



SUBMITTAL AND CODE REQUIREMENTS FOR:
RESIDENTIAL GAS WATER HEATERS
2016 CALIFORNIA PLUMBING CODE CHAPTER 5

PERMIT INFORMATION:

A plumbing permit is required prior to the installation or replacement of a gas water heater. A gas water heater replacement permit is generally issued over the counter to the property owner, agent of the property owner, and/or a California State Licensed Contractor.

APPLICABLE BUILDING CODES:

All work shall comply with the following codes:

- | | |
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| 2016 California Fire Code | 2016 California Building Code |
| 2016 California Building Code | 2016 California Existing Building Code |
| 2016 California Existing Building Code | 2016 California Electrical Code |
| 2016 California Mechanical Code | 2016 California Plumbing Code |
| 2016 California Green Building Code | 2016 California Residential Code |
| 2016 Building Energy Efficiency Standards | |

THINGS TO KNOW:

- ✓ A Building Permit may be issued only to a State of California Licensed Contractor or the Homeowner. If the Homeowner hires workers, California State Law requires the Homeowner obtain worker’s compensation insurance.
- ✓ When a permit is required for an alteration, repair or addition exceeding *one thousand dollars (\$1,000.00)* to an existing dwelling unit that has an attached garage or fuel-burning appliance, the dwelling unit shall be provided with a Smoke Alarm and Carbon Monoxide Alarm in accordance with the currently adopted code.
- ✓ Regulations vary between new and existing conditions. Contact the Plans and Permits Division for more information.
- ✓ The City recognizes that many homeowners need to replace water heaters in an emergency situation; therefore, the City also accepts applications after the fact.

FORMS REQUIRED FOR PERMIT ISSUANCE:

- A Completed Permit Application Form
- Owner Builder Acknowledgement Form (if applicable)

FEES: *Refer to the currently adopted fee schedule.*

- Application Fee
- Plumbing Permit Fee
- CPF Fee – 15% of Plumbing Permit Fee*
- Document Imaging Fee

GENERAL CODE REQUIREMENTS: (CPC 507.24)

Installer shall leave the manufacturer’s installation, operating, and maintenance instructions in a location on the premises, readily available for reference and guidance to the inspector, service personnel, and the owner or operator. All pipe, pipe fittings, traps, fixtures, material, and devices used in a plumbing system shall be listed or labeled by an approved listing agency. Listed water heaters shall be installed in accordance with their listings and the manufacturer’s instructions.

INSTALL LOCATION REQUIREMENTS:

GARAGE: Water heaters in a garage shall be elevated so the pilot light and controls are at least 18" above the garage floor surface (unless the unit is listed as flammable vapor ignition resistant).

NOTE: (CPC 507.13) When installed in residential garages, appliances shall be located or protected so they are not subject to physical damage by a moving vehicle.

BEDROOM, BATHROOM, BEDROOM CLOSET: The water heater shall be located in a closet provided with a listed self-closing, gasketed door and all combustion air shall be obtained from outdoors. The water heater closet shall not be used for any other purpose.

OUTDOORS: (CPC 507.25) Water heaters installed outdoors shall be listed for outdoor installation or provided with protection to the degree the environment requires and shall be installed in accordance with its listing.

ATTICS: (CPC 508.4) Water heaters installed in attics, 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 materials shall be installed beneath the heater with not less than a ¾ inch drain to an approved location. The end of the drain should be in a location that will draw attention to the need for determining the cause of the leak.

GAS CONNECTORS: (CPC 1212.0)

- Listed flexible gas connectors in compliance with CSA Z21.24, Standard for Connectors for Gas Appliances may be used if installed in accordance with their listing. Connectors must be located completely in the same room as the appliance.

GROUNDING AND BONDING: (CEC 250.104)

- Metal water (hot and cold) and gas piping systems installed in or attached to a building or structure shall be bonded to the service equipment enclosure, the grounded conductor at the service, the grounding electrode conductor where of sufficient size, or to the one or more grounding electrodes used in accordance with the CEC.

COMBUSTION AIR: (CPC 506)

- Combustion air must be maintained per the CPC. When the appliance is located in an unconfined space (e.g. garage) the combustion air can be used from that area. When located in a closet, combustion air must be provided at a minimum of two openings (one within 12" of the top of the water heater and one within 12" of the bottom) sized at 100 square inches each.

PRESSURE REGULATOR: (CPC 608.2)

- Where the water pressure is in excess of 80 psi, an approved type pressure regulator preceded by an adequate strainer shall be installed. The regulator and strainer shall be accessible, protected from freezing, and shall have the strainer readily accessible for cleaning without removing the regulator or strainer body or disconnecting the supply piping.

RELIEF VALVES: (CPC 505.1, 504.6, 608.3)

- All storage water heaters shall have an approved, listed, adequately sized combination pressure and temperature relief valve.
- The installation of temperature, pressure, and vacuum relief devices or combinations thereof, and automatic gas shutoff devices, shall be installed in accordance with their listings and the manufacturer's instructions. A shutoff valve shall not be placed between the relief valve and the water heater or on discharge pipes between such valves and the atmosphere.

Code Check

Pressure-
Relief Valve



©2012 Code Check

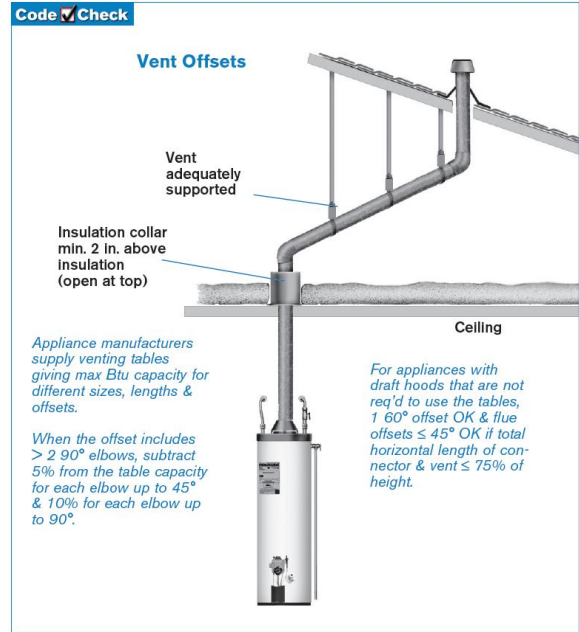
- Discharge from a relief valve into a water heater pan shall be prohibited

SEISMIC STRAPS: (CPC 507.2)

- Water heaters require two seismic straps; one located within the top 1/3 of the water heater unit and one at the bottom 1/3. The bottom strap must be located at least 4" away from the water heater controls.

VENTING: (CPC 509, 510)

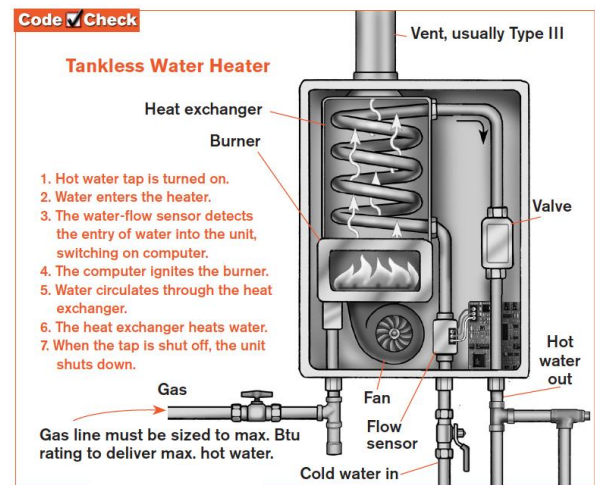
- All vent piping that runs through ceilings, floors, or walls shall be double-wall metal pipe. The vent and the water heater must maintain clearance from combustible materials (such as wall framing or roofing) as required by the manufacturer, which is typically 1" minimum. The vent shall terminate a minimum 1' (12") above the roof, be installed with flashing through the roof, and terminate in a listed and approved vent cap. Vents shall also terminate a minimum of 3' above any building opening (door, operable window, etc.) within 3' of the termination. Venting shall extend in a generally vertical direction with offsets not exceeding 45 degrees, except one 60 degree offset is permitted. Vents may require additional supports depending on the material and design.



SEDIMENT TRAP: (CPC 1210.8.2, 1212.8) Sediment trap shall be installed downstream of appliance shut-off valve as close to the inlet of the appliance as practical before the flex connector.

TANKLESS WATER HEATERS:

- Tankless water heaters shall be listed by an approved testing agency (UL, UPC, etc.) and be installed in accordance with the manufacturer's requirements. Category II stainless venting material and larger gas supply lines may be required based on the manufacturer's specifications/recommendations.
- *Additional information/permits may be required. Check with Plans and Permits division for more information.*



FIRST HOUR RATING

Per the 2016 California Plumbing Code, the installation of a water heater must meet requirements for First Hour Rating listed in the table below:

**Table 501.1
First Hour Rating ⁽¹⁾**

Number of Bathrooms	1 to 1.5			2 to 2.5				3 to 3.5			
Number of Bedrooms	1	2	3	2	3	4	5	3	4	5	6
First Hour Rating, ² Gallons	42	54	54	54	67	67	80	67	80	80	80

For SI units: 1 gallon = 3.785 L

Notes:

¹The First Hour Rating is found on the “Energy Guide” label.

²Solar water heaters shall be sized to meet the appropriate First Hour Rating as shown in the table.

INSPECTIONS:

ONE Final inspection is required after all the work has been completed. **PROPERTY OWNER** shall complete and give to the inspector at final, the “Affidavit Self-Certification for Compliance of Smoke and Carbon Monoxide Detectors” form, verifying that they have installed the required smoke and carbon monoxide detectors in their home/property.