GLASTONBURY TOWN HALL

2155 MAIN STREET
GLASTONBURY, CONNECTICUT 06033

BOILER REPLACEMENT AND CONTROLS UPGRADES

PROJECT # GL-2017-07

M/E/P ENGINEER
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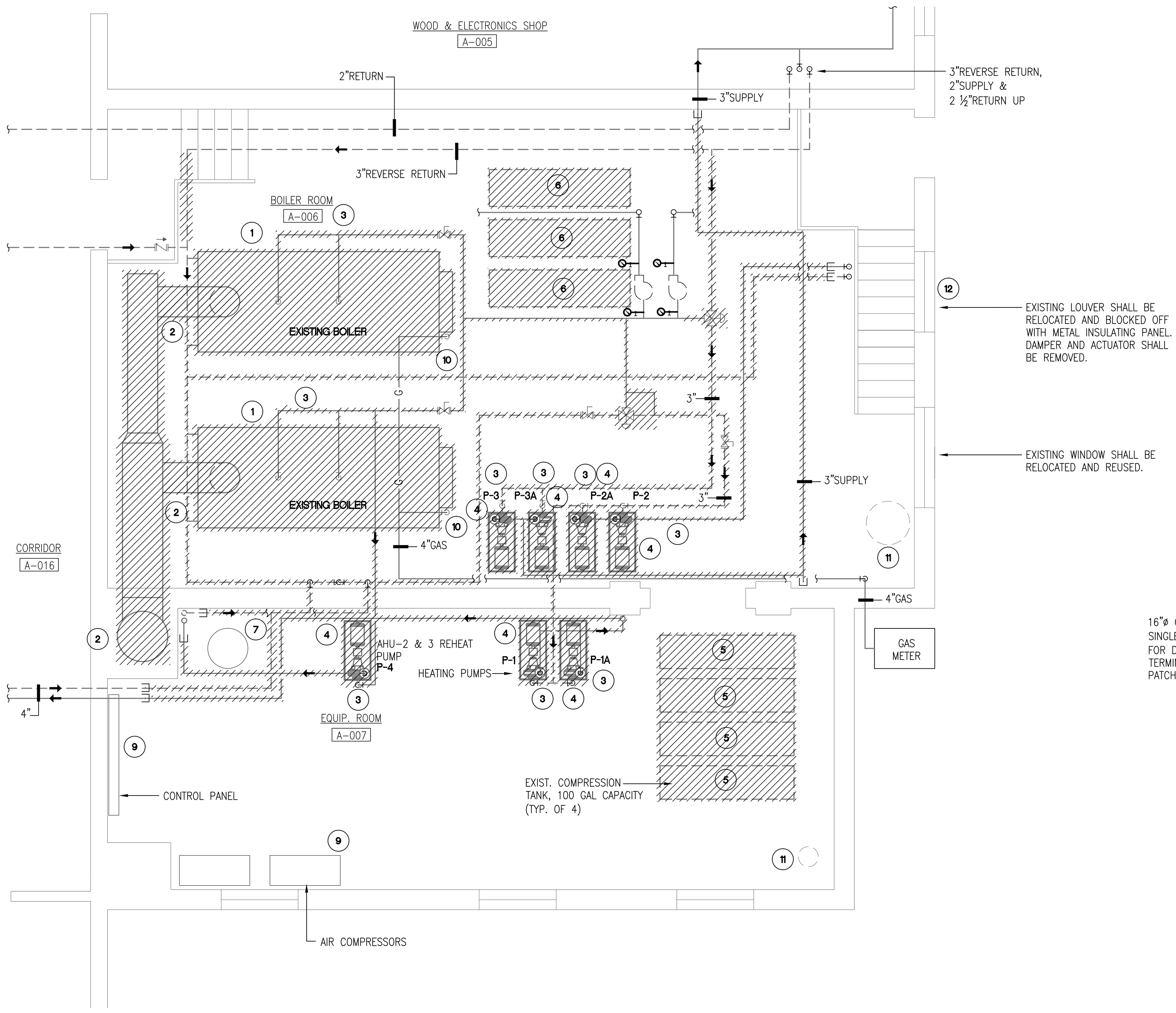
LIST OF DRAWINGS

1/31/2017



BOILER ROOM PART PLAN – MECHANICAL DEMOLITION

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

NORTH

BOILER ROOM DEMOLITION NOTES :

KEY NOTES DESCRIBE IN GENERAL THE SCOPE OF EQUIPMENT REMOVED. CONTRACTOR SHALL COORDINATE ALL DEMOLITION WORK WITH NEW WORK PLANS PRIOR TO REMOVING THE ITEM.

1. EXISTING HEATING BOILER AND ASSOCIATED PIPES, VALVES & ACCESSORIES SHALL BE REMOVED. EXISTING BOILER CONCRETE PAD SHALL BE REMOVED AND FLOOR SHALL BE PATCHED TO MATCH EXISTING.
2. EXISTING BOILER BREECHING SHALL BE REMOVED. CLEAN CHIMNEY FOR ADDITION OF LINER.
3. EXISTING HOT WATER PIPING SHALL BE REMOVED AS INDICATED.
4. EXISTING HOT WATER PUMPS, ACCESSORIES AND PIPING SHALL BE REMOVED AS INDICATED. EXISTING CONCRETE PAD SHALL REMAIN. CUT BOLTS FLUSH WITH THE TOP OF THE PAD. PATCH PAD AND EXTEND AS REQUIRED.
5. EXISTING COMPRESSION TANKS AND ASSOCIATED PIPING SHALL BE REMOVED.
6. EXISTING AIR SEPARATOR AND ASSOCIATED PIPING SHALL BE REMOVED
7. EXISTING DOMESTIC HOT WATER HEATERS, PIPING, BREECHING AND CIRCULATING PUMPS SHALL REMAIN.
8. EXISTING INSULATION ON ALL PIPING LOCATED IN THE BOILER ROOM (HEATING, AND DOMESTIC WATER) SHALL BE REPLACED. CONTRACTOR SHALL FIELD VERIFY QUANTITIES.
9. EXISTING PNEUMATIC CONTROL PANELS. AIR COMPRESSORS AND ASSOCIATED ACCESSORIES SHALL REMAIN.
10. EXISTING GAS PIPING SHALL BE ISOLATED, CUT, CAPPED AND MADE READY FOR RECONNECTION.
11. EXISTING SUMP PUMPS SHALL REMAIN. INSPECT AND PROVIDE NEW STRAINER/FILTERS AS REQUIRED.
12. EXISTING LOUVERS SHALL BE RELOCATED. BLOCK OPENING WITH INSULATED METAL PANEL (R9). LEAVE COMBUSTION INLET AIR OPENING AS REQUIRED FOR NEW BOILERS.

BOILER ROOM GENERAL DEMOLITION NOTES :

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITY LINES INCLUDING ELECTRICAL, SEWER, WATER, GAS, TELEPHONE, ETC. THE DRAWINGS SHOW DIAGRAMMATICALLY THE APPROXIMATE LOCATION OF UTILITIES WHERE INFORMATION IS AVAILABLE, BUT THE DRAWINGS ARE NOT EXACT AS TO THE QUANTITY, EXTENT OR LOCATION. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION DURING ALL PHASES OF THE WORK TO LOCATE, IDENTIFY, AND PROTECT EXISTING UTILITIES. THE CONTRACTOR SHALL RECORD LOCATION OF AND REPAIR DAMAGE TO EXISTING UTILITIES WHICH ARE ENCOUNTERED AS A RESULT OF WORK UNDER THIS CONTRACT.

ANY EQUIPMENT REMOVED DURING DEMOLITION WORK MAY BE RETAINED BY THE OWNER AT HIS OPTION. ANY SUCH MATERIAL SHALL BE STORED IN THE BUILDING AT A LOCATION DESIGNATED BY THE OWNER. REMOVAL OF SUCH MATERIAL FROM THE JOB SITE SHALL BE THE OWNER'S RESPONSIBILITY.

COORDINATE ALL DEMOLITION WORK WITH THE REQUIREMENTS OF THE NEW SCOPE OF WORK.

REMOVE AND REPLACE ALL EXISTING PIPE INSULATION FOR ALL THE PIPES THAT WILL REMAIN IN THE BOILER ROOM. CONTRACTOR SHALL MEASURE, RECORD AND SUBMIT REPORT FOR ALL THE EXISTING PUMPS PRIOR TO ANY DEMOLITION. MEASURE AND RECORD FLOW AND PRESSURE.

ENGINEERING SPECIFICATION FOR ITT BELL & GOSSETT EXPANSION TANK

Furnish and install as shown 1 Pressurized Vertical Expansion Tank. Tank shall be a 158 gallon, 30" diameter x 63-3/4" high factory pre-charged and shall have a 1-1/2 in. NPTF system connection

The tank must be constructed in accordance with Section VIII, Division 1 per ASME Boiler and Pressure Vessel Code and stamped 125 PSI working pressure.

The tank shall be fitted with lifting rings and a floor mounting skirt for vertical installation.

Tank shall be ITT Bell & Gossett Model B-600

CONSTRUCTION
Shell: Carbon Steel
Bladder: Heavy Duty Butyl Rubber System Connection: Forged Steel

The unit weigh approximately 510.00 pounds. (SHPG WT.) and approximately WT 100% full 1814.00 pounds. (Approximate weight 100% full occurs if diaphragm fails. No lifting ring.)

ENGINEERING SPECIFICATION FOR BELL & GOSSETT ROLAIRTROL AIR SEPARATOR

Furnish and install as shown on plans, a centrifugal type air separator. The unit shall have 5" inlet and outlet flanged connections tangential to the vessel shell.

The unit shall have an internal type 304 stainless steel strainer and air separator with 3/16" diameter perforations and 51 percent open area designed to direct accumulated air to the compression tank (air control system) or air vent(air elimination system) via am NPT vent connection at top of unit.

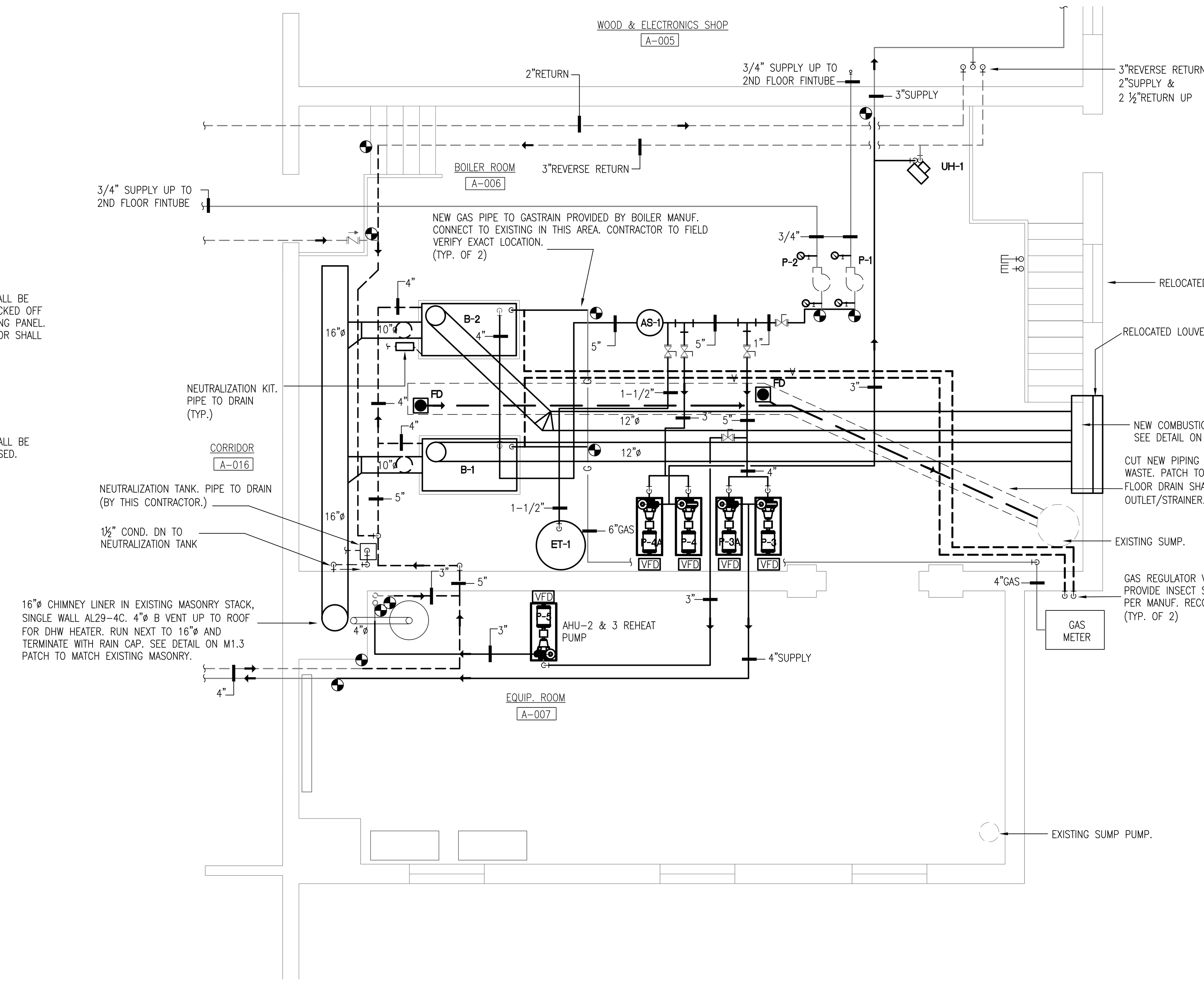
A blowdown connection shall be provided to facilitate routine cleaning of the strainer and the separator. Specify B&G Model MBV-1 Rolairtrol accessory for manual blowdown.

Vassel shell diameter to be three times the nominal inlet/outlet pipe diameter, with a minimum vessel volume for sufficient velocity reduction.

The air separator(s) must be designed, constructed, and stamped for 125 psig @ 350°F in accordance with Section VIII, Division I of the ASME Boiler and Pressure Vessel Code, and registered with the National Board of Boiler and Pressure Vessel Inspectors. The air separator(s) shall be painted with one shop coat of light gray air dry enamel.

A Manufacturers' Data Report for Pressure Vessels, Form U-1 as required by the provisions of the ASME Boiler and Pressure Vessel Code shall be furnished for each air separator upon request.

Air Separator shall be ITT Bell & Gossett Rolairtrol Model RL-5F



BOILER ROOM PART PLAN – MECHANICAL NEW WORK

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

NORTH

GAS FIRED, HOT WATER BOILER SCHEDULE

(NATURAL GAS min. PRESSURE 4"w.c.)

TAG	LOCATION	MANUF.	MODEL	WATER FLOW (GPM)	WATER VOLUME (GAL)	FUEL	GAS			ELECTRICAL			OUTPUT (MBH)	VENT DIA		REMARKS
							INPUT (MBH)	PRESSURE (MIN/MAX)	THERMAL EFFICIENCY	VOLTAGE	PHASE	FLA		(IN)	(OUT)	
B-1	BOILER RM	PATTERSON-KELLEY	MACH C-3000	200	19	GAS	3000	4"WC MIN/ 14"WC MAX	95%	208-240	3	20	2850	12	10	1,2,3,4,5,6
B-2	BOILER RM	PATTERSON-KELLEY	MACH C-3000	200	19	GAS	3000		95%	208-240	3	20	2850	12	10	1,2,3,4,5,6

REMARKS:
1. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. POWER WIRING AND RACEWAY BY DIVISION 26
3. DISCONNECT, MOTOR STARTERS AND CONTROLS BY DIVISION 23
4. PROVIDE WATER LEVEL CONTROLS.
5. UNIT MANUFACTURER SHALL PROVIDE LOCK-UP STYLE REGULATOR. REGULATOR SHALL BE INDEPENDENTLY VENTED TO OUTSIDE.
6. BOILER MANUFACTURER SHALL PROVIDE HI/LOW GAS PRESSURE SWITCH, LOW WATER CUT OFF-MANUAL RESET, HIGH LIMIT-MANUAL RESET, COMBUSTION BLOWER-VARIABLE SPEED, AIR SWITCH-DIFFERENTIAL PRESSURE TYPE, MAIN GAS TRAIN, HIGH EXHAUST PRESSURE SWITCH, OPERATING THERMOSTAT, INTEGRATED BOILER CONTROL-ENVI SERIES, MODULATING CONTROL WITH 5:1 TURN-DOWN, P-K 3" CONTROL VALVES AND P-K CONDENSATE NEUTRALIZATION KIT.

PUMP SCHEDULE

PUMP No.	LOCATION	AREA SERVED	TYPE	MANUFACTURER	SERIES	MODEL	GPM	HEAD (FT)	RPM	HP	VOLTS	PH	EFFICIENCY	SUCTION DIFFUSER			TRIPLE DUTY VALVE	REMARKS
														MODEL	SYS. SIDE	SUCT. SIDE		
P-3	BOILER RM	ACADEMY "B" & "C" WING	BASE MTD.	ARMSTRONG	4030	3X2.5X10	270	70	1770	7.5	208	3	72.3	SG-43	4	3	FTV-4FS	1,2,3,5,6
P-3A	BOILER RM	ACADEMY "B" & "C" WING	BASE MTD.	ARMSTRONG	4030	3X2.5X10	270	70	1770	7.5	208	3	72.3	SG-43	4	3	FTV-4FS	1,2,4,5,6
P-4	BOILER RM	"A" WING & TOWN HALL	BASE MTD.	ARMSTRONG	4030	3X2X10	128	35	1170	2	208	3	74.0	SG-43	4	3	FTV-4FS	1,2,3,5,6
P-4A	BOILER RM	"A" WING & TOWN HALL	BASE MTD.	ARMSTRONG	4030	3X2X10	128	35	1170	2	208	3	74.0	SG-43	4	3	FTV-4FS	1,2,4,5,6
P-5	BOILER RM	AHU-2 & 3 REHEATS	BASE MTD.	TACO	FM	2007	135	40	1750	2	208	3	74.0	N/A	N/A	N/A	N/A	1,2,3,5,6

REMARKS:
1. UNIT SHALL BE SEISMICALLY SUPPORTED.
2. INSTALL ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
3. OPERATING.
4. STANDBY.
5. PROVIDE WITH PREMIUM EFFICIENCY MOTOR
6. PROVIDE VARIABLE FREQUENCY DRIVE.

VARIABLE FREQUENCY DRIVE SCHEDULE

UNIT NO.	MOTOR HP	MANUFACTURER	MODEL	LOCATION	REMARKS
P-3	7.5	ABB	ACH 550	BOILER ROOM	MANUAL BYPASS, BY MECHANICAL CONTRACTOR
P-3A	7.5	ABB	ACH 550	BOILER ROOM	MANUAL BYPASS, BY MECHANICAL CONTRACTOR
P-4	2	ABB	ACH 550	BOILER ROOM	MANUAL BYPASS, BY MECHANICAL CONTRACTOR
P-4A	2	ABB	ACH 550	BOILER ROOM	MANUAL BYPASS, BY MECHANICAL CONTRACTOR
P-5	2	ABB	ACH 550	EQUIP. ROOM	MANUAL BYPASS, BY MECHANICAL CONTRACTOR

NOTES:
1. POWER WIRING AND RACEWAY BY DIVISION 26.
2. DISCONNECTS AND STARTING RELAYS FURNISHED BY DIVISION 23.
3. REFER TO SCHEDULES FOR MOTOR VOLTAGE AND PHASE REQUIREMENTS.

UNIT HEATER SCHEDULE

UNIT NO.	AREA SERVED	MANUFACTURER	MODEL	CFM	MBH	GPM	EWT	WTD	WPD	EAT	LAT	HP	VOLTS	PH	REMARKS
UH-1	BOILER ROOM	STERLING	HS-48	630	31.3	3.5	200	20.0	0.12	60.0	111°F	1/20	115	1	1,2

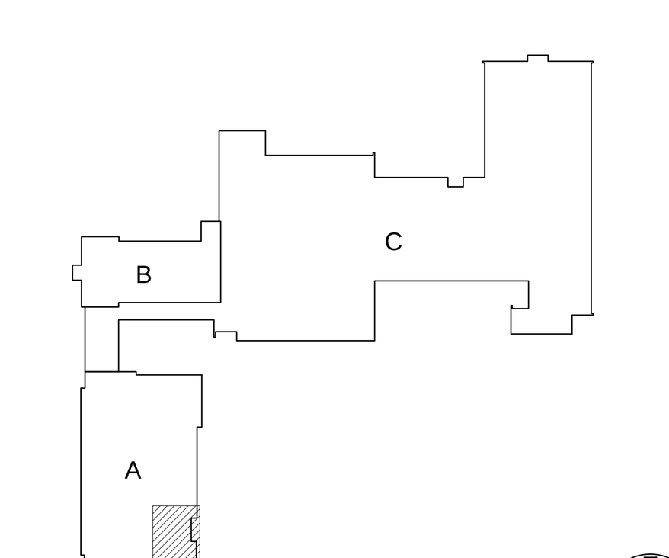
REMARKS:
1. T.C.C. TO PROVIDE WALL MOUNTED THERMOSTAT.
2. SEISMICALLY SUPPORT EQUIPMENT AS REQUIRED.

GENERAL NEW WORK NOTES :

1. DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL INTENT OF WORK, ALL CONTRACTORS MUST COORDINATE WITH OTHER TRADES BEFORE PROCEEDING WITH ANY WORK.
2. THE CONTRACTOR SHALL COORDINATE THE ROUTING AND INSTALLATION OF ALL SYSTEMS TO AVOID CONFLICTS.
3. THE CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS PRIOR TO SUBMITTING HIS BID.
4. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING PIPE LOCATIONS AND SIZES.
5. INSTALL PIPES TO ALLOW EASY ACCESS TO VALVES.
6. INSULATE ALL HOT WATER HEATING SUPPLY AND RETURN PIPING.
7. BRANCH TAKE-OFFS FOR FLUE AND COMBUSTION AIR SHALL BE AT 45° ANGLES.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY TEMPORARY WORK REQUIRED TO KEEP THE BUILDING OCCUPIED DURING THE CONSTRUCTION.

MECHANICAL SYMBOL LIST

SYMBOL	ABBREV.	DESCRIPTION
	HWS	HOT WATER HEATING SUPPLY
	HWR	HOT WATER HEATING RETURN
	CW	COLD WATER
	HW	HOT WATER SUPPLY
	HWR	HOT WATER RECIRCULATING
D	D	DRAIN
G	G	NATURAL GAS
EG	EG	EXISTING NATURAL GAS
EOIL	EOIL	EXISTING OIL LINE
C	CND	CONDENSATE DRAIN
		SHUTOFF VALVE
		GAS SHUTOFF VALVE
		RISER DOWN
		RISER UP
		RISE OR DROP
		BRANCH-TOP CONNECTION
FD	FD	FLOOR DRAIN WITH P-TRAP
		BUTTERFLY VALVE
	POC	POINT OF CONNECTION



KEY PLAN
NOT TO SCALE

REVISIONS

GLASTONBURY TOWN HALL

BOILER REPLACEMENT AND CONTROLS UPGRADES

GLASTONBURY, CONNECTICUT

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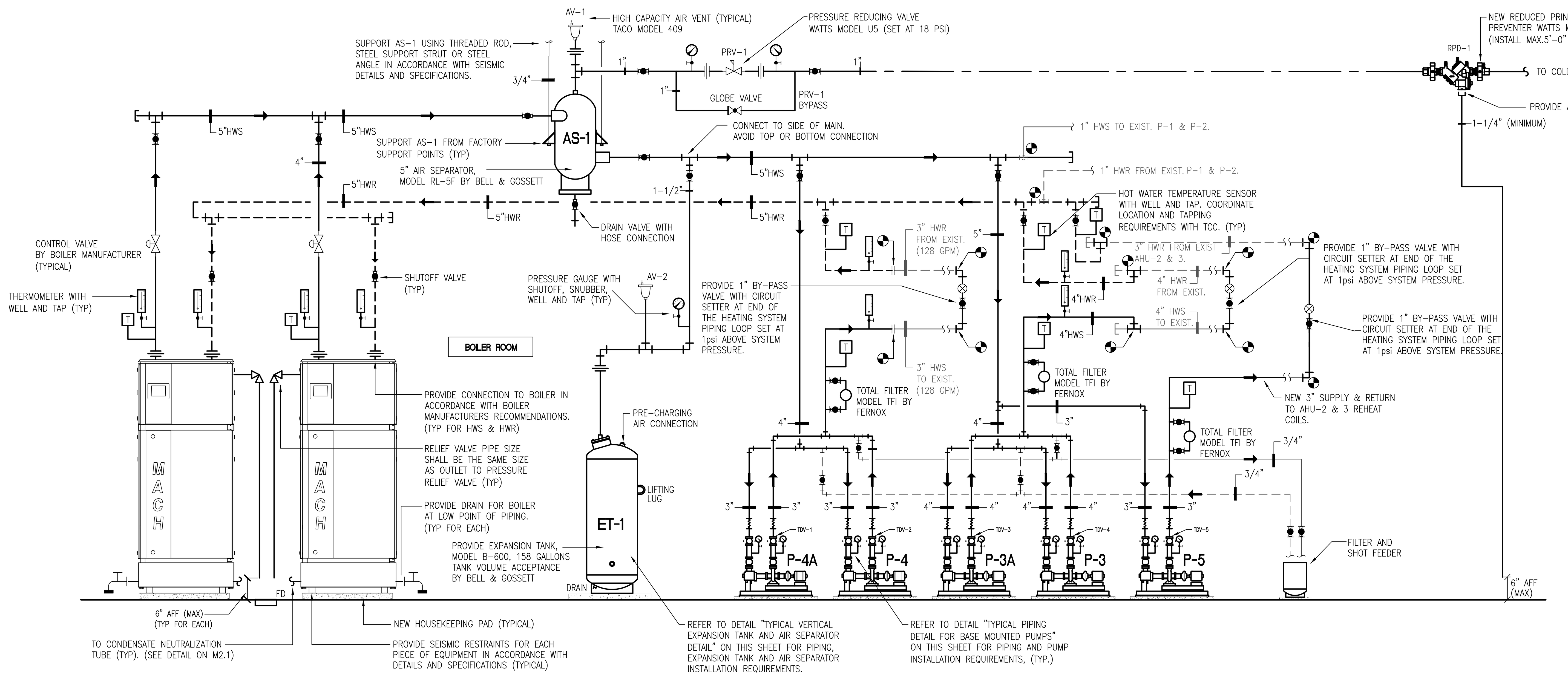
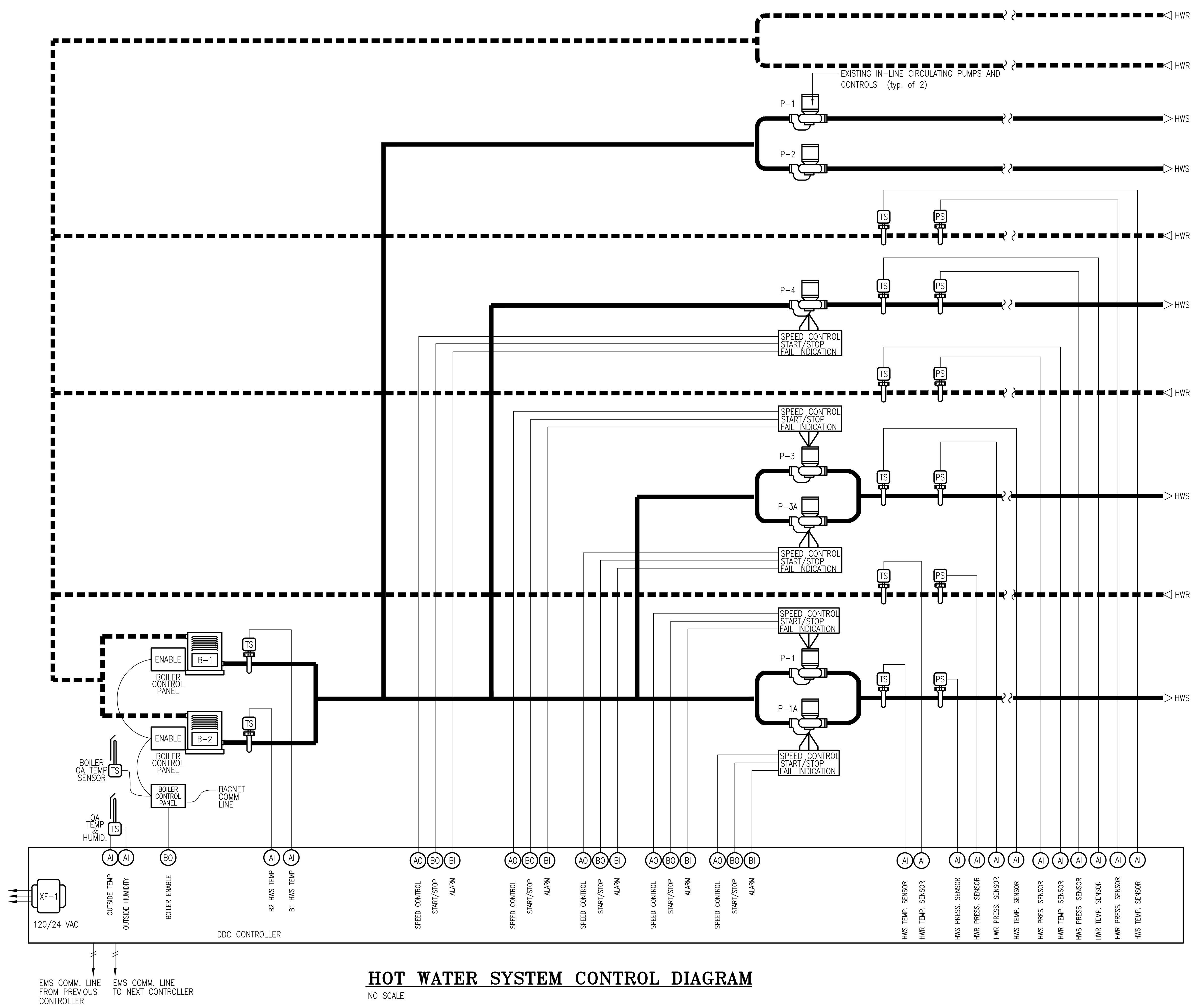
TITLE
BOILER ROOM PART PLAN MECHANICAL DEMOLITION, NEW WORK AND SCHEDULES

DATE 1/31/2017

DWG. NO.
M1.1



BOILER ROOM NEW HOT WATER PIPING DIAGRAM
NO SCALE



HOT WATER SYSTEM CONTROL DIAGRAM
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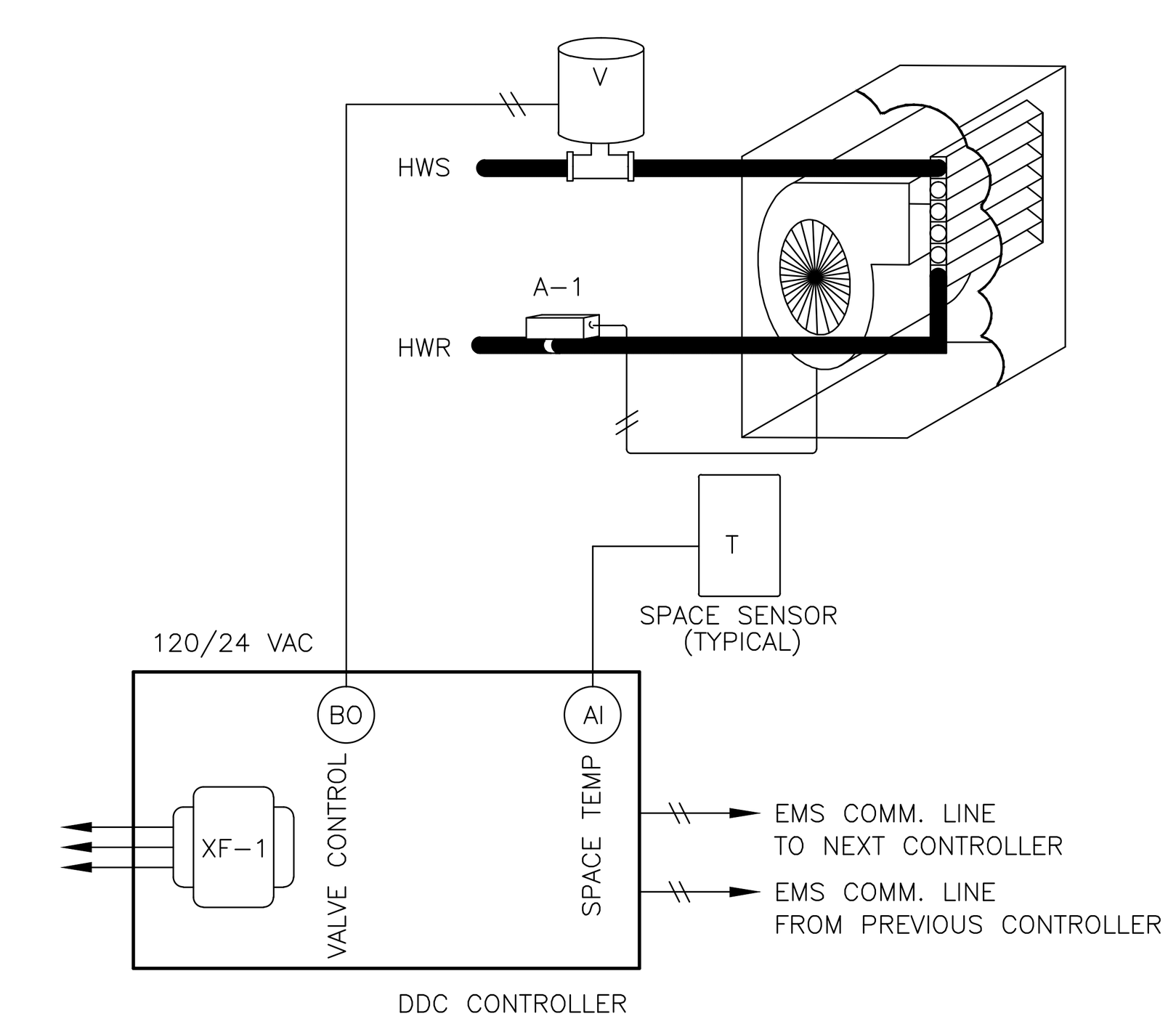
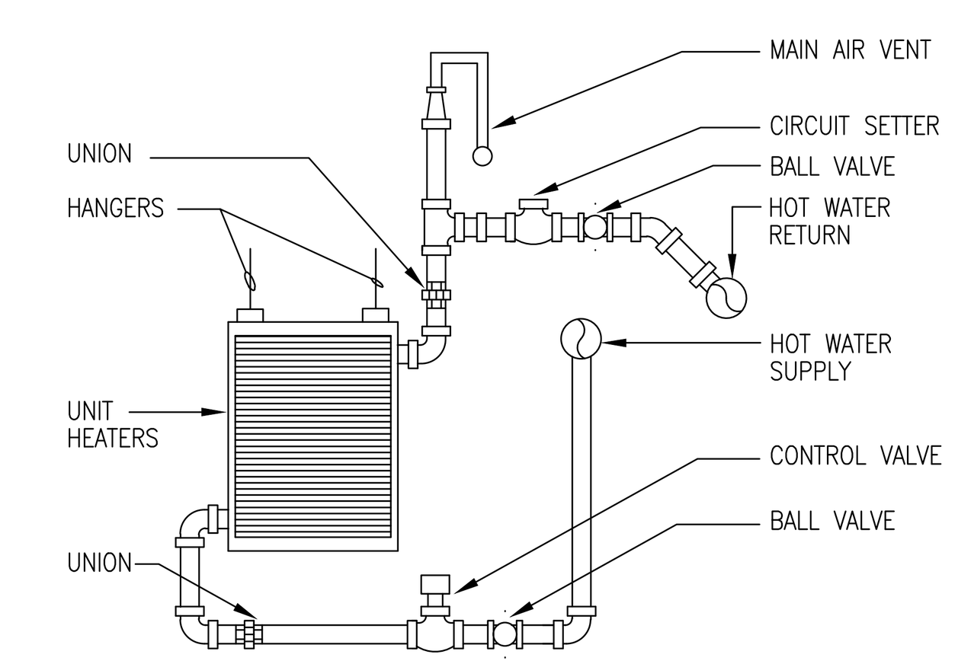


TYPICAL UNIT HEATER CONTROL



TYPICAL UNIT HEATER ARRANGEMENT
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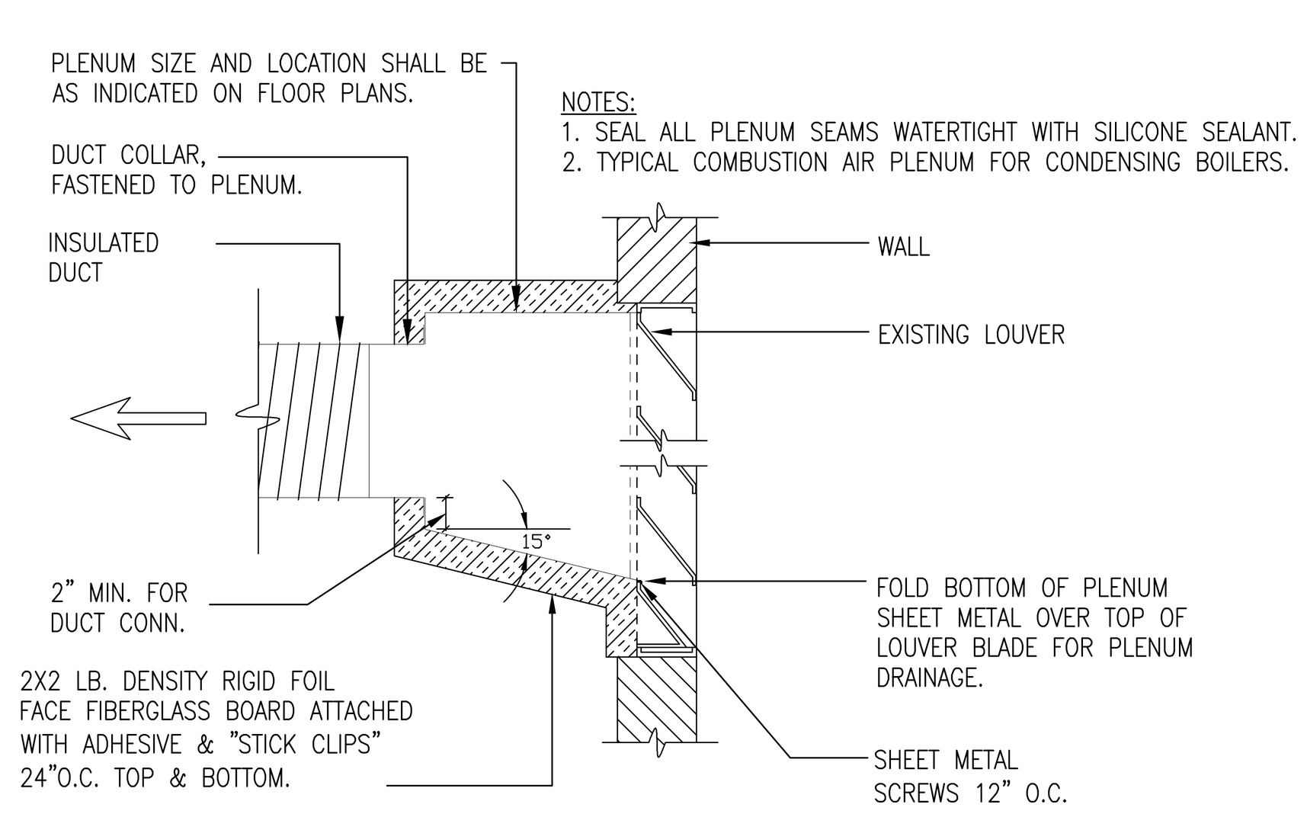

COMBUSTION AIR INTAKE LOUVER CONNECTION DETAIL
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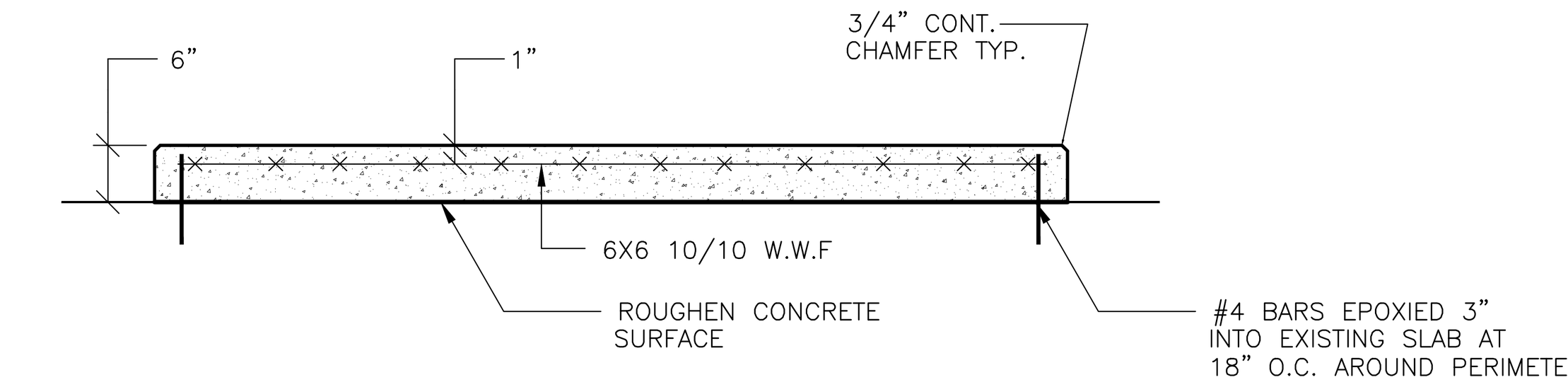
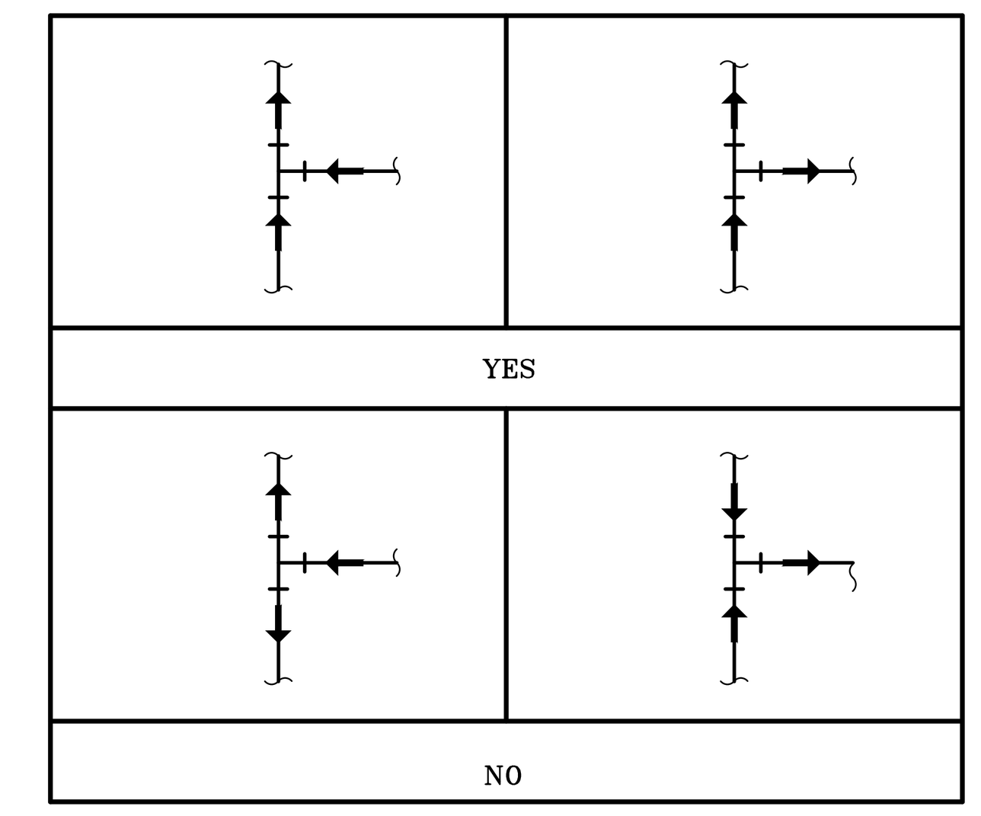


TYPICAL EQUIPMENT HOUSEKEEPING PAD DETAIL
NOT TO SCALE

(COORDINATE NUMBER AND LOCATIONS WITH MEP DRAWINGS)
NOTE: COORDINATE PAD THICKNESS AT BOILERS w/ M.E.P.



ALLOWABLE FLOW CONFIGURATIONS IN PIPING TEES–HVAC SYSTEMS
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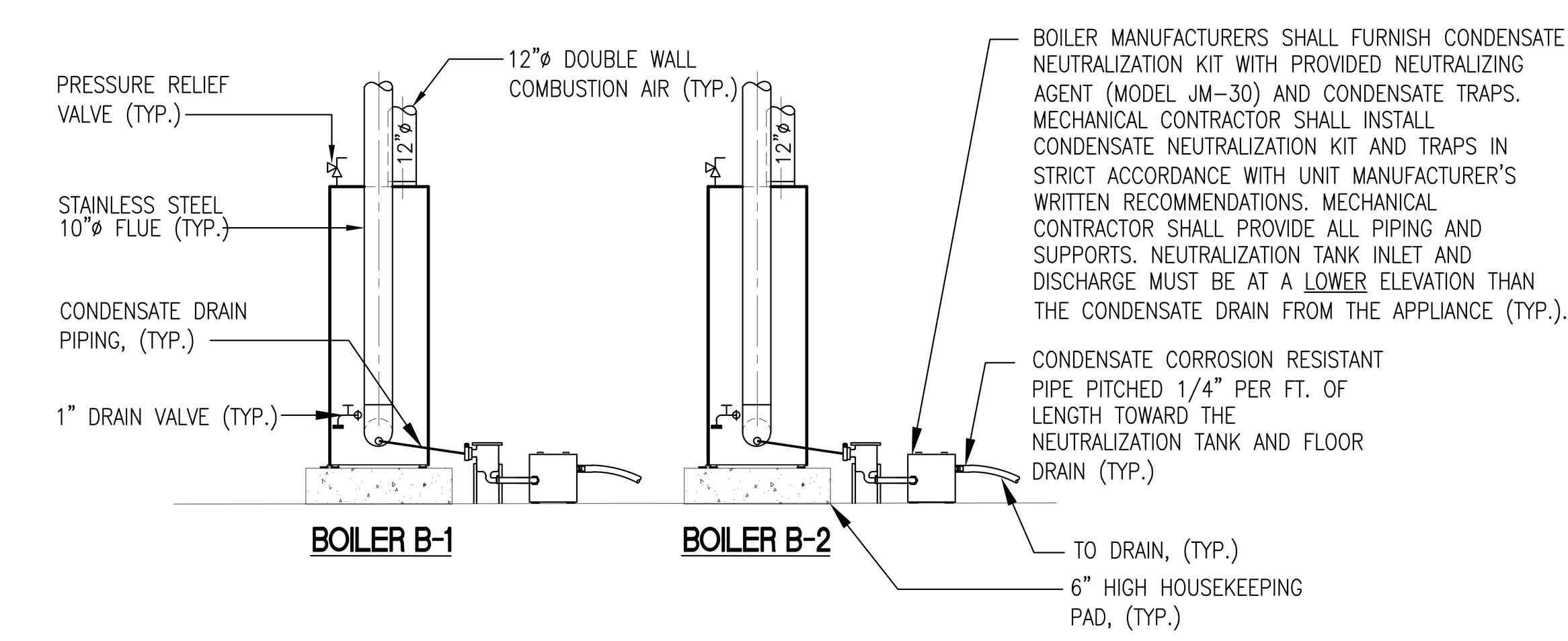

TYPICAL GAS FIRED BOILER VENTING AND CONDENSATE DETAIL
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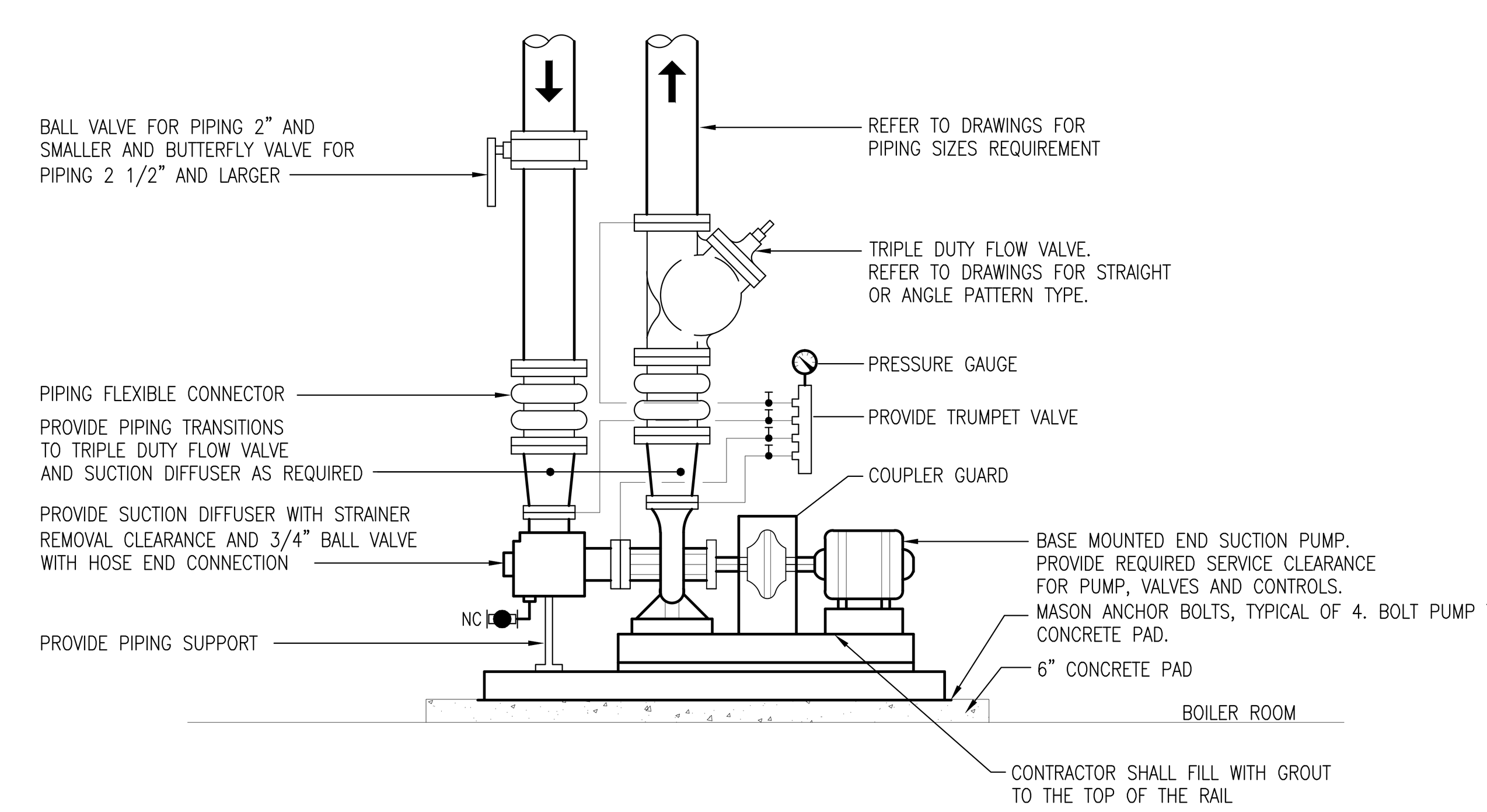

TYPICAL PIPING DETAIL FOR BASE MOUNTED PUMPS
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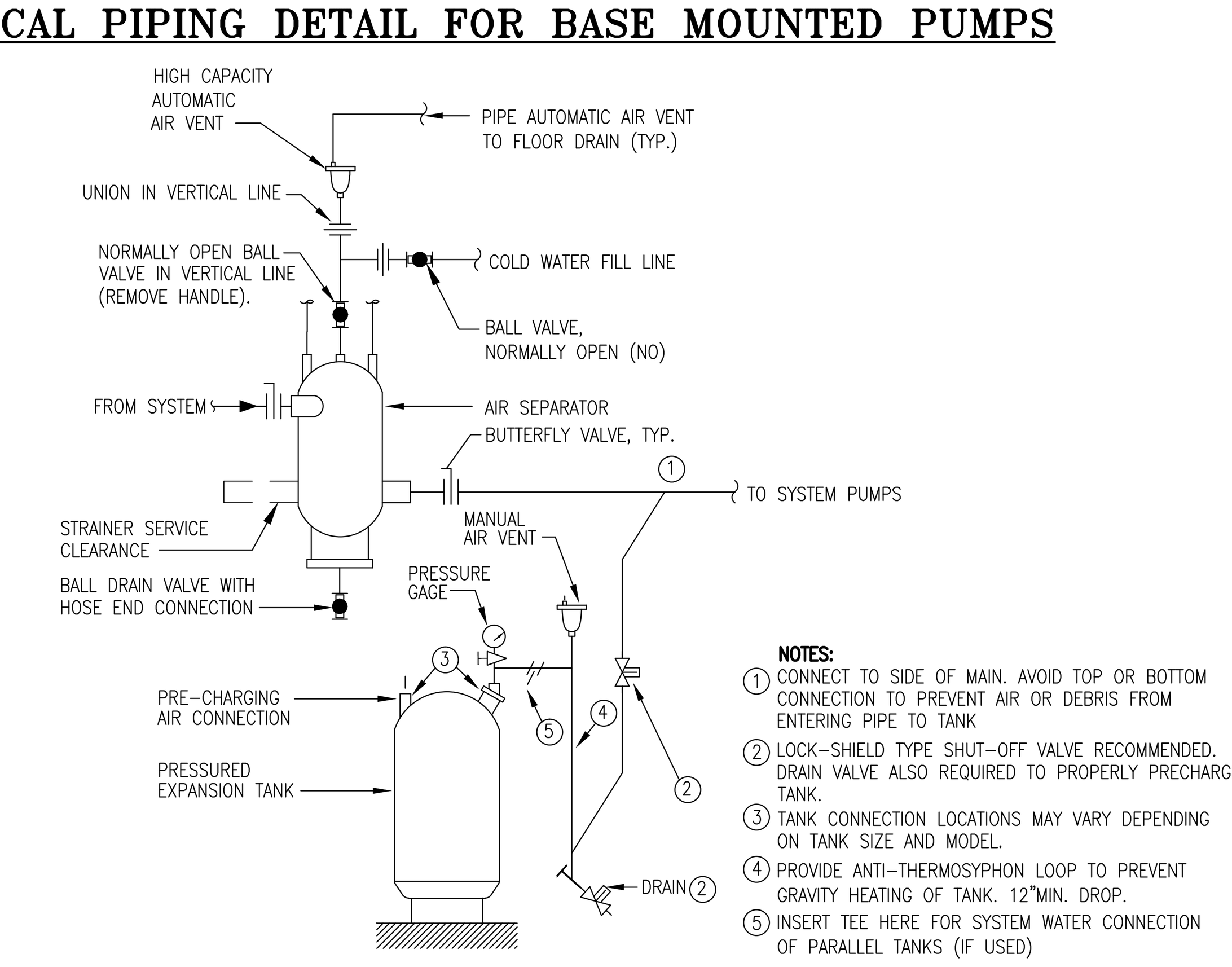

TYPICAL VERTICAL EXPANSION TANK WITH AIR SEPARATOR DETAIL
NO SCALE

REVISIONS

GLASTONBURY TOWN HALL
BOILER REPLACEMENT AND CONTROLS UPGRADES
GLASTONBURY, CONNECTICUT

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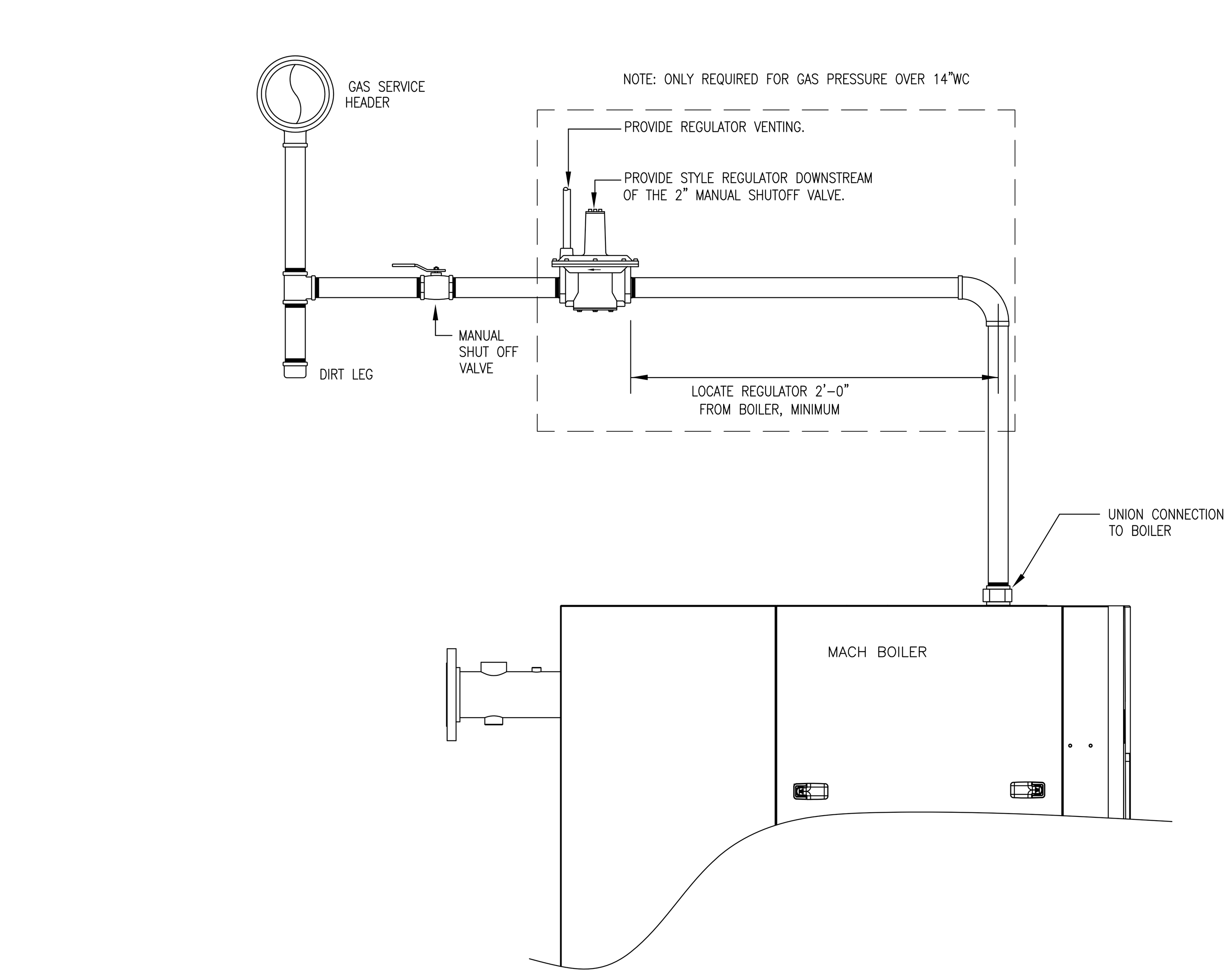
185 Main Street
Farmington, CT 06032

TITLE
BOILER ROOM NEW HOT WATER PIPING DIAGRAM AND MECHANICAL DETAILS

DATE 1/31/2017

DWG. NO.
M1.2



TYPICAL GAS CONNECTION DETAIL

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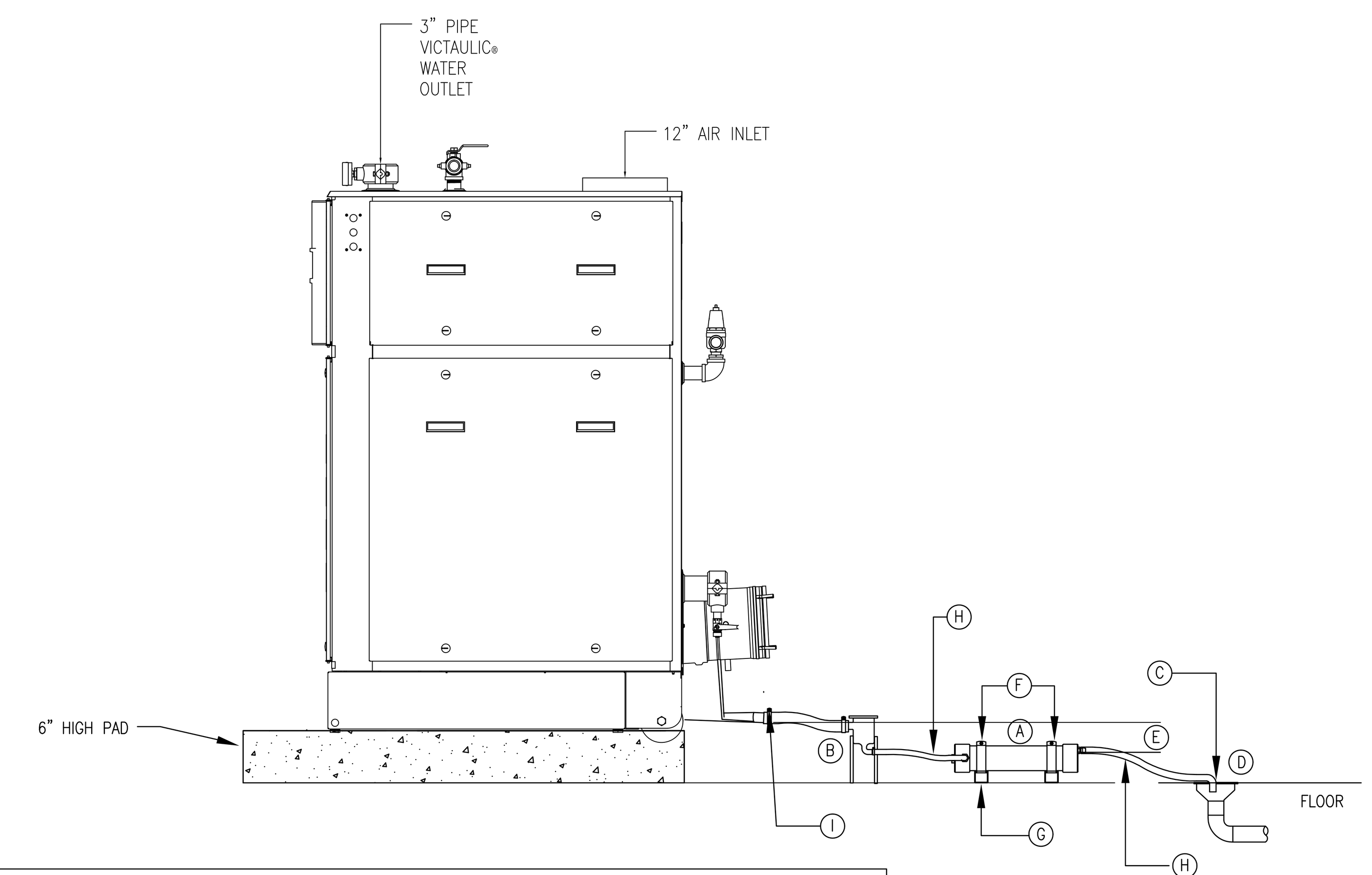


A. JM CONDENSATE NEUTRALIZING TUBE

B. FACTORY SUPPLIED CONDENSATE TRAP. PROVIDE FIELD FABRICATED SUPPORTS AS REQUIRED.

C. CONDENSATE DRAIN TERMINATION AT FLOOR DRAIN INLET. SECURE IN PLACE AS REQUIRED.

D. FLOOR DRAIN.

E. BOTTOM OF BOILER CONDENSATE OUTLET MUST BE ABOVE THE THE BOTTOM OF THE JM TUBE CONDENSATE OUTLET.

F. UNISTRUT CLAMPS, SECURE TUBE IN POSITION AND SECURELY. CONDENSATE OUTLET MUST BE ORIENTED UP, WITH CONDENSATE INLET TO THE SIDE.

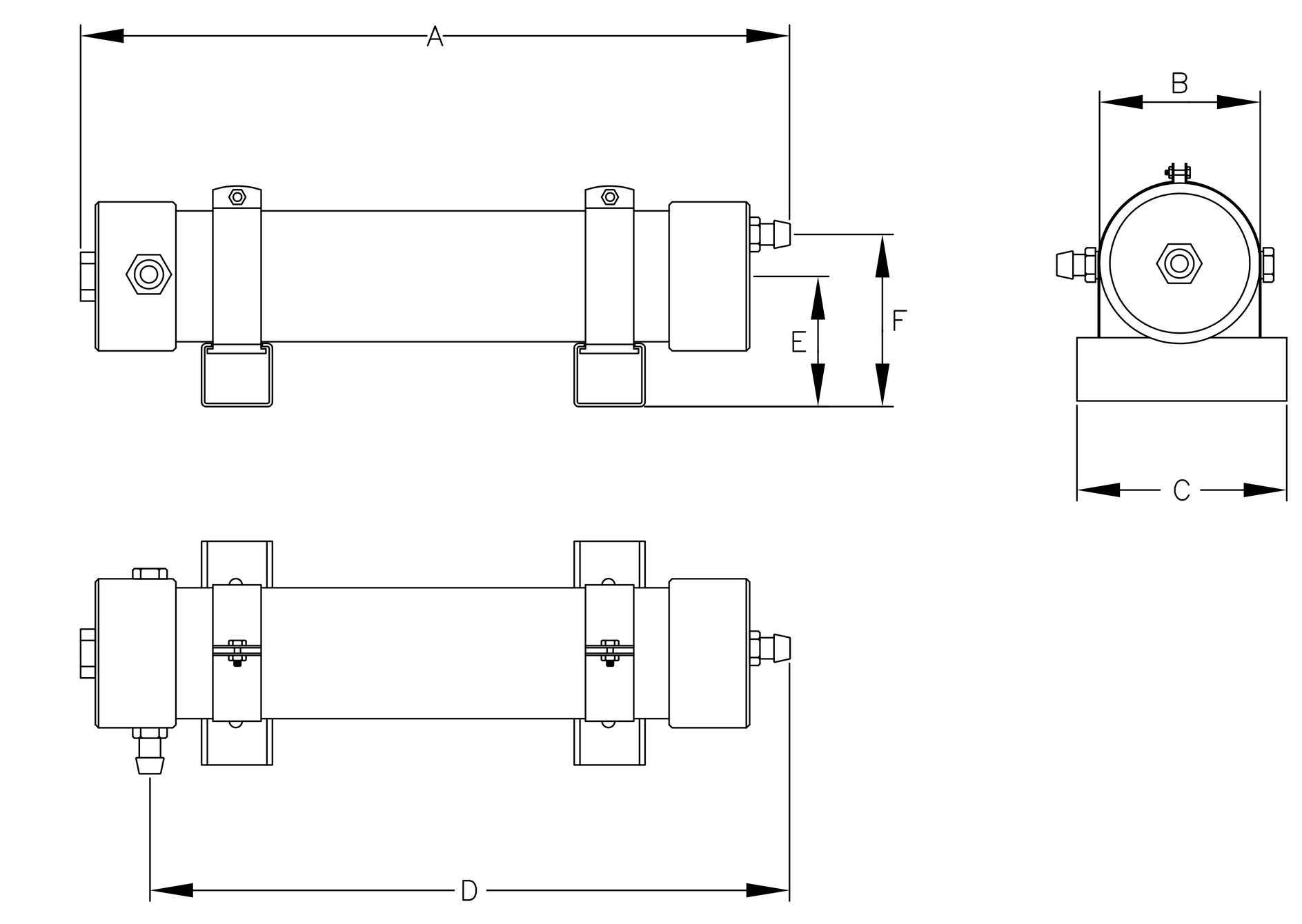
G. UNISTRUT BASE, BOLT TO FLOOR OR MOUNTING PAD.

H. PVC PIPE.

I. USE HOSE CLAMPS AT ALL CONNECTIONS WHEN USING FACTORY SUPPLIED RUBBER HOSE.

CONDENSATE TUBE INSTALLATION DETAIL

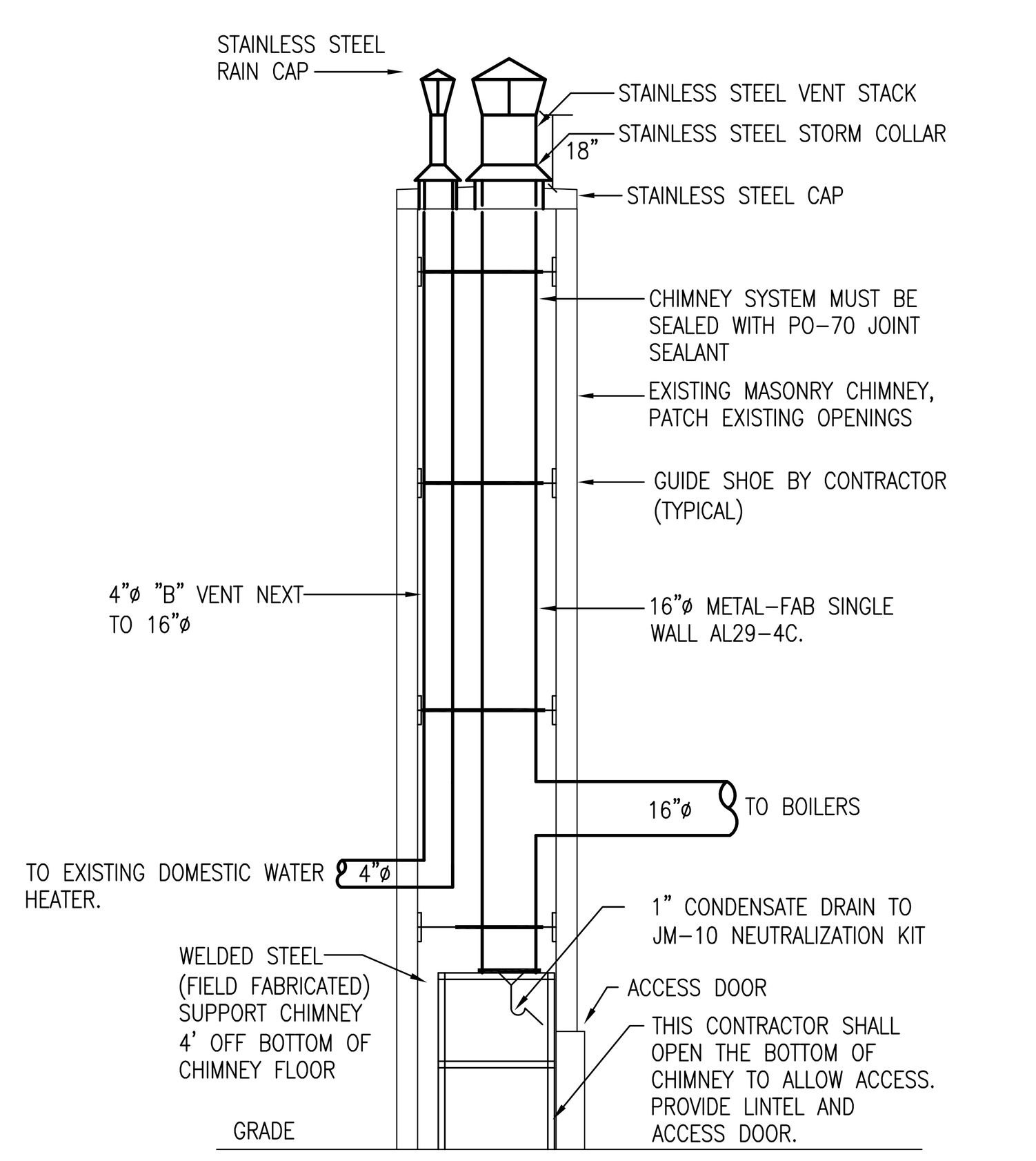
NO SCALE



SIZE	MBH	GPH	A	B	C	D	E	F
JM-30	3000	30	24 1/2	5	6	21	4 1/2	3 1/8

JM-30 CONDENSATE TUBE

NO SCALE



FLUE EXHAUST VENTING

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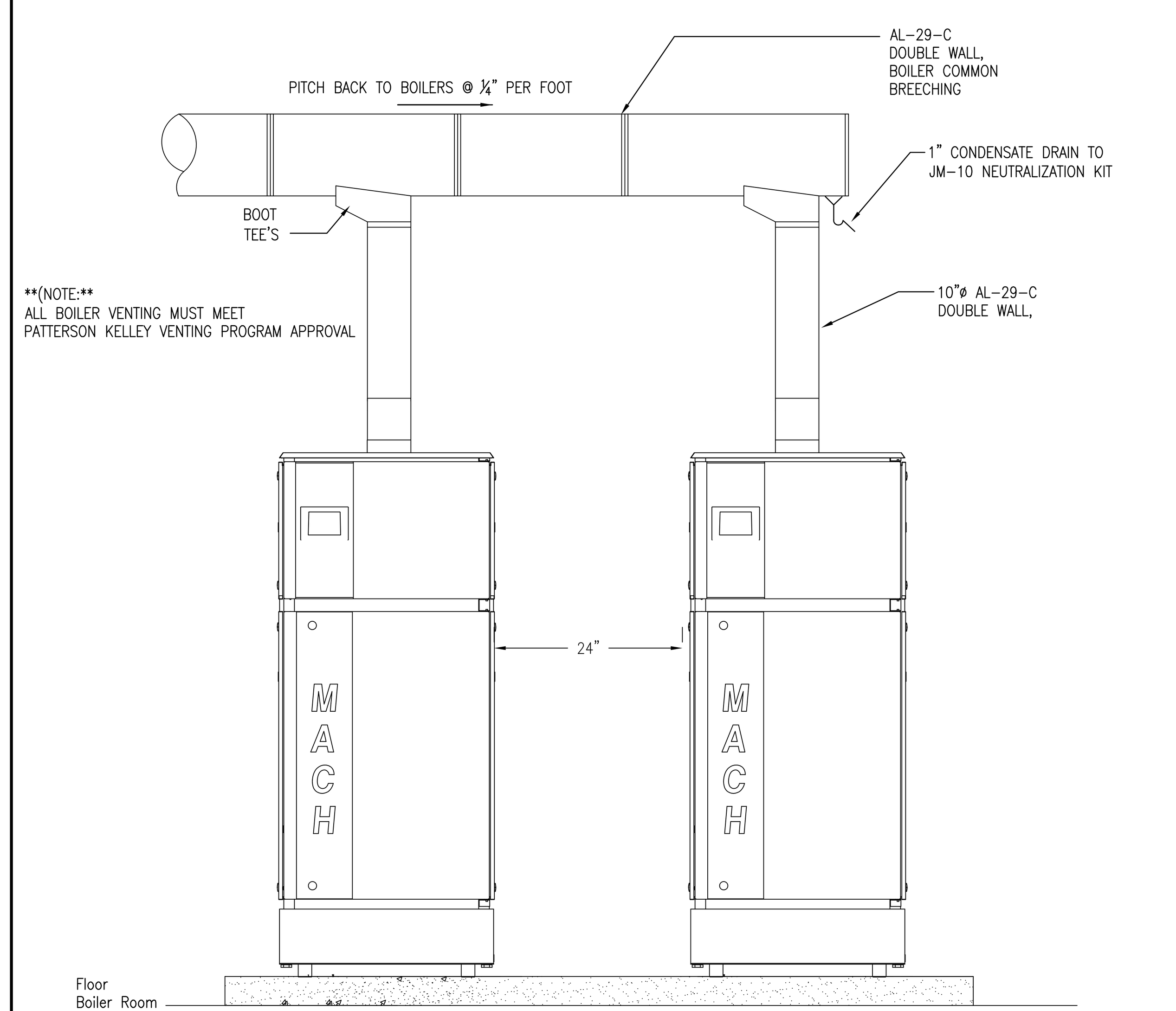
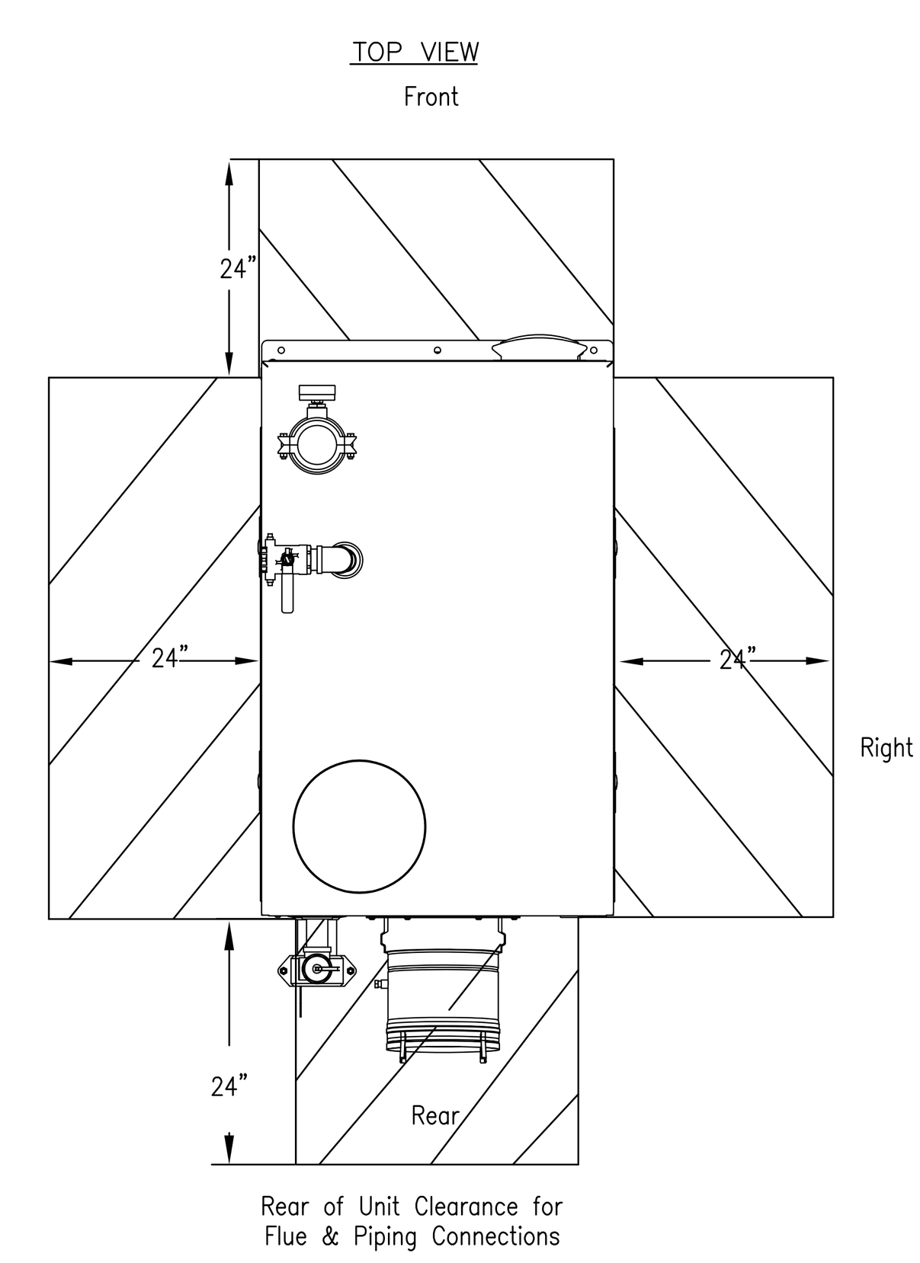


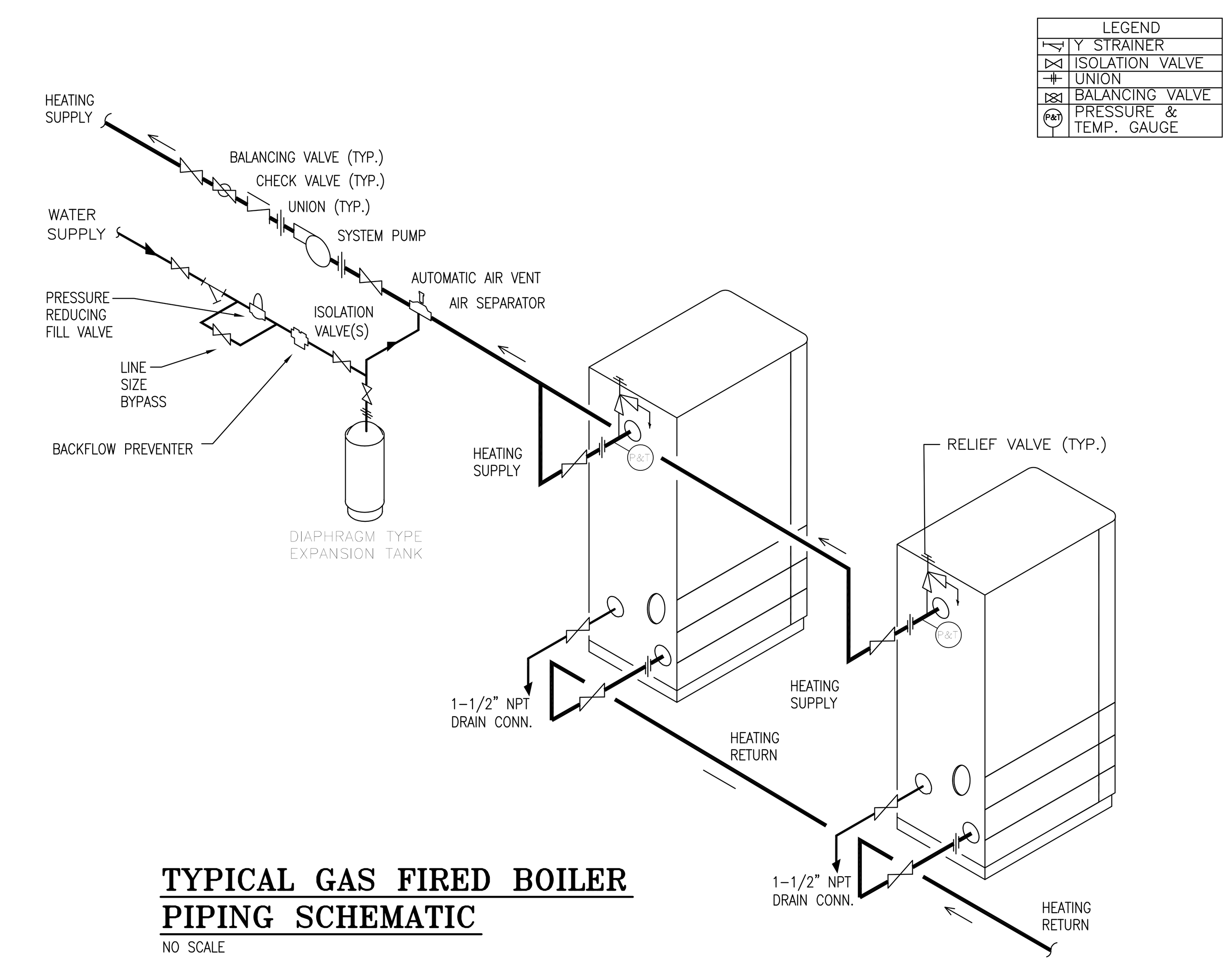
TYPICAL COMBINED FLUE VENTING DETAIL

NO SCALE



COMMON SERVICE SPACE REQUIRED FOR BOILER INSTALLATION

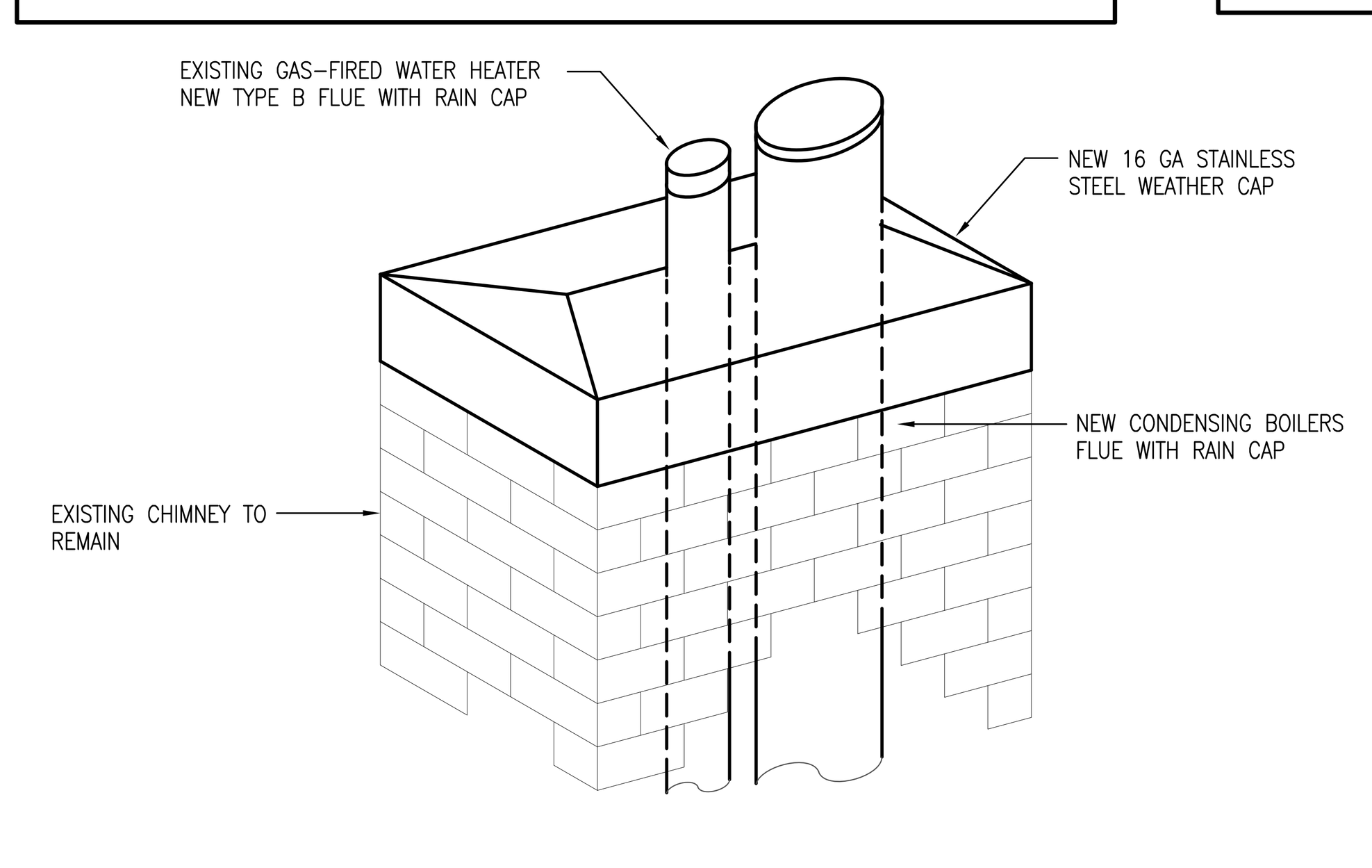
NO SCALE



TYPICAL GAS FIRED BOILER PIPING SCHEMATIC

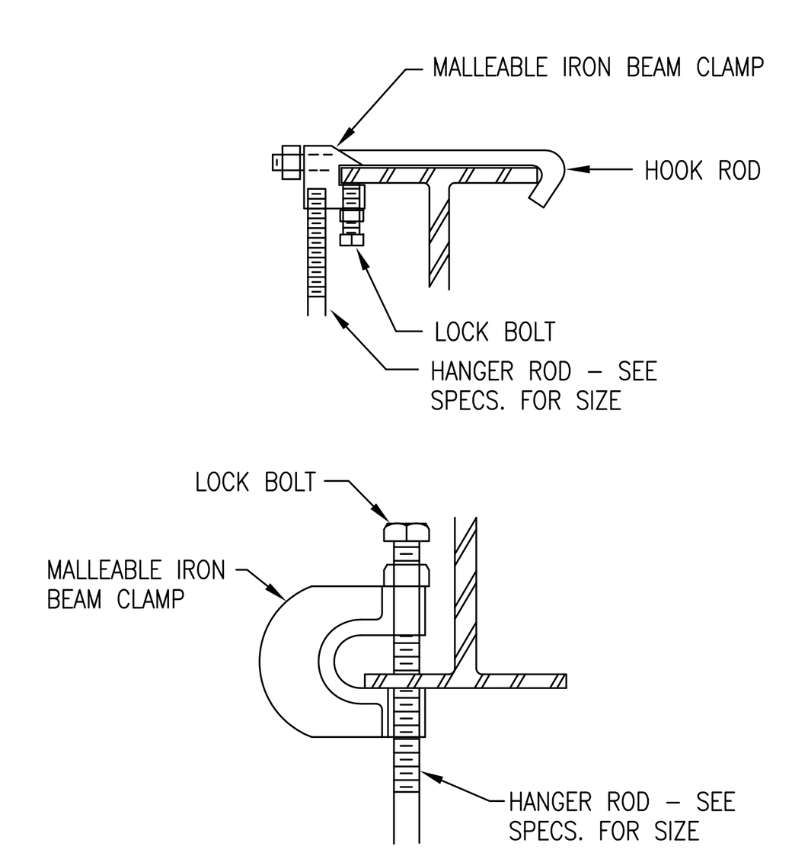
NO SCALE

NOTES:
1) LOCATE WATER INLET AND OUTLET FITTINGS (i.e. UNIONS, ELBOWS, ETC.) A MINIMUM OF 6" FROM BOILER FITTINGS TO PREVENT INTERFERENCE WITH REMOVAL OF BOILER PANELS AND COVERS. ALL PIPING AND ELECTRIC CONNECTIONS (SERVICE SWITCHES, CONDUIT BOXES) SHOULD LIKEWISE BE 6" AWAY FROM SIDE PANELS.



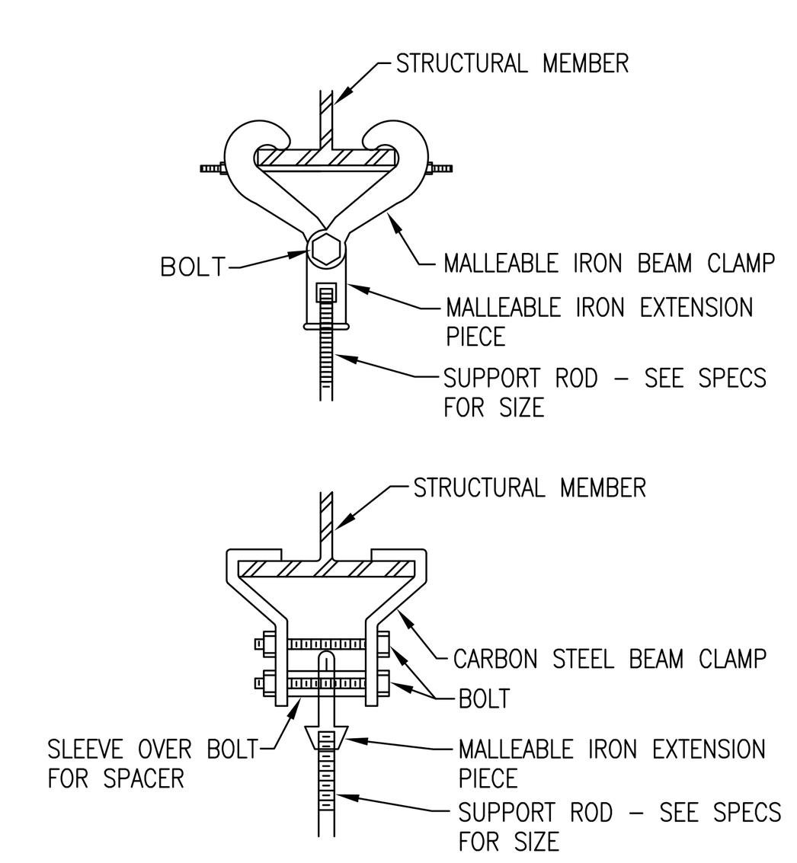
CHIMNEY MODIFICATION DETAIL

NO SCALE



TYP. SIDE BEAM CLAMPS FOR EQUIPMENT OR PIPE SUPPORT

NO SCALE



TYP. BEAM CLAMPS FOR PIPE OR EQUIPMENT SUPPORT

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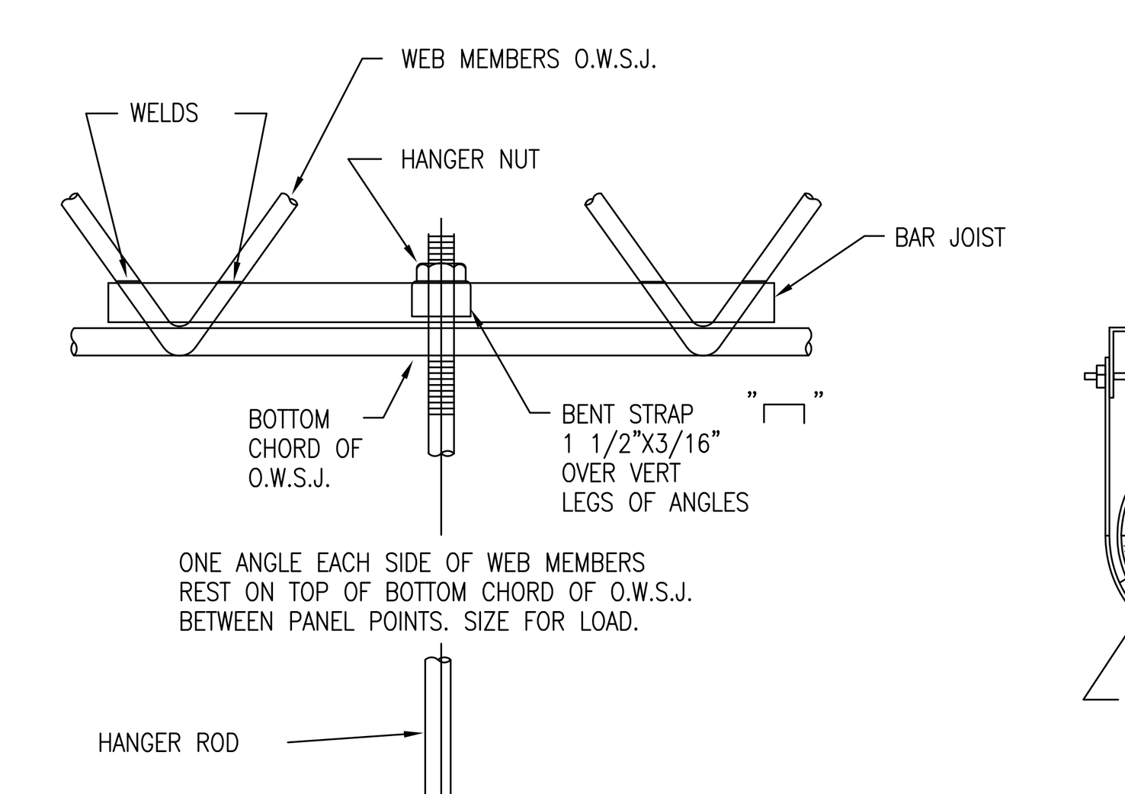
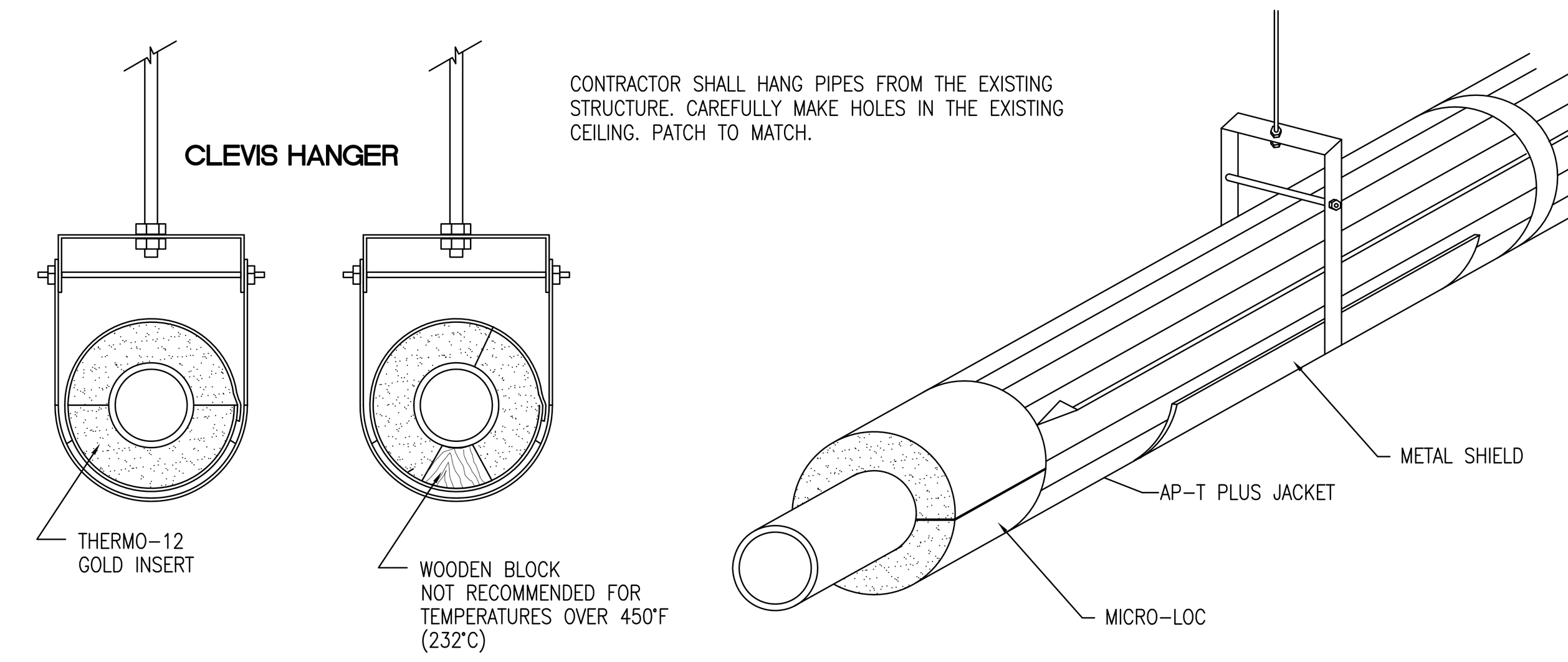


TYP. STEEL BAR JOIST PIPE SUPPORT

NO SCALE



TYPICAL HOT WATER PIPING INSULATION

NO SCALE

GLASTONBURY TOWN HALL

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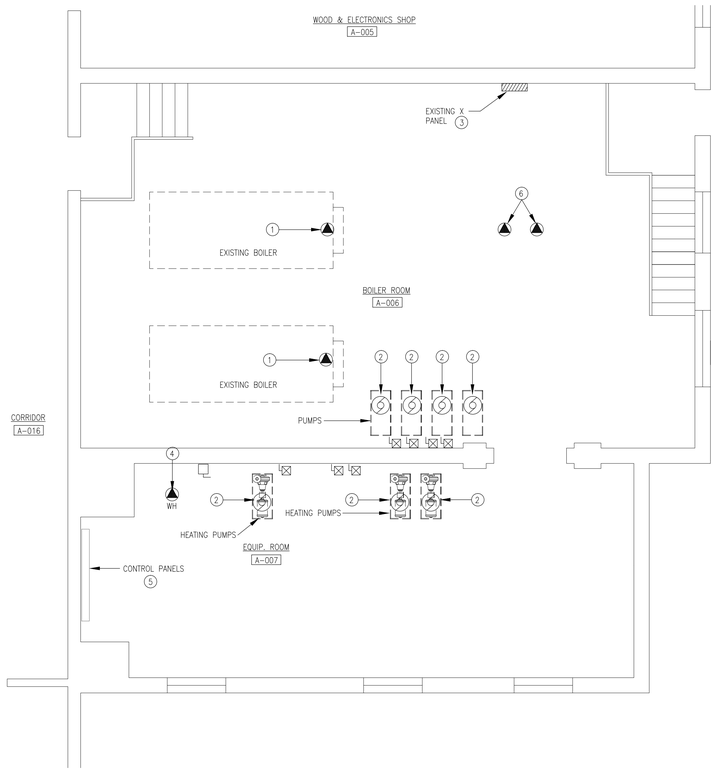
TITLE
MECHANICAL DETAILS

DATE 1/31/2017

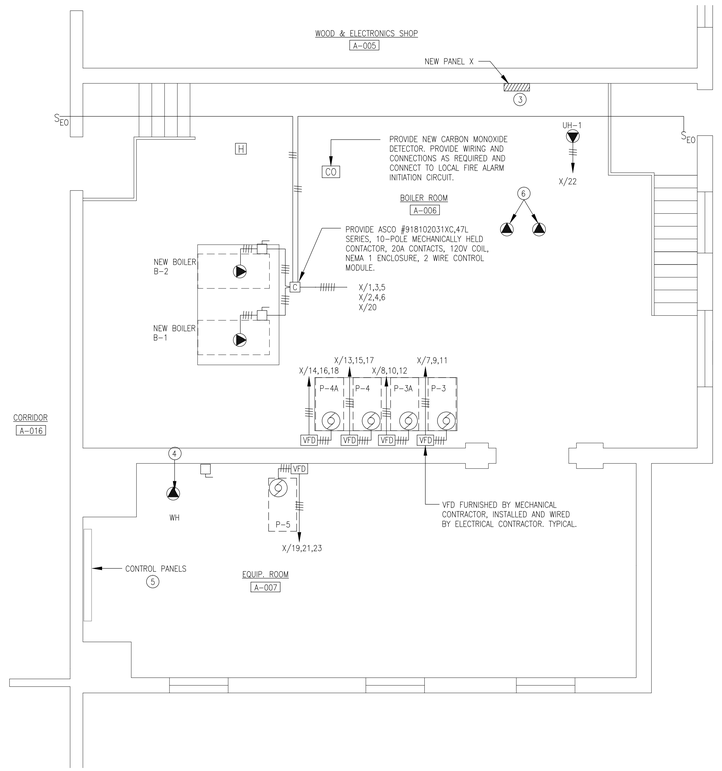
DWG. NO.
M1.3



BOILER ROOM PART PLAN – ELECTRICAL DEMOLITION

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

NORTH



BOILER ROOM PART PLAN – ELECTRICAL NEW WORK

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

NORTH

NEW PANEL X: G.E., SURFACE, 208Y/120V, 3-PHASE, 4 WIRE.

CKT	TRIP	POLE	REMARKS	CKT	TRIP	POLE	REMARKS
1	20	3	B-1	2	20	3	B-1
3	–	–	–	4	–	–	–
5	–	–	–	6	–	–	–
7	50	3	P-3	8	50	3	P-3A
9	–	–	–	10	–	–	–
11	–	–	–	12	–	–	–
13	20	3	P-4	14	20	3	P-4A
15	–	–	–	16	–	–	–
17	–	–	–	18	–	–	–
19	20	3	P-5	20	20	1	CONTACTOR
21	–	–	–	22	20	1	UH-1
23	–	–	–	24	–	–	EXISTING CIRCUIT
25	–	–	EXISTING CIRCUIT	26	–	–	EXISTING CIRCUIT
27	–	–	EXISTING CIRCUIT	28	–	–	EXISTING CIRCUIT
29	–	–	EXISTING CIRCUIT	30	–	–	EXISTING CIRCUIT
31	–	–	EXISTING CIRCUIT	32	–	–	EXISTING CIRCUIT
33	–	–	EXISTING CIRCUIT	34	–	–	EXISTING CIRCUIT
35	–	–	EXISTING CIRCUIT	36	–	–	EXISTING CIRCUIT
37	–	–	EXISTING CIRCUIT	38	–	–	EXISTING CIRCUIT
39	–	–	EXISTING CIRCUIT	40	–	–	EXISTING CIRCUIT
41	–	–	EXISTING CIRCUIT	42	–	–	EXISTING CIRCUIT

– ELECTRICAL DEMOLITION WORK SYMBOLS –

TAG	ACTION
1	EXISTING HEATING BOILER TO BE REMOVED. DISCONNECT & REMOVE EXISTING BRANCH CIRCUIT WIRING AND CONDUIT BACK TO SOURCE. DISCONNECT AND REMOVE ALL ASSOCIATED WIRING.
2	EXISTING PUMP TO BE REMOVED. DISCONNECT & REMOVE EXISTING BRANCH CIRCUIT WIRING AND CONDUIT BACK TO SOURCE. DISCONNECT AND REMOVE EXISTING STARTER/DISCONNECT SWITCH.
3	DISCONNECT AND REMOVE EXISTING PANELBOARD. RETAIN EXISTING FEEDER AND PREP FOR RECONNECTION TO NEW PANELBOARD. RETAIN EXISTING BRANCH CIRCUITS NOT BEING DEMOLISHED AND PREP FOR RECONNECTION TO NEW PANELBOARD. RECONNECT EXISTING CIRCUITS TO NEW PANELBOARD.
4	EXISTING WATER HEATER TO REMAIN.
5	EXISTING CONTROL PANELS TO REMAIN.
6	RECIRCULATING PUMPS TO REMAIN.

ELECTRICAL DEMOLITION WORK NOTES

1 – PRIOR TO SUBMITTING BID, VISIT THE SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK TO BE PERFORMED. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVERS. INCLUDE IN THE BID ALL DEMOLITION WORK REQUIRED.

2 – THE DEMOLITION DRAWINGS ARE INTENDED ONLY TO DEFINE THE GENERAL SCOPE OF DEMOLITION WORK AND TO ASSIST THE CONTRACTOR DURING BIDDING. THE DEMOLITION DRAWINGS MAY NOT SHOW EVERY ITEM WHICH MUST BE DISCONNECTED, REMOVED, OR RELOCATED IN ORDER TO FACILITATE NEW WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEMOLITION WORK REQUIRED WHETHER OR NOT SHOWN ON THE PLANS.

3 – REMOVE AND/OR RELOCATE ALL EXISTING ELECTRICAL WORK AS NECESSARY FOR THE PERFORMANCE OF THE WORK OF THIS CONTRACT.

4 – EXISTING ELECTRICAL EQUIPMENT, WIRING, AND RACEWAYS SHALL NOT BE REUSED UNLESS SPECIFICALLY NOTED OTHERWISE.

5 – REMOVE ALL DEMOLITION MATERIAL FROM THE JOB SITE UNLESS NOTED DIFFERENTLY. MATERIAL REQUESTED BY THE OWNER FOR SALVAGE SHALL BE DELIVERED TO THE OWNER'S DESIGNATED MATERIAL STORAGE AREA.

6 – PROVIDE WIRING AS REQUIRED AND RECONNECT EXISTING FIXTURES, DEVICES, OR EQUIPMENT THAT ARE TO REMAIN ACTIVE, BUT HAVE BEEN DISCONNECTED DURING DEMOLITION OF OTHER FIXTURES, DEVICES, OR EQUIPMENT.

GENERAL SPECIFICATION NOTES – POWER

1 – THE CONTRACTOR SHALL VERIFY AND OBTAIN ALL NECESSARY DIMENSIONS AT THE BUILDING.
2 – FINISHED WORK: THE INTENT OF THE SPECIFICATIONS AND DRAWINGS IS TO CALL FOR FINISHED WORK, COMPLETED, TESTED AND READY FOR OPERATION.
3 – GOOD PRACTICE: IT IS NOT INTENDED THAT THE DRAWINGS SHOW EVERY CONDUIT, JUNCTION BOX, FITTING OR MINOR DETAIL AND IT IS UNDERSTOOD THAT WHILE THE DRAWINGS MUST BE FOLLOWED AS CLOSELY AS CIRCUMSTANCES WILL PERMIT, THE SYSTEMS SHALL BE INSTALLED ACCORDING TO THE INTENT AND MEANING OF THE CONTRACT DOCUMENTS AND IN ACCORDANCE WITH GOOD PRACTICE.
4 – ANY APPARATUS, APPLIANCE, MATERIAL OR WORK NOT SHOWN ON DRAWINGS BUT MENTIONED IN SPECIFICATIONS OR VICE VERSA, OR ANY INCIDENTAL ACCESSORIES NECESSARY TO MAKE THE WORK COMPLETE AND PERFECT IN ALL RESPECTS AND READY FOR OPERATION, EVEN IF NOT PARTICULARLY SPECIFIED, SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR AT NO ADDITIONAL COST TO OWNER.
5 – CODES AND STANDARDS – COMPLY WITH ALL FEDERAL, STATE AND LOCAL CODES AND STANDARDS WHEREVER APPLICABLE INCLUDING THE FOLLOWING: 2009 AMENDMENT TO THE 2005 CONNECTICUT STATE BUILDING CODE SUPPLEMENT, 2003 INTERNATIONAL BUILDING CODE, 2005 CONNECTICUT FIRE SAFETY CODE, 2003 INTERNATIONAL FIRE CODE, 2011 NATIONAL ELECTRICAL CODE, ICC/ANSI A117.1–2003 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES, ADA, NFPA, UNDERWRITERS LABORATORIES, FACTORY MUTUAL INSURANCE COMPANY, NEMA STANDARDS.
6 – NOTE THAT THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF THE ELECTRICAL EQUIPMENT AND SYSTEMS, WITHOUT SHOWING EVERY DETAIL AND FITTING.
7 – RACEWAYS: PROVIDE EMT CONDUIT FOR ALL WIRING. EMT CONNECTORS AND COUPLINGS SHALL BE GALVANIZED STEEL SET–SCREW TYPE. PROVIDE GLAND COMPRESSION CONNECTORS AND COUPLINGS WHERE LOCATED IN DAMP AND WET LOCATIONS. PROVIDE FLEXIBLE STEEL CONDUIT FOR FINAL CONNECTIONS TO MOTOR DRIVEN EQUIPMENT. PROVIDE LIQUIDTIGHT FLEXIBLE STEEL CONDUIT WHERE LOCATED IN DAMP OR WET AREAS.
8 – BRANCH CIRCUIT CONDUCTORS SHALL BE COPPER, RATED 600 VOLTS, 90 DEG.C., COLOR CODED, TYPE THWN–2.
9 – WIRE SIZE #8 AWG AND LARGER SHALL BE STRANDED. WIRE OF SIZE SMALLER THAN #8 AWG SHALL BE SOLID.
10 – MINIMUM SIZE CONDUCTORS FOR POWER AND LIGHTING SHALL BE #12 AWG. PROVIDE MINIMUM #10 AWG SIZE FOR RUNS EXCEEDING 75' IN CONDUCTOR LENGTH, AND #8 AWG SIZE FOR RUNS EXCEEDING 150' IN CONDUCTOR LENGTH. PROVIDE LARGER SIZE CONDUCTORS AS SCHEDULED OR AS NOTED ON THE DRAWINGS.
11 – THE NUMBER OF WIRES IN A CONDUIT RUN IS INDICATED ON THE DRAWINGS BY CROSS LINES ON THE CONDUIT RUNS. PROVIDE CODE–SIZED CONDUIT FOR THE NUMBER AND SIZE OF WIRES UNLESS A LARGER SIZE IS SHOWN ON THE DRAWINGS. MINIMUM CONDUIT SIZE SHALL BE 3/4".
12 – RACEWAYS SHALL BE CONCEALED WHEREVER POSSIBLE IN ALL FINISHED AREAS.
13 – RACEWAYS SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES TO WALL LINES.
14 – RACEWAYS SHALL BE SUPPORTED FROM THE STRUCTURE BY STRAP HANGERS, ROD HANGERS, OR RACK MOUNTED, OR OTHER APPROVED ELECTRICAL MOUNTING.
15 – PROVIDE FIRE STOPPING AT ALL FIRE AND/OR SMOKE RATED WALL OR CEILING PENETRATIONS IN ORDER TO MAINTAIN ITS ORIGINAL INTEGRITY.
16 – OUTLET BOXES SHALL BE CODE GAUGE GALVANIZED STEEL AND SHALL BE OF SHAPES AND SIZES TO SUIT THEIR RESPECTIVE LOCATIONS AND INSTALLATIONS, AND SHALL BE PROVIDED WITH COVERS TO SUIT THEIR FUNCTION AND INSTALLATION. MINIMUM BOX SIZE SHALL BE 4" SQ. X 2 1/8" DEEP (2–GANG).
17 – OUTLET BOXES SHALL BE EQUIPPED WITH FIXTURE STUD OR STRAPS WHERE REQUIRED.
18 – INSTALL BOXES IN ACCESSIBLE LOCATIONS AND AT UNIFORM HEIGHTS.
19 – SET BOXES AND COVERS SQUARE AND TRUE WITH BUILDING FINISH.
20 – BRANCH CIRCUIT WIRING AND ARRANGEMENT OF HOME RUNS HAS BEEN DESIGNED FOR MAXIMUM ECONOMY CONSISTENT WITH ADEQUATE SIZING FOR VOLTAGE DROPS, CIRCUIT AMPACITIES, AND OTHER CONSIDERATIONS. INSTALL THE WIRING WITH CIRCUITS ARRANGED AS SHOWN ON THE DRAWINGS, EXCEPT AS APPROVED IN ADVANCE BY THE ARCHITECT AND ENGINEER. DO NOT MAKE CHANGES WITHOUT PRIOR APPROVAL.
21 – PROVIDE A SEPARATE NEUTRAL CONDUCTOR FOR EACH 120V SINGLE PHASE CIRCUIT. DO NOT USE A COMMON NEUTRAL FOR GROUPS OF CIRCUITS. PROVIDE A SEPARATE GROUND WIRE FOR EACH CIRCUIT BACK TO THE RESPECTIVE PANEL GROUND. IF MORE THAN 3 CURRENT CARRYING CONDUCTORS ARE INSTALLED IN ONE CONDUIT THEY SHALL BE DE–RATED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE. DO NOT INSTALL MORE THAN THREE 30 AMP SINGLE PHASE OR FOUR 20 AMP SINGLE PHASE CIRCUITS IN THE SAME CONDUIT.

LEGEND

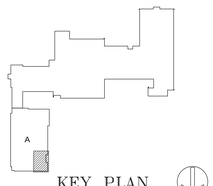
SYMBOL/ABBREVIATION	DESCRIPTION
▲	EQUIPMENT POWER CONNECTION. EQUIPMENT AS DESIGNATED.
⊘	MOTOR POWER CONNECTION. EQUIPMENT AS DESIGNATED.
⊠	MOTOR STARTER.
⊓	DISCONNECT SWITCH.
///	CONDUCTORS IN CONDUIT. CROSS LINES INDICATE NUMBER OF CONDUCTORS.
///→	BRANCH CIRCUIT HOMERUN IN EMT CONDUIT. CROSS LINES INDICATE NUMBER OF CONDUCTORS.
SEO	EMERGENCY SHUT OFF SWITCH, 60" AFF.
▨	PANELBOARD
H	HEAT DETECTOR.
CO	CARBON MONOXIDE DETECTOR.
VFD	VARIABLE FREQUENCY DRIVE.
C	CONTACTOR ASCO #918420031XC,47L.
A	AMPS.
AFF	ABOVE FINISHED FLOOR.
C	CONDUIT.
C/B	CIRCUIT BREAKER.
GND.	GROUND.
P	POLE.
W	WIRE.

SCHEDULE OF BRANCH CIRCUIT CONDUCTOR SIZES

C/B SIZE	* CIRCUIT SIZE
20A–1P	** 2 X #12 AWG AND 1 X #12 AWG GND. IN 3/4" C.
20A–2P	2 X #12 AWG AND 1 X #12 AWG GND. IN 3/4" C.
20A–3P	3 X #12 AWG AND 1 X #12 AWG GND. IN 3/4" C.
25A–1P	2 X #10 AWG AND 1 X #10 AWG GND. IN 3/4" C.
25A–2P	2 X #10 AWG AND 1 X #10 AWG GND. IN 3/4" C.
25A–3P	3 X #10 AWG AND 1 X #10 AWG GND. IN 3/4" C.
30A–1P	2 X #10 AWG AND 1 X #10 AWG GND. IN 3/4" C.
30A–2P	2 X #10 AWG AND 1 X #10 AWG GND. IN 3/4" C.
30A–3P	3 X #10 AWG AND 1 X #10 AWG GND. IN 3/4" C.
35A–1P	2 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
35A–2P	2 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
35A–3P	3 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
40A–1P	2 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
40A–2P	2 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
40A–3P	3 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
45A–1P	2 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
45A–2P	2 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
45A–3P	3 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
50A–1P	2 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
50A–2P	2 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.
50A–3P	3 X #8 AWG AND 1 X #10 AWG GND. IN 3/4" C.

* PROVIDE CIRCUIT SIZE AND NUMBER OF CONDUCTORS SCHEDULED UNLESS NOTED OR SHOWN DIFFERENTLY ON THE DRAWINGS. CROSS REFERENCE CIRCUIT DESIGNATIONS SHOWN ON DRAWINGS WITH RESPECTIVE PANEL SCHEDULES TO OBTAIN C/B SIZE.

** PROVIDE #10 AWG SIZE CONDUCTORS FOR BRANCH CIRCUIT RUNS EXCEEDING 75' IN CONDUCTOR LENGTH AND #8 AWG SIZE CONDUCTORS FOR BRANCH CIRCUIT RUNS EXCEEDING 150' IN CONDUCTOR LENGTH.



KEY PLAN
NOT TO SCALE

REVISIONS

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TITLE
BOILER ROOM PART PLAN ELECTRICAL DEMOLITION, NEW WORK AND SCHEDULES

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