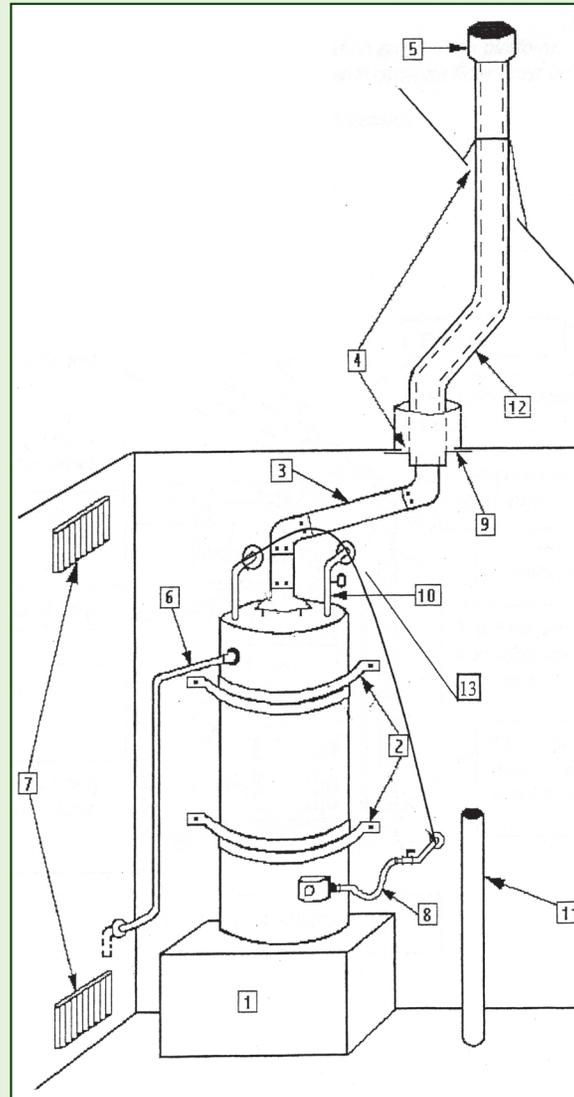


## RESIDENTIAL WATER HEATER REQUIREMENTS

A permit is required for any water heater installation. (503.0 C.P.C.)

Inspection is required after the water heater is installed to verify compliance with the building codes regarding: location of water heater, combustion air, venting and vent termination, seismic bracing, access and working space, clearances to combustibles, gas piping and connections, temperature and pressure relief valve and discharge piping, water and gas shut off valves, water piping and connections, bonding of metallic piping, energy compliance, and if required because of location, elevation, vehicle damage protection and drain pan with drain pipe. (504.2 C.P.C.)



# Water Heater



## Residential Permit Requirements



City of San Bruno

Community Development  
Department

*Building Division*

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REVISED June 2014

# Residential Water Heater Requirements

- 1. Installation in Residential Garages:** Elevation of a gas water heater in a garage may not be required if listed as a flammable vapor ignition resistant type water heater, which can be installed on garage floor. If elevated, platform must be secured to floor or wall, and burner located not less than 18" above floor. (508.14 C.P.C.)
- 2. Seismic Bracing:** Water heaters up to 52-gallons require two straps, larger water heaters will require additional bracing. The strapping must be located within the upper one-third and lower one-third of the water heater, with the lower strap at least 4" above the controls. Straps must be a minimum of 1" wide. Ends of straps must be secured to studs or blocking with minimum ¼" lag bolts and washers. Other approved bracing systems can be used. (508.2 C.P.C.)
- 3. Vent Connector:** Pipe sections must be secured with 3 sheet metal screws per joint. A vent connector shall be installed without any dips or sags and shall slope upward toward the vent at least ¼" per foot. Avoid unnecessary bends and keep vent connector as short as practical. (510.10 C.P.C.)
- 4. Clearance to Combustibles:** Clearance for type B double wall metal vent pipe to any combustibles must be at least 1". Single wall metal vent piping clearance to combustibles is 6" and shall not be installed in a confined space. (510.6.1 C.P.C.)
- 5. Vent Termination:** Vents must extend above the roof surface a minimum of 12" and terminate with a listed vent cap. The minimum total height of the venting system is 5' from vent collar to termination. Termination must be a minimum of 4' away from any opening into the building, and at least 8' from any vertical wall or similar obstruction. (510.6.2 C.P.C.)
- 6. Temperature & Pressure Relief Valve & Drain Line:** All water heaters must be equipped with a temperature and pressure relief valve and drain line. The drain line should be equal to the outlet size, but in no case be less than ¾", and extend to the outside of the building when possible. The end of the pipe should not be more than 24" or less than 6" above the ground and point downward. If termination of drain line to outside is not practical other locations may be approved. (608.5 C.P.C.)
- 7. Combustion Air:** If the room or area in which the water heater is located has a volume less than 2000 cubic feet, you will need to provide additional combustion air from outside. Combustion air grills must be located both high and low, with a minimum screen mesh size of ¼". They should be installed within the upper 12" and lower 12" of the enclosure or room. (507.2 C.P.C.)
- 8. Gas Connection:** The gas supply must have a readily accessible shut off valve adjacent to the water heater ahead of flex connector. A flex connector cannot be used in any concealed location and cannot pass through any walls, floors or ceilings. (1212.3(D) C.P.C.)
- 9. Venting System:** The water heater gas vent system shall be sized and installed per manufacturers instructions and building codes. (510.0 C.P.C.)
- 10. Pipe Insulation:** The first 5' of both cold and hot water inlet and outlet piping must be insulated maintaining clearances to vent pipe. If the water heater has a re-circulating pump system the entire length of the circulating piping loop will need to be insulated. (California Energy Commission Mandatory requirements)
- 11. Protection:** If the water heater is located in the path of travel of a vehicle a method of providing protection is needed. A 4" pipe filled with concrete can be used to protect the water heater from damage. Install pipe 3' above floor and set into a 2' deep concrete footing (508.17 C.P.C.)
- 12. Appliance Vent:** That portion of the venting system that penetrates the ceiling, floor, attic or roof systems must be of type B, BW, or type L. The appliance vent shall extend in a generally vertical direction with offsets not to exceed 45 degrees from vertical. (510.6.1.1C.P.C.)
- 13. Bonding:** Bonding shall be provided between all metallic piping at water heater (hot water, cold water, and gas piping) and any devices that break the continuity between metallic pipes. Use bonding wire that is the same size as grounding conductor for electrical service and bonding clamps. (250.104 C.E.C.)
- 14. Drain-Pan:** A drain pan is required when a water heater is installed in a location where leakage could cause damage to structure. The drain pan shall be installed with a minimum ¾" drain line that drains to the exterior of the building or approved location. The discharge pipe from the drain pan can be copper or PVC. The discharge from the temperature and pressure relief valve cannot terminate into the water heater drain pan. (508.4 & .5 C.P.C.)