RESIDENTIAL WATER HEATERS

THESE REQUIREMENTS APPLY TO BUILDING PERMITS SUBMITTED ON OR AFTER JULY 1, 2017

BUILDING DIVISION REQUIREMENTS

A plumbing permit is required for the replacement of an existing water heater. Permits are required prior to installation or replacement of water heaters.

Following are general requirements for water heater replacements based on the 2016 California Plumbing Code. This brochure is intended to provide general information, contact the Building Safety Division for any questions or additional information.

Seismic Straps (CPC 507.2)

Water heaters require two seismic straps; one located within the top 1/3 of the water heater unit and one at the bottom 1/3. The bottom strap must be located at least 4" away from the water heater controls.

Several seismic strap kits are available commercially; however, metal plumbers tape can be used if it completely encircles the water heater and is then attached to a structural framing member at each end. Any platform supporting the water heater must be secured to the structure or the slab. Additional blocking at the water heater may be required to resist horizontal displacement.

Venting (CPC 510)

All vent piping that runs through ceilings, floors, or walls shall be double-wall metal pipe. The vent and the water heater must maintain clearance from combustible materials (such as wall framing or roofing) as required by the manufacturer, which is typically 1" minimum. The vent shall terminate a minimum 1' above the roof, be installed with flashing through the roof, and terminate in a listed and approved vent cap. Vents shall also terminate a minimum of 3' above any building opening (door, operable window, etc.) within 3' of the termination. Venting shall extend in a generally vertical direction with offsets not exceeding 45°, except one 60° offset is permitted. Vents may require additional supports depending on the material and design.

Pressure-Temperature Relief Valve (CPC 504.4, 504.5, and 608.5)

All water heaters have a pressure/temperature (P/T) relief valve that is galvanized steel, hard-drawn copper, or CPVC. The valve shall be drained to the exterior, terminate toward the ground maintaining between 6" and 24" of clearance from the ground, and point downward. The diameter of the valve opening (generally 3/4") must be maintained to the termination of the drain. Relief valve drains shall not terminate in a crawl space or an over-flow pan. No part of such drain pipe shall be trapped or subject to freezing, and the terminal end of the drain shall not be threaded. When approved by the Chief Building Official, such drain may terminate at other locations (i.e. laundry tub, floor sink, or floor drain).

Located in a Garage (CPC 507.13)

Water heaters located in a garage must be elevated so the pilot light and controls are at least 18" above the garage floor surface (unless the unit is listed as flammable vapor ignition resistant). If subject to vehicular damage, adequate barriers must be installed (e.g. 4" diameter steel pipe filled with concrete installed in a footing measuring 12" in diameter and 3' deep and a minimum of 2'-9" above the finished floor).

Located in a Bedroom, Bathroom, or Bedroom Closet (CPC 504.1)

If located in a bedroom, bathroom, or bedroom closet, the water heater shall be located in a closet provided with a listed self-closing, gasketed door and all combustion air shall be obtained from outdoors. The water heater closet shall not be used for any other purpose.

Located in Attic (CPC 508.4)

When located in an attic, the water heater shall be accessible through an opening and passageway at least large as the largest component of the appliance, and not less than 22” by 30”. Where the height of passageway is less than 6’, the distance from the passageway access to appliance shall not exceed 20’ measured along the centerline of the passageway. The passageway shall be unobstructed and shall have solid flooring not less than 24” wide. A level working platform not less than 30” by 30” shall be provided in front of the service side of the appliance. A permanent 120-volt receptacle outlet and lighting fixture shall be installed near the appliance. The switch controlling the lighting fixture shall be located at the entrance to the passageway.

Located in an Attic or Furred Space (CPC 507.5)

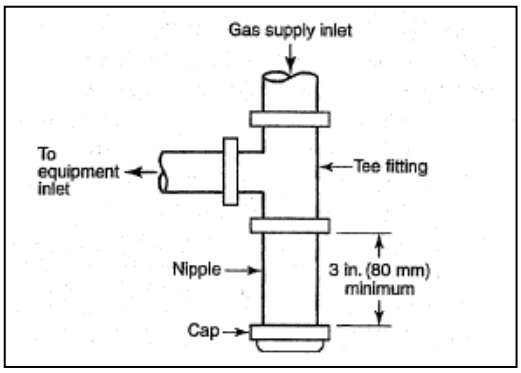
If located in an attic or furred space (i.e. closet) where leaking could cause damage to underlying wood framing, the water heater must be set in a pan constructed of water tight corrosion resistant material and a minimum of 1-1/2” deep. The pan must be fitted with a minimum 3/4" drain that drains to an approved location. The P/T line is not allowed to terminate at this pan or be connected to it.

Combustion Air (CPC 506)

Combustion air must be maintained per the California Plumbing Code. When the appliance is located in an unconfined space (e.g. garage) the combustion air can be used from that area. When located in a closet, combustion air must be provided at a minimum of two openings (one within 12” of the top of the water heater and one within 12” of the bottom) sized at 100 square inches each.

Sediment Trap (CPC 1212.8)

A sediment trap shall be installed on the gas line downstream of the appliance shut-off valve and as close to inlet of the equipment as practical.



Tankless Water Heaters

Tankless water heaters shall be listed by an approved testing agency (UL, UPC, etc.) and be installed in accordance with the manufacturer’s requirements. Category II stainless venting material and larger gas supply lines may be required based on the manufacturer’s specifications/recommendations.

Note: PG&E requires a minimum horizontal clearance of 36” between the gas meter and a tankless water heater when located on the same wall.

PERMIT PROCESS

Building Permit Review

1. Building permits for water heater replacements are available on-line at www.e-OneStop.net or at the One-Stop Permit Center. The One-Stop Permit Center is open between the hours of 8:00 a.m. and 12:00 noon, Monday through Friday.

Inspections

2. One final inspection is required after all the work has been completed.

Building Permit Application Requirements

- ☐ A completed Building Permit Worksheet application (available at the One-Stop Permit Center or on-line at www.SunnyvaleBuilding .com).
- ☐ Fee _____