

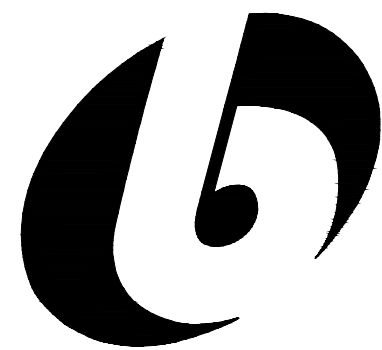
BURNHAM BOILER REPLACEMENT

McHENRY COUNTY COLLEGE

8900 US ROUTE 14

CRYSTAL LAKE, ILLINOIS 60014

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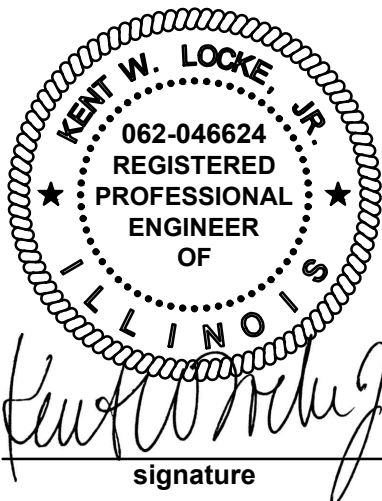
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GENERAL CONSTRUCTION NOTES

1. OSHA RULES, REGULATIONS AND REQUIREMENTS ARE A PART OF THIS CONTRACT. ALL CONTRACTORS SHALL FOLLOW THEM, ALONG WITH STATE AND LOCAL REQUIREMENTS, FOR THE SAFETY OF WORKERS ON THE JOB AND PASSERS-BY.

2. THE GENERAL CONSTRUCTION NOTES, GENERAL CONDITIONS AND SPECIFICATIONS FOR GENERAL ARE A PART OF THIS PROJECT.

3. PROVIDE ALL NECESSARY LIABILITY INSURANCE POLICIES AS REQUIRED TO KEEP THE OWNER AND ARCHITECT OF THE PROJECT HARMLESS FROM ANY CLAIM AGAINST THEM.

4. OBTAIN PERMITS TO ALL PRIVATE AND PUBLIC AUTHORITIES HAVING JURISDICTION OF THE PROJECT. OWNER TO PAY FEES.

5. ALL WORK IS TO BE DONE IN ACCORDANCE WITH VILLAGE OR CITY BUILDING CODE AND ALL OTHER CODE ENFORCEMENT IN THAT JURISDICTION. THE WORK SHALL BE ACCEPTED BY THE ARCHITECT AND LEFT IN PERFECT OPERATING CONDITION.

6. ALL CONTRATORS SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS PRIOR TO SUBMITTING HIS FINAL BID. IF ANY DISCREPANCY, NOTIFY THE ARCHITECT AT ONCE.

7. CONSULT AND CHECK AT ALL TIMES THE LATEST DRAWING OF OTHER TRADES DRAWING FOR DEVICES AND EQUIPMENT WHICH MAY AFFECT YOUR WORK.

8. PROVIDE COMPLETE HVAC, PLUMBING, ELECTRICAL AND OTHER SYSTEMS READY FOR USE.

9. WORK SHALL BE PERFORMED IN A NEAT, WORKMAN LIKE MANNER AND TO HIGH STANDARD OF THE COMMERCIAL INDUSTRY.

10. SUBMIT AND OBTAIN APPROVAL FROM OWNER/ARCHITECT PRIOR TO ORDERING, MANUFACTURING, PURCHASING OR INSTALLING ANY EQUIPMENT.

11. CONFER WITH THE OTHER TRADES IN COORDINATION OF THIS WORK FOR CLEARANCES, CHASES, RECESSES AND OPENINGS REQUIRED.

12. ALL EQUIPMENT SHALL BEAR THE 'UL/AGA' LABEL FOR THE SPECIFIC USE OF THE INSTALLATION.

13. ALL SYSTEMS SHALL BE GUARANTEED FOR ONE YEAR MINIMUM FROM THE DATE THE OWNER ACCEPTS THE BUILDING. MAKE ALL NECESSARY ADJUSTMENT, AIR BALANCES AND CORRECTIONS AS NEEDED FOR PROPER FUNCTION OF ALL SYSTEMS WITHOUT COST TO THE OWNER. AFTER COMPLETION OF THE PROJECT, SUBMIT THREE SETS OF 'AS BUILT' AND SHOP DRAWINGS OF ALL INSTALLED SYSTEMS AND EQUIPMENT PROPERTY BOUND AND HANDED TO ARCHITECT FOR OWNER'S FILE.

14. EACH CONTRACTOR SHALL HAVE DIRECT CONTROL AND MANAGEMENT OF ALL CONSTRUCTION OPERATIONS AND BE RESPONSIBLE FOR THE SATISFACTORY OVERALL PERFORMANCE OF ALL HIS SUPPLIERS AND SUBCONTRACTORS AS WELL AS ALL ASSIGNED CONTRACTORS IN ORDER THAT THE ENTIRE PROJECT BE COORDINATED AND SUPERVISED. GENERAL CONTRACTOR TO TURN OVER THE PROJECT IN COMPLETE OPERATING CONDITION IRRESPECTIVE OF WHETHER THE DRAWINGS AND REFERENCE SHEETS COVER EVERY INDIVIDUAL ITEM IN MINUTE DETAIL.

15. EACH CONTRACTOR SHALL VERIFY, AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS AT THE BUILDING SITE AND REPORT ANY DISCREPANCIES TO THE ARCHITECT IN WRITING PRIOR TO PROCEEDING WITH THE WORK. WRITTEN DIMENSIONS ON DRAWINGS SHALL HAVE PRECEDENCE OVER SCALED DIMENSIONS.

16. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR UNLOADING, STORING, INSPECTION FOR DAMAGE WHEN RECEIVED, AND LOSS FROM SITE AND/OR DAMAGE AFTER RECEIPT FOR ALL MATERIALS FURNISHED BY OWNER FOR INSTALLATION BY GENERAL CONTRACTOR (OR HIS SUBCONTRACTORS).

17. NO PRODUCT SUBSTITUTION WILL BE ALLOWED WITHOUT THE APPROVAL OF OWNER AND ARCHITECT.

18. EACH CONTRACTOR SHALL INSURE THAT ALL BUILDING WORK WILL COMPLY WITH APPLICABLE NATIONAL, STATE AND LOCAL CODES, GOVERNING AUTHORITIES, AND UNDERWRITER REGULATIONS.

19. EACH CONTRACTOR SHALL LEAVE THE PREMISES IN BROOM-CLEAN CONDITION AFTER EACH DAY OF WORK.

20. ALL OPENINGS AND OTHER PROVISIONS NECESSARY FOR INSTALLATION OF ARCHITECTURAL, PLUMBING, MECHANICAL, ELECTRICAL OR OWNER'S APPARATUS AND EQUIPMENT, MUST BE VERIFIED WITH THE SPECIFIC TRADES INVOLVED AND WITH OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION, AND MUST BE OF SIZE, LOCATION AND CONFIGURATION, ETC., REQUIRED.

21. ALL WORK SHALL GENERALLY BE PERFORMED DURING THE NORMAL WORKING DAY. PROVIDE 48- HOUR NOTICE TO OWNER OF ANY WORK TO BE PERFORMED OUTSIDE OF NORMAL WORK HOURS.

22. ALL PARTITIONS WHICH ARE TO EXTEND TIGHT UP TO THE FLOOR OR ROOF CONSTRUCTION ABOVE, ARE TO BE CUT TO FIT AROUND BEAMS, JOISTS, DUCTS, CONDUITS, PIPES, HANGERS, ETC., ALL SUCH CUTS SHALL BE ACCURATE AND STRAIGHT AND BE SEALED WITH COMPRESSIBLE COMPOUND AND MADE AIRTIGHT. PROVIDE DOUBLE SLIP TRACK FOR ROOF DEFLECTION.

23. VERIFY ALL DIMENSIONS & CONDITIONS SHOWN ON THE PLANS WITH EXISTING CONDITIONS AT THE SITE AND REPORT ANY DISCREPANCIES TO THE ARCHITECT.

24. ANY DEVIATIONS FROM THESE PLANS MUST BE APPROVED BY THE ARCHITECT OF RECORD AND THE CITY.

25. PROVIDE SUBMITTALS OF ALL PROPOSED EQUIPMENT AND MATERIALS TO OWNER AND ARCHITECT FOR REVIEW PRIOR TO ORDER OR INSTALLATION.

NOTES TO BIDDERS / CONTRACTOR

Before submitting bid proposals for the work in these specifications and drawings, each bidder shall familiarize themselves with all existing conditions. No extra compensation will be allowed because of a misunderstanding as to the amount of work involved or lack of knowledge of existing conditions. In case of any discrepancies between drawings, the most stringent note or condition shall apply and the general contractor shall notify the Architect immediately of such discrepancies.

ABBREVIATIONS

AC.	ACCOUSTIC	FT.	FEET	O.C.	ON CENTER
ADD.	ADDENDUM	FIN.	FINISH	OPG.	OPENING
A/C	AIR CONDITIONING	FIXT.	FIXTURE	O.A.	OVERALL
ADDN.	ADDITION	FL.	FLASHING	O.D.	OUTSIDE DIAMETER
AFF.	ABOVE FIN. FLOOR	FLR.	FLOOR	PTD.	PAINTED
AGG.	AGGREGATE	FD.	FLOOR DRAIN	PR.	PAIR
A.B.	ANCHOR BOLT	FLUOR.	FLUORESCENT	PNL.	PANEL
4	AND	FTG.	FOOTING	PTN.	PARTITION
AL.	ALUMINUM	IND.	FOUNDATION	PL.	PLATE
ALT.	ALTERNATE	FR.	FRAME	PLBG.	PLUMBING
ARCH.	ARCHITECT	GA.	GAUGE	PLY.	PLYWOOD
ASP.	ASPHALT	G.I.	GALVANIZED IRON	PT.	POINT
BSMT.	BASEMENT	GL.	GLASS	P&I.	POUNDS PER SQ. IN.
BM.	BEAM	GD.	GRADE	P&F.	POUNDS PER SQ. FT.
BM.	BENCHMARK	GR.	GRILLE	P.C.	PRECAST
BLKG.	BLOCKING	G.B.	GYP-SUM BOARD	P.L.	PROPERTY LINE
BD.	BOARD			R.	RADIUS
B.O.	BOTTOM OF	HDW.	HARDWARE	REG.	REGISTER
BLDG.	BUILDING	HDWD.	HARDWOOD	REQ'D.	REQUIRED
		HTR.	HEATER	REV.	REVISION
C.I.P.	CAST IN PLACE	HT.	HEIGHT	RD.	ROOF DRAIN
C.B.	CATCH BASIN	HP.	HIGH POINT	RM.	ROOM
CLG.	CEILING	H.M.	HOLLOW METAL	RD.	ROUND
CEM.	CEMENT	HORIZ.	HORIZONTAL		
CL.	CENTER LINE	H.B.	HOSE BIBB		
CER.	CERAMIC	H.W.	HOT WATER		
C.T.	CERAMIC TILE			SECT.	SECTION
CHAN.	CHANNEL			SH.	SHEET
CLR.	CLEAR	IN.	INCH	SH.	SIMILAR
CL.	CLEAR OUT	ID.	INSIDE DIAMETER	SM.	SMOOTH
CLOS.	CLOSE	INSUL.	INSULATION	SPEC.	SPECIFICATION
COL.	COLUMN	INT.	INTERIOR	SQ.	SQUARE
CONC.	CONCRETE	INV.	INVERT	STD.	STANDARD
CONN.	CONNECTION			ST.BTL.	STAINLESS STEEL
CONSTR.	CONSTRUCTION	JAN.	JANITOR	STRUC.	STRUCTURE
CJ.	CONTROL JOINT	JOINT	JOINT	SUSP.	SUSPENDED
	CONSTRUCTION JOINT	JST.	JOIST		
CONT.	CONTINUOUS			T.C.	TOP OF CURB
CONTR.	CONTRACTOR	LAM.	LAMINATED	T.G.	TEMPERED GLASS
CMU.	CONCRETE MASONRY UNIT	LAV.	LAVATORY	T.O.	TOP OF
		LG.	LENGTH	TYP.	TYPICAL
D.P.	DAMP PROOFING	LOC.	LOCATION		
DB.	DECIBEL	LT.	LIGHT	UNO.	UNLESS NOTED OTHERWISE
DIAG.	DIAGONAL	L.W.C.	LIGHT WEIGHT CONCRETE		
DIAM.	DIAMETER	LVR.	LOUVER	VERT.	VERTICAL
DIM.	DIMENSION	LOC.	LOCATION	VEST.	VESTIBULE
DISP.	DISPENSER	M.O.	MATERIAL	V.C.T.	VINYL CORR. TILE
DISP.	DOSE	M.O.	MASONRY OPENING	VCP.	VITREOUS CLAY PIPE
DUL.	DOWN	MFR.	MANUFACTURER		
D.N.	DOWNSPOUT	MAX.	MAXIMUM	W.W.M.	WELDED WIRE MESH
DWG.	DRAWING	MECH.	MECHANICAL	W.C.	WATER CLOSET
		METAL	METAL	WH.	WATER HEATER
EA.	EACH	MIN.	MINIMUM	WF.	WIDE FLANGE
EL.	ELECTRIC	MLDG.	MOULDING	W/.	WITH
EDF.	EL. DRINKING FOUNTAIN	MULL.	MULLION	W/O.	WITHOUT
ELEV.	ELEVATION	NG.	NATURAL GRADE	WD.	WOOD
EQ.	EQUAL	NOM.	NOMINAL		
EQUIP.	EQUIPMENT	N.C.	NOT IN CONTRACT		
EXH.	EXHAUST	N.T.S.	NOT TO SCALE		
EXP.	EXPANSION JOINT	No.	NUMBER		
EXT.	EXTERIOR				

SYMBOLS LEGEND

ROOM NAME (TOP)	ROOM NAME (TOP) AND ROOM NUMBER (BOTTOM)	BUILDING CORNER GRID
INTERIOR ELEVATION - ELEVATION No. (TOP), SHEET No. (BOTTOM)	KEYED NOTE - SEE SCHEDULES	
DETAIL REFERENCE - DETAIL No. (TOP), SHEET No. (BOTTOM)		
BUILDING/WALL SECTION - SECTION No. (TOP), SHEET No. (BOTTOM)		
BUILDING COLUMN GRID LINE		

MCHENRY COUNTY COLLEGE
BURNHAM BOILER
REPLACEMENT

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COVER
SHEET

BE Project No.

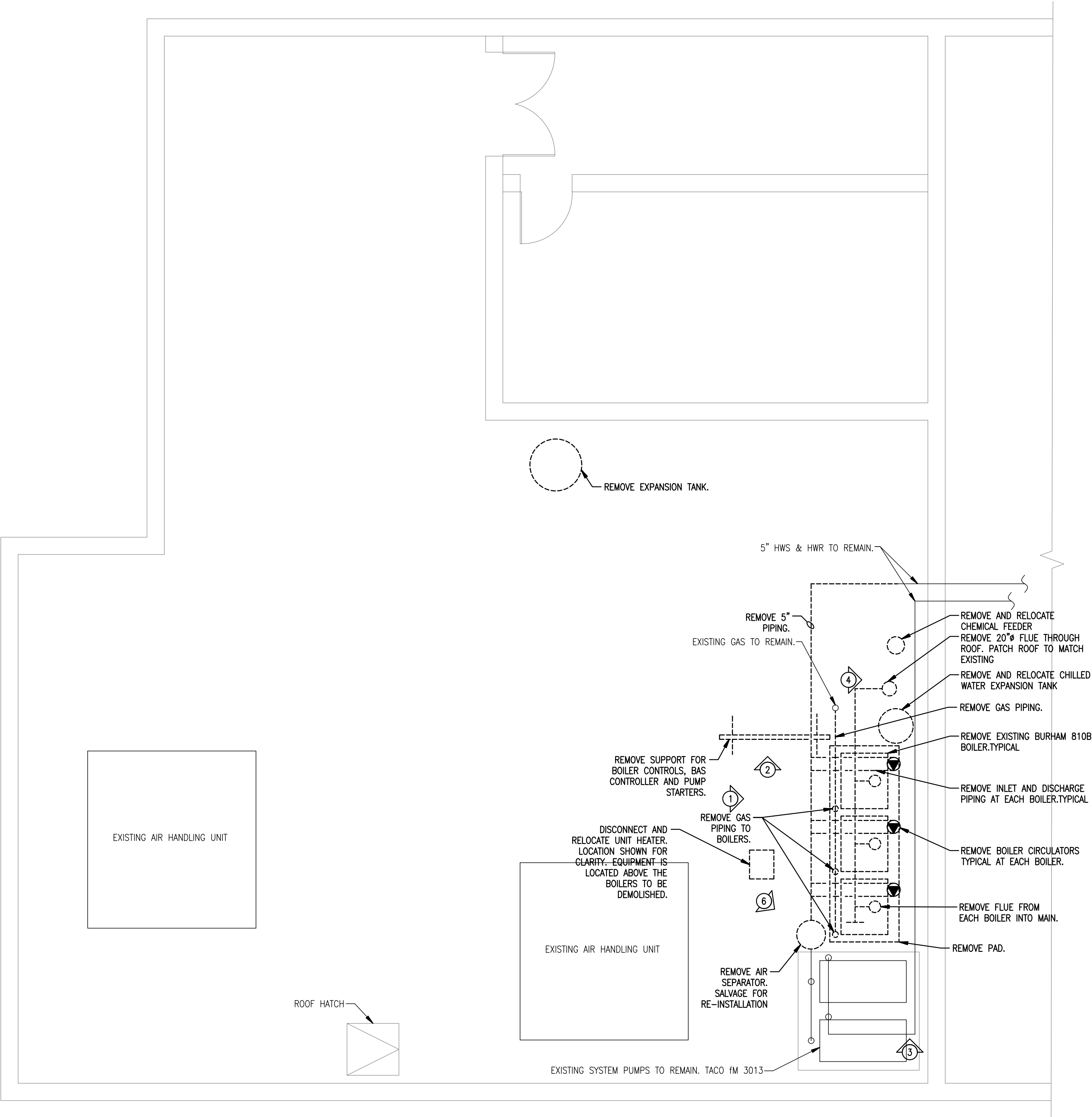
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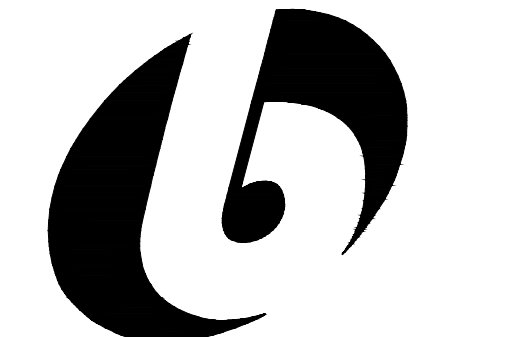
JPB/CP

Drawing No.

G100



- DEMOLITION NOTES:
1. DRAWINGS INCLUDED WITHIN DOCUMENTS ARE GRAPHIC REPRESENTATIONS OF FILED CONDITIONS, PIPING AND EQUIPMENT. LOCATION ARE APPROXIMATE. THESE GRAPHIC DEMONSTRATIONS ARE DIAGRAMMATIC IN NATURE AND DO NOT SHOW EVERY OFFSET, SUPPORT OR OBSTRUCTION.
 2. PRIOR TO REMOVAL OF ANY COMPONENT PERFORM A TESTING EFFORT TO DETERMINE THE FOLLOWING:
 - SYSTEM FLOW WITH P-EX1 OPERATIONAL.
 - SYSTEM FLOW WITH P-EX2 OPERATIONAL.
 - SYSTEM FLOW WITH P-EX1 AND P-EX2 OPERATIONAL.
 - FOR EACH OF THE ABOVE DETERMINE
 1. TOTAL FLOW GPM
 2. INLET PSI
 3. OUTLET PSI
 4. MOTOR AMPS
 5. MOTOR MAKE
 6. MOTOR MODEL
 7. SHUT OFF HEAD
 - INCLUDE PUMP CURVES WITH DUTY POINTS PLOTTED. INDICATE PUMP BHP.
 3. REMOVE EXISTING BURHAM 810B BOILERS. DISCONNECT CONTROLS, POWER, GAS, FLUE AND HYDRONIC PIPING.
 4. REMOVE THE EXISTING FLUE, STACK, BREACHING IN ENTIRETY. HIRE THE OWNERS PREFERRED ROOFING CONTRACTOR TO REPAIR ROOF.
 5. DRAIN HYDRONIC SYSTEM TO LOCATION APPROVED BY OWNER.
 6. COORDINATE SHUTDOWNS, NOISY WORK, USE OF FLAME, GRINDING WITH OWNER. SCHEDULE WORK 7 DAYS PRIOR TO PERFORMING.
 7. PROTECT EXISTING EQUIPMENT WITHIN AREA OF WORK THAT IS NOT AFFECTED BY THE SCOPE OF THIS PROJECT FROM INCIDENTAL DAMAGE. AIR HANDLERS, PUMPS, CONTROLLERS, POWER PANELS, BOILERS, CHILLERS.
 8. ANY USE OF FLAME, TORCH OR GRINDING EFFORT SHALL EMPLOY SOURCE CAPTURE DEVICES WITH HEPA AND CARBON FILTRATION TO REMOVE PARTICULATE AND NEUTRALIZE ODORS.
 9. COORDINATE LOCATION OF DUMPSTER WITH OWNER.
 - 10.DISCONNECT CONTROL OF COMBUSTION AIR DAMPER. NEW BOILERS SHALL BE SEALED COMBUSTION.
 - 11.REMOVE BACKBOARD WITH CONTROLS, STARTERS, AND CONDUITS.



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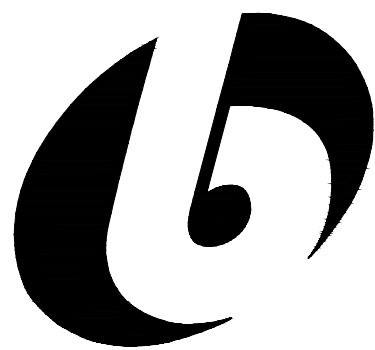
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Issue Date	Title
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MCHENRY COUNTY COLLEGE
BURNHAM BOILER
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Drawing Title	
MECHANICAL DEMOLITION BOILER ROOM PLAN	
	BE Project No. 17021
	Drawn By JPB/CP
	Drawing No. MD100



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MECHANICAL
DEMOLITION
ROOF PLAN

BE Project No.

17021

Drawn By

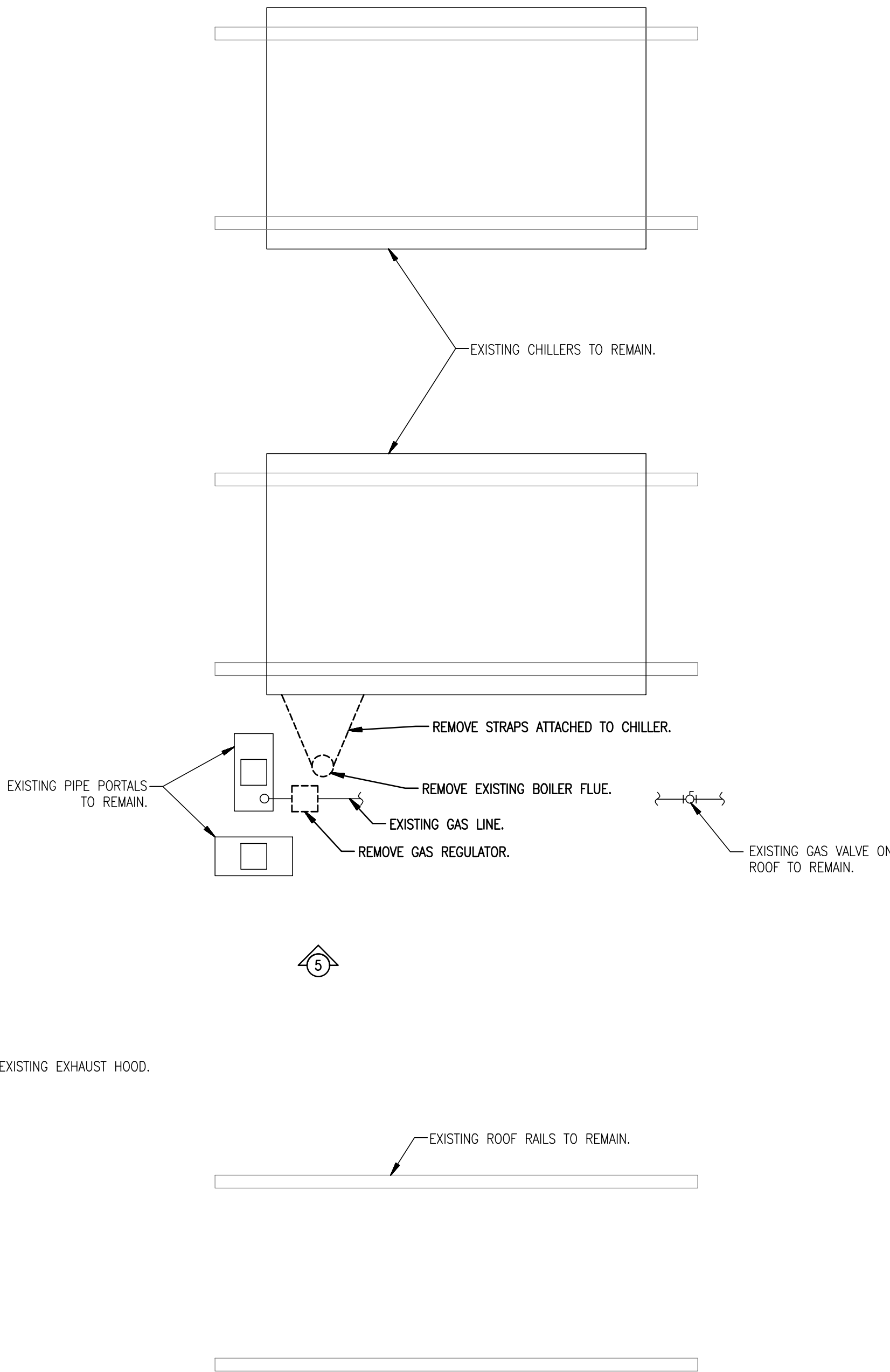
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Drawing No.

MD101

DEMOLITION NOTES:

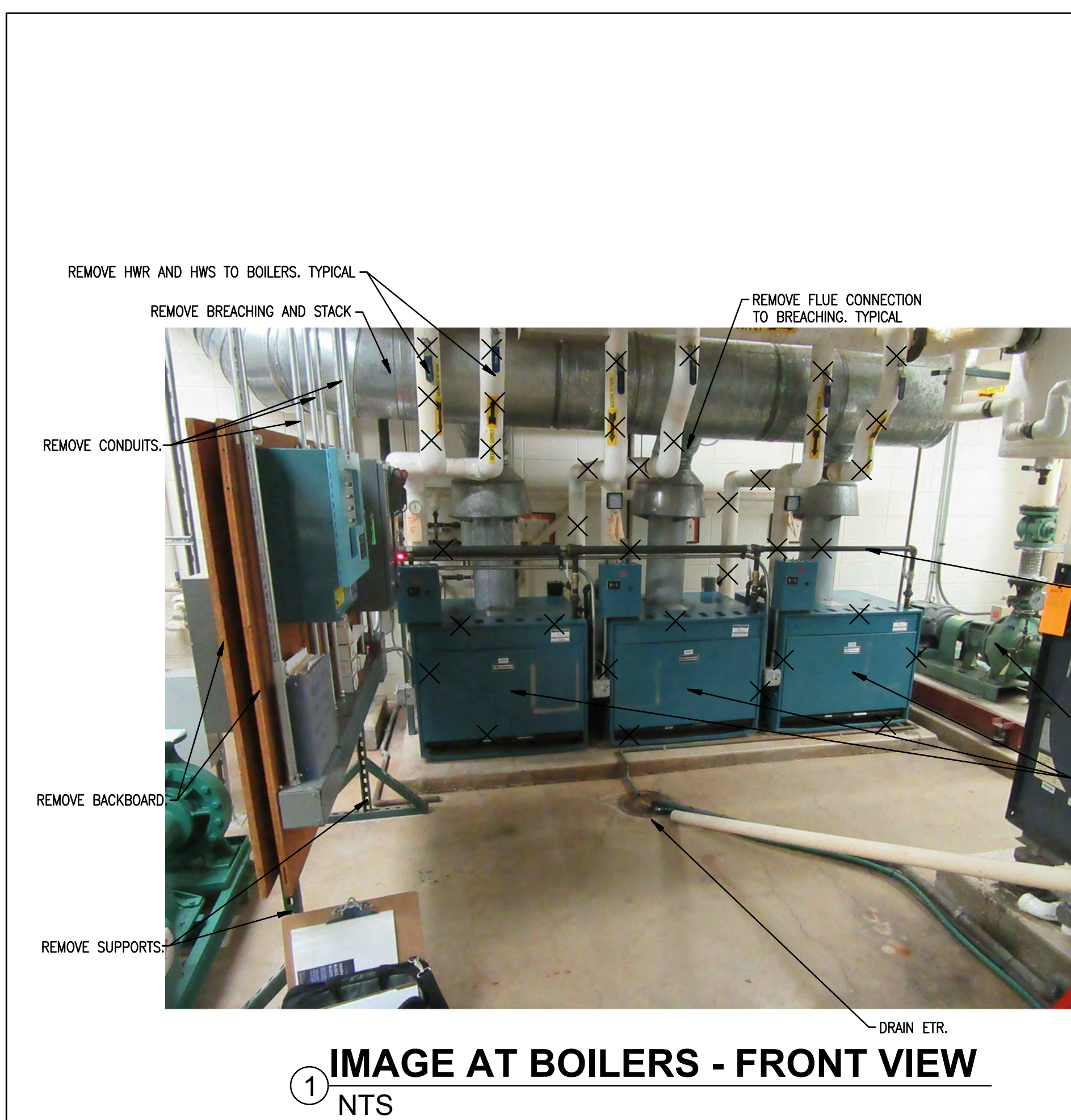
1. HIRE OWNER'S PREFERRED ROOFING CONTRACTOR TO PERFORM WORK. ANY NEW WORK SHALL MAINTAIN WARRANTY ON ROOF.
2. REMOVE FLUE STACK AND PATCH ROOF.
3. REMOVE GAS REGULATOR. VERIFY INTEGRITY OF ISOLATION VALVE.



MECHANICAL DEMOLITION ROOF PLAN

1 1/4" = 1'-0"

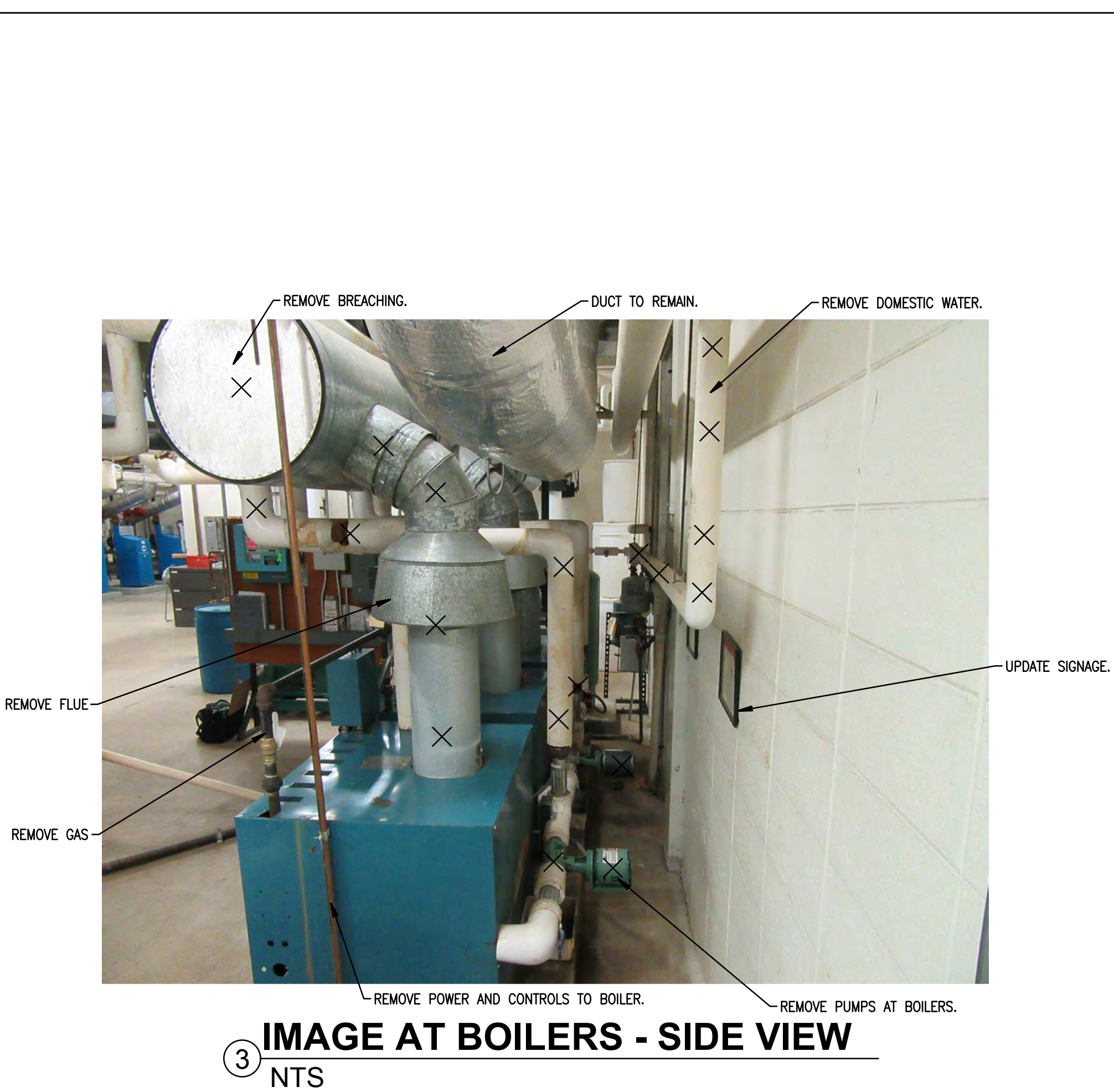




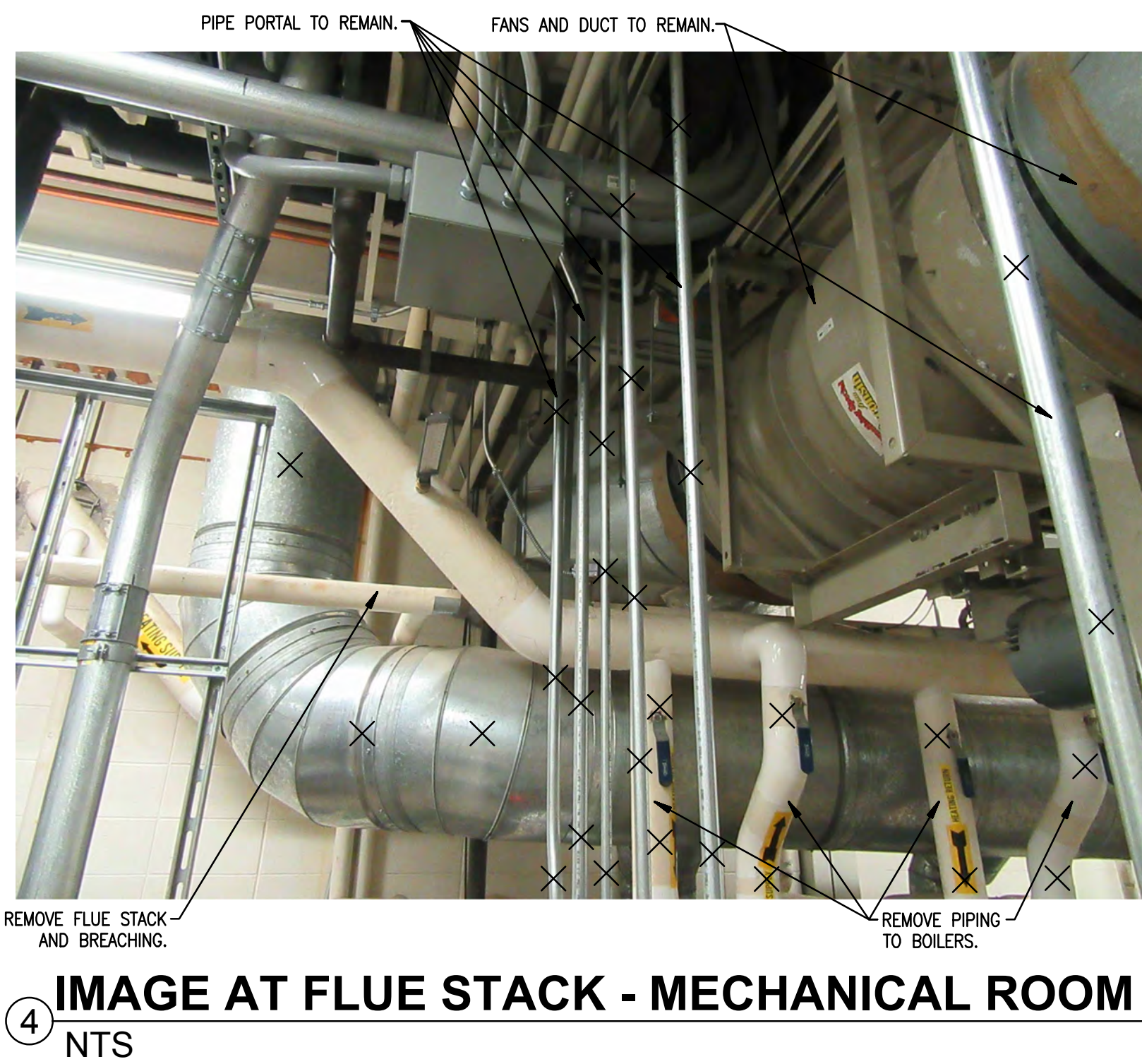
1 IMAGE AT BOILERS - FRONT VIEW
NTS



2 IMAGE AT BOILER CONTROL
NTS



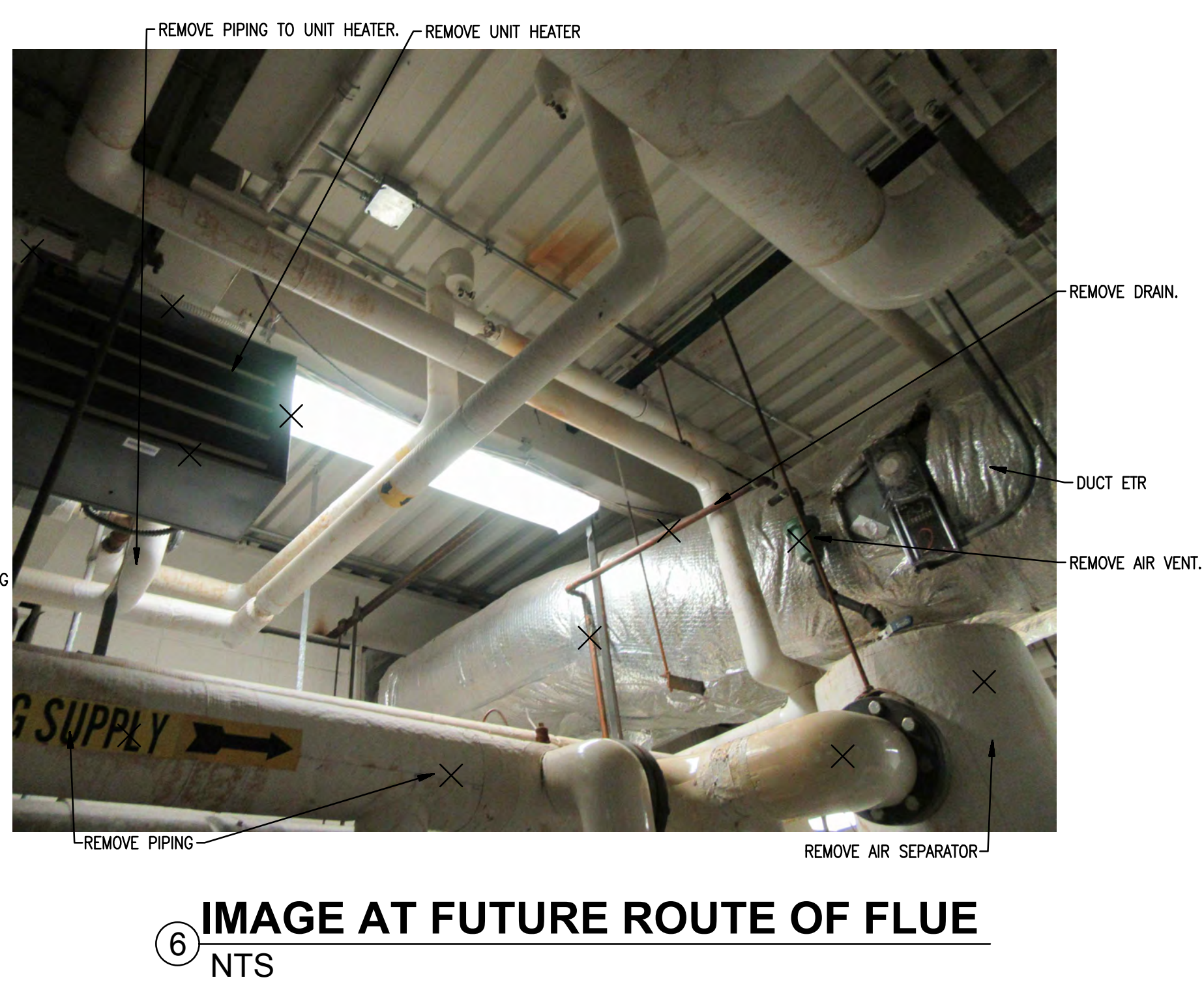
3 IMAGE AT BOILERS - SIDE VIEW
NTS



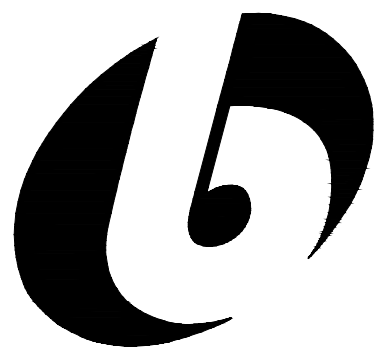
4 IMAGE AT FLUE STACK - MECHANICAL ROOM
NTS



5 IMAGE AT FLUE STACK - ROOF
NTS



6 IMAGE AT FUTURE ROUTE OF FLUE
NTS



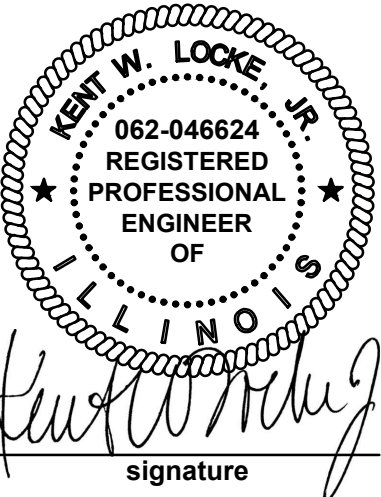
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MECHANICAL
DEMOLITION
IMAGES

BE Project No.
17021

Drawn By
JPB/CP

Drawing No.
MD200

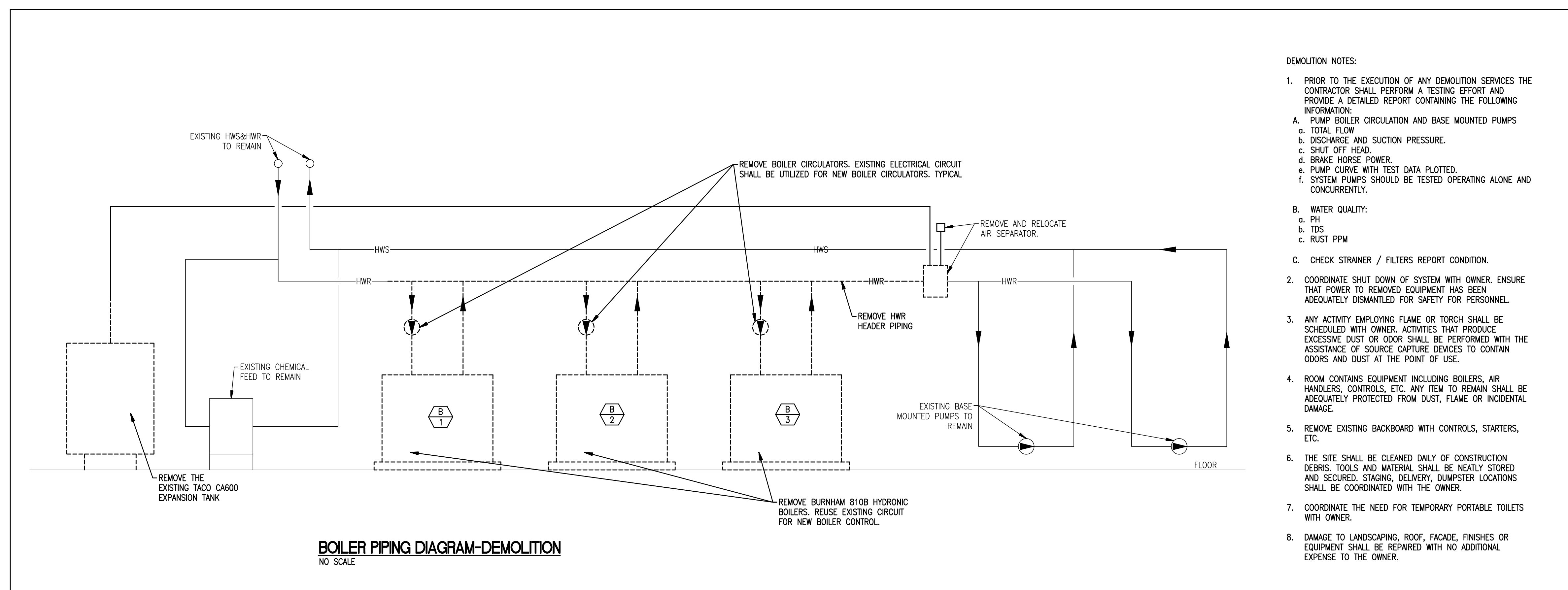
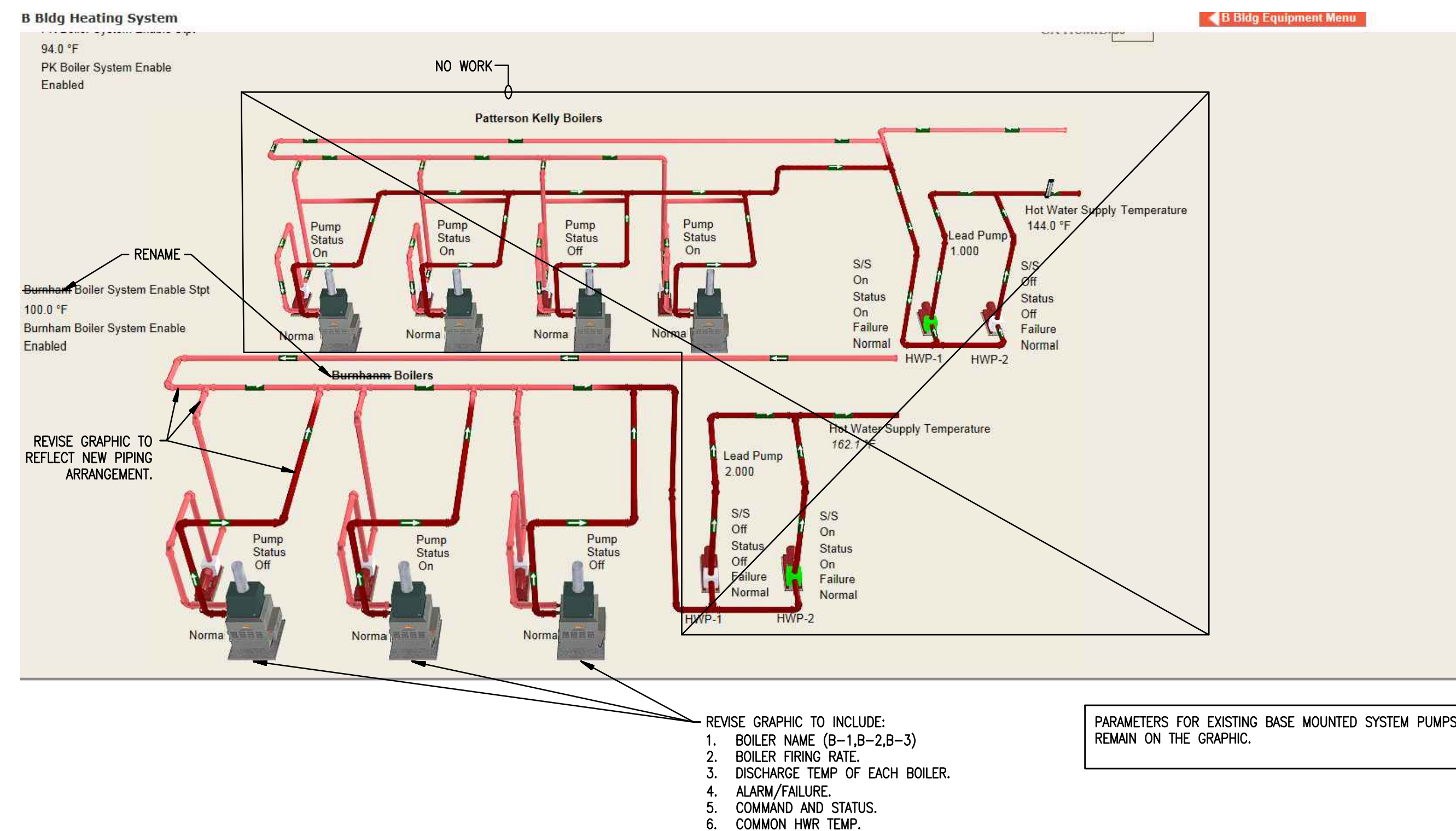


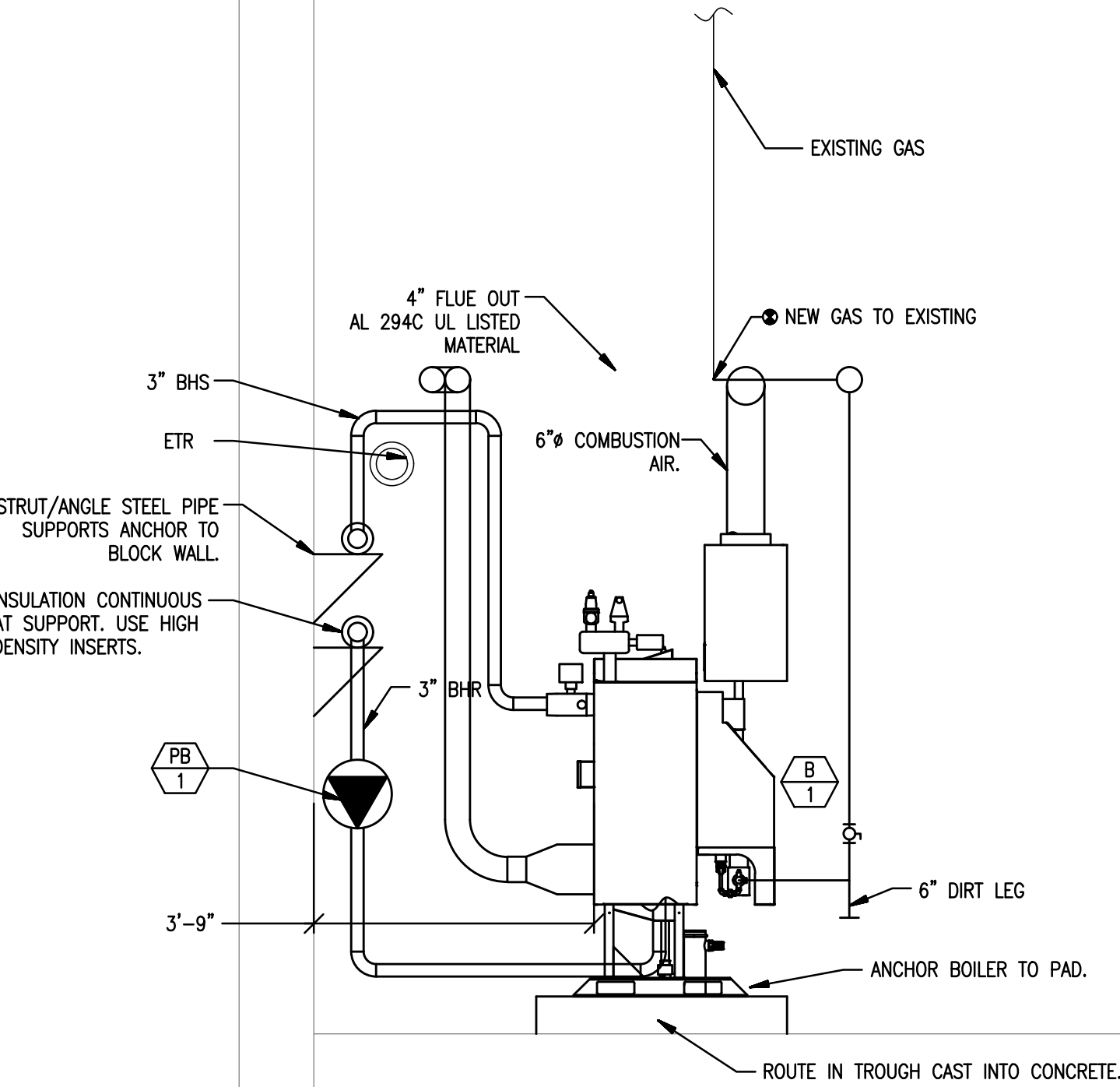
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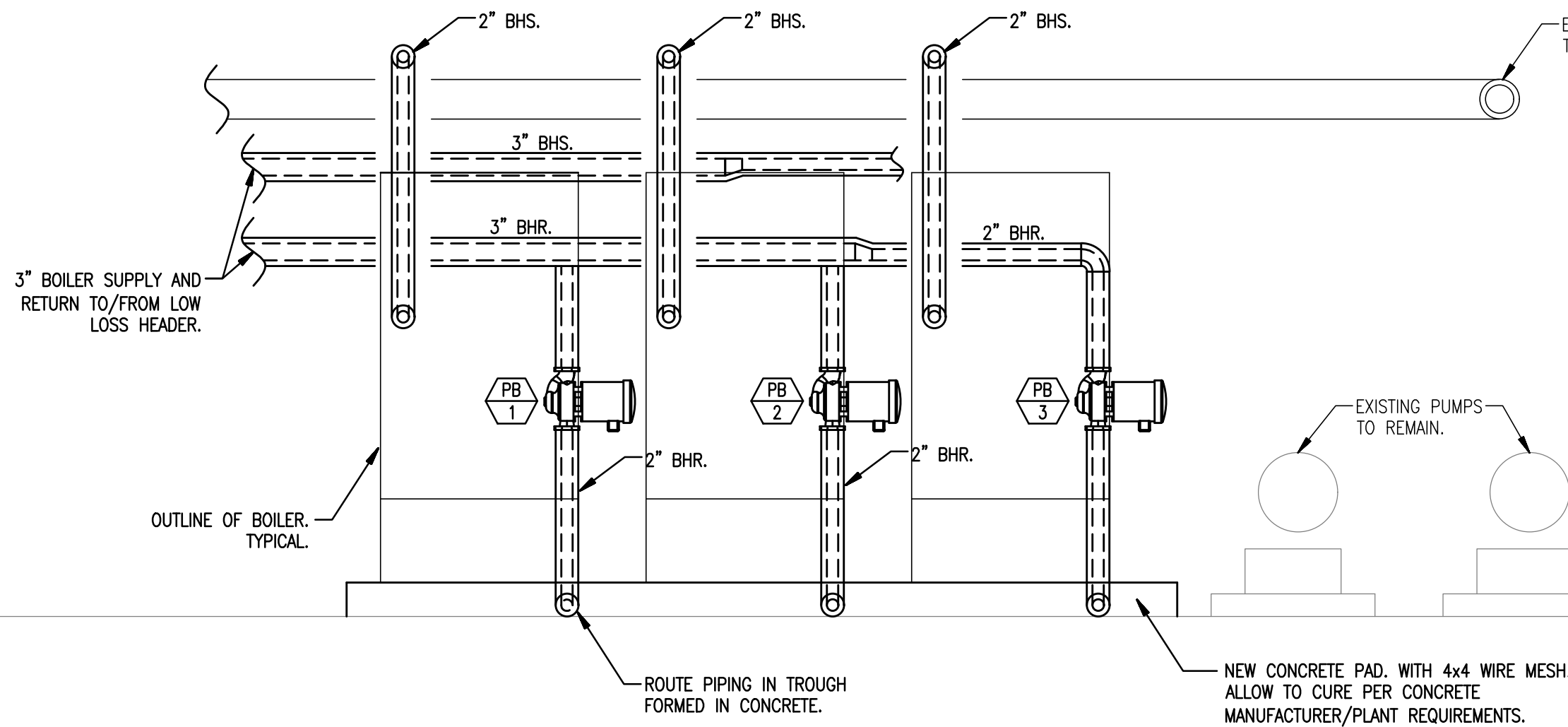


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07/24/2017	OWNER REVIEW
MCHENRY COUNTY COLLEGE BURNHAM BOILER REPLACEMENT	
8900 U.S. ROUTE 14 CRYSTAL LAKE, IL 60014	
Drawing Title	
MECHANICAL PIPING DIAGRAM	
	BS Project No. 17021
	Drawn By: JPB/CP
	Drawing No. MD201

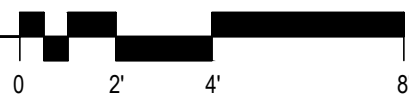




1 ELEVATION AT SIDE OF BOILERS
1/2" = 1'-0"



2 ELEVATION AT BEHIND BOILERS
1/2" = 1'-0"



3 MECHANICAL NEW WORK BOILER ROOM PLAN
1/4" = 1'-0"



NEW WORK NOTES:

- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING A COMPLETE AND OPERATING SYSTEM. ENSURE THAT ALL EQUIPMENT ASSOCIATED WITH THE BOILER PLANT IS FUNCTIONING APPROPRIATELY.
- PERSONNEL PERFORMING WORK SHALL BE EXPERIENCED TRADESMEN TRAINED FOR THE TASK BEING PERFORMED. HIRE APPROPRIATE TRADED TO PERFORM ELECTRICAL, CONTROLS, CONCRETE, ROOFING, ETC.
- PROVIDE FLUE CONSTRUCTED OF AL294C. SYSTEM SHALL BE UL LISTED. PERFORM A LEAKAGE TEST AND INCLUDE REPORT WITH OPERATIONS AND MAINTENANCE MANUEL.
- PROVIDE START UP SERVICES. EMPLOY A FACTORY CERTIFIED TECHNICIAN TO PERFORM START UP TASKS AND COMPLETE THE MANUFACTURER'S START UP CHECKLIST.
- EXTEND THE EXISTING CONTROLS TO ACCOMMODATE SEQUENCE OF OPERATIONS. PROVIDE ALL NECESSARY WIRING, INTERFACE CARDS, RELAYS, SENSORS AND SWITCHES.
- PROVIDE THREE EQUALLY SIZED BOILERS WITH DEDICATED BOILER PUMPS, INDIVIDUAL FLUES AND COMBUSTION AIR, NEW 6" PAD CONDENSATE DRAIN WITH NEUTRALIZATION KIT, FACTORY CONTROLS AND INTERFACE CARD TO COMMUNICATE WITH THE EXISTING BUILDING AUTOMATION SYSTEM.
- PIPING, UNIONS, VALVES, PUMPS HOUSING AND ALL HOT SURFACE SHALL BE INSULATED WITH FIBERGLASS AND ALL SERVICE JACKETS. PROVIDE REMOVABLE COMPONENTS AT VALVES, UNIONS, ETC. PROVIDE HIGH DENSITY INSERTS AT ALL PIPING SUPPORTS.

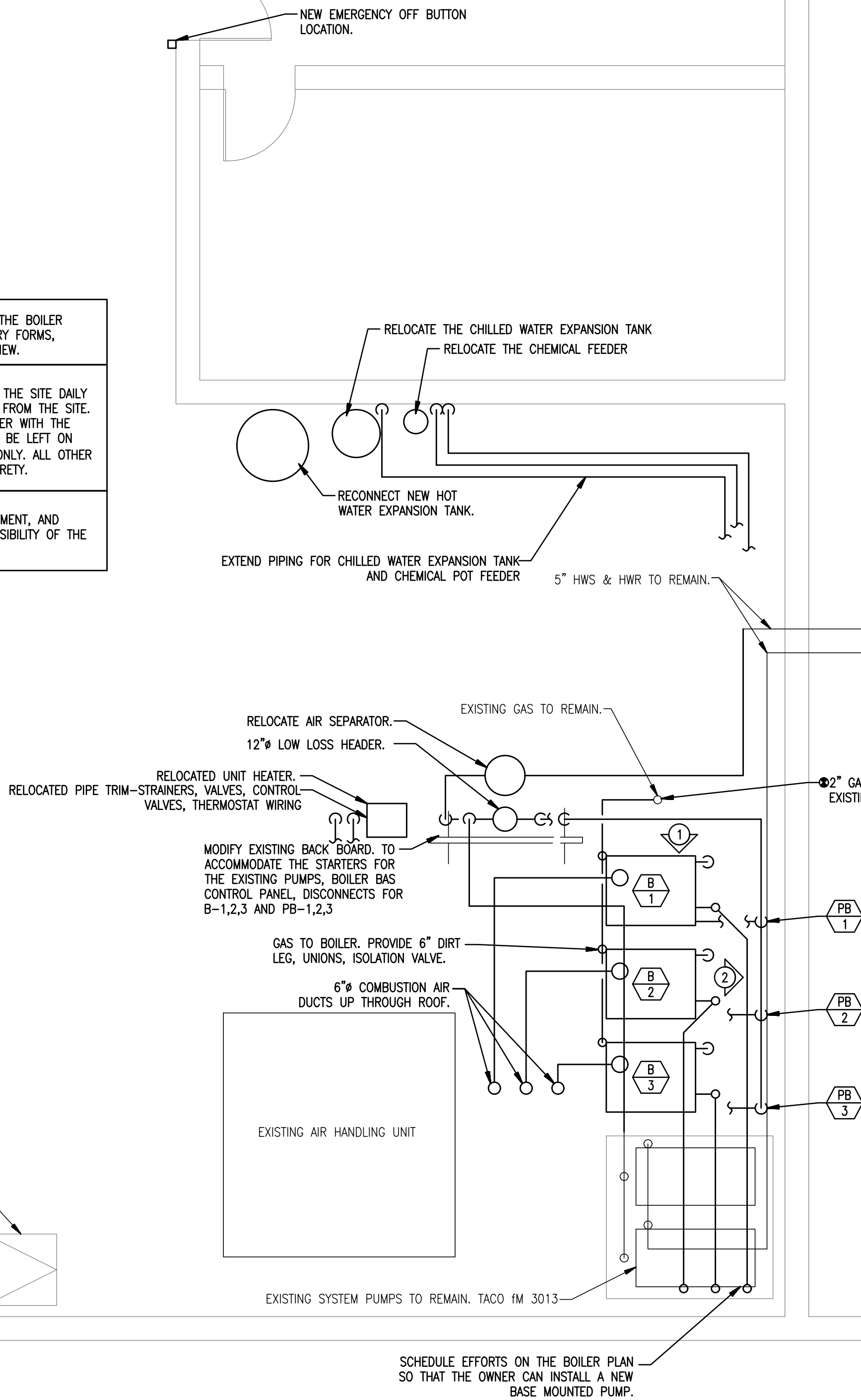
- ADEQUATELY SUPPORT PIPING, PUMPS AND EQUIPMENT FROM WALL, STRUCTURE ABOVE, OR FLOOR.
- RELOCATE STARTERS FOR EXISTING SYSTEM PUMPS. EXTEND POWER AND CONTROLS TO ACCOMMODATE.
- PIPING SHALL BE COPPER WITH SOLDER JOINTS OR STEEL PIPING WITH THREADED JOINTS.
- ALL COMPONENTS SHALL BE RATED FOR 125 PSIG.
- PROVIDE BRASS BALL VALVES WITH EXTENDED STEMS THAT PROTRUDE BEYOND THE INSULATION. VALVES SHALL BE FULL PORT, TWO PIECE WITH STAINLESS STEEL BALL.
- PROVIDE VALVE TAGS FOR EACH NEW ISOLATION VALVES. TAGS SHALL BE BRASS WITH STAMPED LETTERS OR NUMBERS AND BEADED CHAIN.
- PROVIDE STENCILS TO LABEL PIPING AND IDENTIFY GLOW DIRECTION.
- PROVIDE PLASTIC EQUIPMENT LABELS AFFIXED TO EQUIPMENT.
- PROVIDE OWNER TRAINING ON ROUTINE MAINTENANCE THAT SHOULD BE PROVIDED REGULARLY.
- PROVIDE TEST AND BALANCE EFFORT PRIOR TO SUBSTANTIAL COMPLETION.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING PRODUCT SUBMITTALS FOF THE FOLLOWING:

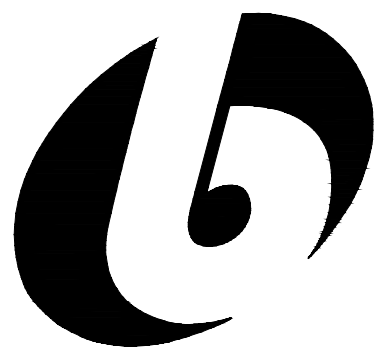
- PIPING, FITTINGS, JOINING MATERIALS.
 - BALL VALVES, UNIONS, BALANCING VALVES, AND ALL PIPE DRAIN.
 - INSULATION, REMOVABLE INSULATION COVERS, AND HIGH DENSITY INSERTS.
 - PUMPS FLEX CONNECTIONS, PUMP CURVES.
 - BOILER.
 - EXPANSION TANK.
 - FLUE AND COMBUSTION AIR MATERIAL AND JOINING METHODS.
 - HANGERS AND SUPPORTS.
 - CONCRETE.
 - WIRING.
 - CONTROLS COMPONENTS - SENSORS, SWITCHES, RELAYS, CONTROLLERS.
 - GAGES.
- PROVIDE OPERATION AND MAINTENANCE MANUAL THAT INCLUDES INFORMATION FOR THE BELOW ITEMS. PROVIDE A COVER SHEET THAT LISTS THE EQUIPMENT LABEL, MODEL NUMBER, SERIAL NUMBER, AND VOLTAGE. PROVIDE HARD COPIES AND PDF.
 - BOILERS.
 - PUMPS.
 - CONTROLS.
 - AS-BUILD DRAWINGS.
 - GAGES.
 - TESTING AND BALANCING.
 - TESTING - FLUE, PIPING.
 - START UP REPORTS.
 - CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS. MAKE ANY ADJUSTMENTS TO LAYOUT TO AVOID COLLISIONS WITH EXISTING INFRASTRUCTURE OR OTHER TRADES. PROVIDE EFFORT TO DEVELOP COORDINATION DRAWINGS WITH SIGN OFF BY ALL CONTRACTORS OR SUB CONTRACTORS.
 - HIRE OWNERS PREFERRED ROOFING CONTRACTOR TO COMPLETE ROOFING WORK.

PROVIDE FACTORY START UP FOR THE BOILER PLANT. SUBMIT COMPLETED FACTORY FORMS, TECHNICIAN CREDENTIALS FOR REVIEW.

THE CONTRACTOR SHALL CLEANUP THE SITE DAILY TO REMOVE DEBRIS AND RUBBISH FROM THE SITE. COORDINATE LOCATION OF DUMPSTER WITH THE OWNER. ATTIC STOCK ITEMS SHALL BE LEFT ON SITE AT THE OWNER'S APPROVAL ONLY. ALL OTHER ITEMS SHALL BE REMOVED IN ENTIRETY.

HOT WORK CHECKS, SAFETY EQUIPMENT, AND OVERALL SAFETY ARE THE RESPONSIBILITY OF THE CONTRACTOR





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Issue Date	Title
07/24/2017	OWNER REVIEW

MCHENRY COUNTY COLLEGE
BURNHAM BOILER
REPLACEMENT

8900 U.S. ROUTE 14
CRYSTAL LAKE, IL 60014

MECHANICAL
NEW WORK
ROOF PLAN

BE Project No.

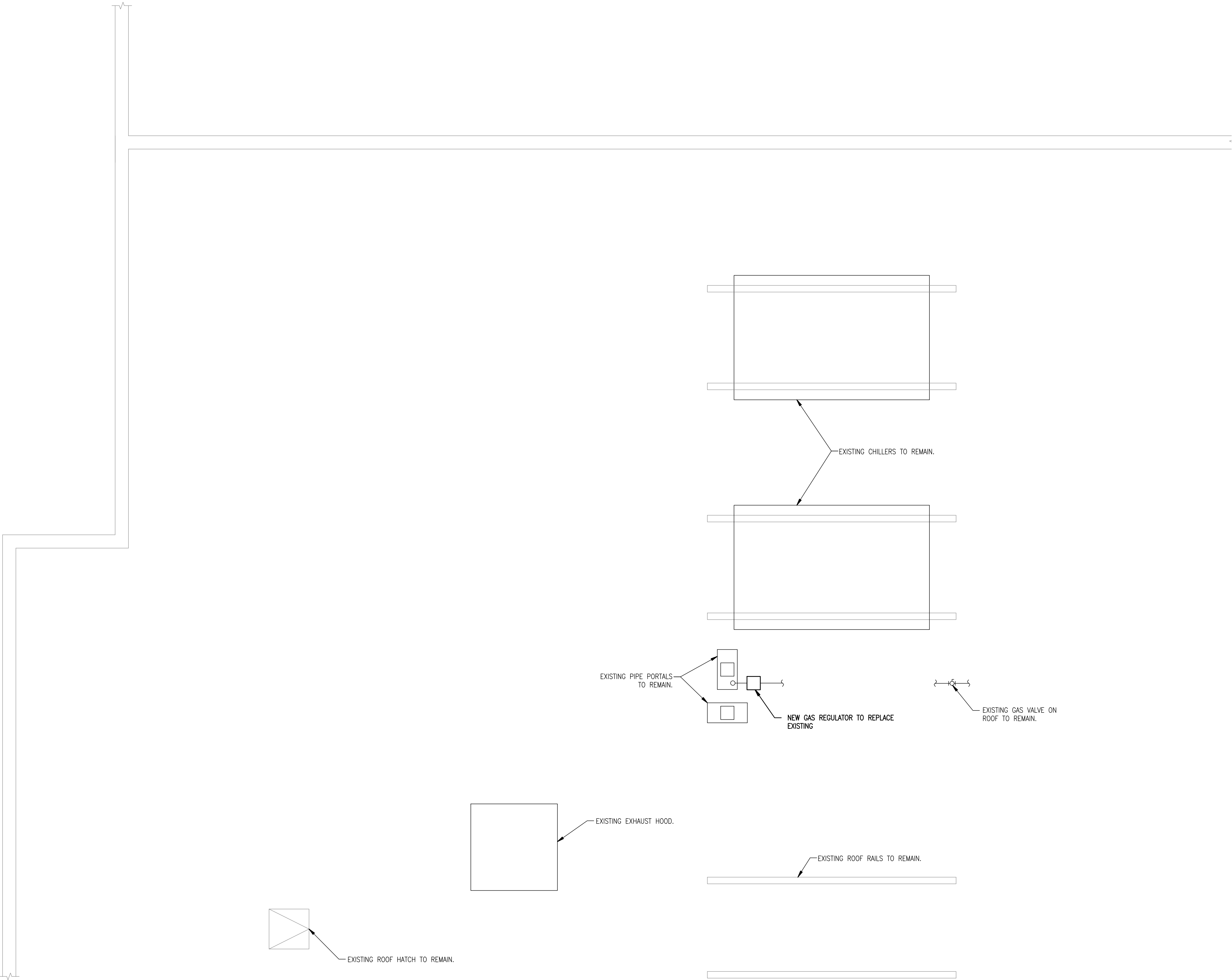
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1 MECHANICAL NEW WORK ROOF PLAN
1/4" = 1'-0"



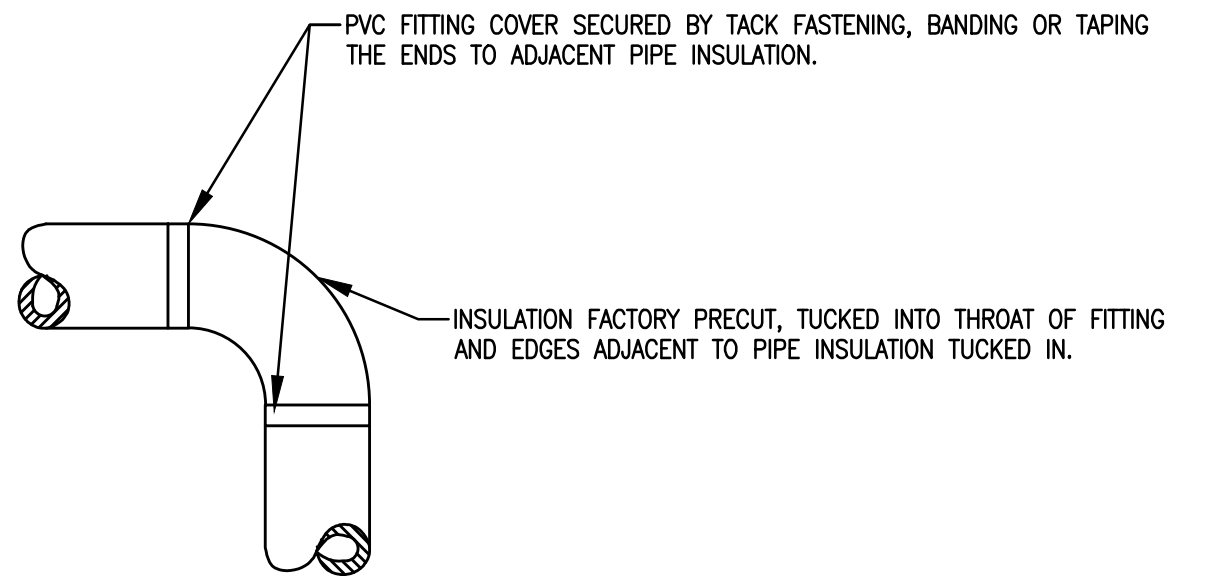
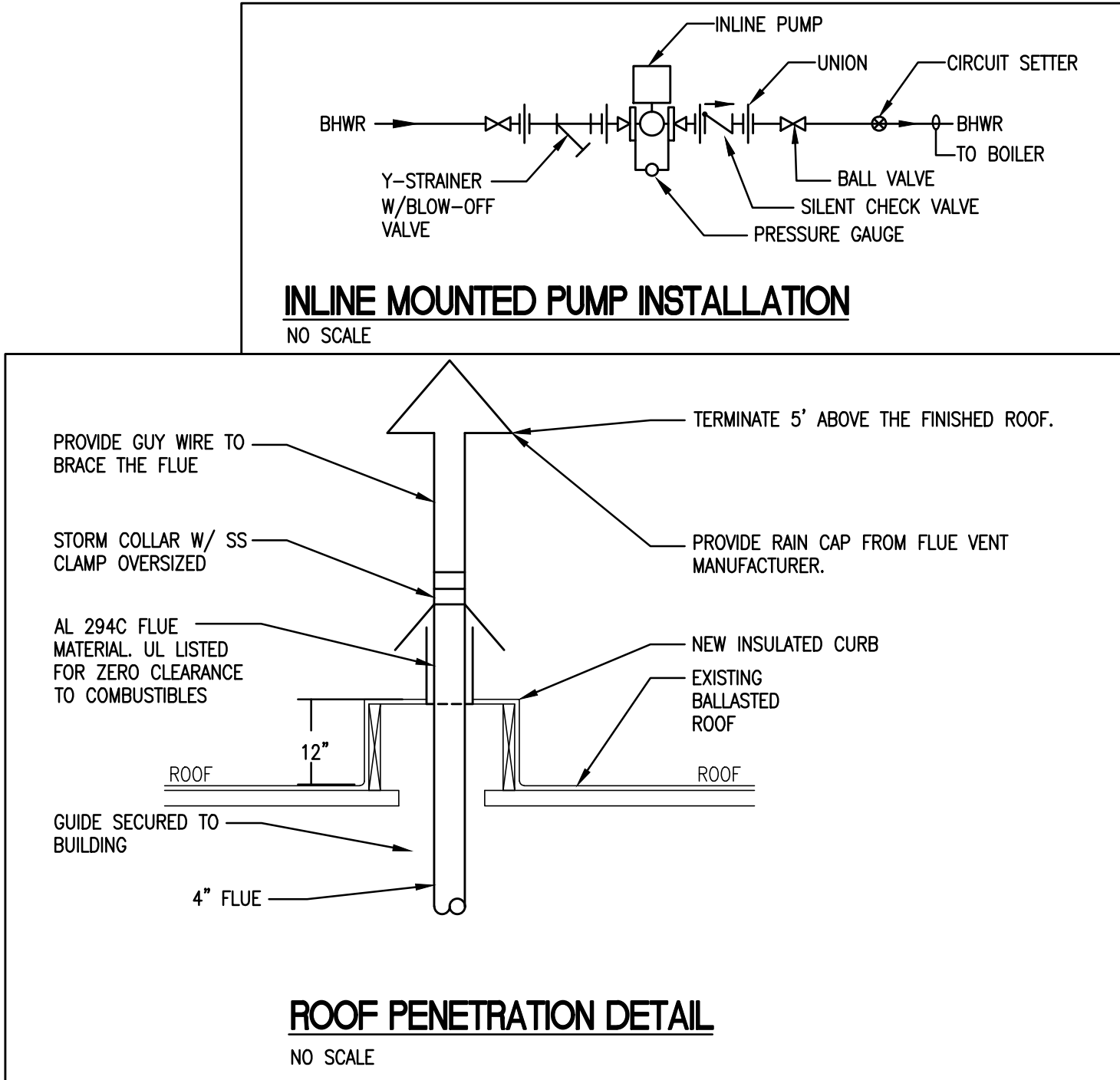
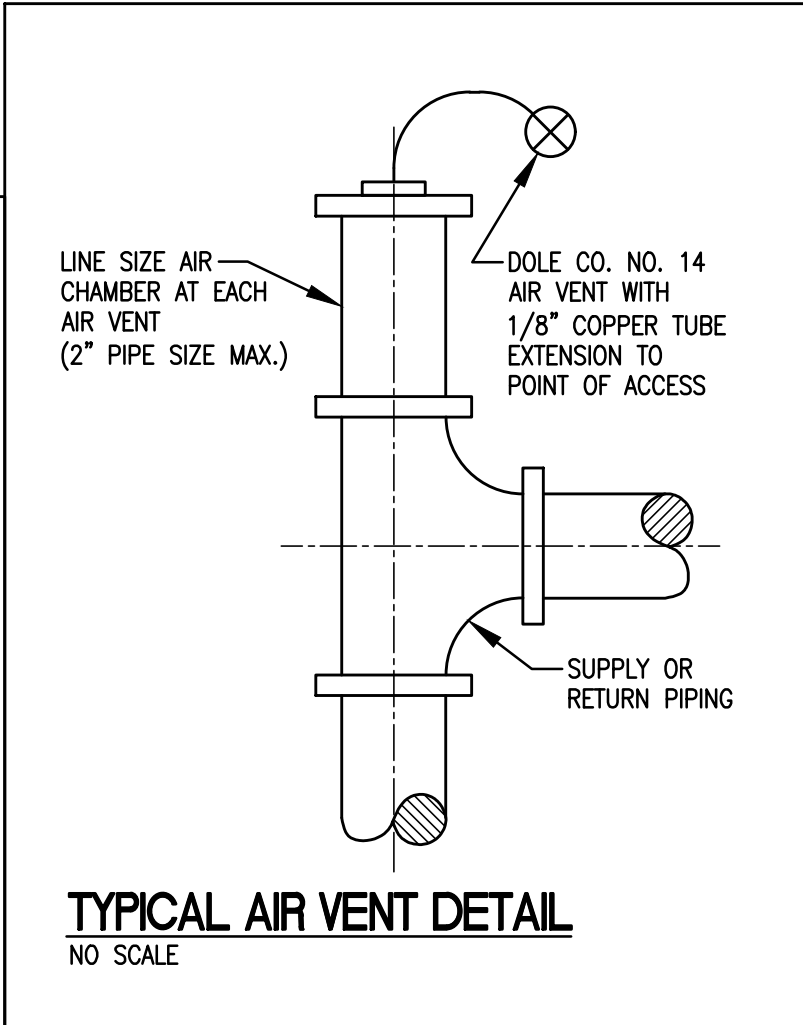
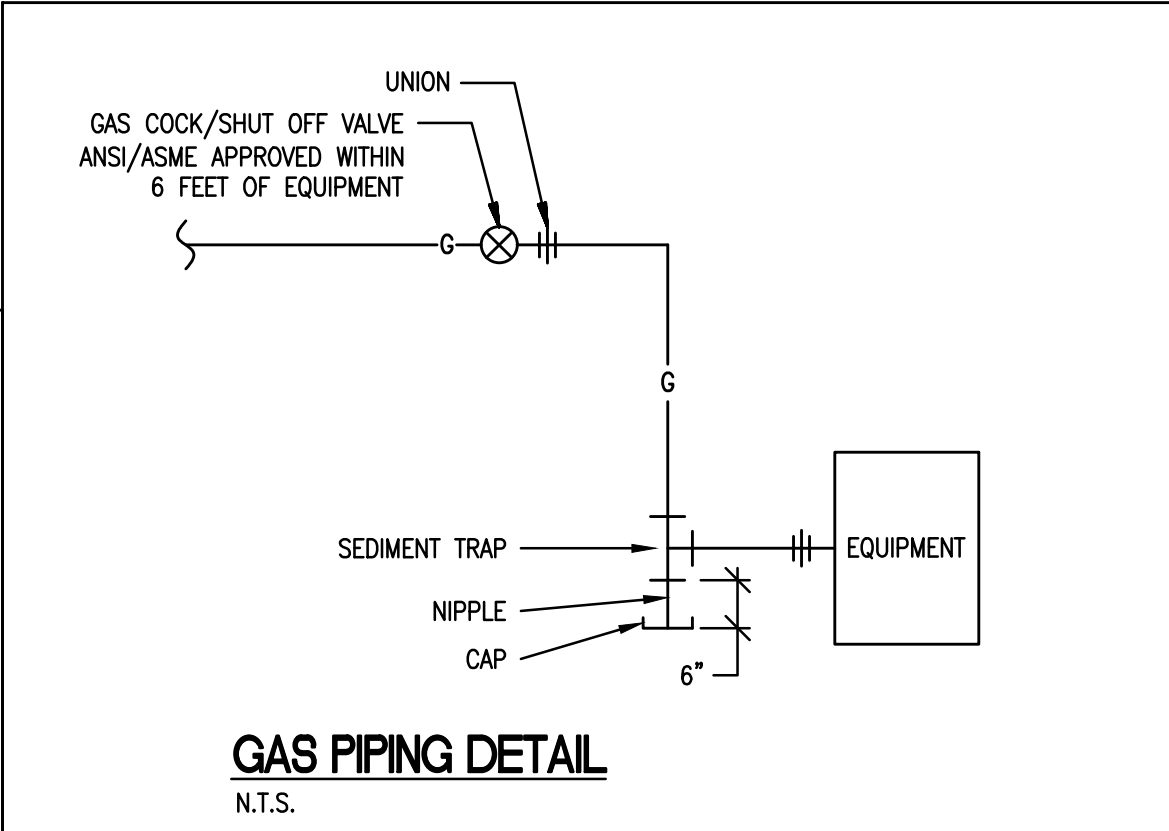
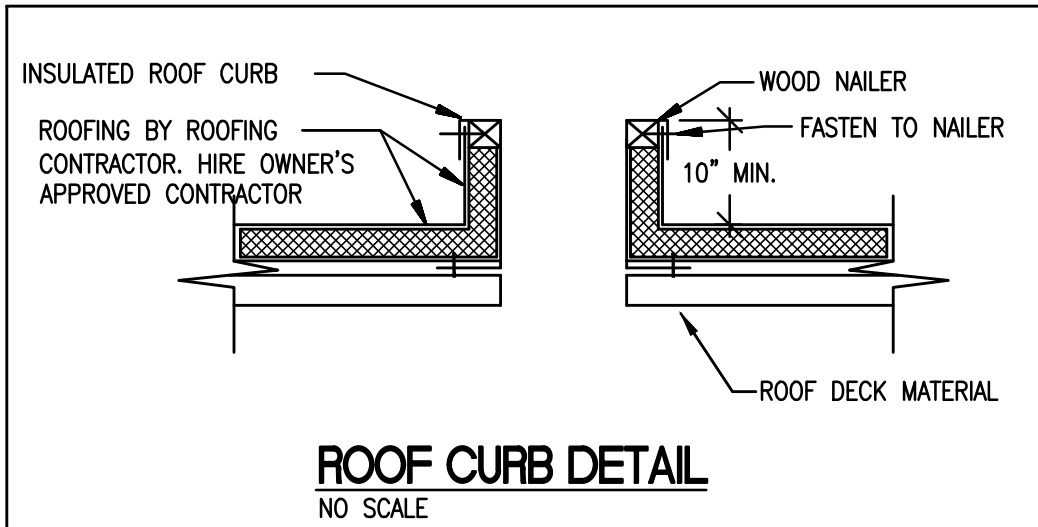
GAS FIRED HOT WATER BOILER SCHEDULE															<div>B</div>			
TAG NO.	LOCATION/ SERVICE	BOILER TYPE		INCOMING GAS PRESS. INCH. W.G.	PIPE SIZE GAS CONN. IN.	GAS VALVE TRAIN	NATURAL GAS INPUT (MBH)	IBR OUTPUT (CFH)		FLOW RATE (GPM)	E.W.T. °F	L.W.T. °F	TEMP RISE Δ °F	MAX. WATER PRESS. DROP FEET	MAX. WORKING PRESS.	ELEC. POWER		REMARKS: LOCHINVAR CAMUS KNERIES – BASES OF DESIGN
																MAIN POWER FEED	FLA	
1	MECH ROOM/ REHEAT	WATER		6"	1"	DUNGS	600	480		40	155.5	180	24.5	1.25	14	120V	5.2	KNG
2	MECH ROOM/ REHEAT	WATER		6"	1"	DUNGS	600	480		40	155.5	180	24.5	1.25	14	120V	5.2	KNG
3	MECH ROOM/ REHEAT	WATER		6"	1"	DUNGS	600	480		40	155.5	180	24.5	1.25	14	120V	5.2	KNG

NEW SEALED COMBUSTION CAST IRON BOILERS SUITABLE FOR OPERATION WITH RETURN WATER TEMPERATURE BELOW 120°F. BOILER CONTROL - START,STOP, FIRING RATE, ETC SHALL BE FACTORY PROVIDED. FRONT END CONTROL SHALL ENABLE/DISABLE HEATING, OVERRIDE, DISCHARGE SETPOINT.

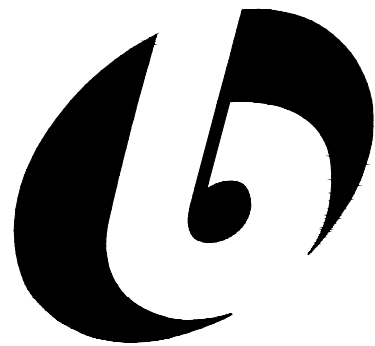
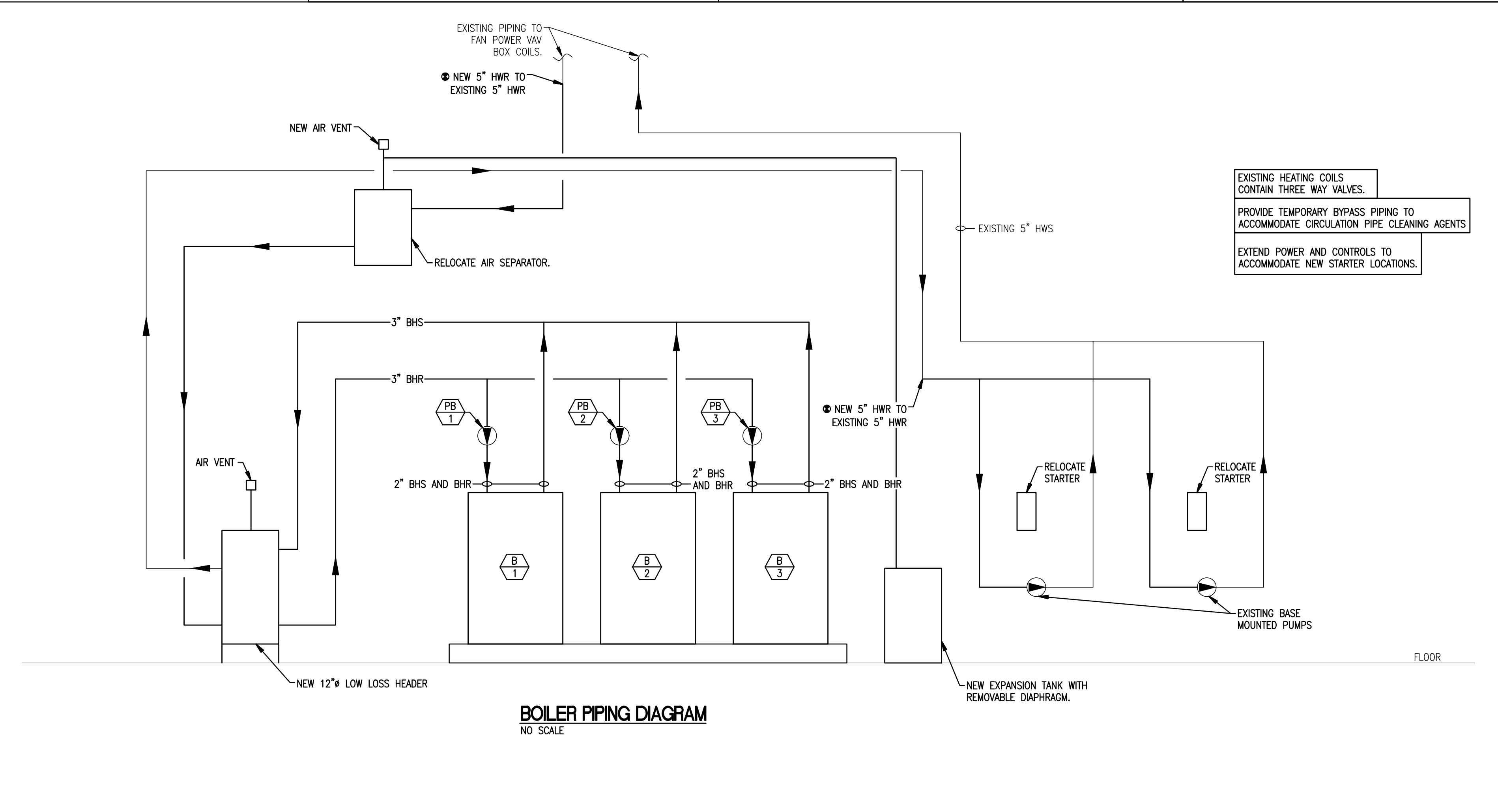
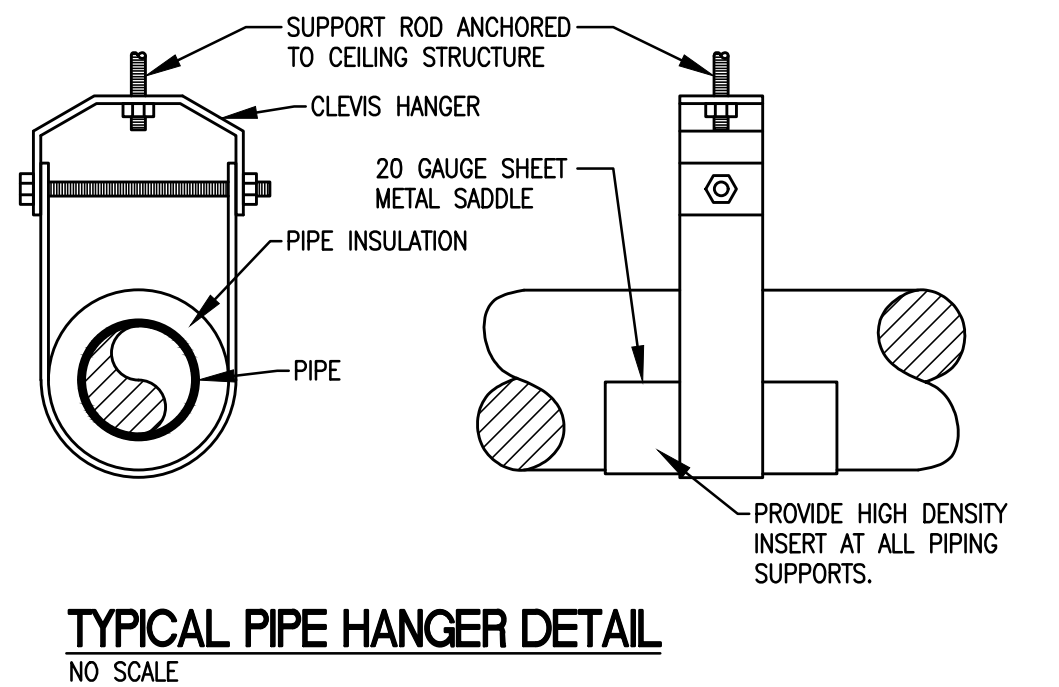
PUMP SCHEDULE														
TAG NO. <div>P</div>	SERVICE/ LOCATION	CAP	PUMP TYPE	TOTAL HEAD W.C.	WORKING PRESS	LIQUID TEMP.	PUMP		MOTOR			VIBRATION ISOLATION	REMARKS	
		GPM	BASE MOUNT	FT	MAX. PSIG.	°F	BHP	RPM	V/PH/C	HP	RPM	TYPE		
EX1	—	480	BASE MOUNT	155	175	250	24	1750	480/3	25	1750	INERTIA	TACO 3013	①
EX2	—	480	BASE MOUNT	155	175	250	24	1750	480/3	25	1750	INERTIA	TACO 3013	①
B1	—	40	INLINE	15	125	250	0.24	1750	120/1	0.5	1750	INERTIA	B&G E90 1.25AAB	②
B2	—	40	INLINE	15	125	250	0.24	1750	120/1	0.5	1750	INERTIA	B&G E90 1.25AAB	②
B3	—	40	INLINE	15	125	250	0.24	1750	120/1	0.5	1750	INERTIA	B&G E90 1.25AAB	②

① EXISTING BASE MOUNTED PUMP ON INERTIA BASE.

② NEW BOILER PUMPS. OPERATION SHALL BE MANAGED BY MANUFACTURERS BOILER CONTROL.



- NOTES:
1. TEE AND VALVE INSULATION & COVERS SIMILAR, USING INSULATION FACTORY PRECUT TO SHAPE. PROVIDE TURNS OF FIBERGLASS YARN AS REQUIRED FOR TEE OR VALVE INSULATION INSERTS TO PREVENT VOIDS OR HOT SPOTS.
 2. FOR MECHANICAL GROOVE TYPE PIPE AND FITTINGS, INSULATE TO THICKNESS SPECIFIED AND APPLY PVC PREFORMED COVERS IN MANNER DESCRIBED FOR ELBOWS.
 3. SIMILARLY, PROVIDE INSULATION AND PVC COVERS FOR REDUCERS, P-TRAPS, Y-BRANCHES, LINE FLANGES, BUTTERFLY VALVES, GATE VALVES, BALL VALVES, CHECK VALVES, CONTROL VALVES, STRAINERS, BALANCING COCKS, AND BALANCING DEVICES.



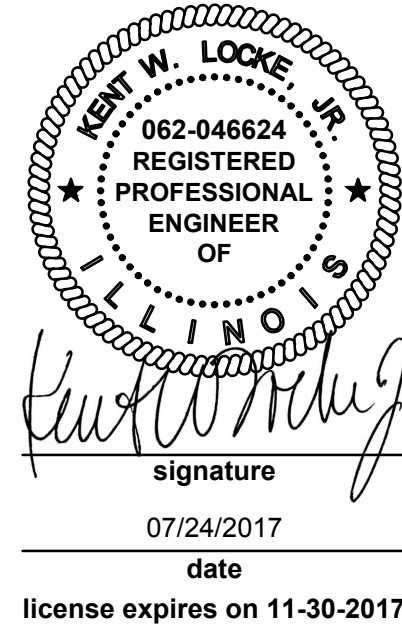
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BURNHAM BOILER
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MECHANICAL
SCHEDULES AND
PIPING DIAGRAM

BE Project No.

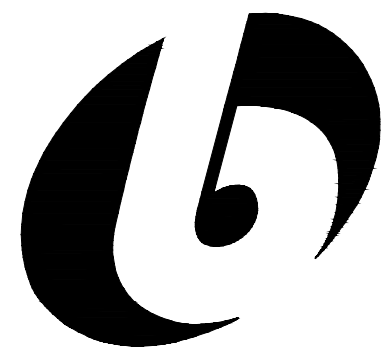
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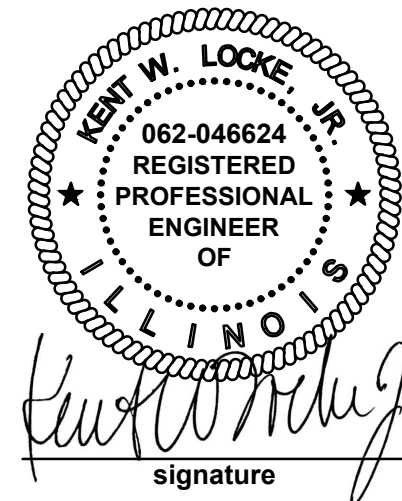
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BURNHAM BOILER
REPLACEMENT

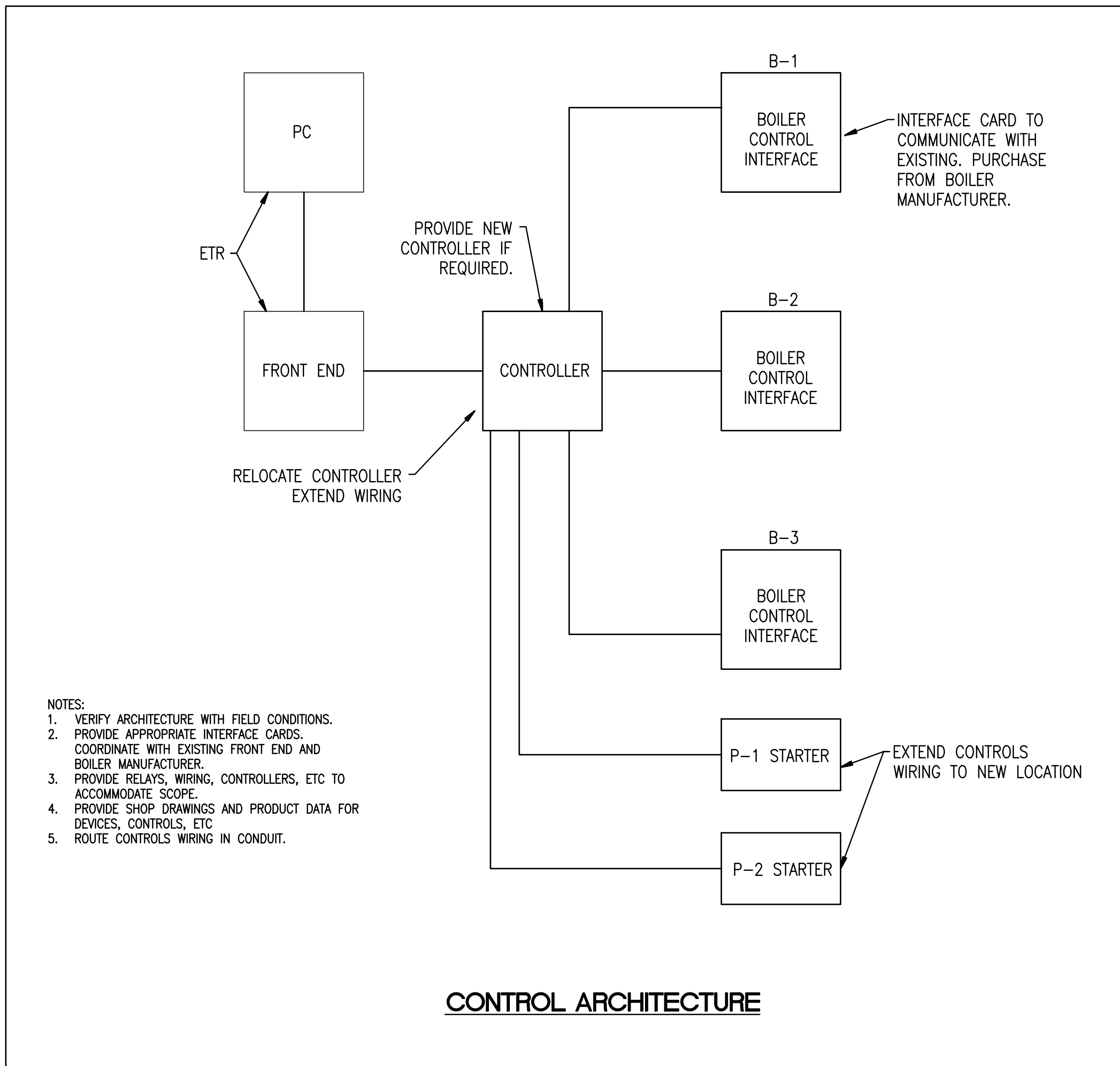
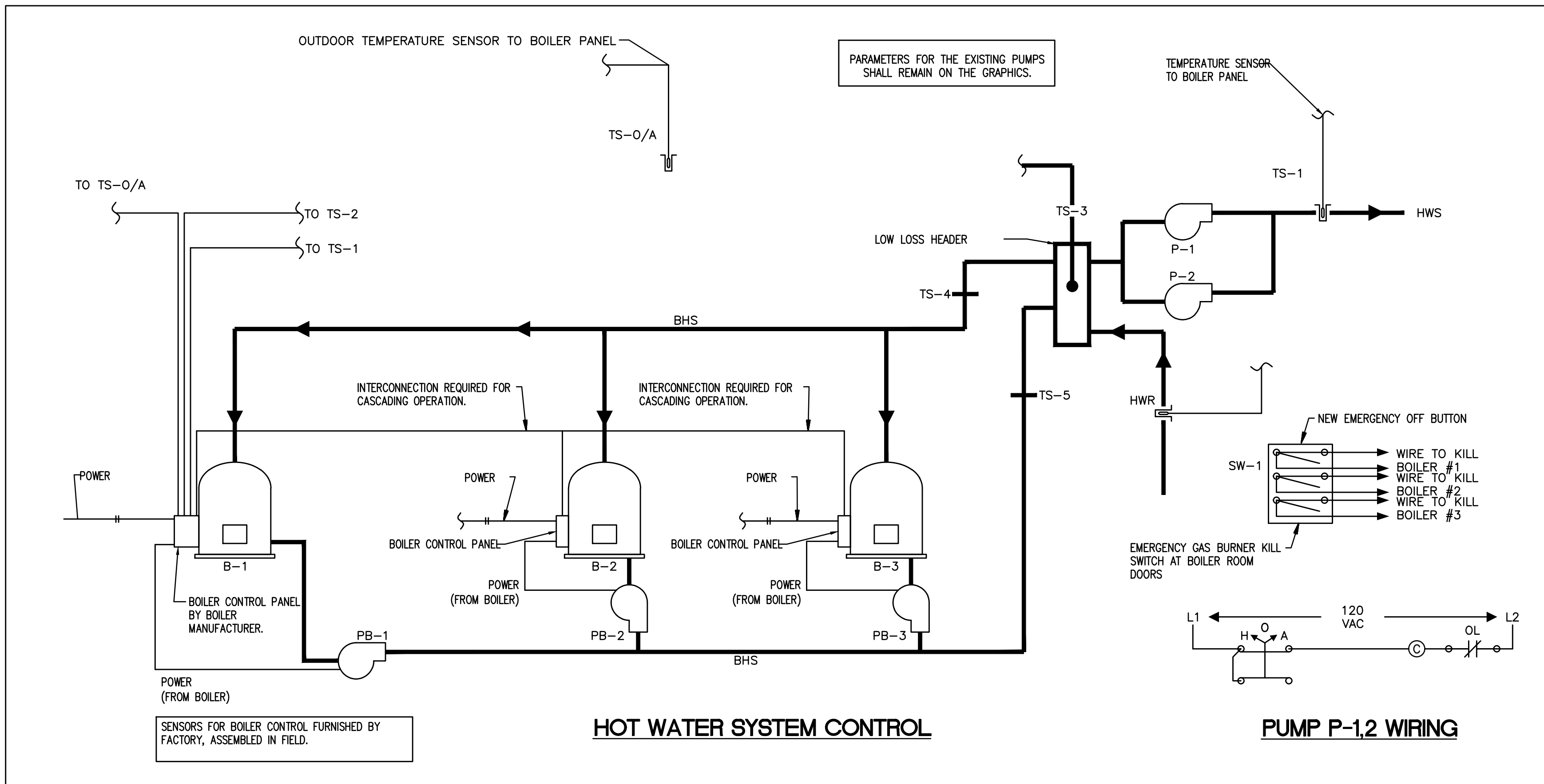
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MECHANICAL
CONTROLS AND
SEQUENCE

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SEQUENCE OF OPERATIONS

EXISTING PUMPS:
THE SEQUENCE OF OPERATION FOR THESE PUMPS SHALL REMAIN AS-IS. VERIFY SEQUENCE OF THESE PUMPS WITH FIELD CONDITIONS. PROVIDE ANY REQUIRED PROGRAMMING TO MIMIC.

NEW PUMPS:
THE NEW PUMPS SHALL BE ENABLED/DISABLED BY THE FACTORY PROVIDED BOILER CONTROLS. THE FRONT END SHALL DISPLAY STATUS OF THE PUMPS.

NEW BOILERS:
THE NEW BOILERS SHALL OPERATE UNDER FACTORY CONTROLS TO MAINTAIN TEMPERATURE IN THE LOW LOSS HEADER. FIRING RATE, SEQUENCING/CASCADING, BOILER PUMPS, OUTDOOR TEMPERATURE RESET, ETC SHALL BE MANAGED BY THE MANUFACTURER PROVIDED CONTROL. ADJUST DEFAULT SETTINGS TO ACCOMMODATE THE FOLLOWING:

1. BOILER ON TANK TEMP 5°F BELOW SET-POINT
BOILER OFF TANK TEMP 5°F ABOVE SET POINT.
2. OUTDOOR RESET:
● 0°F OUTDOOR, 180°F TANK TEMP
● 70°F OUTDOOR, 100°F TANK TEMP
3. MINIMUM BOILER RUN TIME SHALL BE TEN MINUTES.
4. LIMIT THE ADJUSTMENT OF THE FIRING RATE TO BE NO FASTER THAN 5°F PER MINUTE.
5. SET THE MINIMUM FIRING RATE TO 1/3 OF THE TOTAL FIRING RATE OF THE BOILER.

PROVIDE AN INTERFACE CARD(S) FROM THE BOILER MANUFACTURER TO COMMUNICATE WITH THE BAS. COORDINATE TO ENSURE APPROPRIATE CARD IS PURCHASED.
























THE BAS SHALL DISPLAY THE FOLLOWING:

BOILER STATUS (ON/OFF) EACH BOILER
BOILER FIRING RATE (%) EACH BOILER
LOW LOSS HEADER SET POINT (°F) *THIS SHALL BE ADJUSTABLE AT THE GRAPHIC INTERFACE
LOW LOSS HEADER TEMP (°F)
BHR (TS-4) TEMP (°F)
BHS (TS-5) TEMP (°F)
HWS (TS-1) TEMP (°F)
HWR (TS-2) TEMP (°F)
AVERAGE SPACE TEMP (°F)
AVERAGE SPACE TEMP DEVIATION FROM SET POINT (°F)
ALARMS - SPECIFY THE BOILER IN ALARM

INTENT OF CONTROLS:
- DOCUMENTS IDENTIFY SCOPE OF WORK, CONTRACTOR TO COMPLETE DESIGN WITH COMPONENTS, DEVICES, SENSORS, WIRES, RELAYS AND ALL PROGRAMMING TO PROVIDE OPERABLE SYSTEM AND GRAPHIC INTERFACE.

- PROVIDE IDENTIFICATION FOR WIRING, RELAYS, ENCLOSURES, CONTROLLERS, SENSORS, AND SWITCHES.
- EXTEND EXISTING CONTROLS TO ACCOMMODATE THE NEW BOILERS.
- FACTORY CONTROLS SHALL MANAGE BOILER PLANT OPERATION BAS TO DISPLAY IDENTIFIED INFORMATION. ALLOW USER TO OVERRIDE THE SETPOINT OF THE LOW LOSS HEADER.
- THE PARAMETERS FOR THE EXISTING BASE MOUNTED SYSTEM PUMPS SHALL REMAIN ON THE FRONT END GRAPHIC.

SYMBOL LIST

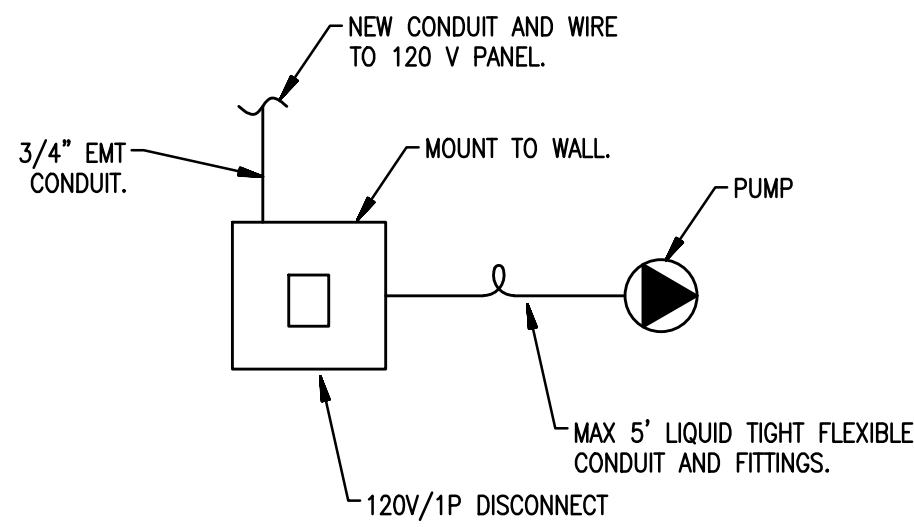
-  DUPLEX 20A RECEPTACLE, MOUNTED AT 15" AFF U.N.O.
-  DUPLEX 20A RECEPTACLE, MOUNTED 6" ABOVE COUNTER
-  DUPLEX 20A GFI RECEPTACLE, MOUNTED 15" AFF U.N.O.
-  DUPLEX 20A GFI RECEPTACLE, MOUNTED 6" ABOVE COUNTER
-  SPECIAL USE RECEPTACLE, SIZED AS INDICATED OR AS REQUIRED
-  WALL MOUNTED JUNCTION BOX, SIZED AS REQUIRED (4"x4" MIN.)
-  JUNCTION BOX, SIZED AS REQUIRED
-  FLEXIBLE METAL CONDUIT CONNECTION (WHIP)
-  MOTOR CONNECTION, 1Ø OR 3Ø AS INDICATED
-  TRANSFORMER, SIZE AND RATING AS INDICATED
-  PANEL BOARD, SIZED AS INDICATED
-  COMBINATION STARTER/DISCONNECT
-  MOTOR STARTER, SIZED AS REQUIRED
-  METER
-  LOW VOLTAGE THERMOSTAT (BY OTHERS), 4x4 BOX JUNCTION BOX WITH 3/4" CONDUIT STUBBED INTO ACCESSIBLE CEILING SPACE.
-  LINE VOLTAGE THERMOSTAT, FURNISHED BY MECH. INSTALLED BY ELEC. MOUNTED AT 44" AFF. PROVIDE SINGLE GANG JUNCTION BOX WITH 3/4"Ø STUBBED INTO ACCESSIBLE CEILING SPACE AND WIRING PER MANUFACTURER REQUIREMENTS. COORDINATE LOCATIONS AND BOX SIZE WITH MECHANICAL CONTRACTOR.
-  3--POLE NON--FUSED DISCONNECT SWITCH, SIZED AS INDICATED OR AS REQUIRED
-  3--POLE FUSED DISCONNECT SWITCH, SIZED AS INDICATED OR AS REQUIRED
-  FINAL CONNECTION TO MOTOR
-  INDICATES EXISTING TO REMAIN
-  INDICATES NEW
-  XRR DENOTES EXISTING TO BE REMOVED AND RELOCATED
-  XN DENOTES EXISTING COMPONENT IN ITS NEW LOCATION

ELECTRICAL SCOPE OF WORK SUMMARY

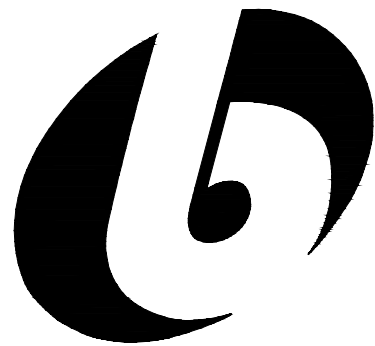
1. THE SCOPE OF WORK FOR THE PROJECT IS TO PROVIDE SUPPORT FOR THE NEW HEATING SYSTEM. PROVIDE POWER TO BOILER PACKAGE, CONTROLS, AND PUMPS. RELOCATE STARTERS.
2. PROVIDE 2 CHAIN MOUNTED 4' LONG FLUORESCENT LIGHTS. 1 IN FRONT OF BOILER PACKAGE. 1 IN FRONT OF OR ABOVE THE PUMPS. MOUNT BELOW PIPING AND EQUIPMENT.

GENERAL NOTES:

1. PAY FOR & OBTAIN ALL REQUIRED LICENSES, INSURANCES, PERMITS & SATISFY NECESSARY ORDINANCES TO UNDERTAKE & EXECUTE THE WORK UNDER THIS CONTRACT.
2. FAMILIARIZE YOURSELF WITH THE EXISTING SITE CONDITIONS, CONDITIONS OF CONTRACT, THE SCOPE OF WORK & THE INTENT OF DESIGN BEFORE SUBMITTING YOUR BID. REQUESTS FOR EXTRA PAYMENTS WILL NOT BE APPROVED AFTER CONTRACT AWARD.
3. ALL WORK SHALL BE PERFORMED IN COMPLIANCE WITH REQUIREMENTS OF THE LOCAL CODE AUTHORITY & OTHER CODES, STANDARDS & REGULATIONS REFERENCED BY SUCH AUTHORITY. IN CASE OF CONFLICT BETWEEN TWO CODES, THE REQUIREMENT OF THE LOCAL AUTHORITY SHALL BE FINAL.
4. COORDINATE ELECTRICAL INSTALLATION WITH WORK BY OTHER TRADES BEFORE STARTING WORK. PERFORM ALL WORK IN COOPERATION WITH LANDLORD, G.C. & OTHER TRADES.
5. ALL MATERIAL/EQUIPMENT SHALL BE NEW, U.L. LISTED, WITHOUT DEFECT OR DAMAGE AND SHALL BE A STANDARD PRODUCT OF A MANUFACTURER WITH A WELL KNOWN BRAND NAME. WIRING DEVICES SHALL BE SPECIFICATION GRADE. FINISH OF ALL ITEMS INSTALLED IN FINISHED AREAS SHALL BE PER ARCHITECT.
6. ELECTRICAL DWGS. ARE SCHEMATIC IN NATURE. THEY DO NOT INTEND TO SHOW EVERY DETAIL, LOCATION, SIZE, ROUTE ETC. FURNISH ALL MATERIAL, EQUIPMENT, INCIDENTALS & SERVICES TO PROVIDE A SATISFACTORY, COMPLETE & OPERATIONAL INSTALLATION IN CONFORMANCE WITH THE INTENT OF THE DESIGN. REFER TO ARCHITECTURAL DWGS. FOR DIMENSIONAL ACCURACY.
7. PROVIDE TEMPORARY ELECTRICAL LIGHTING & POWER FOR USE BY ALL TRADES DURING CONSTRUCTION.
8. ALL ENCLOSURES SHALL BE NEMA-1, IN GENERAL. GFI RECEPTACLES SHALL BE USED IF SPECIFIED OR CODE REQUIRED. WIRING DEVICES SHALL BE SPECIFICATION GRADE. NAME PLATES SHALL BE PHENOLIC, WHITE LETTERS ON BLACK BACKGROUND, SECURED WITH SCREWS ON THE ENCLOSURES.
9. USE MINIMUM 1/2" EMT. USE COMPRESSION OR SET--SCREW FITTINGS. USE TYPE THWN, COPPER WIRE IN MINIMUM #12 AWG FOR BRANCH CCTS & #14 FOR CONTROLS. FLEXIBLE CONDUIT SHALL BE LIQUID--TIGHT. USE MINIMUM SIZE 'Ø' STARTERS. FUSES SHALL BE TIME DELAY DUAL ELEMENT REJECTION TYPE.
10. SEAL PENETRATIONS THROUGH VAPOR & FIRE BARRIERS CAUSED BY THE ELECTRICAL WORK WITH U.L. LISTED SEALS TO RETAIN THE INTEGRITY OF THE RESPECTIVE BARRIERS.
11. INSTALLATION IN CEILING SPACE SHALL BE SUPPORTED FROM THE STRUCTURAL STEEL & NOT BY THE DROPPED CEILING MEMBERS. CONDUITS SHALL RUN SNUG UNDER STRUCTURAL CEILING EITHER PARALLEL OR PERPENDICULAR TO THE CEILING, COLUMNS & STRAIGHT WALLS. INSTALL PULL BOXES PER CODE. INSTALL PULL--LINES IN EMPTY RACEWAYS & CAP THEM.
12. INSTALLATION SHALL BE PERFORMED IN A MANNER CONSISTENT WITH INDUSTRY STANDARD FOR GOOD WORKMANSHIP. PROVIDE NECESSARY CUTTING, PATCHING, & CLEANING FOR ELECTRICAL WORK TO LEAVE THE AREA READY FOR FINAL FINISH BY OTHERS.
13. PROGRESS YOUR WORK IN TIMELY MANNER TO ENABLE THE OWNER TO FINISH THE WORK PER SCHEDULE. SAFEGUARD YOUR WORK & SUPPLIES. MAINTAIN ORDERLY & NEAT OPERATION. REMOVE DEBRIS GENERATED FROM YOUR WORK AS REQUIRED. LEAVE THE SITE IN CLEAN, MOVE--IN CONDITION AT ACCEPTANCE.
14. ORGANIZE ALL WARRANTIES, GUARANTEES & PRODUCT LITERATURE IN A FILE AND HAND OVER THESE TO THE OWNER AT THE TIME OF ACCEPTANCE. PROVIDE FULL & UNCONDITIONAL GUARANTEE OF YOUR WORK (MATERIAL PLUS LABOR) FOR A PERIOD OF 12 MONTHS FROM ACCEPTANCE. REFER TO ARCHITECT'S REQUIREMENTS FOR 'WARRANTIES & GUARANTEES' AND 'PROJECT CLOSE--OUT'.



PUMP CONNECTION DETAIL
NO SCALE



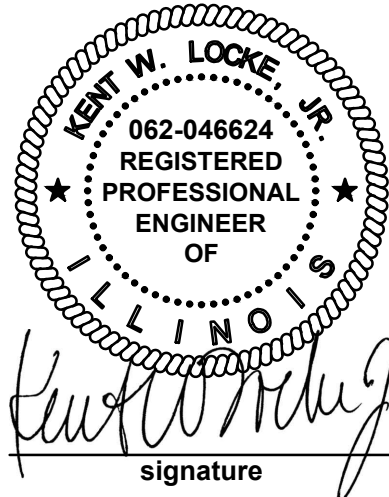
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BURNHAM BOILER
REPLACEMENT

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ELECTRICAL
STANDARDS AND
DETAILS

BE Project No.

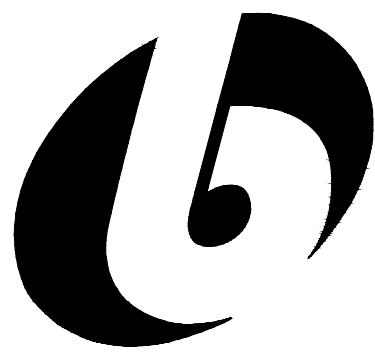
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BURNHAM BOILER
REPLACEMENT

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ELECTRICAL
DEMOLITION
BOILER ROOM PLAN

BE Project No.

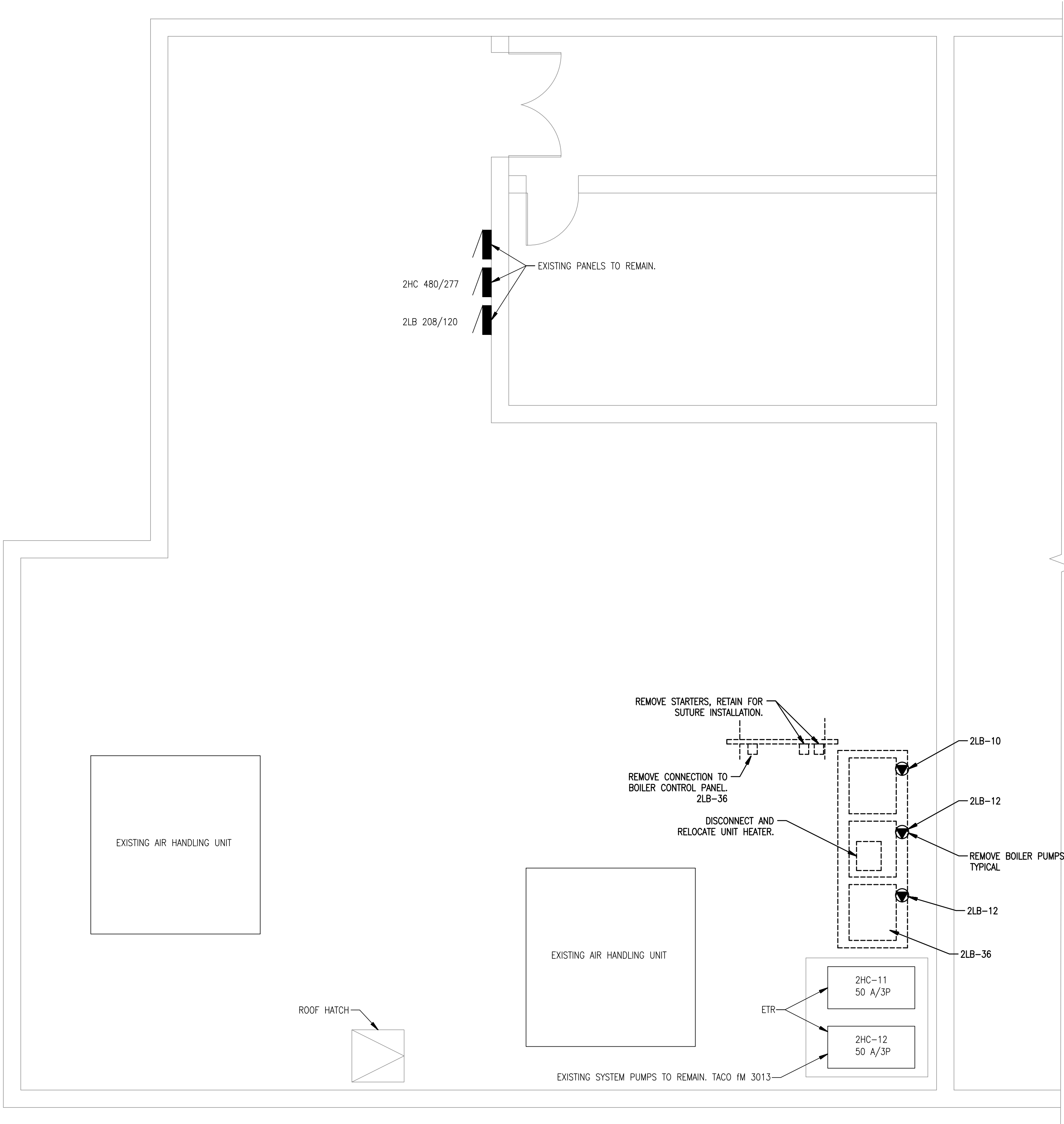
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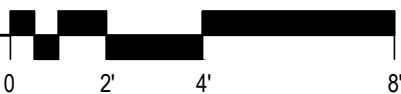
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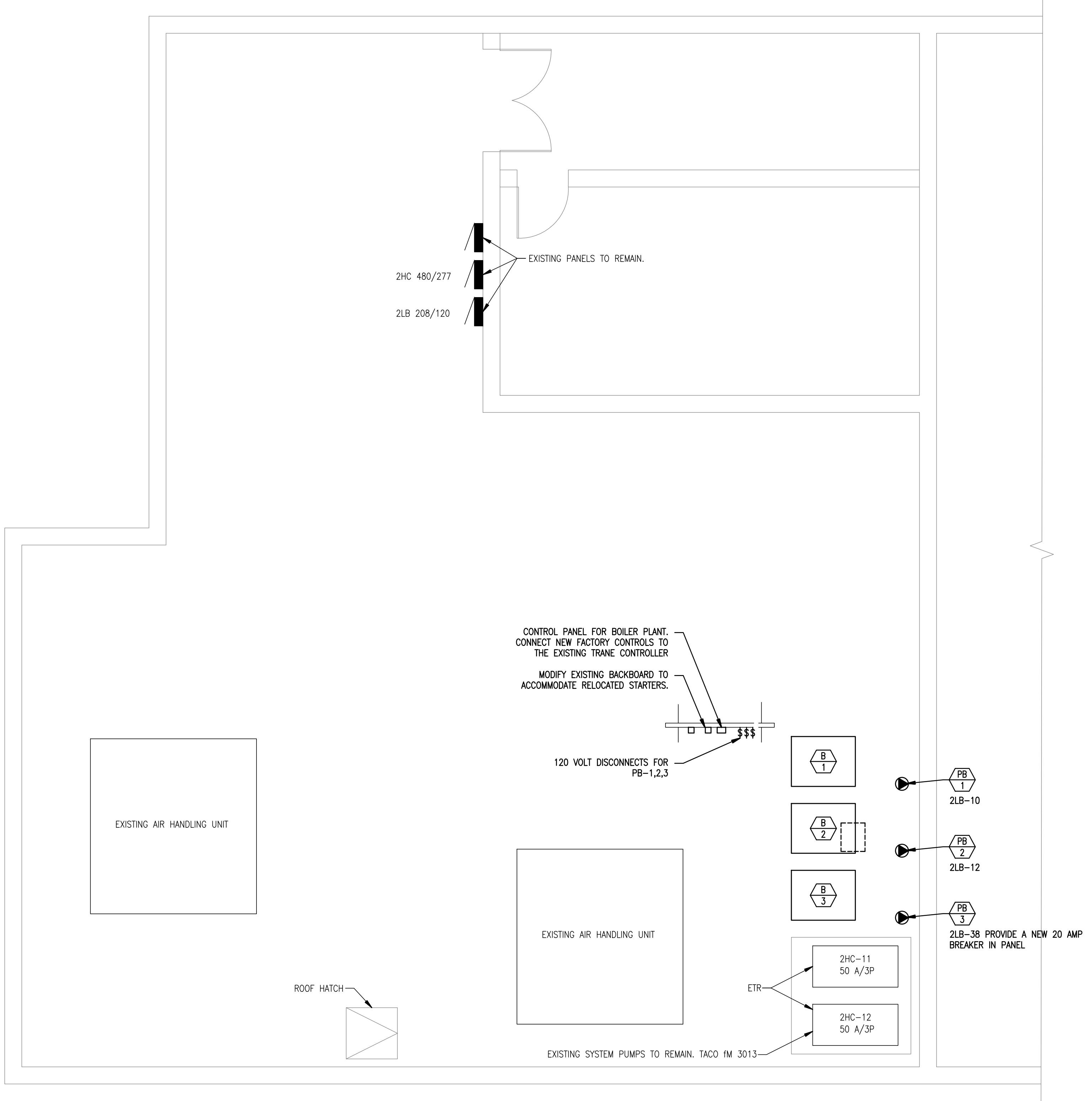
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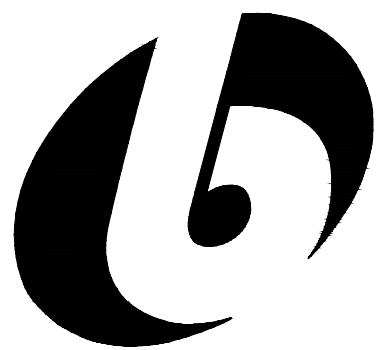


1 ELECTRICAL DEMOLITION BOILER ROOM PLAN
1/4" = 1'-0"





1 ELECTRICAL NEW WORK BOILER ROOM PLAN
1/4" = 1'-0"



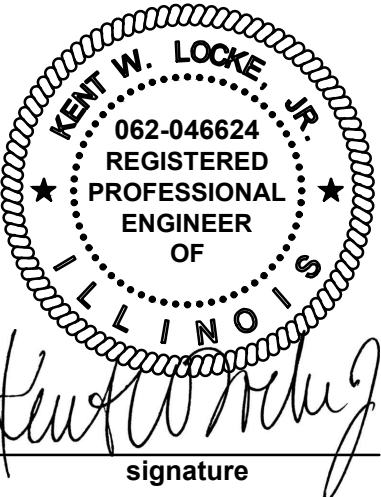
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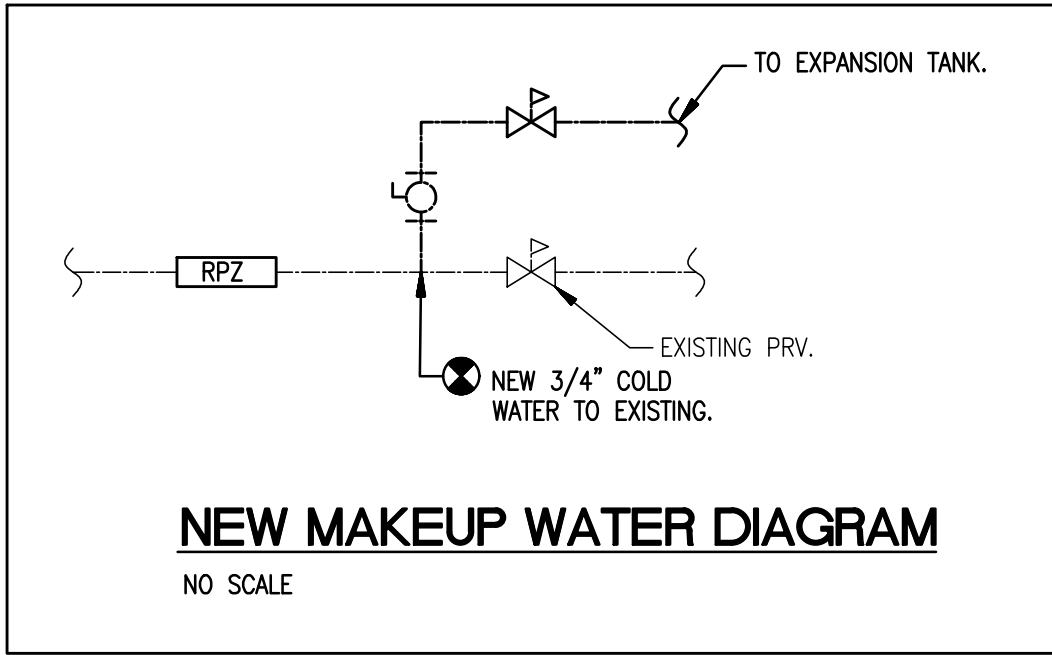
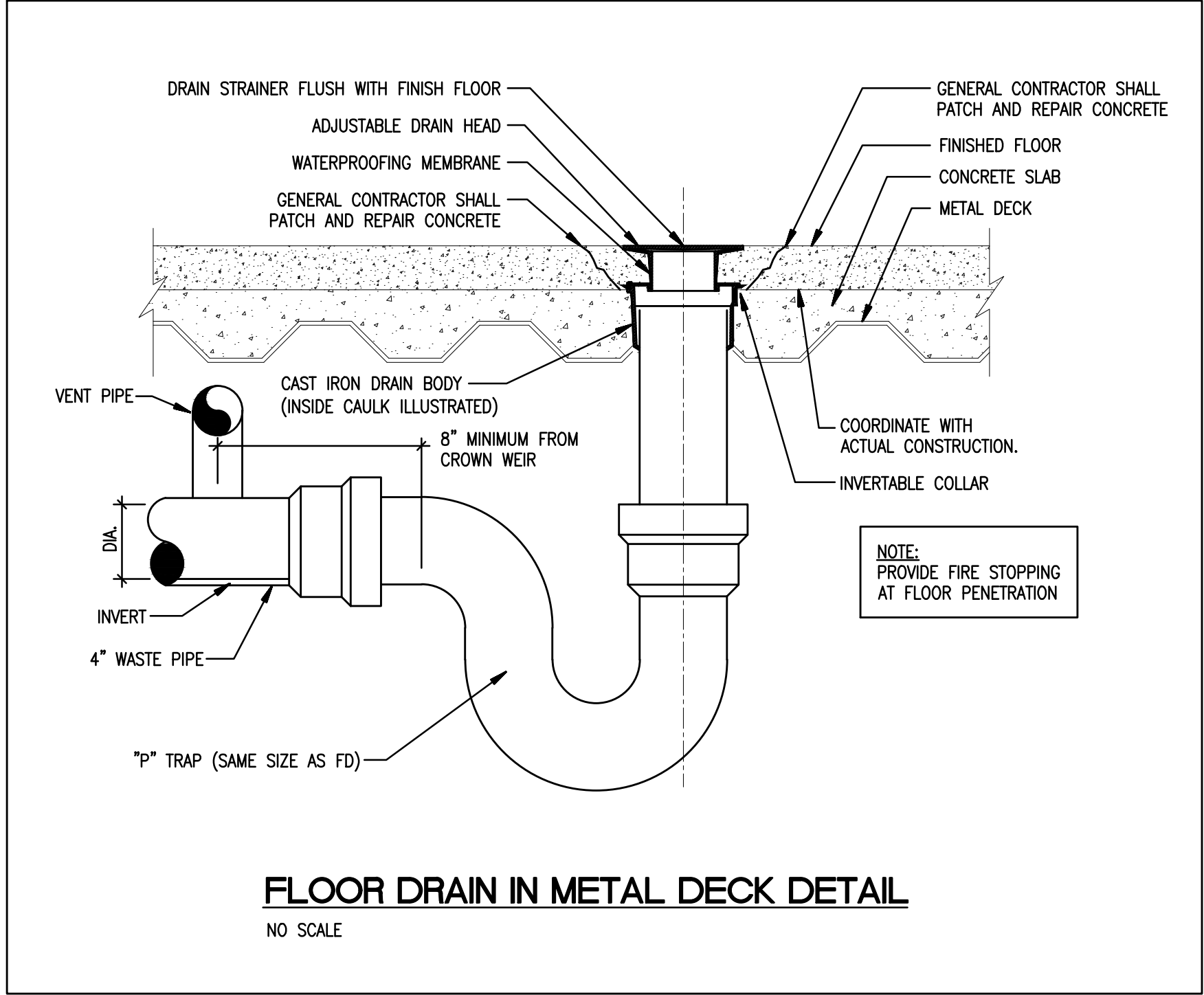
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ELECTRICAL
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BOILER ROOM PLAN

BE Project No.
17021

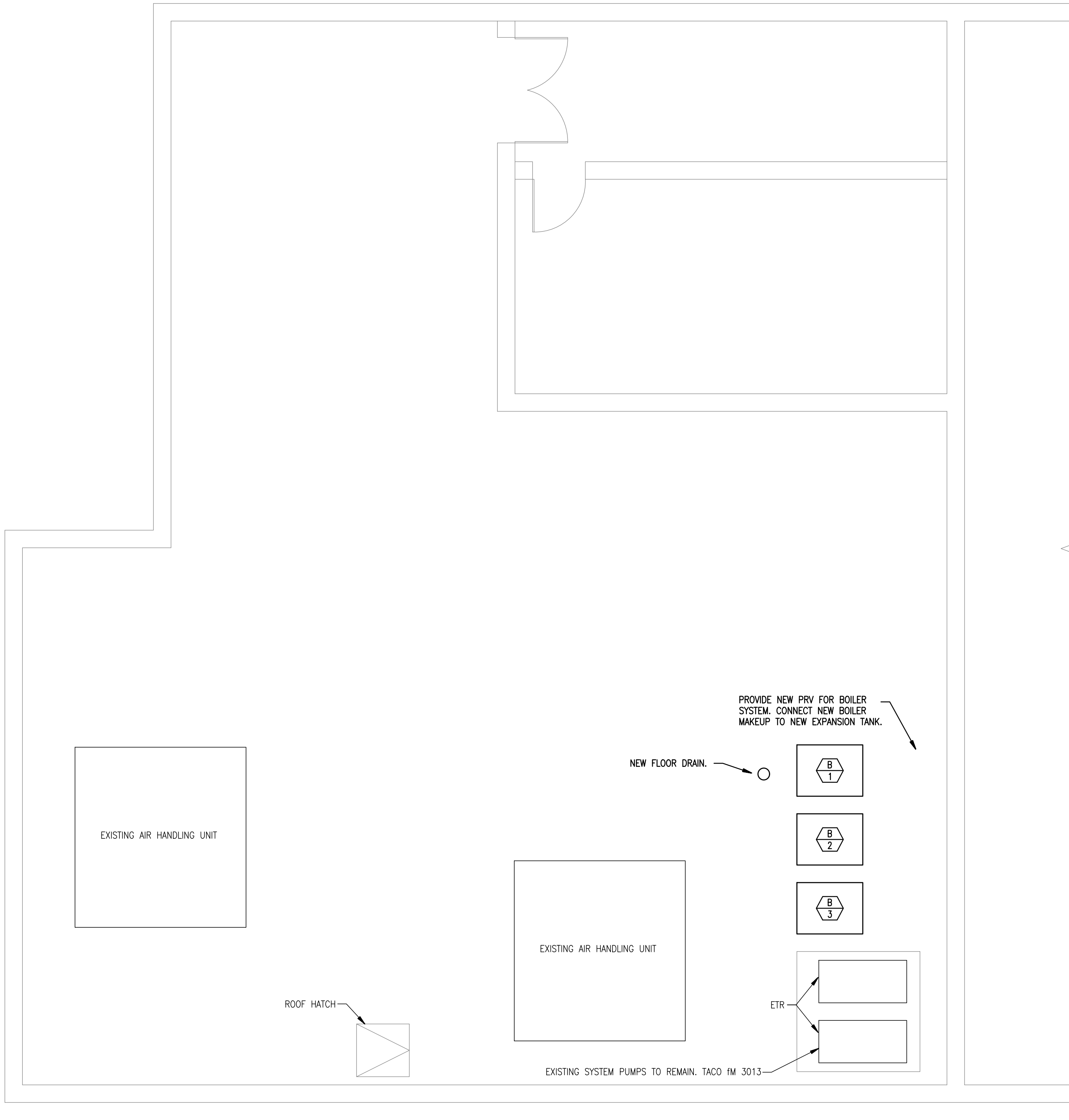
Drawn By
JPB/CP

Drawing No.
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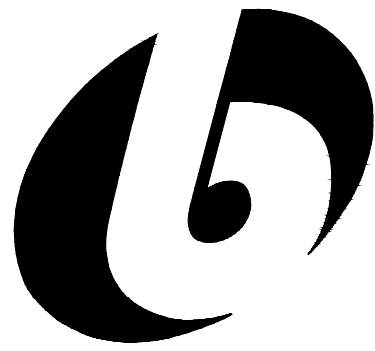
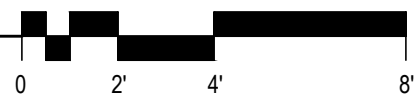


- SCOPE OF WORK:
1. RELOCATE FLOOR DRAIN. EXTEND SANITARY AND VENT TO ACCOMMODATE. CORE THROUGH FLOOR. ACCESS SPACE IN FLOOR BELOW DURING OFF HOURS. COORDINATE WITH OWNER.
 2. PROVIDE NEW PRV AND CONNECTION FOR BOILER MAKEUP.

PROVIDE COPPER PIPING TYPE L WITH WROUGHT SOLDER FITTINGS.
PROVIDE DIE-ECTIC UNIONS AT DISSIMILAR METAL CONNECTIONS.
INSULATE WITH FLEXIBLE ELASTOMERIC.
PROVIDE PVC OR CAST IRON DRAIN WASTE AND VENT PIPE.



1 **PLUMBING NEW WORK BOILER ROOM PLAN**
1/4" = 1'-0"



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Bailey Edward Design
104 Northwest Highway
Fox River Grove, IL, 60021
847-516-0992



signature
07/24/2017
date
license expires on 11-30-2017

Issue Date	Title
07/24/2017	OWNER REVIEW

**MCHENRY COUNTY COLLEGE
BURNHAM BOILER
REPLACEMENT**

8900 U.S. ROUTE 14
CRYSTAL LAKE, IL 60014

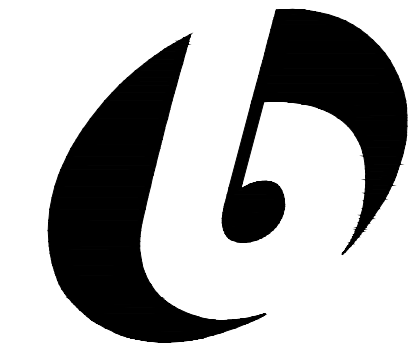
**PLUMBING
NEW WORK
BOILER ROOM PLAN**

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- DEMOLITION NOTES:
1. COORDINATE ACCESS TO FLOOR BELOW WITH OWNER.
 2. DISCONNECT THE EXISTING MAKEUP WATER FROM THE BOILER PLANT.



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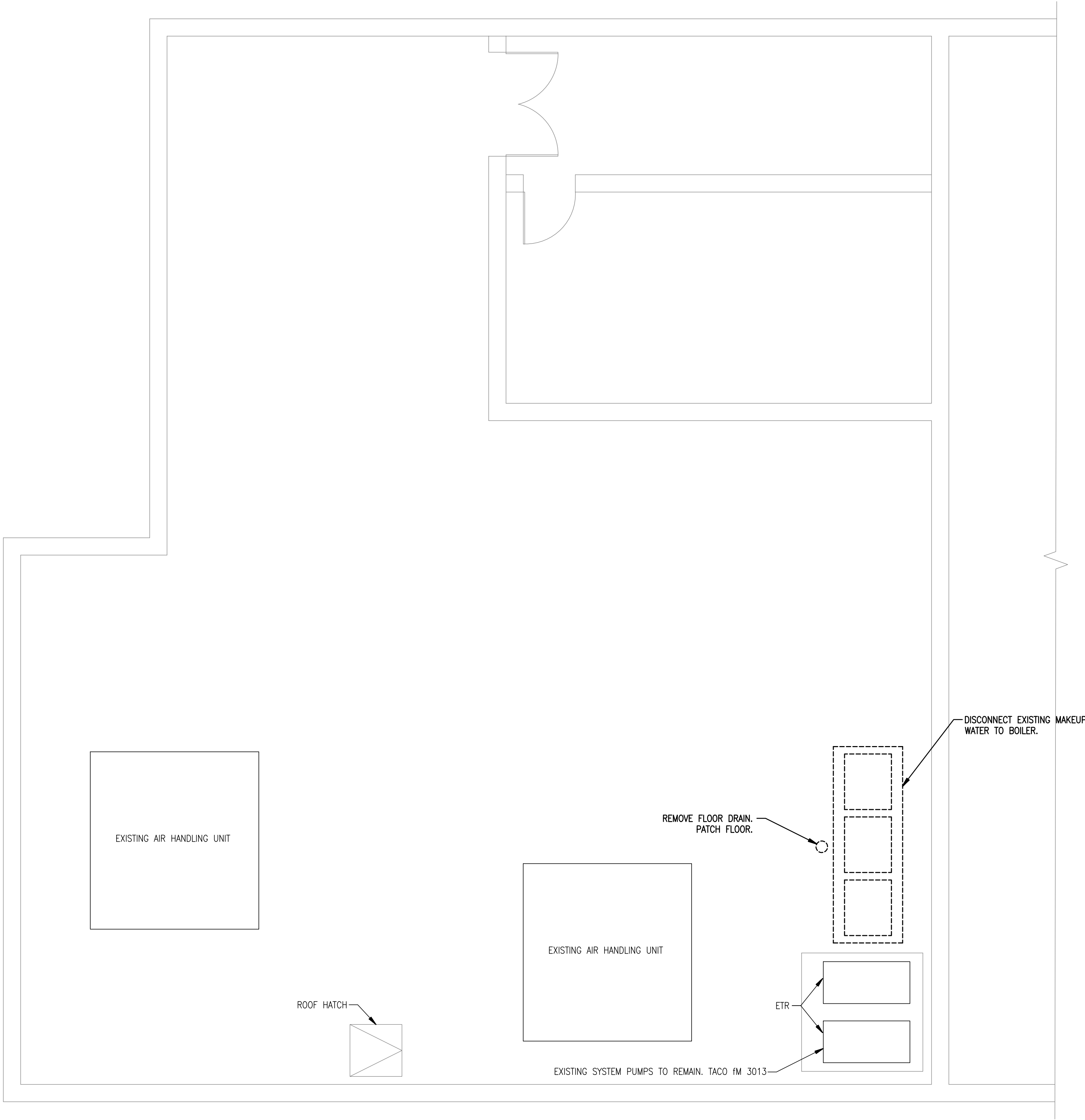
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PLUMBING
DEMOLITION
BOILER ROOM PLAN



1 PLUMBING DEMOLITION BOILER ROOM PLAN
1/4" = 1'-0"

