



Paul R. LePage, Governor

Mary C. Mayhew, Commissioner

# Protecting Your Water System: Cross Connections & Backflow Prevention

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## What is a Cross Connection?

A cross connection is a physical connection between a source of clean, drinkable water and a source that is unsafe, potentially unsafe, or undesirable to drink. Cross connections make it possible for potentially hazardous, unsafe substances (or contaminants) to enter a drinking water supply and cause people to get sick or even die.

## What is backflow and how can it occur?

Water normally flows in one direction through your plumbing system and out your tap. Water flows in the reverse direction during backflow. When a cross connection exists, it is possible for an unwanted substance or contaminant to enter (or backflow into) the drinking water supply. Backflow can result from either suction or pressure. Suction backflow pulls contaminants into the drinking water supply, like sucking liquid up a straw. Pressure backflow occurs when the unsafe or unwanted substance has greater pressure than the drinking water and therefore can force its way into the drinking water supply.

## What are some examples of cross connections and potential backflow situations?

Examples of cross connections and potential backflow situations include:

- ◆ A hose submersed in a pool, bucket, or a car radiator. Under conditions where pressure in the water system is lost (such as a main break, excess water demand, or well pump failure) the hose can actually suck up the water from the pool or bucket it is sitting in, drawing in with it any chemicals or bacteria that may be in the pool or bucket.
- ◆ The discharge line from a home water softening system that is directly plumbed into the pipe to the septic system.
- ◆ Lawn and garden chemical sprayers attached to hoses.
- ◆ A hose attached to a utility sink, or a faucet that extends below the top of a sink or tub
- ◆ A hose hooked up to a pressure washer with soap

## Why is backflow a concern?

Backflow is a concern because it has the potential to make people really sick, especially if a dangerous or poisonous material enters into the drinking water, such as chemicals used for cleaning or treating lawns. Backflow is also a concern because it can be unexpected. Many people think it can't or won't happen to them, but it is hard to predict when a loss of pressure in your water system can happen. And, if you have a cross connection, you could end up with backflow into your water supply.



### **Keep Your Drinking Water Safe:**

✓ **Protect Your Source**

✓ **Take Your Samples**

✓ **Maintain Your Treatment**

✓ **Inspect Your Pipes & Tanks**

## Where should I look for cross connections in my water system?

- ◆ Check any hoses and be diligent about not submersing a hose in a tank, pool, bucket, or other container.
- ◆ Take a look at any sinks or tubs to make sure that the end of the faucet does not extend below the top of the sink or tub and does not have a hose attached to it.
- ◆ Check any waste lines from water softeners or water treatment systems and make sure that if the line goes into a septic or sewer line, it is not directly connected. There should be a gap between where the softener or treatment system waste line enters the septic or sewer line, called an air gap.

## Who is responsible for preventing backflow?

*Everyone.* Water system owners and operators need to be aware of the potential hazards of cross connections and identify, eliminate, and prevent them around the house. It is also important for plumbing and water professionals (plumbers, local plumbing inspectors, code enforcement officers, water utility personnel, and water treatment installers) to be aware of cross connections and to prevent them. Or, if they do exist, to properly protect them to make sure that backflow does not occur. Public water systems are regulated by the State of Maine to ensure that they are protected against cross connections and are aware and attentive to protecting public health from cross connections.

## How can I prevent backflow?

- ◆ **Be aware** of the hazards and prevent and eliminate cross connections.
- ◆ **Install backflow prevention devices.** There are devices that can be put on or installed within a plumbing system that can help prevent backflow if a cross connection exists. One inexpensive, easy to install, and effective backflow prevention device you can install on your hose spigot is a vacuum breaker, also called a “hose bibb vacuum breaker.” These devices, available at hardware stores, screw directly onto your outside hose spigot and can prevent backflow due to suction. There are other backflow prevention devices that can be used to prevent backflow due to pressure and also to prevent backflow from high hazard cross connections, such as some lawn irrigation systems or fire sprinkler systems.
- ◆ **Check to make sure that anything you hook up to your water supply has the appropriate backflow prevention device**, such as your pressure washer or lawn and garden chemical applicator. If you don’t know, be sure to ask a plumbing professional.
- ◆ **If you have any plumbing work done to your home**, such as installing a water softening system or dishwasher, you should check with the plumber to make sure they are providing appropriate backflow prevention.

## Who do I contact for more information or if I have questions?

- ◆ Your local plumbing inspector
- ◆ A State Plumbing Inspector from the Plumbers’ Examining Board & Office of Licensing & Registration
- ◆ The Maine CDC Drinking Water Program at (207) 287-2070 or [www.medwp.com](http://www.medwp.com).

