

Design Standard General-Duty Valves for Plumbing

Purpose:

Plumbing valves are an essential element of plumbing systems. This design standard has the purpose of creating a consistent application of plumbing valve requirements throughout the East Side Union High School District. The intent is to create a standard of quality for maintenance and reliability throughout all renovation and new building projects.

Design Standard:

Design and specify work to include materials, installation and testing of valves for complete and operable systems.

General Requirements:

- All valves of a particular type and size range on any one project shall be the product of one manufacturer.
- Valves shall be installed with the valve bonnet in an upright position to prevent deterioration or corrosion of the bonnet and packing.
- Valve body materials shall be compatible with piping system materials.
- A valve drain shall be provided at the base of each water piping riser and manual air vents shall be provided at the top of each riser and at the high point of the system.
- All valves shall be provided with reusable strap-on insulation covers.
- All exposed valves in finished areas shall be chrome-plated.
- Insulation: Where insulation is indicated, install extended stem valves, arranged in proper manner to receive insulation.

All general duty plumbing valves shall meet the requirements set forth:

- Ball Valves
 - System supply and return piping shut-off and isolation valves for application in piping system up to and including 2-1/2" in diameter.

- Class 125, bronze body, screw-in bonnet, integral seat, renewable disc, straight body.
- Butterfly Valves
 - System supply and return piping shut-off and isolation valves for application in piping system over 2-1/2” in diameter.
 - 6 Inches and Smaller: 200 PSI, ductile iron body, extended neck, aluminum bronze disc, reinforced resilient EDPM seat, manual lever and lock.
 - 8 Inches and Larger: 200 PSI, ductile iron body, extended neck, aluminum bronze disc, reinforced resilient EDPM seat, gear operator.
- Globe Valves
 - Design for modulating services.
 - 2 Inches and Smaller: Class 125, bronze body, screw-in bonnet, integral seat, renewable disc, straight body.
 - 2-1/2 Inches and Larger: Class 125, iron body, bolted bonnet, flanged ends, renewable seat and disc, bronze mounted.
- Balancing Valves
 - Provide balancing valves as required for proper balance and to maintain balance at part and full load conditions.
 - Bronze with a machined orifice flow restriction, multi-turn globe type valve, internal O-rings, rated working pressure of at least 240 PSIG (175 PSI iron construction, 2-1/2 inches and larger), flow setting indicating pointer and calibrated nameplate, memory stops, and pressure readout port with integral check valve on each side of the orifice.
- Check Valves
 - Where check valves are required, they shall be installed on the equipment side of all shutoff valves to facilitate servicing of the check valve.
 - 2 Inches and Smaller: Class 125, bronze body, horizontal swing, regrinding type, Y-pattern, renewable disc.
 - 2-1/2 Inches and Larger: Class 125, iron body, bolted bonnet, horizontal swing, renewable seat and disc, flanged ends.
- Drain Valves
 - Class 125, bronze body, screw-in bonnet, rising stem, composition disc, 3/4-inch hose outlet.

Access Panels: In non-removable ceilings, design access panels so that all valves, controls, and appurtenances are accessible. Access panels must be no smaller than 8” x 8” clear.

Location of Isolation Valves: Locate isolation valves so that it is possible to isolate separate floors, separate wings, machinery rooms and other natural subdivisions of the building. Design isolation valves on each side of equipment to permit servicing or removal

without draining system. Design valves at all services left for future connections (tees, stubs, etc.) unless they are in a valved zone, or can be isolated by existing valves with minimal loss of pipe contents when opened.

Service access to Isolation Valves: Valves shall be easily accessible. Coordinate exact valve locations with other design disciplines to ensure service access from a standing position, or with a 6' ladder; valves installed at an elevation requiring greater than a 6' ladder for service access shall have an associated permanently installed vertical or ship's ladder to provide service access, or be operable using an extension key with a storage provision within 6' of the valve laterally.

Approved Manufacturers:

- Ball, Butterfly, Globe Valves, Check Valves, Drain Valves
 - Nibco
 - Crane
 - Milwaukee
- Balancing Valves
 - Bell & Gossett
 - Armstrong
 - Nibco
 - Wheatley
 - Tour & Anderson

Substitutes Allowed:

Yes, if performance and quality equivalency can be evidenced.

Associated Design Standards and Construction Specifications

- Other Division 22 Design Standards and Construction Specifications

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