



RESIDENTIAL WATER HEATER Replacement Requirements

26 Corte Madera Ave., Mill Valley, CA 94941
Phone: (415) 388-4033

- A Permit is required for all water heater replacements.
- In buildings of unusually tight construction all combustion air must be obtained from outside of building (nearly all modern homes).
- Water heaters, other than direct vent, shall not be installed in a room that could be used for sleeping purposes, bathroom, or clothes closets or in a closet or other confined space opening into a bath or bedroom.
- Access opening must be minimum of 30" X 30" and unobstructed by pipes, ducts, stud walls and similar construction.
- If water heater is installed in an attic, passageway to water heater shall have an unobstructed solid continuous floor, not less than 24 in. wide, and not to exceed 20' in length, from the access door to the water heater.
- Attic and under floor water heater locations shall be provided with an electric outlet and lighting fixture at or near the water heater. A switch adjacent to the attic opening must control the light. An unobstructed solidly floored working space not less than 30 in. in width and depth shall be provided immediately in front of the firebox access opening.
- Note that if water heater is installed in a garage or compartment accessed from garage and generates a spark, glow or flame, it shall be elevated a minimum of 18" above the floor to point of ignition.
- Water heaters shall be anchored or strapped to resist horizontal displacement due to earthquake motion. Strapping shall be at points within the upper one-third and lower one-third of its vertical dimensions. At the lower point, a minimum distance of four inches shall be maintained above the controls with the strapping. Water heaters larger than 50 gallons must have minimum 3 straps.
- All water heaters installed where they may be subject to mechanical damage shall be installed behind adequate barriers.
- All water heaters supported on grade shall rest on level concrete extending not less than 3" above highest adjacent grade.
- All water heaters located on or above wood subfloors shall be installed in a corrosion resistant watertight pan with a minimum ¾ inch diameter drain to an approved location.
- Bond interior piping systems at water heater: install minimum #8 copper conductor attached with listed clamps to cold water, hot water and gas piping.
- A properly sized combination temperature and pressure relief valve is required for all water heaters. If the relief valve is located inside of a building, it shall be provided with a drain, not smaller than the relief valve outlet, of copper, galvanized steel or CPVC and shall extend from the valve to the outside of the building with the end of the pipe not more than 2 ft. nor less than 6" above the ground and pointing downward. Such drains may terminate at other approved locations.
- All water heaters up to 75 gallons must have an energy factor of not less than 0.67.
- Hot and cold water piping must be insulated for the first 5' from the water heater and must be kept at least 6" away from the flue. If a recirculating pump is installed, the recirculating line must be insulated for its entire length. Pipe insulation must be a minimum of R4. Seal all pipe insulation seams. Hot water pipe insulation exposed to the weather must be suitable for outdoor service. This means protection with aluminum, sheet metal or a water and UV resistant paint coating. All hot water lines ¾" and larger that run from the water heater to the kitchen fixtures must be insulated.
- Building Official may approve replacement water heaters in locations that do not meet current code requirements. Discuss with a Building Inspector. Approval must be obtained prior to issuance of permit.

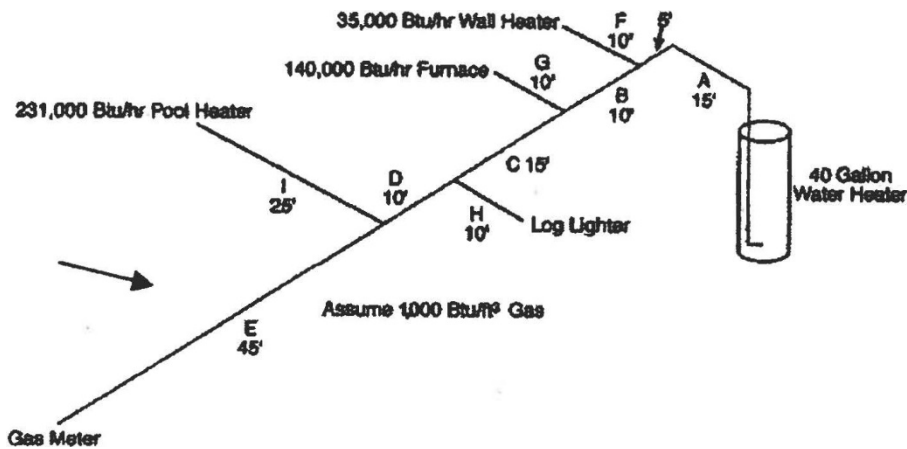
- When additional gas utilization equipment is being connected to a gas piping system, the existing piping shall be calculated/checked, by the applicant, to determine if it has adequate capacity. Gas utilization equipment shall be supported and so connected to the piping as not to exert undue strain on the connections. See the instructions for sizing gas piping systems located on the back of this handout. For example: This requirement will apply to permits for the installation of any demand water heaters, replacing storage water heaters.

Sizing of Gas Piping Systems

The CPC requires gas piping to be sized to provide sufficient gas to meet the maximum load. The Plumbing and Mechanical codes contain all the required information needed. Please provide the Building Department with a Gas Pipe Sizing worksheet for your project. You must include the following:

A schematic drawing which shows the following:

- pipe material, iron pipe or CSST
- pipe size
- Lengths of pipe runs
- BTU demand for each appliance
- California Plumbing Code Table 12-8 and 12-19 are used In most areas. Note that CSST pipe can handle fewer BTU's than iron pipe of same diameter.



Using section "E" for example,

Sized for Iron Pipe

section	Col (feet)	1000 Btu/hr	size
E	100'	481	1 ½"

Sized for CSST

section	Col (feet)	1000 Btu/hr	size
E	100'	481	2"