

SECTION 15755  
HEAT EXCHANGERS

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Shell and Tube Type Heat Exchangers.
2. Condensate Coolers.
3. Flat-plate Heat Exchangers.

B. Related Sections:

1. Section 15010 - Basic Mechanical Requirements.
2. Section 15050 - Basic Mechanical Materials and Methods.
3. Section 15450 - Plumbing Equipment: Hot Water Generators.
4. Section 15521 - Steam and Condensate Piping and Specialties.
5. Section 15950 - Controls.

1.02 REFERENCES

- A. American National Standards Institute (ANSI).
- B. American Society of Mechanical Engineers (ASME).

1.03 SYSTEM DESCRIPTION

A. Design Requirements:

1. This section does not apply to domestic hot water. Refer to Section 15450.
2. Shell and Tube Heat Exchangers:
  - a. Central steam campus distribution system shall be used for heating buildings.
  - b. Redundant heat exchanges with 75% capacity shall be provided.
  - c. Use steam in shell and water in tubes to convert steam heat to hot water for hydronic heating systems.
  - d. In steam supply to shell, provide, in line, an isolation valve, strainer, union, automatic control valve, union, and isolation valve with a globe valve by-pass around assembly. Provide a plugged or capped valve at strainer for blowdown. Use a ball valve for this application.
  - e. In condensate return from shell, provide dripleg, isolation valve, strainer, union, steam trap, union, test tee, check valve and rising-stem gate valve.
  - f. At hot water outlet, provide ASME-rated pressure relief valve. Pipe the relief valve discharge to the floor
  - g. Specify pressure gages and thermometers at water inlet(s) and outlet(s), and oil-filled pressure gage at inlet and outlet of steam control valve.
  - h. Design heat exchanger piping with isolation valves and unions or flanges at all unit connections to allow for both the removal of entire unit and for tube pull without dismantling the connected piping. Locate heat exchanger so adjacent equipment does not interfere with exchanger's tube-pull.

- i. Specify a vacuum breaker, steam air vent, and a compound pressure/vacuum gauge with pigtail siphon and 1/4" ball valve to be installed at factory-provided tapings in shell.
  - j. Specify fouling factor for tubes and shell as required.
  - k. Allow for any glycol in water
  - l. Specify the appropriate construction for heat exchangers, including pressure and temperature ratings.
  - m. Specify that the heat exchanger shall bear the ASME "U" symbol for unfired pressure vessels.
  - n. Provide a valved shell drain.
  - o. Specify insulation.
3. Flat-Plate Heat Exchanger
- a. Allow for glycol if used.
  - b. Specify insulation for both hot and chilled-water applications.

#### 1.04 QUALITY ASSURANCE

- A. Conform to Sections 8D of the ANSI/ASME Boilers and Pressure Vessels Code for manufacture of tubular heat exchangers and heat exchanger shells.

### PART 2 - PRODUCTS

#### 2.01 SHELL-AND-TUBE HEAT EXCHANGER

- A. Manufacturers:

Ace Boiler  
 Armstrong  
 Bell and Gossett  
 DHT  
 Dunham-Bush  
 Patterson-Kelley  
 Taco

#### 2.02 PLATE AND FRAME HEAT EXCHANGER

- A. Manufacturers:

No preference.

### PART 3 - EXECUTION

#### 3.01 INSTALLATION

- A. In general, for project specifications, remove "Design Requirements" sub-paragraph A in Part 1, paragraph 1.03 "System Description" of this Design Guide and use list to expand on specific requirements of installation for each product specified.
- B. Incorporate Y-strainers prior to heat-exchanger inlets.

END OF SECTION 15755