

Thermal Expansion at Home

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What is Thermal Expansion?

Thermal expansion is a serious plumbing problem. But, many people are not aware of this unique issue because many homes aren't in jeopardy. However, a lot of residences which are at risk of acquiring this plumbing problem are not adequately protected because code specifications in many cases are not enforced properly for older properties. Water particles will not compress when met with pressure or cold, although they can enlarge when heated. In fact, water will be able to expand by half a gallon or more in a 40 gallon water heater tank. This expansion can produce serious concerns in a home that employs a closed plumbing system. Thermal expansion might result in depleted seals, damaged solenoid valves, and ruptured pipes. Thermal expansion could also reduce the life span of ones water heater and, if working with a gas or propane powered water heater, might cause the water heater flue to break producing a carbon monoxide leak. It's critical to know whether or not your property employs a closed plumbing system and, if it does, the measures to take to safeguard the property from thermal expansion issues.

How to Know if Ones House is at Risk



A property is vulnerable to [thermal expansion](#) troubles in cases where there is a closed plumbing system, rather than an open system. In an open plumbing system, water within pipes can exit into the city water main via a supply line if taps are not in use. But, in a closed plumbing system water has no way of exiting the property. Closed systems have either a pressure reducing valve, backflow prevention valve, or a recirculating plump with a check valve. These valves are employed to stop backflow of water. Closed systems can be awesome if the backflow from the property could contaminate the water supply. If your home does employ a closed plumbing system but you have been taking precautions against thermal expansion problems and your T&P valve is leaking, you might have thermal expansion complications. The temperature and pressure relief valve is found on the water heater, and is a small

lever which opens instantly if the temperature or pressure inside 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 isn't intended to be used consistently. If it leaks, you should exchange it as soon as possible. Though, in cases where it continues to leak, it can be indicative of thermal expansion troubles.

Safeguarding One's Home from Thermal Expansion Issues

There are 2 primary ways to prevent thermal expansion complications. Anytime a closed plumbing system is put in place, a thermal expansion device is required by [Uniform Plumbing Code](#). An expansion tank is the standard choice. An expansion tank connects to the water heater tank and gives water overflow another place to go. There are 2 independent chambers in the expansion tank, one for air and one for water. Air is pumped in the expansion tank to match the pressure of the water. Whenever the water is heated, if it expands too much, it can overflow into the tank. Once it has cooled down or expanded to its maximum, the air within the expansion tank pushes the water into the water supply.

Given that the air getting pumped into an expansion tank must match up with the pressure in the water supply, it's vital that expansion tanks be pressurized accurately. There are comprehensive manufacturer's directions for expansion tanks and it is really important to go by the guidelines exactly. To examine the pressure of the water, simply use a water pressure gauge on the water coming out of any faucet, and one may test the pressure of the tank by utilizing a tire air gauge. When the pressure is too low in the expansion tank, water will enter too easily, and in cases where the pressure is too high water will not be able to get in easily enough.

Expansion tanks commonly have a maximum pressure of 150 psi and are sized depending on the capacity of the water heater tank together with the inbound water supply pressure. It will be very important to make sure that you have the proper measurements for both before buying an expansion tank.



One can determine the expansion tank's efficiency whenever the water heater isn't heating up water. This is carried out by merely tapping about the tank using your fist, a coin, a key or any other kind of light-weight tapping device. It ought to sound mostly empty and echo slightly, however if perhaps you are observing a shorter sound that resembles a thud, the tank could have water inside. Confirm if there is, actually, water inside the tank by removing the cap protecting the air valve. This kind of cap is similar to the ones seen on bike tires and auto tires. Push down on the pin to observe if air or water comes out. In the event that air comes out, everything is fine, however, if water comes out you may need a different tank. Whenever the rubber separating the air chamber from the water chamber has been damaged, water could fill the air chamber, in which case, you will have to exchange the tank. If, while pressing down the pin nothing happens, no water or air comes out, the tank might not have enough air inside it. This will throw off the pressure equilibrium within the tank. To be able to resolve this situation, make reference to the manufacturer's directions and use an air compressor to refill the air chamber.

Expansion tanks must be maintained yearly. Water heaters also need to be serviced each year, so it might make sense to complete both servicing projects simultaneously.

An additional way to protect your home from thermal expansion are valves with discharge outlets. These kinds of discharge outlets drain the extra water that the plumbing is unable to store. Toilet fill valves are also a great precautionary measure. These valves drain water into the toilet tank if the water expands too far.

If perhaps you employ a closed plumbing system and you already have an expansion tank, that is wonderful! But, be sure to have the expansion tank together with your water heater inspected once a year. Still not sure regarding what type of plumbing system is at your home? Find out asap! Even when you have put in place safeguards in the home, thermal expansion issues can occur. Give Water Heater Repair Cypress TX a call today to find out more about keeping your residence protected against thermal expansion issues.