

SAFE DRINKING WATER IS AN EXPECTATION FOR ALL OUR RESIDENTS WHEN THEY TURN ON THE FAUCET.

The State of Washington and our City have implemented the following laws pertaining to backflow that ensure our residents continue to receive safe drinking water from their tap.

WASHINGTON STATE LAW

Washington State law requires that all public water systems maintain an active Cross Connection Control Program to protect public health.


CITY ORDINANCE

For New Businesses

On 11/11/2007 the City of Richland adopted a premise isolation ordinance requiring all new commercial / industrial businesses to have a reduced pressure backflow assembly installed at the water meter.

For Existing Businesses

Anytime an existing business applies for a building improvement permit, the building owner will be required to install a reduced pressure backflow assembly at the water meter.

 **Reduced Pressure Backflow Assembly is the minimum level of protection allowed for premise isolation.**

REBATE PROGRAMS AVAILABLE

Existing businesses requiring a RPBA retrofit of a two inch or smaller assembly can apply for a rebate from the City to help cover the purchase price of the backflow assembly. For more information on the rebate program please call the Water Quality office at (509) 942-7474.


For more information, Contact the Richland Public Works Department at 509-942-7474 to ensure you are installing the correct assembly for the degree of hazard at your location.


What is Backflow?

Backflow is the undesirable reversal of flow of water or water mixed with other substances from any domestic, commercial or industrial piping system into the pure potable or drinking water distribution system.

What Causes Backflow?

There are two types and causes of backflow; **backsiphonage** and **backpressure** which are explained below.

 **Backsiphonage:** Means backflow due to a reduction in system pressure in the purveyor's distribution system.

 **Backpressure:** Means a pressure (caused by a pump, elevated tank or piping, boiler, or other means) on the consumer's side of the service connection that is greater than the pressure provided by the public water system and which may cause backflow.

To prevent conditions of backsiphonage and/ or backpressure, a backflow prevention assembly must be installed. However, the assembly must match the hydraulics at the location and be suitable to protect against the degree of hazard present.

Degree of Hazard

The degree of hazard (a scale of 1-5, 5 being the highest) depends on the type of substance which may flow into the potable water supply at the point of a cross connection.

A **pollutant** refers to any substance which would affect the color or odor of the water but is considered a non-health hazard.

A **contaminant** is any substance that causes illness or death if ingested and is considered a health hazard.

Extreme hazards include sewage and radioactive materials because of the epidemic possibilities and dangers associated with them.

City of Richland
840 Northgate Drive
Richland, WA 99352



Working hard to ensure your water is moving forward!

COMMERCIAL BACKFLOW



PROTECTING THE Quality and Safety of our Community Water Supply



Working hard to ensure your water is moving forward!

Overview of Backflow Prevention Methods

To ensure the safety of our community water system, Backflow assemblies are required for applications that have the potential of contaminating the drinking water supply and are chosen based on the degree of hazard at each location.



Air Gap Separation

This method is used in commercial applications where reservoirs and storage tanks are required. It protects against both contaminants and pollutants. An air gap means there is a physical break between the city's water supply and the facility's process therefore providing the utmost protection.

Note: this is the only acceptable means of protecting against lethal hazards.



Reduced Pressure Backflow Assembly (RPBA)

These are required and very important in commercial settings where hazardous material could enter potable water. It is also used with irrigation systems that distribute fertilizers, in hospitals, chemical plants, etc. It protects against both contaminants and pollutants.

A Reduced Pressure Backflow Assembly (RPDA) is specially designed to prevent backflow and provide meter readings that detect the unauthorized use of water in the system.



Spill Resistant Vacuum Breaker

These are primarily used in low hazard installations where water spillage is undesired. They protect against backsiphonage only. Indoor installations are common in the colder climates. Due to the possibility of inside leaks many prefer outdoor installations which are required to be protected from freezing.



Double Check Valve Assembly (DCVA)

These are primarily used in commercial applications where low to medium hazards exist, such as with irrigation or fire systems. These are the most prevalent assemblies in the Richland system. Most are installed below ground in a valve box. Factory covers on the test cocks are required to ensure that no external water will enter the body of the assembly if the double check valve becomes submerged. The DCVA protects against a pollutant only.

A Double Check Detector Assembly (DCDA) is specially designed to prevent backflow and includes a meter that registers the unauthorized use of water in the system.



Pressure Vacuum Breaker Assembly (PVBA)

The PVBA's are primarily used in residential applications with irrigation systems but can be effective on other non-potable services where a health hazard could exist if a backsiphonage situation were to occur. This assembly protects against a contaminant or pollutant, but against backsiphonage only and should not be installed where backpressure may occur.




KEY

 **Commercial Application**

 **Residential Application**

 **Backsiphonage Protection**

 **Backpressure Protection**

 **Degree of Hazard**
(a scale of 1-5, 5 being the highest)

Universal Installation Requirements for Backflow Methods

Pre-installation:

- All assemblies installed must be on the Washington State approved Backflow Assembly List. This list is available through the Department of Health, at (800) 521-0323 or visit us at www.doh.wa.gov/ehp/dw/Programs/backflow_prevention.htm
- Variance of any installation must have prior written approval from the local water purveyor.

During Installation:

- Assemblies must be installed as a unit horizontally unless they have Washington State and use approval to be installed vertically.
- Thoroughly flush service line prior to installation of assembly.

- Assembly must maintain sufficient clearance from any wall.
- Assembly must be protected from freezing and flooding.
- Assembly must have adequate clearance for operation of valves.
- Assemblies in any enclosures must have adequate drainage.
- Full tops on enclosures must be removable for testing and maintenance.

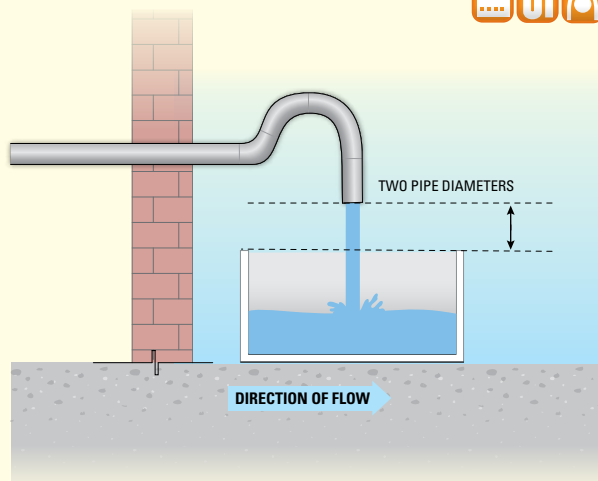
Test Reports:

Test reports must be signed by a Certified Backflow Tester and immediately sent to:

City of Richland Water Quality Office, P.O. Box 190 MS-15, Richland, WA 99352

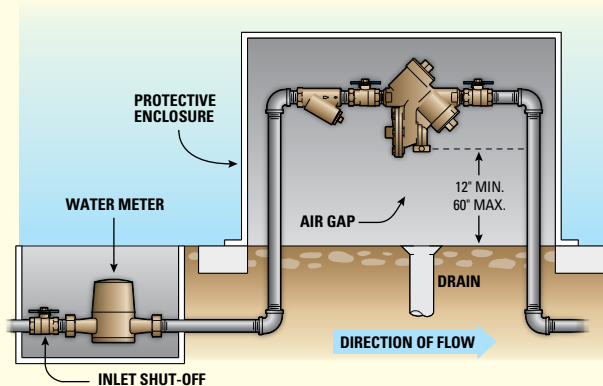
INSTALLATION GUIDELINES FOR EACH BACKFLOW METHOD

Air Gap Separation



An air gap is a physical separation of the supply pipe by at least two pipe diameters (never less than one inch) vertically above the overflow rim of the receiving vessel.

Reduced Pressure Backflow Assembly (RPBA)



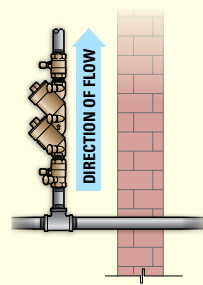
- The RPBA cannot be installed below ground.
- Must be installed horizontally.
- Install valve at least 12 inches above surrounding flood level.
- Install no higher than 5 feet (60 inches) from floor to centerline of assembly.
- Clearances from walls will vary due to the size of the assembly.
- Test Cocks. (4 required)
- Resilient Seated Shutoff Valves. (2 required)
- Adequate gravity drainage system required with approved air gap.
- Testing is required at installation, annually, and at point of repair.

Double Check Valve Assembly (DCVA)

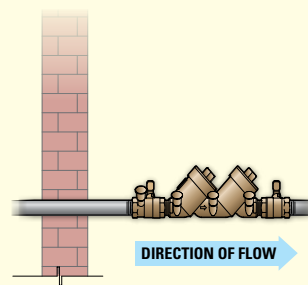


Indoor Installation

VERTICAL INSTALLATION

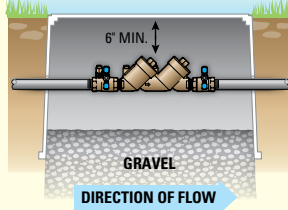


HORIZONTAL INSTALLATION

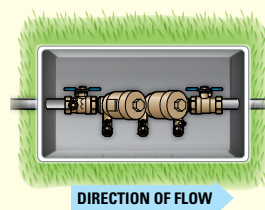


Outdoor Installation

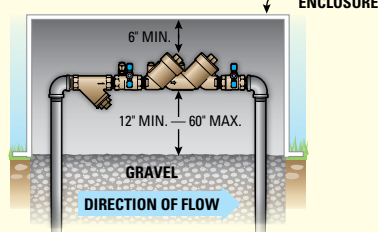
BELOW GROUND



TOP VIEW

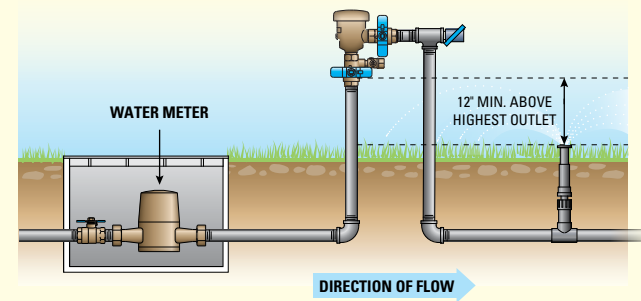


ABOVE GROUND

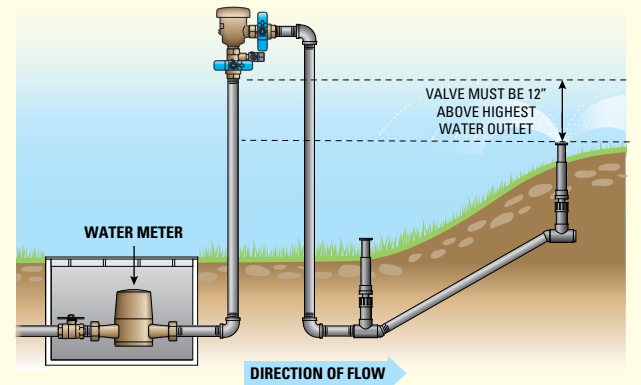


- The DCVA can be installed above or below ground with protection from freezing.
- Indoor installation is preferred in areas that are subject to freezing conditions.
- Do not install in area subject to flooding.
- Install no higher than 5 feet (60 inches) from floor to centerline of assembly and a minimum of 12 inches from floor to bottom of assembly.
- Centerline of assembly must be a minimum of 6 inches below the cover of the enclosure.
- Shutoff valves (2 required) must have a 3 inch clearance for operation and testing.
- Test cocks, with plugs. (4 required)
- Adequate gravity drainage system required with approved air gap.
- Testing is required at installation, annually, and at point of repair.

Pressure Vacuum Breaker Assembly (PVBA)

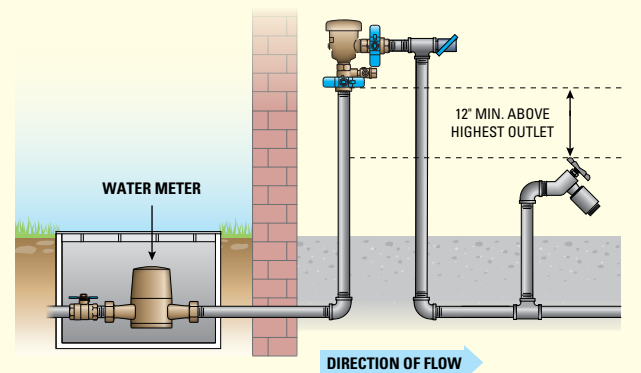


Clearance Guidelines



- Must be installed in a vertical position to provide proper operation of the air inlet valve.
- Must be installed at least 12 inches above all downstream piping and outlets.
- Testing is required at installation and annually thereafter.

Spill Resistant Vacuum Breaker



- The unit must be installed in a vertical position to provide proper operation of the air inlet valve.
- Provide adequate space around the installed unit so that the test cock and bleed screw will be accessible for testing servicing.
- Install such that the critical level mark on the body is at least 12 inches above the highest downstream piping or water outlet.
- Testing is required at installation, annually, and at point of repair.

KEY



Hazard Protection Scale
A scale of 1 - 5, 5 being the highest



Illustrations and some photos provided by Wilkins.
www.zurn.com

Commercial Application

Residential Application

Backsiphonage Protection

Backpressure Protection