

What is a closed system?



In the past, water systems were considered “open”. Water could flow from the water main into the customer’s service line and then into the building plumbing. If pressure conditions changed, water could flow backwards from the customer’s plumbing back into the water system.

Most water utilities now install backflow prevention valves behind the meter in order to keep the water moving one direction—into the customer’s plumbing. This, in effect, creates a “closed” system so that water on a customer’s premises can not flow back into the water distribution system.

A closed system protects the water customers by reducing the chances that water from one private property can flow to other water consumers.

For more information on thermal expansion and backflow prevention, check out the following websites:

<http://www.epa.gov/safewater/crossconnectioncontrol/index.html>

www.abpa.org

<http://www.treeo.ufl.edu/backflow>

Carroll County Water Authority

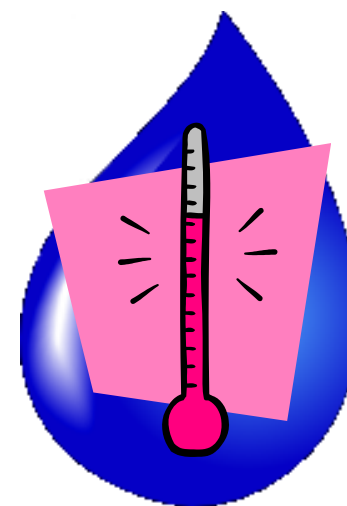
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Carroll County Water Authority

Thermal Expansion



**How you can
protect your
plumbing.**

What is Thermal Expansion?

When heated, water will expand to a larger volume. This in turn can lead to a pressure increase inside the pipes. If the system has been closed with a one-way backflow prevention valve behind the water meter, the pressure is trapped inside of the pipes until someone opens a faucet or flushes a toilet.

This rise in pressure can potentially stress pipes and water-using appliances. For some homeowners, this may produce leaky faucets or cause the relief on the water heater (T&P relief) to discharge.

Thermal expansion is nothing new. In fact, thermal expansion has been addressed by the plumbing codes for several years. While many homes may be protected against thermal expansion, many more may not. If you aren't certain if you are protected, contact CCWA or your local plumber for more information.

How Do I Protect My Plumbing?

Several different devices can be installed on your plumbing system to control thermal expansion. One type is a pressure relief valve that is installed on the cold water line supplying the water heater. Another type of pressure relief replaces the fill valve in your toilet and bleeds extra pressure into the toilet tank.

The most common type of thermal expansion protection is the expansion tank (see diagram below). This tank

utilizes a flexible diaphragm and an air chamber to control pressure increases. Higher pressure in the pipes will compress the air cushion. When a valve in the plumbing is opened, the air chamber resets itself to prepare for the next pressure increase.

While CCWA may have installed a backflow prevention valve behind your meter, ensuring that the plumbing system is in compliance with the current plumbing codes is the responsibility of the property owner.

