



Clarification statement on the installation of expansion tanks on water heater installations

The 2015 (IRC) International Residential Code requires that whenever a 'closed system' is created, by the installation of a backflow preventer, check valve or PRV installed in a water service or anywhere else upstream of the water heater, that some means of controlling thermal expansion be installed – normally by means of a properly sized expansion tank. The installer of the water heater, while also verifying code compliance for other aspects of the overall system, including, but not limited to proper working clearances, adequate combustion air, code compliant vent and vent connector sizes / types, safety pan (where required), and compliance with the manufacturer's installation instructions, should also be checking to confirm the presence of backflow preventer, check valve or PRV. If one is found, then the system would be deemed to be a 'closed' system, and Code would then require that thermal expansion protection is installed.

Code sections from the 2015 (IRC) International Residential Code, adopted by the County

P2903.4 Thermal expansion control. A means for controlling increased pressure caused by thermal expansion shall be installed where required in accordance with Sections P2903.4.1 and P2903.4.2.

P2903.4.1 Pressure-reducing valve. For water service system sizes up to and including 2 inches (51 mm), a device for controlling pressure shall be installed where, because of thermal expansion, the pressure on the downstream side of a pressure-reducing valve exceeds the pressure-reducing valve setting.

P2903.4.2 Backflow prevention device or check valve.

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

Excerpt from the 2015 (IRC) International Residential Code Commentary

A backflow preventer, check valve or PRV installed in a water service or anywhere else upstream of the water heater creates a closed system, and thermal expansion can cause destructive and hazardous pressures to develop in the piping system. The code section requires expansion control for closed piping systems served by storage (tank) type water heaters. The typical solution to this problem is an expansion (compression) tank properly sized for the application (or other approved device designed for the intended use)

Visual example

