



# Water Heaters

TECHNICAL BULLETIN  
RESD-5-1

City of San Diego  
Development Services Department  
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The purpose of this technical bulletin is to provide guidelines for water heater installations. All original and replacement water heater installations are required to be installed in compliance with California Plumbing Code (CPC). A plumbing permit is required for the installation of a water heater.

## Documents referenced in this Information Bulletin

- [2016 California Energy Code \(CEC\)](#)
- [2016 California Plumbing Code \(CPC\)](#)
- [Information Bulletin 103, Fee Schedule for Mechanical, Plumbing/Gas, Electrical Permits](#)

### I. GENERAL

Water heaters shall be located per the following requirements:

- Water heaters (gas or electric) that generate a glow, spark, or flame capable of igniting flammable vapors may be installed in a garage if the pilots, burners, or heating elements and switches are elevated at least 18 inches above the floor. If the water heater is installed on a stand or platform base, the base must be adequately anchored to the floor. If the water heater installed within a garage is enclosed in a separate, approved compartment that is accessed only from outside of the garage, it may be installed at floor level provided that the required combustion air is drawn from outside.
- Water heaters installed in a garage shall be guarded against damage by being installed behind protective barriers, be elevated, or located out of the normal path of vehicles.
- Gas-fired water heaters, except for direct vent water heaters, shall not be installed in bathrooms, clothes closets, rooms used for sleeping, or any closet or confined space that opens into a bathroom or bedroom, unless the closet meets the requirements of CPC 504.1(1).
- Water heaters located in an attic or space shall have a watertight pan (Smitty Pan) installed beneath the water heater with a minimum  $\frac{3}{4}$ -inch drain to an approved, readily visible location.

### II. SEISMIC STRAPPING

All water heaters are required to be anchored or strapped to resist movement during an earthquake per the CPC. This can be accomplished by installing any of the products especially made for restraining water heaters.



Strapping shall be at points within the upper one-third and lower one-third of its vertical dimensions. At the lower point, a minimum distance of four inches shall be maintained above the controls with the strapping.

### III. TEMPERATURE AND PRESSURE RELIEF VALVE

In addition to primary temperature controls, storage-type water heaters and tankless type water heaters must be provided with a combination temperature and pressure relief valve (T&P valve). The T&P valve must be listed by a nationally recognized listing agency and installed in accordance with listing. T&P requirements are as follows :

- Each T&P valve must have a gravity drain.

- B.** Shutoff valve shall not be installed in the relief valve drain line.
- C.** The drain provided to T&P valves shall not be smaller than the relief valve outlet and must be of galvanized steel, CPVC, hard-drawn copper piping and fittings, or be a listed relief valve drain tube with fittings that will not reduce the internal bore of the piping.
- D.** The piping shall extend from the valve to the outside of the building with the end of the pipe pointing downward, not more than 2 feet nor less than 6 inches above the ground, or to an approved receptor with a minimum 1 inch airgap. It is not acceptable to terminate the T&P in the underfloor area.
- E.** T&P drainage piping must run independently from other drainage piping. For example, it is not acceptable to combine T&P drains with A/C condensate drainage piping or water heater drain pan piping. Also, it is not acceptable to terminate the T&P drain into a water heater drain pan (Smitty pan).
- F.** T&P drain must not be directly connected to the sanitary sewer.
- G.** No part of such drain shall be trapped and the terminal end shall not be threaded.
- IV. COMBUSTION AIR**  
Combustion air shall be provided for fuel-burning water heaters with indoor or outdoor combustion air as follows:
- A.** Water heaters in enclosures shall be provided with properly sized combustion air openings located within the upper and lower 12 inches of the enclosure .
- B.** Garages that serve as enclosures shall be provided with openings to the exterior.
- V. VENTING**  
Install listed vents in accordance with the CPC and the manufacturer's recommendations. Type B vents must be sized for the new water heater plus any other gas-fired appliances which share the same system, as allowed by water heater manufacturer.
- VI. INSULATION**  
Provide insulation as follows:
- A.** Exterior insulation for the water heater shall be provided in accordance with the California Energy Code or it is required to provide a water heater that meets the Appliance Efficiency Regulations, in Title 20 California Code of Regulations Section 1601 et seq.
- B.** Hot water pipes and the first five feet of cold water pipes from the water heater shall be insulated.
- VII. EXPANSION TANKS**  
Per CPC 608.2 and 608.3, any water system provided with a check valve, backflow preventer, or any other normally closed device that prevents dissipation of building pressure back into the water main shall be provided with an approved, listed, and adequately sized expansion tank or other approved device that controls thermal expansion, independent of the type of water heater. Expansion tanks or other approved devices shall be installed on the building side of the check valve, backflow preventer, or other device and shall be sized and installed in accordance with the manufacturer's recommendation.
- VIII. GAS PIPING SYSTEM**  
Gas piping system shall be installed as follows:
- A.** When replacing a storage tank water heater with a tankless water heater, the gas line connected to the water heater and each section of pipe to the water heater shall be sized to meet the increased BTU demand rating. Manufacturer's recommendations shall be followed.
- B.** A sediment trap is required for all gas-fired water heaters and shall be installed before the gas flex connector per CPC 1212.8.
- C.** Flexible appliance connectors shall not be reused.