

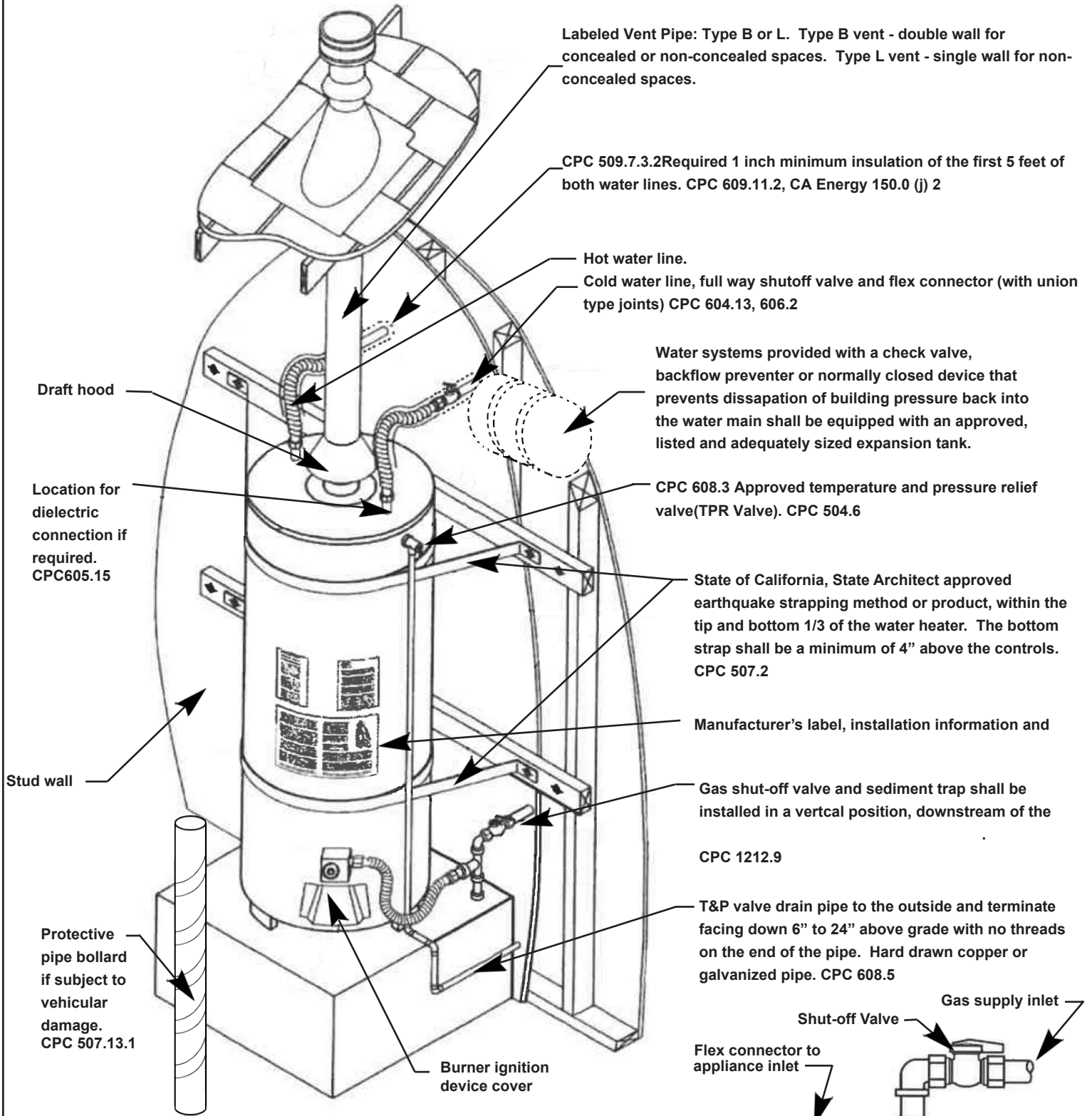


City of Mission Viejo

Community Development: Building Services Division
200 Civic Center
Mission Viejo, CA 92691
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Residential Water Heater Installations

(Selected excerpts from the 2019 CA Plumbing Code)



Labeled Vent Pipe: Type B or L. Type B vent - double wall for concealed or non-concealed spaces. Type L vent - single wall for non-concealed spaces.

CPC 509.7.3.2 Required 1 inch minimum insulation of the first 5 feet of both water lines. CPC 609.11.2, CA Energy 150.0 (j) 2

Hot water line.
Cold water line, full way shutoff valve and flex connector (with union type joints) CPC 604.13, 606.2

Water systems provided with a check valve, backflow preventer or normally closed device that prevents dissipation of building pressure back into the water main shall be equipped with an approved, listed and adequately sized expansion tank.

CPC 608.3 Approved temperature and pressure relief valve (TPR Valve). CPC 504.6

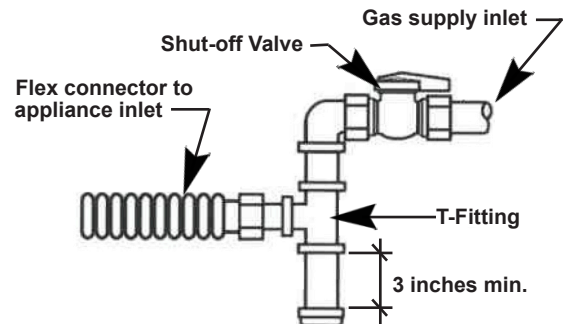
State of California, State Architect approved earthquake strapping method or product, within the top and bottom 1/3 of the water heater. The bottom strap shall be a minimum of 4" above the controls. CPC 507.2

Manufacturer's label, installation information and

Gas shut-off valve and sediment trap shall be installed in a vertical position, downstream of the

CPC 1212.9

T&P valve drain pipe to the outside and terminate facing down 6" to 24" above grade with no threads on the end of the pipe. Hard drawn copper or galvanized pipe. CPC 608.5



Proper Sediment trap installation

Appliances in garages shall be installed 18" above the floor to the burner-ignition device unless listed as flammable vapor ignition resistant (FVIR) CPC 507.13

3/4 inch Drain pan is required where damage from leaks can occur such as in attic

GENERAL NOTES

1. This information is intended to provide general guidance on the installation of gas water heaters in single family residences. It summarizes information contained in the California Plumbing Code (CPC) and the Building Code, but does not replace it. Manufacturer's installation instructions are an integral part of the installation requirements and shall be followed accordingly. If conditions are encountered that are not covered herein, the codes shall be consulted. Copies of the code can be reviewed in many libraries or at your local Building Division.
2. Most home improvement stores sell kits to anchor strap water heaters. These kits must be approved by the State of California, State Architect. This is demonstrated by the seal of the State Architect, which looks like a sea-shell with inches "ACCEPTABLE METHOD" written below. Install these kits per the installation instructions. Other methods which have been approved by the State Architect may be submitted to the Building Official for approval.
3. Manufacturer's labels include instructions for installation and requirements for required clearances from combustibles and other important information, so it is important to review this information prior to installation.
4. Access to water heaters must be provided with an opening at least 22 x 30 inches wide and large enough to remove the heater. See the code for additional requirements. CPC 508.4
5. Fuel gas piping flex connectors must be approved for the type of installation, exterior or interior grade based on location. CPC 1212.1
6. Provide a full-way valve on the inlet side of the heater. CPC 606.2
7. Mixing of dissimilar metals is not permitted, unless dielectric insulators are used in the connections. CPC 507.1
8. A sediment trap shall be installed in a vertical position downstream of the shut-off valve and before the flex-connector. CPC 1212.9
9. If the water supply is a closed system, an expansion tank at the water heater will be required. Closed systems include backflow devices and check valve systems. CPC 608.3

LOCATION REQUIREMENTS

1. Interior Installation - The water heater shall not be installed in a room used for sleeping purposes, in clothes closets or in any confined space opening into a bedroom or bath. A drain pan at least 1.5 inches deep must be provided with a drain to an approved location or fixture. CPC 507.5
2. Exterior Installation - The water heater must be located on a level concrete slab at least 3 inches above grade and located in an approved enclosure.
3. Garage Installation - The burner of the water heater must be located at least 18 inches above the floor to preclude the ignition of combustible vapors unless listed as Flammable Vapor Ignition Resistant (FVIR) & must be protected from vehicular damage. CPC 507.13
4. Change of Water Heaters - Water Heaters replaced in the same location must be installed per the manufacturer's installation Instructions. HSC 19211 (a)

Water heaters which are relocated must comply with all new code requirements.

COMBUSTION AIR CPC 507.4.1

1. Fuel burning water heaters must be provided with air to assure proper combustion of fuel and ventilation. The required size of combustion air openings is detailed in the CPC. For water heaters 50 gallons or less, a combustion air duct of 25 square inches (6 inches round) is required. The combustion air duct can take air from the outside of the building or a ventilated attic (min. of 30 inches in height).
2. 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. Combustion air openings shall not be less than 100 square inches. There shall be at least 10 feet from the return air inlet of a blower-type furnace. CPC 506.3 (1)
3. For larger water heaters, multiple fuel burning appliances in a single area, or if different duct sizes are used, review the code for the combustion air requirements.

VENTING REQUIREMENTS CPC 507.7.3

1. Vents must terminate in accordance with the drawing to the right. Consult the code for conditions not shown.
2. Single wall vent connectors must be fastened with (3) sheet metal screws, rivets, etc.
3. Single wall vent connectors must start and end in the same place as the water heater. No portion of the connector can be concealed within the construction of the building
4. Vent connectors must be the same size as the draft hood outlet on the appliance.

They must slope up from the draft hood to the vent at least 1/4 inches per foot. The total horizontal length of the venting system, including vent and vent connector, must not exceed 75% of the vertical height of the vent.

5. Provide separation to combustible materials as required by labeling requirements of vent pipe.
6. When a vent penetrates a ceiling, a thimble (also known as a bucket or fire stop) shall be installed at the ceiling line.

TABLE 509.6.1	
Y/X	H (MIN FEET)
Flat to 6/12	1.0
> 6/12 to 7/12	1.25
> 7/12 to 8/12	1.5
> 8/12 to 9/12	2.0
> 9/12 to 10/12	2.5
> 10/12 to 11/12	3.25
> 11/12 to 12/12	4.0
> 12/12 to 14/12	5.0
> 14/12 to 16/12	6.0
> 16/12 to 18/12	7.0
> 18/12 to 20/12	7.5
> 20/12 to 12/12	8.0

