

# BACKFLOW PREVENTION - FREQUENTLY ASKED QUESTIONS

Water Protection Program fact sheet

11/2014

Division of Environmental Quality Director: Ed Galbraith

PUB2158

## **What is backflow?**

Backflow is the undesirable reversal of flow in a potable water distribution system through a cross-connection. A cross-connection is an actual or potential link connecting a source of pollution or contamination with a potable water supply. Backflow may allow liquids, gases, non-potable water, and other substances, from any source, to enter a public water system.

## **How does backflow occur?**

Backflow may occur due to backpressure or backsiphonage. Backpressure backflow is caused by a downstream pressure that is greater than the upstream or supply pressure in a public water system. Backsiphonage backflow is caused by a reduction in system pressure, which causes a sub-atmospheric pressure to exist in the water system. Backflow through a cross-connection can contaminate the potable water in a building, on a block, or throughout an entire water system.

## **What is backflow prevention?**

Backflow prevention protects public water systems from contamination or damage through cross-connections located in customer facilities. Backflow prevention is typically achieved by placing a backflow prevention assembly between the customer and the public water system. This is called containment backflow prevention.

## **What is a backflow prevention assembly?**

A backflow prevention assembly is a means or mechanism to prevent backflow. Missouri recognizes three types of backflow prevention assemblies: air gaps, reduced pressure principle assemblies, and double check valve assemblies. An air gap is the most basic and positive method and it is a physical separation between the water supply and the customer's internal piping system. A reduced pressure principle assembly is the highest level of mechanical backflow protection. A double check valve is designed for low hazard protection only.

## **Does my water system require backflow prevention?**

Missouri's backflow prevention regulation (10 CSR 60-11.010) applies to all community water systems. These are water systems that serve at least 15 connections or at least 25 people on a year-round basis. Missouri has more than 1,400 community water systems. They serve more than 4.9 million people, almost 90 percent of the state population.

## **Must my home or business have backflow prevention?**

Many businesses must have backflow prevention. Common examples are manufacturing and processing plants, medical facilities, laboratories (including school chemistry and biology labs), processing plants, and buildings that have boilers, fire sprinkler systems, and irrigation systems.

Solely residential facilities can be exempt from the rule unless a specific cross-connection is identified. A few examples of residential cross-connections that need to have a backflow prevention assembly include lawn sprinkler systems, personal swimming pools, and fire sprinkler systems. Call your local water supplier to confirm whether or not backflow prevention is required at your home or business.

## **What kind of backflow prevention assembly is required?**

The type of assembly you need depends on the type of hazard present. Generally, where you have a backflow hazard that may threaten public health you must have an air gap or a reduced pressure principle assembly. Where there is a lesser hazard that may damage the water system or degrade the aesthetic quality of the water, a double check valve assembly is required. A list of the different types of actual or potential hazards (not all inclusive) is included in the backflow regulation, which is available from the Public Drinking Water Branch or on-line at: <http://s1.sos.mo.gov/cmsimages/adrules/csr/current/10csr/10c60-11.pdf>.

Only approved backflow prevention assemblies may be used. If you can find the manufacturer and model number on your assembly you can check with your water supplier to find out if it is an approved assembly. Modifications to an

assembly invalidate the approval. If your assembly looks like it has been altered, get in touch with your water supplier or a certified backflow prevention assembly tester to see if it is an approved assembly.

Water suppliers may have more strict or specific requirements than the state rule. Contact your local water supplier to make sure you have the appropriate backflow prevention assembly to meet local requirements.

#### **Must I have my backflow prevention assembly tested?**

Yes. To ensure the device is functioning properly, a certified backflow tester must test all backflow prevention devices **annually**. For new facilities, the assembly must be tested when installed. If the tester finds the assembly is not working, you must arrange to have it repaired and tested again. It is your responsibility to pay for the test and repairs. The tester is required to provide a copy of the test report to you and the water supplier.

#### **How can I contact a certified backflow assembly tester?**

To obtain a list of certified backflow testers in your area, check the list on the Missouri Department of Natural Resources' website at <http://dnr.mo.gov/env/wpp/backflow/testers.htm>. You can also call your local water supplier or the Missouri Department of Natural Resources.

#### **Does the backflow prevention assembly protect my entire facility?**

No. The required backflow prevention assembly provides containment and it protects the public water system from hazards in your facility. Cross-connections in your own plumbing may allow contaminants to backflow from hazardous processes to drinking water taps in your building.

Backflow prevention applied within a facility to protect drinking water plumbing from process plumbing is called isolation. Isolation backflow prevention is not covered by department rules, but may be required by local plumbing codes. Check with your local code enforcement agencies to see what standards apply to your facility.

#### **What right does the supplier of water have to turn off water to a customer not annually testing their backflow prevention device?**

The supplier of water shall disconnect the public water system from the customer service line serving the facility when the supplier of water has knowledge the customer is failing or refusing to proceed without delay to correct any violations of the rule after being notified to do so. The local governmental authority or the department may also order this because of violation to this rule by the customer.

#### **What are the components of an effective cross-connection control program?**

The first step in preventing backflow incidents is enacting local rules that grant the water supplier the authority to enforce the cross-connection control program. For the water supplier to comply with the state backflow prevention regulations the local rules should include the following provisions:

- A requirement for annual testing of assemblies and inspection of air gaps
- Authority to enter customer premises for purposes of inspection
- Authority to terminate water service for failure to comply
- To notify customers where backflow hazards exist that they must comply with the local rule

Once these customers have been notified, the supplier must maintain records of inspections, exemptions, or installation of assemblies. A local program may not be less stringent than state regulations. Local plumbing codes may require additional backflow prevention devices.

---

**Nothing in this document may be used to implement any enforcement action or levy any penalty unless promulgated by rule under chapter 536 or authorized by statute**

#### **For more information**

Missouri Department of Natural Resources  
Water Protection Program - Public Drinking Water Branch  
P.O. Box 176  
Jefferson City, MO 65102-0176  
800-361-4827 or 573-751-5331  
573-526-1146 fax  
<http://dnr.mo.gov/env/wpp/>