



Cross-Connection Control Requirements for Fire Services

The City and County of San Francisco has a Cross-Connection Control Program to protect the city's drinking water distribution system from contamination caused by backflow (reversal of flow from a customer's premises into the potable water distribution system). The program is administered by the Water Quality Division of San Francisco Water, Power and Sewer (SFWPS). Any modifications to an existing fire service must meet the requirements of the Cross-Connection Control Program. You must contact the Senior Water Quality Inspector of the Cross-Connection Control Program before making any modifications whatsoever to a fire service. The purpose of this brochure is to explain the program's requirements.

What is a cross-connection?

A cross-connection is an actual or potential connection between a public or consumer's drinking water system and a non-potable (non-drinkable) source of water or other fluid. Connections between the drinking water distribution system and fire services are cross-connections. All cross-connections must be protected with the appropriate backflow prevention assembly.

What is the required protection for NEW fire services in San Francisco?

Dedicated services (non-dockside/marine): Dedicated fire services must be protected with a double-check detector assembly (DCDA), reduced pressure principle detector assembly (RPDA), or air gap, depending on the level of hazard:

- A DCDA is allowed if the fire protection system has no interconnections with an auxiliary water supply and the property does not have fire department connections.
- An RPDA is required under the following conditions:
 - The property is under the jurisdiction of the Port Authority.
 - Chemicals or non-potable water could be injected into the fire system.
- An air gap is required if the fire protection system is supplied from the public water system and interconnected with an onsite auxiliary water supply.

Assemblies must be installed as close as practical but in any case within 25 feet of the downstream side of the point of connection (POC) to the public water system. Assemblies must be tested immediately after installation by a tester approved to work in San Francisco.

Combination services (non-dockside/marine): All combination fire services with components not certified for potable use (e.g., black iron pipe) must be protected with a double-check assembly (DC). Water Quality Division requires that the DC be installed within 12 inches of the center of the domestic tee to the inlet of the backflow prevention assembly.

Backflow protection is not required on a residential user premises if all of the following criteria are met:

- The property has only one service connection to the public water system.
- The single service line splits on the property for domestic flow and fire protection system flow.

- The fire protection system is constructed of piping materials certified as meeting NSF/ANSI Standard 61.
- The fire protection system's piping is looped within the structure and is connected to one or more routinely used fixtures (such as a water closet) to prevent stagnant water.

Dockside/marine: All dockside/marine fire services must be protected by an RPDA. RPDAs must be installed as close as practical but in any case within 25 feet of the downstream side of the POC with the public water system. In addition, RPDAs must be installed on the landward side of the sea wall.

What procedures must be followed when changes are made to an EXISTING fire service?

Before removing, installing, relocating, or replacing a backflow prevention assembly on a fire service, you must obtain a **permit** for the work from the San Francisco Department of Building Inspection, Plumbing Inspection Division, located at 49 South Van Ness Avenue, Suite 400 or online at <https://sfdbi.org/onlinepermit>. After the work has been done, schedule a plumbing inspection by calling (628) 652-3401.

If you are removing an existing backflow prevention assembly with an SFWPS water meter, contact Customer Services Bureau and find out what to do with the water meter. If a meter goes missing, the property owner will be charged to replace it at a cost likely to exceed \$1,000.

After an assembly has been removed, you or your representative must call the Cross-Connection Control Program at (650) 652-3199 and provide the service address, serial number, and permit number within 30 days of the removal. If an assembly is installed, moved or replaced, the assembly must be tested immediately, and your tester must enter test results into the Cross-Connection Control Program's database within five days of the test. The permit number must be included in that submittal.

Which assemblies may be installed in San Francisco? All assemblies installed in San Francisco must be (1) on the "Approved Backflow Prevention Assemblies" list developed by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research or (2) certified by a comparable organization approved by Water Quality Division. In addition, all assemblies must be lead-free as defined in California Health and Safety Code §116875.

Who is responsible for the cost of installing backflow prevention assemblies?

All costs associated with backflow protection on fire services are the responsibility of the property owner. These costs include purchase, installation, permitting, testing (both upon installation and annually thereafter) and maintenance.

Who is permitted to test backflow prevention assemblies?

Testers who work in San Francisco 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 <https://www.sf.gov/backflow>. Testers must report test results to the Cross-Connection Control Program within five days of performing a test.

Where can I get additional information?

Additional information is available at sfpuc.gov/backflow, or you can call the Cross-Connection Control Program at (650) 652-3199 between 8 am and 5 pm, Monday through Friday.