



CITY OF COLTON  
DEVELOPMENT SERVICES DEPARTMENT  
BUILDING AND SAFETY DIVISION  
659 NORTH LA CADENA DRIVE  
COLTON, CALIFORNIA 92324  
(909) 370-5079  
7:30 a.m. to 5:00 p.m. Monday – Thursday

## **INSTANTANEOUS/TANK-LESS WATER HEATERS**

### **INTRODUCTION**

This information is intended to provide general guidance on the installation of tank-less gas water heaters in single family residences. It summarizes information contained in the 2016 California Plumbing Code (CPC), Mechanical Code (CMC) and the 2016 California Energy Efficiency Standards (CEES T-24) and is not meant to replace them.

If conditions are encountered that are not covered, please consult the appropriate plumbing and mechanical code books. They are available for review in many libraries and the Building Division. All water heater installations and replacements require a building permit and multiple inspections.

Tank-less water heater installations **may not** assume that a fuel gas system that already exists will be adequate. [2016 CPC, Section 507.18]

It is common for tank-less water heaters to require **four to five** times the typical BTU input of a standard water heater. Consequently, the gas line to the existing tank type water heater in a retro fit application may not have sufficient capacity to supply a tank-less water heater. A new dedicated supply line may be needed. A tank-less water heater is not considered a direct replacement for a tank type heater.

### **PERMITS**

All new and retrofit tank-less water heater permit applications must contain the following information;

- Supply gas pipe sizing calculations.
- The Manufacturer, Model number and BTUs required for the unit to be installed.
- An electrical source must also be provided.
- Tank-less heaters installed on the outside of a building will require planning approval and be the type approved for outside installation.

### **GENERAL REQUIREMENTS**

- Water heaters located in garages must be protected from mechanical damage. This means placing them out of the path of vehicular traffic or providing a protective post or partition. [2016 CPC, Section 507.13.1]
- Provide a temperature and pressure relief valve as required by the manufacturer. Hard pipe plumb to the outside and directed to the ground and terminate a minimum of 6" and a maximum of 24" above grade. When replacing an existing tank type water heater, the T & P must be re-installed to drain to the outside. . [2016 CPC, Section 504]
- All lines shall be insulated if using a recirculation pump system.
- A water heater located above habitable space, where damage may occur if a leak developed, a secondary pan with a ¾" minimum drain line to the outside is required. [2016 CMC, Section 1005.2 (7)]

## **PROHIBITED LOCATIONS**

Gas tank-less water heaters **shall not** be installed in a room used or designed to be used for sleeping purposes, in clothes or in other confined space opening into a bath or bedroom. The exception to these rules is a direct vent type tank-less water heater which is **listed** for installation in these types of spaces or an electric tank-less water heater.

Water heaters located in a bedroom or bathroom are required to:

- a. Be installed in a dedicated closet with a listed, gasketed door assembly and a self-closing device.
- b. All combustion air shall be obtained from the outside. [2016 CPC, Section 504.1(2)]

## **FUEL GAS**

Fuel gas piping must be sized for the demand load listed for in the manufacture's specifications or fixture name plate. [2016 CPC, Section 507.6]. A listed, properly sized flexible supply with a maximum length of 3 feet is allowed.

## **COMBUSTION AIR**

Tank-less water heaters shall be provided with combustion air per the manufacturer's installation instructions

Tank-less water heaters located within habitable space will require submittal of the manufacturer's specifications for combustion air supply and venting.

## **VENTING**

Tank-less water heaters shall be provided with proper venting per the manufacturer's installation instructions

## **CLEARANCES**

- Clearances for most water heaters are found on the appliance name plate.
- Please note the front and top clearance is usually greater than the side and rear.
- Access and working space must be provided.
- The opening must be at least 24" wide and large enough to remove the tank-less water heater.
- Tank-less water heaters installed in a garage must be elevated 18" above the floor unless it is listed as flammable vapor ignition resistant [2016 CPC, Section 507.13] Note that electric water heaters with a switch and/or heating element located less than 18" above the base must also be elevated.

## **2016 California Energy Efficiency Standards**

### **Mandatory Requirements:**

These requirements are for new construction and additions (if a water heater is installed in the added floor area), and they are not applicable to alterations.

- Isolation valves must be installed on instantaneous water heaters that have a minimum input of 6.8 kBTU/hr (§110.3(c) 7).
- Instantaneous water heaters require an electrical connection for controls and the combustion

air blower, a direct or power venting system, and a larger gas line (typical input ratings of 140 to 200 kBTU/hr).

1. A 120-volt (V) electrical receptacle that is within three feet of the water heater and accessible to the water heater with no obstructions.
  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
  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
  4. A gas supply line with a capacity to provide at least 200,000 BTU/hr to the water heater.
- These requirements make it easier for someone to retrofit high efficiency gas water heaters in the future. Virtually all high efficiency gas water heaters require an electrical connection and wiring during initial construction stage is much less costly than trying to retrofit it later.

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See the 2016 California Energy efficiency Manual for additional requirements.