



DEVELOPMENT SERVICES – BUILDING PLAN REVIEW

SUBMITTAL GUIDELINES: ELECTRIC HEAT PUMP WATER HEATER

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.

DOCUMENTS REQUIRED AT PERMIT APPLICATION

- Provide two completed sets of the California Energy Compliance form [CF1R-ALT-05-E](#) (last revised July 2017).
 - Please note that the *final* document is three pages, but the document as downloaded from online will only show two pages. To expand the document to three pages, you must click on “H. Water Heating System” as shown in the image below.

13 Project Scope (Select all that apply):

B. Insulation D. & E. Fenestration/Glazing - ADD G. Space Conditioning System (Heating, Cooling, Duct system) Lighting

C. Roof Replacement D. & F. Fenestration/Glazing - REPLACE H. Water Heating System Include Mandatory Measures?

- For help with filling out the form CF1R-ALT-05-E, please follow the User Instructions, call the Energy Hotline at 1-800-772-3300, or visit the Development Center for additional assistance.
- Per Section CEC 150.2(b)1.G.ii.d of the California Energy Code, the California Energy Commission used the performance compliance approach to determine the minimum energy factor (EF) needed to be able to prescriptively replace an existing water heater with a heat pump water heating system. A heat pump water heating system, meeting this minimum Energy Factor, can replace an existing water heater regardless of original fuel type (natural gas, LPG, or electric). The Energy Factors listed for heat pump water heating systems can only be used for residential single dwelling unit alterations.

ELECTRIC HEAT PUMP WATER HEATER BASIC REQUIREMENTS

- Table CPA 001 describes the minimum climate zone and energy factors for Palo Alto (CEC 150.2(b)1.G.ii.d)

Table CPA 001 – Climate Zone and Minimum Required Energy Factor for Palo Alto

CLIMATE ZONE	MINIMUM REQUIRED ENERGY FACTOR
4	2.80

- CPA may require a Partial Floor or Site Plan showing the location of the proposed EHPWH to verify that the required access, working clearances, lighting and convenience outlet can be accommodated. (CBC 105.3, 107.2, CEC 110.6, CPC 507.26 and 508.4)
- If the EHPWH will be installed in the exterior, you must check with Planning Department to ensure that it is installed per setback requirements and that the unit itself does not exceed 6 decibels above the ambient noise, which is measured at the property line. Please bring a copy of the manufacturer's installation manual to verify maximum noise output (PAMC 9.10.030). Alternatively, you can visit CPAU's [Technical Specs for Qualifying Models](#) webpage and print the information for the model you are using.
- Specify the make and model of the proposed EHPWH.
 - Provide a printed copy of the model specifications from the Energy Star website or visit CPAU's [Technical Specs for Qualifying Models](#) webpage as proof that the proposed model is Energy Star certified and meets the minimum Energy Factor of 2.8.
 - Please note that if the model is not listed in the binder of pre-approved models in the Development Center, you must provide the EHPWH manufacturer's installation instructions. (CPC 507.24)
- Provide seismic bracing details for the EHPWH (CPC 507.2) or an Engineered Design.
- Indicate the size of the existing electrical service panel (e.g., 100 amps, 200 amps, etc.).
- Provide a copy of the completed electric load calculation to verify that the electric service panel can accommodate the additional load of the EHPWH. (CEC 220)
 - The calculation form can be downloaded from this [CPA website](#).
 - Specify an electrical disconnecting means through a circuit breaker or a lockable switch for the EHPWH that is within sight of the appliance. (CEC 422.30 and 422.31)
 - If the existing electrical service panel is not adequate for the added load, please contact Utilities Engineering by phone (650) 566-4500 or email utilities.engineering@cityofpaloalto.org for more information about upgrading the electrical panel.
- Specify bollard protection if the equipment is installed adjacent to a vehicle path. (CPC 507.13.1)

PROVIDE THIS ADDITIONAL INFORMATION WHEN A EHPWH IS INSTALLED IN AN ATTIC SPACE

- Provide verification that the existing framing members will support the proposed dead loads of the EHPWH. (CPC 507.2.1)
- Specify accessibility for service including a 22" x 30" minimum access door with a solid floored passageway to the service area adjacent to the EHPWH. (CPC 507.26)
- Specify a drip pan with a minimum 3/4" overflow pipe plumbed to the exterior. (CPC 507.4)
- Specify vacuum relief valves when the EHPWH is installed above the hot water plumbing fixtures. (CPC 608.7)