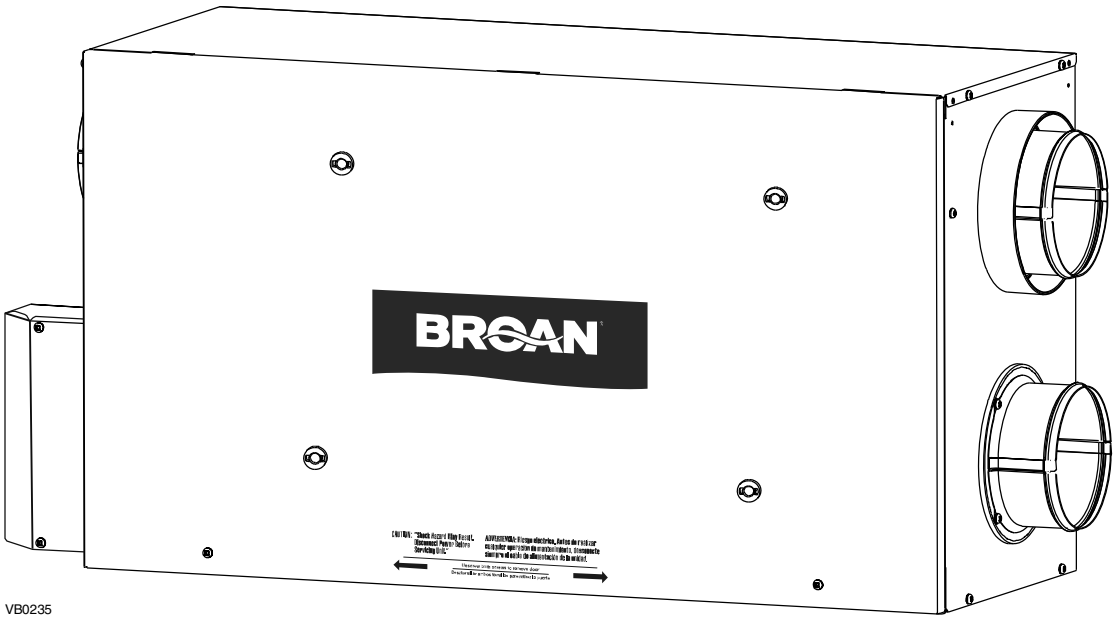
BROAN®

INSTALLATION GUIDE



VB0235

MODELS HRVH100S AND ERVH100S

ENERGY STAR

These products earned the ENERGY STAR® by meeting strict energy efficiency guidelines set by Natural Resources Canada and the US EPA. They meet ENERGY STAR requirements only when used in Canada.

⚠ RESIDENTIAL INDOOR USE ONLY ⚠

READ AND SAVE THESE INSTRUCTIONS

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ABOUT THIS GUIDE

Please take note that this manual uses the following symbols to emphasize particular information:

⚠ WARNING

Identifies an instruction which, if not followed, might cause serious personal injuries including possibility of death.

CAUTION

Identifies an instruction which, if not followed, may severely damage the unit and/or its components.

NOTE: Indicates supplementary information needed to fully complete an instruction.

ABOUT THESE UNITS

LIMITATION

For residential (domestic) installation only. Installation work and electrical wiring must be done by a qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction codes and standards.

⚠ WARNING

TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSON(S) OBSERVE THE FOLLOWING:

1. Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer at the address or telephone number listed in the warranty.
2. We recommend that your unit be inspected by a specialized technician once a year.
3. Before servicing or cleaning the unit, disconnect power cord from electrical outlet.
4. This unit is not designed to provide combustion and/or dilution air for fuel-burning appliances.
5. When cutting or drilling into wall or ceiling, do not damage electrical wiring and other hidden utilities.
6. Do not use this unit with any solid-state speed control device other than following optional main and auxiliary wall controls:

Optional Main Controls	Optional Auxiliary Controls
VT8W, VT7W, VT4W and VT6W	59W and VB60W

7. This unit must be grounded. The power supply cord has a 3-prong grounding plug for your personal safety. It must be plugged into a mating 3-prong grounding receptacle, grounded in accordance with the national electrical code and local codes and ordinances. Do not remove the ground prong. Do not use an extension cord.
8. Do not install in a cooking area or connect directly to any appliances.
9. Do not use to exhaust hazardous or explosive materials and vapors.
10. When performing installation, servicing or cleaning the unit, it is recommended to wear safety glasses and gloves.
11. Due to the weight of the unit, two installers are recommended to perform installation.
12. When applicable local regulations comprise more restrictive installation and/or certification requirements, the aforementioned requirements prevail on those of this document and the installer agrees to conform to these at his own expenses.

CAUTION

1. To avoid prematurate clogged filters, turn OFF the unit during construction or renovation.
2. Please read specification label on product for further information and requirements.
3. Be sure to duct air outdoor – Do not intake/exhaust air into spaces within walls or ceiling or into attics, crawl spaces, or garage.
4. Intended for residential installation only in accordance with the requirements of NFPA 90B.
5. Do not run any air ducts directly above or closer than 2 ft to any furnace or its supply plenum, boiler, or other heat producing appliance. If a duct has to be connected to the furnace return plenum, it must be connected not closer than 9’ 10” from this plenum connection to the furnace.
6. The ductwork is intended to be installed in compliance with all applicable codes.
7. When leaving the house for a long period of time (more than two weeks), a responsible person should regularly check if the unit operates adequately.
8. If the ductwork passes through an unconditioned space (e.g.: attic), the unit must operate continuously except when performing maintenance and/or repair. Also, the ambient temperature of the house should never drop below 65°F.

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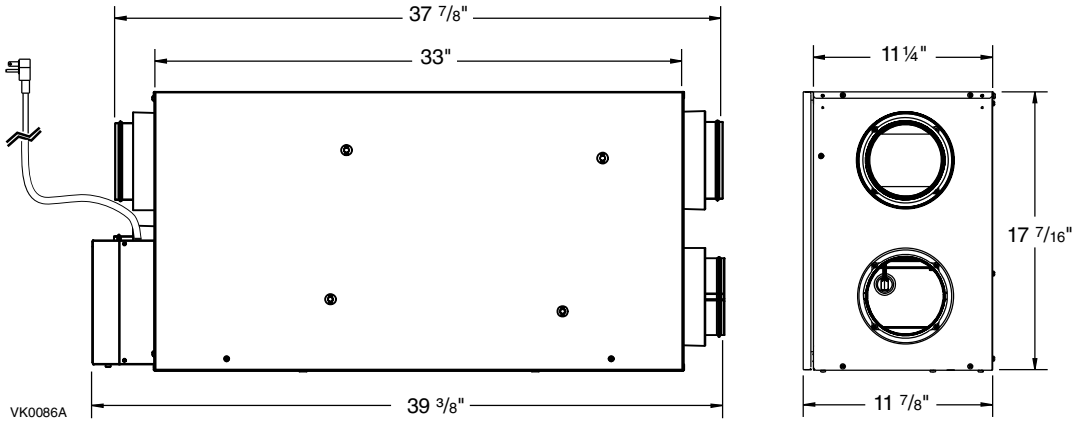
1. Dimensions

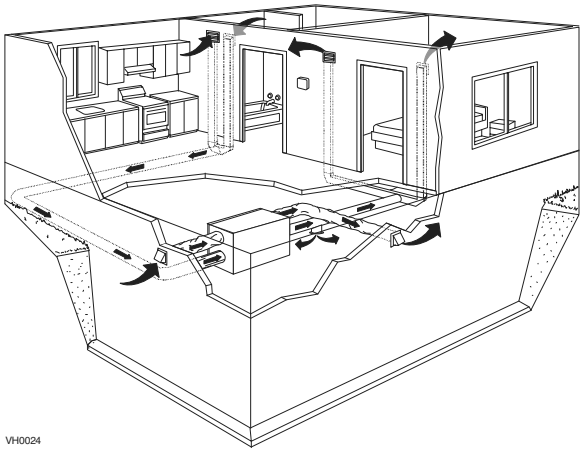


2. Typical Installations

Use the following illustrations as guidelines to help you decide on how the unit will be installed.
All the units should be hung from the joists.
In every case, bathroom fans and a range hood could be used to exhaust stale air. Also, for homes with more than one level, we recommend one exhaust register at the highest level.
There are 3 installation methods: Fully Ducted System, Central Draw Point and Simplified Installation.
NOTE: An electrical outlet has to be available within 3 feet of the unit.

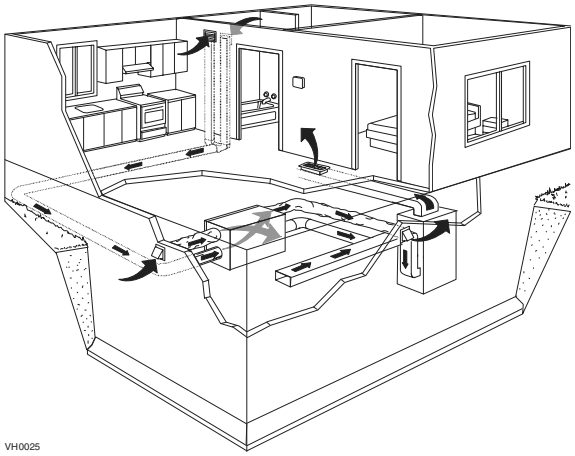
2.1 Fully Ducted System (Primarily for homes with radiant hot water or electric baseboard heating)

Stale air coming from the register located at the highest level of the house is exhausted to the outdoor. Fresh air from outdoor is filtered and supplied by the register located in the lowest liveable level.
Homes with more than one level require at least one exhaust register at the highest level.
See figure at right.


VH0024

2.2 Central Draw Point (Connection to a forced air system)

Stale air coming from the register located at the highest level of the house is exhausted to the outdoor. Fresh air from outdoor is filtered and supplied to the return (plenum) or the supply duct of the forced air unit. See figure at right.
For this type of installation, it is not essential that the forced air system blower runs when the unit is in operation, but we recommend it.
NOTE: Home with multiple forced air systems should have one unit on each system.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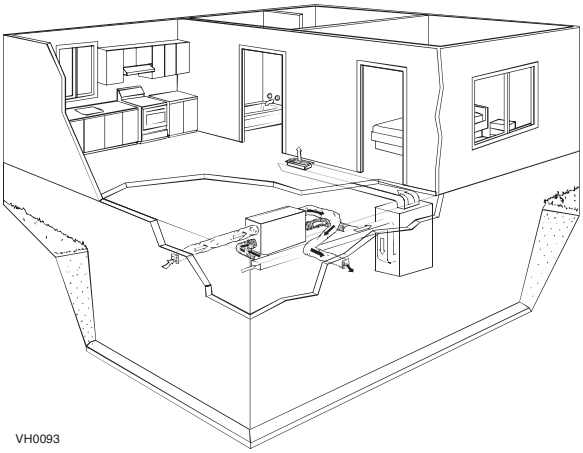
2.3 Simplified Installation (Connection to a forced air system)

Stale air is exhausted to the outdoor. Fresh air from outdoor is filtered and supplied to the return (plenum) or the supply duct of the forced air unit.
See figure at right.
To avoid cross-contamination and achieve the highest efficiencies, the forced air system blower must always be ON.
NOTE: Home with multiple forced air systems should have one unit on each system.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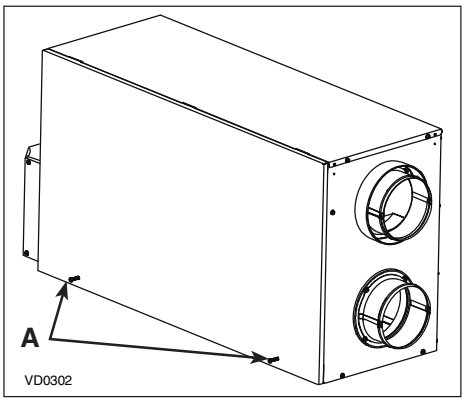
3. Installation

3.1 Inspect the Content of the Box

NOTE: Before proceeding to the installation, check the content of the box. Remove all packaging material from the unit.

- Inspect the exterior of the unit for shipping damage. Ensure that there is no damage to the door, ports, power cord, etc.

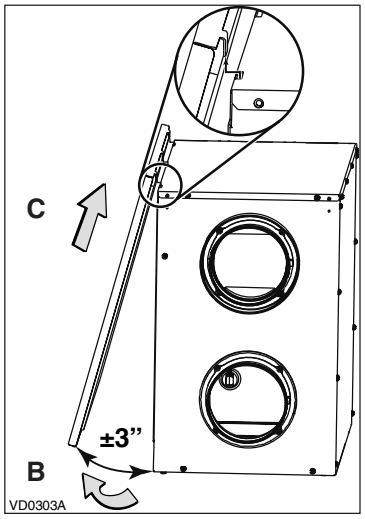


- Using a Phillips or a Robertson screwdriver, loosen both door screws (**A**).
  NOTE: The screws will stay attached to the door.

- Open (**B**) and lift out (**C**) the door.

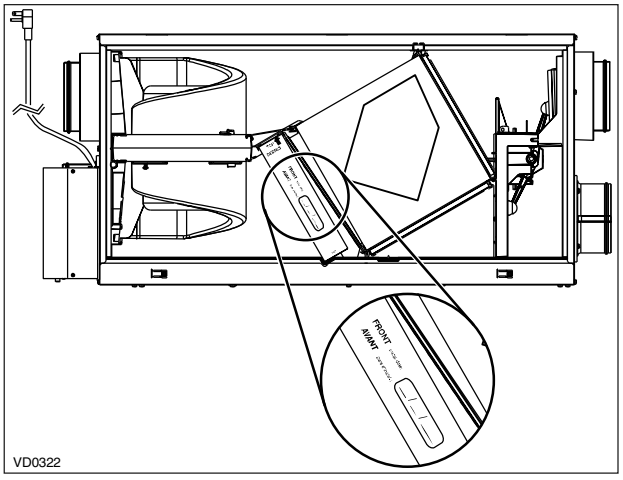
CAUTION

In order to prevent damages to the door hooks, do not open completely the unit door; tilt it about 3" from the unit base and lift it up. See illustration at right.



- Remove the transport tape over the heat or energy recovery core of the unit.
- Inspect the inside of the unit for damage. Ensure that blower assembly, heat or energy recovery core, core filters, insulation, dampers, prefilter and HEPA filter, etc. are all intact, then reinstall the door.

NOTE: Write the installation date on the HEPA filter frame for future reference (see illustration at right).



3.2 TOOLS AND MATERIAL

Following are the tools and material needed:

- Phillips no. 2 or Robertson no. 2 screwdriver
- Small flat blade screwdriver (for wall control connection)
- Wire stripper (for wall control connection)
- Hammer and flat blade screwdriver (for plenum or supply furnace duct connection installation only, to make holes in existing metal duct)
- Scissors or utility knife (to cut duct tape)
- Measuring tape
- Duct tape
- Tin snips or metal shear (for plenum or supply furnace duct connection installation only, to cut ductwork)
- Aluminum duct tape (for plenum connection installation only)
- Jig saw
- Caulking gun and caulking.

3.3 LOCATING THE UNIT

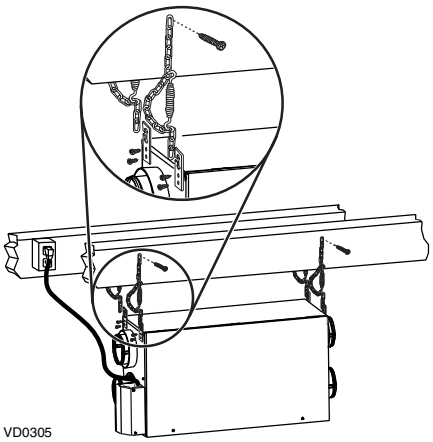
Choose an appropriate location for the unit.

- Within an area of the house **where the ambient temperature is kept between 50°F and 104°F**.
- Away from living areas (dining room, living room, bedroom), if possible.
- So as to provide easy access to the interior of the unit, for maintenance.
- Close to an exterior wall, so as to limit the length of the insulated flexible duct to and from the unit.
- Away from hot chimneys and other fire hazards.
- Allow for a power source (standard 3-prong grounding outlet).
- FOR HRV UNITS ONLY: Close to a drain. If no drain is close by, use a pail to collect run-off.

Hang the unit with the four hooks, chains and springs provided. See illustration at right.

CAUTION

Make sure the unit is level.



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3.4 PLANNING OF THE DUCTWORK

- Keep it simple. Plan for a minimum of bends and joints.
- Keep the length of insulated ducts to a minimum.
- Do not ventilate crawl spaces or cold rooms. Do not attempt to recover the exhaust air from a dryer or a range hood. This would cause clogging of the filters and recovery module.
- If the house has two floors or more, be sure to plan for at least one exhaust register on the highest lived-in level.

3.5 INSTALLING NON-INSULATED DUCTS AND DIFFUSERS

3.5.1 FULLY DUCTED SYSTEM (AS ILLUSTRATED IN SECTION 2.1)

⚠ WARNING

Never install a stale air exhaust diffuser in a closed room where a combustion device operates, such as a gas furnace, a gas water heater or a fireplace.

Stale air exhaust ductwork

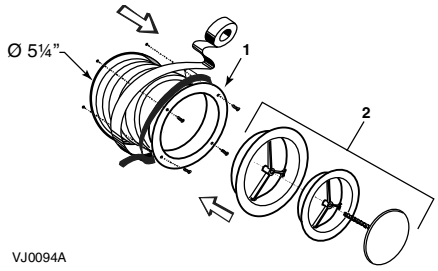
- Install the stale air exhaust diffuser in the main area where the contaminants are produced: kitchen, living room, etc. Position the diffuser as far from the stairway as possible and in such a way that the air circulates in all the lived-in spaces in the house. If desired, you can install another diffuser (sold separately).
- If a diffuser is installed in the kitchen, it must be located at least 4 feet from the range.
- Install the diffuser 6 to 12 inches from the ceiling on an interior wall OR install it in the ceiling.

Fresh air distribution ductwork

- Install the fresh air distribution diffuser in a large, open area in the lowest level to ensure the greatest possible air circulation.
- Keep in mind that the fresh air diffuser must be located as far as possible from the stale air diffuser. If desired, you can install another diffuser.
- Install the diffuser either in the ceiling OR 6 to 12 inches from the ceiling on an interior wall. (The cooler air will then cross the upper part of the room and mix with room air, before descending to occupant's level.)
- If a register must be floor installed, direct the airflow up the wall.

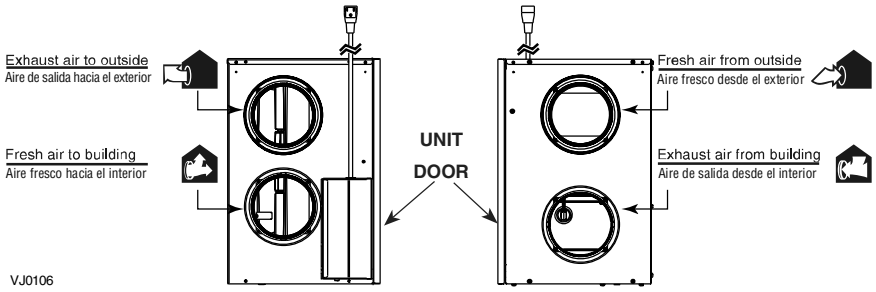
HOW TO CONNECT THE FLEXIBLE DUCTS TO THE DIFFUSERS

Once the diffusers location is determined, cut out 5¼" diameter hole.
Run one end of the flexible duct through the hole and fix it to the diffuser base (**1**), using a tie wrap and duct tape. Assemble the diffuser base to the wall (or ceiling) using its 4 no. 8 x 3/4" screws. Then, slide in the diffuser (**2**).
See illustration at right.



UNIT PORTS IDENTIFICATION

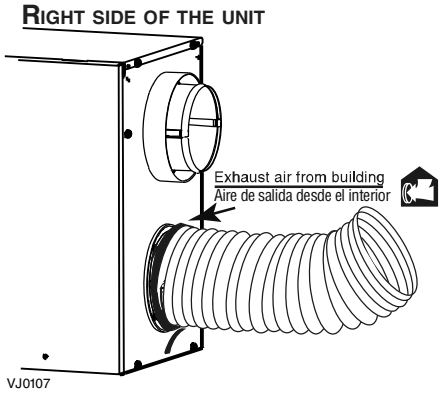
Each unit port has an identification label beside it to avoid wrong duct connections to the unit. Always refer to these labels before performing any duct and port connection.



HOW TO CONNECT THE FLEXIBLE DUCTS TO THE UNIT PORTS

Both flexible ducts attached to the diffusers must be connected to the bottom ports of the unit. When facing the unit door, the fresh air to building port is located on left side and the exhaust air from building port is on the right side. Refer to the identification labels affixed beside each unit ports. Using tie wrap, attach the fresh air to building duct to its corresponding port, then do the same for the exhaust air to building duct and port. See illustration at right.

NOTE: Use an insulated duct if the duct will have to go through a space where it is possible to experience extreme temperature conditions (eg: in northern area, unheated attic in winter or uncooled attic in southern area). Also, if you plan to stop the unit for more than 12 hours, we recommend to cover the duct with R12 insulation.



3.5 INSTALLING NON-INSULATED DUCTS AND DIFFUSERS (CONT'D)

3.5.2 CENTRAL DRAW POINT (AS ILLUSTRATED IN SECTION 2.2)

Stale air exhaust ductwork

Same as for Fully Ducted System, described in step 3.5.1

Fresh air distribution ductwork

⚠ WARNING

When performing duct connections, always use approved tools and materials. Respect all corresponding laws and safety regulations. Please refer to your local building code.

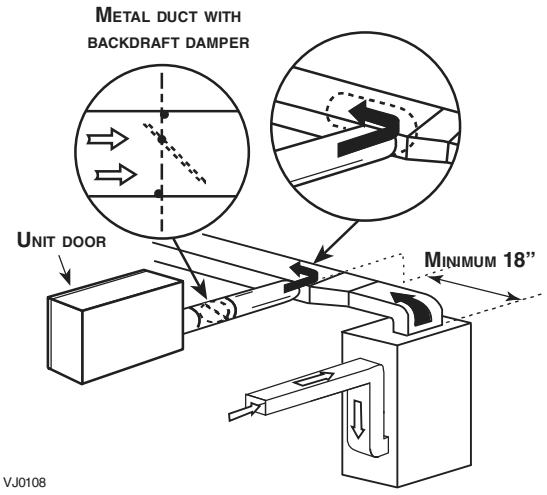
CAUTION

When performing connection to the furnace supply duct, this duct must be sized to support the additional air flow produced by the HRV/ERV. Also, use a metal duct with a backdraft damper to prevent the risk of overheating the HRV/ERV.

There are 2 methods for connecting the unit to the furnace:

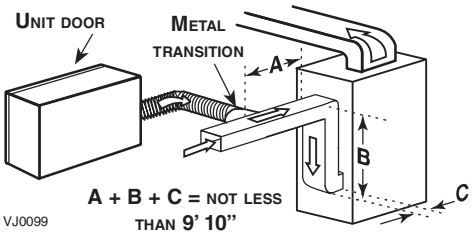
Method 1: Supply side connection

- Cut an opening into the furnace supply duct at least 18" from the furnace.
- Connect this opening to the fresh air distribution port of the HRV/ERV (use **metal duct**, see figure at right).
- Make sure that the HRV/ERV duct forms an elbow inside the furnace ductwork.
- If desired, interlock (synchronize) the furnace blower operation with the HRV/ERV operation (see Section 5).



Method 2: Return side connection

- Locate the opening for fresh air ductwork on the forced air unit return duct at a minimum linear distance of 9' 10" upstream (from forced air unit drop: **A+B+C**). Cut out a 5" Ø hole in this location, using metal shear.
- Use a metal transition to connect the unit duct to the forced air unit return duct.
- Attach the other end of the flexible duct to the Fresh air to building port (see icon on the left side of the unit). Use tie wrap and duct tape to seal the connection. See illustration at right.



3.5 INSTALLING NON-INSULATED DUCTS AND DIFFUSERS (CONT'D)

3.5.3 SIMPLIFIED INSTALLATION (AS ILLUSTRATED IN SECTION 2.3)

Fresh air distribution ductwork (return side connection)
Same as for Central Draw Point, described in step 3.5.2

Stale air exhaust ductwork (return side connection)

⚠ WARNING

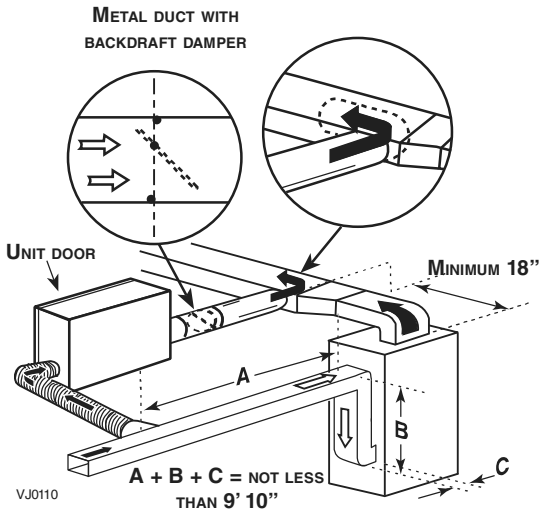
When performing duct connections, always use approved tools and materials. Respect all corresponding laws and safety regulations. Please refer to your local building code.

CAUTION

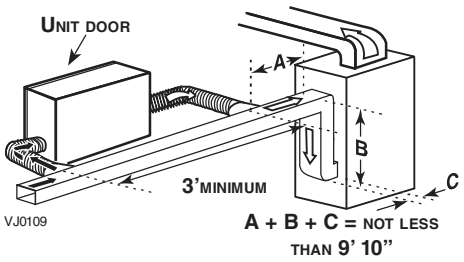
When performing connection to the furnace supply duct, this duct must be sized to support the additional air flow produced by the HRV/ERV. Also, use a metal duct with a backdraft damper to prevent the risk of overheating the HRV/ERV.

There are 2 methods for connecting the unit to the furnace:

Method 1: Return-supply connection



Method 2: Return-return connection



Stale air intake:

- Cut an opening into the furnace return duct not less than 9' 10" from forced air unit drop: (**A+B+C**).
- Connect this opening to the stale air intake port on the HRV/ERV as shown.

Fresh air distribution: (Same instruction as for Method 1 or Method 2, section 3.5.2)
For Method 2 (return-return), make sure there is a distance of at least 3 feet between both connections to the furnace.

CAUTION

If using Method 2, make sure the furnace blower operation is synchronized with the HRV/ERV operation! See Section 5.

NOTE: For Method 1, it is not essential to synchronize the furnace blower operation with the HRV/ERV operation, but we recommend it.

3.6 INSTALLING INSULATED FLEXIBLE DUCTS

CAUTION

Make sure the vapor barrier on the insulated ducts does not tear during installation to avoid condensation within the ducts.

3.6.1 CONNECTION TO THE UNIT PORTS

Use the following procedure for connecting the insulated flexible ducts to the unit ports (Exhaust air to outdoor and Fresh air from outdoor). Refer to identification labels before performing any duct and port connection.

CAUTION

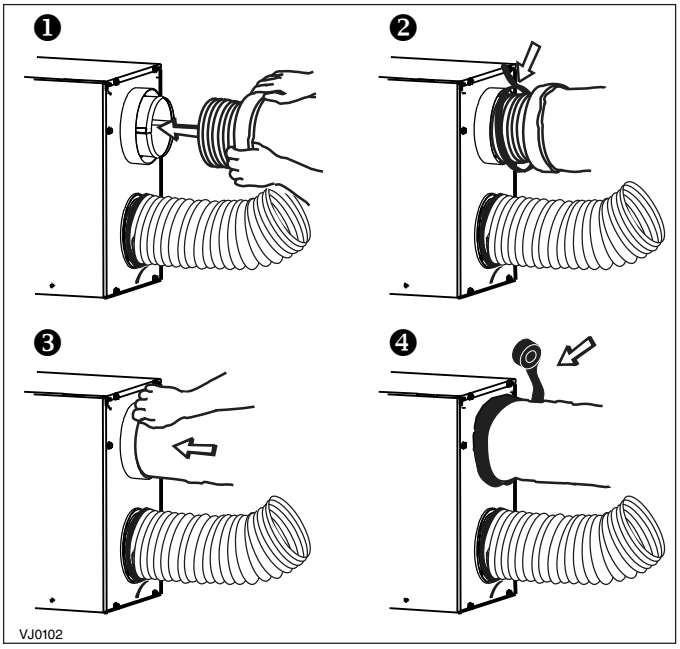
Avoid compressing the insulation when you pull the tape tightly around the joint. Compressed insulation loses its insulation properties and causes water dripping due to condensation on the exterior surface of the duct.

❶ For both remaining ducts, pull back the insulation to expose the interior flexible duct.

❷ Connect the interior flexible duct to the smaller part of the inner ring of the port using a tie wrap.

❸ Pull the insulation over the joint and tuck it between the inner and outer rings of the port. Pull the vapor barrier over the insulation and over the outer ring of the port.

❹ Apply duct tape gently to the joint in order to make an airtight seal. See figures at right.



3.6.2 LOCATING EXTERIOR PORTS

Choose an appropriate location for installing the exterior ports:

- There must be a minimum distance of 6' between the hoods to avoid cross-contamination
- There must be a minimum distance of 18" from the ground

⚠ WARNING

Make sure the fresh air intake port is located at least 6 feet away (or more, as per applicable building codes or standards) from sources of contamination such as:

- **Dryer exhaust, high efficiency furnace vent, central vacuum vent**
- **Gas meter exhaust, gas barbecue grill**
- **Garbage bin**
- **Any exhaust from a combustion source.**