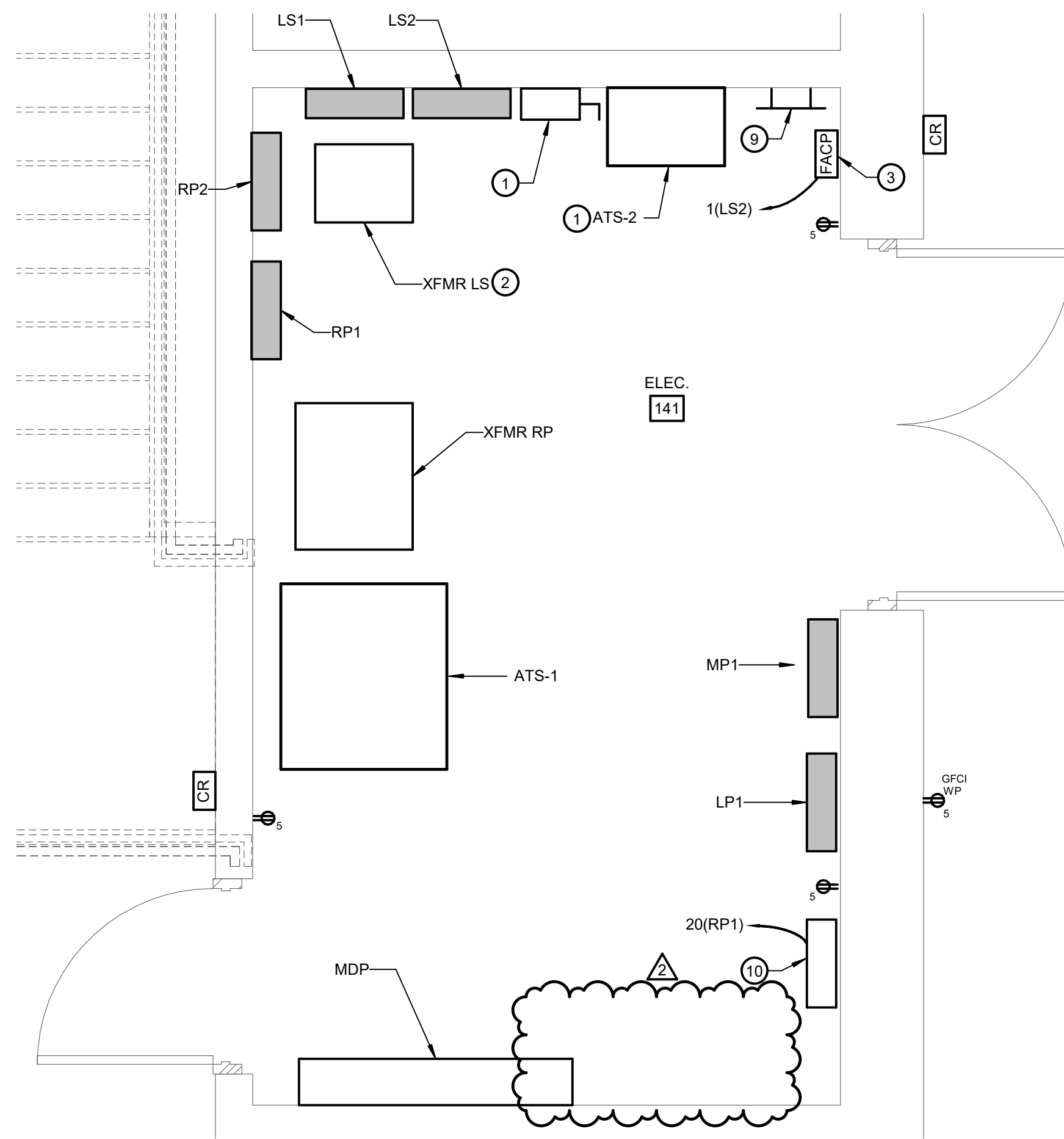




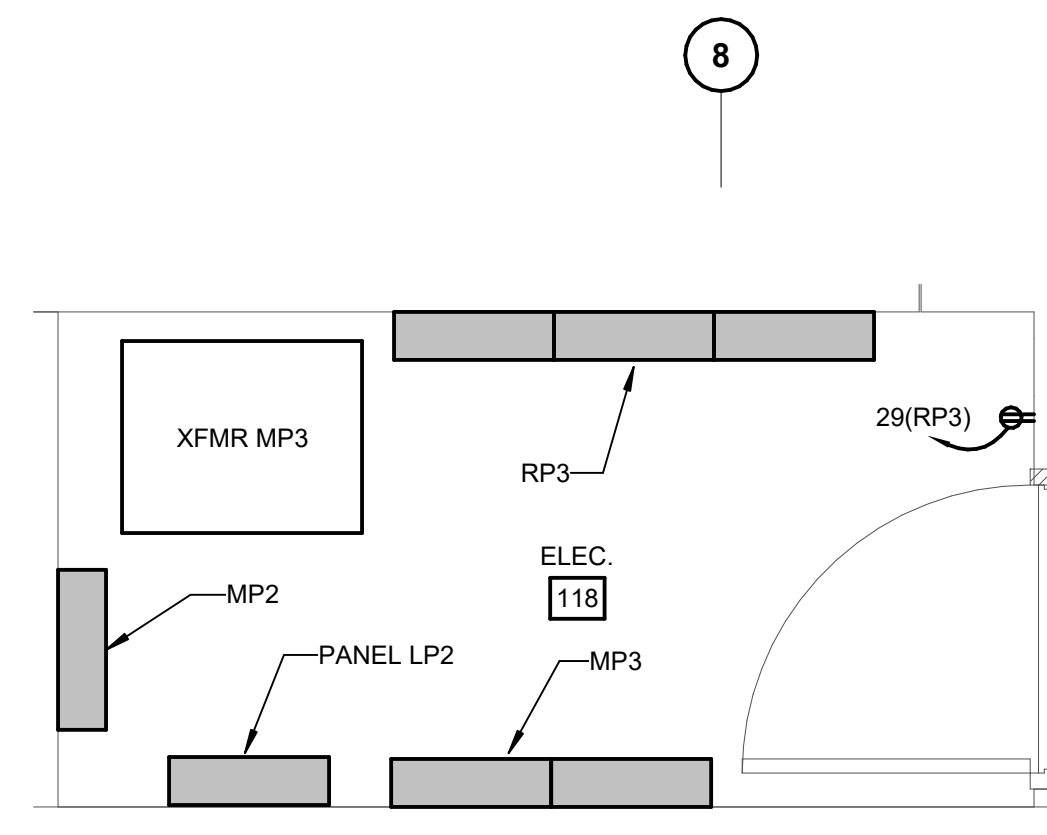
**1 MEZZANINE PLAN WEST - ELECTRICAL**  
SCALE: 1/8" = 1'-0"



**2 MEZZANINE PLAN EAST - ELECTRICAL**  
SCALE: 1/8" = 1'-0"



**3 PART PLAN - FIRST FLOOR PLAN ROOM 141 - POWER**  
SCALE: 1/2" = 1'-0"



**4 PART PLAN - FIRST FLOOR PLAN ROOM 118 - POWER**  
SCALE: 1/2" = 1'-0"

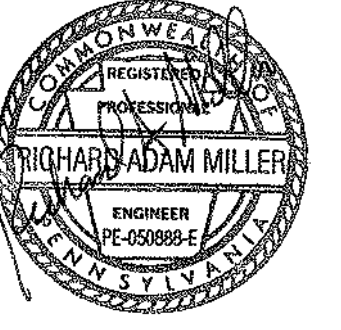
**GENERAL NOTES:**

- REFER TO E001 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- ALL EMERGENCY LIGHT FIXTURES SHALL BE CONNECTED TO PANEL LS1.
- UNLESS OTHERWISE NOTED, ALL LIGHT FIXTURES IN MEZZANINE WEST SHALL BE CONNECTED TO PANEL LP2 AND ALL RECEPTACLES SHALL BE CONNECTED TO RP2.
- UNLESS OTHERWISE NOTED, ALL LIGHT FIXTURES IN MEZZANINE EAST SHALL BE CONNECTED TO PANEL LP1 AND ALL RECEPTACLES SHALL BE CONNECTED TO RP2.

**DRAWING NOTES:**

- PROVIDE 480V, 3P, 60A FSS WITH 60A CURRENT LIMITING FUSES IN NEMA 1 ENCLOSURE FOR CONNECTION TO LIFE SAFETY ATS.
- TRANSFORMER SHALL BE SUSPENDED. PROVIDE ALL MOUNTING HARDWARE AS NECESSARY.
- PROVIDE COMBINATION FIRE ALARM AND CARBON MONOXIDE DETECTION CONTROL PANEL. CARBON MONOXIDE DETECTION TO BE PROVIDED THROUGHOUT THE ENTIRE BUILDING.
- PROVIDE POWER TO DOAS-1 AS SHOWN. DISCONNECT SWITCH PROVIDED BY MECHANICAL. PROVIDE POWER CONNECTIONS BETWEEN THE DISCONNECT SWITCH AND UNIT PER MANUFACTURER RECOMMENDATIONS. THE CIRCUIT SHALL BE A MINIMUM OF (3)4" + (1)10" GND IN 1-1/4" CONDUIT. PROVIDE ALL REQUIRED MOUNTING HARDWARE. ENSURE ALL NEC CLEARANCES ARE MET.
- PROVIDE 480V, 3-PHASE, FULL VOLTAGE, NON-REVERSING NEMA SIZE 0 MOTOR STARTER IN NEMA 1 ENCLOSURE FOR CONNECTION TO EF. PROVIDE ALL MOUNTING HARDWARE AS REQUIRED. FIELD COORDINATE EXACT LOCATION.
- PROVIDE 480V, 0.5 HP, 6-PULSE VFD WITH A 5% LINE REACTOR AND MAINTENANCE BYPASS FOR CONNECTION TO PUMP AS INDICATED. PROVIDE ALL MOUNTING HARDWARE AS REQUIRED. FIELD COORDINATE EXACT LOCATION.
- PROVIDE 480V, 1.5 HP, 6-PULSE VFD WITH A 5% LINE REACTOR AND MAINTENANCE BYPASS FOR CONNECTION TO PUMP AS INDICATED. PROVIDE ALL MOUNTING HARDWARE AS REQUIRED. FIELD COORDINATE EXACT LOCATION.
- PROVIDE 480V, 3-PHASE, FULL VOLTAGE, NON-REVERSING NEMA SIZE 0 MOTOR STARTER IN NEMA 1 ENCLOSURE FOR CONNECTION TO VEF. PROVIDE ALL MOUNTING HARDWARE AS REQUIRED. FIELD COORDINATE EXACT LOCATION.
- PROVIDE MINIMUM 1/4" THICK, 2" TALL GROUND BUS BAR. SIZE LENGTH AS NEEDED PER QUANTITY OF CONNECTIONS. PROVIDE CONNECTION WATER MAIN, STRUCTURAL STEEL, FOUNDATION REBAR, GROUND RING, AND LIGHTNING PROTECTION SYSTEM. PROVIDE CONNECTION TO TELECOMMUNICATIONS GROUND BUS BAR.
- PROVIDE TIMECLOCK FOR EXTERIOR LIGHTING CONTROL. REFER TO LIGHTING CONTROL SEQUENCE OF OPERATIONS ON DRAWING E001 FOR ADDITIONAL INFORMATION.
- NOTE REMOVED.

- PROVIDE 480V, 3P, 60A FSS IN NEMA 1 ENCLOSURE FOR CONNECTION TO DWBP-1. FUSE PER MANUFACTURER RECOMMENDATIONS. THE CIRCUIT SHALL BE A MINIMUM (3)4" + (1)12" GND IN 3/4" CONDUIT. PROVIDE REQUIRED MOUNTING HARDWARE. ENSURE ALL NEC CLEARANCES ARE MET.
- DISCONNECT SWITCH PROVIDED BY MECHANICAL.
- PROVIDE DUCT SMOKE DETECTOR FOR DOAS-1. COORDINATE DUCT SMOKE DETECTOR INSTALLATION WITH MECHANICAL CONTRACTOR.
- PROVIDE DUCT SMOKE DETECTOR FOR EF-3. COORDINATE DUCT SMOKE DETECTOR INSTALLATION WITH MECHANICAL CONTRACTOR.
- PROVIDE 208V, 3P, 60A FSS IN NEMA 3R ENCLOSURE FOR CONNECTION TO OWNER PROVIDED AIR COMPRESSOR. FUSE PER MANUFACTURER'S RECOMMENDATIONS. THE CIRCUIT FROM THE DISCONNECT TO THE UNIT AND THE HOMERUN SHALL BE A MINIMUM OF (3)4" + (1)10" GND IN 1-1/4" CONDUIT. PROVIDE ALL REQUIRED MOUNTING HARDWARE. ENSURE ALL NEC CLEARANCES ARE MET. COORDINATE LOCATION WITH OWNER PRIOR TO ROUGH-IN.



THIS CONFORMED SET IS COMPOSED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS (DRAWINGS & SPECIFICATIONS). ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCES, THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

NO.	DESCRIPTION	DATE
2	ADDENDUM 2	1/5/2024

PROJECT 18-036

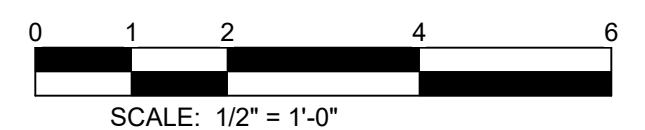
PROJECT BID SET

DATE 11/30/2023

DRAWING PART FLOOR PLANS - ELECTRICAL

SHEET E301

BKM# 190201

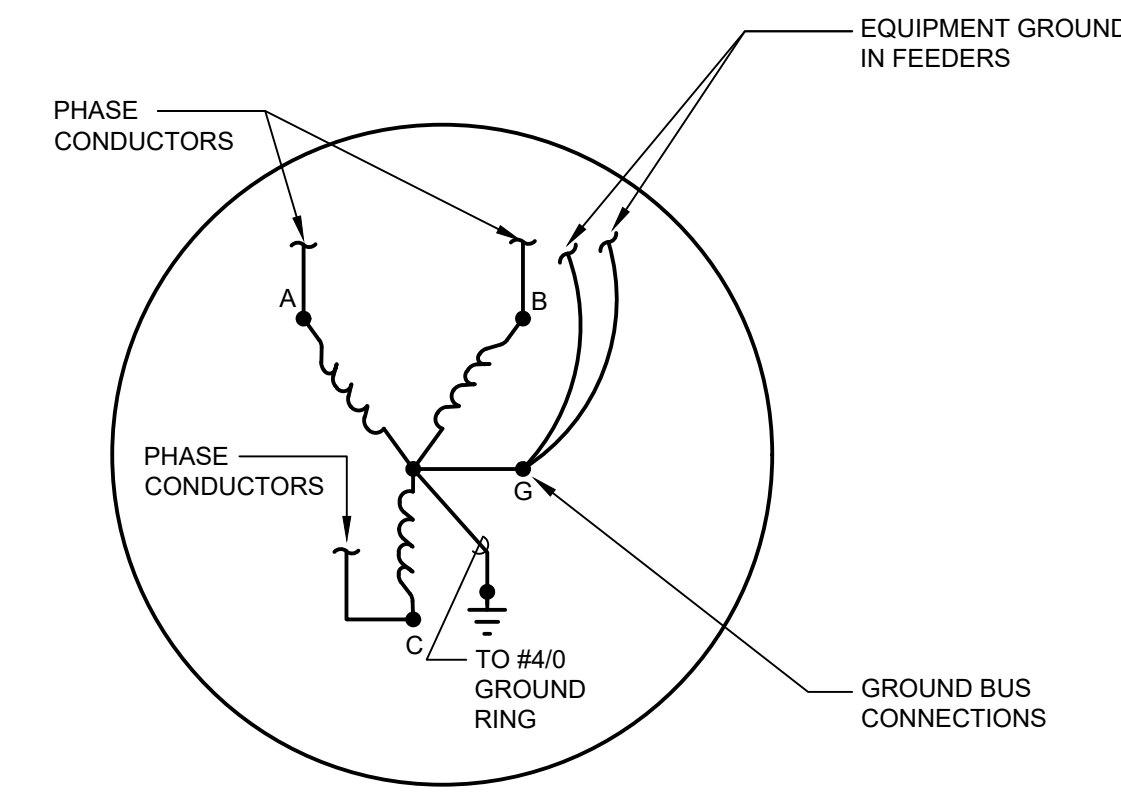




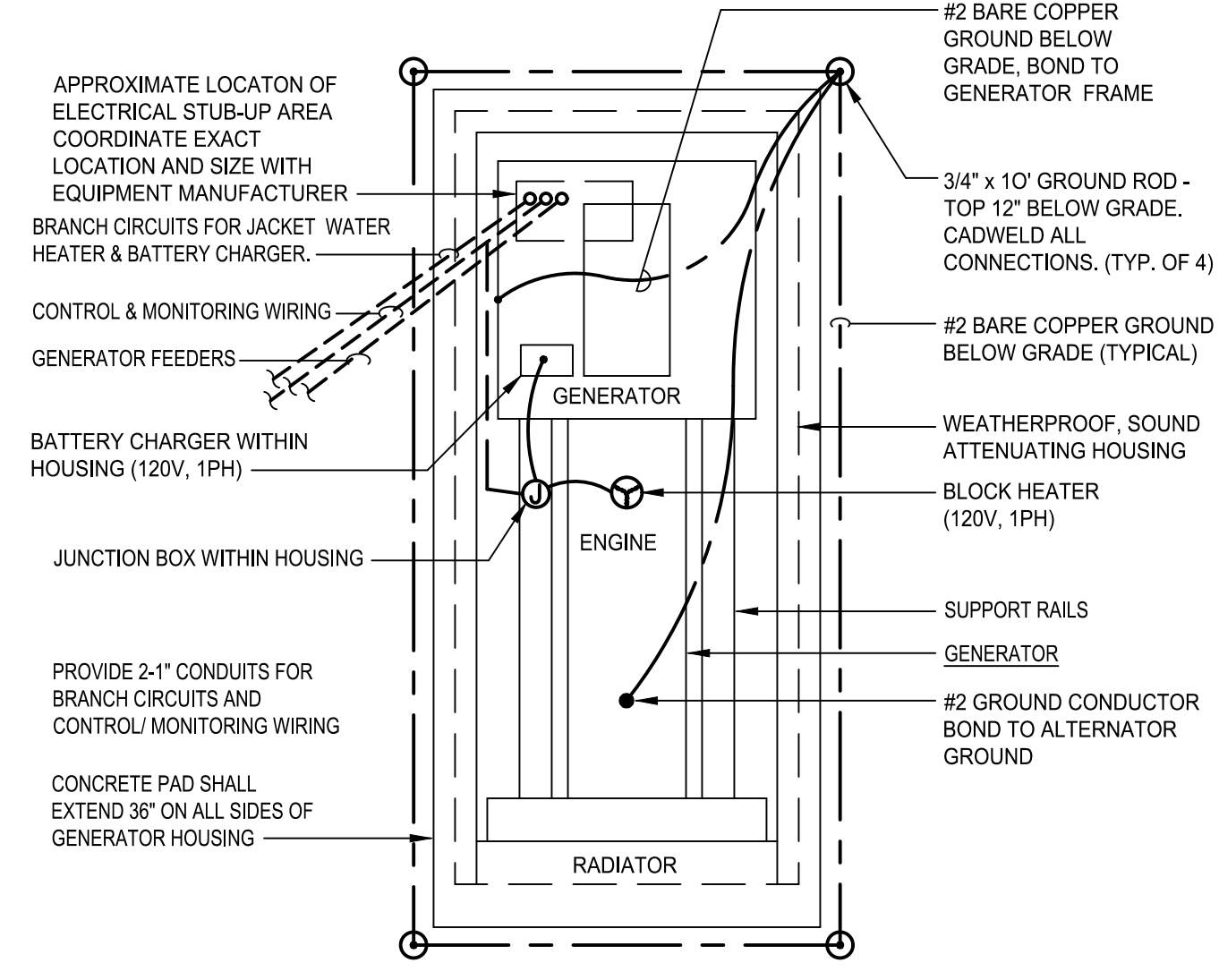
SEAL:

CONSULTANT:  
**bkm**  
 Burdette, Koehler, Murphy & Associates, Inc.  
 8500 Belton Road, Suite 400 | Belton, Maryland 21019  
 P: 410.320.0601 | www.bkm.com

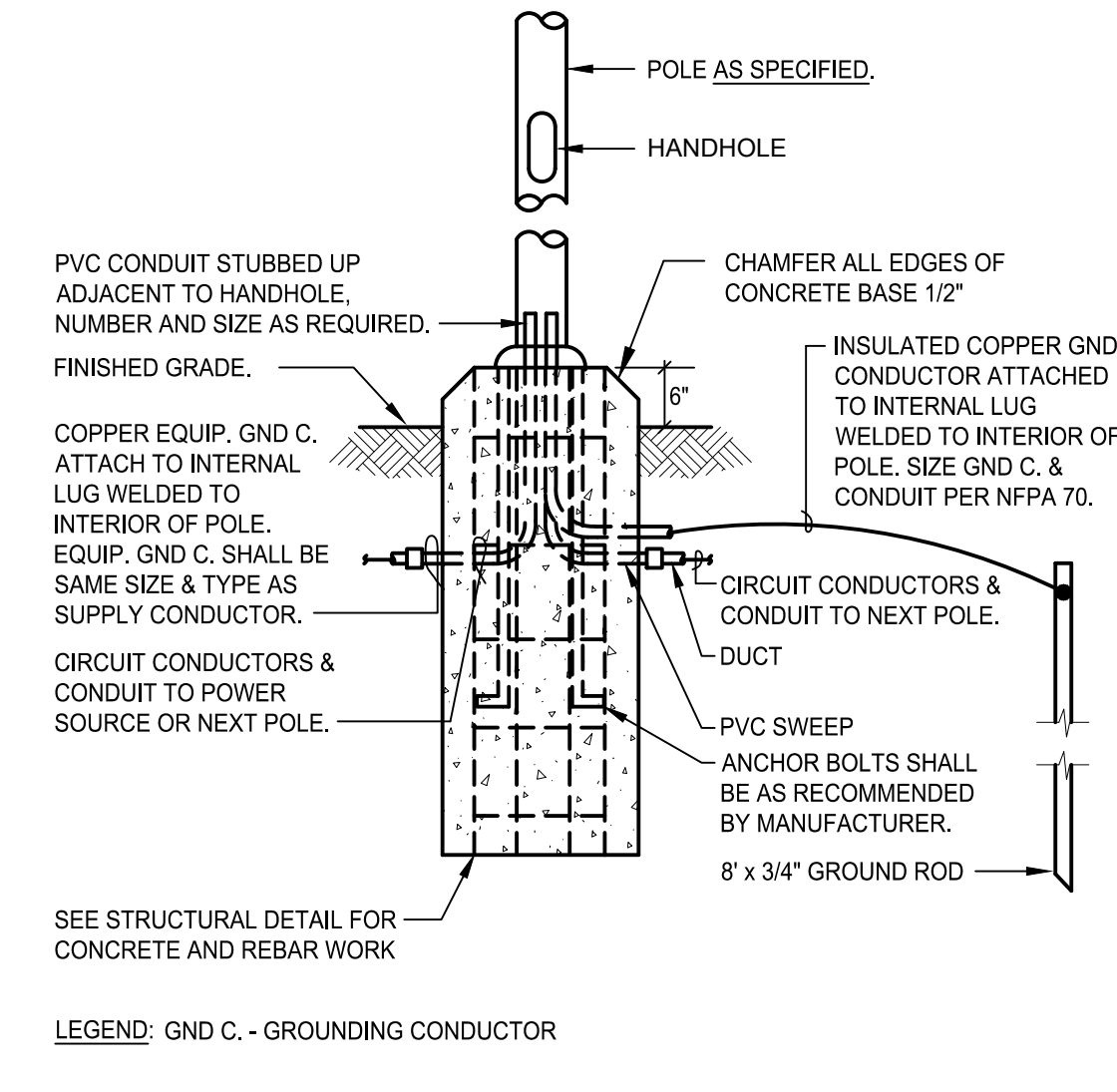
THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS. SINCE MOST OF THE BID DOCUMENTS DRAWINGS & SPECIFICATIONS, ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCES, THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.



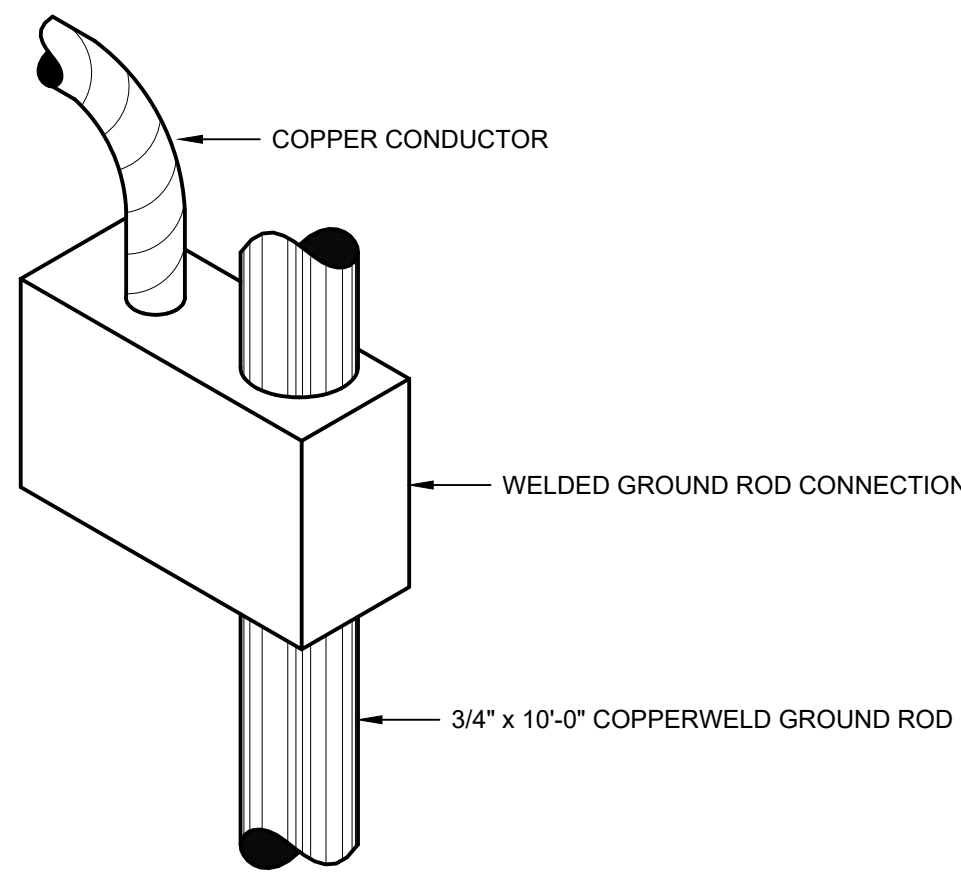
**1 GENERATOR GROUNDING DETAIL**  
NO SCALE



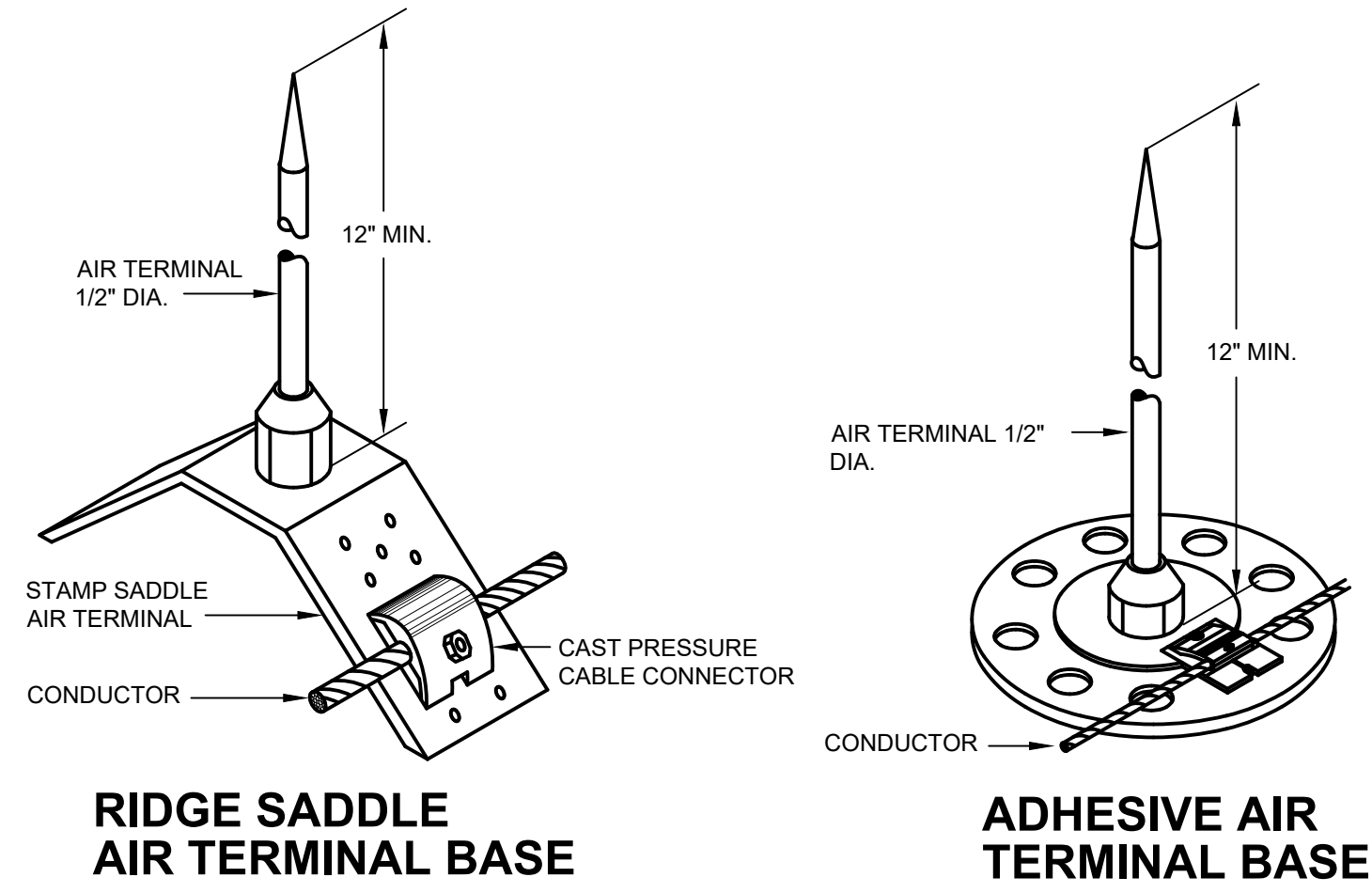
**2 GENERATOR CONNECTION DETAIL**  
NO SCALE



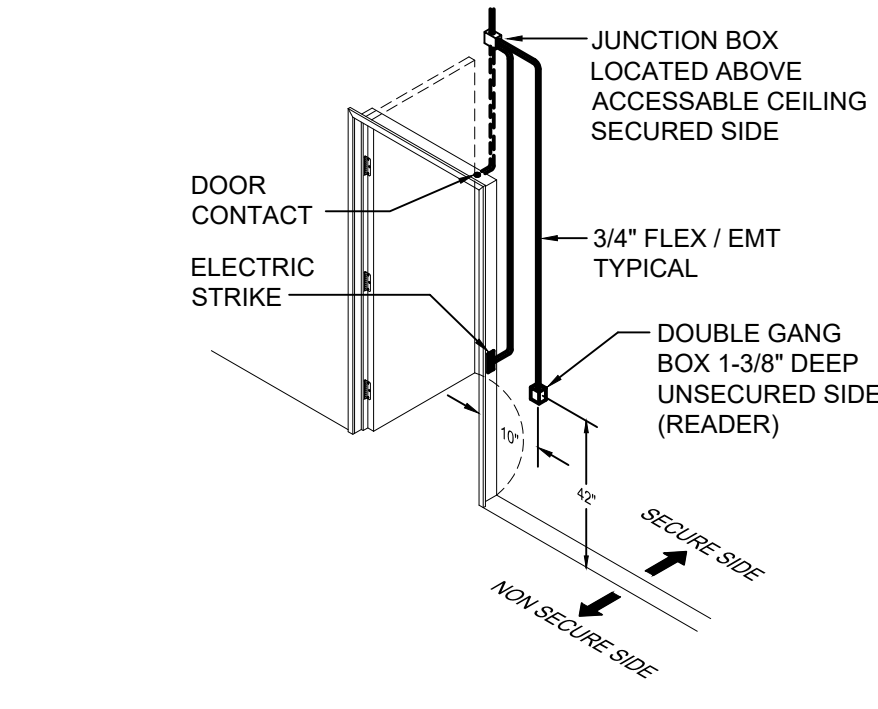
**3 CONCRETE POLE BASE DETAIL**  
NO SCALE



**4 LIGHTNING PROTECTION GROUNDING DETAIL**  
NO SCALE



**5 LIGHTNING PROTECTION AIR TERMINAL DETAIL**  
NO SCALE



**6 CARD READER MOUNTING DETAIL**  
NO SCALE

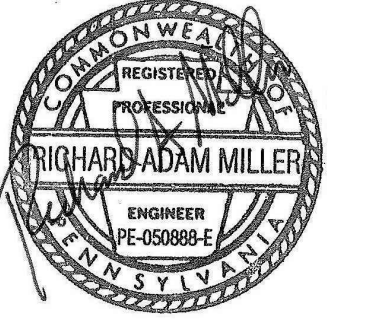
CUMRU FIRE DEPARTMENT  
 1775 WELSH ROAD  
 MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

PROJECT NUMBER:  
18-036  
 PROJECT SET:  
BID SET  
 DATE ISSUED:  
11/30/2023

DRAWING TITLE:  
ELECTRICAL DETAILS

SHEET NUMBER:  
**E401**



CONSULTANT:  
**bkm**  
 Burdette, Koehler, Murphy & Associates, Inc.  
 8000 River Road, Suite 400 Baltimore, Maryland 21289  
 P: 410-528-9260 | www.bkm.com

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS DRAWINGS & SPECIFICATIONS, ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCIES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

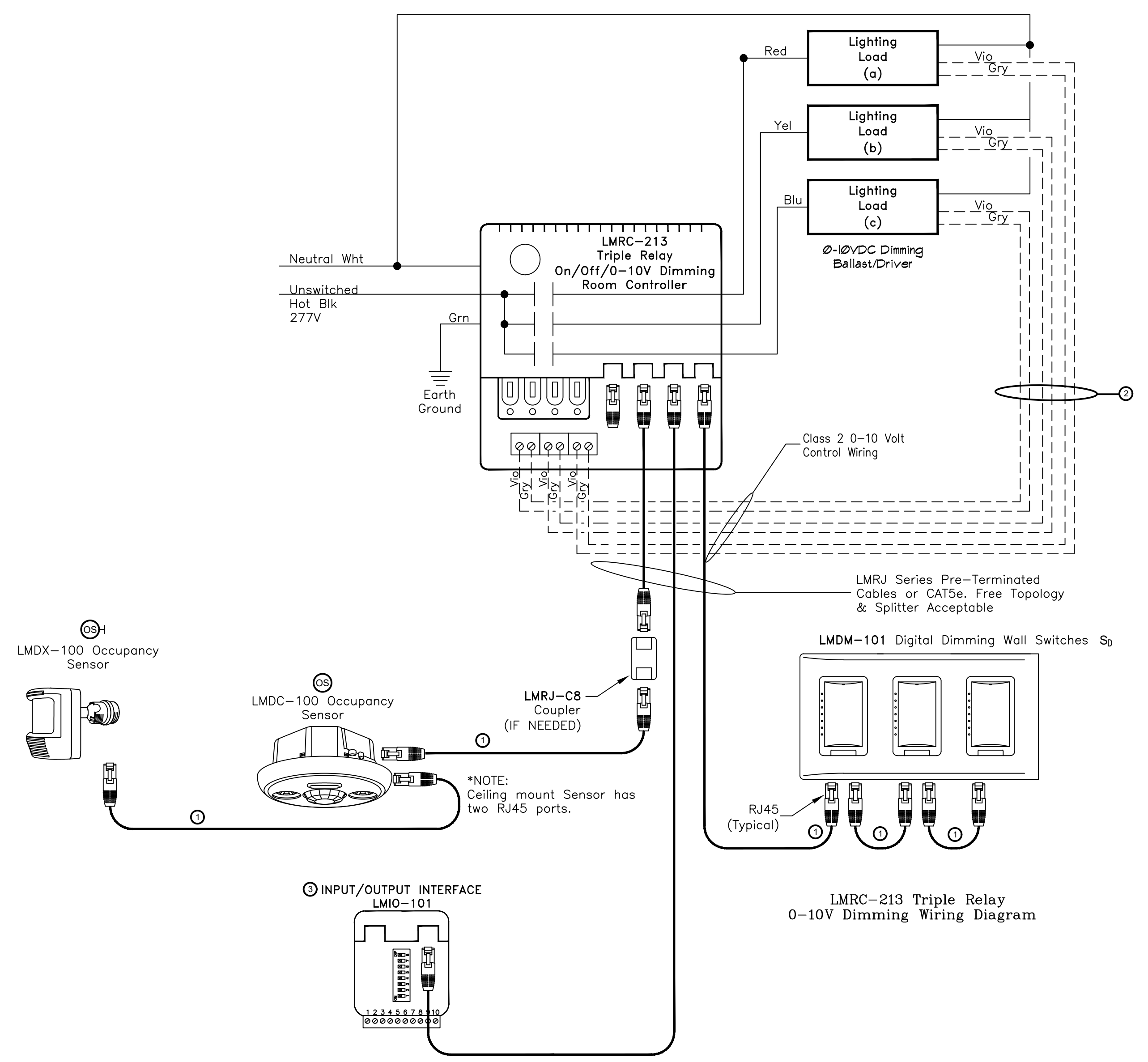
CUMRU FIRE DEPARTMENT  
 1775 WELSH ROAD  
 MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

PROJECT NUMBER:  
 18-036  
 PROJECT SET:  
 BID SET  
 DATE ISSUED:  
 11/30/2023

DRAWING TITLE:  
 ELECTRICAL DETAILS

SHEET NUMBER:  
**E402**



### BASIS OF DESIGN: WATTSTOPPER

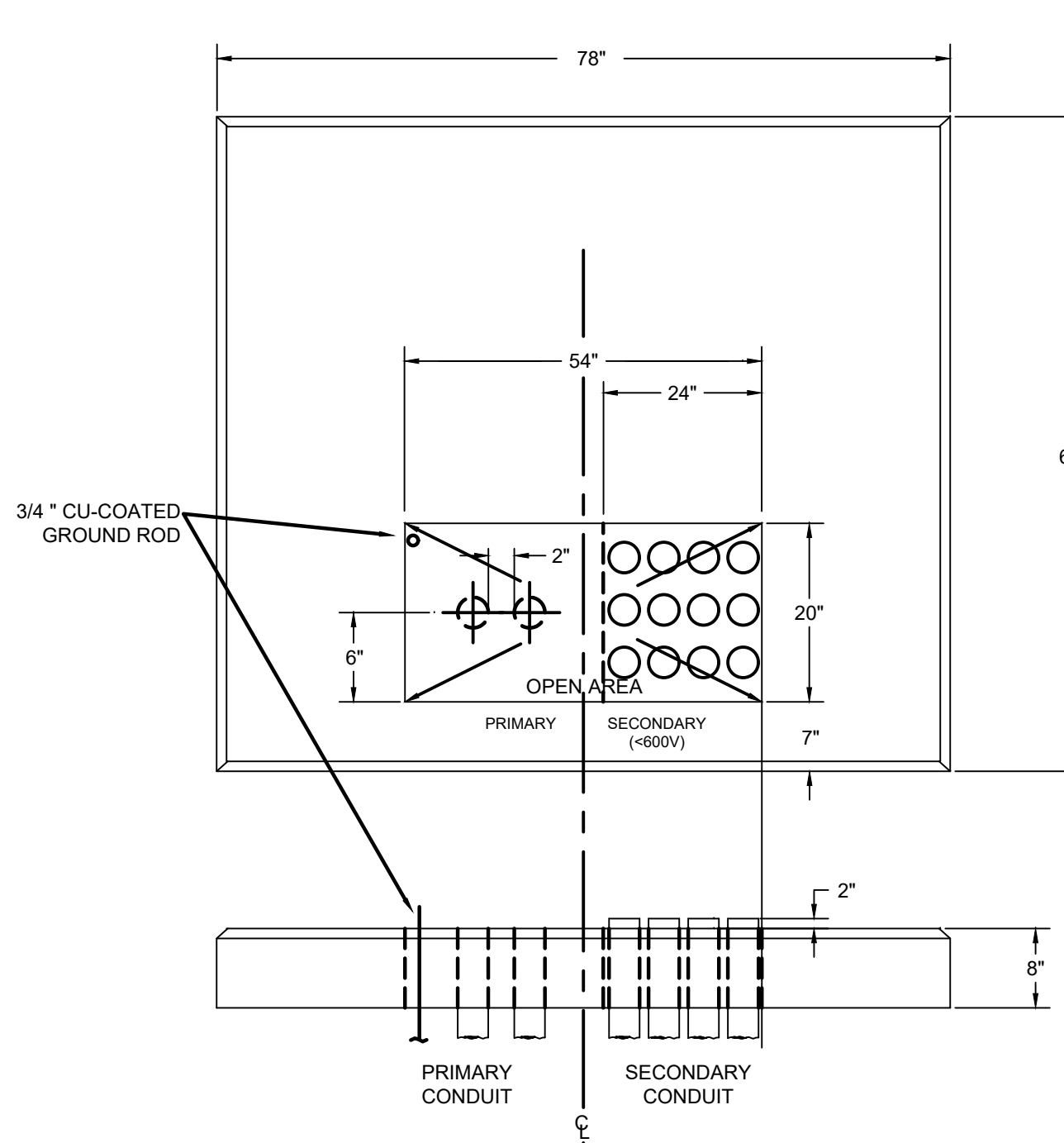
#### GENERAL NOTES:

1. 1 OR 2 RELAY CONTROLLER ARE ACCEPTABLE AS APPLICABLE. PROVIDE ENOUGH RELAYS TO SWITCH ALL LOADS. LIGHTING LOAD PER CONTROLLER SHALL NOT EXCEED 20A TOTAL REGARDLESS OF NUMBER OF RELAYS.
2. REFER TO FLOOR PLANS FOR DEVICE TYPES AND QUANTITIES IN EACH AREA. THIS DIAGRAM SHOWS A TYPICAL GENERAL ARRANGEMENT WITH TYPICAL DEVICES.
3. PROVIDE COORDINATION DRAWINGS WITH ALL REQUIRED DIAGRAMS FOR THE ENTIRE SYSTEM IN A SUBMITTAL FOR REVIEW.

#### WIRING DIAGRAM NOTES:

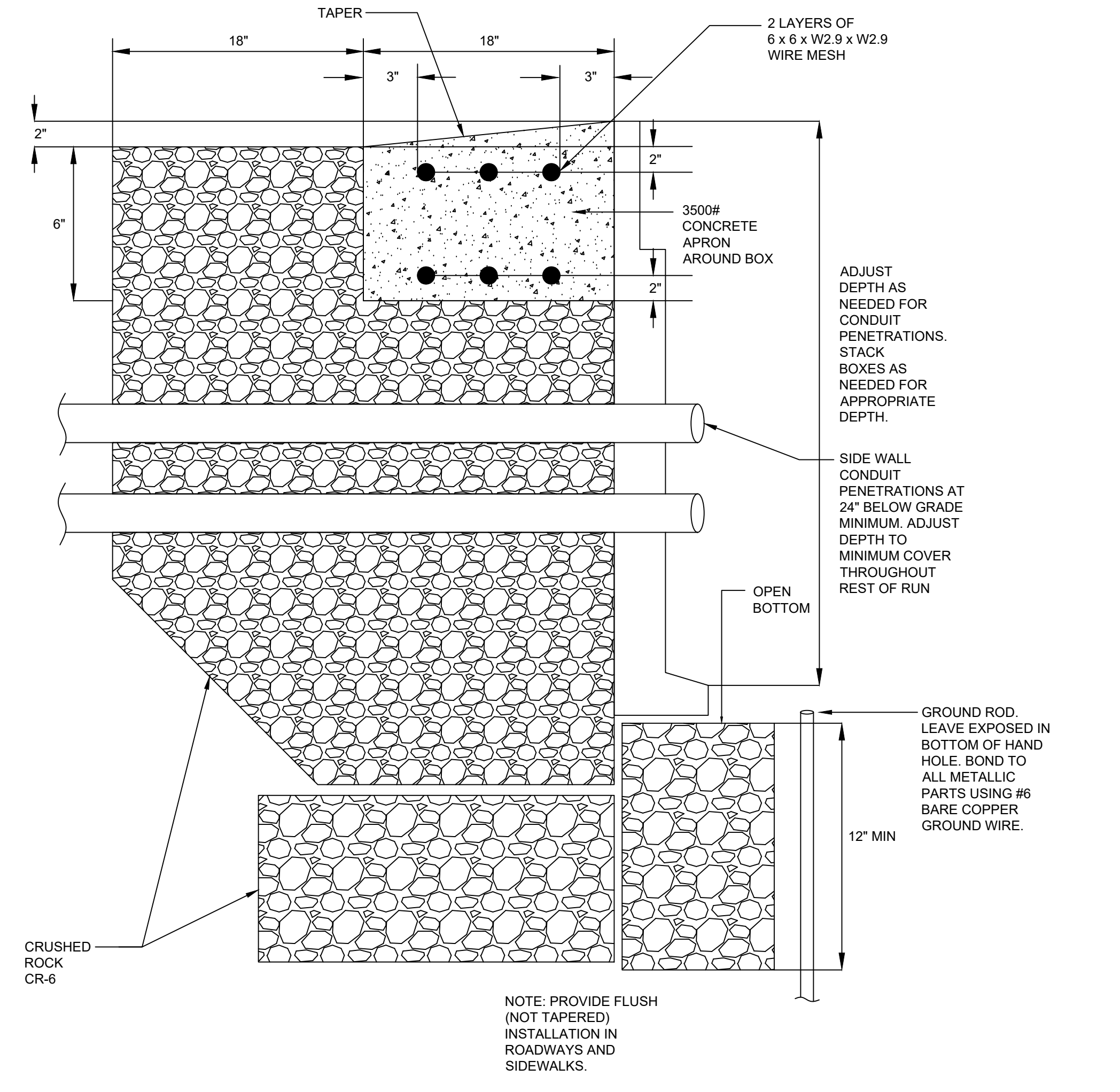
1. PROVIDE CONTROL WIRE IN EMT CONDUIT.
2. PROVIDE LOW VOLTAGE CONTROL WIRING PER SUPPLIER'S RECOMMENDATIONS. PROVIDE CONTROL WIRING IN EMT CONDUIT.
3. CONNECT INPUT/OUTPUT DEVICE TO FIRE ALARM CONTROL MODULE. ALL LIGHTING SHALL TURN ON FULL BRIGHTNESS WHEN THE FIRE ALARM IS ACTIVATED. CONTRACTOR SHALL COORDINATE WITH FIRE ALARM INSTALLER FOR FINAL CONNECTION TO FIRE ALARM SYSTEM. FIRE ALARM WIRING SHALL BE PER FIRE ALARM SYSTEM SUPPLIER RECOMMENDATIONS.

### 3 TYPICAL LIGHTING CONTROL WIRING DIAGRAM NO SCALE



- NOTES:
1. SECONDARY CONDUITS SHALL NOT EXTEND MORE THAN 2 INCHES ABOVE THE TOP OF FOUNDATION. PRIMARY CONDUITS SHOULD BE CUT OFF 2 INCHES BELOW THE TOP OF FOUNDATION TO ALLOW FOR TERMINATING THE CABLES.
  2. CUSTOMER SHALL FURNISH AND INSTALL ONE 3/4" DIAMETER X 8' GROUND ROD. GROUNDING CONNECTIONS, AND #6 AWG COPPER COMMUNICATIONS GROUND WIRE.
  3. REFER TO ELECTRIC UTILITY CUSTOMER GUIDE FOR ELECTRIC SERVICE FOR ADDITIONAL REQUIREMENTS.

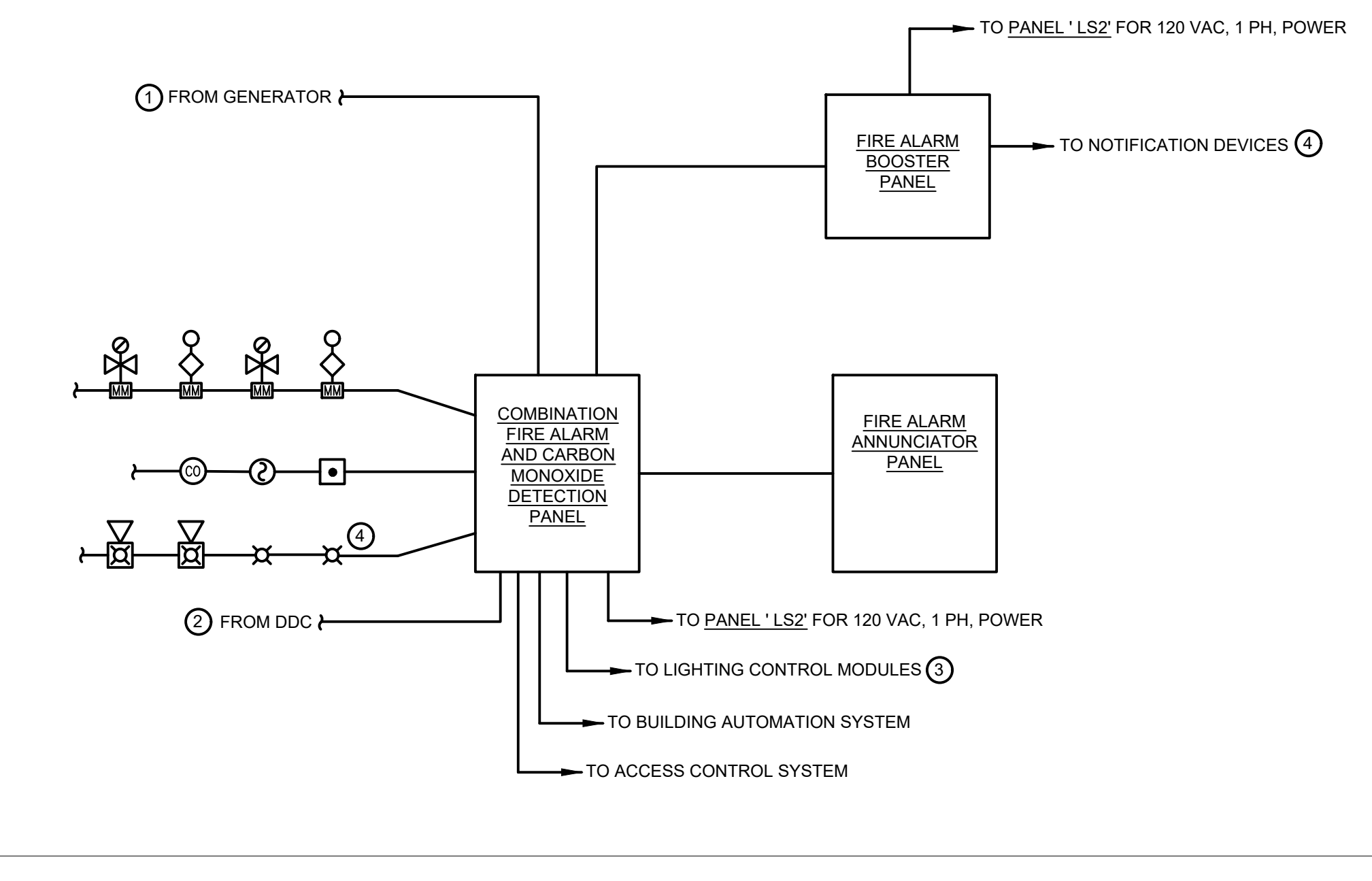
### 2 DUCTBANK TURN UP PAD DETAIL NO SCALE



#### GENERAL NOTES:

1. REFER TO UNDERGROUND STRUCTURES SPECIFICATIONS FOR ADDITIONAL HANDHOLE REQUIREMENTS.
2. STONE AND CONCRETE APRON SHALL BE FIELD INSTALLED.

### 1 CONDUITS INTO HANDHOLE DETAIL NO SCALE



### 4 FIRE ALARM RISER DIAGRAM NO SCALE

#### DRAWING NOTES:

1. PROVIDE GENERATOR MONITORING SIGNAL.
2. PROVIDE DDC PANEL MONITORING SIGNAL.
3. PROVIDE CONNECTIONS FROM FIRE ALARM SYSTEM TO LIGHTING CONTROL DEVICES AS INDICATED ON DRAWING E001. THE LIGHTING CONTROL SYSTEM SHALL RAMP ALL LIGHTING TO FULL BRIGHTNESS DURING A FIRE ALARM EVENT.
4. NOTIFICATION COVERPLATES MUST INDICATE "ALERT".

#### GENERAL NOTES:

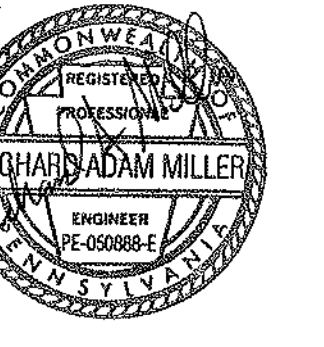
1. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.

#### DRAWING NOTES:

1. HORNS SHALL BE ADDRESSABLE TO ALLOW FOR TEMPORAL 3 AND 4 OUTPUTS FROM A SINGLE HORN, OR CONTRACTOR SHALL PROVIDE (1) ADDITIONAL HORN PER EACH (1) HORN SHOWN ON FLOOR PLAN TO ALLOW FOR TEMPORAL 3 AND 4 OUTPUTS TO EACH HORN RESPECTIVELY.

### 5 FIRE ALARM MATRIX NO SCALE

1	2	3	4	5	6	7	8	9	10	11
MANUAL PULL STATION	•	•	•	•	•	•	•	•	•	•
SPOT-TYPE SMOKE DETECTOR	•	•	•	•	•	•	•	•	•	•
DUCT-TYPE SMOKE DETECTOR	•	•	•	•	•	•	•	•	•	•
SPRINKLER VALVE TAMPER	•	•	•	•	•	•	•	•	•	•
SPRINKLER WATER FLOW SWITCH	•	•	•	•	•	•	•	•	•	•
GENERATOR STATUS	•	•	•	•	•	•	•	•	•	•
FIRE ALARM SYSTEM GROUND FAULT CONDITION	•	•	•	•	•	•	•	•	•	•
FIRE ALARM SYSTEM TROUBLE CONDITION	•	•	•	•	•	•	•	•	•	•
CARBON MONOXIDE DETECTOR	•	•	•	•	•	•	•	•	•	•
COMBINATION SMOKE/CO DETECTOR - SMOKE ACTIVATION	•	•	•	•	•	•	•	•	•	•
COMBINATION SMOKE/CO DETECTOR - CO ACTIVATION	•	•	•	•	•	•	•	•	•	•



CONSULTANT:  
**bkm**  
 Burdette, Koehler, Murphy & Associates, Inc.  
 8500 Shiloh Road, Suite 400 Baltimore, Maryland 21286  
 P: 410-528-0800 | www.bkm.com

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS BOTH THE DRAWINGS AND THE PROJECT MANUAL AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS. SINCE A PORTION OF THE BID DOCUMENTS DRAWINGS & SPECIFICATIONS, ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCES, THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

CUMRU FIRE DEPARTMENT  
 1775 WELSH ROAD  
 MOHNTON, PA 19540

NO.	DESCRIPTION	DATE
2	ADDENDUM 2	1/5/2024

PROJECT NUMBER:  
18-036  
 PROJECT SET:  
BID SET  
 DATE ISSUED:  
11/30/2023

DRAWING TITLE:  
ELECTRICAL ONE-LINE DIAGRAM

SHEET NUMBER:  
**E501**

**GENERAL NOTES:**

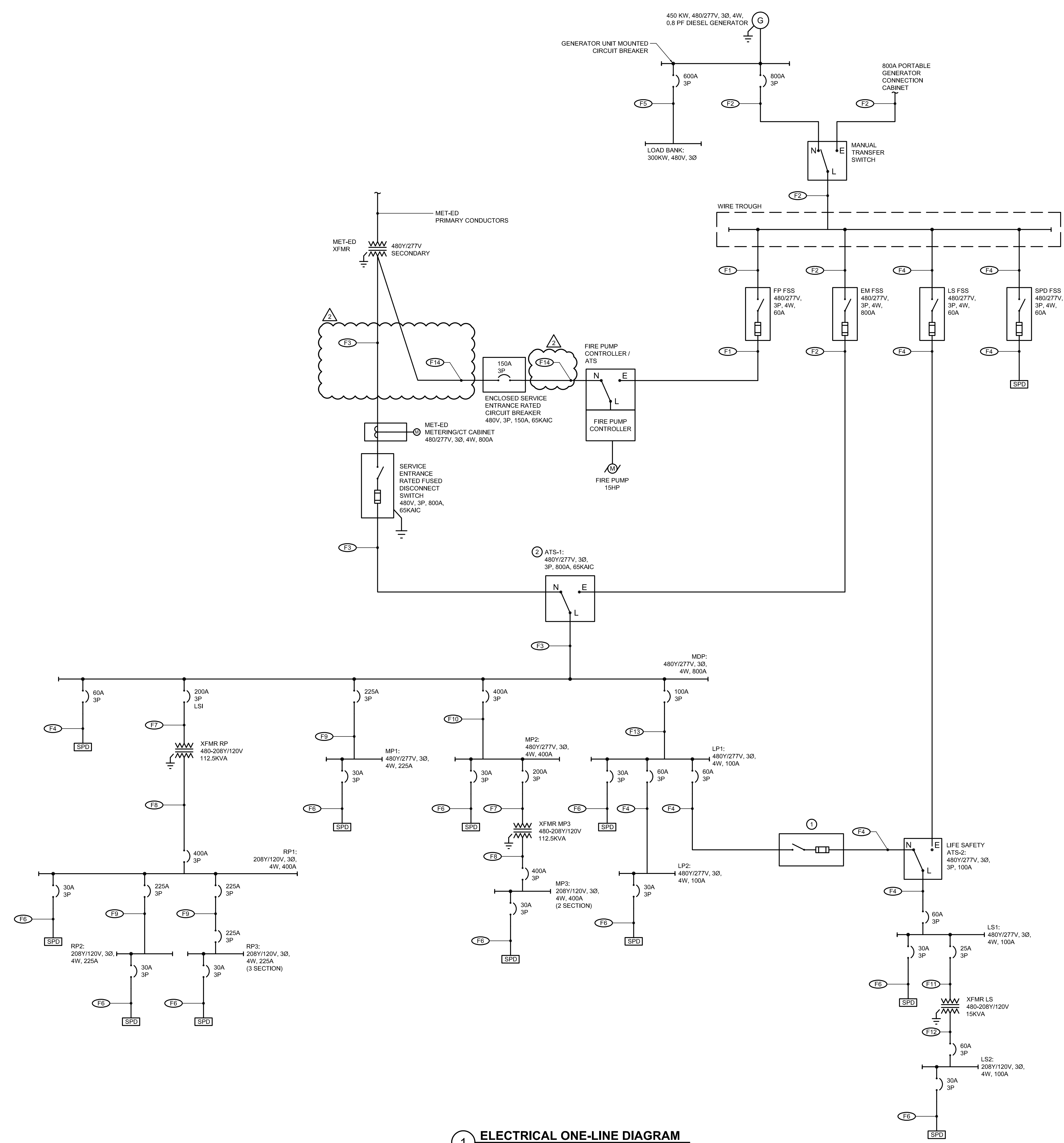
- REFER TO DRAWING E001 FOR GENERAL NOTES, LEGEND AND ABBREVIATIONS.
- ALL TRANSFORMERS ARE 3-PHASE, DELTA-WYE, 480V PRIMARY - 208/120V SECONDARY, DRY-TYPE UNLESS OTHERWISE NOTED.
- REFER TO SITE PLAN FOR SPARE UNDERGROUND CONDUIT REQUIREMENTS.

**DRAWING NOTES:**

- PROVIDE 480V, 3P, 60A, 65KAIC FSS IN NEMA 1 ENCLOSURE WITH 60A CURRENT LIMITING FUSES.
- PROVIDE WITH BYPASS ISOLATION SWITCH.

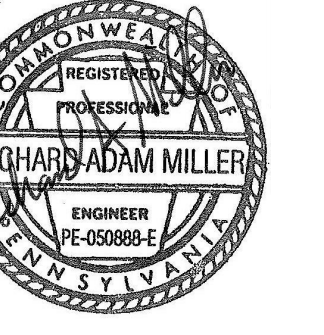
**FEEDER SCHEDULE:**

- (F1) PROVIDE 4#8 + 1#10 GND IN 1" CONDUIT.
- (F2) PROVIDE (2) SETS OF 4#600KCMIL + 1#3/0 GND IN (2) 4" CONDUITS.
- (F3) PROVIDE (2) SETS OF 4#600KCMIL + 1#3/0 GND IN (2) 4" CONDUITS.
- (F4) PROVIDE 4#6 + 1#10 GND IN 1" CONDUIT.
- (F5) PROVIDE (2) SETS OF 3#350KCMIL + 1#1 GND IN (2) 3" CONDUIT.
- (F6) PROVIDE 4#8 + 1#10 GND IN 3/4" CONDUIT.
- (F7) PROVIDE 3#3/0 + 1#6 GND IN 2" CONDUIT.
- (F8) PROVIDE 4#600KCMIL + 1#1/0 GND IN 4" CONDUIT.
- (F9) PROVIDE 4#4/0 + 1#4 GND IN 2-1/2" CONDUITS.
- (F10) PROVIDE 4#600KCMIL + 1#3 GND IN 4" CONDUITS.
- (F11) PROVIDE 3#10 + 1#10 GND IN 3/4" CONDUIT.
- (F12) PROVIDE 4#6 + 1#8 GND IN 1" CONDUIT.
- (F13) PROVIDE 4#3 + 1#6 GND IN 1-1/4" CONDUIT.
- (F14) PROVIDE 4#1/0 + 1#6 GND IN 2" CONDUIT.



**1 ELECTRICAL ONE-LINE DIAGRAM**  
 NOT TO SCALE

ARL:CV190201\Drawings\Acad\EE\E501 One-Line Diagram  
 Plotted By: Lee Rothel | 1/4/2024 | 12:45 PM



SEAL

CONSULTANT:  
**bkm**  
Burdette, Koehler, Murphy & Associates, Inc.  
10000 Littleton Lane, Suite 401 | Baltimore, Maryland 21209  
P: 410.282.2800 | F: 410.282.2801 | www.bkm.com

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS. SINCE CONSIST OF THE BID DOCUMENTS (DRAWINGS & SPECIFICATIONS), ALL ADDENDA, AND THE OWNERS ACCEPTED BID ALTERNATES AND CONTINGENCES, THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

LIGHTING FIXTURE SCHEDULE											
TYPE	DESCRIPTION	LENS/OVER	MOUNTING	Color		MAX. FIXTURE INPUT WATTS	INITIAL FIXTURE LUMEN OUTPUT	LAMP TYPE	MANUFACTURER	CATALOG NUMBER	
				Voltage	Temperature						
A1	2X2 DIRECT/INDIRECT LED FIXTURE	ACRYLIC	RECESSED	277 V	4000 K	18	2000 lm	LED	MARK ARCHITECTURAL	WHSR-2X2-2000LM-40K-90CRI-MIN10-MVOLT-SWC	
A2	2X2 DIRECT/INDIRECT LED FIXTURE	ACRYLIC	RECESSED	277 V	4000 K	30	3300 lm	LED	MARK ARCHITECTURAL	WHSR-2X2-3300LM-40K-90CRI-MIN10-MVOLT-SWC	
B1	2X4 DIRECT/INDIRECT LED FIXTURE	ACRYLIC	RECESSED	277 V	4000 K	42	4800 lm	LED	MARK ARCHITECTURAL	WHSR-2X4-4800LM-40K-90CRI-MIN10-MVOLT-SWC	
B2	2X4 DIRECT/INDIRECT LED FIXTURE	ACRYLIC	RECESSED	277 V	4000 K	53	6000 lm	LED	MARK ARCHITECTURAL	WHSR-2X4-6000LM-40K-90CRI-MIN10-MVOLT-SWC	
C	4' DIRECT/INDIRECT PENDANT FIXTURE	ACRYLIC	SUSPENDED	277 V	4000 K	72	2800 lm	LED	PEERLESS	10CRM4L-LLP-4FT-MSL-4-90CRI-SBL-40K-1700LMF-700LMF-MIN1-Z T-Z77-SCT	
E	VANITY FIXTURE	N/A	WALL	277 V	4000 K	18	900 lm	LED	MOEN	DN0763CH	
F	DOWNLIGHT	POLYCARBONATE	RECESSED	277 V	4000 K	12	1000 lm	LED	GOTHAM	EVO-40/10-6AR-MWD-LSS-MVOLT-EZ10	
G1	LOW BAY INDUSTRIAL FIXTURE	ACRYLIC	SUSPENDED	277 V	4000 K	29	4000 lm	LED	LITHONIA	MSL-4000LM-SBL-MVOLT-GZ10-40K-90CRI-WH	
G2	LOW BAY INDUSTRIAL FIXTURE	ACRYLIC	SUSPENDED	277 V	4000 K	86	10000 lm	LED	LITHONIA	MSL-10000LM-SBL-MVOLT-GZ10-40K-90CRI-WH	
H	WALL RECESSED STEPLIGHT	ACRYLIC	WALL	277 V	4000 K	4	3172 lm	LED	WAC	WL-LED200	
J	4' SURFACE MOUNTED WRAPAROUND FIXTURE	ACRYLIC	SURFACE	277 V	4000 K	26	3000 lm	LED	LITHONIA	LBL4-3000LM-80CRI-40K-MIN10-GZT-MVOLT	
K	DIRECT LINEAR PENDANT	ACRYLIC	SUSPENDED	277 V	4000 K	32	3200 lm	LED	MARK ARCHITECTURAL	S4LD-LLP-MSL4-90CRI-40K-800LMF-MIN1-MVOLT-ZT	
K2	DIRECT LINEAR WALL	ACRYLIC	WALL	277 V	3500 K	28	3000 lm	LED	SPL LIGHTING	SEW12114-L28W-3500K-DFSSB-B	
L	DOWNLIGHT WET LOCATION	POLYCARBONATE	RECESSED	277 V	4000 K	12	1000 lm	LED	GOTHAM	EVO5H-40/10-6AR-MWD-LSS-MVOLT-EZ10	
M	LINEAR WALL RECESSED TAPE LIGHT - UNDER LOCKER	N/A	WS	277 V	3000 K	2	63 lm	LED	CALI	LLED8000-UCS-SF-3.6W-10V-2.7K-DRY-WH-XX'	
N	RECESSED LINEAR SLOT	ACRYLIC	RECESSED	277 V	4000 K	31	3600 lm	LED	AXIS LIGHTING	CLKLED-800-90-40-SQ-4-W-UNV-0P-1	
P1	POLE MOUNTED SITE LIGHTING	N/A	POLE	277 V	4000 K	54	6967 lm	LED	LITHONIA	DSX1 LED P1 40K T3M MVOLT RPA	
P2	POLE MOUNTED SITE LIGHTING	N/A	POLE	277 V	4000 K	54	3000 lm	LED	LITHONIA	RADPT LED P1 40K SYM MVOLT PT4 PIR	
W1	OUTDOOR WALLPACK	ACRYLIC	WALL	277 V	4000 K	36	3327 lm	LED	HE WILLIAMS	VWP-H-L30-7-40-T3-BLK-SDGL-EM	
W2	WALL MOUNTED OUTDOOR FIXTURE	N/A	WALL	277 V	4000 K	27	2000 lm	LED	BARN LIGHT ELECTRIC	BLE-G-ASFC12-100-G36-LDBPC-LED27-4000K-DL	
W3	WALL MOUNTED OUTDOOR GOOSENECK	N/A	WALL	277 V	4000 K	43	4000 lm	LED	BARN LIGHT ELECTRIC	BLE-G-WHS28-100-G36-NAL-LDCHX-LED43-4000K-DL	
W4	FLOOD LIGHTING	N/A	WALL	277 V	4000 K	89	7000 lm	LED	HE WILLIAMS	VF2-L70740-MF-CU-DBZ-DIM-UNV	
X	EXIT SIGN	N/A	CEILING/WALL	277 V		10	0 lm	LED	LITHONIA	LRP-120/277	
Y	EMERGENCY FIXTURE WITH BATTERY BACKUP	N/A	WALL	277 V	4000 K	36	3327 lm	LED	LITHONIA	ELM2L	

- REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS.
- PROVIDE EXIT SIGN MOUNTING TYPES, DIRECTIONAL ARROWS AND FACE QUANTITIES (SINGLE/DOUBLE) AS INDICATED ON DRAWING. COORDINATE LETTERING COLOR OF THE EXIT SIGNS WITH AUTHORITY HAVING JURISDICTION.
- FINISHES FOR ALL FIXTURES SHALL BE SUBMITTED TO ARCHITECT FOR APPROVAL.
- EQUAL MANUFACTURERS SHALL BE SUBMITTED TO ARCHITECT AND ENGINEER FOR APPROVAL.
- PROVIDE ALL LIGHT FIXTURES WITH POWER TRANSFORMERS, LAMPS, AND ALL OTHER APPURTENANCES AS RECOMMENDED BY MANUFACTURER.

CUMRU FIRE DEPARTMENT  
1775 WELSH ROAD  
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

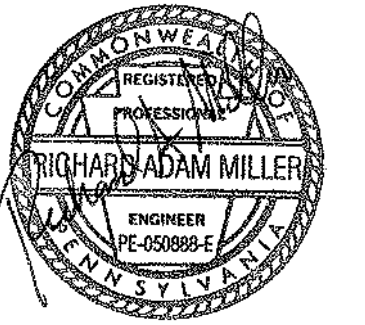
PROJECT  
18-036  
PROJECT  
BID SET  
DATE  
11/30/2023

DRAWING  
LIGHTING FIXTURE  
SCHEDULE

SHEET  
**E601**







SEAL

CONSULTANT: bkm Burdette, Koenig, Murphy & Associates, Inc. 1000 Stone Lane, Suite 400 Baltimore, Maryland 21208 P: 410.528.0801 www.bkm.com

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDA 1-4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY TO THE CONTRACT DOCUMENTS. IN THE EVENT OF A DISCREPANCY BETWEEN THE CONTRACT DOCUMENTS AND THE CONFORMED SET, THE CONTRACT DOCUMENTS SHALL PREVAIL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND REVIEWING ALL ADDENDUMS AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND REVIEWING ALL CONTRACT DOCUMENTS. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

CUMRU FIRE DEPARTMENT 1775 WELSH ROAD MOHNTON, PA 19540

Table with 3 columns: NO., DESCRIPTION, DATE. Row 1: 2 - ADDENDUM 2, 1/5/2024.

PROJECT 18-036 PROJECT BID SET DATE 11/30/2023

DRAWING PANEL SCHEDULE

SHEET E603

Panel: MP3 LOCATION: ELEC. 118 MOUNTING: Surface MAINS RATING: 400 A MOUNTING: Surface MAINS TYPE: MCB VOLTAGE: 120/208 3Ø 4W AIC RATING: 42KA

Panel: LS2 LOCATION: ELEC. 141 MOUNTING: Surface MAINS RATING: 60 A MOUNTING: Surface MAINS TYPE: MCB VOLTAGE: 120/208 3Ø 4W AIC RATING: 14KA

Panel: RP3 LOCATION: ELEC. 118 MOUNTING: Surface MAINS RATING: 225 A MOUNTING: Surface MAINS TYPE: MCB VOLTAGE: 120/208 3Ø 4W AIC RATING: 14KA

Panel: RP1 LOCATION: ELEC. 141 MOUNTING: Surface MAINS RATING: 400 A MOUNTING: Surface MAINS TYPE: MCB VOLTAGE: 120/208 3Ø 4W AIC RATING: 18KA

Panel: RP2 LOCATION: ELEC. 141 MOUNTING: Surface MAINS RATING: 225 A MOUNTING: Surface MAINS TYPE: MLO VOLTAGE: 120/208 3Ø 4W AIC RATING: 14KA

## Firehouse Alerting Project Notes

### Electrical Contractor Scope of Work:

1. Provide permit if needed
2. Provide wire
3. Provide wire runs per NFPA 70 code
4. All wire runs to be clearly tagged & labeled
5. Provide all wiring materials (hangars, conduit, surface mold, wire ties, boxes, etc...)
6. Provide high voltage electrical relay connections if needed
7. Provide other high voltage connections if needed
8. Provide electrical power where needed (dedicated/undedicated)
9. Provide complete system installation (including head end equipment)
10. Provide as-built drawings after installation
11. Provide 1 year of warranty on labor
12. Provide an on-site representative when final connections are made

### APS Scope of Work:

1. Provide shop drawings of field devices
2. Provide system components
3. Provide technical support to electrical contractor: 410-239-4644
4. Provide all programming and calibrations
5. Provide end user training
6. Provide 1 year of system warranty – Elect. Cont. may assist APS for payment to make repairs/replacements as needed

### Wire Specifications:

*Honeywell:*

#### Non-Plenum

Product Number	Connectors	Color	Length
11251009	16/2 STR	Gray	1000'
11261009	16/4 STR	Gray	1000'
12145509	18/2 STR OAS	Gray	500'
11201009	18/6 STR	Gray	1000'
63602102	CAT6	Yellow	1000'
53921001	CAT6 OAS	White	1000'

#### Plenum

Product Number	Connectors	Color	Length
31211112	16/2 STR	White	1000'
31225512	16/4 STR	White	500'
32145512	18/2 STR OAS	Gray	500'
31165512	18/6 STR	Gray	500'
63611102	CAT6	Yellow	1000'
53921001	CAT6 OAS	White	1000'

### Speaker Information:

Speaker Type	Common Wire Color	70V Wire Color	Wattage
8" Round CSS8008 Ceiling Speaker	Black	Brown	2.5
Exterior Loudspeaker		Switch Position 4	7.5
SM4T Bathroom Speaker		Rotary Switch w/ Jumper set to 70V	1.0
MB8TSL Metal Wall Mount Speaker	Black	Green	2.0
Soundsphere Speaker	Black	Purple	7.5

LED Speaker Type	Common Audio	70V Audio	LED Common Wire	LED Power
8" Round CSS8008 Ceiling Speaker	Black	Brown	Black	Red

### Wire Length to leave in boxes for device connection: 16"

### Wire Terminations:

CAT6 Cables = RJ45 Class B connections

### Mounting heights:

All are A.F.F. to bottom of the box  
 LCDs, LEDs, and power outlets - 80"  
 Apparatus Bay LCDs & power outlets - 95"  
 Volume Controls, Alert Selectors, Resets, & Who's In Reader - 48"  
 APS IP alerting controller – Dimensions 18" high, 15" wide, 4 1/2" deep - 48 inches A.F.F.  
 Bogen #MB8STL wall mount speaker 11 5/8" X 11 5/8" - 78 inches A.F.F. to bottom of speaker  
 Exterior Speaker shall be hung under soffit where possible  
 Apparatus bay speakers to be hung 16' A.F.F.  
 Gas disconnect – located at the solenoid

### Device Wire Size

All speakers (except LED speakers), and LED Clusters = 16/2 STR  
 Reset Buttons, Doorbells = 18/2 STR OAS  
 LED Speakers, Volume Controls = 16/4 STR  
 Stove Resets = 18/2 STR OAS & 16/2 STR  
 Gas Shutoffs and Stove Shutoffs = 16/2 STR  
 Stacklights = 18/6 STR  
 Toggle Alert Selectors = 16/4 STR or 16/2 STR  
 Momentary Alert Selectors = 18/2 STR OAS, one wire per button on the gang plate  
 CAD LCD Displays, Notifier Modules, and Scrolling LEDs = Cat6 (not to exceed 300')  
 RIB Relays (Lighting) = 16/2 STR  
 Who's In Main Reader – Cat6 (not to exceed 300')  
 Who's In Remote Reader – 22/6  
 RGB LED Clusters= 16/4 STR <25' between lightheads and <25' to Notifier Module (no more than 2 lightheads per Notifier Module)

### Zones:

All devices in the following areas need to be zoned as follows:

Homeruns from the following general areas:  
 Bunkrooms, Common Areas, Apparatus Bay, Exterior Speakers

Supplied Drawings take precedence over the above

### Required boxes:

35w volume control – Double gang 3" deep box  
 10w volume control – Single gang 3" deep box  
 Reset button – Single gang 3" deep box  
 Alert selector – Single gang 3" deep box  
 Stove reset – Single gang 3" deep box  
 Doorbells- Single gang 3" deep box  
 Who's In Remote Reader - Double gang 3" deep box

### GENERAL NOTES

1. THE DIAGRAMS AND SPECIFICATIONS ARE NOT INTENDED TO BE LIMITING OR RESTRICTIVE TO A PARTICULAR VENDOR. HOWEVER, DUE TO THE COORDINATION REQUIRED AND OPERATIONAL FUNCTIONALITY OF THE SYSTEMS, A BASIS OF DESIGN PRODUCT(S) WAS CHOSEN TO BE DESIGNED AND ENGINEERED AROUND. DUE TO THE COMPLEXITIES AND INTEGRATION OF THE SYSTEMS CHOSEN IT WILL BE THE RESPONSIBILITY OF ANY OTHER VENDOR/MANUFACTURER OF A COMPARABLE SYSTEM OR PRODUCT TO BARE THE COSTS AND RESPONSIBILITIES ASSOCIATED WITH ANY AND ALL RE-ENGINEERING OR RE-DESIGNING REQUIRED AS A RESULT OF UTILIZING THE COMPARABLE SYSTEM. THESE COSTS MAY INCLUDE BUT ARE NOT LIMITED TO, A/E FEES AND ASSOCIATED COSTS, MATERIAL, AND LABOR FOR ADDITIONAL UPGRADES TO ANY BUILDING SYSTEMS REQUIRED, AND MATERIAL AND LABOR COSTS FOR ADDITIONAL CONSTRUCTION REQUIRED.

IF A PROSPECTIVE COMPUTER AIDED DISPATCH SYSTEM VENDOR WISHES TO PROVIDE ALTERNATE SYSTEMS TO THE ONES LISTED HEREIN, A WRITTEN REQUEST SHALL BE SUBMITTED TO THE OWNER'S TECHNICAL REPRESENTATIVE. REQUESTS SHALL BE SUBJECT TO THE REQUIREMENTS OF THE PROCUREMENT SUBSTITUTION PROCEDURES SECTION OF THE SPECIFICATIONS.

2. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

3. ALL EXPOSED UTILITIES, CAD ALERTING DEVICES, IN ADDITION BUT NOT LIMITED TO, PIPES, DUCTS, CONDUITS, WORK BOXES, DEVICES, AND OTHER ASSOCIATED UTILITY ITEMS MOUNTED WITHIN CORRIDOR 131'S CEILING SHALL BE PAINTED TO MATCH CEILINGS OR HAVE A MATCHING FACTORY FINISH. MECHANICAL, PLUMBING, ELECTRICAL, AND GENERAL CONTRACTORS SHALL PROVIDE COORDINATED SHOP DRAWINGS OF ALL MEP RELATED ITEMS AND ASSOCIATED MOUNTING HEIGHTS THAT ARE TO OCCUR WITHIN CORRIDOR 131'S AREA.

4. ELECTRICAL PRIME TO PROVIDE ALL ELECTRICAL WIRING INCLUDING TO BUT NOT LIMITED TO, GENERAL POWER SUPPLY, LOW VOLTAGE COMMUNICATIONS, A/V, DATA WIRING/CABLING, AND ALL WIRING ASSOCIATED WITH THE BUILDING ACCESS CONTROL SYSTEM, CAD ALERTING SYSTEM, AND CCTV SYSTEM TO BE RUN IN EXPOSED AREAS THROUGH APPARATUS BAY, MEZZANINE CEILINGS, UNDERSIDE OF MEZZANINE DECKS AND CORRIDOR 131, SHALL BE IN METAL CONDUIT PAINTED TO MATCH DECK ABOVE.

## CONTROLLER WIRING

### INPUTS

- I1 = RF FIRE
- I2 = RF EMS
- I3 = Front Doorbell
- I4 = Side Doorbell
- I5 = Fitness Medical Emergency
- I6 = Master Reset
- I7 = Manual Alert Fire
- I8 = Manual Alert EMS
- I9 = Stove Reset
- I10 = NOT USED
- I11 = NOT USED
- I12 = NOT USED
- I13 = NOT USED
- I14 = NOT USED
- I15 = AC Supervisory
- I16 = Battery Supervisory

### OUTPUTS

- O1 = Apparatus Bay Vol Ctrl
- O2 = Fire Alert
- O3 = EMS Alert
- O4 = Specialty Alert
- O5 = Bunkroom Vol Ctrl / LEDs
- O6 = 1<sup>st</sup> Floor Vol Ctrls
- O7 = Common Vol Ctrl
- O8 = Chief's Office Vol Ctrl
- O9 = Red strobe
- O10 = Blue Strobe
- O11 = NOT USED
- O12 = NOT USED
- O13 = NOT USED
- O14 = Dry Contact
- O15 = Supervisory Relay
- O16 = Stove Disconnect
- O17 = Stove Disconnect Lamp

SEAL:

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ARCHITECT UNDER THE LAWS OF THE STATE OF PENNSYLVANIA. LICENSE NUMBER: #6405311 EXPIRATION DATE: 6/30/2023

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS, BOTH THE DRAWINGS AND THE PROJECT MANUAL AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDUM 1A. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS, WHICH CONSIST OF THE BID DOCUMENTS, DRAWINGS, AND SPECIFICATIONS, ALL ADDENDA, AND THE OWNER'S ACCEPTED BID ALTERNATES AND CONTINGENCES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

CUMRU FIRE DEPARTMENT  
 1775 WELSH ROAD  
 MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

PROJECT NUMBER:  
 18-036  
 PROJECT SET:  
 BID SET  
 DATE ISSUED:  
 11/30/2023

DRAWING TITLE:  
 COVER SHEET

SHEET NUMBER:  
**AL-100**

SEAL:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ARCHITECT UNDER THE LAWS OF THE STATE OF PENNSYLVANIA. LICENSE NUMBER: #84625311 EXPIRATION DATE: 6/30/2023

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS (BOTH THE DRAWINGS AND THE PROJECT MANUAL) AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDITION TO THE CONTRACT DOCUMENTS, WHICH CONSIST OF THE BID DOCUMENTS, DRAWINGS, SPECIFICATIONS, ALL ADDENDA, AND THE OWNER'S ACCEPTED BID ALTERNATES AND CONTINGENCES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

CUMRU FIRE DEPARTMENT  
1775 WELSH ROAD  
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

PROJECT NUMBER:  
18-036  
PROJECT SET:  
BID SET  
DATE ISSUED:  
11/30/2023

DRAWING TITLE:  
GENERAL REQUIREMENTS

SHEET NUMBER:  
**AL-101**

11/28/2023 3:40:41 PM

**GENERAL NOTES**

1. THE DIAGRAMS AND SPECIFICATIONS ARE NOT INTENDED TO BE LIMITING OR RESTRICTIVE TO A PARTICULAR VENDOR. HOWEVER, DUE TO THE COORDINATION REQUIRED AND OPERATIONAL FUNCTIONALITY OF THE SYSTEMS, A BASIS OF DESIGN PRODUCT(S) WAS CHOSEN TO BE DESIGNED AND ENGINEERED AROUND. DUE TO THE COMPLEXITIES AND INTEGRATION OF THE SYSTEMS CHOSEN IT WILL BE THE RESPONSIBILITY OF ANY OTHER VENDOR/MANUFACTURER OF A COMPARABLE SYSTEM OR PRODUCT TO BARE THE COSTS AND RESPONSIBILITIES ASSOCIATED WITH ANY AND ALL RE-ENGINEERING OR RE-DESIGNING REQUIRED AS A RESULT OF UTILIZING THE COMPARABLE SYSTEM. THESE COSTS MAY INCLUDE BUT ARE NOT LIMITED TO, AVE FEES AND ASSOCIATED COSTS, MATERIAL, AND LABOR FOR ADDITIONAL UPGRADES TO ANY BUILDING SYSTEMS REQUIRED, AND MATERIAL AND LABOR COSTS FOR ADDITIONAL CONSTRUCTION REQUIRED.

IF A PROSPECTIVE COMPUTER AIDED DISPATCH SYSTEM VENDOR WISHES TO PROVIDE ALTERNATE SYSTEMS TO THE ONES LISTED HEREIN, A WRITTEN REQUEST SHALL BE SUBMITTED TO THE OWNERS TECHNICAL REPRESENTATIVE. REQUESTS SHALL BE SUBJECT TO THE REQUIREMENTS OF THE PROCUREMENT SUBSTITUTION PROCEDURES SECTION OF THE SPECIFICATIONS.

2. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

3. ALL EXPOSED UTILITIES, CAD ALERTING DEVICES, IN ADDITION BUT NOT LIMITED TO, PIPES, DUCTS, CONDUITS, WORK BOXES, DEVICES, AND OTHER ASSOCIATED UTILITY ITEMS MOUNTED WITHIN CORRIDOR 131'S CEILING SHALL BE PAINTED TO MATCH CEILING OR HAVE A MATCHING FACTORY FINISH. MECHANICAL, PLUMBING, ELECTRICAL, AND GENERAL CONTRACTORS SHALL PROVIDE COORDINATED SHOP DRAWINGS OF ALL MEP RELATED ITEMS AND ASSOCIATED MOUNTING HEIGHTS THAT ARE TO OCCUR WITHIN CORRIDOR 131'S AREA.

4. ELECTRICAL PRIME TO PROVIDE ALL ELECTRICAL WIRING INCLUDING TO BUT NOT LIMITED TO, GENERAL POWER SUPPLY, LOW VOLTAGE COMMUNICATIONS, A/V, DATA WIRING/CABLING, AND ALL WIRING ASSOCIATED WITH THE BUILDING ACCESS CONTROL SYSTEM, CAD ALERTING SYSTEM, AND CCTV SYSTEM TO BE RUN IN EXPOSED AREAS THROUGH APPARATUS BAY, MEZZANINE CEILING, UNDERSIDE OF MEZZANINE DECKS AND CORRIDOR 131. SHALL BE IN METAL CONDUIT PAINTED TO MATCH DECK ABOVE.

- b. Non-emergency information that shall be displayed will include: incident history, announcements, weather mapping, and last incident dispatched information. The System shall have the capability to display advanced and custom non-emergency information to include: weather and traffic information, IP cameras (station or highway cameras), global panes that can be shared among multiple stations, and shared panes where information can be entered manually and shared with all stations. Non-Emergency screens shall be capable of displaying up to six panes of standard or customized information.
- c. Emergency information that is provided by the customer's CAD system and required by the customer shall be displayed. The System shall be capable to display advanced emergency information such as: response mapping with geocoding and water sources and road closures. Emergency screens shall be capable of being manually programmed to time-out after a customer determined time period and return to non-emergency display status.
- d. Single or multi-line LED displays shall be capable of displaying emergency alert or non-emergency information. LED displays shall be capable of displaying a custom static message.

- 9. Fire Station Zoning
  - a. The System shall provide for fire station zoning such that portions of a fire station can be alerted without alerting the entire fire station.

- 10. Alerting Resets
  - a. The System shall have the ability to provide a means to reset all station speakers or zones, lighting and relay activation, while maintaining the ability to be overridden by the receipt of a subsequent dispatch alert.
  - b. All reset switches shall be identifiable with a custom label.

- H. Alerting System Configuration**
  - 1. The System shall be centrally managed. Both the vendor and the customer's administrators shall have full control access.
  - 2. Authorized administrators shall be able to control, configure and update the System on a browser from any web-enabled device. In addition, manual alerting shall be available from a browser from any web-enabled device.

- I. Training and System Manuals**
  - 1. System maintenance, programming and troubleshooting training shall be provided for the customer's technical staff.
  - 2. Digital copies of all technical documents, user manuals, and any training materials required for the operation of the System shall be provided.

- J. Components**
  - 1. Preference will be given to the solution that allows for the easiest upgrading, replacement, and adding of components. Equipment shall be non-proprietary for ease of replacement.
  - 2. Any electronic components such as servers, amplifiers, and other similar equipment shall have the ability to be mounted in a rack.
  - 3. All field devices shall be available for replacement within 24 hours by department or qualified personnel.

- K. Warranties and Support Agreements**
  - 1. Describe warranty provided as well as length of warranty.
  - 2. Describe extended yearly warranties available and their cost.
  - 3. Specify your twenty-four hour a day, seven days a week software support capabilities.
  - 4. Specify your eight hours a day, five days a week software support capabilities. Specify in pricing sheet, pricing for single year support and for five-year support.

- L. Training**
  - 1. System maintenance, programming and trouble-shooting training shall be provided for the customer's technical staff.

- announcements. The System shall also display emergency incident CAD information on dispatch alert.
- 6. The customer shall provide each fire station with a dedicated base station radio and speaker for monitoring the primary dispatch audio. Each base radio shall be connected to a station public address amplifier whose sole purpose is for the broadcast of a dispatch, nonemergency or general announcements. The System solution shall be able to provide audio through the fire station public address system only when activated for the specific station and certain zones of that station.
- 7. The System shall provide an audible alert tone and can separately identify the units and incident type that is being dispatched. The System shall be able to support a minimum of six customized tones so that different tones can be used to indicate the individual unit for the alert notification. The System shall be capable of announcing the incident address as an option.

- G. Fire Station Alerting**
  - 1. Speakers
    - a. Commercial, non-proprietary ceiling (with ceiling bridge assemblies) and wall-mounted speakers shall be provided for audible alerting over the fire station's public address system. Speaker shall provide 70V Taps (5W, 2.5W, 1.3W, 0.7W) External speakers shall be capable of being controlled through a timing circuit.
    - b. Speakers shall produce a clear, understandable sound (voice and tone) throughout the space for the area where it is installed.
    - c. Omni-directional speakers shall be used for interior apparatus bay audio. These speakers shall be capable of being hung directly from the ceiling and can be used to distribute clean audio to an entire apparatus bay.

- 2. Relay Controls and Inputs
  - a. The System shall provide a minimum of 16 inputs and 16 relay contacts for the purpose of controlling external switched functions. These relays shall be able to be energized for a configurable period of time upon receipt of an alert. The outputs shall be configurable as normally open or normally closed contact closures.

- 3. Appliance Controls
  - a. The System shall be able to provide relay contact closure to control gas or electric stoves, ovens, and other user defined appliances when an alert is received.
- 4. Doorbells
  - a. The System shall be capable of connecting doorbells that will announce the location over the fire station's public address system.

- 5. Room and Area Selector Switches
  - a. The System shall be capable of providing an alert selector mounted in a single-gang box to allow station personnel to appropriately zone the alerting for their room or area. The alert selector shall be able to select from one to six types of alerts.
- 6. Volume Control
  - a. The System shall be configurable for time-of-day (day/night) control.
  - b. The System shall be capable of sensing ambient noise to automatically adjust the speaker volume for noise compensation if required by the customer.
  - c. All volume controls shall include an override relay that will provide maximum volume when there is an alert. Volume controls shall be in 10-watt (single gang) or 35-watt (double gang) boxes.

- 7. LED and Other Lighting
  - a. The System shall provide for a variety of LED visual alert lighting. A minimum of five colors shall be available that will be associated with different apparatus alerting requirements. The basic colors that shall be provided are: green, red, blue, amber, and purple.
  - b. A LED lighting cluster shall be provided as required. The LED cluster shall be capable of being ceiling or wall-mounted. The LED cluster will include a 5-second ramp up function.
  - c. A LED speaker light shall be provided as required. The LED speaker light shall include one, 12VDC LED light fixture to be activate during an alert. The LED speaker light shall include multiple wattage 25V/70V speaker taps and include a 5-second ramp up function.
  - d. A multi-colored custom alerting LED light shall be provided as required. The LED light shall be capable of cycling through a custom set of colors associated with specific apparatus alerting. This light shall be capable of being ceiling or wall-mounted and connected to the System using CAT5 PoE.
  - e. The System shall provide for the use of individual colored strobe or modular stack lighting that is customizable based upon customer requirements. Strobe lighting colors shall be available in Red, Blue, Yellow, or Clear. Stack lighting colors shall be available in Green, Red, Blue, Amber, or Clear.

- 8. Visual Displays
  - a. The System shall have the capability to display emergency and non-emergency information on LCD displays. The size and location of the LCD displays shall be specified by the customer.

- A. General Requirements**
  - 1. All work shall be performed in accordance with national, State and local electrical and/or building codes.
  - 2. All critical components of the System shall be supported by an uninterruptible power supply.
  - 3. The System shall be capable of providing a scalable fire station alerting system that is compatible with non-proprietary industry standard products.

- B. NFPA 1221 Compliance**
  - 1. The System's components, control, and operation shall comply with NFPA 1221 as it applies to a standalone fire station alerting system.
  - 2. The System and its components shall comply with NFPA 1221 when a dispatch server and station controller are implemented.
  - 3. Redundancy to computer aided dispatch (CAD) alerting shall be implemented and utilized in the event of a CAD data delivery failure.

- C. Computer Aided Dispatch Integration**
  - 1. The System shall interface with the customer's CAD system.
  - 2. Samples of CAD alert output  
Incident Number: 1234567....  
Type: Medical  
Priority: 2  
Units: A19 A58  
Date: 10/11/16 08:52  
Box: 111  
Location Name: Walmart...  
Address: 960 Sea Shell Ct  
City: North Beach  
XST: Main St and North Ave.....  
Remarks: subject 250pd alarm.....
  - 3. The System shall be capable of supporting all dispatch messages and general announcements.
  - 4. The System shall have the capability to display CAD incident data (units assigned, incident type, location) to a color display (minimum 24-inch diagonal) located at customer required locations in each fire station. The System displays shall be capable of showing a minimum of four panes of non-emergency information. Upon alert, a separate emergency pane shall automatically display, overriding the non-emergency information.

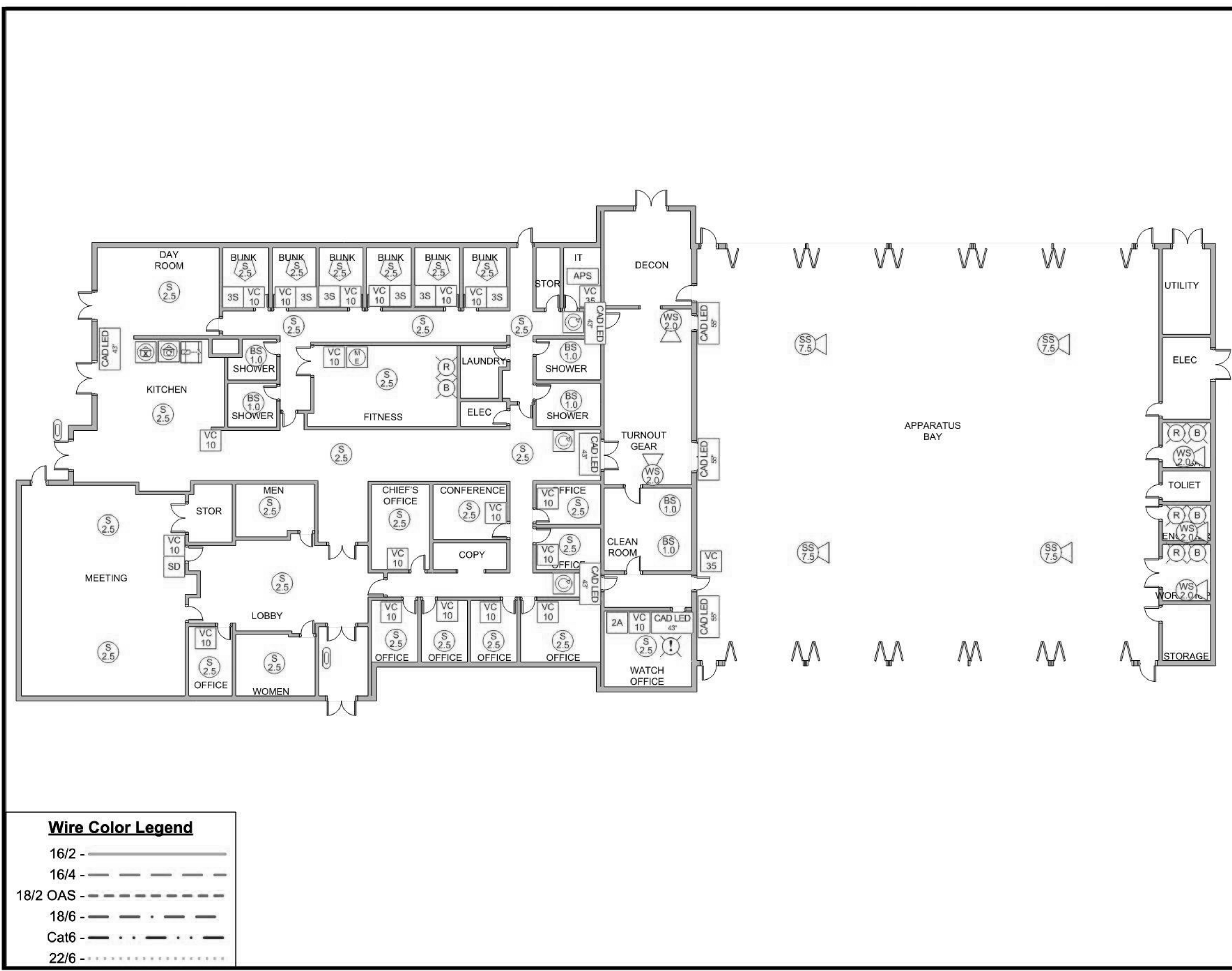
- D. System Monitoring and Recording**
  - 1. The System shall monitor critical power sources. Automatic visual, electronic notification and time-stamped logs shall be generated for loss of critical power and network connections.
  - 2. All alarm transmissions shall be recorded and archived to include date and time of the alarm and be available on the display.
  - 3. System monitored faults or failures shall notify visually and audibly in a prominent fashion that satisfies the visual trouble requirements.
  - 4. The System shall be capable of remotely alerting both customer and vendor support staff of critical events that occur within the alerting system via email, SMS text, or audiovisual annunciation.
  - 5. System controller(s) shall visually and audibly notify fire station personnel of System trouble. The visual trouble indicator shall be located in a common area of the fire station.

- E. Radio Dispatch**
  - 1. The System shall automatically generate an audible dispatch announcement that shall include units assigned, incident type, and incident location.
  - 2. The voice announcement should be human-like, non-synthesized, non-robotic, and easily understood. A sample of voice announcements shall be provided upon request.
  - 3. The System voice database shall have the ability to be upgraded as needed.
  - 4. The System shall have the ability to transmit a specific alert tone generated through the station alerting system based on the unit type.

- F. Fire Station Activation**
  - 1. The System shall receive CAD data via SMTP, TCP/IP or linked database servers. The System shall have remote access via port forwarding or VPN tunnel for system updates / troubleshooting.
  - 2. The System shall have the ability to manually control alerting functions in the event of loss of the CAD link or CAD server.
  - 3. The System shall provide the ability to provide priority to the System alert audio during dispatch alerts.
  - 4. The System shall be a modular design providing a minimum of 16 inputs and 16 outputs to monitor and control external and switched functions. The System shall provide for the control of multiple zones and system resets. The System shall be able to interface with door access, traffic control devices, high voltage lighting and other equipment or appliances.
  - 5. The System shall be capable of displaying non-emergency information on displays that include weather, incident history, last incident information and

SEAL:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ARCHITECT UNDER THE LAWS OF THE STATE OF PENNSYLVANIA. LICENSE NUMBER: #04405311 EXPIRATION DATE: 6/30/2023

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS, BOTH THE DRAWINGS AND THE PROJECT MANUAL AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDUM 1.4. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS, WHICH CONSIST OF THE BID DOCUMENTS, DRAWINGS, SPECIFICATIONS, ALL ADDENDA, AND THE OWNER'S ACCEPTED BID ALTERNATES AND CONTINGENCES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.



Device	Mount
Doorbell	48" AFF
VC 10   VC 35	Volume Control 10 / 35 Watt
3S	3 Button Alert Selector
2A	1 Fire, 2 EMS, 3 Batt. Chief 2 Button Manual Alert
M E	1 Fire, 2 EMS Medical Emergency Alert
C	Reset Button
ST	Stove Reset
SD	Stove Disconnect
S 2.5	8" 70V Speaker, 2.5 Watt
BS 1.0	SM4T Bathroom Speaker, 1.0 Watt
WS 2.0	Wall Speaker, 2.0 Watt
SS 7.5	Soundsphere, 7.5 Watt
S 7.5	External Speaker, 7.5 Watt
S 2.5	8" LED Ceiling Speaker, 2.5 Watt
R B G	Red/Blue/Green Strobe
SD	Alerting Disconnect
WS 2.0	Notifier LED Display
NM	Notifier LED Module
POE	POE Switch for Notifiers
R B	RIB Relay
CAD LED 43"	CAD 43" LED Display
FAST	FAST Server
!	FHA Trouble Strobe
APS	APS IP Controller System

**GENERAL NOTES**

- THE DIAGRAMS AND SPECIFICATIONS ARE NOT INTENDED TO BE LIMITING OR RESTRICTIVE TO A PARTICULAR VENDOR. HOWEVER, DUE TO THE COORDINATION REQUIRED AND OPERATIONAL FUNCTIONALITY OF THE SYSTEMS, A BASIS OF DESIGN PRODUCT(S) WAS CHOSEN TO BE DESIGNED AND ENGINEERED AROUND. DUE TO THE COMPLEXITIES AND INTEGRATION OF THE SYSTEMS CHOSEN IT WILL BE THE RESPONSIBILITY OF ANY OTHER VENDOR/MANUFACTURER OF A COMPARABLE SYSTEM OR PRODUCT TO BARE THE COSTS AND RESPONSIBILITIES ASSOCIATED WITH ANY AND ALL RE-ENGINEERING OR RE-DESIGNING REQUIRED AS A RESULT OF UTILIZING THE COMPARABLE SYSTEM. THESE COSTS MAY INCLUDE BUT ARE NOT LIMITED TO, AVE FEES AND ASSOCIATED COSTS, MATERIAL, AND LABOR FOR ADDITIONAL UPGRADES TO ANY BUILDING SYSTEMS REQUIRED, AND MATERIAL AND LABOR COSTS FOR ADDITIONAL CONSTRUCTION REQUIRED.
- IF A PROSPECTIVE COMPUTER AIDED DISPATCH SYSTEM VENDOR WISHES TO PROVIDE ALTERNATE SYSTEMS TO THE ONES LISTED HEREIN, A WRITTEN REQUEST SHALL BE SUBMITTED TO THE OWNER'S TECHNICAL REPRESENTATIVE. REQUESTS SHALL BE SUBJECT TO THE REQUIREMENTS OF THE PROCUREMENT SUBSTITUTION PROCEDURES SECTION OF THE SPECIFICATIONS.
- SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- ALL EXPOSED UTILITIES, CAD ALERTING DEVICES, IN ADDITION BUT NOT LIMITED TO, PIPES, DUCTS, CONDUITS, WORK BOXES, DEVICES, AND OTHER ASSOCIATED UTILITY ITEMS MOUNTED WITHIN CORRIDOR 131'S CEILING SHALL BE PAINTED TO MATCH CEILING OR HAVE A MATCHING FACTORY FINISH. MECHANICAL, PLUMBING, ELECTRICAL, AND GENERAL CONTRACTORS SHALL PROVIDE COORDINATED SHOP DRAWINGS OF ALL MEP RELATED ITEMS AND ASSOCIATED MOUNTING HEIGHTS THAT ARE TO OCCUR WITHIN CORRIDOR 131'S AREA.
- ELECTRICAL PRIME TO PROVIDE ALL ELECTRICAL WIRING INCLUDING TO BUT NOT LIMITED TO, GENERAL POWER SUPPLY, LOW VOLTAGE COMMUNICATIONS, A/V, DATA WIRING/CABLING, AND ALL WIRING ASSOCIATED WITH THE BUILDING ACCESS CONTROL SYSTEM, CAD ALERTING SYSTEM, AND CCTV SYSTEM TO BE RUN IN EXPOSED AREAS THROUGH APPARATUS BAY, MEZZANINE CEILINGS, UNDERSIDE OF MEZZANINE DECKS AND CORRIDOR 131, SHALL BE IN METAL CONDUIT PAINTED TO MATCH DECK ABOVE.

**Wire Color Legend**

16/2 -	—————
16/4 -	- - - - -
18/2 OAS -	—————
18/6 -	- . - . -
Cat6 -	.....
22/6 -	.....

FIRST FLOOR ALERTING DIAGRAM

CUMRU FIRE DEPARTMENT  
1775 WELSH ROAD  
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

PROJECT NUMBER:  
18-036  
PROJECT SET:  
BID SET  
DATE ISSUED:  
11/30/2023  
DRAWING TITLE:  
ALERTING DIAGRAM  
SHEET NUMBER:  
AL-102

SEAL:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ARCHITECT UNDER THE LAWS OF THE STATE OF PENNSYLVANIA. LICENSE NUMBER: #04405311 EXPIRATION DATE: 6/30/2023

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS, BOTH THE DRAWINGS AND THE PROJECT MANUAL AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDITION TO THE CONTRACT DOCUMENTS. THESE DOCUMENTS SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS, WHICH CONSIST OF THE BID DOCUMENTS, DRAWINGS, SPECIFICATIONS, ALL ADDENDA, AND THE OWNER'S ACCEPTED BID ALTERNATES AND CONTINGENCES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

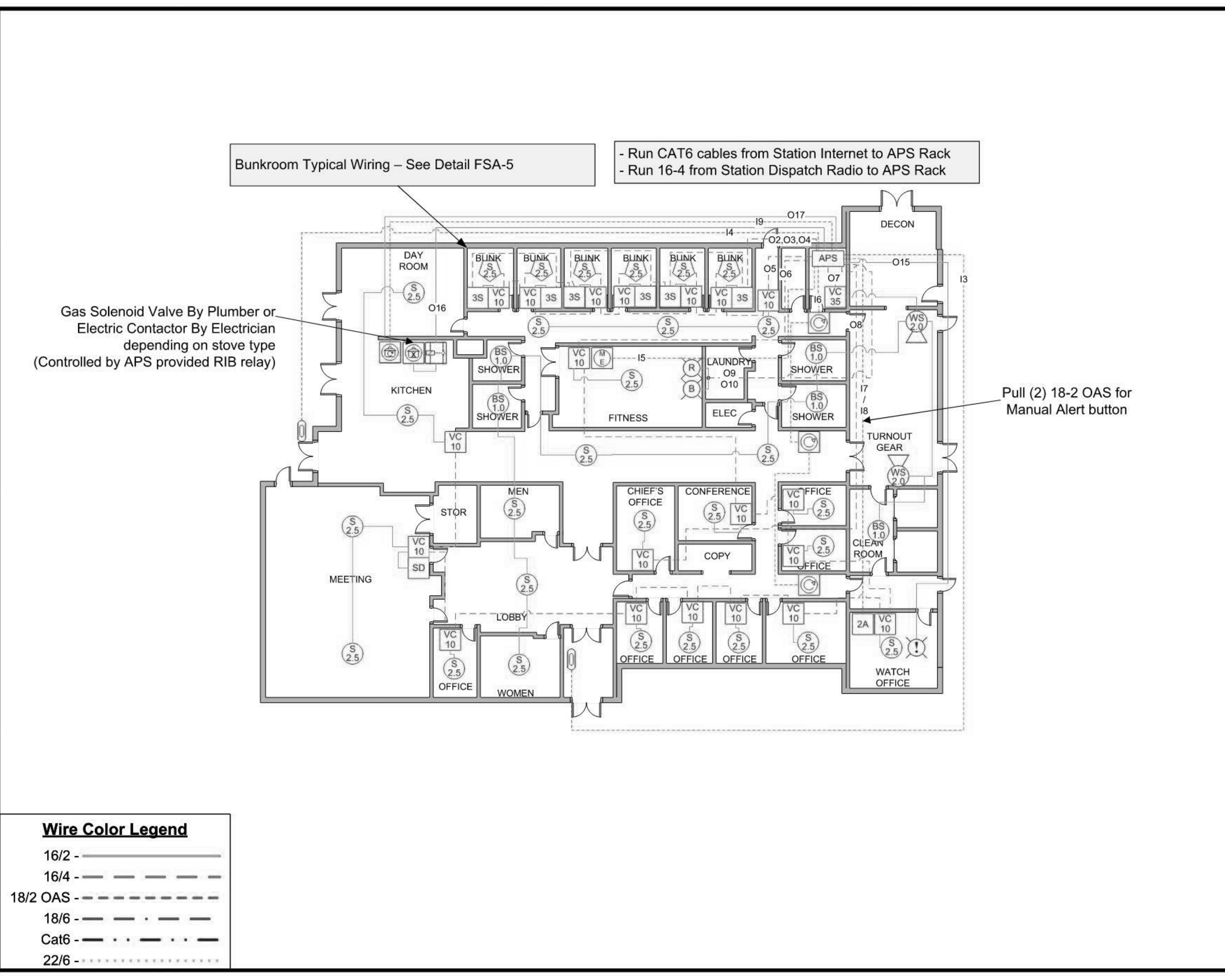
CUMRU FIRE DEPARTMENT  
1775 WELSH ROAD  
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE
PROJECT NUMBER:	18-036	
PROJECT SET:	BID SET	
DATE ISSUED:	11/30/2023	
DRAWING TITLE:	ALERTING WIRING DIAGRAM	
SHEET NUMBER:	AL-103	

Device	Mount
Doorbell	48" AFF
VC 10 35 Volume Control 10 / 35 Watt	48" AFF
3S 3 Button Alert Selector	48" AFF
2A 1 Fire, 2 EMS, 3 Batt. Chief 2 Button Manual Alert	48" AFF
M E 1 Fire, 2 EMS	48" AFF
Medical Emergency Alert	48" AFF
Reset Button	48" AFF
Stove Reset	48" AFF
Stove Disconnect	Located at Solenoid
8" 70V Speaker, 2.5 Watt	Ceiling
BS 1.0 SM4T Bathroom Speaker, 1.0 Watt	Ceiling
WS 2.0 Wall Speaker, 2.0 Watt	78" AFF
SS 7.5 Soundsphere, 7.5 Watt	192" AFF
S 7.5 External Speaker, 7.5 Watt	Under Soffit
S 2.5 8" LED Ceiling Speaker, 2.5 Watt	Ceiling
R B G Red/Blue/Green Strobe	Ceiling
SD Alerting Disconnect	78" AFF
Notifier LED Display	Ceiling
NM Notifier LED Module	Above Ceiling
POE POE Switch for Notifiers	Rack
RIB Relay	Above Ceiling
CAD 43" LED Display	78" AFF* See FHA Notes
FAST FAST Server	Rack
FHA Trouble Strobe	Ceiling
APS APS IP Controller System	Rack

**GENERAL NOTES**

- THE DIAGRAMS AND SPECIFICATIONS ARE NOT INTENDED TO BE LIMITING OR RESTRICTIVE TO A PARTICULAR VENDOR. HOWEVER, DUE TO THE COORDINATION REQUIRED AND OPERATIONAL FUNCTIONALITY OF THE SYSTEMS, A BASIS OF DESIGN PRODUCT(S) WAS CHOSEN TO BE DESIGNED AND ENGINEERED AROUND. DUE TO THE COMPLEXITIES AND INTEGRATION OF THE SYSTEMS CHOSEN IT WILL BE THE RESPONSIBILITY OF ANY OTHER VENDOR/MANUFACTURER OF A COMPARABLE SYSTEM OR PRODUCT TO BARE THE COSTS AND RESPONSIBILITIES ASSOCIATED WITH ANY AND ALL RE-ENGINEERING OR RE-DESIGNING REQUIRED AS A RESULT OF UTILIZING THE COMPARABLE SYSTEM. THESE COSTS MAY INCLUDE BUT ARE NOT LIMITED TO, AVE FEES AND ASSOCIATED COSTS, MATERIAL, AND LABOR FOR ADDITIONAL UPGRADES TO ANY BUILDING SYSTEMS REQUIRED, AND MATERIAL AND LABOR COSTS FOR ADDITIONAL CONSTRUCTION REQUIRED.
- IF A PROSPECTIVE COMPUTER AIDED DISPATCH SYSTEM VENDOR WISHES TO PROVIDE ALTERNATE SYSTEMS TO THE ONES LISTED HEREIN, A WRITTEN REQUEST SHALL BE SUBMITTED TO THE OWNERS TECHNICAL REPRESENTATIVE. REQUESTS SHALL BE SUBJECT TO THE REQUIREMENTS OF THE PROCUREMENT SUBSTITUTION PROCEDURES SECTION OF THE SPECIFICATIONS.
- SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- ALL EXPOSED UTILITIES, CAD ALERTING DEVICES, IN ADDITION BUT NOT LIMITED TO, PIPES, DUCTS, CONDUITS, WORK BOXES, DEVICES, AND OTHER ASSOCIATED UTILITY ITEMS MOUNTED WITHIN CORRIDOR 131'S CEILING SHALL BE PAINTED TO MATCH CEILING OR HAVE A MATCHING FACTORY FINISH. MECHANICAL, PLUMBING, ELECTRICAL, AND GENERAL CONTRACTORS SHALL PROVIDE COORDINATED SHOP DRAWINGS OF ALL MEP RELATED ITEMS AND ASSOCIATED MOUNTING HEIGHTS THAT ARE TO OCCUR WITHIN CORRIDOR 131'S AREA.
- ELECTRICAL PRIME TO PROVIDE ALL ELECTRICAL WIRING INCLUDING TO BUT NOT LIMITED TO, GENERAL POWER SUPPLY, LOW VOLTAGE COMMUNICATIONS, A/V, DATA WIRING/CABLING, AND ALL WIRING ASSOCIATED WITH THE BUILDING ACCESS CONTROL SYSTEM, CAD ALERTING SYSTEM, AND CCTV SYSTEM TO BE RUN IN EXPOSED AREAS THROUGH APPARATUS BAY, MEZZANINE CEILINGS, UNDERSIDE OF MEZZANINE DECKS AND CORRIDOR 131, SHALL BE IN METAL CONDUIT PAINTED TO MATCH DECK ABOVE.



**Wire Color Legend**

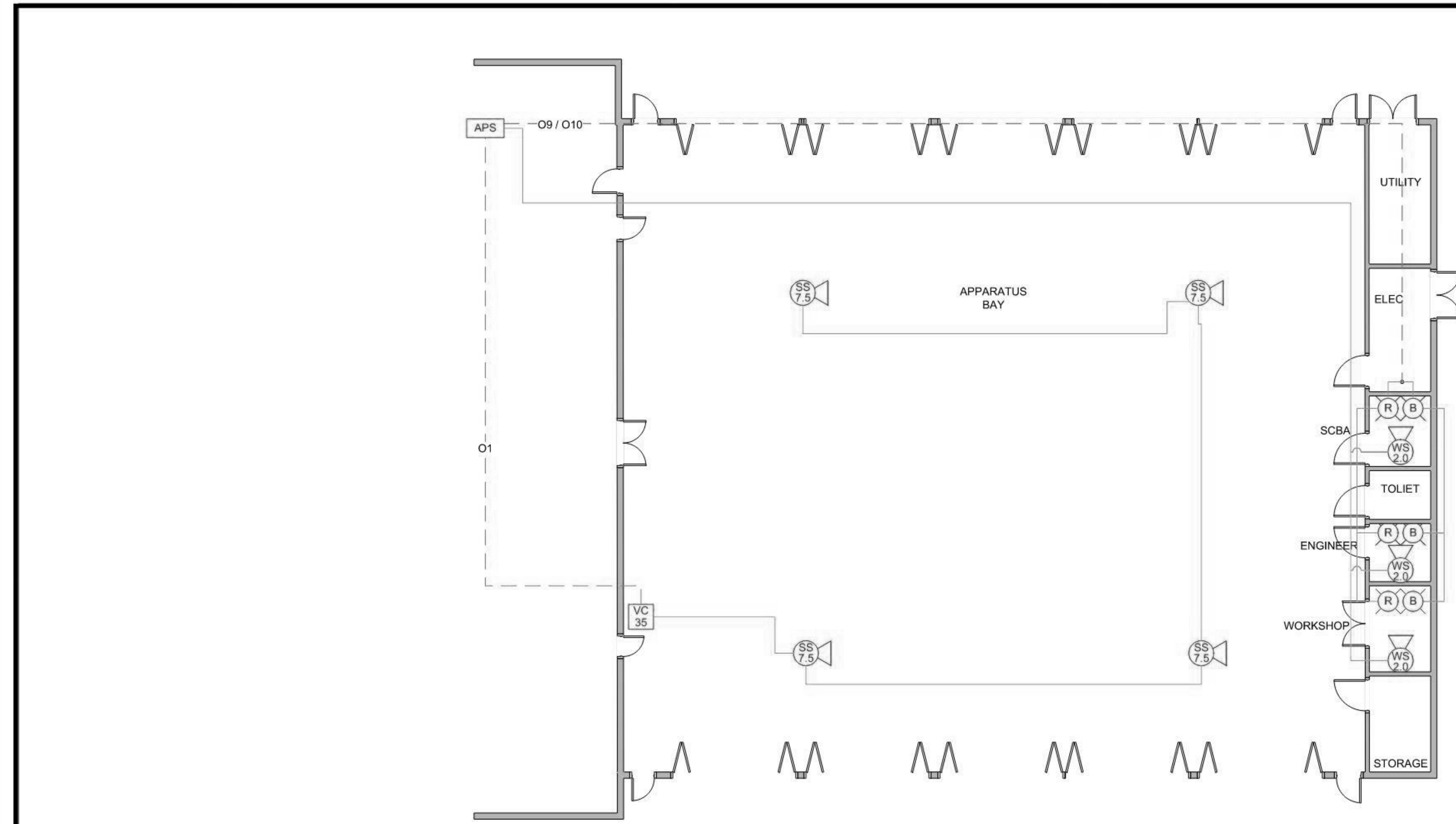
16/2 -	—————
16/4 -	—————
18/2 OAS -	—————
18/6 -	—————
Cat6 -	—————
22/6 -	—————

FIRST FLOOR ALERTING WIRING DIAGRAM

11/28/2023 3:40:43 PM

SEAL:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ARCHITECT UNDER THE LAWS OF THE STATE OF PENNSYLVANIA. LICENSE NUMBER: #6405311 EXPIRATION DATE: 6/30/2023

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS, BOTH THE DRAWINGS AND THE PROJECT MANUAL AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ADDENDUM 1A. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS, WHICH CONSIST OF THE BID DOCUMENTS, DRAWINGS, SPECIFICATIONS, ALL ADDENDA, AND THE OWNER'S ACCEPTED BID ALTERNATES AND CONTINGENCES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.



Device	Mount
Doorbell	48" AFF
Volume Control 10 / 35 Watt	48" AFF
3 Button Alert Selector	48" AFF
2 Fire, 2 EMS, 3 Batt. Chief 2 Button Manual Alert	48" AFF
1 Fire, 2 EMS Medical Emergency Alert	48" AFF
Reset Button	48" AFF
Stove Disconnect	Located at Solenoid
8" 70V Speaker, 2.5 Watt	Ceiling
SM4T Bathroom Speaker, 1.0 Watt	Ceiling
Wall Speaker, 2.0 Watt	78" AFF
Soundsphere, 7.5 Watt	192" AFF
External Speaker, 7.5 Watt	Under Soffit
8" LED Ceiling Speaker, 2.5 Watt	Ceiling
Red/Blue/Green Strobe	Ceiling
Alerting Disconnect	78" AFF
Notifier LED Display	Ceiling
Notifier LED Module	Above Ceiling
POE Switch for Notifiers	Rack
RIB Relay	Above Ceiling
CAD 43" LED Display	78" AFF* See FHA Notes
FAST Server	Rack
FHA Trouble Strobe	Ceiling
APS IP Controller System	Rack

**Wire Color Legend**

16/2 -	—————
16/4 -	-----
18/2 OAS -	- - - - -
18/6 -	— · — · —
Cat6 -	· · · · ·
22/6 -	.....

**GENERAL NOTES**

- THE DIAGRAMS AND SPECIFICATIONS ARE NOT INTENDED TO BE LIMITING OR RESTRICTIVE TO A PARTICULAR VENDOR. HOWEVER, DUE TO THE COORDINATION REQUIRED AND OPERATIONAL FUNCTIONALITY OF THE SYSTEMS, A BASIS OF DESIGN PRODUCT(S) WAS CHOSEN TO BE DESIGNED AND ENGINEERED AROUND. DUE TO THE COMPLEXITIES AND INTEGRATION OF THE SYSTEMS CHOSEN IT WILL BE THE RESPONSIBILITY OF ANY OTHER VENDOR/MANUFACTURER OF A COMPARABLE SYSTEM OR PRODUCT TO BARE THE COSTS AND RESPONSIBILITIES ASSOCIATED WITH ANY AND ALL RE-ENGINEERING OR RE-DESIGNING REQUIRED AS A RESULT OF UTILIZING THE COMPARABLE SYSTEM. THESE COSTS MAY INCLUDE BUT ARE NOT LIMITED TO, AVE FEES AND ASSOCIATED COSTS, MATERIAL, AND LABOR FOR ADDITIONAL UPGRADES TO ANY BUILDING SYSTEMS REQUIRED, AND MATERIAL AND LABOR COSTS FOR ADDITIONAL CONSTRUCTION REQUIRED.
- IF A PROSPECTIVE COMPUTER AIDED DISPATCH SYSTEM VENDOR WISHES TO PROVIDE ALTERNATE SYSTEMS TO THE ONES LISTED HEREIN, A WRITTEN REQUEST SHALL BE SUBMITTED TO THE OWNERS TECHNICAL REPRESENTATIVE. REQUESTS SHALL BE SUBJECT TO THE REQUIREMENTS OF THE PROCUREMENT SUBSTITUTION PROCEDURES SECTION OF THE SPECIFICATIONS.
- SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- ALL EXPOSED UTILITIES, CAD ALERTING DEVICES, IN ADDITION BUT NOT LIMITED TO, PIPES, DUCTS, CONDUITS, WORK BOXES, DEVICES, AND OTHER ASSOCIATED UTILITY ITEMS MOUNTED WITHIN CORRIDOR 131'S CEILING SHALL BE PAINTED TO MATCH CEILING OR HAVE A MATCHING FACTORY FINISH. MECHANICAL, PLUMBING, ELECTRICAL, AND GENERAL CONTRACTORS SHALL PROVIDE COORDINATED SHOP DRAWINGS OF ALL MEP RELATED ITEMS AND ASSOCIATED MOUNTING HEIGHTS THAT ARE TO OCCUR WITHIN CORRIDOR 131'S AREA.
- ELECTRICAL PRIME TO PROVIDE ALL ELECTRICAL WIRING INCLUDING TO BUT NOT LIMITED TO, GENERAL POWER SUPPLY, LOW VOLTAGE COMMUNICATIONS, A/V, DATA WIRING/CABLUNG, AND ALL WIRING ASSOCIATED WITH THE BUILDING ACCESS CONTROL SYSTEM, CAD ALERTING SYSTEM, AND CCTV SYSTEM TO BE RUN IN EXPOSED AREAS THROUGH APPARATUS BAY, MEZZANINE CEILINGS, UNDERSIDE OF MEZZANINE DECKS AND CORRIDOR 131, SHALL BE IN METAL CONDUIT PAINTED TO MATCH DECK ABOVE.

FIRST FLOOR ALERTING WIRING DIAGRAM

CUMRU FIRE DEPARTMENT  
1775 WELSH ROAD  
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

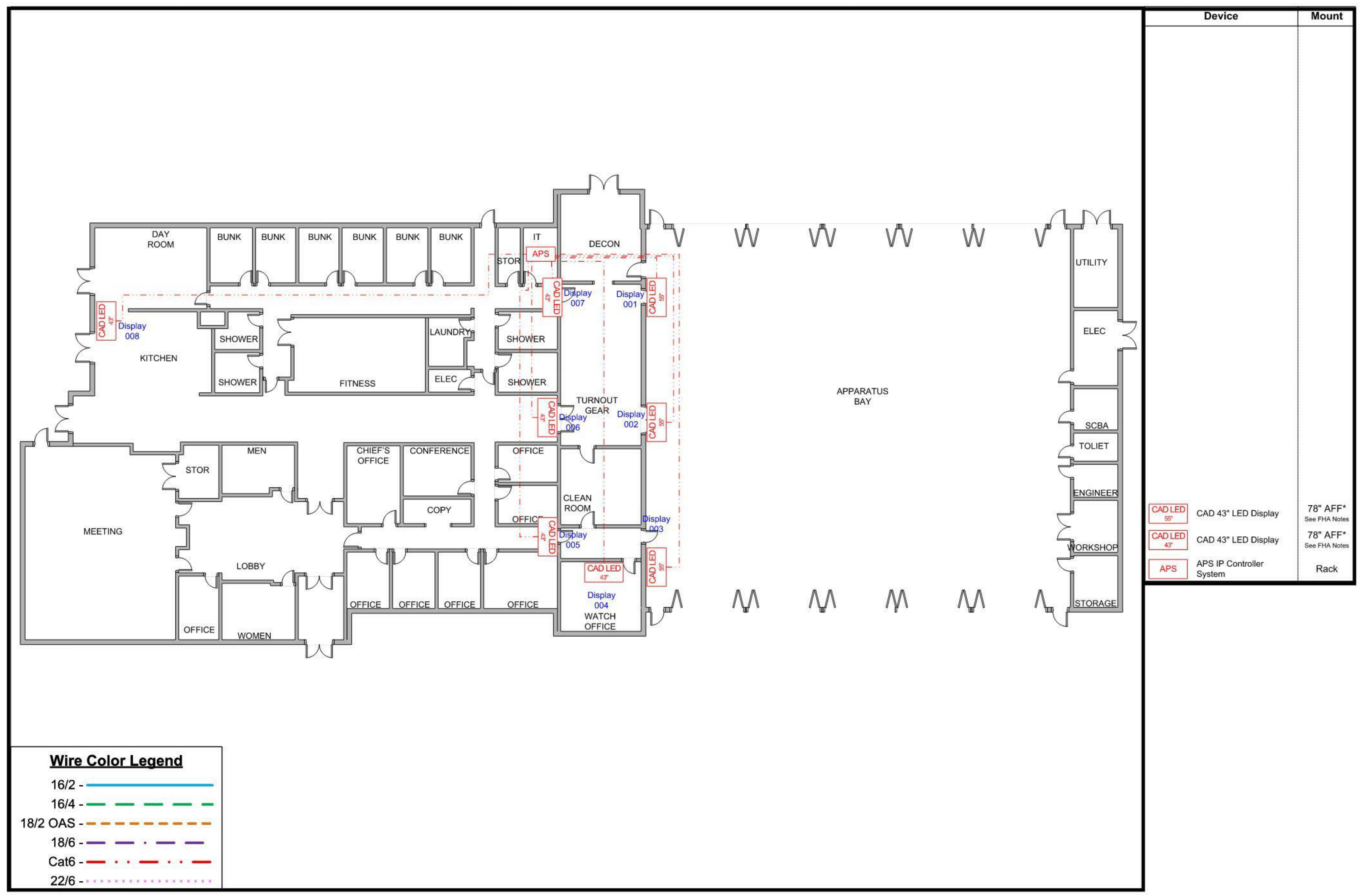
PROJECT NUMBER:  
18-036  
PROJECT SET:  
BID SET  
DATE ISSUED:  
11/30/2023

DRAWING TITLE:  
ALERTING WIRING  
DIAGRAM

SHEET NUMBER:  
AL-104

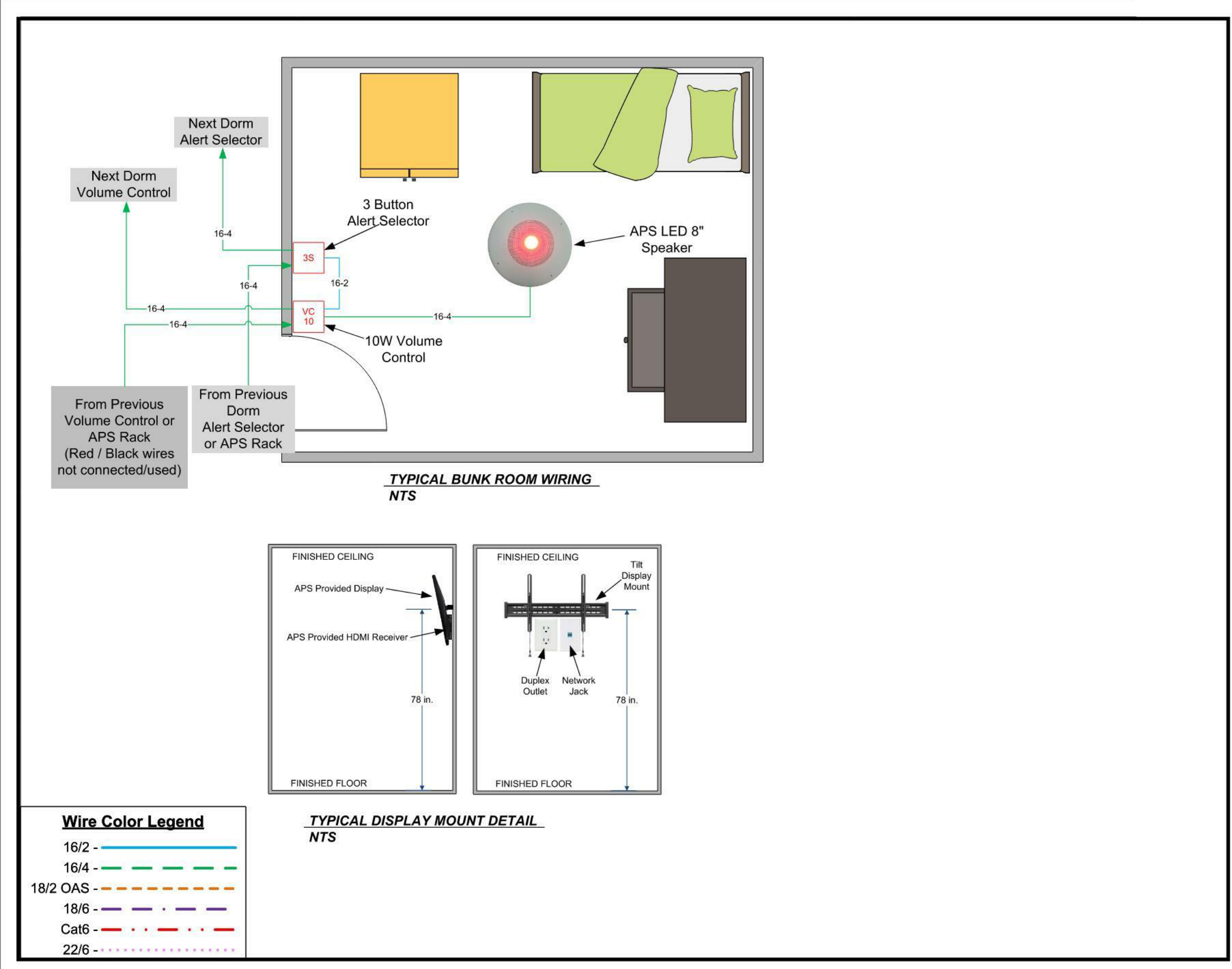
SEAL:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ARCHITECT UNDER THE LAWS OF THE STATE OF PENNSYLVANIA. LICENSE NUMBER: #84625311 EXPIRATION DATE: 6/30/2023

THIS CONFORMED SET IS COMPRISED OF THE ORIGINAL BID DOCUMENTS, BOTH THE DRAWINGS AND THE PROJECT MANUAL AND REVISIONS REFLECTING THE CHANGES TO THE CONTRACT DOCUMENTS MADE IN ACCORDANCE WITH THE CONFORMED SET. THIS CONFORMED SET SHALL BE CONSIDERED SECONDARY AND SUPPLEMENTAL TO THE CONTRACT DOCUMENTS, WHICH CONSIST OF THE BID DOCUMENTS, DRAWINGS, SPECIFICATIONS, ALL ADDENDA, AND THE OWNER'S ACCEPTED BID ALTERNATES AND CONTINGENCES. THIS CONFORMED SET IS PROVIDED AS A CONVENIENCE FROM COMPLIANCE WITH THE FULL REQUIREMENTS OF THE CONTRACT DOCUMENTS.



Device	Mount
CAD LED 67"	CAD 43" LED Display
CAD LED 43"	CAD 43" LED Display
APS	APS IP Controller System
	78" AFF* See F1A Notes
	78" AFF* See F1A Notes
	Rack

**FIRST FLOOR DISPLAY WIRING DIAGRAM**



**GENERAL NOTES**

- THE DIAGRAMS AND SPECIFICATIONS ARE NOT INTENDED TO BE LIMITING OR RESTRICTIVE TO A PARTICULAR VENDOR. HOWEVER, DUE TO THE COORDINATION REQUIRED AND OPERATIONAL FUNCTIONALITY OF THE SYSTEMS, A BASIS OF DESIGN PRODUCT(S) WAS CHOSEN TO BE DESIGNED AND ENGINEERED AROUND. DUE TO THE COMPLEXITIES AND INTEGRATION OF THE SYSTEMS CHOSEN IT WILL BE THE RESPONSIBILITY OF ANY OTHER VENDOR/MANUFACTURER OF A COMPARABLE SYSTEM OR PRODUCT TO BARE THE COSTS AND RESPONSIBILITIES ASSOCIATED WITH ANY AND ALL RE-ENGINEERING OR RE-DESIGNING REQUIRED AS A RESULT OF UTILIZING THE COMPARABLE SYSTEM. THESE COSTS MAY INCLUDE BUT ARE NOT LIMITED TO, A/E FEES AND ASSOCIATED COSTS, MATERIAL, AND LABOR FOR ADDITIONAL UPGRADES TO ANY BUILDING SYSTEMS REQUIRED, AND MATERIAL AND LABOR COSTS FOR ADDITIONAL CONSTRUCTION REQUIRED.
- IF A PROSPECTIVE COMPUTER AIDED DISPATCH SYSTEM VENDOR WISHES TO PROVIDE ALTERNATE SYSTEMS TO THE ONES LISTED HEREIN, A WRITTEN REQUEST SHALL BE SUBMITTED TO THE OWNER'S TECHNICAL REPRESENTATIVE. REQUESTS SHALL BE SUBJECT TO THE REQUIREMENTS OF THE PROCUREMENT SUBSTITUTION PROCEDURES SECTION OF THE SPECIFICATIONS.
- SEE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- ALL EXPOSED UTILITIES, CAD ALERTING DEVICES, IN ADDITION BUT NOT LIMITED TO, PIPES, DUCTS, CONDUITS, WORK BOXES, DEVICES, AND OTHER ASSOCIATED UTILITY ITEMS MOUNTED WITHIN CORRIDOR 131'S CEILING SHALL BE PAINTED TO MATCH CEILING OR HAVE A MATCHING FACTORY FINISH. MECHANICAL, PLUMBING, ELECTRICAL, AND GENERAL CONTRACTORS SHALL PROVIDE COORDINATED SHOP DRAWINGS OF ALL MEP RELATED ITEMS AND ASSOCIATED MOUNTING HEIGHTS THAT ARE TO OCCUR WITHIN CORRIDOR 131'S AREA.
- ELECTRICAL PRIME TO PROVIDE ALL ELECTRICAL WIRING INCLUDING TO BUT NOT LIMITED TO, GENERAL POWER SUPPLY, LOW VOLTAGE COMMUNICATIONS, A/V, DATA WIRING/CABLING, AND ALL WIRING ASSOCIATED WITH THE BUILDING ACCESS CONTROL SYSTEM, CAD ALERTING SYSTEM, AND CCTV SYSTEM TO BE RUN IN EXPOSED AREAS THROUGH APPARATUS BAY, MEZZANINE CEILINGS, UNDERSIDE OF MEZZANINE DECKS AND CORRIDOR 131, SHALL BE IN METAL CONDUIT PAINTED TO MATCH DECK ABOVE.

CUMRU FIRE DEPARTMENT  
1775 WELSH ROAD  
MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

PROJECT NUMBER:  
18-036  
PROJECT SET:  
BID SET  
DATE ISSUED:  
11/30/2023

DRAWING TITLE:  
TYPICAL DETAILS &  
DISPLAY DIAGRAM

SHEET NUMBER:  
**AL-105**