CITY OF WINSTON SALEM

April, 2014

PLUMBING NEWSLETTER

All information herein was referenced for the Winston-Salem/Forsyth County Area. If you have questions concerning other Inspection Divisions, please contact that division for your answers.

THERMAL EXPANSION TANKS

Do you know the facts about Thermal Expansion Tanks?

All water heaters, regardless of heat source (gas, oil, electric, solar or indirect), can suffer the effects of thermal expansion. In every tank-type water heater, cold water is heated as it enters the water heater tank.. This increases the overall water volume and pressure inside the tank. For safety, the increase in volume and pressure must be relieved in some way.

Before major controls were placed upon city water supplies, it was possible for excess water pressure build-up in a water heater to flow back into the city water supply. This created a simple and efficient system for removing excess pressure in water heaters.

However when a check valve, pressure reducing valve or backflow preventer is installed, a "closed system" is created. A method of controlling thermal expansion and relieving pressure build-up must be installed.

THE SAFETY TEMPERATURE & PRESSURE RELIEF VALVE (T&P)

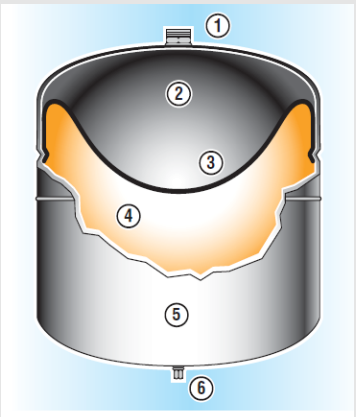
The T&P valve opens when a sufficient level of pressure is reached. This allows the heated water to spill out of the system relieving the pressure and lowering the volume

The installation of a thermal expansion tank in the cold water line of the water heater can protect the system from the damaging effects of thermal expansion and increased pressure. The thermal expansion tank controls the increased pressure generated within the normal operating temperature range of the water heater. The small tank with a sealed, compressible air cushion provides a space to store and hold the additional expanded water volume.

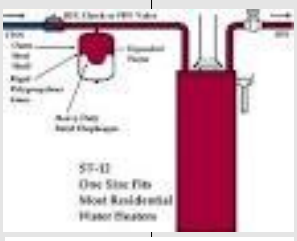
When an expansion tank is installed in a closed system and the temperature and pressure increases, the diaphragm flexes against an air cushion (air is compressible). The excess volume and pressure created by thermal expansion enters the pre-pressurized tank.

When hot water is drawn from the tank or the water cools, the water leaves the expansion tank and returns to the water heater tank.

Installing a properly-sized and charged thermal expansion tank in a water heating system is the recommended way to eliminate the problems associated with increased volume and pressure in a closed or restricted plumbing system. Consult the thermal expansion tank instructions for proper installation.

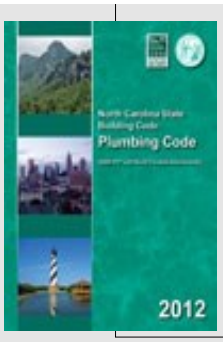


1. Connection Fitting
2. Separate Reservoir
3. Diaphragm
4. Air Charge Chamber/Air Cushion Area
5. Welded Steel Pressure Tank
6. Air Charging Valve



If the house has a PRV then it is a "closed system" and requires a Thermal expansion tank

Tanks come pre-charged for shipping. Check Mfg. instructions. Most require you to charge the tank to at least 2psi less than house working pressure



THERMAL EXPANSION TANKS

NC Department of Insurance
Office of the State Fire Marshal - Engineering Division
1202 Mail Service Center, Raleigh, NC 27699-1202
919-661-5880

Thermal Expansion Control

Code: 2012 Plumbing Code **Date:** September 1, 2011
Section: 607.3

Question:
When a check valve or backflow prevention device is installed at the water supply meter, is a thermal expansion device required?

Answer:
Yes, an expansion device (tank, valve, etc.) shall be installed in a residential or commercial building when a storage-type water heater is installed in the water distribution system with a backflow prevention device installed in the water supply line. Also, an expansion device shall be installed on a water heater replacement when a backflow prevention device is installed in the water supply line. This requirement for an expansion device shall apply to a manufactured home. An expansion device is not required for a tankless water heater.

Code Reference:

> **607.3.2 Backflow prevention device or check valve.** Where a backflow prevention device, check valve or other device is installed on a water supply system utilizing storage water heating equipment such that thermal expansion causes an increase in pressure, a device for controlling pressure shall be installed.

If you are looking for information from NCDOI please go to www.ncdoi.com

For licensing questions contact the State Board of Examiners of Plumbing, Heating, and Fire Sprinkler Contractors at www.nclicensing.org

PLUMBING CONTRACTORS PLEASE GET THIS INFORMATION OUT TO YOUR BUILDING CONTRACTORS

Dear BFP Testing Community,

We are pleased to inform you of a streamline process for BFP installation inspections. Utilities and Inspections have come together to delineate between the public and private portion of the water service.

Effective April 14, 2014:

All domestic and irrigation services 2" and smaller will be inspected by the Inspections Division from the meter to include the BFP.

Domestic and irrigation services 3" and larger and all fire services will be inspected by the Engineer of record for the project. A certificate of occupancy will not be issued prior to our receipt of the Engineer's certification.

Utilities will continue to inspect the taps and meter installations, however, you will no longer be required to call us for the initial BFP inspection. New BFP installations must be tested and submitted in the same manner as existing installations.

Winston-Salem • Forsyth County
City/County Utilities
Water • Sewer • Solid Waste Disposal

Utilities Administration

City of Winston-Salem
P. O. Box 2511
Winston-Salem, NC 27102
City Link 311 (336.727.8000)
Fax 336.727.8432
www.cityofws.org

IMPORTANT NOTICE

Effective Date: April 14, 2014

Irrigation meters will only be set upon our confirmation that a plumbing permit has been issued.

Domestic meters will only be set upon our confirmation that a building or plumbing permit has been issued.

All residential services not directly connected to a structure shall be fitted with a temporary ATMOSPHERIC VACUUM BREAKER.

The City of Winston Salem reserves the right to withhold services not meeting the above requirements.

CityLink311
Call 311 or 336-727-8000
citylink@cityofws.org

City Council: Mayor Allen Joines; Vivian H. Burke, Mayor Pro Tempore, Northeast Ward; Denise D. Adams, North Ward; Dan Besse, Southwest Ward; Robert C. Clark, West Ward; Molly Leight, South Ward; Jeff MacIntosh, Northwest Ward; Derwin L. Montgomery, East Ward; James Taylor, Jr., Southeast Ward; City Manager: Lee D. Garrity

Forsyth County Commissioners: Richard V. Linville, Chairman; Gloria D. Whisenhunt, Vice Chair; Mark Baker; Walter Marshall; David R. Plyler, Bill Whitehurst; Everette Witherspoon; County Manager: Dudley Watts, Jr.

City/County Utility Commission: David Neil, Chairman; James E. Lowe, Vice Chairman; Toyoko "Toy" Beaty; Harold E. Day; Harold R. Holmes; Charles D. Jewell, II; Janeen Lalki; Paul S. McGill; Al H. Seymour; J. Hill Stockton; Randall S. Tuttle

An irrigation meter will only be set upon our confirmation that a plumbing permit has been issued. A domestic meter will only be set upon our confirmation that a building or plumbing permit has been issued.

Plumbing code requires irrigation systems to be equipped with a reduced pressure assembly (RPA) type backflow preventer. Domestic and fire service BFP requirements will continue to be determined by the Utilities plan review process.

Please note the attached flyer will be posted on our web site and issued at the time of meter permit purchase

Please feel free to contact me if you have any questions

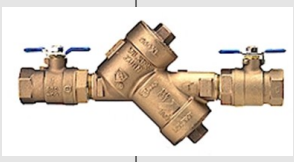
Regards,

Bill Shookman

336.399.3700

Vacuum breakers <u>are required</u> on temp. water lines for construction purposes

Dual checks <u>do not</u> have to be installed on temp. water lines for construction purposes



Double check valve backflow preventer assemblies are <u>not allowed</u> to be installed on lawn irrigation systems

Reduced Pressure Principal valve backflow preventer assemblies <u>are required</u> on lawn irrigation systems

If you have any questions or wish for your questions to be included in our newsletter, please send all questions to :

James Rhodes @ Winston-Salem/Forsyth County Inspections 100 E. First St., Suite 328 Winston-Salem, NC 27101

Office: 336-727-2379 or **E-mail:** jamesr@cityofws.org