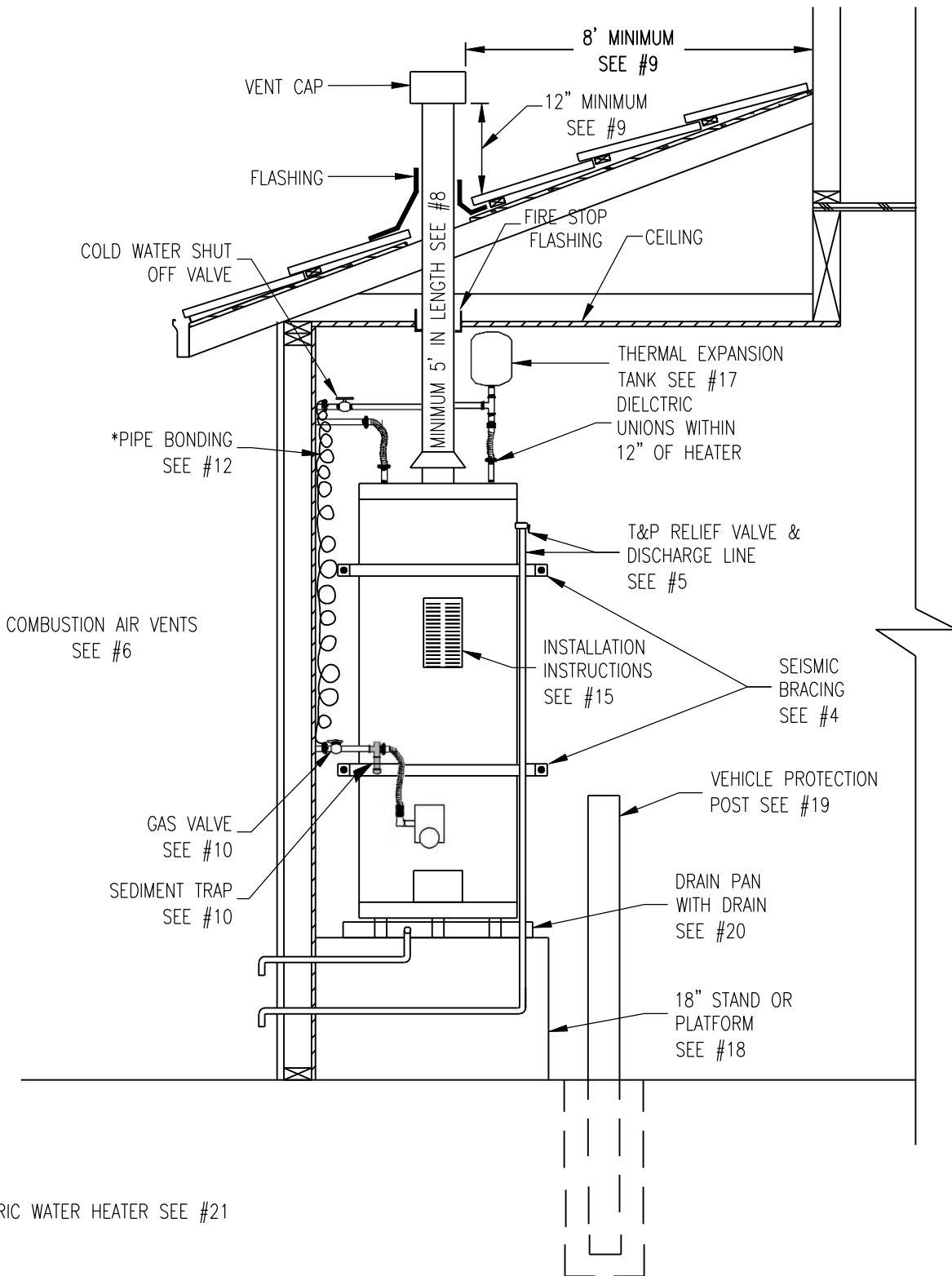


# Water Heater Installations

January 2023



NOTE:

ELECTRIC WATER HEATER SEE #21

1. **Permits are Required** for new and replacement water heaters. (2022 CPC Section 503.0)
2. **Inspection is Required** after the water heater is installed to verify compliance within the minimum safety requirements of the code regarding; location of water heater, combustion air, venting & 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 surcharge piping to outside, water and gas hand shut off valves, water piping and connections, metallic piping continuously bonded, to meet required Energy Compliance and if required by location 18 inch elevation, vehicle damage protecting and drain pan with drain. (2022 CPC Section 504.2)
3. **Prohibited Locations** Fuel burning water heaters installed in bedroom or bathrooms shall be either; direct vent type, or in a closet that is vented to the outside and used exclusively for the water heater. (2022 CPC Section 504.1 #1 & 2)
4. **Seismic Bracing System** shall be installed to provide protection from displacement due to earthquake motion. Water heater shall be anchored or secured with a code approved restraint system consisting of strapping the upper and lower 1/3's of the water heater, minimum 4 inches above gas control valve. (2022 CPC Section 507.2)
5. **Temperature and pressure Relief Valve & Discharge Line** Water Heaters shall be provided with a T & P relief valve and drain installed in compliance with the manufactures instructions and terminate not more than 2 feet nor less than 6 inches 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. (2022 CPC Section 507.2 & 608.5)
6. **Combustion Air Vents** within 12 inches of top and bottom of enclosure is required where enclosure has volume less than 50 C.F. per 1000 B.T.U./H of all appliances within enclosure. Minimum area per opening shall be based on 1 square inch vertically per 4000 B.T.U./H of input capacity, with minimum screen mesh of a ¼ inch (2019 CPC Section 506.8.1) One vent within the upper 12 inches is allowed with restrictions. (2022 CPC Section 506.4.2)
7. **Venting System** shall be constructed, sized appropriately, and installed to code and per manufactures installation instructions. (2022 CPC Section 510.9.0)
8. **Venting Clearance** Single wall metal vent connector piping shall be installed in a manor to provide 6-inch clearance from combustible materials and shall be secured together with Tek Screws or rivets. Single wall vent connector 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 manor to provide 1 inch clearance from combustible materials. (2022 CPC Section 509.6)
9. **Vent Pipe Termination** shall not terminate less than 12 inches above roof, additional height required if roof pitch is greater than 6:12 slope, nor shall a vent terminate less than 8 feet from and second story exterior wall. Vents larger than 12" in diameter shall not terminate any less than 2 feet above any structure within 10 feet. Other rules may apply (See 2022 CPC Section 509.6.1)
10. **Gas Appliance Connectors** 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 B.T.U. input rating of water heater. (2022 CPC Section 1212)
11. **Sediment Trap** shall be installed to gas supply at water heater control valve with a "T" fitting and a minimum 3-inch nipple in length with cap for sediment trap. (2022 CPC Section 1212.9)
12. **When Applicable Metallic Piping** bbe bonded continuously with a copper bonding wire, sized per CEC Table 250.66, and bonding clamps, to cold and gas lines to tie systems together at water heater. (2022 CEC Section 250.104)
13. **Water Piping Insulation** shall be installed 8 feet on the cold and 8 feet on the hot water supplies at water heater when possible and to maintain 6 inches clearance from vent and flue. NOTE: if water heater has a re-circulation pump system the entire length of circulation piping loop will need to be insulated. (2019 California Energy Commission Mandatory Requirements) (2022 CPC 609.11.2)
14. **State Energy Regulations** requires the following: if the water heater has an EF of less than 0.58 and R-12 Water Heater blanket is required (internal insulation cannot be used to satisfy this mandatory requirement). For water heater with 0.58 EF or higher, 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 controls. (2022 California Energy Commission Mandatory Requirements)
15. **Installation Instructions** for water heaters to be on site and readily available for reference. (2022 CPC Section 507.0)
16. **Working Platform** A level working surface not less than 30" X 30" shall be provided for service. (2022 CPC Section 508.4.3)
17. **Thermal Expansion Tank System** water piping systems equipped with backflow or pressure reducing device on the main shall require a thermal expansion tank to protect water heater and water piping system from excess pressure due to thermal expansion. (2022 CPC Section 608.3 and 2022 CMC Section 1004.3)
18. **Water Heater Stand** or built-in platform is required when water heater is installed in garage to elevate burner a minimum 18" above grade. (2022 CPC Section 507.13)
19. **Vehicle Protection** must be provided where subject to mechanical damage, post (2022 CPC Section 503.13.1)
20. **Drain-Pan** shall be required when a water heater and/or tank is installed in a location where it could cause damage; in case of failure/leak to floor, sub-floor, drywall. Drain pan shall be installed with a minimum ¾" drain outlet and discharge that drains to the exterior of the building or an approved location. (2022 CPC Section 507.5)  
Note: Discharge from a T&P relief valve cannot terminate into water heater drain pan. (20 CPC Section 504.6)
21. **Electrical Water** Heater shall be provided with a disconnect. Electric water heaters require a disconnecting means within sight of, not exceeding 50 ' from the appliance. (2022 CEC Section 422.31 (B)).