

WHAT IS CROSS-CONNECTION AND BACKFLOW?

Cross connections occur when the public drinking water supply is physically connected to sources such as a fire suppression system, irrigation line, or hose submerged in a bucket or lying on the ground, which could contaminate the drinking water supply. Cross connections provide a pathway for potentially polluted or contaminated water to flow backwards from the source into the drinking water supply.

Backflow can occur two ways.

1. **Backsiphonage.** When the pressure in the public drinking water supply drops. Normally this pressure is high enough to prevent backflow; but certain events--such as main breaks, flushing, or firefighting--can lower the pressure enough to allow the water to flow backwards. If this water is used for boiler's, fire suppression systems, sprinkler systems etc. it could contain polluted or contaminated water.
2. **Backpressure.** When the pressure in the customers water system rises above the public drinking water supply. Elevated tanks, heating systems and booster pumps are some of the main causes of backpressure and could contain polluted or contaminated water.

Installing backflow prevention assemblies on the plumbing after the main water meter prevents water from flowing backwards.

LEVEL OF HAZARD

The type of backflow prevention assembly needed on a system is determined by the level of hazard posed by the water use.

In general, the City requires the following assemblies:

Main Water Service (Domestic): Reduced Pressure Principal Assembly

Fire Systems: Double Check Assembly



Irrigation Systems: Vacuum Breaker

CONTAINMENT OR ISOLATION?

An assembly on the incoming line or service is containment. The assembly is after the water meter, but before any branches or connections to the service line. Containment assemblies have been installed on service lines of multi-family and commercial accounts since 1984. The State of Colorado regulations require containment assemblies be tested at least annually.

An assembly on internal piping within a residence or facility downstream of the containment assembly is isolation. An isolation assembly protects internal plumbing drinking water from contamination. It is recommended to test annually similar to the containment assembly. An assembly installed on a residential lawn sprinkler system is an example of an isolation assembly. This assembly prevents lawn sprinkler water from getting back into the home.

TYPES OF BACKFLOW ASSEMBLY

1.a. Vacuum Breaker, Atmospheric	
	<p>Used mainly on lawn irrigation systems. It has an air inlet valve that will drop to draw in air thus preventing sprinkler system water from entering the City's water mains.</p> <p>Requirements:</p> <ul style="list-style-type: none"> • Not under continuous pressure for more than 12 hours • No downstream valves • No backpressure • 6" above high point of use
1.b. Vacuum Breaker, Pressure	
	<p>Used mainly on lawn irrigation systems. It has a one-way check and a spring loaded air inlet valve that closes when City water main pressure drops.</p> <p>Requirements:</p> <ul style="list-style-type: none"> • No backpressure • 12" above high point of use • Protect from freezing
2. Double Check Assembly	



Operates similar to a Pressure Vacuum Breaker. Used on low hazard applications and on fire lines.

3. Reduced Pressure Principle Assembly



Used on high hazard applications. It is a combination of check valves and an air inlet allowing water from the private system to vent when City pressure drops.

Installing backflow assemblies prevents the possibility of contaminated water returning to the distribution line.

Don't know if you have a backflow assembly?

1. Call a plumber licensed to do work in the City of Louisville and schedule the installation.
2. Obtain a building permit.
3. After the assembly is installed, contact the [Planning and Building Safety Department's](#) Inspection Request Line at 303.335.4583.

Now that the assembly is installed:

1. Find a qualified testing company to perform test, <https://www.bsionlinetracking.com/customer>.
2. Submit test through <https://bsionline.com>.

Thank you! You are doing your part to keep our drinking water clean. For more information about the program, please email backflow@LouisvilleCO.gov or call at 303.335.4785.