

MECHANICAL & PLUMBING SCHEDULE

NEW AIR HANDLING UNIT SCHEDULE

ALL AHU'S SHALL BE FACTORY STARTED AND TUNED

TAG	MANF. & MODEL	SERVES	TOTAL OPER. WEIGHT	EXISTING OPER. WEIGHT	TONS	EER	ELECTRICAL DATA				CFM @ ESP	SUPPLY FAN	RELIEF FAN	RELIEF CFM	MIN. OUTSIDE AIR CFM	COOLING COIL	COOLING CAPACITY TOTAL/SENSIBLE	CONDITIONS		NOTES: COMMON TO BOTH AHU'S
							VOLT	PHASE	MCA	MOCP								ENTERING DB/WB	LEAVING DB/WB	
AHU 1	TRANE 40T SXHF	1ST FLOOR	8,241# UNIT ONLY	11,000 LBS	40	10.6	460	3	109.67	125	16,000	(2) 20 HP	10 HP	13,000	1,905	AL FINS COPPER TUBES COATED	474.76/362.67	80/67	62.5/58.79	0-100% ECONOMIZER, SUPPLY FAN VAV (DTC) & RELIEF/ EXH. FAN VFD w/o BYPASS, 2" SPRING ISOLATORS AT FANS, R-410A REFRIGERANT, HIGH-EFFICIENCY MERV 8 FILTERS, VARIABLE SPEED COMPRESSOR COATED CONDENSER & EVAP. COILS
AHU 2	TRANE 55T SXHF	2ND FLOOR	9,021# UNIT ONLY	11,000 LBS	55	10.6	460	3	156.35	175	22,000	(2) 30 HP	15 HP	16,500	2,760	AL FINS COPPER TUBES COATED	673.73/532.70	80/67	61.36/58.50	VENTILATION CONTROL & BACNET MODULE, OUTSIDE AIR MONITORING STATION

BOILER SCHEDULE

TAG	MANF. & MODEL	BTUH INPUT	BTUH OUTPUT	H2O CONNECTION	GAS CONNECTION	NOX RATING	EFFICIENCY	VENT SIZE	ELECTRICAL DATA VOLTAGE	AMPS	PUMP HP	OPT WEIGHT	NOTES
B 1	RAYPAK XFYRE MODEL 850A (TYPE H)	850,000	799,000	2"	1-1/4"	< 20 PPM	94%	6" Ø STAINLESS CAT IV	115/1/60	11.9	1/2	580 (1,500 # EXISTING)	FACTORY START AND TUNE BOILER GAS VALVE, HOT WATER RESET & ALARM, HIGH & LOW GAS PRESSURE SWITCH, HI TEMP AND LOW WATER SWITCHES ASME RELIEF VALVES, CONDENSATE NEUTRALIZATION KIT, 1/2 HP CAST IRON PUMP W/ FACTORY INLET & OUTLET, STAINLESS STEEL CAT IV FLUE W/ EXTENSION & OUTDOOR VENT TERMINATION.

FOR AIR & WATER BALANCE

EXISTING VAV SCHEDULE - FOR AHU-1

VAV BOX #	VAV BOX CFM MIN / MAX	# OF COILS	HEATING COIL GPM	BELIMO VALVE	VALVE TYPE
1	440 / 980	2-ROW	1.4	B-310	3-WAY*
2	455 / 1015	2-ROW	1.5	B-310	3-WAY*
3	NOT USED	2-ROW	-	-	-
4	NOT USED	2-ROW	-	-	-
5	NOT USED	2-ROW	-	-	-
6	NOT USED	2-ROW	-	-	-
7	150 / 330	2-ROW	0.5	B-309	3-WAY*
8	150 / 330	2-ROW	0.5	B-309	3-WAY*
1-100	80 / 175	2-ROW	0.5	B-209	2-WAY
1-104	295 / 655	2-ROW	1.0	B-210	2-WAY
1-106	315 / 700	2-ROW	1.0	B-210	2-WAY
1-107	195 / 430	2-ROW	0.6	B-209	2-WAY
1-108	305 / 675	2-ROW	1.0	B-210	2-WAY
1-109	430 / 960	2-ROW	1.4	B-210	2-WAY
1-110	285 / 635	2-ROW	0.9	B-210	2-WAY
1-111	425 / 940	2-ROW	1.4	B-210	2-WAY
1-112	300 / 660	2-ROW	1.0	B-210	2-WAY
1-115	340 / 760	2-ROW	1.1	B-210	2-WAY
1-116	340 / 760	2-ROW	1.1	B-210	2-WAY
1-117	575	NO HEAT	-	-	-
1-118	NOT USED	2-ROW	-	-	-
1-119	320 / 710	2-ROW	1.0	B-310	3-WAY
1-120	440 / 975	2-ROW	1.4	B-210	2-WAY
1-121	85 / 190	2-ROW	0.3	B-209	2-WAY
1-122	165 / 370	2-ROW	0.5	B-209	2-WAY
1-126	110 / 250	2-ROW	0.4	B-209	2-WAY
1-127	270 / 600	2-ROW	0.9	B-210	2-WAY
1-128A	245 / 550	2-ROW	0.8	B-210	2-WAY
1-128B	230 / 510	2-ROW	0.7	B-209	2-WAY
36	NOT USED	2-ROW	-	-	-
TOTAL FIRST FLOOR			20.6 GPM		

EXISTING VAV SCHEDULE - FOR AHU-2

VAV BOX #	VAV BOX CFM MIN / MAX	# OF COILS	HEATING COIL GPM	BELIMO VALVE	VALVE TYPE
2A	195 / 430	2-ROW	0.6	B-309	3-WAY*
2B	165 / 365	2-ROW	0.5	B-309	3-WAY*
9	110 / 250	2-ROW	0.4	B-309	3-WAY*
10	110 / 250	2-ROW	0.4	B-309	3-WAY*
11	270 / 600	2-ROW	0.9	B-310	3-WAY*
12	200 / 450	2-ROW	0.7	B-309	3-WAY*
13	410 / 910	2-ROW	1.3	B-310	3-WAY*
14	415 / 925	2-ROW	1.3	B-310	3-WAY*
15	505 / 1125	2-ROW	1.6	B-310	3-WAY*
16	135 / 300	2-ROW	0.4	B-309	3-WAY*
17	495 / 1100	2-ROW	1.6	B-310	3-WAY*
18	270 / 600	2-ROW	0.9	B-310	3-WAY*
19	470 / 1050	2-ROW	1.5	B-310	3-WAY*
20	790 / 1750	2-ROW	2.6	B-311	3-WAY*
21	665 / 1480	2-ROW	2.2	B-311	3-WAY*
22	170 / 375	2-ROW	0.5	B-309	3-WAY*
23	900 / 2000	2-ROW	2.9	B-311	3-WAY*
24	405 / 900	2-ROW	1.3	B-310	3-WAY*
25	170 / 380	2-ROW	0.6	B-309	3-WAY*
26	155 / 350	2-ROW	0.5	B-309	3-WAY*
27	125 / 275	2-ROW	0.4	B-309	3-WAY*
28	225 / 495	2-ROW	0.7	B-309	3-WAY*
29	565 / 1250	2-ROW	1.8	B-310	3-WAY*
30	340 / 750	2-ROW	1.1	B-310	3-WAY*
31	100 / 225	2-ROW	0.5	B-309	3-WAY*
32	100 / 225	2-ROW	0.5	B-309	3-WAY*
33	405 / 900	2-ROW	1.3	B-310	3-WAY*
34	555 / 1230	2-ROW	1.8	B-311	3-WAY*
35	765 / 1700	2-ROW	2.5	B-311	3-WAY*
TOTAL SECOND FLOOR			33.0 GPM		

*VERIFY VALVE TYPE, 2-WAY OR 3-WAY

VERIFY (E) PIPING ARRANGEMENT, CONVERT ALL SECOND FLOOR VALVES TO THREE WAY PER DETAIL BELOW

HOT WATER PUMPS

TAG	MANF. & MODEL	FLOW RATE (GPM)	HEAD (FT)	WEIGHT (LBS)	VOLTAGE	PHASE	HP	RPM	NOTES
P	BELL & GOSSETT	54	50	200	460	3	1-1/2	1750	PREMIUM EFF. TEFC MOTOR W/ 1-1/2 HP ABB VARIABLE FREQ. DRIVE
1A	SERIES e-1510 MODEL 1.25BC								145T MOTOR FRAME, METRASPHERE CONNECTIONS AND EMS CONTROL

1

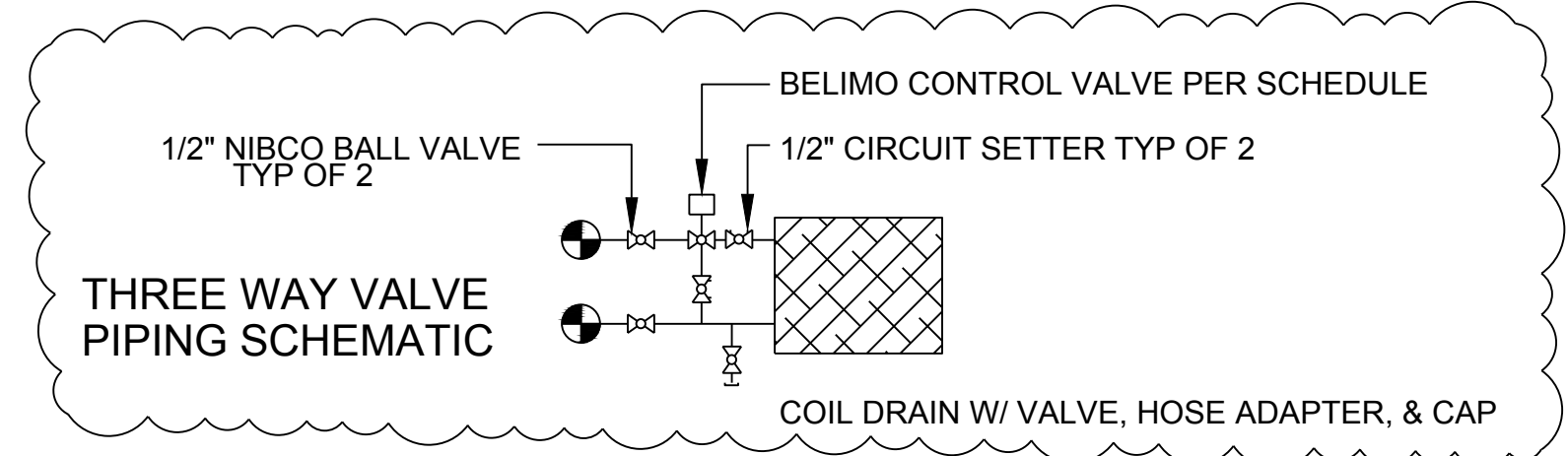
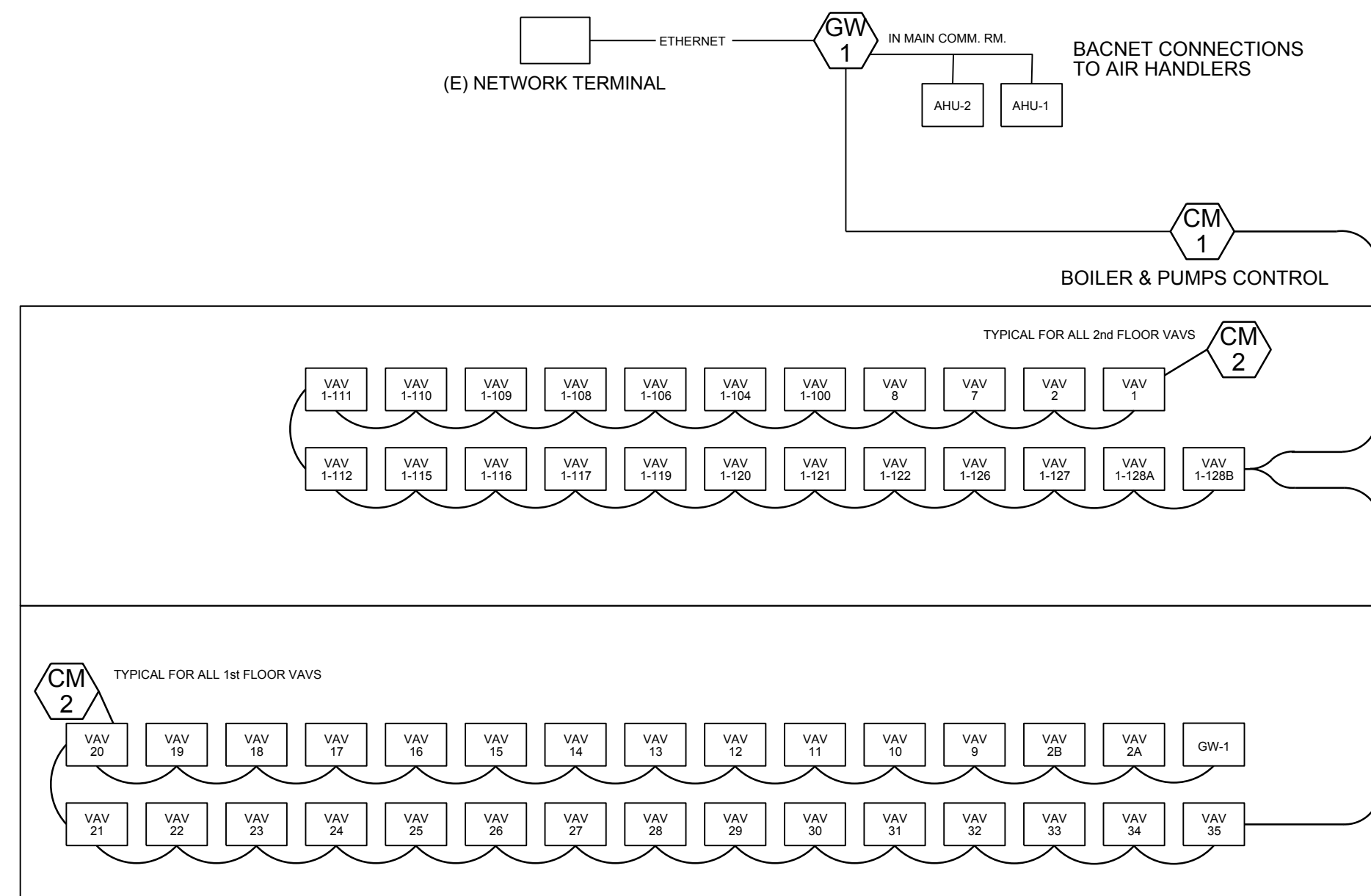
HYDRONIC ACCESSORIES

SYMBOL	DESCRIPTION	MANUFACTURER	DETAILS	INSTALLATION NOTES
WYE STRAINER	STOCKHAM	THREADED	INSTALL NEW ON HOT WATER LOOPS	
VIBRATION ISOLATION	MASON INDUSTRIES SAFEFLEX SFDEJ	VARIES	INSTALL AT PUMP CONNECTIONS SECURE PIPE PER MANUFACTURERS RECOMMENDATIONS	
CHEMICAL FEED TANK	JL WINGERT DB-5HD		FLUSH SYSTEM AND PROVIDE ONE YEAR CHEMICAL TREATMENT SERVICE. 94 LBS. OPT WT.	
AIR SEPARATOR	BELL & GOSSETT MODEL R-3F	3" FLANGED	155 LBS. W/ HIGH CAPACITY AIR VENT. VENT PIPED TO ROOF RECEIVER. SECURE TO FLOOR. 197 LBS. OPT. WT.	
AIR VENT	BELL & GOSSETT	1/4" FIP	INSTALL AT HIGH POINT AND AT AIR SEPARATORS, PIPE TO ROOF RECEIVER.	
BACKFLOW PREVENTOR	REUSE EXISTING			
EXPANSION TANK	REUSE EXISTING		417 LBS. OPT. WT. DRAIN PIPE TO ROOF RECEIVER.	
FILL VALVE - HEATING WATER	REUSE EXISTING			

CONTROL EQUIPMENT SCHEDULE

ALL EMS CONTROL MODULES SHALL BE AUTOMATED LOGIC CORP.

GW 1	GATEWAY MODULE - LGR WITH POWER PACK. TO BE MOUNTED IN THE COMMUNICATION ROOM.	(E) VAV 1	VARIABLE AIR VOLUME (VAV) BOX - WITH DAMPER AND VALVE ACTUATOR. CONNECT NEW CM-2 CONTROL MODULE (TYP OF 54)
CM 1	CONTROL MODULE - SE SINGLE UNIT CONTROLLER WITH 5 DIGITAL OUTPUTS, SIX UNIVERSAL INPUTS AND THREE ANALOG OUTPUTS.	LT 1	IMMERSION SENSOR - BAPI OR EQUAL IMMERSION TEMP SENSOR WITH STAINLESSSTEEL THERMAL WELL AND WEATHER PROOF ENCLOSURE. PROVIDED BY CONTROLS CONTRACTOR, THERMAL WELL INSTALLED BY PLUMBING CONTRACTOR.
CM 2	CONTROL MODULE - ZN341v+ VARIABLE AIR VOLUME (VAV) CONTROLLER WITH ONE DIGITAL OUTPUT, FOUR UNIVERSAL INPUTS, ONE ANALOG OUTPUT AND INTEGRATED FLOW PORT, DAMPER ACTUATOR & ZONE SENSOR PORT.	QA 1	OUTSIDE AIR & HUMIDITY SENSOR. BAPI OR EQUAL
T	ZONE SENSOR - AUTOMATED LOGIC ZS PRO	AD 1	AIR DIFFERENTIAL PRESSURE SENSOR. BAPI ZPS OR EQUAL
CS 1	CURRENT SENSOR - 0-5VDC OR 4-20mA OUTPUT CURRENT SENSOR, TO DETERMINE MOTOR AMPERAGE AND STATUS. VERIS INDUSTRIES OR NIELSEN KULJIAN	DA 1	DAMPER ACTUATOR FOR VAV BOXES. BELIMO MODEL LUX24-MFT TYP OF 54
		VA 1	VALVE AND ACTUATOR. TWO OR THREE WAY CHARACTERIZED VALVE WITH LF24 MFT ACTUATOR. TYP OF 54. SEE ABOVE FOR VALVE SIZING.



1

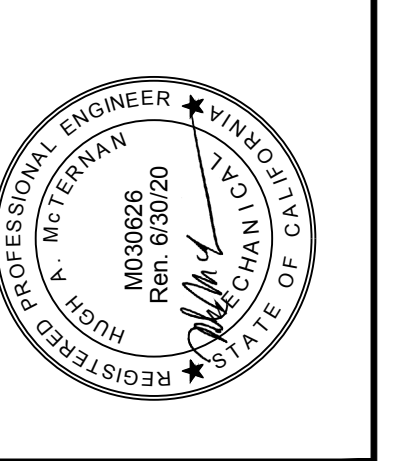
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CONTROL POINTS

AHU'S 1 & 2 - BACNET CONNECTION	BOILER	VAV UNITS
INPUTS SUPPLY AIR TEMP RETURN AIR TEMP MIXED AIR TEMP OUTSIDE AIR TEMP (ONE UNIT ONLY - NETWORK BROADCAST) OUTSIDE AIR HUMIDITY (ONE UNIT ONLY - NETWORK BROADCAST) FILTER STATUS FIRE ALARM SHUT DOWN UNIT ALARM SUPPLY DUCT PRESSURE SENSOR - FOR MAIN FAN CONTROL SET DURING AIR BALANCE SPACE PRESSURE SENSOR - FOR RELIEF FAN CONTROL SET DURING AIR BALANCE OUTPUTS MAIN FAN VFD 1 ENABLE MAIN FAN VFD 1 SPEED RELIEF FAN VFD 2 ENABLE RELIEF FAN VFD 2 SPEED OUTSIDE AIR DAMPER RETURN DAMPER RELIEF DAMPER	INPUTS SUPPLY TEMP FROM BOILER #1 RETURN FROM BUILDINGS TEMP BOILER 1 ALARM BOILER 1 FLOW SWITCH - CONNECT TO BOILER PUMP 1 CURRENT SENSOR OUTPUTS BOILER ONE ENABLE BOILER ONE HOT WATER RESET PUMP 1 ENABLE	INPUTS THERMOSTAT SUPPLY AIR TEMP FLOW SENSOR OUTPUTS DAMPER CONTROL VALVE CONTROL

REVISIONS:	DATE:
1. ADDENDUM #1	5/8/19

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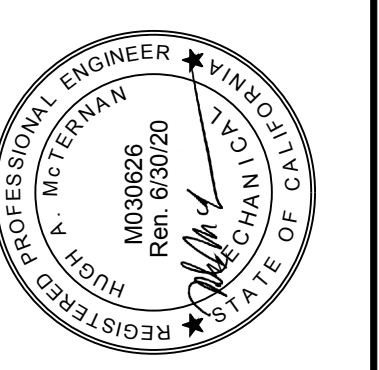
Ventura County Community College District
 761 DAILY DRIVE
 CAMARILLO, CALIFORNIA

SHEET TITLE:
MECHANICAL SCHEDULES & CONTROLS

DATE: 04-15-19
 DRAWN: HM/JS/TP
 JOB NO.: AE201911

M1.1
 SHEET NO. OF

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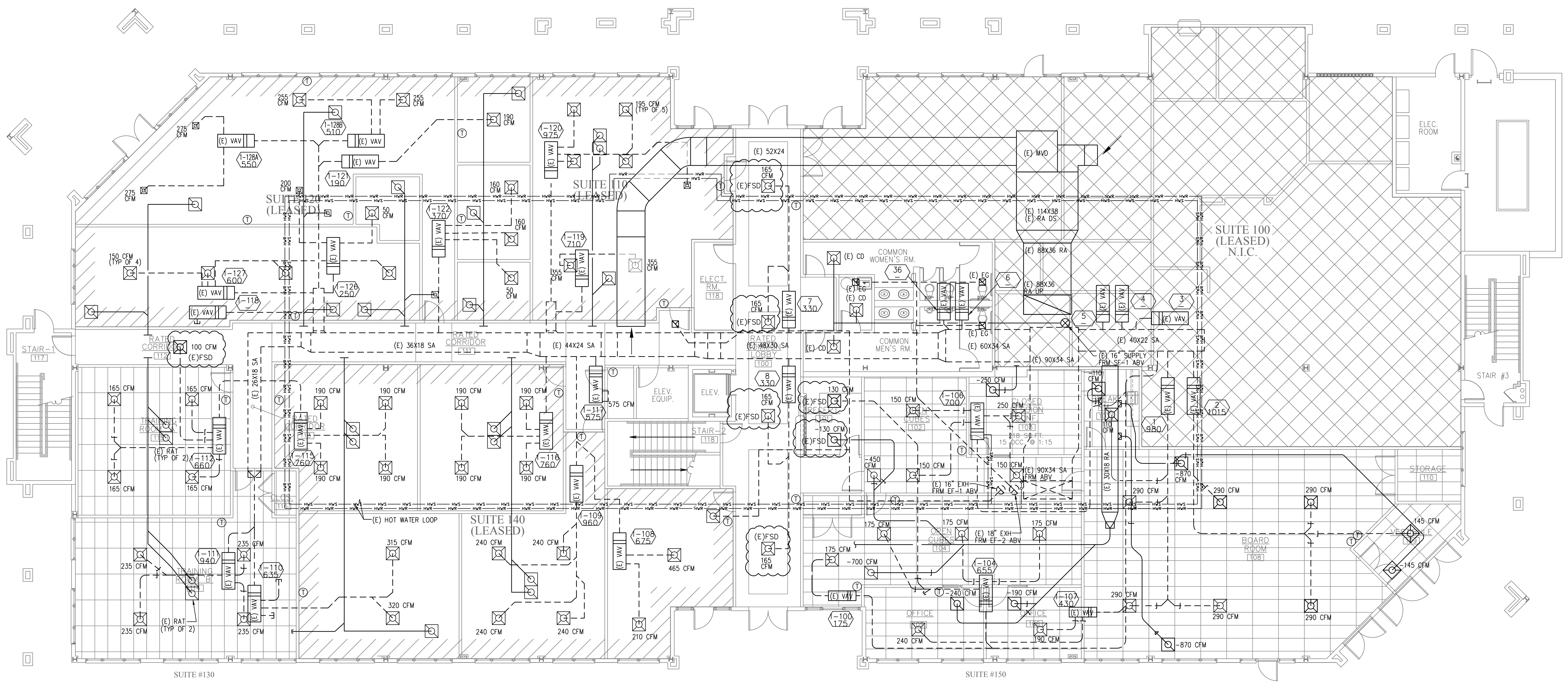


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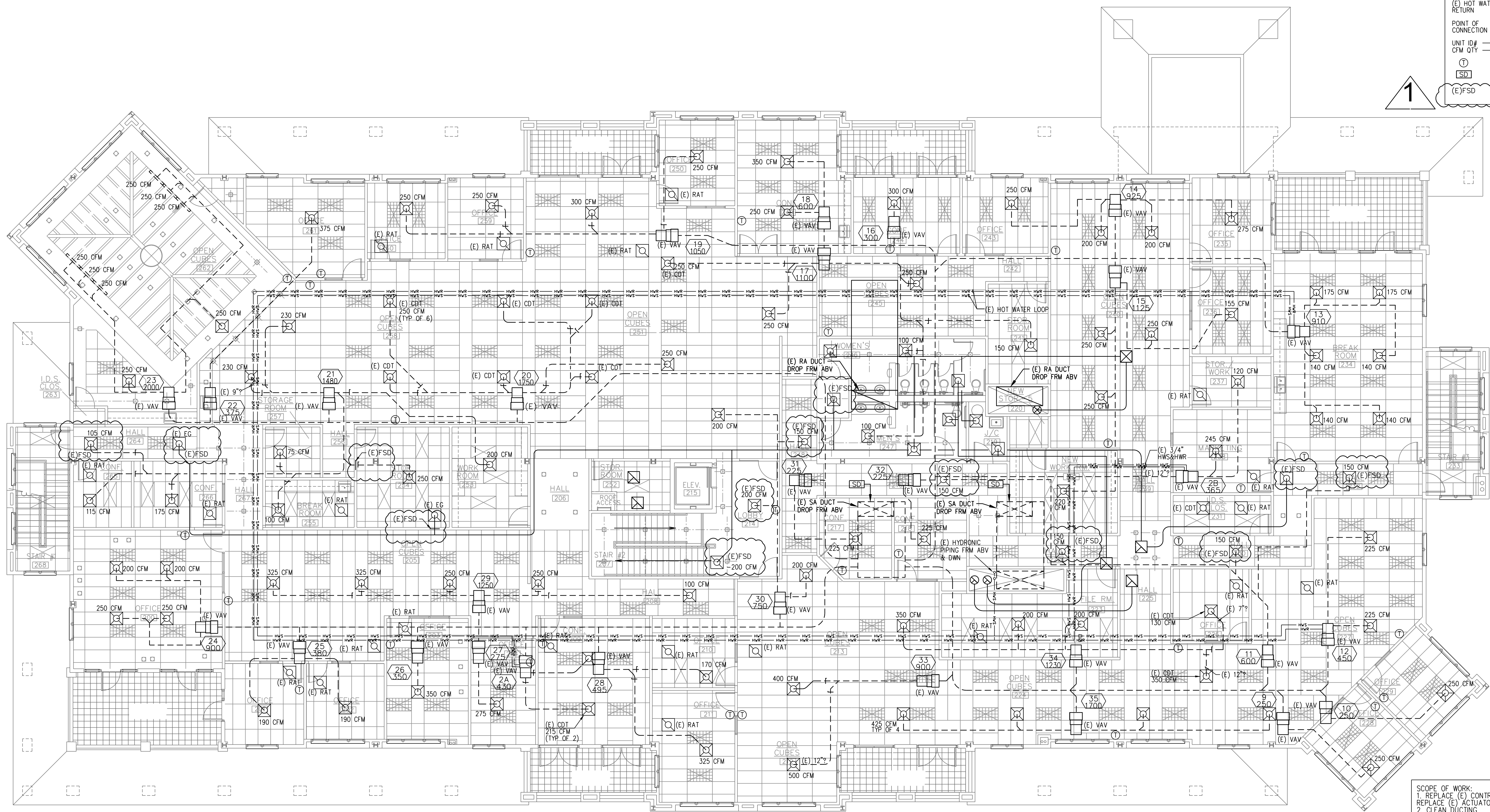
LEGEND

- (E) DUCTWORK ---
- (E) RETURN DUCTWORK ---
- (E) HOT WATER SUPPLY --- HW-S
- (E) HOT WATER RETURN --- HW-R
- POINT OF CONNECTION --- P.O.C.
- UNIT ID# --- #
- CFM QTY --- CFM
- ① THERMOSTAT
- (E)FSD (E)FIRE/SMOKE DAMPER

1



SCOPE OF WORK:
 1. REPLACE (E) CONTROLS
 REPLACE (E) ACTUATOR & VALVES
 2. CLEAN DUCTING
 3. RE-BALANCE SYSTEM TO AIR
 QUANTITIES SHOWN.



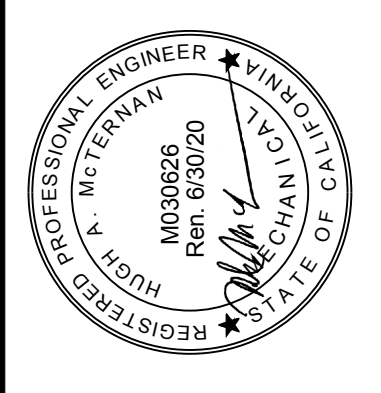
LEGEND	
(E) DUCTWORK	---
(E) RETURN DUCTWORK	---
(E) HOT WATER SUPPLY	HWS
(E) HOT WATER RETURN	HWR
POINT OF CONNECTION	P.O.C.
UNIT ID#	#
CFM QTY	CFM
(T)	THERMOSTAT
(SD)	(E) DUCT SMOKE DETECTOR
(E) FSD	(E) FIRE/SMOKE DAMPER

1

SCOPE OF WORK:
 1. REPLACE (E) CONTROLS
 2. REPLACE (E) ACTUATOR & VALVES
 3. CLEAN DUCTING
 4. RE-BALANCE SYSTEM TO AIR QUANTITIES SHOWN
 5. PROTECT (E) DUCT SMOKE DETECTORS IN PLACE & VERIFY OPERATION.

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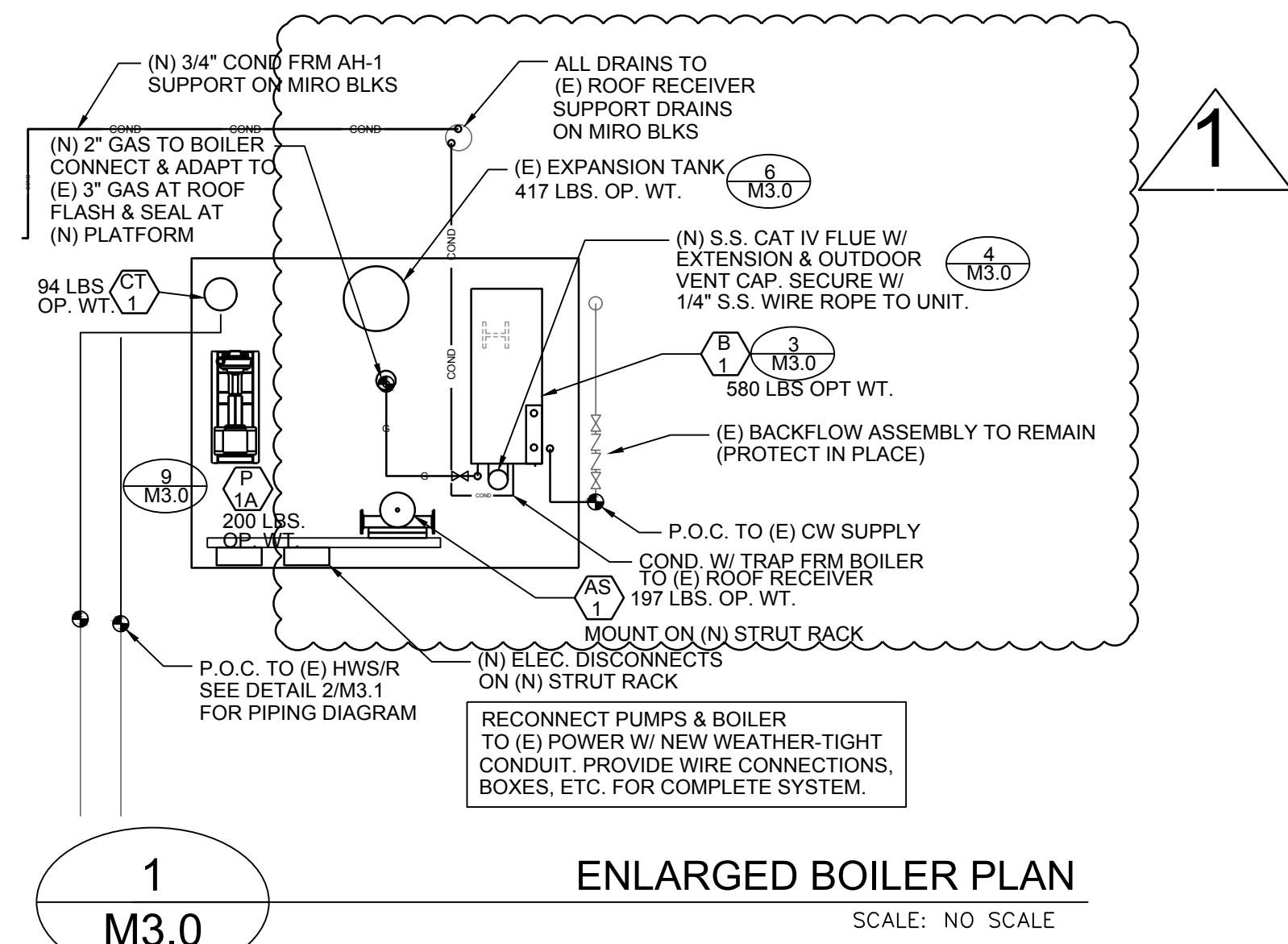
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SHEET TITLE:	
SECOND FLOOR MECHANICAL PLAN	
DATE:	04-15-19
DRAWN:	HMJS/TP
JOB NO.:	AE201911
M2.2	
SHEET NO.:	OF

NORTH

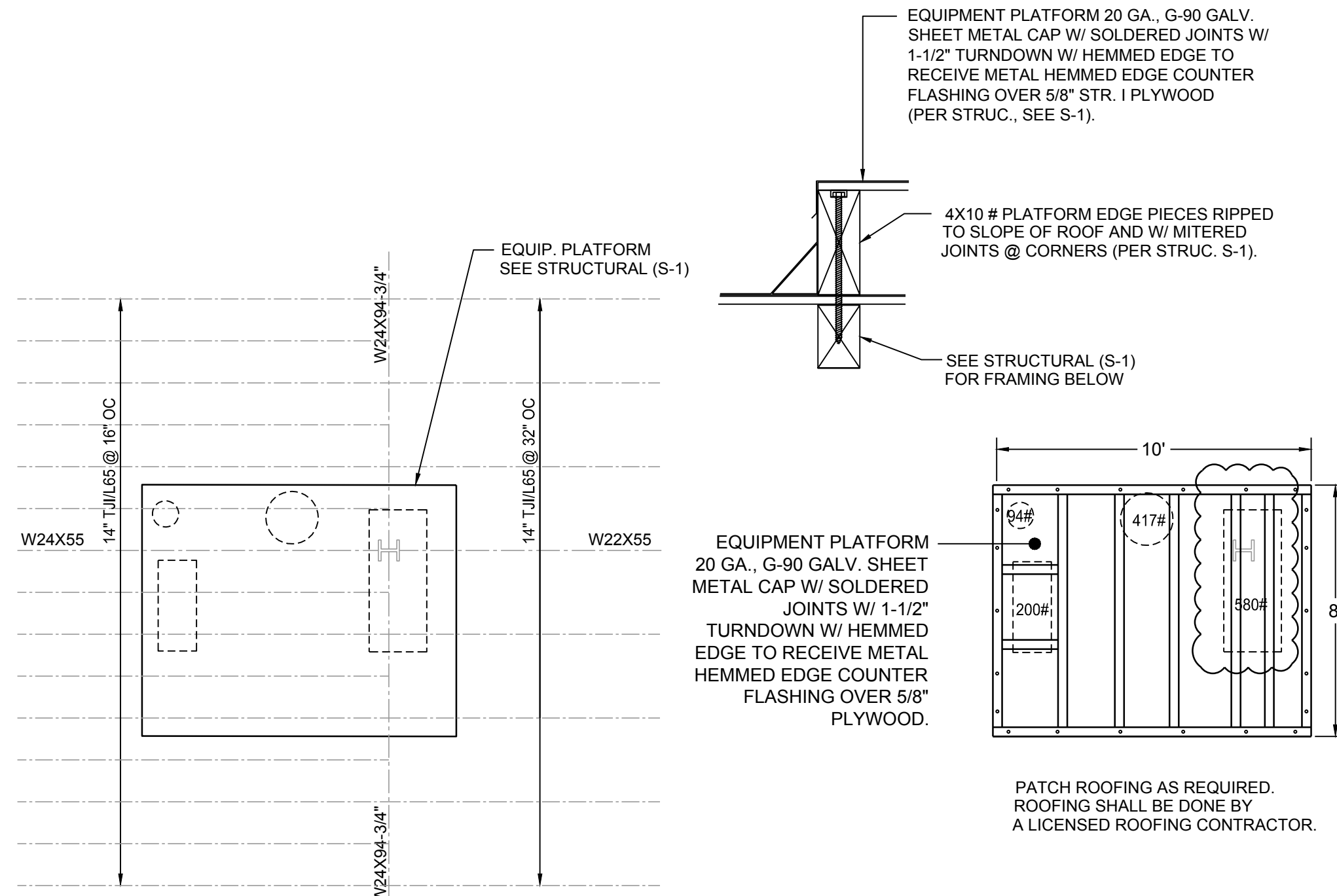
SECOND FLOOR MECHANICAL PLAN

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



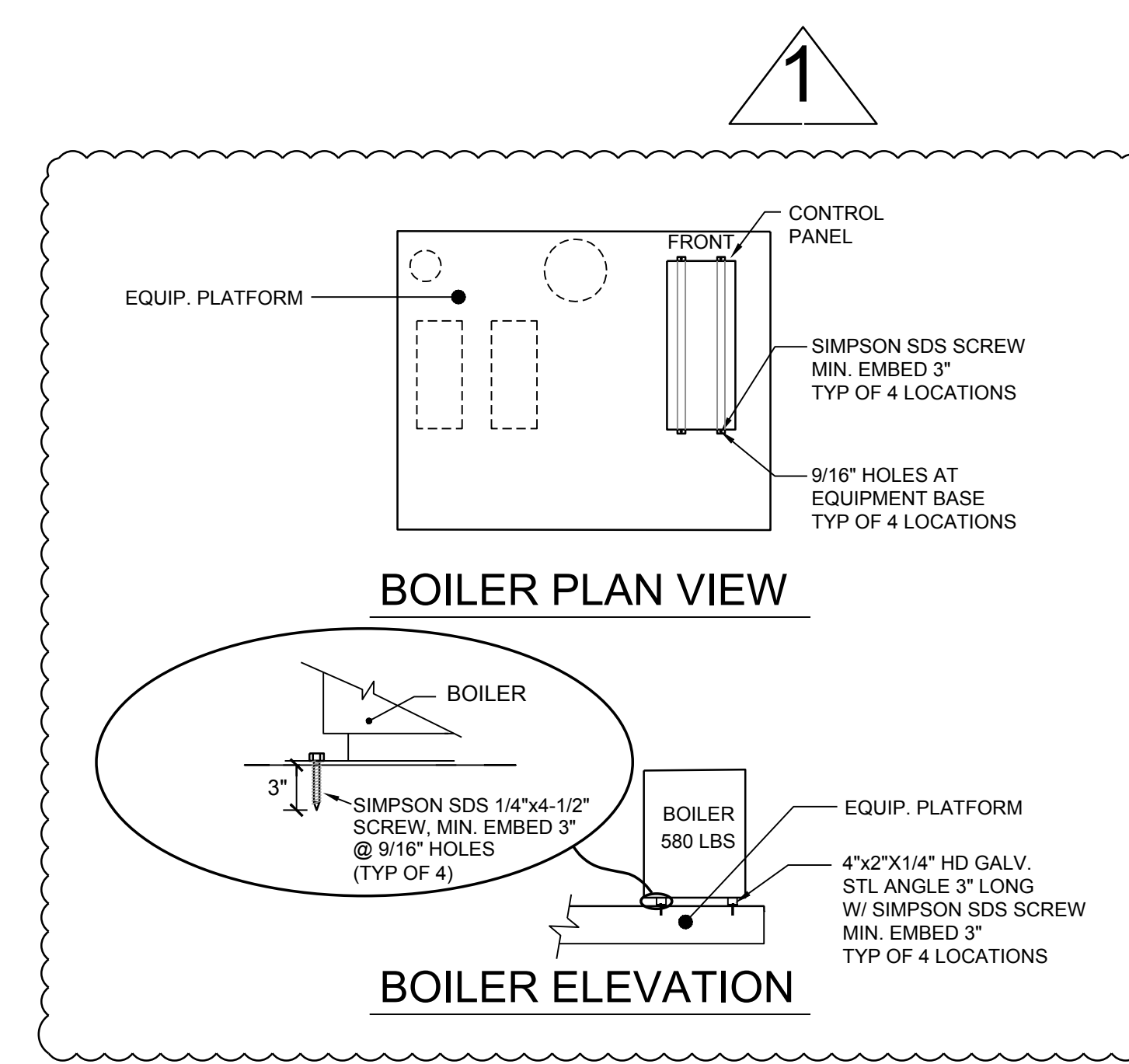
ENLARGED BOILER PLAN

SCALE: NO SCALE



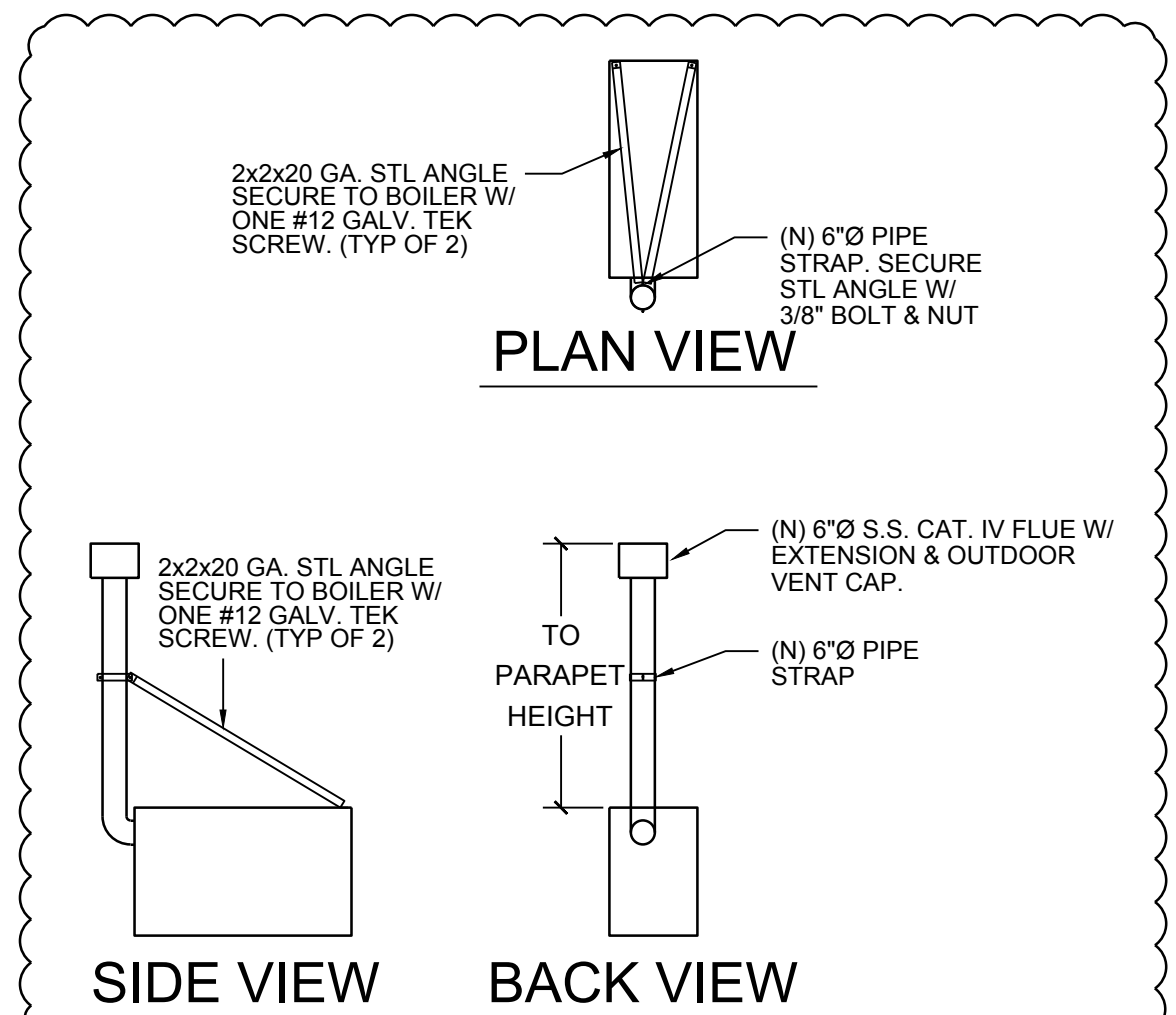
NEW EQUIPMENT PLATFORM DETAIL

SCALE: 1/4" = 1'-0"



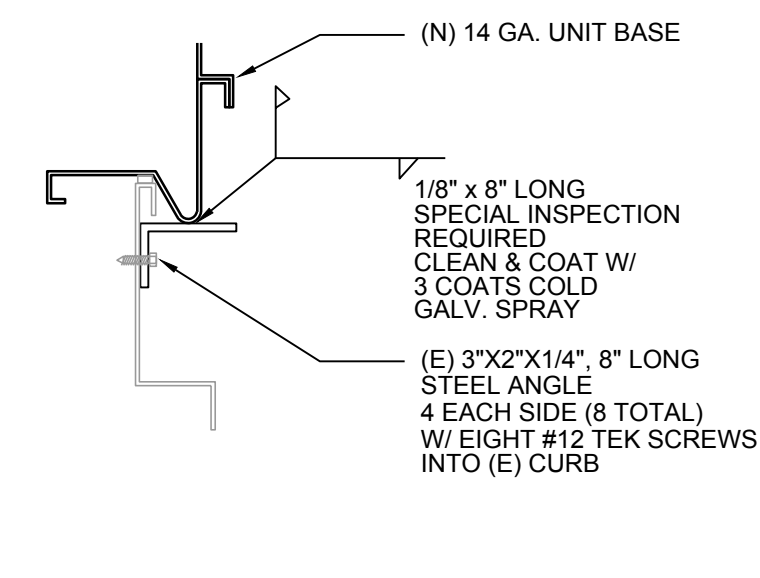
BOILER ANCHORAGE DETAIL

SCALE: NO SCALE



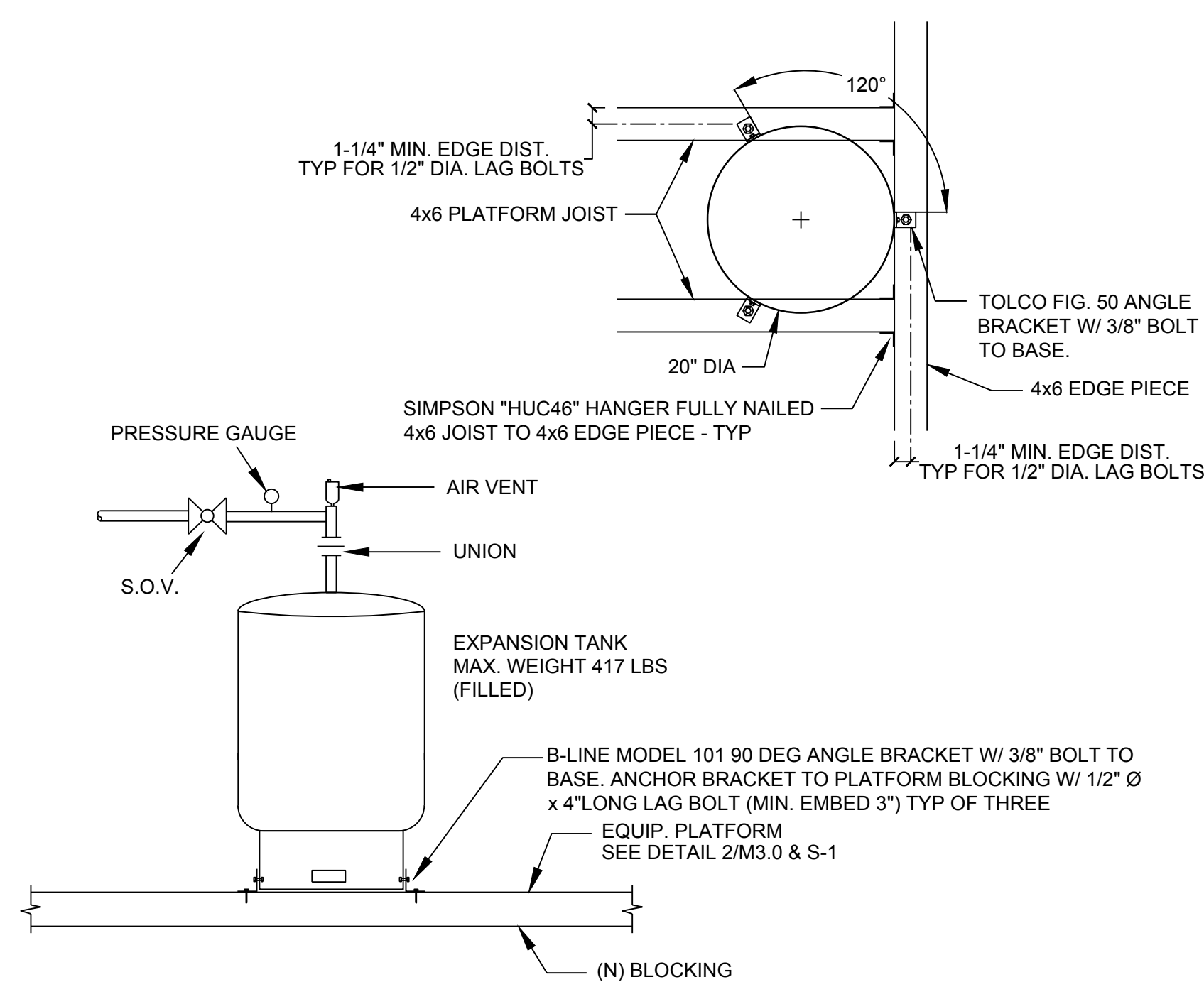
FLUE EXTENSION DETAIL

SCALE: NO SCALE



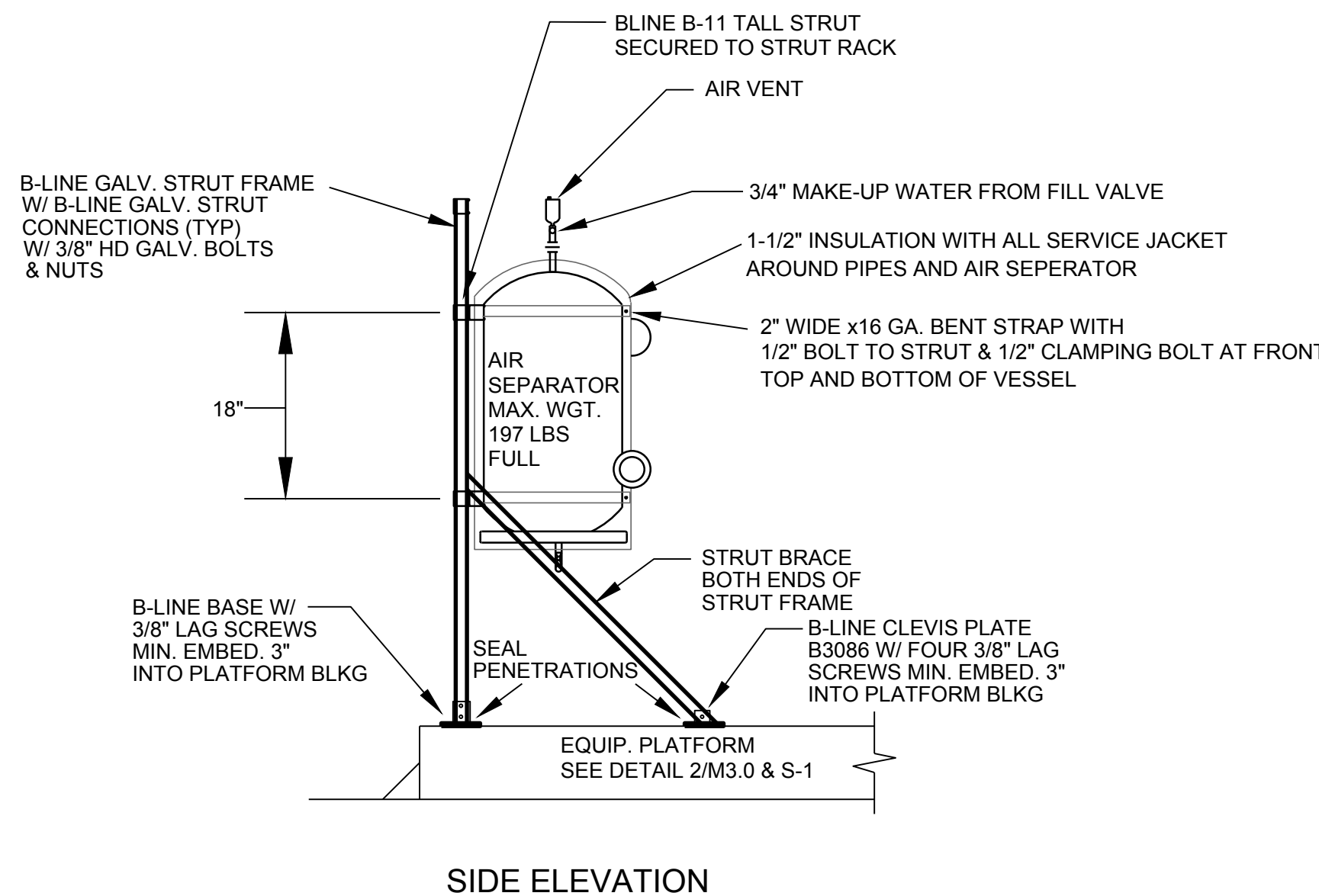
AHU ANCHORAGE DETAIL

SCALE: NO SCALE



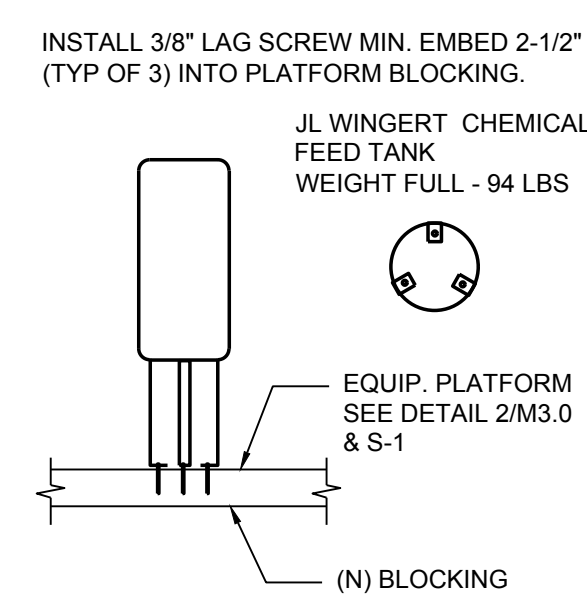
EXPANSION TANK ANCHORAGE DETAIL

SCALE: NO SCALE



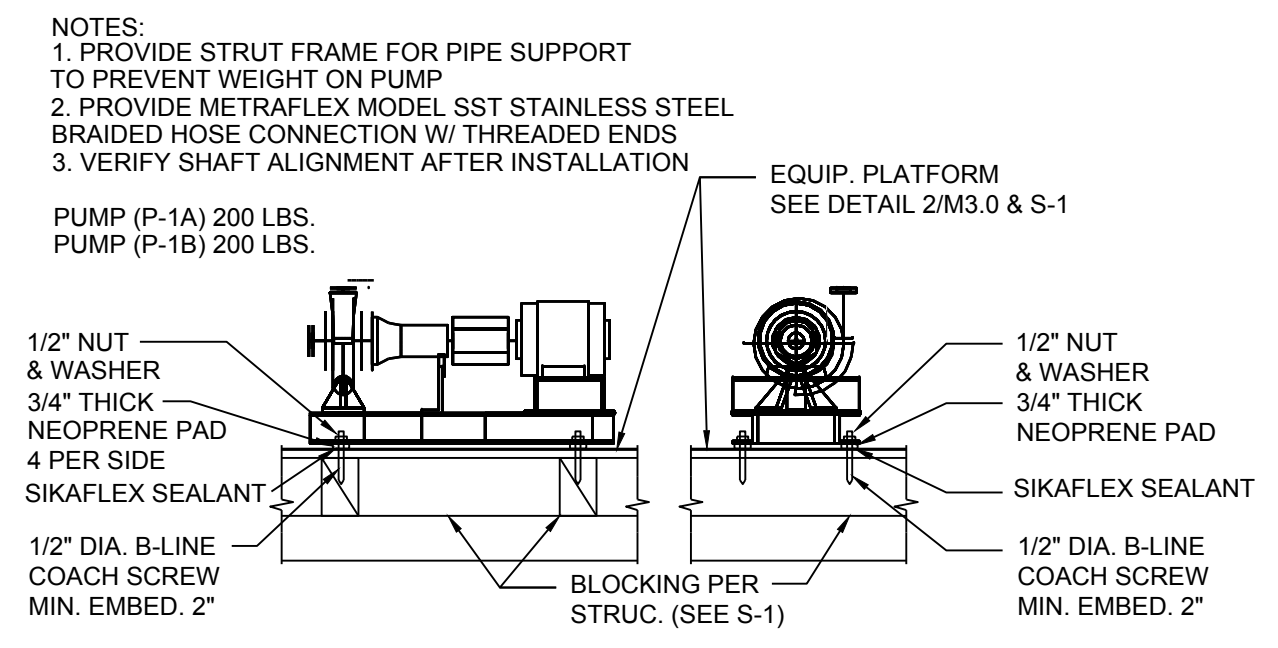
AIR SEPARATOR SUPPORT DETAIL

SCALE: NO SCALE



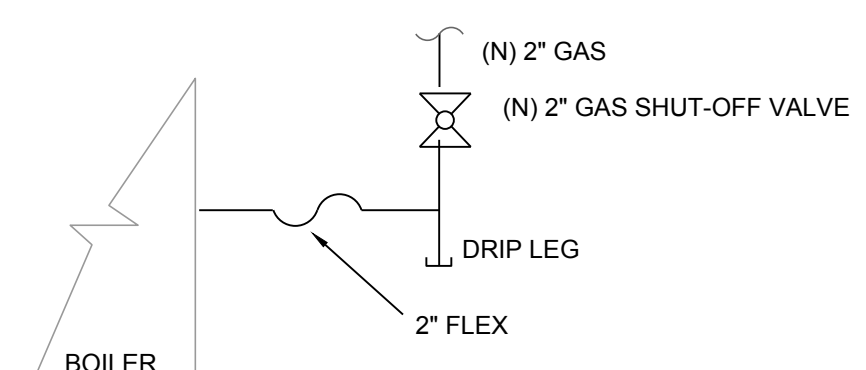
CHEMICAL TANK ANCHORAGE DETAIL

SCALE: NO SCALE



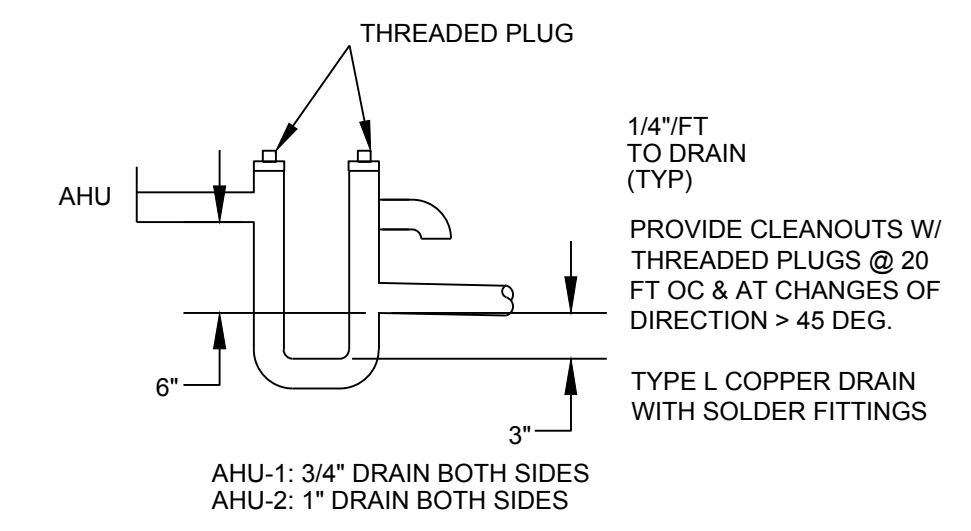
PUMP ANCHORAGE DETAIL

SCALE: NO SCALE



EQUIPMENT GAS SUPPLY DETAIL

SCALE: NO SCALE

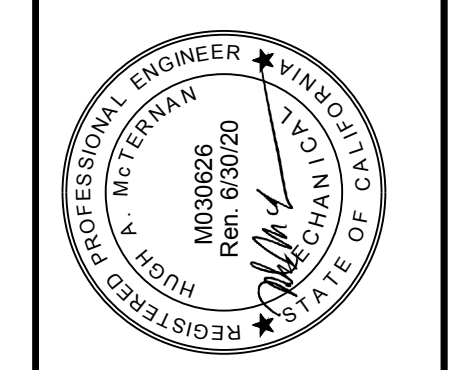


CONDENSATE DETAIL

SCALE: NO SCALE

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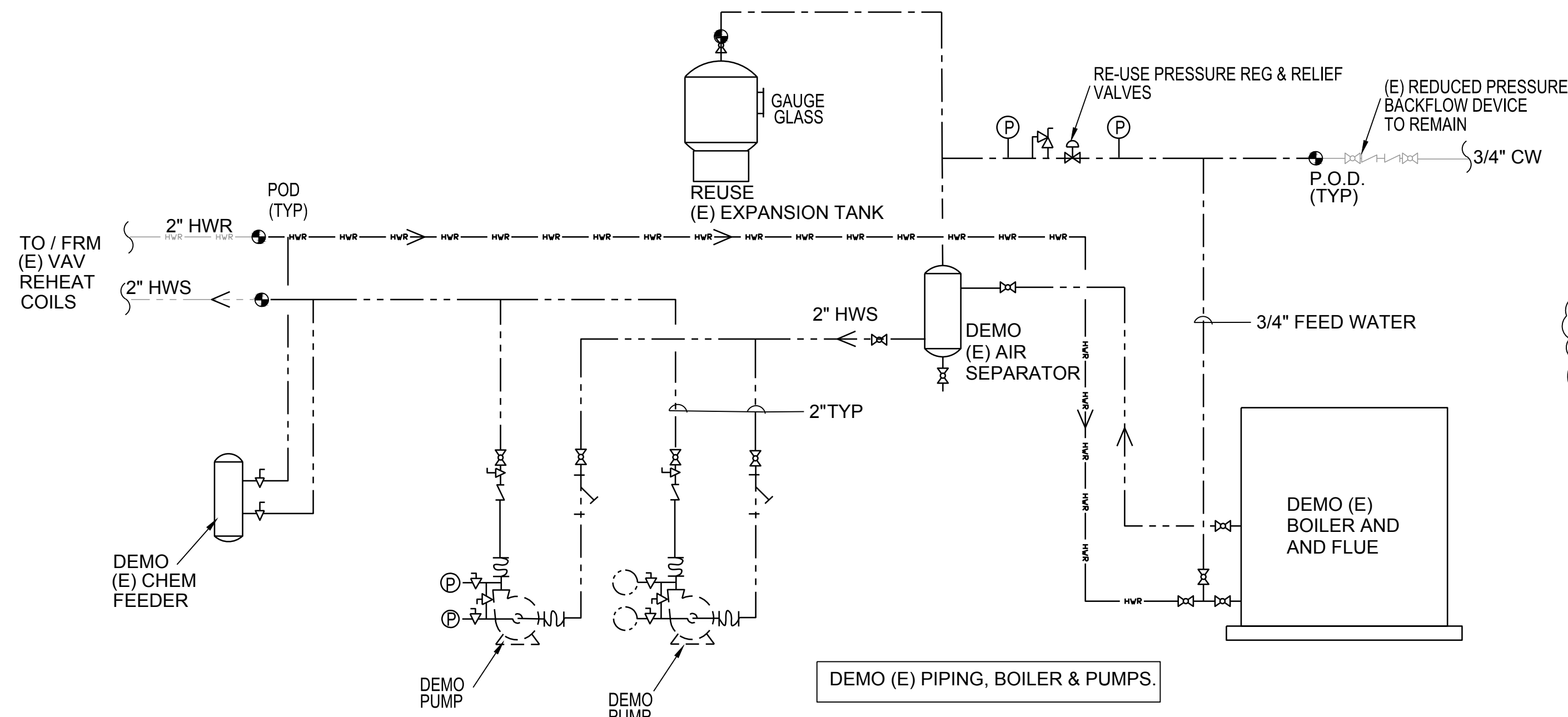


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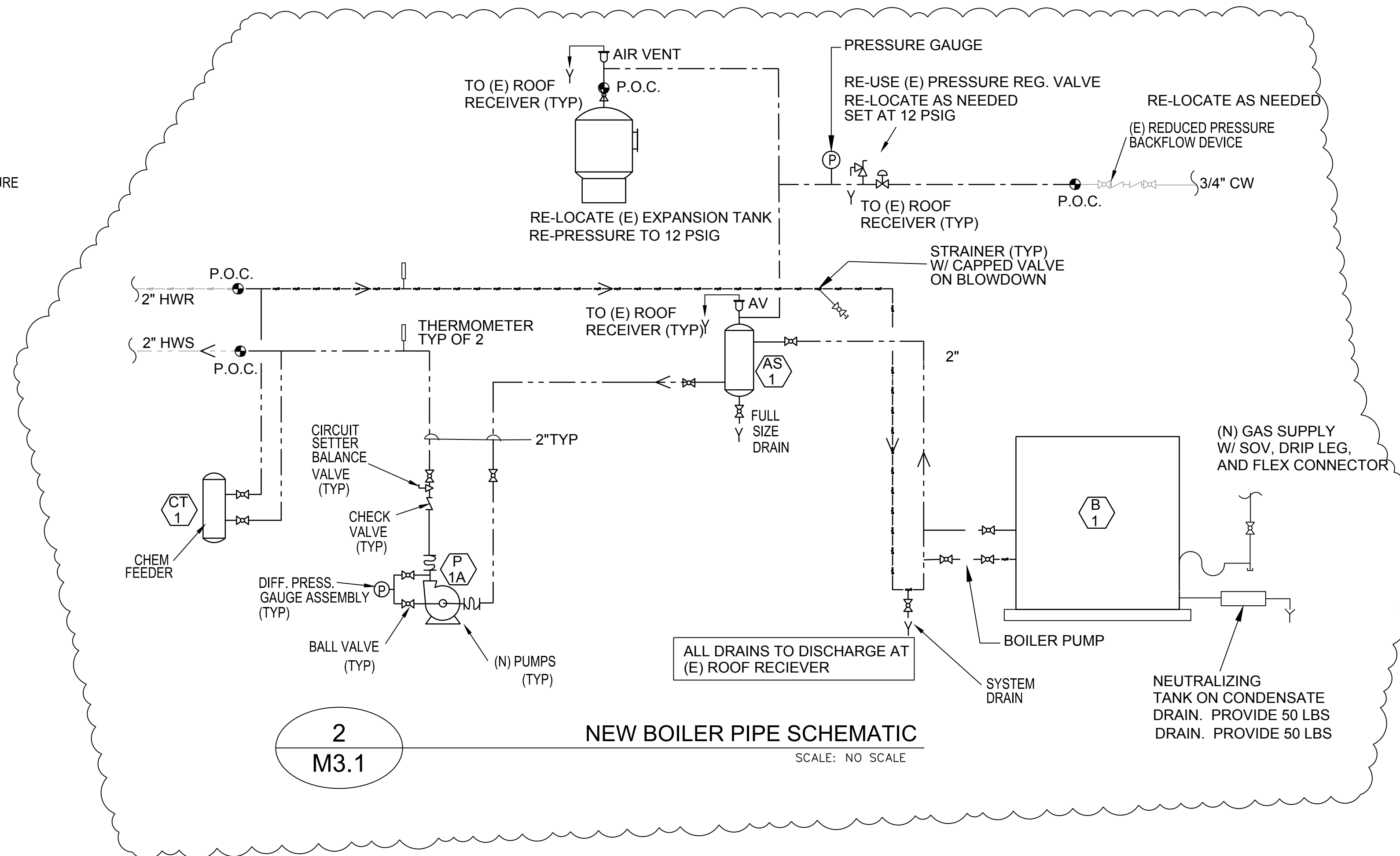
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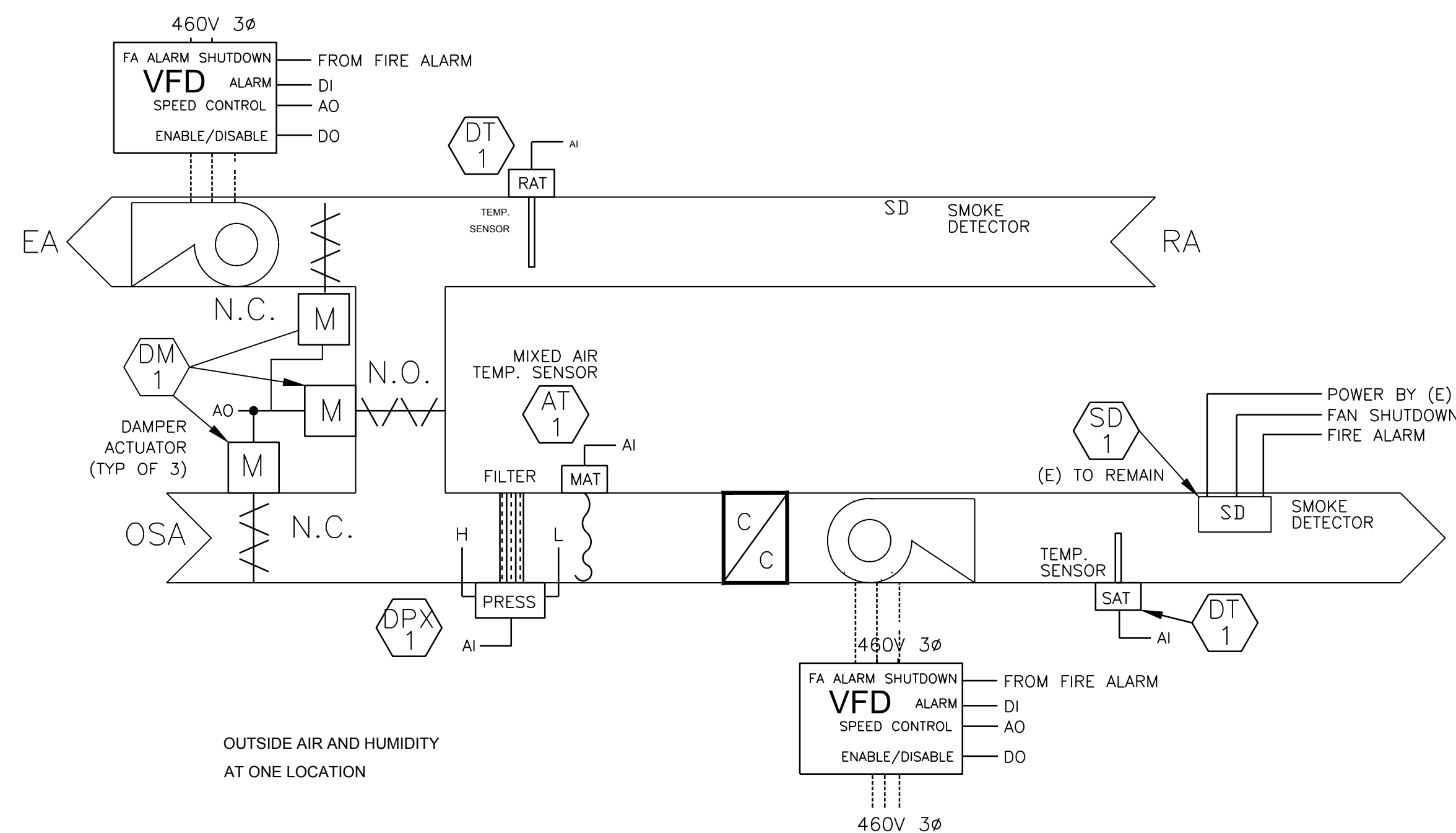
M3.0
 SHEET NO. OF



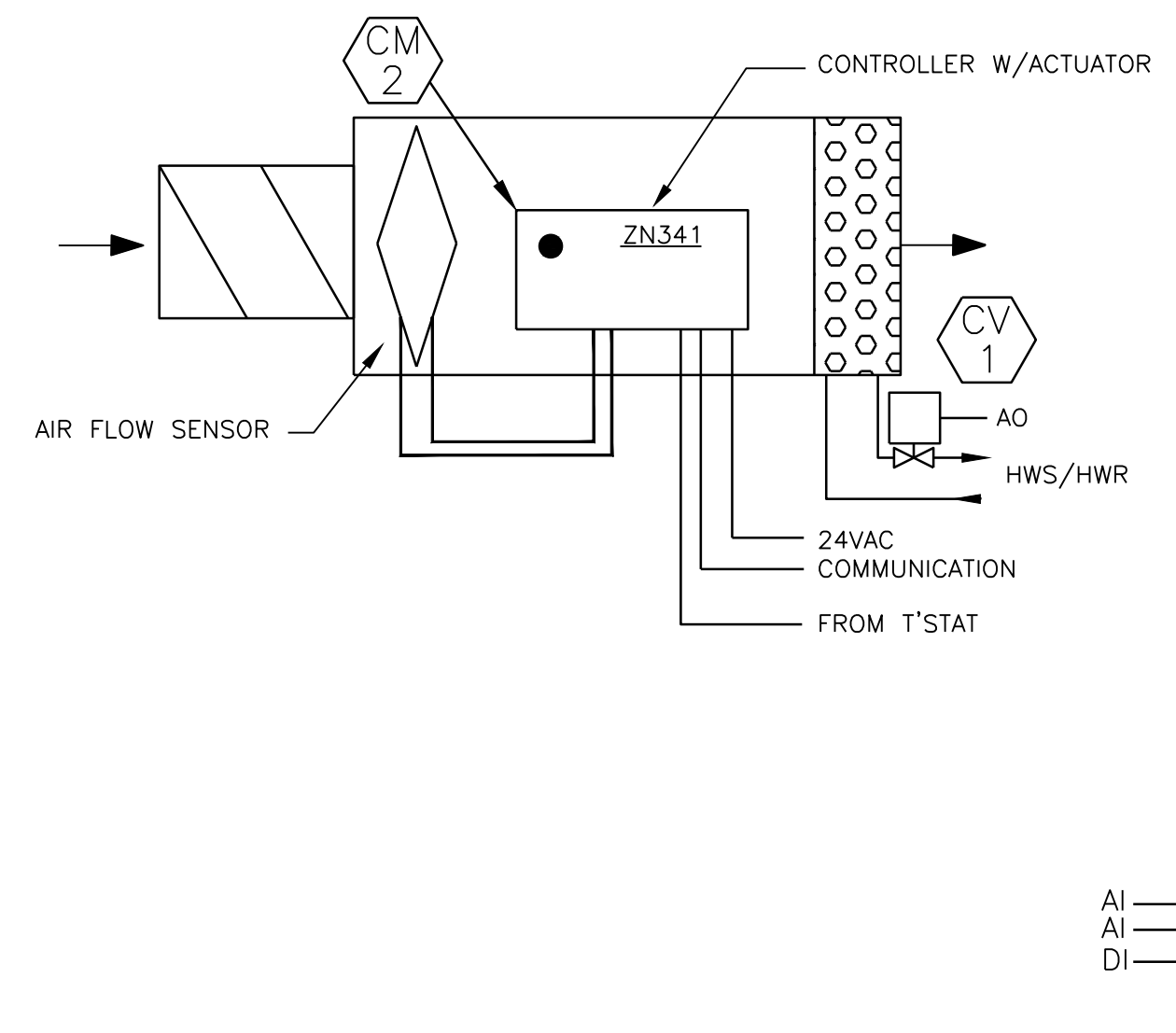
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M3.1 EXISTING BOILER PIPE SCHEMATIC - FOR REFERENCE
SCALE: NO SCALE



2
M3.1 NEW BOILER PIPE SCHEMATIC
SCALE: NO SCALE



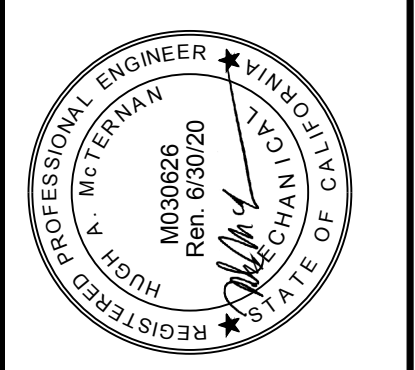
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M3.1 AHU CONTROL FLOW DIAGRAM
SCALE: NONE



4
M3.1 VAV CONTROL FLOW DIAGRAM (TYP OF ALL VAVs)
SCALE: NONE

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MECHANICAL DETAILS

DATE:	04-15-19
DRAWN:	HM/JS/TP
JOB NO.	AE201911

M3.1
SHEET NO. OF