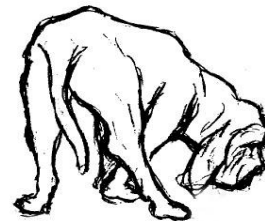


Protecting the Potable Water Supply

The 2012 International Plumbing Code (IPC) Section 608 addresses the design, installation and maintenance of the potable water supply system.

by Lee Clifton, International Code Council, PMG Director of Plumbing Programs



The protection of our potable water supply goes beyond the installation requirement mentioned in Section 608 of the International Plumbing Code®. The pictures shown in this article are good examples of why an effective Cross-Connection Control Program is necessary for the enforcement agency responsible in your local jurisdiction. The standpoint of public health and the potential financial impact of backflow incidents are good reasons to have a program.

Eliminating all cross-connection is an enormous task, one that could require resources beyond the financial capacity of agencies responsible for the many water systems, as well as public health and plumbing inspection departments. Once contamination from a cross-connection occurs, it is likely that one or more persons will suffer some type of loss, e.g., from a minor financial loss to cover the cost of flushing a plumbing system or catastrophic losses such as serious injuries or deaths and potentially more resulting social and economic damages.

The water purveyor's primary responsibility is to protect its distribution from contamination. The responsibility of regulatory authorities is to provide minimum standards to safeguard life or limb, health, property and public welfare by regulating and controlling the design, construction, installation, quality of materials, location, operation and maintenance or use of plumbing equipment and systems. A comprehensive record keeping program is a must for a successful program.

A good Backflow Prevention Program should comply with all regulatory requirements, both federal and state. Section 608.1 of the IPC states that a potable water system shall be designed, installed, and maintained in such a manner so as to prevent contamination from non-potable liquids, solids or gases being introduced into the potable water supply through cross-connections or any other piping connections to the system. Backflow preventer applications shall conform to Table 608.1, except as specifically stated in Section 608.2 through 608.16.10.

Section 312.10 titled "Inspection and Testing of Backflow Prevention Assemblies" may be one of the most overlooked sections of the code. This section requires that, a minimum of an annual inspection be made of all backflow prevention assemblies and air gaps to determine whether they are operable. Testing of reduced pressure principal, double check, pressure vacuum breakers, reduced pressure detectors fire protection, double check detector fire protection, spill resistant vacuum breaker backflow preventer assemblies and hose connection backflow preventers is required at the time of installation immediately after repairs or relocation, and at least annually.

I recently took a walk with Brandy, my bloodhound, in a local park here in California and was surprised to see the amount of backflow devices that were either improperly installed, not maintained or the backflow device was misapplied. Here are a few examples that she sniffed out.



The photo taken above had a pressure vacuum breaker assembly installed on the supply side of a booster pump used for an irrigation system in a local park. The misapplication may also be a good indicator that the device has probably never been tested.



As I continued to walk the trail, we came to a multilevel drinking fountain. The question that comes to mind first is; is this a listed device? As you can see in the photo above there is an air gap. But what prevents contaminated water in the bubbler from entering the water supply in a negative pressure situation? If a water main in the public water system should break, or if a fire occurred and the fire department opened several hydrants, the pressure in the water mains could drop dramatically, causing a reversal of flow.



Even Brandy thought it might be safer to drink out of the creek

These situations are probably not uncommon and the reason why most state regulations require water systems to have a Cross Connection Control Program in place and a Cross Connection Control Specialist on staff for preventing backflow incidents. A quality program consists of inspections to identify actual or potential cross connections, elimination of those cross connections, where possible, by installing the appropriate backflow assembly. A quality program also requires yearly testing of assemblies by a Certified Backflow Assembly Tester.

Cross Connection Control Inspectors help the water user identify hazards associated with backflow and suggest ways to eliminate them or recommend the proper backflow prevention assembly that the local jurisdiction requires.

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