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SECTION 22 35 00_DOMESTIC WATER HEAT EXCHANGERS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Domestic water heat exchangers.
- B. The intent of these standards are to provide input to the design team on the University's preference of manufacturers, design, equipment options and quality assurance to maintain the longevity of its assets.

1.2 Related Sections:

- A. Section 22 05 00– Common Work for Plumbing Systems
- B. Section 22 05 01 – Common Requirements for Plumbing Systems
- C. Section 22 07 00 – Plumbing Insulation
- D. Section 22 11 00 – Domestic Water Systems
- E. Section 22 32 00 – Domestic Water Filtration Systems

1.3 DESIGN REQUIREMENTS

- A. Not Applicable

1.4 SUBMITTALS

- A. Shop Drawings: Indicate heat exchanger dimensions, size of taps, and performance data. Indicate dimensions of tanks, tank lining methods, anchors, attachments, lifting points, taps, and drains.
- B. Product Data: Submit dimensioned drawings of water heaters indicating components and connections to other equipment and piping. Indicate pump type, capacity and power requirements.

- C. Manufacturer's Installation Instructions: Submit mounting and support requirements.
- D. Manufacturer's Certificate: Certify products meet or exceed all applicable code requirements.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: Submit replacement part numbers and availability.

1.6 QUALITY ASSURANCE

- A. Conform to ASME standards for construction of heat exchangers.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect heat exchangers and tanks with temporary inlet and outlet caps. Maintain caps in place until installation.

1.8 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.9 WARRANTY

- A. Furnish five year manufacturer parts only warranty for heat exchangers.

PART 2 PRODUCTS

2.1 DOMESTIC WATER HEAT EXCHANGERS

- A. Acceptable Manufacturers:
 - 1. Patterson-Kelley Co
 - 2. Spirax Sarco
- B. Tubes: U-tube type with 3/4 inch diameter double wall cupro-nickel tubes suitable for 125 psi working pressure.
- C. Heads: Cast iron with brass tube sheets, flanged for piping connections.
- D. Water Chamber and Tube Bundle: Removable for inspection and cleaning.

- E. Code: ASME Section VIII for service pressures, ASME "U" symbol stamped on heat exchanger.
- F. Shell and Tube Type: Steel shell, with threaded or flanged piping connections and necessary taps, steel saddle and attaching U-bolts, designed for heating fluid in shell and heated fluid in tubes.
- G. Accessories:
 - 1. Wells for temperature regulator sensor and high limit sensor at water outlet.
 - 2. ASME rated pressure and temperature relief valve on water outlet.
 - 3. ASME rated pressure relief valve on steam inlet on downstream side of control valve.
 - 4. Thermometers and pressure gage taps in water inlet and outlet.
 - 5. Vacuum breaker and pressure gauge taps with pigtail siphon in shell.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Maintain manufacturer's recommended clearances around and over water heaters.
- B. Install water heater on concrete housekeeping pad, minimum 6 inches high and 6 inches larger than water heater base on each side.
- C. Install the following piping accessories.
 - 1. On supply:
 - a. Thermometer well and thermometer.
 - b. Strainer.
 - c. Pressure gage.
 - d. Shutoff valve.
 - 2. On return:
 - a. Thermometer well and thermometer.
 - b. Pressure gage.
 - c. Shutoff valve.
- D. Install discharge piping from relief valves and drain valves to nearest floor drain.
- E. Install water heater trim and accessories furnished loose for field mounting.
- F. Domestic Water Heat Exchangers:

1. Install domestic water heat exchangers with clearance for tube bundle removal without disturbing other installed equipment or piping.
2. Pipe relief valves and drains to nearest floor drain.
3. Connect steam branch line from top of main. Pipe in flexible manner, pitched with steam flow, with pipe union connections. Install steam pressure gauge at exchanger inlet.
4. Install steam traps and valves.
5. Pitch shell for condensate-drain to traps.

END OF SECTION