

Cross Connections

Water distributions systems are designed so that water flows in one direction, from the treatment plant to the customer. Backflow is the undesirable reversal of flow of water or mixtures of water and other liquids or substances into the distribution pipes of the potable supply of water from any source or sources.

Cross-Connections are any unprotected actual or potential connection or structural arrangement between a public or a consumer's potable water system and any other source or system through which it is possible to introduce into any part of the potable system any used water or substance other than the intended potable water. Bypass arrangements, jumper connections or any other temporary or permanent connections through which backflow can occur are considered to be cross-connections.

The pollution can come from your own home. For instance, you're going to spray fertilizer on your lawn. You hook up your hose to the sprayer that contains the fertilizer. If the water pressure drops (say because of fire hydrant use in the town) when the hose is connected to the fertilizer, the fertilizer may be sucked back into the drinking water pipes through the hose. Using an attachment on your hose called a backflow-prevention device can prevent this problem. The North Brookfield Water Department recommends the installation of backflow prevention devices, such as a low cost hose bib vacuum breaker, for all inside and outside hose connections. You can purchase this at a hardware store or plumbing supply store. This is a great way for you to help protect the water in your home as well as the drinking water system in your town!

For higher hazard cross connections backflow devices need to be installed. These are plumbing devices that are attached to a water line that will prevent any other liquids from entering the municipal drinking water system. All of these devices must be tested annually and many of them are tested semi-annually. Backflow device testers must possess a Massachusetts Department of Environmental Protection Tester and Surveyor Certification.

Other examples of where cross connections are typically found are lawn irrigation systems, chemical spray applicators, wells, boilers, solar heat systems, and fire sprinkler systems.

Examples of backflow devices are:

Reduced Pressure Backflow Preventer - Tested semi-annually; maximum protection for higher hazard situations; two spring operated check valves prevent water from reversing direction which can cause backflow and contamination, an atmospheric vent between the check valves.

Double Check Valve - Tested annually; two spring operated check valves prevent water from reversing direction which can cause backflow and contamination. Often times seen on fire sprinkler lines.

Pressure Vacuum Breaker - Tested annually; single check valve, spring loaded atmospheric vent; used on irrigation systems and other lower hazard installations.

Air Gap - Not tested; a physical gap in the piping that would prevent any backflow; gap must be 2 x diameter of pipe. Very effective for all situations, but not always feasible.

If you would like more information on cross connections contact the North Brookfield Water Department or visit this Massachusetts Rural Water Association website, <http://www.mrwa.com/OP-Cross%20Connections.pdf>