

# Frequently Asked Questions

*For the Residential Customer*



Engineers • Consultants • Inspectors

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## What is a cross connection and how does it happen?

A cross connection is defined as an actual or potential connection between a public water supply and a source of possible contamination or pollution. It occurs when contaminated water from homes or businesses enter into the drinking water system. Cross connections are generally unintentional and can happen anywhere there are pipes to supply water. You may risk a cross connection if you attach something that uses chemicals, etc., to your water pipes, fixtures, or hoses.

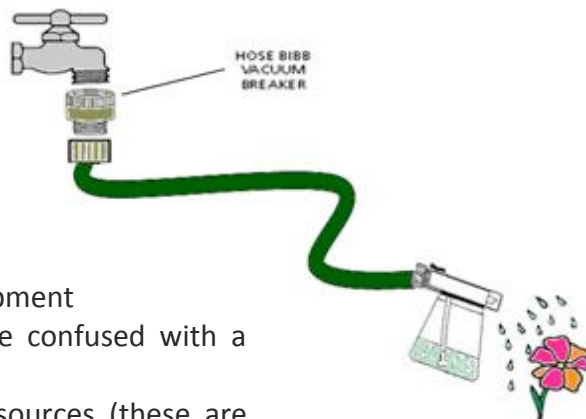
## What is backflow? Is it really that important to prevent?

Backflow is the undesirable reversal of flow of a liquid, gas or other contaminants in a potable (drinking) water distribution piping system. Backflow can happen if there is a water main break, water line repair, fire, or during a period of high water usage. Preventing backflow helps protect the water customers in your community and helps to insure uninterrupted water service. Numerous cases about illnesses and other hazards posed by cross connections have been well-documented.

## Where are the possible cross connections in my home?

The following is a list of possible cross connection types:

- Indoor & Outdoor Hose Connections
- Laundry Tubs
- Water Softeners
- Kitchens & Bathrooms
- Lawn Irrigation Systems
- Swimming Pools or Hot Tubs
- Decorative Ponds
- Home Medical, Dental or Dialysis Equipment
- Boiler Systems for Heating (not to be confused with a water heater)
- Private Wells and Secondary Water sources (these are prohibited from being connected to your municipal water system)



## How do I fix the cross connection if it exists?

Many cross connections can be corrected with a simple hose bibb (faucet) vacuum breaker. This means equipping each hose connection (inside and outside) with a vacuum breaker that you can purchase at your local hardware store.

## How often will my home be inspected?

Wisconsin Department of Natural Resources regulations in NR 810.15 requires that residences be inspected at minimum every 10 years.

# Frequently Asked Questions

*For the Commercial Customer*



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## What is a backflow device?

A backflow device prevents water from flowing backward from your plumbing into the public water system. There are many different types of backflow preventers, such as an air-gap, a vacuum breaker, a double check valve assembly, or a reduced pressure principle backflow preventer. There should be no direct connections to any manufacturing processes, such as plating, food processing, and chemical mixing. Backflow prevention should be installed. A certified plumber can help you determine the correct backflow preventer for your assembly or you will be notified during your cross connection survey by your inspector.



## Do I need to do anything to maintain my backflow device?

There are many backflow devices that will need to be tested regularly by a certified cross connection tester and registered with the state. It is the responsibility of the owner of the cross connection assembly to have it tested. Also, outdoor backflow devices will need to be winterized to protect from freezing or bursting pipes.

## How often will my business be inspected?

Wisconsin Department of Natural Resources regulations in NR 810.15 recommend that all industrial, commercial, and institutional facilities be surveyed every two to six years, depending upon the degree of hazard within the facility.

# Cross Connection: What Happens?



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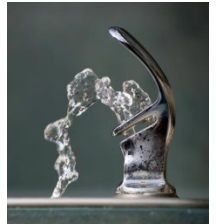
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When there is a change in water pressure due to a water main break, a water line repair, use of a fire hydrant, or during a period of high water usage, backflow can occur. If proper backflow prevention is not in place this can cause a cross connection. So, what happens when a cross connection occurs? Listed below are just a few examples of documented cases of cross connection issues. These illustrate how actual cross connections compromise our public health.

### **BLOOD IN THE WATER SYSTEM**

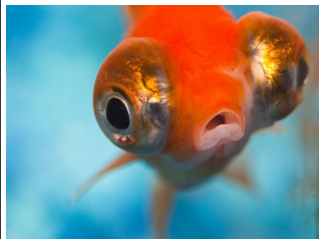
A funeral home was contaminated when there was a period of low water pressure and an aspirator without a backflow device was in use simultaneously. Instead of the body fluids flowing into the sanitary drain, they were drawn into the drinking water supply of the funeral home. Blood was coming from the drinking fountains in the building. (Cross Connection Manual, 2003, p. 2) Backflow prevention IS important!



### **BURNED IN THE SHOWER**

This incident occurred after an 8-inch water main broke and was repaired. During the repair it was found that chemicals from a nearby company had entered the water supply. During the time that a truck was adding water to a chemical holding tank, the water main broke. Because the driver was adding the water from the bottom of the tank truck instead of the top, chemicals were back-siphoned into the water main. Once the chemicals entered the water main, it went into the water supply of the homes nearby. A 60 year-old resident who was taking a shower had tiny blisters covering his entire body. He said, "It looked like someone took a blow torch and singed me." (Cross Connection Manual, 2003, p. 3) OUCH! Always have backflow prevention on your hoses and NEVER submerge them into tanks or buckets.

### **WORMS AND GOLD FISH IN THE BATHTUB**



Parasitical worms were found in the water at two homes after a water main break happened at the same time that a lawn sprinkler with no backflow protection malfunctioned. This caused back-siphonage which sucked the worms right into the water system. A homeowner found the worms when he started to fill the tub for his child. He said he was appalled to find them, as well as rust and other debris, in his water. Similarly, there was a report of two gold

fish flowing into a bath tub. Earlier in the day, a doctor had been filling his gold fish pool when a back-siphonage condition developed, which resulted in gold fish swimming in his tub. (50 Cross-Connection Questions, Answers & Illustrations, 2009, pp. 6-7) Backflow protection on the outside of your home will protect the inside!

### **GREEN ICE & YELLOW WATER**

At a bank, yellow water was flowing and green ice was coming from cafeteria dispensing machines. It was found that a pump, used for the air conditioning system, burned out and the maintenance man, unaware of the danger, connected the system to another pump which was used for potable (drinking) water. It resulted in large doses of bichromate from the air conditioning unit being forced into the water supply. (50 Cross-Connection Questions, Answers & Illustrations, 2009, p. 6) Always be aware of what you are connecting to your water supply!

# Safe Practices of Cross Connection



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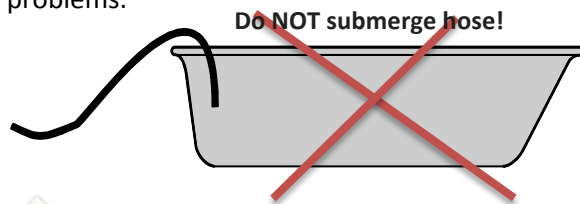
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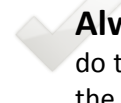
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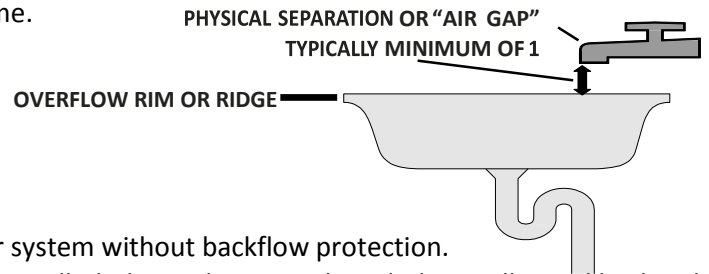
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 **Always** install a hose bibb vacuum breaker on all fixtures that a hose may be attached to. It will prevent harmful materials (pesticides, herbicides, and dirt) from being drawn back into your hose, keeping your drinking water safe.


 **Never** submerge a hose in a bucket, pond, swimming pool, fish tank, or pet water dish. The bacteria and chemicals can be drawn into water meant for your family. If someone were to drink or bathe in contaminated water, it can cause serious health problems.





 **Always** create an air gap between the end of the hose or faucet and water surface. To do this, secure the hose or faucet on a surface high enough to prevent it from touching the water surface at any time.



 **Never** use a lawn sprinkler system without backflow protection. Vacuum breakers must be installed above the ground, and above all sprinkler heads. Water pooling around sprinkler heads may be contaminated by chemicals, fertilizers, or animal waste.

 **Always** use only approved backflow protection devices. Generally, these can be purchased at your local hardware store. If you have questions about which device to use, check with a certified plumber or your municipal public works department.

 **Never** connect waste pipes from water softeners or other treatment systems directly to the sewer or submerged drain pipe. Always be sure there is a one inch "air gap" separation.

 **Always** ask questions if you're not sure! Visit these websites for more information:

**WI Dept. of Safety & Professional Services:**

[www.dsps.wi.gov/sb/](http://www.dsps.wi.gov/sb/)

**WI Dept. of Natural Resources:**

[www.dnr.wi.gov](http://www.dnr.wi.gov)

**Environmental Protection Agency:**

[www.epa.gov](http://www.epa.gov)

**WI Cross Connection Control Resources:**

[www.generalengineering.net/services/cross-connection.html](http://www.generalengineering.net/services/cross-connection.html)