

Thermal Expansion at Home

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Exactly What is Thermal Expansion?

Thermal expansion is a major plumbing issue. However, a number of property owners are not aware of this unique issue because many homes are not in danger. Though, a lot of properties which might be in danger of developing this plumbing issue aren't sufficiently protected because code specifications are usually not enforced appropriately for older houses. Water particles do not compress when facing pressure or cold, but they can expand when met with. In fact, water can expand by 1 / 2 a gallon or over in a 40 gallon water heater tank. This expansion can bring about major problems in a residence which employs a closed plumbing system. Thermal expansion may result in worn out seals, damaged solenoid valves, and bursted pipes. Thermal expansion could also shorten the life expectancy of ones water heater and, if working with a gas or propane powered water heater, may cause the water heater flue to collapse creating a carbon monoxide leak. It is critical to find out whether or not your home utilizes a closed plumbing system and, if it does, the steps to take to protect the home from thermal expansion issues.

How to Know if Ones House is Vulnerable



A home is in danger of thermal expansion problems when there is a closed plumbing system, as opposed to an open system. In an open plumbing system, water inside pipes may exit into the city water main through a supply line if fittings aren't being used. However, in a closed plumbing system water has no chance of exiting the home. Closed systems have one of either a pressure reducing valve, backflow prevention valve, or a recirculating plump with a check valve. These valves are used to prevent backflow of water. Closed systems are great if the backflow from the property could contaminate the water supply. If your residence does make use of a closed plumbing system but you are taking precautions against thermal expansion problems and your T&P valve is leaking, you may have thermal expansion troubles. The temperature and pressure relief valve is located on the water heater, and is a smaller

handle that opens instantly if the temperature or pressure inside of the tank is above a fixed setting. The normal setting is 150 psi or 210 degrees fahrenheit. The T&P valve is an emergency valve and is not designed to be utilized frequently. If it leaks, you should really swap it right away. Though, in case it continues to leak, it may be an indication of thermal expansion troubles.

Safeguarding One's Home from Thermal Expansion Problems

There are 2 primary solutions to avoid [thermal expansion](#) complications. Whenever a closed plumbing system is implemented, a thermal expansion device is required by [Uniform Plumbing Code](#). An expansion tank is the regular 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 into the expansion tank to match the pressure of the water. Anytime the water is heated, if it expands a lot, it can overflow in the tank. Once it has cooled off or expanded to its maximum, the air within the expansion tank forces the water into the water supply.

Because the air getting pumped in an expansion tank must match up with the pressure in the water supply, it's critical that expansion tanks be pressurized properly. One can find comprehensive manufacturer's guidelines for expansion tanks and it's incredibly important to adhere to the instructions exactly. To test the pressure of the water, just use a water pressure gauge on the water coming out of any tap, and one can examine the pressure of the tank by using a tire air gauge. In case the pressure is too low in the expansion tank, water could get in too easily, and in case the pressure is too high water is not going to be able to enter easily enough.

Expansion tanks typically have a maximum pressure of 150 psi and are sized according to the capacity of the water heater tank in addition to the inbound water supply pressure. It will be important to ensure that you have the proper proportions for both prior to buying an expansion tank.

One may examine the expansion tank's efficiency whenever the water heater isn't heating up water. This is carried out by merely tapping on the tank with your knuckles, a coin, a key or any other type of gentle tapping device. It should sound mainly hollow and echo slightly, although in case you are observing a short noise that is similar to a kind of thud, the tank could have water inside it. Determine if there is, actually, water inside the tank by removing the cap protecting the air valve. The cap is similar to the ones seen on bicycle tires and automobile tires. Press down on the pin to observe if air or water comes out. If air comes out, everything is fine, however, if water comes out you could need a different tank. If the rubber separating the air chamber from the water chamber has become weak, water could fill up the air chamber, whereby, you will need to replace the tank. In cases where, while pressing down the pin nothing happens, no water or air comes out, the tank might not have sufficient air inside. This could throw off the pressure balance within the tank. To be able to take care of this issue, refer to the manufacturer's guidelines and use an air compressor to fill up the air chamber.

Expansion tanks must be maintained each year. Water heaters also have to be serviced annually, so it would seem sensible to perform both servicing tasks simultaneously.

An additional way to safeguard your property from thermal expansion are valves with discharge outlets. These discharge outlets drain the extra water that the plumbing is not able to store. Toilet fill valves may also be a great precautionary measure. These valves drain water in the toilet tank in case the water expands too far.



If you have a closed plumbing system and you presently have an expansion tank, that's awesome! But, make sure to have the expansion tank as well as your water heater checked out annually. Still unsure regarding what sort of plumbing system is at your home? Find out asap! Even if you have carried out safeguards in the home, thermal expansion complications can occur. Give Water Heater Repair Spring TX a call today to find out more about keeping your residence secured against thermal expansion problems.