



Mechanical Services

Refrigeration – Air Conditioning – Heating - Plumbing
2650 Meadowvale Blvd. Unit 14, Mississauga, Ontario
Tel: (905) / (416) 458-1000 Fax (905) 458-1004
www.combinedair.com

April 1, 2011

Typically expansion tanks are installed on closed loop hydronic systems. With the introduction of the premise isolation backflow preventor it is hard to find a building that does not have an expansion tank.

When water is heated it expands. This expansion results in an increase in pressure. In all systems we have safeties to prevent over pressurization. These are typically relief valves installed on the pressure vessel, hot water tank, boiler, etc. When the system hits a predetermined pressure the relief valve opens and discharges the excess pressure until the system is below the relief set point. Rather than rely on the relief valve to relieve the additional pressure we install an expansion tank. The expansion tank provides an outlet for the excess pressure. A properly sized expansion tank can handle the expansion from the system.

Once the tank is installed it must be set correctly to match the pressure of the system. If we overcharge the tank then we will have too much air thus not allowing sufficient expansion. If we undercharge the tank then there will not be enough air thus not allowing enough expansion. These will result in the relief valves discharging the excess pressure. If we correctly set the tank pressure there will be a balanced amount of water and air in the tank allowing for expansion and contraction to take place without triggering pressure relief.

Situation: We were called in to check a leak in a boiler room. We determined that the relief valve had popped off. Our technician checked the rating on the valve and found it was set to relieve at 100 PSI. Upon further investigation we were informed that this was a recurring problem and that the previous fix was to install the higher rated relief valve. (We will not even address the safety issues related to such system pressure changes!) The customer had paid for three to four new relief valves each with a higher relief set point over the past several years. After a complete analysis our technician determined the system was operating at a higher pressure than necessary. The reason for this was that the expansion tank had lost its charge. Further to that there was no way to check the actual pressure without dropping the heating system. We installed a shut off valve with a drain port on the expansion tank side of the system. We then set the tank to the correct pressure and installed the originally rated relief valve.

The system has been operating properly since. It is a simple procedure but when overlooked can result in unwanted service calls and unnecessary repairs.

Trusting this information to be useful; should you have any questions about the above issue or any other problems please call me and we can discuss it further.

Regards,

Al Martin