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Repairs and Maintenance

Paul Abrams

Forward Thinking for Backflow Prevention

Backflow prevention doesn't have to be a headache

If you're not yet familiar with the term "backflow prevention" as it relates to plumbing, you probably will be—very soon. Shortages of fresh, potable water are causing many municipalities to get serious about protecting their water supplies from the dangers of backflow.

What is backflow? Your potable water supply, which arrives at your home and business via municipal water pipes, flows under pressure in one direction from the meter to the dwelling. Under certain circumstances, water can flow in the opposite direction. That's a no-no, and it is called backflow.

To put it in simplest terms, think of a garden hose connected at one end to a hose bib on the side of a building. The other end is submerged underwater while filling a swimming pool, where the water contains chlorine. In the event of a loss of forward pressure from the city water supply, water from the swimming pool could be siphoned backward into the city water supply, causing the chlorinated water to flow into the drinking water supply. If the same thing were to happen with a sewer line, fecal matter and other hazardous substances would flow into the drinking water.

Preventing Cross Connections

Municipal plumbing inspectors around the country are doing their best to find and eliminate cross connections from the grid. A cross connection is any plumbing connection between pipes that carry drinking water and pipes that carry non-potable water. Examples include steam pipes, boilers and irrigation systems. Ideally, the two types of water shall never meet. But when they do, the risk of contamination is substantial.

What this all means is that most cities or municipalities now require annual backflow inspections and certifications for all businesses. Industrial and commercial establishments tend to use more water than residential customers so they face the greatest scrutiny. At the same time, new home construction is subject to tighter plumbing codes requiring backflow prevention devices that will, over time, substantially lessen the contamination risk from homes.

The Tools for the Job

What happens if an inspection reveals a backflow problem at your place of business? Most municipal codes will require the installation of a backflow assembly device or backflow prevention device at each cross connection point found within your plumbing system. The type of backflow prevention required will depend on the degree of hazard present on the premises.

These devices include a pair of mechanical check valves that will prevent water from flowing back into the water supply. Others use air gap separations, which create a physical break between the supply pipe and the receiving tank. A third type is a reduced pressure zone device, which may also be known as a reduced pressure principle backflow prevention device. This type, which is suitable for highhazard applications, contains multiple check valves but is also equipped with a bypass detector that allows visual inspection of liquid flow. It is chosen instead of an air gap since the head loss across the reduced pressure zone is much smaller.

The cost of these units varies depending on your system and the extent of the backflow problem, but many of the simplest backflow prevention devices cost well under a hundred dollars.

Backflow Culprits

Several factors can cause backflow. Backpressure and backsiphonage are primary culprits.

Backpressure occurs when a drinking water system is connected to another system, such as a boiler or auxiliary water pump, operating at high pressure. Even tall buildings can cause backpressure on a water main since water must be pumped to the highest floors. If the pump fails, gravity contributes significant downward or negative pressure on a water main. If the pressure of the secondary system is greater than that of the municipal water supply, it will force water backward into the municipal water supply unless the cross connection is equipped with a backflow prevention device.

Backsiphonage is caused by negative or reduced pressure in the supply line. This may occur after a water main break, following water main maintenance or if there is an open fire hydrant nearby. We've all seen boil water advisories on the local news in the wake of a water main break. Now you know that it is backsiphonage that causes such concern.

Leave it to the Experts

A certified backflow prevention mechanic will help install your backflow prevention devices. To find such an expert, contact a licensed plumbing contractor and ask if they offer backflow inspections. Be sure to get assurances that they are experienced at installing and maintaining all types of commercial backflow prevention devices. Ensure the person doing the work is a certified backflow mechanic and make certain that the backflow devices conform to all applicable plumbing codes.

Some municipalities conduct all backflow inspections themselves and prohibit outside contractors from getting involved. However, most local water authorities simply set up certification guidelines and leave it to you to hire a technician who has been certified to complete the task in your municipality. Inspections typically take about an hour and can cost as little as \$60 or as much as a few hundred dollars depending on many variables.

In most cases, a knowledgeable full-service plumbing contractor will be able to quickly and reliably solve your backflow problems. Some will even schedule an annual inspection and submit the finished inspection paperwork to the local authorities on your behalf.

In the event that your facility fails a backflow inspection, a properly licensed and certified contractor can quickly make all the necessary repairs and keep your business in good standing with the local water authority.

Considering that municipalities can and will shut off your water supply if backflow inspections aren't completed on time, hiring a qualified certified backflow prevention mechanic to handle the task leaves one less thing for a manager to worry about.

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