DATE: 11/1/2024 (REV 1 - 11/11/24)

PROVIDE PROPOSAL FOR TURNKEY INSTALLATION SERVICES FOR OF 2 NEW BOILERS IN EXISTING COVERED AND ENCLOSED EXTERIOR SPACE AT KIVETT HALL. PROJECT INTENT IS TO INSTALL 180F HEATING HOT WATER BOILERS WITH PRIMARY / SECONDARY PUMPING SYSTEM TO SERVE KIVETT AND WIGGINS HALL IN RESPONSE TO RECENT STEAM MAIN FAILURE. BOILERS MUST BE IN STOCK AND READY FOR SHIP FOR CONSTRUCTION TO BEGIN AS SOON AS POSSIBLE.

CONTRACTOR RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE BUILDING CODES, MANUFACTURER INSTALLATION INSTRUCTIONS, AND LOCAL AUTHORITY HAVING JURIDICTION PERMITTING AND INSPECTIONS. INSTALLATION TO SATISFY NC DEPARTMENT OF LABOR AND LOCAL HARNETT COUNTY INSPECTIONS REQUIREMENTS.

DEMOLITION

DEMOLISH STEAM TO HOT WATER SHELL & TUBE HEAT EXCHANGER. DEMOLISH 2" STEAM PIPING AND 1" CONDENSATE FROM KIVETT HALL TO WIGGINS HALL ISOLATION VALVE. (APPRXIMATELY 130 LF EACH) PREPARE HEATING HOT WATER PIPING FOR CONNECTION TO NEW HEATING HOT WATER PIPING FROM BOILER. CLOSE STEAM ISOLATION VALVE AND INSTALL CAP. DEMOLISH STEAM CONDENSATE FROM HEAT EXCHANGER TO CONDENSATE PUMP.

DEMOLISH STEAM TO HOT WATER SHELL & TUBE HEAT EXCHANGER AND STEAM PIPING TO ISOLATION VALVE UPSTREAM OF PRV IN WIGGINS HALL FIRST FLOOR. PREPARE HEATING HOT WATER PIPING FOR CONNECTION TO NEW HEATING HOT WATER PIPING FROM BOILER.

EXISTING BUILDING HEATING HOT WATER PUMPS TO REMAIN AS SECONDARY PUMPS ALONG WITH AIR SEPARATORS, EXPANSION TANKS, AND MAKEUP WATER TO REMAIN AT DEMOLISHED HEAT EXCHANGERS.

NEW WORK

PROVIDE TWO 1.5 MILLION BTU/HR (MBH) FIRE TUBE CONDENSING BOILERS WITH INTEGRAL CASCADING BOILER CONTROLS, CONDENSATE NEUTRALIZER, FUEL GAS REGULATOR, AND BACNET COMMUNICATION CARD FOR FUTURE INTEGRATION. INSTALL VIA MANUFACTURER'S INSTRUCTIONS AND APPLICABLE LOCAL CODES. PROVIDE MINIMUM 2" ELEVATED PAD. INSTALL IN EXISTING SPACE WITH MANUFACTUER SERVICE AND COMBUSTIBLE MATERIAL CLEARANCE REQUIREMENTS, ROOM IS APPROXIMATELY 17.5'Lx8.5'Wx10'H. BOILER SHALL BE ASME CERTIFIED, AT LEAST 93% EFFICIENCY, MINIMUM 10:1 TURNDOWN, INCLUDE O2 TRIM, AND MEET SPECIFICATION PROVIDED. (SIMILAR TO CLEAVERBROOKS CFCE, FULTON ENDURA, RAYPAK XVERS KOR, LOCHINVAR CREST, OR RIELLO ARRAY)

PROVIDE INLINE PRIMARY PUMP IN BOILER RETURN FOR EACH BOILER WITH STRAINER AND TRIPLE DUTY VALVE. (QTYx2) (150 GPM @ 30 FT HEAD; 208V/3PH/3HP/1750RPM TEFC MOTOR WITH COMBINATION MOTOR STARTER/DISCONNECT SIMILAR TO TACO 1941 or B&G e-82 WITH 7” IMPELLER). PROVIDE TESTING, ADJUSTING, AND BALANCING FOR CIRCUIT SETTER TO BOILER FLOW REQUIREMENTS.

PROVIDE 1-1/2" NATURAL GAS STEEL PIPING FROM 2 PSI METER PROVIDED BY PIEDMONT NATURAL GAS (LOCATED EXTERIOR ADJACENT) TO THE TO BOILER REGULATOR. PROVIDE MINIMUM 10' OF 1-1/2" NATURAL GAS STEEL PIPING FROM REGULATOR TO BOILER CONNECTION. CONFIRM AND SIZE PIPING TO BE IN COMPLIANCE WITH NC FUEL GAS CODE AND MANUFACTURERS INSTALLATION INSTRUCTIONS. PROVIDE ELECTRICAL GROUNDING. PAINT GAS PIPING YELLOW AND LABEL WITH PSI. PROVIDE TRAP AND ISOLATION VALVES FOR EACH REGULATOR AND EQUIPMENT CONNECTION.

PROVIDE COPPER BOILER TEMPERATURE & PRESSURE RELIEF AND BOILER DRAIN PIPING TO NEAREST EXISTING FLOOR DRAIN. SIZE TO MATCH MANUFACTURER'S CONNECTION SIZE.

PROVIDE PVC BOILER FLUE CONDENSATE DRAIN WITH NEUTRALIZER KIT PIPING TO NEAREST FLOOR DRAIN. FURNISH SPARE BAG OF MEDIA.

PROVIDE 6" HWS & HWR SCHEDULE 40 STEEL PIPING WITH 2" FIBERGLASS INSULATION WITH ALL SERVICE JACKETING (ASJ) FOR BOILER PRIMARY HEADER IN BOILER ROOM. PROVIDE 4" HWS & HWR SCHEDULE 40 STEEL PIPING WITH 2" FIBERGLASS INSULATION WITH ALL SERVICE JACKETING (ASJ) FROM BOILER PLANT TO KIVETT BASEMENT. PROVIDE 4" LUGGED BUTTERFLY ISOLATION VALVES FOR EACH BOILER PIPING CONNECTION, 1 FUTURE BOILER, AND 3" EACH SECONDARY BRANCH TAKEOFF. (300 GPM) (4" - est. 80 LF each; 160 LF total) (6" – est. 20 LF each ; 40 LF total)

PROVIDE 2" HWS & HWR SCHEDULE 40 STEEL PIPING WITH 2" FIBERGLASS INSULATION IN ALL SERVICE JACKETING (ASJ) FROM BOILER PRIMARY HEADER TO KIVETT HOT WATER HEAT EXCHANGER. ROUTE THROUGH BASEMENT CRAWLSPACE. PROVIDE HANGERS AND SUPPORTS. (est. 10 LF each; 20 LF total) (100 GPM)

PROVIDE 3" HWS & HWR SCHEDULE 40 STEEL PIPING WITH 2" FIBERGLASS INSULATION IN ASJ FROM BOILER PRIMARY HEADER TO WIGGINS LIBRARY HOT WATER HEAT EXCHANGER. PROVIDE ALUMINUM SERVICE JACKET WHEN EXTERIOR TO THE BUILDING. ROUTE THROUGH KIVETT HALL BASEMENT CRAWL SPACE THEN FOLLOW EXISTING PATHWAY OF STEAM & CONDENSATE PIPING TO WIGGINS HALL. PROVIDE HANGERS AND SUPPORTS. (est. 130 LF each with 45 LF exterior; 260 LF total with 90LF in aluminum jacket) (160 GPM)

PROVIDE 6" or 8" TYPE B DOUBLE WALL / AL29-4C STAINLESS STEEL VENT THROUGH ROOF DECK WITH SEALED METAL ROOF PENETRATION AND AP FOR EACH BOILER. DO NOT MANIFOLD. MAINTAIN MINIMUM CODE DISTANCES FROM BUILDING OPENINGS (OPERABLE WINDOWS& DOORS), ROOF OVERHANGS, ROOF SURFACE, AND WALKWAYS. TERMINATE FLUE VENT VIA MANUFACTURERS INSTRUCTIONS. (ESTIMATE 18' LENGTH; INSTALL VIA MANUFACTURER SIZING AND MINIMUM LENGTH REQUIREMENTS)

PROVIDE 8" PVC, CPVC, GALVANIZED OR STAINLESS-STEEL COMBUSTION AIR INTAKE THROUGH SIDE WALL FOR EACH BOILER. DO NOT MANIFOLD. TERMINATE FLUE VENT VIA MANUFACTURERS INSTRUCTIONS WITH BIRD SCREEN. (ESTIMATE 12' LENGTH; INSTALL VIA MANUFACTURER SIZING AND MINIMUM LENGTH REQUIREMENTS)

PROVIDE 3/4" AIR VENT AND DRAIN BALL VALVE WITH HOSE END AND CAP FOR HOT WATER PRIMARY LOOP.

PROVIDE TEMPORARY FILL CONNECTION. EXISTING HOT WATER AIR SEPARATOR, MAKEUP WATER, AND CHEM POTS TO REMAIN IN SECONDARY LOOP.

PROVIDE NEW ELECTRICAL SUB PANEL (MIN. 24 SPACE) IN BOILER ROOM TO FEED EQUIPMENT. PANEL TO BE FED FROM MDP IN KIVETT ELECTRICAL ROOM APPROXIMATELY 120 FT. SIZE PANEL, WIRING, AND BREAKERS TO CODE. ROUTE FROM ELECTRICAL ROOM DOWN TO BASEMENT TO JUNCTION BOX AT EXISTING 3" CONDUIT. UTILIZE EXISTING 3" CONDUIT AS RACEWAY FROM BASEMENT TO NEW BOILER LOCATION. VERIFY MDP LOAD DEMAND VIA ELECTRICAL DATA LOGGER.

PROVIDE 120V/1PH/20A or 25A CIRCUIT TO EACH BOILER WITH LOCAL DISCONNECT. COORDINATE WITH MANUFACTURER SPECIFIC REQUIREMENTS. ELECTRICAL TO CONFORM WITH CURRENT NATIONAL ELECTRICAL CODE REQUIREMENTS.

PROVIDE 208V/3PH/20A CIRCUIT TO EACH 3HP PRIMARY PUMP. COORDINATE WITH MANUFACTURER SPECIFIC REQUIREMENTS. PROVIDE COMBINATION STARTER DISCONNECT WITH EACH PUMP.

PROVIDE BOILERS WITH INTEGRAL CASCADING CONTROL TO MAINTAIN 180F. PROVIDE HOT WATER SENSOR IN PRIMARY LOOP FOR STAGING CONTROL. PROVIDE WIRING FOR BOILER TO START/STOP THE PUMP.

PROVIDE 120V SERVICE RECEPTACLE.

PROVIDE NEW 12"x12" FLOOR SINK DRAIN WITH 6" SUMP AND P-TRAP FOR BOILER RELIEF, BOILER DRAIN, AND CONDENSATE DRAIN. PROVIDE 4" WASTE PIPING TO TIE INTO EXISTING SANITARY SEWER MANHOLE NORTH OF BOILER ROOM IN LANDSCAPING. (est. 20 LF)

PROVIDE FIRESTOPPING OF ALL PENETRATIONS FROM BOILER MECHANICAL ROOM INTO EXISTING BUILDING. SEAL ALL EXTERIOR PENETRATIONS FOR PIPING.

PROVIDE EMERGENCY POWER OFF SWITCH AT ENTRANCE TO NEW BOILER ROOM. HARDWIRE WITH RELAY TO "FAIL-SAFE" AND SHUT OFF POWER TO BOILER UPON ACTIVATION OR CUT IN WIRE.

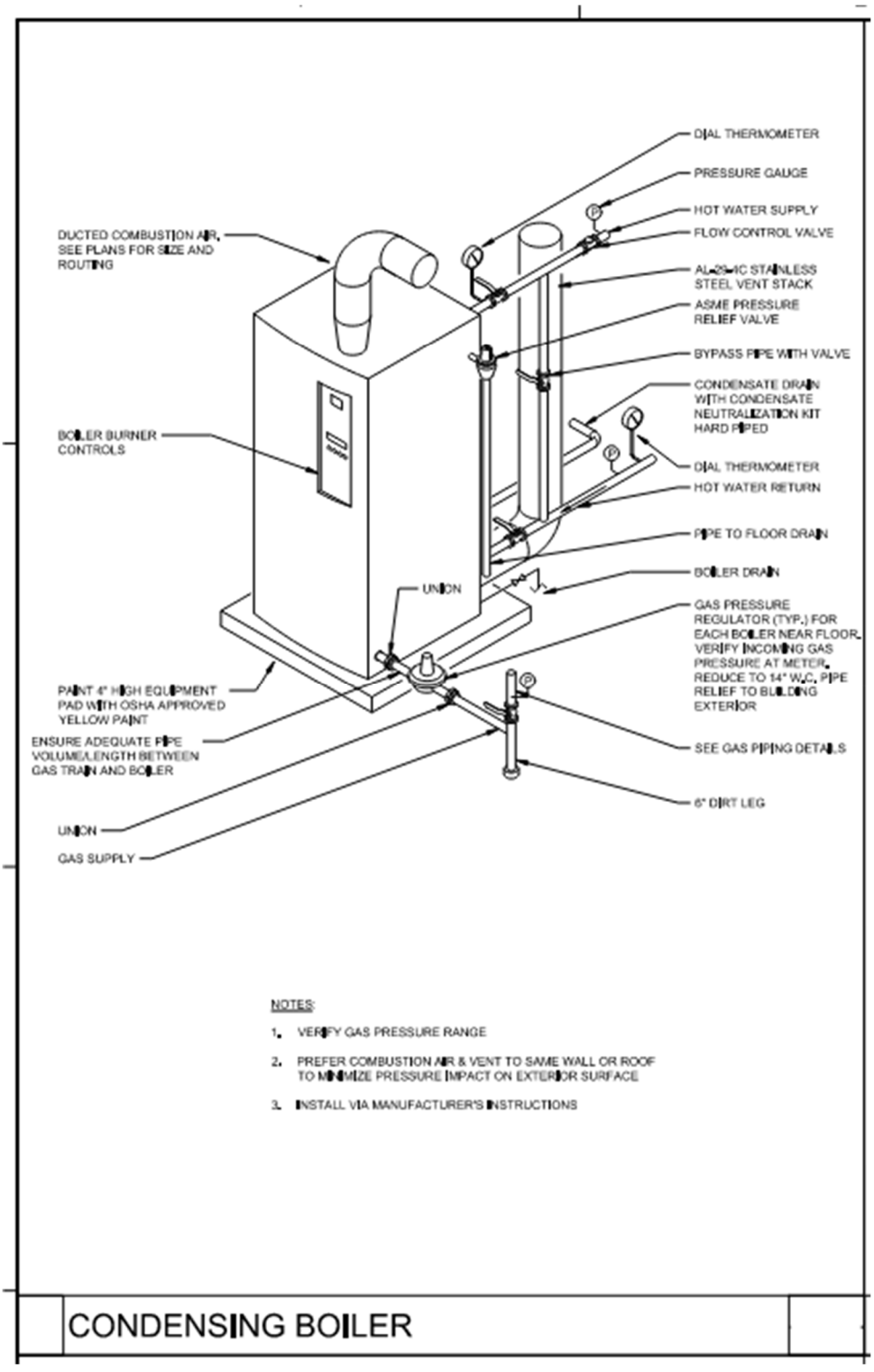
INSTALL TO MEET TYPICAL INSTALLATION DETAILS.

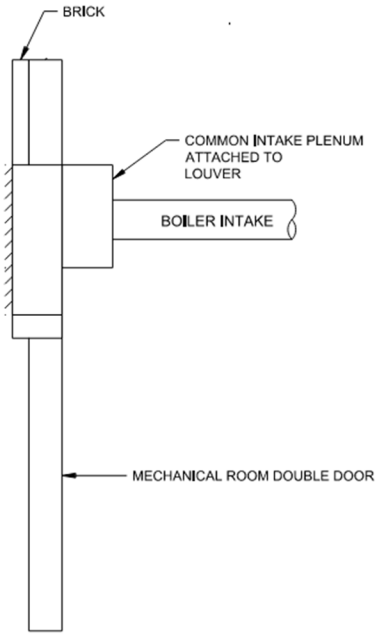
BY OWNER

PROVIDE COMBINATION SMOKE AND CARBON MONOXIDE ALARM. INTEGRATE INTO EXISTING SIMPLEX FIRE ALARM SYSTEM.

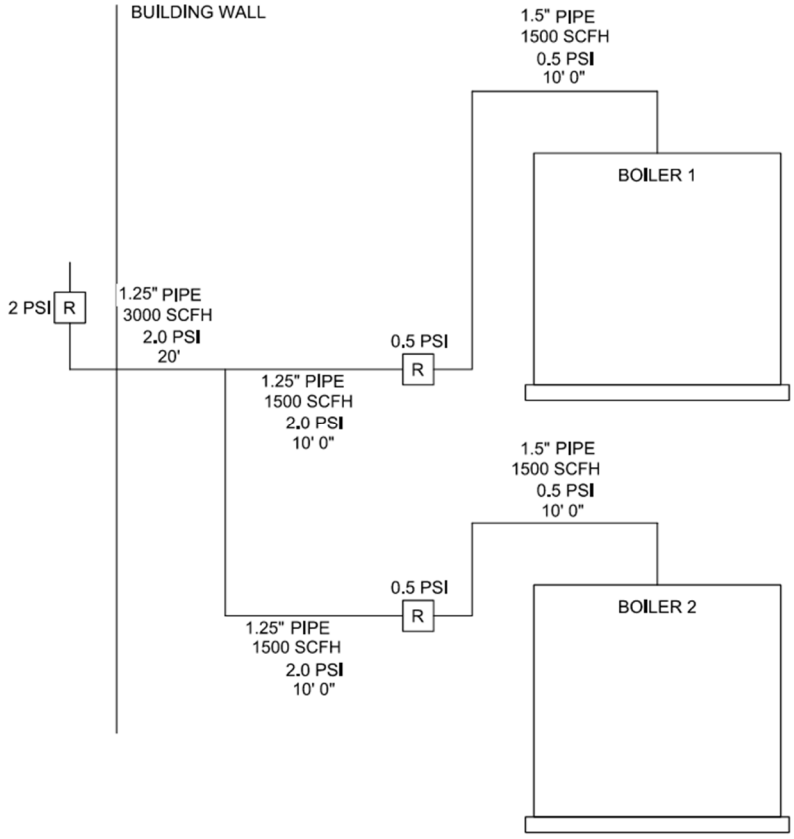
SPRINKLER COVERAGE - EXISTING BUILDING NOT SPRINKLERED.

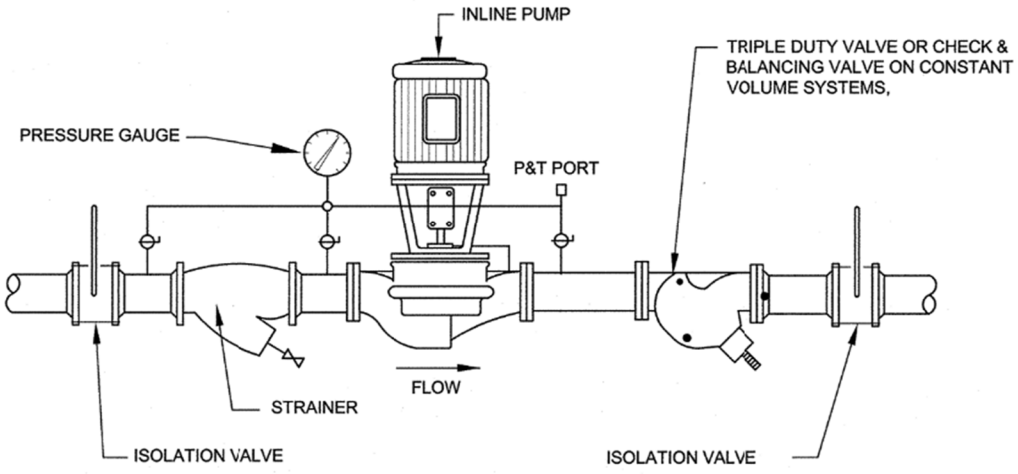
TYPICAL INSTALLATION DETAILS

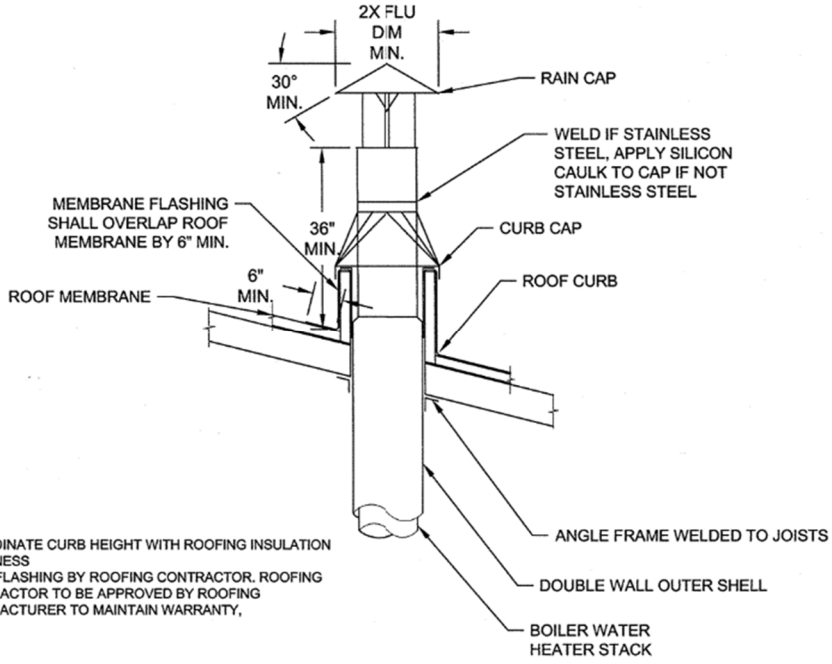




MAIN BOILER COMBUSTION INTAKE







NOTES:

1. COORDINATE CURB HEIGHT WITH ROOFING INSULATION THICKNESS
2. ROOF FLASHING BY ROOFING CONTRACTOR. ROOFING CONTRACTOR TO BE APPROVED BY ROOFING MANUFACTURER TO MAINTAIN WARRANTY,