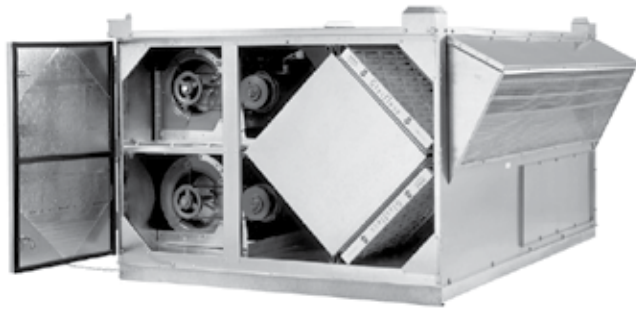


# INSTALLATION AND OPERATION MANUAL

## HE4XRT



**NOTE: Disconnect Switch and 24V Transformer Standard**

*In 2012, these ERVs may be ordered with new factory-installed features including Isolation Dampers and Variable Frequency Drives. Consult the supplemental Installation and Operation Manual(s) for these features if supplied.*

### ⚠ WARNING

**RISK OF FIRE, ELECTRIC SHOCK, OR INJURY. OBSERVE ALL CODES AND THE FOLLOWING:**

1. Before servicing or cleaning the unit, switch power off at disconnect switch or service panel and lock-out/tag-out to prevent power from being switched on accidentally. More than one disconnect switch may be required to de-energize the equipment for servicing.
2. This installation manual shows the suggested installation method. Additional measures may be required by local codes and standards.
3. Installation work and electrical wiring must be done by qualified professional(s) in accordance with all applicable codes, standards and licensing requirements.
4. Any structural alterations necessary for installation must comply with all applicable building, health, and safety code requirements.
5. This unit must be grounded.
6. Danger of severe injury to bystanders and damage to unit or property if high winds move this unit. Secure this unit to the building!
7. Sufficient air is needed for proper combustion and exhausting of gases through the flue (chimney) of fuel burning equipment that might be installed in the area affected by this equipment. If this unit is exhausting air from a space in which chimney-vented fuel burning equipment is located, take steps to assure that combustion air supply is not affected. Follow the heating equipment manufacturer's requirements and the combustion air supply requirements of applicable codes and standards.
8. Use the unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.
9. This unit is intended for general ventilating only. Do not use to exhaust hazardous or explosive materials and vapors. Do not connect this unit to range hoods, fume hoods or collection systems for toxics.
10. When cutting or drilling into wall or ceiling, do not damage electrical wiring and other hidden utilities.

### CAUTION

To avoid motor bearing damage and noisy and/or unbalanced impellers, keep drywall spray, construction dust, etc., out of unit.

### CAUTION

Do not remove or disable the wiring interconnection between the Overload Relays and the Contactors. Without this interconnection the motor(s) will not be protected against overload.



## Placement of the HE4XRT

The HE4XRT is designed for installation on a roof or other outside location.

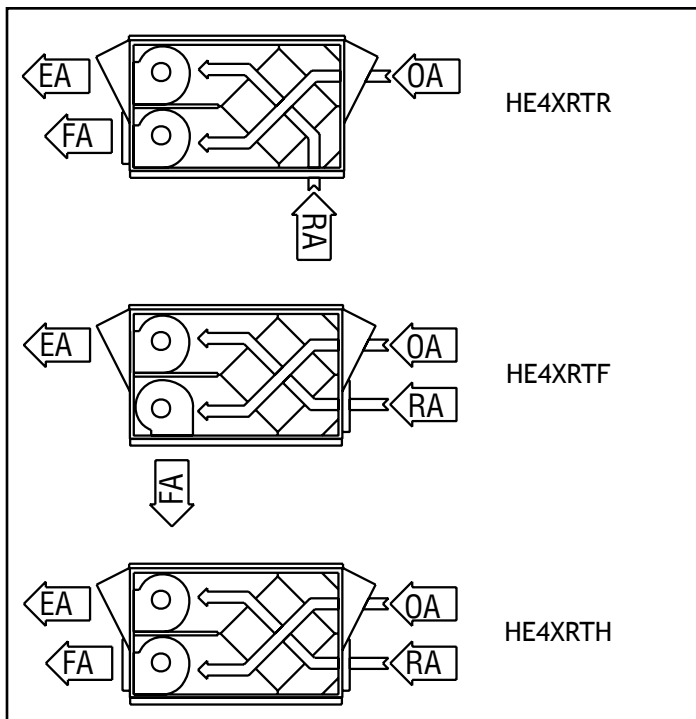
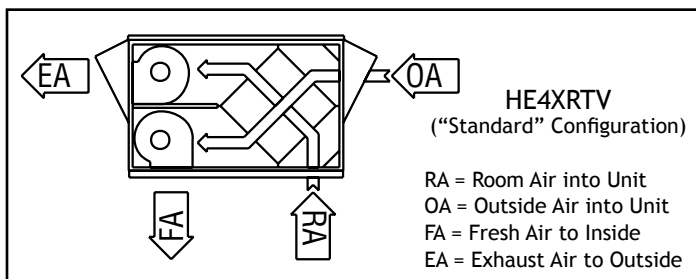
Select a location that is central to the inside duct runs, and close to any other air handler that might be part of the system.

The fresh air inlet should be at least 10' away from exhausts such as dryer vents, chimneys, furnace and water heater exhausts, or other sources of contamination or carbon monoxide.

Provide service access to the unit to allow for cleaning the core and filter.

The HE4XRT is available from the factory in four different configurations to meet different connection requirements:

Option Code	Description of Duct Connection Configuration	Mounting Option
HE4XRTV	Room Air [RA] enters bottom of unit. Fresh Air [FA] exits bottom of unit.	Roof Curb
HE4XRTR	Room Air [RA] enters bottom of unit. Fresh Air [FA] exits side of unit.	Roof Curb
HE4XRTF	Room Air [RA] enters side of unit. Fresh Air [FA] exits bottom of unit.	Roof Curb
HE4XRTH	Room Air [RA] enters side of unit. Fresh Air [FA] exits side of unit.	Equipment Rail



## Mounting the HE4XRT

### On Roof Curbs:

The base of the HE4XRT Unit is designed for installation on our optional Roof Curb. See drawing below.

Before installing HE4XRT, apply roofing and counterflashing to Roof Curb as per standard practice.

Install appropriate gasket on top of Roof Curb.

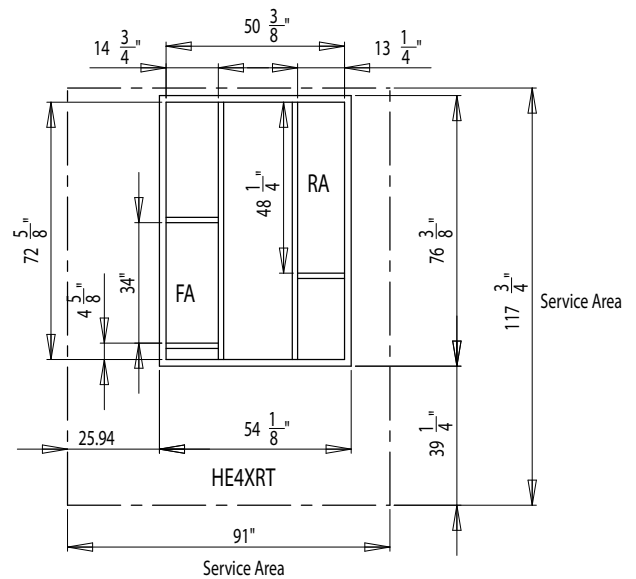
Set HE4XRT in place. We recommend bolting through sides of unit base into the Roof Curb to secure the unit against high winds.

### On Equipment Rails:

Review drawing of Roof Curb and specify Equipment Rail to fit.

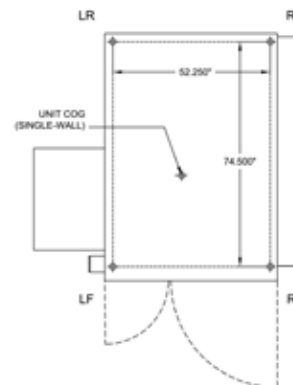
Before installing HE4XRT, apply roofing and counterflashing to Equipment Rails as per standard practice.

Set HE4XRT in place. We recommend bolting through sides of unit base into the Equipment Rails to secure the unit against high winds.



## Rigging Information

There are pairs of rigging holes at each upper corner of the unit. Use slings or shackles at all four corners. Spreader bars are recommended in order to avoid damage to the unit.



HE4XRT UNIT AND CORNER WEIGHTS (LBS) BY HORSEPOWER AND PHASE					
HP & PHASE	UNIT	LF	LR	RR	RF
SINGLE-WALL UNITS					
(2) 2HP 3P	845	277	196	154	218
(2) 3HP 3P	871	291	199	155	226
(2) 5HP 3P	915	313	205	157	240
(2) 2HP 1P	873	291	200	156	226
(2) 3HP 1P	913	312	205	157	239
DOUBLE-WALL UNITS					
(2) 2HP 3P	1046	325	248	205	268
(2) 3HP 3P	1072	338	251	207	276
(2) 5HP 3P	1116	360	258	210	288
(2) 2HP 1P	1074	338	252	207	276
(2) 3HP 1P	1114	359	257	210	287

◆ INDICATES LOCATIONS AT WHICH CORNER WEIGHTS ARE CALCULATED: ALONG CENTERS OF CURB RAILS.

Top View

## Connecting Ducts to Unit

Any duct connections to the sides of the unit are equipped with double-flanged duct connections. These allow for connection of ducts insulated on the inside or the outside, or for installation of lined duct.

Connect ducts to these flanges with standard S-Slips. Seal duct exterior to the unit to keep the weather out.

Any duct connections to the bottom of the unit are made to the duct supports on the optional roof curb. The sizes of the duct openings in the curb allow for ducts to be insulated on the inside or the outside.

Option Code	Room Air [RA] Inlet INNER [OUTER]	Fresh Air [FA] Outlet INNER [OUTER]
HE4XRTV	11" x 46" (on bottom) [13" x 48"]	12" x 32" (on bottom) [14" x 34"]
HE4XRTR	11" x 46" (on bottom) [13" x 48"]	12" x 32" (on side) [14" x 34"]
HE4XRTF	12" x 40" (on side) [14" x 42"]	12" x 32" (on bottom) [14" x 34"]
HE4XRTH	12" x 40" (on side) [14" x 42"]	12" x 32" (on side) [14" x 34"]

## Operation

### Principal of Operation

The HE4XRT has one basic purpose: to exhaust air from a structure and bring in fresh air from outside, while transferring heating or cooling energy from the exhaust air to the fresh air.

The HE4XRT is a very simple device, and will accomplish this purpose as long as the blowers for both airstreams are able to move air through the energy-exchange core.

### Checking that Unit is Operating

#### Air Flow

Airflow should be occurring in both airstreams. Sometimes the easiest place to confirm that air is moving is at the weatherhoods.

If exact airflow is critical, it may be desirable to permanently install flow measuring stations and manometers in the ductwork connected to the unit. These also can be used to determine when filters should be cleaned or changed.

#### Use Static Taps in Doors to Measure Airflow Rates

See "Cross-Core Static Drop" in MEASURING AIRFLOW table. These may be used to directly measure airflow in the unit.

### Energy Exchange

Precise determination of installed sensible energy exchange effectiveness requires careful measurement of temperatures and air flows in all four air streams, and in practice is somewhat difficult.

It is possible to confirm that energy is being exchanged simply by feeling the ducts. If the Fresh Air duct from the unit into the room is closer to room temperature than to the outside temperature, energy is being recovered.

### Operating Controls

A wide variety of control schemes may be selected by the engineer, installer, or owner to meet the ventilation needs of the facility. These may include timer clocks, occupancy sensors, dehumidistats (for cool-weather operation), carbon dioxide sensors, and others. DDC systems may also control the unit. Most control schemes will operate the unit only when needed.

### Continuous Operation

Continuous operation is acceptable in virtually all conditions. Unit will not be damaged by continuous operation as long as air flow occurs. Blower motors may overheat if filters become completely blocked due to lack of maintenance. Motors are thermally protected. With continuous operation, some external frosting may occur in very cold weather (see below).

### Operation in Extreme Cold Weather

Unit is capable of operating at outside temperatures down to -10° F, with indoor humidities below 40%, without any internal frosting. Unit can operate at more severe conditions occasionally with little or no impact on its performance. At lower humidities, it can operate at lower outside temperatures without freezing the energy-exchange core.

## Inside Ductwork System

### Follow Engineer's Ductwork Design

Ductwork should be designed by an engineer to allow the unit to provide the required airflow.

#### Duct Insulation

If the inside ducts run through un-conditioned spaces, they must be insulated, with a sealed vapor barrier on both inside and outside of insulation.

#### Use Static Taps in Ducts to Measure Airflow Rates

See "Cross-Core Static Drop" in MEASURING AIRFLOW table. These may be used to directly measure airflow in the unit.

#### Change Sheaves if required to Set and Balance Air Flow

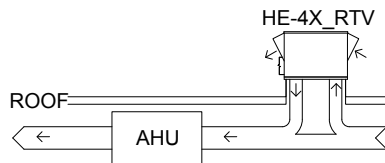
In most applications, the airflow rate for both the Fresh Air and the Exhaust Air should be roughly equal (or "balanced") for best performance of the HE4XRT Unit.

In most cases, the job engineer will specify flow rates and ESP requirements. The blower motors will also be specified to provide the required performance.

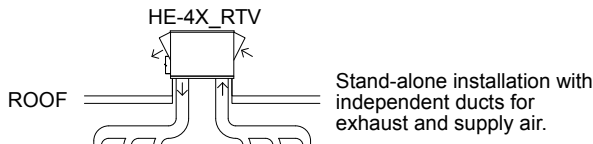
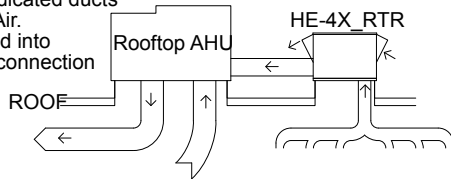
See unit specification sheet for CFM/ESP curves for available horsepower motors.

See drawings below for examples of some common installation approaches:

Unit connected to Return Duct of nearby AHU.



RTR Unit with dedicated ducts collecting Room Air. Fresh Air is ducted into horizontal return connection of adjacent AHU.



Stand-alone installation with independent ducts for exhaust and supply air.

## Sound Attenuation

### General Practices

Take these simple steps to attenuate noise from the unit.

#### Outside the building:

The exhaust hood is the primary source of noise outside the building. When practical, orient the exhaust air hood to point away from houses or public areas.

#### At the Curb:

Cut the holes in the roof deck to fit closely around the duct(s) passing through the roof deck. Seal all gaps around the duct(s) at the roof deck.

#### Ducts:

Make sure the ductwork at the unit outlets is stiff enough to resist the flexure and resulting booming associated with system start-up and shut-off, as well as the turbulent flow conditions at the blower outlets.

In general, provide smooth transitions from the ERV's outlets to the duct. The ducts connecting to the outlets should be straight for a sufficient distance, with gradual transitions to the final duct size.

These guidelines are consistent with SMACNA recommended duct layout practices for efficient and quiet air movement. Follow SMACNA guidelines.

#### Radiated Noise

The HE4XRT is insulated with high-density fiberglass. This provides significant attenuation of radiated sound from the unit itself.

The outlet ducts can be significant sources of radiated sound as well. The FA duct should be insulated for sound control. This insulation should start at the unit. At a minimum the first ten feet of duct should be insulated. All parts of the FA and RA ducts located in a mechanical space with noise-generating equipment also should be insulated for sound control, both to minimize sound radiation out of the FA duct, and also to control sound radiation into both ducts.

#### Aerodynamic (Velocity) Noise

When sound attenuation is a design concern, the primary consideration is velocity noise at the unit's Fresh Air blower outlet. The average velocity at the Fresh Air blower outlet is 1230 FPM when the unit is operating at 4290 CFM. The average velocity at the Exhaust Hood outlet is 1420 FPM when the unit is operating at 4290 CFM.

## Electrical Specifications

Electrical Options are identified on the Unit Label (located near electrical box). Find the complete Unit Model Number in the lower left corner of the Unit Label.

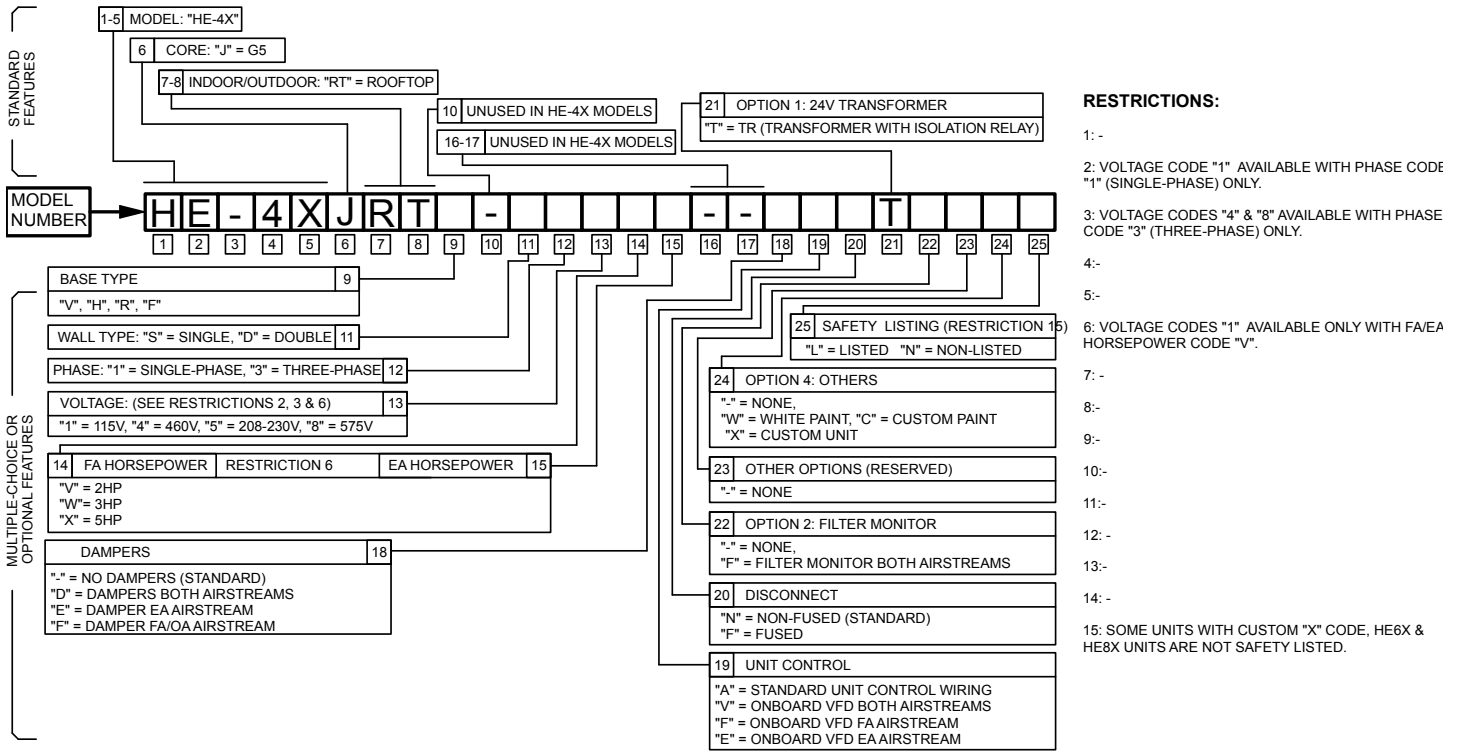
### ⚠WARNING

Danger of Electrical Shock when servicing an installed unit.

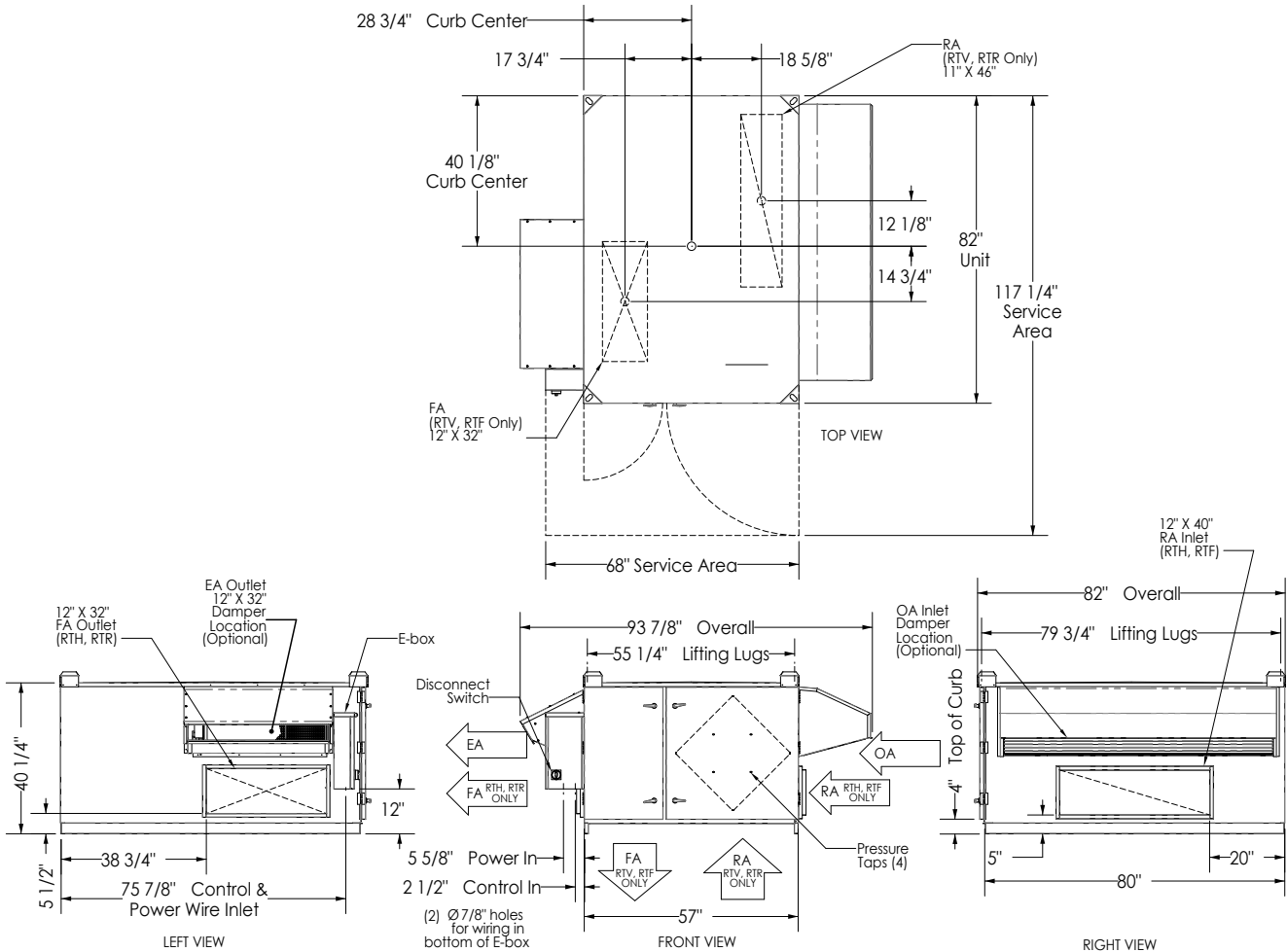
**ALWAYS DISCONNECT POWER SOURCE BEFORE SERVICING!** More than one disconnect switch may be required.

**Proper Wiring Size Selection and Wiring Installation are the Responsibility of the Electrical Contractor.**

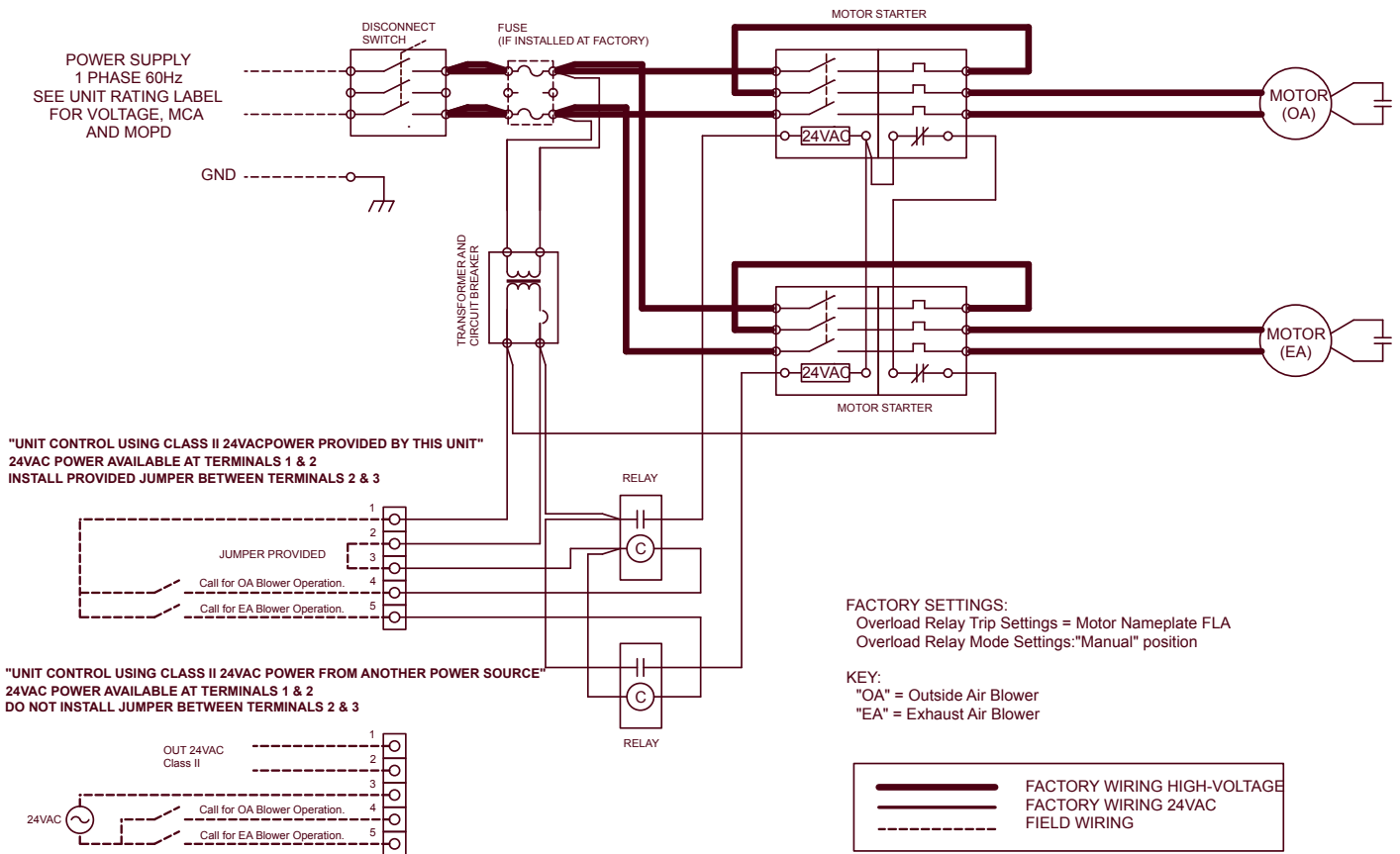
# HE4XRT Configuration Chart



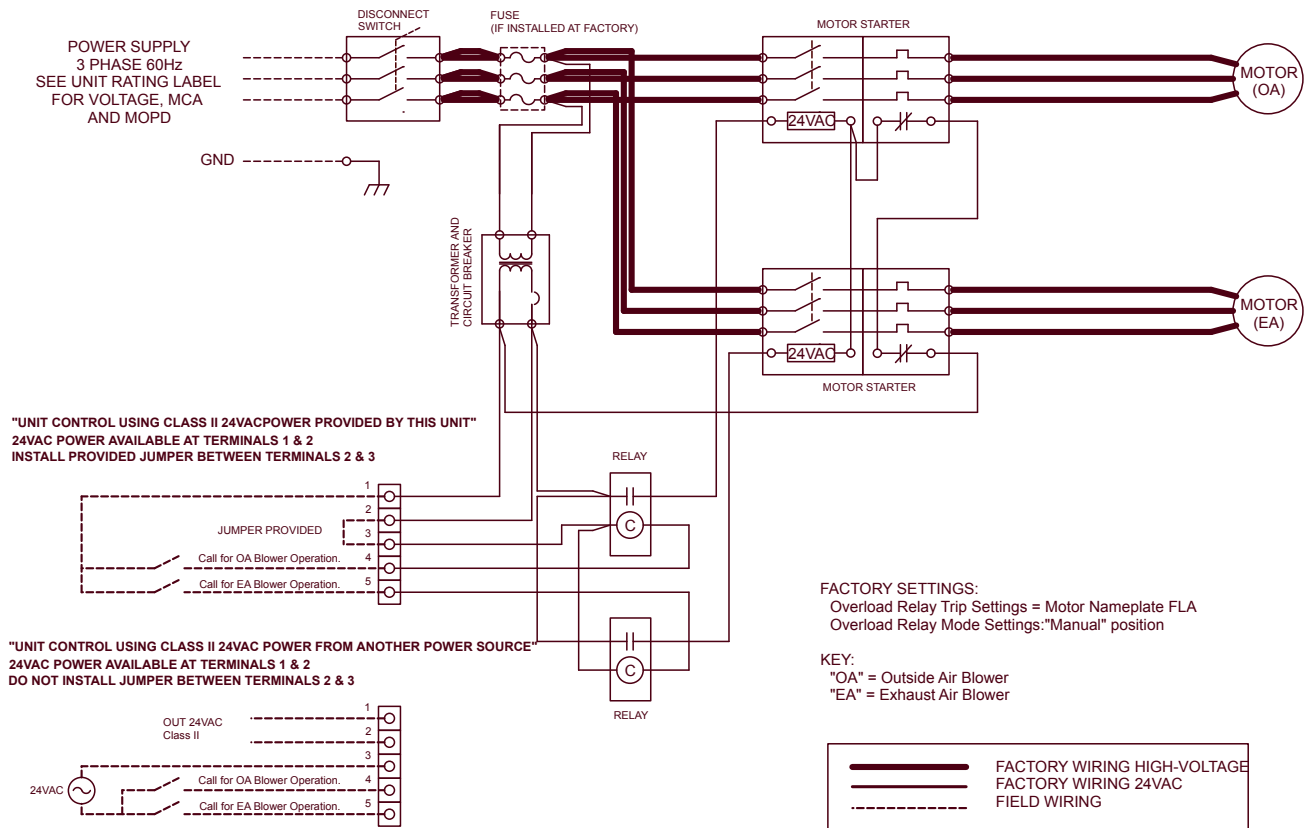
## HE4XRT Dimensions



# HE4XRT P1 Wiring Schematics with Independent Blower Control



# HE4XRT P3 Wiring Schematics with Independent Blower Control



## 24VAC Power Supply Provided with this ERV Unit

This ERV is provided with a Class II 24VAC power supply system that operates the unit's contactor(s) for EV450 and HE1X. The ERV's 24VAC Power Supply can also be used to power the externally-installed controls system: up to 8VA of power is available.

The unit's power supply system includes isolation relay(s) so you can use external controls whose contact ratings are as low as 50mA (1.2VA). Also, it is possible to operate the isolation relays with 24VAC power from an external source (with proper wiring connections).

A built-in circuit-breaker prevents damage to the transformer and other low-voltage components in the event of a short-circuit or overload. In extreme cases, the transformer itself is designed to fail safely.

### CAUTION

1. Connect only to components intended for use with 24VAC power.
2. Do not undersize the low-voltage wires connected to this device. Observe the wire length and gauge limits indicated in this manual.
3. Do not overload this unit's 24VAC power supply system. Confirm that the power requirements of devices you connect to this power supply system do not exceed 8VA in total.
4. If an external source of 24VAC power is used to control the unit, consult the wiring schematics and connect the external power only to the specified terminals in order to avoid damaging the unit or external controls. Connect only CLASS II power to the control terminals of this unit.
5. Unit is not equipped to receive analog signals (such as 1-10vdc or 4-20mA).
6. Unit is not equipped to communicate directly with Building Management Systems (such as BACNET, LONWORKS, etc.). However, the unit can be controlled by powered or non-powered contacts operated by any kind of control system.

#### Specifications

- Nominal Output Voltage under load: 24VAC
- Typical Output Voltage at no load: 29-31V
- Minimum contact rating for connected control device: (50mA (1.2VA)
- Circuit Breaker Trip Point: 3A

### How to Reset the 24VAC Circuit Breaker

If the transformer is subjected to an excessive load or a short circuit, the circuit breaker will trip to prevent the failure of the transformer. When it trips the circuit breaker's button pops up. Shut off the primary-side power to the unit, and remove the excessive load or the short. The circuit breaker can be reset about fifteen seconds after it trips by pressing in the button.

#### NOTE: INSTALLING CONTRACTOR:

If primary-side voltage is 230VAC, move black primary-side lead from transformer's "208V" terminal to the transformer's terminal marked "240V" ("230V" in some units).

Do not move the black primary-side lead that is connected to the transformer's "COM" terminal.

#### Limits of Power Output

If limits on wire gauge and length are observed, you may connect control devices that draw up to 8VA to the blue and red wires. More than one device can be connected as long as total steady-state load does not exceed 8VA.

OBSERVE THESE LIMITS TO WIRE LENGTH AND GAUGE, in order to ensure reliable operation of the control system.

Wire Gauge	#22	#20	#18	#16	#14	#12
Circuit Length	100'	150'	250'	400'	700'	1000'

"Circuit Length" is distance from ERV to Control Device.

## Motor Starters

This unit uses IEC-style motor starters to protect the motors against overload.

IEC-style motor starters use Overload Relays to detect excessive current and interrupt the control circuit that engages the motor's contactors.

### ⚠WARNING

The Overload Relay output contacts 95 & 96 must remain in series with the low-voltage control circuit! Altering this will create a hazardous situation in which the motor is not protected against overload!

### ⚠WARNING

Adhere to applicable local codes when adjusting the dial setting of the overload relays.

Overload Relays are sized to Full Load Amp (FLA) rating of the protected motor. The Overload Relays can be adjusted to trip (interrupt the control circuit) at a specific setting within a range.

Overload Relays should initially be set at the FLA rating of the motor (see Unit Rating Label). If necessary to prevent nuisance tripping at start-up, the Relays can be adjusted to trip no higher than 115% of the motor's FLA rating.

For safest operation, the overload relays should also be used in manual reset mode with trip test capability.

NOTE: As factory-wired, if one blower motor is shut down due to overload by its Motor Starter, the other motor will also be shut down.

NOTE: Terminals 96 & 97 of the Overload Relays and terminals 14 & 13 of the Contactors are normally-open dry contacts that may be used to signal that the contactors are closed and/or that the Overload Relays have tripped.

### ⚠WARNING

DANGER OF INJURY OR DAMAGE.

The motors in this unit must not be run at an amperage that exceeds the motor's rated full load amps and overload relays on the motor starters must be set at or below motor full load amps. For safest operation, the overload relays should also be used in hand reset mode with trip test capability.

It is the installer's responsibility to measure the operating amperage of each motor. If the full load amp rating is exceeded, the amp draw must be reduced by substituting a smaller motor pulley or by adjusting the variable sheave. Continue these adjustments until the actual amperage is no more than the motor's faceplate full load amps.

Failure to make this adjustment may result in unsafe motor winding temperatures or tripping of the supplied motor starter's overload relay motor protection devices set at full load amps.

### ⚠WARNING

DANGER OF INJURY OR DAMAGE.

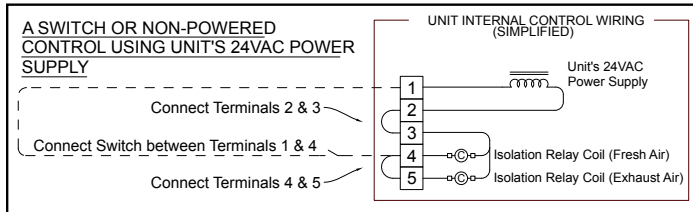
The relay must be set for correct FLA rating depending on the motor horsepower. See Unit Rating Label on motor for HP and FLA specifications.



# Control Wiring Schematics

**NOTE:** The simplified schematics below show only the relevant portions of the low-voltage control circuit in the ERV unit and representational external control approaches. See the complete unit schematics elsewhere in this manual.

- A. **Single 2-wire Control, unpowered:** Use schematic below if the control requires no power from the unit to operate and acts like a simple on/off switch. The control must not supply any power to the ERV unit. Install jumper (provided) between terminals 2 & 3. Connect the control's contacts to terminals 1 & 4 to operate the ERV's Isolation Relay for OA/FA Blower. Install jumper (provided) between terminals 4 & 5 to operate the ERV's Isolation Relay for the RA/EA Blower.

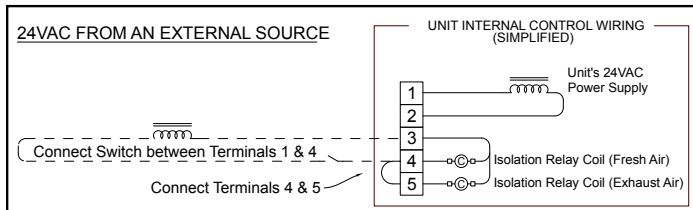


- B. **Single 2-wire Control on separate Power Supply, no power present at Control Output:** Wire as shown for the Single 2-wire control (A. above).

## CAUTION

Make sure the control provides no voltage or current at its output terminals.

- C. **Control Sending 24VAC "On" Signal (from an external power source) to ERV:** Make sure jumper is NOT installed between terminals 2 & 3. Now you safely can apply 24VAC to the Terminals 3 & 4 to operate the ERV's Isolation Relay for OA/FA Blower. Install jumper (provided) between terminals 4 & 5 to operate the ERV's Isolation Relay for the RA/EA Blower.

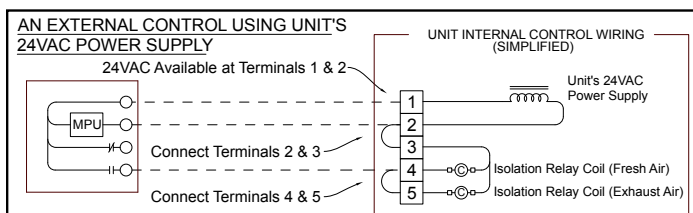


## CAUTION

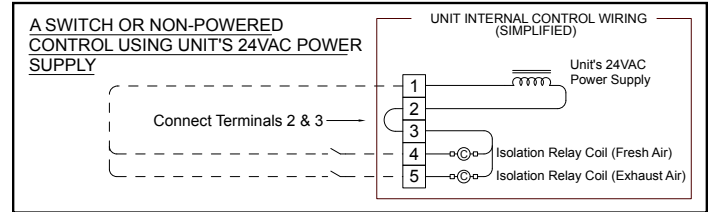
Supply only 24VAC (not VDC) from a Class II Power Source.

- D. **Control operating on Unit's 24VAC Power Supply:** 24VAC power is available at the Terminals 1 & 2. **CAUTION:** external control system should not draw more than 8VA. Install jumper (provided) between terminals 2 & 3.

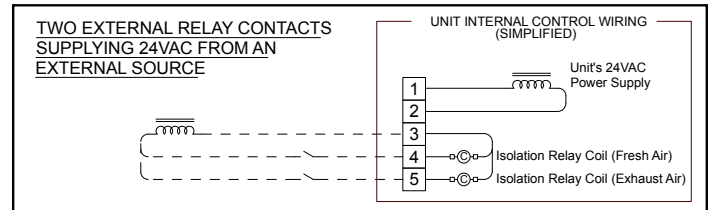
Connect the switched output of the Control to Terminal 4 to operate the ERV's Isolation Relay for OA/FA Blower. Install jumper (provided) between terminals 4 & 5 to operate the ERV's Isolation Relay for the RA/EA Blower.



- E. **Control System with 2 Non-powered Relay Contacts:** Use this schematic if the external control system provides no voltage or current at its output contacts. Install jumper (provided) between terminals 2 & 3. Connect one side of each of the output contacts to Terminal 1. Connect the other side of the output contact to control the FA Blower to Terminal 4, and the output contacts to control the EA Blower to Terminal 5.



- F. **Control System Sending two 24VAC "On" Signals from an external power source:** Make sure the jumper is NOT installed between Terminals 2 & 3. Now you safely can apply one of the 24VAC signals to Terminals 3 & 4 to operate the ERV's isolation relay for the Fresh Air Blower. Apply the second 24VAC signal to Terminals 3 & 5 to operate the ERV's isolation relay for the Exhaust Blower (make sure the polarity of each wire connected to Terminal 3 is the same).



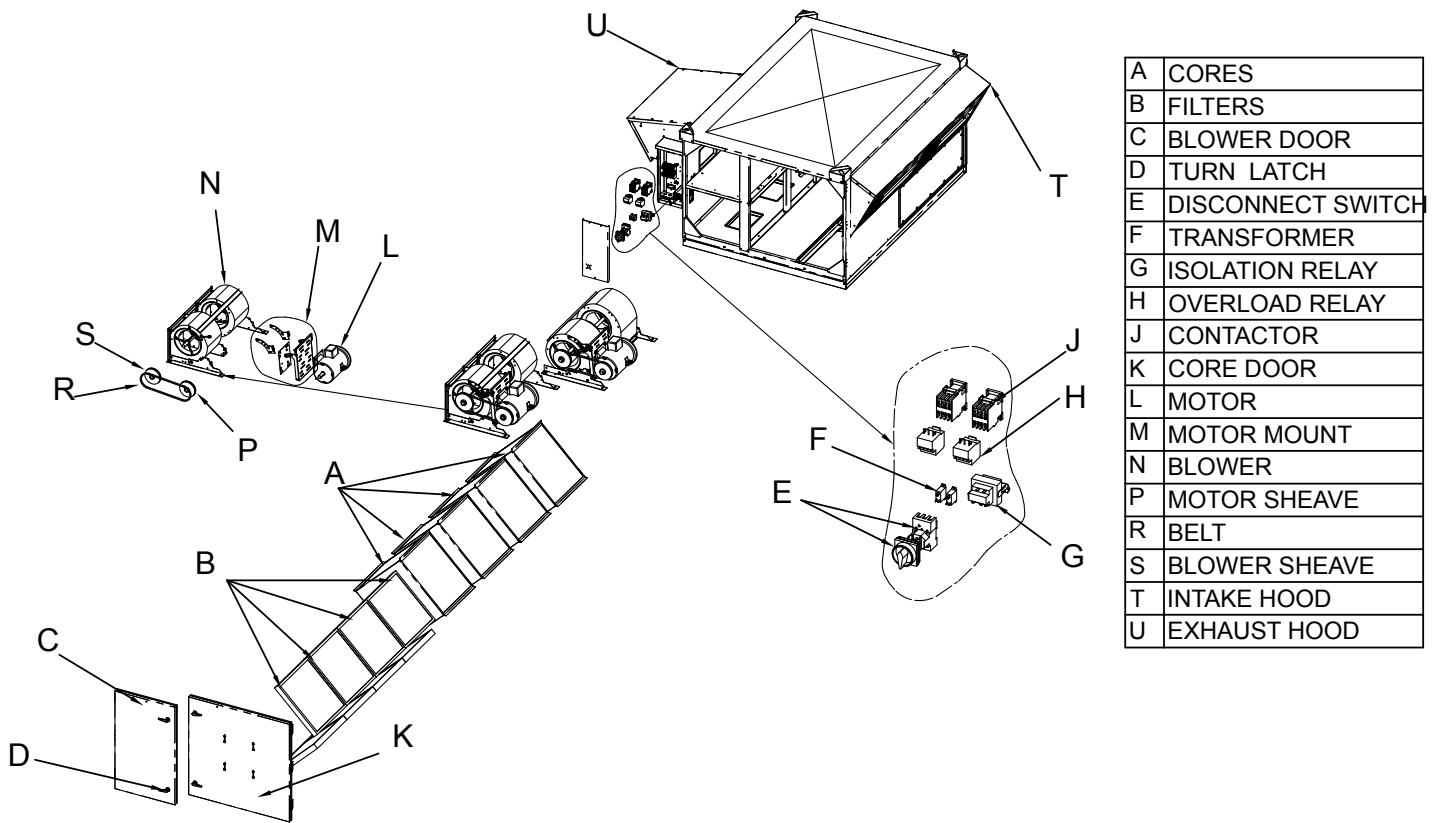
## CAUTION

Supply only 24VAC (not VDC) from a Class II Power Source.

- G. **Control System Operating Isolation Dampers with End Switches:** Use Isolation Dampers with electrically separate end switches. The end switches are used to separately control the ERV unit's Isolation Relays. This ensures that each damper is open before the respective blower starts up.

**NOTE:** Because the ERV's Motor Starters will only be operating once the Dampers are open, the power draw of the Damper Actuators is allowed to be as much as 35VA while opening (including power draw of the external control system, if any). However, the power draw of the fully-opened (stalled) Actuators (and external control system if any) must be less than 8VA. (Most damper actuators have much lower power draws.)

# HE4XRT Replacement Parts



A	CORES
B	FILTERS
C	BLOWER DOOR
D	TURN LATCH
E	DISCONNECT SWITCH
F	TRANSFORMER
G	ISOLATION RELAY
H	OVERLOAD RELAY
J	CONTACTOR
K	CORE DOOR
L	MOTOR
M	MOTOR MOUNT
N	BLOWER
P	MOTOR SHEAVE
R	BELT
S	BLOWER SHEAVE
T	INTAKE HOOD
U	EXHAUST HOOD

## HE4XRT Airflow Performance

Motor HP	Blower RPM	Turns Open	External Static Pressure (in. w.g.)													
			0.00		0.25		0.50		0.75		1.00		1.25		1.50	
			SCFM	BHP	SCFM	BHP	SCFM	BHP	SCFM	BHP	SCFM	BHP	SCFM	BHP	SCFM	BHP
2	1186	4	3099	1.5	2790	1.3	2295	1.1	1790	0.8	1150	0.6				
	1326	2	3465	2.2	3185	1.9	2810	1.7	2335	1.4	1885	1.2	1290	0.9		
	1466	0									2451	1.8	2026	1.5	1485	1.2
3 <sup>(a)</sup>	1455	4	3812	2.7	3550	2.5	3285	2.3	2820	2.0	2400	1.7	1970	1.5	1450	1.2
	1527	3			3750	2.9	3500	2.7	3085	2.4	2676	2.1	2300	1.9	1815	1.5
	1598	2							3350	2.6	2950	2.6	2590	2.3	2175	2.0
	1670	1									3210	3.0	2870	2.7	2500	2.4
	1742	0													2800	2.9
5 <sup>(b)</sup>	1623	4	4165	3.7	3965	3.5	3750	3.3	3475	3.0	3055	2.5	2685	2.3	2290	2.0
	1728	2			4240	4.3	4050	4.0	3820	3.7	3450	3.3	3050	3.0	2720	2.6
	1832	0					4345	4.9	4140	4.5	3850	4.2	3490	3.7	3145	3.3

(a) Sheaves for 3HP motors can be adjusted from 1742 RPMs at 0 turns to 1419 RPM at 4.5 turns. Operating range shown is best for motor efficiency.  
 (b) Sheaves for 5HP motors can be adjusted from 1832 RPMs at 0 turns to 1493 RPM at 6.5 turns. Operating range shown is best for motor efficiency.

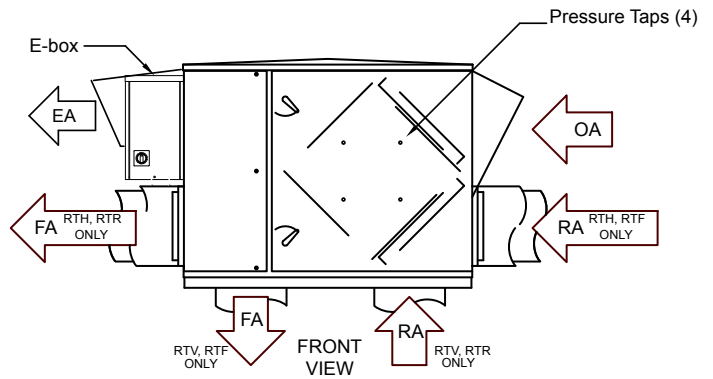
# Measuring Airflow

## Equipment Required

- A magnehelic gauge or other device capable of measuring 0 to 1.5 in. water of differential pressure.
- 2 pieces of natural rubber latex tubing, 1/8" ID, 1/16" Wall works the best. NOTE: Be sure to remove cap from pressure port before inserting tubing. Insure tubing is well seated in pressure ports. NOTE: The tubing should extend in the pressure port approx. 1 inch.

## Cross Core Static Pressure Measurement Instructions

- The individual differential static pressures (DSP) can be measured using the installed pressure ports located in the front of the units core access doors. NOTE: These ports have been carefully located on the unit as to give you the most accurate airflow measurement. NOTE: Do not relocate pressure ports.
- To read SCFM of Fresh Air (FA) install the "high" pressure side (+) of your measuring device to the Outside Air (OA) port and the "low" pressure side (-) to the Fresh Air (FA) port.
- To read SCFM of Room Air (RA) install the "high" pressure side (+) of your measuring device to the Room Air (RA) port and the "low" pressure side (-) to the Exhaust Air (EA) port.
- Use the reading displayed on your measurement device to cross reference the CFM output using the conversion chart. NOTE: Be sure to replace cap into pressure port when air flow measuring is completed.



		Differential Static Across Core DSP vs. CFM									
HE4XRT		DSP	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
	Fresh Air (FA)	CFM	1450	2030	2600	3180	3760	4340	4910	5490	6070
	Room Air (RA)	CFM	840	1370	1900	2430	2960	3480	4020	4550	5080

## CAUTION

The proper operating airflow range for this model is 1000 - 4400 CFM.

## Maintenance

### SUMMARY MAINTENANCE REQUIREMENTS

Change Filters  
Inspect Blower  
Tension Blower Belt  
General Cleaning and Inspection  
Clean Energy Exchange Cores

### CHANGING THE FILTERS

Inspect and/or replace filters every two or three months when the unit is in regular use, or as needed.

- Turn off unit completely! Lock-out and tag-out the unit disconnect switch.
- Open the Door. The door is secured with turn-type latches, plus one Phillips-head securing screw. Keep the securing screw. NOTE: Always replace securing screw when reinstalling door.
- Remove and dispose of all (8) filters. Replace all (8) filters. NOTE: See chart for information on the initial resistance of the filters originally supplied with this unit. If replacement filters have higher resistance, the airflow of the system will be lower.
- Close door; reinstall securing screw.

### Blower Inspection

Inspect Blowers every time you change the filters.

- Confirm bearings are still secure to blower shaft. It should not be possible to move the blower shaft back and forth along its length.
- Confirm blower wheel is not rubbing against the blower inlet or housing.

### Blower Belt Tension

Check belt tension every time you change the filters.

- Inspect belt(s) for cracking or uneven wear.
- Check that sheaves are properly aligned so that belt runs straight.

Properly tensioned belt will deflect 0.25" when pressed at the center point with the following force:

2 HP BLOWER - 3 pounds  
3 HP BLOWER - 4 pounds  
5 HP BLOWER - 5 pounds

### GENERAL CLEANING AND INSPECTION

Perform general cleaning and inspection when changing filters.

- Remove dust from blower wheels periodically.
- Remove paper, leaves, etc. from inlet and outlet screens.
- Inspect for insect nests.

### TO CLEAN THE ENERGY EXCHANGE CORE

Clean the core annually.

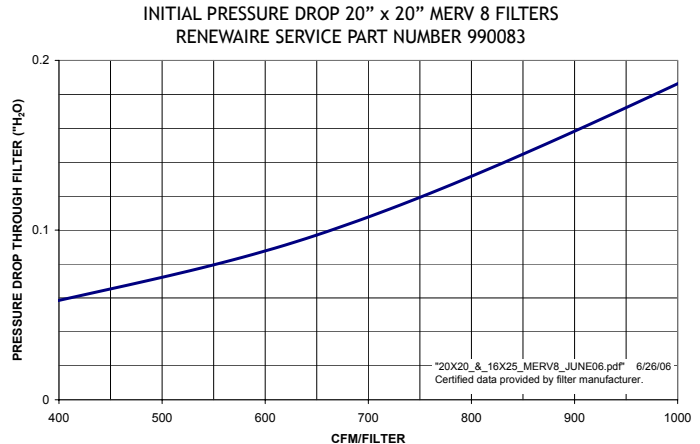
- Remove the filters.
- Vacuum the exposed faces of the energy exchange core with a soft brush.
- Vacuum out dust from the rest of the unit case.
- Install new filters.

## ⚠ WARNING

Danger of injury from un-guarded drive belts in unit. Disconnect power to unit before opening door.

Danger of injury if unit starts unexpectedly. Switch power off at service disconnect. Lock-out/tag-out the disconnect.

Initial Resistance of Filters supplied with this unit:



### Filter Specifications:

(8) 20" x 20" x 2" (nominal) pleated filters  
Actual size: 19.5" x 19.5" x 1.75"  
Unit shipped with MERV-8 Filters  
Minimum recommended effectiveness: MERV-6

## CAUTION

Filters must be used or the energy exchange core will become blocked by dust and the unit will not do its job. In extreme cases components may be damaged.

## Lubrication

If the motors used in this ERV are equipped with grease fittings, motors must be lubricated as part of routine maintenance. Use Exxon Polyrex or equivalent at 2500 operating hour intervals.

## CAUTION

Incorrect Belt Tension will damage this blower!

## CAUTION

DO NOT WASH THE ENERGY EXCHANGE CORE. Keep it away from water or fire to avoid damaging it. Always handle the core carefully.