



FIELD CONTROLS

Operation and Installation Manual

FC95HRV*

FC155HRV

FC200HRV*

FC150ERV

Heat Recovery Ventilators



This product earned the ENERGY STAR by meeting strict energy efficiency guidelines set by Natural Resources Canada and the US EPA. It meets ENERGY STAR requirements only when used in Canada.

ISO
9001
REGISTERED

CSA
C US
Conforms to UL Standards

2100
HVI
CERTIFIED

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**IMPORTANT -
PLEASE READ THIS MANUAL
BEFORE INSTALLING UNIT.**

NOTE

- Due to ongoing research and product development, specifications, ratings, and dimensions are subject to change without notice.

CAUTION

Before installation, careful consideration must be given to how this system will operate if connected to any other piece of mechanical equipment, i.e. a forced air furnace or air handler, operating at a higher static. After installation, the compatibility of the two pieces of equipment must be confirmed, by measuring the air flows of the HRV, by using the balancing procedure found in this manual. NEVER install a ventilator in a situation where its normal operation, lack of operation or partial failure may result in the backdrafting or improper functioning of vented combustion equipment.

WARNING

- Disconnect the power from the unit before cleaning or servicing.
- To prevent electrical shock, it is *extremely important* to confirm the polarity of the power line that is switched by the safety (disconnect) switch. The hot line (black) is the proper line for switching. Use either a voltmeter or test lamp to confirm the absence of a voltage between the disconnect switch and ground (on the cabinet) while the door is open. This procedure must be followed, as dwellings are occasionally wired improperly. Always ensure the proper grounding of the unit.

ATTENTION

- Do not apply electrical power to the unit until after the completion of the installation (including the installation of low voltage control wiring).
- Ensure the Installation and wiring is in accordance with CEC, NEC, and local electrical codes.
- Due to ongoing research and product development, specifications, ratings, and dimensions are subject to change without notice.
- Plug the unit into a standard designated (120 VAC) electrical outlet with ground.
- The use of an extension cord with this unit is not recommended. If the installation requires further wiring, have a licensed electrician make all of the electrical connections. The recommended circuit is a separate 15 amp/120 volt circuit.

Getting to Know your Heat and Energy Recovery Ventilator (FC Series)

Thank you for purchasing a Field Control Heat/Energy Recovery Ventilator (HRV/ERV). The HRV/ERV provides fresh air to your home while recovering energy from the air it exhausts.

There are numerous benefits to a properly installed, operated, and maintained HRV/ERV:

- Exhausts the stale, contaminated air, found in today's tight buildings.

- Recovers the majority of the energy contained in the exhausted stale air.
- Uses the recovered energy to preheat or precool the fresh outdoor air introduced into the house
- Distributes the fresh air throughout your home.

Ventilation and Control Options*

Optional Controls are available to adjust the amount of ventilation in your home:

- The Healthy Home System™ Control (HHSC) will automatically deliver fresh air to your home.
- The Dehumidistat Control (DHI) can be used in conjunction with the HHSC to provide additional ventilation for high indoor humidity levels.

- The Dehumidistat Ventilation Control (DHVC) is a manual control which features ON/OFF, High speed, Low Speed, and an electronic dehumidistat.

*Refer to the individual control pages of this manual for more information about these controls.

How the Dehumidistat Works (Colder Climates)

High indoor humidity levels, during the heating season, have become a problem in many well insulated, tight homes. Excessive condensation on the windows is a visual sign of high indoor humidity levels. High indoor humidity levels can result in mold and mildew and the eventual degradation of the building structure itself.

Your HRV/ERV reduces indoor humidity levels when the outdoor air is drier than the indoor air. These conditions usually occur during the heating season when outdoor temperatures are less than 15°C (59°F). During the heating season, the operation of the HRV/ERV may reduce indoor humidity levels sufficiently to eliminate the need for further dehumidification.

If your home requires further dehumidification, use the dehumidistat feature located on any optional main control (refer to the *Operation and Installation Manual* for Optional Control information). This feature aggressively addresses high indoor humidity levels by initiating high speed ventilation when the indoor humidity levels rise above the adjustable set point on the control.

Refer to the main control instructions located in the *Operation and Installation Manual* for instructions on how to set the dehumidistat. The dehumidistat function on the main control should be set to OFF for all seasons except the heating season, because a dehumidifying effect occurs only when the outdoor air is dryer than the indoor air. Set the RH level to 80 to turn the dehumidistat OFF. (Refer to the control instructions for information on how to set the Dehumidistat).

DEHUMIDISTAT DISABLE - automatically disables the dehumidistat function on the main control when outdoor temperatures exceed 15°C (59°F) for a full 24 hour period. All other HRV features and functions operate normally while the dehumidistat function is disabled.

DEHUMIDISTAT RE-ENABLE - automatically re-enables the dehumidistat function if either the outdoor temperature drops below 15°C (59°F) for a full 24 hour period or if the HRV is reset (unplugged for 30 seconds).

Glossary and Additional Information

DEFROST MODE - To ensure reliable operation during cold weather, the HRV automatically cycles through its defrost mode when the outdoor temperatures drop below freezing.

HRV/ERV - a Heat Recovery Ventilator (HRV/ERV) is designed to provide fresh air into a building while exhausting an equal amount of stale air. During the winter months, heat recovered from the stale air, before it is exhausted to the outdoors, warms the incoming cold fresh air. During the summer months, when the indoor space is air conditioned, the HRV/ERV helps to cool the incoming fresh air with the cool exhausted stale air.

SELF-TEST - Each time the HRV/ERV is powered/energized, the self-test function automatically initiates. The HRV/ERV cycles through the available speeds and tests the damper motor operation. The HRV/ERV defaults back to the previous operational mode and speed selection after the self-test (approximately 60 seconds in duration).

STANDBY - The HRV/ERV is powered/energized and waiting for ventilation to be initiated by an external control.

TIMERS - These optional controls may be installed at specific exhaust locations (bathrooms etc.) to initiate high speed ventilation.

Warranty

Heat Recovery Ventilators (HRV) carry a Lifetime Warranty on the heat recovery core and a 5 (five) year replacement parts warranty. Energy Recovery Ventilators (ERV) carry a 5 (five) year warranty

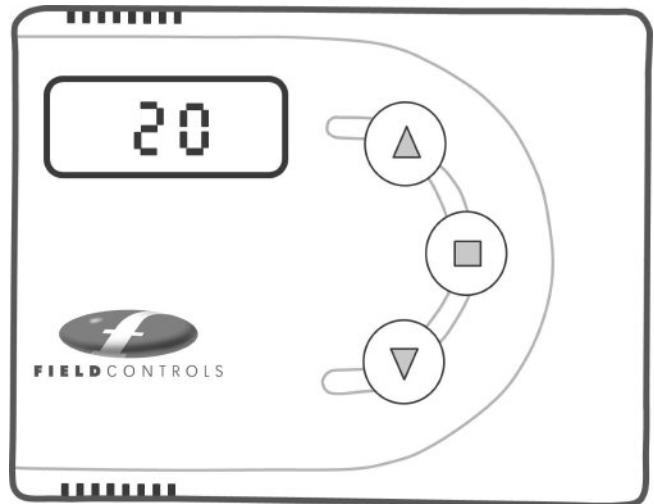
on the energy recovery core and a 5 (five) year replacement parts warranty.

Healthy Home System Control (HHSC)

The Healthy Home System Control (HHSC) activates the HRV/ERV automatically to deliver fresh air into your home.

Setting the Control

The duration of the ventilation rate is adjustable on the HHSC. Your installer sets up this control during the installation of your system. Refer to the instructions that came with the HHSC for the setup information.

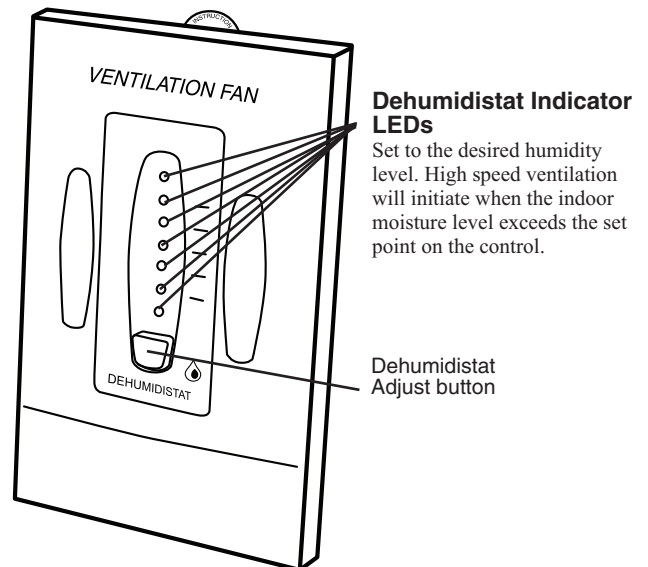


The Healthy Home System™ Control (HHSC)

Dehumidistat (Part DH1)

Your HRV/ERV system produces a dehumidifying effect when outdoor humidity levels are lower than indoor humidity levels. These conditions occur normally when outdoor temperatures are below 60°F. An additional dehumidification effect is achievable with the Optional Dehumidistat (Part DH1).

The Optional DH1 Control may be combined with the Healthy Home System Control (HHSC). The DH1 will initiate high speed ventilation when the moisture level in the home exceeds the set point on the control. Once the humidity in the house is reduced, the HRV will revert back to the HHSC automatic setting. The Dehumidistat should be set to OFF for all seasons except the heating season.



Dehumidistat Indicator LEDs

Set to the desired humidity level. High speed ventilation will initiate when the indoor moisture level exceeds the set point on the control.

Dehumidistat Adjust button

The Dehumidistat Ventilation Control Part #DHVC

The Dehumidistat Ventilation Control offers ON/OFF, High Speed/Low speed plus an electronic dehumidistat.

Key Features

- 2 Speed Fan setting (Low/High)
- Electronic Dehumidistat
- Instruction Card is inserted in the control
- Slim-line design
- Connect to 3 wire 20 gauge low voltage wire.

Turning on the Control

Press and release the ON/OFF button. The "ON Indicator Light" will illuminate.

Adjusting the Ventilation Speed

The unit will normally operate at low speed. Press and release the SPEED button to initiate high speed ventilation. The "High Speed Indicator LED" will illuminate.

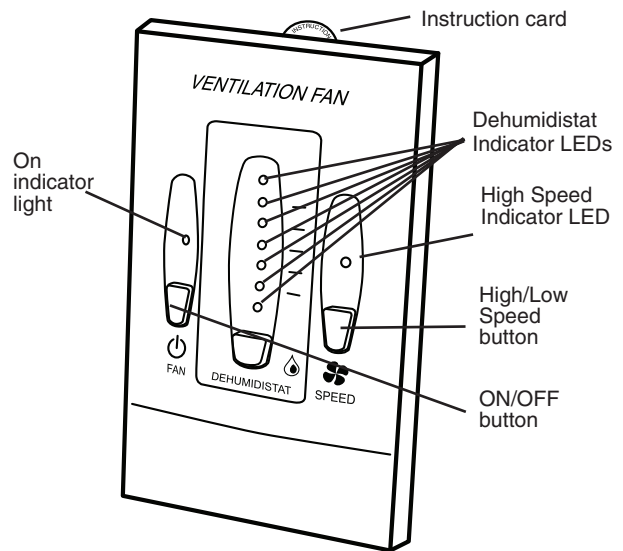
Humidity Control

Your unit will produce a dehumidifying effect when outdoor humidity levels are lower than indoor humidity levels. Never use the dehumidistat feature when outdoor temperatures are above 59° F (15° C).

Setting the Dehumidistat

Press and release the DEHUMIDISTAT button until the DEHUMIDISTAT LED is at the desired setting. After 5 seconds the dehumidistat light will either flash or be on continuous.

A flashing light indicates the humidity level is higher than the setting and the unit is operating on high speed ventilation. A continuous light indicates the humidity level is lower than the setting.



! ATTENTION

***Install a jumper between 2 (ON) and 3 (RED) on the HRV/ERV terminal block to configure the ON/OFF button to ON/STANDBY. Refer to "Setting Standby when using a Main Control" in this manual.**

Optional Vent Timer Control (VTC)

The timer will override the Operational Mode (regardless of the setting) and initiate high speed ventilation. Upon completion of the timer cycle, the HRV/ERV returns to your selected Operational Mode and speed setting.

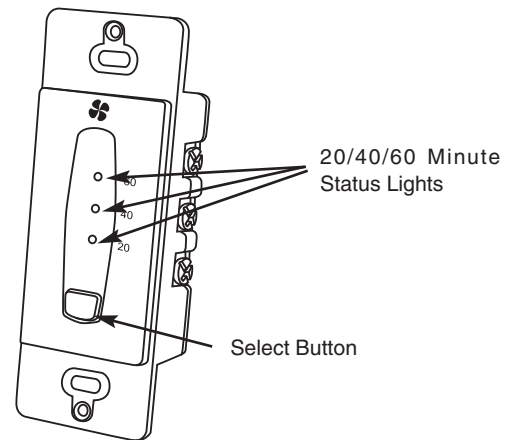
! ATTENTION

If the system does not have a main control installed, the HRV/ERV Terminal Block must have a jumper installed between 2 (ON) and 3 (RED). Refer to “Operating the HRV/ERV without a Main Control” in this manual.

Lifestyle 20/40/60 Minute Timer

Initiates high speed ventilation for 20, 40 or 60 minutes. The 20/40/60 Minute Status Lights indicate high speed operation.

Lockout Mode is useful if you wish to disable the timer. Set lockout by holding the Select Button for 5 seconds. Unlock by holding for 5 seconds.



1. Inspect Exterior Hoods at least once a month.

Make sure exhaust and fresh air supply hoods are not blocked or restricted by leaves, grass, or snow. In winter, it is especially important to make sure snow is not blocking the hoods or that frost has not built up on the wire mesh (bird screen).

WARNING: Blockage of hoods may cause an imbalance.

2. Clean Air Filters (clean twice a year)

The standard filters equipped with your HRV are removable and washable.

- a) simply open access door and slide core out
- b) remove filter clips
- c) once clips are removed filters can be taken off the core to be rinsed with water or a combination of mild soap and water. Do not clean in the dishwasher
- d) to re-assemble, place clean filter(s) (wet or dry) back into their positions against the core and return clips to their original position
- e) slide core back into its' original position

3. Clean Core Twice a Year

- a) open access door.
- b) carefully grip ends of core and pull evenly outward. Core may be snug, but will slide out of the channel
- c) once removed from the cabinet remove filters
- d) wash core in warm soapy water (do not use dishwasher)
- e) install the clean filters
- f) install clean core

Note: Core installation label on the outer end of the core.

To install the clean core:

- a) first mount the bottom flange of the core guide into the bottom H channel approximately 1/4" (6mm)
- b) mount the left or right side flange of the core guide approximately 1/4" (6mm) followed by the other side
- c) mount the top flange of the core guide into the top H channel approximately 1/4" (6mm).
- d) with all four corners in place and the core straight and even, push hard in the centre of the core until the core stops on the back of the cabinet.

NOTE: Core will appear to stick out from cabinet approximately 1/8" (3mm). This is designed this way so that the access door will fit tight against the core.

4. Motors - Maintenance Free

5. Drain (condensate) Line - Clean once a year

Inspect drain line, drain spout, and "P" trap for blockage, mould or kinks. Flush with warm soapy water and replace if worn, bent or unable to clean.

6. Clean Duct Work if Required

The duct work running to and from the HRV may accumulate dirt. Wipe and vacuum the duct once every year. You may wish to contact a Heating/Ventilation company to do this.

7. General Maintenance - Twice a Year

Wipe down the inside of the cabinet with a damp cloth to remove dirt, bugs, and debris that may be present.

8. Cleaning the Fans

Fans may accumulate dirt causing an imbalance and/or excessive vibration of the HRV. A reduction in the air flow may also occur. In new construction this may result within the first year due to heavy dust and may occur periodically after that over time depending on the outdoor conditions.

- unplug the HRV and open the service door
- remove the core
- remove ducting (metal and/or flexible insulated type) from the red and/or blue ports which are connected immediately in-line with the fan assembly
- use a small brush, such as an old toothbrush or pipe cleaner, and insert first
 - (a) through the large opening of the fan assembly and then
 - (b) through the smaller opening in the end of the fan assembly.
- scrub individual fan blades until clean. Avoid moving or damaging balancing flat weight, clip is usually found on one or more of the fan blades
- vacuum and wipe
- reassemble making sure ducting is reattached firmly and insulation and moisture barrier are sealed and taped

Before attempting this task, thought should be given to having a qualified service technician complete the service work.



WARNING



Electric shock hazard. Can cause injury or death. Before attempting to perform any service or maintenance, turn the electrical power unit OFF at disconnect switch(es). Unit may have multiple power supplies.



FIELD CONTROLS

THERMALLY CONDUCTIVE, PATENTED ALUMINUM CORE

The cross-flow heat recovery core transfers heat between the two airstreams. It is easily removed for cleaning or service.

MOTORS AND BLOWERS

Each air stream has one centrifugal blower driven by a common PSC motor. The unit has a 2 speed fan operation.

FILTERS

Washable air filters in exhaust and supply air streams.

MOUNTING THE HRV

Four threaded inserts at corners of the cabinet designed to accept the "S" hooks and hanging straps supplied with the unit.

DEFROST

Recirculating defrost system.

CASE

Twenty gauge prepainted galvanized steel (G60) for superior corrosion resistance. Insulated to prevent exterior condensation. Drain connections 2 - 1/2" (12 mm) OD.

WEIGHT 52 lbs. (23.6 kg) **SHIPPING WEIGHT** 56 lbs (25.4 kg)

ELECTRONICS

- Built-in Relay for Interfacing to furnace

OPTIONAL CONTROLS

DHVC Ventilation Control

- 2 Speed Fan setting (Low/High) • Dehumidistat

#HHSC Healthy Home System Control

- Automatically activates the unit to deliver fresh air into your home

#DH1 Dehumidistat

- Initiates high speed ventilation when the indoor humidity level exceeds the set point

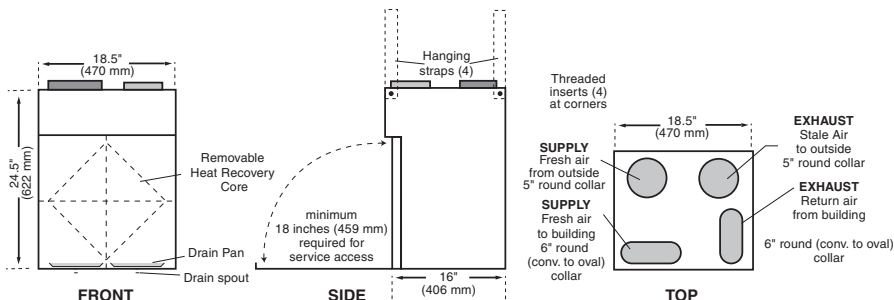
OPTIONAL TIMERS

- #VTC Ventilation Timer Control** - Initiates high speed ventilation for 20, 40, or 60 minutes, (3 wire) 20 gauge wire (min.) 100' length

OPTIONAL ACCESSORIES

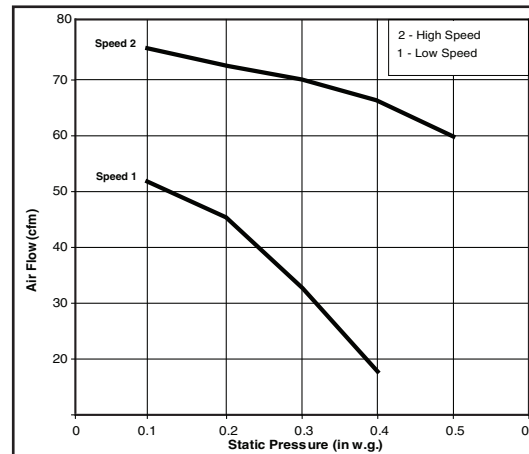
- #WH 185 Weatherhoods**, Two - 5" (125 mm) c/w 1/4" (6 mm) mesh screen

DIMENSIONS FC95HRV inches (mm)



Performance (HVI certified) Net supply air flow in cfm (L/s) against external static pressure		
E.S.P (external static pressure)	[cfm (L/s)]	
@ 0.1" (25 Pa)	76 (36)	
@ 0.2" (50 Pa)	73 (34)	
@ 0.3" (75 Pa)	70 (33)	
@ 0.4" (100 Pa)	66 (31)	
@ 0.5" (125 Pa)	60 (29)	
Max. Temperature Recovery	88%	
Sensible Effectiveness		
@ 60 cfm (28 L/s)	32°F (0°C)	88%
*Sensible Efficiency		
@ 60 cfm (28 L/s)	32°F (0°C)	75%
*Sensible Efficiency		
@ 61 cfm (29 L/s)	-13°F (-25°C)	68%
VAC @ 60HZ	120	
WATTS / Low speed.	59	
WATTS / High speed	150	
Amp rating	0.9	

*Sensible Efficiency – thermal **Latent Efficiency – moisture
Note: Effectiveness - based on temp. differential between the 2 airstreams
Efficiency – takes into account all power inputs



All units conform to CSA and UL standards.

WARRANTY

Units carry a LIFETIME warranty on the heat recovery core and a 5 year replacement parts warranty.

Date: _____

Contractor: _____

Tag: _____ Qty: _____

Supplier: _____

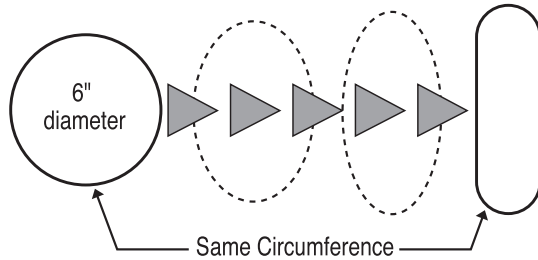
Project: _____

Quote#: _____

Engineer: _____

Submitted by: _____

In order to make the HRV as space efficient as possible, the INDOOR supply and return ports are converted from round to oval shape. Overall size of the port remains the same. Simply bend a standard duct fitting to the correct shape, and attach to the oval port using the same method as for a round port.



Round port bent to oval

FC95HRV Air Flow

Stale air enters the FRONT-RIGHT side port. The air passes down the front half of the core, then up the back half of the core and out the RIGHT-REAR port.

Fresh outdoor air enters the LEFT-REAR port and passes down the back half of the core. Then the fresh outdoor air passes up the front half of the core and out the LEFT-FRONT port. This configuration allows the air to actually travel through the core twice, which makes the FC95HRV nearly as efficient as a double core unit.



FIELD CONTROLS

Model FC155HRV

THERMALLY CONDUCTIVE, PATENTED ALUMINUM CORE

The cross-flow heat recovery core transfers heat between the two airstreams. It is easily removed for cleaning or service.

MOTORS AND BLOWERS

Each air stream has one centrifugal blower driven by a common PSC motor. 2 speed fan operation.

FILTERS

Washable air filters in exhaust and supply air streams.

MOUNTING THE HRV

Four threaded inserts at corners of the cabinet designed to accept the "S" hooks and hanging straps supplied with the unit.

DEFROST

Recirculating damper defrost system.

CASE

Twenty gauge prepainted galvanized steel (G60) for superior corrosion resistance. Insulated to prevent exterior condensation. Drain connections 2 - 1/2" (12 mm) OD. Balancing ports are located in the door.

WEIGHT 71 lbs. (32.5 kg) **SHIPPING WEIGHT** 73 lbs. (33.5 kg)

ELECTRONICS

- Built-in Relay for Interfacing to furnace

OPTIONAL CONTROLS

DHVC Ventilation Control

- 2 Speed Fan setting (Low/High) • Dehumidistat

#HHSC Healthy Home System Control

- Automatically activates the unit to deliver fresh air into your home

#DH1 Dehumidistat

- Initiates high speed ventilation when the indoor humidity level exceeds the set point

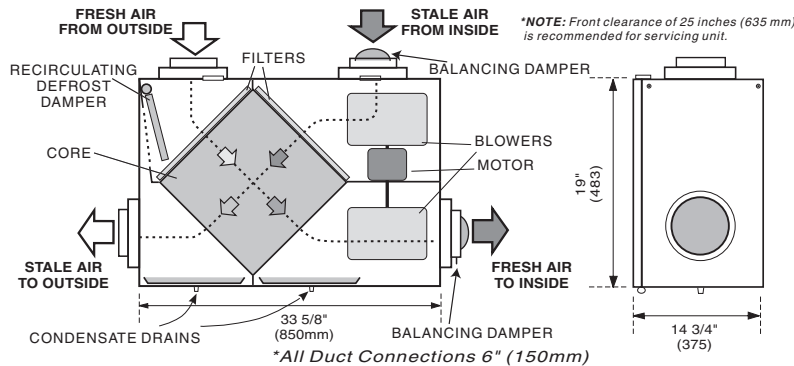
OPTIONAL TIMERS

- #VTC **Ventilation Timer Control** - Initiates high speed ventilation for 20, 40, or 60 minutes, (3 wire) 20 gauge wire (min.) 100' length

OPTIONAL ACCESSORIES

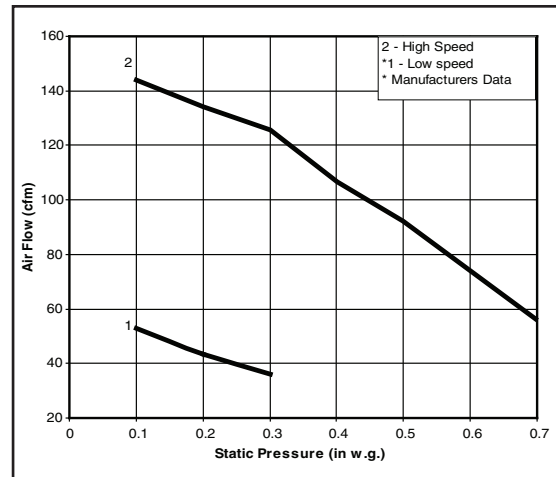
- #WH 186 Weatherhoods, Two - 6" (150 mm) c/w 1/4" (6 mm) mesh screen

DIMENSIONS FC155HRV inches (mm)



Performance (HVI certified) Net supply air flow in cfm (L/s) against external static pressure		
E.S.P (external static pressure)		
	[cfm (L/s)]	
@ 0.1" (25 Pa)	144 (68)	
@ 0.2" (50 Pa)	134 (63)	
@ 0.3" (75 Pa)	125 (59)	
@ 0.4" (100 Pa)	113 (53)	
@ 0.5" (125 Pa)	92 (43)	
@ 0.6" (150 Pa)	73 (34)	
Max. Temperature Recovery	78%	
Sensible Effectiveness		
@ 65 cfm (31 L/s)	32°F (0°C)	73%
*Sensible Efficiency		
@ 65 cfm (31 L/s)	32°F (0°C)	64%
*Sensible Efficiency		
@ 68 cfm (32 L/s)	-13°F (-25°C)	66%
VAC @ 60HZ	120	
WATTS / Low speed.	49	
WATTS / High speed	120	
Amp rating	1.4	

*Sensible Efficiency – thermal **Latent Efficiency – moisture
Note: Effectiveness - based on temp. differential between the 2 airstreams
Efficiency - takes into account all power inputs



All units conform to CSA and UL standards.

WARRANTY

Units carry a LIFETIME warranty on the heat recovery core and a 5 year replacement parts warranty.

Date: _____
 Tag: _____ Qty: _____
 Project: _____
 Engineer: _____

Contractor: _____
 Supplier: _____
 Quote#: _____
 Submitted by: _____



Model FC200HRV

FIELD CONTROLS

THERMALLY CONDUCTIVE, PATENTED ALUMINUM CORE

The cross-flow heat recovery core transfers heat between the two airstreams. It is easily removed for cleaning or service.

MOTORS AND BLOWERS

Each air stream has one centrifugal blower driven by a common PSC motor. 2 speed fan operation.

FILTERS

Washable air filters in exhaust and supply air streams.

MOUNTING THE HRV

Four threaded inserts at corners of the cabinet designed to accept the "S" hooks and hanging straps supplied with the unit.

DEFROST

Recirculating damper defrost system.

CASE

Twenty gauge prepainted galvanized steel (G60) for superior corrosion resistance. Insulated to prevent exterior condensation. Drain connections - 1/2" (12 mm) OD. Balancing ports are located in the door.

WEIGHT 71 lbs. (32.5 kg) **SHIPPING WEIGHT** 73 lbs (33.5 kg)

ELECTRONICS

- Built-in Relay for Interfacing to furnace

OPTIONAL CONTROLS

DHVC Ventilation Control

- 2 Speed Fan setting (Low/High) • Dehumidistat

#HHSC Healthy Home System Control

- Automatically activates the unit to deliver fresh air into your home

#DH1 Dehumidistat

- Initiates high speed ventilation when the indoor humidity level exceeds the set point

OPTIONAL TIMERS

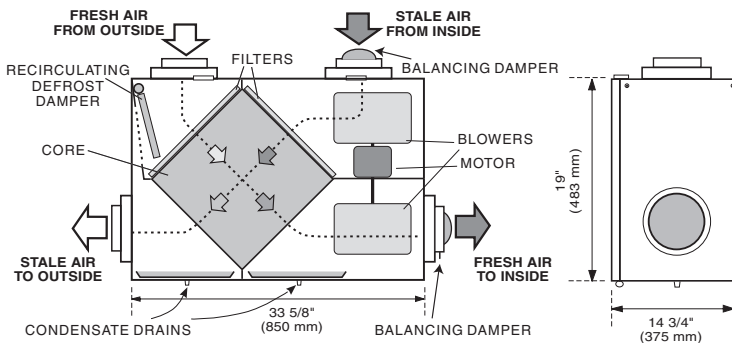
- #VTC Ventilation Timer Control - Initiates high speed ventilation for 20, 40, or 60 minutes, (3 wire) 20 gauge wire (min.) 100' length

OPTIONAL ACCESSORIES

- #WH 186 Weatherhoods, Two -6" (150 mm) c/w 1/4" (6 mm) mesh screen

DIMENSIONS FC200HRV

inches (mm)

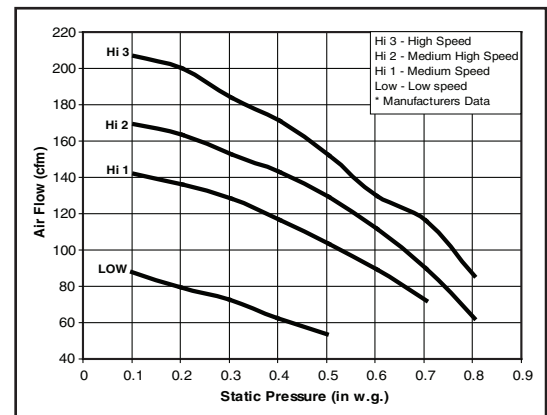


All Duct Connections 6" (160 mm)

Date: _____
 Tag: _____ Qty: _____
 Project: _____
 Engineer: _____

Performance (HVI certified) Net supply air flow in cfm (L/s) against external static pressure		
E.S.P. (external static pressure)		[cfm (L/s)]
@ 0.1" (25 Pa)		207 (97)
@ 0.2" (50 Pa)		200 (94)
@ 0.3" (75 Pa)		184 (87)
@ 0.4" (100 Pa)		171 (80)
@ 0.5" (125 Pa)		152 (71)
@ 0.6" (150 Pa)		130 (61)
@ 0.7" (175 Pa)		116 (55)
@ 0.8" (200 Pa)		86 (40)
Max. Temperature Recovery		74%
Sensible Effectiveness		
@ 66 cfm (31 L/s)	32°F (0°C)	74%
*Sensible Efficiency		
@ 66 cfm (31 L/s)	32°F (0°C)	64%
*Sensible Efficiency		
@ 109 cfm (51 L/s)	-13°F (-25°C)	62%
VAC @ 60HZ		120
WATTS / Low speed.		87
WATTS / High speed		164
Amp rating		1.4

*Sensible Efficiency – thermal **Latent Efficiency – moisture
 Note: Effectiveness - based on temp. differential between the 2 airstreams
 Efficiency – takes into account all power inputs



INSTALLER SELECTABLE HIGH SPEED SETTINGS

Adjustable DIP switches are located on the circuit board. Hi3 is the factory setting. Refer to the Operation and Installation manual for the adjustment instructions.



All units conform to CSA and UL standards.

WARRANTY

Units carry a LIFETIME warranty on the heat recovery core and a 5 year replacement parts warranty.

Contractor: _____
 Supplier: _____
 Quote#: _____
 Submitted by: _____



FIELD CONTROLS

Model FC150ERV

LATENT RECOVERY/MOISTURE TRANSFER CORE

The cross-flow energy recovery core transfers heat and water vapor between the two airstreams. It is easily removed for cleaning or service.

MOTORS AND BLOWERS

Each air stream has one centrifugal blower driven by a common PSC motor. 5 speed fan operation.

FILTERS

Washable air filters in exhaust and supply air streams.

MOUNTING THE ERV

Four threaded inserts at corners of case designed to accept the "S" hooks and hanging straps supplied with the unit.

CASE

Twenty gauge prepainted galvanized steel (G60) for superior corrosion resistance. Insulated to prevent exterior condensation. Door balancing ports.

WEIGHT 75 lbs. (34Kg) SHIPPING WEIGHT 77lbs. (35Kg)

ELECTRONICS

- Built-in Relay for Interfacing to furnace

OPTIONAL CONTROLS

DHVC Ventilation Control

- 2 Speed Fan setting (Low/High) • Dehumidistat

HHSC Healthy Home System Control

- Automatically activates the unit to deliver fresh air into your home

DH1 Dehumidistat

- Initiates high speed ventilation when the indoor humidity level exceeds the set point

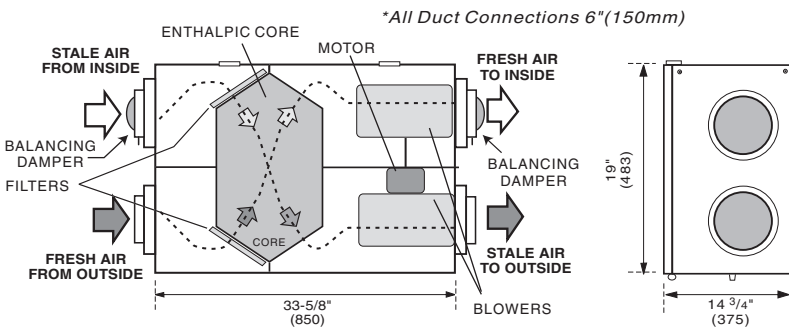
OPTIONAL TIMERS

- # VTC **Ventilation Timer Control** - Initiates high speed ventilation for 20, 40, or 60 minutes, (3 wire) 20 gauge wire (min.) 100' length

OPTIONAL ACCESSORIES

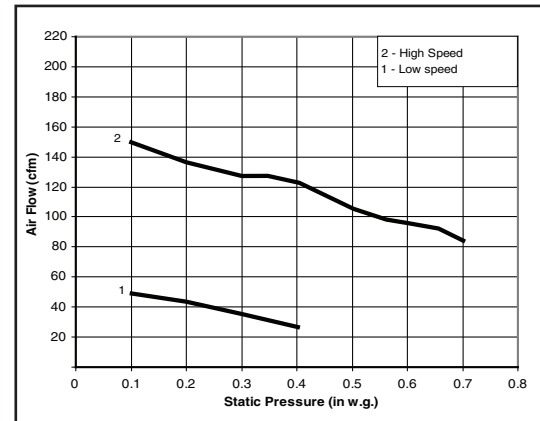
- # WH 186 Weatherhoods, Two - 6" (150 mm) c/w 1/4" (6 mm) mesh screen

DIMENSIONS FC150ERV inches (mm)



Performance		
Net supply air flow in cfm (L/s) against external static pressure		
E.S.P (external static pressure)	[cfm (L/s)]	
@ 0.1" (25 Pa)	151 (71)	
@ 0.2" (50 Pa)	140 (66)	
@ 0.3" (75 Pa)	131 (62)	
@ 0.4" (100 Pa)	123 (58)	
@ 0.5" (125 Pa)	107 (50)	
@ 0.6" (150 Pa)	98 (46)	
@ 0.7" (175 Pa)	81 (38)	
@ 0.8" (200 Pa)	60 (28)	
Sensible Effectiveness		
@ 64 cfm (30 L/s)	32°F (0°C)	81%
*Sensible Efficiency		
@ 64 cfm (30 L/s)	32°F (0°C)	69%
Total Efficiency		
@ 64 cfm (30L/s)	95°F (35°C)	50%
VAC @ 60HZ		
		120
WATTS / Low speed.		
		63
WATTS / High speed		
		173
Amp rating		
		1.4

*Sensible Efficiency – thermal **Latent Efficiency – moisture
 Note: Effectiveness - based on temp. differential between the 2 airstreams
 Efficiency – takes into account all power inputs



All units conform to CSA and UL standards.

WARRANTY

Units carry a five (5) year warranty on the enthalpic (ERV) core and a 5 year replacement parts warranty.

*NOTE: Front clearance of 25 inches (635 mm) is recommended for servicing unit.

Date: _____
 Tag: _____ Qty: _____
 Project: _____
 Engineer: _____

Contractor: _____
 Supplier: _____
 Quote#: _____
 Submitted by: _____

The Three Methods of Installation

The following three installation methods are for the HRV/ERV system:

- The Simplified installation.
- The Partially Dedicated Installation
- The Fully Dedicated Installation

Simplified Installations

The Simplified Installation draws stale air from the cold air return duct of the air handler/furnace and introduces an equal amount of fresh air farther downstream into the cold air return. Refer to "*Simplified Installation Diagrams*".

The air handler/furnace blower must be running when the unit is operating for this system to be effective. Refer to "*Interlocking the HRV/ERV to an Air Handler/Furnace Blower*".

Partially Dedicated Installations

The Partially Dedicated Installation draws stale air from specific points in the house and introduces an equal amount of fresh air into the cold air return. Refer to "*Partially Dedicated Installation Diagrams*".

Stale air ducts should be installed in areas of the home where the poorest indoor air quality exists (bathrooms and kitchen). Each location with a stale air duct should have a timer to initiate high speed ventilation. Refer to "*Optional Timers*" in this manual.

The air handler/furnace blower should be running when the HRV is operating to evenly distribute the fresh air throughout the house. Refer to "*Interlocking the HRV/ERV to an Air Handler/Furnace Blower*".

Fully Dedicated Installations

The Fully Dedicated Installation draws stale air from specific points in the house and delivers fresh air to specific locations of the house. This system is not connected to an air handler/furnace. Refer to "*The Fully Dedicated Installation Diagrams*" in this manual.

Stale air ducts should be installed in areas of the home where the poorest indoor air quality exists (bathrooms and kitchen). Each location with a stale air duct should have a timer which will initiate high speed ventilation. Refer to "*Optional Timers*" in this manual.

Fresh air ducts should be installed to all bedrooms and living areas, excluding bathrooms, kitchen and utility areas. Grilles should be located high on a wall or in ceiling locations. Grilles that diffuse the air comfortably are recommended. Refer to "*Grilles*" in this manual. Special care should be taken in locating grilles if the floor is the only option available. Areas such as under baseboard heaters will help to temper the air.

Optional in-line duct heaters are available for mounting in the supply duct work to add heat if required.

Installing the Ducting Between the HRV/ERV & Living Areas in the House

A well designed and installed ducting system will allow the HRV/ERV to operate at its maximum efficiency.

All ducts should be kept short and have as few bends or elbows as possible to maximize airflow. Forty-five degree elbows are preferred to 90° elbows. Use "Y" tees instead of straight tees whenever possible.

All duct joints must be fastened with screws, rivets or duct sealant and wrapped with mastic or quality duct tape to prevent leakage. Mastic is preferred but if duct tape is used, we recommend aluminum foil duct tape.

Galvanized (rigid) ducting from the HRV/ERV to the living areas in the house is recommended whenever possible although flexible duct can be used in moderation if necessary.

A short length (approximately 12 inches or 300mm) of non-metallic flexible insulated duct should be connected between the HRV/ERV and the supply/exhaust duct system to avoid possible noise transfer through the duct system.

All ducts running through attics and unheated spaces must be sealed and insulated to code.

! ATTENTION

Applications such as greenhouses, atriums, swimming pools, saunas, etc. have unique ventilation requirements which should be addressed with an isolated ventilation system.

Simplified Installation Diagrams

Simplified Installation (Return/Return Method)

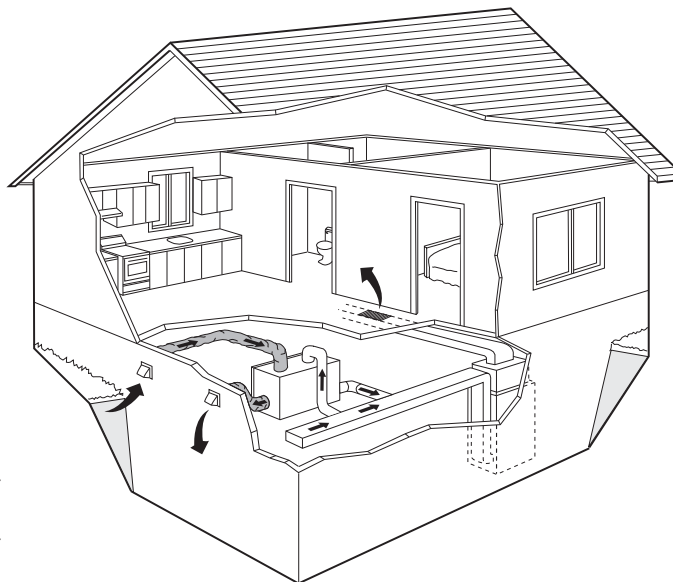
Key Points

- The HRV/ERV must be balanced.
- It is mandatory that the furnace blower run continuously or HRV/ERV operation be interlocked with the furnace blower. (Refer to “Interlocking the HRV/ERV to an Air Handler/Furnace Blower.”)
- The duct configuration may change depending on the HRV/ERV model. See specifications for your unit.
- Check local codes / authority having jurisdiction for acceptance.
- A backdraft damper is required in the exhaust air duct to prevent outdoor air from entering the unit when the Furnace/Air Handler is running and the unit is in Standby, OFF or Recirculate.

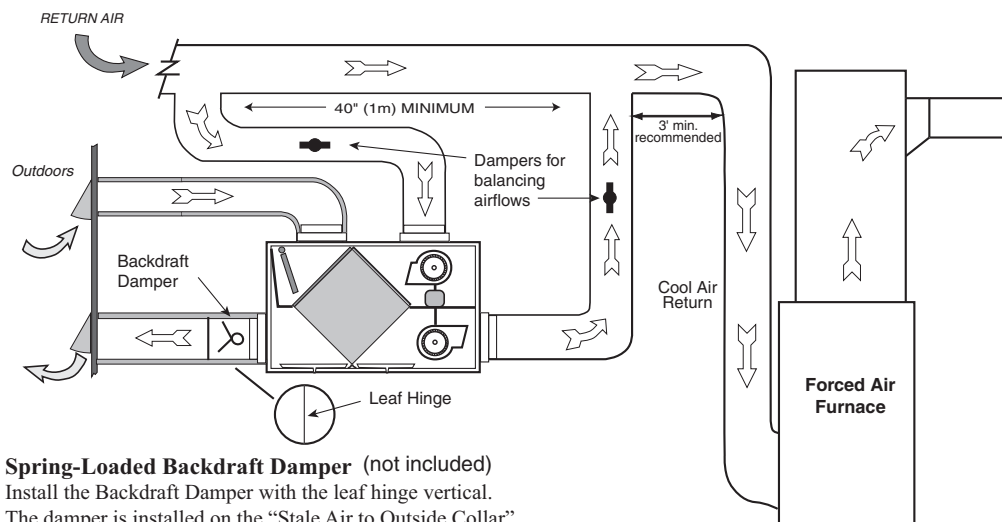
Sizing the Ductwork

It is the responsibility of the installer to ensure all ductwork is sized and installed as designed to ensure the system will perform as intended.

The amount of air (cfm) that an HRV/ERV will deliver is directly related to the total external static pressure (E.S.P.) of the system. Static pressure is a measure of resistance imposed on the blower by length of duct work plus the number of fittings used in the duct work.



DIRECT CONNECTION of the SUPPLY AIR STREAM and EXHAUST AIR STREAM to the FURNACE COLD AIR RETURN.



Spring-Loaded Backdraft Damper (not included)
Install the Backdraft Damper with the leaf hinge vertical.
The damper is installed on the “Stale Air to Outside Collar”.

Installation Notes

- Unit is normally balanced on HIGH speed with the furnace blower ON.
- A minimum separation of 40 inches (1m) is recommended between the two direct connections.
- The exhaust air connection should be upstream of the supply air connection to prevent exhausting any fresh air.
- Weatherhood arrangement is for drawing purposes only. Six feet (2m) minimum separation is recommended. The Weatherhood must also be 18" (460mm) above grade minimum.
- The airflow must be confirmed on site using the balancing procedures found in this manual

WARNING

The Stale Air to Outside air duct requires a Backdraft Damper. This damper prevents outdoor air from entering the HRV during the operation of the Furnace/Air Handler while the HRV is in standby, OFF or Recirculate.

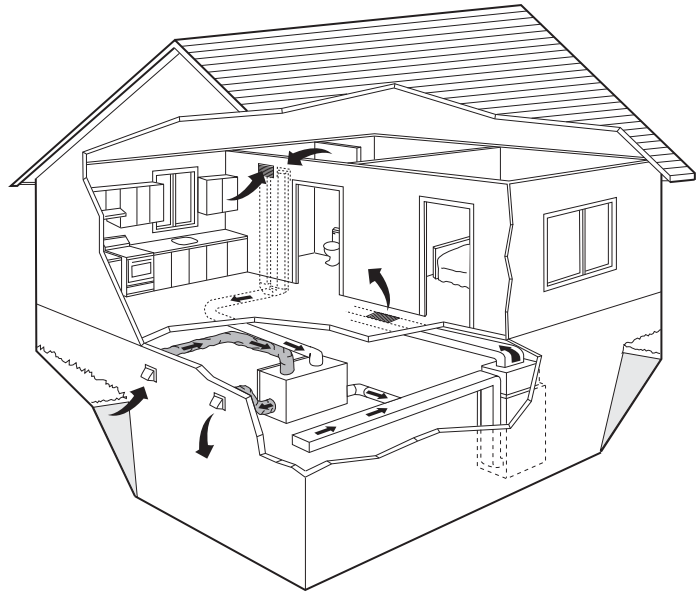
Partially Dedicated Installation Diagrams

Partially Dedicated System

This installation enables stale air to be drawn from the poorest air quality areas of the home (bathrooms, kitchen).

Key Points

- The HRV/ERV must be balanced.
- It is recommended that the furnace blower run continuously or HRV/ERV operation be interlocked with the furnace blower to evenly distribute the fresh air throughout the house. (Refer to “Interlocking the HRV/ERV to an Air Handler/Furnace Blower.”)
- The duct configuration may change depending on the HRV model. See specifications for your unit.
- Check local codes/authority having jurisdiction for acceptance.
- A backdraft damper is required in the exhaust air duct to prevent outdoor air from entering the unit when the Furnace/Air Handler is running and the unit is in Standby, OFF or Recirculate.

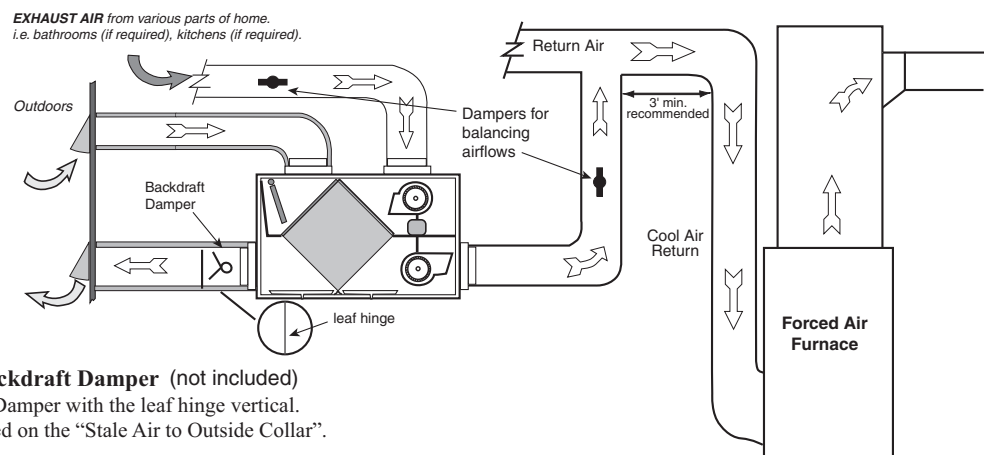


Sizing the Ductwork

It is the responsibility of the installer to ensure all ductwork is sized and installed as designed to ensure the system will perform as intended.

The amount of air (cfm) that an HRV/ERV will deliver is directly related to the total external static pressure (E.S.P.) of the system. Static pressure is a measure of resistance imposed on the blower by length of duct work plus the number of fittings used in the duct work.

DIRECT CONNECTION of the SUPPLY AIR STREAM to the FURNACE COLD AIR RETURN (Stale air drawn from key areas of home)



Spring-Loaded Backdraft Damper (not included)

Install the Backdraft Damper with the leaf hinge vertical. The damper is installed on the “Stale Air to Outside Collar”.

Installation Notes

- Unit is normally balanced on HIGH speed with the furnace blower ON.
- Weatherhood arrangement is for drawing purposes only. Six feet (2m) minimum separation is recommended. The Weatherhood must also be 18" (460mm) above grade minimum.
- The airflow must be confirmed on site using the balancing procedures found in this manual.

WARNING

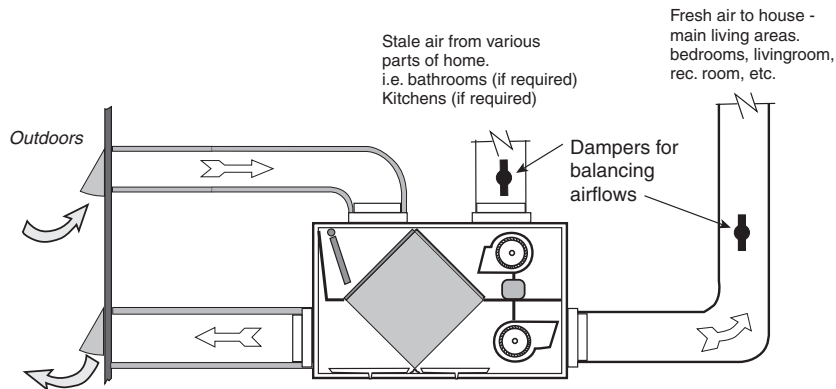
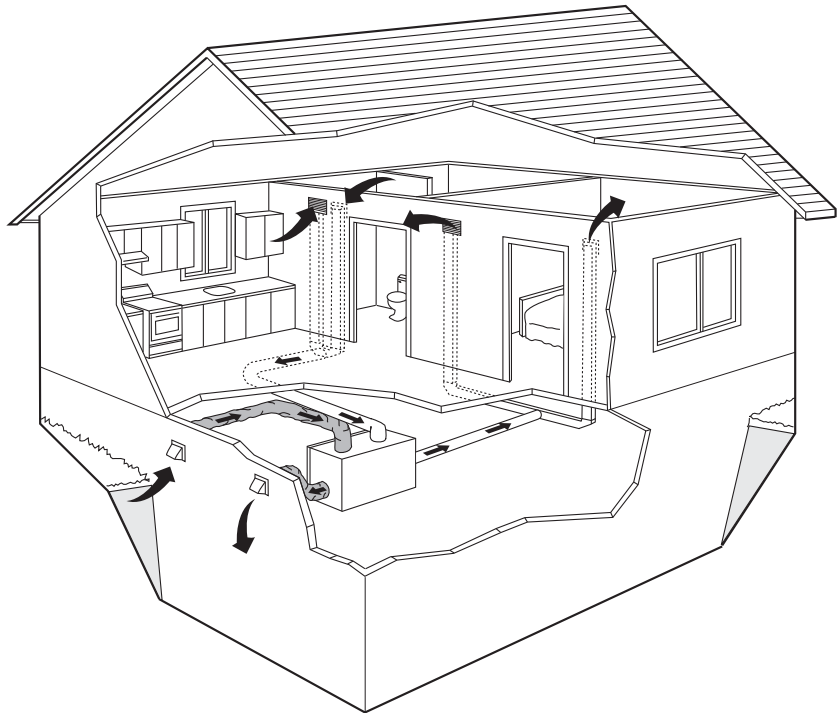
The Stale Air to Outside air duct requires a Backdraft Damper. This damper prevents outdoor air from entering the HRV during the operation of the Furnace/Air Handler while the HRV is in standby, OFF or Recirculate.

Fully Dedicated System

This is a stand alone HRV/ERV system which is not connected to a force air system. Stale air is drawn from key areas of the home (bathroom, kitchen) while fresh air is supplied to main living areas.

Key Points

- The HRV/ERV must be balanced.
- The duct configuration may change depending on the HRV/ERV model. See specifications for your unit.
- Check local codes / authority having jurisdiction for acceptance.



Installation Notes

- Unit is normally balanced on HIGH speed with the furnace blower ON.
- Weatherhood arrangement is for drawing purposes only. Six feet (2m) minimum separation is recommended. The Weatherhood must also be 18" (460mm) above grade minimum.
- The airflow must be confirmed on site using the balancing procedures found in this manual.

Installation

Location

Install the unit in a heated space that provides convenient space for service access. A typical location is in either a mechanical room or an area close to the outside wall within close proximity to where the weatherhoods are mounted. If a basement area is inconvenient or non-existent, install the unit in a utility or laundry room.

Attic installations are not recommended due to:

- A) the complexity of work to install
- B) freezing conditions in the attic
- C) difficulty of access for servicing and cleaning

Leave sufficient clearance at the front of the access door for servicing the air filters and core. The recommended clearance is a minimum of 25" (635 mm) for opening and closing the door. Field Controls provides four straps for hanging the unit from the basement floor joists.



WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Installation and service must be performed by a qualified installer or service agency.

CAUTION !

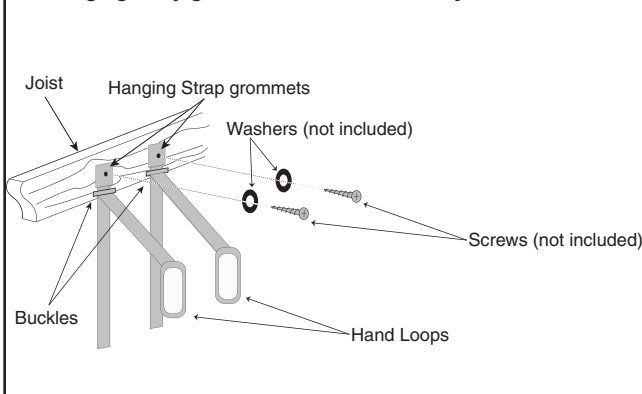
Unit must be installed level to ensure proper condensate drainage. Due to the broad range of installation and operational conditions, consider the possibility of condensation forming on either the unit or connecting ducting. Objects below the installation may be exposed to condensate.

Suspend the Unit with the Adjustable Hanging Straps

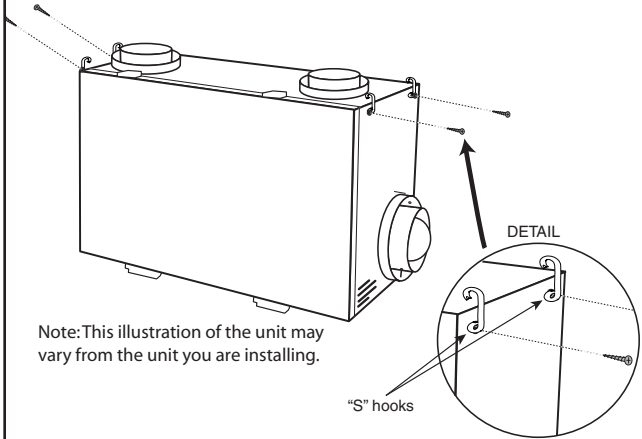
Use 4 screws and 4 washers (not included) to attach the hanging straps to the floor joists. The washer must be wider than the eyelet of the grommet on the hanging strap.

By design, the adjustable hanging straps reduce the possibility of noise, resonance, and harmonics.

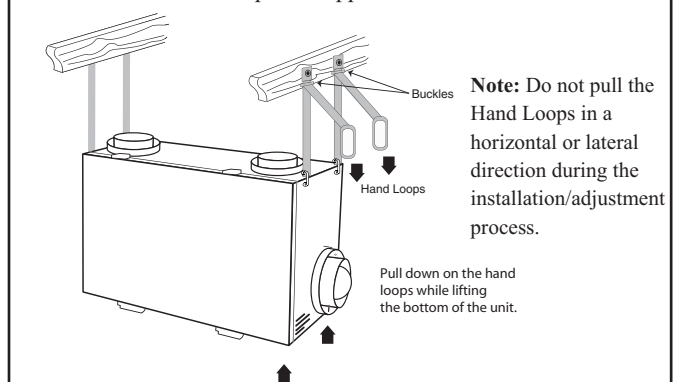
STEP 1. Insert the screws and washers (not included) through the Hanging Strap grommets and fasten to the joists.



STEP 2. Unscrew the 4 machine screws located on the upper side of the unit. Attach the "S" hooks and reinsert the machine screws.

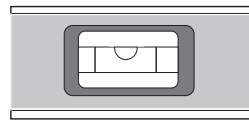


STEP 3. Hook the bottom grommets of the straps through the "S" hooks. Pull down vertically on the hand loops while lifting up the bottom of the cabinet. Repeat at opposite end of the unit.

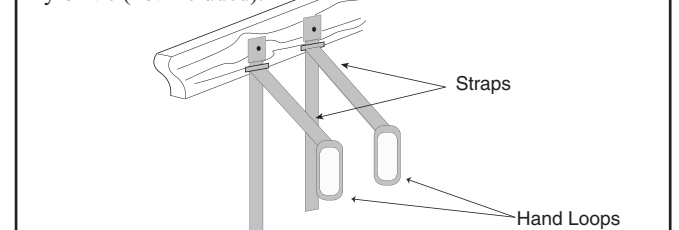


STEP 4. Level the unit from left to right and front to back.

- Adjust the unit down by lifting up on the buckle.
- Adjust the unit up by pulling down vertically on the Hand Loops while lifting up the bottom of the cabinet.



STEP 5. Fold the hand loops and excess strap and secure with a nylon tie (not included).



Drain Connection (HRV only)

Drain Connection

The HRV may produce some condensation during a defrost cycle. This water should flow into a nearby drain, or be taken away by a condensate pump.

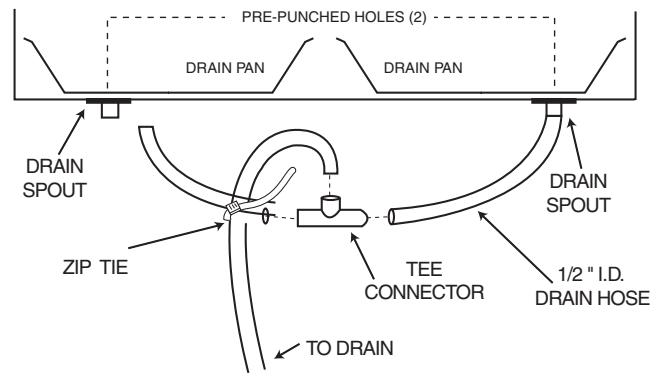
CAUTION

The HRV and all condensate lines must be installed in a space where the temperature is maintained above the freezing point or freeze protection must be provided.

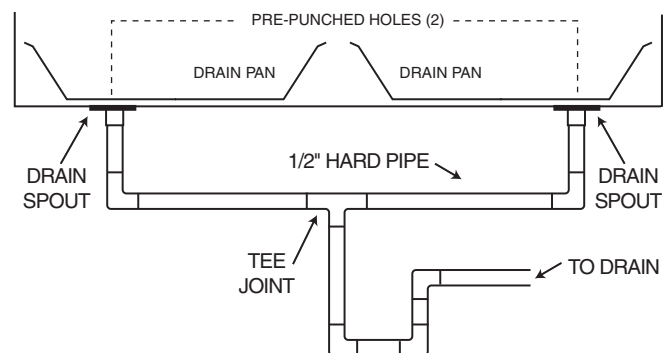
The HRV cabinet has prepunched holes for the drain (see below). Insert the drain spout through the hole in the drain pan. Be sure to install the "O ring" which seals each spout to the pan. **HAND TIGHTEN** the washer and lock nut which hold the drain spout in place.

Construct a P-Trap using the plastic tee connector. Cut two lengths of 1/2" drain hose (not included) and connect the other ends to the two drain spouts. Position the "T" fitting to point upward and connect the drain line. Tape or fasten base to avoid any kinks. Pour a cup of water into the drain pan of the HRV after the drain connection is complete. This creates a water seal which will prevent odors from being drawn up the hose and into the fresh air supply of the HRV.

DRAIN HOSE PLUMBING



HARD PIPE PLUMBING



Note: Secondary drain pan may be required to protect from condensate leakage.

CAUTION

Drain trap and tubing **MUST** be below bottom of door with 1/4" per foot downwards slope away from unit.

Grilles

Adjustable grilles should be used to balance the flow rates into and out of various rooms. The grilles should not be adjusted after balancing the unit.

Grilles or diffusers should be positioned high on the wall or in the ceiling. Kitchen Exhaust grilles must never be connected to the range hood. They should be installed at least 4 feet (1.2 m) horizontally away from the stove.

Field supplied balancing dampers should be installed external to the unit to balance the amount of stale air being exhausted with the amount of fresh air being brought into the house. Refer to Air flow Balancing section.

CAUTION

Do not mount exhaust grille within 4' (1.2m) (horizontally) of a stove to prevent grease from entering the unit.

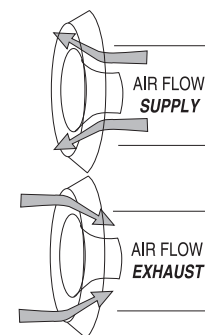
The Techgrille

The TECHGRILLE is a round, fully adjustable grille, which provides superior, quiet air distribution.

4" (100 mm) Part No. 99-EAG4

5" (125 mm) Part No. 99-EAG5

6" (150 mm) Part No. 99-EAG6



Installing the Ducting from the Weatherhoods to the HRV/ERV

The inner and outer liners of the flexible insulated duct must be clamped to the sleeve of the weatherhoods (as close to the outside as possible) and the appropriate port on the HRV/ERV. It is very important that the fresh air intake line be given special attention to make sure it is well sealed. A good bead of high quality caulking (preferably acoustical sealant) will seal the inner flexible duct to both the HRV/ERV port and the weatherhood prior to clamping.

To minimize air flow restriction, the flexible insulated duct that connects the two outside weatherhoods to the HRV/ERV should be stretched tightly and be as short as possible.

Twisting or folding the duct will severely restrict air flow.

Hard (rigid) ducting which has been sealed and insulated should be used for runs over 10' (3.3 m). Refer to your building code.

Intake Weatherhood Requirements

- Should be located upstream (if there are prevailing winds) from the exhaust outlet
- At least 6' (2 m) from the exhaust weatherhood
- At least 6' (2 m) away from dryer vents and furnace exhaust (medium or high efficiency furnaces)
- A minimum of at least 6' (2 m) from driveways, oil fill pipes, gas meters, or garbage containers
- At least 18" (460 mm) above the ground, or above the depth of expected snow accumulation
- At least 3' (1 m) from the corner of the building
- Do not locate in a garage, attic or crawl space

Exhaust Weatherhood Requirements

- At least 6' (2 m) from the ventilation air intake
- At least 18" (460 mm) above ground or above the depth of expected snow accumulation
- At least 3' (1 m) away from the corner of the building
- Not near a gas meter, electric meter or a walkway where fog or ice could create a hazard
- Not into a garage, workshop or other unheated space

When installing the weatherhood, its outside perimeter **must** be sealed with exterior caulking.

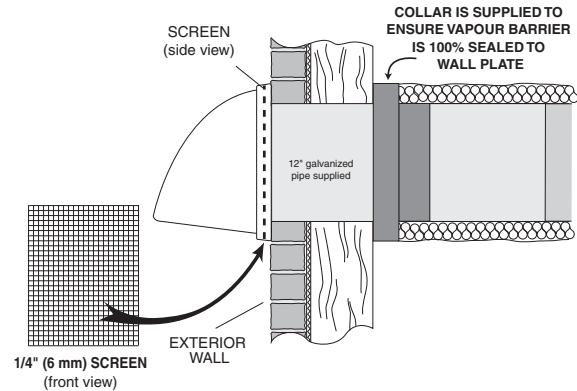
Weatherhoods

Fixed covered weatherhoods have a built-in bird screen with a 1/4" (6mm) mesh to prevent foreign objects from entering the ductwork.

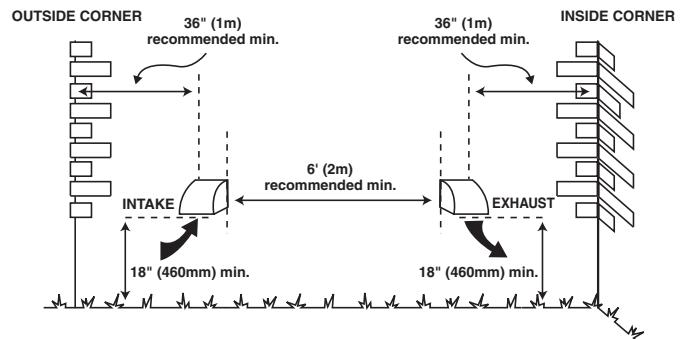
5" (125 mm) Part No. WH 185

6" (150 mm) Part No. WH 186

Weatherhood Installation



1. Thermal Collar slides over galvanized sleeve of Weatherhood.
2. Fasten Thermal Collar to Belt.
3. Slide the Insulated Flexible Ducting over the Weatherhood's galvanized sleeve and fasten it to the Thermal Collar.
4. Hood is hinged to allow for easy access for cleaning of bird screen.



ATTENTION

Local codes may require greater distances for exhaust and intake.

CAUTION

Weatherhood arrangement - requires a minimum of 6' (2m) separation and a minimum of 18" (460mm) above the ground, or above the depth of expected snow accumulation.

Installation of the Dehumidistat or Dehumidistat Ventilation Control

Standard Series Controls may be installed onto a flush mounted 2" x 4" electrical switch box or it may be surface mounted onto a wall.

Only 1 master control should be installed to a ventilation system (the Face Plate on this illustration may not be exactly the same as yours).

1. Remove the *Operating Instructions Card* from the top of the Control (Figure A).
2. Separate the *Face Plate* from the *Back Plate* by firmly pulling apart (Figure B). Be careful not to damage Face Plate Contact Pins.
3. Place the *Back Plate* of the control in the desired location on the wall and pencil mark the wall in the center of the *Wire Opening*, *Top Screw Hole* and *Bottom Screw Hole* (Figure C).
4. Remove the *Back Plate* and drill a 3/8" opening in the wall to allow for the *Wire Opening* and a 1/8" hole for the *Wall Anchors* for the top and bottom screw holes (Figure D).
5. Pull 3/20 wire through the opening in the wall and the *Wire Opening* of the *Back Plate* (Figure C).
6. Connect Red, Green and Yellow to the *Wiring Terminals* located on the *Back Plate* (Figure C).
7. Secure a single wire to the *Wire Retainer* located on the *Back Plate* (Figure C).
8. Attach the *Back Plate* to the wall using the 2 supplied screws and anchors.
9. Attach the *Face Plate* to the *Back Plate* (Figure B). Note: Be careful to correctly align the *Face Plate* to avoid damaging the *Face Plate Contact Pins*.
10. Insert the *Operating Instructions Card* into the control (Figure A).
11. Connect the 3/20 wire to the *Terminal Block* located on ventilator (Figure E).

! ATTENTION

Pay special attention not to damage the Contact Pins when attaching and detaching the Face Plate. (Figure B)

Operating Instructions Card

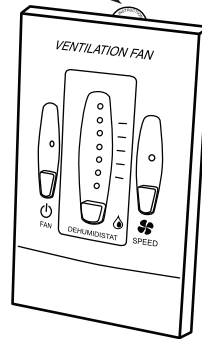


Figure A - Face Plate

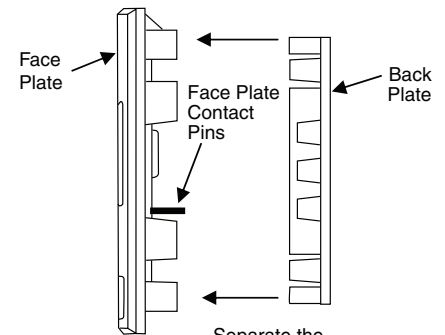


Figure B Side View

Separate the Face Plate from the Back Plate.

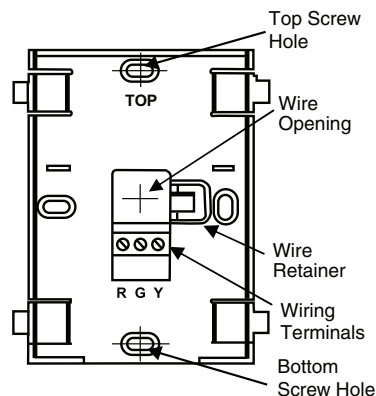


Figure C Front View of Back Plate

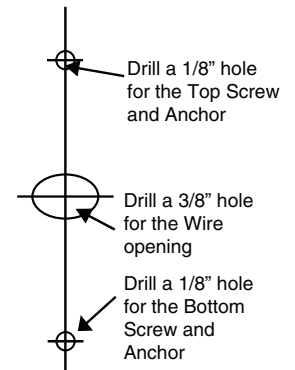


Figure D Drill holes in wall

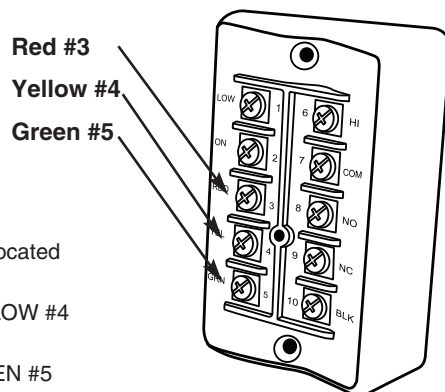


Figure E

Terminal Block located on ventilator

- Yellow to YELLOW #4
 - Red to RED #3
 - Green to GREEN #5
- Use 3/20 wire

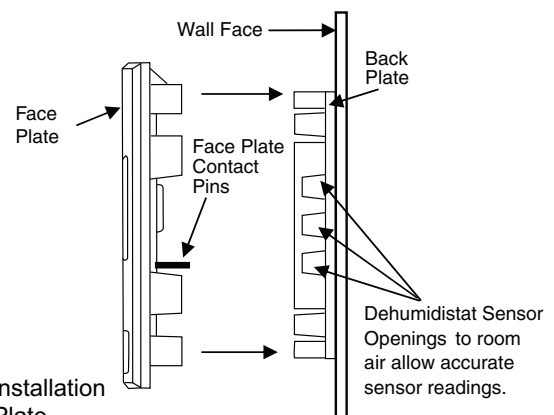


Figure F Correct Installation of Back Plate

Installation and Operation of 20/40/60 Minute Timer

Operating your 20/40/60 Minute Timer

Press and release the *Select Button* to activate high speed override. The *High Speed Status Light* will illuminate and the unit will run on high speed ventilation for 20 minutes.

The 20/40/60 Minute timers provide an extended override time of 20 - 40 additional minutes simply by pressing and releasing the *select button*.

The *High Speed Status Light* will dim after 10 seconds of run time.

The *High Speed Status Light* will flash during the last 5 minutes of the cycle.

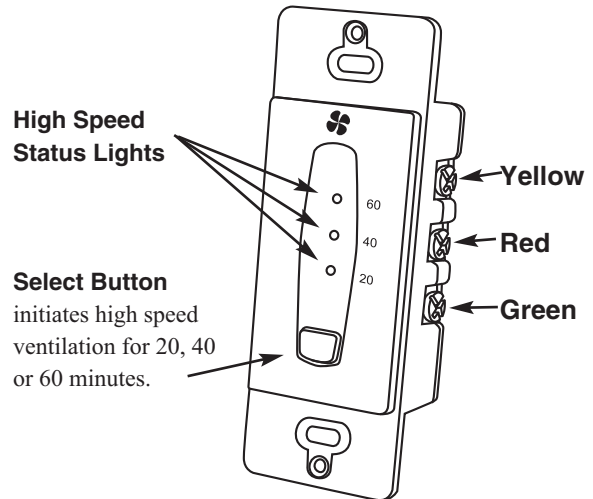
All timers connected to the unit will illuminate for the duration of the override when the *Select Button* is pressed.

Lockout Mode

Lockout Mode is used to disable the timers.

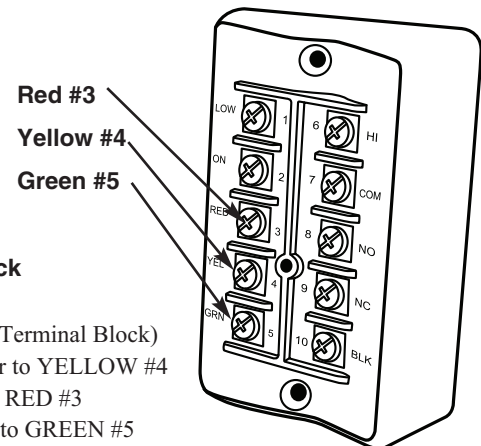
The timer can be set to lockout mode by pressing and holding the *Select Button* for five seconds. After five seconds, the *High Speed Status Light* will flash; release the *Select Button*. The timer is now in lockout mode. If the *Select Button* is pressed during lockout mode the *High Speed Status Light* will momentarily illuminate but no override will be initiated.

If lockout mode is initiated when the timer is activated, the timer will continue its timed sequence but will not allow any further overrides to be initiated. Lockout mode can be unlocked by pressing and holding the *Select Button* for five seconds. After five seconds the *High Speed Status Light* will stop flashing. Release the *Select Button* and the timer will now operate normally.



NOTE ABOUT TIMERS

- Timers mount in standard 2" x 4" electrical boxes.
- Wire multiple timers individually back to the unit.
- Use 3/20 low voltage wire



! ATTENTION

If the system does not have a main control installed, the HRV Terminal Block must have a jumper installed between 2 (ON) and 3 (RED). Refer to "Operating the HRV without a Main Control" in this manual.

Installation of the Healthy Home System™ Control (HHSC)

Choose a Location

The HHSC controller can be installed anywhere in your home. To simplify the installation, locate the HHSC control near the HVAC system and/or the HRV/ERV, since the HHSC does not require routine adjustment or occupant interaction.

To provide the occupants with direct access to the functions of the controls, install optional accessory controls throughout the house.

How To Install the Controller

1. Separate the HHSC controller cover from the wall plate (mounting base) to expose mounting holes (see illustration).
2. Route wires through large hole in the mounting base. Mount base against wall and mark wall through 3 mounting holes.
3. If mounting on a metal or wood surface, drill three 1/8-in. pilot holes in wall where marked for the supplied mounting screws. If mounting on drywall or other surface, drill appropriate holes for wall anchors or other means of attachment.
4. Secure mounting base to wall with either the 3 screws provided or other fasteners, while ensuring that all wires extend through the hole in mounting base.
5. Adjust length and routing of each wire to reach the proper terminal and connector block on mounting base, while leaving a 1/4 in. length of extra wire. Strip only 1/4 in. of insulation from each wire to prevent adjacent wires from shorting together when connected.
6. Connect wires to their respective terminals on the connector block. (Figure 1) Both (R) and (C) must be connected for proper operation. Improper wiring or installation may damage the controller. Ensure wiring is correct before proceeding with installation or turning the unit on.
7. Push any excess wire into wall and against mounting base.
8. Snap cover onto base, while ensuring pins align with sockets in connector.
9. Once powered the HHSC automatically enters into operating mode.

Complete the Wiring Connections

1. Refer to subsequent wiring diagrams in this manual that correspond to the desired control configuration.

NOTE: Disregard any wiring schematic(s) included with the HHSC Control Installation Instructions that do not pertain to

HRV/ERV control. The HHSC is also typically used to control an FAD fresh air damper.

2. Complete all wiring connections before restoring power to the HVAC system and HRV/ERV.

Programming the HHSC Control

1. Balance the fresh and stale airflows as instructed in this manual.
2. Determine the cfm flow rate as instructed in this manual.
3. To obtain the desired rate of fresh air exchange, refer to the HHSC Control Installation Instructions to determine the On/Off timer settings for the HHSC Control. Use the cfm flow rate determined in step 2 as the computed or measured fresh air flow rate (as calculated in the HHSC instructions). To ensure adequate ventilation, ensure that the “Fan On” time is equal to or greater than the “Vent On” time, as programmed in the HHSC Control.
4. For continuous operation of the HRV/ERV, set “Fan On” and “Vent On” to “Un” (unlimited), and “Fan Off” and “Vent Off” to any setting except “Un”. This setting also causes the HVAC fan to run continuously.

NOTE: The HHSC Control is factory programmed with the default settings of the two On/Off timer values. No configuration is required to use these factory default settings.

Default settings:

FAN OFF	20 minutes
FAN ON	10 minutes
VENT ON	10 minutes
VENT OFF	20 minutes

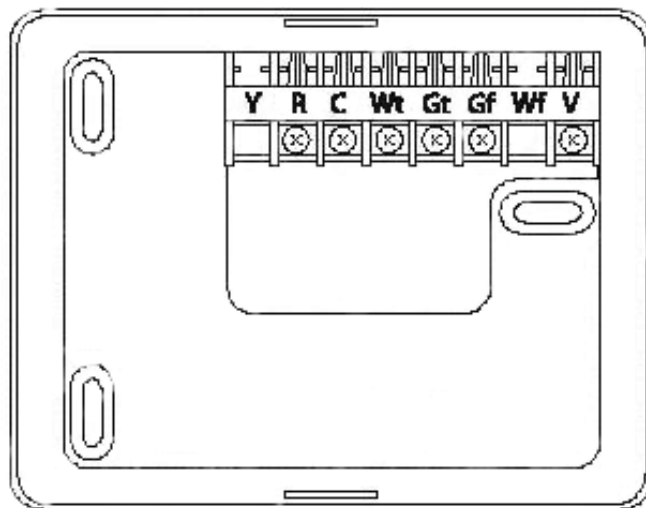
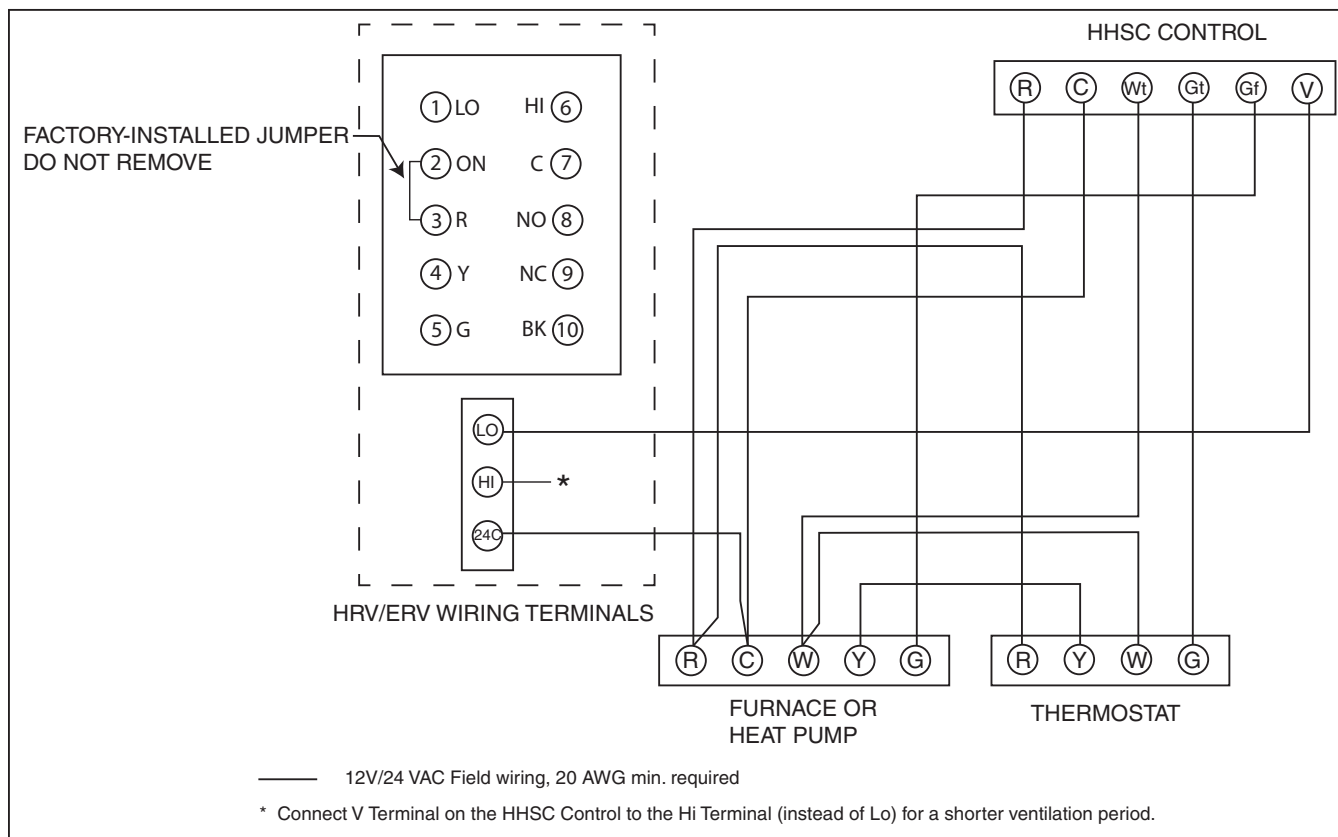


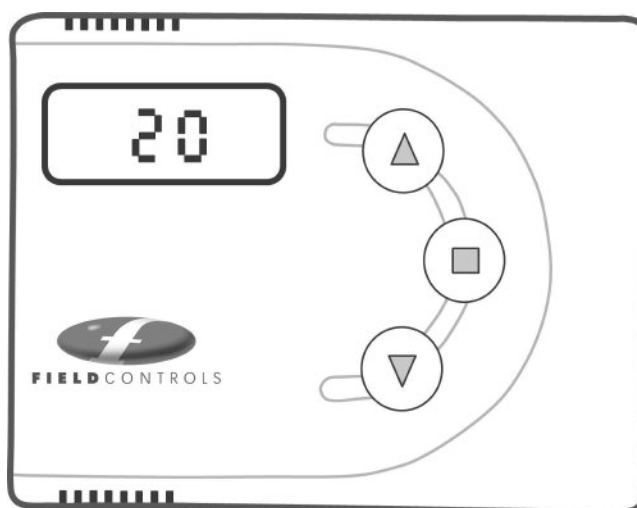
Illustration of HHSC Control with cover off

Installation of the Healthy Home System™ Control (HHSC)



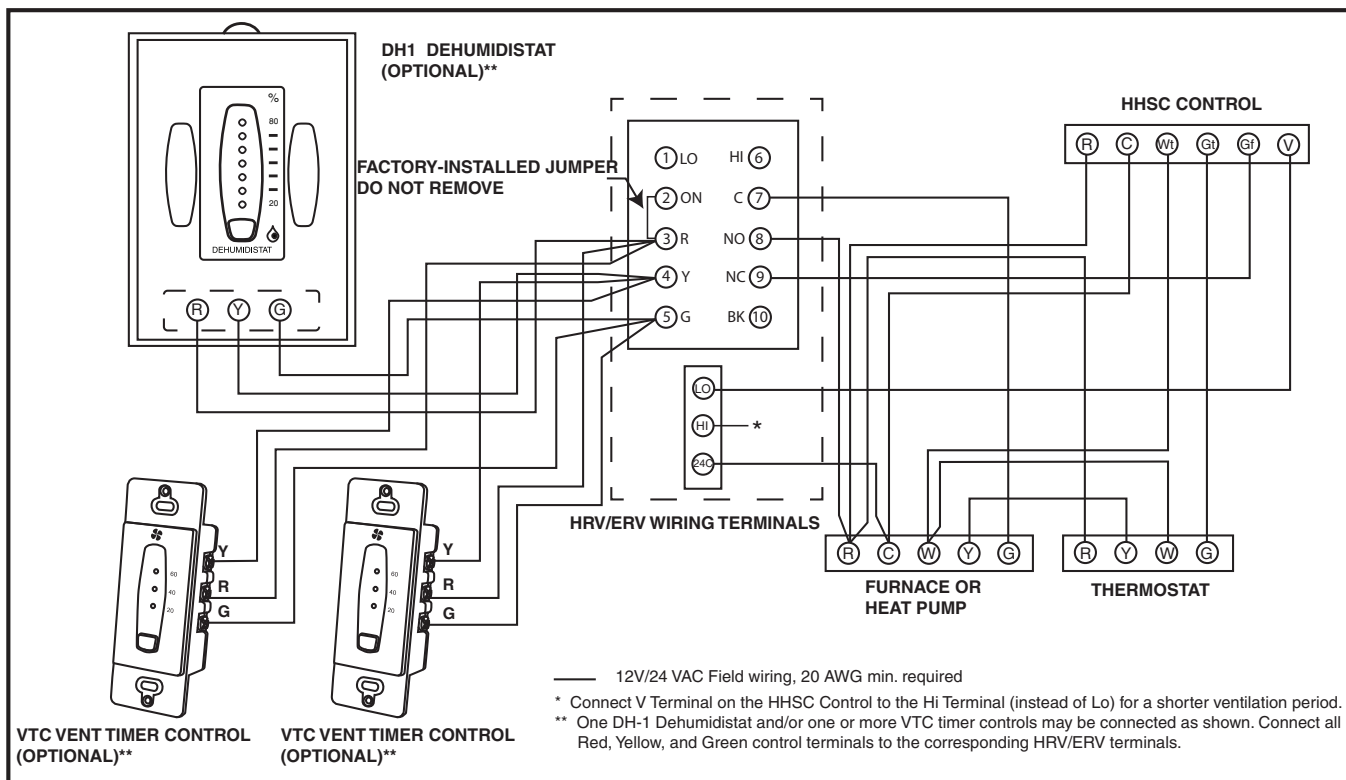
Setting up the HHSC Control

The duration of the ventilation rate is adjustable on the Healthy Home System™ Control (HHSC). Refer to the instructions that accompanied the HHSC for setup information.



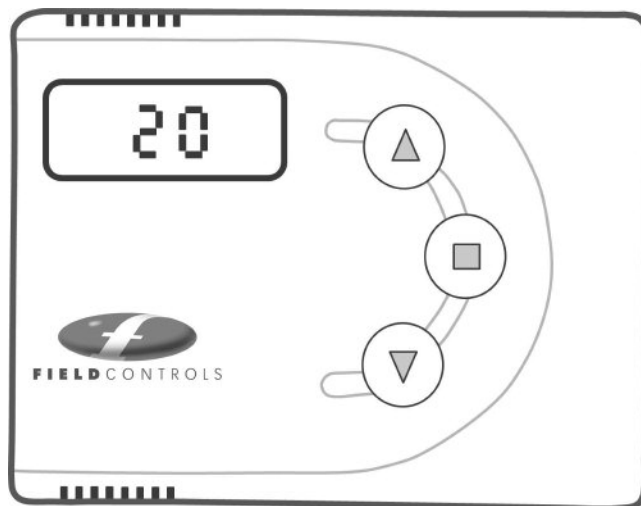
The Healthy Home System™ Control (HHSC)

Installation of the HHSC with the DH1 and 20/40/60 Minute Timers (test a)



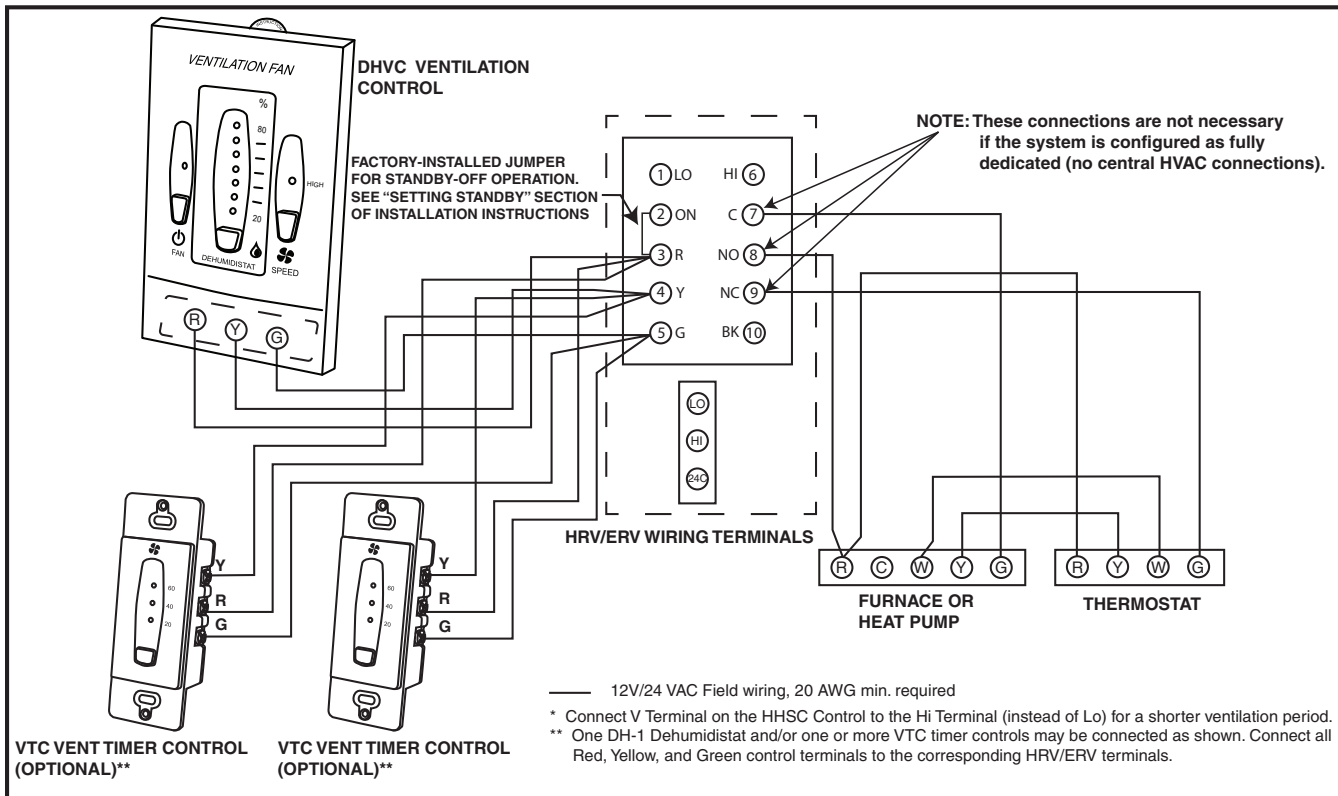
Setting up the HHSC Control

The duration of the ventilation rate is adjustable on the Healthy Home System Control™ (HHSC). Refer to the instructions that accompanied the HHSC for setup information.



The Healthy Home System™ Control (HHSC)

Installation of the DHVC Ventilation Control with 20/40/60 Minute Timers (test c)



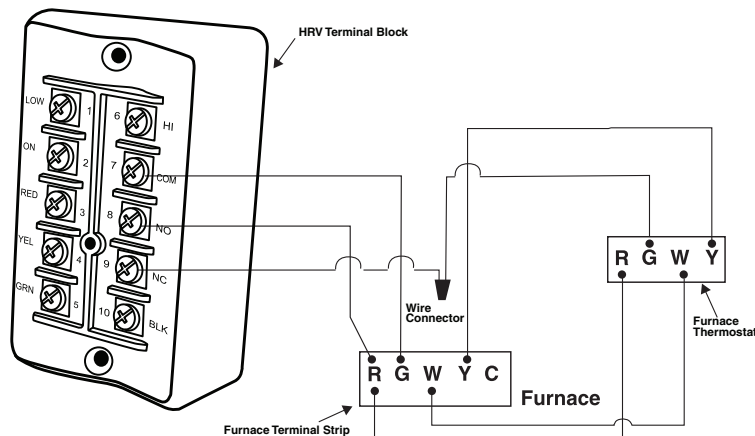
Interlocking the HRV/ERV to an Air Handler/Furnace Blower

Connecting the HRV/ERV as illustrated will ensure the Air Handler/Furnace Blower Motor is operating whenever the HRV/ERV is ventilating.

The HRV/ERV must be interlocked to the Furnace/Air Handler with a Simplified Installation (Return/Return Installation) and should be interlocked with a Partially Dedicated Installation.

CAUTION

Consideration should be given to competing airflows when connecting the HRV/ERV in conjunction with an Air Handler/Furnace Blower system.

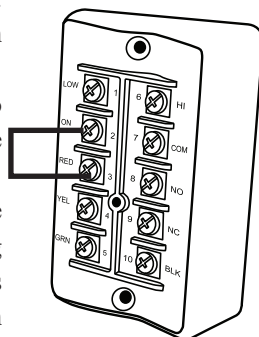


Setting "Standby" when using a Main Control

The HRV/ERV will be "fully-off" when the OFF position is selected on the Main Control. Timers and /or other controls will not function when the HRV/ERV is in the OFF position.

The "fully-off" feature can be modified to "standby-off" by adding a jumper on the Terminal Block between 2 (ON) and 3 (RED). "Standby" can also be achieved by setting the main control to the ON position and selecting speed 0*. Timers and /or additional controls will initiate high speed ventilation when activated.

* Speed 0 is not available on all controls



The Terminal Block
(located on the HRV/ERV)

CAUTION

Building codes in some areas require "fully-off" functionality. Check with your local building authority before modifying the unit to "standby-off". Unintentional operation of the HRV by the end user may occur if the unit is modified from "fully-off" to "standby-off".

Operating the HRV/ERV without a Main Control and Adding Dry Contact Controls

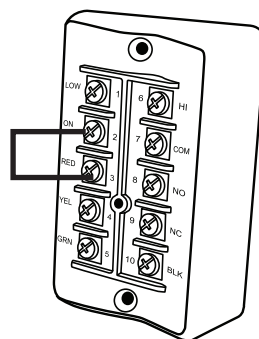
A jumper must be in place between 2 (ON) and 3 (RED) on the Terminal Block to activate the HRV/ERV for timers and/or dry contact controls.

Adding Dry Contact Controls

Low Speed - A jumper between 2 (ON) and 1 (LOW) initiates low speed ventilation.

High Speed - A jumper between 2 (ON) and 6 (HI) initiates high speed ventilation.

Dehumidistat - A dry contact for a dehumidistat is connected between 2 (ON) and 10 (BLK).



The Terminal Block
(located on the HRV/ERV)

The HRV/ERV must have a Jumper in place between 2 (ON) and 3 (RED) on the Terminal Block when installing the unit without a Main Control.

Balancing the Air Flows

Balancing the air flows is critical to ensuring that the amount of air introduced from the outside of the building equals the amount of air exhausted to the outside of the building. If these two air flows are not properly balanced, the following issues may occur:

- A positive or negative pressure may occur in the house
- HRV/ERV may not operate at its maximum efficiency
- The unit may not defrost properly

Air Flow Measuring Gauges

The magnehelic gauge and the digital manometer are suitable instruments for the balancing of air flows.

A magnehelic gauge with a scale of 0 to .25" w.c. is suitable for accurately measuring air duct velocity. The value on the gauge will be velocity pressure. A digital manometer requires the ability to display differential pressures at 3 digits of resolution.

Gauge Attachments

When sampling an air flow, various attachments are available for use on a magnehelic gauge or digital manometer.

The following illustration shows a magnehelic gauge with a scale of 0 to .25" w.c. with a pitot tube attachment. This combination will measure the system air velocity pressure accurately, regardless of the duct size or shape (either round or rectangular).

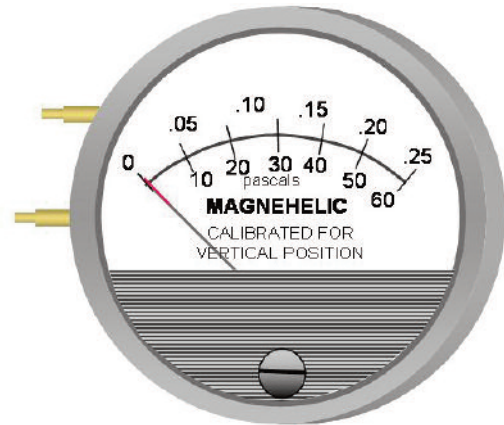
Balancing Preparation

Prior to performing the air balancing procedure, perform the following steps:

- Seal the ductwork system
- Confirm the installation and proper operation of all the components of the HRV/ERV
- Fully open the balancing dampers
- Turn off all household exhaust devices (range hood, clothes dryer, bathroom fans)
- Set the HRV/ERV at high speed
- Prior to balancing the unit, first adjust air flows in branch lines to specific areas of the house
- If the outdoor temperature is below 0°C (32°F), ensure the unit is not running in defrost
- Place the magnehelic gauge on a level surface and adjust it to zero
- If the system is a Simplified or Partially Dedicated installation, operate the furnace/Air Handler at high speed

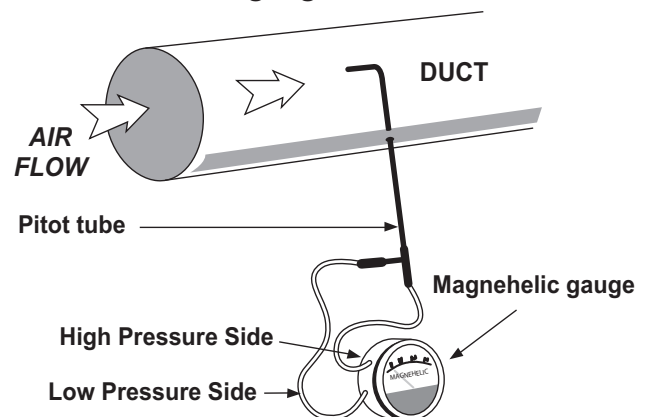
! ATTENTION

Continuous, excessive, positive pressure may drive moist indoor air into the external walls of the building. Once inside the external walls, moist air may condense (in cold weather) and degrade structural components or cause locks to freeze. Continuous, excessive, negative pressure may have several undesirable effects. In some geographic locations, soil gases such as methane and radon gas may be drawn into the home through basement or ground contact areas, and may also cause the backdrafting of vented combustion equipment.



Magnehelic Gauge with a scale of 0 to .25" w.c.

Pitot tube and gauge



Magnehelic Gauge (scale of 0 to .25" w.c.) with a Pitot Tube Attachment

Balancing the Air Flows with a Pitot Tube

STEP 1. Drill a 3/16" hole in the duct (ideally 3 feet downstream of any elbows or bends and 1 foot upstream of any elbows or bends) in the Fresh Air and Stale air streams.

Stale Air From Building

Balancing Damper

Drill 3/16" holes in Stale & Fresh Air ducts.

Balancing Damper

Fresh Air to Building

STEP 2. Insert the Pitot tube with the tip facing towards the air stream in the Stale Air From Building air stream. Move the Pitot tube around in the duct (facing towards the airflow) and take an average reading. Record the reading.

Pitot tube tip facing towards the air stream.

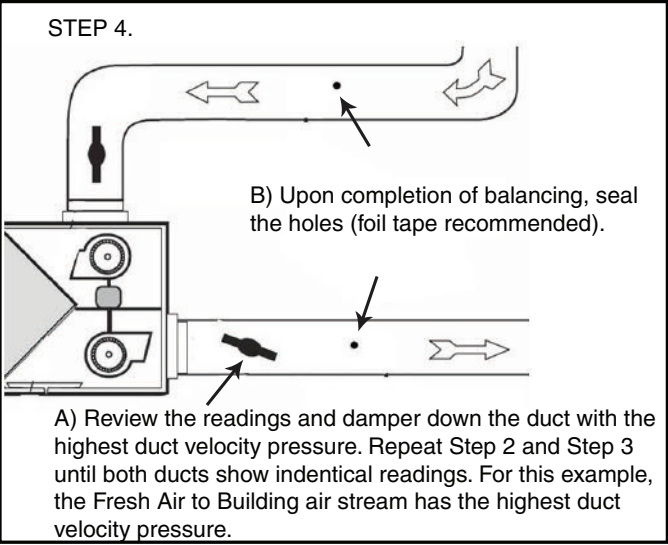
Magnehelic Gauge must be level.

STEP 3. Repeat Step 2 to measure the Fresh Air to Building duct.

Pitot tube tip facing towards the air stream.

Magnehelic Gauge must be level.

STEP 4.



B) Upon completion of balancing, seal the holes (foil tape recommended).

A) Review the readings and damper down the duct with the highest duct velocity pressure. Repeat Step 2 and Step 3 until both ducts show identical readings. For this example, the Fresh Air to Building air stream has the highest duct velocity pressure.

Determining the cfm

After balancing the air flows, calculate the cfm flow rate.

Example

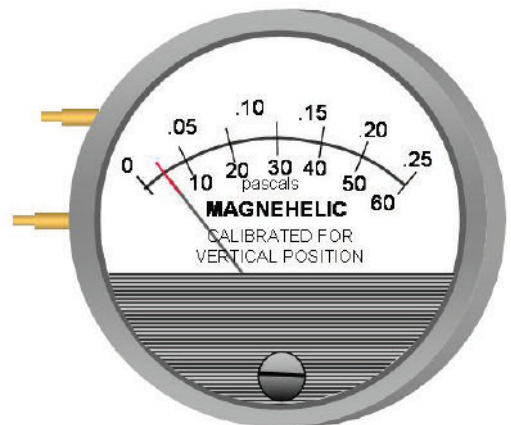
This example shows how to determine the air flow for a 6" diameter duct. As shown in the illustration, the duct velocity pressure reads 0.025" w.c. on the magnehelic gauge. Use the chart that came with the magnehelic gauge to determine a duct velocity of 640 feet per minute for a duct velocity pressure of 0.025" w.c.

Cfm Calculation

$$\begin{aligned} \text{cfm} &= \text{feet per minute} \times \text{cross section area of duct} \\ &= 640 \times 0.196 \\ &= 125 \end{aligned}$$

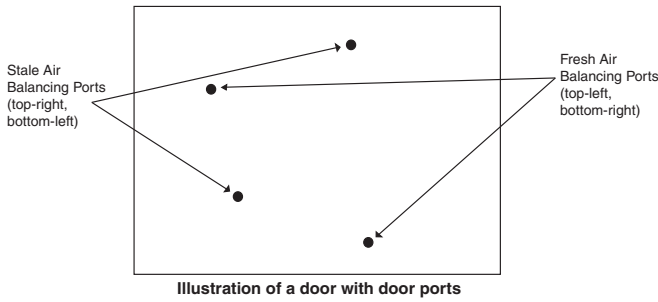
Cross Section Area of some common round duct sizes:

- 0.087 for 4" diameter duct
- 0.136 for 5" diameter duct
- 0.196 for 6" diameter duct
- 0.267 for 7" diameter duct



Magnehelic Gauge reading .025" w.c.

Door balancing ports (not on all models) are designed to be used in conjunction with a Magnehelic Gauge or Digital Manometer to measure the Stale and Fresh airflows for balancing.



Step 1

Prepare the air flow measuring device (i.e. Magnehelic Gauge or Digital Manometer) by connecting the hoses to the low and high pressure side of the gauge.

Step 2

Insert the hoses into the rubber fittings from the optional Door Port Adapter Kit (part # 99-182). Use light pressure and rotate until fitting is snug. Do not extend the hose past the rubber fitting.

Step 3

Open the HRV Door. Remove the 4 Door Port Covers by carefully pushing them out from the back side of the door (use the blunt end of a large drill bit etc.).

Step 4

Close the HRV Door. Initiate power and operate the HRV on high speed. Operate the forced air system on high speed (if the HRV is connected to the forced air system).

Step 5

Insert the 2 rubber fittings from the gauge to the STALE AIR Balancing Ports (upper right and lower left). Seal the FRESH AIR Balancing Ports (upper left and lower right) with tape. Record your reading.

Step 6

Insert the 2 rubber fittings from the gauge to the FRESH AIR Balancing Ports (upper left and lower right). Seal the STALE AIR Balancing Ports (upper right and lower left) with tape. Record your reading.

Step 7

Refer to the "Airflow Reference Chart" for your model and determine the FRESH AIR and STALE AIR flow rates (the chart is located on the lower portion of this page).

Step 8

Damper down the higher airflow and repeat Steps 5 to 7 as required until both airflows are identical (balanced).

Step 9

Remove the tape and rubber fittings and reinstall the 4 Door Port Covers.

Airflow Reference Charts

FC155HRV			FC200HRV		
Manometer Reading	Airflow Numbers (CFM)		Manometer Reading	Airflow Numbers (CFM)	
Pressure (in. w.g.)	Fresh Air	Stale Air	Pressure (in. w.g.)	Fresh Air	Stale Air
0.100	93	80	0.100	98	91
0.105	96	83	0.110	102	96
0.110	99	86	0.120	107	101
0.115	102	89	0.130	111	107
0.120	105	92	0.140	115	112
0.125	108	96	0.150	120	117
0.130	111	99	0.160	124	122
0.135	114	102	0.170	128	127
0.140	117	105	0.180	133	132
0.145	120	108	0.190	137	137
0.150	123	111	0.200	141	142
0.160	130	117	0.210	145	147
0.170	136	123	0.220	149	152
0.180	142	129	0.230	153	156
0.190	148	135	0.240	157	161
0.200	154	141	0.250	161	166
0.210	160	147	0.260	165	171
0.220	166	154	0.270	169	175
0.230	172	160	0.280	173	180
0.240	178	166	0.290	177	184
0.250	184	172	0.300	181	189
0.260	191	178	0.310	185	193
0.270	197	184	0.320	189	198
0.280	203	190	0.330	192	202
0.290	209	196	0.340	196	207
0.300	215	202	0.350	200	211
0.310	221	209	0.360	203	215

Magnehelic Gauge hoses connected to STALE AIR balancing ports

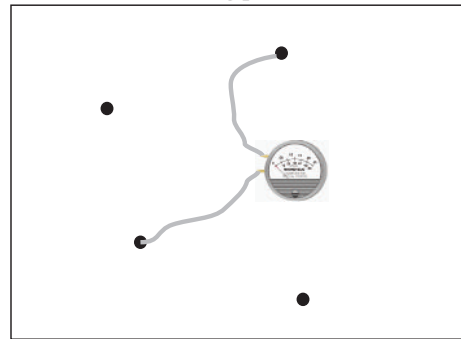


Illustration of measuring STALE airflow using a Magnehelic Gauge.

Magnehelic Gauge hoses connected to FRESH AIR balancing ports

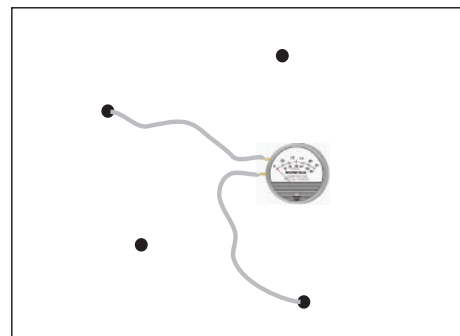


Illustration of measuring FRESH airflow using a Magnehelic Gauge.

Balancing Dampers

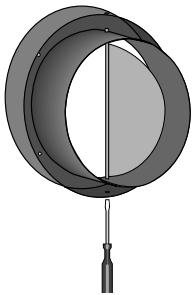
The FC155HRV and FC200HRV models have factory installed Balancing Dampers located in the “Fresh Air to Building” and “Stale Air from Building” collars.

All other units require the installation of balancing dampers (not included) in the “Fresh Air to Building” and “Stale Air from Building” ductwork. Refer to the installation diagrams in this manual for the Simplified, Partially Dedicated, and Fully Dedicated systems.

i NOTE

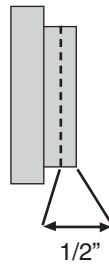
Installations where the HRV is ducted directly to the return of the furnace/Air Handler may require additional dampening on the *fresh air to building* duct.

This is due to the high return static pressures found in some furnace installations.



Push and turn with slotted screwdriver. Damper automatically locks when pressure is released.

Illustration of Adjusting the Factory Installed Balancing Damper



Observe the location of the screws when connecting ductwork to the collar. Screws should be located no further than 1/2" from the outside edge of the collar and they should be no longer than 3/4".

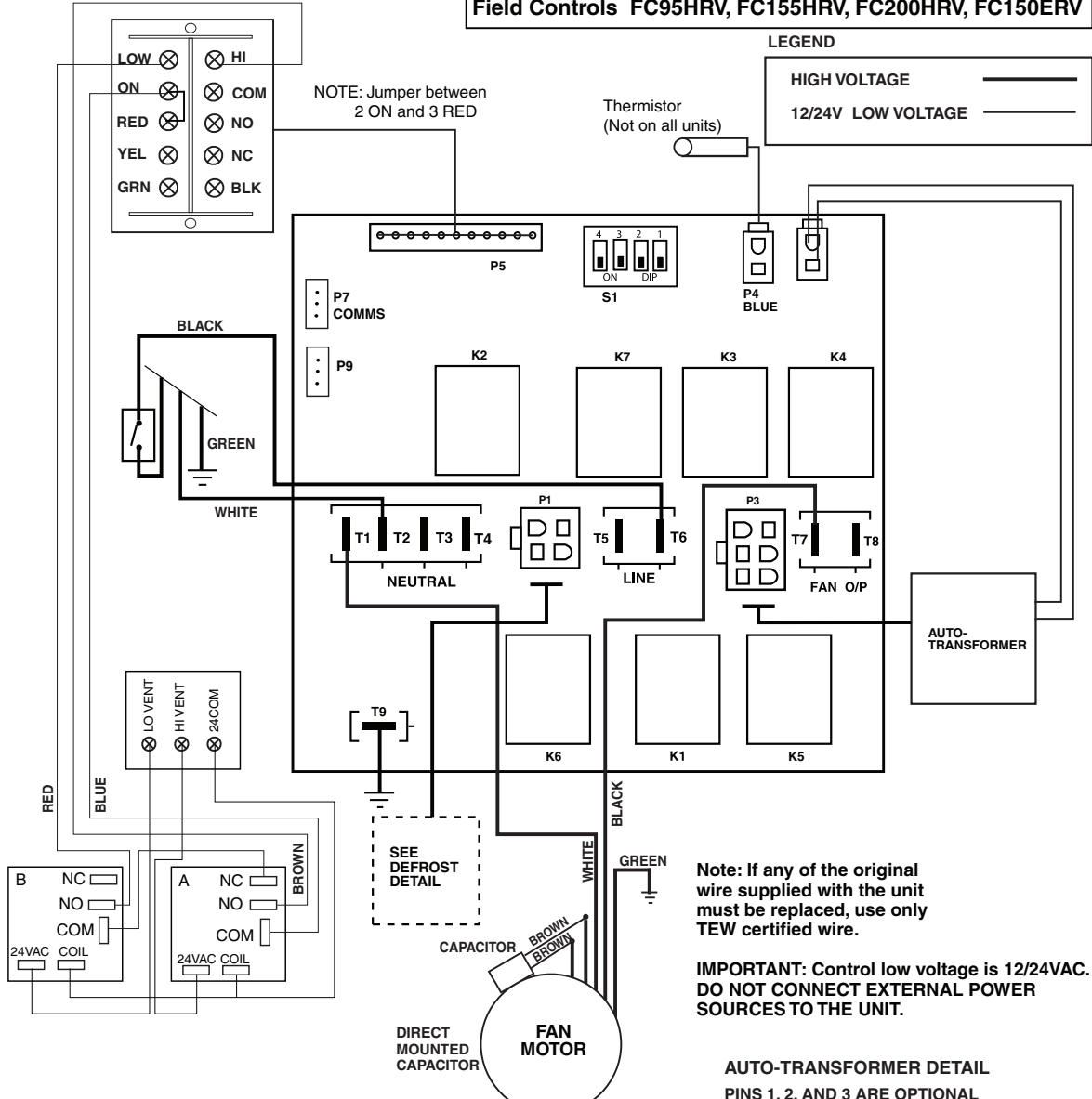
Illustration of Connecting ductwork to the Balancing Damper Collars

Troubleshooting your HRV/ERV System

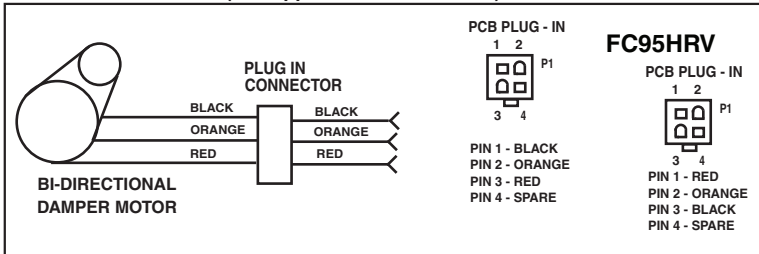
SYMPTOM	CAUSE	SOLUTION
Poor Air Flows	<ul style="list-style-type: none"> • 1/4" (6 mm) mesh on the outside hoods is plugged • filters plugged • core obstructed • house grilles closed or blocked • dampers are closed if installed • poor power supply at site • ductwork is restricting HRV • improper speed control setting • HRV airflow improperly balanced 	<ul style="list-style-type: none"> • clean exterior hoods or vents • remove and clean filter • remove and clean core • check and open grilles • open and adjust dampers • have electrician check supply voltage at house • check duct installation • increase the speed of the HRV • have contractor balance HRV
Supply air feels cold	<ul style="list-style-type: none"> • poor location of supply grilles, the airflow may irritate the occupant • outdoor temperature extremely cold 	<ul style="list-style-type: none"> • locate the grilles high on the walls or under the baseboards, install ceiling mounted diffuser or grilles so as not to directly spill the supply air on the occupant (eg. over a sofa) • turn down the HRV supply speed. A small duct heater (1kw) could be used to temper the supply air • placement of furniture or closed doors is restricting the movement of air in the home • if supply air is ducted into furnace return, the furnace fan may need to run continuously to distribute ventilation air comfortably
Dehumidistat is not Operating	<ul style="list-style-type: none"> • outdoor temperature is above 15°C (59°F) • improper low voltage connection • external low voltage is shortened out by a staple or nail • check dehumidistat setting it may be ON OFF 	<ul style="list-style-type: none"> • dehumidistat is functioning normally (see "How the Dehumidistat Works" in this manual) • check that the correct terminals have been used • check external wiring for a short • set the dehumidistat at the desired setting
Humidity Levels are too High Condensation is appearing on the windows	<ul style="list-style-type: none"> • dehumidistat is set too high • HRV is undersized to handle a hot tub, indoor pool, etc. • lifestyle of the occupants • moisture coming into the home from an unvented or unheated crawl space • moisture is remaining in the washroom and kitchen areas • condensation seems to form in the spring and fall • HRV is set at too low a speed 	<ul style="list-style-type: none"> • set dehumidistat lower • cover pools, hot tubs when they are not in use • avoid hanging clothes to dry, storing wood and venting clothes dryer inside. Heating wood may have to be moved outside • vent crawl space and place a vapour barrier on the floor of the crawl space • ducts from the washroom should be sized to remove moist air as effectively as possible, use of a bathroom fan for short periods will remove additional moisture • on humid days, as the seasons change, some condensation may appear but the homes air quality will remain high with some HRV use • increase speed of the HRV
Humidity Levels are too Low	<ul style="list-style-type: none"> • dehumidistat control set too low • blower speed of HRV is too high • lifestyle of occupants • HRV air flows may be improperly balanced 	<ul style="list-style-type: none"> • set dehumidistat higher • decrease HRV blower speed • humidity may have to be added through the use of humidifiers • have a contractor balance HRV airflows
HRV and/or Ducts Frosting up	<ul style="list-style-type: none"> • HRV air flows are improperly balanced • malfunction of the HRV defrost system 	<ul style="list-style-type: none"> • Note: minimal frost build-up is expected on cores before unit initiates defrost cycle functions • have HVAC contractor balance the HRV • ensure damper defrost is operating during self-test
Condensation or Ice Build Up in Insulated Duct to the Outside	<ul style="list-style-type: none"> • incomplete vapour barrier around insulated duct • a hole or tear in outer duct covering 	<ul style="list-style-type: none"> • tape and seal all joints • tape any holes or tears made in the outer duct covering • ensure that the vapour barrier is completely sealed
Water in the bottom of the HRV	<ul style="list-style-type: none"> • drain pans plugged • improper connection of HRV's drain lines • HRV is not level • drain lines are obstructed • HRV heat exchange core is not properly installed 	<ul style="list-style-type: none"> • ensure O-Ring on drain nozzle sits properly • look for kinks in line • check water drain connections • make sure water drains properly from pan

CAUTION: ELECTRICAL CONTROL PANEL, SERVICE BY ELECTRICIAN ONLY

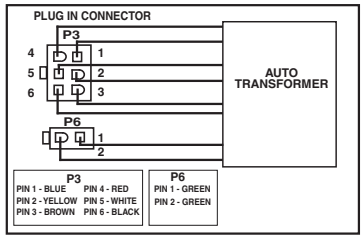
Field Controls FC95HRV, FC155HRV, FC200HRV, FC150ERV



DEFROST DETAILS (Not Applicable to FC150ERV)



AUTO-TRANSFORMER DETAIL
 PINS 1, 2, AND 3 ARE OPTIONAL



59-FCWIRING REV. A

LEAVE FOR HOMEOWNER

TO BE COMPLETED BY CONTRACTOR AFTER INSTALLATION

Installing Contractor _____ Telephone / Contact _____

Serial Number _____ Installation Date _____

Model _____

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