

WATER HEATER REPLACEMENT/INSTALLATION & TANKLESS WATER HEATER GUIDE

FOR ONE-TO-TWO FAMILY DWELLINGS

SUBMITTAL REQUIREMENTS

A permit is required for all water heater installation and replacements. Permit shall be obtained prior to the start of the work.

One electronic set of plans, digitally signed by the designer/architect, contractor, or homeowner responsible for preparing the plans. All plans submitted (*at minimum, include existing and new floor plans*) shall be a minimum plan size of 11" x 17" and **must be legible** to facilitate digital imaging as a permanent record after the project is completed.

Exterior modifications to buildings require Planning review and approval prior to submittal to the Building Division.

If the property is overseen by a Homeowners Association a letter of authorization signed by the HOA is required.

The following is a listing of the general code requirements based on the **2022** California Codes & Mountain View Municipal Code. This handout is intended to provide general information. If you have questions, please contact the Building Division at (650) 903-6313 or email us at building@mountainview.gov.

BASIC CODE REQUIREMENTS

1. Plans must show a complete and clear scope of work.
2. Water heaters require two seismic straps; one located within the top 1/3 of the water heater unit and one at the bottom 1/3. The bottom strap shall be a minimum of 4" from the water heater controls (Figure #1) (CPC 507.2).
3. All vents piping that run through ceilings, floors, or walls shall be double-wall metal pipe. The vent and the water heater must maintain clearance from combustibles materials (such as wall framing or roofing) as required by the manufacturer, which is typically 1" minimum. The vent shall terminate a minimum 1' above the roof, be installed with flashing through the roof, and terminate in a listed and approved vent cap. Vents shall also terminate a minimum of 3' above any building opening (door, operable window, etc.) within 3' of the termination. Venting shall extend in a generally vertical direction with offsets not exceeding 45°, except one 60° offset is permitted. Vents may require additional support depending on the material and design (Figure #2) (CPC 509 & 510).
4. All water heaters must be equipped with a temperature & pressure relief valve. The valve shall be drained to the exterior, terminate toward the ground maintaining between 6" and 24" of clearance from the ground, and point downward (CPC 504.4, 504.5, and 608.5).
5. Water heaters located in a garage must be elevated so the pilot light and controls are at least 18" above the garage floor surface (Figure #1) (CPC 507.13).
6. If subject to vehicular damage, adequate barriers must be installed (e.g. 4" diameter steel pipe filled with concrete installed in a 12" diameter footing that is 3' deep and a minimum of 2'-9" above the finished floor, figure #1) (CPC 507.13.1).
7. Drainage pan. If located in an attic or furred space (e.g. closet) where leaking could cause damage to underlying wood framing, the water heater must be set in a pan constructed of water tight corrosion resistant material and a minimum of 1-1/2" deep. The pan must be fitted with a minimum 3/4" drain that drains to an approved location. The P/T line is not allowed to terminate at this pan or be connected to it (Figure #2) (CPC 507.5).

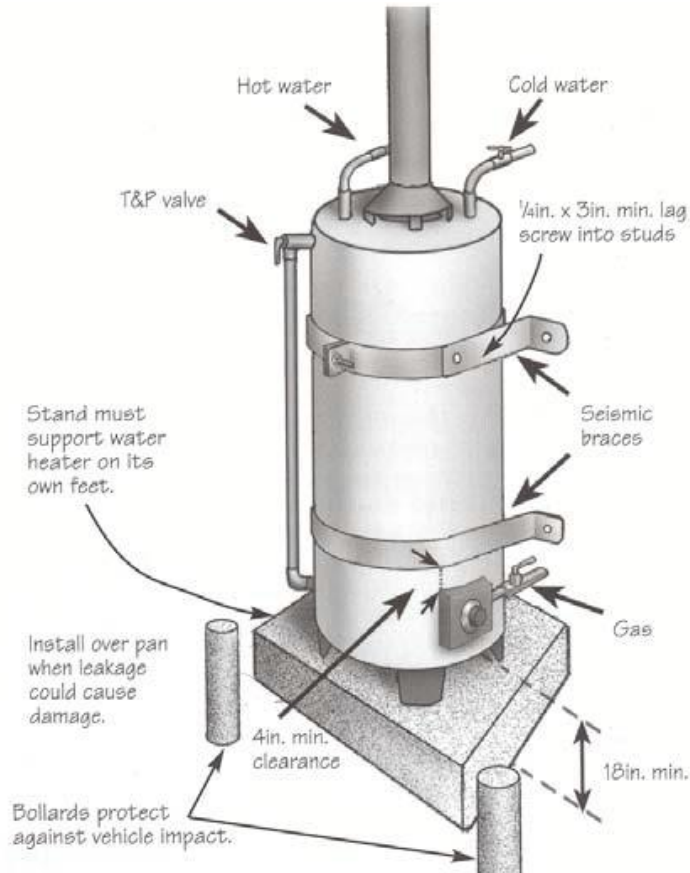


Figure #1:

8. When located in an attic or under-floor, the water heater shall be accessible through an opening and passageway at least large as the largest component of the appliance, and not less than 22" by 30". Where the height of passageway is less than 6', the distance from the passageway access to appliance shall not exceed 20' measured along the centerline of the passageway. The passageway shall be unobstructed and shall have solid flooring not less than 24" wide. A level working platform not less than 30" by 30" shall be provided in front of the service side of the appliance. A permanent 120-volt receptacle outlet and lighting fixture shall be installed near the appliance. The switch controlling the lighting fixture shall be located at the entrance to the passageway (Figure #2) (CPC 508.4).
9. A sediment trap shall be provided on the gas line downstream of the appliance shut-off valve, as close to the inlet of the equipment as practical, and upstream of the flex connector (CPC 1212.8).
10. If located in a bedroom or bathroom, the water heater shall be located in a closet provided with a listed self-closing, gasketed door and all combustion air shall be obtained from outdoors. The water heater closet shall not be used for any other purpose (CPC 504.1).
11. Appliances located in flood zones shall be elevated at or above the flood elevation (CRC R322).
12. Combustion air must be maintained per the California Plumbing Code. When the appliance is located in an unconfined space (e.g. garage) combustion air can be used from that area. When located in a closet, combustion air must be provided at a minimum of two openings (one within 12" of the top of the water heater and one within 12" of the bottom) sized at 100 square inches each (CPC 506).
13. Combustion air must be maintained per the California Plumbing Code. When the appliance is located in an unconfined space (e.g. garage) combustion air can be used from that area. When located in a closet, combustion air must be provided at a minimum of two openings (one within 12" of the top of the water heater and one within 12" of the bottom) sized at 100 square inches each (CPC 506).

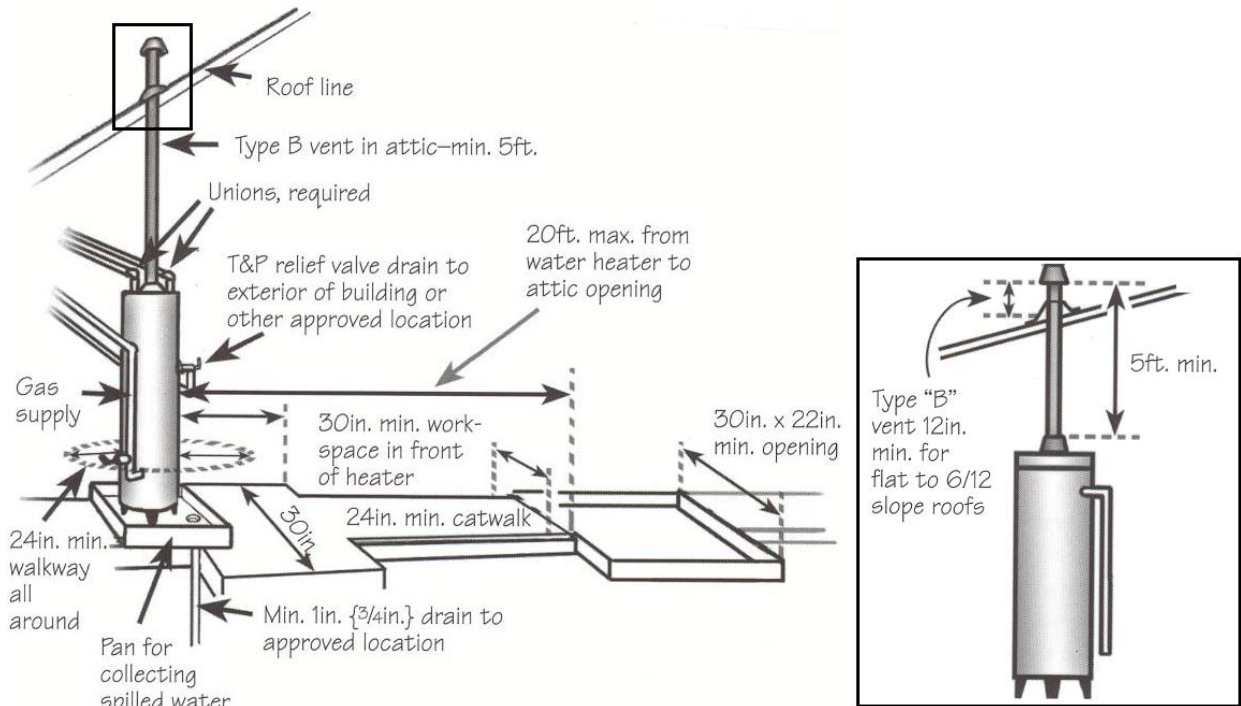


Figure #2:

14. Electric water heaters are allowed as long as they are an electric heat pump type and have a minimum Energy Factor of 2.80. Documentation from the manufacturer showing the Energy Factor rating shall be provided at the final inspection (CEnrC 150.2(b)1Giid).
15. Per City Code SEC. 8.51(C), a minimum of 200 amps service disconnect shall be required for one family dwelling or, per SEC. 8.51(D), a minimum of 125 amps service disconnect shall be required for other than one family dwelling. If an electrical water heater is proposed, provide load calculations for all existing loads, including the new water heater, to justify the service is adequate (CEC 220).

General Requirements for tankless water heaters (TWH):

1. TWH shall be listed by an approved testing agency (UL, UPC, etc.) and installed in accordance with the manufacturer's requirements.
2. TWH generally requires a significantly greater quantity of gas than a storage tank heater. Care must be taken to verify that existing house gas piping is adequately (re)sized for the increased load.
3. TWH may require a 110/120V receptacle outlet for operation of the thermostatic controls.
4. Direct vent units & combustion air for TWH shall be provided in accordance with the manufacturer's printed instructions. Those instructions must be at the job site and available to the inspector during the inspection.
5. PG&E requires a minimum horizontal clearance of 36" between the gas meter and a tankless water heater when located on the same wall.

OTHER RELATED HANDOUTS

- Smoke Detector & Carbon Monoxide requirements
- GFCI & AFCI requirements
- Self-Certification - Smoke & Carbon Detectors