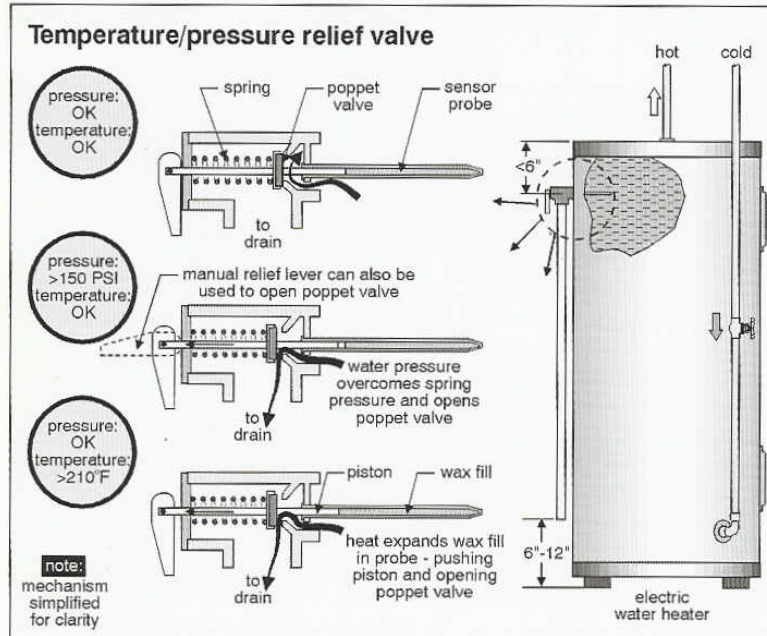


# TEMPERATURE PRESSURE RELIEF VALVES

By Hy Naiditch, ACCUspect Home Inspection Services, Inc., Skokie, IL



I have many times seen a 30,000 BTU valve installed on a 45,000 BTU water heater, or even worse, a 150,000 BTU boiler.

When inspecting the valve verify that the discharge diameter is not reduced. I often note the 3/4" discharge on the TPRV is reduced to 1/2". If this valve has to open and vent the tank, the reduced diameter may impair its proper operation.

The bottom of the relief tube should terminate between 6-12" from the floor. Verify that it is made from approved materials. PVC piping is not approved. Only plastic tubes that are stamped "For use on T&P relief valves with up to 100,000 BTU rating" are permitted. Relief tube made from PVC pipe may melt and close up or spray scalding water.

It is important to educate the Buyer on flushing out the TPRV. Opening the lever and flushing it out yearly can prevent mineral deposits from adhering to the valve and preventing its operation. I know it is tempting for us zealous Inspectors to demonstrate the flushing of the valve, but word of caution...don't! On occasion the valve will not reseal itself and will leak.

On the subject of leaking, verify that the bottom of the discharge tube is not threaded. If the TPRV starts to leak, it is too tempting for Mr. Happy Homebuyer to fix the leak by installing a cap on the leaking discharge line.

We all know the importance of the Temperature Pressure Relief Valve. We've seen the pictures and heard the stories of these devices failing and sending water heaters through roofs at great distances. We know of their importance, but do we really know how to inspect these potentially life saving devices?

For those of you that noticed in the photo the inlet to the boiler being rusty, and the missing discharge tube, you are partially correct. For those really astute inspectors who noticed that the valve was not directly in the boiler, but hanging out 2" from the boiler and not measuring the boiler's true pressure...hats off to you. (This is primarily important in water heaters.) Those Master Inspectors that noticed the arrow on the PRV going the wrong direction/into the boiler, should deservedly take a bow. Should the boiler's limit switch fail, this cast iron boiler could potentially blow up.

In most homes, there are two different types of "relief valves" that we observe. (Note the word "test" is omitted in this case. We as inspectors cannot test the TPRV, and verify that it will open at its designed rating.) The

first valve we typically see is a two-in-one valve located on the water heater. This Temperature Pressure Relief Valve opens at 210 degrees F and 150psi. We know water at standard atmospheric pressure (14.7psi) will boil at 212 F. Beyond this point the water will expand in the tank, and the now pressurized water will superheat beyond 212 degrees F. Prior to this, the valve should activate and open to relieve the tank's pressure.

The second valve is the Pressure Relief Valve (not temperature activated). These valves can be found on hot water and steam boilers. Most Pressure Valves on hot water boilers will be rated at 30psi. (low pressure systems) The even lower pressure steam boilers PRV will be rated at 15psi. Verify that the right PRV's have been installed.

In both TPRV and PRV it is imperative that the BTU discharge capacity that is noted on the valve nameplate is HIGHER than the BTU INPUT rating on the boiler/water heater.

