DEVELOPMENT SERVICES – BUILDING INSPECTION

INSPECTION GUIDELINES: FURNACE (ATTIC)

INSPECTION CODE: 609

SCOPE: RESIDENTIAL AND COMMERCIAL

APPLICABLE CODES: 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.

IMPORTANT

☐ Failure to complete the items below prior to inspection may result in a re-inspection fee.

INSPECTION LOCATION & ACCESS REQUIREMENTS

☐ Conventional framing: Furnace to be adequately supported by partition or load bearing wall below or properly sized ceiling joists. (CBC 2398.7.3.1)

☐ Truss system: truss system shall not be altered and designed to support the additional load. (CBC 2303.4.5)

☐ Appliances located in attic shall be accessible through an opening and passageway not less than the largest component of the appliance, and not less than 22” by 30”. (CMC 304.4)

☐ Where 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. (CMC 304.4.1)

☐ The width of the passageway shall be unobstructed and have solid flooring not less than 24” in width from the entrance opening to the appliance. (CMC 304.4.2)

☐ A level working platform not less than 30’ by 30” shall be provided on the service side of the appliance.
  ☐ Exception: a working platform need not be provided where the appliance is capable of being serviced from the required access opening. The furnace service side shall not exceed 12” from the access opening. (CMC 304.4.3)

☐ 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. (CMC 304.4.4)
☐ All electrical wiring within 6’ of the attic access scuttle must be secured and protected by a guard strip to prevent damage to the cable. (CEC 320.23)

**GENERAL REQUIREMENTS**

☐ Verify furnace model, and size as per Title-24 Energy forms on plans.

☐ Verify Title-24 Energy Compliance: CF3R certificate of verification, HERS test. (CEnC 150(m))

☐ Provide automatic setback thermostat. (CEnC 110.2 (b))

☐ The manufacturers installation instructions shall be onsite and available to inspector. (CMC 303.1)

☐ Appliance shall be securely fastened in place in accordance with the manufacturer’s installation instructions. Supports for appliances shall be designed and constructed to sustain vertical and horizontal loads within the stress limitations specified in the building code. (CMC 303.4)

☐ Engineered trusses must be designed for furnace location and load. (CRC R802.10.4)

☐ Where more than one system is installed it shall be permanently identified as to the area or space served by the equipment. (CMC 303.6)

☐ Equipment shall have a positive means of disconnect adjacent to and in site of the equipment served, fused or HACR breaker. Disconnect shall not be attached to the unit. A 120-volt receptacle shall be located within 25’ of the equipment for service and maintenance. (CMC 301.4)

☐ Whole house gas test required when any modifications are made to gas line piping. See “Whole House Gas Test” checklist. (CPC 1213.1.2)

☐ An accessible gas shut off valve is required within 6’ of the unit. (CPC 1212.15)

☐ Where flexible connectors are used, they shall be of the minimum practical length and shall not extend from on room to another, or pass through walls, ceilings, partitions, or floors. Flexible connectors shall not be located in concealed locations. (CPC 1212.4.3)
☐ Flexible connectors shall be sized for the demand of the furnace. Do not remove sizing label from connector. (CPC 1316)

![Image of a connector sizing chart]

**Figure CPA 068** – Example Flex Connector Sizing Label

☐ Existing flex connector shall not be reused.

☐ Where a sediment trap is not incorporated as part of the appliance, a sediment trap shall be installed downstream of the appliance shut off valves as close to the inlet of the appliance as practical, before the flex connector. (CPC 1212.8)

![Image of improper installations of sediment trap]

**Figure CPA 065**—Improper Installations of Sediment Trap
VENTING

- Vents that pass through unconditioned space shall be type B double wall and maintain a minimum 1” clearance to combustibles. (CMC 802.7.3.4)

- Type B vents shall extend in a vertical direction with offsets not exceeding 45 degrees, except that a vent system having not more than one 60 degree offset shall be permitted. An angle greater than 45 degrees from the vertical is considered horizontal. The total horizontal distance of a vent plus the horizontal vent connector serving draft hood-equipped appliances shall not exceed 75 percent of the vertical height of the vent. (CMC 802.6.3.2)

- Where a vent passes through an insulated assembly, an approved metal shield shall be installed between the vent and insulation. The shield shall extend not less than 2” above the insulation. (CMC 802.6.2.7)

- Vent shall terminate a minimum 5’ above the flue collar of the appliance. Vent termination to be 8’ from vertical surfaces and 1’ above roof on slope 6/12 or less per table CMC 802.6.2. (CMC 802.6.)

- Listed direct vent appliances shall be vented in accordance with the manufacturer’s installation instructions. (CMC 802.2.4)

- Common vents shall be sized per table CMC 803

- Category II, III, and IV venting systems shall be sized and installed per the manufacturer’s installation instructions. (CPC 802.6.3.3)

- Provision shall be made to collect and dispose of condensate from venting systems serving Category II and Category IV appliances. (CMC 802.9)
☐ Condensate shall be discharged to an approved plumbing fixture or disposal area. Where discharged into the drainage system, equipment shall drain by means of an indirect waste pipe. Waste pipe must be sloped a minimum of 1/4” per foot. (CPC 814.1)

**COMBUSTION AIR**

☐ Verify adequate combustion air see “Combustion Air for Gas Appliances” checklist.

☐ Verify listed direct vent appliances are installed per manufacturer’s installation instructions.

**CONDENSATE**

☐ Condensate drain shall be trapped in accordance with manufacturer’s installation requirements. (CPC 814.5)

☐ Condensate drain shall be sloped a minimum 1/8” per foot. Drain shall be sized per CPC table 814.3 or per manufacturer’s installation requirements. (CPC 814)

☐ Condensate shall drain through indirect connection to an approved location (i.e. drywell, vented receptor, or tailpiece of plumbing fixture). Direct connection permitted for condensate from air conditioning coils discharging directly through the tailpiece of a lavatory or overflow inlet on a bathtub. (CPC 814.5, 814.6)

☐ When equipment is installed in a space where damage is capable of resulting from condensate overflow an additional protection method for condensate shall be provided. (CPC 814.2)
  
  o A water level detecting device that will shut off the equipment or appliance in the event the primary drain is blocked.
  o An additional water tight pan of corrosion-resistant material with a separate drain line installed beneath the cooling coil, unit, or appliance.
  o An additional drain line that is higher than the primary drain line connection
  o An additional watertight pan of corrosion-resistant material with a water level detection device installed beneath the cooling coil, unit, or the appliance.

☐ Secondary drain minimum 3/4 nominal pipe size. (CPC 824.2)

☐ The additional condensate drain pan shall drain over a door, window, or to a point that is readily observable. (CPC 814.2)
Requirements for Attic Furnace Installations

**Figure CPA 064**—Furnace in Attic