Important information regarding Thermal Expansion, Thermal Expansion Tanks, And Ball Cock/Thermal Expansion Relief Valves

WARNING!

WHAT IS THERMAL EXPANSION?

Most homes are supplied with hot water from an electric or gas tank hot water heater. Water heaters are installed with a Temperature and Pressure Valve, also known as a T&P. The T&P is designed to relieve excessive water temperature or pressure. If the thermostat in a hot water heater becomes defective and allows the water temperature to increase to more than 212 degrees F, and if the T&P valve fails, your water can become "superheated". "Superheated" (scalding hot) water which cannot expand into the main water line and can cause water heaters to explode or can allow scalding steam to be released from faucets. This condition is rare, because for it to actually happen the hot water heater thermostat and the T&P valve must both malfunction simultaneously. However, **the potential hazard does exist when a closed water system is created by the installation of a Backflow Assembly at the water service meter (to your home or business)**.

Why Are Backflow Assemblies Required?

Backflow Assemblies are required in Banks to protect the healthy quality of our potable drinking water supply against contamination at Cross Connections.

What Is A Cross Connection?

A cross connection is a point in the plumbing system where the public potable water supply from the City of Banks Water Utility is connected, or has the potential of being connected, directly to a source of non-potable substances. When this occurs, it is called a backflow intrusion. When such an intrusion occurs, pollutants or contaminants can enter the city's potable water system through these direct unprotected connections. Cross connections are incorrectly installed every day, because people are unaware of the problems they can create. This is why a plumbing permit is required for most changes to a water system. Cross connections have the potential to contaminate the city water supply and cause serious health problems for all water customers.

What Are Some Common Cross Connections

Some of the most common cross connections are:

- Water hoses submerged in any non-drinkable substance
- Irrigation systems (sprinklers)
- Auxiliary water supplies (i.e. wells, streams)
- Hot Tubs
- Boilers
- Photo developing equipment
- Chemical injectors
- Radiator flushing
- Portable dialysis machines
- Livestock watering troughs
- Swimming pools
- Solar systems
- Fire sprinkler systems
- Garden hose chemical aspirators

Thus, backflow devices are required on water systems that have actual or potential cross connections.

HOW CAN I PROTECT AGAINST THERMAL EXPANSION?

Protection against thermal expansion is provided by the installation of a thermal expansion tank along with a T&P Valve at the top of a hot water heater. The T&P Valve is the primary safety feature for the hot water heater and comes already installed on each new heater. The temperature portion of the T&P Valve is designed to open and vent water to the atmosphere whenever the water temperature reaches approximately 210 degrees F (99 degrees C). Atmospheric venting allows cold water to enter the hot water heater. The thermal expansion tank (secondary safety feature) controls any increased pressure generated within the normal operating temperature range of the hot water heater. This small tank is equipped with a sealed compressible air cushion automatically providing a space to store and hold additional expanded water volume if necessary. It is designed to absorb the increased volume of water created by thermal expansion and to maintain balanced pressure throughout the potable water system. The tank is not normally part of the water heater and is installed as an add-on.

Is There Any Additional or Alternative Protection against Thermal Expansion?

A Governor 80-M1 (Ball Cock and Thermal Expansion Relief Valve), may be installed in lieu of a potable water expansion tank. Some homes in Banks were originally built with Governor 80-M1 valves on a toilet in the home but may have been (incorrectly) removed because they tend to be "noisy". If that is the case in your home, you have a safety hazard.

What Is A Governor 80-M1 (Ball Cock and Thermal Expansion Relief Valve)?

A Governor 80-M1 is a triple purpose product. It is, first, a toilet tank ball cock fill valve, second, an anti-siphon backflow preventer and, third, a thermal expansion pressure relief valve; all in one. It limits and governs the domestic water system's preset static pressure to 80psi as required by the plumbing code. It protects the T&P valve on the hot water heater from unnecessary relief discharge, reserving it for true emergencies. It reduces the need to use a more expensive thermal expansion tank, or an auxiliary relief valve requiring a drain line.

It is estimated that time & materials charges for installation of a Thermal Expansion Tank are approximately $150-$200. It is also estimated that time & materials charges for installation of a Governor 80-M1 are approximately $125-$175. Please note: Commercial Plumbers should be consulted for domestic or commercial plumbing installation services, as the Banks Water Utility does not work on water systems on the private side of the water service meter.

REMEMBER, IF YOU HAVE A BACKFLOW ASSEMBLY (DEVICE) ON YOUR WATER SYSTEM YOU MUST HAVE A THERMAL EXPANSION PROTECTION DEVICE INSTALLED

The City of Banks Water Utility would like to encourage all property owners to perform a quick inspection to ensure that either a Thermal Expansion Tank or a Governor 80-M1 is installed, and that a T&P valve is in place. If there is any doubt, you should contact a licensed plumber immediately.

If you have any questions regarding the information provided in this flyer, please contact the City of Banks at (503) 324-5112, or visit our website at www.cityofbanks.org

Thank you.