



# New and Replacement Water Heater Installations

## *Selected excerpts from the 2019 California Plumbing Code (CPC)*

### CPC 507.2 - Seismic Provisions:

Strapping shall be at a point within the upper 1/3 and lower 1/3 of the water heater's vertical dimensions. At the lower point, a minimum distance of four (4) inches shall be maintained above the controls with the strapping.

### CPC 608.3 - Expansion Tanks and Combination Temperature & Pressure Relief Valves:

An approved, listed and adequately sized expansion tank shall be installed when the water system is provided with a check valve or backflow prevention device.

T & P relief valves shall be provided with a drain to the outside of the building, not smaller than the relief valve outlet, of either galvanized steel, hard-drawn copper, CPVC, or listed relief valve drain tube. For more information on the termination of the T & P valve piping see page 2.

### CPC 509.6 - Water Heater Venting and Termination:

Type B gas vents shall extend in a generally vertical direction with offsets not exceeding 45 degrees, except that a vent system having not more than one 60 degree offset shall be permitted. Any angle greater than 45 degrees from the vertical is considered horizontal. The total horizontal distance of a vent, plus the horizontal vent connector serving draft-hood equipped appliances, shall not be greater than 75 percent of the vertical height of the vent.

Type B gas vents shall terminate at least 5 feet in vertical height above the water heater.

Vents shall terminate above the roof surface with a listed cap or listed roof assembly. Provide a minimum 8 foot horizontal clearance from any opening into the building.

### CPC 507.13 - Installation in Residential Garages:

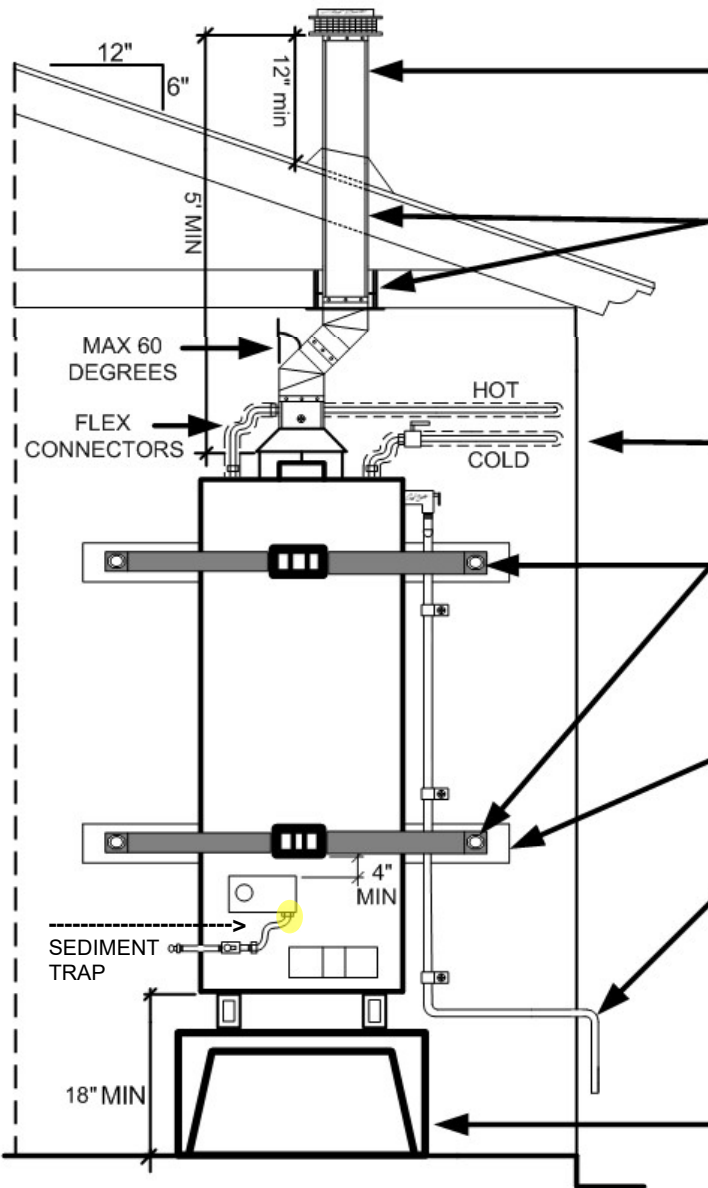
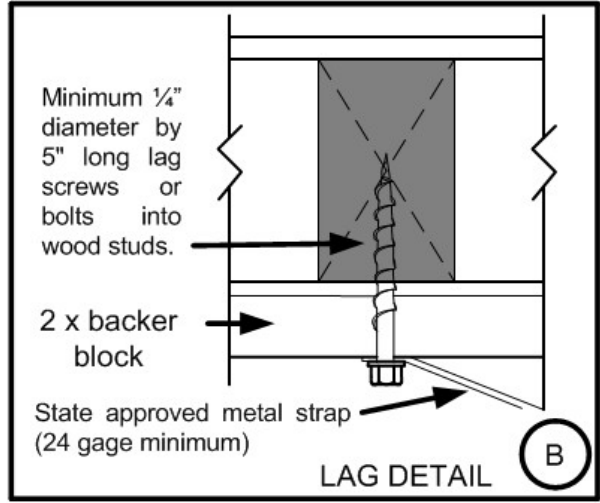
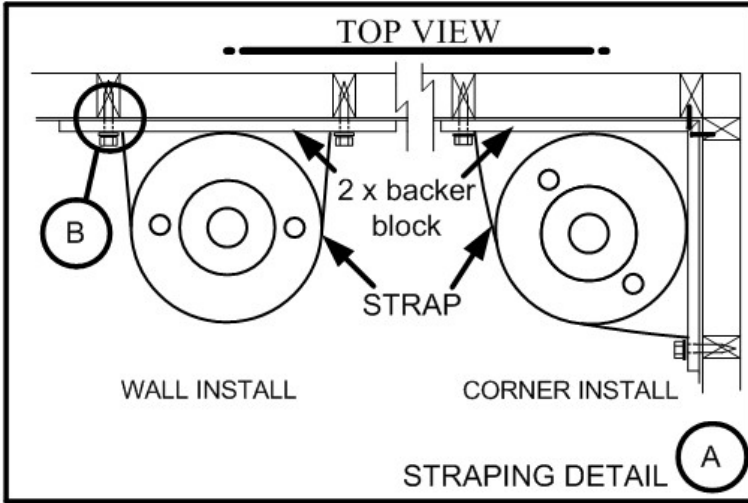
Water heaters in garages and in adjacent spaces that open to a garage shall be installed so that all burners and burner-ignition devices are located not less than 18 inches above the floor, unless listed as flammable vapor ignition resistant. Water heaters shall be located or protected so that they are not subject to physical damage by a moving vehicle.

### CPC 506.4 - Outdoor Combustion Air:

Two permanent openings, one commencing within 12 inches of the top and one commencing within 12 inches of the bottom of the water heater enclosure shall be provided. The openings shall communicate directly, or by ducts, with the outdoors or spaces that freely communicate with the outdoors. The combustion air openings shall be sized as per this Section of the CBC (or not less than 100 square inches each).

### CPC 1212.9 - Sediment Trap:

A sediment trap shall be installed downstream of the appliance shutoff valve as close to the inlet of the appliance as practical, before the flex connector, where used at the time of appliance installation.



Venting for the water heater shall be Type B (double wall) vent pipe and shall terminate at least 5 feet above the draft hood or flue collar and at least 12" above roof. (steeper pitched roofs will require additional clearances)

Provide minimum 1" clear space from vent to any combustible materials. When type B water heater vent is installed in an attic, provide approved ceiling thimble for the double wall vent. NO single wall vents allowed in attic.

Insulate pipes (hot & cold) within the first 5' feet of the water heater.

**Install an expansion tank if the water system includes a check valve or other backflow prevention device.**

Strapping shall be within the upper 1/3 and the lower 1/3 of the water heater. At the lower point, a minimum distance of 4" inches shall be maintained between the controls and the lower strap. Other methods may be acceptable, check with the Building Inspector. See strap and lag detail above.

Provide a 2 x backer block top and bottom behind water heater for support if there is no stud directly behind the water heater. See detail (A)

Temperature and pressure (T&P) relief valve piping shall extend from the valve to the outside of the building with end of pipe not more than 24" nor less than 6" from the ground. Other methods and locations may be acceptable, check with the Building Inspector. Piping shall be of galvanized steel, hard-drawn copper or CPVC.

Gas water heaters in residential garages must be a minimum of 18" above the floor to the burner device. Additionally, water heaters installed in garages shall be protected so as to not be subject to physical damage by a moving vehicle.