

SECTION 23 57 19 – SHELL AND TUBE HEAT EXCHANGERS

PART 1 - GENERAL

PART 2 - PRODUCTS

2.1 GENERAL

- A. All materials shall meet or exceed all applicable referenced standards, federal, state and local requirements, and conform to codes and ordinances of authorities having jurisdiction.

2.2 MANUFACTURERS

- A. Armstrong.
- B. ITT Bell & Gossett.
- C. Taco.
- D. Approved Equal.

2.3 STEAM - LIQUID HEAT EXCHANGERS

- A. Provide shell and tube type heat exchangers with removable U-bend tube bundle, steam in shell, water in tubes, with capacity and passes scheduled on the Drawings.
- B. Construct in conformance with ASME code for unfired pressure vessels. Tube (water) side shall be rated for 150 psi minimum water pressure at 375 degrees F (design rating). Shell (steam) side shall be rated for 150 psi minimum water pressure at 375 degrees F (design rating). Certify by an authorized inspector holding a national board of boiler and pressure vessel inspector's commission.
- C. Shell:
 - 1. Steel with threaded or flanged pipe connections, steel mounting saddles.
 - 2. Steel tube sheets and tube supports.
- D. Heads: Cast iron or steel.
- E. Tubes: U-tube, ¾ inch minimum outside diameter, seamless copper with minimum wall thickness of .049", removable for inspection and cleaning.
- F. Trim:
 - 1. Provide vacuum breakers with heat exchangers.
- G. Sizing of the heat exchanger shall be based on a pressure of 2 psi at the steam connection.

2.4 LIQUID – LIQUID HEAT EXCHANGERS

- A. Provide shell and tube type heat exchanger with removable U-bend tube bundle, heated water in shell, primary water in tubes, with capacity and passes scheduled on the Drawings.
- B. Construct in conformance with ASME Code for Unfired Pressure Vessels. Tube (primary) side and shell (heated) side shall be rated for 150 psi minimum water pressure at 375 degrees F (design rating). Certify by an authorized inspector holding a National Board of Boiler and Pressure Vessel inspectors commission.
- C. Shell:
 - 1. Steel with threaded or flanged pipe connections, steel mounting saddles.
 - 2. Steel tube sheets and tube supports.
- D. Heads: Cast iron or steel.
- E. Tubes: U-tube type, ¾ inch minimum outside diameter, seamless copper with minimum wall thickness of .035", removable for inspection and cleaning.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Installation shall be in accordance with manufacturer's published recommendations.
- B. Install to permit removal of tube bundle with minimum disturbance to installed equipment and piping.
- C. Support heat exchangers on welded steel pipe and angle floor stand.
- D. Pitch shell to completely drain condensate.
- E. Pipe relief valves and drain valves to nearest floor drain.
- F. Provide a minimum of two (2) steam traps in parallel or as detailed on Drawings.

END OF SECTION **23** 57 19

This section of the *U of I Facilities Standards* establishes minimum requirements only. It should not be used as a complete specification.