

## **Backflow Prevention Solutions for Commercial, Industry, and Research Facilities**

For us to understand what backflow prevention is; we must first look at the definition of a cross-connection in the drinking water system. The AWWA (American Water Works Association) defines a cross-connection as “an actual or potential connection between any part of a potable water system and any other environment that contains substances that, under any circumstances, would allow such substances to enter the potable water system”. This broad definition includes substances such as chemicals, liquids, gasses, or any matter that can contaminate drinking water. Cross connections can exist in any plumbing system. Understanding the need for cross connection control is vital to safe drinking water. Backflow is the reversal flow of substances into the drinking water system. The two types of backflow are backpressure and backsiphonage. Backpressure occurs when the pressure on the consumer side exceeds the pressure on the water supply side resulting in backflow. Backsiphonage is when the supply pressure falls below atmospheric pressure creating a vacuum into the drinking water system. The Town of Blacksburg has an effective cross connection control program to identify cross connections and either eliminate or isolate them with backflow prevention devices.

These terms are important to understand as the drinking water system grows with economic development, industry, and new research and technology facilities. As new facilities and commercial buildings are built; new plumbing is added to our drinking water system. It is prudent to understand the potential hazards of backflow. Some industrial and research facilities use a great deal of water. They may also use chemicals in their processes and labs. Water pumps, cooling towers, air scrubbers, boilers or other types of process equipment create a high hazard when connected to a buildings plumbing system. Some other high hazard uses include restaurants, medical treatment facilities, hospitals, dialysis centers, dentist offices, and craft breweries. There are also medium and low hazard uses such as sprinkler systems and retail stores.

The potential for a backflow event is multiplied by the reality of supply pressure loss. Loss of water supply pressure can be created by fire trucks, hydrant flushing, water line interruptions, leaks, and water main breaks. We must strive to protect against backpressure and backsiphonage by installing backflow prevention devices where these actual or potential cross-connections exist. A backflow prevention device is an in line plumbing apparatus that, when regularly maintained and tested, prevents the backflow of contaminants into the drinking water supply. Commercial uses require at least one type of backflow device which is determined by the actual or potential hazard.

It is a joint responsibility between commercial customers and the Town of Blacksburg to prevent contamination of our drinking water supply. The commercial customer’s responsibilities are proper installation, annual testing and maintenance of approved backflow devices. The Towns’ responsibilities include conducting hazard surveys, making sure all backflow devices are tested annually, and maintaining backflow test reports. If you have questions about installing and maintaining approved backflow prevention devices or any other cross-connection information please call James Higgins, Water Resources Inspector for the Town of Blacksburg at 540-808-9638 or email [jhiggins@blacksburg.gov](mailto:jhiggins@blacksburg.gov).