SECTION 15520 - STEAM PIPING SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The Sections “Special Requirements”, “General Requirements”, and “General Conditions” form a part of this Section by this reference thereto and shall have the same force and effect as if printed herewith in full

1.2 SUMMARY

A. This Section includes low pressure steam and condensate piping and specialties for building HVAC heating systems.

1.3 SUBMITTALS

A. Product data, including rated capacities where applicable, furnished options and accessories, and installation instructions for:

1. General Duty Valves and traps

PART 2 - PRODUCTS

2.1 PIPE AND TUBE MATERIALS

A. Steel Pipe: ASTM A 120, Schedule 40, welded or seamless, black steel pipe.

1. Install steel pipe with threaded joints and fittings

2.2 FITTINGS

A. Malleable-Iron Threaded Fittings: ANSI B16.3, Class 150, standard pattern, for threaded joints. Threads shall conform to ANSI B1.20.1.

B. Cast-Iron Threaded Fittings: ANSI B16.1, Class 125; Threads shall conform to ANSI B1.20.1.

C. Unions: ANSI B16.39, malleable-iron, Class 150 hexagonal stock, with ball-and-socket joints, metal-to-metal bronze seating surfaces; female threaded ends. Threads shall conform to ANSI B1.20.1.

2.3 GENERAL DUTY VALVES

A. Low and Medium Pressure Service (to 40 psig maximum):

1. Ball Valves - 3 Inch and Smaller: Rated for 150 psi WSP pressure; 3-piece construction, bronze body conforming to ASTM B 62, standard (or regular) port, chrome-plated brass ball, replaceable "Durafill valve" seats and seals, blowout proof stem, and vinyl-covered steel handle on uninsulated piping and extended tee handle on insulated piping. Provide threaded ends. WATTS Series B-6800.

2.4 STEAM SPECIALTIES

A. Float and Thermostatic Traps: ASTM A 278, Class 15 cast iron body and bolted cap; renewable, stainless steel float mechanism, with renewable, hardened stainless steel head and seat; balanced pressure thermostatic air vent made of stainless steel or monel bellows with stainless steel head and seat. SPIRAX SARCO "FT" Series or equal. Where scheduled, use SPIRAX SARCO - "FTI" in-line traps. Trap size to be selected at 3 times the condensate load of the coil or equipment, at 1/2 psig differential.

B. Vacuum Breakers: brass body, 1/2" NPT bottom connection, 175 maximum operating pressure. SPIRAX SARCO Type 1821.

C. Y-Pattern Strainers: minimum 250 psig steam working pressure; cast iron body conforming to ASTM A 278, Class 30; threaded connections for 2 inch and smaller, flanged connections

for 2-1/2 inch and larger; grade 18-8 stainless steel screen (20 mesh for 2 inch and smaller, and manufacturer recommended perforations for sizes 2-1/2 inch and larger); tapped blow-off plug.

PART 3 - EXECUTION

3.1. PIPING INSTALLATIONS

A. General Locations and Arrangements: Drawings (plans, schematics, and diagrams) indicate the general location and arrangement of the piping systems. Location and arrangement of piping layout take into consideration pipe sizing and friction loss, expansion, pump sizing, and other design considerations. So far as practical, install piping as indicated. Refer to individual system specifications for requirements for coordination drawing submittals.

B. Use fittings for all changes in direction and all branch connections.

C. Make reductions in pipe sizes using eccentric reducer fitting installed with the level side down.

D. Install unions in pipes 2 inch and smaller, adjacent to each valve, at final connections each piece of equipment, and elsewhere as indicated.

E. Install strainers on the supply side of each control valve, and elsewhere as indicated. Install with strainer centerline at 10 degrees below horizontal. Install 3/4 inch NPS nipple and ball valve in blow down connection of strainers 2 inch and larger. Use same size nipple and valve as blow-off connection.

3.2. PIPE JOINT CONSTRUCTION

A. Threaded Joints: Conform to ANSI B1.20.1, use tapered pipe threads for field cut threads.

3.3. STEAM TRAP INSTALLATIONS

A. Install steam traps in accessible locations as close as possible to connected equipment. Maximum allowable distance from equipment is 4 feet. Provide full size drip leg ahead of each trap, 12 inches minimum leg height from coil outlet to trap inlet.

3.4 TERMINAL EQUIPMENT CONNECTIONS

A. Piping size for supply and return shall be same size as the equipment connections.

B Install traps and control valves in accessible locations as close as possible to the equipment.

C. Install vacuum breakers where indicated and in accordance with manufacturer's instructions.

3.4. FIELD QUALITY CONTROL

A. Testing: Test steam and condensate piping as follows:

1. Use ambient temperature water as the testing medium, except where there is a risk of damage due to freezing.

2. Use traps installed at high points in the system to release trapped air while filling the system.

3. Subject piping system to a hydrostatic test pressure which at every point in the system is not less that 1.5 times the design pressure. The test pressure shall not exceed the maximum pressure for any vessel, pump, valve, or other component in the system under test.

4. After the hydrostatic test pressure has been applied for at least 10 minutes, examine the system for leakage. Eliminate leaks by tightening, repairing, or replacing components as appropriate, and repeat hydrostatic test until there are no leaks.

END OF SECTION 15520