

Addendum No. 2 Page 1 of 1

DATE: March 2, 2018

Joliet Junior College 1215 Houbolt Road Joliet, IL 60431

TO: Prospective Bidders **SUBJECT:** Addendum No. 2

PROJECT NAME: Steam Pipe System Replacement with Condensing Boilers

JJC PROJECT NO.: B180001

This Addendum forms a part of the Bidding and Contract Documents and modifies the original bidding document as posted on the JJC website. Acknowledge receipt of this addendum in the space provided on the Bid Form. FAILURE TO DO SO MAY SUBJECT BIDDER TO DISQUALIFICATION.

- 1. Section 23 25 00 HVAC Water Treatment;
 - a. See attached revised specification. See Paragraphs 2.03 and 2.04 for changes.
- 2. Section 23 57 00 HEAT EXCHANGERS FOR HVAC;
 - a. See attached added specification section.
- 3. See the attached revised Sheets (refer to revision cloud 2).
 - a. G100, AS310, AS311, AS312, AS313, AS314, M310, M311, M311A, M312, M313, M314, M410, M411, M412, M413, M510, M610, E310, E311, E312, E313, P100, P130, P132.
- 4. See the attached added Sheet.
 - a. ME315

End of Addendum #2

SECTION 23 25 00 HVAC WATER TREATMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Materials.
 - 1. System cleaner.
 - 2. Closed system treatment (water).
- B. By-pass (pot) feeder.
- C. Side-stream filtration equipment.

1.02 RELATED REQUIREMENTS

- A. Section 23 21 13 Hydronic Piping.
- B. Section 23 21 14 Hydronic Specialties.

1.03 SUBMITTALS

- A. See Section 01 30 00 Administrative Requirements, for submittal procedures.
- B. Product Data: Provide chemical treatment materials, chemicals, and equipment including electrical characteristics and connection requirements.
- C. Manufacturer's Installation Instructions: Indicate placement of equipment in systems, piping configuration, and connection requirements.
- D. Manufacturer's Field Reports: Indicate start-up of treatment systems when completed and operating properly. Indicate analysis of system water after cleaning and after treatment.

1.04 REGULATORY REQUIREMENTS

- A. Conform to applicable code for addition of non-potable chemicals to building mechanical systems and to public sewage systems.
- B. Products Requiring Electrical Connection: Listed and classified by UL as suitable for the purpose specified and indicated.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. IWM; Owner's campus service provider. Contract with IWM for all cleaning and chemical requirements. Larry McCarthy, 847-875-7190.

2.02 MATERIALS

- A. System Cleaner:
 - 1. Liquid alkaline compound with emulsifying agents and detergents to remove grease and petroleum products; sodiumtripoly phosphate and sodium molybdate.
- B. Closed System Treatment (Water):

- 1. Sequestering agent to reduce deposits and adjust pH; polyphosphate.
- 2. Corrosion inhibitors; boron-nitrite, sodium nitrite and borax, sodium totyltriazole, low molecular weight polymers, phosphonates, sodium molybdate, or sulphites.
- 3. Conductivity enhancers; phosphates or phosphonates.

2.03 BY-PASS (POT) FEEDER

- A. Manufacturers:
 - 1. Griswold Controls.
 - 2. J. L. Wingert Company.
 - 3. Neptune, a brand of the Dover Company Model DBF-5 (Addendum No.2).
- B. 6.0 gal quick opening cap for working pressure of 175 psi. 5.0 gallon tank constructed of 10 gauge steel. Tank head construced of 0 gauge steel. Cap; quick opening, high pressure closure, course thread, 2-1/2 turn, constured of cast iron with Buna N ring. Working pressure to 300 psi at 200 degrees F. (Addendum No. 2)

2.04 SIDE-STREAM FILTRATION SYSTEM

- A. Manufacturers: (Addendum No. 2)
 - 1. Quantrol Filtration Products; Model QFP Series. (Addendum No. 2)
- B. System: Flow indicator, filter housing with cartridge filter, shut-off valves, and flow control valve.
- C. Hot Water Filter Housing: Glass reinforced nylon plastic suitable for 220 degrees F and 200 psi operating conditions. Heavy duty stainless steel construction, external poly-coat finish, easy access band clamp closure, welded on support leges, gauge/drain and vent ports, Buna O-ring. !50 psi maximum pressure and 250 degrees F maximum temperature. (Addendum No. 2)
- D. Cartridges: 30 micron for start-up and 10 micron for system operation.

PART 3 EXECUTION

3.01 PREPARATION

- A. Systems shall be operational, filled, started, and vented prior to cleaning. Use water meter to record capacity in each system.
- B. Place terminal control valves in open position during cleaning.
- C. Verify that electric power is available and of the correct characteristics.

3.02 CLEANING SEQUENCE

- A. Concentration:
 - 1. As recommended by manufacturer.
 - 2. Fill steam boilers only with cleaner and water.
- B. Hot Water Heating Systems:
 - 1. Apply heat while circulating, slowly raising temperature to 160 degrees F and maintain for 12 hours minimum.

- 2. Remove heat and circulate to 100 degrees F or less; drain systems as quickly as possible and refill with clean water.
- 3. Circulate for 6 hours at design temperatures, then drain.
- 4. Refill with clean water and repeat until system cleaner is removed.
- C. Use neutralizer agents on recommendation of system cleaner supplier and approval of Architect/Engineer.
- D. Flush open systems and glycol filled closed systems with clean water for one hour minimum. Drain completely and refill.
- E. Remove, clean, and replace strainer screens.
- F. Inspect, remove sludge, and flush low points with clean water after cleaning process is completed. Include disassembly of components as required.

3.03 INSTALLATION

A. Install in accordance with manufacturer's instructions.

3.04 CLOSED SYSTEM TREATMENT

- A. Provide one bypass feeder on each system. Install isolating and drain valves and necessary piping. Install around balancing valve downstream of circulating pumps unless indicated otherwise.
- B. Introduce closed system treatment through bypass feeder when required or indicated by test.
- C. Provide 3/4 inch water coupon rack around circulating pumps with space for 4 test specimens.

END OF SECTION

SECTION 23 57 00 HEAT EXCHANGERS FOR HVAC

(ADDENDUM NO. 2)

PART 1 GENERAL

2.01 SECTION INCLUDES

- A. Plate type heat exchangers.
- B. Accessories and trim.

2.02 RELATED REQUIREMENTS

- A. Section 23 21 13 Hydronic Piping.
- B. Section 23 21 14 Hydronic Specialties.

2.03 REFERENCE STANDARDS

A. ASME BPVC-VIII-1 - Boiler and Pressure Vessel Code, Section VIII, Division 1 - Rules for Construction of Pressure Vessels; 2015.

2.04 SUBMITTALS

- A. Product Data: Provide data with dimensions, locations, and size of tappings and performance data.
- B. Manufacturer's Instructions: Indicate installation and support requirements.
- C. Operation and Maintenance Data: Include start up and shut down instructions, assembly drawings, and spare parts lists.

2.05 DELIVERY, STORAGE, AND HANDLING

A. Protect internals from entry of foreign material by temporary caps on flanged openings.

PART 2 PRODUCTS

3.01 PLATE AND FRAME TYPE HEAT EXCHANGER

- A. Manufacturer:
 - 1. Bell & Gossett.
 - 2. Armstrong Pumps Inc.
 - 3. Taco.

B. Plate Heat Exchanger:

1. A plate and frame, water to water, type heat exchanger of the sizes and capacities noted on the schedule. The heat exchanger shall consist of stainless steel heat transfer plates, steel end plates, and a carbon steel carrying bar, of single pass configuration. Unit's shall be specifically designed for 150 PSIG working pressure at 230°F. Heat exchanger selection shall be optimized by the manufacturer to provide minimum heat transfer surface area requirements under specified capacity and pressure drops.

- 2. The plate heat exchanger shall be shipped to the site as completely assembled units. The heat exchanger shall be pressure tested and flushed clean at the factory prior to shipment. All nozzle connections shall be factory sealed prior to shipment to prevent the entrance of foreign matter into the heat exchanger during shipment, storage, and installation.
- 3. Corrugated channel steel plates shall be of type 304 or 316 SS. Channel plate ports shall be double gasketed to prevent cross contamination of hot and cold side fluids. Gaskets shall be of a one piece design formulated from Nitrile rubber. Plates shall be grooved to accept the gaskets and gasket clips to minimize movement.
- 4. Channel carrying bar shall be of carbon steel, aluminum or stainless steel with zinc yellow chromate finish.
- 5. Fixed frame plates and movable pressure plates shall be corrosion resistant epoxy painted carbon steel. Flow through the plates shall be of a counter flow design to maximize the heat transfer capability of the unit.
- 6. Connection 2" and smaller shall be carbon steel NPT tappings. Connections 4" and larger shall be studded port design to accept ANSI flange connection. Connection ports shall be integral to the frame or pressure plate.
- 7. Unit to be supplied with OSHA approved splash guard, enclosing exterior channel plate and gasketed surfaces. Heat exchanger shall be provided with the scheduled square footage of heat transfer area.
- 8. Unit shall be constructed in accordance with ASME Code Rules and shall have a manufacturer's data report for pressure vessels, form No. U-1. Form U-1 shall be furnished to the engineer for the owner upon request. An authorized inspector, holding a National Board commission, certifying that construction conforms to the latest ASME Code for pressure vessels must sign this form. The ASME "U" symbol should also be stamped on the Heat Exchanger(s). In addition, each unit registered with the National Board of Boiler and Pressure Vessel Inspectors.
- 9. Where indicated heat exchanger shall be provided with alternate materials of construction as noted on schedule and installation drawings

PART 3 EXECUTION

4.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install to permit removal of plates with minimum disturbance to installed equipment and piping.
- C. Support heat exchangers on concrete housekeeping pad.

4.02 WATER TO WATER HEAT EXCHANGER TRIM

- A. Water Inlets and Outlets: Thermometer wells, pressure gage tappings.
- B. Heated Water Outlet: Thermometer well for temperature regulator sensor, ASME rated pressure and temperature relief valve, valved drain; refer to Section 23 21 14.

END OF SECTION

SUBSTATION A ENLARGED ARCHITECTURAL

SUBSTATION U ENLARGED ARCHITECTURAL

SUBSTATION H ENLARGED MECHANICAL

SUBSTATION D ENLARGED MECHANICAL

SUBSTATION D ENLARGED MECHANICAL

SUBSTATION A ENLARGED MECHANICAL

SUBSTATION G ENLARGED MECHANICAL

SUBSTATION U ENLARGED MECHANICAL

TEMPERATURE CONTROLS AND PIPING

TEMPERATURE CONTROLS AND PIPING

TEMPERATURE CONTROLS AND PIPING

ME315 BOILER HOUSE ENLARGED MECHANICAL

AND ELECTRICAL FLOOR PLAN

STRUCTURAL FLOOR PLANS

STRUCTURAL FLOOR PLANS

STRUCTURAL FLOOR PLANS

FLOOR PLANS

FLOOR PLANS

FLOOR PLANS

FLOOR PLANS

FLOOR PLANS

SCHEMATIC

SCHEMATIC

SCHEMATIC

SCHEMATIC

PLANS

& DETAILS

MECHANICAL DETAILS

MECHANICAL SCHEDULES

PLUMBING PARTIAL SITE PLAN

PLUMBING PARTIAL ROOF PLAN

PLUMBING PARTIAL ROOF PLAN PLUMBING PARTIAL ROOF PLAN

FIRE PROTECTION FLOOR PLANS

SUBSTATION H ENLARGED PLUMBING AND

SUBSTATION D ENLARGED PLUMBING FLOOR

SUBSTATION A ENLARGED PLUMBING FLOOR

SUBSTATION G ENLARGED PLUMBING FLOOR

SUBSTATION U ENLARGED PLUMBING FLOOR

ELECTRICAL ABBREVIATIONS, SYMBOLS LIST

SUBSTATION H ENLARGED ELECTRICAL FLOOR

SUBSTATION D ENLARGED ELECTRICAL FLOOR

SUBSTATION A ENLARGED ELECTRICAL FLOOR

SUBSTATION G ENLARGED ELECTRICAL FLOOR

SUBSTATION U ENLARGED ELECTRICAL FLOOR

BUILDING CODE DATA

2015 INTERNATIONAL BUILDING CODE

2014 ILLINOIS STATE PLUMBING CODE

2015 INTERNATIONAL ENERGY CODE

1997 IL ACCESSIBILITY CODE

2014 NATIONAL ELECTRIC CODE

2015 INTERNATIONAL MECHANICAL CODE

2015 INTERNATIONAL FUEL AND GAS CODE

2015 INTERNATIONAL FIRE PREVENTION CODE

LOCAL AMENDMENTS TO THE ABOVE CODES

PLUMBING SCHEDULES AND DETAILS

NATURAL GAS PIPING SCHEMATIC

AS313 SUBSTATION G ENLARGED ARCHITECTURAL

JOB NO. 17-292-1160 CHECKED APPROVED SHEET TITLE

COVER SHEET,

GENERAL NOTES SYMBOLS AND **DRAWING INDEX**

SHEET NUMBER

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH BY 2015 IBC AND SHALL CONFORM TO ALL OTHER APPLICABLE MUNICIPAL, STATE, AND FEDERAL REGULATIONS INCLUDING THE ILLINOIS ACCESSIBILITY CODE (1997) AND THE AMERICANS WITH DISABILITIES ACT.

1. ALL CONTRACTORS ARE REQUIRED TO VISIT THE SITE AND BE KNOWLEDGEABLE REGARDING EXISTING CONDITIONS AND THEIR EFFECT ON THE PROPOSED WORK. CONTRACTORS SHALL VERIFY AND BE RESPONSIBLE FOR, ANY CONDITIONS REQUIRING MODIFICATION BEFORE PROCEEDING WITH THE PROJECT.

2. NOTIFY THE OWNER'S REPRESENTATIVE A MINIMUM OF 72 HOURS PRIOR TO THE INTERRUPTION OF ANY UTILITY. 3. CONTRACTORS AND SUBCONTRACTORS SHALL COORDINATE THEIR WORK WITH THAT OF OTHER TRADES

4. NO WORK WILL BE PERMITTED TO BE INSTALLED WITHOUT RECEIPT AND SUBSEQUENT REVIEW OF FULL AND COMPLETE SUBMITTALS BY THE ARCHITECT/ENGINEER.

5. DO NOT SCALE DRAWINGS, DIMENSIONS INDICATED TAKE PRECEDENCE OVER SCALE.

6. VERIFY ALL DIMENSIONS AND ELEVATIONS IN THE FIELD. WHERE DISCREPANCIES ARE FOUND BETWEEN DIMENSIONS OR ELEVATIONS SHOWN AND ACTUAL FIELD CONDITIONS, NOTIFY ARCHITECT/ENGINEER. 7. DEFINITIONS:

7.1. <u>FURNISH</u>: SUPPLY, DELIVER TO AND UNLOAD AT PROJECT SITE READY FOR ASSEMBLY AND INCORPORATION

7.2. INSTALL: AT THE PROJECT SITE, UNPACK/UNCRATE ASSEMBLE, PLACE, ANCHOR, FINISH, PROTECT, CLEAN, AND PERFORM ALL OTHER SIMILAR OPERATIONS REQUIRED TO FULLY AND PROPERLY INCORPORATE AN ITEM INTO THE WORK. LEGALLY DISPOSE OF OR RECYCLE PACKAGING AND EXTRA MATERIAL OFF-SITE.

7.3. PROJECT SITE: THE SPACE AVAILABLE TO THE CONTRACTOR FOR PERFORMANCE OF CONSTRUCTION ACTIVITIES. THE EXTENT OF THE PROJECT SITE IS THE AREAS TO BE REMODELED AS INDICATED ON THE DRAWINGS, AND EXTENDS TO SUCH AREAS AS CONTAIN TERMINATIONS FOR POWER, DATA AND OTHER

7.4. OFF-SITE: OUTSIDE THE PROPERTY IN WHICH THE PROJECT SITE IS LOCATED.

7.5. PROVIDE: FURNISH AND INSTALL, AS DEFINED ABOVE.

- ANCHOR BOLT

ANCHOR

ASPHALT

AVERAGE

BASEMENT

BUILDING

BEAM

BITUMINOUS/BITUMASTIC

BLOCKING (WOOD)

BENT STEEL PLATE

- CONSTRUCTION/CONTRACTION JOINT

CEMENT PLASTER (TYPE)

CERAMIC PAVER TILE (TYPE)

CAST— IN— PLACE CONCRETE

- CONCRETE MASONRY UNIT

CONCRETE OPENING

CERAMIC TILE (TYPE)

CABINET ÚNIT HEATER

CABINET UNIT VENTILATOR

BENCH MARK

BEARING

BRACKE

BRICK

BOTTOM

CABINET

CEILING

COLUMN

CLEAN OUT

COMBINATION

- COMPRESSIBL

COMPACTED

CONCRETE

CONDITION

- COUNTER

- CENTER(S)

DIAMETER

DIMENSION

DRAWINGS

ELEVATION

ELEVATOR

EMBEDMENT

EMERGENCY

EPOXY PAINT

EACH WAY

EXISTING

EQUAL

EXPANSION JOINT

ELECTRIC/ELECTRICAL

ELECTRICAL CONTRACTOR

ELECTRIC WATER COOLER

ELECTRIC WATER HEATER

EXHIBIT RAIL (LENGTH)

DOWN

- DOOR

DOWELS

EACH

- CONTINUOUS

CONTRACT (OR

– CARPET (TYPE)

COUNTER SINK

CLEAR

BSMT

BLK'G

B.M.

BTW'N

COL

COMB

COMP

CONC

COMPT'D

CTR SK

DWG'S

DWL'S

ELEC CONTR

EMBED

EMER

EWC

EXIST

ER-(26)

CONC OPNG

CEM PL-(1) CT PAV-(1)

BT STL PL

AUTOMATIC

- ACCESS PANE

APPROXIMATE

8. WHERE CONFLICTS MAY EXIST BETWEEN THE REQUIREMENTS OF PORTIONS OF THE CONTRACT DOCUMENTS, THE GREATER QUANTITY, HIGHER QUALITY OR MORE STRINGENT REQUIREMENT SHALL GOVERN. THEREFORE, BY EXECUTING A CONTRACT FOR CONSTRUCTION, THE CONTRACTOR AGREES THAT, IF IT RAISED NO QUESTIONS REGARDING SUCH CONFLICTS DURING THE BIDDING PROCESS, AND IN THE ABSENCE OF A CLARIFYING ADDENDUM ISSUED DURING THE BIDDING PROCESS, IT HAS VOLUNTEERED TO COMPLY WITH THE MORE EXPENSIVE REQUIREMENT AS PART OF ITS BASE BID AND IS NOT ENTITLED TO ANY ADDITIONAL COMPENSATION TO RESOLVE THE CONFLICT.

9. THE CONTRACT DOCUMENTS REQUIRE THE CONTRACTOR TO FURNISH AND INSTALL COMPLETE PRODUCTS, SYSTEMS AND SERVICES. BY EXECUTING A CONTRACT FOR CONSTRUCTION, THE CONTRACTOR AGREES THAT THE DRAWINGS SET FORTH THE DESIGN INTENT AND, THEREFORE, MAY NOT EXPRESSLY DEPICT EVERY LENGTH, SEGMENT, PIECE, PART, COMPONENT OR UNIT OF A PRODUCT, SYSTEM OR SERVICE. THE CONTRACTOR FURTHER AGREES THAT, AS PART OF ITS BID, IT MUST FURNISH AND INSTALL EVERY LENGTH, SEGMENT, PIECE, PART, COMPONENT OR UNIT OF A PRODUCT, SYSTEM OR SERVICE AND, CONSEQUENTLY, THE CONTRACTOR IS NOT ENTITLED TO ANY ADDITIONAL COMPENSATION FOR ANY LENGTH, SEGMENT, PIECE, PART COMPONENT OR UNIT OF A PRODUCT, SYSTEM OR SERVICE BECAUSE IT IS NOT EXPRESSLY DEPICTED HEREIN.

10. ARCHITECT SHALL BE NAMED AS ADDITIONAL INSURED ON ALL REQUIRED INSURANCE POLICIES.

B: MISCELLANEOUS AND DEMOLITION NOTES

1. DEFINITIONS:

GENERAL NOTES

DEMOLISH: DISCONNECT FROM SERVICES, UNFASTEN, REMOVE, DISASSEMBLE AND LEGALLY DISPOSE

SALVAGE: CAREFULLY, SO AS TO PRESERVE INTEGRITY AND USEFULNESS, DISCONNECT FROM SERVICES. UNFASTEN. REMOVE. DISASSEMBLE IF NECESSARY. AND STORE TEMPORARILY FOR REINCORPORATION INTO THE WORK OR FOR DELIVERY/TURN-OVER TO THE OWNER AS INDICATED IN

SALVAGE IN PLACE: PROTECT, RE-USE, CLEAN, RE-CONDITION IF NECESSARTY, REFINISH IF INDICATED IN THE DRAWINGS, EXISTING INSTALLED ITEM/COMPONENT WITHOUT DISCONNECTING, UNFASTENING OR REMOVING FROM THE WORK.

BRING ANY UNFORESEEN OR CONFLICTING CONDITIONS TO THE IMMEDIATE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE WORK.

REPAIR. PATCH. OR REPLACE FINISH MATERIALS OR VISIBLE ASSEMBLIES THAT ARE SOILED. CUT OR DAMAGED IN ANY FASHION DURING THE COURSE OF THE WORK. PERFORM PATCHING SUCH THAT EDGES BLEND INTO CONTIGUOUS SURFACES SMOOTHLY, MATCHING TEXTURE AND COLOR OF ADJACENT

SEAL PENETRATIONS OF DUCTWORK, CONDUIT OR PIPES WITH UL APPROVED MATERIALS TO MAINTAIN THE FIRE RATING OF ASSEMBLIES.

APPLY APPROPRIATE & COMPATIBLE SEALANT MATERIALS AS REQUIRED TO SEPARATE DISSIMILAR METALS, FILL GAPS IN EXISTING ASSEMBLIES OR WHERE NEW AND EXISTING ASSEMBLIES MEET OR WHERE OTHERWISE REQUIRED BY THE SPECIFICATIONS.

6. UNTIL PERMANENT LIGHTING IS IN PLACE AND ENERGIZED. PROVIDE AND MAINTAIN TEMPORARY LIGHTING

IN THE PROJECT AREAS, TO ACHIEVE A MINIMUM LIGHTING LEVEL OF 2 WATTS PER S.F.

OWNER WILL CONTINUE TO OCCUPY AREAS ADJACENT TO THE PROJECT AREAS DURING TH CONSTRUCTION PERIOD. COORDINATE WITH OWNER TO MINIMIZE CONFLICT AND TO FACILITATE OWNER'S OPERATIONS. LIMIT CONDUCT OF ESPECIALLY NOISY OR DISRUPTIVE WORK TO ONLY THOSE TIMES MUTUALLY AGREED TO BY OWNER. REQUEST MUTUALLY AGREEABLE TIME FROM OWNER PRIOR TO CONDUCTING SUCH WORK, AND PROCEED WITH SUCH WORK ONLY AFTER RECEIVING OWNER'S EXPRESS

TO PROVIDE AS PART OF HIS/HER BID FOR UNFORSEEN/MISCELLANEOUS CONDITIONS. WHEN FIGURING THIS ALLOWANCE IN THE BID, CONTRACTOR IS TO INCLUDE ALL NECESSARY OVERHEAD AND PROFIT. THIS ALLOWANCE IS NOT FOR THE CONTRACTOR'S BENEFIT, AND IS ONLY AUTHORIZED TO CHARGE AGAINST THIS ALLOWANCE WHEN DIRECTED AND APPROVED BY JOLIET JUNIOR COLLEGE. THE

CONSTRUCTION START AND SUBSTANTIAL COMPLETION IN ACCORDANCE WITH JJC FRONT-END DOCUMENTS

CONTRACTOR WILL BE ALLOWED TO INVOICE FOR MATERIAL AND RAW LABOR COST ONLY.

ALL LOUD AND DISRUPTIVE WORK IS TO BE PERFORMED BETWEEN THE HOURS OF 10:00 PM AND 6:00 CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL REQUIRED TEMPORARY HEAT TO THE AREAS OF TH

PLB'G CONTR

PLYWD

PL-(1) R OR RAD

SEAL/HDNR

SPK'R

STD WGT

SUSP

WDN

BUILDING FOR FULL THE OWNER'S FULL USE IF THE NEW HEATING SYSTEM IS NOT OPERATIONAL BY

PLASTIC LAMINATE

PLUMBING CONTRACTOR

POLYVINYL CHLORIDE

– GYPSUM PLASTER (TYPE)

RUBBER FLOORING (TYPE)

PLUMBING

PLYWOOD

PAINT

RISER

ROOF DRAIN

RIGHT HAND

REFERANCE

REINFORCING

 SQUARE FOOT SQUARE INCH

- STAINLESS STEEL

SEALER/HARDENER

SLAB ON GRADE

- SPECIFICATION(S)

STANDARD WEIGHT

TONGUE AND GROOVE

TOP OF FOUNDATION

TACKBOARD (LENGTH)

- UNLESS NOTED OTHERWISE

TOP OF MASONRY

VINYL BASE COVED

VINYL BASE STRAIGHT

WALL CORNER GUARD

WELDED WIRE FABRIC

WALL SERVICE BASIN

- VINYL COMPOSITION TILE

VENEER PLASTER (TYPE)

- STRUCTURAL OR STRUCTURE

SERVICE SINK

SCHEDULE

SECTION

SPACING

SPEAKER

STANDARD

SUSPEND(ED)

SYMMETRICAL

TOP OF BEAM

TOP OF CURB

TOP OF SLAB

- TOP OF STEEL

TOP OF WALL

VERTICAL

WITHOUT

WINDOW

WEIGHT

WIDE OR WIDTH

WATER PROOF

TREAD

SHEET

REQUIRED

ROUGH OPENING

DETAIL NUMBER -DRAWING NUMBER -W 0 DETAIL NUMBER -DRAWING NUMBER — A6.05 COLUMN NUMBER 100'-0" ELEVATION RIAL 204 NUMBER 203.2 DOOR NO. NEW **G** DOOR NO. EXISTING 203.1X NOMINAL THICKNESS -CONSTRUCTION TYPE SPECIAL CONDITION -KEYNOTE 15.211 IDENTIFICATION IDENTIFICATION

DETAIL NUMBER-DRAWING NUMBER —

DETAIL NUMBER-

DRAWING NUMBER -

IDENTIFICATION

BRICK MASONRY IN

CONCRETE

CONCRETE

MASONRY IN PLA

(RUNNING BOND)

MASONRY IN PLAN

STONE MASONRY IN

RAKED JOINT IN

CTRL./EXP. JOINT

BRICK MASONRY II

SECTION DETAIL

CONCRETE

MASONRY IN

SECTION DETAIL

STONE MASONRY IN

SECTION DETAIL

STEEL IN SECTION

DISCONTINUOUS

WOOD BLOCKING IN

CONTINUOUS WOOD

BLOCKING IN

FINISHED WOOD IN

SECTION DETAIL

RIGID BOARD

INSULATION

RIGID BOARD

INSULATION (ROOFING)

BATT INSULATION

GYPSUM BOARD

ACOUSTICAL

BITUMINOUS

CONCRETE

IN SECTION

AGGREGATE

BACKFILL IN

UNDISTURBED

EARTH BACKFILL

SECTION

EARTH

(ASPHALT) PAVING

BALLAST, FILL OR

CEILING PANEL

DETAIL

SECTION

(STACK BOND)

SPOT

ELEVATION

CONCRETE

DR

KLUBER ARCHITECTS + ENGINEERS

FAX 630-406-9472

www.kluberinc.com BLDG 'U'

PROJECT

STEAM PIPE SYSTEM REPLACEMENT WITH CONDENSING BOILERS JOLIET JUNIOR COLLEGE 1215 HOUBOLT ROAD **JOLIET, IL 60431**

OWNER

JOLIET JUNIOR COLLEGE 1215 HOUBOLT ROAD **JOLIET, IL 60431**

ARCHITECT/ **ENGINEER**

10 S. SHUMWAY AVE. **BATAVIA, ILLINOIS 60510** TEL 630-406-1213

SEALS & CERTIFICATES

BE PREPARED UNDER MY DIRECT SUPERVISION, THE ATTACHED PLANS AND SPECIFICATIONS AND STATE THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND TO THE EXTENT OF MY CONTRACTUAL OBLIGATION, THEY ARE IN COMPLIANCE WITH IBC 2015 EDITION. THE ENVIRONMENTAL BARRIERS ACT AND THE ILLINOIS ACCESSIBILITY

MECHANICAL ENGINEER'S

SEAL

"G" SERIES

"M" SERIES

ELECTRICAL ENGINEER'S

SEAL

"G" SERIES "E" SERIES

ABRASIVE - FLOOR DRAIN ACOUSTIC TILE CEILING (TYPE) FOUNDATION - ABOVE FINISH FLOOR FIRE EXTINGUISHER - FIRE EXTINGUISHER CABINET ABOVE FINISH GRADE ACOUSTIC FIRE HOSE CABINET ADDITION ADDITIONAL - FLOOR FIRE RETARDANT TREATED (RATED) ADJACENT ADJUSTABLE FUR CHN'L FURRING CHANNEL ALUMINUM ALTERNATE

GAUGE GALVANIZED GENERAL CONTRACTOR GENERAL CONTRACTOR - GYPSUM WALL BOARD (DRYWALL)(TYPE) – GYPSUM PLASTER (TYPÈ) - HEAVY DUTY HARD

STANDARD ABBREVIATIONS

EXPANSIONEXPOSED CONSTRUCTION

HARDENER HARD WOOD (TYPE) HARDWARE HEIGHT HOLLOW META HIGH POINT HORIZONTAL HEATING - HEATING/VENTILATING/AIR CONDITIONING

INCH - INSIDE DIAMETER – INCLUDE (D) INSULATION OR INSULATING

JOINT - KNOCK DOWN LONG LAMINATED LAVATORY - LEFT HAND LOW POINT LIGHTWEIGHT

LIVE LOAD LONG LEG HORIZONTAL LONG LEG VERTICAL LOUVER MASONRY OPENING

- METAL THRESHOLD MASONRY MATERIAL MAXIMUM MARKERBOARD— (LENGTH) MECHANICAL - MECHANICAL CONTRACTOR MANUFACTURER MINIMUM

MISCELLANEOUS MOP SERVICE BASIN (SINK) MOUNT(ED) NOT IN CONTRACT NOT TO SCALE NUMBER

OVERALL ON CENTER OUTSIDE DIAMETER

 OUTSIDE FACE OPENING OPPOSITE OPPOSITE HAND - POUNDS PER SQUARE FOOT - POUNDS PER SQUARE INCH PRESSURE TREATED

PARTITION PAVEMENT PIECE PERMANENT FLOOR MAT

THE MATERIALS, ABBREVIATIONS, AND DRAFTING SYMBOLS LEGEND ARE EACH AN ALL INCLUSIVE MASTER LIST USED BY THIS FIRM. THE INCLUSION OF THESE LEGENDS INTO THESE DOCUMENTS DOES NOT IMPLY THAT ALL THE SYMBOLS OR MATERIALS INCLUDED IN THESE LEGENDS ARE INCORPORATED INTO THIS PROJECT.

OD

OPN'G

PAV'T

I HAVE PREPARED, OR CAUSED TO

KLUBER, INC. ILLINOIS PROFESSIONAL DESIGN FIRM LICENSE #184-001284

ARCHITECT'S SEAL "G" SERIES, "A" SERIES

EXISTING BASE. DO NOT WELD EXISTING RAILING TO SLEEVE.

9.922 REPAIR, PATCH AND PAINT EXISTING STUCCO WALL SURFACE TO MATCH EXISTING USING LIKE MATERIALS

FLASHINGS, ANCHORS, WALL SURFACE DIRT, DISCOLORATION AND OTHER ASSOCIATED BLEMISHES OR

TO REMOVE EVIDENCE OF DEMOLISHED ENCLOSURE, INCLUDING SEALANTS AND OTHER RESIDUES, EMBEDDED

RE-INSTALL SALVAGED WALL PANELS, FLASHINGS AND OTHER COMPONENTS IN THEIR ORIGINAL CONFIGURATION;

LONGER NEEDED DURING CONSTRUCTION, RE-INSTALL SALVAGED STUDS, BRACING AND OTHER COMPONENTS IN

APPLY LOW MODULUS SILICONE JOINT SEALANT TO JOINTS THAT WERE PREVIOUSLY SEALED WITH JOINT

REINFORCING, MIX TYPE AND FINISH. AT LOCATIONS WHERE NEW PAD INTERFACES WITH AN EXIST. SLAB,

3.301 CAST-IN-PLACE CONCRETE: EQUIPMENT PAD. REFER TO SPECIFICATIONS AND DETAIL A/AS310 FOR THICKNESS,

REINFORCING, MIX TYPE AND FINISH. COORDINATE SIZE, LOCATION AND QUANTITY WITH M.E.P. DRAWINGS AND REQUIREMENTS. REFER TO TYPICAL DETAIL ON A/AS310. AT LOCATIONS WHERE NEW PAD INTERFACES

2.433 SALVAGE EXISTING EXTERIOR WALL CONSTRUCTION: STEEL STUDS @ 16" O.C. 15'± HIGH, AND ASSOCIATED BRACING IN THIS AREA; TO PERMIT ACCESS FOR POILER EQUIPMENT INSTALLATION; AFTER ACCESS IS NO

3.300 CAST-IN-PLACE CONCRETE: INTERIOR SLAB-ON-GRADE. REFER TO SPECIFICATIONS FOR THICKNESS,

WITH AN EXIST. PAD, DOWEL PER DETAIL B/AS310. MATCH EXIST. PAD THICKNESS.

THEIR ORIGINAL CONFIGURATION.

DOWEL PER DETAIL B/AS310. MATCH EXIST. SLAB THICKNESS.

- SUBSTATION D

DRAWN CDH/JMB/VAD

CHECKED CDH/JMB

APPROVED CDH/JMB

SHEET TITLE

SUBSTATION D

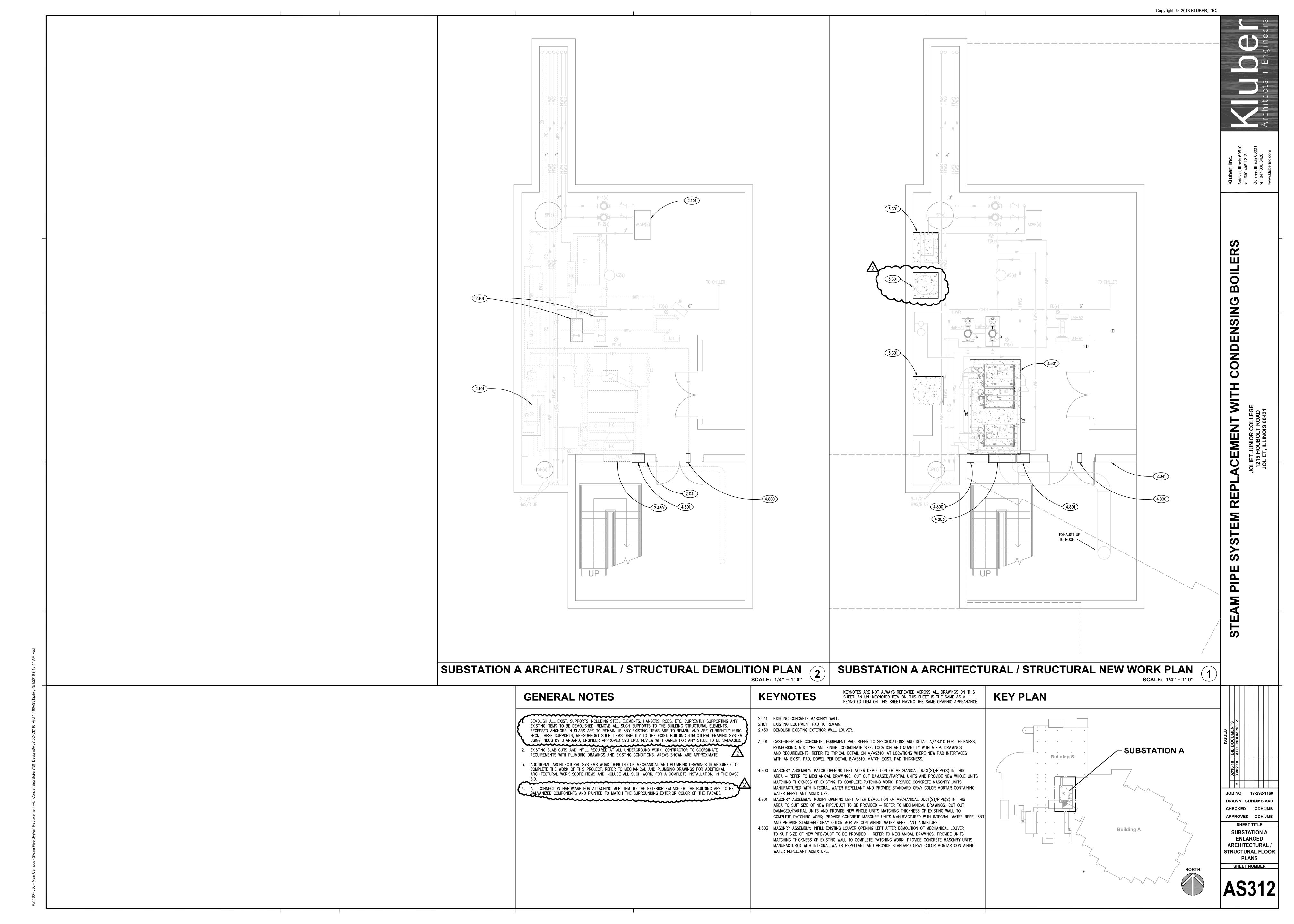
ENLARGED ARCHITECTURAL /

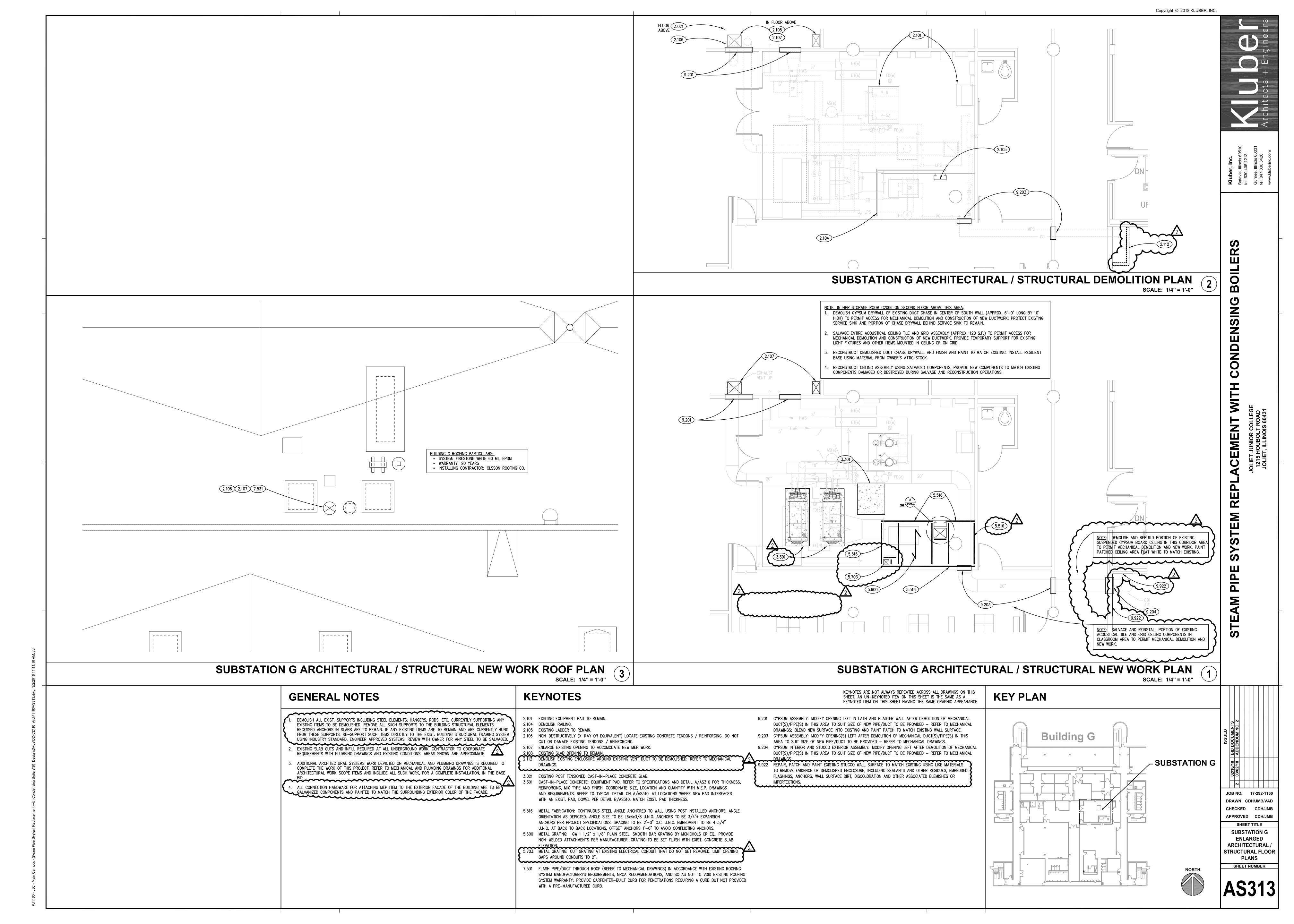
STRUCTURAL FLOOR

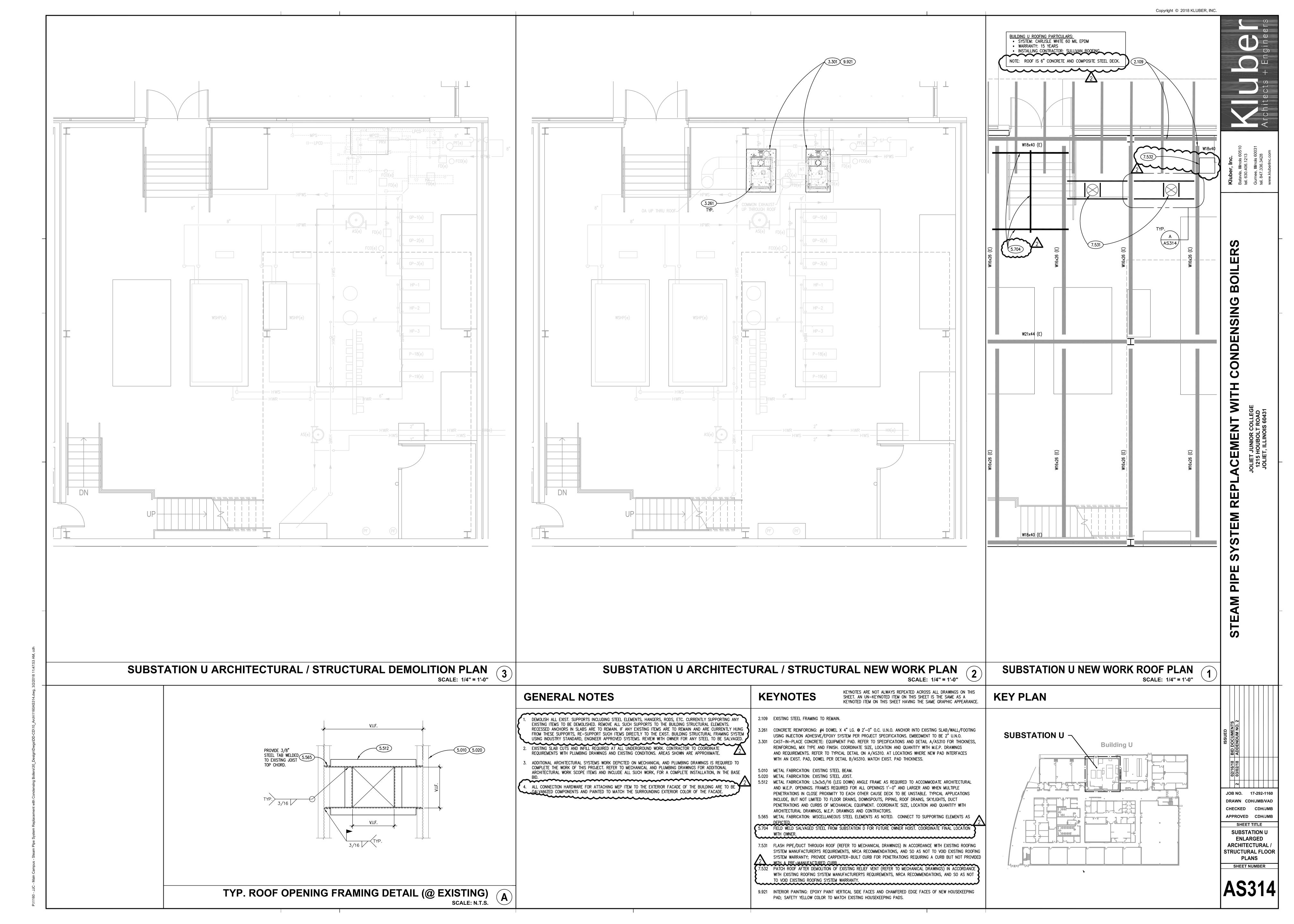
PLANS

SHEET NUMBER









SUBSTATION H PIPING PLAN

CONTRACTOR SHALL PROVIDE TEMPORARY HEAT AS REQUIRED TO HEAT BUILDINGS IF BOILERS ARE NOT INSTALLED AND OPERATIONAL BY OCTOBER 1ST.

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

Building J Building K -SUBSTATION H

JOB NO. 17-292-1160 DRAWN CHECKED APPROVED SHEET TITLE

SUBSTATION H **ENLARGED** MECHANICAL FLOOR PLANS SHEET NUMBER

- TO ROOF 23.200

23.108

23.103 REMOVE STEAM HEAT EXCHANGER. REMOVE ALL ASSOCIATED STEAM AND CONDENSATE PIPING. 23.104 REMOVE HOT WATER SUPPLY / RETURN PIPING BACK TO LOCATIONS SHOWN.

23.106 REMOVE UNIT HEATER. REMOVE ALL ASSOCIATED PIPING AND SPECIALITIES BACK TO MAIN AND PROVIDE PERMANENT CAP ON PIPING.

OF ANY SUPPORTS.

23.111 REMOVE BOILER VENT THROUGH WALL AND UP TO ROOF IN ITS ENTIRETY. 23.112 REMOVE ALL STEAM AND CONDENSATE PIPING TO HOT WATER STORAGE TANK.

23.125 REMOVE, RETAIN, AND PROTECT AIR SEPARATOR AS REQUIRED TO ALLOW CLEARANCE FOR DEMOLITION AND INSTALLATION OF NEW BOILERS.

23.200 PROVIDE BOILER EXHAUST VENT SYSTEM. VENT TO GO THROUGH SIDE WALL AND UP TO ROOF. EXHAUST VENT SHALL BE SIZED AND CONFIGURED AS APPROVED BY THE BOILER MANUFACTURER.

23.100 REMOVE STEAM PRESSURE REDUCING STATION IN ITS ENTIRETY. REMOVE ALL ASSOCIATED STEAM AND CONDENSATE PIPING AND SPECIALITIES.

23.102 REMOVE STEAM CONDENSATE PIPING IN ITS ENTIRETY. REMOVE PIPING BACK TO WALL AND PROVIDE PERMANENT

23.105 REMOVE CONDENSATE PUMP AND PIT. REMOVE ALL ASSOCIATED PIPING AND SPECIALITIES. REFER TO

23.107 REMOVE HEATING WATER PUMPS. REMOVE ASSOCIATED PIPING BACK TO AIR SEPARATOR AS SHOWN.

23.109 REMOVE STEAM PRESSURE RELIEF PIPING IN ITS ENTIRETY. REFER TO ARCHITECTURAL DRAWINGS FOR PATCHING OF WALLS.

AT WALL.

KEYNOTES

REFER TO DRAWING G100 FOR PROJECT GENERAL NOTES. ALL PIPING AND DUCTWORK IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL REQUIRED FITTINGS, OFFSETS, DROPS AND RISES. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL MATERIAL AND LABOR FOR A COMPLETE AND WORKING SYSTEM. COORDINATE WITH OTHER TRADES FOR SPACE AVAILABLE AND RELATIVE LOCATIONS OF

ALL TAPES AND MASTICS USED TO SEAL DUCTWORK LISTED AND LABELED IN ACCORDANCE WITH UL 181A SHALL BE MARKED ACCORDINGLY. ALL TAPES AND MASTICS USED TO SEAL FLEXIBLE DUCTS AND AIR CONNECTORS SHALL COMPLY WITH UL 181B AND MARKED ACCORDINGLY.

4. THERMOSTATIC CONTROLS OF EQUIPMENT SHALL HAVE A 5' F DEADBAND. 5. CONFIRM ALL EQUIPMENT TAGS WITH OWNER. RECORD TAG NAMES IN BUILDING AUTOMATION SYSTEM AND PROJECT RECORD DRAWINGS. 6. GENERALLY, SMALL DIAMETER PIPE RUNS FROM DRIPS, CONDENSATE PANS AND OTHER SERVICES ARE NOT SHOWN

BUT MUST BE PROVIDED. DEMOLISH ALL EXISTING SUPPORTS INCLUDING STEEL ELEMENTS, HANGERS, RODS, ETC. CURRENTLY SUPPORTING ANY EXISTING ITEMS TO BE DEMOLISHED. REMOVE ALL SUCH SUPPORTS TO THE BUILDING STRUCTURAL ELEMENTS. RECESSED ANCHORS IN SLABS ARE TO REMAIN. IF ANY EXISTING ITEMS ARE TO REMAIN AND ARE CURRENTLY HUNG FROM THESE SUPPORTS, RE-SUPPORT SUCH ITEMS DIRECTLY TO THE EXISTING BUILDING STRUCTURAL

FRAMING SYSTEM USING INDUSTRY STANDARD, ENGINEER APPROVED SYSTEMS. B. SPACE ALLOCATION, COORDINATION WITH ELECTRICAL, ARCHITECTURAL & OTHER MECHANICAL COMPONENTS HAVE BEEN MADE WITH RESPECT TO ALL EQUIPMENT SCHEDULED ON THESE DRAWINGS AND IN THE SPECIFICATIONS OF THE FIRST NAMED MANUFACTURER ONLY. OTHER MANUFACTURERS ARE ACCEPTABLE PROVIDED THEY MEET PERFORMANCE REQUIREMENTS AND AFOREMENTIONED COORDINATION.

DO NOT CUT THROUGH THE MASONRY BOND BEAMS OR OTHER STRUCTURAL ELEMENT WHEN INSTALLING OPENINGS REQUIRED FOR ALL DUCTWORK, PIPING, CONDUITS OR OTHER WORK. COORDINATE WITH THE STRUCTURAL DRAWINGS AND MASON CONTRACTOR FOR ALL BOND BEAM AND STRUCTURAL ELEMENT LOCATIONS. CONTRACTOR CUTTING THROUGH OR OTHERWISE DAMAGING THESE ELEMENTS WILL BE RESPONSIBLE FOR ALL ASSOCIATED ENGINEERING FEES AND SUBSEQUENT RETRO-FIT/REINFORCING DEEMED NECESSARY TO REINSTATE THE CONTINUITY OF THE DISRUPTED ELEMENTS.

10. OBTAIN AND PAY ALL COSTS FOR PERMITS, LICENSES, CERTIFICATE FILING AND ALL INSPECTIONS BY AUTHORITIES HAVING JURISDICTION.

23.101 REMOVE STEAM PIPING IN ITS ENTIRETY. REMOVE PIPING BACK TO WALL AND PROVIDE PERMANENT CAP ON

CAP ON PIPE

ARCHITECTURAL DRAWINGS FOR FILLING OF PIT.

23.108 REMOVE ABANDONED EXPANSION TANKS IN ITS ENTIRETY. REFER TO MECHANICAL GENERAL NOTES FOR REMOVAL

23.110 REMOVE HEATING WATER CHEMICAL TREATMENT STATION. REMOVE ALL ASSOCIATED PIPING AND SPECIALITIES.

23.127 REMOVE STEAM, CONDENSATE, AND RELIEF PIPING DOWN INTO PIT. PROVIDE PERMANENT CAP ON PIPING

KEYNOTED ITEM ON THIS SHEET HAVING THE SAME GRAPHIC APPEARANCE.

23.204 PROVIDE CONDENSATE NEUTRALIZING TANK AND DISCHARGE IN FLOOR DRAIN. 23.206 PROVIDE NEW CHEMICAL TREATMENT EQUIPMENT AS SHOWN. MOUNT EQUIPMENT ON RACK. COORDINATE EXACT LOCATION OF EQUIPMENT WITH OWNER.

KEYNOTES ARE NOT ALWAYS REPEATED ACROSS ALL DRAWINGS ON THIS

SHEET. AN UN-KEYNOTED ITEM ON THIS SHEET IS THE SAME AS A

23.208 MAINTAIN MINIMUM CLEARANCES SHOWN BETWEEN BOILER AND ELECTRICAL EQUIPMENT AND BOILER PIPING 23.209 PROVIDE BOILER EMERGENCY SHUTDOWN SWITCH AT THE ENTRANCE OF THE MECHANICAL ROOM.

23.212 INSULATE ANNULAR SPACE AROUND PIPE/DUCT WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE INSULATION PRODUCT AND PROVIDE SHEET METAL SURFACE FLANGE SEALS AT INTERIOR AND EXTERIOR SURFACES OF WALL; PROVIDE A CONTINUOUS BEAD OF NOT-HARDENING, NON-SKINNING JOINT SEALANT BETWEEN WALL SURFACE AND BACKSIDE SURFACE OF SHEET METAL; PROVIDE A CONTINUOUS BEAD OF LOW-MODULUS SILICONE JOINT

SEALANT ALONG PERIMETER EDGES OF FLANGES.

SUBSTATION H DEMOLITON PLAN
SCALE: 1/4" = 1'-0"

SUBSTATION H VENTING PLAN

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

2

23.202 PROVIDE NEW VERTICAL INLINE PUMP, SPECIALITIES, AND PIPING. 23.203 PROVIDE NEW BOILER, ALL ASSOCIATED SPECIALITIES AND PIPING.

23.220 PROVIDE BOILER VENT UP SIDE OF BUILDING AND TERMINATE 36" ABOVE ROOF WITH VELOCITY CONE.

MECHANICAL GENERAL NOTES

23.201 PROVIDE COMBUSTION AIR DUCT FOR NEW BOILERS COMBUSTION AIR VENT SHALL BE SIZED AND CONFIGURED AS APPROVED BY THE BOILER MANUFACTURER. TERMINATE IN ACCORDANCE WITH BOILER MANUFACTURER'S





— BOILER EMERGENCY

23.209

- SUBSTATION D

KEY PLAN

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

SUBSTATION D **ENLARGED** MECHANICAL FLOOR PLANS

SHEET TITLE

JOB NO. 17-292-1160

CHECKED

APPROVED

SHEET NUMBER

BOILER EMERGENCY SHUTDOWN SWITCH -ROUTE PIPING ABOVE EXISTING DRAWINGS FOR CONTINUATION 23.101 CONTRACTOR SHALL PROVIDE TEMPORARY HEAT AS REQUIRED TO HEAT BUILDINGS IF BOILERS ARE NOT INSTALLED AND OPERATIONAL BY OCTOBER 1ST. SUBSTATION D PIPING PLAN

SUBSTATION D DEMOLITION PLAN SCALE: 1/4" = 1'-0"

23.103)_

23.104 TYP

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23.106

MECHANICAL GENERAL NOTES

PERFORMANCE REQUIREMENTS AND AFOREMENTIONED COORDINATION.

- REFER TO DRAWING G100 FOR PROJECT GENERAL NOTES.
- ALL PIPING AND DUCTWORK IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL REQUIRED FITTINGS, OFFSETS, DROPS AND RISES. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL MATERIAL AND LABOR FOR A COMPLETE AND WORKING SYSTEM. COORDINATE WITH OTHER TRADES FOR SPACE AVAILABLE AND RELATIVE LOCATIONS OF EQUIPMENT, PIPING, DUCTWORK, ETC.
- ALL TAPES AND MASTICS USED TO SEAL DUCTWORK LISTED AND LABELED IN ACCORDANCE WITH UL 181A SHALL BE MARKED ACCORDINGLY. ALL TAPES AND MASTICS USED TO SEAL FLEXIBLE DUCTS AND AIR CONNECTORS SHALL COMPLY WITH UL 181B AND MARKED ACCORDINGLY.

4. IHERMUSTATIC CUNTRULS OF EQUIPMENT SHALL HAVE A 3 F DEADDAIND. 5. CONFIRM ALL EQUIPMENT TAGS WITH OWNER. RECORD TAG NAMES IN BUILDING AUTOMATION SYSTEM AND PROJECT RECORD DRAWINGS. 6. GENERALLY, SMALL DIAMETER PIPE RUNS FROM DRIPS, CONDENSATE PANS AND OTHER SERVICES ARE NOT SHOWN

- BUT MUST BE PROVIDED. DEMOLISH ALL EXISTING SUPPORTS INCLUDING STEEL ELEMENTS, HANGERS, RODS, ETC. CURRENTLY SUPPORTING ANY EXISTING ITEMS TO BE DEMOLISHED. REMOVE ALL SUCH SUPPORTS TO THE BUILDING STRUCTURAL ELEMENTS. RECESSED ANCHORS IN SLABS ARE TO REMAIN. IF ANY EXISTING ITEMS ARE TO REMAIN AND ARE CURRENTLY HUNG FROM THESE SUPPORTS, RE-SUPPORT SUCH ITEMS DIRECTLY TO THE EXISTING BUILDING STRUCTURAL
- FRAMING SYSTEM USING INDUSTRY STANDARD, ENGINEER APPROVED SYSTEMS. 8. SPACE ALLOCATION, COORDINATION WITH ELECTRICAL, ARCHITECTURAL & OTHER MECHANICAL COMPONENTS HAVE BEEN MADE WITH RESPECT TO ALL EQUIPMENT SCHEDULED ON THESE DRAWINGS AND IN THE SPECIFICATIONS OF THE FIRST NAMED MANUFACTURER ONLY. OTHER MANUFACTURERS ARE ACCEPTABLE PROVIDED THEY MEET
- 9. DO NOT CUT THROUGH THE MASONRY BOND BEAMS OR OTHER STRUCTURAL ELEMENT WHEN INSTALLING OPENINGS REQUIRED FOR ALL DUCTWORK, PIPING, CONDUITS OR OTHER WORK. COORDINATE WITH THE STRUCTURAL DRAWINGS AND MASON CONTRACTOR FOR ALL BOND BEAM AND STRUCTURAL ELEMENT LOCATIONS. CONTRACTOR CUTTING THROUGH OR OTHERWISE DAMAGING THESE ELEMENTS WILL BE RESPONSIBLE FOR ALL ASSOCIATED ENGINEERING FEES AND SUBSEQUENT RETRO-FIT/REINFORCING DEEMED NECESSARY TO REINSTATE THE CONTINUITY OF THE
- 10. OBTAIN AND PAY ALL COSTS FOR PERMITS, LICENSES, CERTIFICATE FILING AND ALL INSPECTIONS BY AUTHORITIES

KEYNOTES

- KEYNOTES ARE NOT ALWAYS REPEATED ACROSS ALL DRAWINGS ON THIS SHEET. AN UN-KEYNOTED ITEM ON THIS SHEET IS THE SAME AS A KEYNOTED ITEM ON THIS SHEET HAVING THE SAME GRAPHIC APPEARANCE.
- 23.100 REMOVE STEAM PRESSURE REDUCING STATION IN ITS ENTIRETY. REMOVE ALL ASSOCIATED STEAM AND CONDENSATE PIPING AND SPECIALITIES. 23.101 REMOVE STEAM PIPING IN ITS ENTIRETY. REMOVE PIPING BACK TO WALL AND PROVIDE PERMANENT CAP ON
- 23.102 REMOVE STEAM CONDENSATE PIPING IN ITS ENTIRETY. REMOVE PIPING BACK TO WALL AND PROVIDE PERMANENT CAP ON PIPE.
- 23.103 REMOVE STEAM HEAT EXCHANGER. REMOVE ALL ASSOCIATED STEAM AND CONDENSATE PIPING. 23.104 REMOVE HOT WATER SUPPLY / RETURN PIPING BACK TO LOCATIONS SHOWN.
- 23.106 REMOVE UNIT HEATER. REMOVE ALL ASSOCIATED PIPING AND SPECIALITIES BACK TO MAIN AND PROVIDE
- 23.109 REMOVE STEAM PRESSURE RELIEF PIPING IN ITS ENTIRETY. REFER TO ARCHITECTURAL DRAWINGS FOR PATCHING OF WALLS.
- 23.110 REMOVE HEATING WATER CHEMICAL TREATMENT STATION. REMOVE ALL ASSOCIATED PIPING AND SPECIALITIES.
- 23.111 REMOVE BOILER VENT THROUGH WALL AND UP TO ROOF IN ITS ENTIRETY. 23.112 REMOVE ALL STEAM AND CONDENSATE PIPING TO HOT WATER STORAGE TANK.
- 23.113 REMOVE, RETAIN, AND PROTECT CHILLED WATER EXPANSION TANK AND SPECIALITIES FOR RELOCATION.
- IN ACCORDANCE WITH MECHANICAL GENERAL NOTES. 23.115 REMOVE CONDENSATE PUMP. REMOVE ALL ASSOCIATED PIPING AND SPECIALITIES.
- 23.116 REMOVE HEATING WATER PUMPS AND ASSOCIATED SPECIALITIES. REMOVE PIPING BACK TO LOCATIONS SHOWN.

 23.131 REMOVE CHILLED WATER SUPPLY / RETURN PIPING BACK TO MAIN. PROVIDE PERMANENT CAP ON PIPING. REFER TO ARCHITECTURAL DRAWINGS FOR PATCHING OF WALL PENETRATION.
- 23.203 PROVIDE NEW BOILER, ALL ASSOCIATED SPECIALITIES AND PIPING.
- 23.204 PROVIDE CONDENSATE NEUTRALIZING TANK AND DISCHARGE IN FLOOR DRAIN. 23.206 PROVIDE NEW CHEMICAL TREATMENT EQUIPMENT AS SHOWN. MOUNT EQUIPMENT ON RACK. COORDINATE EXACT
- 23.209 PROVIDE BOILER EMERGENCY SHUTDOWN SWITCH AT THE ENTRANCE OF THE MECHANICAL ROOM. 23.210 RELOCATE CHILLED WATER EXPANSION TANK. PROVIDE ALL MATERIAL AND LABOR TO ROUTE PIPING TO

LOCATION SHOWN. INSTALLATION TO MATCH EXISTING.

DISRUPTED ELEMENTS.

HAVING JURISDICTION.

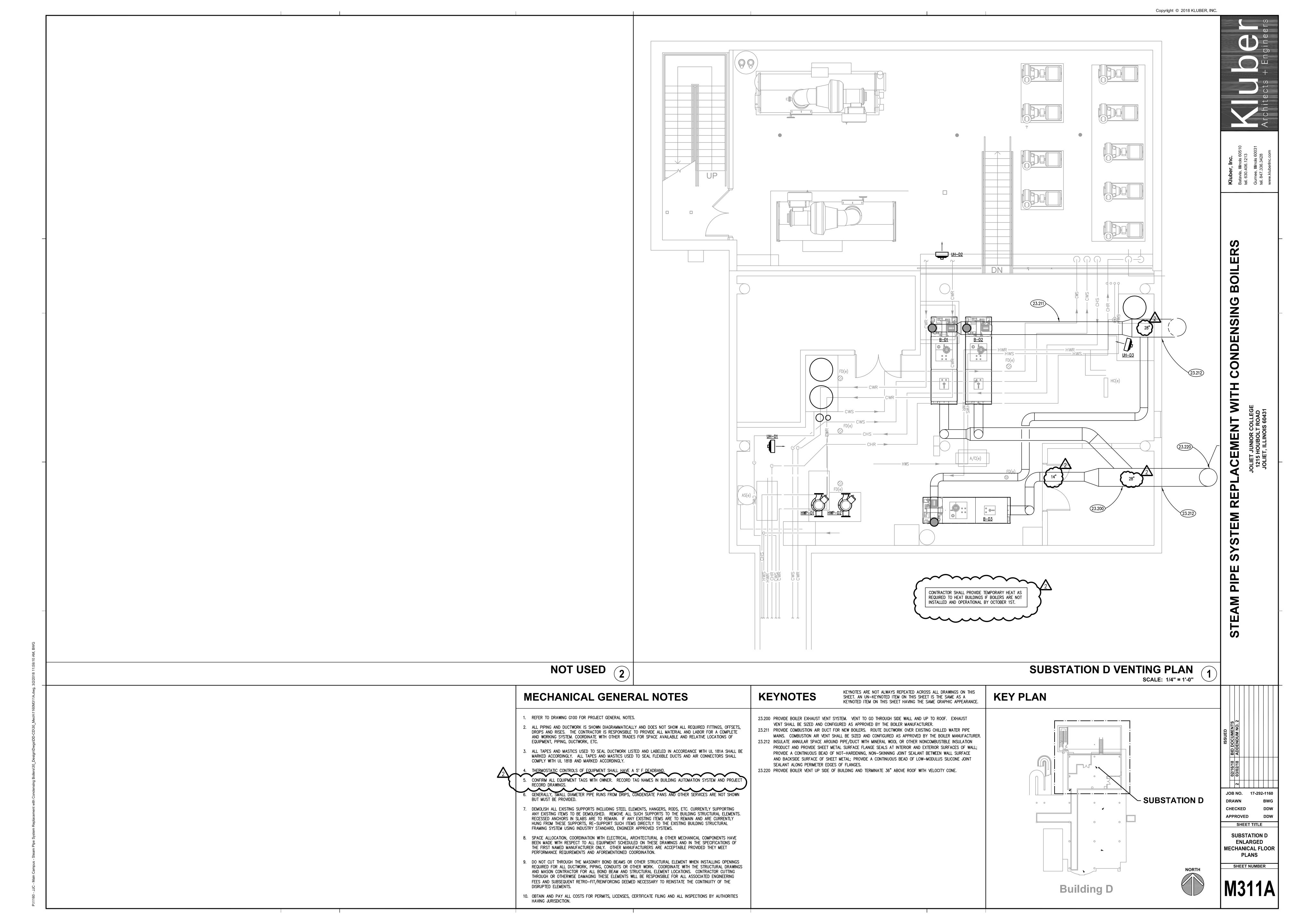
REMOVE PIPING BACK TO LOCATION SHOWN. PROVIDE TEMPORARY CAP ON PIPING FOR NEW CONNECTION. 23.114 REMOVE HEATING WATER EXPANSION TANKS AS SHOWN. REMOVE STEEL SUPPORT BRACING IN ITS ENTIRETY

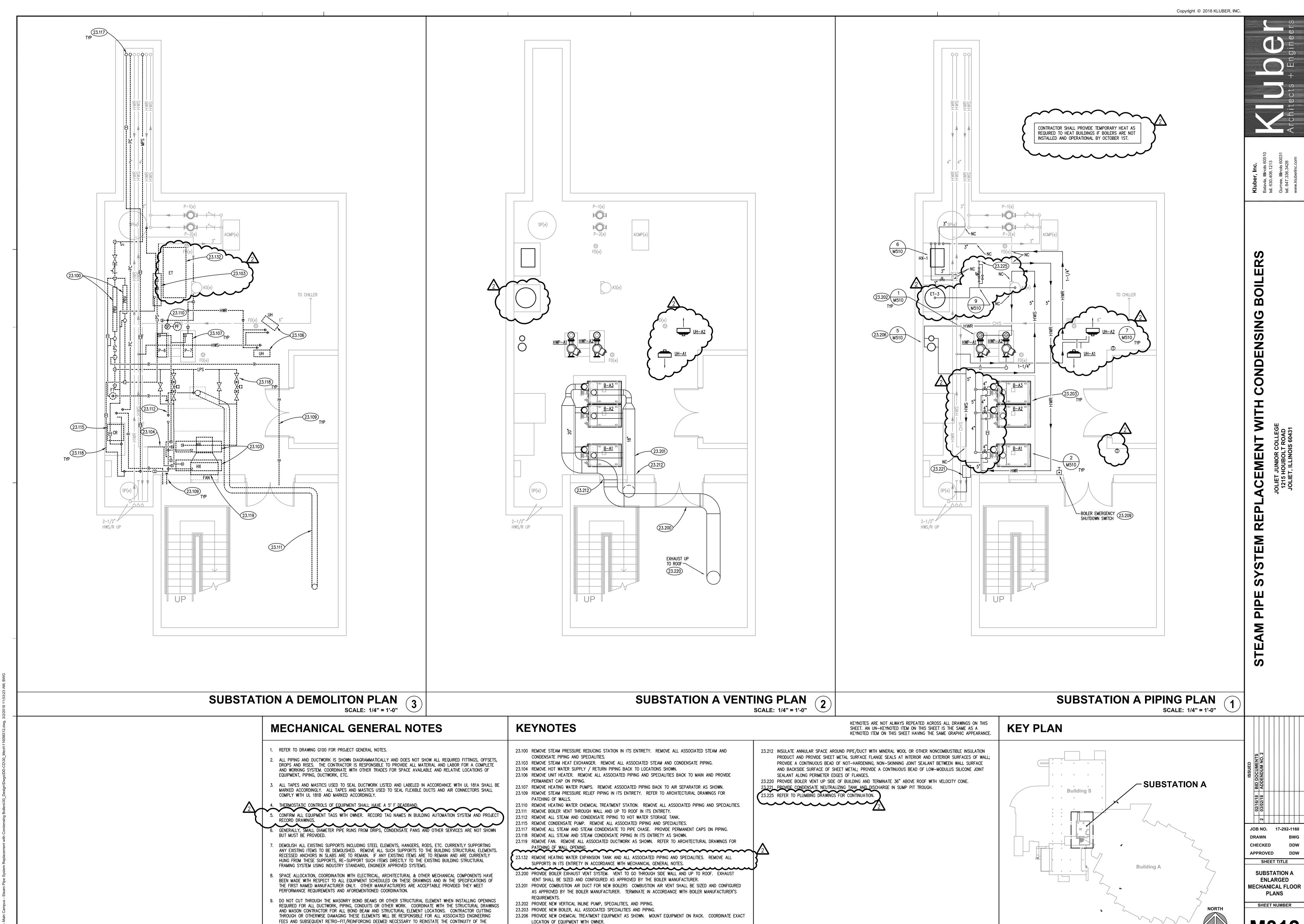
23.202 PROVIDE NEW VERTICAL INLINE PUMP, SPECIALITIES, AND PIPING.

LOCATION OF EQUIPMENT WITH OWNER.

23.222 PROVIDE CONDENSATE NEUTRALIZING TANK AND DISCHARGE IN SUMP PIT.

NORTH



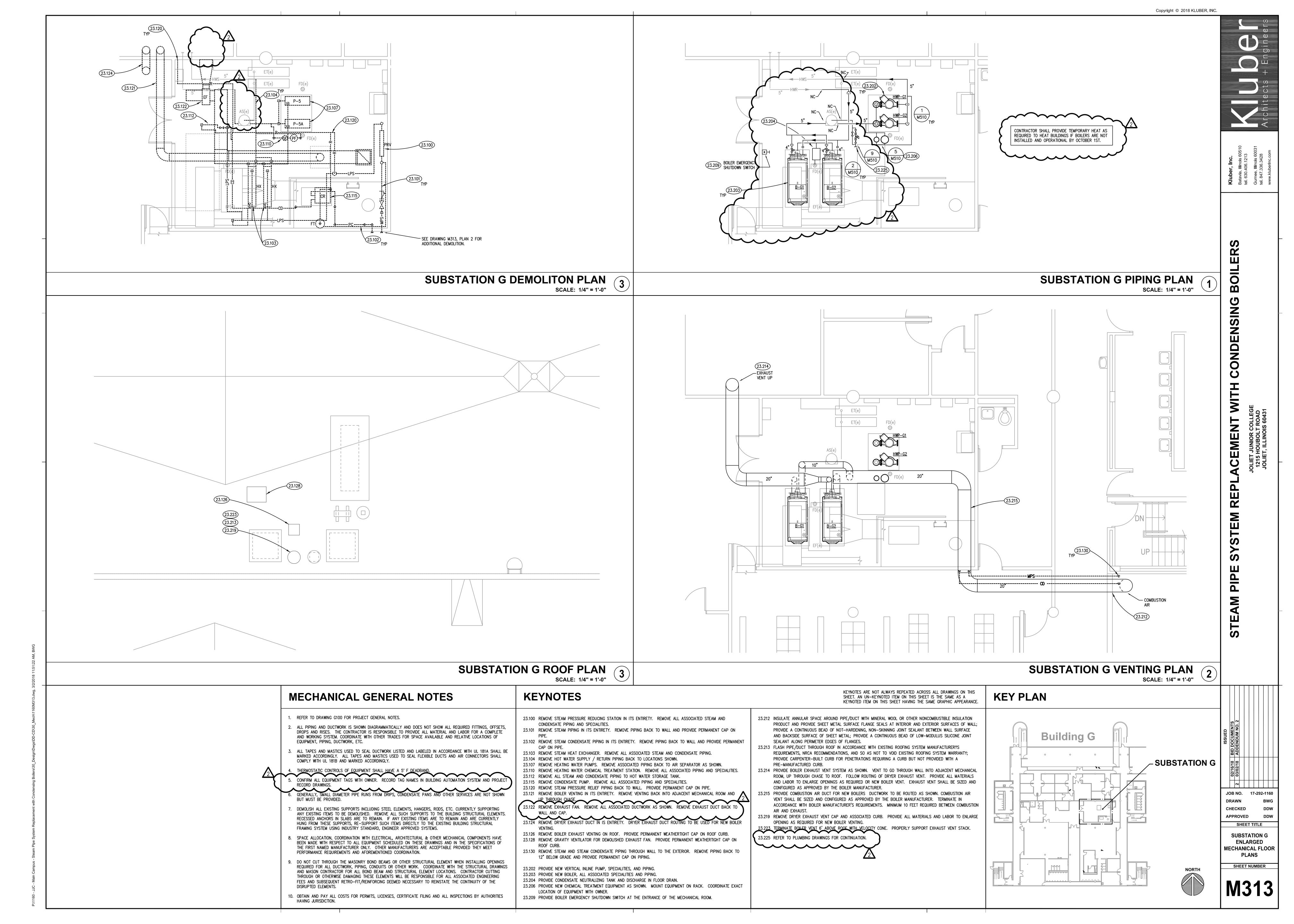


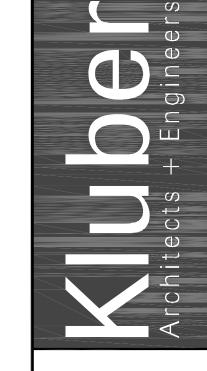
23.209 PROVIDE BOILER EMERGENCY SHUTDOWN SWITCH AT THE ENTRANCE OF THE MECHANICAL ROOM.

DISRUPTED ELEMENTS.

HAVING JURISDICTION.

10. OBTAIN AND PAY ALL COSTS FOR PERMITS, LICENSES, CERTIFICATE FILING AND ALL INSPECTIONS BY AUTHORITIES





SUBSTATION U NEW WORK PLAN SCALE: 1/4" = 1'-0"

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KEYNOTES ARE NOT ALWAYS REPEATED ACROSS ALL DRAWINGS ON THIS SHEET. AN UN-KEYNOTED ITEM ON THIS SHEET IS THE SAME AS A **KEY PLAN** KEYNOTED ITEM ON THIS SHEET HAVING THE SAME GRAPHIC APPEARANCE.

23.101 REMOVE STEAM PIPING IN ITS ENTIRETY. REMOVE PIPING BACK TO WALL AND PROVIDE PERMANENT CAP ON 23.102 REMOVE STEAM CONDENSATE PIPING IN ITS ENTIRETY. REMOVE PIPING BACK TO WALL AND PROVIDE PERMANENT

CONTRACTOR SHALL PROVIDE TEMPORARY HEAT AS REQUIRED TO HEAT BUILDINGS IF BOILERS ARE NOT INSTALLED AND OPERATIONAL BY OCTOBER 1ST.

COMMON EXHAUST UP THROUGH ROOF

CAP ON PIPE. 23.103 REMOVE STEAM HEAT EXCHANGER. REMOVE ALL ASSOCIATED STEAM AND CONDENSATE PIPING 23.115 REMOVE CONDENSATE PUMP. REMOVE ALL ASSOCIATED PIPING AND SPECIALITIES.

23.123 REMOVE PRESSURE RELIEF PIPING IN ITS ENTIRETY. REFER TO ARCHITECTURAL DRAWINGS FOR PATCHING

23.129 REMOVE GLYCOL HEATING SUPPLY / RETURN PIPING BACK TO LOCATIONS SHOWN.

23.100 REMOVE STEAM PRESSURE REDUCING STATION IN ITS ENTIRETY. REMOVE ALL ASSOCIATED STEAM AND

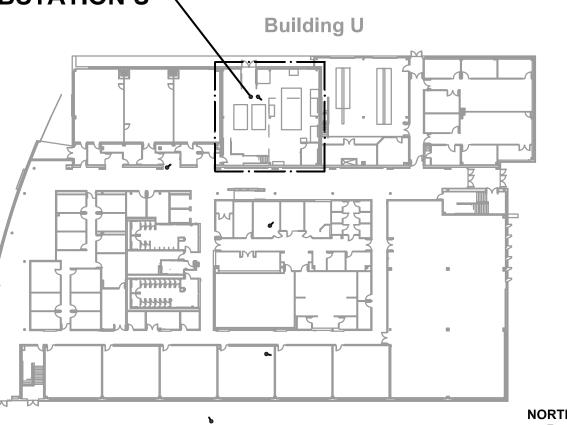
23.203 PROVIDE NEW BOILER, ALL ASSOCIATED SPECIALITIES AND PIPING.

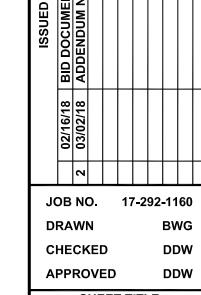
23.209 PROVIDE BOILER EMERGENCY SHUTDOWN SWITCH AT THE ENTRANCE OF THE MECHANICAL ROOM. 23.213 FLASH PIPE/DUCT THROUGH ROOF IN ACCORDANCE WITH EXISTING ROOFING SYSTEM MANUFACTURER?S REQUIREMENTS, NRCA RECOMMENDATIONS, AND SO AS NOT TO VOID EXISTING ROOFING SYSTEM WARRANTY;

PROVIDE CARPENTER-BUILT CURB FOR PENETRATIONS REQUIRING A CURB BUT NOT PROVIDED WITH A PRE-MANUFACTURED CURB. 23.218 PROVIDE COMBUSTION AIR DUCT FOR NEW BOILERS COMMON COMBUSTION AIR TO GO UP THROUGH ROOF.

COMBUSTION AIR VENT SHALL BE SIZED AND CONFIGURED AS APPROVED BY THE BOILER MANUFACTURER. TERMINATE IN ACCORDANCE WITH BOILER MANUFACTURER'S REQUIREMENTS.

SUBSTATION U ¬

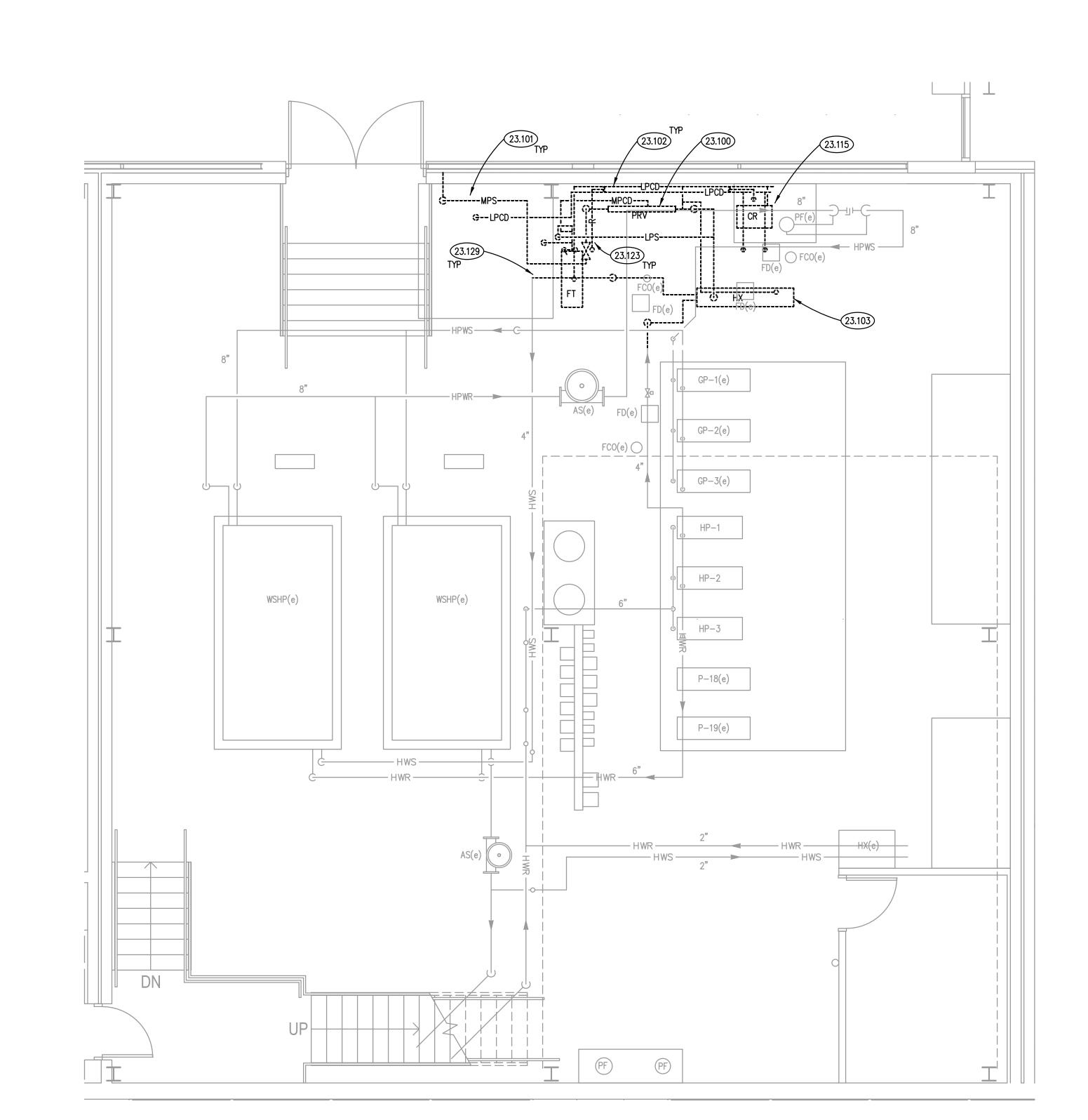




SHEET TITLE SUBSTATION U

ENLARGED MECHANICAL FLOOR PLANS

SHEET NUMBER



SUBSTATION U DEMOLITION PLAN SCALE: 1/4" = 1'-0"

MECHANICAL GENERAL NOTES

REFER TO DRAWING G100 FOR PROJECT GENERAL NOTES.

ALL PIPING AND DUCTWORK IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL REQUIRED FITTINGS, OFFSETS, DROPS AND RISES. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL MATERIAL AND LABOR FOR A COMPLETE AND WORKING SYSTEM. COORDINATE WITH OTHER TRADES FOR SPACE AVAILABLE AND RELATIVE LOCATIONS OF EQUIPMENT, PIPING, DUCTWORK, ETC.

ALL TAPES AND MASTICS USED TO SEAL DUCTWORK LISTED AND LABELED IN ACCORDANCE WITH UL 181A SHALL BE MARKED ACCORDINGLY. ALL TAPES AND MASTICS USED TO SEAL FLEXIBLE DUCTS AND AIR CONNECTORS SHALL COMPLY WITH UL 181B AND MARKED ACCORDINGLY.

4. THERMOSTATIC CONTROLS OF EQUIPMENT SHALL HAVE A 5° F DEADBAND. 5. CONFIRM ALL EQUIPMENT TAGS WITH OWNER. RECORD TAG NAMES IN BUILDING AUTOMATION SYSTEM AND PROJEC RECORD DRAWINGS. 6. GENERALLY, SMALL DIAMETER PIPE RUNS FROM DRIPS, CONDENSATE PANS AND OTHER SERVICES ARE NOT SHOWN

> DEMOLISH ALL EXISTING SUPPORTS INCLUDING STEEL ELEMENTS, HANGERS, RODS, ETC. CURRENTLY SUPPORTING ANY EXISTING ITEMS TO BE DEMOLISHED. REMOVE ALL SUCH SUPPORTS TO THE BUILDING STRUCTURAL ELEMENTS. RECESSED ANCHORS IN SLABS ARE TO REMAIN. IF ANY EXISTING ITEMS ARE TO REMAIN AND ARE CURRENTLY HUNG FROM THESE SUPPORTS, RE-SUPPORT SUCH ITEMS DIRECTLY TO THE EXISTING BUILDING STRUCTURAL

8. SPACE ALLOCATION, COORDINATION WITH ELECTRICAL, ARCHITECTURAL & OTHER MECHANICAL COMPONENTS HAVE BEEN MADE WITH RESPECT TO ALL EQUIPMENT SCHEDULED ON THESE DRAWINGS AND IN THE SPECIFICATIONS OF

9. DO NOT CUT THROUGH THE MASONRY BOND BEAMS OR OTHER STRUCTURAL ELEMENT WHEN INSTALLING OPENINGS REQUIRED FOR ALL DUCTWORK, PIPING, CONDUITS OR OTHER WORK. COORDINATE WITH THE STRUCTURAL DRAWINGS AND MASON CONTRACTOR FOR ALL BOND BEAM AND STRUCTURAL ELEMENT LOCATIONS. CONTRACTOR CUTTING THROUGH OR OTHERWISE DAMAGING THESE ELEMENTS WILL BE RESPONSIBLE FOR ALL ASSOCIATED ENGINEERING

FEES AND SUBSEQUENT RETRO-FIT/REINFORCING DEEMED NECESSARY TO REINSTATE THE CONTINUITY OF THE HAVING JURISDICTION.

FRAMING SYSTEM USING INDUSTRY STANDARD, ENGINEER APPROVED SYSTEMS. PERFORMANCE REQUIREMENTS AND AFOREMENTIONED COORDINATION.

THE FIRST NAMED MANUFACTURER ONLY. OTHER MANUFACTURERS ARE ACCEPTABLE PROVIDED THEY MEET

DISRUPTED ELEMENTS. 10. OBTAIN AND PAY ALL COSTS FOR PERMITS, LICENSES, CERTIFICATE FILING AND ALL INSPECTIONS BY AUTHORITIES

BUT MUST BE PROVIDED.

23.224 PROVIDE BOILER VENTING UP THROUGH ROOF. TERMINATE 36" ABOVE ROOF WITH VELOCITY CONE.

CONDENSATE PIPING AND SPECIALITIES.

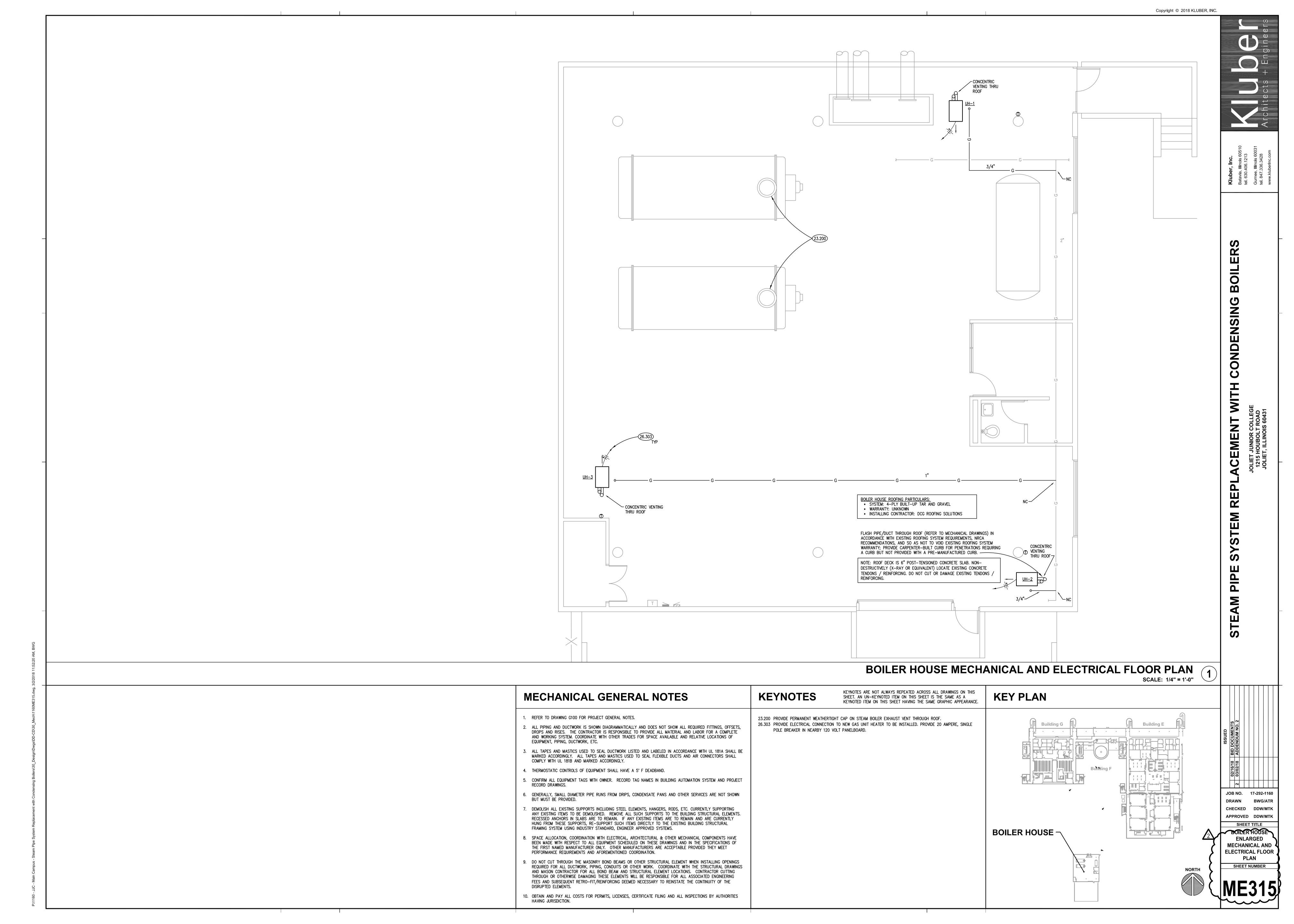
BOILER EMERGENCY SHUTDOWN SWITCH

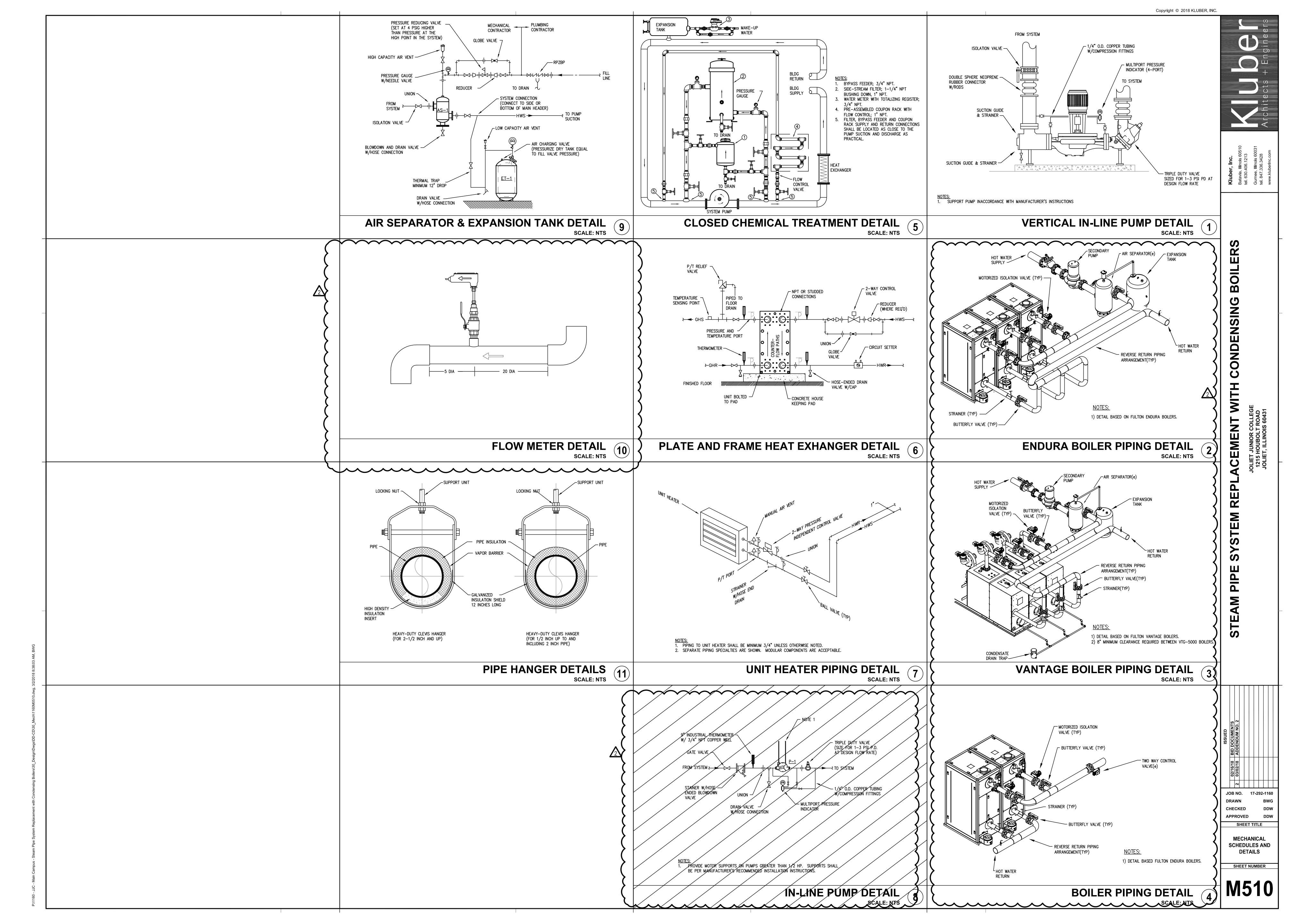
WSHP(e)

BOILER EMERGENCY
SHUTDOWN SWITCH 23.209

KEYNOTES

WSHP(e)





1111	WATER FLOW RATE (GPM)	HEAD (FT)	TYPE	MOTOR POWER (HP)	ELECTRICAL (V/PH/HZ)	MOTOR SPEED (RPM)	SERVICE	MODEL	NOTES
HWP-	H1 1400	64	VERT INLINE	30	460/3/60	1800	SUB H	e-80SC	1, 2
HWP-	H2 1400	64	VERT INLINE	30	460/3/60	1800	SUB H	e-80SC	1, 2
HWP-	D1 1392	110	VERT INLINE	60	460/3/60	1800	SUB D	e-80SC	1, 2
HWP-	D2 1392	110	VERT INLINE	60	460/3/60	1800	SUB D	e-80SC	1, 2
HWP-	A1 489	54	VERT INLINE	10	460/3/60	1800	SUB A	e-80SC	1, 2
HWP-	A2 489	54	VERT INLINE	10	460/3/60	1800	SUB A	e-80SC	1, 2
HWP-	G1 420	90	VERT INLINE	20	460/3/60	1800	SUB G	e-80SC	1, 2
HWP-	G2 420	90	VERT INLINE	20	460/3/60	1800	SUB G	e-80SC	1, 2
T BP 41		20	VENT INCINE	→	30/3/60		B-III		
BP- H	2 465	20	VERT INLINE	5	460/3/60	1800	B-H2	e-80	1
BP- H	3 465	20	VERT INLINE	5	460/3/60	1800	B-H3	e-80	1
BP D	1 464	22	VERT INLINE	5	460/3/60	1800	B-D1	e-80	1
BP-D	2 464	22	VERT INLINE	5	460/3/60	1800	B-D2	e-80	-1-
BP-D	3 464	22	VERT INLINE	5	460/3/60	1800	B-D3	e-80	1
BP-A	1 163	16	VERT INLINE	2	208/1/60		B-A1	ECORCIR-XL	1
BP-A	2 163	16	VERT INLINE	2	208/1/60		B-A1	ECORCIR-XL	1
BP-A	3 163	16	VERT INLINE	2	208/1/60		B-A1	ECORCIR-XL	1
BP-G	1 210	17	VERT INLINE	2	208/1/60		B-G1	ECORCIR-XL	1
	2 210	17	VERT INLINE	2	208/1/60		B-G2	ECORCIR-XL	

BOILER SCHEDULE

B-U2 CONDENSING 282 3.5 2,000 1,874 130 / 110 120/1/60 93.7 EDR-2000 SUB U 1, 2

B-H1 CONDENSING 466

CONDENSING

CONDENSING

CONDENSING

CONDENSING

CONDENSING 464

CONDENSING 464

CONDENSING 162

CONDENSING 162

CONDENSING 162

CONDENSING 210

CONDENSING 282

MODEL BASED ON FULTON.
 BASED ON 30% ETHYLENE GLYCOL.

B-H2

B-H3

B-D1

B-D2

B-D3

B-A1

B-A2

B-A3

B-G1

B-G2

B-U1

<u>NOTES</u>

11.1

11.1

11.1

11.1

11.1

11.1

3.5

3.5

3.5

7.4

7.4

3.5

5,000

5,000

5,000

5,000

5,000

2,000

2,000

2,500

2,500

2,000

TYPE WATER FLOW MAX PRESS GAS GAS GAS EWT / LWT ELECTRICAL MINIMUM MODEL LOCATION NOTES OUPUT (MBH) OUPUT (MBH) (°F) (V/PH/HZ) EFFICIENCY

4,630 180 / 160 460/3/60

4,630 180 / 160 460/3/60

5,000 4,630 180 / 160 460/3/60 92.6 VTG-5000 SUB D 1

2,000 | 1,874 | 180 / 160 | 120/1/60 | 93.7 | EDR-2000 | SUB A | 1

4,630 | 180 / 160 | 460/3/60 | 92.6 | VTG-5000 | SUB D | 1

4,630 | 180 / 160 | 460/3/60 | 92.6 | VTG-5000 | SUB H | 1

4,630 | 180 / 160 | 460/3/60 | 92.6 | VTG-5000 | SUB H | 1

1,874 180 / 160 120/1/60 93.7 EDR-2000 SUB A 1

1,874 | 180 / 160 | 120/1/60 | 93.7 | EDR-2000 | SUB A | 1

2,420 | 180 / 160 | 460/3/60 | 96.8 | EDR+2500 | SUB G | 1

2,420 | 180 / 160 | 460/3/60 | 96.8 | EDR+2500 | SUB G | 1

1,874 | 130 / 110 | 120/1/60 | 93.7 | EDR-2000 | SUB U | 1, 2

92.6 VTG-5000 SUB D

92.6 VTG-5000 SUB H 1

MARK	AIR FLOW RATE (CFM)	EAT / LAT (° F)	WATER FLOW RATE (GPM)	WATER PRESS DROP (FT)	EWT / LWT (° F)	MIN CAPACITY (MBH)	SUPPLY FAN (HP)	ELECTRICAL (V/PH/HZ)	MODEL	AREA SERVED	NOTES
UH-H1	1,900	50 / 90	8.9	0.39	180 / 160	82.0	1/3	115/1/60	HS-120	SUB-H	1
UH-D1	1,900	50 / 90	8.9	0.39	180 / 160	82.0	1/3	115/1/60	HS-120	SUB-D	1
UH-D2	1,900	50 / 90	8.9	0.39	180 / 160	82.0	1/3	115/1/60	HS-120	SUB-D	1
UH-D3	1,900	50 / 90	8.9	0.39	180 / 160	82.0	1/3	115/1/60	HS-120	SUB-D	1
UH-A1	1100 / 950	50 / 91	5.3	0.23	180 / 160	49.2	1/20	115/1/60	HS-72	SUB-A	1
UH-A2	1100 / 950	50 / 91	5.3	0.23	180 / 160	49.2	1/20	115/1/60	HS-72	SUB-A	1
UH-H2	1,900	50 / 90	8.9	0.39	180 / 160	82.0	1/3	115/1/60	HS-120	SUB-H	1)

MARK			COLD SIDE					HOT SIDE			HEAT	NOMINAL	NUMBER	LOCATION	NOTES
	FLUID CIRCULATED	FLOW RATE (GPM)	PRESSURE DROP (PSI)	ENT/LVG TEMP (°F)	CONNECTION SIZE IN/OUT (IN)	FLUID CIRCULATED	FLOW RATE (GPM)	PRESSURE DROP (PSI)	ENT/LVG TEMP (°F)	CONNECTION SIZE IN/OUT (IN)	EXCHANGED (MBH)	DIMENSIONS (IN X IN)	OF PLATES		
HX−1	30% EG	75	10	110 / 130	2 / 2	WATER	76	10	180 / 160	2 / 2	750	_	15	SUB A	1

MARK	TANK VOLUME (GAL)	TANK ACCEPTANCE (GAL)	LENGTH X DIAMETER (IN X IN)	MAXIMUM DESIGN PRESS (PSIG)	MAXIMUM DESIGN TEMP (°F)	SERVICE	LOCATION	MODEL	NOTES
ET-1	317	317	85-3/8 X 36	125	240	SUB-D HW	SUB-D	B-1200	1, 2
ET-2	317	317	85-3/8 X 36	125	240	SUB-D HW	SUB-D	B-1200	1, 2
ET-3	211	211	81-3/4 X 30	125	240	SUB-A HW	SUB-A	B-800	1, 2

		G	AS UN	III HEA	IEKS	CHEDU	JLE		
MARK	AIR FLOW RATE (CFM)	GAS INPUT (MBH)	GAS OUTPUT (MBH)	MIN THERMAL EFFICIENY (%)	SUPPLY FAN (HP)	ELECTRICAL (V/PH/HZ)	MODEL	AREA SERVED	NOTES
UH-1	1,600	100	83	83	1/10	120/1/60	SF	BOILER HOUSE	1, 2, 3,
UH-2	1,600	100	83	83	1/10	120/1/60	SF	BOILER HOUSE	1, 2, 3,
UH-3	1,600	100	83	83	1/10	120/1/60	SF	BOILER HOUSE	1, 2, 3,

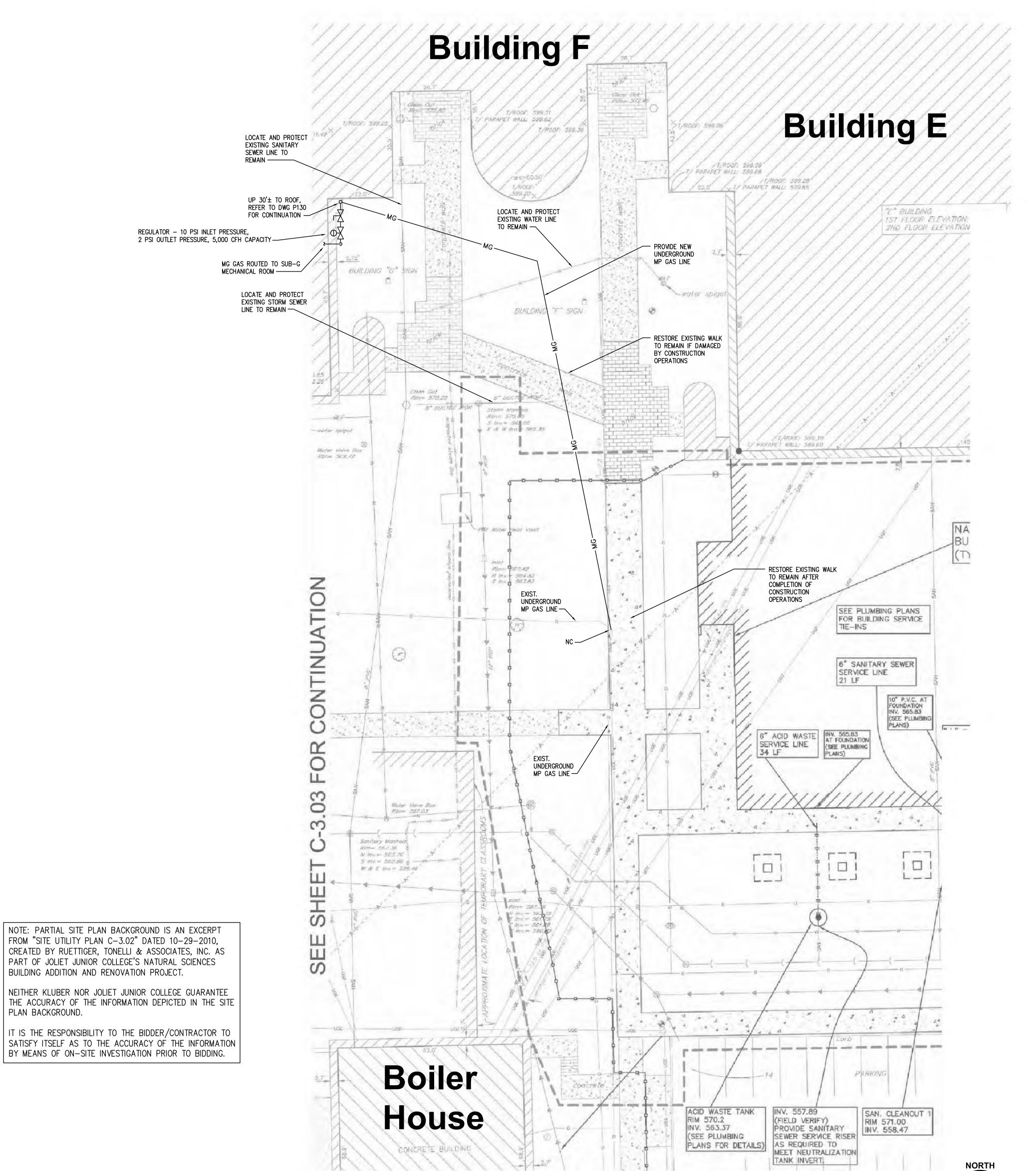
NOT 1. 2.			02/16/18										
	~~~	~~~	~~~	• • • • • • • • • • • • • • • • • • • •		~~~	SCHEDU	~~~	~~~	~~~		JOB NO. DRAWN CHECKED APPROVED	17-292-1160 BWG DDW DDW
•		5	SHEET	TITLE									
>	MARK	AIR FLOW RATE (CFM)	GAS INPUT (MBH)	GAS OUTPUT (MBH)	MIN THERMAL EFFICIENY (%)	SUPPLY FAN (HP)	ELECTRICAL (V/PH/HZ)	MODEL	AREA SERVED	NOTES	1 2	MECHA	MICAL
>	UH-1	1,600	100	83	83	1/10	120/1/60	SF	BOILER HOUSE	1, 2, 3, 4	7	SCHE	
>	UH-2	1,600	100	83	83	1/10	120/1/60	SF	BOILER HOUSE	1, 2, 3, 4]		
\	UH-3	1,600	100	83	83	1/10	120/1/60	SF	BOILER HOUSE	1, 2, 3, 4	7	OUEETA	III III III III III III III III III II
	2. TYF 3. PR	DEL BASED ON PE = SEPARATE OVIDE WITH 2-S OVIDE CONCENTI	ED COMBUSTION STAGE GAS BUF	RNER.	ED ACCESSORIES	S AS RECOMM	IENDED BY MANU	JFACTURER.				M6	

KEYNOTES ARE NOT ALWAYS REPEATED ACROSS ALL DRAWINGS ON THIS SHEET. AN UN-KEYNOTED ITEM ON THIS SHEET IS THE SAME AS A KEYNOTED ITEM ON THIS SHEET HAVING THE SAME GRAPHIC APPEARANCE.

PLUMBING PARTIAL SITE PLAN

SHEET NUMBER

PLUMBING PARTIAL SITE PLAN

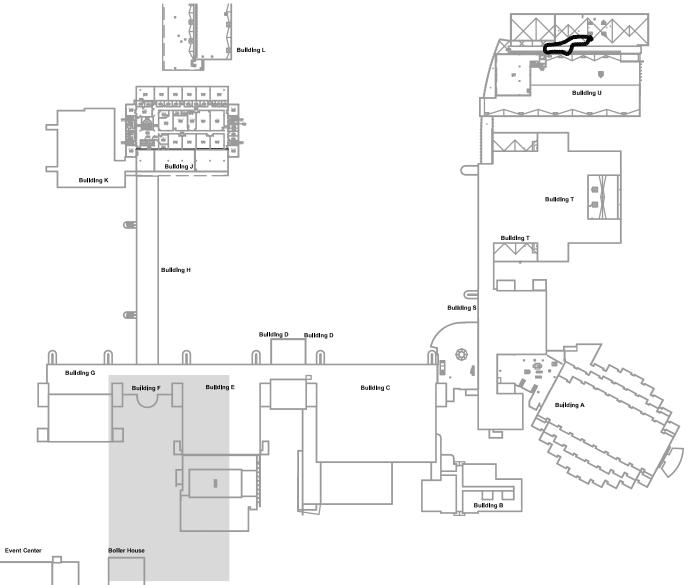


PLAN BACKGROUND.

GAS PIPING GENERAL NOTES

- 1. REFER TO DRAWING G100 FOR PROJECT GENERAL NOTES.
- 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF THE 10 PSI MEDIUM PRESSURE GAS PIPE. THE DESIGN SHALL BE ACCOMPLISHED UNDER THE DIRECT SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER. SHOP DRAWINGS AND CALCULATIONS SHALL BEAR THE LICENSED PROFESSIONAL'S STAMP.
- THE FUEL LINE (NATURAL GAS) ROUTING SHOWN ON THE DRAWINGS IS SCHEMATIC AND GENERALLY REPRESENTS STRAIGHT LINE RUNS TO THE GENERAL AREAS NEEDING GAS SUPPLY. DETERMINE EXACT ROUTING AND REVIEW WITH OWNER AND ENGINEER PRIOR TO INSTALLATION.
- 4. AT VERTICAL TRANSITIONS AND ROUTING OF PIPES, ANCHOR TO EXISTING BUILDING FRAMING. INSTALL PIPES IN SUCH A MANNER THAT CONCEALS FROM VIEW AS MUCH AS POSSIBLE AND LIMIT AMOUNT (SIZE AND SPACING) OF ATTACHMENTS. REVIEW WITH OWNER AND ENGINEER PRIOR TO INSTALLATION.
- 5. LOCATE PIPES AS CLOSE AS POSSIBLE TO EXISTING PIPE ROUTING CURRENTLY ON THE ROOFS. DO NOT USE ANY OF THE EXISTING SUPPORTS ON THE ROOF TO SUPPORT NEW GAS PIPES.
- 6. SUPPORT PIPES ON THE ROOF ON LOW-RISE ROOF SUPPORTS THAT DO NOT PENETRATE THE EXISTING ROOF MEMBRANE. ANCHOR PIPES TO SUPPORTS. PROVIDE SACRIFICIAL WHITE EPDM MEMBRANE SHEET BENEATH EACH SUPPORT LOCATION TO PROTECT EXISTING ROOF MEMBRANE.
- PROTECT ALL ROOF AND WALL SURFACES DURING INSTALLATION, INCLUDING WELDING OPERATIONS. REPAIR ANY DAMAGE TO SUCH SURFACES.
- 8. INDICATED ROOF ELEVATION CHANGES AND BUILDING DIMENSIONS ARE APPROXIMATE AND ARE BASED ON CASUAL VISUAL OBSERVATION. CONFIRM ALL ELEVATIONS AND DIMENSIONS IN THE FIELD.
- 9. ALL PIPING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES. INSTALL, LAYOUT AND CONFIGURE ALL GAS PIPES AND THEIR ASSOCIATED CONNECTIONS, BENDS, OFFSETS, ETC. IN ACCORDANCE WITH INDUSTRY STANDARDS. HONOR BUILDING EXPANSION JOINTS AS THE PIPES ROUTE OVER THE VARIOUS BUILDING AREAS. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL MATERIAL AND LABOR FOR A COMPLETE AND
- 10. DETERMINE EXACT ROUTING AND MEANS TO PROVIDE THE BELOW GRADE, EXTERIOR GAS PIPE. RESTORE ANY DISTURBED HARD SURFACE AREAS AND LANDSCAPED AREAS TO THEIR EXISTING CONDITION PRIOR TO GAS PIPE INSTALLATION. PROVIDE MEANS TO CONFIRM LOCATION OF UNDERGROUND UTILITIES IN THE PROPOSED VICINITY OF THE PIPE ROUTING.
- 11. EXISTING PIPING INDICATED ON THESE PLANS SHALL BE FIELD VERIFIED FOR EXACT LOCATIONS, QUANTITY AND PIPE
- 12. BACKFILL AND COMPACT (IF REQUIRED) BELOW GRADE PIPES WITH MATERIALS THAT PROVIDE ADEQUATE SUPPORT FOR THE FINAL FINISH RESTORED EXTERIOR SURFACE.
- 13. PAINT GAS PIPING ALONG ENTIRE ABOVE-GROUND LENGTH; MPI #163 SEMI-GLOSS LIGHT INDUSTRIAL COATING; COLOR SAFETY YELLOW ON ROOFTOP AREAS; COLOR WHITE FOR VERTICAL RISERS EXTENDING FROM GROUND TO ROOF AND FOR VERTICAL RISERS TRANSITIONING BETWEEN DIFFERING ROOF ELEVATIONS; 2 TOP COATS OVER ONE COAT OF MANUFACTURER'S RECOMMENDED PRIMER; SUBMIT MANUFACTURER'S PRODUCT DATA AND APPLICATION INSTRUCTIONS; PROVIDE SURFACE PREP BY REMOVING RUST, SCALE AND OTHER FORIEGN SUBSTANCES IN ACCORDANCE WITH PAINT MANUFACTURER'S RECOMMENDATIONS AND SOLVENT CLEAN SURFACES ACCORDING TO SSPC-SP-1.
- I. AFTER COMPLETION OF CONSTRUCTION OPERATIONS, RESTORE TURF GRASS AREAS DISTURBED BY CONSTRUCTION OPERATIONS TO ORIGINAL CONDITION PRIOR TO THE START OF CONSTRUCTION.

KEY PLAN



SHEET TITLE

P100

GAS PIPING GENERAL NOTES 1. REFER TO DRAWING G100 FOR PROJECT GENERAL NOTES. 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF THE 10 PSI MEDIUM PRESSURE GAS PIPE. THE DESIGN SHALL BE ACCOMPLISHED UNDER THE DIRECT SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER. SHOP DRAWINGS AND CALCULATIONS SHALL BEAR THE LICENSED PROFESSIONAL'S STAMP. THE FUEL LINE (NATURAL GAS) ROUTING SHOWN ON THE DRAWINGS IS SCHEMATIC AND GENERALLY REPRESENTS STRAIGHT LINE RUNS TO THE GENERAL AREAS NEEDING GAS SUPPLY. DETERMINE EXACT ROUTING AND REVIEW WITH OWNER AND ENGINEER PRIOR TO INSTALLATION. 4. AT VERTICAL TRANSITIONS AND ROUTING OF PIPES, ANCHOR TO EXISTING BUILDING FRAMING. INSTALL PIPES IN SUCH A MANNER THAT CONCEALS FROM VIEW AS MUCH AS POSSIBLE AND LIMIT AMOUNT (SIZE AND SPACING) OF ATTACHMENTS. REVIEW WITH OWNER AND ENGINEER PRIOR TO INSTALLATION. 5. LOCATE PIPES AS CLOSE AS POSSIBLE TO EXISTING PIPE ROUTING CURRENTLY ON THE ROOFS. DO NOT USE ANY OF THE EXISTING SUPPORTS ON THE ROOF TO SUPPORT NEW GAS PIPES. 6. SUPPORT PIPES ON THE ROOF ON LOW-RISE ROOF SUPPORTS THAT DO NOT PENETRATE THE EXISTING ROOF MEMBRANE. ANCHOR PIPES TO SUPPORTS. PROVIDE SACRIFICIAL WHITE EPDM MEMBRANE SHEET BENEATH EACH SUPPORT LOCATION TO PROTECT EXISTING ROOF MEMBRANE. PROTECT ALL ROOF AND WALL SURFACES DURING INSTALLATION, INCLUDING WELDING OPERATIONS. REPAIR ANY DAMAGE TO SUCH SURFACES. 8. INDICATED ROOF ELEVATION CHANGES AND BUILDING DIMENSIONS ARE APPROXIMATE AND ARE BASED ON CASUAL VISUAL OBSERVATION. CONFIRM ALL ELEVATIONS AND DIMENSIONS IN THE FIELD. 9. ALL PIPING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES. INSTALL, LAYOUT AND CONFIGURE ALL GAS PIPES AND THEIR ASSOCIATED CONNECTIONS, BENDS, OFFSETS, ETC. IN ACCORDANCE WITH INDUSTRY STANDARDS. HONOR BUILDING EXPANSION JOINTS AS THE PIPES ROUTE OVER THE VARIOUS BUILDING AREAS. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL MATERIAL AND LABOR FOR A COMPLETE AND 10. DETERMINE EXACT ROUTING AND MEANS TO PROVIDE THE BELOW GRADE, EXTERIOR GAS PIPE. RESTORE ANY DISTURBED HARD SURFACE AREAS AND LANDSCAPED AREAS TO THEIR EXISTING CONDITION PRIOR TO GAS PIPE INSTALLATION. PROVIDE MEANS TO CONFIRM LOCATION OF UNDERGROUND UTILITIES IN THE PROPOSED VICINITY OF 11. EXISTING PIPING INDICATED ON THESE PLANS SHALL BE FIELD VERIFIED FOR EXACT LOCATIONS, QUANTITY AND PIPE 12. BACKFILL AND COMPACT (IF REQUIRED) BELOW GRADE PIPES WITH MATERIALS THAT PROVIDE ADEQUATE SUPPORT FOR THE FINAL FINISH RESTORED EXTERIOR SURFACE. 13. PAINT GAS PIPING ALONG ENTIRE ABOVE-GROUND LENGTH; MPI #163 - SEMI-GLOSS LIGHT INDUSTRIAL COATING; COLOR SAFETY YELLOW ON ROOFTOP AREAS; COLOR WHITE FOR VERTICAL RISERS EXTENDING FROM GROUND TO ROOF AND FOR VERTICAL RISERS TRANSITIONING BETWEEN DIFFERING ROOF ELEVATIONS; 2 TOP COATS OVER ONE COAT OF MANUFACTURER'S RECOMMENDED PRIMER; SUBMIT MANUFACTURER'S PRODUCT DATA AND APPLICATION INSTRUCTIONS; PROVIDE SURFACE PREP BY REMOVING RUST, SCALE AND OTHER FORIEGN SUBSTANCES IN ACCORDANCE WITH PAINT MANUFACTURER'S RECOMMENDATIONS AND SOLVENT CLEAN SURFACES ACCORDING TO SSPC-SP-1. **KEY PLAN**

REGULATOR - 10 PSI INLET PRESSURE, 2 PSI OUTLET PRESSURE, 5,000 CF CAPACITY PIPE DROPS DOWN — ~15 FEET TO LOWER Building U BUILDING U ROOFING PARTICULARS:

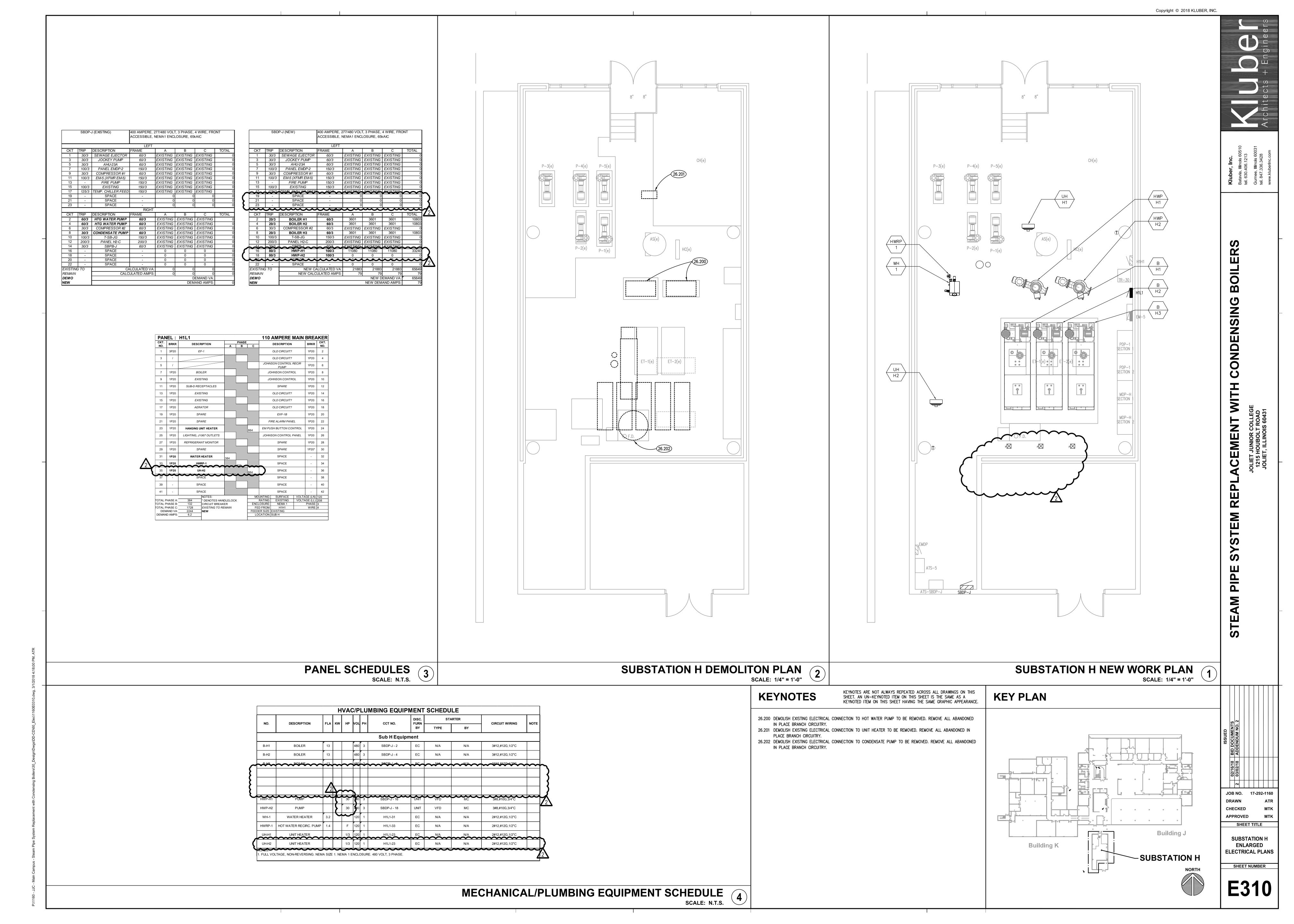
• SYSTEM: CARLISLE WHITE 60 MIL EPDM WARRANTY: 15 YEARS ±70' ±100' • INSTALLING CONTRACTOR: SULLIVAN ROOFING **Building T** BUILDING T ROOFING PARTICULARS:

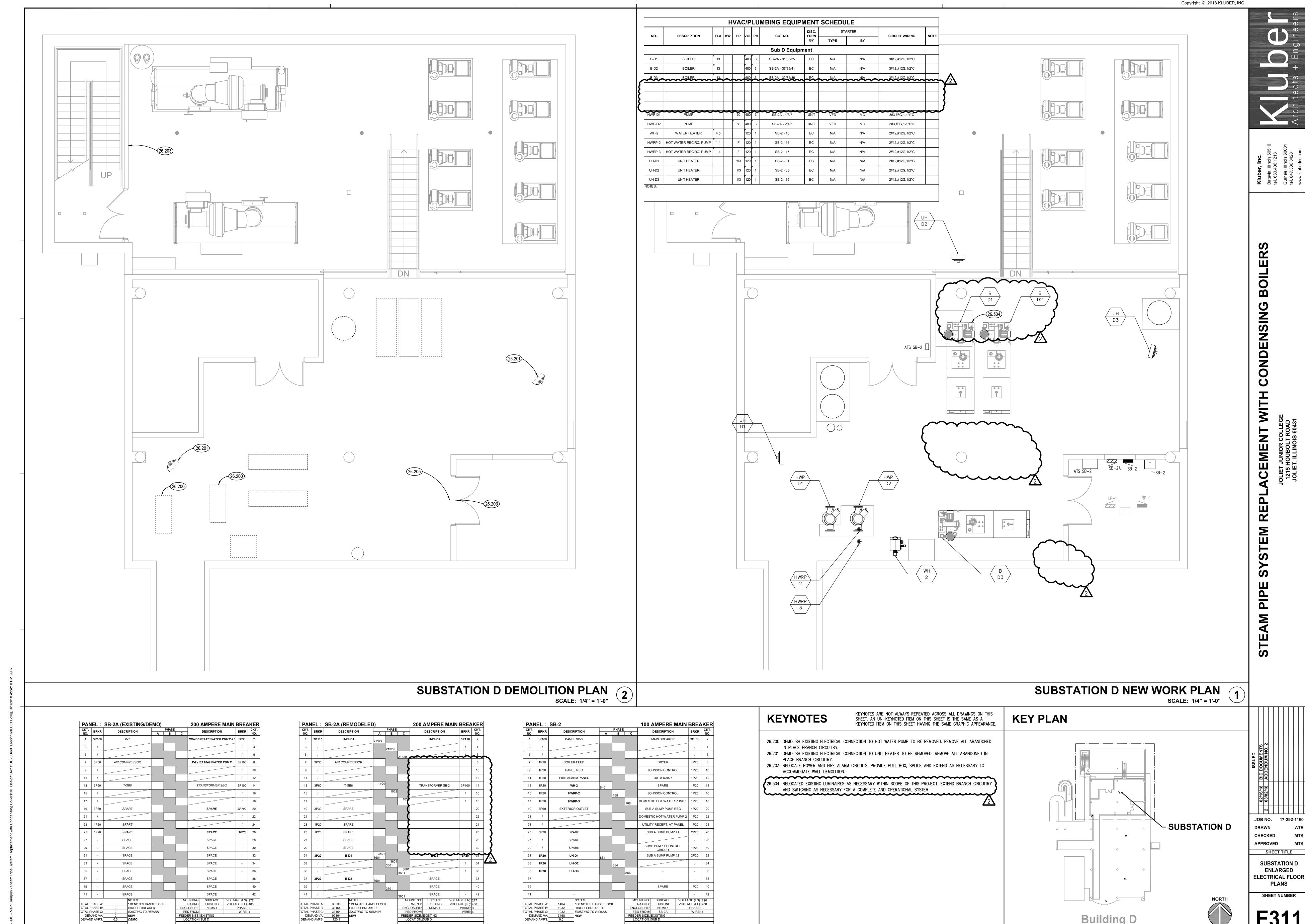
• SYSTEM: FIRESTONE WHITE 60 MIL EPDM WARRANTY: 20 YEARS • INSTALLING CONTRACTOR: OLSSON ROOFING CO. **SEE DRAWING P131 FOR CONTINUATION**

PLUMBING PARTIAL ROOF PLAN
SCALE: 1/16" = 1'-0"

ROOF PLAN SHEET NUMBER

P132





TOTAL PHASE A: 1404 * DENOTES HANDLELOCK
TOTAL PHASE B: 1032 CIRCUIT BREAKER
FOTAL PHASE C: 1032 EXISTING TO REMAIN
DEMAND VA: 3468
DEMAND AMPS: 9.6

DEMAND AMPS:

TOTAL PHASE A:

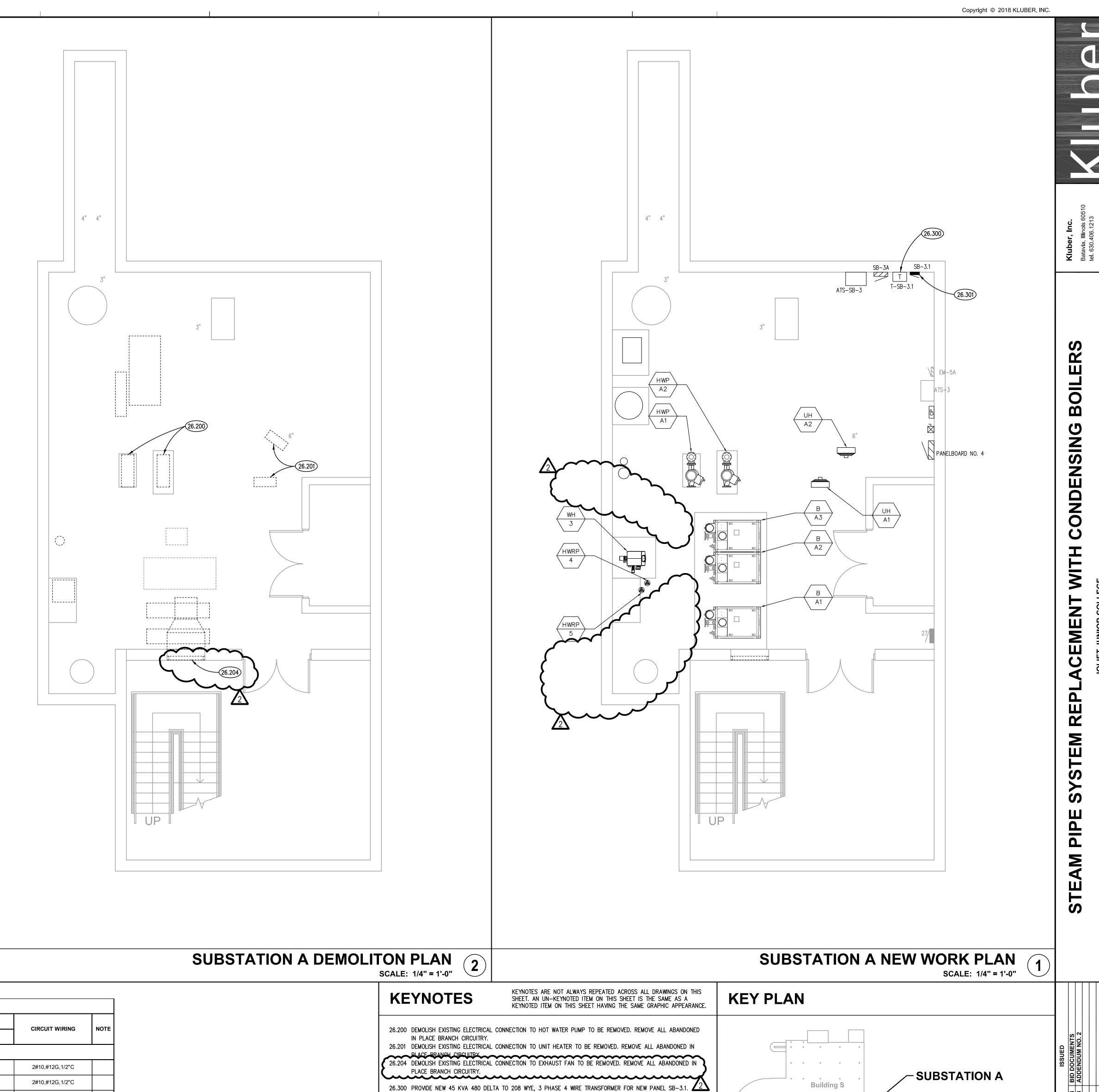
TOTAL PHASE B: TOTAL PHASE C:

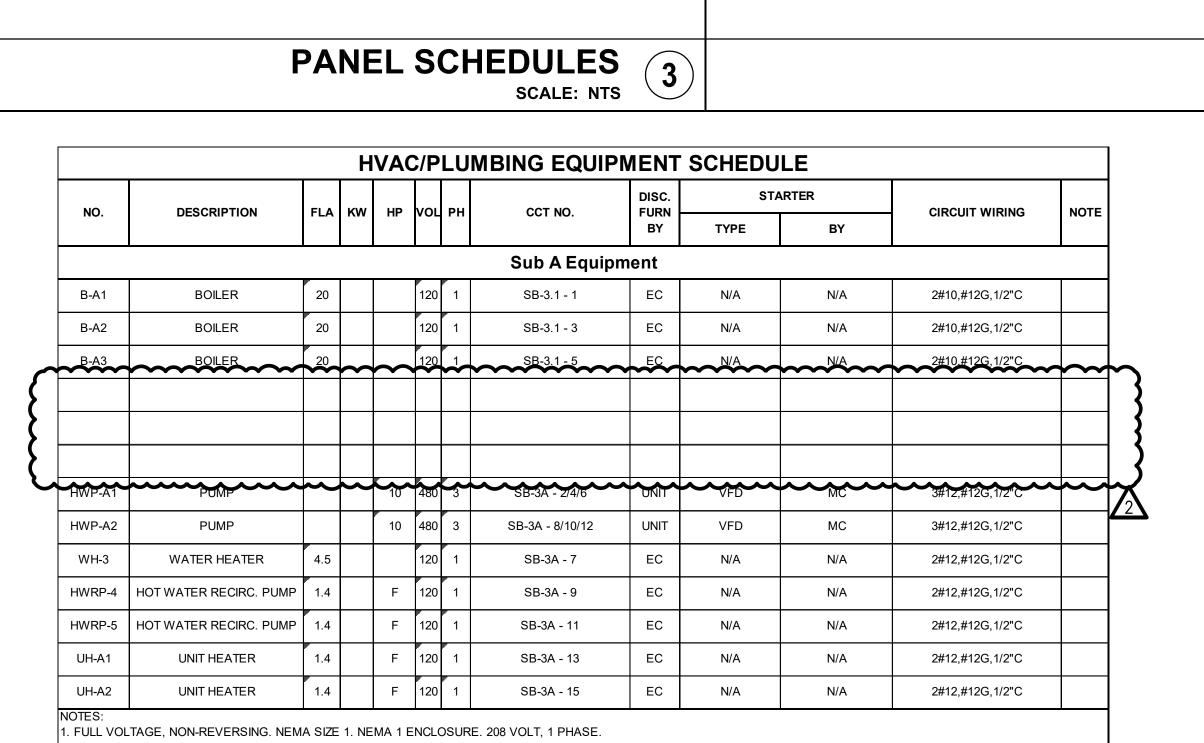
DEMAND VA:

DEMAND AMPS: 0

* DENOTES HANDLELOCK CIRCUIT BREAKER
EXISTING TO REMAIN

FEEDER SIZE: EXISTING



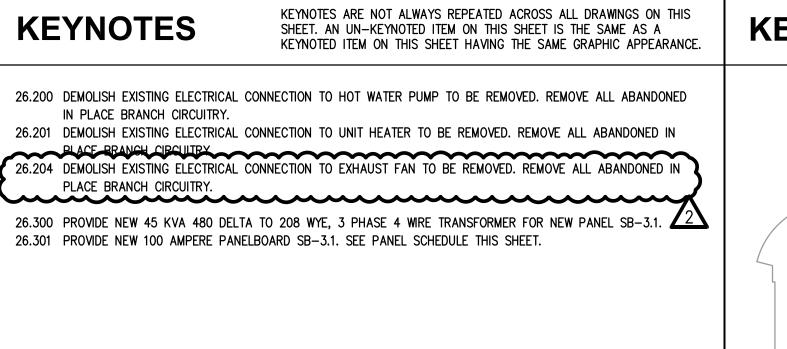


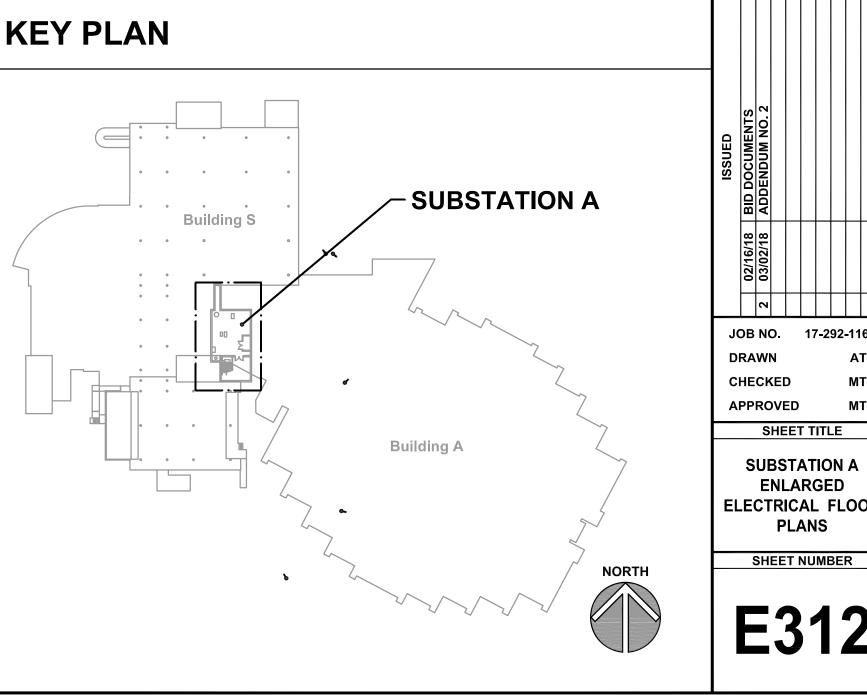
3P30 14

1P20 26

SPARE

SPARE





SHEET TITLE

SUBSTATION A ENLARGED ELECTRICAL FLOOR

PANELBOARD NO. 4 (EXISTING)

PANEL 27

ATS-SB-3

SPARE

SPARE

200 AMPERE MAIN BREAKER

CONDENSATE WATER PUMP | 3P30 | 2

SPARE

SPARE

1P20 22 1P20 24

1P20 26

WH-3 HWRP-4

UH-A1 UH-A2

EXISTING TO REMAIN
NEW

TOTAL PHASE C: __ DEMAND VA: _

REMAIN DEMO

AIR COMPRESSOR

TRANSFORMER SB-3

SPARE

SPARE

800 AMPERE, 277/480 VOLT, 3 PHASE, 4 WIRE, FRONT

ACCESSIBLE, NEMA1 ENCLOSURE, 65kAIC

350/3 EXISTING EXISTING EXISTING

60/3 EXISTING EXISTING EXISTING 60/3 EXISTING EXISTING EXISTING

60/3 EXISTING EXISTING EXISTING 250/3 EXISTING EXISTING EXISTING

100/3 EXISTING EXISTING EXISTING

150/3 EXISTING EXISTING EXISTING

EXISTING EXISTING EXISTING

DEMAND AMPS:

DESCRIPTION

SPARE

SPARE

SPARE

CIRCUIT BREAKER

EXISTING TO REMAIN

NEW

13 3P100 TRANSFORMER SB-3

19 1P20
21 1P20
23 1P20
25 1P20
27
29

TOTAL PHASE A: 7682
TOTAL PHASE B: 7310
TOTAL PHASE C: 6446
DEMAND VA: 21438
DEMAND AMPS: 25.8

100 AMPERE MAIN BREAKER

CKT TRIP DESCRIPTION FRAME A B C TOTAL

3 400/3 PWR DISTRIBUTION4 400/3 EXISTING EXISTING EXISTING 4 800/3 MAIN BREAKER 800/3 EXISTING EXISTING

> CALCULATED VA: CALCULATED AMPS:

