



# Gas Water Heaters

## 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 CA Plumbing Code™ (C.P.C.) but does not replace it. It assumes that the fuel gas system has already been extended to the water heater and that an adequate venting system is in place and in good condition. If conditions are encountered that are not covered herein, plumbing codes may be reviewed in many libraries or at your Building Department.

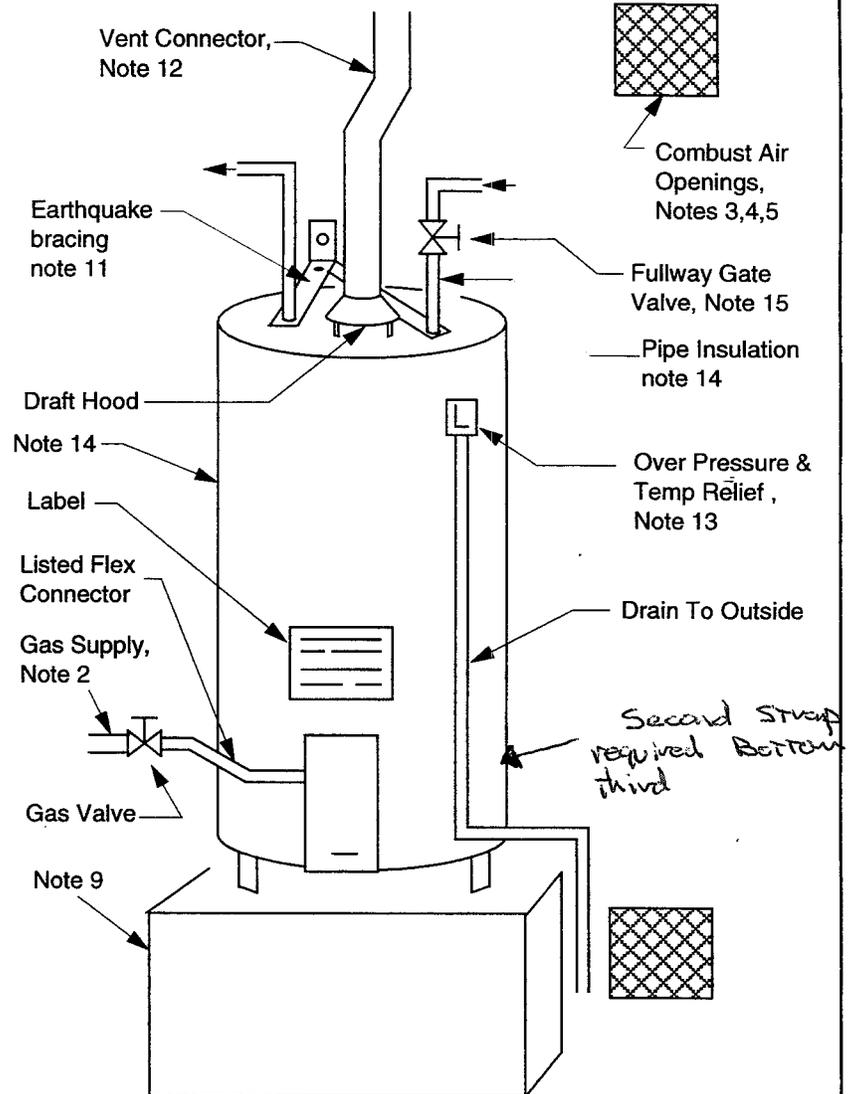
2. Fuel gas piping must be sized for the demand upon it. If a water heater is replaced with a larger one then the size of the fuel gas piping system should be reviewed in accordance with the C.P.C. and upgraded as necessary.

3. Fuel burning water heaters must be provided with air to assure proper combustion of fuel and ventilation. In tightly constructed buildings with vapor barriers, weather-stripping and sealed framing joints, combustion air must be ducted in from the outside or from attic-like spaces which freely communicate with the outside via permanent screened openings. In buildings of ordinary tightness, combustion air may be supplied by infiltration through walls etc., but water heaters that are in small closets must be provided openings for combustion air.

4. Combustion air openings must be placed so that one half of the required supply enters the water heater enclosure within 12" of the ceiling and one half enters within 12" of the floor. Openings must be a minimum of three inches in least dimension. They should be located at least ten feet from the return air inlet of a blower type furnace.

5. The required size of combustion air openings is detailed in the C.P.C. The information presented here is simpler but may result in larger openings which exceed the minimum requirements of the code. If you are installing a water heater that is larger than 50 gal. or are installing multiple water heaters, or where the water heater shares a compartment with other fuel burning appliances, consult the C.P.C. Where the building is of ordinary tightness and the water heater is in a large room such as the basement where the room exceeds 50 cubic feet per 1000 BTU input, no special openings need be provided. Where the building is of ordinary tightness but the water heater is in a closet or other space where the volume is less than 50 cubic feet per 1000 BTU input, provide 100-square-inch openings at top and bottom of the space which freely communicate with other unconfined interior spaces. In a building of unusual tightness, providing two 25 square inch ducts (6" round) to the outside will meet or exceed the requirements of the code for the typical 50 gal or smaller water heater. Smaller ducts are sometimes possible. Consult the C.P.C. if 6" ducts are a problem.

## Gas Water Heater Elevation



6. Clearances for listed water heaters may be found on the appliance label. Note that the front clearance is often greater than the sides and rear.

7. Access to water heaters must be provided. The opening to water heater closets must be at least 24" wide and large enough to remove the heater. See the C.P.C. for access requirements in other types of installations.

8. Fuel burning water heaters may not be located in rooms that are used or designed to be used for sleeping. They may not be located in bathrooms. They may not be installed in clothes closets or in any other confined space opening into a bathroom or bedroom. Do not move them away from the vent serving them so that the vent connector becomes very long and flat. See Note 12.

9. Water heaters installed in a garage must be elevated to preclude the ignition of combustible vapors from leaking automotive fuel. A 16" platform is typically built in order to comply with the C.P.C. requirement that the pilot and burner be 18" above the floor.

10. Water heaters must be protected from mechanical damage. In the garage this means placing them out of the path of vehicles or providing protective posts or partitions or elevating them out of the way.

11. Anchor or strap the heater to wall framing so that it will not displace during earthquakes.

12. Single wall vent connectors must be fastened with sheet metal screws, rivets, etc.. Single wall vent connectors must start and end in the same space as the water heater. No portion of the connector can be concealed within the construction of the building. 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 in. 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.

13. Provide an over-temperature and pressure relief valve somewhere on the water system, usually on the water heater as required by the manufacturer.

14. Where the heater is installed outside the conditioned space of the home provide a supplemental insulating blanket and insulate at least the first five feet of the water lines water lines per California energy laws.

15. Provide a full-way gate valve on the inlet side of the heater.

16. Gas water heaters must not be installed in a room used or designed to be used for sleeping purposes. They must not be installed in clothes closets or in a closet or other confined space opening into a bath or bedroom. The exception to these rules is the direct vent type water heater which may be installed in these types of spaces.

