

Backflow Prevention & Thermal Expansion Control

For public health and safety reasons, every customer in the Norridgewock Water District is required to install a backflow prevention device.

Under normal conditions, high pressure prevents contamination from entering the distribution system. Main breaks or other events can cause pressure drops that create a vacuum which may allow contaminants to enter from unprotected homes or businesses. This occurrence is referred to as backflow.

Installation of backflow prevention devices within the consumer's water supply system prevents thermally expanded water from flowing from the premises into the distribution system. Normally, as water is heated and expands, it would back up through the service line into the main if no usage was occurring.

When the water heater is operating, water is expanding and pressure is increasing, much like heating water on the stove in a pot with a lid on it. The lid eventually begins to jump up and down to relieve the pressure. Thermal expansion in a closed plumbing system (the pot) under no-flow conditions, may cause the emergency temperature and pressure (T&P) relief valve (the lid) to open and close frequently, which could reduce the life of plumbing fixtures and piping.

The T&P relief valve is an emergency relief valve, not an operating control valve. If the T&P relief valve is used frequently, its useful life will be shortened, and it could cease to function. Unchecked thermal expansion can cause damaging stress and strain to water heaters, solenoid valves, O-rings, float valves, pump seals, and plumbing fixtures or fittings.

Generally, 80 psi is the maximum pressure under no-flow conditions to which most fixtures, appliances, or appurtenances should be subjected.

Where thermal expansion is a problem, the following devices could be installed:

- A bladder or diaphragm-type expansion tank;
- An auxiliary pressure relief valve;
- An anti-siphon ball cock with auxiliary relief valve in the toilet tank, set at 80 psi.

The expansion tank is the most common. The last two may result in increased water usage. *Most people should contact their plumber for advice concerning thermal expansion.*

Installation of these devices should be in strict accordance with the manufacturer's instructions and the Maine State Plumbing Code.