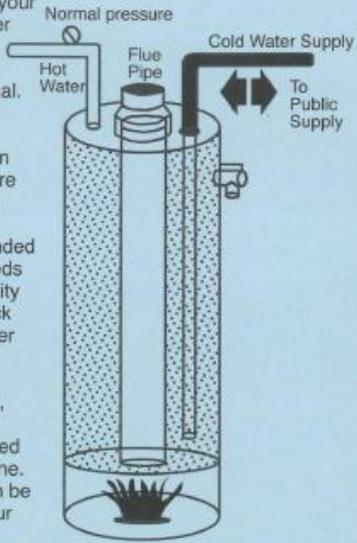
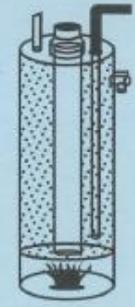


1 As the temperature of the water in your hot water heater rises, the water expands. For example, in a 40 gal. heater, water may expand to 40.53 gallons when desired temperature is reached. This is called **thermal expansion**. Expanded water which exceeds the heater's capacity normally flows back into the public water system unless a pressure reducing valve, check valve, and/or backflow preventor is installed in the cold water line. These devices can be installed inside your home and/or the City's meter pit.

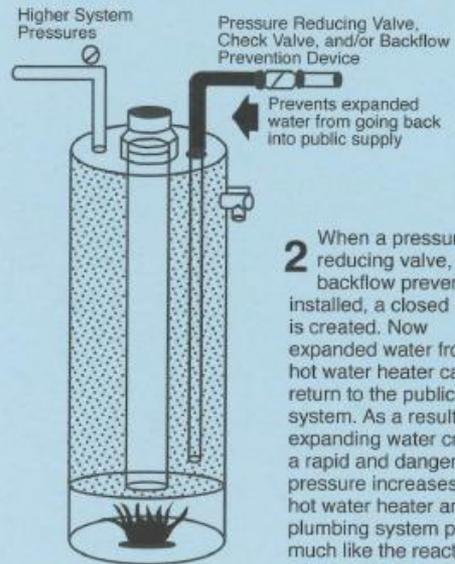


THERMAL EXPANSION

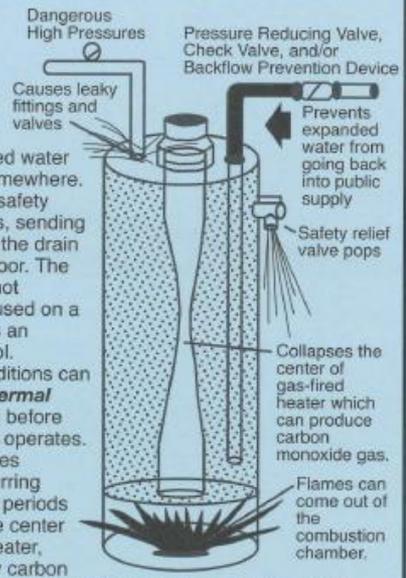


Information you need to know about hot water heaters & pressure reducing valves, check valves, and backflow prevention devices

2 When a pressure reducing valve, and/or backflow preventor is installed, a closed system is created. Now expanded water from the hot water heater cannot return to the public water system. As a result, the expanding water creates a rapid and dangerous pressure increase in the hot water heater and plumbing system piping, much like the reaction of a hydraulic ram.



3 The expanded water has to go somewhere. Usually, the safety relief valve pops, sending hot water down the drain or all over the floor. The safety valve is not intended to be used on a regular basis as an operating control. Dangerous conditions can exist during **thermal expansion** long before the safety valve operates. Internal pressures repeatedly occurring during recovery periods can collapse the center of a gas-fired heater, (creating deadly carbon monoxide gas), create leaking fittings and valves, create flameout condition, can cause the heater to explode, can accelerate tank leakage, and shorten the life of the tank.



4 The best solution to **thermal expansion** is to control the pressure it generates within normal, safe operating range, well below the emergency setting of the relief valve. This will allow **thermal expansion** to occur, without causing a dangerous increase in pressure.

There are several methods of controlling **thermal expansion**:

- lower the temperature on the water heater thermostat
- install a **thermal expansion** tank
- install an **anti-siphon ballcock** with auxiliary relief valve that relieves excessive pressures into the toilet tank

Contact your local plumber or plumbing inspector for the proper solution and installation.

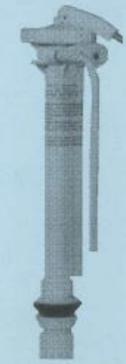
For more information, contact

City of Florence Public Services Department

859-647-5416



THERMAL EXPANSION TANK



ANTI-SIPHON BALLCOCK