

## Sloped Roof Direct Vent Kit

# Installation Instructions

### For Model Series CMF Furnaces

#### GENERAL

Read all instructions carefully before beginning the installation. Read all labels and tags on the furnace carefully and follow all precautions outlined on those labels and tags.

These instructions are primarily intended to assist qualified individuals experienced in the proper installation of heating and/or air conditioning appliances. Some local codes require licensed installation/service personnel for this type of equipment.

This kit is designed for sloped-roof installations of the CMF series furnace requiring a direct vent (sealed combustion) system. A direct vent application is one in which the combustion air is piped directly from and the flue products are piped directly to the outside. This kit is to be used for direct vent installations, in which the combustion air for the furnace will not be drawn from underneath the structure using the rectangular combustion air duct/chute.

The installer will be responsible for supplying the combustion air piping between the roof cap (5" diameter) and the reducer adapter at the furnace (4" diameter). This piping must be installed in accordance with all applicable local building codes or, in the absence of local codes, with ANSI Z223.1/NFPA 54, National Fuel Gas Code, and NFPA 31, Installation of Oil-Burning Equipment.

#### INSTALLATION REQUIREMENTS

##### Requirements and Codes

All installations must conform with these instructions, all applicable local building codes, ANSI Z223.1/NFPA 54 (National Fuel Gas Code), and NFPA 31 (Installation of Oil-Burning Equipment).

The National Fuel Gas Code is available by writing:

American National Standards Institute, Inc.  
1430 Broadway  
New York, NY 10018

NFPA publications are available by writing:

National Fire Protection Association  
Batterymarch Park  
Quincy, ME 02269

#### Roof Cap Location

The combustion air roof cap must be installed in such a manner as to prevent intake of flue products from any flue exits. The spacing of the combustion air inlet and other flues or vents must be at least three (3) feet (See Figure 1). Furthermore, the combustion air roof cap that is provided with this kit must be installed within the same pressure zone as the flue exit of the furnace. The maximum spacing between the flue exit and the combustion air cap that serve the furnace must be less than seven (7) feet.

#### Combustion Air Piping Requirements

The combustion air piping must be either 4" or 5" diameter piping and cannot exceed 25 feet in length. A maximum of three 90 degree elbows may be used in routing the piping between the combustion air roof cap and the furnace. A transition from 4" to 5" diameter will be required.

The material and type of piping used will be governed by all applicable local building codes or, in the absence of local codes, with ANSI Z223.1/NFPA 54, National Fuel Gas Code, and NFPA 31, Installation of Oil-Burning Equipment.

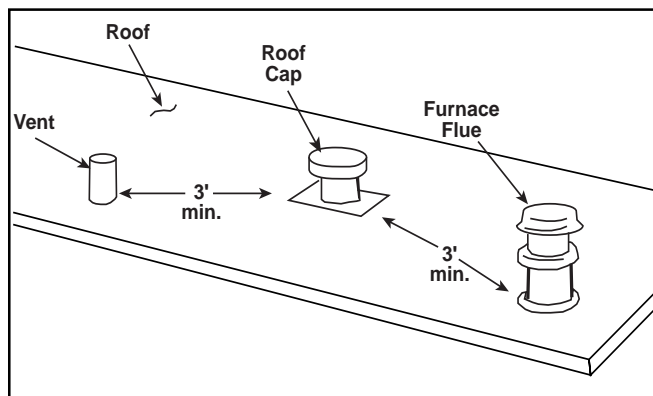


Figure 1. Location of Roof Cap Assembly

## **! WARNING:**

Prior to installation, shut OFF all fuel and electrical power supplies to the furnace.

### **INSTALLING THE KIT**

#### **To Turn Off the Fuel Supply to the Appliance**

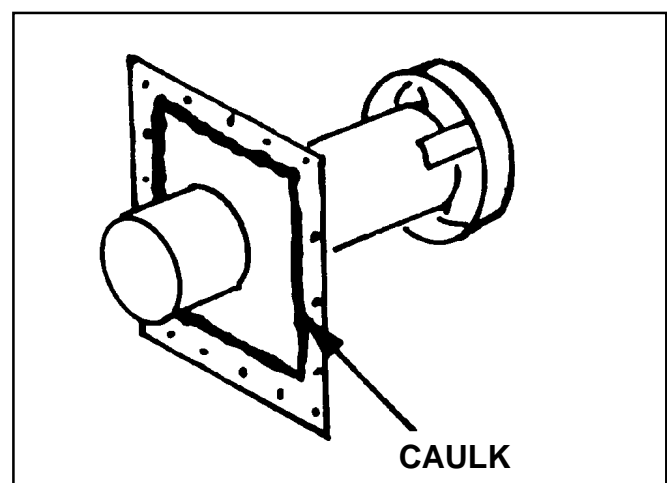
1. Set the thermostat to "OFF" or to its lowest setting.
2. Turn OFF all electrical power to the appliance.
3. Open the furnace door.
4. For gas burners, push in the gas control lever and move to "OFF". DO NOT FORCE LEVER.
5. For oil burners, shut off the oil supply to the furnace.

#### **Installing the Adapter**

1. Follow the instructions "To Turn Off the Fuel Supply to the Appliance".
2. Determine whether the combustion air intake is to be on the lower right side or lower left side of the furnace.
3. Depending upon the entry location, align the edges of the paper template with the front and bottom edges of the left (or right) side panel of the furnace. The template is shown in Figure 4.
4. Secure the template to the furnace using tape or equivalent.
5. Cut out the hole from the template.
6. Drill a 1/4 inch hole in the adapter, as shown in Figure 3.
7. Insert the adapter in the side panel of the furnace.
8. Mark the location of the 1/4 inch hole in the adapter on the side panel of the furnace. Remove the adapter from the side panel.
9. Drill a 0.144 inch (#27 drill) diameter hole in the center of the mark.
10. Insert the adapter into the side panel and secure the adapter using the blunt #10 screw supplied in the kit.
11. Open the door of the furnace and connect the flexible hose from the burner to the adapter using a hose clamp.

#### **Installing the Combustion Air Roof Cap and Piping**

1. Determine and mark the location of the opening for the combustion air piping in the ceiling of the furnace area. When locating the opening, be sure to avoid ceiling joists and other obstructions in the ceiling cavity. The size of the opening will depend upon the size of the combustion air piping to be used. It is recommended to cut the opening between one (1) and two (2) inches greater in diameter than the size of the pipe.
2. Cut out the opening in the ceiling for the combustion air piping.
3. Determine location of roof opening for the roof cap assembly. Remember that the roof cap should be located at least three (3) feet from all other flues and vents, and no more than seven (7) feet from the flue exit of the furnace. This spacing will keep the combustion air inlet and the flue exit the same pressure zone, while keeping the flue products from being drawn into the combustion air inlet.
4. Mark and cut out a 7.5 inch diameter opening in the roof at the location determined in the previous step.
5. Route the combustion air piping through the roof and down to the ceiling opening. Remember that a four (4) to five (5) inch diameter transition will be required in the piping.
6. Apply appropriate caulking or roof sealing material (field supplied) to roof cap assembly. Apply



**Figure 2. Roof Cap Assembly With Weather Resistant Sealant**

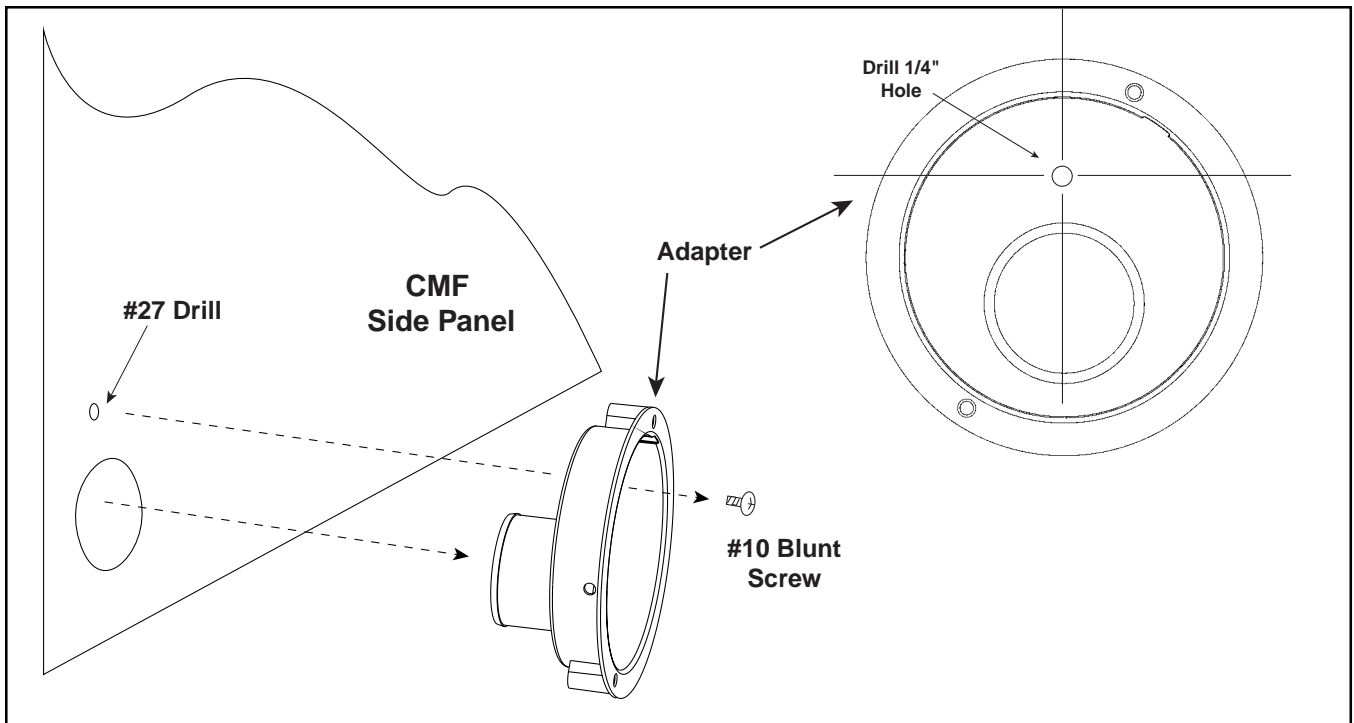
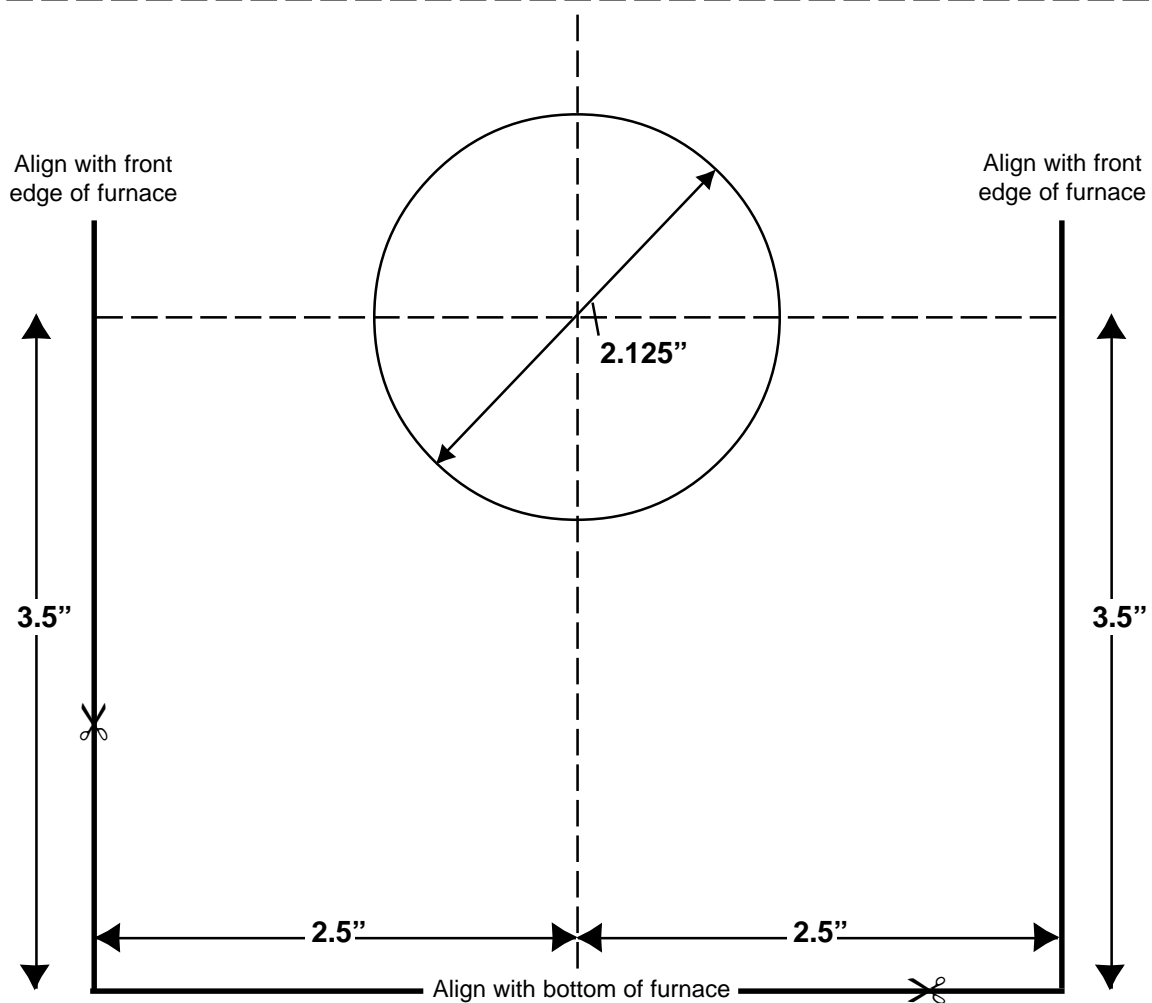


Figure 3. Adapter Installation (Right Side Installation Shown)

Figure 4. Template



caulking compound to underside of roof cap flashing to form a continuous strip around the underside of the perimeter of the flashing, as shown in Figure 2.

7. Attach roof cap assembly to roof. Press down firmly over caulking on flashing, to ensure a waterproof seal. Secure roof cap flashing with appropriate fasteners for your roof construction. As an added protection against leaks, coat the roof cap flashing and fasteners with roofing compound.  
**NOTE: Based on your installation, it may be necessary to attach the combustion air piping to the roof cap before securing the cap to the roof.**
8. Securely attach one end of the piping to bottom flange of roof cap assembly if not already attached.

9. Securely attach the other end of the piping to the reducer adapter at the furnace.
10. If desired, ceiling rings (field supplied) may be used to close off the gap between the combustion air piping and the ceiling.

### Completing the Installation

1. Check the burner adjustment as described in the Installation Instructions provided with the furnace.
2. Run the unit through a complete cycle to ensure proper operation. The proper operating sequence is outlined in the Installation Instructions provided with the furnace, or on the Lighting and Operating Instructions Label affixed to the furnace.

**INSTALLER: PLEASE LEAVE THESE INSTRUCTIONS  
WITH THE HOMEOWNER.**

