

JOHN BARRY ELEMENTARY SCHOOL



BOILER REPLACEMENT

124 COLUMBIA STREET MERIDEN, CONNECTICUT 06451

M/E/P ENGINEER
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LIST OF DRAWINGS

COVE

- M1 1 BOILER ROOM MECHANICAL DEMOLITION PART PLAN
- M1 2 BOILER ROOM MECHANICAL NEW WORK PART PLA
- M1.3 MECHANICAL DETAIL
- 11.4 SCHEMATIC PIPING DIAGRAM, TEMPERATURE CONTROL DIAGRAM and
- E1.1 BOILER ROOM ELECTRICAL DEMOLITION and NEW WORK PART PLANS

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.

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.

GENERAL MECHANICAL 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 COORDINATE AND SCHEDULE ALL WORK WITH THE OWNER TO MINIMIZE INCONVENIENCE TO THE BUILDING OCCUPANTS. ALL SERVICES AND SYSTEMS SERVING OCCUPIED AREAS OF THE BUILDING SHALL BE MAINTAINED IN OPERATION DURING WORKING SHIFTS.
- 4 CONTRACTOR IS RESPONSIBLE FOR ANY TEMPORARY WORK REQUIRED TO KEEP THE BUILDING OCCUPIED DURING CONSTRUCTION.
- 5 REMOVE AND/OR RELOCATE ALL EXISTING MECHANICAL WORK AS NECESSARY FOR THE PERFORMANCE OF THE WORK OF THIS CONTRACT.
- 6 REMOVE ALL DEMOLITION MATERIAL FROM THE JOB SITE UNLESS NOTED DIFFERENTLY.
- 7 CONTRACTOR SHALL FIELD VERIFY LOCATION AND SIZE OF ALL EXISTING PIPING IN THE BOILER ROOM PRIOR TO ANY DEMOLITION
- 8 CONTRACTOR SHALL REMOVE AND REPLACE EXISTING BOILERS
- 9 CONTRACTOR SHALL MEASURE AND RECORD EXISTING HW FLOWS PRIIOR TO ANY DEMOLITION.
 WHEN STARTING THE NEW BOILER, CONTRACTOR SHALL RESTORE THE HW FLOWS TO THE RECORDED VALUES
- 10 CONTRACTOR SHALL REMOVE AND REPLACE ALL EXISTING PIPE INSULATION IN THE BOILER ROOM.

 CONTRACTOR SHALL PROVIDE NEW PIPE INSULATION FOR ALL NEW AND EXISTING PIPES IN THE BOILER ROOM.
- 11 PROVIDE COLOR CODED PVC JACKET FOR ALL THE PIPES IN THE BOILER ROOM

	MECHANICAL DEMOLITION WORK OVADOLO
TAG	- MECHANICAL DEMOLITION WORK SYMBOLS - ACTION
1	EXISTING HEATING BOILER AND ASSOCIATED PIPES, VALVES & ACCESSORIES SHALL BE REMOVED. CAP REMAINING GAS, HOT WATER SUPPLY CW MAKE—UP & RETURN PIPING FOR FUTURE CONNECTION. EXISTING BOILER CONCRETE PAD SHALL REMAIN.
2	EXISTING CIRC. PUMP AND METAL STAND SHALL BE REMOVED. CAP REMAINING PIPE FOR FUTURE CONNECTION. EXISTING TRIPLE DUTY VALVE SHALL BE REUSED. REMOVE AND STORE EXISTING TRIPLE DUTY VALVE FOR FUTURE USE.
3	EXISTING BOILER CONTROLS AND ASSOCIATED ACCESSORIES SHALL BE REMOVED.
4	EXISTING COLD WATER MAKE-UP PIPE SHALL REMAIN
5	EXISTING AIR SEPARATOR AND EXPANSION TANK WITH ASSOCIATED PIPING SHALL BE REMOVED.
6	EXISTING BOILER BREECHING SHALL BE REMOVED. PATCH REMAINING CHIMNEY OPENING TO MATCH EXISTING. CONTRACTOR SHALL CLEAN THE INTERIOR OF THE EXISTING CHIMNEY. CONTRACTOR SHALL OPEN THE BOTTOM OF CHIMNEY TO ALLOW FOR INSTALLATION OF NEW FLUE. PROVIDE NEW ACCESS DOOR PATCH TO MATCH.
7	REMOVE AND REPLACE ALL PIPE INSULATION IN THE BOILER ROOM. PROVIDE NEW INSULATION FOR ALL NEW AND EXISTING PIPES IN THE BOILER ROOM. CONTRACTOR SHALL FIELD VERIFY PIPE SIZES AND LENGTH.
8	EXISTING MAKE-UP WATER WITH BACKFLOW PREVENTER AND PRESSURE REDUCING VALVE SHALL BE REPLACED. PROVIDE NEW REDUCED PRINCIPLE BACK FLOW PREVENTER AND PRESSURE REGULATING VALVE. INSTALL 5'-0" A.F.F.
9	EXISTING TRENCH COVERS SHALL BE REMOVED AND TRENCH SHALL BE FILLED WITH CONCRETE TO MATCH EXISTING FLOOR. PROVIDE NEW FLOOR DRAIN AND PIPE. CONNECT TO EXISTING SUMP PUMP. EXISTING OIL PIPES SHALL BE REMOVED.
10	EXISTING OIL TRANSFER PUMP, ASSOCIATED CONTROLS AND OIL PIPING SHALL BE REMOVED. CAP AND SEAL PIPES AT WALL PENETRATION. DISPOSE OF REMAINING OIL IN ACCORDANCE WITH LOCAL STATE AND FEDERAL REGULATIONS.
(11)	EXISTING FLOOR DRAIN SHALL REMAIN. PROVIDE NEW STRAINER.
12)	EXISTING SUMP PUMP SHALL REMAIN. PROVIDE NEW HIGH WATER ALARM TIED INTO THE BMS.
13)	EXISTING DOMESTIC WATER HEATER AND ASSOCIATED PIPING SHALL REMAIN
(14)	EXISTING BASE MOUNTED CIRCULATING PUMP AND TRIPLE DUTY VALVE SHALL BE REUSED. REMOVE AND STORE AT A SAFE LOCATION FOR FUTURE USE.
15)	EXISTING COMBUSTION AIR LOUVERS SHALL REMAIN. REMOVE EXISTING COMBUSTION AIR DUCT. PROVIDE INSULATED PANEL.
16)	EXISTING VARIABLE FREQUENCY DRIVES SHALL BE REUSED. REMOVE AND STORE AT SAFE LOCATION FOR FUTURE USE.
17)	EXISTING CHEMICAL FEEDER SHALL BE REMOVED.
18)	EXISTING UNDERGROUND FUEL OIL STORAGE TANK, ACCESSORIES AND CONCRETE PADS SHALL BE REMOVED. RESTORE SITE TO ORIGINAL CONDITION. RESEED LOAN AND REPAIR SIDEWALK. CONTRACTOR SHALL PROVIDE SOIL SAMPLE FROM LINDERSIDE OF THIS TANK FOR TESTING AT CERTIFIED LAB

CONTRACTOR SHALL PROVIDE SOIL SAMPLE FROM UNDERSIDE OF THIS TANK FOR TESTING AT CERTIFIED LAB.

DISPOSE OF REMAINING OIL IN ACCORDANCE WITH LOCAL STATE AND FEDERAL REGULATIONS.

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BOILER ROOM
MECHANICAL
DEMOLITION
PART PLAN

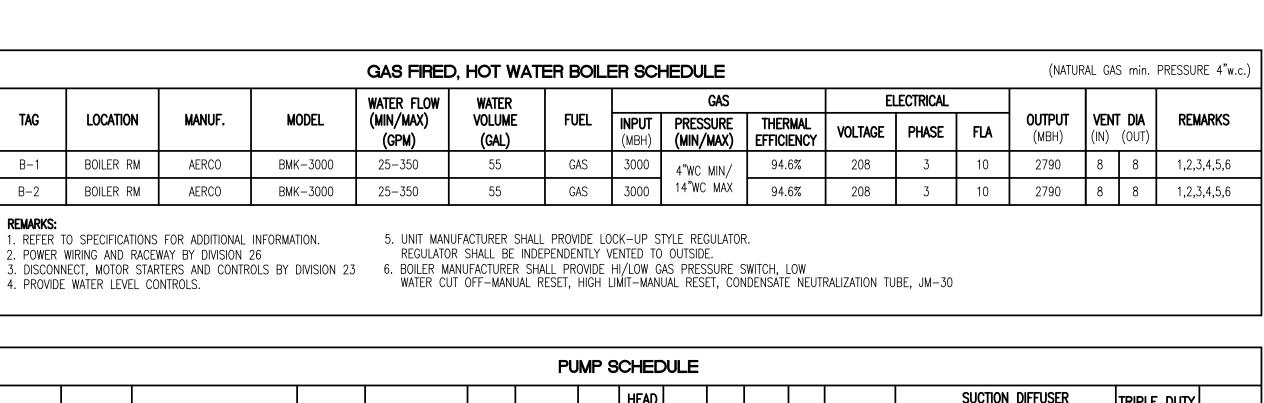
DATE 11/20/2020

DWG. NO.



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PUMP SCHEDULE																		
PUMP No.	LOCATION	AREA SERVED	A SERVED TYPE MANUFACTURER SERIES MODEL GPM HEAD RP	RPM	M HP VOLT	VOLTE	LTS PH	EFFICIENCY	SUCTION DIFFUSER			TRIPLE DUTY	REMARKS					
PUMP NO.	LOCATION	AREA SERVED	TYPE	MANUFACTURER	SERIES	MODEL	GPM	(FT)	KFM	ПР	VULIS	РΠ	EFFICIENCI	MODEL	SYS. SIDE	SUCT. SIDE	VALVE	KEMAKNS
P-1	BOILER RM	HEATING SYSTEM	BASE MTD.	BELL & GOSSETT	e-1510	3BD	280	55	1712	7.5	208	3	75.1%	EE-3	4	4	_	1,2,3,5,6,8
P-2	BOILER RM	HEATING SYSTEM (STAND-BY)	BASE MTD.	BELL & GOSSETT	e-1510	3BD	280	55	1712	7.5	208	3	75.1%	EE-3	4	4	-	1,2,4,7,8
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. 7. Existing relocated 8. Existing relocated triple duty valve																		

ENGINEERING SPECIFICA

Furnish and install as shown The unit shall have 5" Flang tangential to the vessel shell. the nominal inlet/outlet pipe diameter.

The unit shall have an internal stainless steel air collector tube with 5/32" diameter perforations and 63% open area designed to direct accumulated

The unit shall have a removable galvanized steel system strainer with 3/16" diameter perforations and a free area of not less than five times the cross—sectional area of the connecting pipe. A blow—down connection

pressure drop at rated flow.

The air separator(s) must be designed, constructed, and stamped for 125 psig @ 350oF 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)

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

The manufacturer shall be ITT Bell & Gossett; Model R-5F

The unit shall be 23.75" long, 37.00" high, 16.00" wide, and

Each tank shall be ITT Bell & Gossett Model No. D-260V.

ROLAIRTROL AIR SEPARA

air to the compression tank via an NPT connection at top of unit.

shall be provided to facilitate routine cleaning of the strainer.

Manufacturer to furnish data sheet specifying air collection efficiency and

shall be painted with one shop coat of light gray air dry enamel.

furnished for each air separator upon request.

weigh approximately 220 pounds.

ENGINEERING SPECIFICATION FOR ITT BELL & GOSSETT COMPRESSION/EXPANSION TANK (HOT WATER SIDE)

Furnish and install as shown 2 Pressurized Vertical Expansion Tank. Each shall be a 159.0 gallon, 56 acceptance, 30" dia. x 60 1/2" high pre-charged vertical steel expansion tank with integral heavy duty Butyl rubber diaphragm. The tank shall have a 1-1/4 in. NPTM system connection, and a .302"-32 charging valve connection (standard tire valve) to facilitate the on-site charging of the tank to meet system requirements. The tank must be constructed in accordance with Section VIII of the 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.

The unit shall weigh approximately 476 pounds; 100% full—1803 pounds.

BELL & GOSSETT		EXISTING	G VARIABI	LE FRE	QUENC	Y DRIVE	6CHEDULE	
IDE)		UNIT NO.	MOTOR HP	MANUF.	MODEL	LOCATION	REMARKS	
	P-1	1 (HOT WATER)	7.5	ABB	-	REMOTE	EXISTING RELOCATED	
etions mes	P-2	2 (HOT WATER)	7.5	ABB	-	REMOTE	EXISTING RELOCATED	

GENERAL NEW WORK NOTES:

- . DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL INTENT OF WORK, ALL CONTRACTORS MUST COORDINATE WITH OTHER TRADES 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. '. 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						
	G	NATURAL GAS						
——EG——	EG	EXISTING NATURAL GAS						
c	CND	CONDENSATE DRAIN						
		SHUTOFF VALVE						
		GAS SHUTOFF VALVE						
		RISER DOWN						
 0		RISER UP						
		RISE OR DROP						
		BRANCH-TOP CONNECTION						
0	FD	FLOOR DRAIN						
•	POC	POINT OF CONNECTION						



. NEW 4"FLOOR DRAIN JAY R

PROVIDE WITH 3/4" GRATE. PIPE

-|**╧** — HWR**— — →**— — ¬

<u>ET-2</u>

relocated)

NEUTRALIZATION — TANK. PIPE TO

1½" COND. DN TO —

NEUTRALIZATION TANK

DRAIN (BY THIS

CONTRACTOR.)

<u>INCINERATOR</u> —

A004

BOILER ROOM

A001

EXIST. 4"CHWS&R -

<u>CRAWL SPACE</u>

<u>STORAGE</u>

A003

EXIST. ELEC.

(TYP. OF 2)

NEW EQUIPMENT PAD

NEW 2"DRAIN PIPE TO NEW

FLOOR DRAIN. END OF PIPE

● EXTEND NEW 2"GAS LINE AND

DN TO EACH BOILER. (TYP.)

(TYP. for B-1&B-2)

OPEN BOTTOM OF CHIMNEY TO

INSTALLATION. PROVIDE ACCESS

PANEL AT BOTTOM OF CHIMNEY.

NEW 18" FLUE UP. PROVIDE

NEW CHIMNEY RAIN CAP AND

THE EXISTING CHIMNEY SHALL

BE CLEANED OUT AND NEW

SMOOTH BASE CREATED FOR

STORM COLLAR.

CHIMNEY SUPPORT.

<u>UNEXC.</u>

ALLOW FOR NEW LINER

CONNECT TO EXISTING MAIN GAS

PIPE. CONTRACTOR SHALL FIELD VERIFY LOCATION. PROVIDE 2" GAS

NOTE: FOR PIPING LAYOUT SEE HOT WATER PIPING DIAGRAM ON

- HORIZONTAL BREECHING DOUBLE WALL AL29-4C SS INNER and 430 SS OUTER

SHALL BE TAPERED.

- NEUTRALIZATION KIT.

PIPE TO DRAIN (TYP. OF 2)

1"GAS VENT

M1.4 dwg.

SMITH MODEL 2135-M-5

TO EXISTING SUMP PUMP

EQUIPMENT

BOILER ROOM

RECONNECT TO EXISTING PIPING IN THIS AREA.

(TYP.)

NEW CONTROL PANEL -

<u>PASSAGE</u>

A001

<u>AREAWAY</u>

(2) 8"ø (galvanized G90) _

INSULATED COMBUSTION AIR

INTAKE DUCTS

NEW LOUVER TO MATCH -

EXISTING WALL

OPENING

PROVIDE NEW INSULATED SHEET METAL -

COMBUSTION AIR PLENUM PITCHED TO

SHEET METAL DIVIDER INSIDE PLENUM.

NOTE: THE CONTRACTOR SHALL

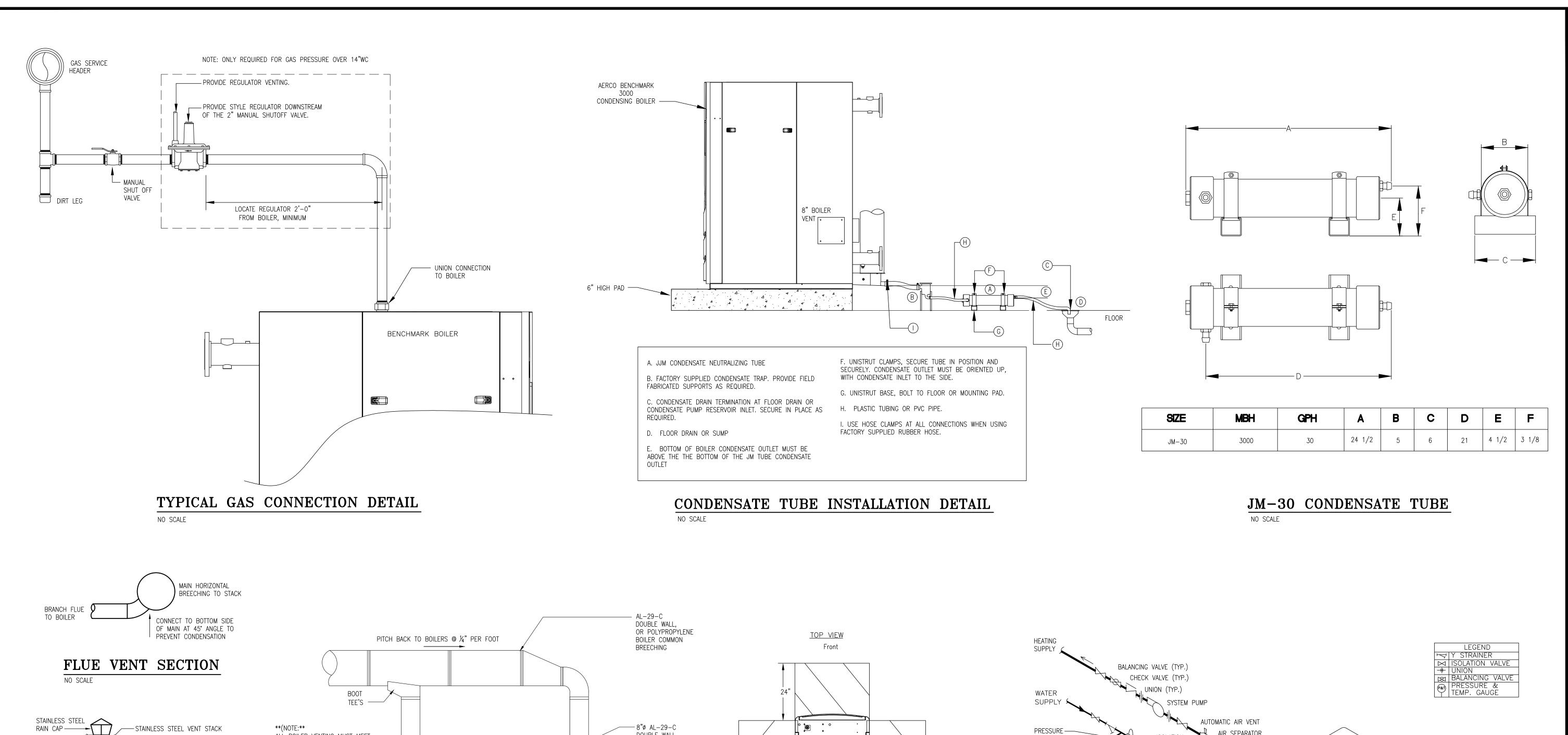
LOCATIONS AND SIZES.

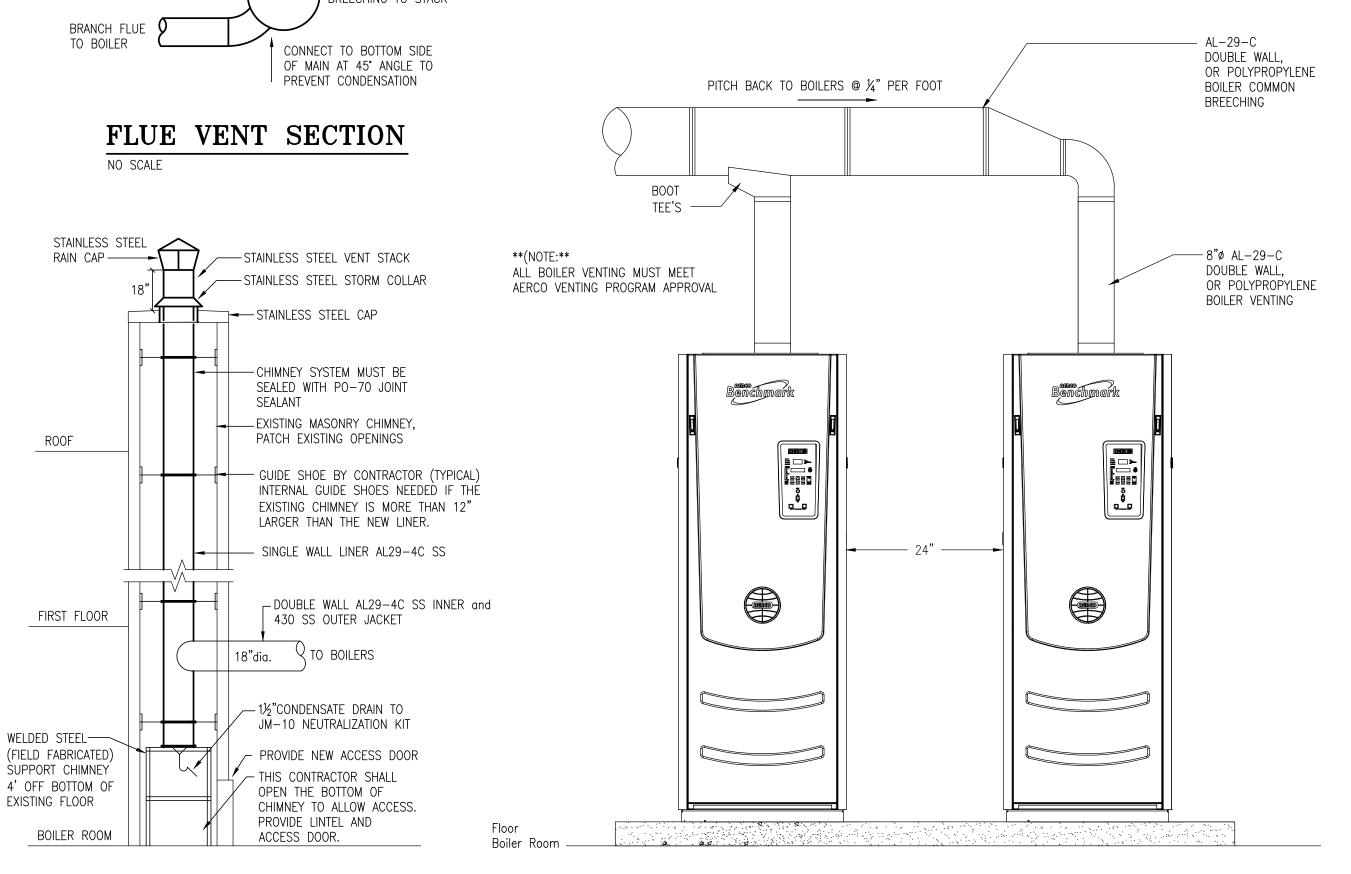
SEAL AT PENETRATION. (TYPICAL)

REGULATOR VENT. — ELBOW DOWN AND PROVIDE

INSECT SCREEN.

FIELD VERIFY ALL EXISTING PIPE

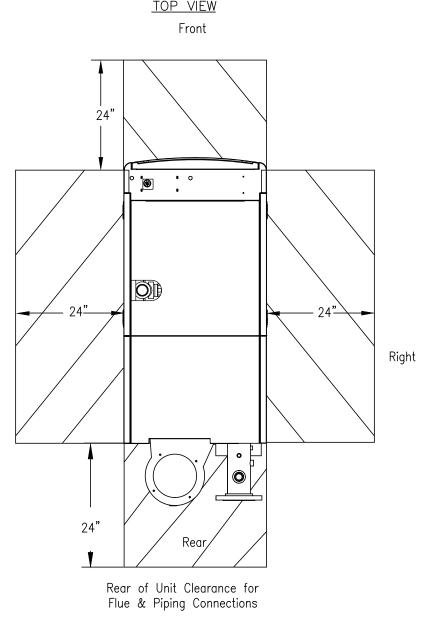




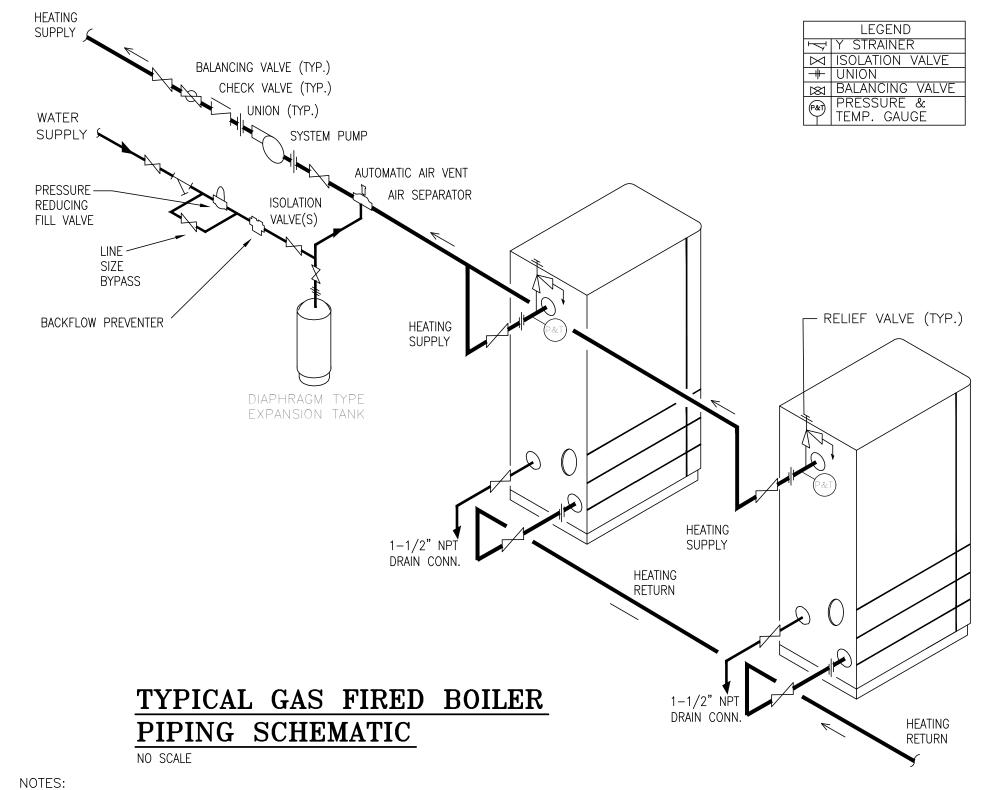
FLUE EXHAUST VENTING

NO SCALE





COMMON SERVICE SPACE
REQUIRED FOR BOILER
INSTALLATION
NO SCALE



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.

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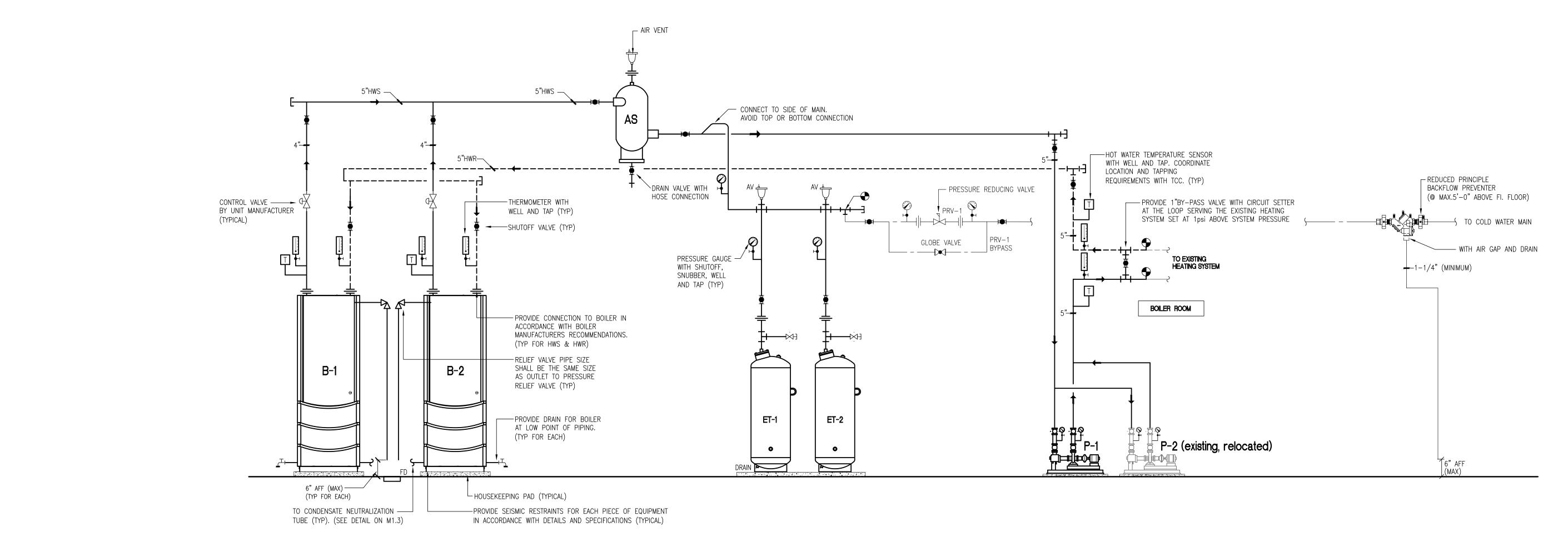
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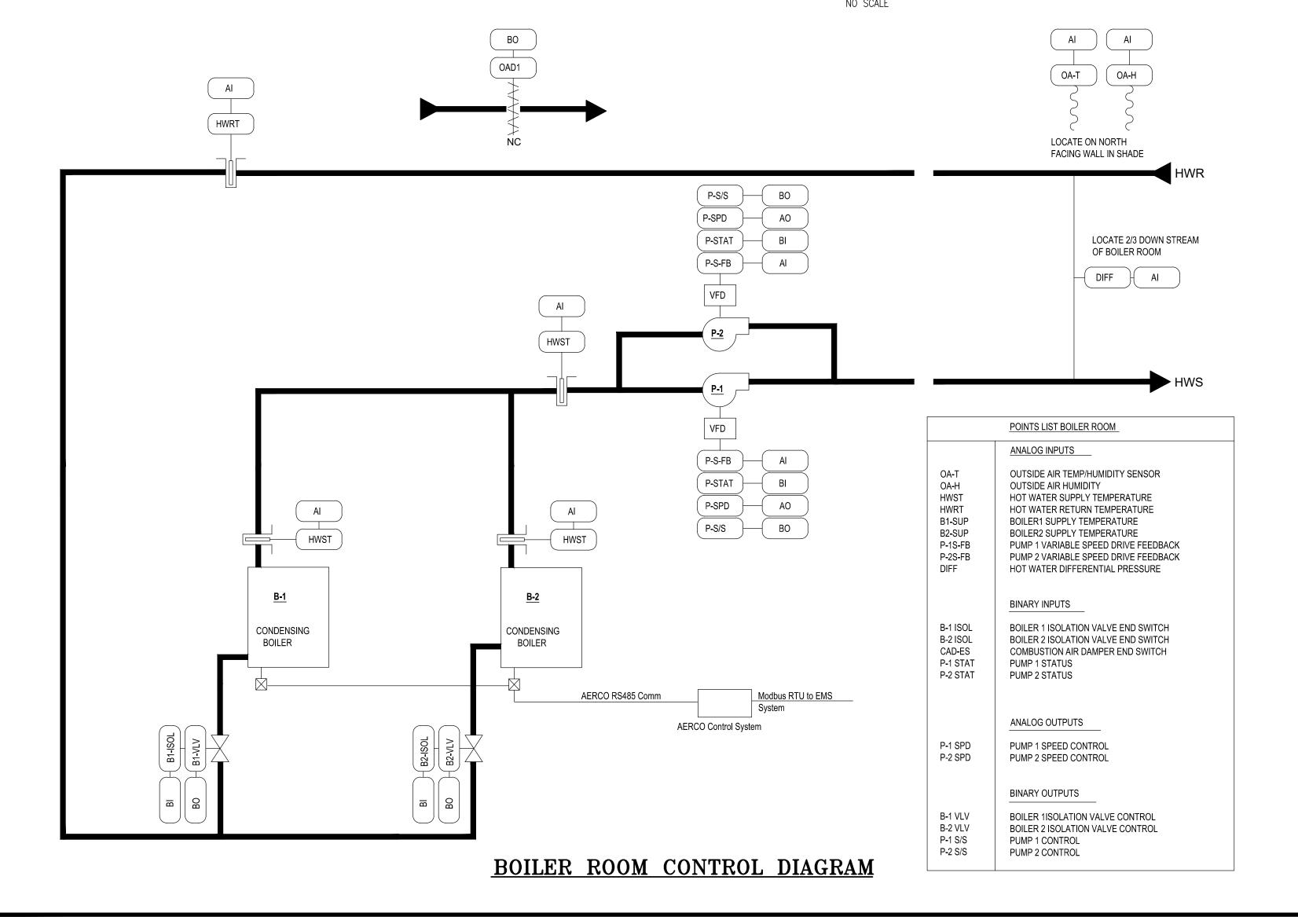
MECHANICAL DETAILS

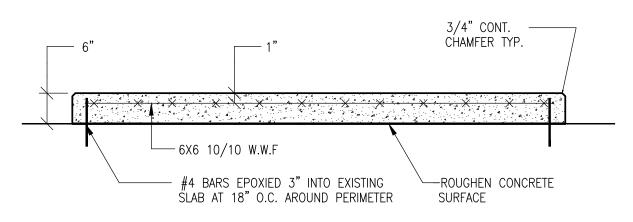
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M1.3

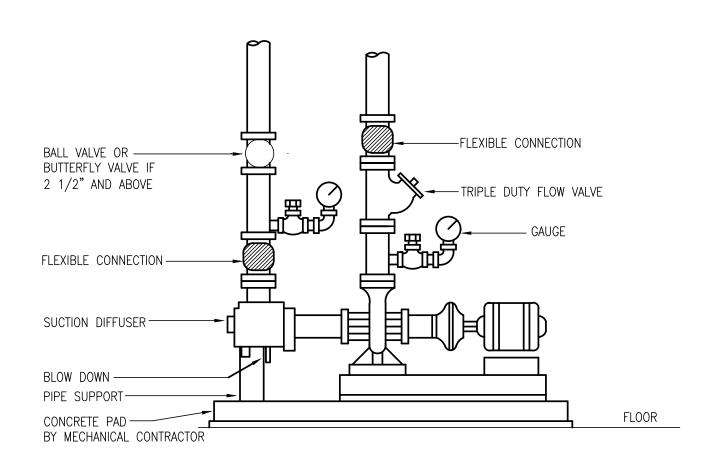


NEW BOILER ROOM HOT WATER PIPING DIAGRAM





TYPICAL EQUIPMENT PAD DETAIL



PIPING DETAIL FOR BASE MOUNTED PUMP

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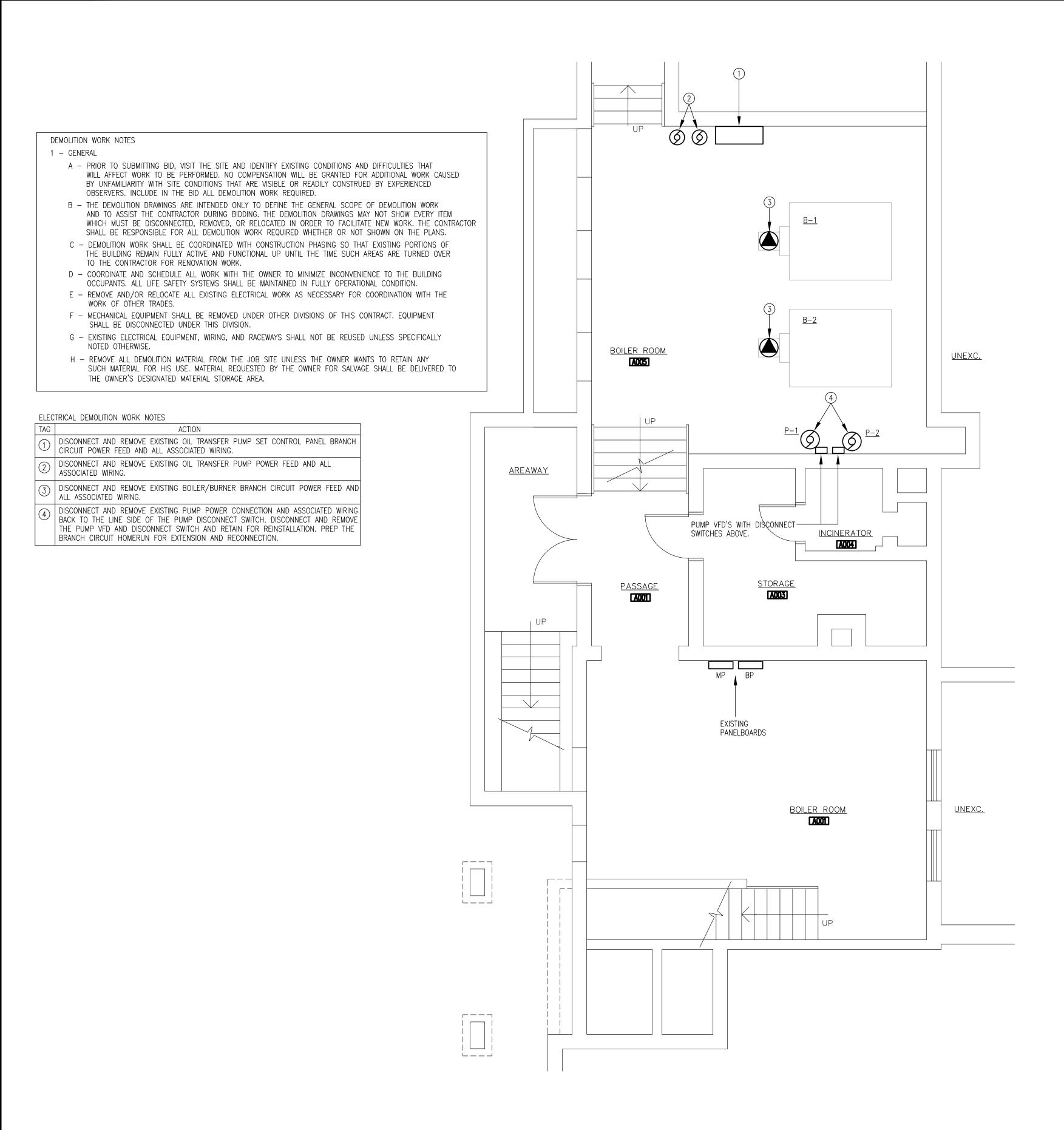
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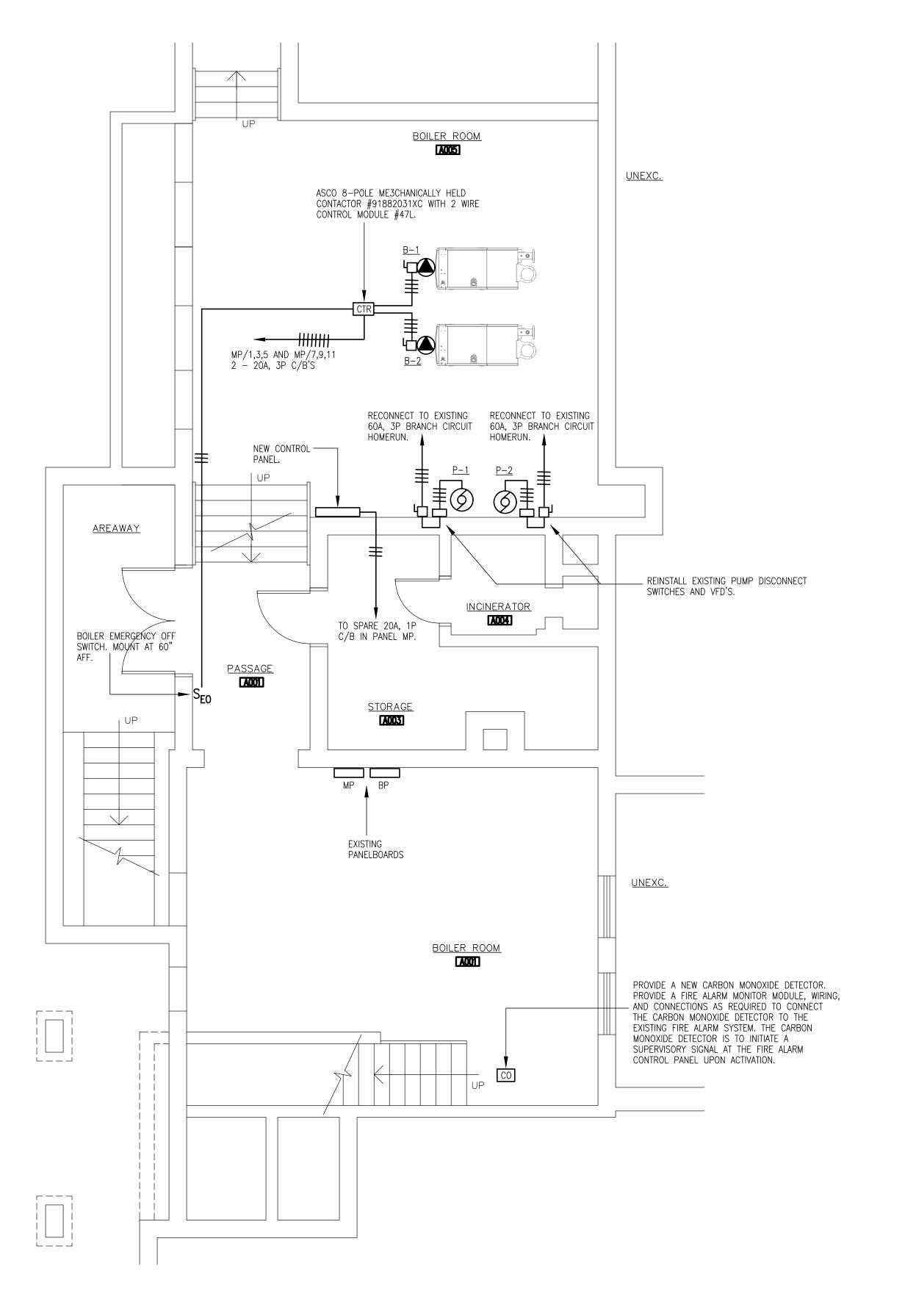
SCHEMATIC
PIPING DIAGRAM,
TEMPERATURE
CONTROL DIAGRAM
AND MECHANICAL
DETAILS

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BOILER RM. PART PLAN - ELECTRICAL DEMOLITION SCALE: 1/4'=1'-0'



BOILER RM. PART PLAN - ELECTRICAL NEW WORK SCALE: 1/4'=1'-0'

JOHN BARRY ELEMENTARY SCH BOILER REPLACEMENT 124 COLUMBIA STREET MERIDEN CT 06

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TITLE

BOILER ROOM
ELECTRICAL
DEMOLITION AND
NEW WORK PART
PLANS

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