Residential Water Heater Replacement

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Permit Requirements: A plumbing permit is required to install, remove, replace or relocate a water heater. A permit must be obtained before beginning the work. Work performed without proper permits is subject to additional fees. **Please note: This checklist is intended as a guideline for a typical installation for storage type water heaters only and shall not be used as a substitute for checking the actual code.**

CHECKLIST

GENERAL ITEMS

- ☐ Water heater shall be installed per Chapter 5 of the current California Plumbing Code and the Manufacturer's installation instructions.
- ☐ **LOCATION:** Gas fired water heaters are generally prohibited in a bedroom or bathroom or an area only accessible through same except direct vent appliances.
- ☐ **GARAGE LOCATIONS**: Water heaters generating a glow, spark or flame capable of igniting flammable vapors may be installed in a garage, provided the pilots, burners or heating element and switches are at least 18 inches above the floor.
- ☐ **EARTHQUAKE STRAPS:** Seismic restraint straps in upper and lower 1/3 of tank. Lower strap min. 4 in. above controls. Offset coupling bracket so it is not directly above the control. Provide blocking between water heater and wall. CPC 507.2.
- ☐ **COMBUSTION AIR:** A source of combustion air is required. Water heaters in closets require openings of at least 100 square inch each within 12 in of the top and bottom of the closet.
- ☐ **SHUTOFF VALVE:** Shutoff valve is required within 6 feet. CPC 1212.6.
- ☐ **SEDIMENT TRAP:** Gas line requires sediment trap downstream of shutoff valve as close as practical to appliance inlet. CPC 1212.9.
- ☐ **TEMPERATURE & PRESSURE RELIEF VALVE:** (TPRV) drain pipe cannot run uphill and must terminate on the exterior of the building, pointing down, 6-24 in. above grade with no threads on end. The pipe must be hard-drawn copper, galvanized, CPVC, or pipe listed for the purpose. TPRV piping cannot discharge to the drain pan. CPC 604 & 608.5.
- ☐ **PAN:** Pan with drain required when water heater is located over space where leakage could cause damage to structure. CPC 507.5.
- ☐ **GAS PIPING:** Gas piping system other than CSST that is likely to become energized shall be electrically continuous and to an effective ground-fault current path (bonding). CPC 1211.

GAS APPLIANCE VENTING

- ☐ **Type "B"** vents must extend above the roof, through a flashing, and terminate in a listed vent cap or roof jack which shall be installed according to its listing and the manufacturer's installation instructions. The vent height above the roof surface shall be in accordance with Section 509.6.2. Up to a 6:12 roof slope the minimum height is 1 foot.

- ☐ **Type "B"** vent termination minimum is 1 foot above roof in approved cap. Double-wall "B" vents are required and must have 1 in. clearance to combustibles. Single wall connectors are allowed with minimum 6 in. clear to combustibles.
- ☐ **Type "B" and "L"** gas vent must terminate at least 5 feet above the highest connected draft hood or flue collar. CPC 509.6.1.1
- ☐ **Vent connectors** must be as short and straight as practical, and cannot pass through walls or ceilings. The maximum horizontal connector length is 75% of the height for single wall, 100% of the height for double-wall. When venting in common with another appliance, the smaller appliance should connect above the larger one, should be as high as possible for the available headroom, and the maximum connector length is 18 inches per inch of diameter.
- ☐ **Connector sections** must be screwed together and to the draft hood with at least 3 screws at each joint. Use listed transition fittings from single-wall to type "B" vent. Screws and other fasteners cannot penetrate the inner wall of a double wall vent, and double want vent cannot be cut. Use of tape to seal joints or to support a vent is not permitted.

EXPANSION TANK

- ☐ An expansion tank is required for any system with a check valve, backflow preventer or pressure regulator (no exceptions) that prevents dissipation of building pressure back into the water main. CPC 608.3

ENERGY CODE REQUIREMENTS

- ☐ **ENERGY EFFICIENCY:** All new and replacement water heaters must meet minimum energy efficiency requirements and be on the most current list of approved appliances on the California Energy Commission website. http://www.appliances.energy.ca.gov/
- ☐ **STANDARD SINGLE FAMILY INSTALLATION- *one water heater per dwelling unit*:** For all replacement water heaters that are less than or equal to 55 gallons and less than or equal to 105kBTUs/hour, please complete the **City of Hayward CF-1R-ALT** form available on the website. This simplified form will document minimum compliance with the CA Energy Code.
- ☐ **SHARED WATER HEATING SYSTEMS IN MULTI-FAMILY BUILDINGS THAT ARE 3 STORIES OR LESS - *not including hotels/motels***: For "lowrise residential" buildings, as defined by the CA Energy Code, the applicant must complete CA Energy Commission form **CF1R-ALT-05-E.**
- ☐ **ALL OTHER INSTALLATIONS:** If the residential building is greater than 3 stories, or if the system is being replaced in a hotel or motel, the applicant must complete form **NRCC-PLB-01-E**.
  ***PLESE NOTE:** *Commercial water heater installations (offices, industrial, or retail) require plans and the information in this handout is not intended for those uses. Permit Center staff can provide more information for these project types upon request.*
- ☐ **ELECTRIC WATER HEATERS:** Electric resistance water heaters are not as efficient as gas water heaters and cannot be installed in residential buildings without special measures. However, electric heat pump water heaters are efficient and can be considered as an alternative to gas.

INSPECTIONS

- ☐ A final inspection is required after the water heater has been installed and all work has been completed. The permit card and the approved job copy of the drawings (if any) must be presented to the inspector. A re-inspection fee may be assessed if access to the inspection is not provided, the job is not ready for the inspection, or when required corrections have not been made.