





1. **Permits are Required** for new and replacement water heaters. (C.P.C. 502.12016) Contact the Building and Safety Division to obtain needed permit.
2. **Inspection is Required** after the water heater is installed to verify compliance with the intent of this code regarding: location of water heater, combustion air, venting and vent cap, seismic protection/strapping, access and working space around water heater and other appliances, clearances to combustibles, gas piping supply with sediment trap and connections, temperature and pressure relief valve and discharge piping to outside, water and gas hand shutoff valves, water piping and connections, metallic piping continuously bonded, to meet required Energy compliance and, if required by location, 18" elevation, vehicle damage protection and drain pan with drain. (C.P.C. 503.0 2016)
3. **Seismic Bracing System** shall be installed to provide protection from displacement due to earthquake motion. Water heater shall be anchored/secured into framing members with a code-approved restraint system consisting of strapping the upper 1/3 and lower 1/3 of the water heater's vertical dimensions, minimum 4" above gas control valve and 4" below side T & P outlet (C.P.C. 507.2 2016 & 17958.5 Health & Safety Code)
4. **Temperature and Pressure (T & P) Relief Valve & Discharge Line** Water heaters shall be installed with a T & P relief valve that is ran in rigid, approved piping (galvanized steel or hard-drawn copper, or CPVC or listed relief valve drain rube) from T&P valve to the outside of the building with slope and the end of the pipe not more than 2' feet nor less than 6" above the ground or flood level of the area receiving the discharge and pointing downward. The discharge line shall not be trapped or have a valve installed, and the terminating end shall not be threaded. (C.P.C 505.2 & 608.5 2016)
5. **Combustion Air** Air for combustion, ventilation, and dilution of flue gases for appliances shall be obtained by application covered in C.P.C. sections 506.2 through 506.7.3 2016.
6. **Venting System** shall be constructed, sized appropriately, and installed to code per manufacturer's installation instructions; in no case shall vent piping be smaller than required for water heater's draft diverter or venting outlet. Water heater vents other than direct vent shall be located as close as practical to the chimney or gas vent. (C.M.C 802.3.2 2013)(C.P.C. 504.2 & 509.6 2016)
7. **Venting Clearance** Single wall metal vent piping shall be installed in a manner to provide 6" clearance from combustible materials and shall be secured together with TEK screws or rivets. Single wall vent piping shall not be installed in a confined space, and only installed below fire stop flashing. Type B Double wall vent piping shall be installed in a manner to provide clearances As Listed from combustible materials and shall not be secured together with Tex screws or rivets. (C.M.C. Table 802.7.3.4 2016)
8. **Vent Pipe Termination** shall not terminate less than 3 feet above roof. Additional height required if roof pitch is greater than a 6:12 slope, nor shall a vent terminate less than 8 feet from any second story exterior wall. Vent termination, in all other cases, shall not terminate any less than 3 feet above any structure within 10 feet. Other venting rules may apply. See Section (C.P.C. 509.5.4 2016)
9. **Gas Appliance Connectors** shall not exceed 3 feet in length and shall not be reused per manufacturer's installation instructions. Gas connectors shall be attached to a hand shut-off-type gas valve and be properly sized to BTU rating of water heater.
10. **Metallic Piping to be Bonded** continuously with copper bonding wire and bonding clamps to cold, hot, and gas lines to tie systems together at water heater, using a #8 for 100 amp service and a #6 for 200 amp service. (C.E.C. 250.104. 2016)



11. **Water Piping Insulation** shall be installed 5 feet on the cold and 5 feet on the hot water supplies at water heater when possible and maintain 6" clearance from vent and flue. NOTE: If water heater has a recirculating pump system, the entire length of circulating piping loop will need to be insulated. Domestic hot water piping $\frac{3}{4}$ " or larger shall be insulated with 1" thick insulation. (C.E.C 150.0 (J.2) & Table 120.3A)
12. **State Energy Regulations** require the following: If the water heater has an EF of less than 0.58, an R-12 water heater blanket is required (internal insulation cannot be used to satisfy this mandatory requirement). For water heaters with 0.58 EF or high, no blanket is required. The blanket should be securely attached around the water heater. The top of the water heater should not be insulated and a cut out in the blanket should be provided for combustible air intake and control. (2016 California Energy Commission Mandatory Requirements)
13. **Thermal-Expansion Tank System** shall be required to protect water heater and water piping system from excess pressure due to thermal-expansion and set per manufacturer's installation instructions. Water systems provided with a check valve backflow preventer, or pressure reducing device shall & be equipped with a thermal expansion tank. (C.P.C. 608.3 2016)
14. **Water Heater Stand** Appliances in garages shall be installed so that burners & burner ignition devices are located not less than 18" above the floor unless listed as flammable vapor ignition resistant. (C.P.C. 507.13 2016)
15. **Drain-Pan** where a water heater is located in an attic, in or on an attic ceiling assembly, floor-ceiling assembly, or floor-subfloor assembly where damage results from a leaking water heater. A water tight pan of corrosion resistant material shall be installed with a minimum $\frac{3}{4}$ " diameter drain to an approved location. Such pan shall be a minimum 1 $\frac{1}{2}$ " in depth. (C.P.C. 507.4 2016)