

## 22 11 19 – Domestic Water Specialties

### 1. General

A. This Section includes the following domestic water piping specialties:

1. Backflow preventers
2. Water pressure-reducing valves
3. Temperature-actuated water mixing valves
4. Hose spigots

### 2. Products

#### A. Backflow Preventers

##### 1. General:

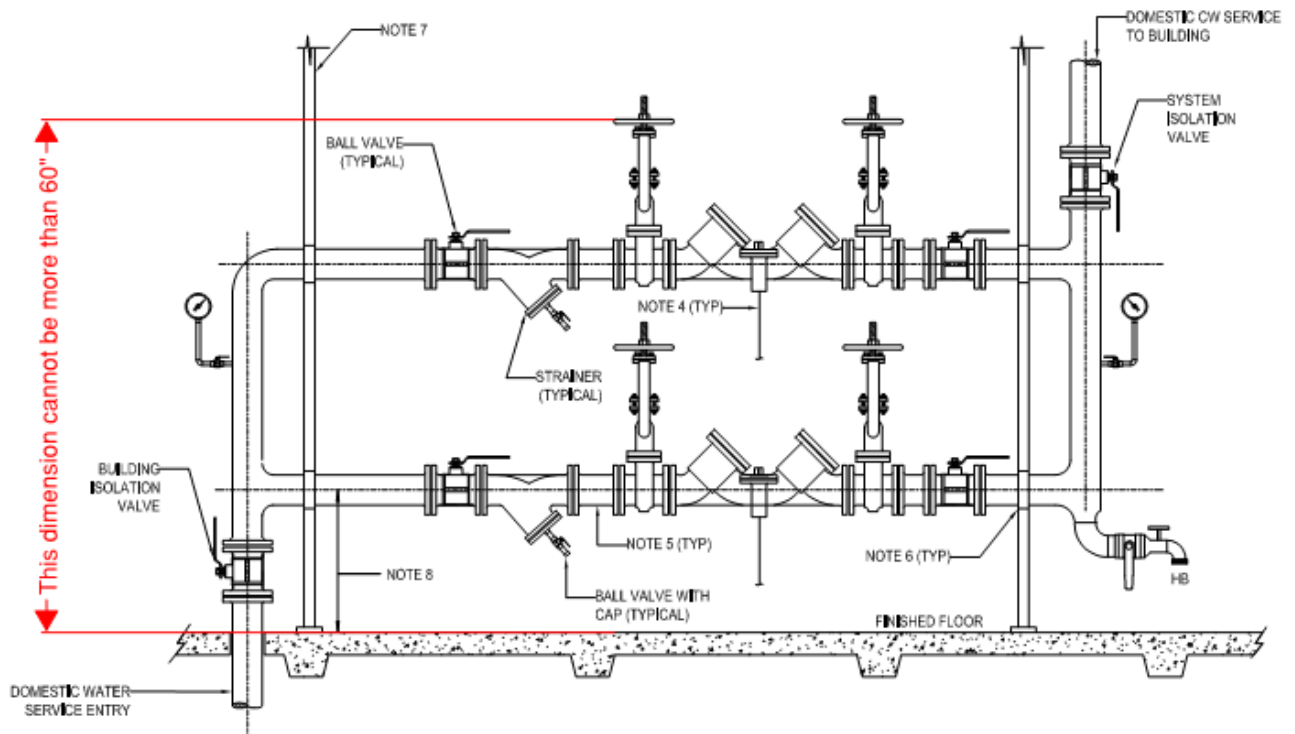
- a. For high hazard applications, use Reduced Pressure Zone (RPZ) devices.
- b. For low hazard applications, use Double Check Assemblies (with exception of vacuum breakers for hose spigots).
- c. Refer to North Carolina Plumbing Code and City of Durham Ordinance to determine hazard level for application. DUES must approve selection prior to installation.
- d. Design for two full sized backflow preventers in parallel for main building service and all critical equipment. Install one isolation valve on the high and low side of the parallel assemblies to allow for replacement of an entire assembly valve to valve.
- e. Backflow devices shall be tested by a Durham County certified tester. Testing shall be coordinated by contractor and completed prior to acceptance by Duke.
- f. Building service water line shall be flushed to City of Durham standards prior to testing backflow preventer. Full line size shall be flushed up to 4". A 4" flush is acceptable for any piping 6" and larger.
- g. Strainers with blowdown valves must be installed upstream of all backflow preventers with exception of fire protection lines.
- h. Provide 2-1/2" ball valve connection with NFT and plug between first building isolation valve and backflow device for emergency water connection.

2. Reduced-Pressure-Principle Backflow Preventers suitable for continuous pressure application, consisting of two positive-seating check valves with intermediate relief valve, and test locks:
  - a. Manufacturers: Watts, Apollo, or owner approved equal
  - b. Standard: ASSE 1013.
  - c. Operation: Continuous-pressure applications.
  - d. Body: Bronze for NPS 2 and smaller; cast iron or steel with interior lining complying with AWWA C550 or that is FDA approved, or stainless steel for NPS 2-1/2 and larger.
  - e. End Connections: Threaded for NPS 2 and smaller; flanged for NPS 2-1/2 and larger.
  - f. Configuration: Designed for horizontal, straight through, or vertical inlet, horizontal center section, and vertical outlet flow as indicated.
  - g. Valves: Ball type with threaded ends on inlet and outlet of NPS 4 and smaller; outside screw and yoke gate-type with flanged ends on inlet and outlet of NPS 6 and larger.
  - h. Air-Gap Fitting: ASME A112.1.2, matching backflow-preventer connection.

B. Double-Check Backflow-Prevention Assemblies:

- a. Manufacturers: Watts, Apollo, or owner approved equal.
- b. Standard: ASSE 1015.
- c. Operation: Continuous-pressure applications, unless otherwise indicated.
- d. Pressure Loss: 7 psig maximum, through middle 1/3 of flow range.
- e. Body: Ductile iron
- f. End Connections: Flanged
- g. Configuration: Designed for horizontal, straight through flow.
- h. Valves: Outside screw and yoke gate-type with flanged ends on inlet and outlet of.

C. Backflow Preventer Detail:



## NOTES:

1. SEE SCHEDULES FOR BACKFLOW PREVENTERS.
2. PROVIDE BLOWDOWN BALL VALVE AND CAP ON EACH STRAINER.
3. PROVIDE INTEGRAL BODY UNIONS OR FLANGED END ADAPTERS.
4. DRAIN LINES SHALL BE TWICE THE SIZE OF BUILDING WATER SERVICE (MINIMUM 6"), ROUTE DRAIN LINES SEPARATELY THROUGH BUILDING'S EXTERIOR WALL & TERMINATE WITH DOWNSPOUT COVERS, PROVIDE PIPE STANDS AS NECESSARY TO SUPPORT DISCHARGE PIPING. SEE FLOOR PLAN FOR EXACT LOCATION OF DISCHARGE TERMINATION.
5. AUXILIARY DUAL-DISC WAFFER-TYPE CHECK VALVE WITH EPDM SEATS.
6. INSTALL DIELECTRIC FITTINGS AND/OR PIPE SURROUNDS THROUGHOUT THE ASSEMBLY WHERE DISSIMILAR METALS WOULD MAKE CONTACT.
7. PROVIDE 1-5/8" X 3-1/4" X 12 GAUGE GALVANIZED STEEL CHANNELS AND STRAP TYPE PIPE CLAMPS AND SPRING NUTS TO CLAMP PIPING TO CHANNELS. ISOLATE CHANNELS FROM COPPER PIPE WITH RUBBER PIPE SURROUNDS. FOR BACKFLOW PREVENTERS INSTALLED AGAINST WALLS, SECURE CHANNELS TO FLOOR AND WALL. FOR BACKFLOW PREVENTERS INSTALLED AWAY FROM WALLS, SECURE CHANNELS TO FLOOR.
8. MOUNT LOWER BACKFLOW PREVENTER AT 24" AFF, ADJUST HEIGHT OF ENTIRE ASSEMBLY TO 12" AFF AND OFF WALLS TO BOTTOM OF DEVICE.

## D. Water Pressure Reducing Valves

## 1. Water Regulators:

- a. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- b. Watts Industries, Inc.; Water Products Div.

## E. Temperature Actuated Mixing Valves

1. Manufacturer and model shall be Powers Intellistation.

2. Control shall be +/- 2 degrees F.
3. Provide full size bypass with isolation valves to station for service
4. Must be able to fail to cold water position.
5. Mixing valve stations shall be installed on all domestic hot water systems regardless of supply temperature.

F. Hose Spigots

1. Approved manufacturers include: Provide Woodford, Smith, or Zurn
2. General:
  - a. One exterior freeze protected hose spigot shall be provided for each façade of the building
  - b. Each mechanical room and housekeeping closet shall have a minimum of one hose spigot. Sink faucet/spigot does not constitute hose bib.
  - c. Consideration must be given for cleaning equipment for coils or other similar equipment. Spigot shall be located within 50 of such equipment
  - d. If equipment is located on roof or penthouse, provide hose spigot within 50 feet of such equipment.
  - e. Provide frost-proof devices
  - f. Provide vacuum breakers on all hose spigots.