

What is a Cross Connection?

A **cross connection** is an actual or potential connection between the safe drinking water (potable) supply and a source of contamination or pollution. Water can become contaminated if connections to your plumbing system are not properly protected.

Water normally flows in one direction. However, under certain conditions, water can actually flow backwards. This is known as **backflow**. There are two situations that can cause backflow: *back-siphonage* and *backpressure*.

Back-siphonage may occur due to a loss of pressure in the municipal water system during a fire-fighting emergency, a water main break, or a system repair. This creates a siphon in your plumbing system which can draw water out of a sink or bucket and back into your plumbing and possibly to the public water system.

Backpressure may be created when a source of pressure (such as a boiler) creates a pressure greater than the pressure supplied from the public water system. This may cause contaminated water to be pushed into your plumbing system through an unprotected cross connection.

To protect the potable water system from contamination, backflow preventers are required by state plumbing code wherever there is an actual or potential hazard for cross connection. Dual Check (DC) and Reduced Pressure (RP) principle backflow preventers are required to be tested after installation and annually thereafter. The results of these tests must be submitted to the Village of Alsip by a licensed Cross Connection Control Device Inspector (CCCDI).

Resources:

American Water Works Association

www.awwa.org

American Society of Mechanical Engineers

www.asme.gov

American Society of Sanitary Engineers

www.asse-plumbing.org

Illinois Environmental Protection Agency

www.epa.state.il.us

Illinois Department of Public Health

www.idph.state.il.us



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Cross Connection Hazards

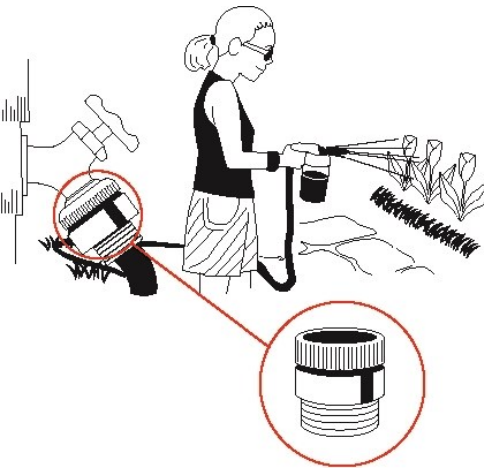
Information for
Residential
Water Customers



Outside

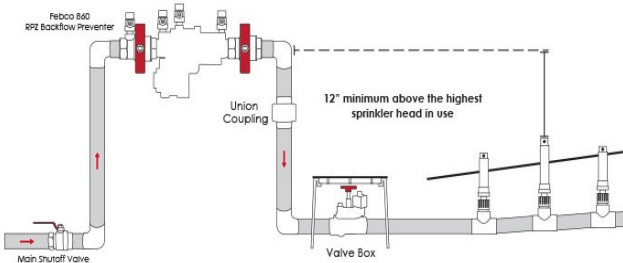
Hoses, Pools, Buckets, Ponds

Keep the ends of hoses clear of all possible contaminants, and never submerge hoses which are connected to a faucet in buckets, pools, tubs, sinks, or ponds. For extra protection, install an ASSE 1011 approved **Anti-Frost hose bib vacuum breaker** (below) on your fixture.



Don't use spray attachments without a proper backflow device.

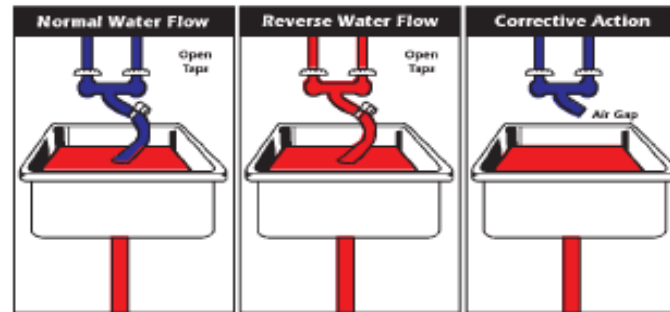
Underground automatic lawn sprinkler systems require the installation of an ASSE 1013 approved **reduced pressure principle backflow assembly (RP)**. This device must be tested after installation and annually thereafter by a licensed cross connection control device inspector (CCCDI). Village of Alsip water department personnel can provide a current list of local licensed CCCDI's.



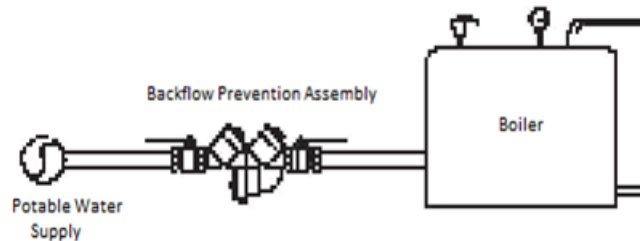
In the Utility Room

Laundry Sinks and Boilers

Illinois plumbing code requires that all threaded potable water outlets (hose bibs or utility sinks) be protected by a non-removable **hose bib vacuum breaker** or an **atmospheric vacuum breaker**. All hoses connected to sinks, faucets, and water treatment devices must have proper backflow prevention devices or an approved air gap. Without these safety measures contaminated water can be drawn back into the potable water supply.



Potable water supplies to the washer, washer-dryer, or dryer shall be protected against contamination by means of air gaps or other acceptable devices. This is usually accomplished through the design of an ASSE 1007 approved **air gap** or backflow device integral to the manufacturer's equipment.

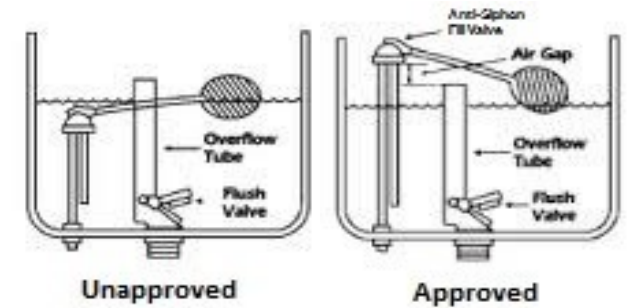


Residential hot water boilers over 200,000 btu require at minimum the installation of an ASSE 1012 approved **dual check valve with atmospheric vent**. Although backflow protection is not required for boilers under 200,000 btu, it is recommended. The addition of any chemical additives (i.e. anti-freeze, corrosion preventative) to a boiler system requires the installation of an ASSE 1013 approved **reduced pressure principle backflow assembly (RP)**.

In the Kitchen/ Bathroom

Kitchen and bathroom faucets are generally designed with an adequate air gap between the end of the faucet and the flood level rim of the sink. They are manufactured so that a hose can not be attached to the end of the faucet. Slip on hose connections can defeat the protection of the air gap and should not be used!

Hand held sprayers and other similar hose attachments also pose a problem. If submerged in the water, back-siphonage can occur. Kitchen faucets with pull-out spout and hand-held shower heads which comply with state regulations for cross connection will have the code **ASME 112.18.1** stamped on the handle. In addition, make sure your hand-held shower head is at least 1 inch above the flood level rim of the tub when it is hanging freely.



Toilets need water to flush the waste material into the sewer system. The water that flushes the toilet enters into the toilet tank from the small hose or pipe connected to the bottom of the toilet tank and is controlled by the fill valve. It is essential that the fill valve (or anti-siphon ballcock) inside of the toilet tank is the correct type so that the contents of the toilet tank don't get back into the drinking water system in your house. As shown in the illustration, the anti-siphon fill valve and refill tube must be above the water level in the tank to protect against back-siphonage.