

CROSS CONNECTION INFORMATION

FOR USERS OF THE SOMERSET WATER SUPPLY

This information is provided to educate the users of our water supply system by informing them of what a cross connection is, how they are caused, and how they can be prevented. The Massachusetts Department of Environmental Protection requires that Public Water Suppliers establish programs to educate their users on Cross Connections to a public water supply. This information was formatted using various sources including information obtained from the USEPA, the Massachusetts Department of Environmental Protection and related water suppliers and water supply vendors.

WHAT IS A CROSS CONNECTION?

A Cross Connection is defined as an actual or potential physical connection to the public water supply within a home, business or any other part of the distribution system, which is made to a source or a device containing a source of any material which is “non-potable” or commonly referred to as “not safe for human consumption”. Cross connections may degrade a water supply and cause serious health effects, and may even result in death.

HOW DO CROSS CONNECTIONS OCCUR?

Cross Connections occur when a water supply becomes mixed with or in contact with an agent or substance which is a potential source of contamination. Typical examples are placing a hose submerged in a swimming pool or bucket with cleaners or chemicals within it, or using a water hose type sprayer to apply garden or lawn chemicals. In these situations an outside substance (chemicals in pool water, cleaners in the bucket, or substances in the garden sprayer) may come in contact with the drinking water which is supplied to your home. If a water break occurs in your home or in the distribution system, or there was a large amount of water used to fight a fire which lowers the system pressure, there is the potential for the non-potable water (mixed with the chemicals) to enter the water supply in your home or the water distribution system in the street. This condition is referred to as a “backflow” or “back-siphonage”.

WHERE ARE CROSS CONNECTIONS FOUND?

Cross connections are found in lawn irrigation systems, boilers, fire sprinkler systems, water heaters and many other home and commercial applications. They occur when there is a physical connection to the water supply either temporary or permanent, and if unprotected can allow unsafe contaminants to enter the water supply and be consumed. An ordinary garden hose is the most common cross connection when used as described above. When the hose is attached to a garden sprayer and the other end attached to an outside faucet, chemicals used in the sprayer can be siphoned back into the home plumbing, and even into the water supply system. The use of a hose bibb vacuum breaker installed on the outside faucet will isolate the outside faucet and protect the home water supply. There are also many examples of cross connections found in commercial and industrial facilities where potable drinking water is used in their processes.

HOW CAN CROSS CONNECTIONS BE PREVENTED?

Today there are devices that must be installed to prevent “Backflow” or “Back-Siphonage” conditions from occurring. These devices are commonly referred to as “Backflow Preventers”. These devices are designed to permit the drinking water from the distribution system to flow in one direction only. The required device is determined by state regulations which take into account the hazard associated and the protection needed.

The one method to prevent a cross connection is referred to as an **air gap**.

The air gap is not a device, it is a minimal distance required from the water source to the container which prevents a physical connection from occurring. This is the safest and simplest method to prevent back-siphonage and backflow conditions from occurring. It is used in all hazard levels.

The following is a list of devices which are permitted for use to prevent cross connections from occurring. These devices require plumbing permits and permits from the Somerset Water Department prior to their installation.

Pressure Vacuum Breakers: Are special devices which contain a loaded check valve and loaded air inlet valve. These devices are used for back-siphonage conditions only.

Double Check Valve Assemblies: These devices consist of two independently acting, tightly closing resilient seated check valves in series with testing ports. These devices are usually approved for low to medium hazards. They prevent backflow under back-siphonage and backpressure conditions.

Reduced Pressure Zone Backflow Assemblies: These devices are similar to double check valves, but also contain an independently acting pressure relief valve between the two check valves, which sits lower than the first check valve. These devices protect against back-siphonage and backpressure and are primarily used in high hazard conditions.

WHAT CAN I DO?

As a consumer you are responsible for preventing contaminants from entering our water system. Examine your household plumbing, hire licensed plumbing professionals to install and maintain all backflow prevention devices, and use only those assemblies approved by the MADEP, Massachusetts Plumbing Board, and our local plumbing inspector. Before using chemical garden sprayers make sure your outside faucet has a vacuum breaker installed. Report any illegal fire hydrant use.

Additional information can be obtained at: www.epa.gov/safewater/crossconnection.
www.mass.gov/dep.

If you have any additional questions contact Paul A. Sylvia, Superintendent at # 508 674 4215