

PLUMBING FIXTURE SCHEDULE												
SYMBOL	TYPE	ADA	ACCESSORIES	FINISH	MANUFACTURER & MODEL NUMBER	FAUCET TRIM MANUFACTURER & MODEL NUMBER	ACCEPTABLE MANUFACTURERS	REMARKS	ROUGH IN CONNECTION SIZING			
									WASTE (INCHES)	VENT (INCHES)	HOT (INCHES)	COLD (INCHES)
EFW-I	EMERGENCY EYE AND FACE WASH PEDESTAL MOUNTED, STAINLESS STEEL BOWL, YELLOW POP-OFF DUST COVER.	YES	INTEGRAL FLOW CONTROL, 1/2" IPS STAY OPEN BALL VALVE OPERATED BY SWING ARM OPERATION, IN-LINE MESH WATER STRAINER	COMPOSITE	HANS T351-1641	--	BRADLEY GUARDIAN EQUIP. SPEAKMAN	PROVIDE WITH THERMAL DISPERSION MONITOR EQUAL TO AMERITROL MODEL FX1000. SEE NOTE 2.	2	2	1/2 (85F-105F)	--
FD-I	FLOOR DRAIN - 5" ROUND TOP, ROUND CAST IRON BODY, FLASHING COLLAR, ADJUSTABLE STRAINER HEAD, SECURED GRATE	YES	ZI012 TRAP PROTECTOR	NICKLE BRONZE	ZURN Z415-BZI	--	JOSAM JR SMITH MIFAB	FOR FINISHED FLOOR AREAS PROVIDED BY AHJ MANUFACTURER	NOTED ON PLANS	2	--	--
NOTE: 1. ALL CONNECTIONS TO POTABLE WATER SYSTEM SHALL CONFORM TO NSF/ANSI-61 AND NSF/ANSI-312 EFFECTIVE 01/04/2014. 2. COORDINATE INTERLOCKING SENSOR NOTIFICATIONS FROM THERMAL DISPERSION MONITOR WITH SIEMENS.												

THERMOSTATIC MIXING VALVE SCHEDULE										
SYMBOL	MODEL	SERVICE	HOT WATER INLET TEMP (F)	COLD WATER INLET TEMP (F)	OUTLET TEMP (F)	MINIMUM FLOW (GPM)	DESIGN FLOW (GPM)	PRESSURE DROP (PSI)	SIZE (IN)	NOTES
TMV-I	9201EM	EYEWASH STATION	140	55	85	3.7	3.7	2	1/2"	1, 2
NOTES: 1. EQUIPMENT SCHEDULE BASED ON: HANS. 2. ACCEPTABLE MANUFACTURERS INCLUDE: LAHLER, POWERS, WEBSTONE, BRADLEY, AND SYMONS.										
SPECIFICATION: THERMOSTATIC WATER MIXING VALVE WITH SOLID BIMETAL OR LIQUID FILLED THERMOSTAT, ADJUSTABLE TEMPERATURE LIMIT STOP, INTEGRAL COMBINATION CHECK STOPS ON INLETS, COLOR CODED DIAL THERMOMETER ON OUTLET, INTEGRAL WALL SUPPORT, CAST LEVER HANDLES. BRONZE, BRASS AND STAINLESS STEEL INTERNAL COMPONENTS WITH ROUGH BRONZE OR CHROME PLATED FINISH. LOCKING TEMPERATURE REGULATOR. MASTER MIXING TYPE VALVE SHALL CONSIST OF LARGE THERMOSTATIC WATER MIXING VALVE FOR HIGH FLOWS, SMALL THERMOSTATIC WATER MIXING VALVE FOR SMALL FLOWS, WITH PRESSURE REGULATING VALVE WITH PRESSURE GAUGES, FACTORY PREASSEMBLED AND TESTED PIPING MANIFOLD, INLET AND OUTLET BALL VALVES. EACH THERMOSTATIC MIXING VALVE SHALL BE AS SPECIFIED ABOVE. ASSEMBLY SHALL BE SURFACE MOUNTED TO STEEL FRAMEWORK.										

BACKFLOW PREVENTER SCHEDULE											
SYMBOL	MODEL	TYPE	MINIMUM FLOW (GPM)	MAXIMUM FLOW (GPM)	DESIGN FLOW (GPM)	PRESSURE DROP - DESIGN (PSI)	PRESSURE DROP - MAX (PSI)	SIZE (IN)	LENGTH (IN)	SERVICE	NOTES
BFP-I	9T5XL2	REDUCED PRESSURE	5	50	15	11	15	1	14	DOMESTIC	1 - 4
1. ACCEPTABLE MANUFACTURERS INCLUDE: ZURN-NILKINS, MATTS, CASH-ACME, FEBCO, AMES. 2. CONNECTIONS TO DOMESTIC WATER SYSTEM SHALL BE LEAD FREE AND MEET THE REQUIREMENTS OF NSF/ANSI 61. 3. LENGTH INCLUDES STRAINER AND SHUT-OFF VALVE. 4. PROVIDE WITH AIR GAP ACCESSORY PIPED TO NEAREST FLOOR DRAIN AND RELIEF VALVE DISCHARGE SENSOR.											

STEAM BOILER SCHEDULE																			
SYMBOL	MANUFACTURER	MODEL	SERVICE	TYPE	BOILER (HP)	MBH INPUT @51.1	MBH OUTPUT @5300'	LBS/HR	BOILER			NUMBER OF TUBES	NATURAL GAS SUPPLY PRESSURE (IN W6)	FUEL	OPERATING WEIGHT (LBS)	ELECTRICAL			REMARKS
									BURNER (HP)	MAX FIRING RATE (CFH)	OPERATING PRESSURE (PSIG)					BURNER RPM	VOLT	PHASE	
B-I	RITE	P506	STEAM	WATER TUBE	50	2,043	1,313	1,125	3/4	2,841	75	63	7	NAT. GAS	3,000	3,450	480	3	1 - 4
REMARKS: 1. EQUIPMENT SCHEDULE BASED ON: RITE. ACCEPTABLE MANUFACTURER'S INCLUDE: AJAX, BRYAN. 2. 150 PSI CONSTRUCTION. 3. BASED ON 830 CUFT /HR NATURAL GAS FUEL HEATING. 4. PROVIDE SINGLE POINT POWER CONNECTION FOR BOILER CONTROL PANEL. 5. POWERFLAME C2-6-15 MODULATING BURNER. BURNER CAPACITY SHALL BE SIZED FOR 5,280' ELEVATION. 6. PROVIDE MANUFACTURER'S BOILER SKID PACKAGE SYSTEM INCLUDING CONDENSATE RETURN TANK (CRT-1) AND PUMP (P-6), BLOWDOWN SEPARATOR (BS-1), WATER SOFTENER SYSTEM (WS-1), AND CHEMICAL TREATMENT SYSTEM (CTP-1). 7. PROVIDE 208V/3PH CONNECTION FOR CONDENSATE RETURN TANK PUMP P-6. 8. PROVIDE 120V CONNECTION FOR WS-1 METERED TWIN VALVE. 9. PROVIDE 120V CONNECTION FOR CTP-1 CHEMICAL METERING PUMP.																			

FAN SCHEDULE																
SYMBOL	MANUFACTURER	MODEL	FAN TYPE	SERVICE	CFM @ 5300'	S.P. IN W.G. @ 5300'	ELECTRICAL DATA			DRIVE TYPE	DAMPER TYPE	SONES	WALL OPENING	WEIGHT (LBS)	HEIGHT (IN)	REMARKS
							VOLT/ PHASE	RPM	HP							
EFPH-I	GREENHECK	SEI-12-432-A	AXIAL	BOILER ROOM	800	0.35	120/1	1750	1/4	DIRECT	MOTORIZED	11.3	14.5" SQ	30	10	1, 2, 3, 4, 5
REMARKS: 1. EQUIPMENT SCHEDULE BASED ON: GREENHECK. ACCEPTABLE MANUFACTURERS INCLUDE: ACME, CARNES, COOK, GREENHECK, PENN, SOLER & PALAU, AND THIN CITY. 2. PROVIDE FAN WITH UNIT MOUNTED SPEED CONTROL SWITCH. 3. PROVIDE WITH DISCHARGE DUCT COLLAR. 4. PROVIDE WITH 45 DEGREE WEATHERHOOD AND BIRD SCREEN. 5. UNIT SHALL BE COMPATIBLE FOR INTERFACE WITH BAS. COORDINATE ALL REQUIRED POINTS AND MONITORING WITH SIEMENS.																
SEQUENCE OF OPERATION: SEE SHEET M-05 FOR SEQUENCE OF OPERATIONS.																

PUMP SCHEDULE													
SYMBOL	SERVICE	MANUFACTURER	PUMP TYPE	MODEL	GPM	HEAD FEET W.G.	EFF %	HP	RPM	VOLTS/ PHASE	SUCTION SIZE INCHES	DISCH SIZE INCHES	REMARKS
ESP-I	HEATING WATER	B & G	BASE MOUNTED	1510 2-1/2 BB	245	50	73	7 1/2	1750	480/3	3	2-1/2	1
P-4	PH-I HEATING COIL	B & G	IN-LINE	SERIES 60 2-1/2 F	165	20	44	2	1750	480/3	2-1/2	2-1/2	2
P-6	CONDENSATE RETURN TANK	MTH PUMPS	BASE MOUNTED	T4LJ-BF	5	100 PSI OPERATION	--	2	1750	480/3	--	--	3
REMARKS: 1. PUMP IS EXISTING TO REMAIN, SHOWN HERE FOR REFERENCE ONLY. 2. INTERLOCK WITH EXISTING PH COIL FREEZE PROTECTION CONTROL OPERATION. SEE SEQUENCE OF OPERATION FOR ADDITIONAL INFORMATION 3. INTERLOCK WITH BOILER FEED WATER CONTROLLER, TC TO INTERLOCK WITH EXISTING FEED WATER CONDENSATE PUMP SERVING CLEAN STEAM GENERATOR.													

MECHANICAL LEGEND																	
NOT ALL ITEMS LISTED BELOW ARE USED ON THIS SET OF MECHANICAL DRAWINGS																	
GENERAL						PIPING											
SYMBOL		DESCRIPTION				SYMBOL		ABBV./DESCRIPTION									
		REFERENCE BUBBLE						HS HOT WATER SUPPLY									
		MECHANICAL/ELECTRICAL EQUIPMENT DESIGNATION						HR HOT WATER RETURN									
		REMOVE EXISTING						CHS CHILLED WATER SUPPLY									
		UNDERCUT DOOR						CHR CHILLED WATER RETURN									
		AIR FLOW						CS CONDENSER SUPPLY									
		CONNECT NEW TO EXISTING						CR CONDENSER RETURN									
		HPS HIGH PRESSURE STEAM						HPC HIGH PRESSURE CONDENSATE									
		PC PUMPED CONDENSATE						D EQUIPMENT DRAIN									
		RL REFRIGERANT LIQUID						RS REFRIGERANT SUCTION									
PIPING SYMBOLS																	
SYMBOL		DESCRIPTION															
		ARROW IN LINE INDICATES DIRECTION OF FLOW															
		XX INDICATES PIPE SLOPE DOWN															
		BOTTOM PIPE CONNECTION															
		PIPING UP															
		PIPING DOWN															
		FIXTURE TRAP OR DRAIN TRAP															
		PIPING CAP OR PLUG															
		PUMP															
		BALANCING VALVE/ FLOW MEASURING DEVICE															
		CALIBRATED BALANCING VALVE															
		BALL VALVE															
		PLUG VALVE															
		GATE VALVE															
		CHECK VALVE															
		BUTTERFLY VALVE															
		FLOW SWITCH															
		SOLENOID VALVE															
		PRESSURE REDUCING VALVE															
		3-WAY TEMPERATURE CONTROL VALVE															
		2-WAY TEMPERATURE CONTROL VALVE															
		RELIEF VALVE															
		STRAINER															
		STRAINER WITH BLOW-OFF VALVE															
		UNION															
		PRESSURE GAUGE															
		THERMOMETER															
		PRESSURE AND TEMPERATURE TAP															
		CONCENTRIC REDUCER															
		ECCENTRIC REDUCER															
		FLEXIBLE CONNECTOR															
		HOSE END DRAIN VALVE															
		MANUAL AIR VENT															
ABBREVIATIONS																	
AFF		ABOVE FINISHED FLOOR				MC		MECHANICAL CONTRACTOR				RA		RETURN AIR			
AP		ACCESS PANEL				(N)		NEW				RE		REFER TO			
(C)		COMMON				NC		NOT IN CONTRACT				SA		SAFETY RELIEF VALVE			
ELEC		ELECTRICAL CONTRACTOR				NO		NOT NORMALLY OPEN				TCC		TEMPERATURE CONTROL CONTRACTOR			
ELEV		ELEVATION				NTS		NOT TO SCALE				TYP		TYPICAL			
EQ		EQUIPMENT				ORV		OUTSIDE AIR									
GC		GENERAL CONTRACTOR				PRV		PRESSURE REDUCING VALVE									
NOTE:																	
APPLICABLE CODE STANDARDS																	
2021 INTERNATIONAL BUILDING CODE 2021 INTERNATIONAL MECHANICAL CODE 2021 INTERNATIONAL ENERGY CONSERVATION CODE																	
2021 INTERNATIONAL FIRE CODE 2021 INTERNATIONAL PLUMBING CODE 2021 INTERNATIONAL FUEL GAS CODE																	

CUSTOM AIR HANDLING HEATING AND COOLING UNIT SCHEDULE																																		
SYMBOL	MANUFACTURER	MODEL	NOMINAL TONS	SUPPLY FAN DATA					EXHAUST FAN DATA					COIL SERVICE	FACE AREA SQ. FT.	NO. COIL ROWS	MAX FACE VELOCITY (FPM)	COIL DATA					TOTAL CAPACITY (MBH)	ELECTRICAL			APPROX ROOF CURB DIM(IN)	APPROX HEIGHT (W/ CURB) (IN)	APPROX OPER HT (LBS)	REMARKS				
				CFM TOTAL	CFM O.A.	ESP IN W.G.	APPROX RPM	NO. OF FANS	FAN HP	CFM TOTAL	ESP IN W.G.	APPROX RPM	NO. OF FANS					FAN HP	ENTERING AIR TEMP	LEAVING AIR TEMP	FLOW (GPM)	ENT (F)		LMT (F)	MPD (FT)	VOLT/ PHASE					MCA	MOCP		
				●5300'	●5300'	● 5300'				●5300'	● 5 L.								DB (F)	WB (F)	DB (F)	WB (F)												
PH-1	MILLER PICKING	MPO	50	20000	20000	2.3	2624	3	25	20000	3.5	1800	3	10	HEATING	42.2	3	414	100	--	81.9	--	102.7	180	153.9	7.6	1213	480/3	100.8	125	148x619	147	40905	1 - 13
REMARKS: 1. ACCEPTABLE MANUFACTURER'S INCLUDE HAAKON, ENERGY LABS, INGENIA, TEMTROL, GOVERNAIR AND ENGINEERED AIR 2. EXTERNAL STATIC PRESSURE DOES NOT INCLUDE LOSSES FOR UNIT CASING, FILTERS, OR COILS. 3. COOLING COIL CAPACITY BASED ON ENTERING AIR TEMPERATURE SHOW IN SCHEDULE AND 95 F AMBIENT AT CONDENSER. 4. BURNER SHALL BE DESIGNED TO FIRE ON NATURAL GAS, T" WC. 5. PROVIDE WITH 14" HIGH BASE RAIL. 6. PROVIDE RTU WITH DUCT SMOKE DETECTOR MOUNTED IN RETURN DUCT. MECHANICAL CONTRACTOR SHALL PROVIDE INSTALLATION, ELECTRICAL CONTRACTOR SHALL PROVIDE WIRING TO FACP. 7. PROVIDE UNIT WITH FACTORY MOUNTED VFD CONTROL. PROVIDE DUCT MOUNTED STATIC PRESSURE SENSOR FOR AIR FLOW CONTROL. 8. TC TO PROVIDE AND INSTALL CONTROLS FOR 100% ECONOMIZER OPERATIONS. 9. ALL SECTIONS SHALL BE FACTORY PRE-WIRED INCLUDING LIGHTS AND SWITCHES, FAN MOTORS AND STARTERS, WIRING TO AND FROM VARIABLE FREQUENCY DRIVE. VFD SHALL BE SHIPPED LOOSE AND FIELD INSTALLED. 10. PROVIDE WITH MINTERS Z-DUCT 85M20 PLATE HEAT EXCHANGER. PROVIDE HEAT TRACE OF CONDENSATE PIPING FOR FREEZE PROTECTION 11. FLOOR DRAINS SHALL BE FACTORY INSTALLED, FLASHED AND SEALED WATER TIGHT. 12. WATER COIL SIZING AND PERFORMANCES BASED ON 50% PROPYLENE GLYCOL. PROVIDE RIGHT HAND COIL CONNECTIONS WITH ACCESS DOOR. 13. PROVIDE WITH EVAPORATIVE PRE-COOLER SECTION. INTERLOCK PUMP CONTROL WITH UNIT OPERATIONS.																																		
SEQUENCE OF OPERATION: SEE SHEET M-0.5 FOR SEQUENCE OF OPERATIONS.																																		

EVAPORATIVE PRE-COOLER MODULE SCHEDULE																						
SYMBOL	MANUFACTURER	CELL DATA		CELL PERFORMANCE					EVAPORATIVE COOLING DATA					ELECTRICAL		UNIT DIMENSIONS						
		CFM TOTAL @5300'	ESP IN W.G. @ 5300'	ENTERING AIR TEMP DB (F)	ENTERING AIR TEMP WB (F)	LVG AIR TEMP DB (F)	LVG AIR TEMP WB (F)	TOTAL MBH DISPLACED	CELL DEPTH (IN)	MEDIA FACE (SQ/FT)	MAX VEL (FPM)	SAT EFF %	TOTAL FLOW RATE (GPM)	MAKE-UP WATER (GPM)	PUMP SIZE (HP)	VOLT/ PHASE	UNIT WIDTH (IN)	UNIT HEIGHT (IN)	UNIT DEPTH (IN)	SUMP DEPTH (IN)	UNIT WEIGHT (LBS)	REMARKS
EVAP-1	PREMIER IND.	20,000	.25	90	54	62.2	62	546.2	12	40	500	89.8%	4.53	1.3	1/3	120/1	116	66	26	10	1,843	1 - 7
REMARKS: 1. ACCEPTABLE MANUFACTURERS INCLUDE PREMIER INDUSTRIES. 2. COOLING MODULE SHALL BE STAINLESS STEEL GRADE 304. 3. PROVIDE WITH FLOAT VALVE ASSEMBLY AND BALANCING VALVE. 4. PROVIDE WITH AUTOFLUSH, LOW WATER FLOW SENSOR AND DRAIN DOWN FREEZE PROTECTION SYSTEM 5. PROVIDE WITH ACCUMULATIVE FLOW METER WITH TRANSMITTING READ-OUT. 6. PROVIDE WITH ELECTRICAL CONTROLS TO INTERFACE WITH EXISTING BAS PROVIDED BY TC CONTRACTOR.																						
SEQUENCE OF OPERATION: SEE SHEET M-0.5 FOR SEQUENCE OF OPERATIONS.																						

FOUR PIPE FAN COIL UNIT SCHEDULE																																			
SYMBOL	MANUFACTURER	MODEL	TYPE	FAN AIR FLOW (CFM)	SP (IN W.G.)	COOLING REQUIREMENTS												HEATING REQUIREMENTS										FILTER THICKNESS AND TYPE	FAN MOTOR					OPERATING WEIGHT (LBS)	REMARKS
						MIN SENS CAPACITY (MBH)	MIN TOTAL CAPACITY (MBH)	EAT		LAT		FLOW (GPM)	ENT (F)	LMT (F)	MPD (FT)	RUNOUT SIZE (IN)	MIN CAPACITY (MBH)	EAT DB (F)	LAT DB (F)	FLOW (GPM)	ENT (F)	LMT (F)	MPD (FT)	RUNOUT SIZE (IN)	POWER (HP)	VOLT	PHASE		RPM	MOTOR TYPE					
								DB (F)	WB (F)	DB (F)	WB (F)																								
FCU-1	TRANE	FCDB080	HORIZONTAL CABINET	800	0.308	21	21	95	63	55	44	5.8	44	54	16	1	24.6	55	84.5	2.5	180	160	2	3/4	1" THROWAWAY	0.22	120	1	1394	ECM	164	1-8			
REMARKS: 1. ACCEPTABLE MANUFACTURERS INCLUDE: TRANE 2. EXTERNAL STATIC PRESSURE DOES NOT INCLUDE LOSSES FOR UNIT CASING, FILTERS, OR COILS. 3. UNIT CFM AND COIL CAPACITIES BASED ON HIGH SPEED OPERATION. 4. 7-DAY PROGRAMMABLE WALL THERMOSTAT PROVIDED BY SIEMENS. 5. UNIT SHALL BE COMPATIBLE FOR INTERFACE WITH BAS. COORDINATE ALL REQUIRED POINTS AND MONITORING WITH SIEMENS. 6. GRAVITY CONDENSATE DRAIN. 7. PROVIDE WITH SECONDARY DRAIN PAN. 8. PROVIDE WITH AUTOMATIC BALANCING 3-WAY HOOKUP KIT FOR CHILLED WATER AND HYDRONIC COIL CONNECTIONS.																																			
SEQUENCE OF OPERATION: SEE SHEET M-0.5 FOR SEQUENCE OF OPERATIONS.																																			

PH-1 AIR TO AIR HEAT EXCHANGER SCHEDULE																				
SYMBOL	MANUFACTURER	MODEL	MODE	SUPPLY AIR						EXHAUST AIR										REMARKS
				SUPPLY AIR		EAT		LAT		EXHAUST AIR		EAT		LAT		THERMAL PERFORMANCE				
				FLOW	APD	DB	WB	DB	WB	FLOW	APD	DB	WB	DB	WB					
				(CFM)	(IN)	(F)	(F)	(F)	(F)	(CFM)	(IN)	(F)	(F)	(F)	(F)	%	G MBH/HR			
HX-1	MINTERS	85M20	SUMMER	20,000	1.05	95	---	80	---	20,000	1.25	72	---	85	---	64	238	1, 2		
			WINTER	20,000	1.33	-10	---	32	---	20,000	1.18	72	---	27	---	63	813	1, 2		
REMARKS: 1. TO BE PROVIDED AND INSTALLED BY CUSTOM AIR HANDLER MANUFACTURER. 2. FIELD INSTALL ELECTRIC HEAT TRACING ON CONCEALED CONDENSATE PIPING FOR FREEZE PROTECTION.																				

LOUVER SCHEDULE										
SYMBOL	MANUFACTURER	MODEL	SERVICE	SIZE (IN)		MIN. FREE AREA (SQ FT)	MATERIAL	FRAME STYLE	DEPTH IN	REMARKS
				WIDTH	HEIGHT					
LVR-1	RUSKIN	L63TSD	COMBUSTION AIR INTAKE	48	24	4.04	STEEL	STATIONARY DRAINABLE	6	1, 2, 3, 4
LVR-2	RUSKIN	L63TSD	COMBUSTION AIR	48	24	4.04	STEEL	STATIONARY DRAINABLE	6	1, 2, 3, 4
REMARKS: 1. ACCEPTABLE MANUFACTURERS INCLUDE: GREENECK, LOUVERS AND DAMPERS AND RUSKIN. 2. PROVIDE WITH AIR PROVING SENSOR. 3. PROVIDE WITH 120 VOLT MOTORIZED CONTROL DAMPER. 4. PROVIDE WITH RAIN SHIELD.										
LOUVER SPECIFICATION: A. 16 GAUGE GALVANIZED STEEL FRAME AND BLADES, 1/2" MESH 14 GAUGE GALVANIZED STEEL WIRE SCREEN.										



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ISSUE _____ DATE _____

100% CD 10/06/2023

Issued for Construction 10/27/2023

100% Permit Comment 11/06/2023

ADDENDUM #1 11/14/2023

MEP JOB: 22318

DESIGNED: ADS

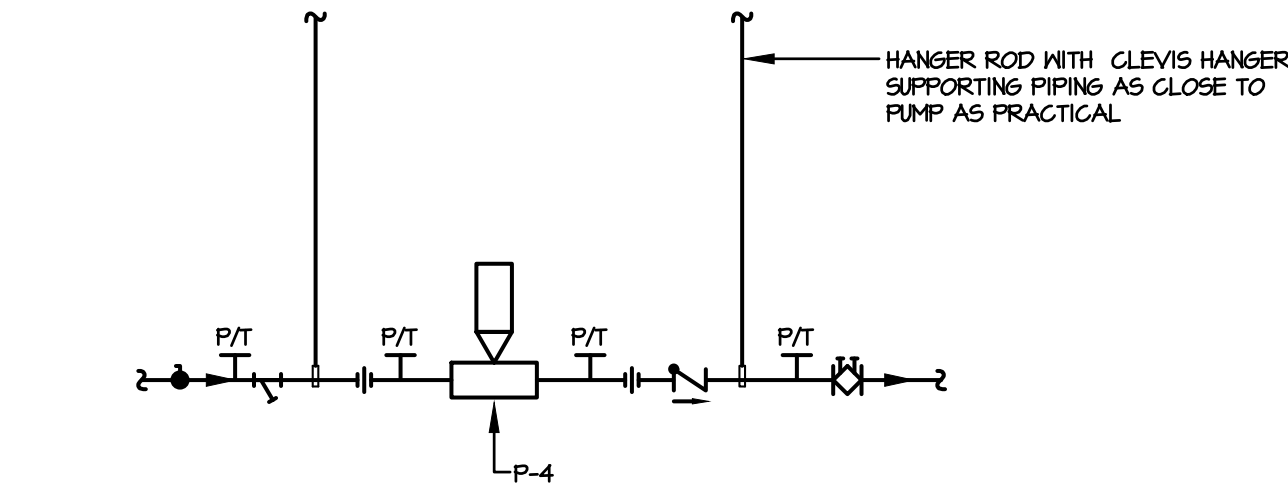
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MECHANICAL SCHEDULES

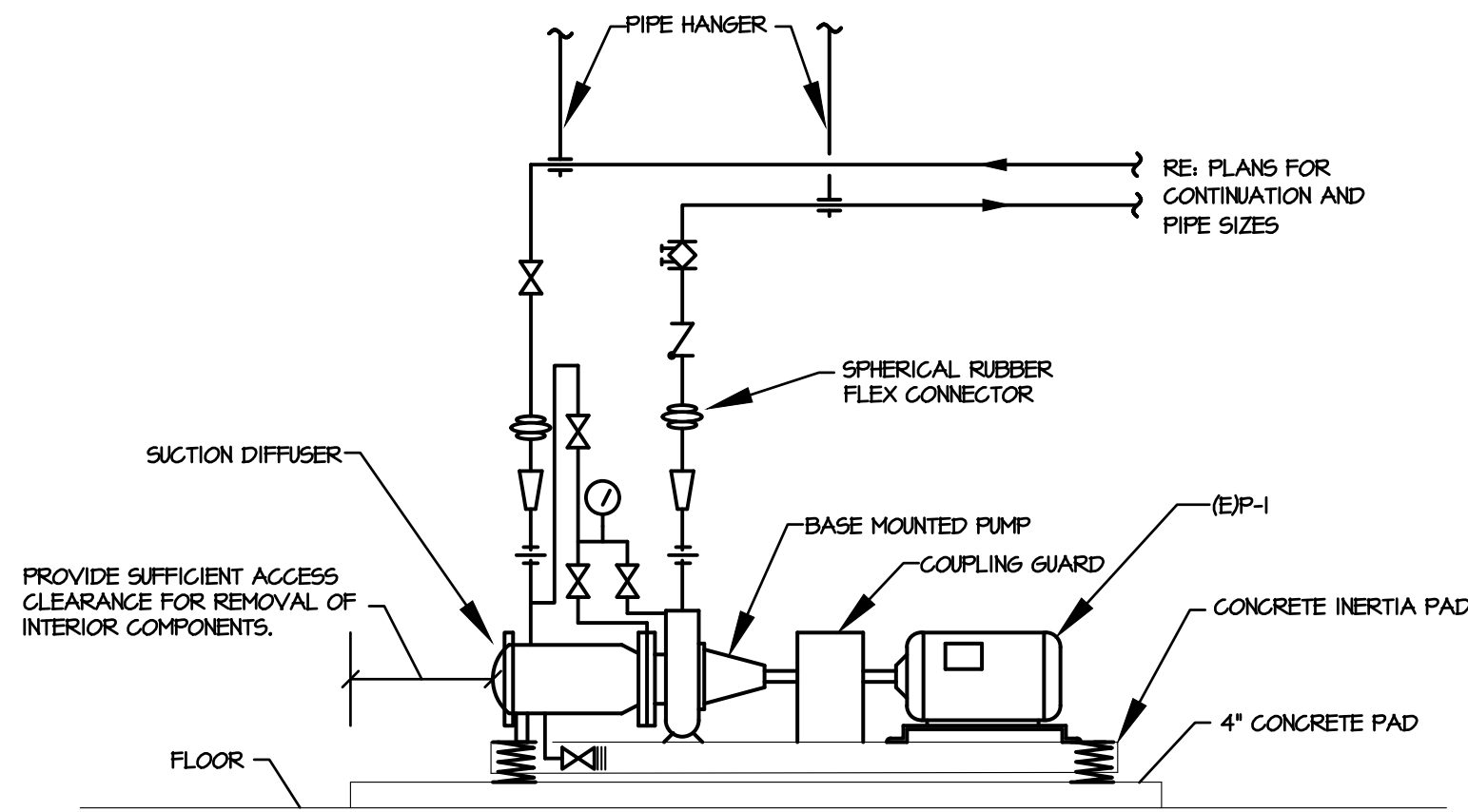


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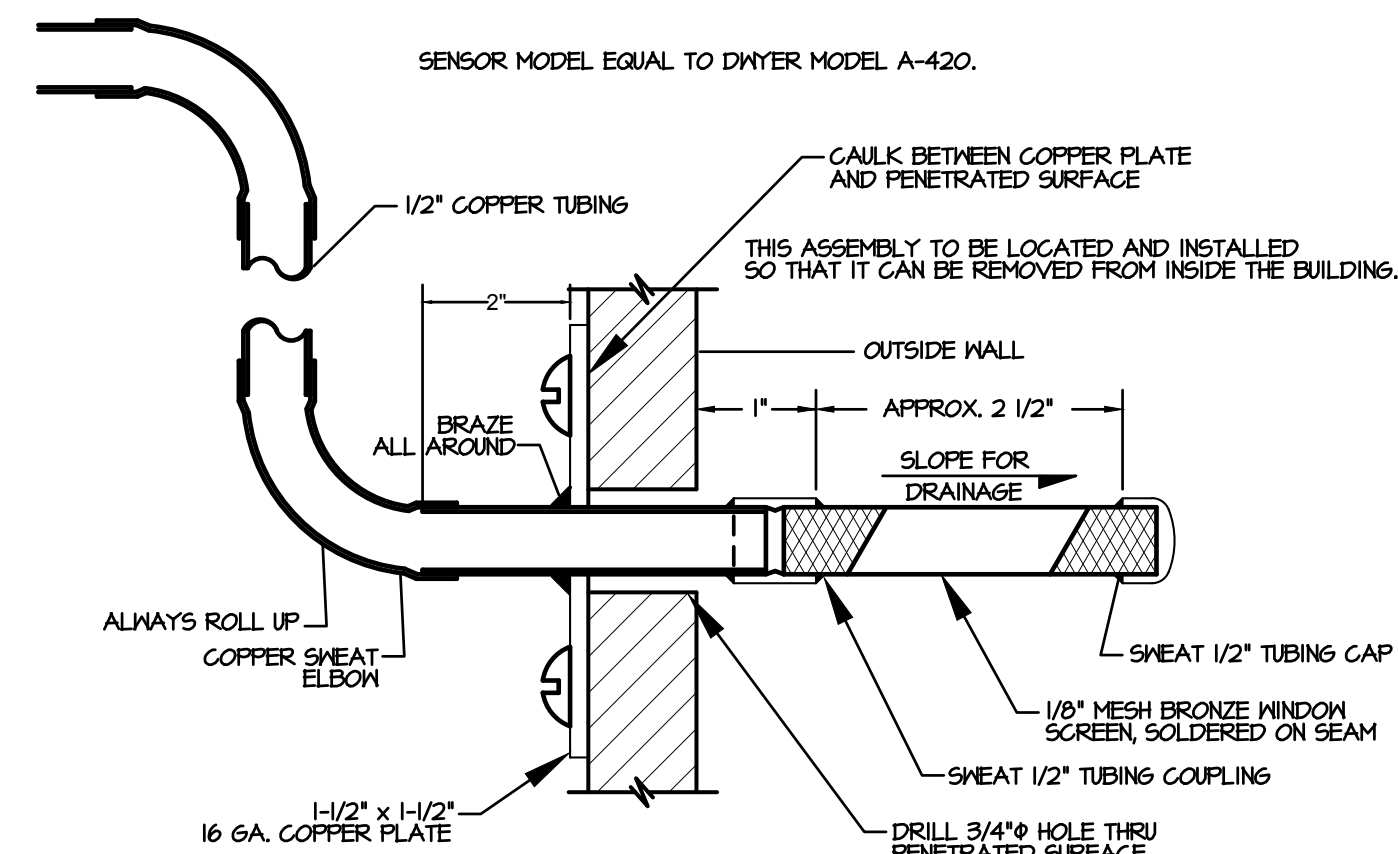
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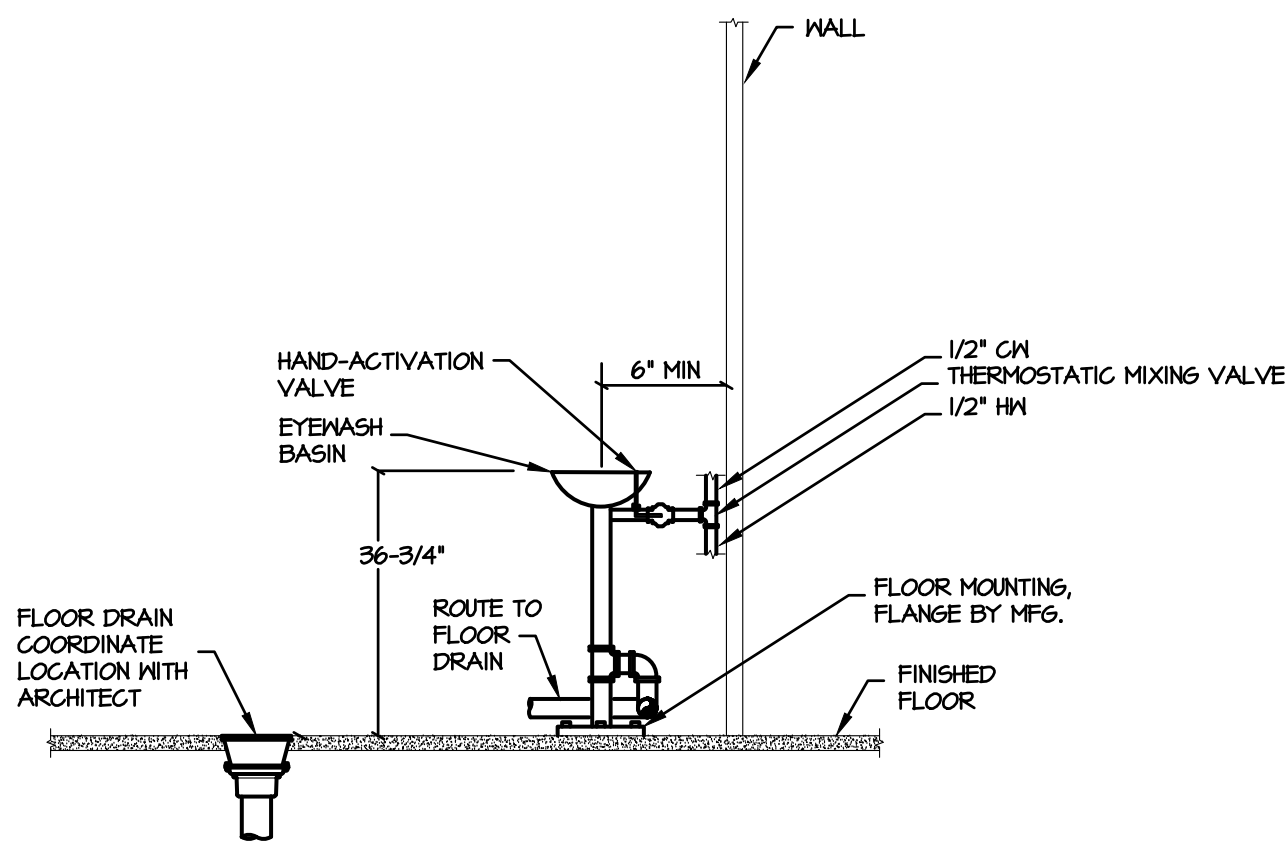
VERTICAL IN-LINE PUMP PIPING DIAGRAM
NOT TO SCALE 232100.02



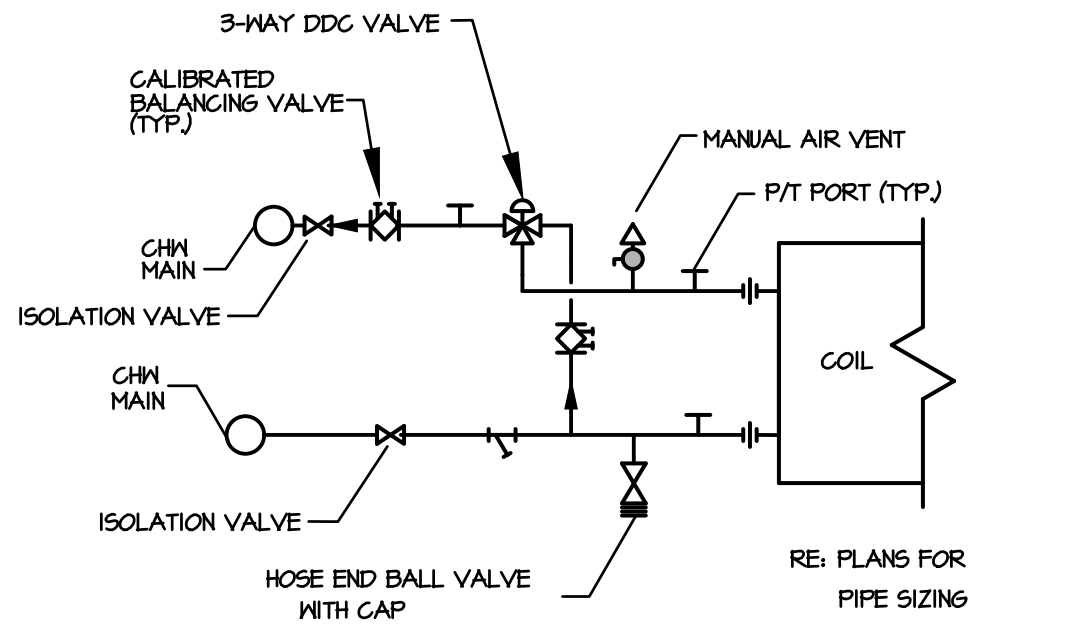
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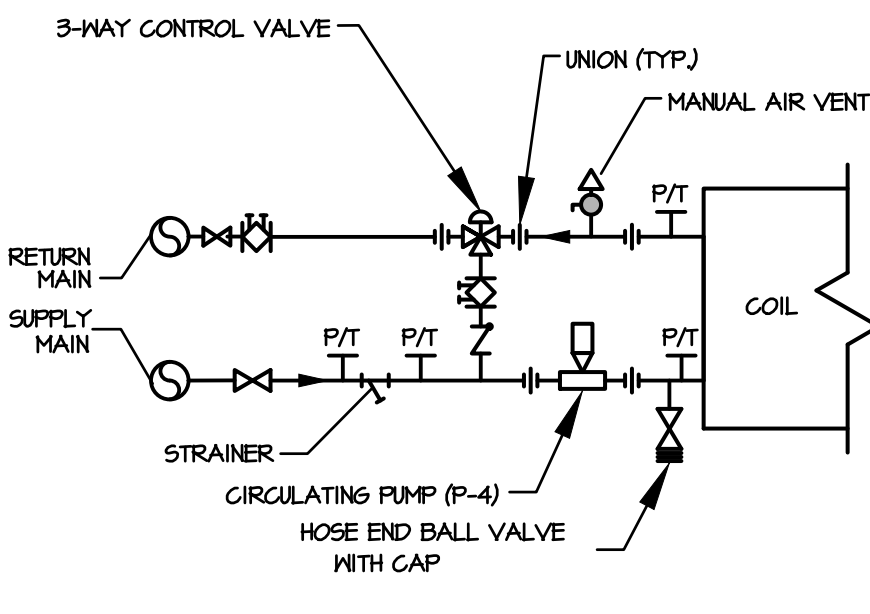
OUTDOOR STATIC PRESSURE SENSOR DIAGRAM
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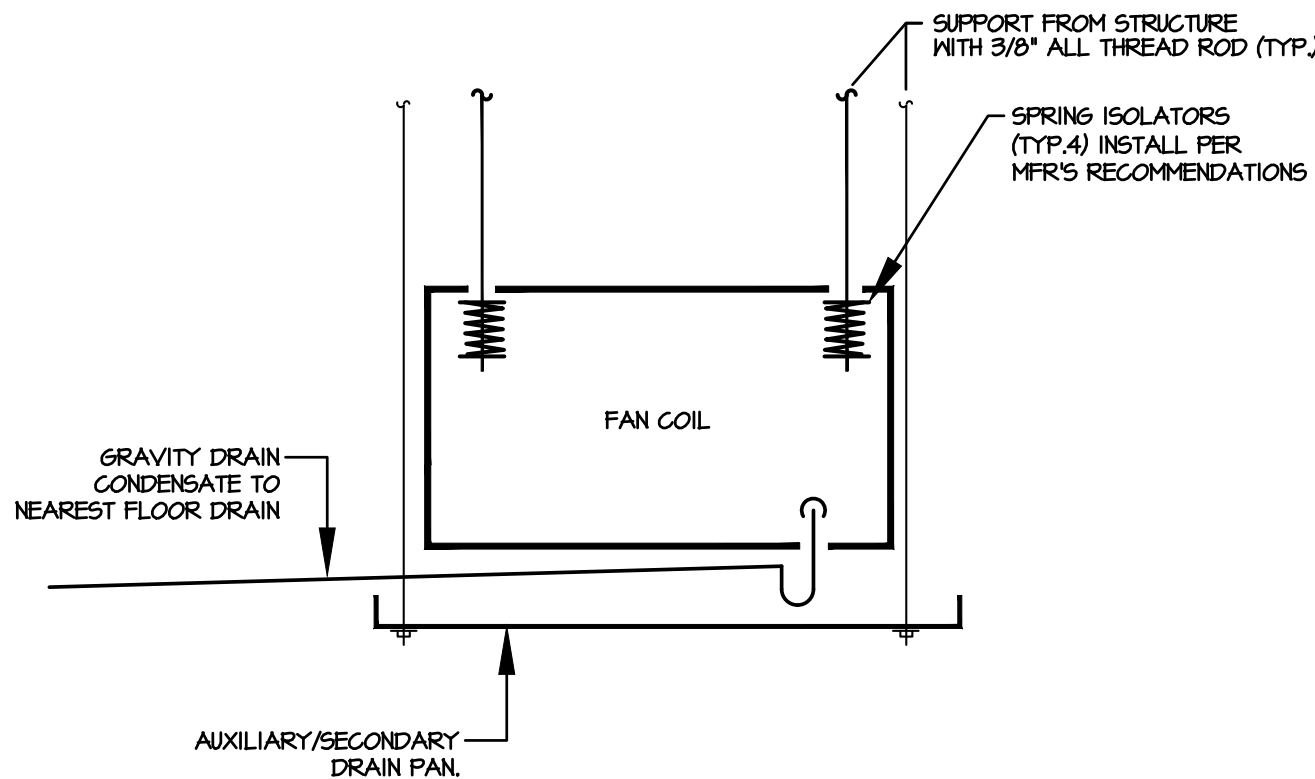
EMERGENCY FIXTURE SUPPORT DIAGRAM
NOT TO SCALE 224500.01



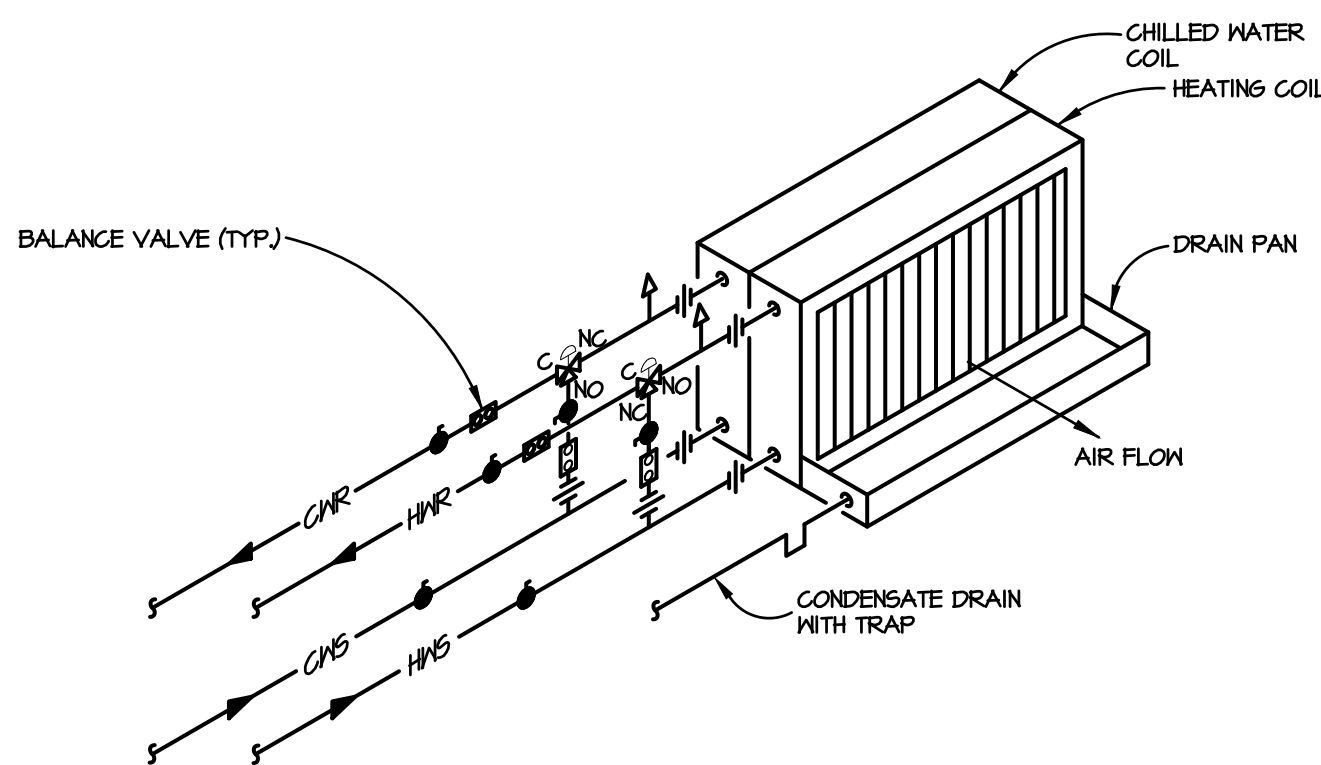
PH-1 COOLING COIL CONNECTION 3-WAY
NOT TO SCALE 232100.06



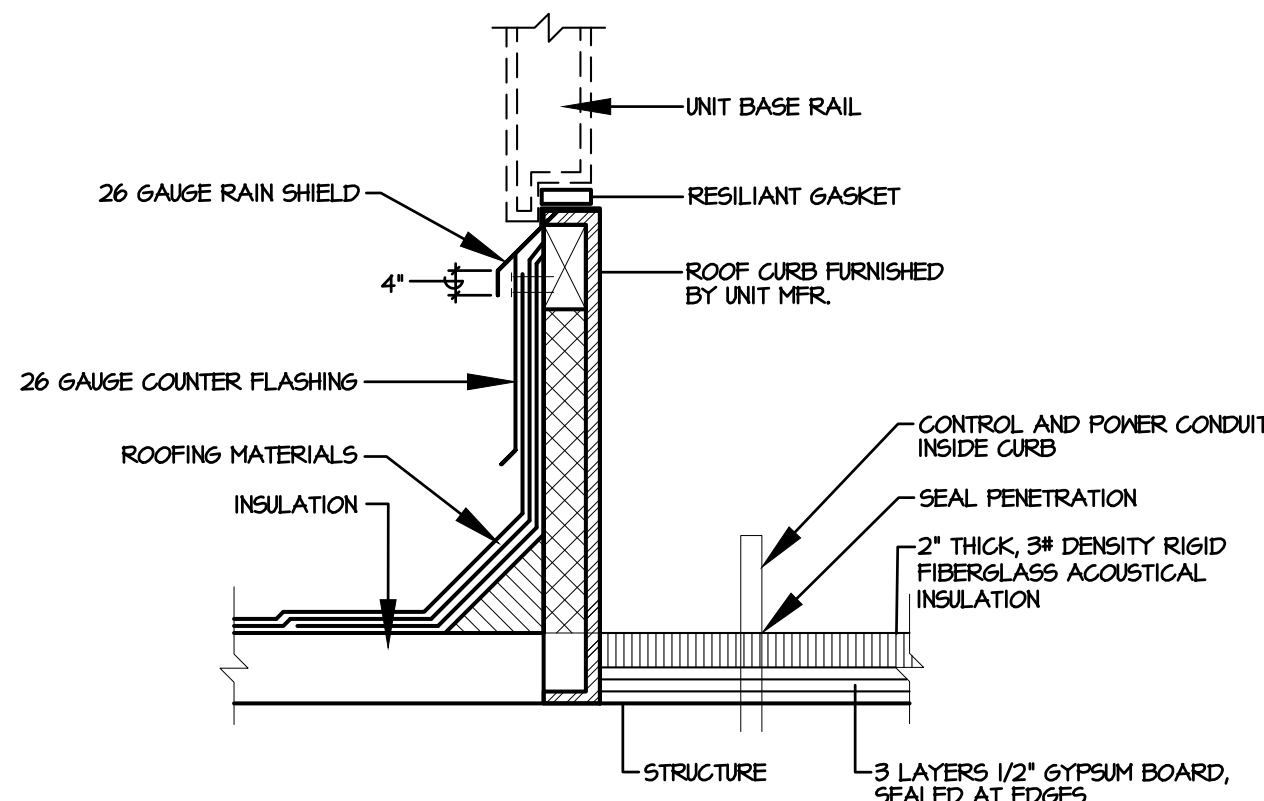
PH-1 HEATING PUMPED COIL CONNECTION
NOT TO SCALE 232100.05



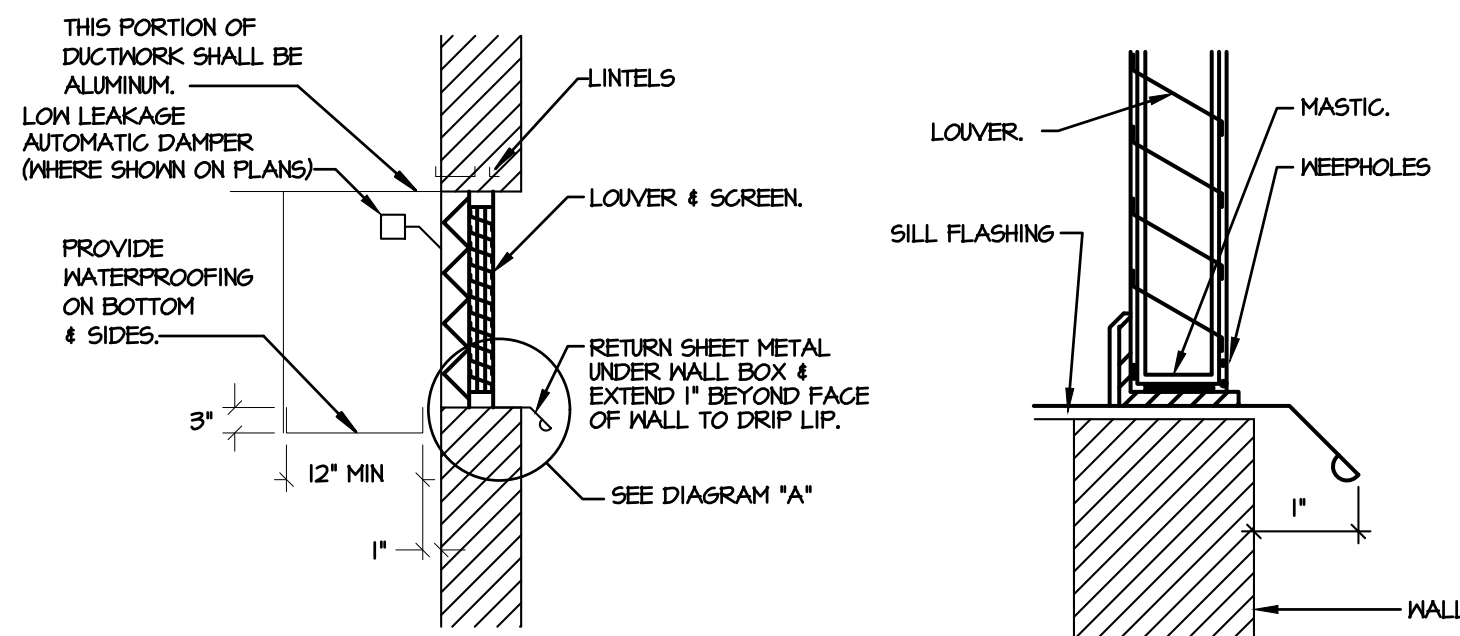
FAN COIL UNIT INSTALLATION DIAGRAM
NOT TO SCALE 233600.01



4-PIPE FAN COIL UNIT PIPING DIAGRAM (3-WAY)
NOT TO SCALE 238216.02



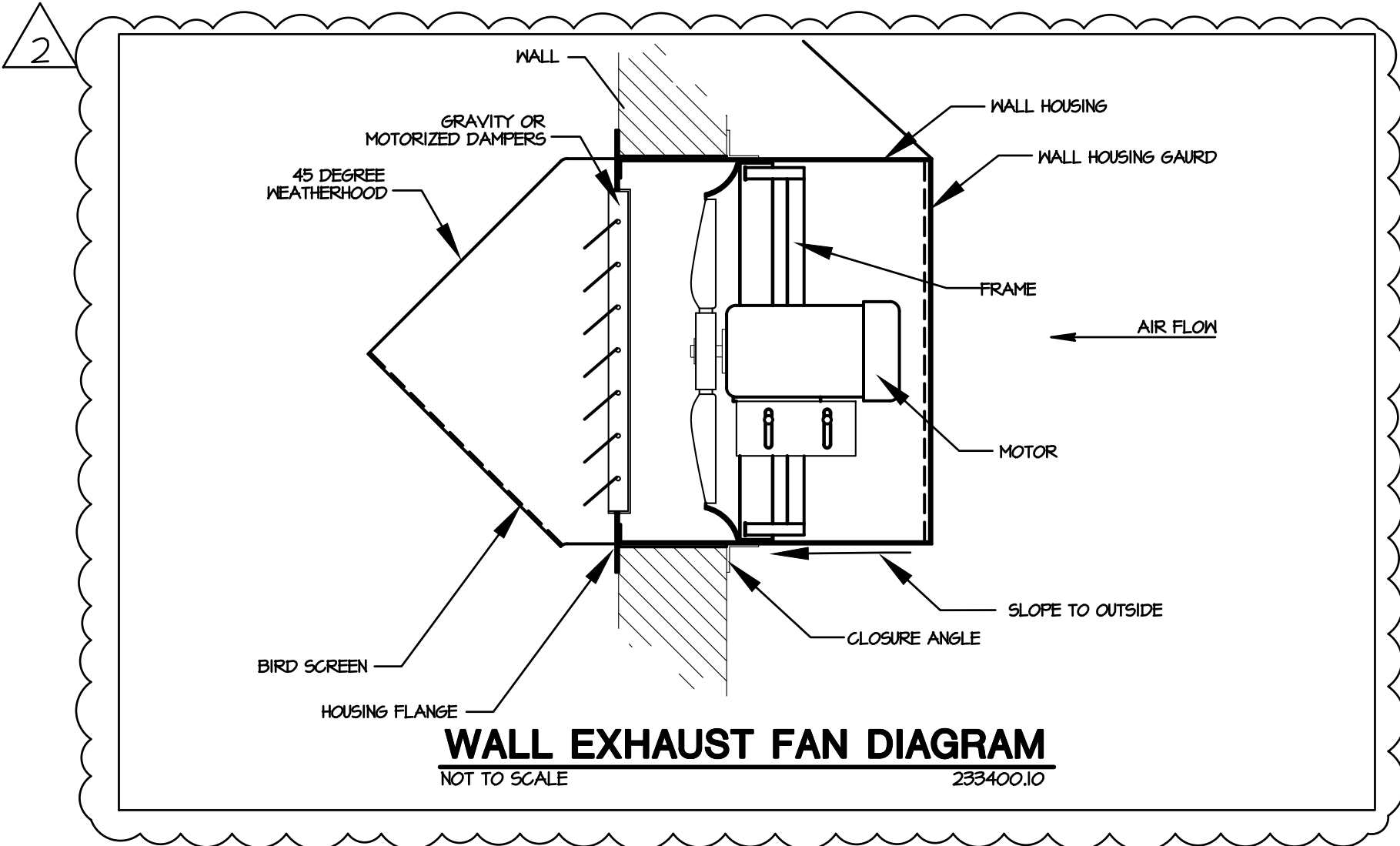
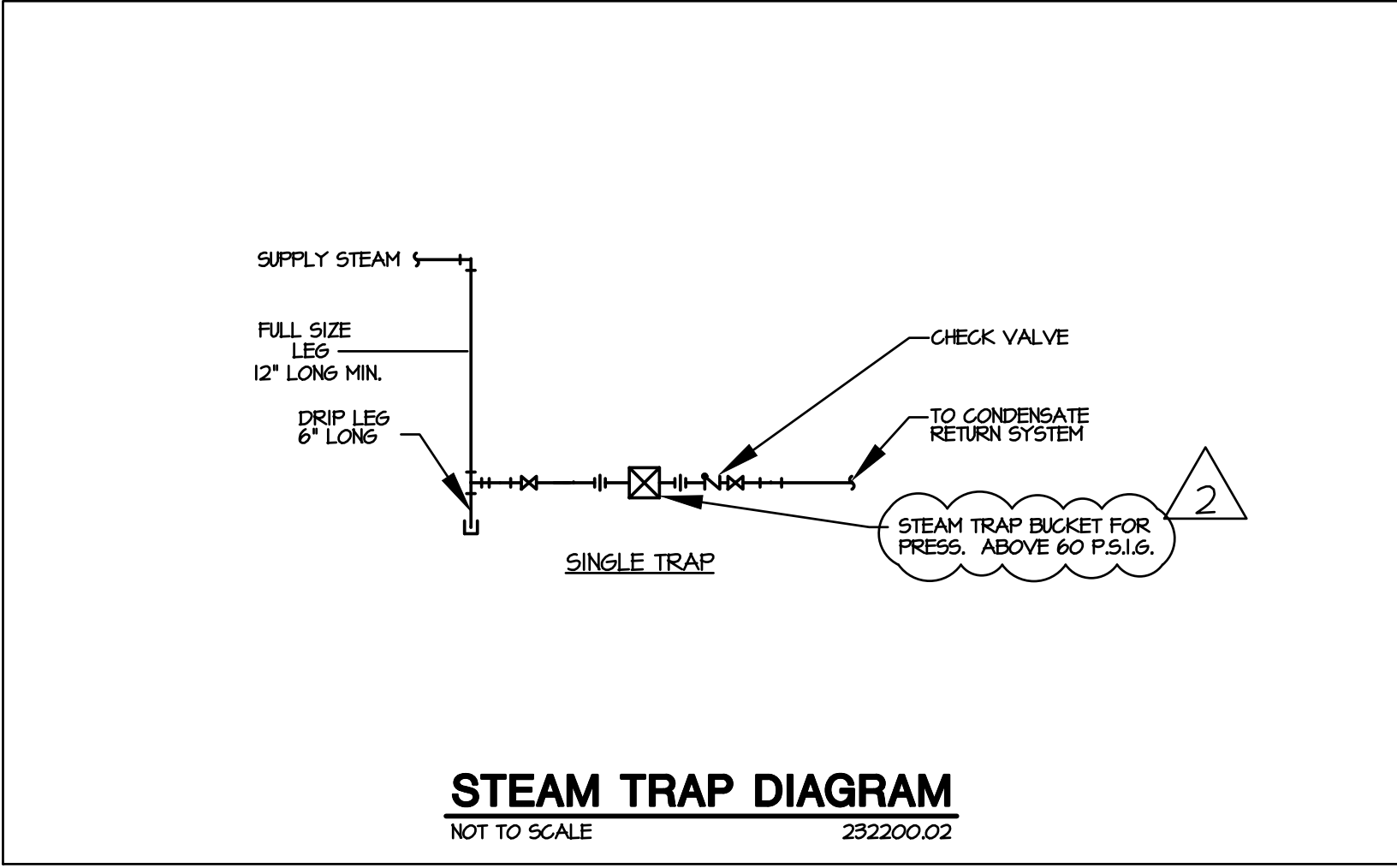
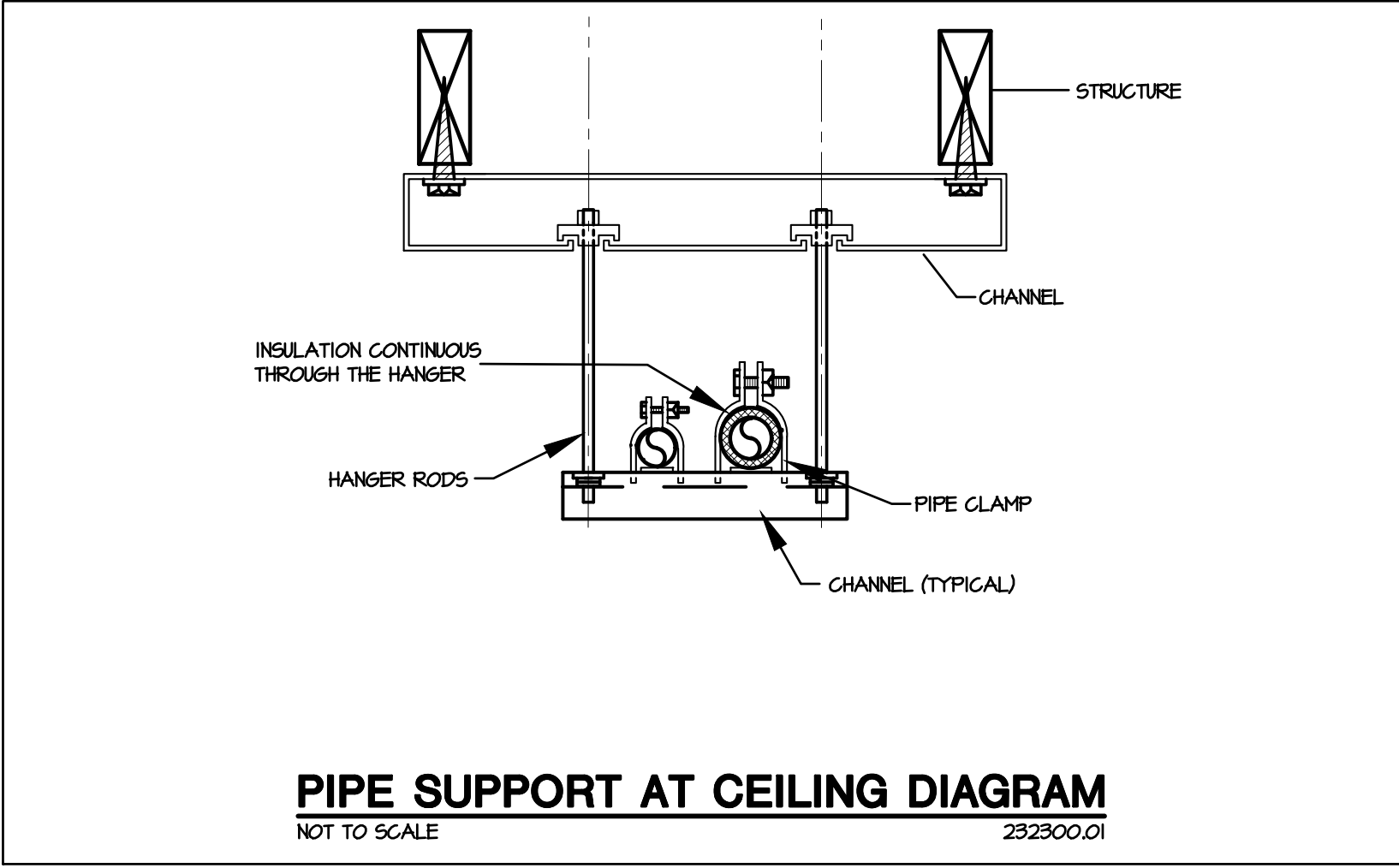
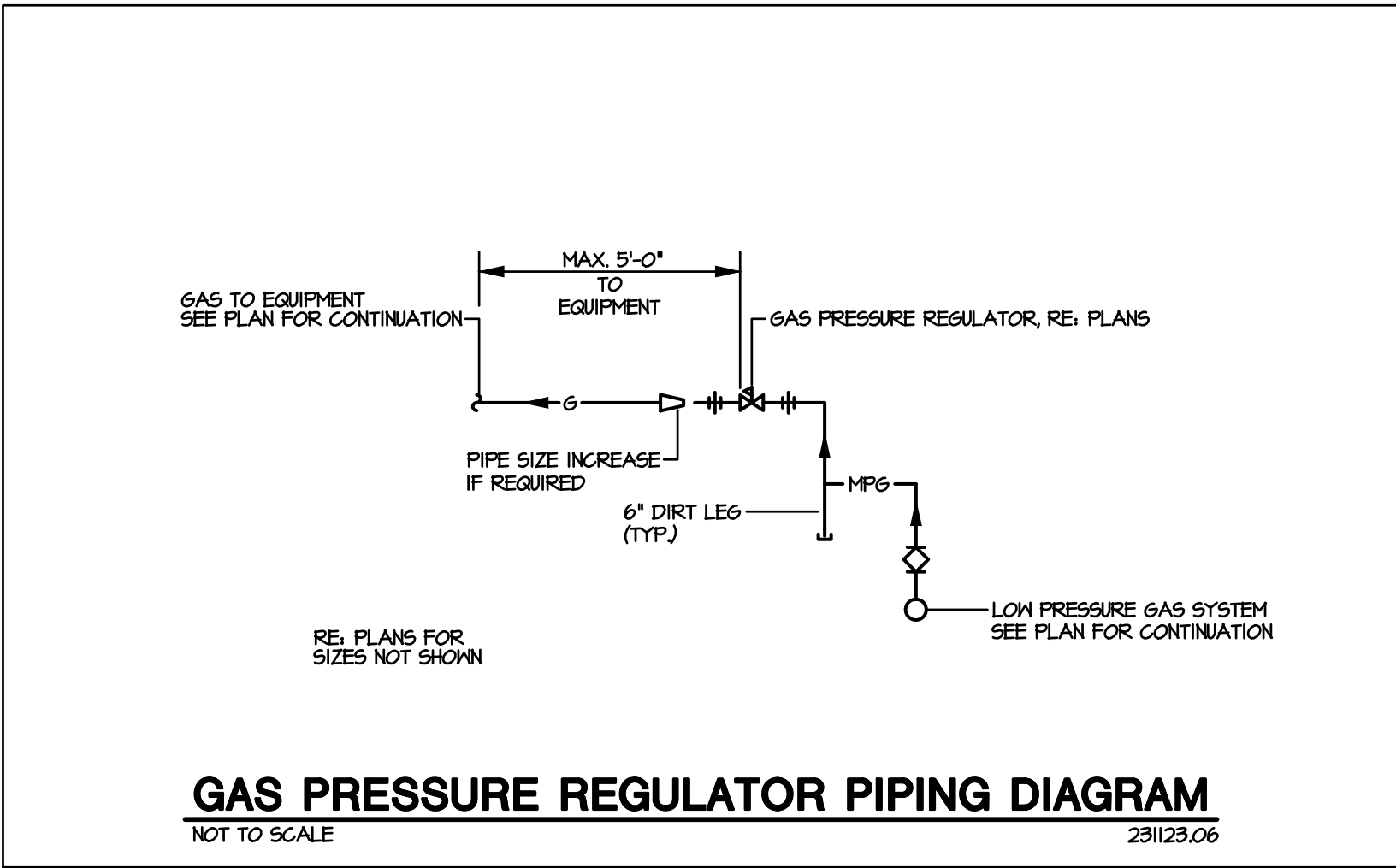
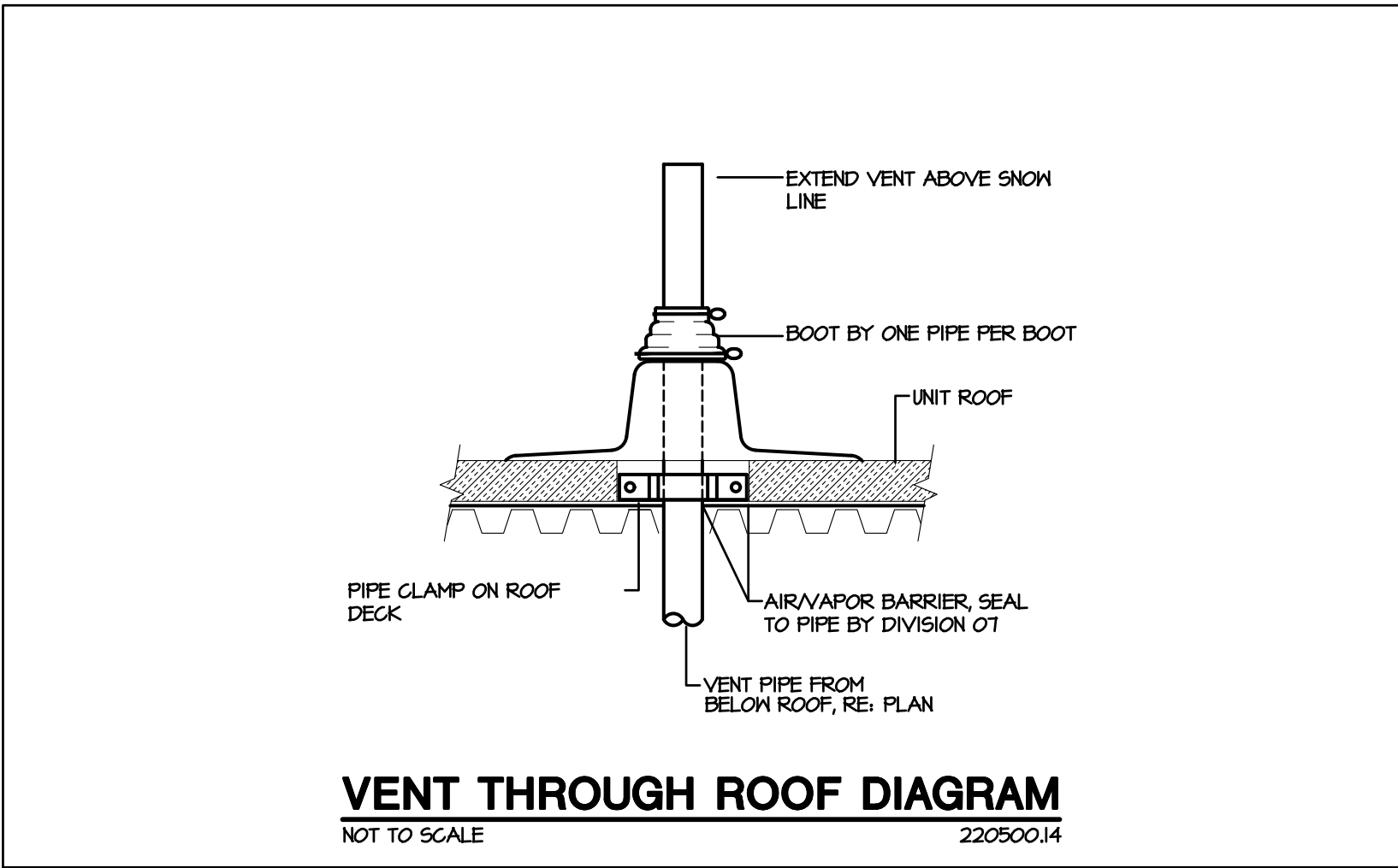
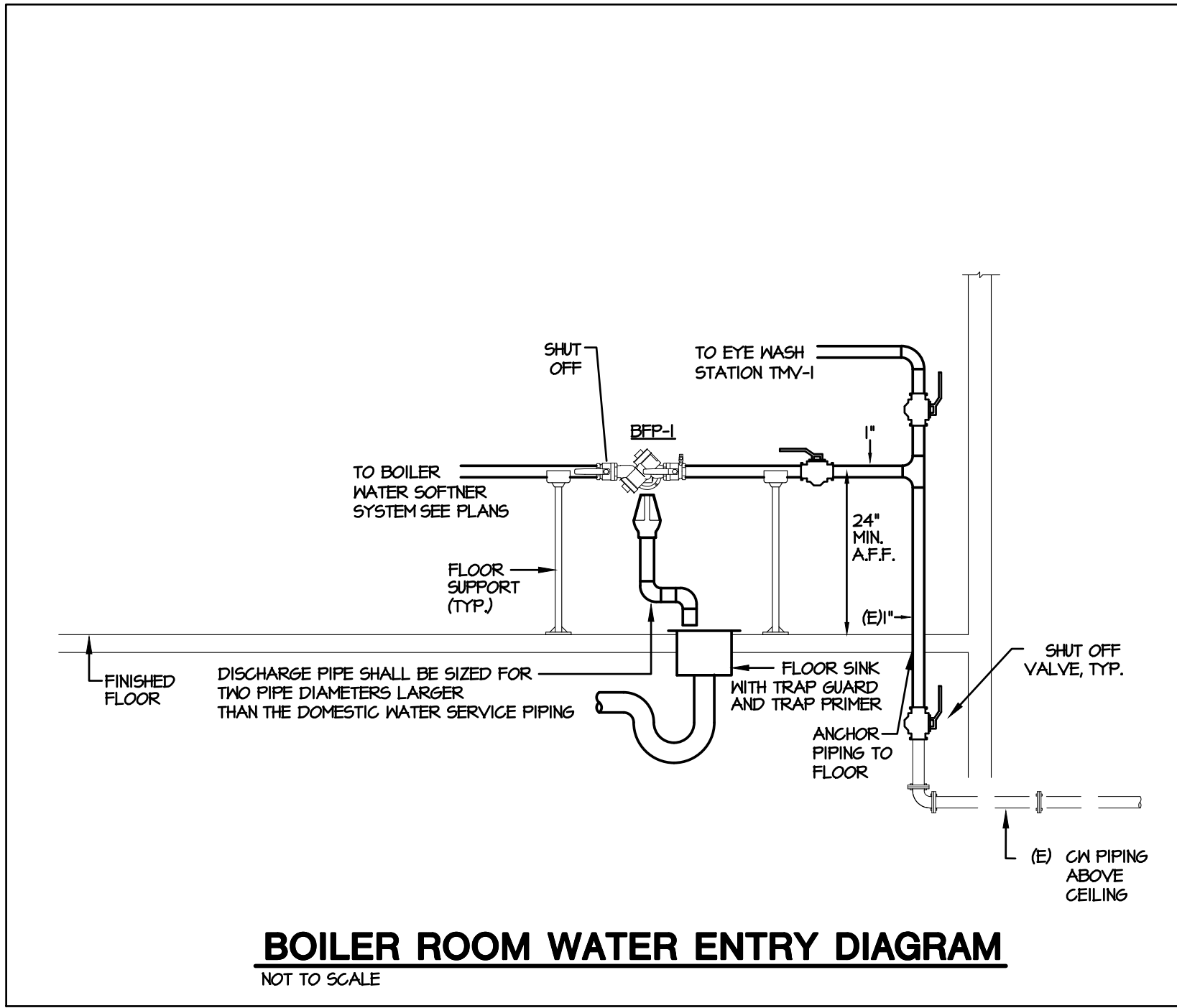
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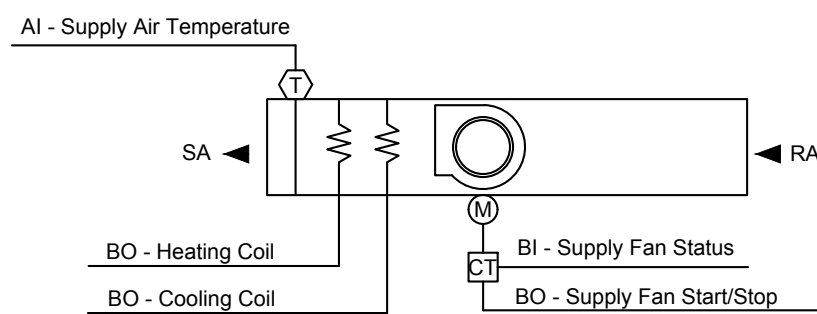
NOTE:
REFER TO MFR'S INSTRUCTIONS FOR
SPECIFIC MOUNTING DETAILS.
COORDINATE WITH ARCHITECTURAL
REQUIREMENTS.

DIAGRAM A
NOT TO SCALE

WATERTIGHT LOUVER CONNECTION DIAGRAM
NOT TO SCALE 239113.03

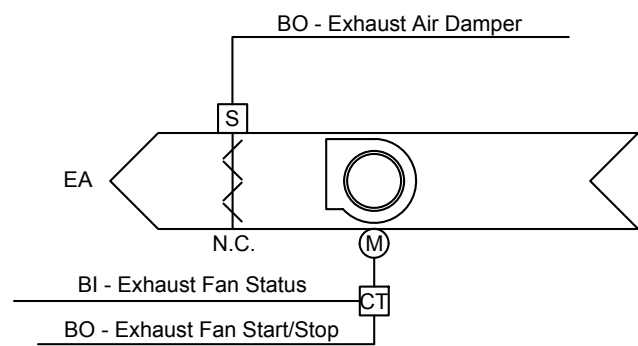


2



FCU-1 CONTROLS DIAGRAM

SCALE: NONE



EFPH-1 CONTROLS DIAGRAM

SCALE: NONE

SEQUENCE OF OPERATIONS: FCU-1 AND EFPH-1

GENERAL:

HEATING MODE: UPON A DROP IN ZONE TEMPERATURE BELOW 45 DEG. F ZONE HEATING SETPOINT, FCU-1 SHALL ENERGIZE TO MAINTAIN ZONE TEMPERATURE.

ECONOMIZER COOLING MODE: UPON AN INCREASE IN ZONE TEMPERATURE ABOVE 85 DEG. F (ADJ.) ZONE COOLING SETPOINT AND WHEN OUTDOOR AIR TEMPERATURE IS BETWEEN 55 AND 75 DEG F (ADJ.), FCU-1 SHALL BE DE-ENERGIZED AND EFPH-1 SHALL BE ENERGIZED AND RUN CONTINUOUSLY TO MAINTAIN ZONE TEMPERATURE SETPOINT.

COOLING MODE: UPON AN INCREASE IN ZONE TEMPERATURE ABOVE 85 DEG. F (ADJ.) ZONE COOLING SETPOINT AND WHEN OUTDOOR AIR TEMPERATURE IS EQUAL TO OR GREATER THAN ZONE TEMPERATURE, FCU-1 SHALL ENERGIZE TO MAINTAIN ZONE TEMPERATURE AND EFPH-1 SHALL BE DE-ENERGIZED.

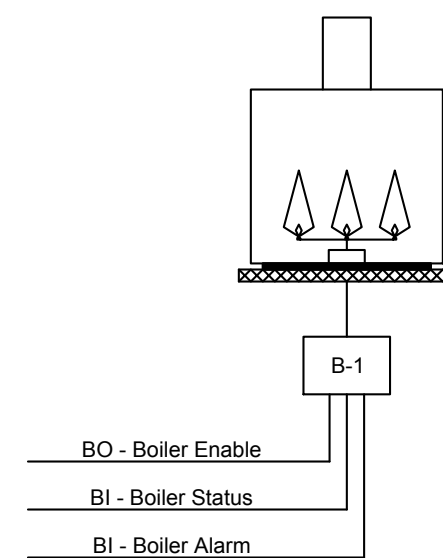
ALARMS: ALARMS SHALL BE PROVIDED AS FOLLOWS:

- SUPPLY FAN FAILURE, COMMANDED ON, BUT THE STATUS IS OFF.
- SUPPLY FAN IN HAND, COMMANDED OFF, BUT THE STATUS IS ON.
- EXHAUST FAN FAILURE, COMMANDED ON, BUT THE STATUS IS OFF.
- EXHAUST FAN IN HAND, COMMANDED OFF, BUT THE STATUS IS ON.

POINTS LIST: FCU-1 AND EFPH-1

POINT NAME	HARDWARE POINTS				SOFTWARE POINTS					SHOW ON GRAPHIC
	AI	AO	BI	BO	AV	BV	SCHED	TREND	ALARM	
ZONE TEMPERATURE	X							X		X
ZONE COOLING SETPOINT					X			X		
ZONE HEATING SETPOINT					X			X		
COOLING COIL		X						X		X
HEATING COIL		X						X		X
SUPPLY FAN STATUS			X					X		X
SUPPLY FAN START/STOP				X				X		X
SUPPLY FAN FAILURE									X	
SUPPLY FAN IN HAND									X	
SUPPLY AIR TEMPERATURE	X							X		X
EXHAUST FAN STATUS			X					X		X
EXHAUST AIR DAMPER				X						X
EXHAUST FAN START/STOP				X				X		X
EXHAUST FAN FAILURE									X	
EXHAUST FAN IN HAND									X	
TOTALS	2	2	2	3	2	0	0	10	4	9

2



HEATING WATER PLANT CONTROL DIAGRAM

SCALE: NONE

SEQUENCE OF OPERATIONS: STEAM BOILER SYSTEM

GENERAL:

BOILER(S) SHALL RUN SUBJECT TO ALL INTERNAL CONTROLS AND SAFETIES. THE FOLLOWING SAFETIES SHALL BE MONITORED BY THE BAS. ALL SETPOINTS ARE RECOMMENDED AND SHALL BE FIELD ADJUSTED DURING COMMISSIONING TO MEET THE REQUIREMENTS OF THE ACTUAL FIELD CONDITIONS.

RUN CONDITIONS:

THE BOILER SHALL BE REGULATED AND CONTROLLED BY THE BOILER OPERATOR. AN INTERNAL PRESSURE CONTROL SHALL SENSE THE STEAM PRESSURE AND TURN BOILER ON AND OFF ACCORDINGLY.

BEFORE THE BOILER TURNS ON, THE LOUVER DAMPER SHALL OPEN TO 100%. WHEN THE LOUVER AIR PROVING SENSOR SENSES AIRFLOW, THE BOILER SHALL ENABLE. WHENEVER THE BOILER TURNS OFF, THE LOUVER DAMPER SHALL CLOSE.

ALARMS:

BOILER ALARMS SHALL BE PROVIDED AS FOLLOWS:

- BOILER SYSTEM ALARM
- LOW WATER CUT-OFF & FEEDER LEVEL ALARM
- BOILER FAILURE, COMMANDED ON BUT STATUS OFF
- BOILER IN HAND, COMMANDED OFF BUT STATUS ON
- HIGH PRESSURE LIMIT.

POINTS LIST: HEATING WATER SYSTEM

POINT NAME	HARDWARE POINTS				SOFTWARE POINTS					SHOW ON GRAPHIC
	AI	AO	BI	BO	AV	BV	SCHED	TREND	ALARM	
BOILER ALARM			X					X	X	X
BOILER STATUS			X					X		X
BOILER ENABLE				X				X		X
BOILER SYSTEM ALARM									X	
BACNET INTERFACE										
TOTALS	0	0	2	1	0	0	0	3	2	3

SEQUENCE OF OPERATIONS: PH-1

PH-1: ALL SETPOINTS SHOWN BELOW SHALL BE CONTROLLED FROM A MASTER LOOP. PH-1 WILL RUN CONTINUOUSLY. THE EXHAUST FAN IS HARDWIRED TO PH-1 SUPPLY FAN.

START-UP:
UPON FAN START UP, THE OUTSIDE AIR DAMPERS WILL OPEN 100% AND THE VFDs WILL BE ENABLED. THE FANS WILL BE MODULATED BY VFDs TO MAINTAIN DUCT STATIC.

NORMAL OPERATING MODE:
THE SUPPLY FAN SHALL RUN CONTINUOUSLY AND THE OUTSIDE AIR DAMPER SHALL OPEN ANY TIME UNIT IS ENERGIZED AND SHALL CLOSE ANY TIME THE UNIT IS DE-ENERGIZED. OUTSIDE AIR DAMPER SHALL CLOSE FOR 4 SEC (ADJ.) AFTER THE SUPPLY FAN STOPS. THE SUPPLY FAN SPEED SHALL BE MODULATED TO MAINTAIN DISCHARGE AIR STATIC PRESSURE SETPOINT.

SUPPLY FAN:
THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN. THE FAN SHALL HAVE A USER DEFINABLE ADJUSTABLE MINIMUM RUNTIME UNLESS SHUTDOWN ON SAFETIES. THE SUPPLY FAN SHALL HAVE A DAILY 60 MINUTE DRY-OUT FOR THE DIRECT EVAPORATIVE PRE-COOLING MEDIA.

EXHAUST FAN:
THE EXHAUST FAN SHALL RUN WHENEVER THE SUPPLY FAN IS ENABLED, UNLESS SHUTDOWN ON SAFETIES.

DIRECT EVAPORATIVE PRE-COOLING SECTION:
THE CONTROLLER SHALL MONITOR THE OUTSIDE AIR TEMPERATURE AND STAGE ON THE SPRAY PUMP ON RISING TEMPERATURE TO MAINTAIN ITS COOLING SETPOINT. THE SUPPLY FAN SHALL RUN FOR A USER DEFINABLE TIME (ADJ.) AFTER THE SPRAY PUMP/S HAVE DISABLED ON UNIT SHUTDOWN TO DRY OUT THE EVAPORATIVE MEDIA.

THE EVAPORATIVE PRE-COOLING SHALL BE ENABLED WHENEVER:

- OUTSIDE AIR TEMPERATURE IS GREATER THAN 75 DEG F (ADJ.)
- AND OUTSIDE AIR NET BULB IS LESS THAN 60 DEG F (ADJ.)
- AND THE ZONE TEMPERATURE IS ABOVE COOLING SETPOINT
- AND THE ZONE HUMIDITY IS LESS THAN 60% (ADJ.)
- AND THE SUPPLY FAN STATUS IS ON.

SPRAY PUMP CONTROL
EVAPORATIVE PRE-COOLING SHALL BE COMPOSED OF 3 VERTICAL SECTIONS WITH PUMPS. THE MIDDLE SECTION SHALL BE STAGE 1, THE OUTSIDE SECTION WILL BE STAGE 2 AND ALL THREE SECTIONS WILL BE STAGE 3.
- STAGE 1 SHALL BE ENABLED ON CALL FOR PRE-COOLING.
- STAGE 2 SHALL BE ENABLED WHEN DISCHARGE AIR TEMPERATURE IS MORE THAN 3 DEG F (ADJ.) ABOVE SETPOINT FOR 10 MINS (ADJ.)
- STAGE 3 SHALL BE ENABLED WHEN DISCHARGE AIR TEMPERATURE IS MORE THAN 3 DEG F (ADJ.) ABOVE SETPOINT FOR 30 MINS (ADJ.).

SUMP CONTROL
THE CONTROLLER SHALL DRAIN AND FILL THE SUMP AS FOLLOWS:

FREEZE PROTECTION:

IF THE OUTSIDE AIR TEMPERATURE DROPS BELOW 40 DEG F (ADJ.), THE EVAPORATIVE COOLER SUMP SHALL OPEN THE DRAIN VALVE AND CLOSE THE FILL VALVE. IF THE OUTSIDE AIR TEMPERATURE RISES ABOVE 55 DEG F (ADJ.), THE CONTROLLER SHALL ACTIVATE THE FILL VALVE AND CLOSE THE DRAIN VALVE.

SCHEDULED FLUSH AND FILL:

A FLUSH CYCLE SHALL OCCUR EVERY WEEK (DEFAULT SUNDAY) AT A USER DEFINABLE TIME OF DAY (DEFAULT 2:00AM). DURING CYCLE, THE SPRAY PUMP SHALL STOP. THE FILL VALVE SHALL CLOSE AND THE DRAIN VALVE SHALL OPEN FOR 60 MINUTES (ADJ.). AFTER THE CYCLE TIME IS COMPLETE, THE DRAIN VALVE SHALL CLOSE, THE FILL VALVE SHALL OPEN.

A BLEED CYCLE SHALL BE INITIATED IF CONDUCTIVITY PROBE LOCATED IN THE SUMP MEASURES 1200 PPM. CLOSE DRAIN VALVE AT 400 PPM. LOCATE BLEED VALVE AS GRAVITY FEED FROM THE SUMP AND NOT OFF THE DISCHARGE OF THE PUMPS.

HIGH WATER LEVEL ALARM:

IF WATER LEVEL IS TOO HIGH, SUMP FILL VALVE SHALL CLOSE.

HEAT RECOVERY VENTILATOR CORE:

THE CONTROLLER SHALL MODULATE THE BYPASS DAMPER FOR ENERGY RECOVERY AS FOLLOWS:

COOLING RECOVERY MODE:

THE CONTROLLER SHALL MEASURE THE DISCHARGE AIR TEMPERATURE AND MODULATE THE BYPASS DAMPER CLOSED TO MAINTAIN A SETPOINT 2 DEG F (ADJ.) LESS THAN THE UNIT SUPPLY AIR TEMPERATURE SETPOINT. THE BYPASS DAMPER SHALL CLOSE FOR COOLING RECOVERY WHENEVER:

- UNIT ENTERING EXHAUST AIR TEMPERATURE IS 5 DEG F (ADJ.) OR MORE BELOW THE OUTSIDE AIR TEMPERATURE.
- AND THE UNIT IS IN COOLING MODE
- AND THE SUPPLY FAN IS ON.

HEATING RECOVERY MODE:

THE CONTROLLER SHALL MEASURE THE DISCHARGE AIR TEMPERATURE AND MODULATE THE BYPASS DAMPER CLOSED TO MAINTAIN A SETPOINT 2 DEG F (ADJ.) GREATER THAN THE UNIT SUPPLY AIR TEMPERATURE SETPOINT. THE BYPASS DAMPER SHALL CLOSE FOR HEAT RECOVERY WHENEVER:

- UNIT ENTERING EXHAUST AIR TEMPERATURE IS 5 DEG F (ADJ.) OR MORE ABOVE THE OUTSIDE AIR TEMPERATURE.
- AND THE UNIT IS IN HEATING MODE
- AND THE SUPPLY FAN IS ON.

THE BYPASS DAMPER WILL OPEN WHENEVER AIR HEAT RECOVERY IS DISABLED.

COOLING COIL VALVE:

THE CONTROLLER SHALL MEASURE THE DISCHARGE AIR TEMPERATURE AND MODULATE THE COOLING COIL 3-WAY VALVE TO MAINTAIN ITS COOLING SETPOINT. THE COOLING SHALL BE ENABLED WHEN:

- OUTSIDE AIR TEMPERATURE IS GREATER THAN 65 DEG F (ADJ.)
- AND THE SUPPLY AIR TEMPERATURE IS ABOVE COOLING SETPOINT
- AND THE FAN STATUS IS ON
- AND EVAPORATIVE PRECOOLING STAGE 3 HAS RAN FOR MINIMUM 1 HOUR (ADJ.).

THE COOLING COIL VALVE SHALL OPEN TO 50% (ADJ.) WHENEVER THE FREEZESTAT IS ON.

HEATING COIL VALVE:

THE CONTROLLER SHALL MEASURE THE DISCHARGE AIR TEMPERATURE AND MODULATE THE HEATING COIL 3-WAY VALVE TO MAINTAIN ITS HEATING SETPOINT. THE HEATING SHALL BE ENABLED WHENEVER:

- OUTSIDE AIR TEMPERATURE IS LESS THAN 65 DEG F (ADJ.)
- AND THE SUPPLY AIR TEMPERATURE IS BELOW HEATING SETPOINT
- AND THE FAN STATUS IS ON.

THE HEATING COIL VALVE SHALL OPEN TO 100% (ADJ.) WHENEVER THE FREEZESTAT IS ON.

HEATING COIL PUMP:

THE RECIRCULATION PUMP P-4 SHALL RUN WHENEVER:

- OUTSIDE AIR TEMPERATURE IS LESS THAN 55 DEG F (ADJ.)
- AND THE HEATING COIL VALVE IS ENABLED
- OR THE FREEZESTAT IS ON.

FILTER DIFFERENTIAL PRESSURE MONITOR:

THE CONTROLLER SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS ACROSS ALL OF THE FOLLOWING FILTER BANKS:

- PREFILTER
- INTERMEDIATE FILTER
- FINAL FILTER
- EXHAUST PRE-FILTER
- EXHAUST HEPA FILTER BANK

- HEAT EXCHANGER OUTSIDE AIR FILTER
- HEAT EXCHANGER EXHAUST AIR FILTER

PERIODIC FILTER CLEANING:

THE UNIT SHALL HAVE NOTIFICATIONS TO CHANGE OUTSIDE AIR AND EXHAUST AIR FILTERS AT RECOMMENDED INTERVALS. THE EXHAUST FAN SHALL MODULATE TO COMPENSATE FOR FILTER LOADING.

DISCHARGE AIR TEMPERATURE:

ALARMS SHALL BE PROVIDED AS FOLLOWS:

- HIGH DISCHARGE AIR TEMP: IF DISCHARGE AIR TEMPERATURE IS GREATER THAN 10 DEGREES ABOVE SETPOINT.
- LOW DISCHARGE AIR TEMP: IF THE DISCHARGE AIR TEMPERATURE IS LESS THAN 10 DEGREES ABOVE SETPOINT.
- SUPPLY AIR HIGH STATIC OPERATION: IF SUPPLY AIR STATIC IS GREATER THAN 4" WC, UNIT SHALL SHUT OFF AND SOUND AN ALARM.
- EXHAUST AIR LOW STATIC OPERATION: IF EXHAUST AIR STATIC IS LESS THAN -4" WC, UNIT SHALL SHUT OFF AND SOUND AN ALARM.

SMOKE DETECTOR SHUTDOWN:

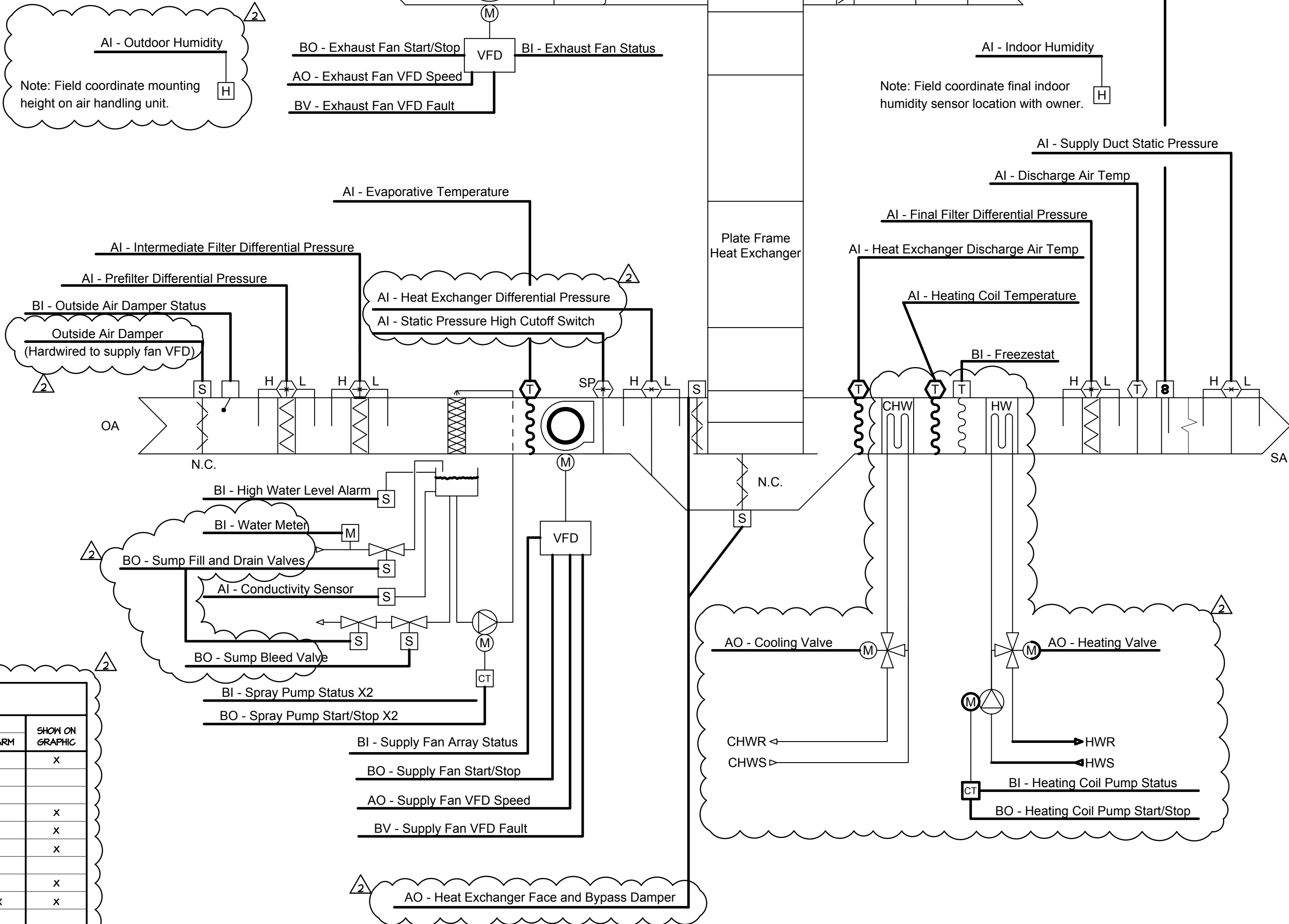
THE UNIT SHALL SHUT DOWN IN RESPONSE TO A SIGNAL FROM THE SMOKE DETECTOR IN EITHER THE SUPPLY DUCT OR EXHAUST DUCT, INDICATING THE PRESENCE OF SMOKE. THE EXHAUST FAN SHALL RUN FULL SPEED. THE SMOKE DETECTOR SHALL BE INTERLOCKED TO THE UNIT THROUGH THE DRY CONTACTS OF THE SMOKE DETECTOR. A MANUAL RESET OF THE SMOKE DETECTOR SHALL BE REQUIRED TO RESTART THE UNIT.

HEAT EXCHANGER DEFROST CYCLE: WHEN FROST ACCUMULATION IS DETECTED BASED ON MONITORING THE PRESSURE DROP ACROSS THE HEAT EXCHANGER,

- THE BYPASS DAMPER WILL OPEN TO 100% FOR 5 MINUTES (ADJ.) WHILE THE EXHAUST FAN CONTINUES TO OPERATE AND THAN THE ICE ACCUMULATION ON THE HEAT EXCHANGER.
- AFTER THE 5 MINUTES OPEN, THE BYPASS DAMPER SHALL RESUME NORMAL OPERATION UNTIL FROST ACCUMULATES AGAIN.
- THE CYCLE SHALL REPEAT ITSELF FOR 30 MINUTES (ADJ.). IF FROST ACCUMULATION IS STILL DETECTED AFTER 30 MINUTES, UNIT SHALL GO INTO 100% BYPASS FOR 1 HOUR (ADJ.). AFTER 1 HOUR, CYCLE SHALL RESET.

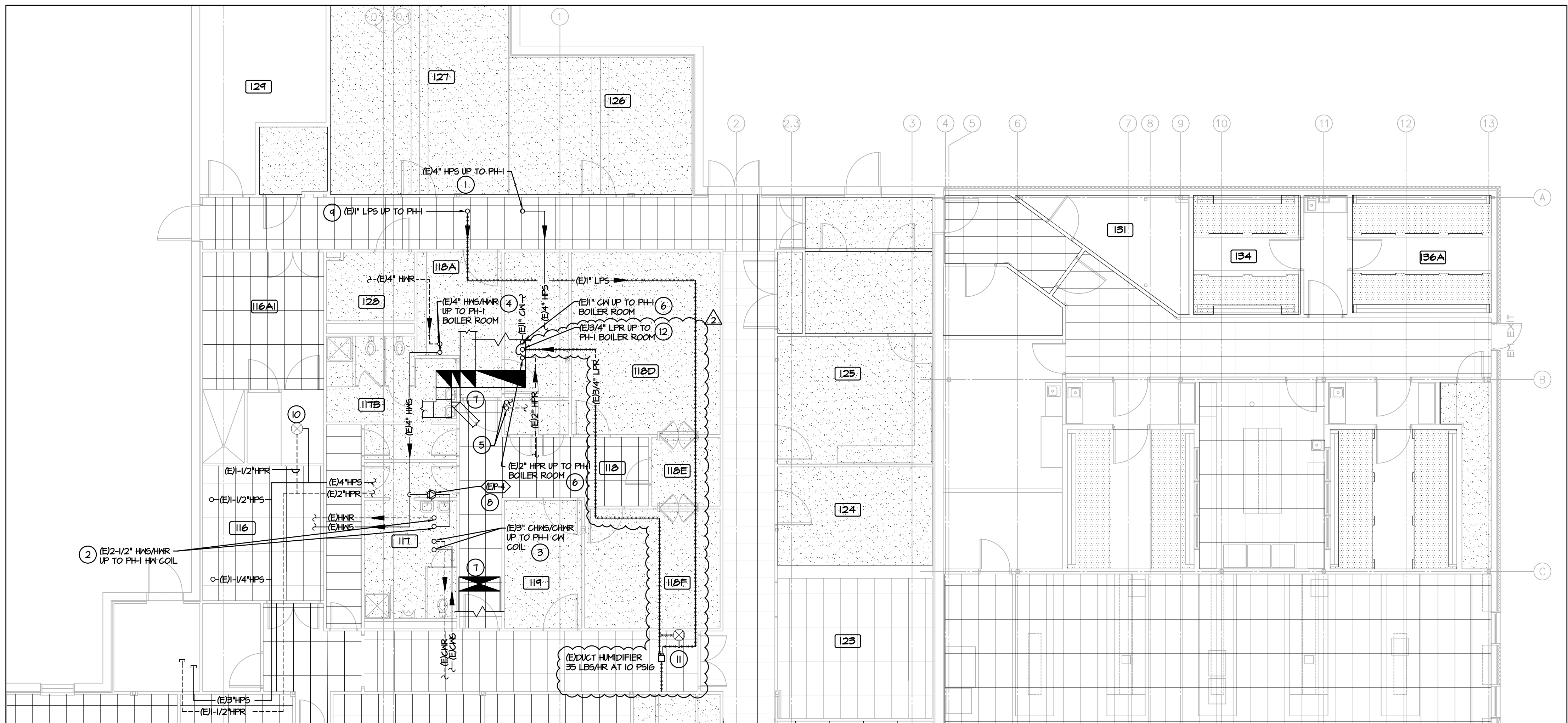
POINTS LIST: PH-1

POINT NAME	HARDWARE POINTS				SOFTWARE POINTS							SHOWN ON GRAPHIC
	AI	AO	BI	BO	AV	BV	SCHED	TREND	ALARM			
ENTERING EXHAUST AIR TEMP	x							x				x
FINAL FILTER DIFFERENTIAL PRESSURE	x							x				
EXHAUST FILTER DIFFERENTIAL PRESSURE	x							x				
HEAT EXCHANGER DISCHARGE AIR TEMP	x							x			x	
EVAPORATIVE TEMPERATURE	x							x			x	
OUTSIDE AIR HUMIDITY	x							x			x	
PREFILTER DIFFERENTIAL PRESSURE	x							x			x	
LEAVING EXHAUST AIR TEMP	x							x			x	
STATIC PRESSURE LOW CUTOFF SWITCH			x					x	x	x	x	
INTERMEDIATE FILTER DIFFERENTIAL PRESSURE	x							x				
DISCHARGE AIR TEMP	x							x			x	
COOLING VALVE		x						x			x	
SPRAY PUMP 1 START/STOP				x				x			x	
SPRAY PUMP 2 START/STOP				x				x			x	
SUMP FILL AND DRAIN VALVE				x				x			x	
WATER METER			x					x			x	
CONDUCTIVITY SENSOR	x							x			x	
HIGH WATER LEVEL ALARM			x					x	x	x	x	
SPRAY PUMP 1 STATUS			x					x			x	
SPRAY PUMP 2 STATUS			x					x			x	
HEATING VALVE		x						x			x	
EXHAUST FAN ARRAY STATUS			x					x			x	
FREEZESTAT			x					x		x	x	
STATIC PRESSURE HIGH CUTOFF SWITCH			x					x	x	x	x	
HEAT EXCHANGER DIFFERENTIAL PRESSURE	x							x				
SUPPLY FAN ARRAY STATUS			x					x			x	
EXHAUST FAN VFD FAULT						x		x	x	x	x	
SUPPLY FAN VFD FAULT						x		x	x	x	x	
HEATING COIL PUMP STATUS			x					x			x	
OUTSIDE AIR DAMPER STATUS			x					x			x	
SUPPLY AND EXHAUST AIR SMOKE DETECTOR			x					x		x	x	
EXHAUST FAN START/STOP				x				x			x	
HEAT EXCHANGER FACE AND BYPASS DAMPER		x						x			x	
SUPPLY FAN VFD SPEED		x						x			x	
EXHAUST FAN VFD SPEED		x						x			x	
HEATING COIL PUMP START/STOP				x				x			x	
OUTSIDE AIR DAMPER					HARDWIRED TO THE VFD FOR HAND AND AUTO OPERATION							
SUPPLY FAN START/STOP				x				x			x	
SUPPLY AIR TEMP SETPOINT					x			x			x	
EXHAUST FAN FAILURE										x	x	
SCHEDULE							x					
EXHAUST FAN IN HAND										x		
EXHAUST FAN RUNTIME EXCEEDED										x	x	
HEAT COIL PUMP FAILURE										x		
HEATING COIL PUMP RUNTIME EXCEEDED										x		
HIGH SUPPLY AIR TEMP										x		
LOW SUPPLY AIR TEMP										x		
OUTSIDE AIR DAMPER FAILURE										x		
SUPPLY FAN FAILURE										x		
SUPPLY FAN IN HAND										x		
SUPPLY FAN RUNTIME EXCEEDED										x		
INDOOR HUMIDITY	x							x		x	x	
SUPPLY DUCT STATIC PRESSURE	x									x		
TOTALS	14	5	12	6	1	2	1	31	20		36	

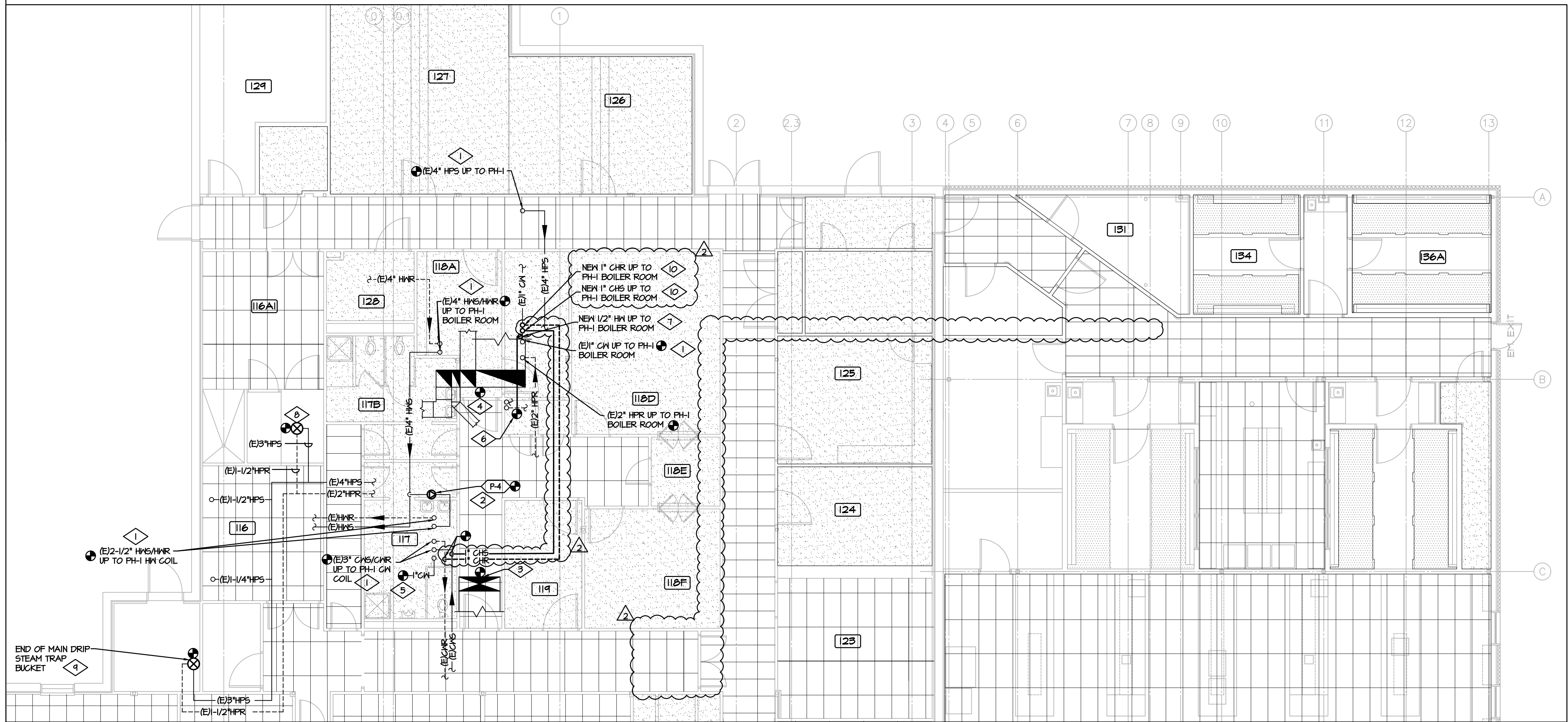


PH-1 CONTROL DIAGRAM

SCALE: NONE



PARTIAL FLOOR PLAN - DEMOLITION
SCALE: 1/8" = 1'-0"



PARTIAL FLOOR PLAN - NEW
SCALE: 1/8" = 1'-0"

MECHANICAL GENERAL NOTES

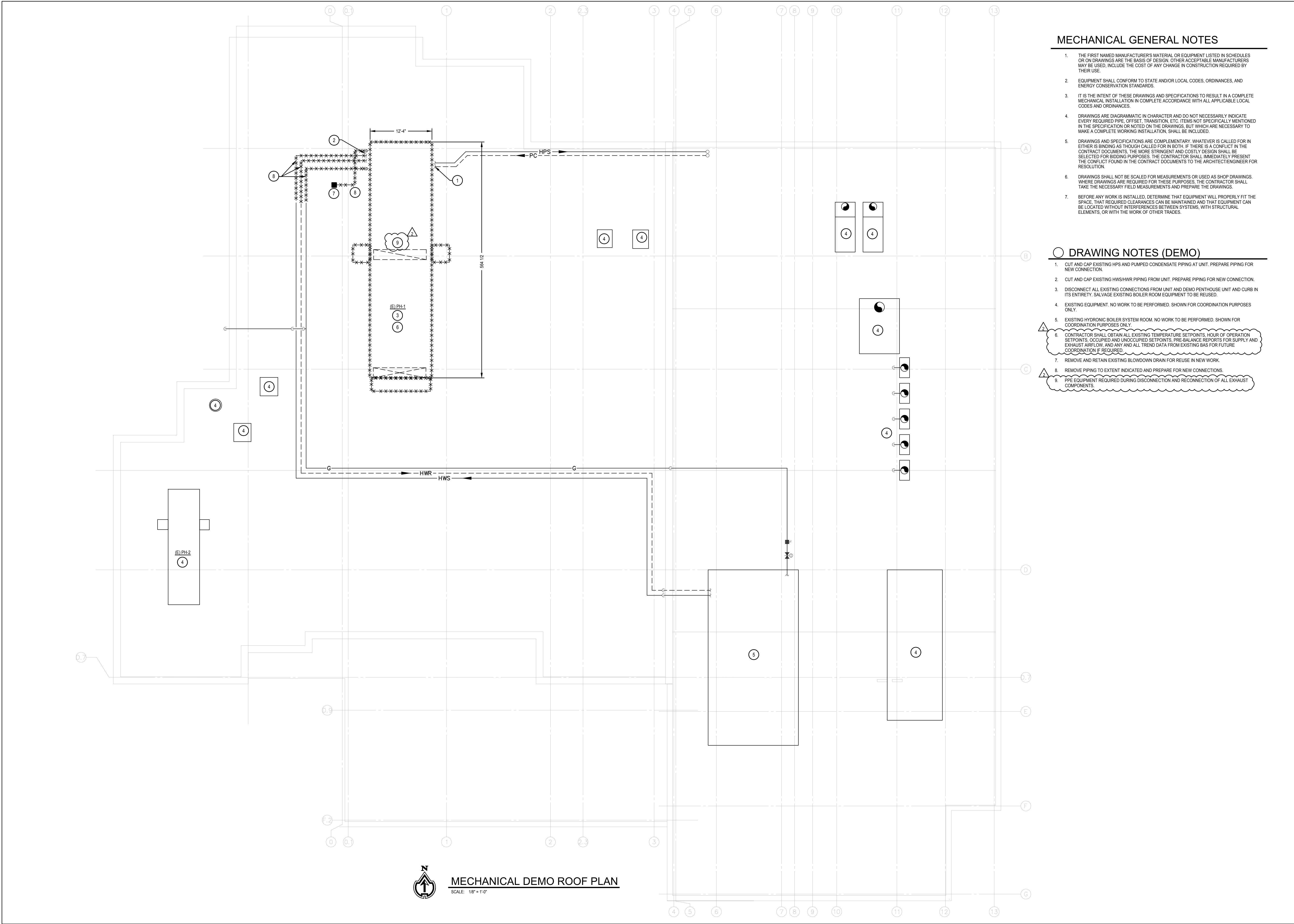
- THE FIRST NAMED MANUFACTURER'S MATERIAL OR EQUIPMENT LISTED IN SCHEDULES OR ON DRAWINGS ARE THE BASIS OF DESIGN. OTHER ACCEPTABLE MANUFACTURERS MAY BE USED, INCLUDE THE COST OF ANY CHANGE IN CONSTRUCTION REQUIRED BY THEIR USE.
- EQUIPMENT SHALL CONFORM TO STATE AND/OR LOCAL CODES, ORDINANCES, AND ENERGY CONSERVATION STANDARDS.
- IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO RESULT IN A COMPLETE MECHANICAL INSTALLATION IN COMPLETE ACCORDANCE WITH ALL APPLICABLE LOCAL CODES AND ORDINANCES.
- DRAWINGS ARE DIAGNOSTIC IN CHARACTER AND DO NOT NECESSARILY INDICATE EVERY REQUIRED PIPE, OFFSET, TRANSITION, ETC. ITEMS NOT SPECIFICALLY MENTIONED IN THE SPECIFICATION OR NOTED ON THE DRAWINGS, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION, SHALL BE INCLUDED.
- DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY. WHATEVER IS CALLED FOR IN EITHER IS BINDING AS THOUGH CALLED FOR IN BOTH. IF THERE IS A CONFLICT IN THE CONTRACT DOCUMENTS, THE MORE STRINGENT AND COSTLY DESIGN SHALL BE SELECTED FOR BIDDING PURPOSES. THE CONTRACTOR SHALL IMMEDIATELY PRESENT THE CONFLICT FOUND IN THE CONTRACT DOCUMENTS TO THE ARCHITECT/ENGINEER FOR RESOLUTION.
- DRAWINGS SHALL NOT BE SCALED FOR MEASUREMENTS OR USED AS SHOP DRAWINGS. WHERE DRAWINGS ARE REQUIRED FOR THESE PURPOSES, THE CONTRACTOR SHALL TAKE THE NECESSARY FIELD MEASUREMENTS AND PREPARE THE DRAWINGS.
- BEFORE ANY WORK IS INSTALLED, DETERMINE THAT EQUIPMENT WILL PROPERLY FIT THE SPACE, THAT REQUIRED CLEARANCES CAN BE MAINTAINED AND THAT EQUIPMENT CAN BE LOCATED WITHOUT INTERFERENCE BETWEEN SYSTEMS, WITH STRUCTURAL ELEMENTS, OR WITH THE WORK OF OTHER TRADES.
- ISOLATE ALL SUPPLY AND RETURN PIPING SERVING PENTHOUSE UNIT. CUT AND CAP PIPING AT ROOF PENETRATION FOR PENTHOUSE UNIT REMOVAL. (TYPICAL ALL PIPE CONNECTIONS.)

DRAWING NOTES (DEMO)

- DISCONNECT EXISTING HPS PIPING FROM UNIT.
- DISCONNECT EXISTING 2-1/2" HNS/HNR PIPING FROM UNIT COIL. PREPARE PIPING FOR RECONNECTION TO NEW UNIT.
- DISCONNECT EXISTING 3" CHNS/CHNR PIPING FROM UNIT COIL. PREPARE PIPING FOR RECONNECTION TO NEW UNIT.
- DISCONNECT EXISTING 4" HNS/HNR PIPE DISTRIBUTION PIPING FROM UNIT. PREPARE PIPING FOR RECONNECTION.
- EXISTING 1/2" CH AND HN SERVING MOP SINK. CONTRACTOR TO FIELD VERIFY EXACT LOCATION.
- DISCONNECT EXISTING HFR, LFR AND 1" CH PIPING TO UNIT.
- DISCONNECT EXISTING SUPPLY AND EXHAUST AIR DUCT FROM UNIT ABOVE. PREPARE FOR RECONNECTION TO NEW UNIT.
- DEMO EXISTING CIRCULATING PUMP SERVING HOT WATER COIL. PREPARE EXISTING PIPING FOR RECONNECTION.
- DEMO EXISTING LPS STEAM PIPING AS SHOWN BACK TO PENTHOUSE.
- REMOVE EXISTING STEAM TRAP. PREPARE PIPING FOR REPLACEMENT.
- REMOVE EXISTING STEAM DUCT HUMIDIFIER IN ITS ENTIRETY. PATCH/REPAIR DUCT OPENING AS REQUIRED.
- DEMO EXISTING LFR STEAM PIPING IN ITS ENTIRETY.

DRAWING NOTES

- EXTEND AND RECONNECT EXISTING PIPING UP TO NEW PENTHOUSE CONNECTIONS.
- PROVIDE NEW CIRCULATION PUMP.
- PROVIDE NEW TRANSITION FROM EXISTING 50"x20" SUPPLY DUCT TO 126"x24" UNIT SUPPLY OPENING. EXPAND METAL OVER OPENING INSIDE UNIT.
- PROVIDE NEW TRANSITION FROM EXISTING EXHAUST DUCTS TO 126"x24" EXHAUST AIR OPENING IN UNIT. EXPAND METAL OVER OPENING INSIDE UNIT.
- PROVIDE NEW 1" CH LINE UP TO NEW PH-I IN PIPE CHASE. ROUTE TO NEW EVAPORATIVE COOLER. PROVIDE WITH SHUTOFF VALVE AND ACCESS PANEL.
- CONNECT NEW 1/2" HN TO EXISTING 1/2" HN AS SHOWN.
- ROUTE NEW 1/2" HN FROM EXISTING MOP SINK CONNECTION UP TO NEW PENTHOUSE TO SERVE EYEWASH STATION.
- REPLACE EXISTING STEAM TRAP BUCKET WITH NEW EQUAL TO ARMSTRONGS MODEL 800 SERIES.
- PROVIDE NEW END OF MAIN STEAM TRAP BUCKET FOR HIGH PRESSURE STEAM (75 PSI). EQUAL TO ARMSTRONGS MODEL 816.
- ROUTE NEW 1" CHS OR CHR AS SHOWN UP TO NEW PENTHOUSE TO SERVE FCU-I.



MECHANICAL GENERAL NOTES

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- BEFORE ANY WORK IS INSTALLED, DETERMINE THAT EQUIPMENT WILL PROPERLY FIT THE SPACE. THAT REQUIRED CLEARANCES CAN BE MAINTAINED AND THAT EQUIPMENT CAN BE LOCATED WITHOUT INTERFERENCES BETWEEN SYSTEMS, WITH STRUCTURAL ELEMENTS, OR WITH THE WORK OF OTHER TRADES.

DRAWING NOTES (DEMO)

- CUT AND CAP EXISTING HPS AND PUMPED CONDENSATE PIPING AT UNIT. PREPARE PIPING FOR NEW CONNECTION.
- CUT AND CAP EXISTING HWS/HWR PIPING FROM UNIT. PREPARE PIPING FOR NEW CONNECTION.
- DISCONNECT ALL EXISTING CONNECTIONS FROM UNIT AND DEMO PENTHOUSE UNIT AND CURB IN ITS ENTIRETY. SALVAGE EXISTING BOILER ROOM EQUIPMENT TO BE REUSED.
- EXISTING EQUIPMENT. NO WORK TO BE PERFORMED. SHOWN FOR COORDINATION PURPOSES ONLY.
- EXISTING HYDRONIC BOILER SYSTEM ROOM. NO WORK TO BE PERFORMED. SHOWN FOR COORDINATION PURPOSES ONLY.
- CONTRACTOR SHALL OBTAIN ALL EXISTING TEMPERATURE SETPOINTS, HOUR OF OPERATION SETPOINTS, OCCUPIED AND UNOCCUPIED SETPOINTS, PRE-BALANCE REPORTS FOR SUPPLY AND EXHAUST AIRFLOW, AND ANY AND ALL TREND DATA FROM EXISTING BAS FOR FUTURE COORDINATION IF REQUIRED.
- REMOVE AND RETAIN EXISTING BLOWDOWN DRAIN FOR REUSE IN NEW WORK.
- REMOVE PIPING TO EXTENT INDICATED AND PREPARE FOR NEW CONNECTIONS.
- PIPE EQUIPMENT REQUIRED DURING DISCONNECTION AND RECONNECTION OF ALL EXHAUST COMPONENTS.



MECHANICAL DEMO ROOF PLAN

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

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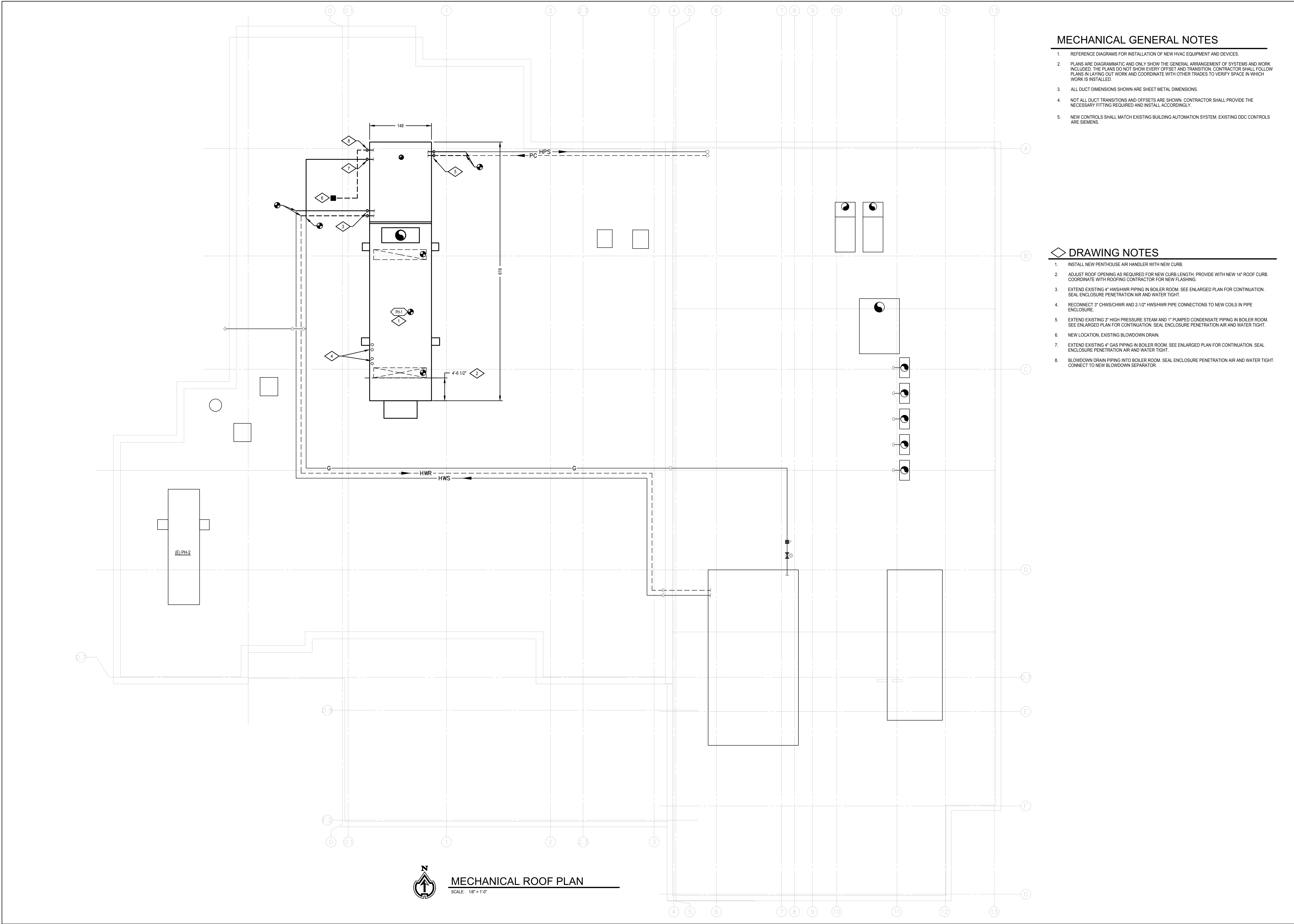
University of Colorado - Anschutz Medical Campus
Perinatal Research Facility
13243 East 23rd Avenue
Aurora, CO 80045
PRF - Power HVAC Boiler Upgrades

ISSUE	DATE
100% CD	10/06/2023
Issued for Construction	10/27/2023
100% Permit Comment	11/06/2023
ADDENDUM #1	11/14/2023

MEP JOB: 22318
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MECHANICAL
DEMO ROOF PLAN

MD-2.0



MECHANICAL GENERAL NOTES

1. REFERENCE DIAGRAMMS FOR INSTALLATION OF NEW HVAC EQUIPMENT AND DEVICES.
2. PLANS ARE DIAGRAMMATIC AND ONLY SHOW THE GENERAL ARRANGEMENT OF SYSTEMS AND WORK INCLUDED. THE PLANS DO NOT SHOW EVERY OFFSET AND TRANSITION. CONTRACTOR SHALL FOLLOW PLANS IN LAYING OUT WORK AND COORDINATE WITH OTHER TRADES TO VERIFY SPACE IN WHICH WORK IS INSTALLED.
3. ALL DUCT DIMENSIONS SHOWN ARE SHEET METAL DIMENSIONS.
4. NOT ALL DUCT TRANSITIONS AND OFFSETS ARE SHOWN. CONTRACTOR SHALL PROVIDE THE NECESSARY FITTING REQUIRED AND INSTALL ACCORDINGLY.
5. NEW CONTROLS SHALL MATCH EXISTING BUILDING AUTOMATION SYSTEM. EXISTING DDC CONTROLS ARE SIEMENS.

DRAWING NOTES

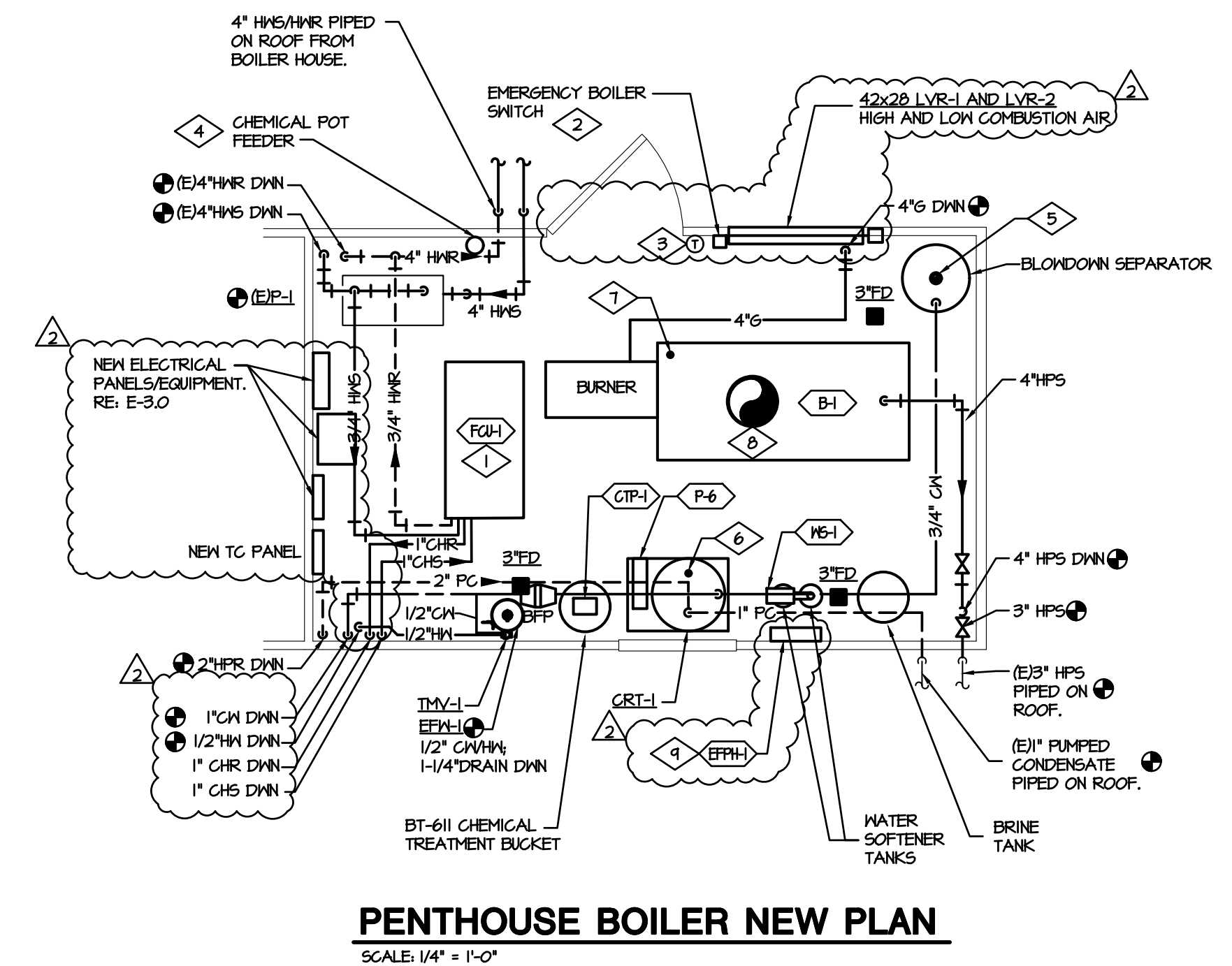
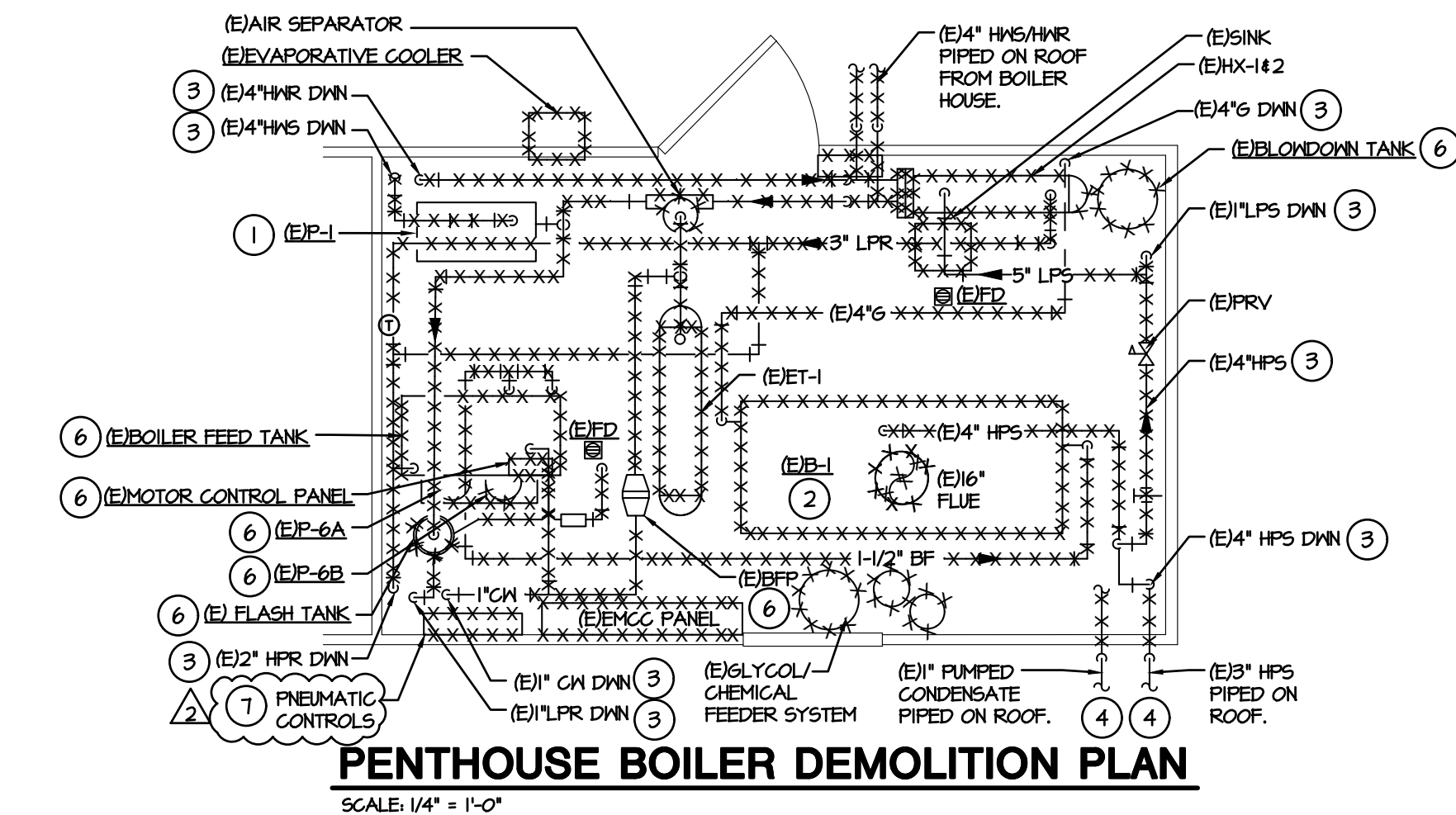
1. INSTALL NEW PENTHOUSE AIR HANDLER WITH NEW CURB.
2. ADJUST ROOF OPENING AS REQUIRED FOR NEW CURB LENGTH. PROVIDE WITH NEW 14" ROOF CURB. COORDINATE WITH ROOFING CONTRACTOR FOR NEW FLASHING.
3. EXTEND EXISTING 4" HWS/HWR PIPING IN BOILER ROOM. SEE ENLARGED PLAN FOR CONTINUATION. SEAL ENCLOSURE PENETRATION AIR AND WATER TIGHT.
4. RECONNECT 3" CHWS/HWR AND 2-1/2" HWS/HWR PIPE CONNECTIONS TO NEW COILS IN PIPE ENCLOSURE.
5. EXTEND EXISTING 3" HIGH PRESSURE STEAM AND 1" PUMPED CONDENSATE PIPING IN BOILER ROOM. SEE ENLARGED PLAN FOR CONTINUATION. SEAL ENCLOSURE PENETRATION AIR AND WATER TIGHT.
6. NEW LOCATION, EXISTING BLOWDOWN DRAIN.
7. EXTEND EXISTING 4" GAS PIPING IN BOILER ROOM. SEE ENLARGED PLAN FOR CONTINUATION. SEAL ENCLOSURE PENETRATION AIR AND WATER TIGHT.
8. BLOWDOWN DRAIN PIPING INTO BOILER ROOM. SEAL ENCLOSURE PENETRATION AIR AND WATER TIGHT. CONNECT TO NEW BLOWDOWN SEPARATOR.

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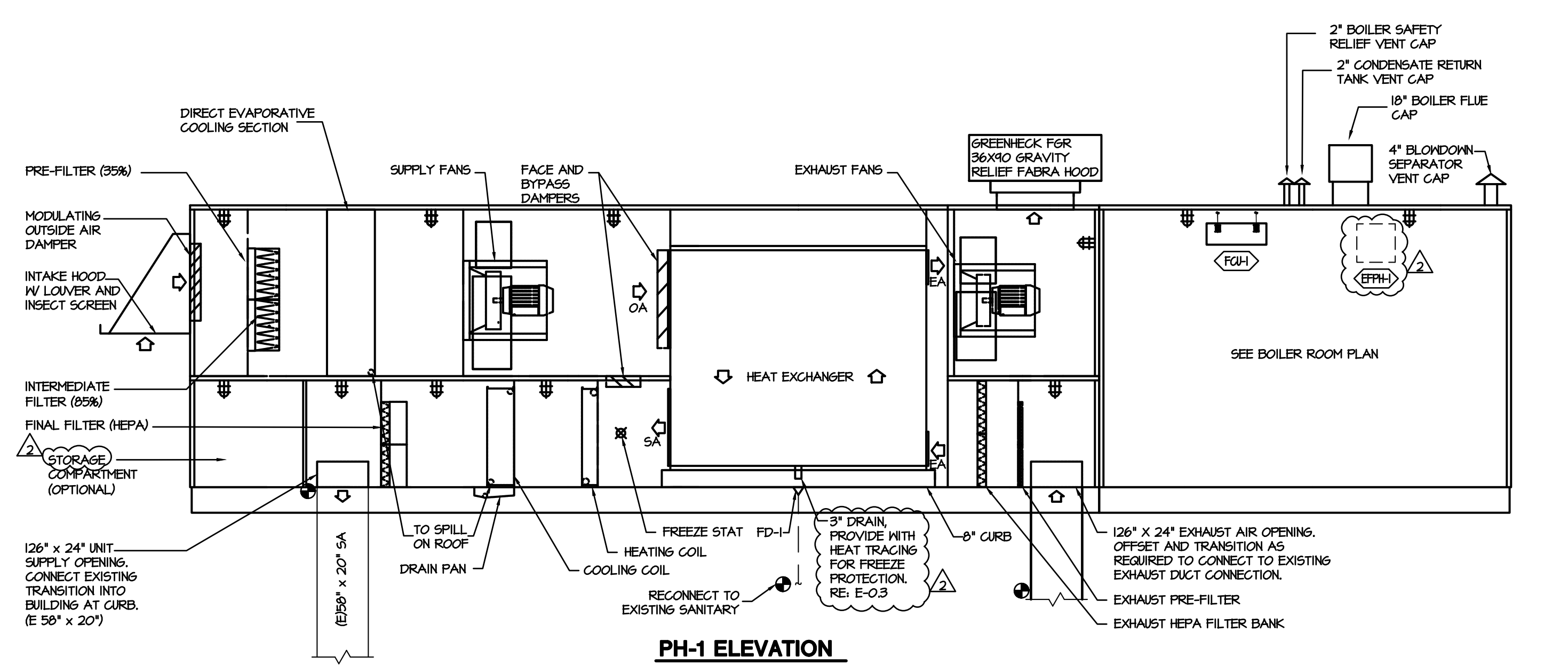
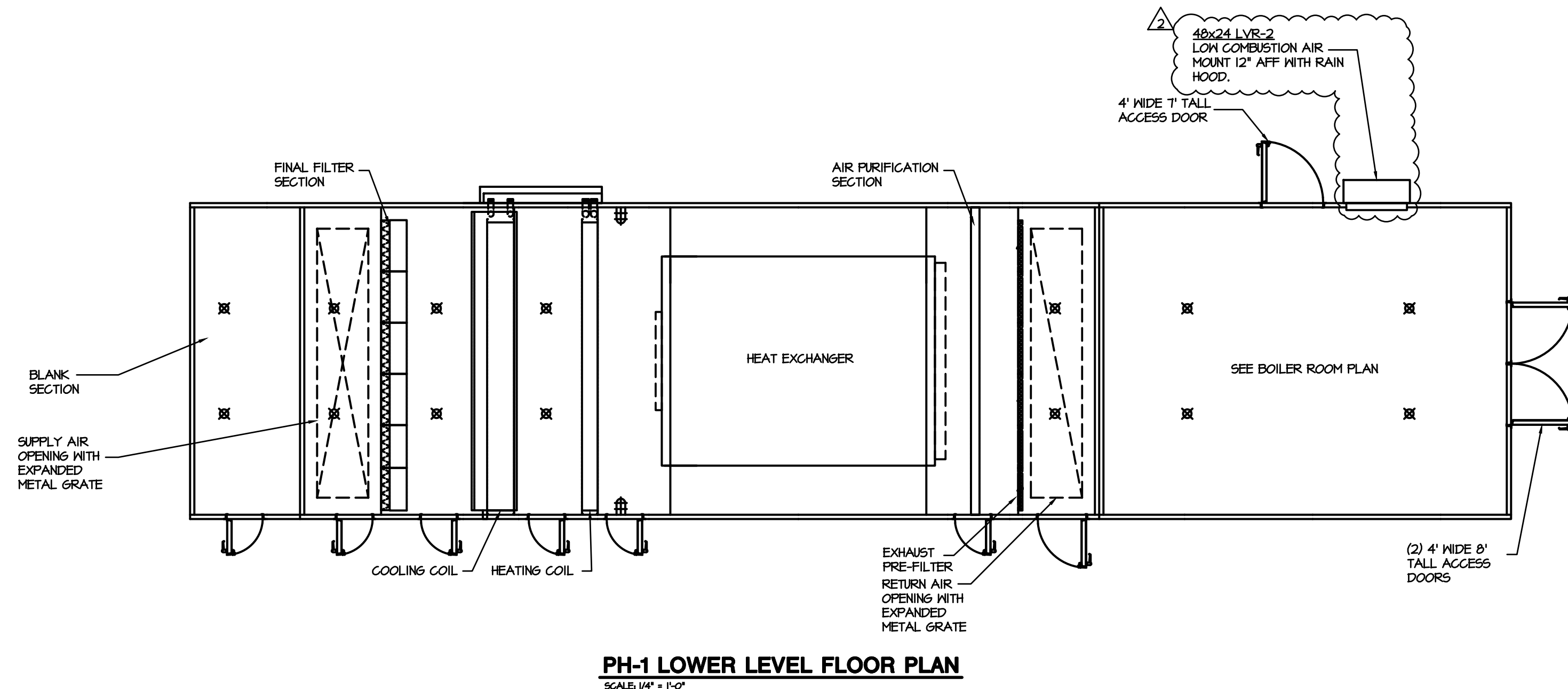
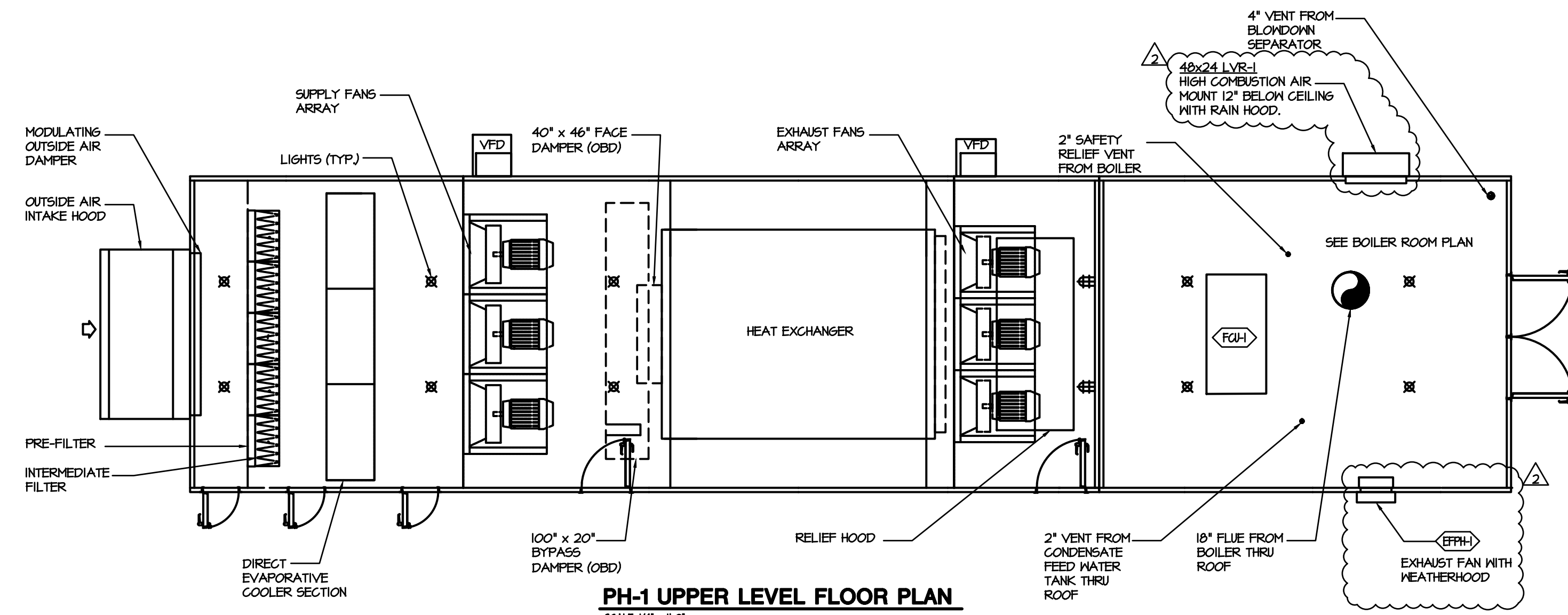
MEP JOB:	22318
DESIGNED:	ADS
CHECKED:	KVB

MECHANICAL
ROOF PLAN





- ### DRAWING NOTES (DEMO)
1. REMOVE AND RETAIN EXISTING EQUIPMENT AND PREPARE FOR RELOCATION.
 2. DISCONNECT AND REMOVE EXISTING BOILER.
 3. CUT AND CAP PIPING BELOW ROOF AND PREPARE FOR NEW CONNECTION.
 4. CUT AND CAP PIPING ON EXTERIOR HALL AND PREPARE FOR NEW CONNECTION.
 5. REMOVE AND RETAIN EXISTING EQUIPMENT WITH FLASH NEUTRALIZER KIT AND PREPARE FOR RELOCATION.
 6. REMOVE EXISTING EQUIPMENT AND RETURN TO OWNER'S STOCK.
- ### DRAWING NOTES
1. MOUNT BOTTOM OF FAN COIL UNIT 4'-0" AFF. SUPPORT FROM STRUCTURE ABOVE. RE. INSTALLATION DIAGRAM ON M-03.
 2. MOUNT EMERGENCY BOILER SHUT-OFF SWITCH 4'-0" AFF NEXT TO DOOR. COORDINATE WITH ELECTRICAL TO INTERLOCK WITH BOILER CONTROLS.
 3. MOUNT THERMOSTAT 4'-0" AFF NEXT TO DOOR. INTERLOCK WITH FCU-I.
 4. CHEMICAL POT FEEDER SHALL BE EQUAL TO 20L NI-CALSON MODEL 4628-0. INSTALL PER MANUFACTURER'S RECOMMENDED INSTALLATION.
 5. 4\"/>



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MECHANICAL
ENLARGED PLAN

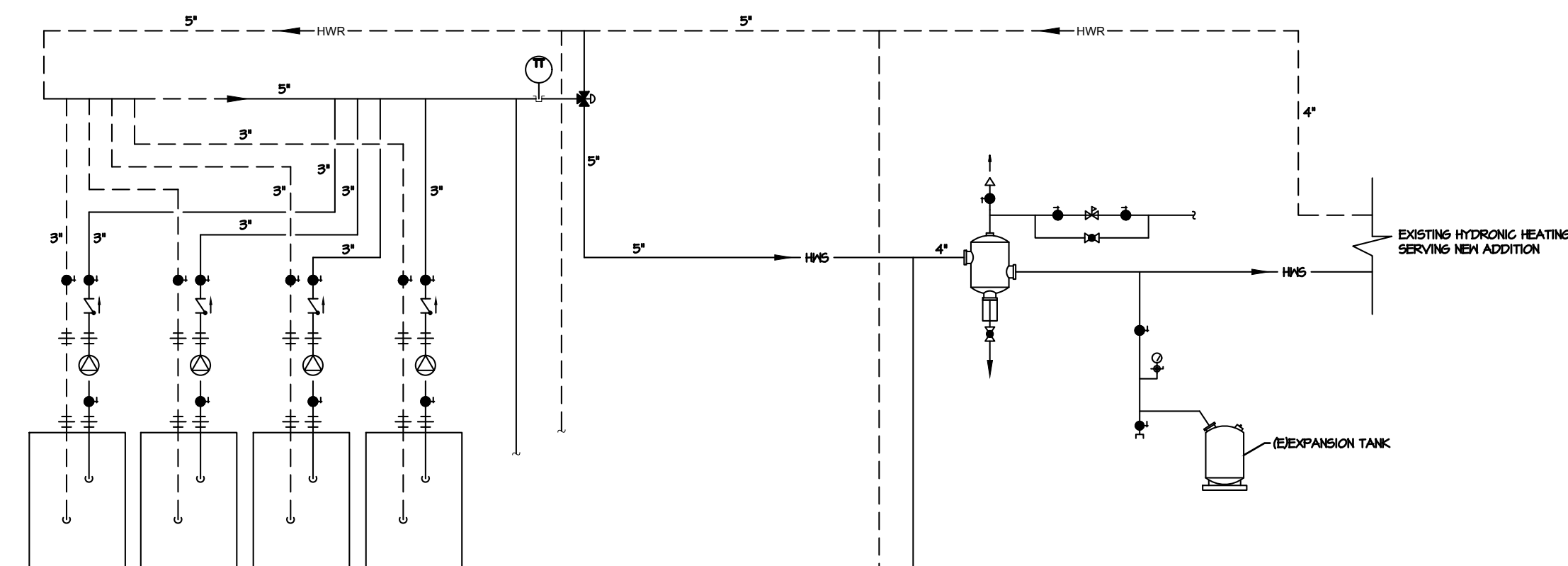


M-3.0

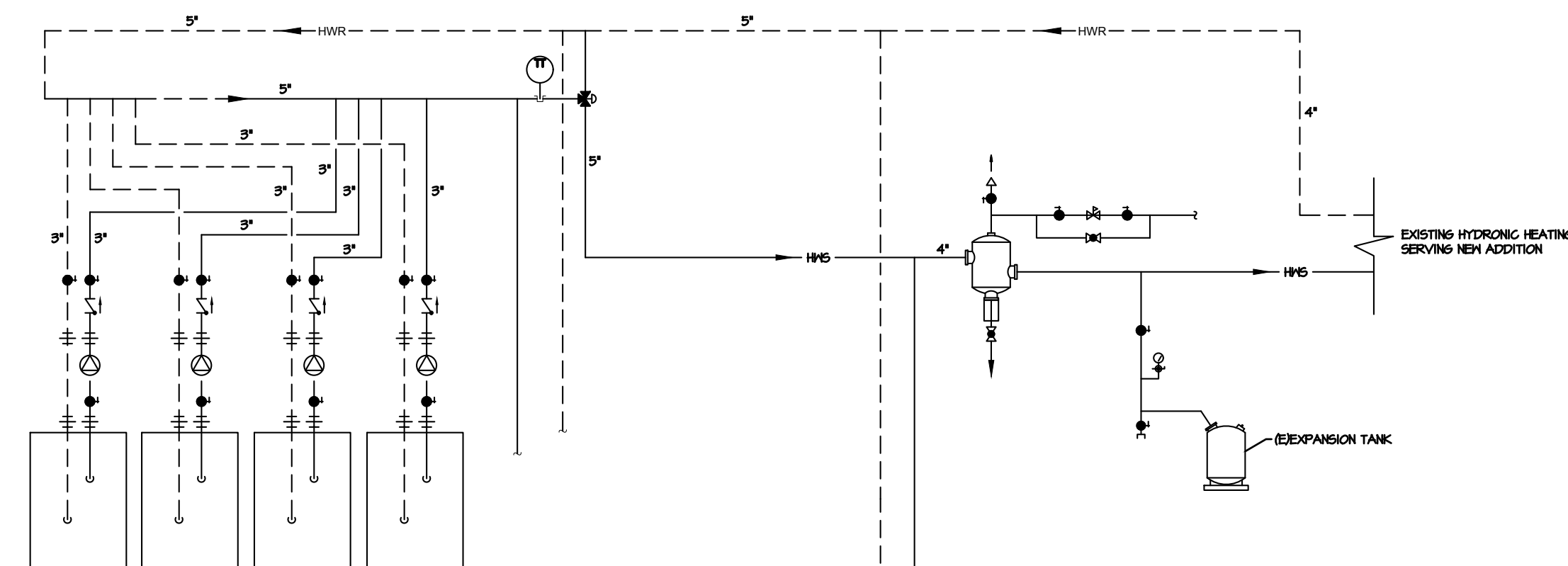
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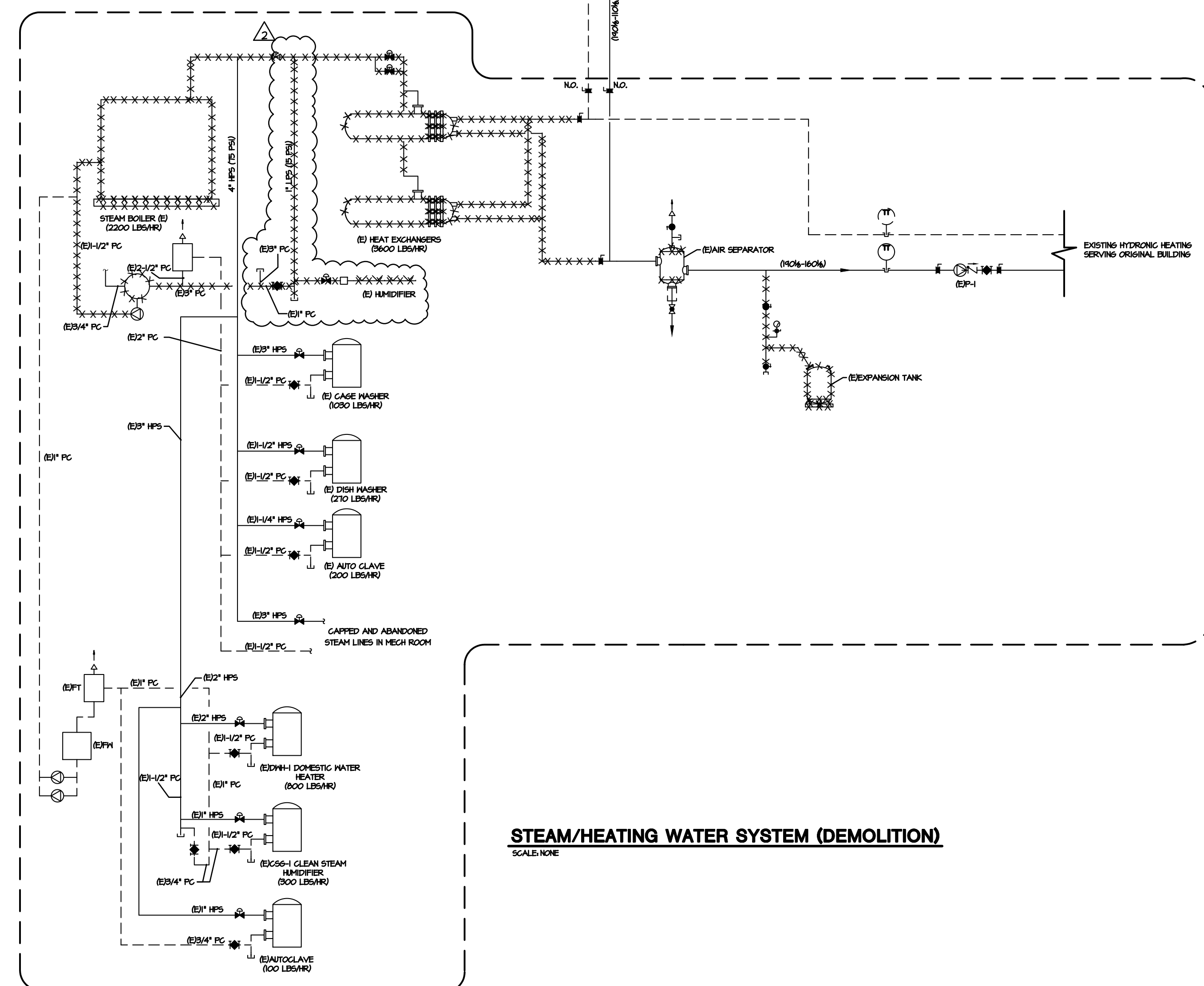
MECHANICAL
PIPING DIAGRAM



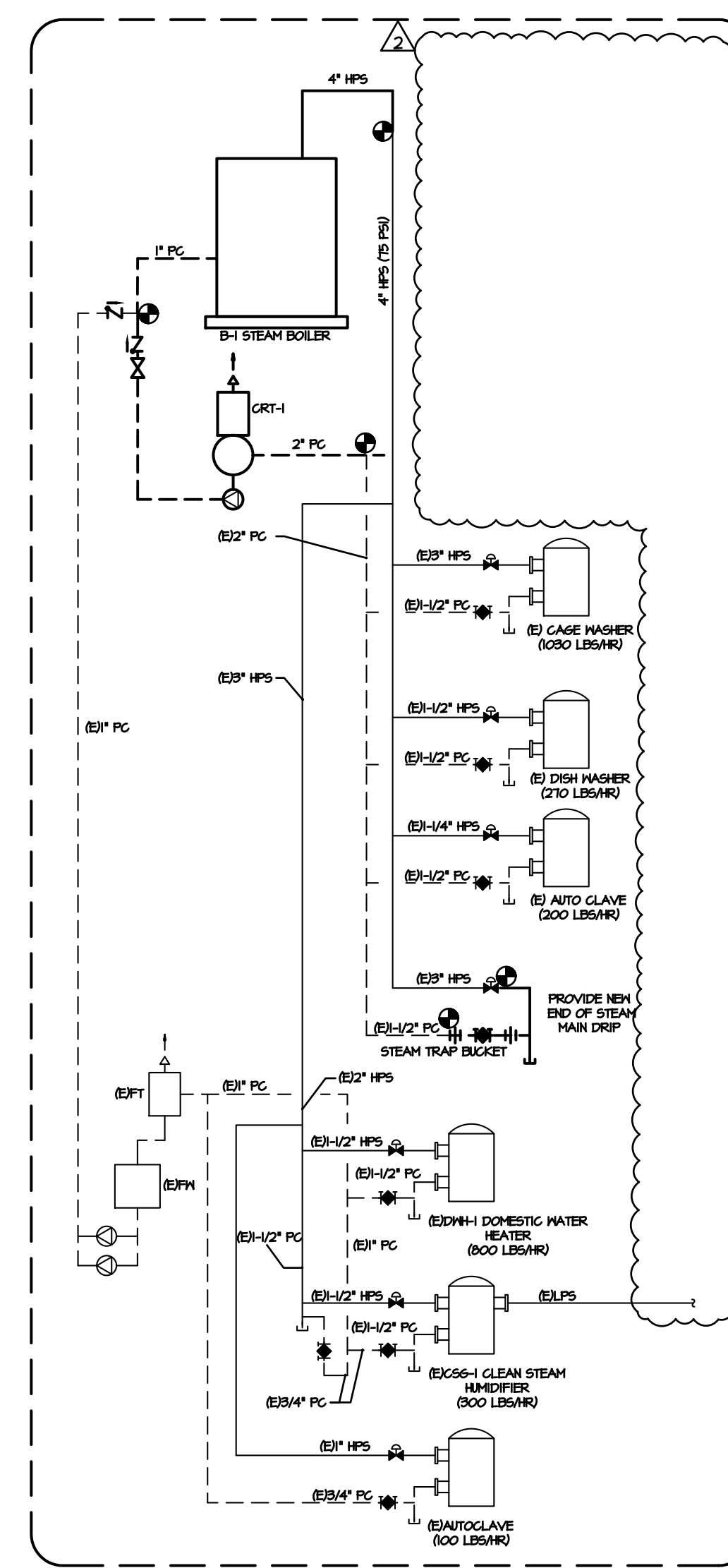
EXISTING HYDRONIC BOILER SYSTEM
SCALE: NONE



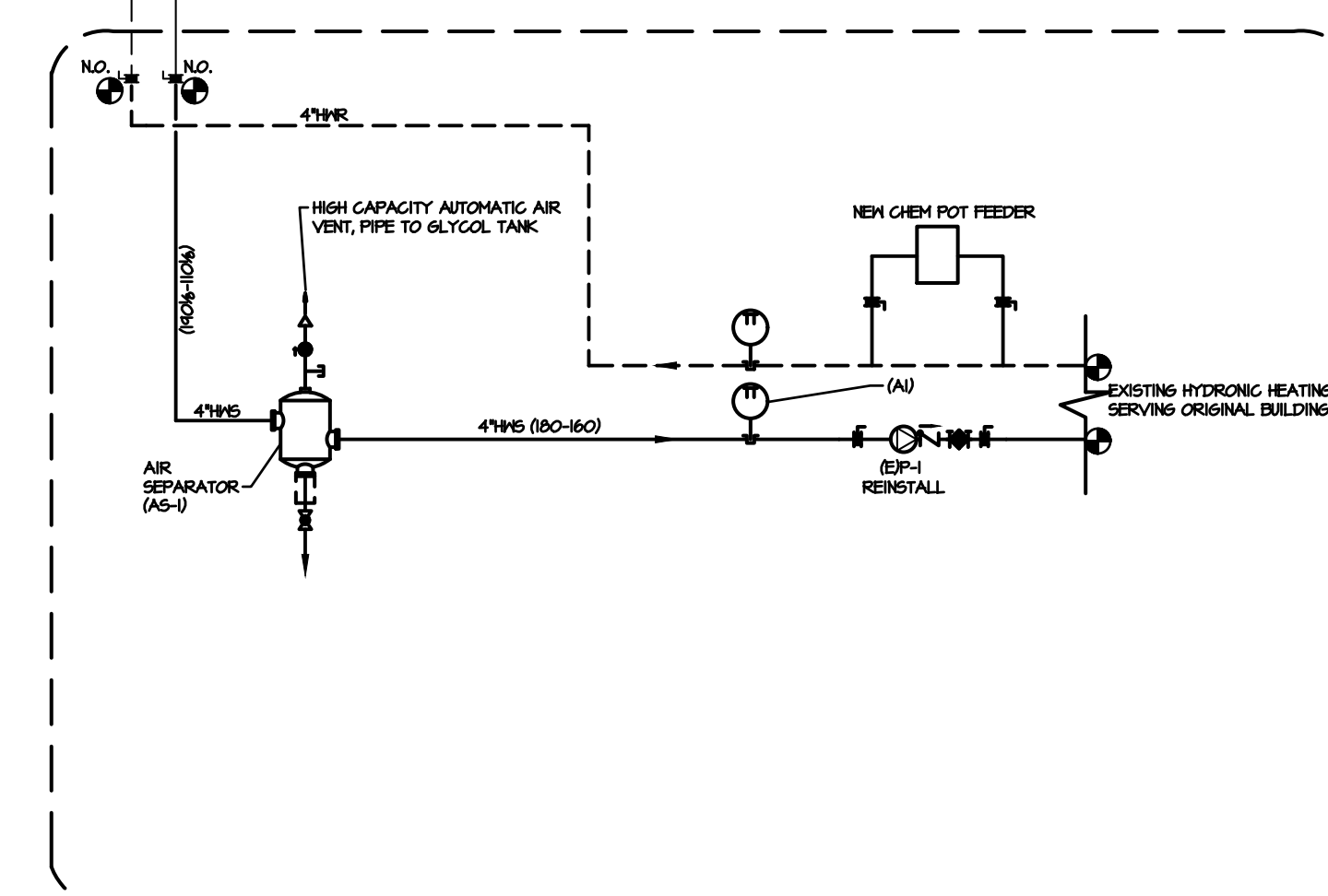
EXISTING HYDRONIC BOILER SYSTEM
SCALE: NONE



STEAM/HEATING WATER SYSTEM (DEMOLITION)
SCALE: NONE



STEAM BOILER SYSTEM (EXISTING/NEW)
SCALE: NONE



HEATING WATER SYSTEM (EXISTING/NEW)
SCALE: NONE