



Informational Bulletin:

**High-Efficiency Water Heater Ready**

(Updated 4/6/22)

**General**

To facilitate future installations of high-efficiency equipment, the Energy Standards contain the following mandatory requirements for systems using gas or propane water heaters that serve individual dwelling units.

These requirements are for new construction and additions (if the water heater is installed in the added floor area), and they are not applicable to alterations. Moreover, these requirements are not applicable when installing an electric water heater.

**Requirement**

1. A dedicated 125-volt, 20-amp electrical receptacle that is connected to the electric panel with a 120/240 volt 3 conductor, 10 AWG copper branch circuit, within 3 feet from the water heater and accessible to the water heater with no obstructions. In addition, all of the following:
  - a. Both ends of the unused conductor shall be labeled with the word "spare" and be electrically isolated; and
  - b. A reserved single pole circuit breaker space in the electrical panel adjacent to the circuit breaker for the branch circuit in 1 above and labeled with the words "Future 240V Use"; and
2. A Category III or IV vent, or a Type B vent with straight pipe between the outside termination and the space where the water heater is installed; and
3. A condensate drain that is no more than 2 inches higher than the base of the installed water heater, and allows natural draining without pump assistance; and
4. A gas supply line with a capacity of at least 200,000 Btu/hr.

***Electrical Receptacle -***

The goal of this requirement is to allow easy installation of heat pump water heater (HPWH) when the existing gas water heater needs to be replaced. HPWH typically requires a 240-volt circuit, and this requirement allows an electrician to easily convert the 120-volt circuit to a 240-volt circuit.

The electrical receptacle must be installed within 3 feet from the water heater. It should be connected to a dedicated circuit with a 10 AWG copper branch circuit. The ends of the unused conductor must be labeled as "spare" and be electrically isolated.

A reserved single pole circuit breaker space must be placed in the electrical panel next to the circuit breaker for the branch circuit and labeled the words "Future 240V Use."

### ***Venting -***

Higher efficiency water heaters often require different vent materials due to the presence of acidic condensation from flue gases. The standard Type B vent installed for conventional atmospheric gas water heaters is made of steel and would soon be destroyed by the condensate. As a result, the Energy Standards require that a Type B vent for the water heater can be installed only when there is a straight shot between the water heater and where the vent leaves the building. There should be no bends along the path of the Type B vent, except for the portion of the Type B vent outside the building and in the space where the water heater is installed. The installation shall meet all code and manufacturer's guidelines. Because Category III and IV pipes are usually smaller than those for Type B vents, a straight Type B vent can be easily modified into a Category III or IV vent by simply inserting the new vent pipe through the existing Type B vent pipe. A flue pipe that makes bends through the building structure is not easy to retrofit, and thus, these flues must be either Category III or IV vent pipes. Only stainless-steel Category III and IV vents are compatible with typical atmospheric combustion storage water heaters.

### ***Condensate Drain -***

The requirement for the condensate drain being placed near the water heater and not higher than the base of the tank allows for condensate to be removed without relying on a sump pump. Condensate waste shall not be disposed over public walkways or over an area where condensate could create a nuisance or hazard. A typical method of mitigating this nuisance is to connect the condensate drain indirectly to a waste receptor.

### ***Gas Line -***

Designing the gas line to provide 200,000 BTU per hour gas supply capacity to the water heater is required to accommodate future retrofit to a gas instantaneous water heater, which usually has a heat input capacity of 199,000 BTU/hr or higher. Similar to the electrical requirement, installing a larger gas line during new construction is inexpensive relative to a future gas line retrofit.

Gas pipe sizing for the building needs to consider piping layout and gas supply requirements for other gas appliances, such as gas clothes dryers, gas furnaces, gas ranges and ovens, and gas fireplace burners. The traditional practice of using a ½-inch gas pipe in a single-family house to serve a storage water heater is not in compliance with the mandatory requirement. The exact gas piping system should be designed in accordance with the California Plumbing Code.