

What is a Cross Connection?

A cross connection is a point in a plumbing system where the potable (safe, drinkable) water supply is connected to a non-potable (polluted, untreated) source. Briefly, a cross connection is present whenever the drinking water system is or could be connected to any non-potable source. If cross connections are not properly protected and there is a drop in pressure, untreated sources and dirt can be pulled into your household plumbing system.

Why Be Concerned?

Lake Michigan provides the City of Evanston with a valuable source of fresh water. The Evanston Utilities Department converts the lake water into clean, drinkable water through its water treatment plant. The treatment process produces high quality water exceeding EPA standards. Millions of dollars are spent providing clean, safe water to Evanston residents. However, once the water is in the water distribution system, there is still a potential for contamination. Drinking water can become contaminated through uncontrolled cross connections.

There are cross connections throughout the City of Evanston. It is important to be aware of the problems they could create and understand how to protect our drinking water supply.

Frequently Asked Questions

Q. What is the most common form of a cross connection?

A. The garden hose is the most common offender as it can be easily connected to the potable water supply and used for a variety of potentially dangerous applications.

Q. What is potentially dangerous about an unprotected sill cock?



A. The purpose of a sill cock is to permit easy attachment of a hose for outside watering purposes. However, a garden hose can be extremely hazardous when it is submerged in swimming pools, laid in an elevated location (above sill cock) watering shrubs, and when chemical sprayers are attached to hoses for weed-killing.

Q. What protection is required for sill cocks?

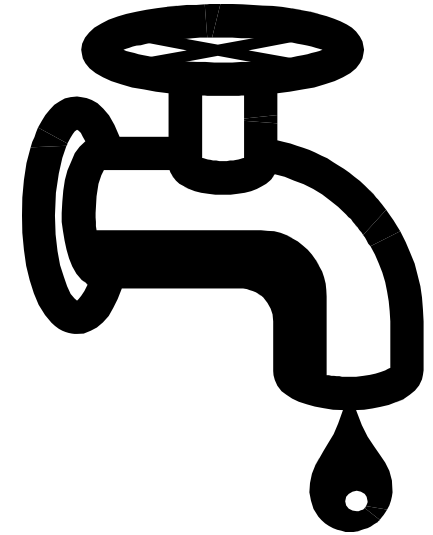


A. A hose bibb vacuum breaker should be installed on every sill cock to isolate garden hose applications thus protecting the potable water supply from contamination.

Q. What causes backflow?

A. There are two kinds of backflow- backsiphonage & backpressure. Backsiphonage is the reversal of normal flow in a system caused by negative pressure in the supply system. A factor that could cause backsiphonage is a stoppage in the water supply due to nearby fire-fighting or a main break. Backpressure occurs when the downstream pressure is above that of the supply pressure causing a reverse in flow. This could be caused by pumping systems and high temperatures in boilers.

Keeping Our Drinking Water Safe



Through Cross Connection Control

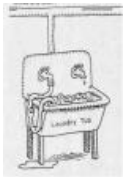


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Where are Cross Connections Found?

Cross connections are found in all plumbing systems. It is important that each cross connection be identified and evaluated as to the type of backflow protection required to protect the drinking water supply. Some plumbing fixtures have built-in backflow protection in the form of a physical air gap. However, most cross connections will need to be controlled through the installation of an approved mechanical backflow prevention device or assembly. Some common cross connections found in plumbing and water systems include:

1. Wash basins and service sinks.
2. Hose bibs.
3. Laboratory and aspirator equipment.
4. Photo developing equipment.
5. Processing tanks.
6. Boilers.
7. Water recirculating systems.
8. Swimming Pools.
9. Solar heat systems.
10. Fire sprinkler systems.
11. Underground lawn sprinkling systems.



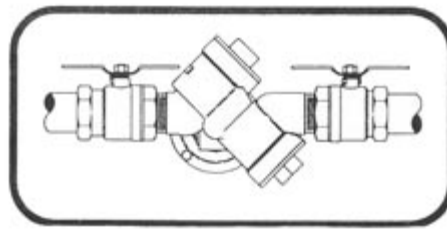
Locations where cross connections may occur in the home: hoses left in laundry sinks & buckets and in underground sprinkling systems

How is Backflow Prevented?

Your bathtub will never completely fill up, nor will your kitchen sink, or drinking fountains in the park. This is a way to prevent used water from entering the clean water system. It is prevented through the use of an air gap. An air gap is the physical separation of clean water systems and contaminated sources by an air space. The vertical distance between the supply pipe and the flood level rim should be two times the diameter of the supply pipe, but never less than one inch.

The best method of preventing backflow is an air gap. If an air gap is not possible a mechanical backflow preventer, usually a Reduced Pressure Zone Backflow Preventer is the next best approved method. It provides a physical barrier to backflow.

Reduced Pressure Zone backflow preventers have internal seals, springs, and moving parts that are subject to foul weather and wear. They can also be, as well as air gaps, by-passed. Therefore, all backflow preventers have to be tested periodically to ensure that they are functioning properly.



The reduced pressure backflow assembly is the safest cross connection control device and is required for all cross connections considered high hazard.

Cross Connection Control Device Inspection and Certification

The State of Illinois and the City of Evanston require mandatory backflow protection on certain households and facilities where high health-hazard-type cross connections are normally found. The following is a partial list of those locations:

1. Underground lawn sprinkling systems.
2. Fire protection systems.
3. Hospitals, mortuaries, clinics.
4. Laboratories.
5. Food and beverage processing.
6. Car washes.

In Evanston, reduced pressure zone cross connection control devices are required on these types of facilities. They must be inspected annually in accordance with the Evanston City Code Section 4-6-1(c)(3) & Section 7-12-16-5(b)(4).

The inspection and certification can be performed only by a plumber licensed by the City of Evanston as a Cross-Connection Control (C3) Contractor. A copy of the report must be sent to the Evanston Utilities Department.

For more information, please contact the Evanston Utilities Department at (847) 448-8198.