

## Water Heaters

- 1) **M1501.1 Outdoor discharge.** The air removed by every mechanical exhaust system shall be discharged to the outdoors. Air shall not be exhausted into an *attic*, soffit, ridge vent or crawl space.
- 2) **503.10.5 Clearance.** Minimum clearances from vent connectors to combustible material shall be in accordance with Table 503.10.5.
- 3) **P2803.6.1 Requirements for discharge pipe.** The discharge piping serving a pressure-relief valve, temperature relief valve or combination valve shall:
  1. Not be directly connected to the drainage system.
  2. Discharge through an air gap located in the same room as the water heater.
  3. Not be smaller than the diameter of the outlet of the valve served and shall discharge full size to the air gap.
  4. Serve a single relief device and shall not connect to piping serving any other relief device or equipment.
  5. Discharge to the floor, to the pan serving the water heater or storage tank, to a waste receptor or to the outdoors.
  6. Discharge in a manner that does not cause personal injury or structural damage.
  7. Discharge to a termination point that is readily observable by the building occupants.
  8. Not be trapped.
  9. Be installed to flow by gravity.
  10. Not terminate more than 6 inches (152 mm) above the floor or waste receptor.
- 4) **P2801.5 Required pan.** Where water heaters or hot water storage tanks are installed in locations where leakage of the tanks or connections will cause damage, the tank or water heater shall be installed in a galvanized steel pan having a material thickness of not less than 0.0236 inch (0.6010 mm) (No. 24 gage), or other pans *approved* for such use.

**P2801.5.1 Pan size and drain.** The pan shall be not less than 1<sup>1</sup>/<sub>2</sub> inches (38 mm) deep and shall be of sufficient size and shape to receive all dripping or condensate from the tank or water heater. The pan shall be drained by an indirect waste pipe having a minimum diameter of <sup>3</sup>/<sub>4</sub> inch (19 mm).

**P2801.5.2 Pan drain termination.** The pan drain shall extend full-size and terminate over a suitably located indirect waste receptor or shall extend to the exterior of the building and terminate not less than 6 inches (152 mm) and not more than 24 inches (610 mm) above the adjacent ground surface.
- 5) **P2801.6 Water heaters installed in garages.** Water heaters having an *ignition source* shall be elevated such that the source of ignition is not less than 18 inches (457 mm) above the garage floor.
- 6) **G2422.1 (411.1) Connecting appliances.** *Appliances* shall be connected to the *piping system* by one of the following:
  1. Rigid metallic *pipe* and fittings.
  2. Corrugated stainless steel *tubing* (CSST) where installed in accordance with the manufacturer's instructions.
  3. Listed and labeled *appliance connectors* in compliance with ANSI Z21.24 and installed in accordance with the manufacturer's installation instructions and located entirely in the same room as the *appliance*.
- 7) **G2422.1.2 (411.1.3) Connector installation.** *Appliance* fuel connectors shall be installed in accordance with the manufacturer's instructions and [Sections G2422.1.2.1 through G2422.1.2.4](#).

**G2422.1.2.1 (411.1.3.1) Maximum length.** Connectors shall not exceed 6 feet (1829 mm) in overall length. Measurement shall be made along the centerline of the connector. Only one connector shall be used for each *appliance*.
- 8) **G2411.1 (310.1) Pipe and tubing other than CSST.** Each above-ground portion of a *gas piping system* other than corrugated stainless steel tubing (CSST), that is likely to become energized shall be electrically continuous and bonded to an effective ground-fault current path. *Gas piping*, other than CSST, shall be considered to be bonded where it is connected to *appliances* that are connected to the equipment grounding conductor of the circuit supplying that *appliance*.

**G2411.1.1 (310.1.1) CSST.** Corrugated stainless steel tubing (CSST) *gas piping systems* shall be bonded to the electrical service grounding electrode system at the point where the gas service enters the building. The *bonding jumper* shall be not smaller than 6 AWG copper wire or equivalent.

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Vent must extend to the outside, and be double walled through the ceiling, walls and roof.

Must be non-combustible pipe within 6" of vent pipe for gas-fired heaters. IFGC 503.10.5

Must be labeled "Mobile Home" if used in mobile home.

T & P must extend to within 6" of pan or floor. IRC P2803.6.1

Gas pipe connection per IRC G2422.1

Gas pipe bonding per IRC G2411.1

Must have drain pan if leakage may cause damage. IRC P2801.5

Gas-fired units in a garage must have combustion area raised 18" above floor unless manufacturer's instructions state differently. IRC P2801.6

Pan drain must terminate to floor drain or outside. IRC P2801.5.2