

DRINKING WATER

Cross Connection Safety And Prevention

*Could you be
contaminating your
drinking water?*

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How often do I need to have my backflow prevention assembly tested?

Not all buildings have Backflow prevention assemblies, or testable type backflow prevention devices, however if your building does, each backflow prevention assembly must be registered through the Wisconsin Department of Safety & Professional Services and tested upon installation, any time maintenance is conducted on the assembly, and at least once a year by a certified tester.

Will my business be inspected?

Wisconsin Administrative Code requires plumbing and systems in business and industrial facilities to be surveyed periodically for actual and potential cross connections. All buildings connected to the local public water supply are required to be inspected. There is no fee for the inspection however any potential corrective action to protect the drinking water supply is the responsibility of the building owner.

What should I do?

Let the local water department evaluate and protect your drinking water safety. The best way to do this is to give municipal field specialists easy and courteous access to your plumbing system when they arrive. Many inspections take as little as 20-30 minutes; more complex sites take longer. Remember, we're all in this together, and together we can work to keep your drinking water safe!

Resources:

- State of Wisconsin, Department of Natural Resources (DNR): www.dnr.state.wi.us/
- Wisconsin Department of Safety & Professional Services (DSPS): <http://dsps.wi.gov/sb/SB-PlumbingProgram.html>
- U.S. Environmental Protection Agency, Ground and Drinking water: www.epa.gov/safewater
- Public Service Commission of Wisconsin (PSC) <http://psc.wi.gov>

Did you know?

The Safe Drinking Water Act of 1974 established national standards for drinking water quality. State, local governments and water utilities are charged with enforcing and maintaining these standards to protect the public water supply. Yet, cross connections can contaminate the drinking water supply without anyone realizing it.

What is a Cross Connection?

A cross connection is a “link”, or a direct or potential connection between drinking water piping and a contamination source. This can be as simple as a garden hose end that is submerged in a swimming pool, a bucket of detergent or other contaminated water source. Other examples of cross connections are supply lines connected to boilers, lawn irrigation systems, cafeteria equipment, process equipment and bottom-fed tanks.

Under certain conditions, cross connections can allow potentially contaminated water to flow backward through the piping system and contaminate the drinking water supply. This is called backflow and it is caused by two types of pressure changes: back-siphonage and backpressure.

What is Back-Siphonage?

Back-siphonage is caused by negative pressure, or a “vacuum” in the water supply piping. An everyday example of how back-siphonage works is drawing liquid up through a straw (vacuum) from a glass or cup. Back-siphonage can be created when there is negative pressure (vacuum) in the water supply due to repairs or breaks in the city water main, or an increased demand in the water distribution system. Back-siphonage reverses the normal flow of water in a piping system, and can “pull” contaminants into the drinking water supply through an unprotected cross connection, such as a garden hose submerged in a bucket of chemical.

What is Backpressure?

Backpressure reverses normal system flow. It occurs when downstream water pressure is greater than the water supply pressure. This can occur in any pressurized system such as a boiler, elevated tank or recirculating system. For example, water in a boiler operating under increased pressure may backflow into the potable water supply if the supply pressure is less than the boiler pressure.

Do state and/or local regulations address cross connections?

Yes. Unprotected cross connections within potable water piping systems are prohibited and Wisconsin water utilities are required to have a cross connection control program, as outlined in the Wisconsin Administrative Code, Department of Natural Resources, *Chapter 810, Section NR 810.15* and also the Department of Safety & Professional Services, *SPS 382*.

Plumbing and health officials, municipalities, water utilities and property owners throughout the State have established a cooperative program to control cross connections and protect the public drinking water supply.

What’s the difference between pollution and contamination?

Pollution of the water supply is usually caused by non-toxic substances and often does not constitute an actual health hazard, although water may be non-potable and affected with respect to taste, odor or utility. Contamination however, is a health hazard caused by a toxic substance, which subjects consumers to potentially lethal water-borne diseases or illnesses.

What is the difference between toxic and non-toxic substances?

Toxic substances are liquids, solids or gases which, when introduced into the water supply, can endanger the health and well-being of consumers. Examples include: treated boiler water, heavy metals, industrial chemicals and pesticides. Non-toxic substances are nuisances or aesthetic hazards that pollute, but do not contaminate potable water; these include food, beverages and debris.

What does “degree of hazard” mean?

Degree of hazard determines whether and to what extent a substance is a toxic, and therefore a “high” health hazard, or a non-toxic, “low” hazard. Both types of substances can make drinking water non-potable. Determining the degree of hazard helps determine the most appropriate type of backflow prevention device to control a cross connection.

What methods or products protect against backflow?

Once the degree of hazard has been determined, the proper backflow prevention device can be installed. Plumbing specialists, working with municipal officials, determine which device or method is best suited to each situation. Some examples are:

- Air gaps
- Vacuum breakers
- Reduced pressure principle backflow preventers
- Double check/dual check valves

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 simple and inexpensive vacuum breaker that can be obtained from hardware stores or plumbing shops.

More information available at
www.eauclairewi.gov