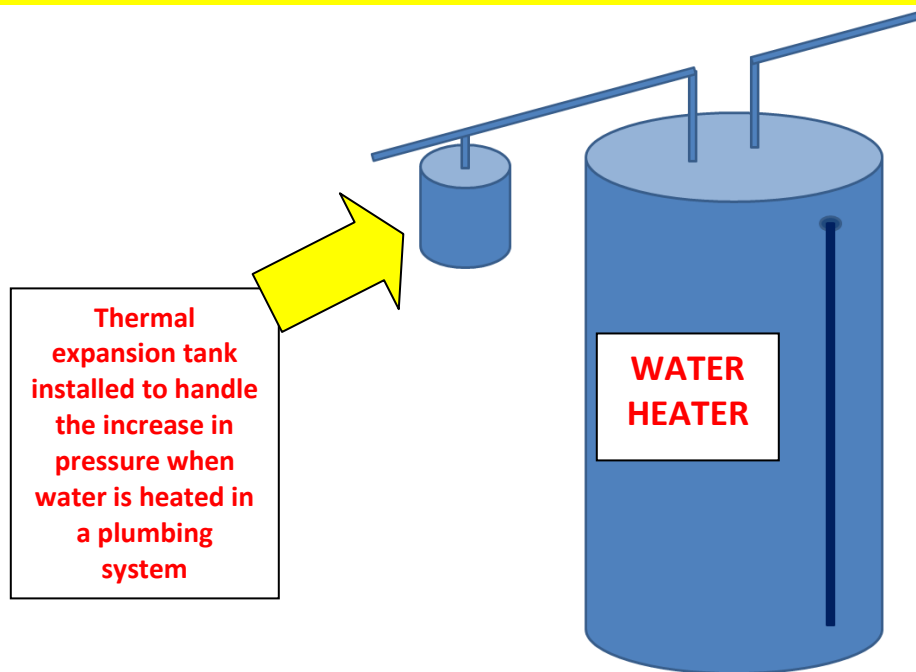




## ORANGE WATER AND SEWER AUTHORITY

*A public, non-profit agency providing water, sewer and reclaimed water services to the Carrboro-Chapel Hill community.*

# WATER EXPANDS WHEN HEATED



*An “expansion tank” installed near a water heater to handle the pressure increase from heating water*

## HIGHLIGHTS

- Water expands somewhat when it is heated. For example, water expands during normal operation of the water heater at a home, business, etc.
- The OWASA water meter assembly serving your home or business may have a device called a “check valve.” If so, the expansion of water when it is heated will increase the pressure in the plumbing system because water will not be able to flow backward through our meter.
- The increased pressure may cause excessive opening of the pressure relief valve on a water heater. This valve is not intended for regular operation and repeated use may cause it to fail.
- Increased water pressure may cause leaks at faucets and spigots and in pipes, fixtures and hoses.
- To handle increased pressure due to operation of a water heater, you can install a toilet fill valve with a pressure relief valve, or a device called an expansion tank.
- We recommend getting advice from a licensed plumber or other qualified person about whether to install a device in your plumbing system to handle the expansion of heated water.

### ***WATER PRESSURE MAY INCREASE DURING OPERATION OF A WATER HEATER***

Like air, water expands somewhat when it is heated. This is called “thermal expansion.”

In a plumbing system, heating water will increase the pressure in water pipes and fixtures if (1) the water does not have room to expand and (2) there is no device to relieve the pressure.

The resulting pressure increase may cause:

- repeated opening of the emergency pressure relief valve on the water heater. This relief valve is not designed for frequent use, which may cause it to fail.

- failure of flexible hoses such as on washing machines.
- leaks in pipes, faucets and/or spigots.

Therefore, you may wish to consider installing either

- a water “expansion tank” near your water heater, or
- a toilet “fill valve” including a pressure relief valve.

Installation of an expansion tank should be done by someone qualified to do so. Installing a toilet fill valve is simpler but it is important to get help from a knowledgeable person if you do not know how to do this.

### ***“CHECK VALVES” AND THE PRESSURE IN HOME PLUMBING SYSTEMS***

To protect the public water supply, many of our residential water meter assemblies have “check valves” to prevent water from a private plumbing system from flowing backward through our meter into the public water system.

Without a check valve (or a backflow prevention device required by OWASA in some locations), water could flow backward in a plumbing system under circumstances such as a break in a large public water main or the use of a large amount of water to fight a fire.

As indicated above, the water pressure in your plumbing pipes and fixtures will increase if the water does not have room to expand when heated because our meter serving your residence, etc. has a check valve.

### ***GETTING ADVICE FROM A PLUMBER***

We encourage you to get advice from a licensed plumber or other qualified person on whether and how to protect your pipes and fixtures from thermal expansion of water.

For example, you may wish to get advice on choosing the right size of an expansion tank based on the size of your water heater.

### ***PLUMBING CODES***

OWASA does not require you to install a thermal expansion device, but the State Plumbing Code may.

For information about whether the plumbing code requires a thermal expansion device in your home or business, please contact the building inspection department that serves your community:

- Town of Chapel Hill: 968-2718
- Town of Carrboro: 918-7336
- Orange County: 245-2600

In general, plumbing codes must be followed in new construction and in repairs and renovations.

***Part of a series with information for understanding and better maintenance of your plumbing system.***

### **Questions or comments?**

Please contact us at 968-4421 or [webmaster@owasa.org](mailto:webmaster@owasa.org).