



RESIDENTIAL FURNACES

THESE REQUIREMENTS APPLY TO BUILDING PERMITS SUBMITTED ON OR AFTER JANUARY 1, 2020

BUILDING DIVISION REQUIREMENTS

A permit is required to replace an existing furnace and is required prior to installation. Following is a listing of general requirements based on the 2019 California Residential Code, 2019 California Mechanical Code, 2019 California Plumbing Code, 2019 California Electrical Code, and 2019 California Energy Efficiency Standards. This brochure is intended to provide general information, contact the Building Safety Division for any questions or additional information.

Electrical Requirements

- An approved, independent means of disconnect for the electrical supply to each piece of equipment shall be provided in sight of the equipment served. [CMC 301.4, CEC 422.31, CEC 422.33(A)]
- A dedicated circuit shall be provided for the furnace. (CEC 422.12)
- A 120-volt service receptacle shall be located within 25 feet of the equipment for maintenance. The service receptacle shall not be connected on the load side of the required means of disconnect. (CMC 301.4)
- A permanent switch controlled lighting fixture shall be installed for maintenance of equipment is required and shall be accessible. Such fixture shall provide sufficient illumination to safely approach the equipment and perform the tasks for which access is provided. Control of the lighting shall be provided at the access entrance. (CEC 210.70)

Duct Air Leakage Test (CEES 150.2(b)(1)(E))

An air leakage test, performed by a HERS rater, is required for existing ducts when an existing furnace is replaced. The HERS report completed by a HERS rater shall be provided to the building inspector at the final inspection. A list of HERS raters is available at: https://ww2.energy.ca.gov/HERS/providers_2016standards.html

Furnace Equipment Efficiency (CEES 110.2(a))

Warm-air furnaces and unit heaters rated at less than 225,000 Btu/h shall have a minimum efficiency rating of 78% AFUE (Annual Fuel Utilization Efficiency).

Combustion Air (CMC Chapter 7)

Combustion air must be maintained as required by the California Mechanical Code.

Clearance from Combustible Materials (CMC 904.2)

The clear space and distance to combustible materials around the furnace shall comply with the manufacturer's installation instructions.

Anchorage of Equipment (CMC 303.4)

The furnace shall be properly anchored and supported to sustain vertical and horizontal loads within the stress limitations specified in the California Building Code.

Plastic Vent Piping (CMC 802.4.2)

Plastic pipe and fittings used to vent appliances shall be installed in accordance with the appliance manufacturer's installation instructions. When primer is required, it shall be of a contrasting color.

Located in a Crawl Space (CRC 302.13)

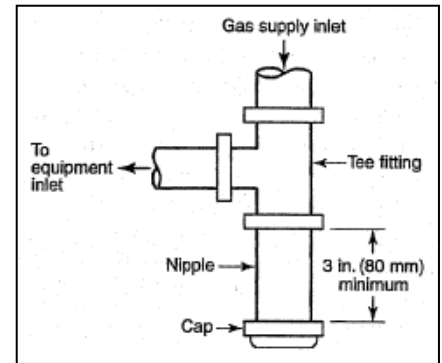
When a furnace is relocated to a crawl space, the underside of the floor joists shall be provided with a 1/2" gypsum or 5/8" wood structural panel. This is not required for the replacement of an existing furnace already located in the crawl space.

Located in a Garage (CMC 305.1)

Furnaces 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 an Attic (CMC 304.4)

Furnaces located in an attic area shall comply with the diagram at the bottom of this page. Additionally, if the attic and roof is conventionally framed, ceiling joist under the location of the FAU unit shall be doubled with a minimum 2X6 joists. If the attic and roof framing is a pre-fabricated engineered truss system, an engineering report (wet stamped and signed by a licensed engineer) shall be submitted for review and approval prior to issuance of a building permit.



Sediment Trap (CPC 1212.9)

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

PERMIT PROCESS

Building Permit Review

1. Building permits for most furnace replacements are available on-line at Sunnyvale.ca.gov or permit can be obtained at One-Stop Permit Center. The One-Stop Permit Center is open between the hours of 8 a.m. to 12:30 p.m. and 1 to 5 p.m.

Inspections

2. One final inspection is required after all work has been completed. Provide a copy of the duct leakage test performed by a HERS rater.

Building Permit Application Requirements

- A completed Building Permit Worksheet application (available at the One-Stop Permit Center or on-line at Sunnyvale.ca.gov)
- If installed in the attic, three sets of the plans shall be provided including a floor plan of the building showing the location of the furnace and diagram below detailing the requirements.
- Fee _____

Attic Furnace Diagram

