

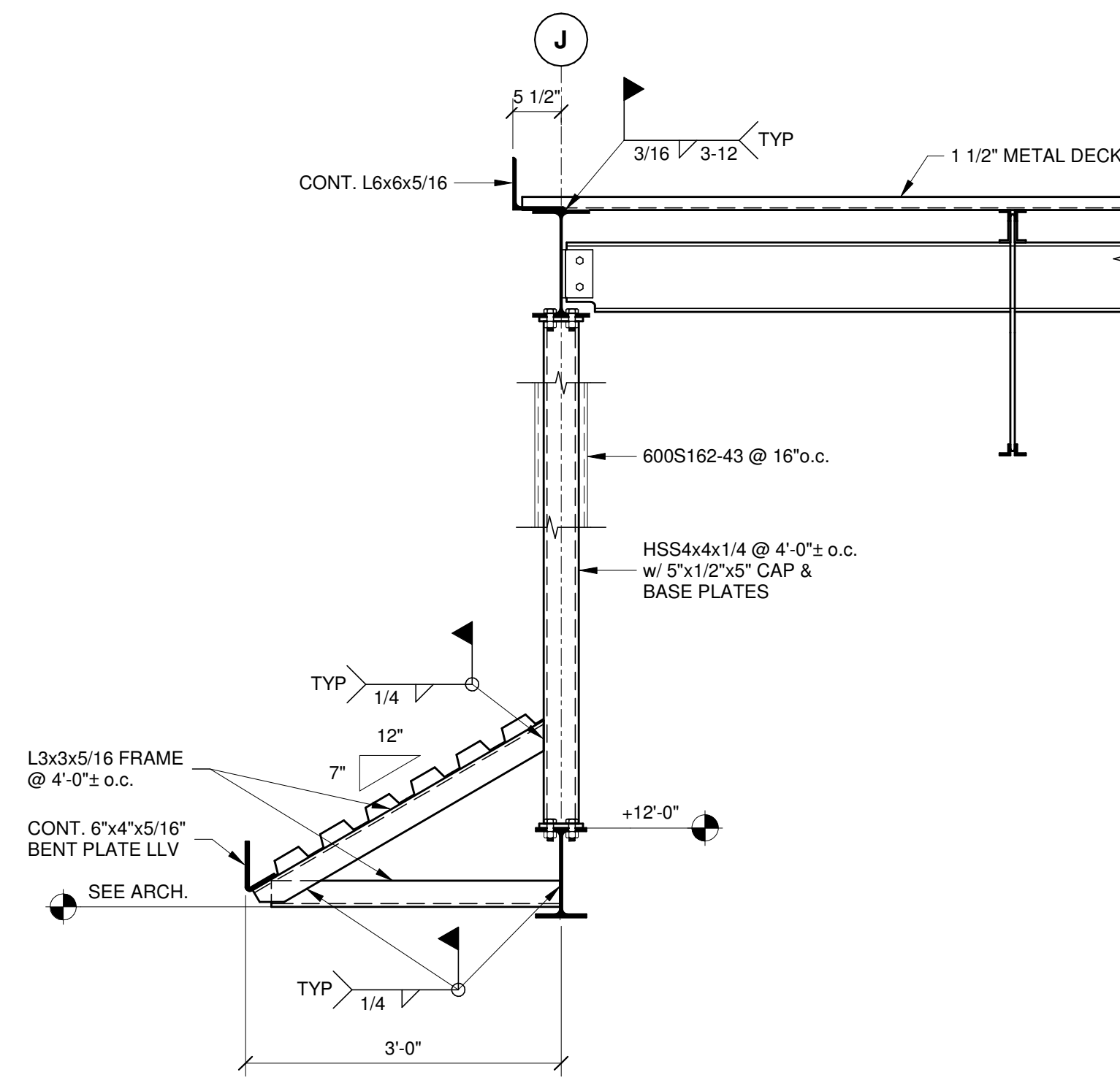
SEAL:

NO.	DESCRIPTION	DATE

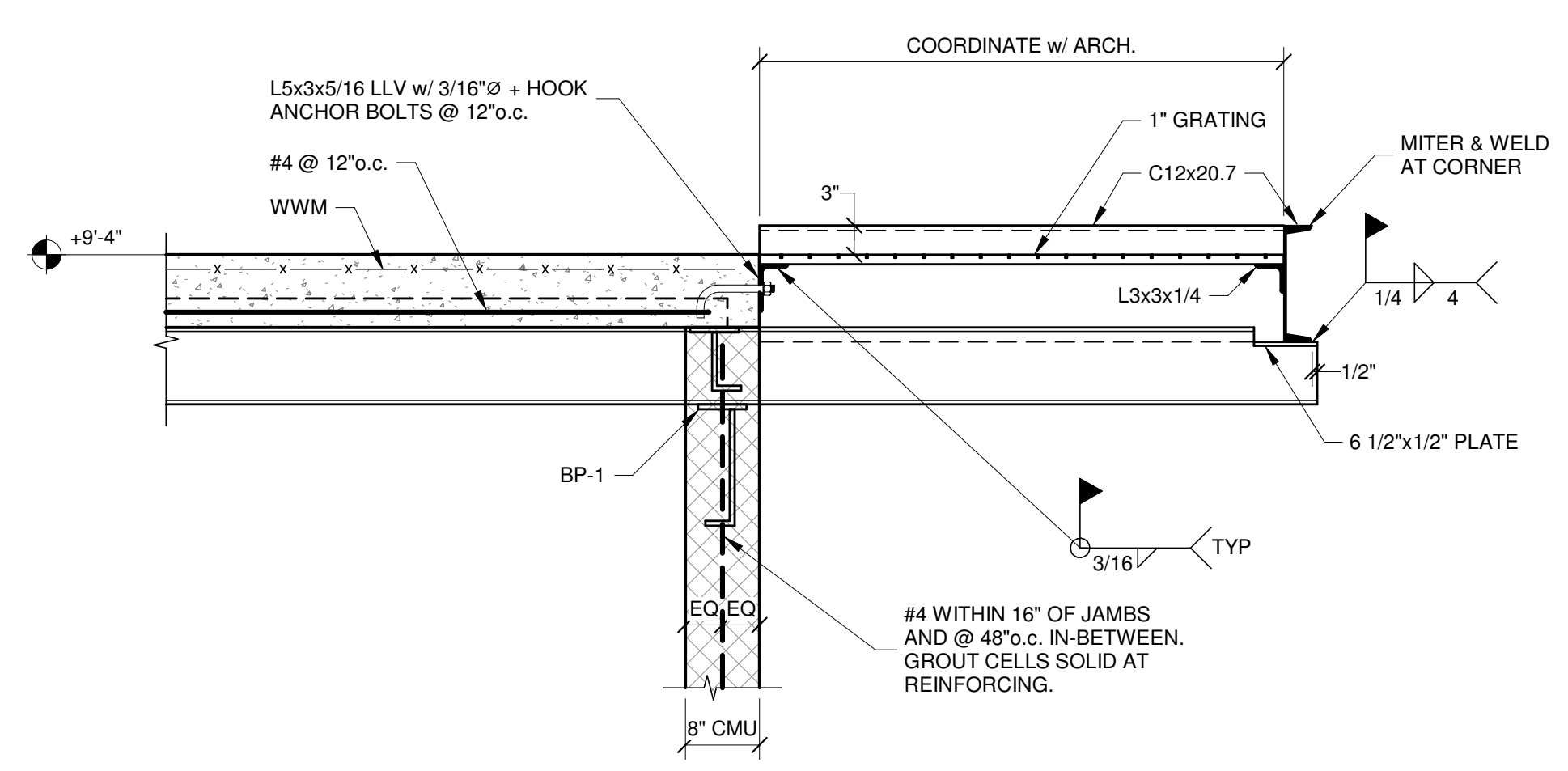
PROJECT
18-036
PROJECT
BID SET
DATE
11/30/2023

DRAWING
SECTIONS

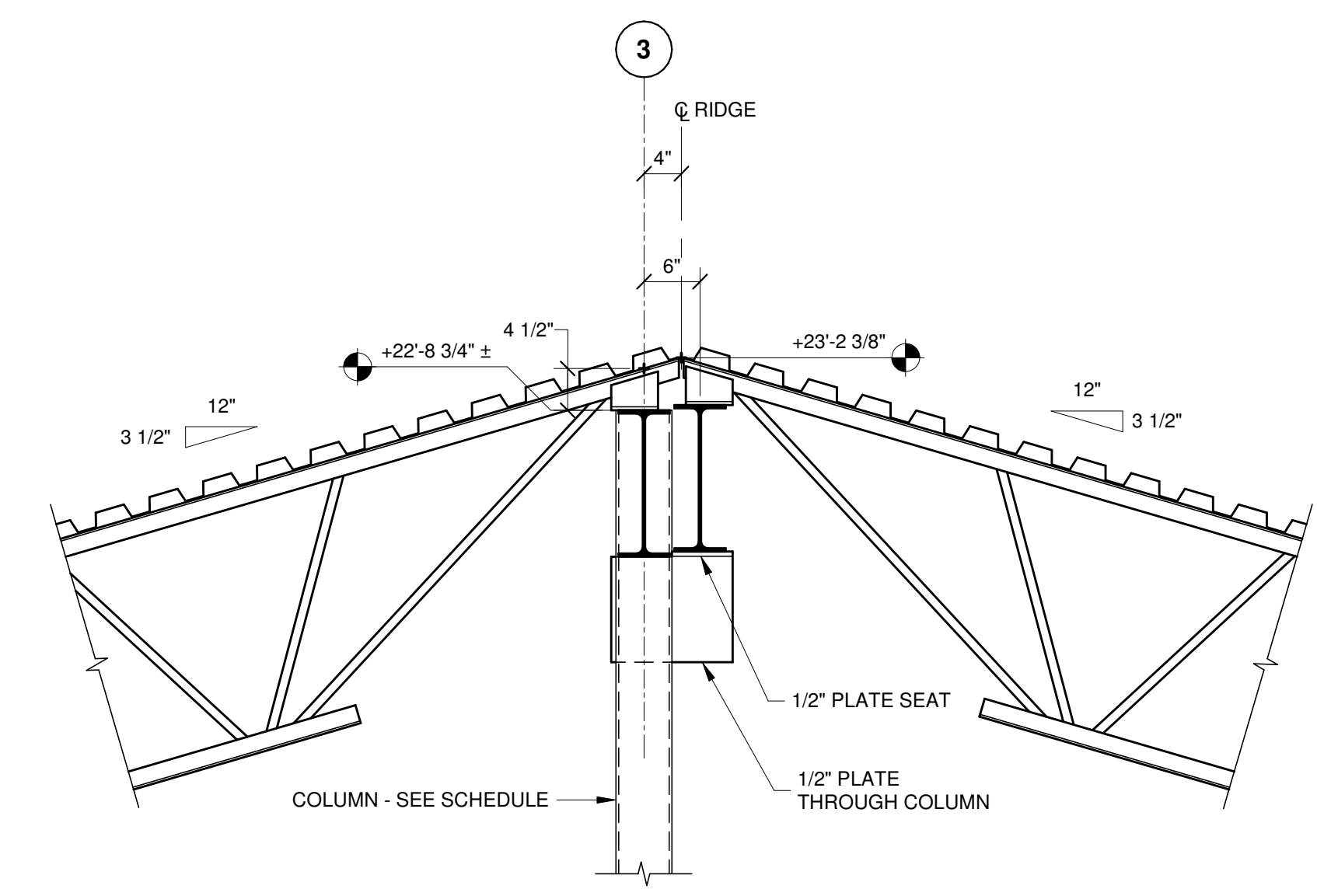
SHEET
S405



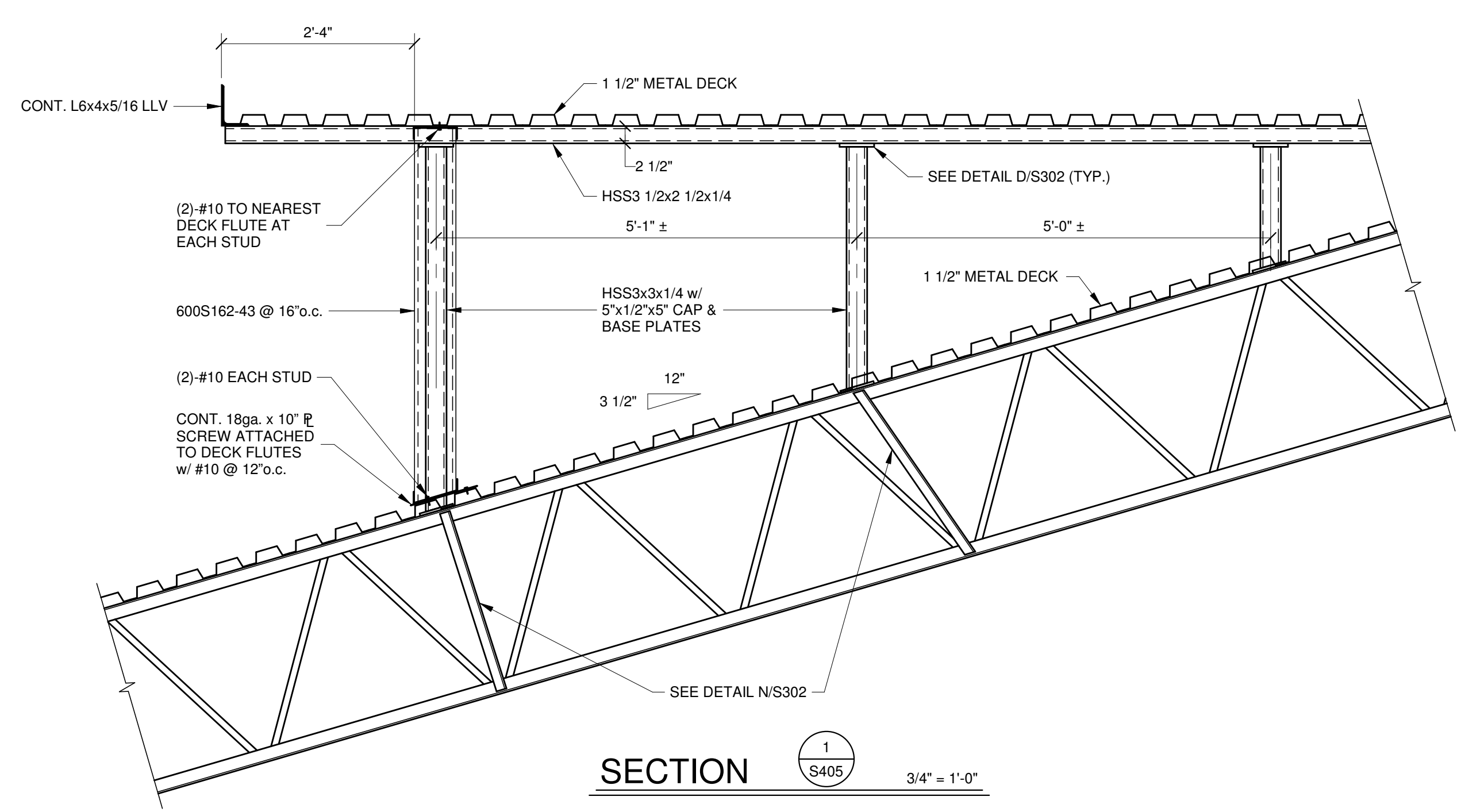
SECTION 6
S405 3/4" = 1'-0"



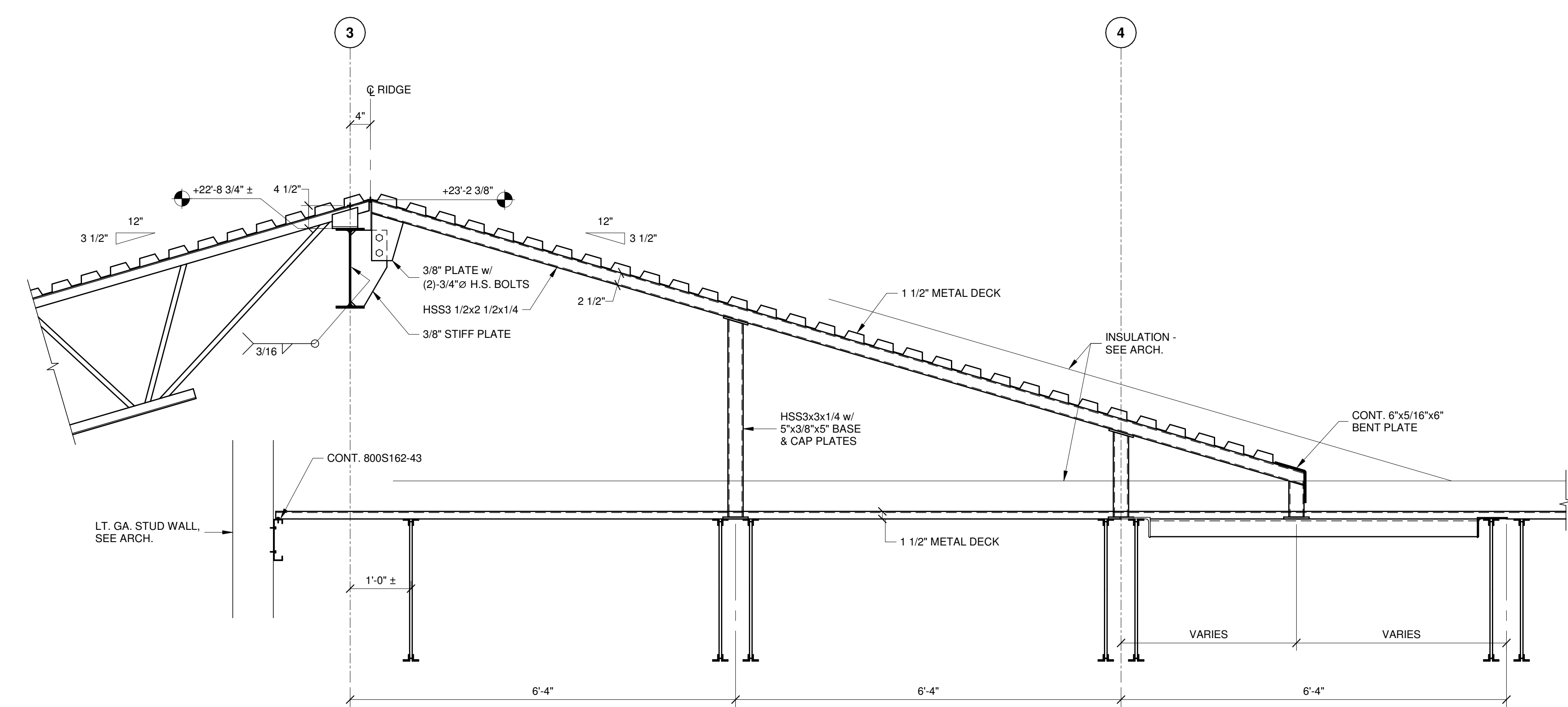
SECTION 3
S405 3/4" = 1'-0"



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

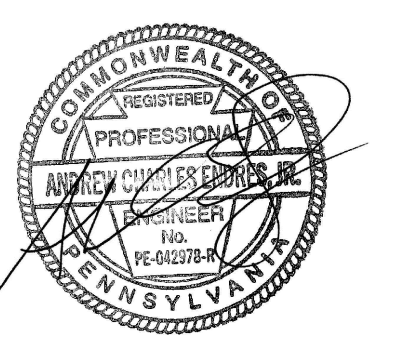
- THIS FIRE STATION IS ASSIGNED TO SEISMIC DESIGN CATEGORY D AND IS OCCUPANCY CATEGORY IV AS DEFINED BY CHAPTER 1 OF ASCE 7. SEE STRUCTURAL DRAWINGS FOR SEISMIC DESIGN DATA.
- ALL HVAC, PLUMBING & FIRE PROTECTION SYSTEMS AND EQUIPMENT ARE REQUIRED FOR THE CONTINUED OPERATION OF THE FIRE STATION AFTER 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		



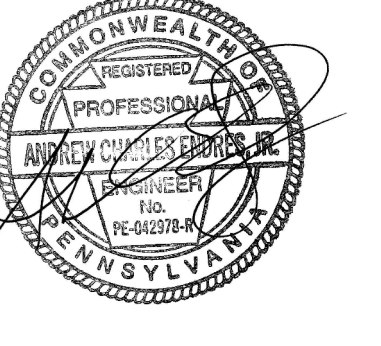
10839-D PHILADELPHIA RD
WHITE MARSH, MD 21162
(P) 410-344-1460
(F) 443-403-2460
(E) INFO@MWSARCH.COM
WWW.MWSARCH.COM

CONSULTANT:
bkm
Burdette, Koehler, Murphy & Associates, Inc.
800 Baltimore Lane, Suite 400 Baltimore, Maryland 21209
P: 410.528.0800 | www.bkm.com

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



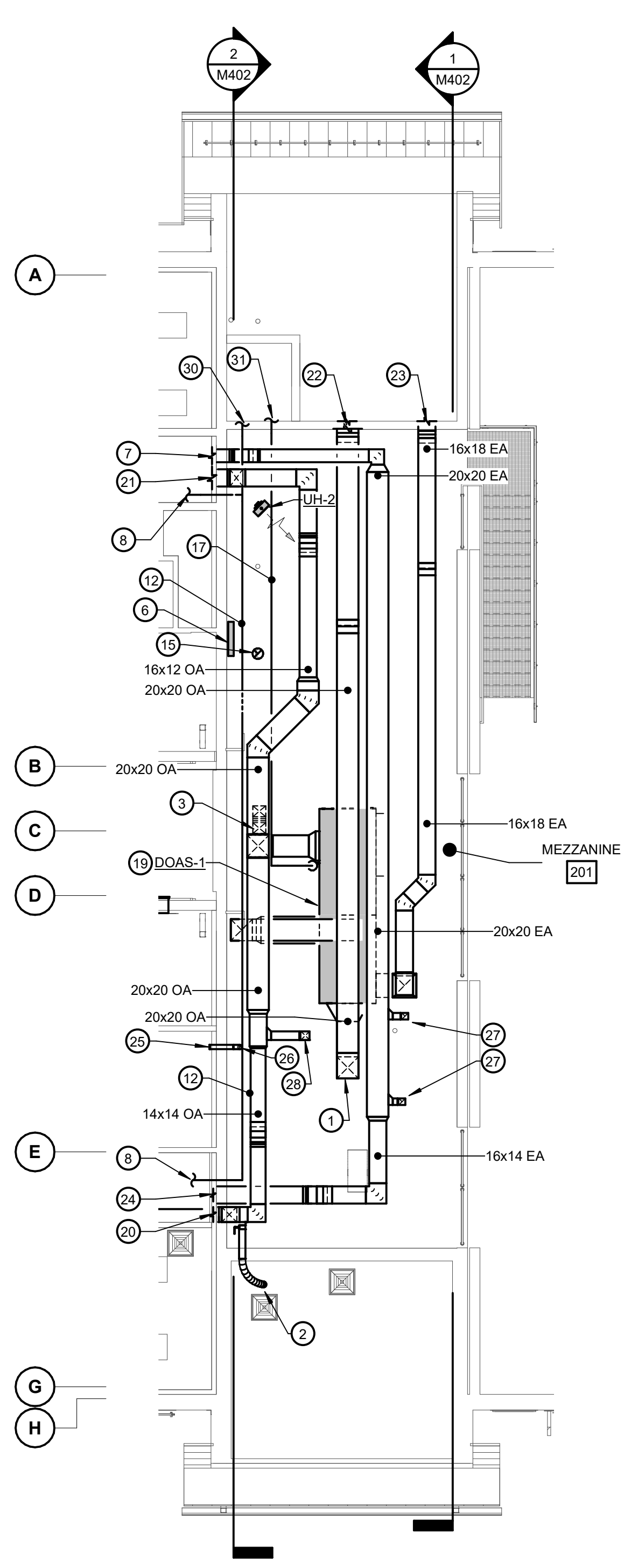
NO.	DESCRIPTION	DATE
PROJECT	18-036	
PROJECT	BID SET	
DATE	11/30/2023	
DRAWING	PART FLOOR PLANS	
	HVAC	
SHEET	M301	

GENERAL NOTES:

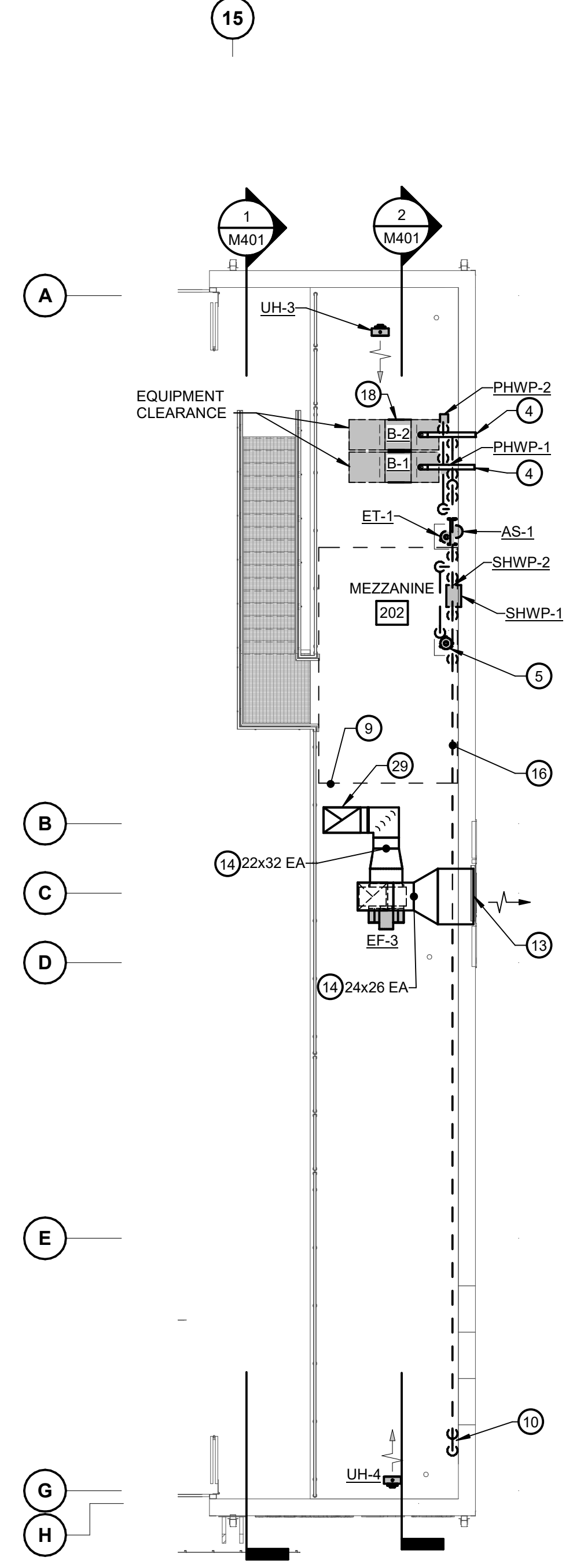
- REFER TO M001 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- SIZE AND CONFIGURE REFRIGERANT PIPING AND ACCESSORIES IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
- REFER TO M502 FOR HEATING WATER PIPE SIZES AND CONFIGURATION.

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.
- VRF-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 MANUFACTURERS RECOMMENDATIONS.
- REFRIGERANT SUCTION, LIQUID, AND GAS PIPING. SIZE PER MANUFACTURERS RECOMMENDATIONS.
- EXHAUST LOUVER. REFER TO ARCHITECTURAL DRAWINGS FOR MORE INFORMATION.
- PROVIDE DUCTWORK WITH SOUND LINING.
- DOMESTIC WATER HEATER FLUE UP THROUGH ROOF. INSTALL PER MANUFACTURERS 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.
- 16x12 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.
- VRF-1 REFRIGERANT PIPING TO 139 DECON. REFER TO M201 FOR CONTINUATION.
- DOAS-1 REFRIGERANT PIPING TO 139 DECON. REFER TO M201 FOR MORE INFORMATION.

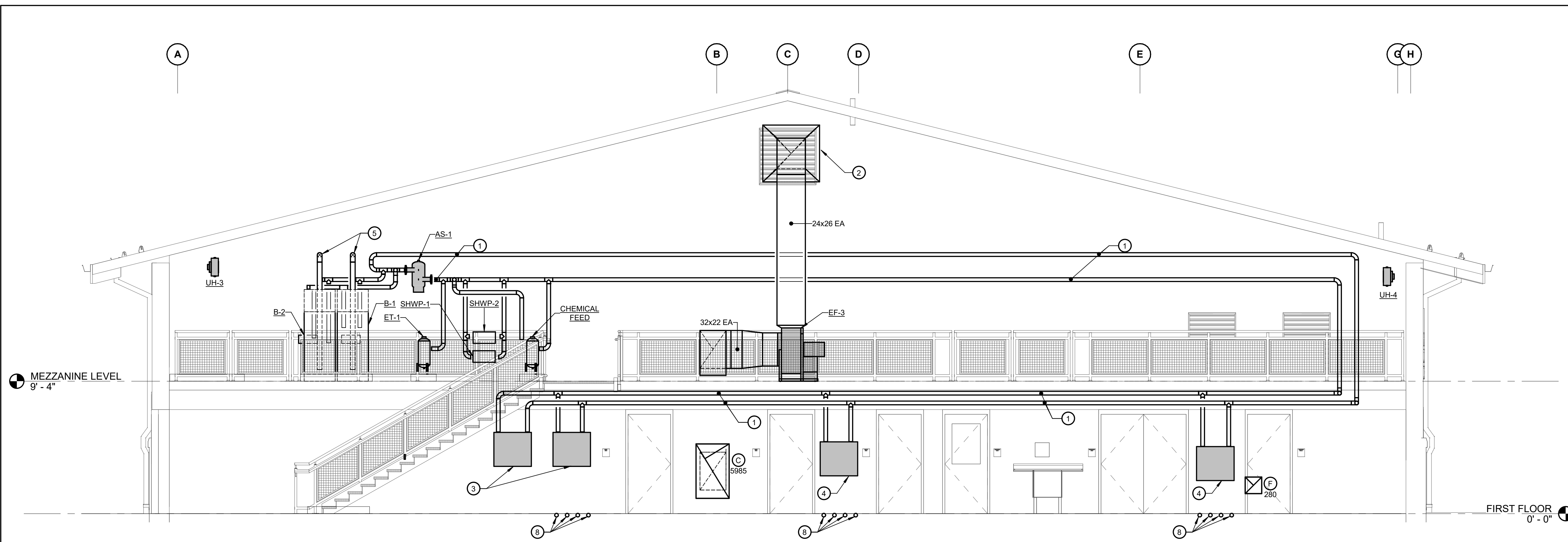


1 MEZZANINE PLAN WEST - HVAC
SCALE: 1/8" = 1'-0"

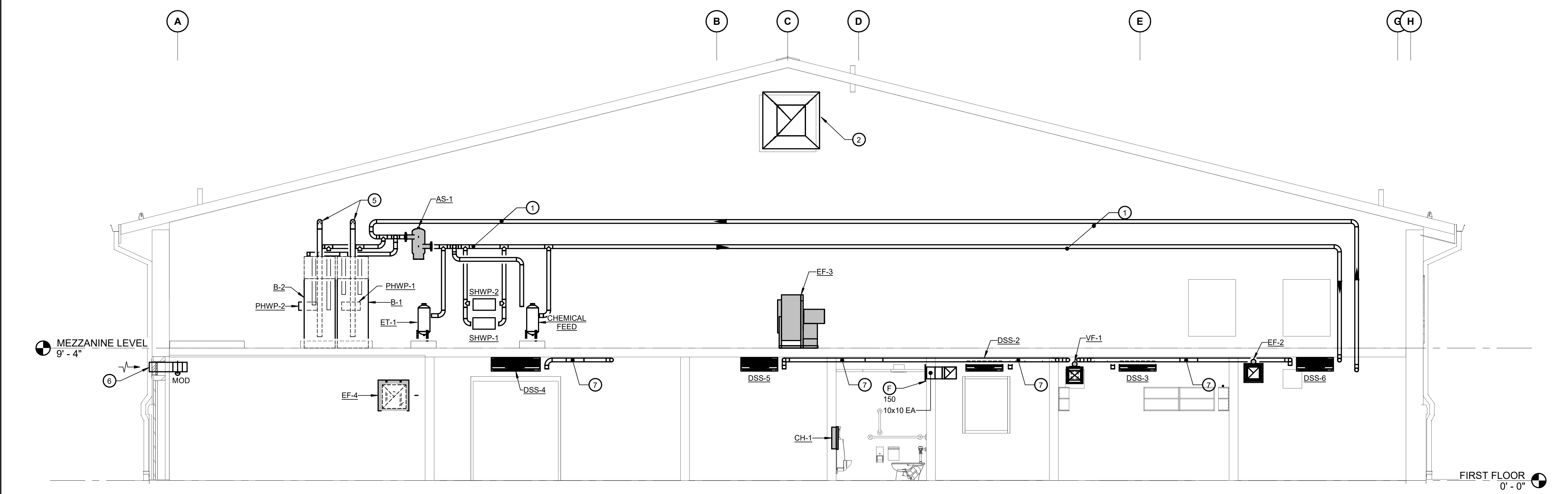


2 MEZZANINE PLAN EAST - HVAC
SCALE: 1/8" = 1'-0"

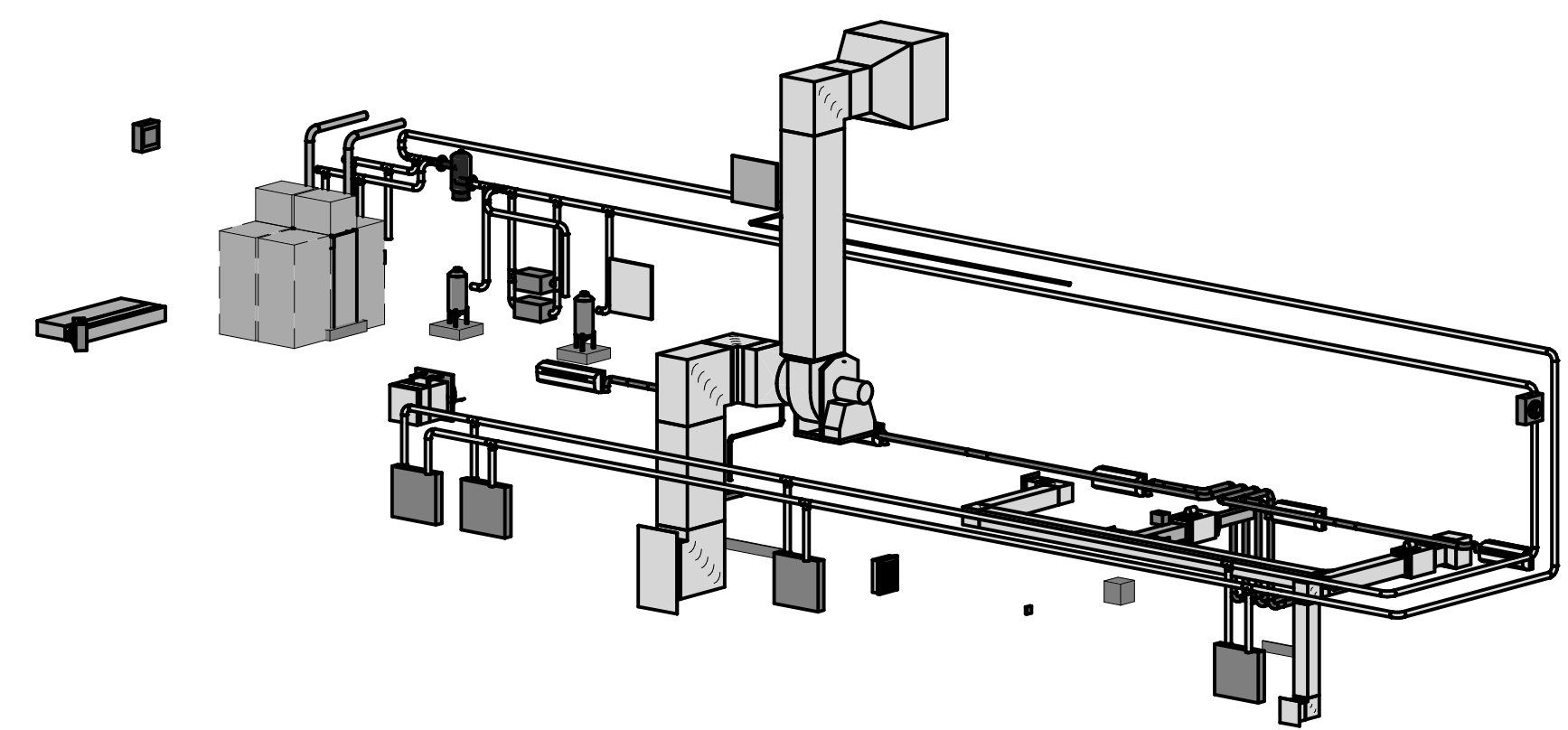




1 MEZZANINE PLAN EAST SECTION 1
SCALE: 1/4" = 1'-0"



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



3 MEZZANINE PLAN EAST - 3D
SCALE:

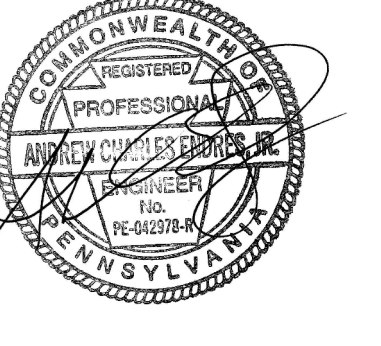
- GENERAL NOTES:**
- REFER TO M001 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
 - SIZE AND CONFIGURE REFRIGERANT PIPING AND ACCESSORIES IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
- DRAWING NOTES:**
- HEATING WATER SUPPLY AND RETURN PIPING. REFER TO HEATING WATER SCHEMATIC ON M502 FOR 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.



CONSULTANT:
bkm
Burdette, Koehler, Murphy & Associates, Inc.
300 South Main Street, Suite 400 | Baltimore, Maryland 21201
P: 410.528.0801 | www.bkm.com

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	



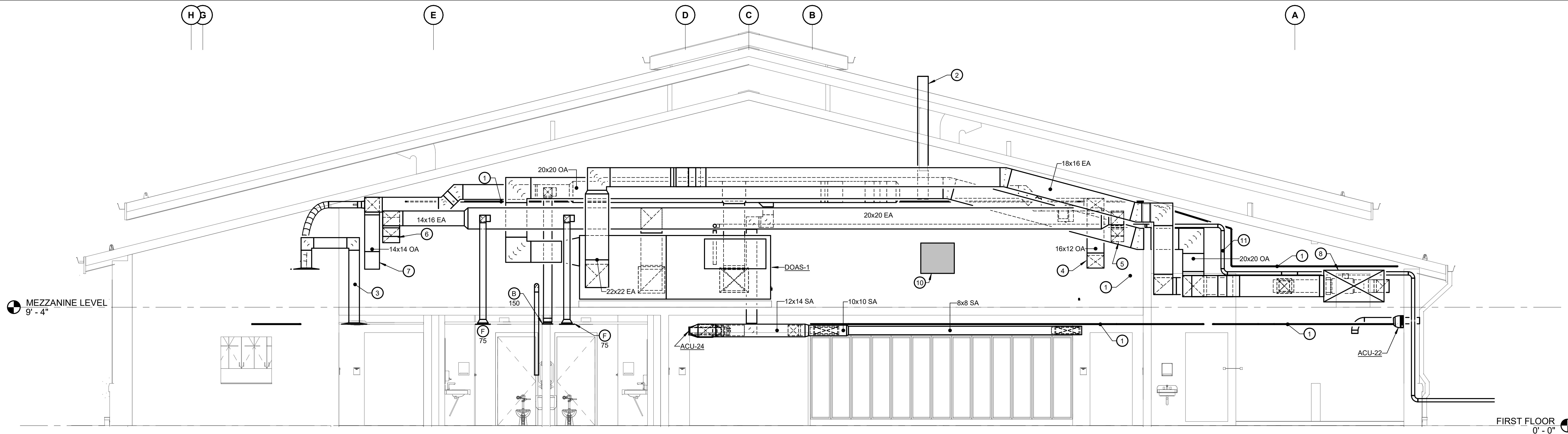
NO.	DESCRIPTION	DATE
PROJECT	18-036	
PROJECT	BID SET	
DATE	11/30/2023	
DRAWING	MECHANICAL SECTIONS	
SHEET	M402	

GENERAL NOTES:

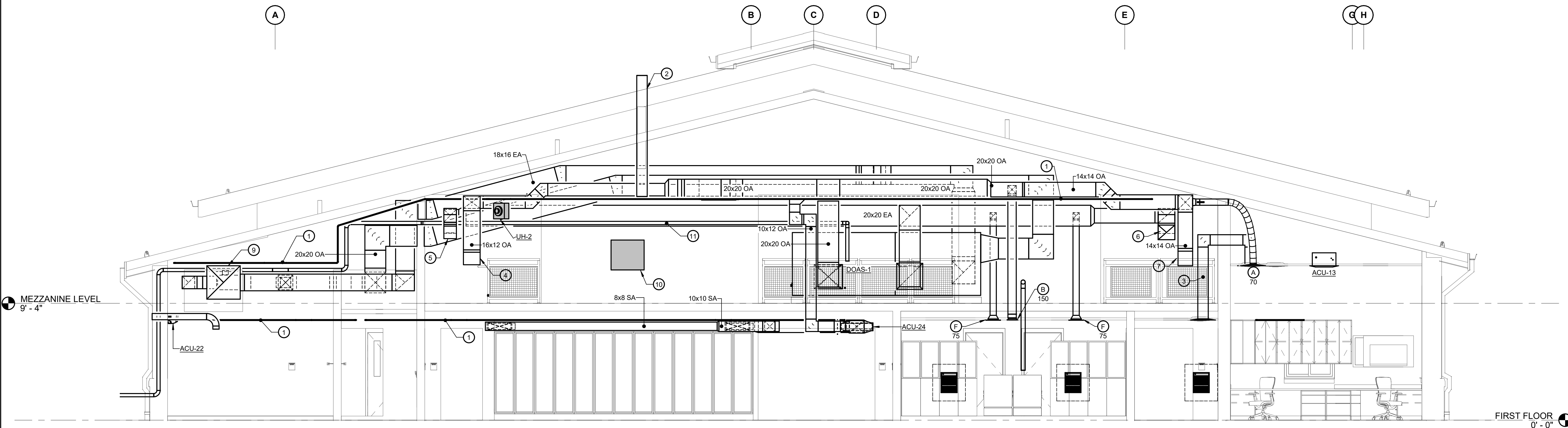
- REFER TO M001 FOR MECHANICAL LEGEND, ABBREVIATIONS AND GENERAL NOTES.
- SIZE AND CONFIGURE REFRIGERANT PIPING AND ACCESSORIES IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.

DRAWING NOTES:

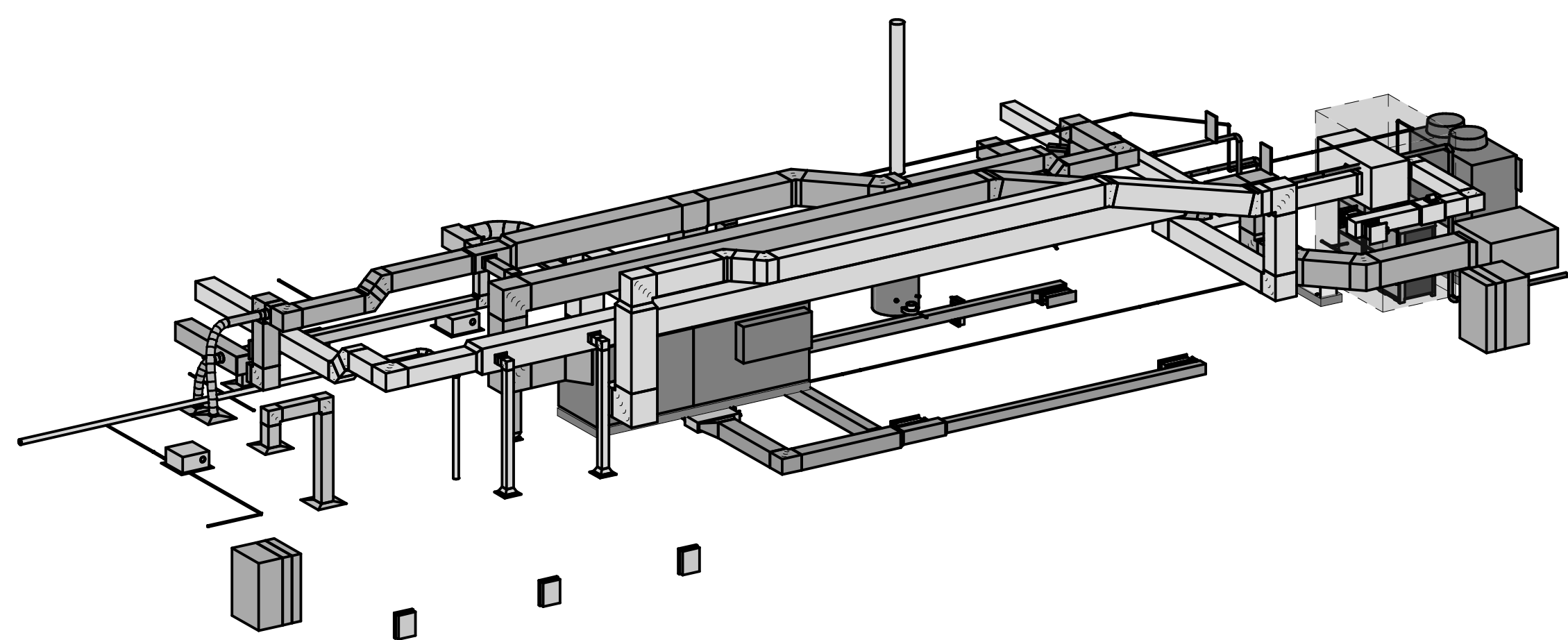
- VRF-1 REFRIGERANT PIPING, SIZE AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- WATER HEATER FLUE, INSTALL AND TERMINATE PER MANUFACTURER'S RECOMMENDATIONS.
- 10x10 TRANSFER DUCT, AIR DEVICES SHALL BE TYPE E.
- 12x16 OUTSIDE AIR DUCTWORK TO ADMINISTRATION/OFFICES, REFER TO M101 FOR CONTINUATION.
- 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.



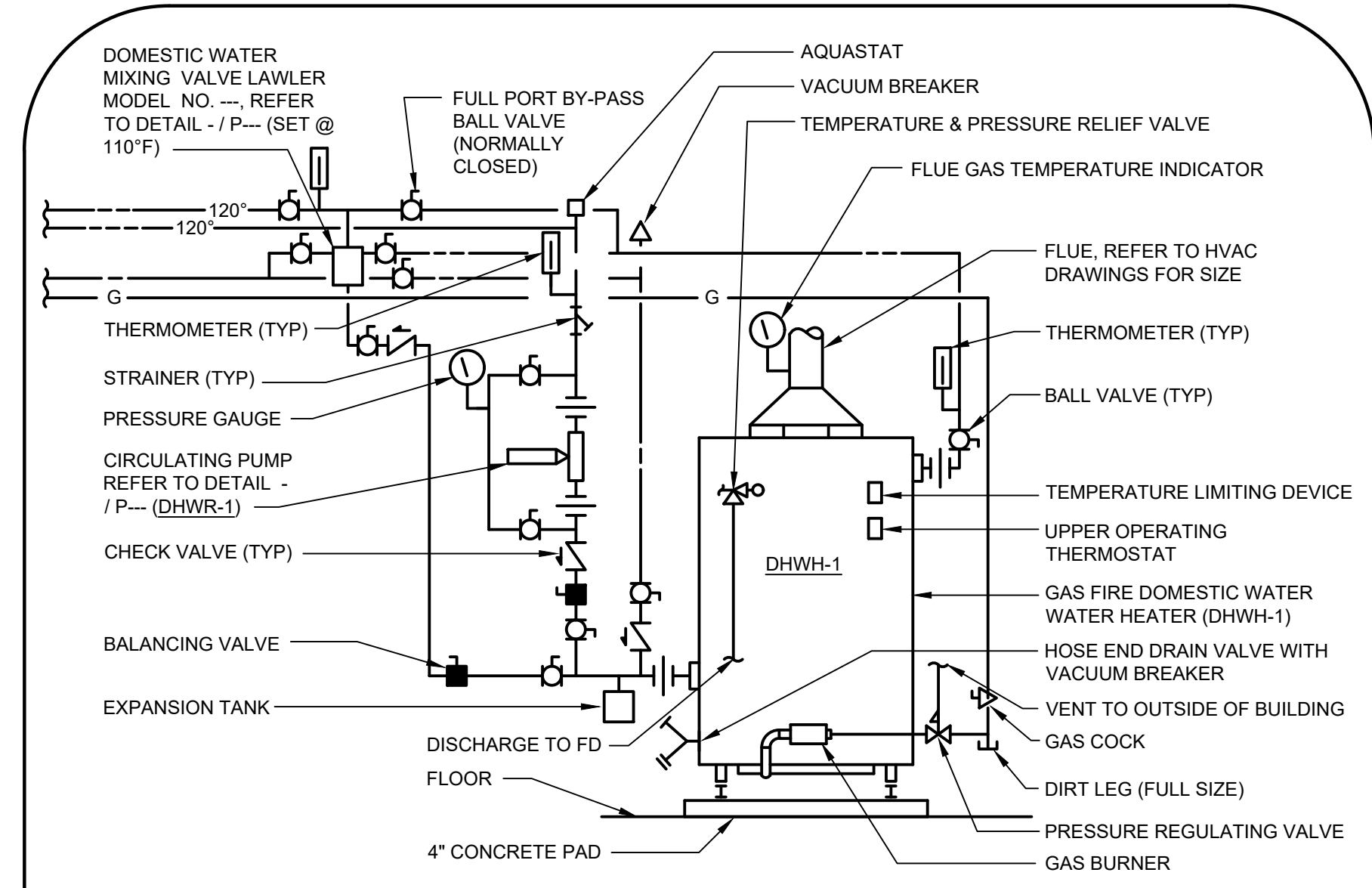
1 MEZZANINE PLAN WEST SECTION 1
SCALE: 1/4" = 1'-0"



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

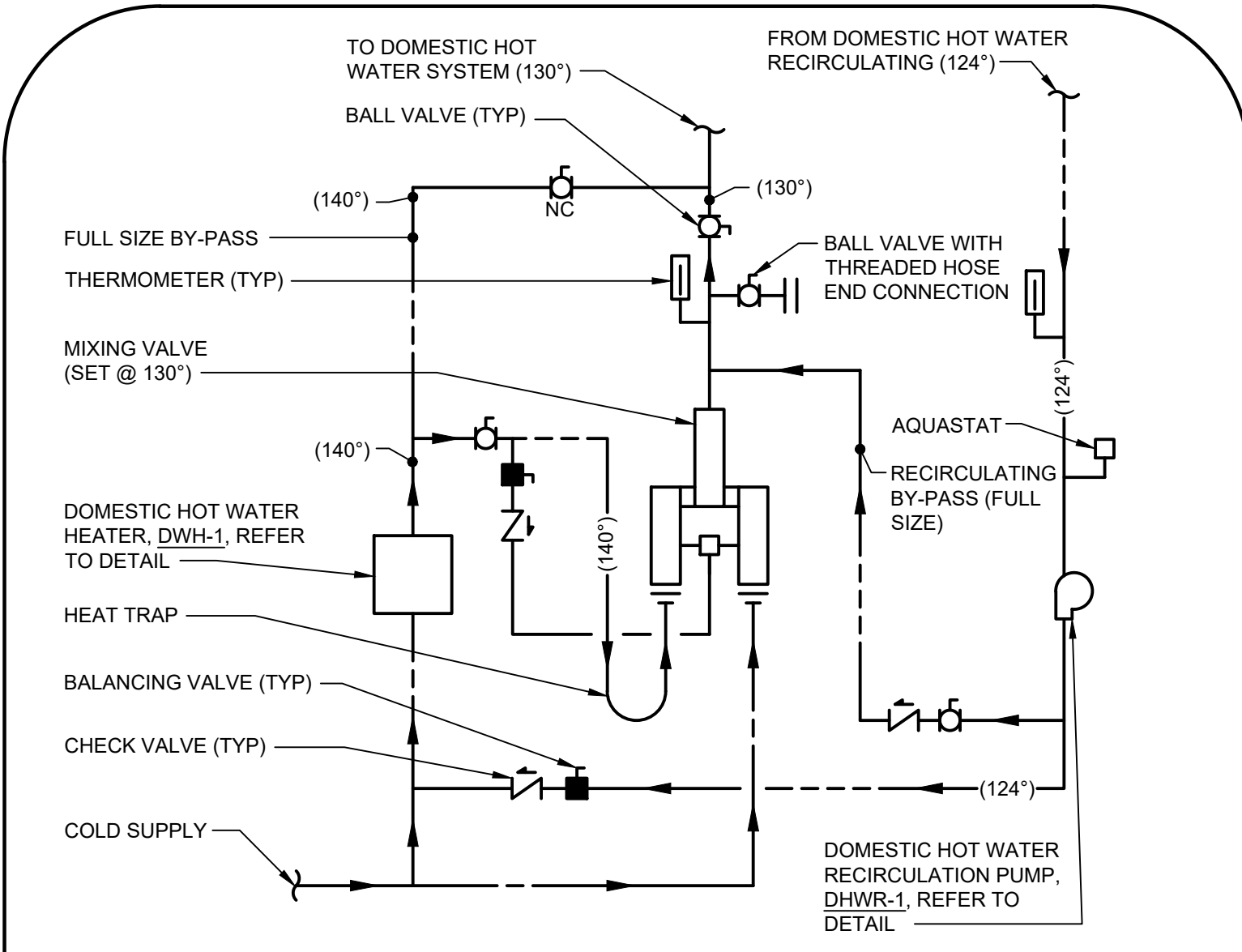


3 MEZZANINE PLAN WEST - 3D
SCALE:



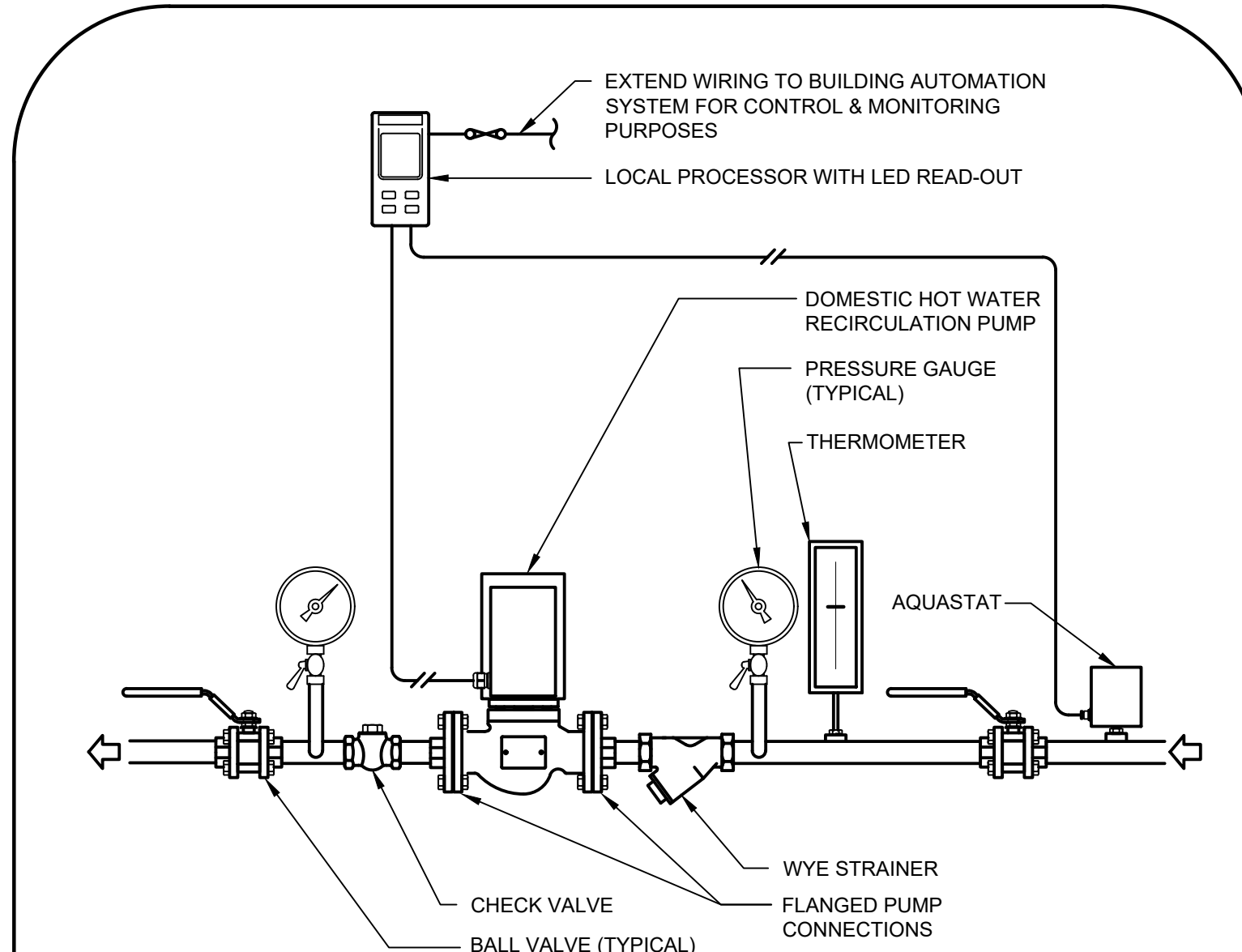
1 GAS FIRED DOMESTIC WATER HEATER DETAIL
NO SCALE P00077

- NOTES: 1. REFER TO FLOOR PLANS FOR EXACT LOCATIONS.
2. REFER TO SCHEDULES FOR SIZES AND CAPACITIES.
3. CONTROLS AND GAS TRAIN SHALL BE IN ACCORDANCE WITH ASME-CSD-1.

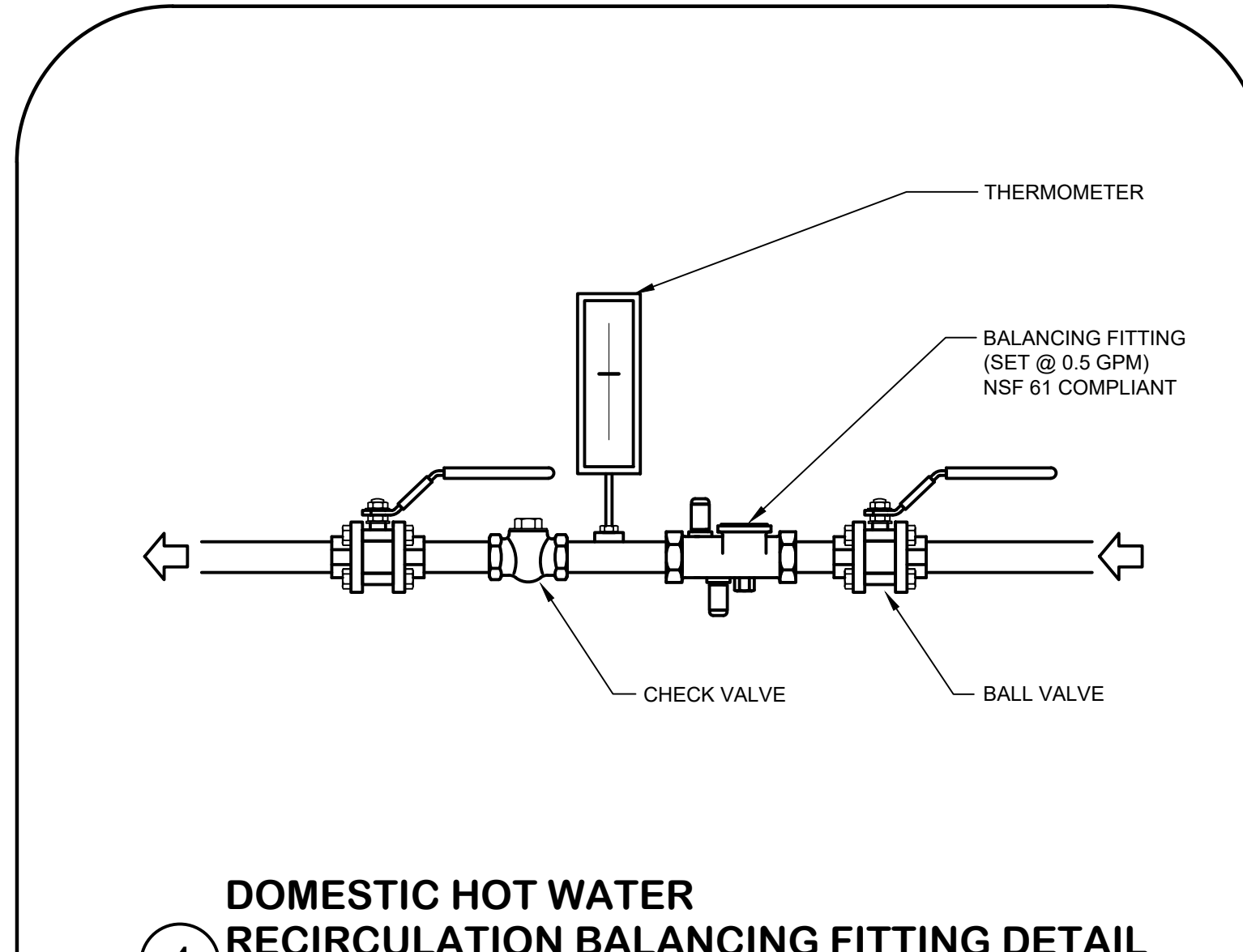


2 DOMESTIC HOT WATER MIXING VALVE PIPING DETAIL
NO SCALE P00088

- NOTE: CONTRACTOR SHALL REFER TO THE MIXING VALVE MANUFACTURER'S RECOMMENDATIONS FOR THE PIPING SIZES AND BALANCE SETTINGS.

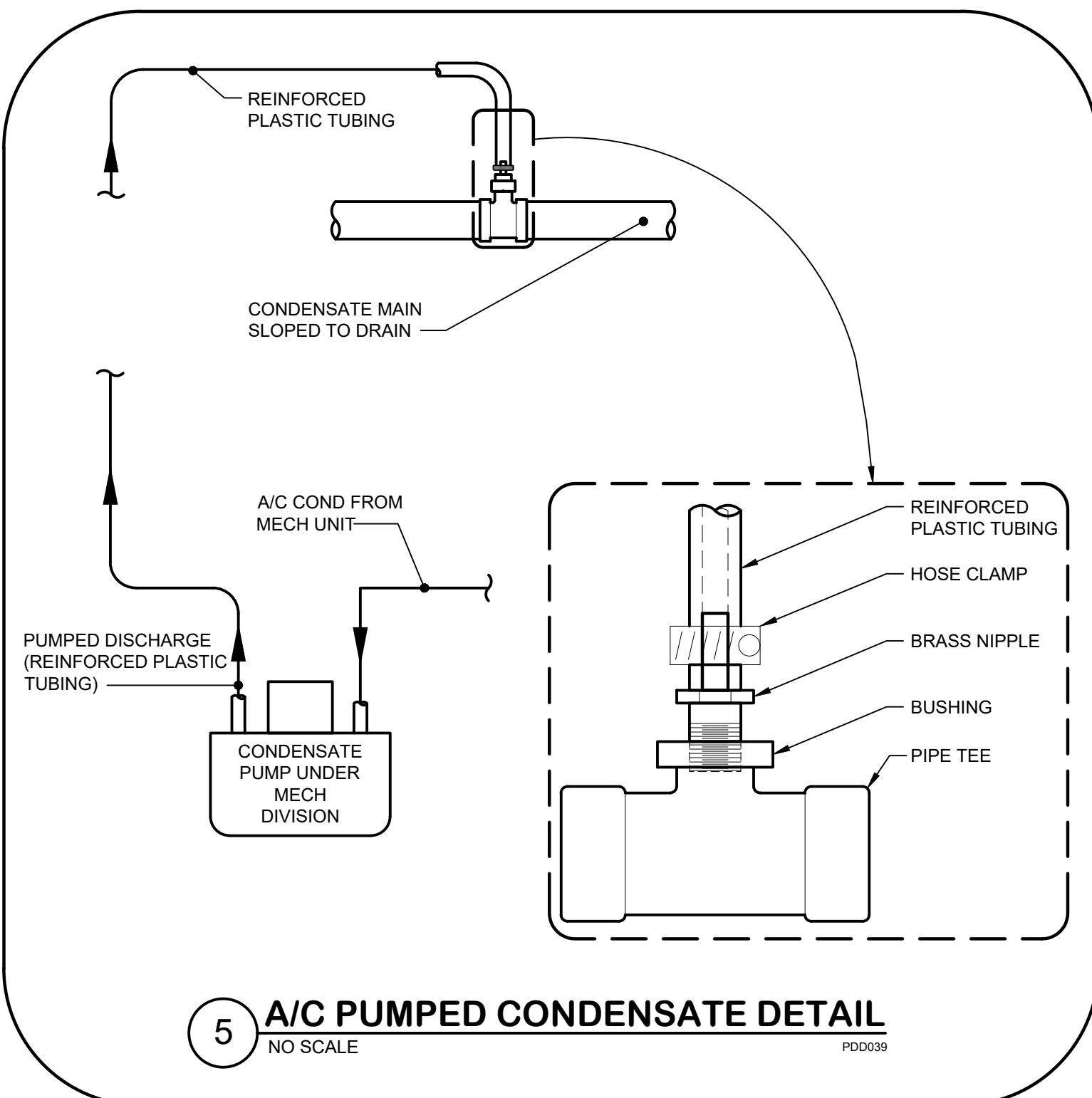


3 DOMESTIC HOT WATER RECIRCULATION PUMP STATION DETAIL
NO SCALE P00099

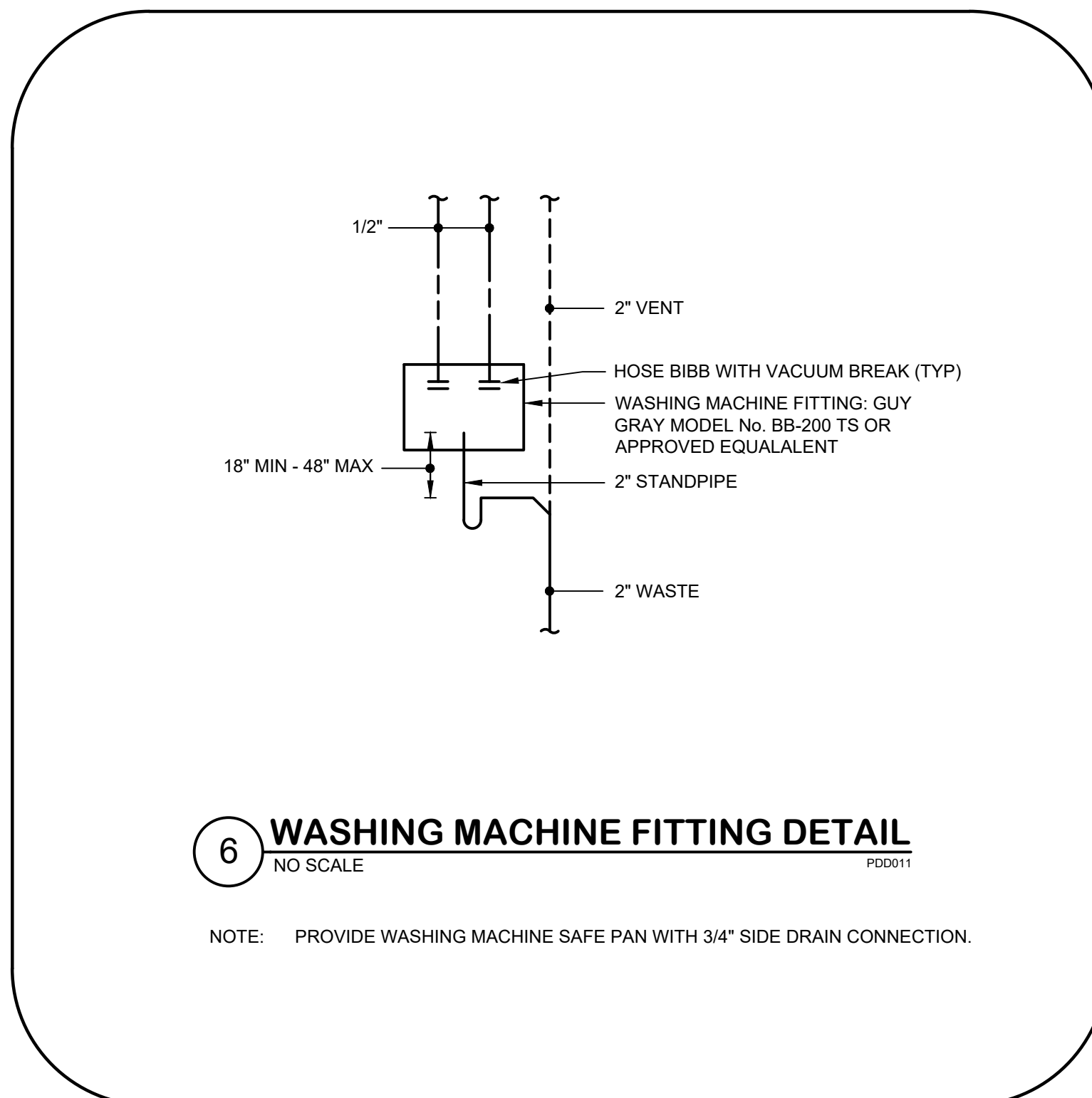


4 DOMESTIC HOT WATER RECIRCULATION BALANCING FITTING DETAIL
NO SCALE P00106

- NOTE: REFER TO FLOOR PLANS FOR EXACT LOCATION AND PIPE SIZE.

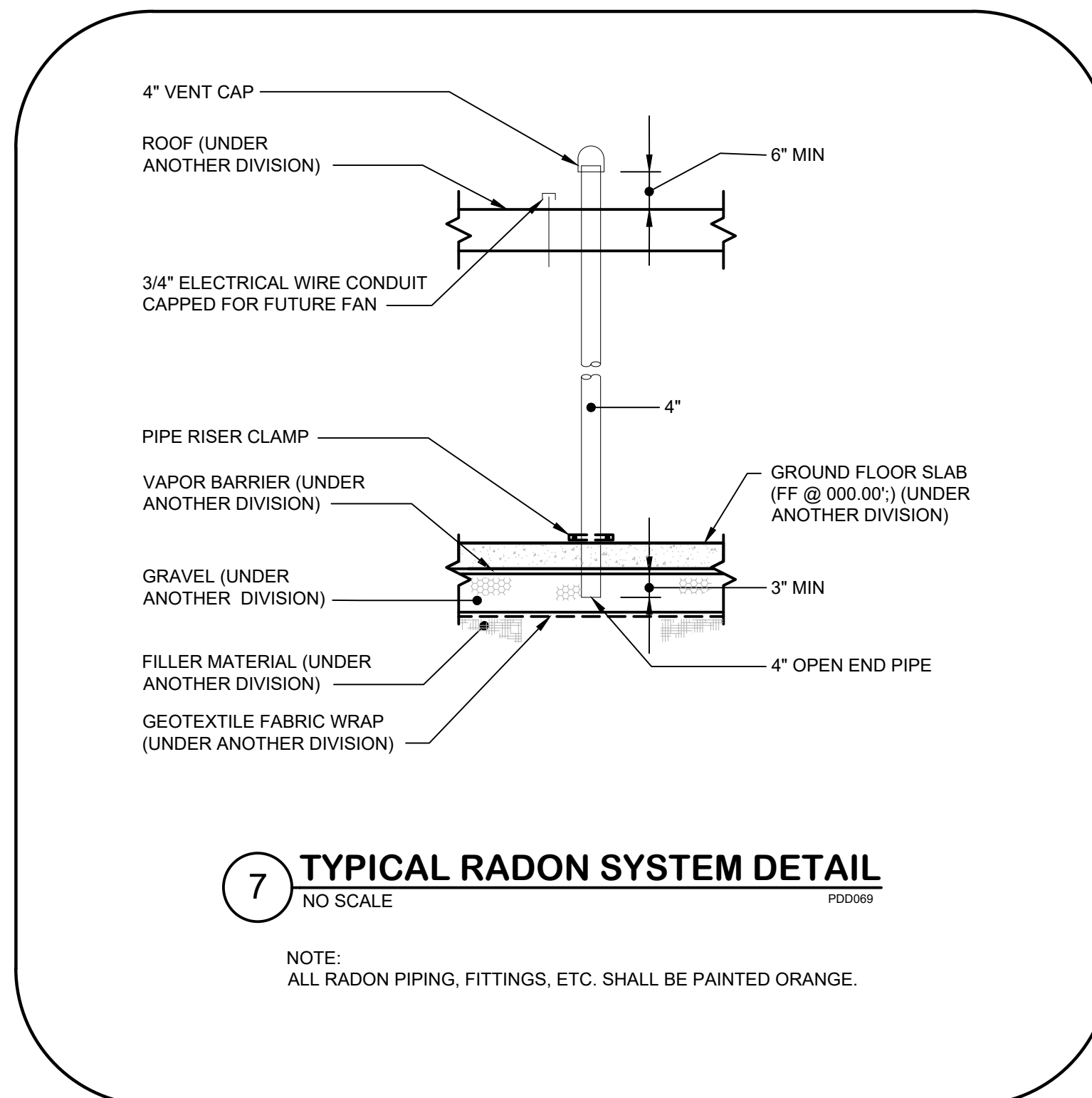


5 A/C PUMPED CONDENSATE DETAIL
NO SCALE P00039



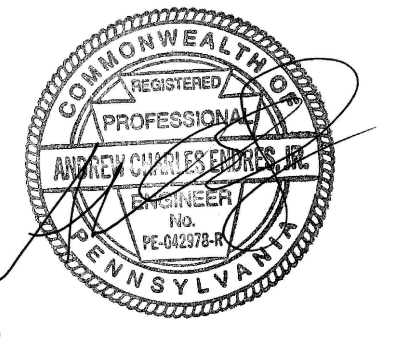
6 WASHING MACHINE FITTING DETAIL
NO SCALE P00011

- NOTE: PROVIDE WASHING MACHINE SAFE PAN WITH 3/4" SIDE DRAIN CONNECTION.



7 TYPICAL RADON SYSTEM DETAIL
NO SCALE P00069

- NOTE: ALL RADON PIPING, FITTINGS, ETC. SHALL BE PAINTED ORANGE.

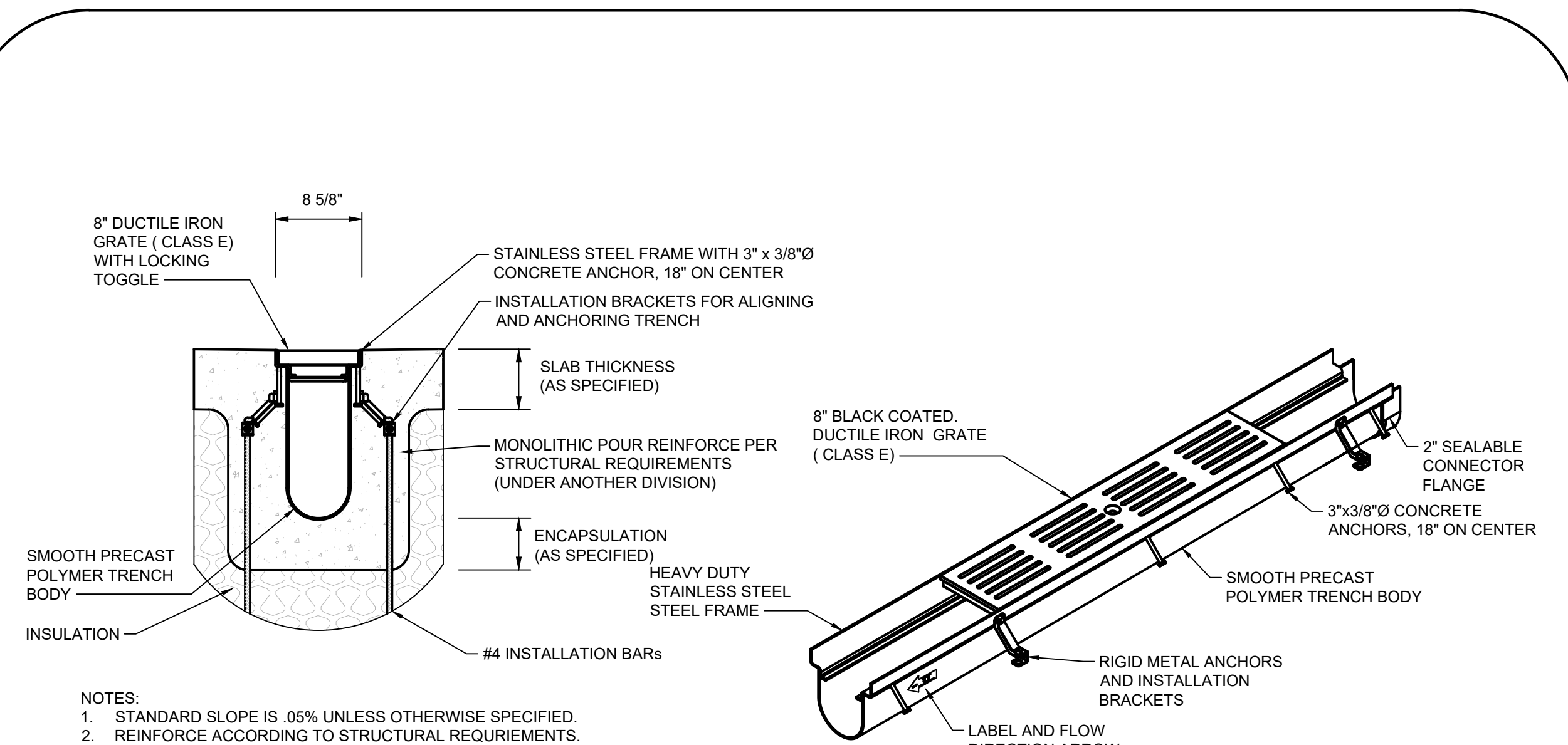


NO.	DESCRIPTION	DATE

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

DRAWING TITLE:
PLUMBING DETAILS

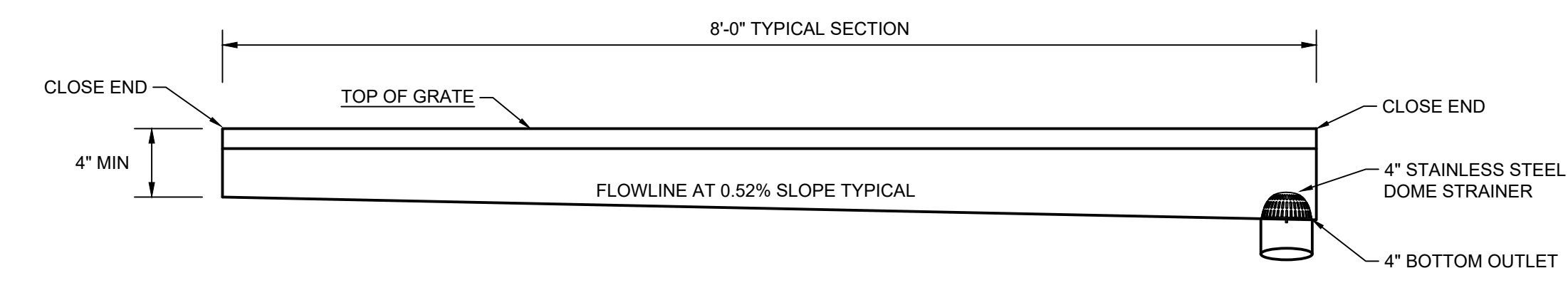
SHEET NUMBER:
P302



- NOTES:
- STANDARD SLOPE IS .05% UNLESS OTHERWISE SPECIFIED.
 - REINFORCE ACCORDING TO STRUCTURAL REQUIREMENTS.
 - TRENCH DRAIN MUST BE 1/8\"/>

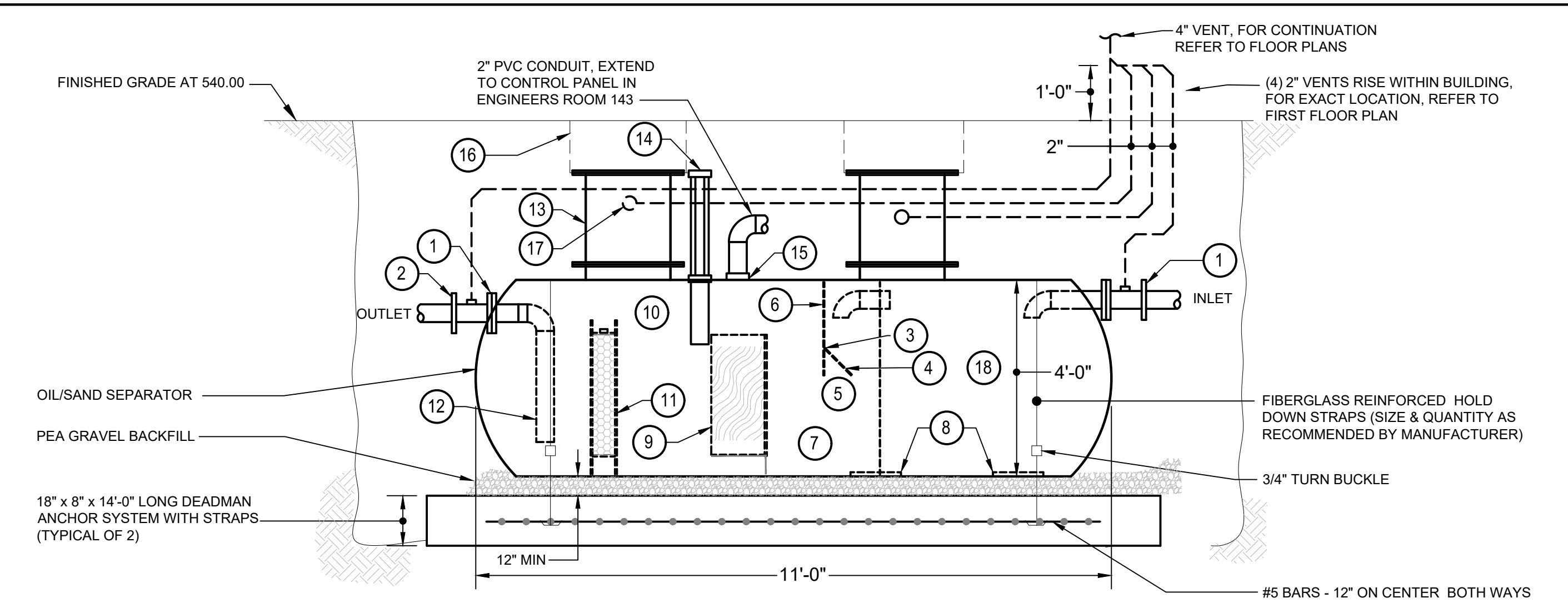
TYPICAL TRENCH SECTION

TYPICAL TRENCH ISOMETRIC



1 TYPICAL APPARATUS BAY TRENCH DRAIN DETAIL
NO SCALE

NOTE: CONTRACTOR SHALL INSTALL TRENCH DRAIN SYSTEM PER MANUFACTURER'S RECOMMENDED INSTRUCTIONS.



2 OIL / SAND SEPARATOR DETAIL
NO SCALE

- NOTES:
- OIL/SAND SEPARATOR SHALL BE SINGLE WALL TANK, 4 FT DIAMETER X 11 FT LONG CYLINDRICAL DESIGN WITH 2 MANWAYS.
 - OIL/SAND SEPARATOR AND MONITORING SYSTEM SHALL BE AS/ PER MANUFACTURED BY CONTAINMENT SOLUTIONS MODEL NO SWT (4) - 1000 CSI-2B INT OR EQUIVALENT; NOMINAL CAPACITY: 1000 GALLONS, FLOW RATE: 100 GPM, OIL STORAGE CAPACITY: 200 GALLONS, AND OIL SPILL CAPACITY: 800 GALLONS.

DETAIL NOTES:

- | | |
|--|--|
| 1 150# R.F.S.O. FLANGE. | 11 6\"/> |
| 2 ISOLATION SPOOL PIECE WITH 2\"/> | 12 OUTLET DOWNCOMBER. |
| 3 VELOCITY HEAD DIFFUSION BAFFLE. | 13 30\"/> |
| 4 WEAR PLATE. | 14 NYLON BUSHING FOR OIL PUMP/OUT WITH INTERNAL PIPE INSTALLED & RISER PIPE SHIPPED LOOSE. |
| 5 SEDIMENT CHAMBER. | 15 NYLON BUSHING FOR LEVEL SENSOR WITH RISER PIPE SHIPPED LOOSE. |
| 6 UNDERFLOW BAFFLE. | 16 12\"/> |
| 7 SLUDGE BAFFLE. | 17 NYLON BUSHING FOR VENT. |
| 8 STRIKER PLATES. | 18 SEDIMENT CHAMBER. |
| 9 PARALLEL CORRUGATED PLATE COALESCER. | |
| 10 OIL / WATER SEPARATOR CHAMBER. | |



CONSULTANT:
bkm
Burdette, Koehler, Murphy & Associates, Inc.
800 South Hill Road, Suite 400 | Baltimore, Maryland 21209
P: 410.326.8868 | www.bkm.com

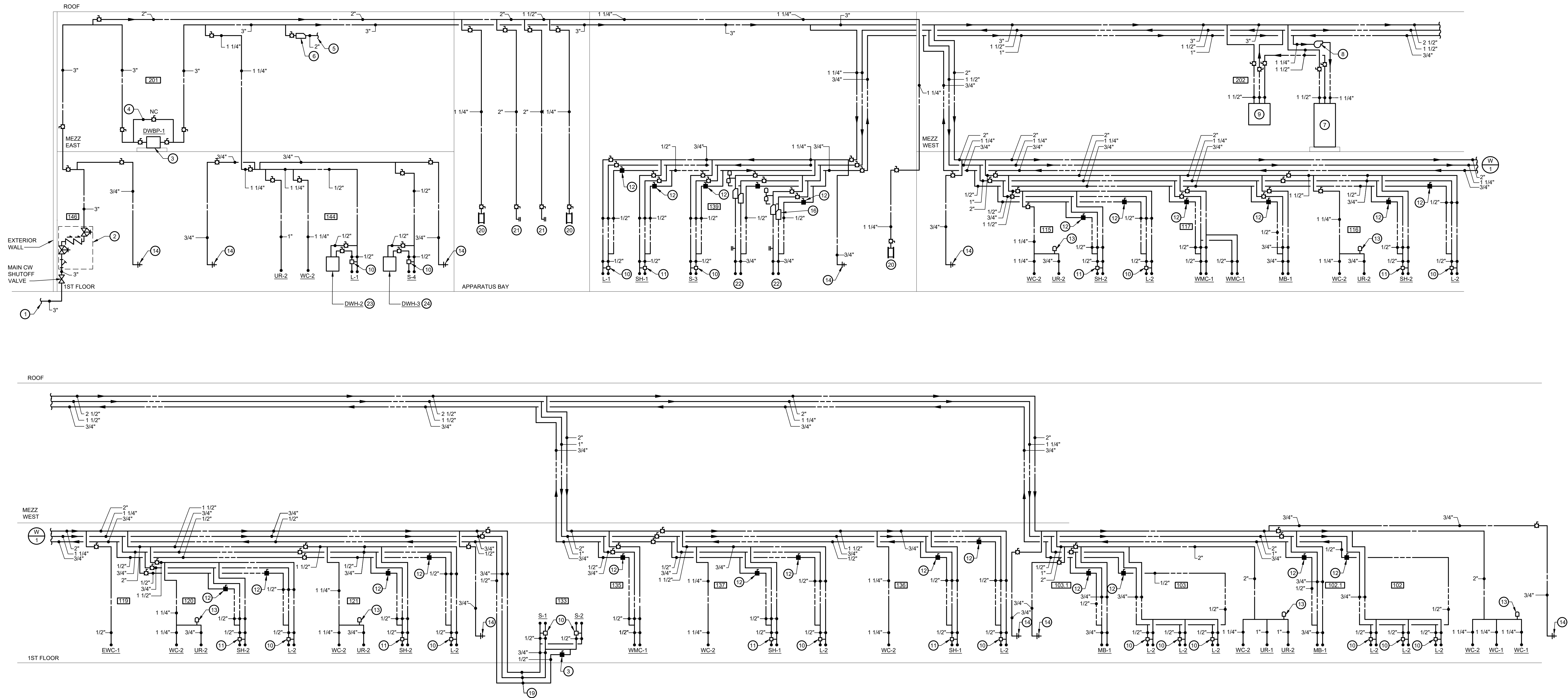
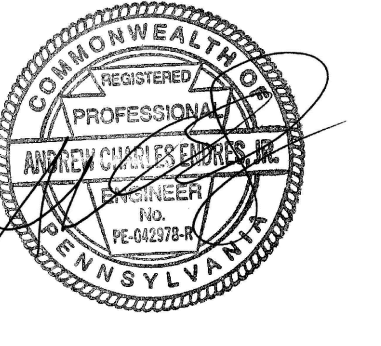
CUMRU FIRE DEPARTMENT
1775 WELSH ROAD
MOHNTON, PA 19540

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:

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

DRAWING NOTES:

- 3" INCOMING DOMESTIC WATER SERVICE, FOR CONTINUATION, REFER TO CIVIL DRAWINGS.
- 3" REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER ASSEMBLY WITH STRAINER (VERTICAL UP-VERTICAL UP POSITION), REFER TO DETAIL.
- DOMESTIC WATER BOOSTER PUMP, DWB-1, REFER TO DETAILS.
- FULL LINE SIZE BYPASS WITH NORMALLY CLOSED VALVE.
- 2" COLD WATER MAKEUP TO MECHANICAL EQUIPMENT, PROVIDE SHUT-OFF BALL VALVE AND REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER.
- 2" REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER.
- DOMESTIC WATER HEATER, DWH-1, REFER TO DETAIL.
- DOMESTIC HOT WATER RECIRCULATING PUMP, DHW-1, REFER TO DETAIL.
- DOMESTIC HOT WATER MASTER MIXING VALVE, DWMV-1, REFER TO DETAIL.
- POINT-OF-USE THERMOSTATIC MIXING VALVE, LAWLER MODEL NO. 570 (ASSE 1070).
- COMBINED PRESSURE BALANCING/THERMOSTATIC SHOWER MIXING VALVE, ASSE 1016.
- COMBINATION SHUT-OFF VALVE AND BALANCE FITTING (SET AT 0.5 GPM), REFER TO DETAIL.
- WATER HAMMER ARRESTER, SIZE TO PDI WH-201.
- 3/4" NON-FREEZE WALL HYDRANT WITH VACUUM BREAKER.
- 3/4" NON-FREEZE COLD WATER HOSE BIBB WITH VACUUM BREAKER.
- BACKFLOW PREVENTER, (TYPICAL)
- ICE MAKER & FILTER ASSEMBLY PROVIDED UNDER ANOTHER DIVISION, UNDER THIS DIVISION PROVIDE SHUT-OFF BALL VALVES AND BACKFLOW PREVENTER, ROUGH-IN & FINAL CONNECTION.
- AUTOMATIC TRAP PRIMING STATION TPS-1, REFER TO DETAIL.
- 1/2" HWR, 3/4" HW & 3/4" CW INSULATED PIPING LOCATED IN 6" PVC CONDUIT, PROVIDE SEAMLESS SOFT COPPER TUBING WITH NO FITTINGS.
- 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.
- 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.
- 1/2" HWR, 1" HW & 1" CW DOWN TO EXTRACTOR, EXTRACTOR UNDER ANOTHER DIVISION, UNDER THIS DIVISION, PROVIDE ROUGH-IN & FINAL CONNECTION.
- INSTANTANEOUS ELECTRIC DOMESTIC WATER HEATER, DWH-2, REFER TO SCHEDULE.
- INSTANTANEOUS ELECTRIC DOMESTIC WATER HEATER, DWH-3, REFER TO SCHEDULE.

ARL C:\19020\01\Drawings\Acad\P401\DW RISER
 Plotted By: Rose Castillo-Hernandez | 02/27/2023 5:08 PM

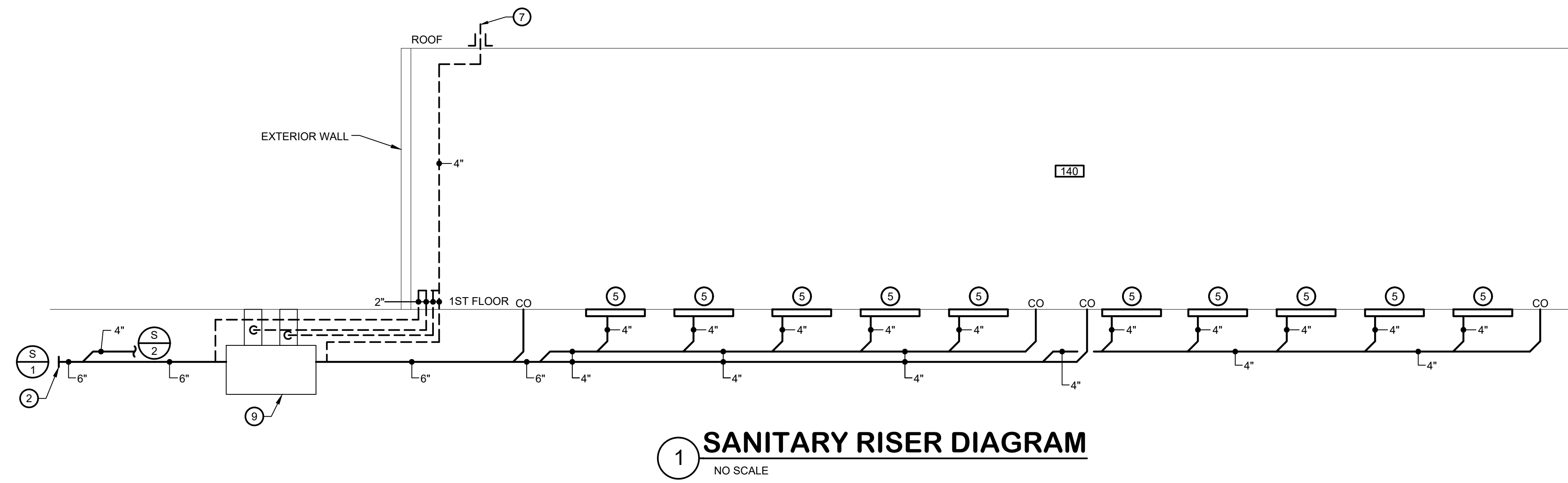
CUMRU FIRE DEPARTMENT
 1775 WELSH ROAD
 MOHNTON, PA 19540

NO.	DESCRIPTION	DATE

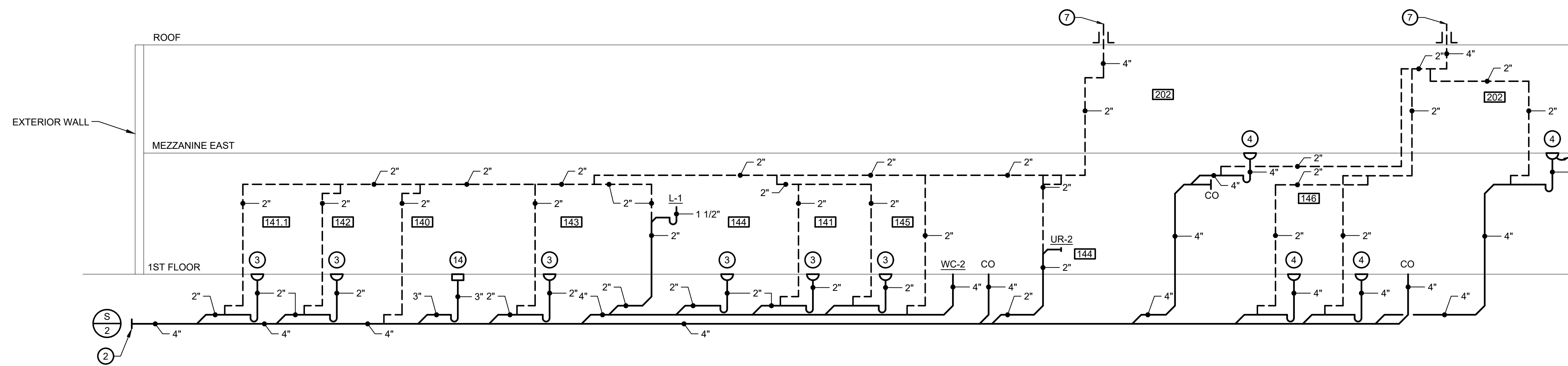
PROJECT NUMBER:
 18-036
 PROJECT SET:
 BID SET
 DATE ISSUED:
 11/30/2023

DRAWING TITLE:
**PLUMBING RISER
 DIAGRAMS**

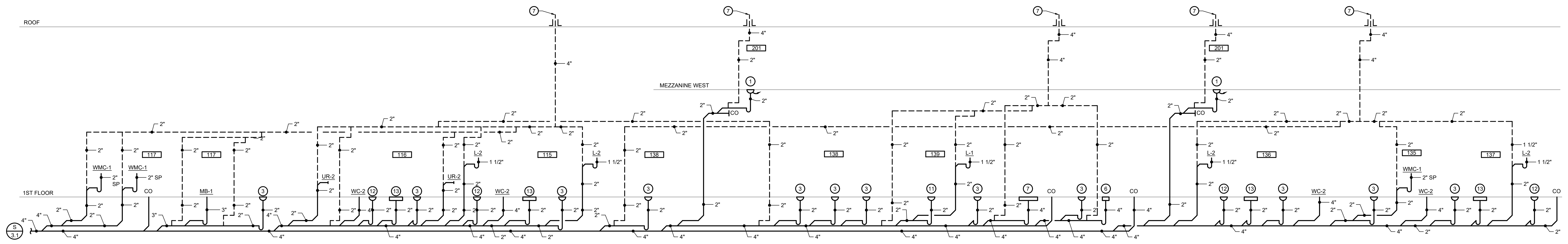
SHEET NUMBER:
P401



1 SANITARY RISER DIAGRAM
NO SCALE



2 SANITARY RISER DIAGRAM
NO SCALE



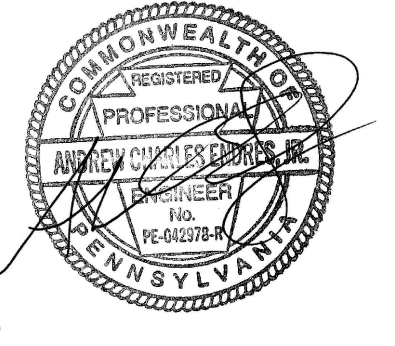
3 SANITARY RISER DIAGRAM
NO SCALE

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.

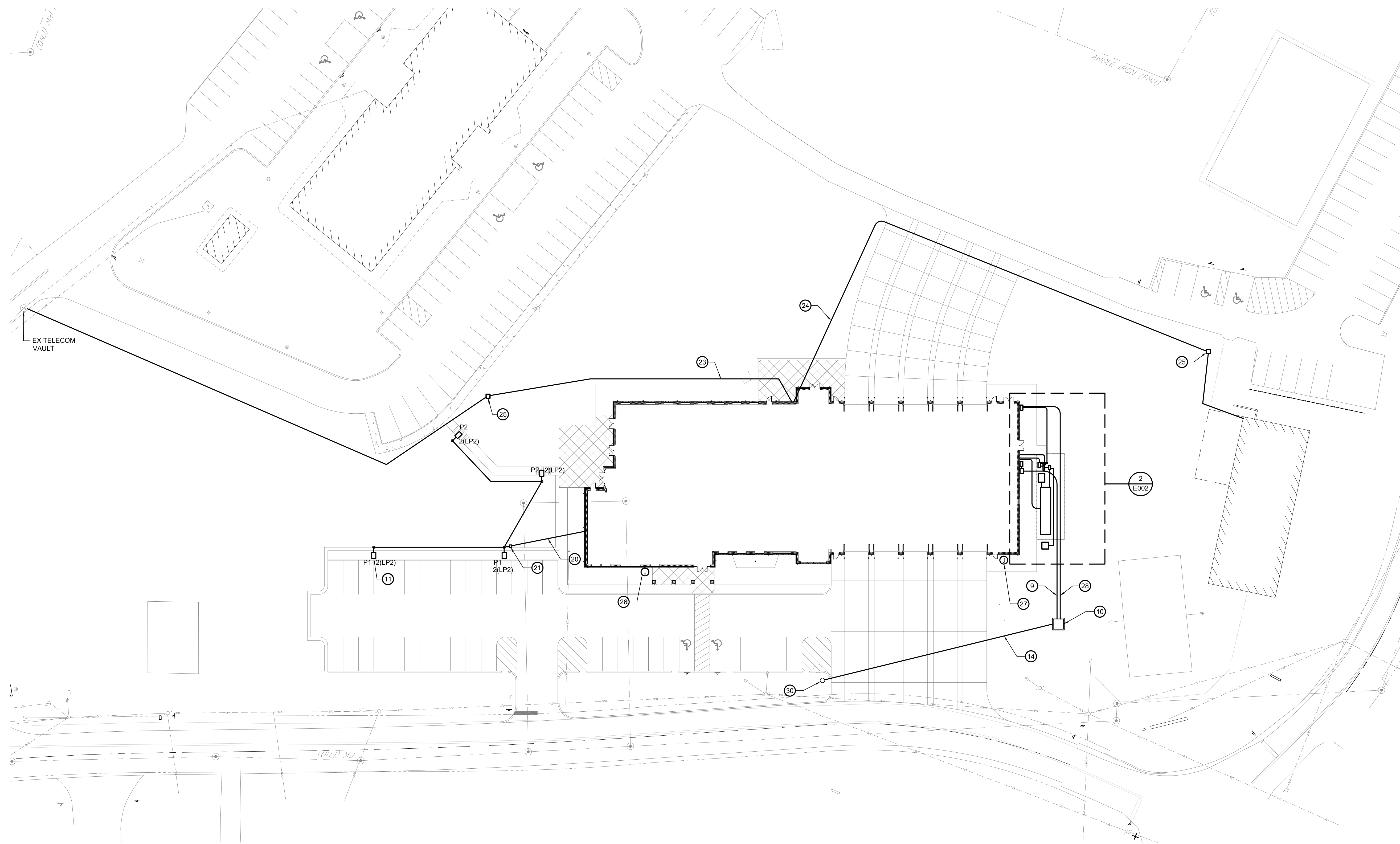


NO.	DESCRIPTION	DATE

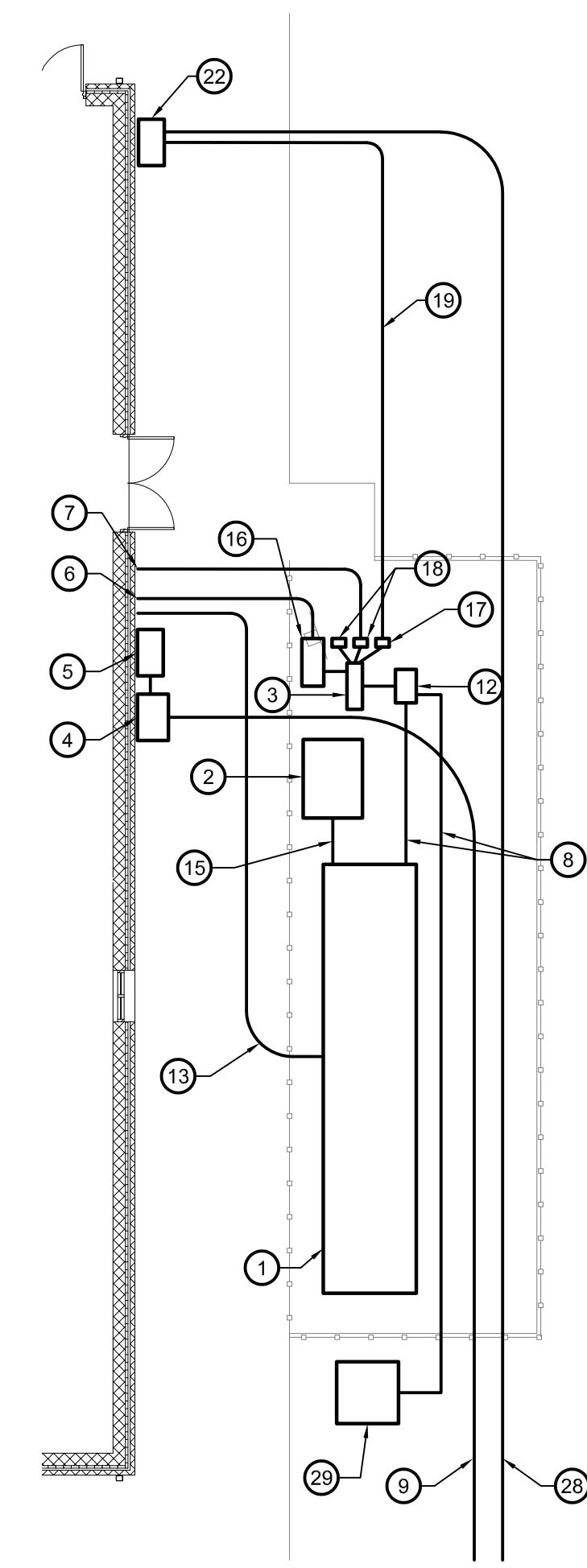
PROJECT NUMBER:
18-036
PROJECT SET:
BID SET
DATE ISSUED:
11/30/2023

DRAWING TITLE:
PLUMBING RISER
DIAGRAMS

SHEET NUMBER:
P402



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



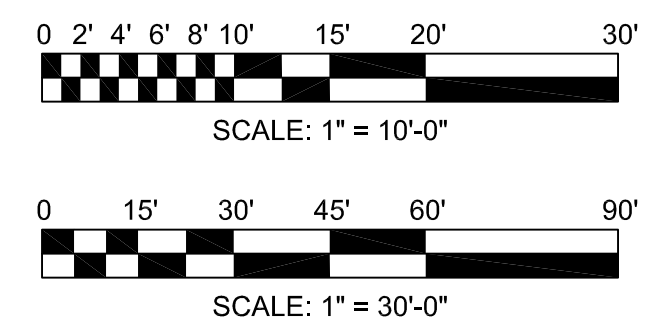
2 ENLARGED SITE PLAN - ELECTRICAL - NEW WORK
SCALE: 1" = 10'-0"

GENERAL NOTES:

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

DRAWING NOTES:

- 450KW, 480Y/277V, 3 PHASE, 4W, 0.8PF DIESEL GENERATOR WITH WEATHERPROOF, SOUND ATTENUATED ENCLOSURE.
- 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.
- PROVIDE WIRE TROUGH IN NEMA 3R ENCLOSURE FOR CONNECTION TO MANUAL TRANSFER SWITCH.
- PROVIDE CT CABINET AND METER SOCKET.
- 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.
- PROVIDE (2) 4" CONDUITS AND (1) 4" SPARE FROM WIRE TROUGH TO EM FSS TO ATS-1.
- PROVIDE (1) 1" CONDUIT AND (1) 1" SPARE FROM WIRE TROUGH TO LS FSS TO ATS-2.
- 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.
- 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.
- NEW PAD MOUNTED TRANSFORMER BY UTILITY. PROVIDE CONCRETE PAD PER UTILITY REQUIREMENTS. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR PAD DETAILS.
- PROVIDE POLE MOUNTED LIGHT FIXTURE. (TYP.)
- PROVIDE MANUAL TRANSFER SWITCH FOR PORTABLE GENERATOR CONNECTION.
- PROVIDE (4) 2" CONDUITS FOR CONTROLS TO MAIN ELECTRICAL ROOM. PROVIDE SEPARATE HANDHOLES AS NECESSARY FOR CONTROLS CONDUITS.
- 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.
- PROVIDE (2) 2-1/2" CONDUITS AND (1) 2-1/2" SPARE FROM GENERATOR TO LOAD BANK.
- PROVIDE 480V, 3P, 800A FSS WITH 800A FUSES IN NEMA 3R ENCLOSURE
- PROVIDE 480V, 3P, 60A FSS WITH 40A FUSES IN NEMA 3R ENCLOSURE MOUNTED ON UNISTRUT SUPPORT STRUCTURE.
- PROVIDE 480V, 3P, 60A FSS WITH 60A FUSES IN NEMA 3R ENCLOSURE MOUNTED ON UNISTRUT SUPPORT STRUCTURE.
- PROVIDE (1) 1" CONDUIT AND (1) 1" SPARE FROM WIRE TROUGH TO FIRE PUMP CONTROLLER.
- PROVIDE (2) #10 + (1) #10 GND IN 1" DIRECT BURIED CONDUIT WITH MINIMUM COVER OF 36" FOR CONNECTION TO SITE LIGHTING.
- PROVIDE MINIMUM 6"x8"x8" HANDHOLE, BY QUAZITE OR APPROVED EQUAL, FOR SITE LIGHTING CONDUITS.
- PROVIDE 480V, 3P, 150A ENCLOSED CIRCUIT BREAKER IN NEMA 3R ENCLOSURE FOR FIRE PUMP CONNECTION.
- 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.
- 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.
- PROVIDE MINIMUM 30"x48"x30" HANDHOLE BY QUAZITE OR APPROVED EQUAL.
- PROVIDE POWER TO BUILDING MOUNTED LED SIGNAGE. CIRCUIT TO PANEL RP3-79. REFER TO DRAWING A-200 FOR ADDITIONAL INFORMATION.
- 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.
- PROVIDE (1) 1" CONDUIT AND (1) 1" SPARE FROM PAD MOUNTED UTILITY TRANSFORMER TO FIRE PUMP CONTROLLER.
- 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.
- NEW UTILITY POLE. VERIFY EXACT LOCATION IN FIELD.

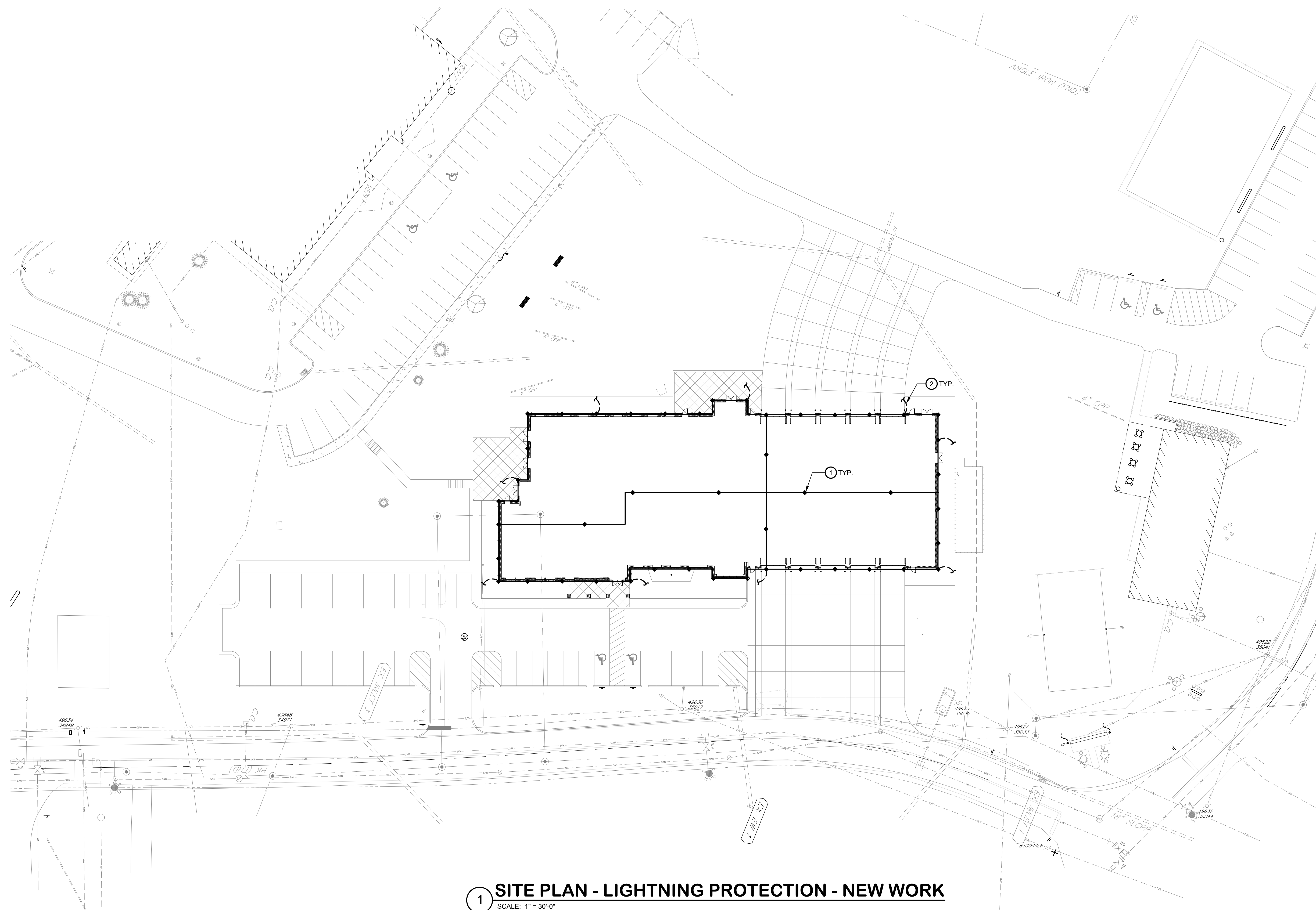


NO.	DESCRIPTION	DATE

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.

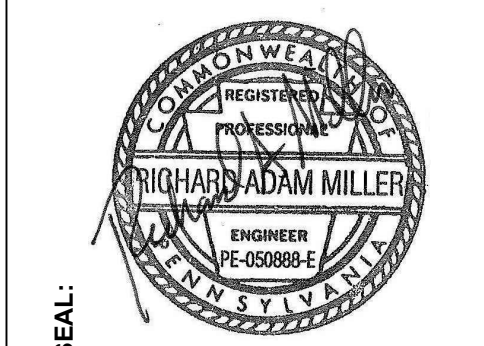
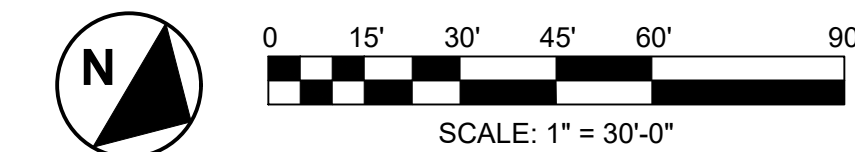
DRAWING NOTES:

- 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.

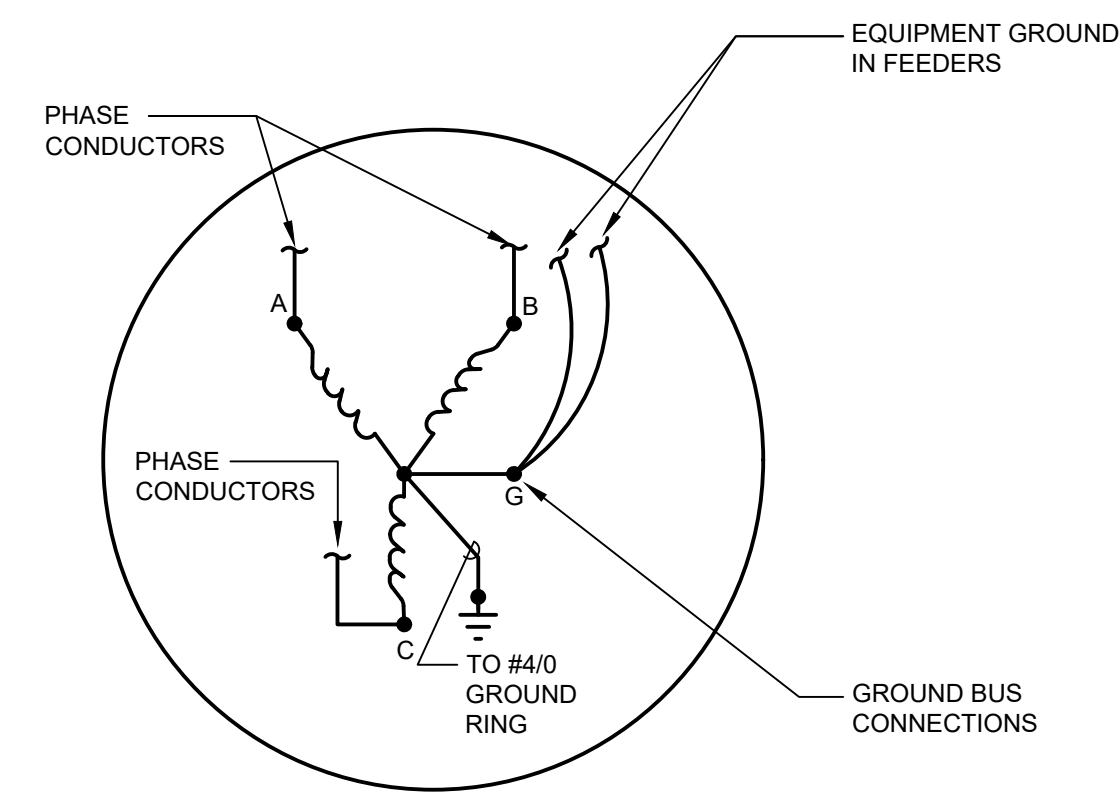


CUMRU FIRE DEPARTMENT
1775 WELSH ROAD
MOHNTON, PA 19540

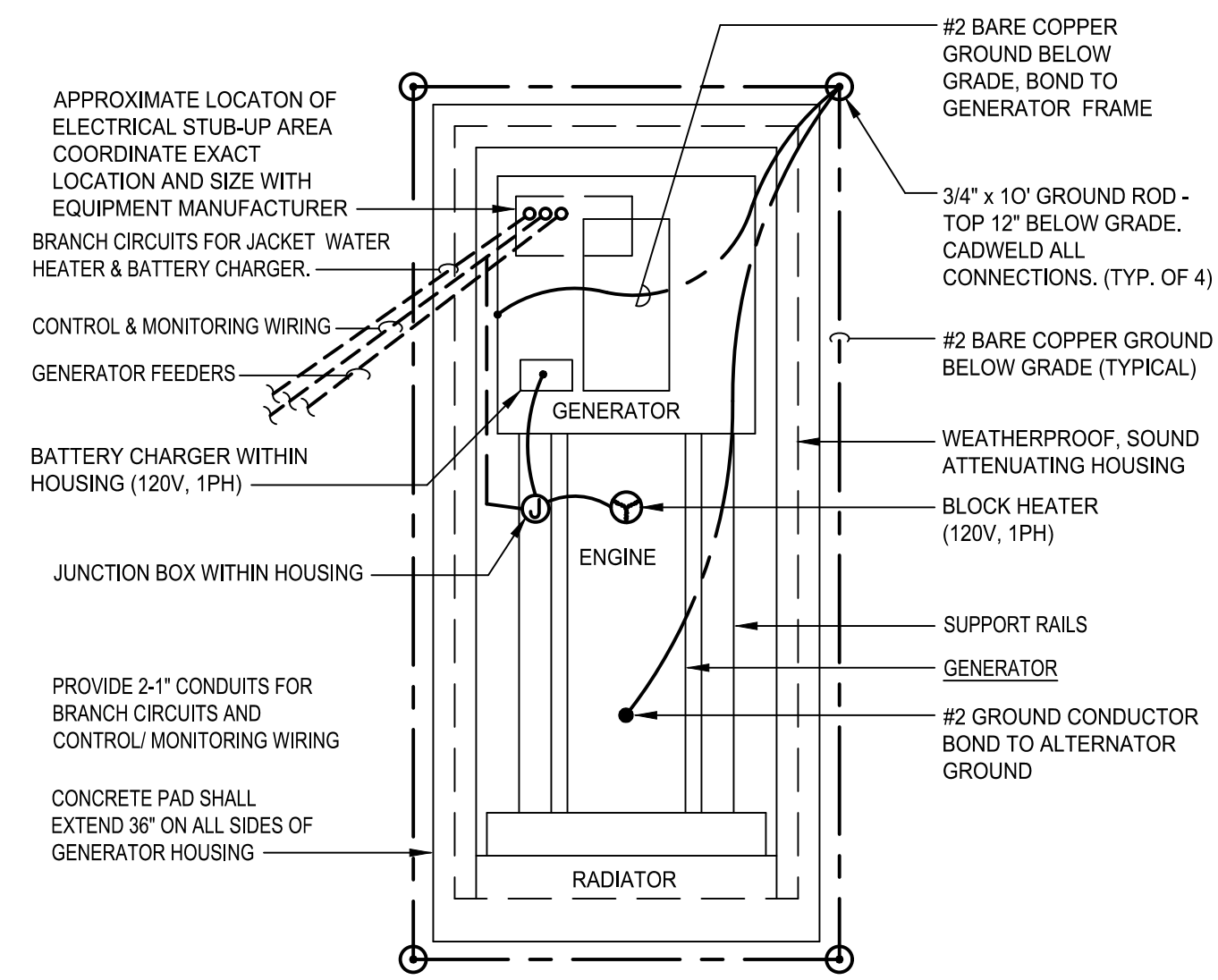
NO.	DESCRIPTION	DATE

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

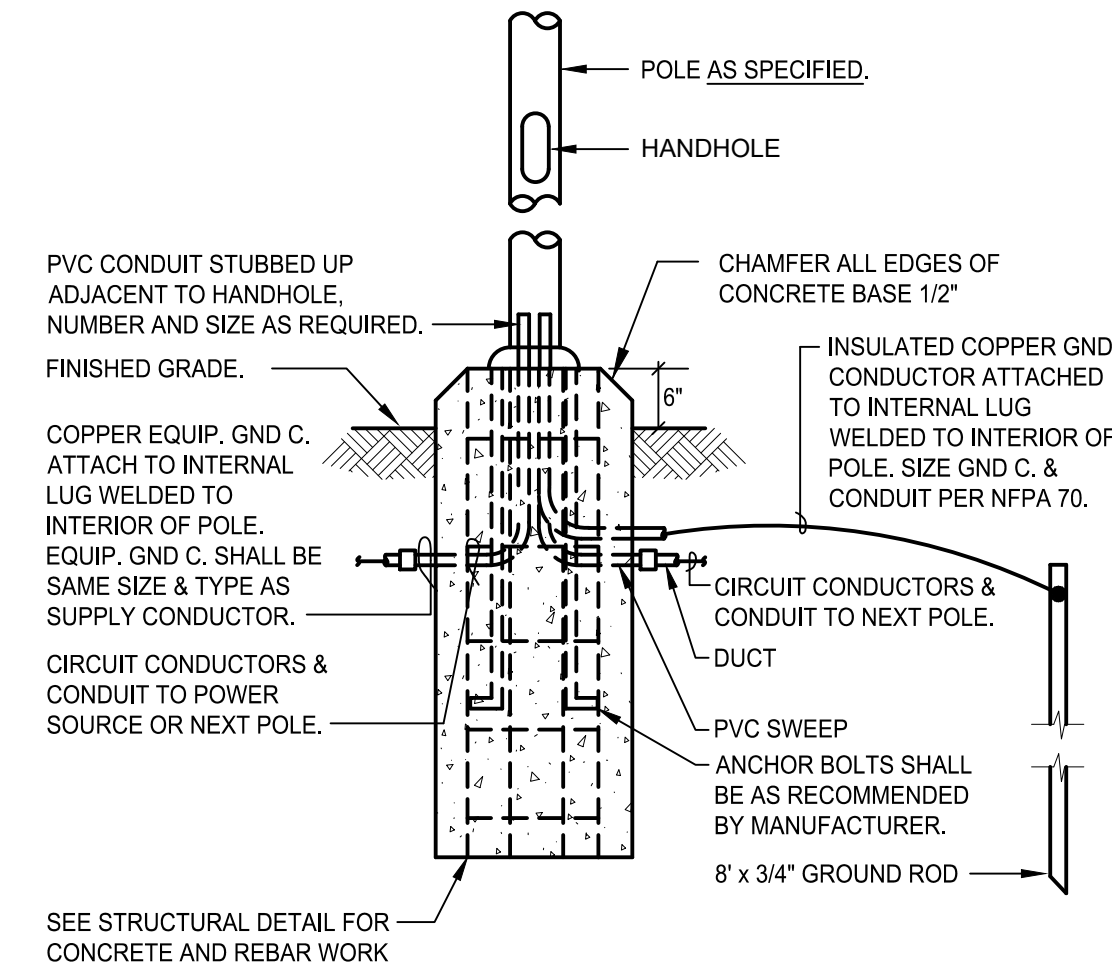
DRAWING TITLE:
SITE PLAN
LIGHTNING PROTECTION
NEW WORK
SHEET NUMBER:
E003



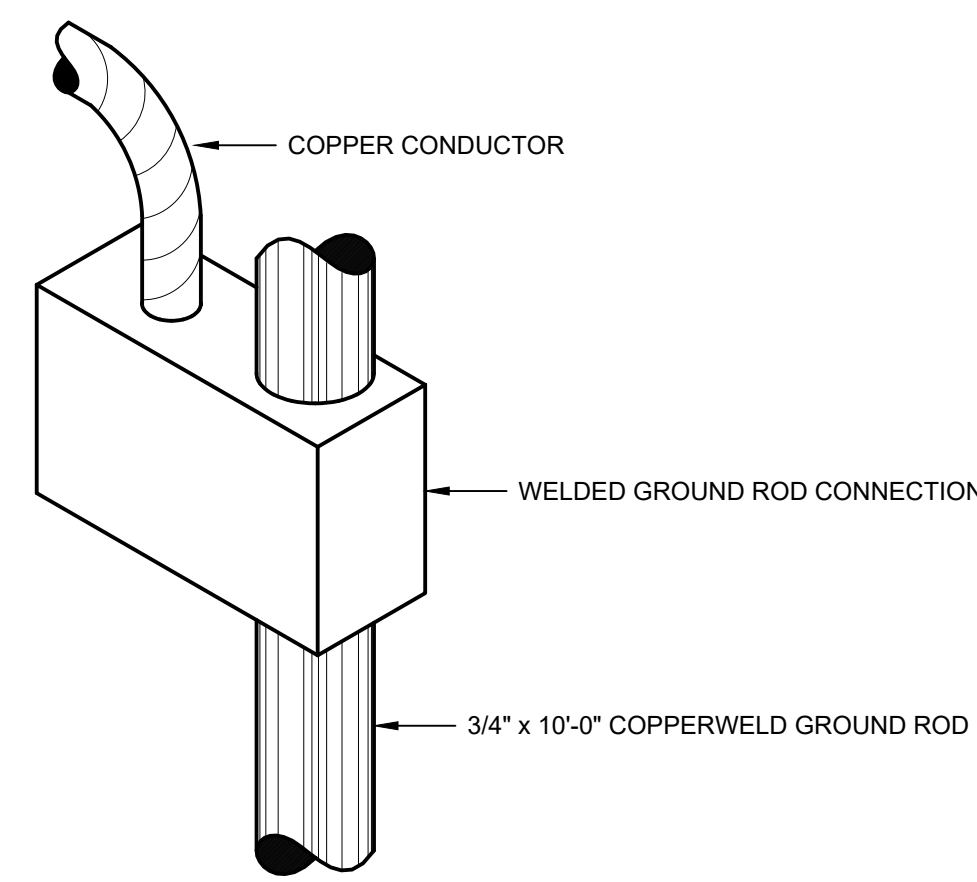
1 GENERATOR GROUNDING DETAIL
NO SCALE



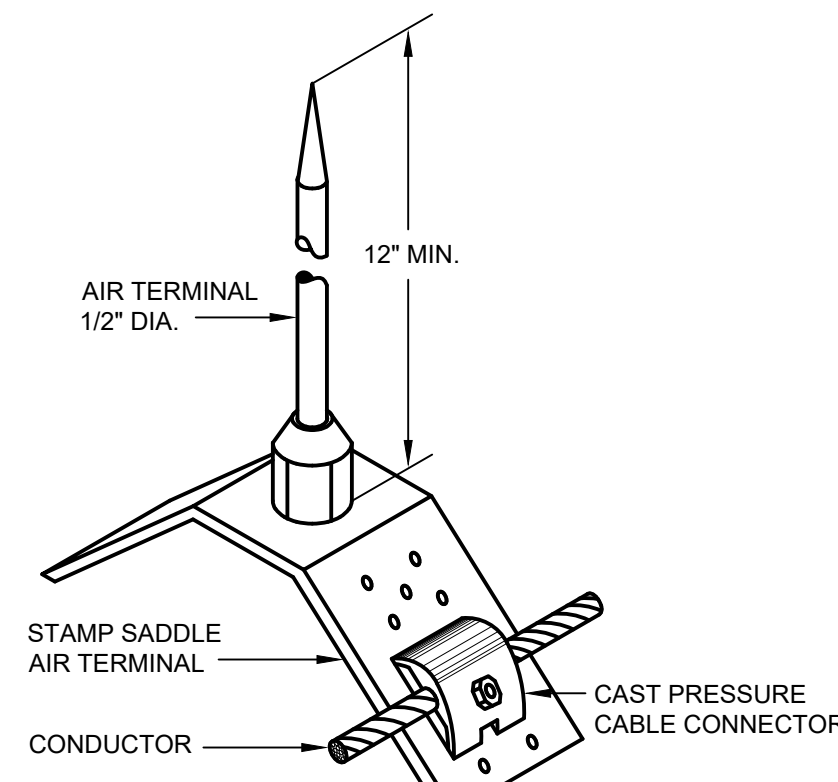
2 GENERATOR CONNECTION DETAIL
NO SCALE



3 CONCRETE POLE BASE DETAIL
NO SCALE

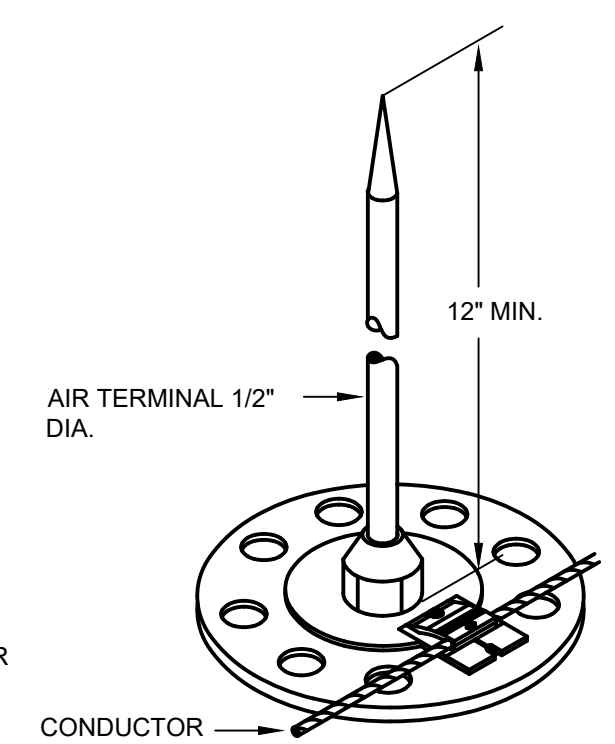


4 LIGHTNING PROTECTION GROUNDING DETAIL
NO SCALE

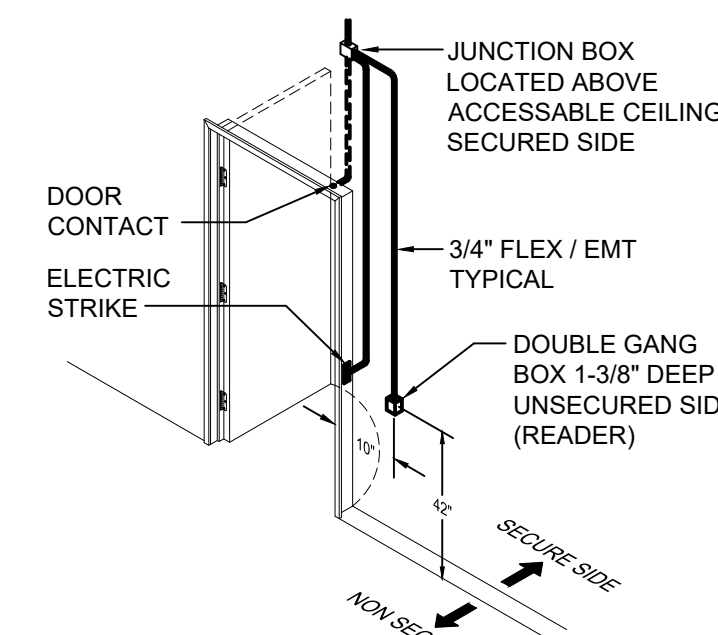


RIDGE SADDLE AIR TERMINAL BASE

5 LIGHTNING PROTECTION AIR TERMINAL DETAIL
NO SCALE



ADHESIVE AIR TERMINAL BASE



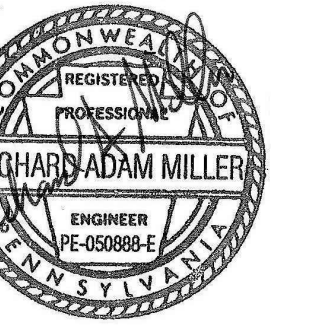
6 CARD READER MOUNTING DETAIL
NO SCALE

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.
 800 Blair Mill Lane, Suite 400 | Baltimore, Maryland 21209
 P: 410.336.0861 | www.bkm.com

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 ONE-LINE DIAGRAM

SHEET NUMBER:
E501

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

GENERAL NOTES:

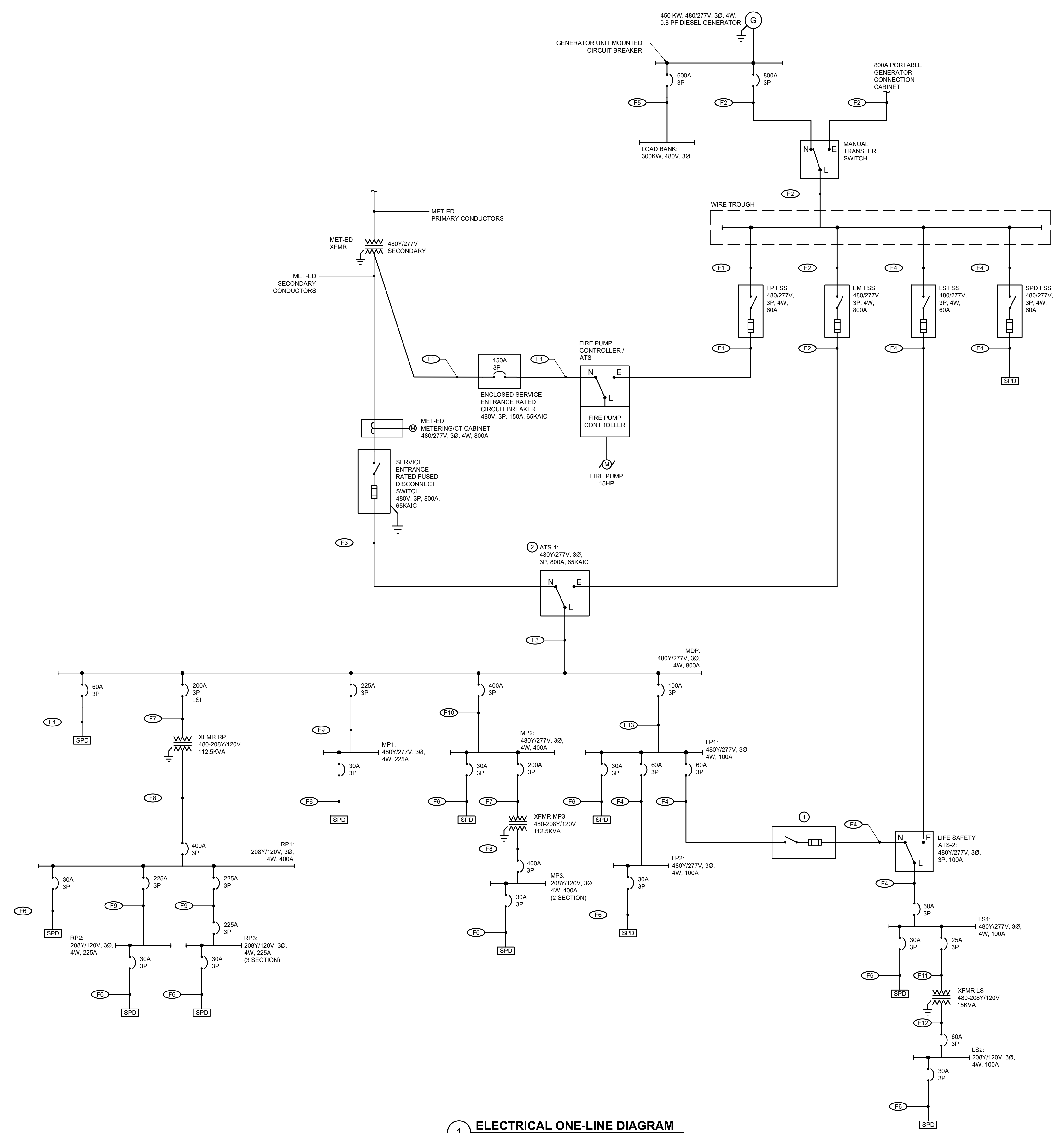
- REFER TO DRAWING E001 FOR GENERAL NOTES, LEGEND AND ABBREVIATIONS.
- ALL TRANSFORMERS ARE 3-PHASE, DELTA-WYE, 480V PRIMARY - 208/120V SECONDARY, DRY-TYPE UNLESS OTHERWISE NOTED.
- REFER TO SITE PLAN FOR SPARE UNDERGROUND CONDUIT REQUIREMENTS.

DRAWING NOTES:

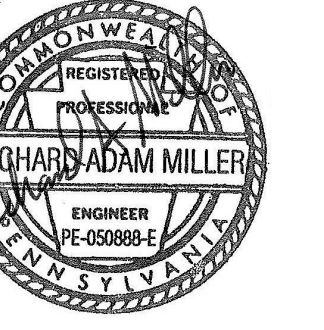
- PROVIDE 480V, 3P, 60A, 65KAIC FSS IN NEMA 1 ENCLOSURE WITH 60A CURRENT LIMITING FUSES.
- PROVIDE WITH BYPASS ISOLATION SWITCH.

FEEDER SCHEDULE:

- (F1) PROVIDE 4#6 + 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#6 + 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#600KCMIL + 1#3 GND IN 4" 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#8 GND IN 1-1/4" CONDUIT.



1 ELECTRICAL ONE-LINE DIAGRAM
 NOT TO SCALE



SEAL

CONSULTANT:
bkm
Burdette, Koehler, Murphy & Associates, Inc.
5400 Lumsden Lane, Suite 401 | Baltimore, Maryland 21209
P: 410.282.0801 | www.bkm.com

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	LENS/OVER	MOUNTING	Voltage	Color Temperature	MAX. FIXTURE INPUT WATTS	INITIAL FIXTURE LUMEN OUTPUT	LAMP TYPE	MANUFACTURER	CATALOG NUMBER
A1	2X2 DIRECT/INDIRECT LED FIXTURE	ACRYLIC	RECESSED	277 V	4000 K	18	2000 lm	LED	MARK ARCHITECTURAL	WHSPR-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	WHSPR-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	WHSPR-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	WHSPR-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-MSL4-90CRI-SBL-40K-1700LMF-700LMF-MIN1-Z-T-Z77-SC7
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-90CRI-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-900-90-40-SQ-4-W-UNV-DP-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-NA-LDCHX-LED43-4000K-DL
W4	FLOOD LIGHTING	N/A	WALL	277 V	4000 K	89	7000 lm	LED	HE WILLIAMS	VF2-L70/740-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

Panelboard: MDP

Location: ELEC. 141
Supply From:
Mounting: Enclosure: Not Used

Volts: 480/277 3Ø 4W
Phases: 3
Wires: 4

A.I.C. Rating: 65KA
Mains Type: MLO
Mains Rating: 800 A

Notes:

CKT	Circuit Description	# of Poles	Frame Size	Trip Rating	Load (kVA)	Remarks
1	XFMR RP	3	400 A	300 A	119.2	
2	MP1	3	225 A	72.2		
3	MP2	3	400 A	108.0		
4	LP1	3	100 A	14.3		
5	SPD	3	100 A	60 A	0.0	
6	SPARE	3	--	400 A	0.0	
7	SPACE	--	--	--	0.0	--
8	SPACE	--	--	--	0.0	--
9	SPACE	--	--	--	0.0	--
10	SPACE	--	--	--	0.0	--
11	SPACE	--	--	--	0.0	--
12	SPACE	--	--	--	0.0	--
13						
14						
15						
16						
17						
18						
19						
20						
Total Conn. Load:					313.7	kVA
Total Amps:					377.3	A

Legend:

Notes:
PROVIDE H-LINE TYPE PANELBOARD.

Panel: LS1

LOCATION: ELEC. 141
MOUNTING: Surface

MAINS RATING: 60 A
MAINS TYPE: MCB

VOLTAGE: 480/277 3Ø 4W
AIC RATING: 25KA

CKT	Circuit Description	Trip	Poles	A	B	C	A	B	C	Poles	Trip	Circuit Description	CKT
1	XFMR LS	25 A	3	1.20		1.51				1	20 A	LIGHTING	2
3	--	--	--		0.00			0.96		1	20 A	LIGHTING	4
5	--	--	--		0.00			0.46		1	20 A	LIGHTING	6
7	SPARE	20 A	1	0.00		0.00				1	20 A	SPARE	8
9	SPARE	20 A	1		0.00					1	20 A	SPARE	10
11	SPARE	20 A	1		0.00					1	20 A	SPARE	12
13	SPARE	20 A	1	0.00		0.00				1	20 A	SPARE	14
15	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	16
17	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	18
19	SPARE	20 A	1	0.00		0.00				1	20 A	SPARE	20
21	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	22
23	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	24
25	SPARE	20 A	1	0.00		0.00				1	20 A	SPARE	26
27	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	28
29	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	30
31	SPACE	--	--	0.00		0.00				--	--	SPACE	32
33	SPACE	--	--		0.00			0.00		--	--	SPACE	34
35	SPACE	--	--		0.00			0.00		--	--	SPACE	36
37	SPACE	--	--		0.00			0.00		3	30 A	SPD	38
39	SPACE	--	--		0.00			0.00		--	--	SPACE	40
41	SPACE	--	--		0.00			0.00		--	--	SPACE	42

Connected Load
A0: 2.71 KVA = 23 A A
B0: 0.96 KVA = 8 A A
C0: 0.46 KVA = 4 A A

Notes:

Panel: MP1

LOCATION: ELEC. 141
MOUNTING: Surface

MAINS RATING: 225 A
MAINS TYPE: MLO

VOLTAGE: 480/277 3Ø 4W
AIC RATING: 42KA

CKT	Circuit Description	Trip	Poles	A	B	C	A	B	C	Poles	Trip	Circuit Description	CKT
1	SPARE	20 A	3	0.00		0.94		0.94		3	15 A	SWHP-1	2
3	--	--	--			0.00				--	--	--	4
5	--	--	--			0.00		0.94		3	15 A	SHWP-2	6
7	PHWP-1	15 A	3	0.58		0.58		0.94		3	15 A	SHWP-2	8
9	--	--	--			0.58		0.94		--	--	--	10
11	--	--	--			0.58		0.94		--	--	--	12
13	PHWP-2	15 A	3	0.58		0.58		9.87		3	45 A	DOAS-1	14
15	--	--	--			0.58		9.87		--	--	--	16
17	--	--	--			0.58		9.87		--	--	--	18
19	DWH-3	80 A	1	16.05		2.02		2.02		3	20 A	DWBP-1	20
21	--	--	--			2.02		2.02		--	--	--	22
23	--	--	--			2.02		2.02		--	--	--	24
25	DWBP-1	20 A	3	2.02		0.44		0.44		3	20 A	JP-1	26
27	--	--	--			2.02		0.44		--	--	--	28
29	--	--	--			2.02		0.44		--	--	--	30
31	SPACE	--	--	0.00		1.33		1.33		3	40 A	EF-3	32
33	SPACE	--	--		0.00			1.33		--	--	SPACE	34
35	SPACE	--	--		0.00			1.33		--	--	SPACE	36
37	SPACE	--	--		0.00			0.00		3	30 A	SPD	38
39	SPACE	--	--		0.00			0.00		--	--	SPACE	40
41	SPACE	--	--		0.00			0.00		--	--	SPACE	42

Connected Load
A0: 34.78 KVA = 126 A A
B0: 18.73 KVA = 68 A A
C0: 18.73 KVA = 68 A A

Notes:

Panel: LP1

LOCATION: ELEC. 141
MOUNTING: Surface

MAINS RATING: 100 A
MAINS TYPE: MCB

VOLTAGE: 480/277 3Ø 4W
AIC RATING: 25KA

CKT	Circuit Description	Trip	Poles	A	B	C	A	B	C	Poles	Trip	Circuit Description	CKT
1	LP2	60 A	3	3.33		0.57				1	20 A	SITE LIGHTING	2
3	--	--	--		2.28			0.32		1	20 A	LIGHTING	4
5	--	--	--		1.43			2.22		1	20 A	LIGHTING	6
7	LS1	60 A	3	2.71		0.96		0.00		1	20 A	SPARE	8
9	--	--	--			0.96		0.00		1	20 A	SPARE	10
11	--	--	--			0.46		0.00		1	20 A	SPARE	12
13	SPARE	20 A	1	0.00		0.00		0.00		1	20 A	SPARE	14
15	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	16
17	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	18
19	SPARE	20 A	1	0.00		0.00				1	20 A	SPARE	20
21	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	22
23	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	24
25	SPARE	20 A	1	0.00		0.00				1	20 A	SPARE	26
27	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	28
29	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	30
31	SPACE	--	--	0.00		0.00				--	--	SPACE	32
33	SPACE	--	--		0.00			0.00		--	--	SPACE	34
35	SPACE	--	--		0.00			0.00		--	--	SPACE	36
37	SPACE	--	--		0.00			0.00		3	30 A	SPD	38
39	SPACE	--	--		0.00			0.00		--	--	SPACE	40
41	SPACE	--	--		0.00			0.00		--	--	SPACE	42

Connected Load
A0: 6.61 KVA = 24 A A
B0: 3.56 KVA = 13 A A
C0: 4.11 KVA = 15 A A

Notes:

Panel: MP2

LOCATION: ELEC. 118
MOUNTING: Surface

MAINS RATING: 400 A
MAINS TYPE: MLO

VOLTAGE: 480/277 3Ø 4W
AIC RATING: 42KA

CKT	Circuit Description	Trip	Poles	A	B	C	A	B	C	Poles	Trip	Circuit Description	CKT
1	XFMR MP3	175 A	3	33.04		1.03				3	20 A	ACCU-6	2
3	--	--	--		36.20			1.03		--	--	--	4
5	--	--	--		32.99			1.03		--	--	--	6
7	DSF-1	20 A	3	0.44		0.44		0.44		3	20 A	DSF-2	8
9	--	--	--			0.44		0.44		--	--	--	10
11	--	--	--			0.44		0.44		--	--	--	12
13	SPACE	--	--	0.00		0.00		0.00		--	--	SPACE	14
15	SPACE	--	--		0.00			0.00		--	--	SPACE	16
17	SPACE	--	--		0.00			0.00		--	--	SPACE	18
19	SPACE	--	--		0.00			0.00		--	--	SPACE	20
21	SPACE	--	--		0.00			0.00		--	--	SPACE	22
23	SPACE	--	--		0.00			0.00		--	--	SPACE	24
25	SPACE	--	--		0.00			0.00		--	--	SPACE	26
27	SPACE	--	--		0.00			0.00		--	--	SPACE	28
29	SPACE	--	--		0.00			0.00		--	--	SPACE	30
31	SPACE	--	--		0.00			0.00		--	--	SPACE	32
33	SPACE	--	--		0.00			0.00		--	--	SPACE	34
35	SPACE	--	--		0.00			0.00		--	--	SPACE	36
37	SPACE	--	--		0.00			0.00		3	30 A	SPD	38
39	SPACE	--	--		0.00			0.00		--	--	SPACE	40
41	SPACE	--	--		0.00			0.00		--	--	SPACE	42

Connected Load
A0: 34.95 KVA = 126 A A
B0: 38.11 KVA = 138 A A
C0: 34.90 KVA = 126 A A

Notes:

Panel: LP2

LOCATION: ELEC. 118
MOUNTING: Surface

MAINS RATING: 100 A
MAINS TYPE: MLO

VOLTAGE: 480/277 3Ø 4W
AIC RATING: 14KA

CKT	Circuit Description	Trip	Poles	A	B	C	A	B	C	Poles	Trip	Circuit Description	CKT
1	LIGHTING	20 A	1	1.55		0.81		0.45		1	20 A	SITE LIGHTING	2
3	LIGHTING	20 A	1		1.83			0.45		1	20 A	LIGHTING	4
5	LIGHTING	20 A	1		0.49			0.94		1	20 A	LIGHTING	6
7	LIGHTING	20 A	1	0.39		0.58		0.00		1	20 A	LIGHTING	8
9	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	10
11	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	12
13	SPARE	20 A	1	0.00		0.00				1	20 A	SPARE	14
15	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	16
17	SPARE	20 A	1		0.00			0.00		1	20 A	SPARE	18
19	SPARE	20 A	1	0.00		0.00				1	20 A	SPARE	20
21	SPARE	20 A	1										

Panel: RP1														
LOCATION: ELEC. 141			MAINS RATING: 400 A				VOLTAGE: 120/208 3Ø 4W							
MOUNTING: Surface			MAINS TYPE: MCB				AIC RATING: 18KA							
CKT	Circuit Description	Trip	Poles	A	B	C	A	B	C	Poles	Trip	Circuit Description	CKT	
1	RP2	225 A	3	9.86			17.49			3	225 A	RP3	2	
3	--	--	--	9.60			19.57			--	--	--	4	
5	--	--	--	9.14			22.21			--	--	--	6	
7	ACCU-2	40 A	2	2.52			1.50			2	20 A	UH-1 - 146	8	
9	--	--	--	2.52			1.50			--	--	--	10	
11	ACCU-4	30 A	2	1.88			1.88			0.60	1	20 A	B-2	12
13	--	--	--	1.88			1.32			1	20 A	DWH-1	14	
15	DDC PANEL	20 A	1	0.60			1.01			1	20 A	CH-1 - 144	16	
17	B-1	20 A	1	0.60			0.60			1	20 A	DDC PANEL	18	
19	DDC PANEL	20 A	1	0.60			0.00			1	20 A	TIMECLOCK	20	
21	DWH-2	30 A	2	2.40			0.60			1	20 A	EF-2	22	
23	--	--	--	2.40			0.60			2	20 A	EF-4	24	
25	UH-3	20 A	2	1.10			1.10			2	20 A	UH-4	26	
27	--	--	--	1.10			1.10			--	--	--	28	
29	EXTERIOR SIGNAGE	20 A	1	0.18			1.10			2	20 A	UH-2	30	
31	DDC PANEL	20 A	1	0.60			1.10			--	--	--	32	
33	SPARE	20 A	1	0.00			0.34			1	20 A	VF-1	34	
35	SPARE	20 A	1	0.00			0.00			0.50	1	20 A	DHWR-1	36
37	SPACE	--	--	0.00			0.00			3	30 A	SPD	38	
39	SPACE	--	--	0.00			0.00			--	--	--	40	
41	SPACE	--	--	0.00			0.00			--	--	--	42	

Connected Load
A0: 39.08 KVA = 326 A A
B0: 40.35 KVA = 336 A A
C0: 39.81 KVA = 332 A A

Notes:

Panel: RP2													
LOCATION: ELEC. 141			MAINS RATING: 225 A				VOLTAGE: 120/208 3Ø 4W						
MOUNTING: Surface			MAINS TYPE: MLO				AIC RATING: 14KA						
CKT	Circuit Description	Trip	Poles	A	B	C	A	B	C	Poles	Trip	Circuit Description	CKT
1	REC - 141.1, EXTERIOR	20 A	1	0.72			0.54			1	20 A	REC - 142	2
3	REC - 143	20 A	1	0.90			0.72			1	20 A	REC - 143,144,145	4
5	REC - 141, EXTERIOR	20 A	1	0.72			0.72			1	20 A	REC - 146, EXTERIOR	6
7	REC - MEZZANINE WEST	20 A	1	0.54			0.72			1	20 A	REC - BAY AREA	8
9	CABLE REEL - BAY AREA	20 A	1	0.36			0.36			1	20 A	CABLE REEL - BAY AREA	10
11	CABLE REEL - BAY AREA	20 A	1	0.36			0.36			1	20 A	CABLE REEL - BAY AREA	12
13	CABLE REEL - BAY AREA	20 A	1	0.36			0.36			1	20 A	CABLE REEL - BAY AREA	14
15	CABLE REEL - BAY AREA	20 A	1	0.36			0.36			1	20 A	CABLE REEL - BAY AREA	16
17	REC - BAY AREA	20 A	1	0.72			0.36			1	20 A	CABLE REEL - BAY AREA	18
19	RECEPTACLE	20 A	1	0.36			0.36			1	20 A	CABLE REEL - BAY AREA	20
21	CARD READERS	20 A	1	0.50			0.50			1	20 A	CARD READERS	22
23	REC TV APPARATUS BAY 140	20 A	1	0.36			0.00			1	20 A	SPARE	24
25	REC TV APPARATUS BAY 140	20 A	1	0.36			0.00			1	20 A	SPARE	26
27	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	28
29	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	30
31	AIR COMPRESSOR MEZZ	60 A	3	5.54			0.00			1	20 A	SPARE	32
33	--	--	--	5.54			0.00			1	20 A	SPARE	34
35	--	--	--	5.54			0.00			1	20 A	SPARE	36
37	SPACE	--	--	0.00			0.00			3	30 A	SPD	38
39	SPACE	--	--	0.00			0.00			--	--	--	40
41	SPACE	--	--	0.00			0.00			--	--	--	42

Connected Load
A0: 9.86 KVA = 82 A A
B0: 9.60 KVA = 80 A A
C0: 9.14 KVA = 76 A A

Notes:

Panel: RP3													
LOCATION: ELEC. 118			MAINS RATING: 225 A				VOLTAGE: 120/208 3Ø 4W						
MOUNTING: Surface			MAINS TYPE: MCB				AIC RATING: 14KA						
CKT	Circuit Description	Trip	Poles	A	B	C	A	B	C	Poles	Trip	Circuit Description	CKT
1	REC - 100, 101, 102	20 A	1	0.90			0.72			1	20 A	REC - 103, 104	2
3	REC - 104	20 A	1	0.72			0.72			1	20 A	REC - 104	4
5	FLR BOXES- 104	20 A	1	0.72			0.72			1	20 A	FLR BOXES- 104	6
7	FLR BOXES- 104	20 A	1	0.72			0.72			1	20 A	FLR BOXES- 104	8
9	RECEPTACLE	20 A	1	0.72			0.90			1	20 A	REC - 105	10
11	REC - 106	20 A	1	0.90			0.72			1	20 A	REC - 107	12
13	REC - 107	20 A	1	0.36			0.90			1	20 A	REC - 108	14
15	REC - 109	20 A	1	0.36			0.36			1	20 A	REC - 109	16
17	REC - 109	20 A	1	0.36			0.18			1	20 A	REC - 109	18
19	REC - 110	20 A	1	0.90			0.72			1	20 A	REC - 109.1	20
21	RECEPTACLE	20 A	1	0.54			0.54			1	20 A	REC - 111	22
23	REC - 113 & CORRIDOR	20 A	1	0.72			0.18			1	20 A	REC - 112	24
25	PRINTER - 113	20 A	1	0.60			0.18			1	20 A	PLOTTER - 113	26
27	REC - 114	20 A	1	0.72			0.72			1	20 A	REC - 114	28
29	REC - 115, 116, 117, 118	20 A	1	0.72			0.54			1	20 A	REC - PROJECTOR 104	30
31	WATER FOUNTAIN - 119	20 A	1	0.18			0.00			1	20 A	TREAD MILL - 119	32
33	TREAD MILL - 119	20 A	1	0.36			0.36			1	20 A	TREAD MILL - 119	34
35	REC - 119	20 A	1	0.36			0.72			1	20 A	REC - 120, 121, CORRIDOR	36
37	REC - 123	20 A	1	0.90			0.90			1	20 A	REC - 124	38
39	REC - 125	20 A	1	0.90			0.90			1	20 A	REC - 126	40
41	REC - 127	20 A	1	0.90			0.90			1	20 A	REC - 128	42
43	REC - CORRIDOR	20 A	1	0.90			0.54			1	20 A	REC - CORRIDOR	44
45	REC - KITCHEN	20 A	1	0.90			0.36			1	20 A	REC - KITCHEN	46
47	REC - KITCHEN	20 A	1	0.54			0.60			1	20 A	FRIDGE - KITCHEN	48
49	FRIDGE - KITCHEN	20 A	1	0.60			0.60			1	20 A	FRIDGE - KITCHEN	50
51	REC - 134	20 A	1	0.54			0.54			1	20 A	FLR BOXES - 134	52
53	REC - 135, 136, 137, 147	20 A	1	0.54			0.54			1	20 A	REC - 136, 139	54
55	REC - MEZZANINE WEST	20 A	1	0.54			0.36			1	20 A	REC - EXTERIOR	56
57	REC - EXTERIOR	20 A	1	0.54			4.00			2	50 A	RANGE - KITCHEN	58
59	REC - 109	20 A	1	0.72			4.00			--	--	--	60
61	REC - 138	20 A	1	0.72			0.72			1	20 A	REC - 138	62
63	REC - 138	20 A	1	0.72			0.60			1	20 A	FREEZER - 139	64
65	OVEN - KITCHEN	30 A	2	1.65			0.60			1	20 A	DISHWASHER - KITCHEN	66
67	--	--	--	1.65			0.54			1	20 A	RECEPTACLE	68
69	RECEPTACLE DAY ROOM 134	20 A	1	0.54			0.54			1	20 A	RECEPTACLE MEETING 104	70
71	RECEPTACLE KITCHEN 133	20 A	1	0.36			0.72			1	20 A	RECEPTACLE KITCHEN 133	72
73	RECEPTACLE FITNESS 119	20 A	1	0.36			0.18			1	20 A	RECEPTACLE IT 129	74
75	RECEPTACLE IT 129	20 A	1	0.18			0.18			1	20 A	RECEPTACLE IT 129	76
77	RECEPTACLE WATCH...	20 A	1	0.72			0.72			1	20 A	RECEPTACLE	78
79	EXTERIOR SIGNAGE	20 A	1	0.18			0.36			1	20 A	RECEPTACLE	80
81	OPERABLE PARTITION	20 A	1	0.00			0.36			1	20 A	RECEPTACLE FITNESS 119	82
83	FLOORBOX 104	20 A	1	0.54			0.54			1	20 A	FLOORBOX 104	84
85	TV FITNESS 119	20 A	1	0.18			0.36			1	20 A	RECEPTACLE VESTIBULE...	86
87	CARD READERS	20 A	1	0.50			0.25			1	20 A	CARD READERS	88
89	REC - MICROWAVE 133	20 A	1	0.60			0.18			1	20 A	SOLENOID VALVE	90
91	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	92
93	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	94
95	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	96
97	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	98
99	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	100
101	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	102
103	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	104
105	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	106
107	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	108
109	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	110
111	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	112
113	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	114
115	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	116
117	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	118
119	SPARE	20 A	1	0.00			0.00			1	20 A	SPARE	120
121	SPARE	20 A	1	0.00			0.00			3	30 A	SPD	122
123	SPARE	20 A	1	0.00			0.00			--	--	--	124
125	SPARE	20 A	1	0.00			0.00			--	--	--	126

Connected Load
A0: 17.49 KVA = 146 A A
B0: 19.57 KVA = 163 A A
C0: 22.21 KVA = 185 A A

Notes:

Panel: MP3													
LOCATION: ELEC. 118			MAINS RATING: 400 A				VOLTAGE: 120/208 3Ø 4W						
MOUNTING: Surface			MAINS TYPE: MCB				AIC RATING: 42KA						
CKT	Circuit Description	Trip	Poles	A	B	C	A	B	C	Poles	Trip	Circuit Description	CKT
1	ACCU-1	20 A	2	1.32			0.06			2	20 A	HR-5	2
3	--	--	--	1.32			0.06			2	20 A	--	4
5	HR-1,2,3,4	20 A	2	0.16			0.19			2	20 A	ACU-04,05	6
7	--	--	--	0.16			0.19			--	--	--	8
9	ACU-01,02,03	20 A	2	0.11			0.08			2	20 A	ACU-09,10,11	10
11	--	--	--										

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 lighthead and <25' to Notifier Module (no more than 2 lighthead 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

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 = 1st 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

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 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 CEILINGS, UNDERSIDE OF MEZZANINE DECKS AND CORRIDOR 131, SHALL BE IN METAL CONDUIT PAINTED TO MATCH DECK ABOVE.

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

CONSULTANT:

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

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 CEILINGS, UNDERSIDE OF MEZZANINE DECKS AND CORRIDOR 131. SHALL BE IN METAL CONDUIT PAINTED TO MATCH DECK ABOVE.

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

CONSULTANT:

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

- A. General Requirements**
- All work shall be performed in accordance with national, State and local electrical and/or building codes.
 - All critical components of the System shall be supported by an uninterruptible power supply.
 - 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**
- The System's components, control, and operation shall comply with NFPA 1221 as it applies to a standalone fire station alerting system.
 - The System and its components shall comply with NFPA 1221 when a dispatch server and station controller are implemented.
 - 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**
- The System shall interface with the customer's CAD system.
 - 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.....
 - The System shall be capable of supporting all dispatch messages and general announcements.
 - 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**
- 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.
 - All alarm transmissions shall be recorded and archived to include date and time of the alarm and be available on the display.
 - System monitored faults or failures shall notify visually and audibly in a prominent fashion that satisfies the visual trouble requirements.
 - 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.
 - 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**
- The System shall automatically generate an audible dispatch announcement that shall include units assigned, incident type, and incident location.
 - The voice announcement should be human-like, non-synthesized, non-robotic, and easily understood. A sample of voice announcements shall be provided upon request.
 - The System voice database shall have the ability to be upgraded as needed.
 - 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**
- 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.
 - The System shall have the ability to manually control alerting functions in the event of loss of the CAD link or CAD server.
 - The System shall provide the ability to provide priority to the System alert audio during dispatch alerts.
 - 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.
 - The System shall be capable of displaying non-emergency information on displays that include weather, incident history, last incident information and

- announcements. The System shall also display emergency incident CAD information on dispatch alert.
- 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.
 - 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**
- Speakers**
 - 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.
 - Speakers shall produce a clear, understandable sound (voice and tone) throughout the space for the area where it is installed.
 - 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.
 - Relay Controls and Inputs**
 - 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.
 - Appliance Controls**
 - 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.
 - Doorbells**
 - The System shall be capable of connecting doorbells that will announce the location over the fire station's public address system.
 - Room and Area Selector Switches**
 - 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.
 - Volume Control**
 - The System shall be configurable for time-of-day (day/night) control.
 - The System shall be capable of sensing ambient noise to automatically adjust the speaker volume for noise compensation if required by the customer.
 - 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.
 - LED and Other Lighting**
 - 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.
 - 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.
 - 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.
 - 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.
 - 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.
 - Visual Displays**
 - 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.

- 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.
 - 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.
 - 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**
- 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**
- 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.
 - All reset switches shall be identifiable with a custom label.
- H. Alerting System Configuration**
- The System shall be centrally managed. Both the vendor and the customer's administrators shall have full control access.
 - 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**
- System maintenance, programming and troubleshooting training shall be provided for the customer's technical staff.
 - Digital copies of all technical documents, user manuals, and any training materials required for the operation of the System shall be provided.
- J. Components**
- 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.
 - Any electronic components such as servers, amplifiers, and other similar equipment shall have the ability to be mounted in a rack.
 - All field devices shall be available for replacement within 24 hours by department or qualified personnel.
- K. Warranties and Support Agreements**
- Describe warranty provided as well as length of warranty.
 - Describe extended yearly warranties available and their cost.
 - Specify your twenty-four hour a day, seven days a week software support capabilities.
 - 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**
- System maintenance, programming and trouble-shooting training shall be provided for the customer's technical staff.

