

Keeping Your Water Drinkable

Although the water that reaches your home or business is pure and safe, contamination can occur within your own piping system. This article describes potential water contamination hazards, called *cross connections*, and tells how you can help keep your water safe and drinkable.

Cross Connections are the Culprit

A cross connection is an accident waiting to happen. Any time the potable (drinking) water supply comes in contact with an objectionable or harmful substance, a cross connection is created. For example, placing a hose in a bucket of detergent, or attaching a hose to a sprayer of fertilizer creates a cross connection and a possible health hazard. Cross connections can lead to contamination when a change in pressure within the water supply piping allows the water to flow backwards. This reversal of flow, called *backflow*, can allow contaminated water to flow back into the supply piping, threatening health and safety. Although under normal circumstances the city water supply is pressurized to keep water flowing to your tap, unforeseen circumstances (such as the need to fight a fire) can suddenly change the pressure in the supply piping, allowing the water to siphon back from your tap to the city supply.

Guarding Against Contamination

Most modern water-using fixtures and appliances are made to guard against backflow. Many sinks, toilets, clothes washers and other water-using appliances have built-in backflow prevention features. However, some water-using fixtures and equipment have no built-in backflow prevention features and require added protection. In these cases backflow preventers should be installed to guard against the possibility that contaminated water could flow back into the supply piping. Following are a few common water uses that can create cross connection hazards, and tips for preventing accidental water contamination.

HOSES: Hoses are used in a variety of ways that can create cross connections. Simply placing a hose in a container to mix water with detergent, fertilizer or any other non-potable substance creates a cross connection that can allow the contents of the container to backflow into the water supply. The simplest solution to this hazard is to always avoid placing hoses into non-drinkable fluids. In cases where hose-end attachments like chemical spray applicators and radiator flush kits are being used, the only way to guard against contamination is to install a backflow preventer on the hose connection. Hose-type backflow preventers are available at many local plumbing supply stores. They must be equipped with a break-away set screw.

WELLS: Well supplies are often equipped with a pump that, if connected to the potable piping, can overcome city water pressure and create a backflow. Although wells generally operate at pressures less than the potable water supply, changes in supply pressure, water main breaks, and shut-downs for water system maintenance can cause potable supply pressures to be less than well output pressures. Untreated well water can contain harmful bacteria and other contaminants that can backflow into the drinking water supply. There are two ways to guard against backflow from well supplies: 1) permanently disconnect the well system piping from the piping that carries water from the city water supply; or 2) install an approved backflow preventer on your side of the water meter that supplies water to the well system. For a list of approved backflow preventers, contact your local water supplier (listed at the end of this article).

LAWN SPRINKLERS AND UNDERGROUND IRRIGATION SYSTEMS: Because they are not always under pressure, irrigation systems are subject to ground water infiltration. Fertilizers, pesticides, and other chemicals that are used directly on landscaped areas can flow into the irrigation system piping if the system has a leak or if sprinkler heads are mounted where water pools on the ground. Because of these potential hazards, lawn sprinklers and irrigation systems require backflow prevention as per plumbing code. To find out what type of backflow preventer to use on your system, contact your local water supplier (listed at the end of this article).

POOLS AND SPAS: Chlorine and other chemicals used to keep your pool or spa bacteria free can be hazardous if allowed to backflow into the drinking water system. First, when filling your pool or spa, be sure that the hose end does not touch the water in the pool. Second, install a hose-type backflow preventer on the hose connection serving the pool as per plumbing code. The hose-type backflow preventer must be equipped with a break-away set screw. Additional plumbing requirements may apply depending on what type of pool or spa system you have. Contact your local water supplier (listed at the end of this article) for additional requirements.

HEATING, COOLING AND FIRE SPRINKLER SYSTEMS: Heating, cooling and fire sprinkler systems that use water from the potable supply pose a hazard because water within those systems often sits stagnant for long periods of time or may have chemical additives. Plumbing codes require that these systems be equipped with backflow prevention. For a list of approved backflow preventers or for more information about these systems and cross connections, contact your local water supplier (listed at the end of the article).

What You Can Do

It is impossible to cover all of the information pertaining to cross connections in this article. We hope the preceding information will inspire you to further educate yourself on the hazards of unprotected cross connections.

Like fastening your seat belt or donning a life vest, backflow prevention measures provide protection for events that can happen. Hopefully the backflow preventers you install will never be needed; however, once installed, backflow prevention measures help keep your water drinkable.

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