



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

GAS WATER HEATERS

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 2016 California Residential Code, 2016 California Plumbing Code (CPC) and the 2016 California Energy Efficiency Standards (CEES T-24). If conditions are encountered that are not covered, please consult the appropriate Building codes. They are available for review in many libraries and the local jurisdiction's Building & Safety Division. 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.
- Water heaters must be seismic strapped. Provide two 1-1/2" X 18 gage 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.
 - A different method for seismic strapping could be use if approved by the Building Official.
- 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.
- The first 5 feet of both the hot and cold supply pipes must be insulated per the 2016 Energy Efficiency Standard requirements
- **5.3.4 High-Efficiency Water Heater Ready §150.0(n)** 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 a water heater is installed in the added floor area), and they are not applicable to alterations.
 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.

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 bedrooms or bathrooms are required to: [2016 CPC, Section 504.1]

1. 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.
2. Water Heater shall be of the direct vent pipe

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 $\frac{3}{4}$ " dia. Drain to an approved location. [CPC 507.5]

COMBUSTION AIR

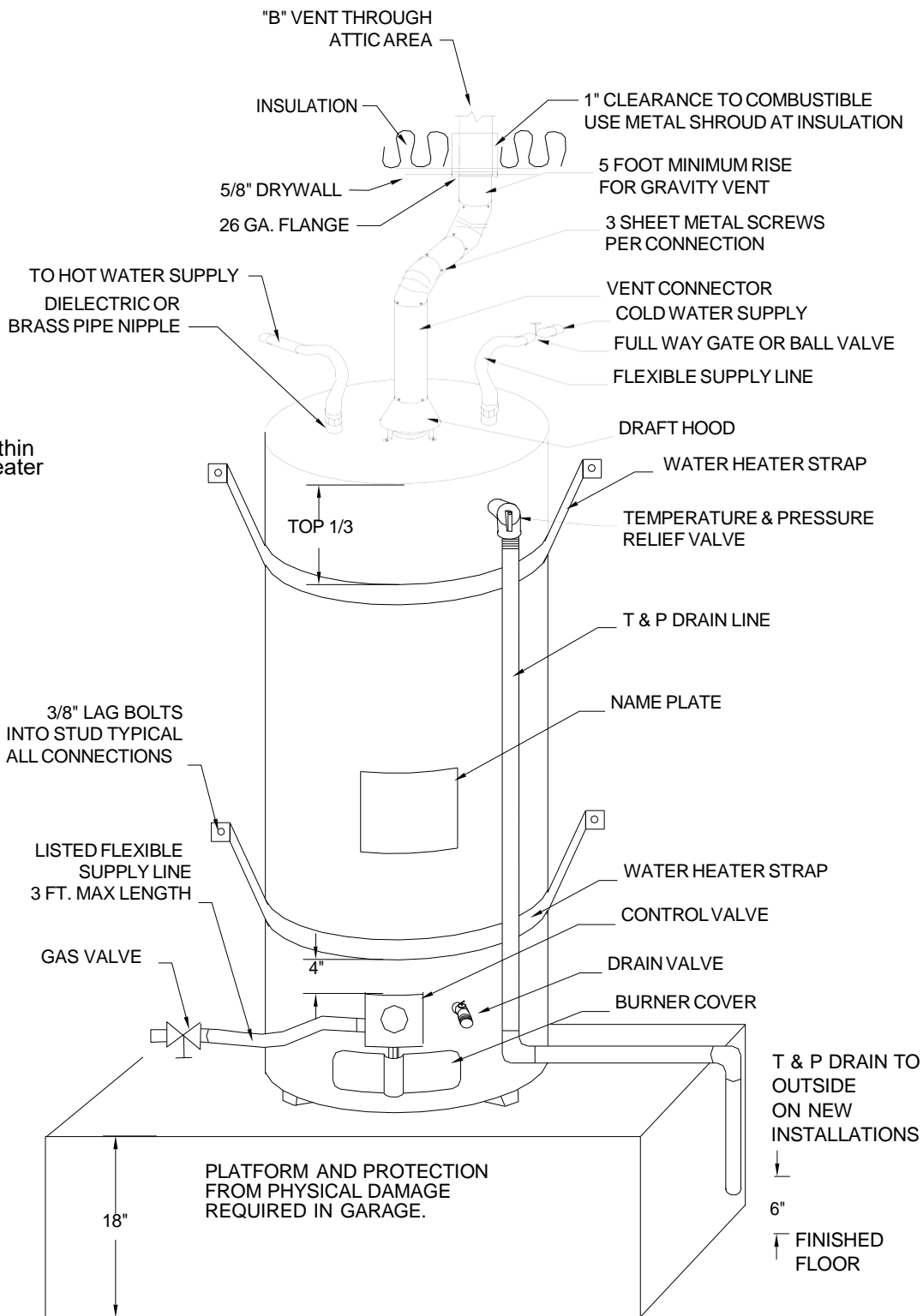
Fuel burning water heaters must be provided with a sufficient supply of air to assure proper combustion of fuel. (CPC 506.0) In tightly constructed buildings with vapor barriers and weather stripping the combustion air must be ducted in from the outside or from attic spaces that freely communicate with 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 a return air inlet.

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 $\frac{1}{4}$ " 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 flammable vapor ignition resistant (CPC507.13) Note that electric water heaters with a switch and/or heating element located less than 18" above the base must also be elevated



Receptacle within 3' of Water heater

