

	<b>CITY OF DOWNEY</b> <b>COMMUNITY DEVELOPMENT, BUILDING AND SAFETY</b> 11111 Brookshire Avenue Downey, CA 90241 562.904.7142 <a href="http://www.downeyca.org">www.downeyca.org</a>	<b>WATERHEATER</b>			
		B SECTION	019 FORM NUMBER	2013 CRC CODE CYCLE	
		01/01/2011 EFFECTIVE DATE		01/01/2014 REVISION DATE	
<b>GAS WATER HEATERS</b>					

## **INTRODUCTION**

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 2013 California Residential Code, 2013 California Plumbing Code (CPC) and the 2013 California Energy Efficiency Standards (CEES T-24) and is not meant to replace them. It assumes that a fuel gas system already exists and that adequate venting systems are in place. If conditions are encountered that are not covered, please consult the appropriate plumbing code books. They are available for review in many libraries and the Building Department. All water heater installations and replacements require a building permit and final inspection.

## **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.
- Water heaters must be seismic strapped. Provide two 1-1/2" X 18 ga. Straps. Locate the top strap – 1/3 of the way down and the bottom strap in the lower 1/3 of the water heater. See drawing on page 3. Provide a minimum of 4 inches of clearance from the temperature control valve. Use 3/8" dia. Lag bolts to connect the straps to the framing members. Do not use molly bolts or lag shields into the drywall only.
  - You may use a different approved method for seismic strapping as well.
- Provide a temperature and pressure relief valve as required by the manufacturer and hard pipe plumb to the outside and directed to the ground and terminated a minimum of 6" to a maximum of 24" above grade. When replacing an existing water heater, the T & P may be re-installed to drain to the garage floor provided the new installation is in the existing location. Relief valve may not discharge into a secondary drain pan. (CPC 508.5)
- The first 5 feet of both the hot and cold supply pipes must be insulated per the 2013 Title 24 requirements
- A water heater blanket is required unless the water heater has a 0.58 EF rating or better per the 2013 Title 24 requirements. For water heaters over 50 gallons, consult the 2013 Title 24 for additional insulation requirements.
- A water heater located inside or above habitable space, where damage may occur if a leak developed, a secondary pan with a 3/4" minimum drain line to the outside is required. (CPC 510.7)

## **FUEL GAS**

Fuel gas piping must be sized for the demand upon it. If a water heater is replaced with a larger one then the pipe sizing should be reviewed. See the fuel gas pipe sizing handout available at the Building Counter. A listed flexible supply with a maximum length of 3 feet is required. Do not re-use an old flexible supply line.

## **PROHIBITED LOCATIONS**

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

- Be installed in a dedicated closet with a listed, gasketed door assembly and a self-closing device.
- All combustion air shall be obtained from the outside. CPC 505.1

Water heaters installed in attic spaces or floor ceiling / floor subfloor assemblies where damage may result from a leaking heater, a watertight pan of corrosion resistant materials shall be installed beneath the water heater with a minimum ¾" dia. Drain to an approved location. CPC 508.4

## **COMBUSTION AIR**

Fuel burning water heaters must be provided with a sufficient supply of air to assure proper combustion of fuel. (CPC 507.4) In tightly constructed buildings with vapor barriers and weather stripping the combustion air must be ducted in from the outside or from attic spaces that freely communicate with the outside via permanent screened openings. 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 at least 10 ft. away from the return air inlet of a blower type furnace (CMC 906.6).

A typical 50 gallon water heater will require two – 6" round ducts (25 sq. in. each) Consult the plumbing code for further information on combustion air sizing.

## **VENTING**

- A single wall vent connector must be fastened with three sheet metal screws, rivets or other approved fasteners at each joint. Do not use cloth tape
- Single wall vent connectors must start and end in the same space as the water heater.
- No portion of the connector may 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 ¼" per foot.
- The total horizontal length of the vent system including vent and vent connectors must not exceed 75% of the vertical height of the vent.
- A gravity type venting system must terminate at least 5 ft. above the draft hood
- Roof top vent termination must be 8 feet away from a vertical wall and extend 2 feet above the highest point where it passes through the roof.
- In multiple venting situations the largest vent size plus 50% must be used.
- Gravity and induced draft systems may not be interconnected unless a draft hood is present.

## **CLEARANCES**

- Clearances for most water heaters are found on the appliance label.
- Please note the front 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 water heater.
- Water heaters installed in a garage must be elevated 18" above the floor unless it is listed as having a sealed combustion chamber (CPC508.14) Note that electric water heaters with a switch and/or heating element located less than 18" above the base must also be elevated

