Honeywell

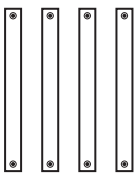
HR150, 200; ER150, 200 Perfect Window™ Fresh Air Ventilation Systems

PRODUCT DATA

INCLUDED IN THIS VENTILATION SYSTEM BOX

A

B



C

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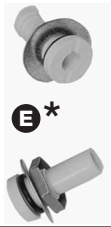
D*



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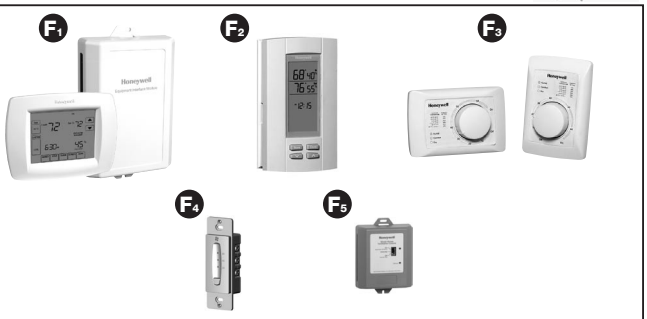


OPTIONAL CONTROLS SOLD SEPARATELY

Tools and accessories needed to install Perfect Window™ Fresh Air Ventilation Systems

- Wire cutter/stripper
- 18-gauge wire (up to 5 conductor)
- Standard screwdriver
- Insulated 6-inch round duct
- Non-insulated 6-inch round duct
- Two 6-inch weather hoods
- Two 6-inch starter collars
- 1/2-inch I.D. drain hose
- Airflow balancing kit
- Foil tape

- A HR150/200 or ER150/200 Perfect Window™ Fresh Air Ventilation System
- B Owner's Manual
- C Hanging straps
- D * T-fitting
- E * 2 drain spouts
- F1 VisionPRO IAQ control
- F2 TrueIAQ
- F3 Dehumidistat H8908
- F4 Digital fan timer
- F5 W8150 ventilation control

* Not with "C" models.

68-0171-12

Perfect Window Fresh Air Ventilation Systems

NEED HELP? For assistance with this product please visit http://yourhome.honeywell.com or call Honeywell Customer Care toll-free at 1-800-468-1502.

Read and save these instructions.

Safety Definitions and Precautions

Safety Definitions

These safety terms identify information you must read.

⚠ **CAUTION:** Indicates a hazardous situation which, if not avoided, could cause bodily injury or property damage.

⚠ **WARNING:** Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

Safety Precautions

Make sure you read and understand the following safety and/or property hazards before installing, using, or working with the Perfect Window™ Fresh Air Ventilation System:

- All ducting to the outdoors must be terminated above anticipated snow lines and be fitted with a weather cap that incorporates bird screening.

⚠ **CAUTION:** Electrical shock hazard.
Can cause personal injury or equipment damage.
Disconnect power supply to prevent electrical shock or equipment damage.

⚠ **CAUTION:** Electrical Shock Hazard.
Can cause personal injury.
Be sure ventilator is correctly grounded. Confirm polarity of power line switched with safety (disconnect) switch when cleaning or servicing unit.

⚠ **CAUTION:** Electrical Hazard.
Can cause equipment damage
Disconnect HRV/ERV from power source before connecting or disconnecting digital fan timer or other device to HRV/ERV high-speed override terminals.

Application

The HR150B and HR200B Perfect Window™ Fresh Air Ventilation Systems provide proper levels of ventilation with energy savings by transferring heat between the exhaust and fresh air streams.

The ER150B and ER200B Perfect Window™ Fresh Air Ventilation Systems provide proper levels of ventilation with energy savings by transferring heat and moisture between the exhaust and fresh air streams.

The ER150C and ER200C Perfect Window™ Fresh Air Ventilation Systems are specifically designed for installations in unconditioned spaces such as attics and garages in regions where the outdoor temperature does not drop below freezing.

Features

- Remotely control two-speed fan.
- Integral balancing dampers for quick installation.
- Provides ventilation that helps contractors meet ASHRAE 62.
- Automatic, economical built-in frost control available for operation to design temperatures of -40°F (-40°C).
- HR150 and HR200 models have an easy-to-clean aluminum cross-flow core.
- ER150 and ER200 models have an advanced energy heat and moisture recovery fixed core.
- Washable energy transfer core.
- Includes vibration isolation hardware and duct collars.
- Insulated cabinet made of rugged steel.
- Permanent (washable) prefilters.
- Quiet operation.
- Digital fan timer option on all models.
- Advanced ventilation algorithms available on VisionPRO IAQ, TrueIAQ and W8150 controls.
- Interlock the ERV/HRV to an air handler or furnace blower.
- Dehumidistat operation deactivated in summer.

Planning the Installation

Failure to comply with these requirements will result in voided warranty, improper installation, and service callbacks.

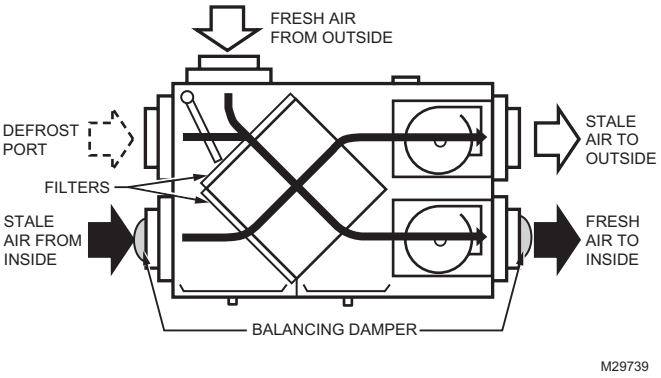


Fig. 1. Duct connections and airflow (HR150B/HR200B).

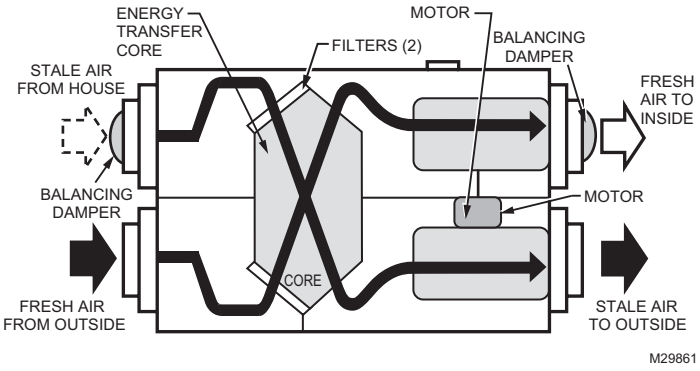


Fig. 2. Duct connections and airflow (ER150C/ER200C).

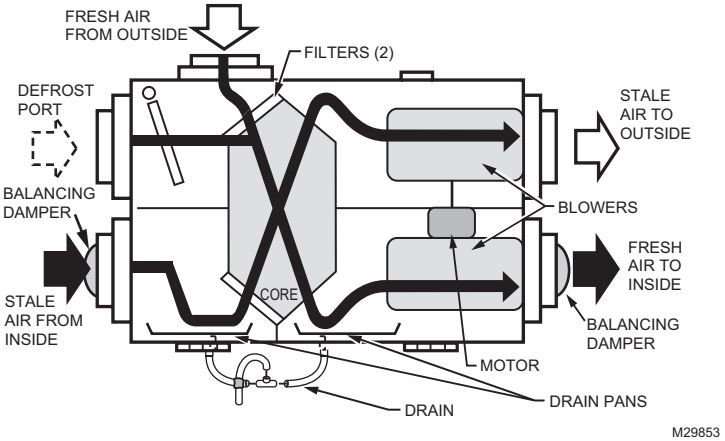


Fig. 3. Duct connections and airflow (ER150B/ER200B).

The Fresh Air Ventilation System is designed to supply fresh air and exhaust stale air. The system draws fresh outdoor air through the ventilator for distribution throughout the house.

Heat Recovery Ventilator

Stale air is exhausted through the ventilator and to the outdoors. Heat is transferred from one airstream to the other as the air passes through the opposite sides of the heat transfer core. See Fig. 1.

Energy Recovery Ventilator

Stale air is exhausted through the ventilator and to the outdoors. Heat and moisture is transferred from one airstream to the other as the air passes through the opposite sides of the energy transfer core. See Fig. 2 and 3.

Sizing

ASHRAE 62.2

There are several methods that can provide satisfactory results for sizing a ventilator to provide adequate ventilation for a home. There is a new residential ventilation standard, ASHRAE 62.2, that suggests the following:

- 7.5 CFM per person (count people as 1 per bedroom plus 1) plus 1 CFM per 100 sq. ft.

Example:
2200 sq. ft. house with 4 bedrooms
= (7.5 CFM x (4 bedrooms + 1)) + (1 CFM x (2200 sq. ft. / 100))
= (7.5 x 5) + (2200 / 100)
= 37.5 + 22
= 59.5 CFM
In this case 60 CFM continuous would provide satisfactory ventilation for this home.

ASHRAE 62.1

Some regions still use the previous standard, ASHRAE 62.1, as the code for ventilation in their region.
The ASHRAE Standard 62.1 Ventilation for Acceptable Indoor Air Quality suggests the following:

- .35 air changes per hour (ach) but not less than 15 cfm per person for living areas = house size (sq ft) x ceiling height (ft) / 60 (min) x.35 (ach)

Example:
= 2000 sq ft x 8 ft / 60 min x .35 ach = 93 cfm

- 50 cfm intermittent or 20 cfm continuous capacity for bathrooms

Example:
50 cfm intermittent x 3 bathrooms = 150 cfm
20 cfm continuous x 3 bathrooms = 60 cfm

- 100 cfm intermittent or 25 cfm continuous capacity for kitchens

Example:
100 cfm intermittent x 1 kitchen = 100 cfm
25 cfm continuous x 1 kitchen = 25 cfm

Option 1: Fresh Air Ventilation System provides continuous fresh air supply of 93 cfm, and intermittent capacity for bathrooms of 150 cfm. A separate 100 cfm exhaust fan is used for the range hood.
Supply air flow required = 93 cfm
Exhaust air flow required = 150 cfm

Any Honeywell ventilation unit provides suitable ventilation capacity. See Fig. 22.

Option 2: Fresh Air Ventilation System provides continuous 93 cfm fresh air supply, 150 cfm intermittent exhaust capacity for bathrooms and continuous 50 cfm kitchen ventilation.
Supply air flow required = 93 cfm
Exhaust air flow required = 200 cfm

Honeywell HR200/ER200 have the exhaust capacity required to meet the ventilation needs of this application. See Fig. 22.

Mounting Position and Location

The HR150/ER150 and HR200/ER200 can be suspended from exposed ceiling joists, ceiling surface or floor mounted. (Level ventilator so drains function correctly.)

NOTE: ER150C and ER200C are specifically designed for installations in unconditioned spaces such as attics and garages in regions where the outdoor temperature does not drop below freezing. (These units are not equipped with drain kits.)

- Locate fresh air intake 6 ft (2m) or more from stale air exhaust to prevent exhaust air from re-entering.
- Locate ventilator where length of ducting required is minimal.

Install HR150/ER150 and HR200/ER200 in a conditioned space using these guidelines:

- Pipe drain line (ER150C and ER200C do not have drain kits) from the ventilator to a drain.
- Use an existing electrical outlet with appropriate current rating (or install one) close to ventilator power cord.
- Allow space for drain line by placing the ventilator at least 10 in. (254 mm) off the floor.
- For access and removal of ventilator core, allow at least 25 in. (635 mm) of open space in front of unit.

Ducting

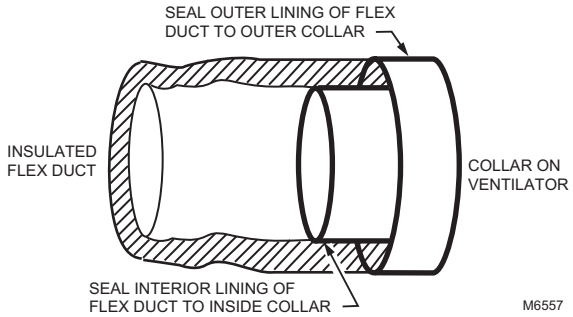


Fig. 4. Sealing insulated duct terminations.

Ducting between the ventilator and the outdoors must be insulated and have a continuous air vapor barrier. See Fig. 4.

IMPORTANT

All ducting to the outdoors must be terminated above anticipated snow lines and be fitted with a weather cap that incorporates bird screening.

Design and installation of ductwork must be according to standard HVAC practice to deliver required quantities of fresh air to temperature-controlled space and exhaust equivalent quantities of room air to the outside.

Keep intake and exhaust duct runs as short as possible with few bends or elbows.

- Keep duct sizes as large as possible throughout the installation.
- Use a 6 in. diameter round duct for all connections to and from the ventilator.
- Separate outside intake and exhaust vents by at least 6 ft (2m).

NOTES: Do not locate the fresh air vent where it blows directly onto occupants or the thermostat.
Do not locate the fresh air intake close to known sources of pollutants such as automobile exhaust, a dryer vent or chimney smoke.

- Ducting the supply outlet and/or the exhaust inlet of the ventilator to the return air plenum of the air handler is an excellent way to distribute fresh air and exhaust stale air from all parts of the house, while reducing installation costs. When choosing this method, balance the ventilator when the air handler is running and interlock the ventilator so that it can run only when the air handler runs. See Fig. 6. An alternate method is to balance the ventilator when the air handler is not running and let the ventilator run whether the air handler is running or not, see Fig. 5. An independent installation is shown in Fig. 7.

NOTE: When the home is occupied, continuous operation of the ventilator is recommended. When the furnace air handler operates, fresh air is distributed through the heating/air conditioning supply registers. When the air handler is off, fresh air is delivered through both supplies and returns.

- An electrical interlock or an automatically powered damper must be used to prevent unwanted entry of outside air if the ventilator is turned off while the furnace air handler continues to operate.

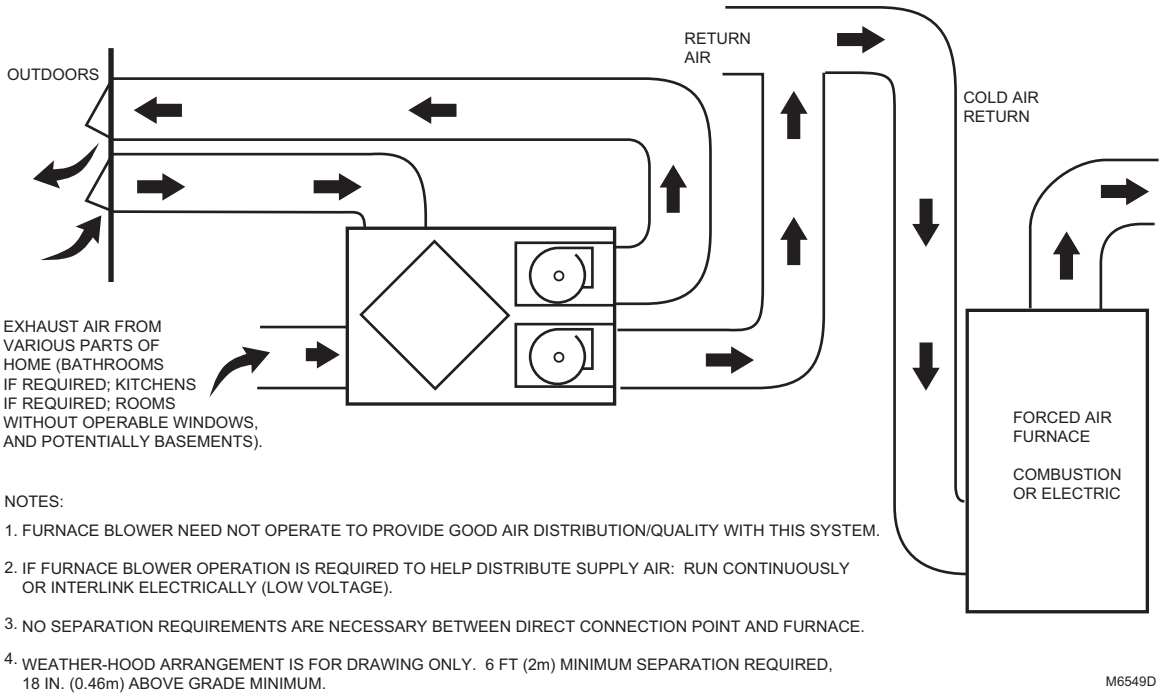
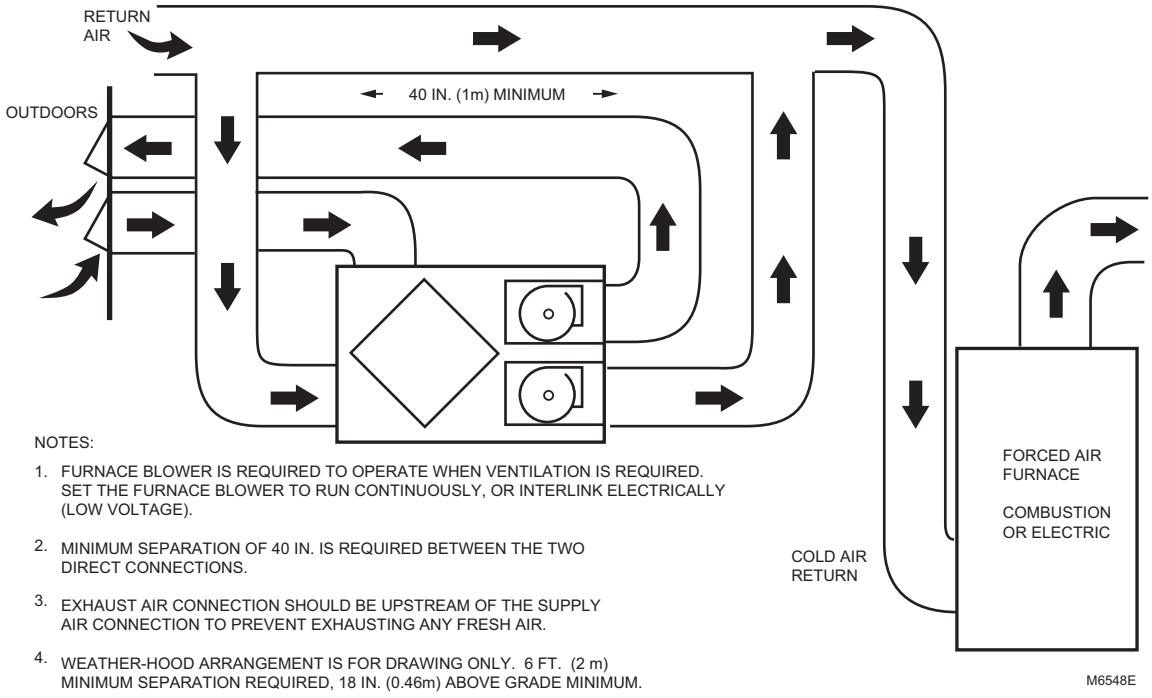


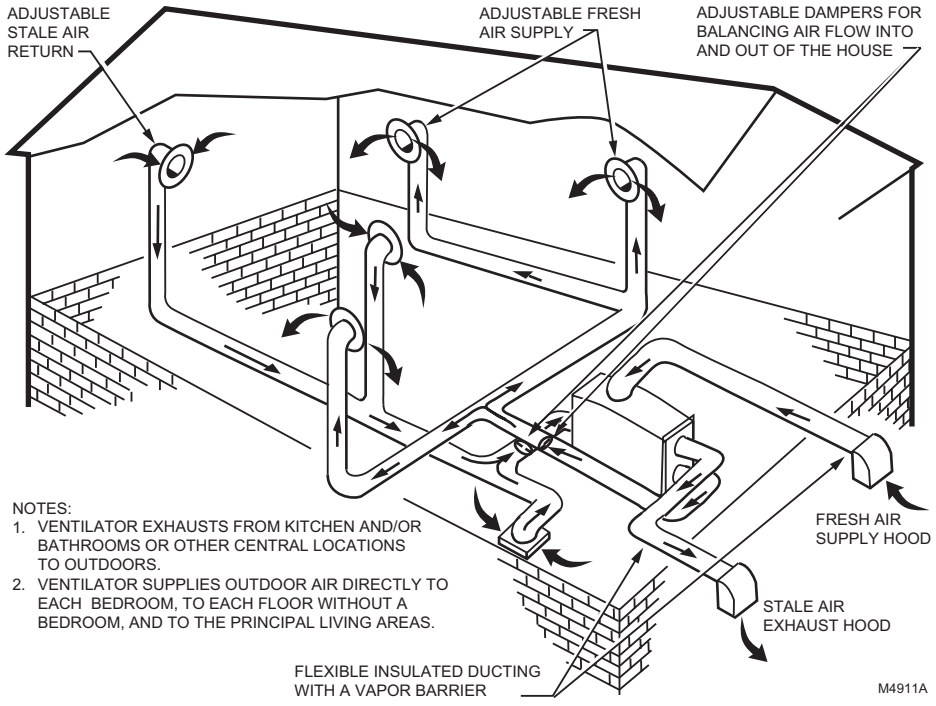
Fig. 5. Direct connection of supply air stream to furnace cold air return for HRV/ERV.



NOTES:

1. FURNACE BLOWER IS REQUIRED TO OPERATE WHEN VENTILATION IS REQUIRED. SET THE FURNACE BLOWER TO RUN CONTINUOUSLY, OR INTERLINK ELECTRICALLY (LOW VOLTAGE).
2. MINIMUM SEPARATION OF 40 IN. IS REQUIRED BETWEEN THE TWO DIRECT CONNECTIONS.
3. EXHAUST AIR CONNECTION SHOULD BE UPSTREAM OF THE SUPPLY AIR CONNECTION TO PREVENT EXHAUSTING ANY FRESH AIR.
4. WEATHER-HOOD ARRANGEMENT IS FOR DRAWING ONLY. 6 FT. (2 m) MINIMUM SEPARATION REQUIRED, 18 IN. (0.46m) ABOVE GRADE MINIMUM.

Fig. 6. Direct connection of ventilator supply air stream and exhaust air stream to furnace cold air return.



NOTES:

1. VENTILATOR EXHAUSTS FROM KITCHEN AND/OR BATHROOMS OR OTHER CENTRAL LOCATIONS TO OUTDOORS.
2. VENTILATOR SUPPLIES OUTDOOR AIR DIRECTLY TO EACH BEDROOM, TO EACH FLOOR WITHOUT A BEDROOM, AND TO THE PRINCIPAL LIVING AREAS.

Fig. 7. Independent ventilator installation.

Balancing Airflow

Balancing the airflow verifies that the Fresh Air Ventilation System is delivering the intended airflow and energy performance. Use the Airflow Balancing instructions in the Installation section to check and balance the airflow.

Controls

Remote Override Switch Functions On/Off Control
If continuous ventilation is not required, an on/off control can be used to activate the ventilator when it is switched to Standby. Controls that can be used for this function include dehumidistats, timers, wall switches and the ventilate function of the VisionPRO IAQ and TrueIAQ digital controls.

Dehumidistat

If moisture control in bathrooms is a primary function of the system, a dehumidistat can be used to switch the ventilator from a Low or Standby setting to the High setting. Moisture removal throughout the entire home can only be achieved when the outside air contains less moisture than the inside air (typically during cold weather conditions).
An HRV will override a call from the dehumidistat if the outdoor temperatures exceed 60°F (15.6°C) for a 24-hour period. The dehumidistat function will be re-enabled if the unit is unplugged for 3 minutes or if the outdoor temperature drops below 60°F (15.6°C) for a 24-hour period. The dehumidistat function is permanently enabled in ERVs.

IAQ Controls

The VisionPRO IAQ and TrueIAQ controls can automatically control the ventilator by pressing the Ventilate button on the control. See the control owner's guide for complete instructions.

Digital Fan Timer

The ventilator controls are compatible with the Digital Fan Timer. If more than one timer is activated, each runs independently with the ventilator running at high speed until all timers have timed out. Up to eight timers can be installed in a system.

Moisture Control

When a building is new, there is excess moisture in the wood, plaster, cement and other construction materials. When the new building is occupied, the activities of the occupants also increase the moisture level. There can also be high levels of formaldehyde and other chemicals that were used in the building materials. Running the ventilation system on high speed provides optimum indoor air pollutant reduction. High speed also provides maximum moisture removal when the outside air contains less moisture than the inside air. (Typically during cold weather conditions.)

Operating Damper Frost Control

Some models have an electronically-controlled damper frost control mechanism to prevent frost buildup on the core. Defrost timing will change based on incoming outdoor air temperature.

Outdoor Temperauture	Defrost Timer*
27 °F (-3 °C)	3 minute defrost/25 minute run
-4 °F (-20 °C)	4.5 minute defrost/17 minute run
-31 °F (-35 °C)	7 minute defrost/15 minute run

* The R2000 jumper on the control board can be removed to meet R2000 program requirements.

Example:
When the outside temperature drops below 27 °F (-3 °C), the defrost timer is activated. At the end of the 25 minute run cycle, when the core can experience some nominal frost buildup, the timer activates a motor-driven damper door that simultaneously opens the defrost port and closes off the supply air port.

INSTALLATION

When Installing this Product…

1. Read these instructions carefully. Failure to follow these instructions could damage the product or cause a hazardous condition.
2. Check the ratings on the product to make sure the product is suitable for your application.
3. Installer must be a trained, experienced service technician.
4. After installation is complete, check out product operation as provided in these instructions.

⚠ **CAUTION: Electrical Shock Hazard.**
Can cause personal injury or equipment damage.
Disconnect power supply to prevent electrical shock or equipment damage.

Unpacking Fresh Air Ventilation System

Check that all the components are included. The Fresh Air Ventilation System is shipped assembled. The carton contains the following:

- Fresh Air Ventilation System.
- Vibration isolation straps (4).
- Drain fittings (2) and T fitting (1).
- Literature package.

Except for the mounting hardware and drain fittings, the ventilator is ready for installation. Wiring, drain connections and ducting are required to complete the installation.

Mounting

Suspended from Floor Joists

1. Mount the four vibration isolation straps (provided) to the side of the ventilator using the mounting screws located on the cabinet. See Fig. 23.
2. Securely fasten the other ends of the straps to the floor joists with wide-head nails (not supplied), making sure the unit is level. The straps are designed to reduce noise, resonance or harmonics; therefore, using the full length of the strap between the ventilator and the floor joists is recommended.

NOTE: Removing door and core reduces the weight of the ventilator, making it easier to lift into place.

Installing Drain Line and P-Trap

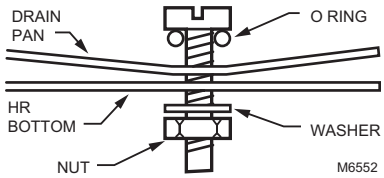


Fig. 8. Installing drain line.

There are two holes at the bottom of the ventilator for the drain pan connectors.

1. Insert the connectors through the hole in the drain pan and the bottom of the unit.
2. Place the washer and nut on the connector.
3. Hand tighten the nut. See Fig. 8.

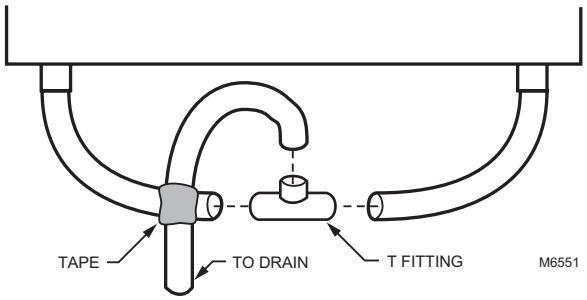


Fig. 9. Installing P-trap.

Construct a P-trap using the plastic T-fitting provided.

1. Cut two lengths of 1/2 in. ID hose and connect each drain fitting to the end of the T-fitting.
2. Position the center leg of the T-fitting so it points upward.
3. Connect the drain line to the center leg and tape it in place to prevent any kinks. See Fig. 9.

This creates a trap that will hold some condensation and prevent odors from being drawn up through the drain hose into the unit. If the unit is installed during a season when it is unlikely that condensation will form, fill the trap with tap water.

WIRING

CAUTION: Electrical shock hazard.
Can cause personal injury.
Be sure ventilator is correctly grounded. Confirm polarity of power line switched with safety (disconnect) switch when cleaning or servicing unit.

IMPORTANT

The hot line (black) is the correct line to switch. See Fig. 19. To confirm correct polarity, use voltmeter or test lamp to verify there is no power after the switch when the door is open. Check between that point and ground (on cabinet). This process must be used because occasionally some dwellings are incorrectly wired.

CAUTION: Electrical hazard.
Can cause equipment damage.
Disconnect HRV/ERV from power source before connecting or disconnecting digital fan timer or other device to HRV/ERV high-speed override terminals.

IMPORTANT

Do not connect external power sources to the highspeed override terminals.

Heat Recovery Ventilator (HRV) and Energy Recovery Ventilator (ERV) Connections

The connector is a three-prong, 120 Vac plug with ground. If further wiring is required, Honeywell recommends that a licensed electrician make all electrical connections. It is very important that the unit be correctly grounded.

Digital Fan Timer

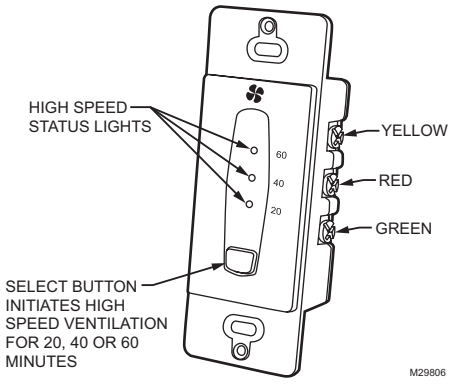


Fig. 10. Digital fan timer lights and Select Button.

Mount digital fan timer in a full or one-half depth electrical box in the living space. See Fig 10.
Press and release the Select Button to activate high speed on the ventilator. Change between 20-, 40-, and 60-minute override times by pressing and releasing the Select Button.
The status light will dim after 10 seconds of run time. The status light will flash during the last 5 minutes of override. All timers connected to the unit will illuminate for the duration of the override.
Set the lockout mode by holding the Select Button for 5 seconds. Unlock by holding for 5 seconds.

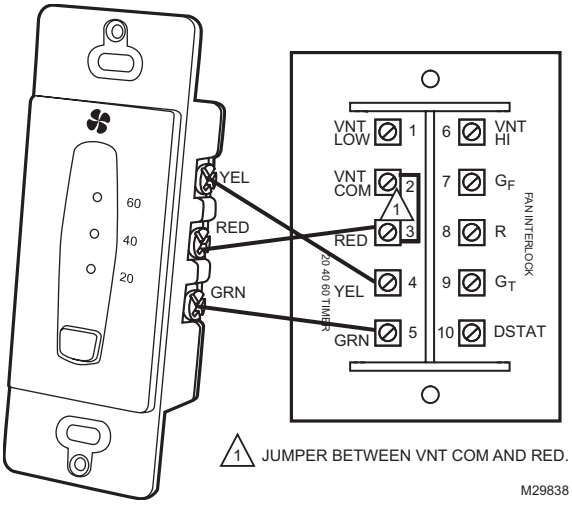


Fig. 11. Wiring digital fan timer.

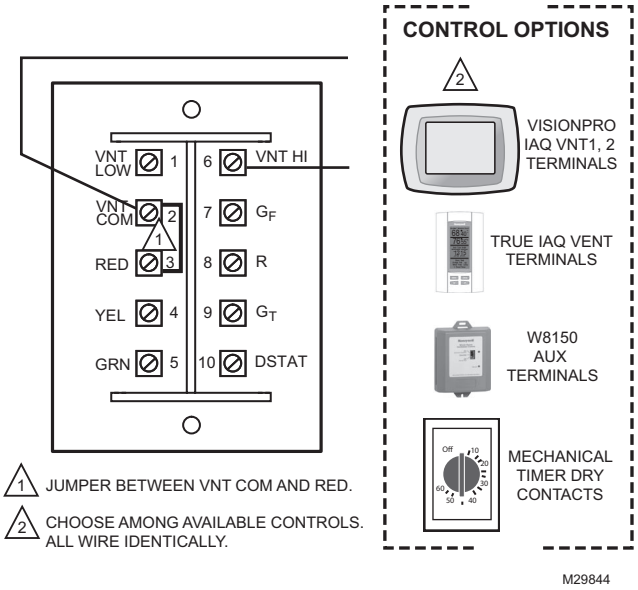


Fig. 12. Wiring IAQ or ventilation control.

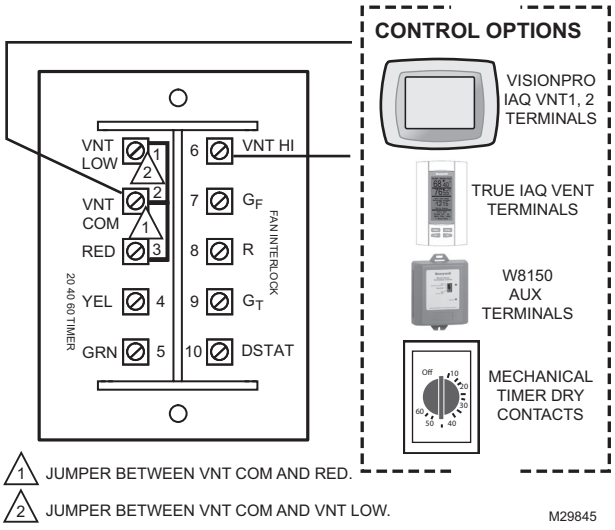


Fig. 13. Wiring for continuous low speed and high speed override.

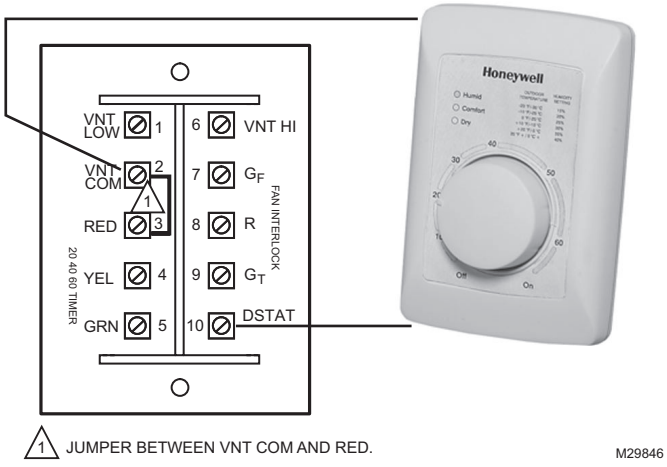


Fig. 14. Wiring dehumidistat.

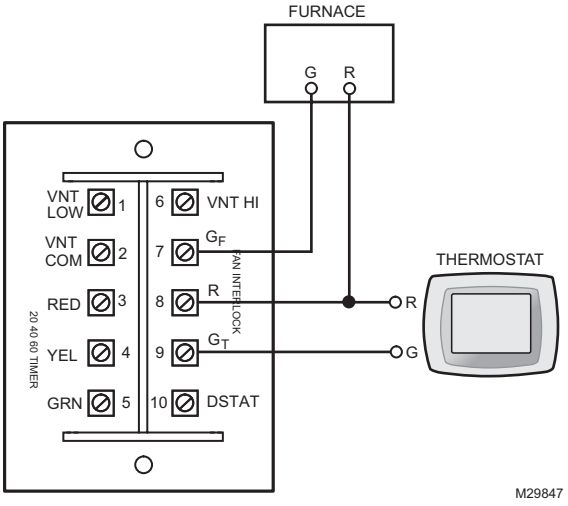


Fig. 15. Wiring for fan interlock.

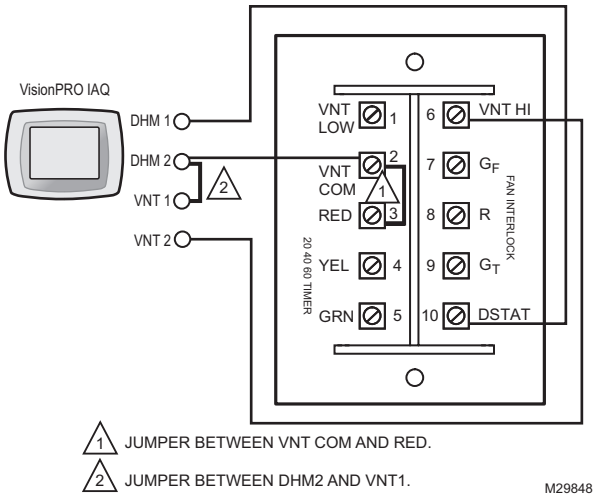


Fig. 16. Wiring VisionPRO IAQ for ventilation and dehumidification.

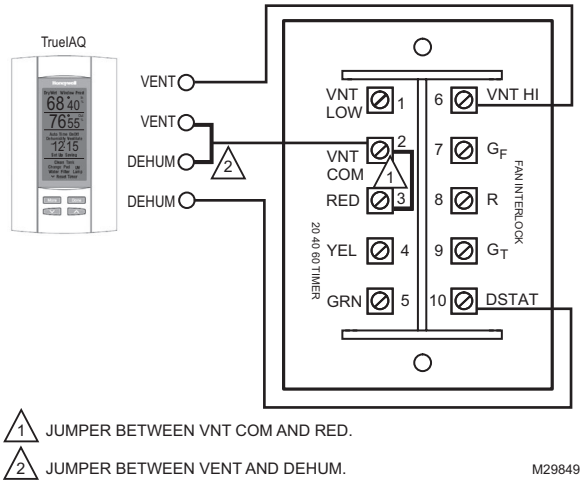


Fig. 17. Wiring TrueIAQ for ventilation and dehumidification.

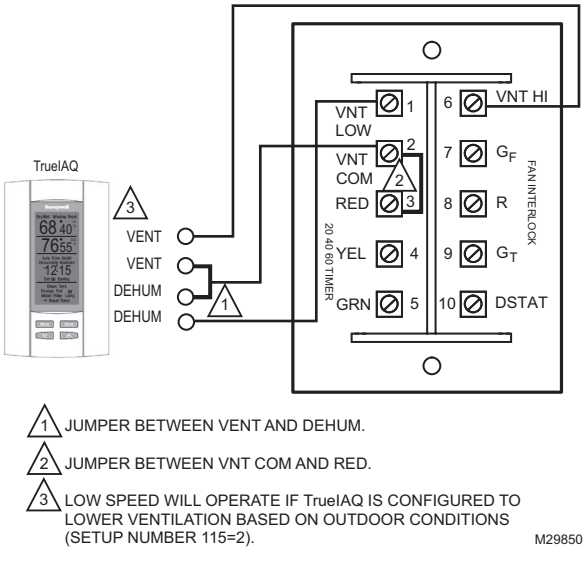


Fig. 18. Wiring TrueIAQ for high and low speed ventilation.

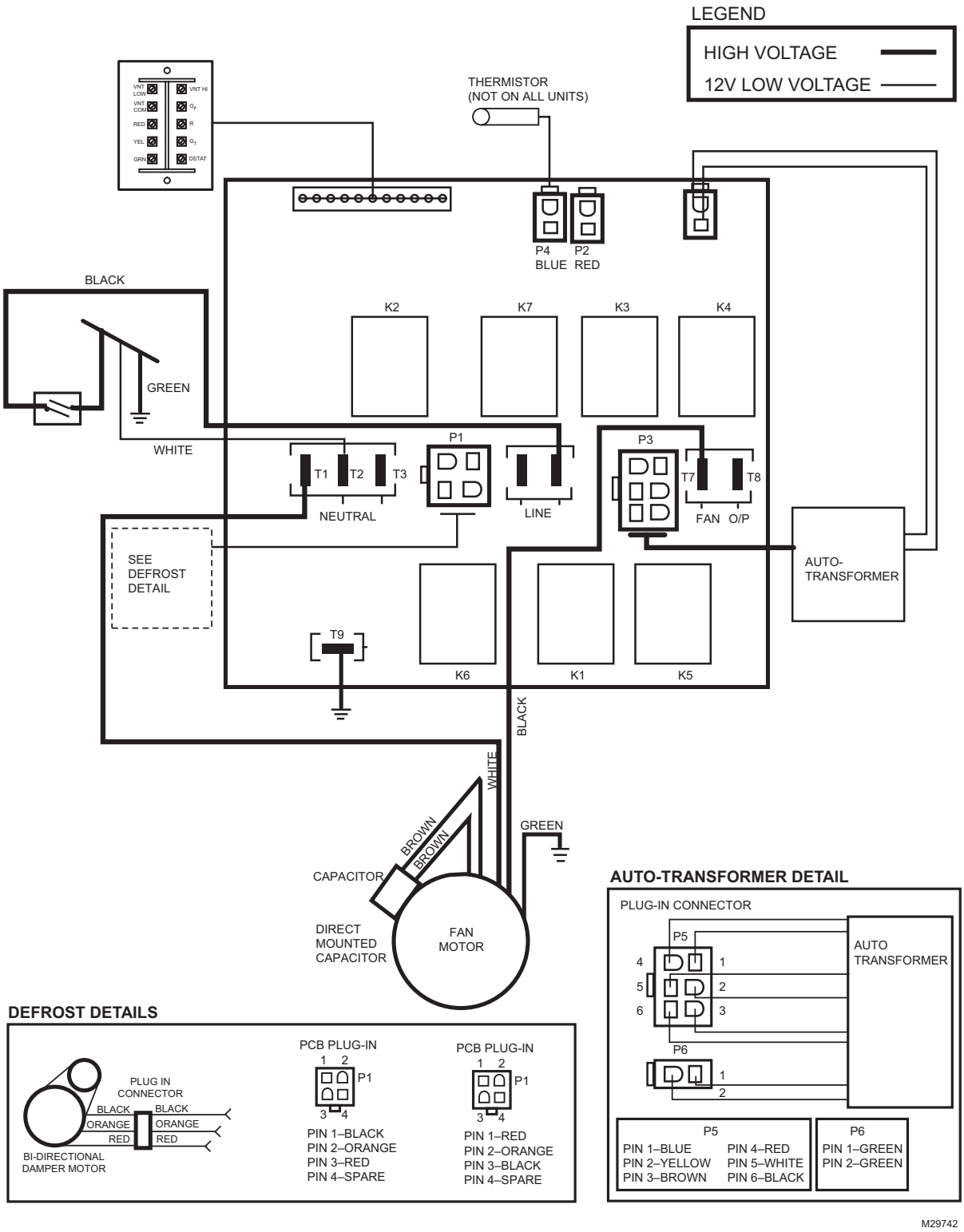


Fig. 19. Internal schematic for fresh air ventilation systems.

Airflow Balancing

Volume-balanced airflow in the ventilator is required. Volume of outside air brought in must equal the volume of air the unit exhausts. If airflow is not correctly balanced:

- unit does not operate at its maximum efficiency.
- negative or positive air pressure can occur in the house.
- unit will not defrost properly.
- warranty can be voided.

Excessive positive pressure can drive moist indoor air into building external walls where it can condense (in cold weather) and degrade structural components. Moist indoor air can also cause keyholes to freeze.

Excessive negative pressure can have several undesirable side effects; in some geographic locations, soil gases such as methane and radon can be drawn into the home through basement/ground contact areas. Excessive negative pressure can also cause back drafting of vented combustion equipment when adequate combustion air supply is not provided.

Balancing Procedure

Six-inch (150 mm) diameter flow collars connected to inclined or digital manometer, or magnehelic, with range of 0 to.25 in. (0 to 62.5 Pa) of water are recommended for accurate airflow measurements. To avoid airflow turbulence and incorrect readings, flow stations should be located at a distant point of at least five duct diameters; for example, 6 in. (150 mm) duct requires five diameters x 6 in. (150 mm) = 30 in. (76 cm) from nearest valve or flow restriction. This requirement applies to both stale air to exchanger duct and fresh air to house duct.

Before balancing, make sure:

- all sealing of the ductwork system is completed.
- all of the ventilator system components are in place and functioning properly.
- balancing dampers are fully open.
- unit is on High speed.
- airflows in branch lines to specific areas of house are adjusted before balancing the unit. (A smoke pencil used at the grilles is a good indicator of relative airflow for each branch line.)
- HVAC fan is on for models ducted into HVAC system.

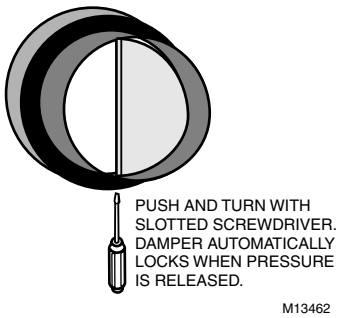


Fig. 20. Balancing airflow.

After taking readings in stale air and fresh air ducts, duct with lower cfm (L/s) velocity reading should remain as is, while duct with higher reading should be dampered back to match lower reading. See Fig. 20.

Return unit to appropriate fan speed for normal operation.

STARTUP AND CHECKOUT

When the ventilator is powered up it will go through a self-test and turn on both fan speeds and check damper operation.

LED on Terminal Board of Ventilator

The terminal board has an LED that flashes to indicate the current mode of the ventilator.

Ventilator Mode	Flashing Sequence	Description
Standby or Ventilating	2-½ sec. on followed by 10 sec. off	This is the normal operation of the ventilator.
Standby or Ventilate Dehumidistat Disabled	2-½ sec. on, ½ sec off, ½ sec on followed by 8 sec. off	This is the normal operation of the ventilator with the dehumidistat function disabled.
Self-Test	2-½ sec. on followed by ½ sec. off	Self-test will turn on both fan speeds and check damper operation.
Defrost	½ sec. on followed by ½ sec. off	See page 9 for defrost operation
Off	½ sec. on followed by 5 sec. off	In Off mode the ventilator will not come on. The ventilator is in Off mode when there is no jumper between VNT COM and RED. The jumper can be replaced with an ON/OFF light switch to provide an easy positive off switch.

SERVICE

⚠ **CAUTION:** Electrical shock hazard.
Can cause personal injury or equipment damage. Disconnect power to unit before starting maintenance.

For maximum efficiency, the Fresh Air Ventilation System must be maintained on a regular basis. Honeywell recommends checking and cleaning at least twice a year, preferably at the beginning of each heating and cooling season.

Cleaning Filters and Core

1. Open ventilator door by loosening draw latches on top of unit and swinging door open. For easier access, remove door by moving it right to disengage hinges.
2. Carefully grip ends of core, (be careful not to damage aluminum fins); then pull evenly outward. Core fits tightly, but slides out of channels.
3. Once core is removed, filters can be removed by removing clips holding them in place. Note clip installation for reassembly.

4a. ERV core: Vacuum the ERV core or rinse with cold water. Do not use soap, dishwasher, or a pressure washer.

4b. HRV core: Soak and rinse the HRV core in warm soapy water. Do not use cleaning solutions, dishwasher or a pressure washer.

5. Wash the filters in warm soapy water.
6. Place the clean filter (wet or dry) over the core and secure it in place with the clips.
7. Reinstall core by sliding it into the four corner channels. (Water cannot damage gasket and label on core ends, so it is not necessary to remove them from the core.)

Inspecting Exterior Hoods

Inspect exterior hoods at least monthly. Be sure exhaust and fresh air supply hoods are not blocked or restricted by leaves, grass or snow. In winter, be sure snow does not block hoods and frost does not accumulate on wire mesh bird screen.

IMPORTANT

Blocked hoods can cause house/building pressure change that can lead to possible combustion product spillage from heating appliances.

TROUBLESHOOTING

Table 1. Troubleshooting Guide.

Symptom	Cause	Solution
Poor airflow	• Plugged outside hood 1/4 in. (6 mm) mesh.	• Clean exterior hoods or vents
	• Filters plugged.	• Remove and clean filter.
	• Core obstructed.	• Remove and clean core.
	• House grilles closed or blocked.	• Check and open grilles.
	• Dampers (if installed) are closed.	• Open and adjust dampers
	• Poor power supply at site.	• Have electrician check supply voltage at house.
	• Ductwork is restricting airflow.	• Check duct installation.
	• Improper speed control setting.	• Increase speed of ventilator.
	• Ventilator airflow improperly balanced.	• Have contractor balance ventilator airflow.
Supply air feels cold	• Poor location of supply grilles, airflow can irritate the occupant.	• Locate grilles high on walls or under baseboard heaters; install ceiling-mounted diffuser or grilles to avoid blowing directly on occupants (example: over a sofa).
	• Outdoor temperature extremely cold.	• Turn down ventilator supply speed. • Use a small duct heater (1 kW) to temper the supply air. • Placement of furniture or closed doors is restricting movement of air in the home. • If supply air is ducted in furnace return, run furnace fan continuously to distribute ventilation air comfortably.
	• Ventilator airflow can be incorrectly balanced.	• Have a contractor balance ventilator airflow.
Dehumidistat is not operating	• Incorrect connection to external 24-volt control. • Staple/nail is shorting out external low voltage.	• Check that correct wires were used. • Check external wiring for a short.
	• Check dehumidistat setting; it could be at Off.	• Set dehumidistat at the desired setting.
	• Dehumidistat is disabled when the outdoor temperature is above 60F for 24 hours.	• Check the LED on the terminal block for long flash followed by a short flash.

Symptom	Cause	Solution
Humidity levels are too high; condensation appears on windows	Dehumidistat is set too high.	Set dehumidistat lower.
	• Undersized ventilator to handle hot tub, indoor pool, etc.	• Cover pools and hot tubs when not in use.
	• Lifestyle of occupants.	• Avoid hanging clothes to dry, storing wood and venting clothes dryer inside. Consider moving wood outside.
	• Moisture coming into home from crawl space not vented or heated.	• Vent crawl space and place vapor barrier on floor of crawl space.
	• Moisture is remaining in bathroom and kitchen areas.	• Size bathroom ducts to remove moist air as effectively as possible; use bathroom fan to remove additional moisture.
	• Condensation is forming in spring and fall.	• On humid days, as seasons change, condensation appears but air quality remains high with some ventilator use. Use a control that provides ventilation in all seasons.
	• Ventilator speed is set too low.	• Increase speed of ventilator.
	• Ventilator airflow can be incorrectly balanced.	• Have a contractor balance ventilator airflow.
Humidity levels too low	• Dehumidistat control set too low.	• Set dehumidistat higher.
	• Blower speed of ventilator is too high.	• Decrease ventilator blower speed.
	• Lifestyle of occupants.	• Increase humidity with humidifiers.
	• Ventilator airflow can be incorrectly balanced.	• Have a contractor balance ventilator airflow.
Ventilator and/ or ducts have frost buildup	• Ventilator airflow is incorrectly balanced.	• NOTE: Minimal frost build-up is expected on cores before unit initiates defrost cycle functions. • Have HVAC contractor balance ventilator.
	• Malfunction of ventilator defrost system.	• Have HVAC contractor check defrost system.
Condensation or ice buildup in insulated duct to outside	• Incomplete vapor barrier around insulated duct.	• Tape and seal all joints. • Tape any hole or tears made in outer duct covering.
	• Hole or tear in outer duct covering.	• Ensure vapor barrier is completely sealed.
Water in ventilator bottom	• Drain pans are plugged. • Improper connection of ventilator drain lines.	• Ensure O-ring on drain nozzle adjusted correctly. • Look for kinks in line.
	• Ventilator is not level.	• Level ventilator.
	• Drain lines are obstructed.	• Check water drain connections.
	• Ventilator heat exchange not correctly installed.	• Make sure water drains correctly from pan.

PARTS LIST

HR/ER Parts List

Item Number (Fig. 21)	Part Number for			Description
	HR150B/ HR200B	ER150B/ ER200B	ER150C/ ER200C	
1	209746			Heat Transfer Core, Aluminum with Plastic Frame
		32002074-001	32002074-001	Cross-Flow Energy Transfer Core, with Guide Channels, diamond shape made before August 2005*
		50048918-001	50048918-001	Universal Energy Transfer Core with guide channels to fit diamond and square shape.
2	208359	208359	208359	Blower Motor with Capacitor
3	50002341-001	50002341-001	50002341-001	Blower Housing Kit, includes upper and lower housing, no wheels or motor.
4	209723	50050728-001	50050728-001	Foam Prefilter, Set of 2
5	209722	Included with Prefilter	Included with Prefilter	Clip for HRV Foam Prefilter
6	209715	209715	N/A	Defrost Damper Motor, Bi-directional
7	50048693-001	50048693-001	N/A	Drain Spouts and “T” Kit
8	50048694-001	50048694-001	50048694-001	Door latch, double wide
9	50050832-001	50050832-001	50050832-001	Electronic Control Kit (Control Board and Auto Transformer)

* Date can be determined by serial number which includes date in MMDDYY format.

Shaded items are obsolete — available while supplies last.

Accessory Items Parts List Not Shown—All Models

Item Number	Part Number	Description
6	W8150A1001	Fresh Air Ventilation Control
7	50050477-001	Digital Fan Timer, 20, 40, 60 minutes

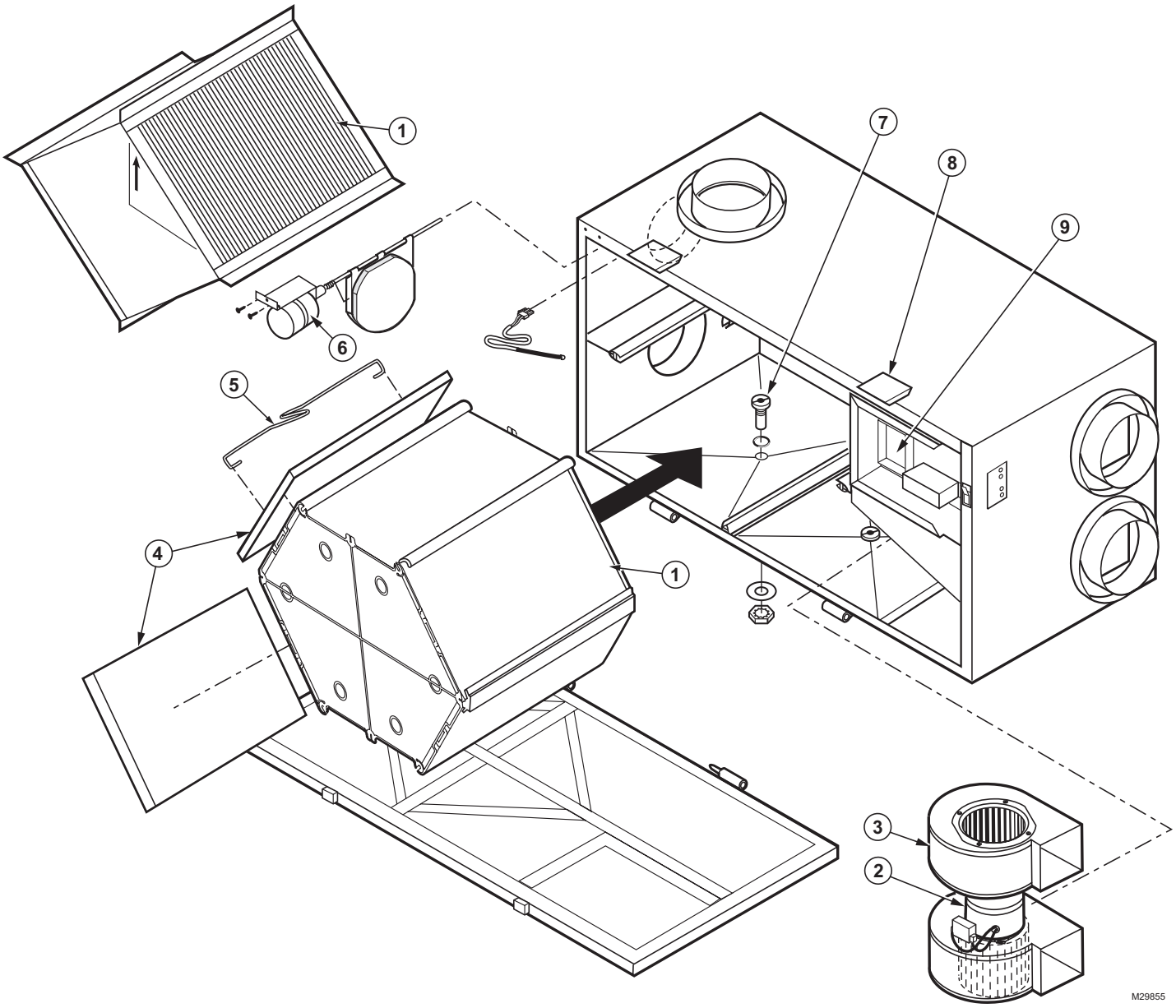


Fig. 21. HR150/HR200 and ER150/ER200 exploded view of parts keyed to HR/ER Parts List.

Specifications

IMPORTANT

The specifications given in this publication do not include normal manufacturing tolerances. Therefore, this unit might not exactly match the listed specifications. Also, this product is tested and calibrated under closely controlled conditions, and some minor differences in performance can be expected if those conditions are changed.

TRADELINE® Models

TRADELINE models are selected and packaged to provide ease of stocking, ease of handling and maximum replacement value.

TRADELINE Models Available:

- HR150 and HR200 Fresh Air Ventilation Systems: Includes heat transfer core, prefilters, fan and blower assembly and frost control.
- ER150, ER200 Fresh Air Ventilation Systems: Includes enthalpic heat and moisture transfer core, prefilters, fan and blower assembly and frost control (frost control on B models only).
- HR150B: 150 cfm, aluminum cross flow core, manual control and frost control.
- HR200B: 200 cfm, aluminum cross flow core, manual control and frost control.
- ER150B: 150 cfm, heat and moisture transferring core, manual control and frost control.
- ER150C: 150 cfm, heat and moisture transferring core, manual control and without frost control.
- ER200B: 200 cfm, heat and moisture transferring core, manual control and frost control.
- ER200C: 200 cfm, heat and moisture transferring core, manual control and without frost control.

Color

White

Electrical Ratings

- Power Rating: 120 Vac, 60 Hz
- Amp Rating: 1.4 A
- Consumption:

Mode	Watts	
	HR150/ER150	HR200/ER200
Low speed	63	70
High speed	173	182

Mounting

Most models mount in conditioned space such as a basement, utility room, hallway or closet. Can also be mounted in conditioned attic space.

NOTE: ER150C and ER200C models can be installed in unconditioned spaces such as attics and garages in regions where the outdoor temperature does not drop below freezing.

Approvals

- Home Ventilation Institute (HVI): Certified.
- Canadian Standards Association: Approved.
- ETL: Certified to UL1812.

Installed Weight

- HR150/HR200: 70 lb (32 kg).
- ER150/ER200: 70 lb (32 kg).

HVI Certified

HR150, HR200, ER150, ER200

Ventilation Performance

See Fig. 22 and 24.

Dimensions

See Fig. 23 and 25.

Accessories

See the Accessory Items Parts List that follows the Troubleshooting Guide.

HR150, HR200

Performance ratings based on CAN/CSA-C439-88.

Maximum Temperature Recovery

78%

Sensible Effectiveness

HR150 at 67 cfm (32 L/s) at 32°F (0°C): 76%.
HR200 at 119 cfm (56 L/s) at 32°F (0°C): 67%.

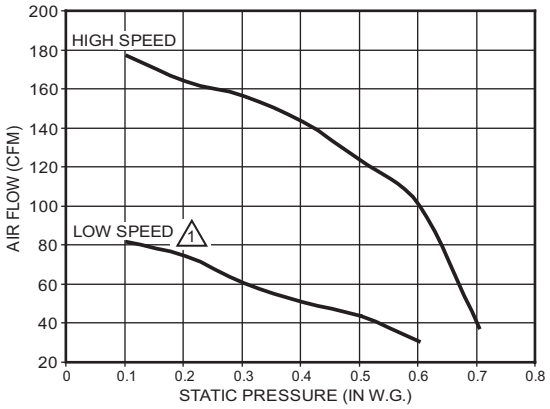
ER150, ER200

Sensible Effectiveness

ER150 at 64 cfm (30 L/s) at 32°F (0°C): 81%.
ER200 at 116 cfm (55 L/s) at 32°F (0°C): 76%.

Total Recovery Efficiency

ER150 at 65 cfm (30 L/s) at 95°F (35°C): 47%.
ER200 at 117 cfm (30 L/s) at 95°F (35°C): 50%.



1 MANUFACTURER'S DATA

HR150 VENTILATION PERFORMANCE (HV1)

EXT STATIC PRESSURE		NET SUPPLY AIR FLOW	
(Pa)	(in. wg)	(L/s)	(cfm)
25	.1	83	177
50	.2	77	164
75	.3	73	156
100	.4	67	143
125	.5	58	123
150	.6	47	100
175	.7	18	38

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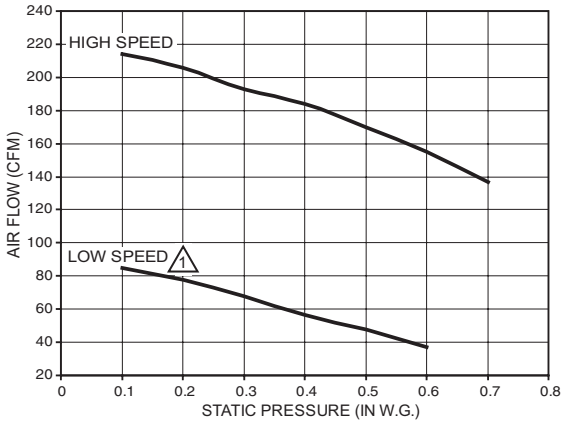

1 MANUFACTURER'S DATA

HR200 VENTILATION PERFORMANCE (HVI)

EXT STATIC PRESSURE		NET SUPPLY AIR FLOW	
(Pa)	(in. wg)	(L/s)	(cfm)
25	.1	101	214
50	.2	97	206
75	.3	91	193
100	.4	87	184
125	.5	80	170
150	.6	73	155
175	.7	65	137

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Fig. 22. HR150 and HR200 Ventilation performance.

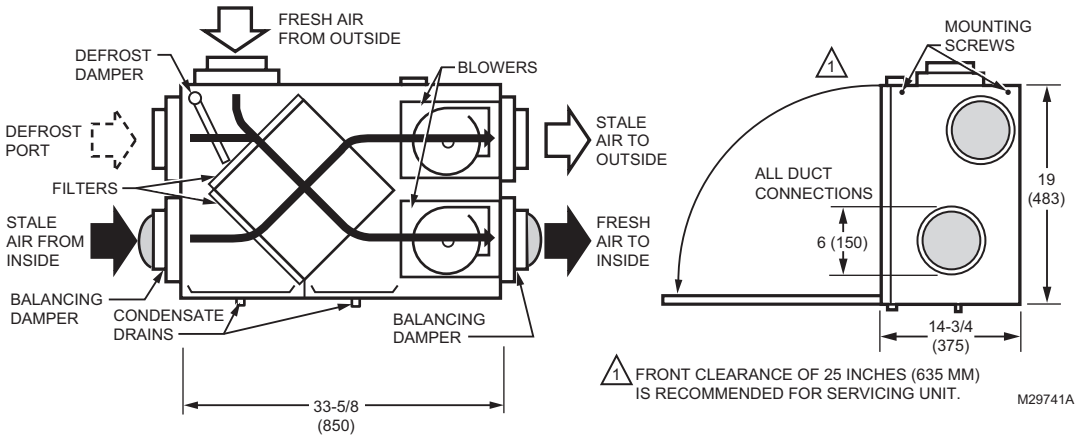
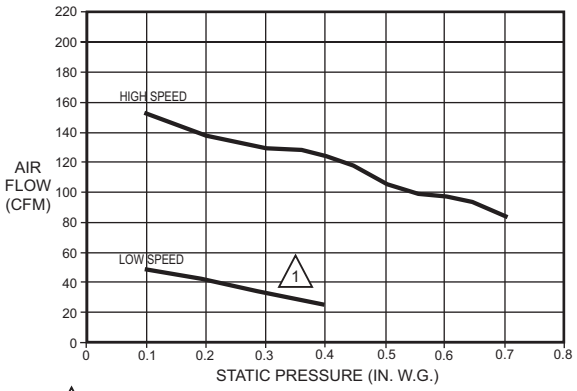


Fig. 23. HR150 and HR200 dimensions in in. (mm).

APPENDICES



ER150 VENTILATION PERFORMANCE
NET SUPPLY AT LOW IN CFM (L/s) AGAINST EXTERNAL STATIC PRESSURE

E.S.P. (EXTERNAL STATIC PRESSURE) INCHES (Pa)	CFM (Ls)
0.1 (25)	151 (71)
0.2 (50)	141 (67)
0.3 (75)	132 (62)
0.4 (100)	124 (59)
0.5 (125)	107 (50)
0.6 (150)	98 (46)
0.7 (175)	81 (38)
0.8 (200)	60 (28)

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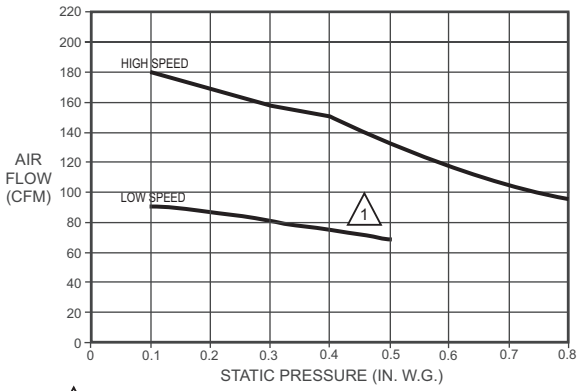

ER200 VENTILATION PERFORMANCE
NET SUPPLY AT LOW IN CFM (L/s) AGAINST EXTERNAL STATIC PRESSURE

E.S.P. (EXTERNAL STATIC PRESSURE) INCHES (Pa)	CFM (Ls)
0.1 (25)	180 (85)
0.2 (50)	169 (80)
0.3 (75)	157 (74)
0.4 (100)	146 (69)
0.5 (125)	132 (62)
0.6 (150)	118 (56)
0.7 (175)	101 (48)
0.8 (200)	82 (39)

M29837

Fig. 24. ER150 and ER200 Ventilation performance.

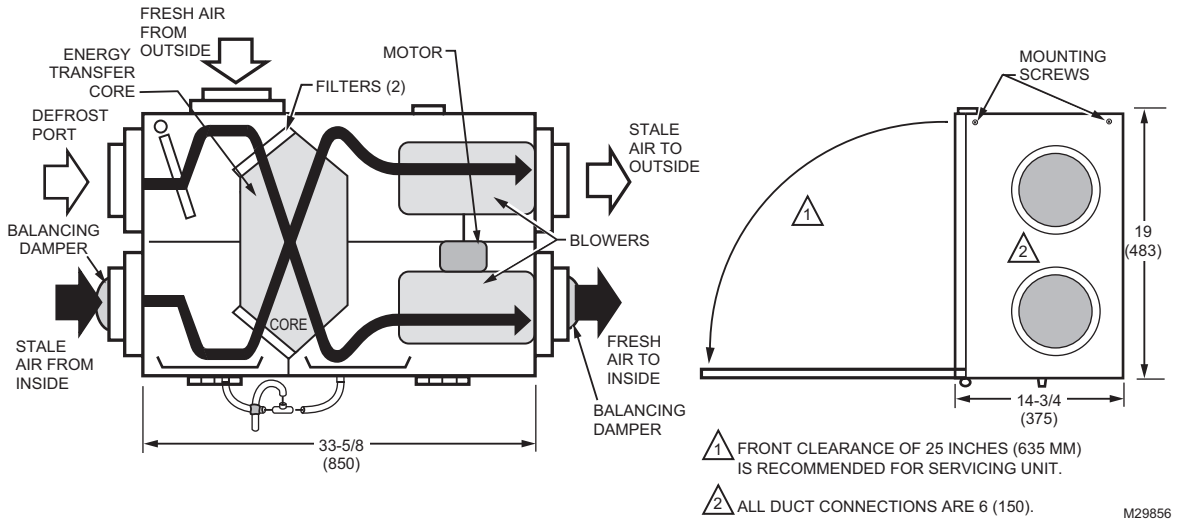

Fig. 25. ER150 and ER200 dimensions in in. (mm).

APPENDICES

Automation and Control Solutions
Honeywell International Inc.
1985 Douglas Drive North
Golden Valley, MN 55422

Honeywell Limited–Honeywell Limitée
35 Dynamic Drive
Toronto, Ontario M1V 4Z9
http://yourhome.honeywell.com

Honeywell

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