

# Bid Addendum 02



## CLARK NEXSEN

1523 Elizabeth Ave, Suite 300  
Charlotte, NC 28204

Project: UNC Charlotte:  
Campus Infrastructure Renewal -  
Phase 3

Date: March 7, 2018

Comm #: SCO ID #: 17-18109-01A  
Code: 41726 Item: 332  
Clark Nexsen #: 6222-B

Purpose: Question responses / clarifications.

Prepared by: Mike Romot, AIA, LEED AP BD+C / Derick Ritter, LEED AP

*This ADDENDUM is to be a part of the contract documents and modifies and takes precedence over the original bid documents, as noted below and in any attached documents. Original items of the plans and specifications that have been modified, amended, voided or suspended through previous addendums, shall remain in effect. It is the responsibility of the Bidder to notify and/or distribute this ADDENDUM to those sub-bidders who have received prints or digital files. The Bidder is to acknowledge receipt of this ADDENDUM in the space provided on the Bid Form.*

### Responses to questions / clarifications:

1. Bidder question regarding project schedule allowing 89 consecutive calendar days for the construction period, did allow for sufficient installation time.

#### A/E response:

It is the University's intention that after the receipt of bids on March 15, 2018 and upon verification of the received bid of the apparent low bidder, the University will issue a "Letter of Intent" to enter into a contract for this scope of work by end business day on March 19, 2018. The official required completion date of the scope of work will be August 17, 2018. Onsite work will not be allowed until May 14, 2018, after commencement ceremonies. The consecutive calendar days for the project will be 151 days starting March 19, 2018 and finishing August 17, 2018. This will adjust the Supplemental General Condition duration in the Project Manual.

2. Question was raised as to the \$500.00 Liquidated Damages amount, was this for the project or per building?

#### A/E response:

To clarify, Liquidated Damages is \$500.00 per calendar day (per each unfinished building). The University reserves the right to assess Liquid Damages beginning August 31, 2018.

3. Question was raised as to the project site(s) what areas was available site for the construction trailer(s)/containers. It was suggested that it would be preferable to have space for (2) 18' long trailers, but at a minimum (1) would be needed given the scope of work.

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A/E response:

The University will coordinate with the awarded contractor during the pre-construction conference to allow a maximum of (2) 18' long construction trailers to be located on campus near the project sites.

4. Clarification was requested as to the single prime contract, does it have to be a "general" contractor or can the mechanical contractor be the prime contractor holder?

A/E response:

All bidders are to refer to bid document package in their entirety, specifically the project manual section 001116 "Notice to Bidders".

5. Clarification was requested as to the planned shut-down of the steam plant and what ramifications to the Atkins Building (specifically Mark Reynolds) may have if there is a lag in steam/reheat operation available for the building operation.

A/E response:

The University will coordinate and provide as necessary to ensure that the Atkins Building will have appropriate means in place to provide for the facilities steam/reheat demand during this project.

6. Clarification was made that bids will not be received in room 210B of the Cone Building as indicated in the agenda, it will be room 113.

A/E response:

Confirmed, bids are to be received at 2pm on March 15, 2018 in room 113 of the Cone Building.

Attachments:

Drawing ME100

Drawing ME003

**END OF BID ADDENDUM 02**

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B

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### STEAM BOILER SCHEDULE

MARK	LOCATION	NOMINAL OUTPUT CAPACITY (BHP)	EFFICIENCY	PERFORMANCE AT MAX REQUIRED OUTPUT		GAS REQUIREMENTS		BURNER HP	BASIS OF DESIGN	
				STEAM FLOW (# / HR)	STEAM PRESSURE (PSI)	MAX INPUT (CU.FT.HR)	PRESSURE (PSI)		MANUFACTURER	MODEL NO
SB-1	ATKINS	100	82%	3450	15	3985	2	3	FULTON	VMP-100
SB-2	ATKINS	100	82%	3450	15	3985	2	3	FULTON	VMP-100
SB-3	KENNEDY	30	82%	1035	15	1256	2	3/4	FULTON	ICS-30
SB-4	KENNEDY	30	82%	1035	15	1256	2	3/4	FULTON	ICS-30

NOTES:  
 1. MANUFACTURER PROVIDED BOILER MANAGEMENT CONTROLS.  
 2. INSTALL NATURAL GAS CONNECTION PER MANUFACTURER'S INSTRUCTIONS, INCLUDING PRESSURE REGULATOR, SHUT-OFF VALVES AND DRIP LEG.  
 3. MANUFACTURER PROVIDED DISCONNECT.

4. BOILER TURN-DOWN SHALL BE 1:1 OR GREATER.  
 5. REMOVE & REPLACE EXIST. GAS REGULATORS.

### BLOWDOWN SEPARATOR

MARK	LOCATION	CAPACITY (BHP)	MANUFACTURER	MODEL
BD-1	ATKINS	100	FULTON	F-100
BD-2	KENNEDY	30	FULTON	F-30

### STEAM TRAP SCHEDULE

MARK	SERVICE	TYPE	CAPACITY LB/HR	ΔP PSIG
ST-1	END OF MAIN	I.B.	11	15
ST-2	UH-1	I.B.	36	2

REMARKS:  
 1. CRIFICE SIZE TO BE DETERMINED BY SELECTED MANUFACTURER'S INSTALLATION AND SELECTION GUIDELINES DURING SHOP DRAWING SUBMITTAL PHASE.

### BOILER FEED WATER ASSEMBLY SCHEDULE

MARK	LOCATION	SYSTEM SERVED	TANK VOLUME	TYPE	PUMP V / Ph	PUMP MOTOR HP	BASIS OF DESIGN	
							MANUFACTURER	MODEL NO
BFW-1	ATKINS	CONDENSATE RETURN	220 GAL	HORIZONTAL TANK	480 / 3	5	FULTON	HT-150
BFW-2	KENNEDY	CONDENSATE RETURN	94 GAL	VERTICAL TANK	480 / 3	5	FULTON	VT-60

NOTES:  
 1. FACTORY PROVIDED DISCONNECT.  
 2. SINGLE POINT POWER CONNECTION.

### STEAM UNIT HEATER SCHEDULE

MARK	LOCATION	CAPACITY (BTU/HR)	CFM	E.A.T. (°F)	STEAM FLOW (# / HR)	STEAM PRESSURE (PSI)	POWER (WATTS)	ELEC. V/PH/Hz	MANUFACTURER	MODEL
UH-1	KENNEDY	18,000	395	60	18	2	16	115/160	TRANE	UHS-18

REMARKS:  
 1. DISCONNECT SWITCH  
 2. WALL MOUNTED THERMOSTAT

### HOT WATER UNIT HEATER SCHEDULE

MARK	LOCATION	CAPACITY (BTU/HR)	CFM	E.A.T. (°F)	L.A.T. (°F)	GPM	ΔP	POWER (HP)	ELEC. V/PH/Hz	MANUFACTURER	MODEL
UH-2	MCMILLAN	18,000	850	60	99	3.6	3.0	1/20	115/160	TRANE	UHS-36

REMARKS:  
 1. DISCONNECT SWITCH  
 2. WALL MOUNTED THERMOSTAT

### PIPE INSULATION THICKNESSES

INSULATION (THERMAL CONDUCTIVITY, BTU-IN/HR-FT <sup>2</sup> -°F)	PIPE SIZE (NOMINAL DIAMETER)	
	LESS THAN 1-1/2 INCH	1-1/2 INCH AND GREATER
STEAM & STEAM CONDENSATE		
FIBERGLASS (k = 0.27)	1-1/2	3
FOAMGLASS	1-1/2	3
HEATING WATER		
FIBERGLASS (k = 0.27)	1-1/2	2
CHILLED WATER, REFRIGERANT		
FLEXIBLE ELASTOMETRIC	2	2
RIGID FOAM	2	2
COOLING COIL CONDENSATE DRAIN LINES & MAKE-UP WATER LINES		
FLEXIBLE CLOSED CELL ELASTOMETRIC	1/2	1/2

NOTES:  
 1. FACTORY APPLIED JACKETS ARE SPECIFIED IN DIVISION 23  
 2. PROVIDE 0.02" PVC JACKET ON ALL PIPING OTHER THAN STEAM EXPOSED TO VIEW IN MECHANICAL ROOM AND OCCUPIED SPACES.  
 3. PROVIDE 216" ALUMINUM JACKET ON ALL INSULATED PIPING EXPOSED TO OUTDOORS AND IN MANHOLES. PROVIDE ELECTRICAL HEAT TRACE ON PIPING PRIOR TO INSULATING THE PIPE EXPOSED TO OUTDOORS.  
 4. PROVIDE CANVAS JACKET ON STEAM PIPING EXPOSED TO VIEW IN MECHANICAL ROOM AND OCCUPIED AREAS.

### NATURAL GAS CONDENSING TYPE BOILER SCHEDULE

MARK	LOCATION	NOMINAL OUTPUT CAPACITY (BTU/HR)	MIN EFFICIENCY	PERFORMANCE AT MAX REQUIRED OUTPUT			MAX FLUID PD (FT WG)	GAS REQUIREMENTS		BASIS OF DESIGN		
				FLUID FLOW RATE (GPM)	EWT (°F)	LWT (°F)		MAX INPUT (BTU/H)	SERVICE PRESSURE	MANUFACTURER	MODEL NO	
B-1	MCMILLAN	953,300	85	90	160	180	1.61	1,000,000	4	28	FULTON	EDR-1000
B-2	MCMILLAN	953,300	85	90	160	180	1.61	1,000,000	4	28	FULTON	EDR-1000

NOTES:  
 1. PROVIDE PACKAGED CONTROLS COMPATIBLE WITH EXISTING BUILDING BAS CONTROLS (BACNET), INCLUDING INTEGRAL BOILER CONTROLS.  
 2. INSTALL NATURAL GAS CONNECTION PER MANUFACTURER'S INSTRUCTIONS, INCLUDING PRESSURE REGULATOR, SHUT-OFF VALVES AND DRIP LEG.  
 3. BOILER DRAINS AND RELIEF VALVES TO BE PIPED TO NEAREST FLOOR DRAINS.  
 4. BOILER TURN-DOWN SHALL BE A MINIMUM OF 8:1.  
 5. MANUFACTURER SUPPLIED ELECTRONIC ISOLATION VALVES FOR EACH BOILER.  
 6. PROVIDE NEUTRALIZATION KIT IN CONDENSATE DISCHARGE.  
 7. FACTORY PROVIDED DISCONNECT.

### PUMP SCHEDULE

MARK	LOCATION	SYSTEM SERVED	FLUID FLOW RATE (GPM)	FLUID PD (FT HEAD)	TYPE	RPM	BASIS OF DESIGN		
							MOTOR (HP)	MANUFACTURER	SERIES
P-6	MCMILLAN	HEATING	90	35	INLINE	1750	2.0	BELL & GOSSETT	E-80SC
P-6	MCMILLAN	HEATING	90	35	INLINE	1750	2.0	BELL & GOSSETT	E-80SC

NOTES:  
 1. NOT USED.  
 2. PROVIDE STARTERS AND DISCONNECTS FOR PUMPS P-5 & P-6.

COMMENTS:  
 A. HEATING WATER PUMPS EACH SELECTED AT 100% OF BUILDING HEATING CAPACITY.  
 B. ALL PUMPS ARE 100% REDUNDANT.

### EXPANSION TANK SCHEDULE

MARK	TANK (GAL)	ACCEPT (GAL)	TYPE	AIR CHARGE (PSI)	BASIS OF DESIGN		SYSTEM
					MANUFACTURER	MODEL NO	
ET-1	10	10	BLADDER	12	BELL & GOSSETT	B-38LA	HEATING WATER

### AIR SEPARATOR SCHEDULE

MARK	FLUID FLOW RATE (GPM)	FLUID PD (FT W.G.)	NOMINAL PIPE SIZE (IN)	BASIS OF DESIGN		SYSTEM
				MANUFACTURER	MODEL NO	
AS-1	90	0.4	3	BELL & GOSSETT	RL-3F	HEATING WATER

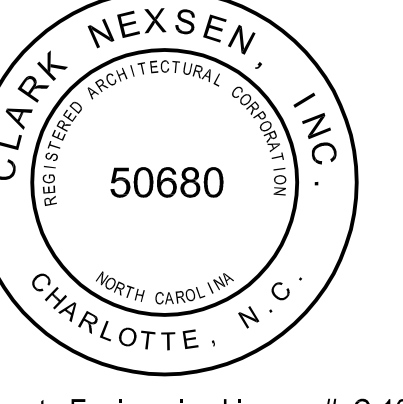
### FAN SCHEDULE

MARK	TYPE	LOCATION	SERVICE	AIRFLOW (CFM)	ESP (IN. WG)	DRIVE TYPE	BASIS OF DESIGN		NOTES	
							MOTOR (HP)	MANUFACTURER		
SF-1	SIDEWALL - PROPELLAR	KENNEDY	SUPPLY	900	0.25	DIRECT	1/4	GREENHECK	SS1-12-432-4A	1,2,3

NOTES:  
 1. PROVIDE DISCONNECT AND FAN SPEED CONTROLLER.  
 2. FAN SHALL BE INTERLOCKED WITH KENNEDY BOILERS TO RUN WHEN EITHER BOILER IS ENERGIZED OR WHEN SPACE THERMOSTAT CALLS FOR COOLING (SPACE TEMPERATURE RISES ABOVE 90 °F).  
 3. SPACE THERMOSTAT.

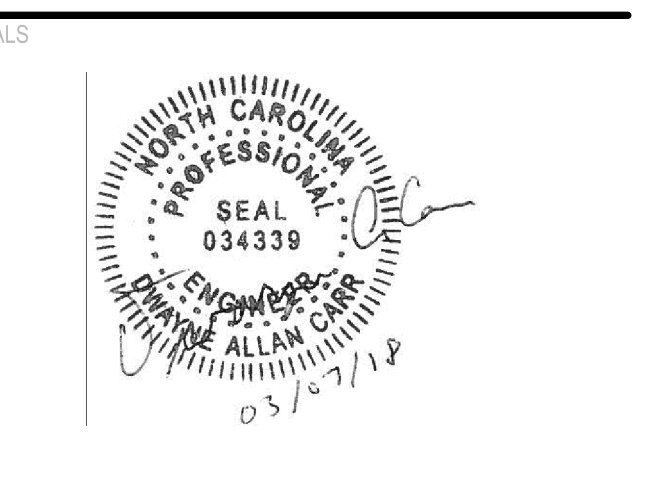
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SUBMITTAL  
 20 February, 2018  
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NO.	DATE	DESCRIPTION
1	03/08/2018	BID ADDENDUM NO. 2

SHEET

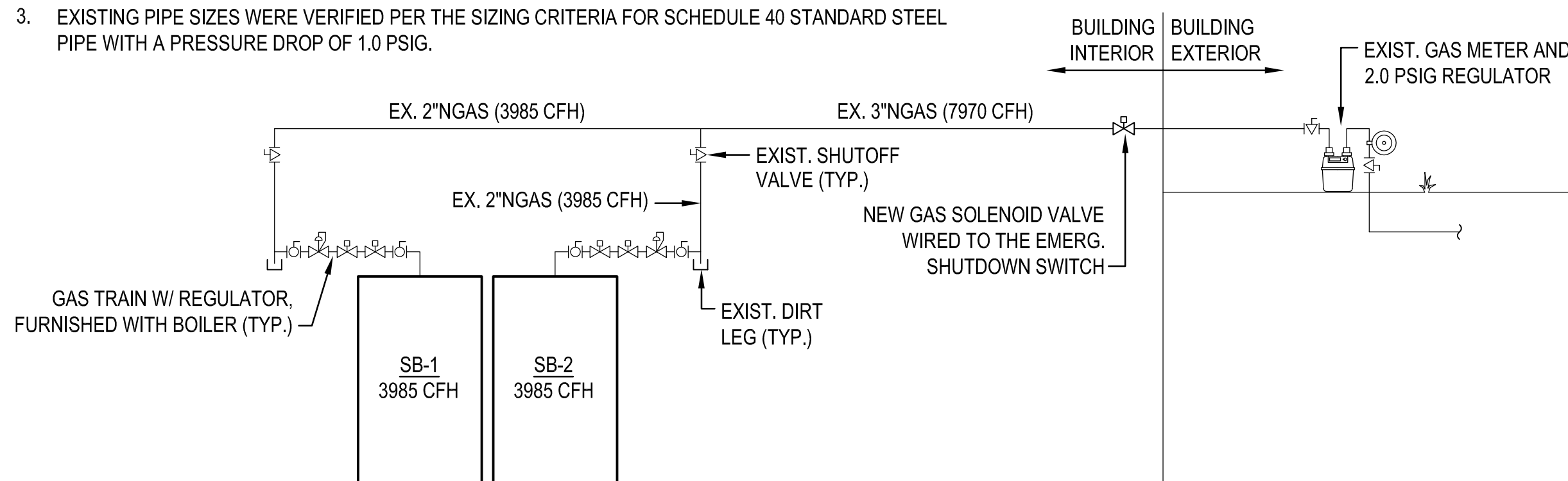
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**COMBUSTION AIR CALCULATION PER 2012 MECHANICAL CODE SECTION 304.9**

BOILER	INPUT FT <sup>3</sup> /HR	INPUT BTU/HR
SB-1	3985	4,064,700
SB-2	3985	4,064,700
TOTAL INPUT = 8,129,400 BTU/HR		
REQUIRED COMBUSTION AIR (CFM) = TOTAL INPUT x (0.35 CFM/1000 BTU/HR) = 8,129,400 BTU/HR x (0.35 CFM/1000 BTU/HR)		
REQUIRED COMBUSTION AIR = 2845 CFM		
COMBUSTION AIR PROVIDED BY EXISTING FAN = 4000 CFM		

- NOTES:**
- GAS LOAD SUMMARY:**  
EXISTING BOILER GAS LOAD BEING REMOVED: 6720 CFH @ 2.0 PSIG SUPPLY  
NEW BOILER GAS LOAD BEING ADDED: 7970 CFH @ 2.0 PSIG SUPPLY
  - APPROXIMATE TOTAL DEVELOPED LENGTH = 100 LF.
  - EXISTING PIPE SIZES WERE VERIFIED PER THE SIZING CRITERIA FOR SCHEDULE 40 STANDARD STEEL PIPE WITH A PRESSURE DROP OF 1.0 PSIG.

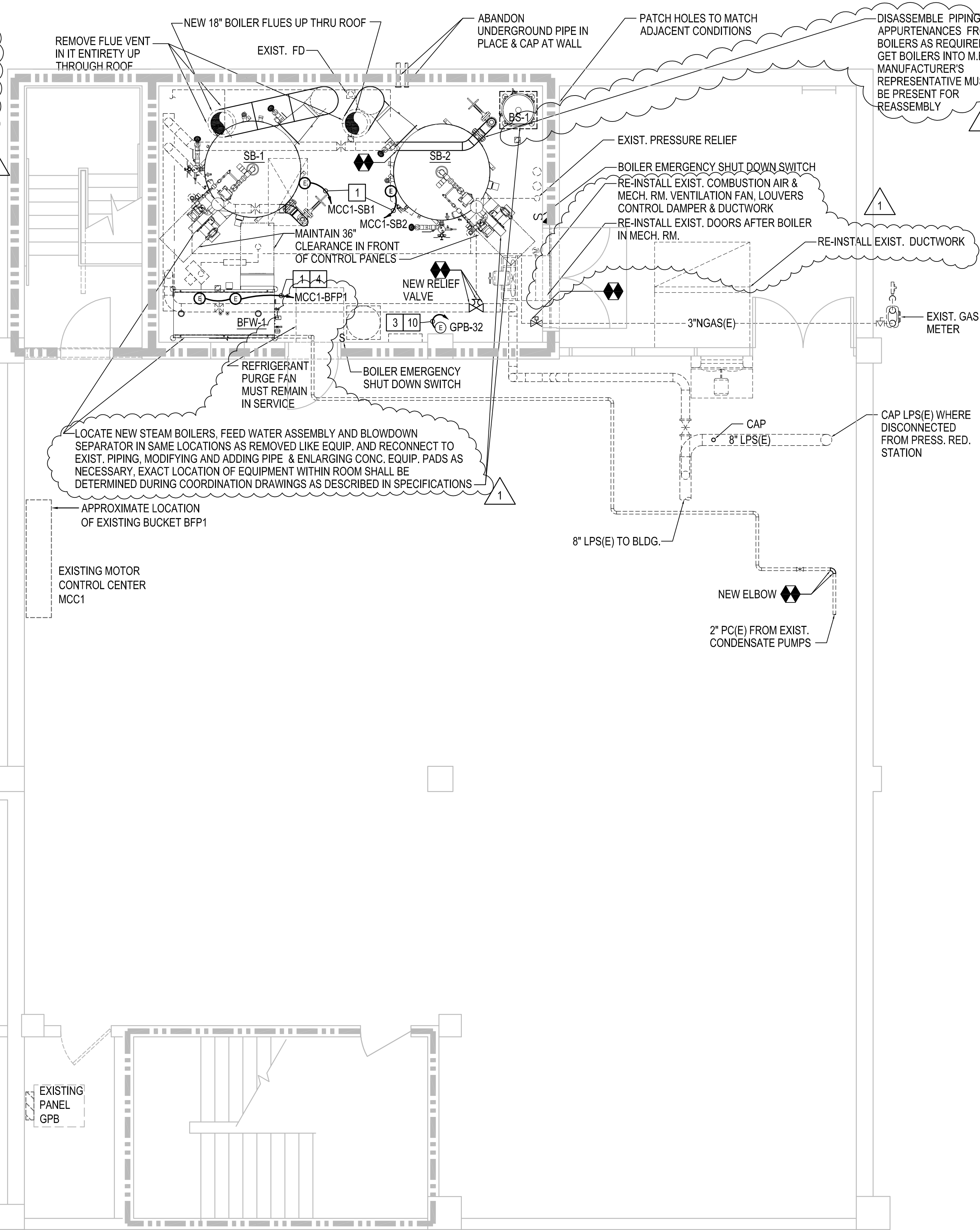
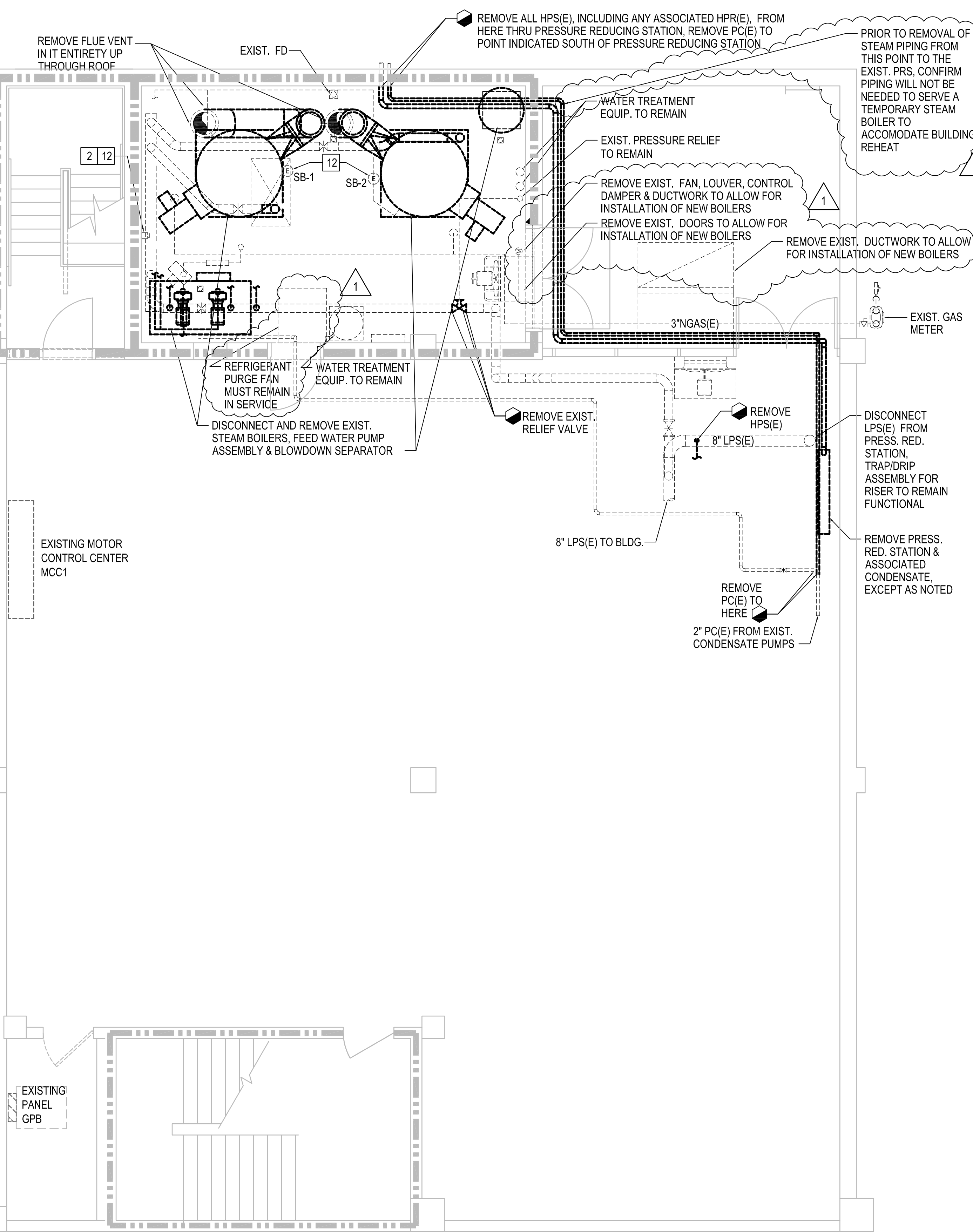
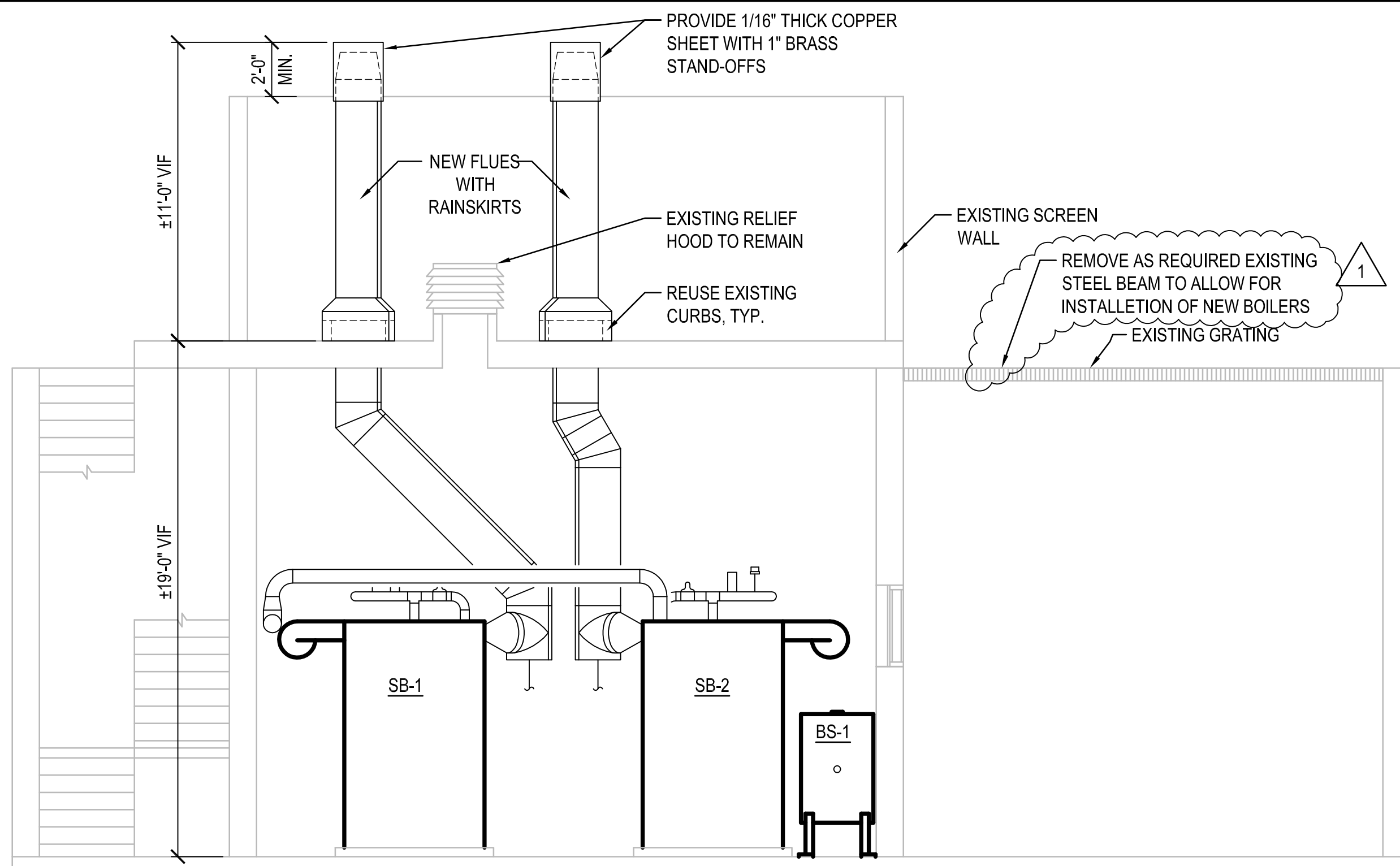


**ATKINS GAS RISER DIAGRAM**

1/4" = 1'-0"

**ATKINS MECHANICAL EQUIPMENT ROOM SECTION**

1/4" = 1'-0"



**ATKINS MECHANICAL EQUIPMENT ROOM DEMOLITION PLAN**

1/4" = 1'-0"

**ATKINS MECHANICAL EQUIPMENT ROOM RENOVATION PLAN**

1/4" = 1'-0"

**GENERAL NOTES**

- REFER TO DETAIL 3 ON SHEET ME002 FOR CLARIFICATION ON DIVISION OF WORK.
- WHERE NEW CIRCUIT BREAKERS ARE INDICATED TO BE INSTALLED IN EXISTING PANELBOARDS, NEW CIRCUIT BREAKER KAIC RATING SHALL BE PROVIDED TO MATCH KAIC RATING OF EXISTING PANEL.
- THE BOILER CLEARANCE SHALL COMPLY WITH 2012 NC MECHANICAL CODE 1004.3.

**TAGGED NOTES** (ALL NOTES MAY NOT BE USED ON ALL DRAWINGS)

- UTILIZE EXISTING MCC BUCKET NOTED AND PROVIDE NEW FUSING PER EQUIPMENT CONNECTION SCHEDULE ON SHEET ME006. RELABEL BUCKET TO MATCH NEW EQUIPMENT DESIGNATION.
- REMOVE DISCONNECT SERVING EXISTING PUMP CONTROLLER BEING REMOVED.
- 120V, 1-PHASE, 20A BRANCH CIRCUIT FOR CONTROLS.
- VIA PUMP CONTROLLER.
- BRANCH CIRCUIT FOR PUMP ASSEMBLY.
- BRANCH CIRCUIT FOR BOILER COMBUSTION AIR FAN.
- BRANCH CIRCUIT FOR PUMP VFD'S.
- BRANCH CIRCUIT FOR BOILER PUMPS.
- REMOVE EXISTING CIRCUIT BREAKER(S) IN EXISTING PANEL POLE SPACES INDICATED. PROVIDE NEW CIRCUIT BREAKER.
- UTILIZE EXISTING SPARE CIRCUIT BREAKER IN EXISTING PANEL INDICATED.
- PROVIDE NEW CIRCUIT BREAKER IN EXISTING (OR NEWLY CREATED) PANEL POLE SPACES INDICATED.
- REMOVE EXISTING BRANCH CIRCUIT WIRING BACK TO LAST ACTIVE DEVICE. EXISTING RACEWAY MAY BE REUSED AT CONTRACTOR'S DISCRETION. OTHERWISE PROVIDE NEW RACEWAY. EXISTING RACEWAY THAT IS NOT REUSED SHALL BE REMOVED AND DISPOSED OF.
- BRANCH CIRCUIT FOR UNIT HEATER.
- BRANCH CIRCUIT FOR SUPPLY FAN.
- PROVIDE CHANNEL STRUT SUPPORT FRAME FOR MOUNTING PANEL 05HM2.
- BOTTOM OF WALL PENETRATION TO BE LOCATED AT A MAXIMUM OF 48" BELOW EXTERIOR GRADE. SPACING OF PIPE PENETRATIONS IS TO BE 40" O.C. MIN. ONLY ONE VERTICAL BAR IN WALL MAY BE CUT AT EACH PENETRATION. LOCATE BARS USING A NON-DESTRUCTIVE SCANNING METHOD.

**THE PROJECT SCOPE FOR ATKINS INCLUDES THE FOLLOWING:**

- REMOVAL AND REPLACEMENT OF TWO EXISTING 80 HP STEAM BOILERS WITH TWO NEW 100 HP STEAM BOILERS.
- REMOVAL OF STEAM PIPING WITHIN THE MECHANICAL ROOM THAT IS CURRENTLY FED FROM THE EXISTING HEATING PLANT THAT IS BEING DEMOLISHED IN THE FUTURE. EXISTING STEAM PIPING TO BE REMOVED INCLUDES HPS, HPR, A PRESSURE REDUCING STATION, AND PUMPED CONDENSATE PIPING.

**CONTROLS SCOPE OF WORK:**

STEAM BOILERS SB-1 AND SB-2 AND THEIR AFFILIATED FEED WATER PUMPS SHALL BE CONTROLLED AND SEQUENCED BY MANUFACTURER PROVIDED CONTROLS. THE BOILERS SHALL BE CONNECTED TO THE EXISTING BUILDING CONTROL SYSTEM WITH CONTROL POINTS AND SEQUENCE OF OPERATION SIMILAR TO THE THE EXISTING CONTROLS AFFILIATED WITH THE BOILERS BEING REMOVED.

EXISTING SUPPLY FAN SHALL BE CONNECTED TO EXISTING CONTROLS AND BE INTERLOCKED WITH BOTH BOILERS SO THAT WHEN EITHER BOILER IS ON THE FAN IS ON AND FAN SHALL SUPPLY ROOM VENTILATION TAB ADJUST FAN TO PRESCRIBED CFM.

THE FOLLOWING CONTROL POINTS SHALL BE TIED TO THE EXISTING BUILDING CONTROL SYSTEM:

- BOILER START / STOP - DO
- BOILER STATUS - DI
- ALARM - SHALL BE SENT TO THE BAS IF BOILER FAILS TO ENERGIZE, BOILER SHUTS DOWN ON LOW WATER OR IF THERE IS A FLAME FAILURE.
- THERE IS AN EXISTING STEAM PRESSURE SENSOR THAT MONITORS THE STEAM PRESSURE. CONTROL CONTRACTOR NEEDS TO CONFIRM THE SENSOR IS FUNCTIONING AND REPORTING TO THE BUILDING CONTROL SYSTEM PROPERLY. IF THE SENSOR IS NOT FUNCTIONING PROPERLY THE SENSOR SHALL BE REPLACED.

**LEGENDS**

- TWO-HOUR RATED WALL
- ONE-HOUR RATED WALL
- EXISTING CONSTRUCTION
- ITEMS TO REMOVE
- ITEMS TO REMAIN
- NEW ITEMS

1/4" = 1'-0"



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**CLARK NEXSEN**

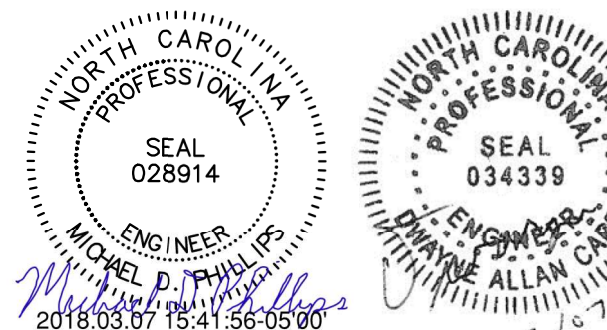
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SEALS



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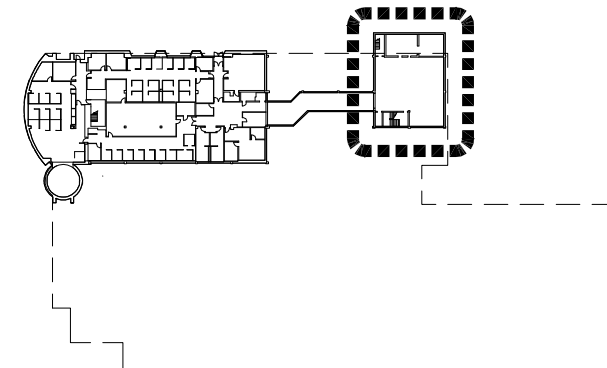
20 February, 2018

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REVISIONS

NO.	DATE	DESCRIPTION
1	03/08/2018	BID ADDENDUM NO. 2

REVISIONS



SHEET

**ATKINS MECHANICAL - ELECTRICAL PLANS**

**ME100**