

# WATER HEATERS

## Permit Requirements

A plumbing permit is required to install, remove, replace, or raise a water heater (CPC 503.0). A permit must be obtained before beginning the work. Work performed without permit may be subject to investigation or enforcement fees.

Permits to replace tank-type water heaters can be obtained over the counter. Please assure that the replacement unit meets the First Hour Recovery sizing of CPC Table 5-1 noted on the energy guide label.

## Installation Requirements

Water heaters installed in a garage area must be raised to 18 inches from the floor measured to the glow, spark or flame (CPC 508.14, see diagram).

*Closed combustion-chamber type water heaters can be installed directly onto the garage floor only when the floor has positive slope to a floor drain or to the exterior (DC Building Division Policy).*

A fullway valve shall be installed on the cold water supply pipe to each water heater at or near the water heater (CPC 605.2).

Fuel burning water heaters shall be vented to the building exterior. The vent shall terminate at least one foot above a roof that is flat to a roof sloped 6/12. If there is a horizontal section, that horizontal section's length can only be 75% of the total height of the vent pipe. The horizontal section must have a continuous upwards slope of at least 1/4 inch/one foot.

Water heaters that depend on the combustion of fuel for heat shall not be installed in a room used or designed to be used for sleeping purposes, or in a bathroom, closet or other confined space opening into a bathroom or bedroom (CPC 509).

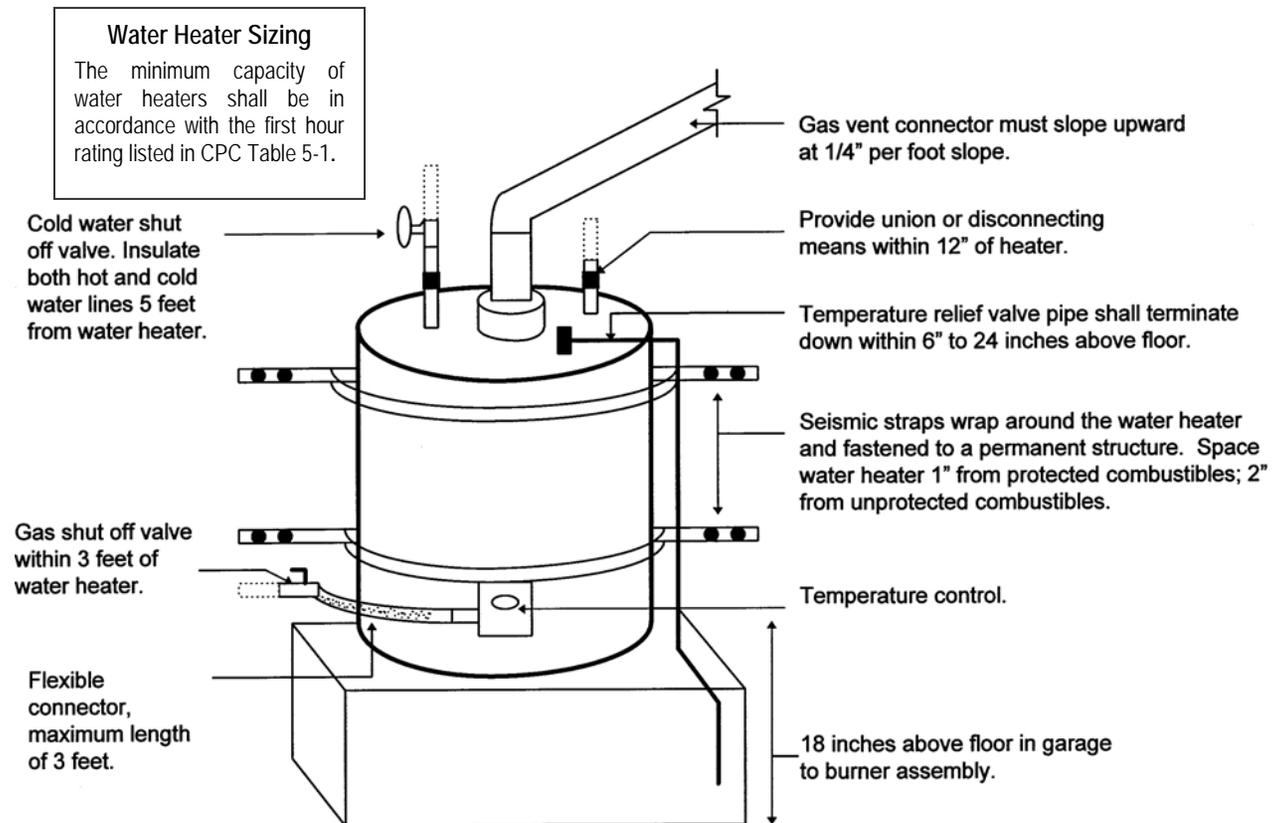
Flexible water line connectors to a water heater are recommended. They provide protection against water line breaking or leaking in the event of an earthquake. Flexible gas connectors are not

required, but are recommended for the same reason. A union or flared connection is required on hot and cold water lines to facilitate removal of the appliance (CPC 609.5).

Insulation (1") is required on the first five feet of both the hot and cold water lines (CA Energy Code 150(j)2).

Bonding of the hot water, cold water and gas piping is required. A #8 copper wire threaded through the eye of brass or copper "weaver" clamps meets the requirement (CEC 250-104(a) & (b)).

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
1 <sup>st</sup> hour rating, gallons	42	54	54	54	67	67	80	67	80	80	80



## Temperature/Pressure Relief Valve Requirements

Gas storage-type water heaters shall be provided with an approved, listed, properly sized temperature/pressure relief valve installed on the appliance in accordance with manufacturer's instructions. The relief valve shall be provided with a drain. The drain shall be the size of the valve outlet (typically 3/4 inch) and be constructed of copper or iron pipe. The valve shall extend to the garage or exterior of the building and shall terminate between six and 24 inches from the floor or ground. The pipe may not be trapped (CPC 608). The pipe cannot drain into a water heater pan (CPC 508.4 & 508.5).

## Gas-Fired Tankless Water Heaters

Tankless water heaters must be installed in accordance with the manufacturer's installation instructions. Generally, tankless water heaters must be vented independently through Category III (stainless steel) venting systems.

Permits for tankless water heaters require that a gas piping schematic or plan of the gas-piping layout shall be submitted for review. The plan must show the size of the meter (in BTUs), size and length of all gas piping and size of all gas appliances in BTUs. Staff will review the plan before a permit is issued. We will make every attempt to review it at the counter. NOTE: Gas-fired tankless water heaters usually require a 110/120 receptacle for operation of the thermostatic control.

## Excessive Water Pressure

An approved type pressure regulator preceded by an adequate strainer shall be installed and static water pressure reduced to 80 pounds per square inch or less.

## Water Heater Expansion Tank

An approved, listed expansion tank or other device designed for intermittent operation for thermal expansion control shall be installed:

- Whenever the building supply pressure is greater than the required relief valve pressure setting, or
- When any device is installed that prevents pressure relief through the building supply.

*Example: When a pressure-regulating device is installed on the building supply that does not have a bypass feature (that allows dissipation of excess pressure), a water heater expansion tank is required.*

## Protection Against Physical Damage

Water heaters shall be anchored or strapped in an approved manner to resist horizontal displacement due to earthquake motion. Strapping shall be at points within the upper and lower one-third of its vertical dimensions. At the lower point, a minimum distance of four inches shall be maintained above the controls (CPC 508.2).

Water heaters located in the garage where they may be subject to physical damage from a vehicle must be provided with protection (CPC 508.14). A three-inch diameter standard weight metal pipe embedded as a bollard in the concrete slab is recommended.

## Special Daly City Requirements

The water heater is required to be raised upon replacement, when remodeling or doing an addition with a cost exceeding \$1,000, or upon sale or transfer of property (DCMC 15.20.060).

## Contact

If you have any questions or comments, please contact an inspector at (650) 991-8061.

ECDmc06-08-11

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**BUILDING DIVISION  
CITY OF DALY CITY  
(650) 991-8061**