Cross Connection/Backflow Prevention FAQS

1. What is backflow?

Normally, your water supply is under 40 to 80 pounds of pressure when it enters your home or business. On rare occasions, this pressure is interrupted—perhaps by a water main break, a power failure, fire fighters battling a nearby blaze, or some other disruption in water service. When there is a significant loss of pressure, water can flow back into the public water supply system. When water flows backward into the public water supply, it is called "backflow". Backflow can also occur when the customer's water system has a higher pressure than the City of Molalla water system.

In rare instances, backflow can contaminate the public water supply. Contamination occurs when a water supply line is connected to equipment containing a non-potable (unsafe to drink) substance. Such connections are called cross connections and they are dangerous if no protective measures are taken.

In order to prevent this situation from occurring, the City of Molalla has a Cross Connection Prevention Program which requires users of the public water system to install backflow prevention devices to protect the public drinking water distribution system.

2. What is a cross connection?

Any physical or potential connection between a potable water supply and a hazardous material or one of questionable quality. There shall be no such connection without the installation of an approved backflow prevention assembly in accordance to the degree of hazard of the substance involved.

3. Why is it important for water suppliers to prevent backflow?

Backflow into a public water system can pollute or contaminate the potable water in that system (i.e., backflow into a public water system can make the water in that system unusable or unsafe to drink). Water suppliers have a responsibility to provide water that is usable and safe to drink under all foreseeable circumstances. Furthermore, consumers generally have absolute faith that water delivered to them through a public water system is always safe to drink. For these reasons, the City of Molalla must take reasonable precautions to protect its public water system against backflow.

4. Can you show an illustration of how backflow occurs?

Here is an example of how backflow can occur. The supply line to the pressurized boiler at the fertilizer plant was leaking, which allowed chemicals in the boiler to backflow into the water main supplying the fast food restaurant next door. A backflow prevention assembly would have prevented this type of contamination from occurring.

5. Can you give some examples of cross connections?

- A hose is submerged in polluted or contaminated water
- A secondary source of irrigation water (from a well or pond) is pumped into an irrigation system that is directly connected to the potable water supply system
- A heating boiler with treatment chemical added to prevent internal corrosion is connected directly to the water supply for make-up water
- An underground lawn sprinkler system is directly connected to the water supply system
- A fountain or swimming pool has a direct connection with the water system for filling

In all of these examples, a sudden drop in water pressure could draw contaminants – chemicals, fertilizer, soapy water or even bacteria -- back into your pipes and your drinking water supply. Any of these contaminants could be hazardous to your health if ingested.

The best way to prevent this potential contamination is to eliminate the cross connection. This could mean simply making sure that you never leave a hose submerged in a tub of water or that you never apply fertilizer to your lawn with a hose-aspirator device. In some cases (such as the lawn sprinkling system example noted above) the cross connection cannot be eliminated and the only means of protection is by installation of an approved backflow prevention device.

6. What is backsiphonage?

Then there is a sudden reduction in water pressure in the public drinking water distribution system, such as during fire fighting or when a water main breaks, water flow can potentially be reversed. This could create a suction effect, possibly drawing contaminated water into the drinking water system.

7. What is backpressure?

Backpressure is created when the pressure in a private non-drinking water system, such as in a recirculation system containing soap, acid or antifreeze exceeds the pressure in the public drinking water system that it is connected to. This could force contaminated water to enter the public drinking water system.

8. What are some commonly used backflow prevention devices?

Backflow prevention devices are like seat belts; they protect you, your customers, employees and family members from a potential contamination event. If an accident occurred and an unprotected cross connection resulted in contamination of your water

supply, you would be glad that you took the time and trouble to install and maintain a backflow prevention device.

If you have a backflow prevention device on your property, do your part by making sure that your device is tested annually. If repairs are needed, be certain to have those repairs made as quickly as possible. Remember that if the device is repaired or replaced it must be re-tested.

Some common and effective devices installed to prevent backflow are shown below:

Air Gap (AG)

Used mainly on tanks and sinks, it is a gap between the outlet and the basin.

Requirements: The gap needs to be a minimum 2 times the supply pipe diameter.

Hose Bibb Vacuum Breaker (HBVB)

A simple device used to prevent backflow installed on an outdoor faucet.

Pressure Vacuum Breaker (PVB)

Used mainly on lawn irrigation systems. It has a one way check and a spring loaded air inlet valve that closes when water pressure drops.

Requirements: ● No backpressure (from fertilizer injection system or water well) ● 12" above highest sprinkler head ● Protect from freezing

Atmospheric Vacuum Breaker (AVB)

An AVB is a non-testable mechanical backflow preventer with a gravity opening poppet air opening, designed to admit atmosphere into the downstream sides of the unit under a no flow condition to prevent back siphonage. It must be installed 6-inches above highest downstream water discharge. There shall be no valves or reduction of pipe size on its downstream side. (Note: This device is installed on certain equipment that uses potable water by the manufacturer or contracted installer. Examples of this equipment are dishwashers, soap dispensers, faucets and deep sinks, etc.). The type of backflow protection required is based on the degree of hazard that the property represents to the potable water supply.

Reduced Pressure (RP) Principle Assemblies

A reduced pressure principle assembly is a mechanical valve assembly that consists of two internally loaded independently operating check valves and a mechanically independent, hydraulically dependent relief valve located between the check valves. It is used for services that have either health hazards or non-health hazards and under conditions of backpressure or backsiphonage. It provides the highest level of protection among the mechanical backflow prevention devices.

9. How do I know if I need a backflow prevention assembly?

A member of the cross-connection control staff will visit your property to perform a premise survey for backflow requirements. You will receive a letter providing you with guidelines and what action you need to take to ensure compliance with the City of Molalla requirements.

10. Who do I contact if I have questions about backflow prevention?

Contact the City of Molalla
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