

Thermal Expansion at Home

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What is Thermal Expansion?

Thermal expansion is a major plumbing issue. However, numerous property owners are generally not conscious of this unique issue because a lot of homes are not in jeopardy. However, a lot of homes that are in danger of developing this plumbing problem are not properly safeguarded because code requirements are frequently not enforced adequately for older residences. Water particles do not decrease when faced with pressure or cold, but they can enlarge when heated up. In fact, water may expand by half a gallon or over in a 40 gallon water heater tank. This expansion might lead to significant problems in a residence that makes use of a closed plumbing system. Thermal expansion can bring about depleted seals, damaged solenoid valves, and bursted pipes. Thermal expansion may also shorten the life expectancy of ones water heater and, if employing a gas or propane powered water heater, may cause the water heater flue to collapse creating a carbon monoxide leak. It's crucial to find out whether or not your residence employs a closed plumbing system and, if it does, the precautions to take to safeguard the property from thermal expansion problems.

How to Know if Ones Property is at Risk



A property is vulnerable to [thermal expansion](#) issues in cases where there is a closed plumbing system, as opposed to an open system. In an open plumbing system, water inside pipes can exit into the city water main via a supply line if fixtures aren't being used. But, in a closed plumbing system water has no chance of leaving the home. Closed systems have one of either a pressure decreasing valve, backflow prevention valve, or a recirculating pump with a check valve. These valves are used to prevent backflow of water. Closed systems can be great if the backflow from the home can contaminate the water supply. If your house does make use of a closed plumbing system and you

have already been taking precautions against thermal expansion problems and your T&P valve is leaking, you might have thermal expansion issues. The temperature and pressure relief valve is positioned on the water heater, and is a small lever which opens automatically if the temperature or pressure inside of the tank is over a predetermined setting. The normal setting is 150 psi or 210 degrees fahrenheit. The T&P valve is an emergency valve and isn't intended to be used frequently. If it leaks, you should replace it promptly. Although, in cases where it continues to leak, it can be an indicator of thermal expansion problems.

Safeguarding One's Home from Thermal Expansion Problems

There are 2 primary ways to avoid 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 common method. An expansion tank attaches to the water heater tank and gives water overflow another area to go. There are two independent 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. When the water is heated up, if it expands too much, it is able to overflow in the tank. Once it has cooled off or expanded to its maximum, the air inside the expansion tank forces the water into the water supply.

Since the air being pumped in an expansion tank must match the pressure in the water supply, it is crucial that expansion tanks be pressurized correctly. One can find detailed manufacturer's directions for expansion tanks and it is actually really critical to follow along with the instructions precisely. To test the pressure of one's water, simply use a water pressure gauge on the water coming out of any faucet, and one could examine the pressure of the tank by applying a tire air gauge. In case the pressure is too low in the expansion tank, water will enter too easily, and if 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 as well as the incoming water supply pressure. It's essential to ensure that you have the appropriate measurements for both before buying an expansion tank.



One can check the expansion tank's efficiency whenever the water heater is not heating up water. This is accomplished by simply tapping about the tank with your fist, a coin, a key or any type of light tapping equipment. It ought to sound mainly hollow and echo a little, however if perhaps you are noticing a brief noise that resembles a thud, the tank may have water in it. Verify if there is, in fact, water in the tank by taking off the cap protecting the air valve. The cap looks like the ones found on bicycle tires and car tires. Touch down on the pin to find out if air or water comes out. In the event air comes out, everything is good, but, if water comes out you may need a new tank. Whenever the rubber splitting up the air chamber from the water chamber has deteriorated, water can fill the air chamber, in which case, you are going to have to replace 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 could throw off the pressure balance within the tank. In order to take care of this situation, refer to the manufacturer's guidelines and utilize an air compressor to fill up the air chamber.

Expansion tanks have to be serviced each year. Water heaters also have to be maintained each year, for that reason it would seem sensible to complete both servicing projects at the same time.

One more way to safeguard your house from thermal expansion are valves with discharge outlets. These discharge

outlets drain the excess water that the plumbing is not able to hold. Toilet fill valves also are a great precautionary measure. These valves drain water into the toilet tank if the water expands too much.

If perhaps you use a closed plumbing system and you presently have an expansion tank, that is great! Still, be sure to have the expansion tank together with your water heater checked out every year. Still not sure regarding what kind of plumbing system is at your house? Find out as soon as possible! Even when you have implemented safeguards in the home, thermal expansion matters may appear. Call Water Heater Repair Tulsa today to learn more about keeping your property secured against thermal expansion troubles.