



CITY OF CYPRESS

Building Division

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WATER HEATER REQUIREMENTS

ALL WORK SHALL REQUIRE COMPLIANCE WITH THE 2013 CBC, 2013 CRC, 2013 CEC, 2013 CPC, 2013 CMC AND 2008 ENERGY REGULATIONS TITLE 24 (2010 EES effective July 1, 2014)

Permits are required prior to installation or replacement of hot water heater systems. This brochure is intended to provide general information, contact the Building Safety Division for any questions or additional information.

Installation Standards and Plan Requirements – See attached drawing

1. **Permits** are required for new and replacement water heaters. (502.0 C.P.C. 2013)
2. **Inspection** is required after the water heater is installed to verify compliance within the minimum safety requirements of the code regarding; locations 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 discharge 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" elevation, vehicle damage protection and drain pan with drain. (503.0 C.P.C. 2013)
3. **Prohibited Locations:** Do not install water heaters which depend on the combustion of fuel in rooms used for sleeping purposes, bathroom, closet or other confined space opening into a bedroom, bathroom, or under a stairway landing. (504.1 C. P.C. 2013)
4. **Seismic Bracing System** shall be installed to provide protection from displacement due to earthquake motion. Water heater shall be anchored/secured with a code approved restraint system consisting of strapping the upper and lower 1/3's of the water heater, minimum 4" above gas control valve and 4" below side T & P outlet. (507.2 C.P.C 2013 and 17958.5 Health and Safety Code)
5. **Temperature and Pressure Relief Valve & Discharge Line:** Water Heaters shall be installed with a T & P relief valve that is ran in rigid metal piping 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. Discharge into a water heater pan shall be prohibited. (608.5 C.P.C. 2013)
6. **Combustion Air Vents** within 12" of top and bottom of enclosure is required. When the appliance is located in a large room or space (e.g. garage) the combustion air may come from that area. When located in a closet, combustion air must be provided by one or more openings between the closet and a large room or space, directly to the outside, to an area that communicates directly with the outside, or a combination per 506.0 C.P.C. 2013.
7. **Venting System:** shall be constructed, sized appropriately and installed to code and per manufacturer's installation instructions; in no case shall vent piping be smaller than required for water heater's draft diverter or venting outlet. (509.6.3.1 C.P.C. 2013)
8. **Venting Clearance:** A gravity type venting system must terminate at least 5 feet above the draft hood. Single wall metal vent piping shall be installed in a manor to provide 6" clearance from combustible materials and shall be secured together with Tex 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 manor to provide 1" clearance from combustible materials and shall not be secured together with Tex screws or rivets. (509.6.2 C.P.C. 2013)
9. **Vent Pipe Termination:** shall not terminate less than 12" above roof, additional height required if roof pitch is greater than 6:12 slope, nor shall a vent terminate less than 8 feet from any second story exterior wall. Vent termination in all other cases not to terminate any less than 2 feet above any structure within 10 feet. Other venting rules may apply see section (509.6 & Table 509.6.2 C.P.C. 2013)

10. **Gas Appliance Connectors** Gas connectors must comply with CPC Section 1211.0. 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. (1211.0 C.P.C. 2013)
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. (1211.8 C.P.C. 2013)
12. **Metallic Piping to be Bonded** continuously with a #8 copper bonding wire and bonding clamps, to cold, hot, and gas lines to tie systems together at water heater. (250.104(B) C.E.C. 2013)
13. **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 to maintain 6-inch from and flue. NOTE; if water heater has a re-circulating pump system the entire length of circulating piping loop will need to be insulated. (2008 Energy Efficiency Standards)
14. **State Energy Regulations** requires the following: If the water heater has an EF of less than 0.58 an R-12 water heater blanket is required (internal insulation can not be used to satisfy this mandatory requirement.) For water heaters 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. (2008 Energy Efficiency Standards)
15. **Installation Instructions** for water heater to be on site and readily available for reference. (507.24 C.P.C. 2013)
16. **Working Platform:** A level working surface not less than 30"x 30" shall be provided for service. (508.4.4 C.P.C. 2013)
17. **Thermal-Expansion Tank System:** shall be required to protect water heater and water piping systems from excess pressure due to thermal-expansion. (608.3 C.P.C. 2013 & 1006.0 C.M.C. 2013) if a regulator is installed.
18. **Water Heater Stand** or built in platform is required when water heater is installed in a garage to elevate water heater a minimum 18" above grade. (507.13 C.P.C. 2013)
19. **Vehicle Protection:** must be provided where subject to mechanical damage, post or built-in platform (507.13.1 C.P.C. 2013)
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, or platform. Drain pan shall be installed with a minimum 3/4" drain outlet and discharge that drain to the exterior of the building or approved location. (507.4 C.P.C. 2013)
- NOTE: Discharge from T&P relief valve can not terminate into water heater drain pan. (507.5 C.P.C. 2013)
21. The minimum capacity for water heaters shall be in accordance with the first hour rating (this can be found on the "Energy Guide" label on the heater) as follows: (CPC 501.0)

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	4-6
First Hour Rating, Gallons	42	54	54	67	80	67	80

Example to strap water heater



