

# REPLACE BOILER AT CASB PROJECT H34-9546

UNIVERSITY OF SOUTH CAROLINA  
UPSTATE  
Spartanburg, South Carolina

## DESIGN TEAM

### OWNER

UNIVERSITY OF SOUTH CAROLINA UPSTATE  
800 UNIVERSITY WAY  
SPARTANBURG, SC 29303 (864) 503-5538

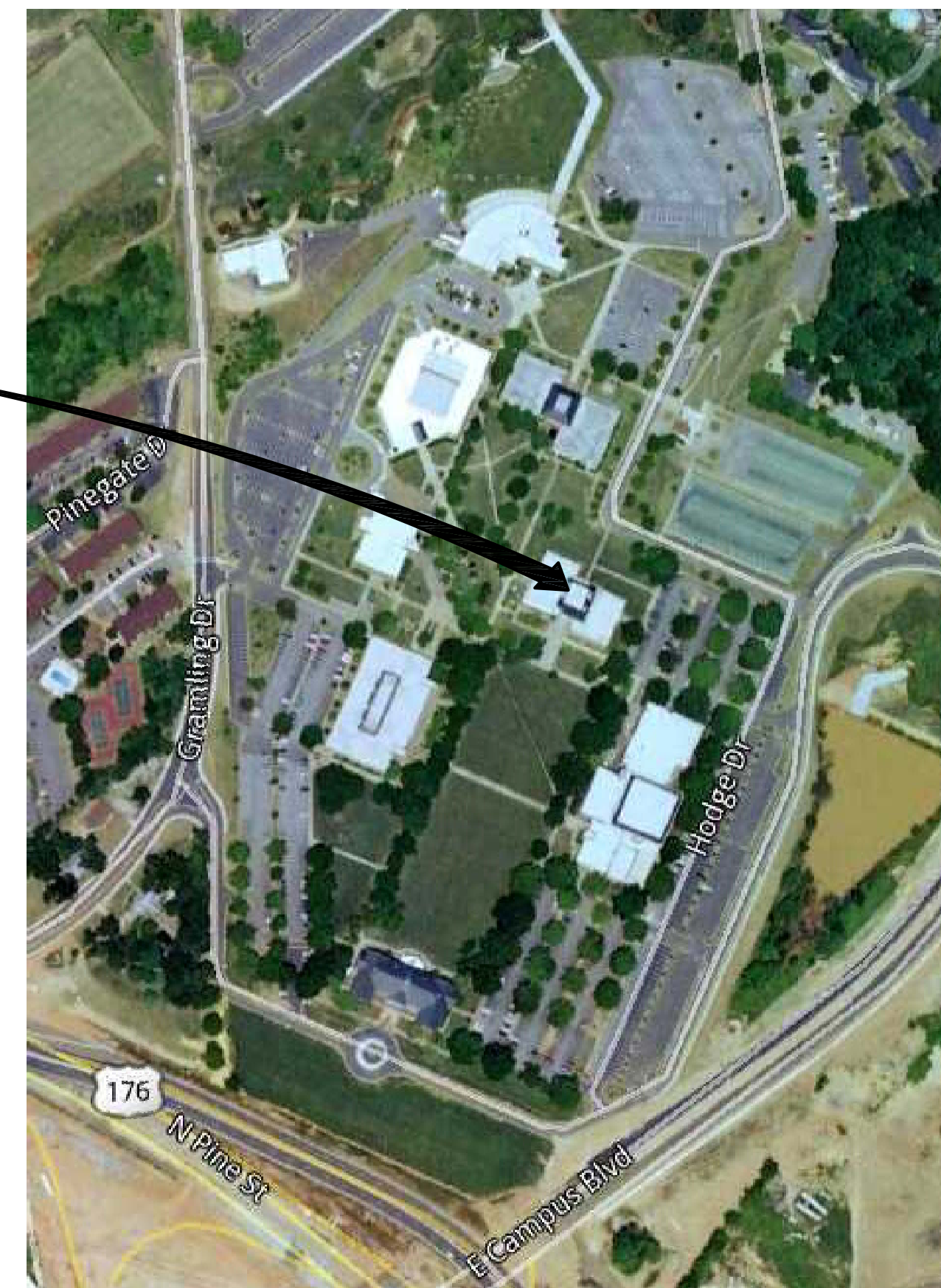
### MECHANICAL/PLUMBING ENGINEER

PERITUS ENGINEERS & ASSOCIATES, INC.  
10 E. DORCHESTER BLVD.  
GREENVILLE, SC 29605 (864) 277-8287  
JODY C. PARKER, P.E.

### ELECTRICAL ENGINEER

LAND ENGINEERING ASSOCIATES, LLC  
262 SANDHURST ROAD, SUITE 101  
COLUMBIA, SC 29210 (803) 528-1437  
JOSEPH W. LAND, P.E.

CASB BUILDING



VICINITY MAP

## INDEX OF DRAWINGS

DWG. #	SHEET TITLE
T-1	PROJECT TITLE SHEET

### MECHANICAL DRAWINGS

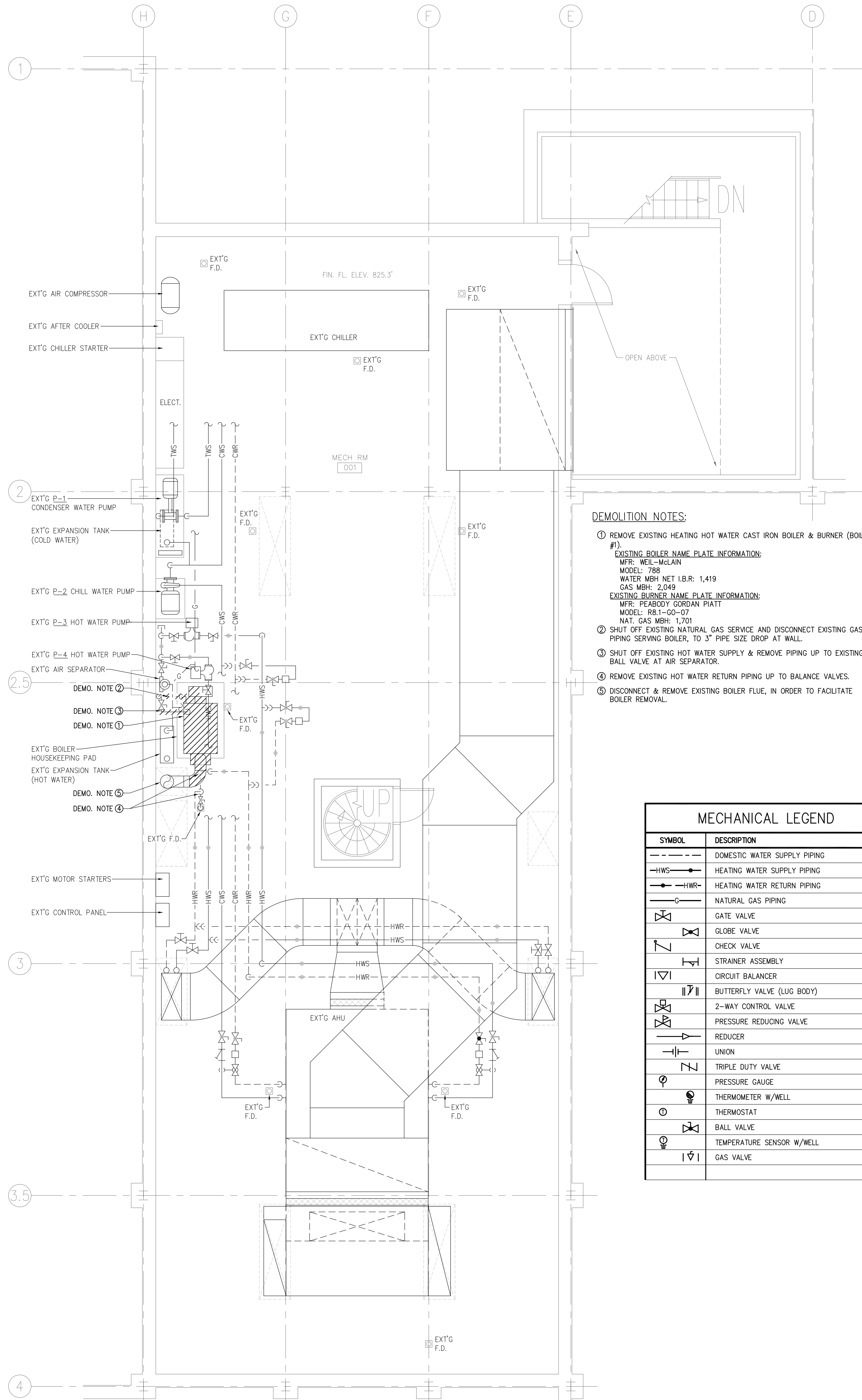
M-1	PARTIAL MECHANICAL PLANS, FLOW DIAGRAM, & SCHEDULES
-----	---

### ELECTRICAL DRAWINGS

E-1	ELECTRICAL PLANS & NOTES
-----	--------------------------

REVISIONS	
NO.	DATE
0	11-18 JCP
DESCRIPTION	
REVISIONS	
USC UPSTATE REPLACE BOILER AT CASB PROJECT # H34-9546 SPARTANBURG, SOUTH CAROLINA	
DESIGN / DRAWN	JCP / TMI
CHECKED	JCP
DATE	2/28/2017
JOB NO.	Peritus #170905
SHEET	
T-1	
1 OF 1 SHEETS	

This drawing is the property of Peritus Engineers & Associates, Inc. and shall not be used or reproduced without their written permission. © 2017 PERTIUS ENGINEERS & ASSOCIATES, INC.



**PARTIAL MECHANICAL DEMOLITION PLAN**

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

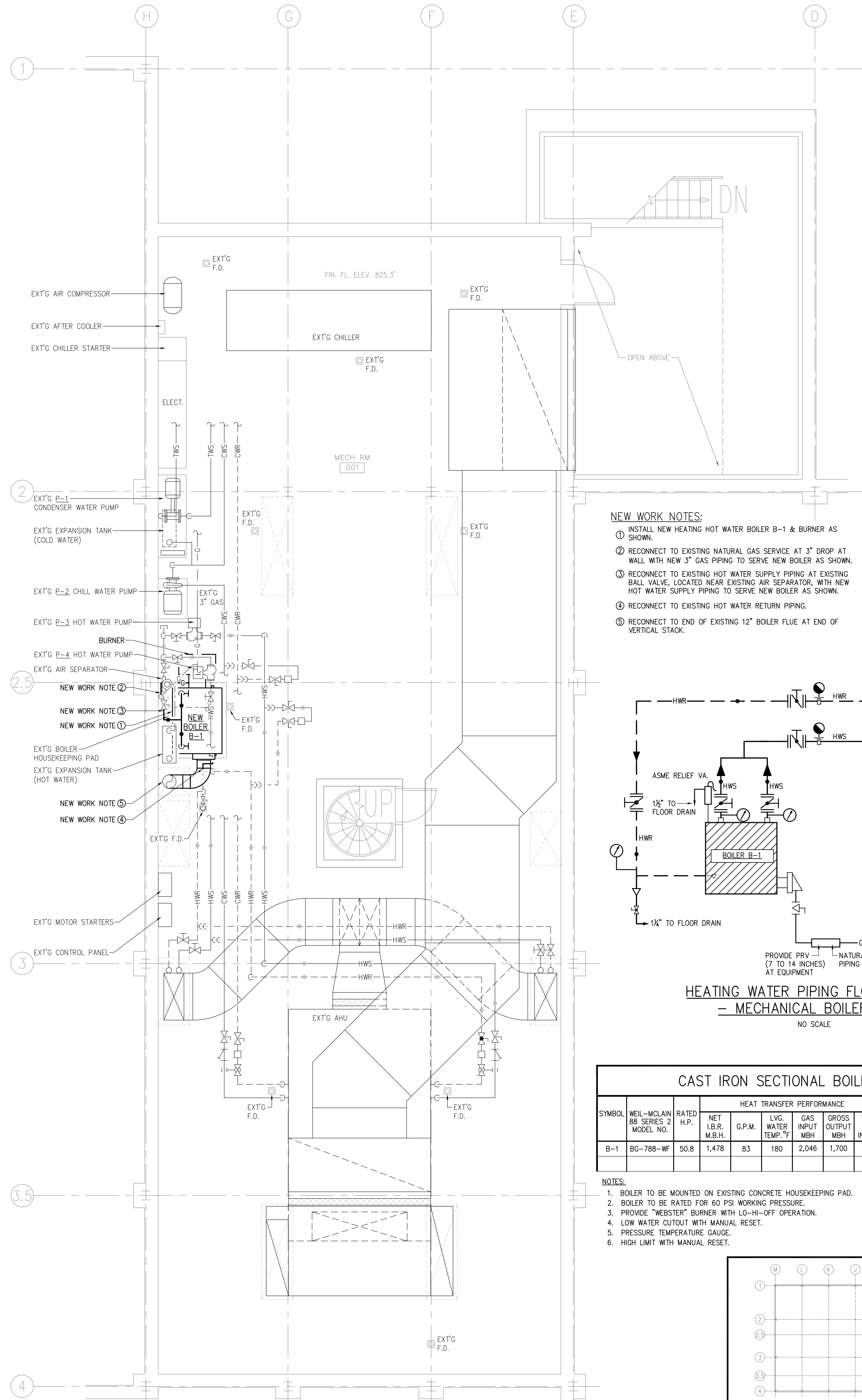
////// HATCHED AREA INDICATES ITEMS TO BE REMOVED

**DEMOLITION NOTES:**

- 1 REMOVE EXISTING HEATING HOT WATER CAST IRON BOILER & BURNER (BOILER #1).  
**EXISTING BOILER NAME PLATE INFORMATION:**  
 MFR: WEIL-MCLAIN  
 MODEL: 788  
 WATER MBH NET I.B.R.: 1,419  
 GAS MBH: 2,046  
**EXISTING BURNER NAME PLATE INFORMATION:**  
 MFR: PEABODY GORDAN PIATT  
 MODEL: RB1-60-07  
 NAT. GAS MBH: 1,701
- 2 SHUT OFF EXISTING NATURAL GAS SERVICE AND DISCONNECT EXISTING GAS PIPING SERVING BOILER, TO 3" PIPE SIZE DROP AT WALL.
- 3 SHUT OFF EXISTING HOT WATER SUPPLY & REMOVE PIPING UP TO EXISTING BALL VALVE AT AIR SEPARATOR.
- 4 REMOVE EXISTING HOT WATER RETURN PIPING UP TO BALANCE VALVES.
- 5 DISCONNECT & REMOVE EXISTING BOILER FLUE, IN ORDER TO FACILITATE BOILER REMOVAL.

**MECHANICAL LEGEND**

SYMBOL	DESCRIPTION
---	DOMESTIC WATER SUPPLY PIPING
—HWS—	HEATING WATER SUPPLY PIPING
—HWR—	HEATING WATER RETURN PIPING
—GAS—	NATURAL GAS PIPING
⊘	GATE VALVE
⊘	GLOBE VALVE
⊘	CHECK VALVE
⊘	STRAINER ASSEMBLY
⊘	CIRCUIT BALANCER
⊘	BUTTERFLY VALVE (LUG BODY)
⊘	2-WAY CONTROL VALVE
⊘	PRESSURE REDUCING VALVE
⊘	REDUCER
⊘	UNION
⊘	TRIPLE DUTY VALVE
⊘	PRESSURE GAUGE
⊘	THERMOMETER W/WELL
⊘	THERMOSTAT
⊘	BALL VALVE
⊘	TEMPERATURE SENSOR W/WELL
⊘	GAS VALVE



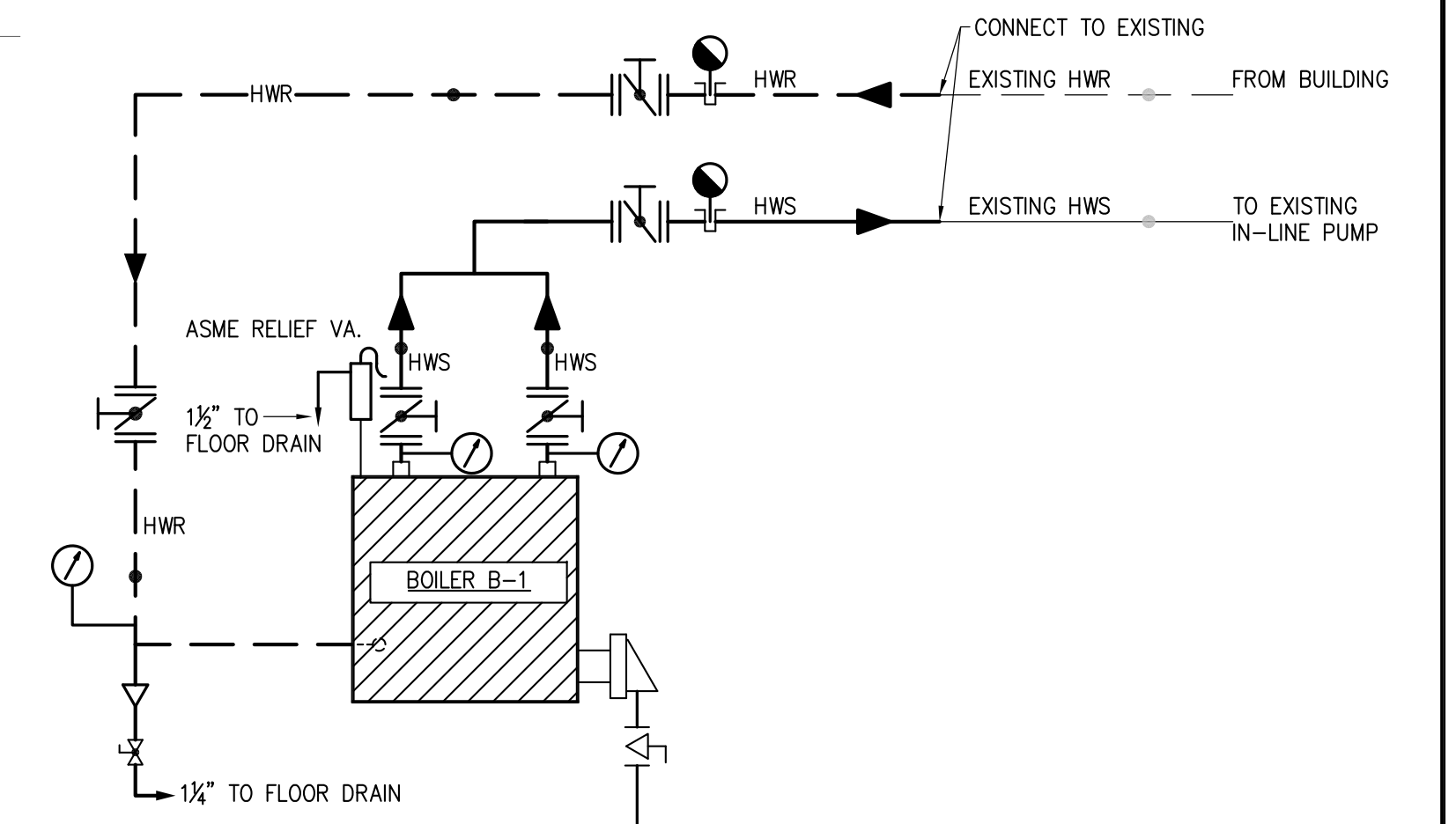
**PARTIAL MECHANICAL NEW WORK PLAN**

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

ALL NEW WORK SHOWN IN BOLD

**NEW WORK NOTES:**

- 1 INSTALL NEW HEATING HOT WATER BOILER B-1 & BURNER AS SHOWN.
- 2 RECONNECT TO EXISTING NATURAL GAS SERVICE AT 3" DROP AT WALL WITH NEW 3" GAS PIPING TO SERVE NEW BOILER AS SHOWN.
- 3 RECONNECT TO EXISTING HOT WATER SUPPLY PIPING AT EXISTING BALL VALVE, LOCATED NEAR EXISTING AIR SEPARATOR, WITH NEW HOT WATER SUPPLY PIPING TO SERVE NEW BOILER AS SHOWN.
- 4 RECONNECT TO EXISTING HOT WATER RETURN PIPING.
- 5 RECONNECT TO END OF EXISTING 12" BOILER FLUE AT END OF VERTICAL STACK.



**HEATING WATER PIPING FLOW DIAGRAM - MECHANICAL BOILER ROOM**

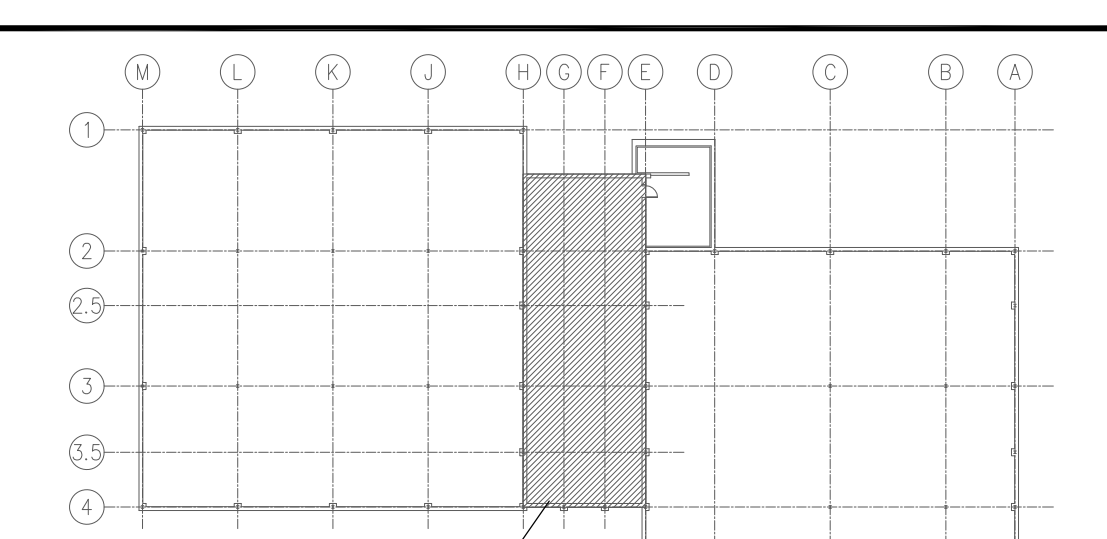
NO SCALE

**CAST IRON SECTIONAL BOILER SCHEDULE**

SYMBOL	WEIL-MCLAIN 88 SERIES 2 MODEL NO.	RATED H.P.	HEAT TRANSFER PERFORMANCE				BURNER			REMARKS		
			NET I.B.R. G.P.M.	L.V.G. WATER MBH.	GAS INPUT MBH.	GROSS OUTPUT MBH.	VENT DIA. INCHES	H.P.	AMPS		VOLTAGE	
B-1	86-788-WF	50.8	1,478	83	180	2,046	1,700	12"	-	30	120/1/60	NOTES 1-6




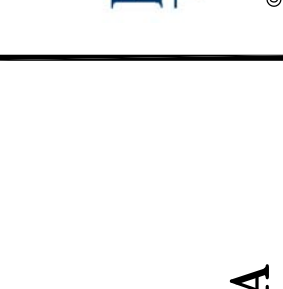
**NOTES:**

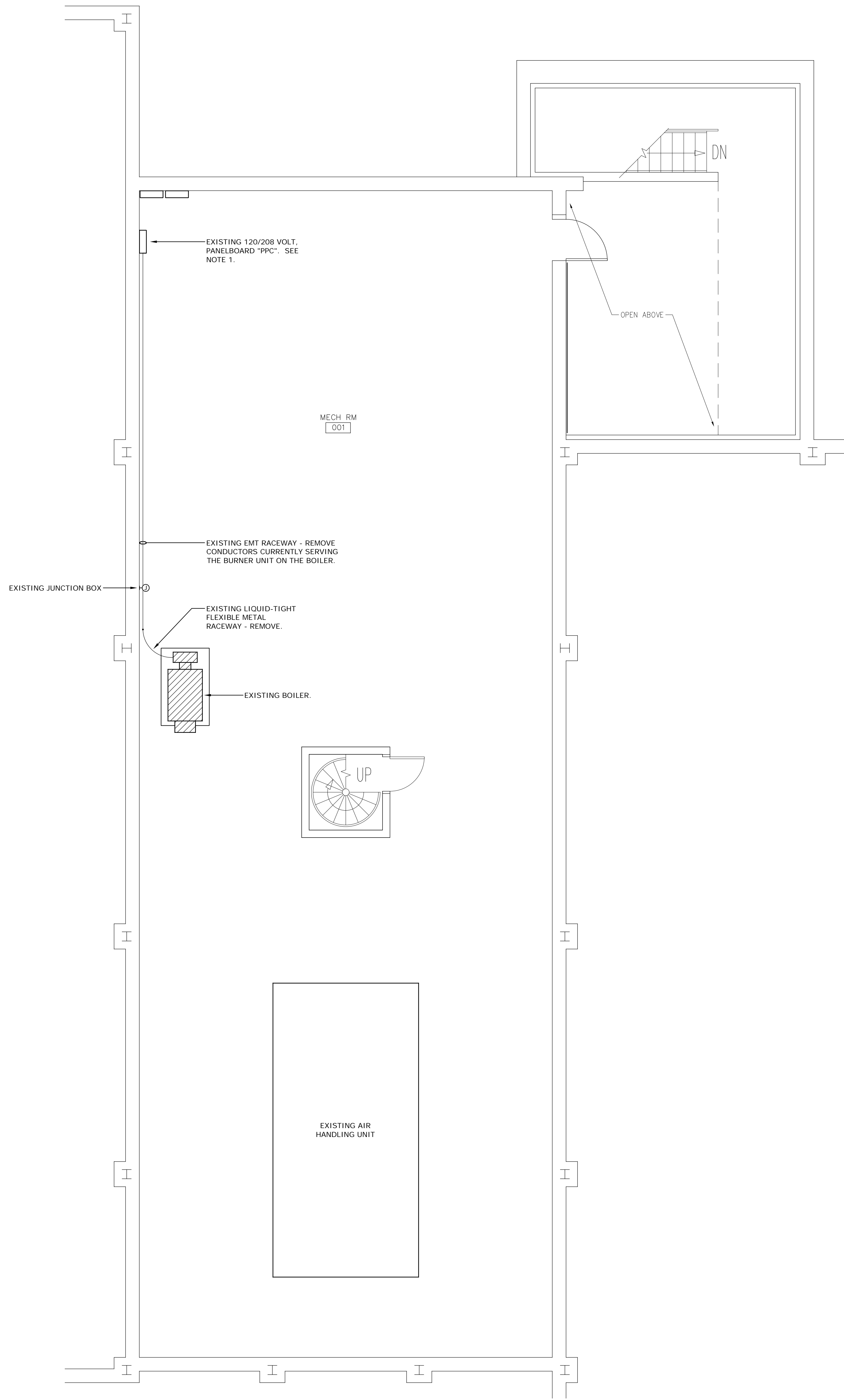
1. BOILER TO BE MOUNTED ON EXISTING CONCRETE HOUSEKEEPING PAD.
2. BOILER TO BE RATED FOR 60 PSI WORKING PRESSURE.
3. PROVIDE "WEBSTER" BURNER WITH LO-HI-OFF OPERATION.
4. LOW WATER CUTOFF WITH MANUAL RESET.
5. PRESSURE TEMPERATURE GAUGE.
6. HIGH LIMIT WITH MANUAL RESET.



**KEY PLAN**

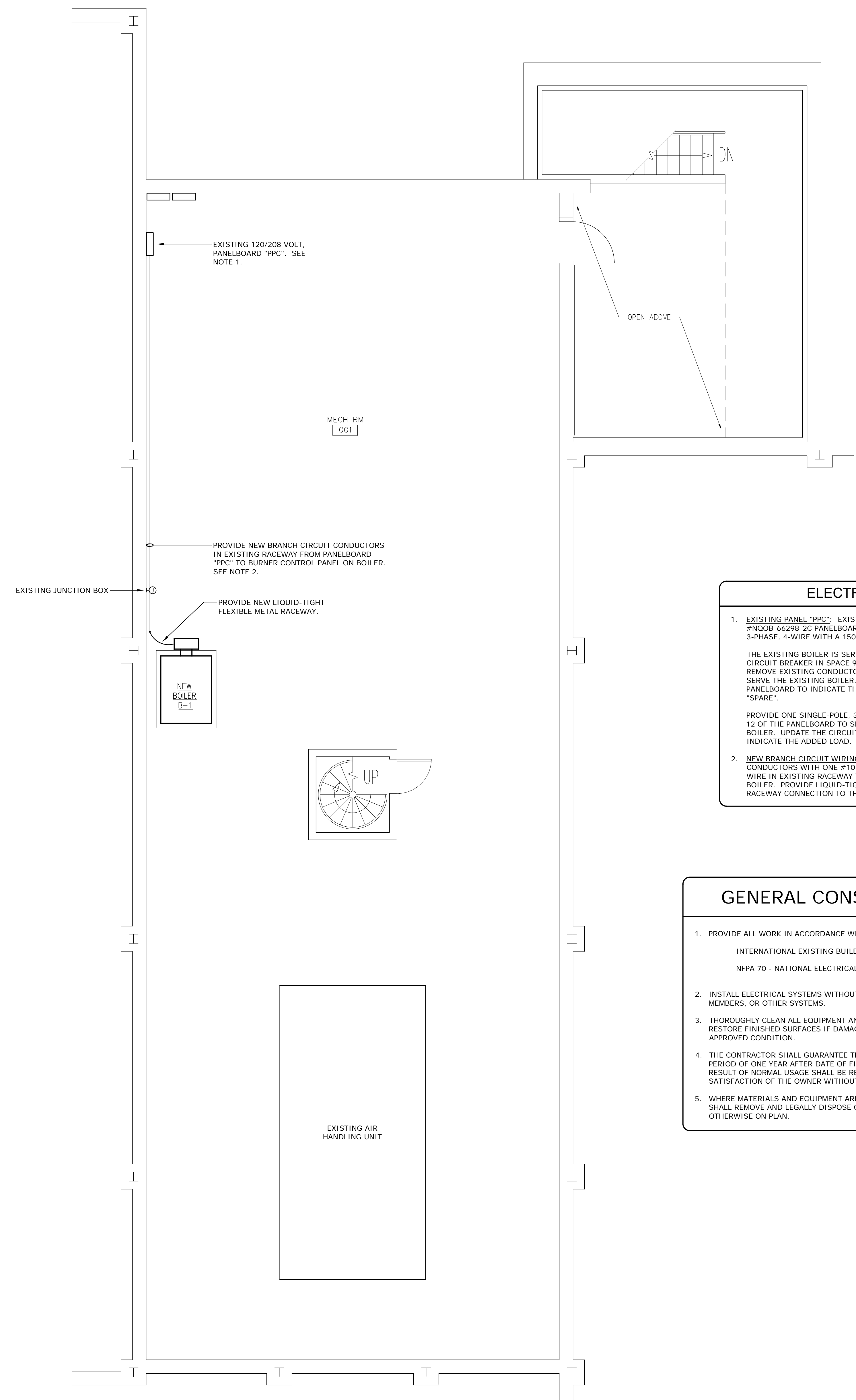
NO SCALE

	
	
<p><b>USC UPSTATE</b>  <b>REPLACE BOILER AT CASB</b>  <b>PROJECT # H34-9546</b>  <b>SPARTANBURG, SOUTH CAROLINA</b></p>	
DESIGN / DRAWN JCP / TMI	CHECKED JCP
DATE 2/28/2017	
JOB NO. Peritus #170905	
SHEET <b>M-1</b>	
1 OF 1 SHEETS	



**1** ELECTRICAL DEMOLITION PLAN  
SCALE: 1/4" = 1'-0"

//// HATCHED AREA INDICATES ITEMS TO BE REMOVED



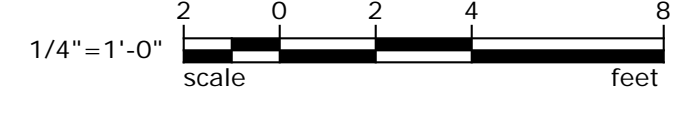
**2** ELECTRICAL RENOVATION PLAN  
SCALE: 1/4" = 1'-0"

**ELECTRICAL NOTES**

- EXISTING PANEL "PPC":** EXISTING PANEL IS A SQUARE-D #NCOB-66296-2C PANELBOARD RATED 120/208 VOLTS, 150 AMPS, 3-PHASE, 4-WIRE WITH A 150 AMP MAIN CIRCUIT BREAKER. THE EXISTING BOILER IS SERVED BY A 20-AMP RATED SINGLE-POLE CIRCUIT BREAKER IN SPACE 9 OF THE PANELBOARD. DISCONNECT AND REMOVE EXISTING CONDUCTORS IN THE PANELBOARD THAT CURRENTLY SERVE THE EXISTING BOILER. UPDATE THE CIRCUIT DIRECTORY IN THE PANELBOARD TO INDICATE THAT THE CIRCUIT BREAKER IN SPACE 9 IS A "SPARE". PROVIDE ONE SINGLE-POLE, 30-AMP RATED CIRCUIT BREAKER IN SPACE 12 OF THE PANELBOARD TO SERVE THE BURNER UNIT ON THE NEW BOILER. UPDATE THE CIRCUIT DIRECTORY IN THE PANELBOARD TO INDICATE THE ADDED LOAD.
- NEW BRANCH CIRCUIT WIRING:** PROVIDE TWO #10 AWG COPPER THHN CONDUCTORS WITH ONE #10 AWG GREEN INSULATED COPPER GROUND WIRE IN EXISTING RACEWAY TO SERVE THE BURNER UNIT ON THE NEW BOILER. PROVIDE LIQUID-TIGHT FLEXIBLE METAL CONDUIT FOR FINAL RACEWAY CONNECTION TO THE BURNER CONTROL PANEL.

**GENERAL CONSTRUCTION NOTES**

- PROVIDE ALL WORK IN ACCORDANCE WITH THE FOLLOWING CODES AND STANDARDS:  
INTERNATIONAL EXISTING BUILDING CODE 2015 EDITION  
NFPA 70 - NATIONAL ELECTRICAL CODE 2014 EDITION
- INSTALL ELECTRICAL SYSTEMS WITHOUT INTERFERING WITH DUCTS, PIPES, STRUCTURAL MEMBERS, OR OTHER SYSTEMS.
- THOROUGHLY CLEAN ALL EQUIPMENT AND SYSTEMS BEFORE PLACING IN OPERATION. RESTORE FINISHED SURFACES IF DAMAGED AND DELIVER THE ENTIRE INSTALLATION IN AN APPROVED CONDITION.
- THE CONTRACTOR SHALL GUARANTEE THE WORK INSTALLED UNDER THIS CONTRACT FOR A PERIOD OF ONE YEAR AFTER DATE OF FINAL ACCEPTANCE. DEFECTS WHICH APPEAR AS A RESULT OF NORMAL USAGE SHALL BE REMEDIED BY THE CONTRACTOR TO THE COMPLETE SATISFACTION OF THE OWNER WITHOUT COST TO THE OWNER.
- WHERE MATERIALS AND EQUIPMENT ARE INDICATED TO BE REMOVED, THE CONTRACTOR SHALL REMOVE AND LEGALLY DISPOSE OF MATERIALS AND EQUIPMENT, UNLESS NOTED OTHERWISE ON PLAN.



**LEA** LAND ENGINEERING ASSOCIATES, LLC  
262 SANDHURST ROAD, SUITE 101  
COLUMBIA, SOUTH CAROLINA  
(803) 528-1437  
Joe.Land.LEA@sc.rr.com

REVISIONS		REVISIONS	
NO.	DATE	BY	DESCRIPTION

REVISIONS		REVISIONS	
NO.	DATE	BY	DESCRIPTION

DESIGN /	
JWL	KNJ
CHECKED	
JWL	
DATE	
2/26/2018	
JOB NO.	
Peritus # 170905	
SHEET	
<b>E-1</b>	
1 OF 1 SHEETS	

USC UPSTATE  
REPLACE BOILER AT CASB  
PROJECT # H34-9546  
SPARTANBURG, SOUTH CAROLINA