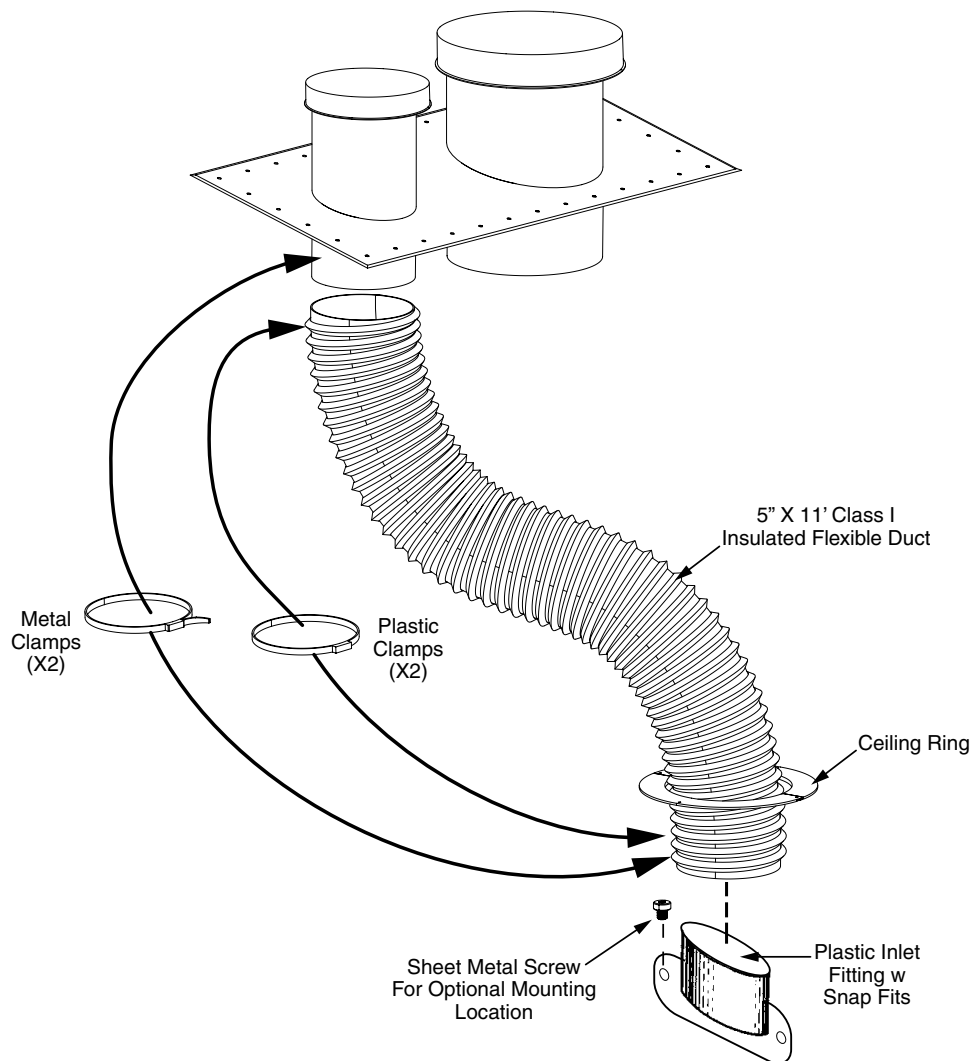


# VentilAire™ IV Whole-House Fresh Air Supply System

## INSTALLATION INSTRUCTIONS

### 1040747 – Sloped Roof Kit



## IMPORTANT

### ATTENTION INSTALLERS:

It is your responsibility to know this product better than your customer. This includes being able to install the product according to strict safety guidelines and instructing the customer on how to operate and maintain the equipment for the life of the product. Safety should always be the deciding factor when installing this product and using common sense plays an important role as well. Pay attention to all safety warnings and any other special notes highlighted in the manual. Improper installation of the unit or failure to follow safety warnings could result in serious injury, death, or property damage.

These instructions are primarily intended to assist qualified individuals experienced in the proper installation of this appliance. Some local codes require licensed installation/service personnel for this type of equipment. Please read all instructions carefully before starting the installation. Return these instructions to the customer's package for future reference.

**DO NOT DESTROY. PLEASE READ CAREFULLY & KEEP IN A SAFE PLACE FOR FUTURE REFERENCE.**

## IMPORTANT SAFETY INFORMATION

INSTALLER: Please read all instructions thoroughly before servicing this equipment. Pay attention to all safety warnings and any other special notes highlighted in the manual. Safety markings are used frequently throughout this manual to designate a degree or level of seriousness and should not be ignored. **WARNING** - Indicates a potentially hazardous situation that if not avoided, could result in personal injury or death. **CAUTION** - Indicates a potentially hazardous situation that if not avoided, may result in minor or moderate injury or property damage.

### **WARNING:**

Unless noted otherwise in these instructions, only factory authorized parts or accessory kits may be used with this product. Improper installation, service, adjustment, or maintenance may cause explosion, fire, electrical shock or other hazardous conditions which may result in personal injury or property damage

### **WARNING:**

The information listed below must be followed during the installation, service, and operation of this unit. Unqualified individuals should not attempt to interpret these instructions or install this equipment. Failure to follow safety recommendations could result in possible damage to the equipment, serious personal injury or death.

- Use caution when removing components or handling this product. Personal injury can occur from sharp metal edges present in all sheet metal constructed equipment.

## ABOUT VENTILAIRE™

The VentilAire™ IV assembly provides fresh air to the living space and ventilation of the attic. VentilAire™ IV is an efficient way to introduce outdoor freshness to interior environments. It works in conjunction with the furnace blower and existing duct system and is able to work independently when the heating and cooling system is off. Best of all, VentilAire™ is a cost-effective way to substantially improve air quality and help control attic condensation in manufactured homes.

The attic ventilator is a power ventilator which automatically provides attic ventilation to reduce winter condensation and summer heat build up in the attic. To control condensation the ventilator operates at relative humidity levels above 40 percent and temperatures above 35° F. To control heat build-up, the ventilator operates at temperature above 110° F.

The VentilAire™ system is designed for use with all Nortek manufactured housing series gas, oil and electric furnaces and air handlers.

### How It Works

The home's Thermostat is the control device for selecting continuous whole-house ventilation. When the Thermostat is in the whole-house ventilation position, the unit blower will operate continuously; independent of COOL or HEAT modes. When the furnace blower is operating, a negative pressure (suction) is created in the furnace plenum. This suction draws in fresh outdoor air which is mixed with the homes return air then distributed through the home duct system. When HEAT or COOL modes are selected, the fresh outdoor air and home return air are conditioned prior to being distributed throughout the home.

### Attic Ventilator - Winter

When the attic space humidity level is above 40 percent R.H. and temperatures are above 35° F the ventilator will operate. The ventilator draws in fresh outside air and exhausts moisture laden air out of the attic space and helps to reduce condensation problems.

### Attic Ventilator - Summer

When the attic space temperature is above 110° F the attic ventilator will operate. The ventilator draws in cool outside air and exhausts hot air out of the attic space. This helps reduce heat build-up in the attic, thus reducing the air conditioning load.

## VENTILAIRE™ INSTALLATION

**DO NOT REMOVE THE OVAL KNOCKOUT IN FURNACE TOP BEFORE COMPLETING STEP ONE.**

1. Determine the location of the plastic inlet fitting.
    - **Gas Furnace** - Oval knockout located at the top, near the front of the furnace. See Figure 1.
    - **Air Handler** - Oval knockout located on the sides of the air handler.
    - **Downflow Electric Furnace** - The plastic inlet fitting may be mounted in the rear of the cabinet over the return air filter. When using an optional air conditioning coil, it may be mounted to the front or rear coil end-plate flange using the mounting holes provided.
- NOTE:** An optional VentilAire™ attachment kit (P/N 919328) may be purchased to attach the plastic inlet fitting to the coil or wall in Heat/Cool and Heat only (no coil) applications. This bulk kit is supplied with 24 brackets and fasteners. The plastic inlet fitting snaps into the bracket opening without screws. See Figure 2.
- **Electric Furnace with Nortek A/C coil** - Align and fasten the VentilAire™ attachment bracket with the holes of the coil end-plate flange. See Figure 2.
  - **Electric Furnace with non-Nortek A/C coil** - When using other brands of coils, the installer has the option to attach the bracket to the wall of the furnace cavity. Fastening must penetrate into a framing member or sheetrock anchors. See Figure 2.
  - **Electric Furnace, Heating only, no coil** - The bracket may also be mounted directly to the front of the electric furnace. In wall mounting applications, the bracket should be positioned at the rear of the unit with the entire bracket opening located over the return air inlet. See Figure 3 (page 3).

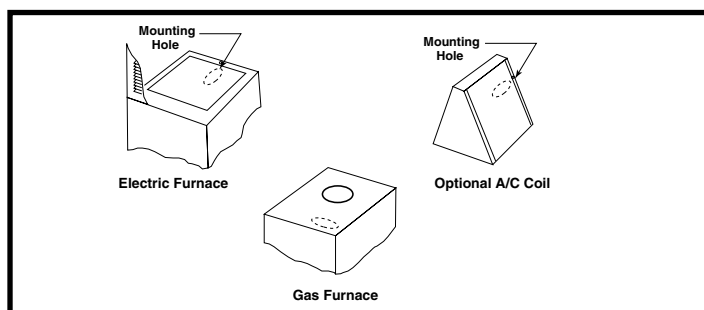


Figure 1. Plastic Inlet Fitting Location

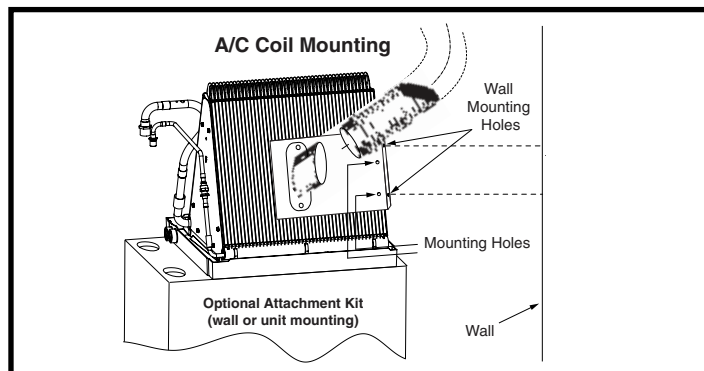


Figure 2. Downflow Electric Furnace with A/C

**NOTE:** In all applications, the VentilAire™ system should be positioned no more than 2 inches from the return air inlet opening of the furnace or coil without interfering with the filter or coil fins.

- **Upflow Electric Furnace** - a special adaptor (914427) may be applied over the square refrigerant line knockout.
- 2. For oval knockout installation, place the plastic inlet fitting with locking tabs onto the sheet metal. The side with tabs further apart (back) should be inserted first, then push gently on the front in the center of the part until front tabs fall below the sheet metal and release. Part will tighten securely in place after application of metal clamp. **NOTE:** For optional locations, use the sheet metal screw provided through one of the clearance holes on the plastic inlet flange.
- 3. Cut approximately a 7-inch diameter hole in ceiling directly above the duct fitting. Avoid ceiling joists and other obstructions in the ceiling cavity and keep debris from falling into furnace. See Figure 4.
- 4. Determine location of roof opening. **NOTE:** The roof cap assembly should be located as closely as possible to the center of the home, allowing connection of the fresh air intake to the furnace using the 11-foot length of flexible duct provided. See Figure 5 (page 4).

## ⚠ **CAUTION:**

**The air inlet cap MUST be located at least 3 feet from any plumbing vent or exhaust vent (gas or oil furnaces, water heater, fireplace, etc.).**

**NOTE:** The attic must be vented to the outside at each end of the manufactured home. This venting is recommended to be a minimum of 36 in<sup>2</sup> of free open area at each end of the home, preferably at the roof or at the eave. Other locations may be used as long as they are located so as to provide even air movement through the attic space.

On double-section manufactured homes, at least one vent on each side of each end of the home must be used (minimum of 4-vents, total), preferably at the roof or at the eave. These vents are recommended to have at least 18 in<sup>2</sup> of free area each. There must also be an opening in the marriage wall of at least 144 in<sup>2</sup> for proper venting.

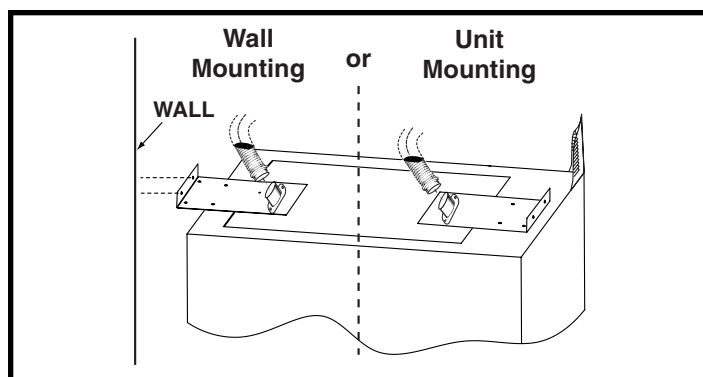
5. Cut approximately a 9" x 19" opening in roof. **NOTE:** Separate round openings of 9" & 6" may be cut on 12" centers if desired.
6. Route flexible duct through ceiling hole between the roof opening and the furnace area. See Figure 6 (page 4).
7. Attach one end of flexible duct to bottom flange of air intake opening. Secure the inner duct with one of the supplied metal clamps and the insulation duct with one of the plastic clamps provided.
8. Refer to the wiring diagram. See Figure 7 (page 4).
  - a. The ventilator is equipped at the factory with a wiring box and connector for 14/2 or 12/2 ROMEX supply cable with ground, or equivalent.
  - b. Connect HOT wire to BLACK lead and NEUTRAL wire to WHITE lead. Secure connections with suitable wire nuts. See Figure 8 (page 4).
  - c. Connect GROUND wire at appropriate ground connection (wiring box green grounding screw).
9. Apply appropriate caulking or roof sealing material to ventilator cap assembly. Apply compound to underside of ventilator cap flashing to form a continuous strip around the underside of the perimeter of the flashing as seen in Figure 9 (page 4).
10. Attach ventilator 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 specific roof

construction. As an added protection against leaks, coat the ventilator flashing and fasteners with roofing compound.

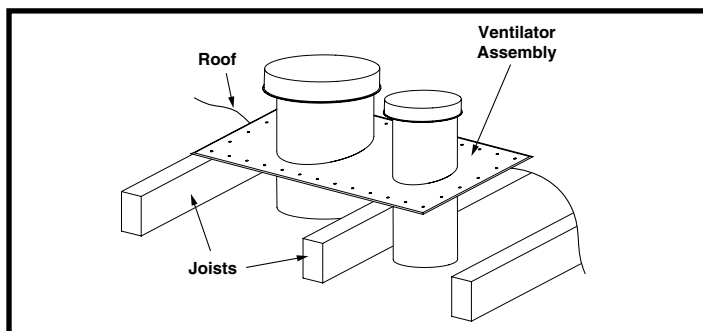
11. Pull slack in flexible duct down through ceiling hole to inlet fitting, being careful not to damage or severely bend the duct. Trim off any excess length of duct to minimize restrictions.
12. Shape end of flexible duct to fit over collar on inlet fitting and attach with clamp provided.
13. Install ceiling ring around flexible duct and attach to the ceiling. **NOTE:** Alternate ceiling ring(s) or other suitable materials may be used.
14. Make sure the bottom of the attic ventilator sleeve is not blocked by roof installation. A minimum clearance of 1 1/2" is needed below the sleeve to ensure proper airflow and a minimum clear space in the attic of 1" is recommended for good ventilation.

### **Moisture Control Recommendations**

- Follow the recommendations of the manufacturer of your home to maintain low levels of moisture in your home.
- When moisture-producing activities (cooking, bathing, etc.) are occurring, operate exhaust fans.
- Avoid hanging clothes to dry within your manufactured home.
- Vent all fuel burning appliances.
- Avoid using humidifiers.
- Avoid having large quantities of houseplants, pools of water, and other moisture-producing conditions.
- Place a vapor barrier (such as plastic sheeting) on top of the ground underneath your manufactured home.
- Ventilation openings should be provided in skirting.
- The fresh air supply to your home may be energized at any time by switching the furnace control (or the thermostat control, if so equipped) to WHOLE-HOUSE VENTILATION.



**Figure 3. Downflow Electric Furnace with Heat Only**



**Figure 4. Ventilator Roof Alignment**

## Warranty

A limited warranty is offered with the purchase of your new VentilAire™ system. The system is warranted for one (1) year, Parts and Labor, against any defects in materials and/or workmanship.

Due to the many variable factors and conditions which the VentilAire™ System cannot control, the system is not warranted to prevent or cure moisture condensation problems in the home.

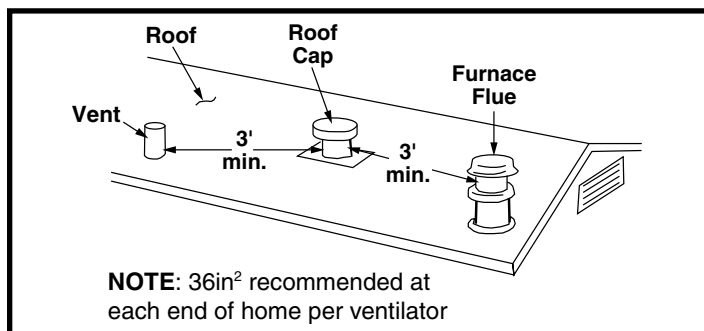


Figure 5. Roof Spacing

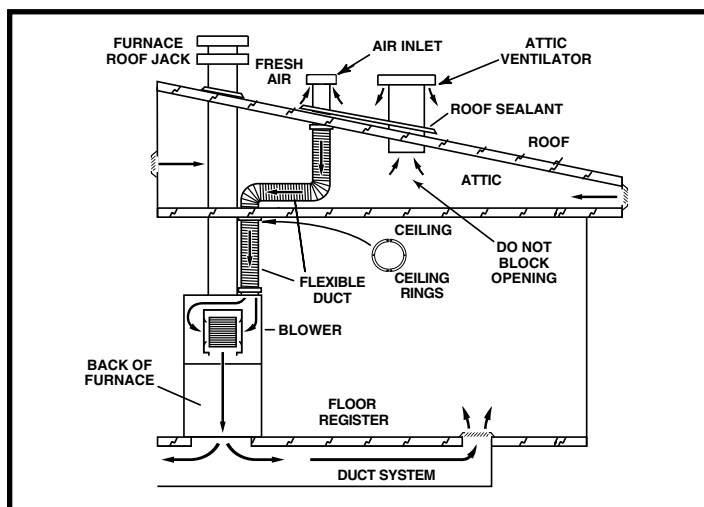


Figure 6. General Install Setup

**INSTALLER:** Do Not Discard These Instructions. After completing the installation, return these instructions to the equipment owner for future reference. Complies with H.U.D. Manufactured Home Construction & Safety Standards.

Kits conform to H.U.D. Manufactured Home Construction and Safety Standard for ventilation, paragraph 3280.103(b)(1-6). Effective May 30, 2006.

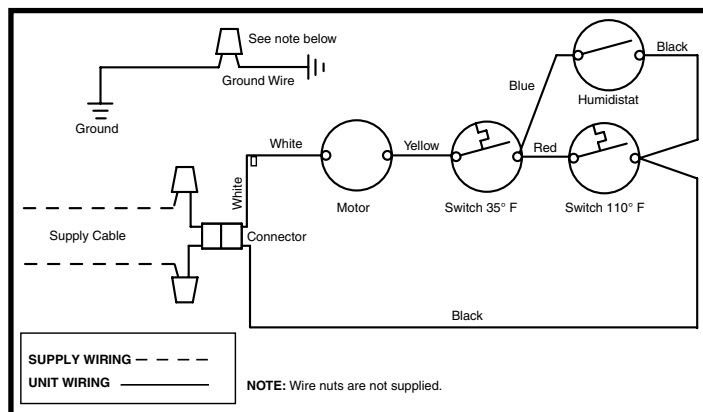


Figure 7. VentilAire™ IV Wiring Diagram

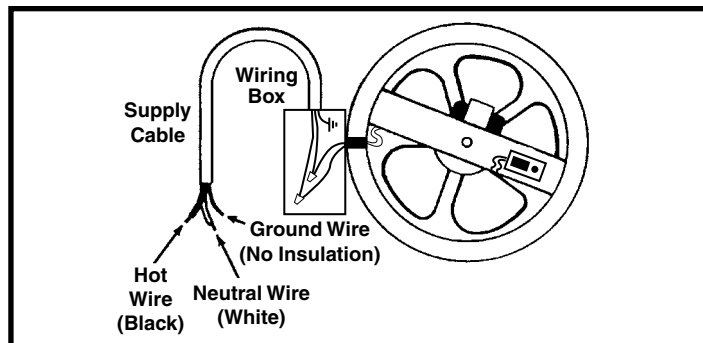


Figure 8. Wire Connections

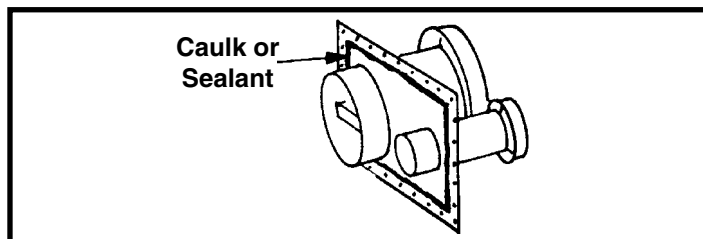


Figure 9. Sealant Application

Furnace Model	Fresh Air Supply CFM - Blower Speed			
	Low	Med-Low	Med-High	High
M1*B	—	50	65	85
M1*C	60	70	80	90
M4RC	75	90	—	—
M4RL	80	90	—	—
M7(R,T)L / MG2S	65	80	90	—
E3EB	50	70	80	90
B(5,6)BV-000K-B	50	65	90	—
B(5,6)BV-000K-C	70	90	—	—

**NOTE:** Manufactured homes installed ventilation system capacity should be in compliance with HUD 3280.103(6)(1-6)

Table 1. VentilAire™ III & IV Application Chart

