SECTION 23 05 23 - GENERAL-DUTY VALVES FOR PIPING

PART 1 – GENERAL

1.1 SYSTEM DESIGN REQUIREMENTS

A. General Information:
1. Show all valves on the drawings. Do not rely on a general note in the specifications or on the plans.
2. For applications up to 2", specify full port ball valves. Butterfly valves are acceptable if pressure and leak risks are low.
3. Valves adjacent to equipment should have unions/flanges provided to allow for removal with minimal labor effort.

B. Isolation Valves:
1. Provide valves for isolating sections of piping systems. It should be possible to isolate; the entire building, separate floors, separate wings, toilet rooms, machinery rooms and other natural subdivisions of the buildings.
2. Provide valves for isolating equipment and fixtures. Place valves on both sides of backflow and check valves to permit inspection.
3. Do not use isolation valves for balancing and do not use balancing valves for isolation.
4. Isolation valves can be ball type (up to 2 inch), gate, or butterfly as deemed appropriate by designer for the type of service, pressure, and fluid.
5. Ball valves are acceptable as isolation valves for most hot water heating systems, domestic water systems, distilled or ionized water systems, blow-down valves, drain valves and other low hazard, low pressure systems.
6. Gate valves are required as isolation valves for steam supply and condensate return systems, chilled water supply, and condenser water systems and other high hazard, high pressure systems. Gate Valves installed on steam systems must have stainless steel gates and seats
7. Butterfly valves are acceptable alternates as isolation valves for chilled water systems, and other low hazard, low pressure, systems where the entire system can be shut down if necessary to accommodate leaky isolation valves.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Hydronic Ball Valves:, Apollo, Crane, Jamesbury orJenkins.

B. Hydronic Gate Valves (less than 2 inches): Stockham, Crane, Grinnell Corp, or Jenkins.

C. Hydronic Gate Valves (2 inches or larger): Crane, Jenkins, Lunkenheimer, or Walworth.

D. Hydronic Butterfly Valves: Dezurik, Crane, Jenkins, Stockham, Keystone orCenterline.

E. Steam and Condensate Gate and Globe Valves: Stockham, Crane, Jenkins, or Walworth.

F. Steam and Condensate Butterfly Valves: Jamesbury, Vanessa, or Keystone.

G. Heating Water P/T Relief Valves: Bell & Gossett, Watts, Farris, Kunkle, Watts Regulator Co., or Spirax Sarco.

H. Circuit Setters: FDI, Armstrong, Bell & Gossett, Tour Anderson.

2.2 MATERIALS, GENERAL

A. Ball Valves:
1. Blowout proof stems, 3-piece, full port type, brass or bronze body, chrome plated or stainless steel ball, Teflon seals and seat, vinyl-covered handle with memory stop. Pressure rating 150 psi SWP and 600 psi WOG.
2. Ball valves shall be 2 inch or less. Larger pipe sizes shall require gate or butterfly valves.

B. Gate Valves: Solid wedge, rising stem type, except where clearance is a problem.

C. Globe Valves: Renewable disc, rising stem. Install where throttling may be necessary.

D. Butterfly Valves: Cast iron body, lug style, 150 psi pressure rating, aluminum bronze disc, 416 stainless steel stem, EPDM seat. Provide with cap screws instead of stud bolts to permit valve to remain in place with one flange removed.

E. Balancing or Throttling Valves:
1. Use eccentric plug, globe or angle valves for balancing. Do not use gate valves.
2. Butterfly valves equipped with memory stops may be used as balancing valves.

F. Safety Relief Valves: Brass or bronze body, designed, rated, and stamped in accordance with ASME. Steel and cast iron body valves may be used for steam service.

G. Gas Valves: Lubricated plug or AGA-approved ball valves.

H. Clean Steam: 316 stainless steel.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. General Duty Valve Applications: The drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:
1. Shutoff duty: Use valve type as indicated on drawings and in this section.
2. Throttling duty: Use globe (steam only) and plug (heating and chilled water).

B. Install shutoff duty valves at each branch connection to supply mains, at supply mains, at supply connection to each piece of equipment and elsewhere as indicated.

C. Install throttling duty valves at each branch connection to return mains, at return connections to each piece of equipment, elsewhere as indicated.

D. Install plug valves on the outlet of each heating or cooling element and elsewhere as required to facilitate system balancing.

E. Install drain valves at low points in mains, risers, branch lines, and elsewhere as required for system drainage. Provide 1/2-inch ball valves with chain end cap at all tops of risers to be used for venting.

F. Install check valves on each pump discharge and elsewhere as required to control flow direction.

G. Install pump discharge valves with stem in upward position; allow clearance above stem for check mechanism removal.

H. Install safety relief valves on hot water generators, and elsewhere as required by ASME Boiler and Pressure Vessel Code. Pipe discharge to floor without valves. Comply with ASME Boiler and Pressure Vessel Code Section VIII, Division 1 for installation requirements.

I. Install pressure reducing valves on hot water generators, and elsewhere as required to regulate system pressure.

J. Install valves with stems upright or 45 degree maximum, never inverted. When and if steam valves have to be mounted inverted they shall have a valve bonnet drain.

K. Mount all valves so operation is possible without interference from pipes, pipe hangers, walls, etc.

L. Valves (4 inches and larger) located more than 7 feet above floor in mechanical equipment rooms shall be chain operated.

M. Install valves easily accessible. Provide access panels when it becomes necessary to install valves above gypsum ceilings.

END OF SECTION 23 05 23