



WATER HEATER REQUIREMENTS – 2019 CALIFORNIA PLUMBING CODE

Permit Requirements

- A plumbing permit is required to install, remove, replace, raise, lower or relocate a water heater. (CPC 502.1). A permit must be obtained before beginning the work. Work performed without proper permits is subject to additional fees. Water heaters installed in bedrooms and bathrooms shall comply with NFPA 54:10.27.1

Gas Appliance Venting

- Type "B" vents must extend above the roof, through a flashing, and terminate in a listed vent cap or roof jack which shall be installed according to its listing and the manufacturer's installation instructions. The vent height above the roof surface shall be in accordance with Section 509.6.1. Up to a 6:12 roof slope the minimum height is 1ft.
- Type "B" gas vents must terminate at least 5 feet above the highest connected draft hood or flue collar.
- Vent connectors must be as short and straight as practical, and cannot pass through walls or ceilings. The maximum horizontal connector length is 75% of the height for single wall, 100% of the height for double-wall. When venting in common with another appliance, the smaller appliance should connect above the larger one, should be as high as possible for the available headroom, and the maximum connector length is 18 inches per inch of diameter.
- Connector sections must be screwed together and to the draft hood with at least 3 screws at each joint. Use listed transition fittings from single-wall to type "B" vent. Screws and other fasteners cannot penetrate the inner wall of a double wall vent, and double wall vent cannot be cut. Use of tape to seal joints or to support a vent is not permitted.

Expansion Tank

- An expansion tank is required for any system with a check valve, backflow preventer or pressure regulator (no exceptions) that prevents dissipation of building pressure back into the water main (608.3).

Inspections

- A final inspection is required after the water heater has been installed and all work has been completed. The inspection code is 106 on the automated system. The permit card and the approved job copy of the drawings (if any) must be presented to the inspector. A re-inspection fee may be assessed if access to the inspection is not provided, the job is not ready for the inspection, or when required corrections have not been made. Additional energy code requirements apply for new (never previously occupied) buildings.

Insulation required on hot and cold pipes within 5 ft. of water heater. Recirculation pipes required insulation for their entire length. (Energy 150.0j2A)

Shutoff valve required within 6 ft. (1212.5)

Gas line requires sediment trap downstream of shutoff valve as close as practical to appliance inlet.

A source of combustion air is required. Water heaters in closets require openings of at least 100 sq. in. each within 12 inches of the top and bottom of the closet.

When the water heater is in the path of vehicles, bollards are required. (507.13.1)



B Vent terminating min 1 ft. above roof in approved cap. Double-wall "B" vents are required and must have 1 in. clearance to combustibles. Single wall connectors are allowed in min. 6 in. clear to combustibles.

Seismic restraint straps in upper and lower 1/3 of tank. Lower strap min. 4 in. above controls. Offset coupling bracket so it is not directly above the control. Provide blocking between water heater and wall. (507.2)

Pan with drain required when water heater is located over space where leakage could cause damage to wood framing. (507.5)

Temperature & Pressure Relief Valve (TPRV) drain pipe cannot run uphill and must terminate at approved location pointing down, 6 – 24 in. above grade with no threads on end. The pipe must be hard-drawn copper, galvanized, CPVC, or pipe listed for the purpose. TPRV piping cannot discharge to the drain pan. (504.6)

Water heaters in garages must be FVIR type or be elevated so ignition source is 18 in. above floor. (507.13)

Additional Installation Requirements for All Water Heaters Installed in an Attic

- An opening and passageway not less than the largest component of the appliance and not less than 22 inches by 30 inches shall be provided.
- Where the height of the passageway is less than 6 feet, the distance from the passageway access to the appliance shall not exceed 20 feet measured along the centerline of the passageway.
- The passageway from the entrance opening to the appliance shall be unobstructed and shall have solid flooring not less than 24 inches wide.
- A level working platform not less than 30 inches by 30 inches shall be provided in front of the service side of the appliance.
- A permanent 120-volt receptacle outlet and a lighting fixture shall be installed near the appliance. The light fixture shall be high efficacy. The switch controlling the light fixture must be located at the entrance to the passageway and be a manual-on switch with a vacancy sensor. [CPC 508.4.4 and CEEC 150.0(k)(6)]
- Drainage Pan. A watertight pan of corrosion-resistant materials shall be installed beneath the water heater with not less than ¾" of an inch diameter drain to an approved location. [CPC 507.5]

Additional Requirements for Tankless Water Heaters

- Outdoor Installations: Tankless water heaters installed outdoors must be listed for outdoor use.
- Gas Supply and Gas Meter Size: For water heater replacements, the larger BTU input of a tankless water heater will likely necessitate the installation of a larger gas line and/or gas meter. The gas piping serving the tankless water heater must be calculated sized in accordance with the requirements of Chapter 12 of the California Plumbing Code. Check with the Gas Company to determine if the gas meter is large enough for you gas system.
- Gas Valve: High quality full port gas shutoff valve must be installed unless the valve is oversized. Some ball valves significantly reduce the diameter of the pipe and should therefore be avoided.
- Exhaust Vent: Tankless gas water heaters must be vented in accordance with the manufacturer's installation instructions and the California Plumbing Code. Required clearances from exhaust vents to openings in the building must be maintained. Typically, tankless gas water heaters must be vented separately from all other appliances. Do not upsize (oversize) the vent pipe. For best results, try to keep the vent system as short and straight as possible.
- Clearance Requirements: Tankless water heaters typically have different clearance to combustibles requirements depending on the unit being installed. Refer to the manufacturer's installation manual for all clearance requirements.

Inspection Requirements

The water heater shall have a final inspection after all work authorized by the permit has been completed. No piping, equipment or part thereof should be covered or concealed until it has been inspected and approved by the City Building Inspector. In dwelling units, carbon monoxide and smoke alarms are required in accordance with California Residential Code (CRC) Sections R314 and R315. More information can be found on the City's web site at http://www.visalia.city/depts/community_development/building_safety/forms_and_handouts/default.asp