

Thermal Expansion at Home

Phil Luther

What is Thermal Expansion?

Thermal expansion is a serious plumbing issue. However, numerous people aren't conscious of this distinctive concern because many homes aren't at risk. While, a lot of homes which might be in danger of developing this plumbing issue aren't adequately covered mainly because code specifications are frequently not enforced appropriately for older residences. Water particles do not shrink when met with pressure or cold, however they do expand when heated up. In fact, water will be able to expand by 1 / 2 a gallon or over in a 40 gallon water heater tank. This expansion may cause significant problems in a home which utilizes a closed plumbing system. Thermal expansion may result in worn out seals, broken solenoid valves, and bursted pipes. Thermal expansion will also reduce the life span of ones water heater and, if making use of a gas or propane fueled water heater, may cause the water heater flue to collapse producing a carbon monoxide leak. It's important to know if your property employs a closed plumbing system and, if it does, the precautions to take to protect the home from thermal expansion problems.

How to Know if Ones Property is at Risk



A property is vulnerable to thermal expansion troubles in cases where there is a closed plumbing system, as opposed to an open system. In an open plumbing system, water within pipes might exit into the city water main via a supply line if taps aren't being used. On the other hand, in a closed plumbing system water has absolutely no way of leaving the property. Closed systems have one of either a pressure reducing valve, backflow prevention valve, or a recirculating pump with a check valve. These valves are used to reduce backflow of water. Closed systems are great if the backflow from the home could contaminate the water supply. If your residence does use a closed plumbing system but you have already been taking precautions against thermal expansion issues and your T&P

valve is dripping, you could have thermal expansion complications. The temperature and pressure relief valve can be found on the water heater, and is a small lever which opens immediately if the temperature or pressure in the tank is over a predetermined setting. The usual setting is 150 psi or 210 degrees fahrenheit. The T&P valve is an emergency valve and is not meant to be put to use consistently. If it leaks, you really should exchange it as soon as possible. Although, in the event it continues to leak, it could be a sign of thermal expansion troubles.

Safeguarding One's Home from Thermal Expansion Problems

There are two main ways to avoid [thermal expansion](#) troubles. When a closed plumbing system is implemented, a thermal expansion device is required by [Uniform Plumbing Code](#). An expansion tank is the standard solution. An expansion tank links to the water heater tank and gives water overflow another area to go. There are two separate chambers in the expansion tank, one for air and one for water. Air is pumped in the expansion tank to correspond with the pressure of the water. Whenever the water is heated, if it expands too much, it is able to overflow in the tank. As soon as it has cooled down or expanded to its maximum potential, the air in the expansion tank forces the water back in the water supply.

Given that the air getting pumped in an expansion tank has to coordinate the pressure in the water supply, it's crucial that expansion tanks be pressurized appropriately. One can find detailed manufacturer's directions for expansion tanks and it is very important to go by the directions precisely. To examine the pressure of one's water, simply use a water pressure gauge on the water coming out of any spigot, and one can examine the pressure of the tank by utilizing a tire air gauge. In cases where the pressure is too low in the expansion tank, water will enter too easily, and when the pressure is too high water will not be able to get in easily enough.

Expansion tanks usually have a maximum pressure of 150 psi and are sized based upon the capacity of the water heater tank along with the inbound water supply pressure. It will be important to ensure you have the accurate proportions for both before getting an expansion tank.



One can test the expansion tank's efficiency anytime the water heater is not heating water. This is conducted by simply knocking on the tank using your fist, a coin, a key or any other sort of light-weight tapping device. It should sound generally empty and echo a little, however if you are observing a brief noise that resembles a thud, the tank may have water in it. Confirm if there is, in fact, water inside the tank by taking off the cap protecting the air valve. This cap resembles the ones seen on bike tires and car tires. Press down on the pin to find out if air or water comes out. In the event that air comes out, everything is fine, however, if water comes out you might need a new tank. Whenever the rubber splitting up the air chamber from the water chamber has been damaged, water will fill the air chamber, in which case, you will want to exchange the tank. If, while pressing the pin nothing happens, no water or air comes out, the tank might not have enough air inside it. This can throw off the pressure balance within the tank. To be able to solve this problem, refer to the manufacturer's instructions and use an air compressor to refill the air chamber.

Expansion tanks have to be maintained each year. Water heaters also have to be serviced each year, for that reason it might seem sensible to carry out the two servicing duties simultaneously.

Another way to protect your property from thermal expansion are valves with discharge outlets. These discharge outlets drain the extra water that the plumbing can not hold. Toilet fill valves also are a wonderful precautionary

measure. These valves drain water in the toilet tank in case the water expands too much.

If perhaps you have a closed plumbing system and you already have an expansion tank, that is awesome! Still, don't forget to have the expansion tank along with your water heater checked out yearly. Still uncertain regarding what type of plumbing system is at your home? Find out asap! Regardless if you have carried out safeguards in the house, thermal expansion complications can happen. Give Water Heater Repair Eugene OR a call today to learn more about keeping your residence protected against thermal expansion problems.