



## General Requirements for Installation of Backflow Prevention Assemblies at Point of Connection/Water Meter

### Backflow Prevention Assemblies

- Backflow prevention assemblies and associated pipe, fittings, solder and flux that are installed on systems providing water for human consumption must be “lead-free” as defined in the California Health and Safety Code, Section 116875. This requirement does not apply to fire services, the fire service line of combination services, or irrigation or industrial systems.
- Assemblies must be on the “Approved Backflow Prevention Assemblies” list developed by the University of Southern California (USC) Foundation for Cross-Connection Control and Hydraulic Research (FCCCHR).<sup>1</sup> Any modification of an assembly—such as relocation of valves, bypass arrangements, and jumper connections, whether temporary or permanent—invalidates the foundation’s approval and is not permitted. Likewise, an assembly that has been installed in an orientation for which it was not designed or approved is also not permitted.
- Assemblies for hot water exceeding 140 °F must be designed to operate at the working temperature (FCCCHR Manual of Cross-Connection Control, Tenth Ed., section 10.1.1.2.1).

### Installation

- Assemblies must be located as close as possible/practical to the water meter or point of connection (POC) but in no case more than 25 feet from the POC. If any part of a service line extends over bay or ocean waters, assemblies must be installed upstream of the seawall (and within 25 feet of the POC).
- Assemblies must be installed in the orientation intended by the manufacturer and approved by the USC FCCCHR. An assembly that was designed and approved for horizontal installation must not be installed vertically, and vice versa.
- Required clearances:
  - Minimum of 12 inches from each side.
  - Minimum of 12 inches above grade as measured from the bottom of the assembly.
  - Reduced pressure principle assemblies: Maximum of 36 inches above grade as measured from the bottom of the assembly.
- Assemblies must be installed so that the make and serial number are visible in a readily accessible location. These identifiers must not be painted over or otherwise made illegible.
- Assemblies may not be installed in pits or vaults in the ground.
- If an enclosure is used, the enclosure must be large enough or removable to allow for testing/servicing.

<sup>1</sup> In accordance with the California Plumbing Code, section 603.1, Water Quality Division, as the authority having jurisdiction, has determined that all assemblies installed in San Francisco must be approved by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research or other agency approved by the division.

- No water connections may be made between the POC and a backflow prevention assembly.
- When a reduced pressure principle assembly is installed, a drain funnel must also be installed to prevent flooding.

### **Additional Considerations for Combination Domestic/Fire Services**

If the domestic service does not require a separate backflow prevention assembly, the supply line to fire sprinklers must tee off the domestic service such that the distance from the center of the domestic tee to the inlet of the backflow prevention assembly does not exceed 12 inches.

### **Requirements for Receiving Water Service**

- All new water services that require a backflow prevention assembly or air gap at the connection to the public water system must receive an initial and final inspection by Water Quality Division. The property owner or designee must call (650) 652-3199 to schedule these inspections. The inspections are separate from those required by other San Francisco agencies.
- An initial inspection is required after a backflow prevention assembly or air gap has been installed at the connection to the public water system. A water service line and meter will not be provided until the backflow preventer has passed this inspection.
- A final inspection is required within 48 hours of receiving water service. If this inspection is not conducted, water service will be turned off and will not be restored until the inspection has been passed. In addition, the customer is liable for applicable posting fee, shutoff and turn-on charges.

### **Assembly Testing**

- Backflow prevention assemblies must be tested upon first water turn-on, annually thereafter, and whenever they are relocated, reoriented, or repaired.
- Testers must have a valid Permit to Operate issued by the San Francisco Department of Public Health. A list of companies employing Authorized Backflow Prevention Assembly Testers is available at [www.sfdph.org/backflow](http://www.sfdph.org/backflow). Testers must submit test results to the Cross-Connection Control Program within five calendar days of the test date.

### **Inspection of Air Gaps**

After installation, air gaps must be inspected by Water Quality Division as described above under “Requirements for Receiving Water Service.” Air gaps must be inspected annually thereafter by an Authorized Cross-Connection Control Specialist.