

**DEVELOPMENT SERVICES – BUILDING INSPECTION****INSPECTION GUIDELINES:
ELECTRIC HEAT PUMP WATER HEATER****INSPECTION CODE:** 503**SCOPE:** RESIDENTIAL**CODES ENFORCED:** 2016 CBC, CRC, CPC, CMC, CEC, CALGreen, CEnC, and PAMC

The information provided in this document is general and intended as a guide only. Each project is unique and additional requirements may be enforced as deemed appropriate.

PERMIT AND INSPECTION

- A plumbing permit is required for all water heater installation and replacements. A final inspection is required after all work has been completed.

EXPANSION TANK

- An expansion tank is required when the water system is “closed loop” or, in other words, when water systems have a check valve, backflow preventer, or other normally closed device that prevents dissipation of building pressure back into the water main, independent of type of water heater used. The water systems shall be provided with an approved, listed, and adequately-sized expansion tank or other approved device having a similar function to control thermal expansion. Such device shall be installed on the building side of the check valve, backflow preventer, or other device and shall be sized and installed in accordance with manufacturer’s installation instructions. (CPC 608.3)

INSPECTION**GENERAL**

- Verify HPWH installation instructions and operation manual are with the equipment. Confirm installation meets all applicable measures. (CPC 507.24)
- Verify appliance has Energy Factor of 2.80 or higher. (CEC 150.2(b)1Giid)
- Verify existing gas piping is terminated in an approved manner. (CPC 1206.3)
- Verify electrical disconnecting means through a circuit breaker or a lockable switch for the HPWH that is within sight of the appliance. (CEC 422.31)
- An electrical torque inspection is required when electrical equipment or fuses are installed. (CEC 110.3(B))

- Water heaters shall be installed with the clearances from combustibles specified by the manufacturer's installation specifications and listing. (CPC 501)
- Water heaters require two seismic straps; one located within the top 1/3 of the water heater and one at the bottom 1/3. The bottom strap shall be located at least 4" away from the heater controls. (CPC 507.2)
- Verify that the existing framing members or stand will support the proposed dead loads of the HPWH. (CPC 507.3.1)
- Bond hot water pipe to cold water pipe to gas pipe with number 6 copper wire and approved clamps. (CEC 250.4 (4))
- Water heater must be provided with an approved, listed, adequately sized combination temperature and pressure-relief valve. (CPC 608.3)
- Discharge piping serving a temperature and pressure relief valve shall have no valves, obstructions, or means of isolation and be provided with the following (CPC 608.5):
 - Equal to the size of the valve outlet and shall discharge full size to the flood level of the area receiving the discharge and pointing down.
 - Materials shall be rated at not less than the operating temperature of the system and approved for such use.
 - Discharge pipe shall discharge independently by gravity through an air gap into the drainage system or outside of the building with the end of the pipe not exceeding 2 feet and not less than 6 inches above the ground and pointing downwards.
 - Discharge in such a manner that does not cause personal injury or structural damage.
 - No part of such discharge pipe shall be trapped or subject to freezing.
 - The terminal end of the pipe shall not be threaded.
 - Discharge from a relief valve into a water heater pan shall be prohibited.
- Cold water supply line to have a full way shut off valve at or near the water heater. (CPC 606.2)
- Exposed water piping to be insulated first 5 feet. Insulation wall thickness shall be not less than the diameter of the pipe up to 2 inches. (CPC 609.11.2)

GARAGE INSTALLATION

- Appliances installed in garages, warehoused, or other areas subject to mechanical damage shall be guarded against such damage by being installed behind protective barriers or by being elevated or located out of the normal path of vehicles. (CPC 507.13.1)

ATTIC INSTALLATION

- An attic or under-floor space in which an appliance is installed shall be accessible through an opening and passageway not less than as large as the largest component of the appliance, and not less than 22"x30". (CPC 508.4)
- When the height of the passageway is less than 6', the distance from the passageway access to the appliance shall not exceed 20' measured along the centerline of the passageway. (CPC 508.4.2)
- The passageway shall be unobstructed and shall have solid flooring not less than 24" wide from the entrance opening to the appliance. (CPC 508.4.2)
- A level working platform not less than 30"x30" shall be provided in front of the service side of the appliance. (CPC 508.4.3)
- A permanent 120-volt receptacle outlet and a lighting fixture shall be installed near the appliance. The switch controlling the lighting fixture shall be located at the entrance to the passageway. (CPC 508.4.4)
- Where a water heater is located in an attic, in or on an attic-ceiling assembly, floor-ceiling assembly, or floor-subfloor assembly where damage results from a leaking water heater, a watertight pan of corrosion-resistant materials and capable of withstanding the full weight of the water heater shall be installed beneath the water heater with not less than 3/4" diameter drain to an approved locations. Such pan shall be not less than 1-1/2" in depth. (CPC 507.5)

BASEMENT INSTALLATION

- Temperature and pressure relief valve (T&P) shall be plumbed up and out to the building exterior per Figure CPA 046.

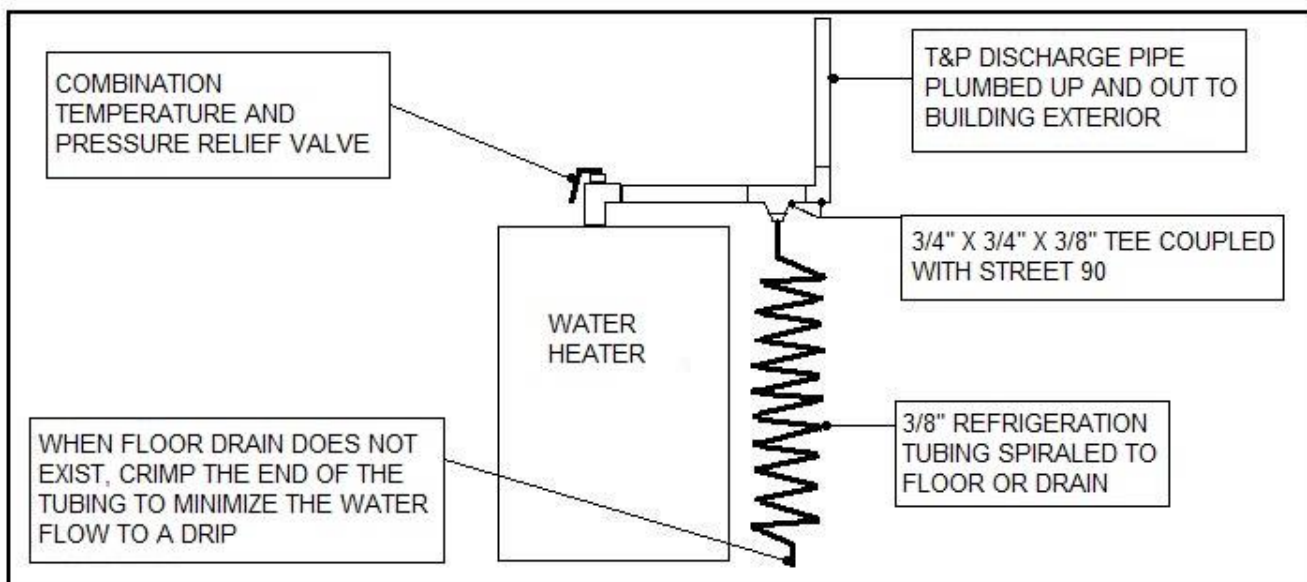


Figure CPA 046 – Water Heater/Electric Heat Pump Water Heater Basement Installation

EXTERIOR INSTALLATION

- If the EHPWH will be installed in the exterior, verify Planning Department setback requirements and that the unit itself does not produce noise exceeding 6 decibels above the ambient noise level, which is measured at the property line. Review manufacturer's installation manual to verify maximum noise output (PAMC 9.10.030). Alternatively, print a copy of the CPAU's [Technical Specs for Qualifying Models webpage](#) for the model you are using.