



COMMERCIAL RETROFIT INSTALLATION SPECIFICATIONS

Retrofitting requirements apply to existing businesses (including irrigation only, fire only and multi-family accounts). There is no “Grand fathering” since backflow protection is required for public health and safety. **Utility Customers** are responsible for installation of any required domestic, fire or irrigation backflow assemblies.

A Reduced Pressure (RP) backflow preventer assembly is required for any domestic waterline connection to provide containment protection.

Helpful Checklist:

- Contact at least 3 license plumbers and request a quote (confirm if the quote includes building permit cost, cost to provide adequate drainage to the backflow device, cost for thermal expansion tank and/or strainer and a certification test for the backflow device)
- Hire a license plumber (share this document with the plumber)
- Apply for plumbing permit
- Install the backflow device (including adequate drainage)
- Certified the backflow device
- Submit backflow test report to the city

INSTALLATIONS INSTRUCTIONS:

Backflow prevention devices shall be installed in accordance with the adopted Plumbing Code, with approval of the City’s Building Department and Utilities Department. The plumber shall obtain a **plumbing permit** prior to installation. Permits can be obtained at City of Brighton City Hall, 500 S 4th Ave, Brighton CO 80601

Domestic RP backflow assemblies shall be installed as close as practical to the outlet side of the water meter, inside the building (whenever possible), and prior any interior plumbing branch-off or tee. The size of the backflow prevention assembly must match the size of the water meter and/or service piping. Exterior RP assembly installations shall be housed in an insulated and heated enclosure to prevent freezing.

The RP assembly shall be installed as a unit. The RP assembly shall consist of an integral system including two check valves; 1 relief valve, 4 test cocks and 2 shut off valves. The RP assembly shall be certified by a nationally recognized testing laboratory in accordance with ASSE/USC.

The RP assembly shall be installed in a horizontal position only. All vertical installations shall be approved, in writing, prior to installation and all vertical installations must be of an assembly approved by ASSE/USC.

The RP assembly’s relief valve discharge may cause water damage. An approved drain with air gap attached to the RP device shall be installed and piped to a positive gravity sewer drain. This air gap shall be at least twice the inside diameter of the incoming supply line as measured vertically above the top rim of the drain and in no case less than one (1) inch. The sewer drain must discharge into the sanitary sewer system. Exterior discharges are not allowed since this water may be potentially contaminated. Installation of a sump pump system or a WaterCop system is recommended for areas without access to a floor drain.

The RP assembly shall be installed above grade, never below ground, inside vault, buried in earth, submerged or in any location subject to flooding.

Under **NO** condition will any connection be allowed between the service water meter and the RP assembly used for system containment.



If an assembly is installed five (5) feet or higher above the floor, it shall be equipped with a rigidly and permanently installed scaffolding or platform. The assembly shall be readily accessible with adequate room for maintenance and testing. All assemblies shall have a minimum clearance of twelve (12) inches.

*****SPECIAL NOTES*****

Thermal Expansion: It is the responsibility of the property owner to eliminate the possibility of thermal expansion when a closed system has been created by the installation of a backflow assembly. When water is heated and stored in a consumer's closed water system, a relief valve or expansion chamber shall be installed to limit thermal expansion of the water.

Pressure Loss: Be aware that the installation of a backflow device will cause a drop of the water pressure (about 15 PSI). It is the owner's responsibility to comply with minimum pressure requirements set by code.

Debris: The installation of a **bronze strainer** immediately **upstream** of the RP device is recommended to prevent debris and small rocks to cause leaks and failure of the device. The strainer will save the owner future repair costs.

Stolen Devices: Outdoor irrigation backflow devices maybe stolen for their brass value. Please consider protecting the device with a locked vented enclosure with adequate drainage; or to paint the backflow device with any color paint to disguise the device and reduce the risk of getting the backflow device stolen.

Lead Free Devices: For your information, beginning January 2014, all plumbing fixtures (including backflow devices) are required by law to be "Lead Free". Be aware that lead-free devices are 30-40% more expensive than regular devices. Please plan retro-fitting your existing building accordingly.

Fire Backflow Devices: Retrofitted or remodeled fire protection systems shall have an approved fire backflow prevention assembly installed as close as practicable to the point of water service delivery, on potable water lines serving fire sprinkler systems. Hydraulic calculations of the sprinkler system are required. Backflow preventers shall be approved by a Testing Agency (ASSE, FM, UL). The type of device needs to be approved by the city. The only type of backflow devices allowed for fire sprinkler systems are:

1. Double check valve assembly; or Double check detector assembly
2. Reduced pressure backflow preventer; or Reduced pressure detector assembly
(for water treated with antifreeze, corrosion inhibitors, or chemicals)

Irrigation Backflow Devices: Irrigation systems shall have an approved irrigation backflow prevention assembly installed on potable water lines serving the irrigation sprinkler system. The type of device needs to be approved by the city. The only type of backflow devices allowed for irrigation sprinkler systems are:

1. Pressure Vacuum Breaker (PVB) for systems that are not subject to backpressure; and as long as the device is installed at least 12" above the highest downstream point of use.
2. Reduced pressure backflow preventer

Insulated Enclosures: Any proposed exterior insulated enclosure shall be approved by the City. Adequate ventilation, drainage and clearance are required. Final approval assembly must be centered in enclosure.

Assembly Testing Requirements: All Reduced Pressure (RP) assemblies shall be tested at time of installation and at least annually thereafter by a Certified Backflow Tester. Test Forms and Certified Tester List may be obtained from the City's website: www.brightonco.gov (Departments, Utilities, Backflow Program). A copy of all backflow test reports must be faxed at 303-655-2065 or submitted to the City of Brighton, Department of Utilities, Backflow-Prevention Office at 500 S 4th Ave – 4th floor, Brighton CO 80601.

These are general guidelines for the retrofit installation of backflow preventers. Some systems may present unique situations that could alter the permitting and installation requirements. Please contact the City of Brighton if you have any questions: Building Department: 303-655-2014 / Utilities Department: 303-655-2121