# GENERAL

## SECTION INCLUDES

### Backflow preventers.

### Expansion tanks.

### Cleanouts.

### Potable water pressure booster systems.

### Water hammer arresters.

### Floor drains and floor sinks.

### Installation requirements of other plumbing specialties scheduled in Plumbing Fixture Schedule.

### Catch basins and manholes.

## REFERENCE SECTION 23 05 00 FOR THE FOLLOWING:

### Quality assurance.

### References

### Submittals

### Operation and maintenance manuals.

### Project record documents

### Delivery, storage, and handling

# PRODUCTS

## BACKFLOW PREVENTERS

### Reduced-Pressure-Principle Backflow Preventers

#### Standard: ASSE 1013.

#### Operation: Continuous-pressure applications.

#### Body: Bronze for 2” and smaller; cast iron with interior lining complying with AWWA C550 or that is FDA approved for 2-1/2” and larger.

#### End Connections: Threaded for NPS 2 and smaller; flanged for NPS 2-1/2 and larger.

#### Accessories:

##### Valves: Ball type with threaded ends on inlet and outlet of NPS 2 and smaller; outside screw and yoke gate-type with flanged ends on inlet and outlet of NPS 2-1/2 and larger.

##### Air-Gap Fitting: ASME A112.1.2, matching backflow-preventer connection.

#### Manufacturers: Watts or Febco.

### Double-Check Backflow-Prevention Assemblies:

#### Standard: ASSE 1015.

#### Operation: Continuous-pressure applications, unless otherwise indicated.

#### Body: Bronze for NPS 2 and smaller; cast iron with interior lining complying with AWWA C550 or that is FDA approved for NPS 2-1/2 and larger.

#### End Connections: Threaded for NPS 2 and smaller; flanged for NPS 2-1/2 and larger.

#### Accessories:

##### Valves: Ball type with threaded ends on inlet and outlet of NPS 2 and smaller; outside screw and yoke gate-type with flanged ends on inlet and outlet of NPS 2-1/2 and larger.

#### Manufacturers: Watts or Febco.

## BLADDER‑TYPE EXPANSION TANKS

### Construction: Welded steel, tested and stamped in accordance with ASME SEC 8 D; supplied with National Board Form U 1, rated for working pressure of 125 psig, with flexible butyl rubber bladder sealed into tank and steel support stand.

### Accessories: Pressure gauge and air‑charging fitting, tank drain.

### Manufacturer: Taco Series CA or equivalent.

## POTABLE WATER PRESSURE BOOSTER SYSTEMS.

### All piping, fittings and booster pump wetted surfaces are to be non-ferrous, except that stainless steel materials may be used.

### Booster pumps are to be skid mounted packaged duplex assemblies with variable frequency drives. The pump motors are to be factory fitted with Helwig shaft grounding assemblies.

## CLEANOUTS

### Exterior Surfaced Areas: Round or Square cast nickel bronze access frame and non‑skid cover.

### Interior Finished Floor Areas: cast iron body and frame, nickel bronze top to accommodate the following floor finishes as required:

#### Exposed rim type with recess to receive terrazzo or resilient floor finish.

#### Exposed finish type with standard mill finish.

#### Exposed flush type with standard scored or abrasive finish.

#### Concealed undercarpet flush type with mill finish and carpet marker.

### Interior Finished Wall Areas: Line type with cast iron body and round gasket cover and round stainless steel access cover secured with machine screw.

### Interior Unfinished Accessible Areas: Caulked or threaded type.

## WATER HAMMER ARRESTERS

### Standard: ASSE 1010 or PDI-WH 201.

### Type: Josam 75000 Series water hammer arresters or equal.

### Size: Size per manufacturer recommendations.

## FLOOR DRAINS AND FLOOR SINKS

### Refer to Plumbing Fixture Schedule for required product information.

## OTHER SPECIALTIES

### Refer to Plumbing Fixture Schedule for required product information.

# EXECUTION

## PREPARATION

### Coordinate cutting and forming of roof and floor construction to receive drains to required invert elevations.

## INSTALLATION

### Install in accordance with manufacturer's instructions.

### Extend cleanouts to finished floor or wall surface. Lubricate threaded cleanout plugs with mixture of graphite and linseed oil. Ensure clearance at cleanout for rodding of drainage system.

### Encase exterior cleanouts in concrete flush with grade.

### Pipe relief from backflow preventers to nearest drain.

### Install drain for backflow preventers with atmospheric-vent drain connection with air-gap fitting, fixed air-gap fitting, or equivalent positive pipe separation of at least two pipe diameters in drain piping and pipe to either building exterior or floor drain (coordinate with plans). Locate air-gap device attached to or under backflow preventer. Simple air breaks are not acceptable for this application.

### Install water hammer arrestors complete with accessible isolation valve according to PDI-WH 201 and as shown on drawings.

### Provide final certification for all testable backflow preventers, after installation, by certified cross connection device tester.

### Install floor drains at low points of surface areas to be drained. Set grates of drains flush with finished floor, unless otherwise indicated.

### Position floor drains for easy access and maintenance.

### Set floor drains below elevation of surrounding finished floor to allow floor drainage. Set with grates depressed according to the following drainage area radii:

#### Radius, 30 Inches or Less: Equivalent to 1 percent slope, but not less than 1/4-inch total depression.

#### Radius, 30 to 60 Inches: Equivalent to 1 percent slope.

#### Radius, 60 Inches or Larger: Equivalent to 1 percent slope, but not greater than 1-inch total depression.

### Install floor-drain flashing collar or flange so no leakage occurs between drain and adjoining flooring. Maintain integrity of waterproof membranes where penetrated.

## TESTING

### Test and certify all backflow preventers for proper operation. Testing agent shall be Grade VI Water Operator.

#### Test shall be completed within 30 days of installation or Substantial Completion, whichever is later.

END OF SECTION 22 11 19