Advisory: P20-002
May 25, 2023

Subject:
Potable water systems and protection against thermal expansion

Background:
Thermal expansion of water in a closed water distribution system can cause damage to fixtures, appliances, solenoid valves, piping, and in extreme cases, increase the pressure in a gas fired water heater causing the flue to collapse potentially creating a carbon monoxide leak.

Advisory:
The National Plumbing Code 2020 contains requirements that must be met to accommodate the increase in pressure caused by thermal expansion within a closed water distribution system. Builders, designers, and installers are reminded that water distribution systems equipped with a check valve, a backflow preventer, or a pressure-reducing valve are considered closed systems and require the installation of a suitably sized diaphragm expansion tank designed for use within a potable water system or a thermal expansion relief valve conforming to CSA B125.3 set at a pressure of 550 kPa or less.

Reference:
The National Plumbing Code 2020, under Article 2.6.1.11. Thermal Expansion, contains the minimum requirements for protection where thermal expansion can occur.