

# INSTALLATION AND OPERATION MANUAL

## HE1XRT



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

*In 2012, these ERVs may be ordered with new factory-installed features including Isolation Dampers and Electronically Commutated Motors (later introduction). 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 HE1XRT

The HE1XRT 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.

### ⚠ WARNING

The unit's fresh air inlet should be at least 10' away from any exhaust, such as dryer vents, chimneys, furnace and water heater exhausts, or other sources of contamination or carbon monoxide. Do not locate the fresh air inlet where vehicles may be serviced or left idling. Never locate the unit inside a structure.

### ⚠ WARNING

Danger of damage or severe injury if high winds move this unit. Secure unit to structure. Observe local code requirements at a minimum.

### CAUTION

*It is the installer's responsibility to make sure that the screws or bolts used for securing the units are properly selected for the loads and substrates involved. Secure the HE1XRT so that it cannot fall or tip in the event of accident, structural failure or earthquake. See Rigging Information for unit weight.*

RenewAire strongly recommends that you secure rooftop units properly to the building structure. Strong winds, tornados, and hurricanes can and do displace or remove rooftop equipment from rails or curbs. When this happens, the equipment, adjacent roof structure, and even vehicles parked near the building can be damaged, and rain typically enters the building. The equipment is put out of service and the collateral damage can be very expensive.

### CAUTION

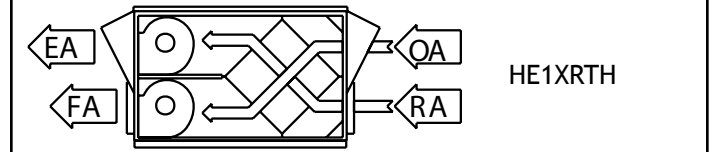
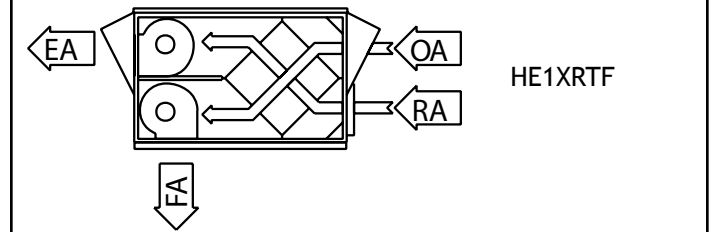
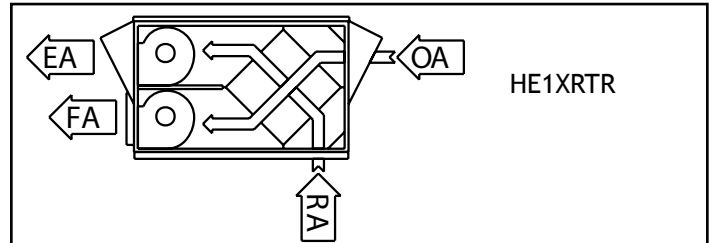
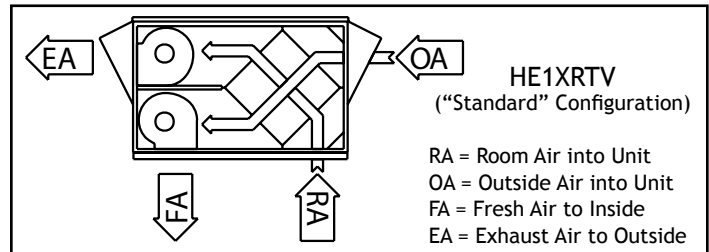
**Provide Adequate Service Access for Maintenance**  
The HE1XRT will require regular filter and core inspections. Install the HE1XRT where you can remove the doors for cleaning the core and replacing the filters, and where you can get at the wiring for installation and service.

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

The HE1XRT is available from the factory in four different configurations to meet different connection requirements:

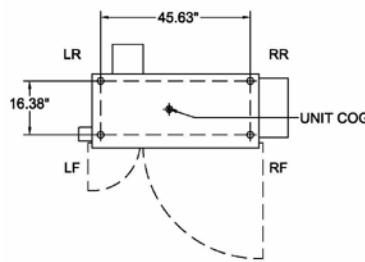
Option Code	Description of Duct Connection Configuration	Mounting Option
HE1XRTV	Room Air [RA] enters bottom of unit. Fresh Air [FA] exits bottom of unit.	Roof Curb
HE1XRTR	Room Air [RA] enters bottom of unit. Fresh Air [FA] exits side of unit.	Roof Curb
HE1XRTF	Room Air [RA] enters side of unit. Fresh Air [FA] exits bottom of unit.	Roof Curb
HE1XRTH	Room Air [RA] enters side of unit. Fresh Air [FA] exits side of unit.	Equipment Rail

NOTE: There are always two ducts connected to every HE1XRT unit. Openings for these ducts will be located on the bottom and/or end(s) of the unit.



## 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.



HE1XRT UNIT AND CORNER WEIGHTS (LBS)					
SINGLE-WALL					
PHASE	UNIT	LF	LR	RR	RF
1-PHASE	243	67	63	55	58
3-PHASE	250	70	66	55	59
DOUBLE-WALL					
PHASE	UNIT	LF	LR	RR	RF
1-PHASE	303	86	73	66	78
3-PHASE	310	89	76	67	78

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

## Mounting the HE1XRT

### On Roof Curbs:

The base of the HE1XRT is designed for installation on typical Roof Curbs that come with 1½" wide wood nailers on the top edge. See drawing below for appropriate curb size.

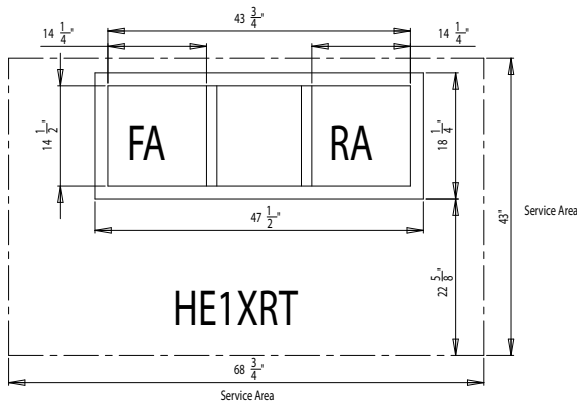
Set HE1XRT in place. We recommend bolting through sides of unit base into the Roof Curb to secure the unit against high winds.

### On Equipment Rails (HE1XRTH only):

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

Before installing HE1XRT, apply roofing and counterflashing to Equipment Rails as per standard practice.

Set HE1XRT in place. We recommend bolting through sides of unit base into the Equipment Rails to secure the unit against high winds.



## Ducting

### Basic Requirements

- Always connect an RA and an FA duct to each Rooftop unit.
- With Rooftop units, the RA and FA ducts cannot be interchanged.
- With RTV units, both ducts are inside the building. In other units, such as the RTR/RTF and RTEC/RTH, that utilize the optional roof adapter, at least one of the ducts is outside and must be weatherized.
- Any weatherized duct must be thermally insulated to prevent condensation on the inside or outside of the duct. The duct lining must be vapor-sealed, and the duct exterior must be rain tight.

Duct(s) connected to the bottom of the HE1XRT are generally installed at this time. Install (2) ducts with HE1XRTV, (1) duct with HE1XRTR or RTF.

Ducts should be insulated on the inside or the outside:

- If insulation is applied to **outside** of duct, duct should be 12" x 12", with 2" or 3" lips turned out at the top.
- If insulation is applied to **inside** of duct, duct should be 14" x 1", with 1" or 2" lips turned out at the top.

Drop duct(s) into openings in top of roof curb.

Install appropriate gasket on top of Roof Curb and edges of ducts.

## CAUTION

Tape both inner and outer vapor barriers of insulated duct to collars on duct adapters. This is critical to prevent migration of moisture into insulation. Build-up of moisture can result in failure of the duct system and/or frost in the insulation. Make sure any tears in the inner and outer vapor barriers are sealed.

## Connecting Horizontal Ducts to Unit

Double-flanged duct connections are provided on the horizontal duct connections of the HE1XRTR, RTF, and RTH units. These allow for connection of ducts insulated on the inside or the outside, or for installation of lined duct.

- Inside duct flange size: 12" x 12"
- Outside duct flange size: 14" x 14"

## 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.

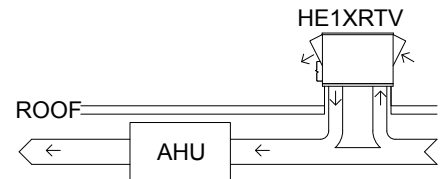
### Use Dampers to Set and Balance Airflow Rates

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 HE1XRT Unit. See unit specification sheet for CFM/ESP curves for available horsepower motors.

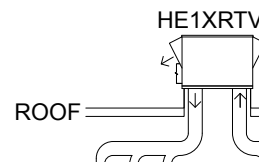
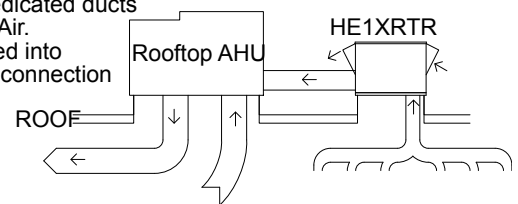
## CAUTION

Standard HE1XRT is not suitable for speed control by rheostats. Speed control devices will damage the blowers. Balance air flows using dampers.

Unit connected to Return Duct of nearby AHU.

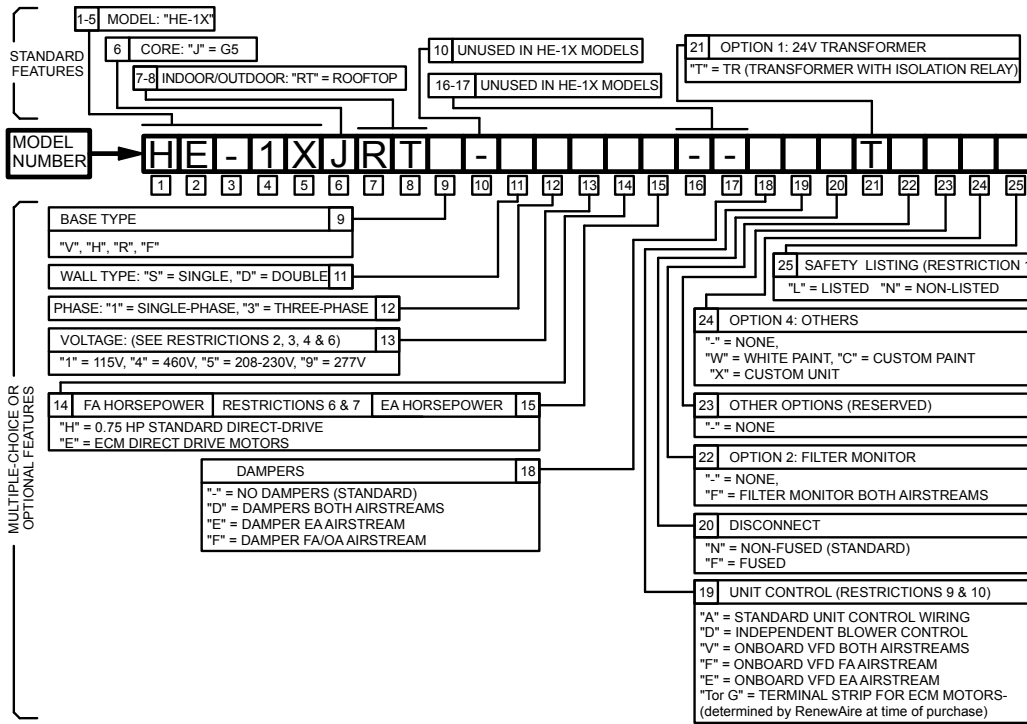


RTR Unit with dedicated ducts collecting Room Air. Fresh Air is ducted into horizontal return connection of adjacent AHU.



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

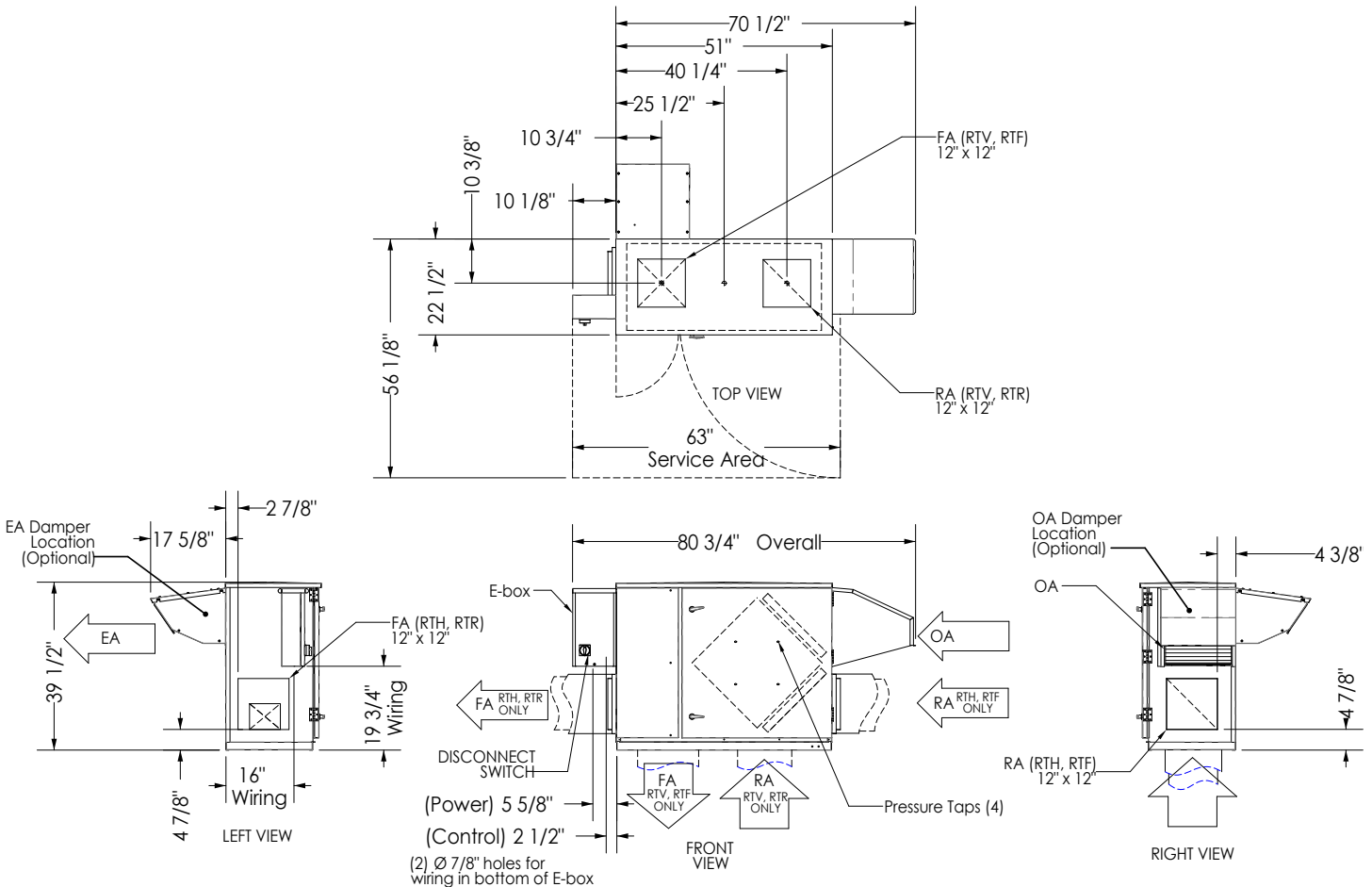
# HE1XRTH Configuration Chart



## RESTRICTIONS:

- 
- VOLTAGE CODES "1" & "9" AVAILABLE WITH PHASE CODE "1" (SINGLE-PHASE) ONLY.
- VOLTAGE CODES "4" AVAILABLE WITH PHASE CODE "3" (THREE-PHASE) ONLY.
- VOLTAGE CODE "9" (277V) AVAILABLE ONLY WITH HE-1X MODELS.
- 
- VOLTAGE CODES "1" AVAILABLE ONLY WITH FA/EA HORSEPOWER CODES "EE" & "H".
- MOTOR CODE "EE" (ECM MOTORS) AVAILABLE ONLY WITH PHASE CODE "1" (SINGLE PHASE)
- 
- UNIT CONTROL "T" or "G" (TERMINAL STRIP) ONLY AVAILABLE IN HE-1X WITH MOTOR OPTION "EE" (ECM MOTORS).
- UNIT CONTROL "D" ONLY AVAILABLE IN HE1X.
- UNIT CONTROL "V", "E", "F" ONLY AVAILABLE IN PHASE CODE "3" (THREE PHASE)
- 
- 
- 
- SOME UNITS WITH CUSTOM "X" CODE ARE NOT SAFETY LISTED.

# HE1XRT Dimensions



## 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 HE1XRT 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 950 FPM when the unit is operating at 950 CFM. The average velocity at the Exhaust Hood outlet is 2925 FPM when the unit is operating at 950 CFM.

## Electrical Specifications

**NOTE:** If your unit is equipped with ECM Motors, please refer to "ECM Motor Manual Supplement for RenewAire Light Commercial Units" for more detail.

Electrical Options and Ratings 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.**

## CAUTION

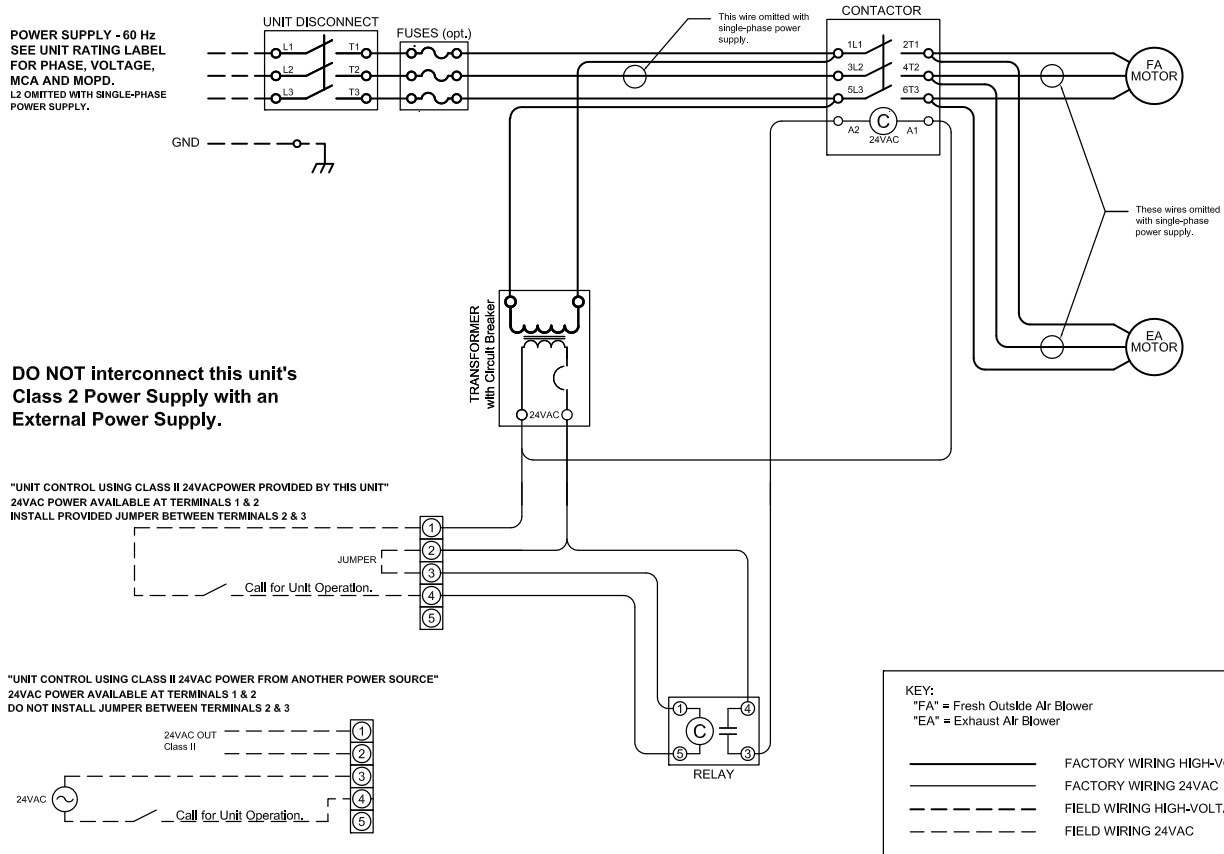
Before bringing power to the unit check unit nameplate to confirm it matches the voltage and phase of the power you are supplying.

Remember that your field connections need to be accessible for inspection.

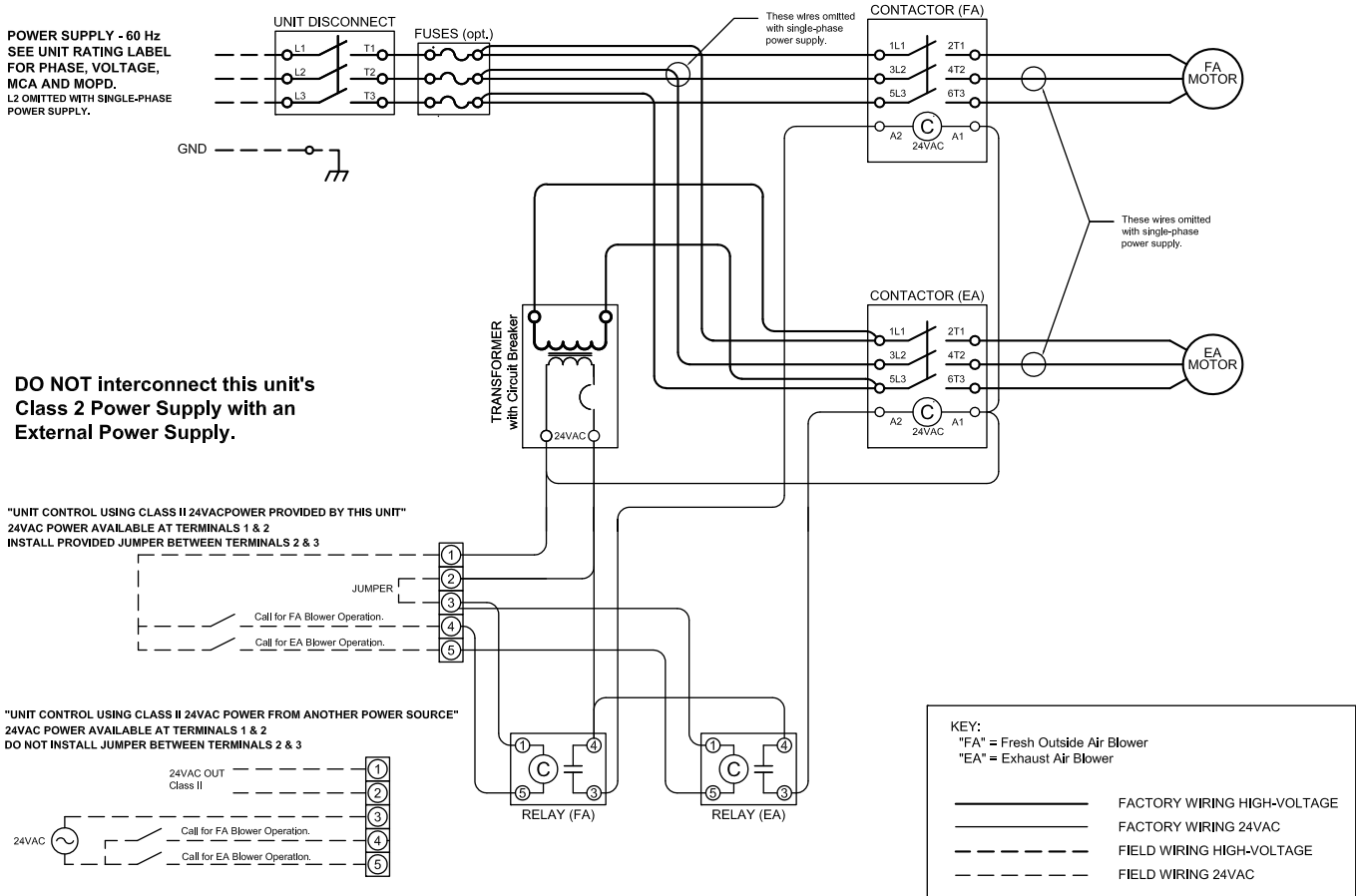
## HE1XRT Airflow Performance

Airflow CFM	ESP in. H2O	Watts 1P	Watts 3P	Temp EFF%	Total EFF% Winter/Summer
250	1.75	1080	685	82	76/66
560	1.45	1220	955	75	67/57
650	1.25	1300	1060	73	65/53
730	1.00	1385	1155	72	64/52
750	0.90	1400	1175	71	63/51
820	0.50	1475	1255	69	62/50
950	0.00	1630	1430	67	59/46

# HE1XRT P1 and P3 Wiring Schematics - Standard



# HE1XRT P1 and 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 the 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'
<i>"Circuit Length" is distance from ERV to Control Device.</i>						

## ⚠ 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.

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 reducing airflow with an external damper.

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.

# 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.

## CAUTION

Be careful if the external control system provides 24VAC power at its control output: make sure blue and red leads are separately capped and not connected to any other wires.

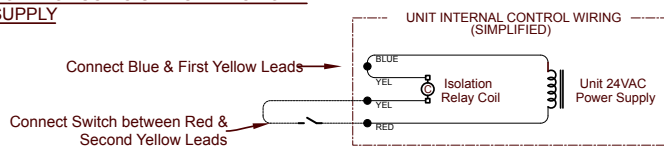
- A. **Single 2-wire Control:** Use this schematic if the control requires no power to operate and acts like a simple on/off switch. The control must not supply any power to the ERV unit. Connect the blue lead to one yellow lead. Connect the control's contacts to the red lead and the remaining yellow lead.

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

## CAUTION

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

### A SWITCH OR NON-POWERED CONTROL USING UNIT'S 24VAC POWER SUPPLY

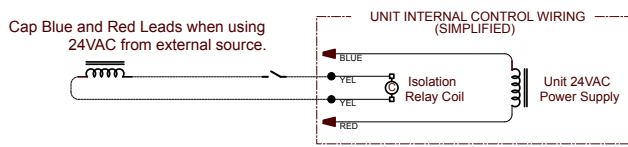


- B. **Control Sending 24VAC "On" Signal (from an external power source) to ERV:** Make sure the blue and red leads are separately capped and not connected to any other wires. Now you safely can apply 24VAC to the two yellow leads to operate the ERV's isolation relay.

## CAUTION

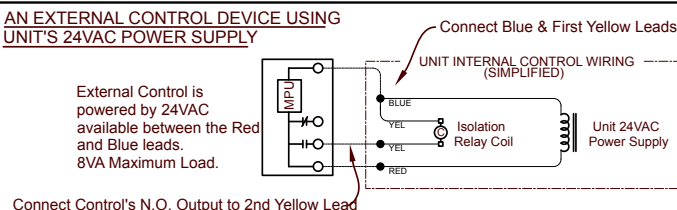
Supply only 24VAC (not VDC) from a Class II Power Source.

### 24VAC FROM AN EXTERNAL SOURCE

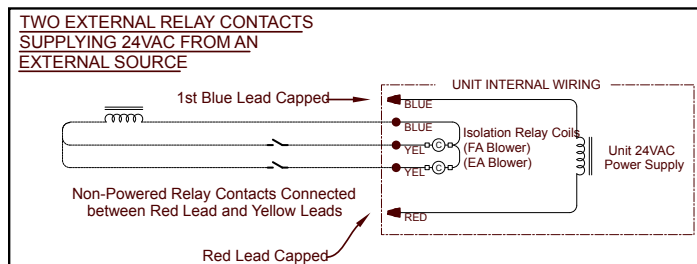


- C. **Control operating on Unit's 24VAC Power Supply:** 24VAC power is available at the blue and red leads. CAUTION: external control system should not draw more than 8VA. Also connect one of the yellow leads to the blue lead. Connect the switched output of the Control to the red lead to operate the ER's isolation relay.

### AN EXTERNAL CONTROL DEVICE USING UNIT'S 24VAC POWER SUPPLY



- D. **Control System with 2 Non-powered Relay Contacts; ERVs with Independent Blower Control Only:** Use this schematic if the external control system provides no voltage or current at its output contacts. Connect the two blue leads together. Connect the red lead to one side of each of the output contacts. Connect the other side of the output contacts to the appropriate yellow leads (marked "FA Blower" and "EA Blower").

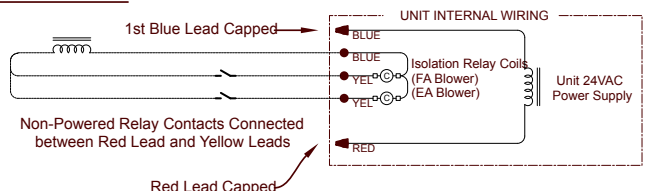


- E. **Control System Sending two 24VAC "On" Signals (from an external power source); ERVs with Independent Blower Control Only:** Make sure the blue and red leads are separately capped and not connected to any other wires. Now you safely can apply one of the 24VAC signals to the one of the yellow leads (marked "FA Blower" and "EA Blower") and the red lead to operate one of the ERV's isolation relay. Supply the second 24VAC signal to the other yellow lead and again to the red lead (make sure the polarity of each wire connected to the red lead is the same).

## CAUTION

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

### TWO EXTERNAL RELAY CONTACTS SUPPLYING 24VAC FROM AN EXTERNAL SOURCE



- F. **Control on separate Power Supply:** Use this schematic only if no power is present at the controls output terminals. Install jumper at terminals 2 & 3. Connect the Control's Normally Open (N.O.) contacts to terminals 1 & 4. NOTE: See Wiring Schematics.
- G. **Control System on separate Power Supply; Independent Blower Control:** Use this schematic only if no power is present at the controls output terminals. Install jumper at terminals 2 & 3. Connect one of the Control's (N.O.) contacts to terminals 1 & 4 to operate the ERV's isolation relay for the Outside Air (OA) Blower. Connect another of the Control's (N.O.) contacts to terminals 1 & 5 to operate the isolation relay for the Exhaust Air (EA) Blower. NOTE: See Wiring Schematics.
- H. **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. Also, specify the ERV with Independent Blower Control. 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.



# Operation

## Principal of Operation

The HE1XRT 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 HE1XRT 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.

### Do Not Use Variable Speed Controls

Blower motors in the HE1XRT will be damaged by speed control devices. Use balancing dampers in ductwork to set or control operating air flow rates. Inverter rated versions are available.

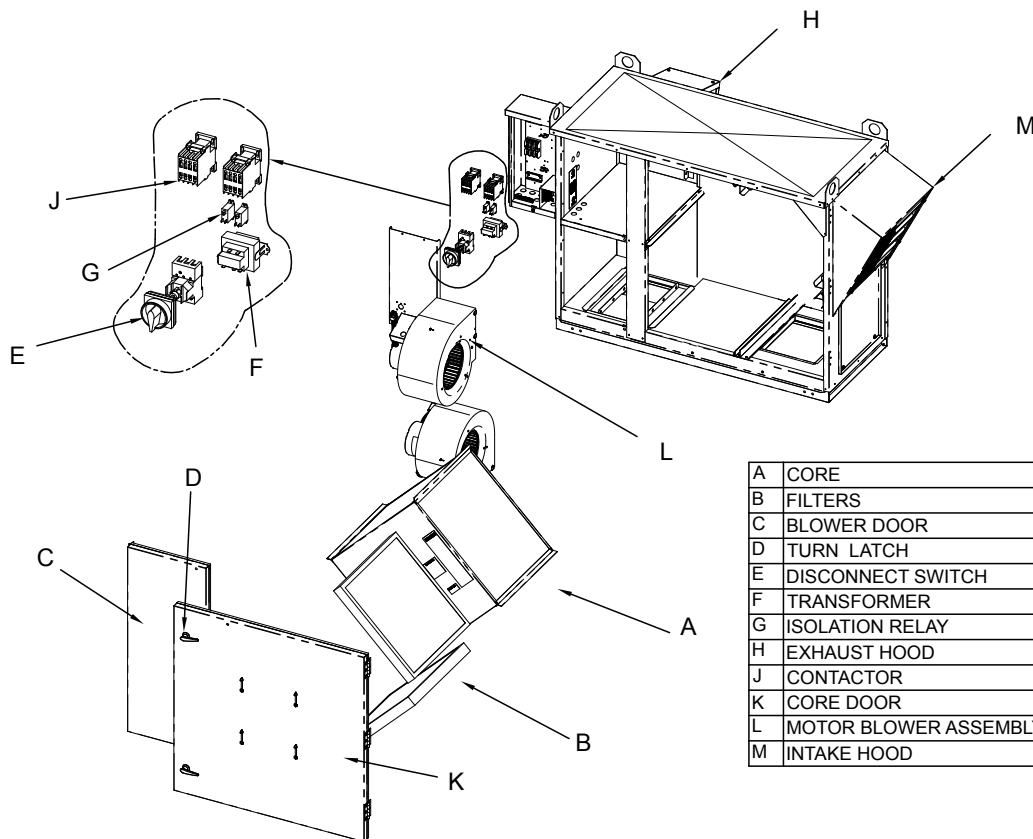
## Continuous Operation

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.

# HE1XRT Replacement Parts



A	CORE
B	FILTERS
C	BLOWER DOOR
D	TURN LATCH
E	DISCONNECT SWITCH
F	TRANSFORMER
G	ISOLATION RELAY
H	EXHAUST HOOD
J	CONTACTOR
K	CORE DOOR
L	MOTOR BLOWER ASSEMBLY
M	INTAKE HOOD

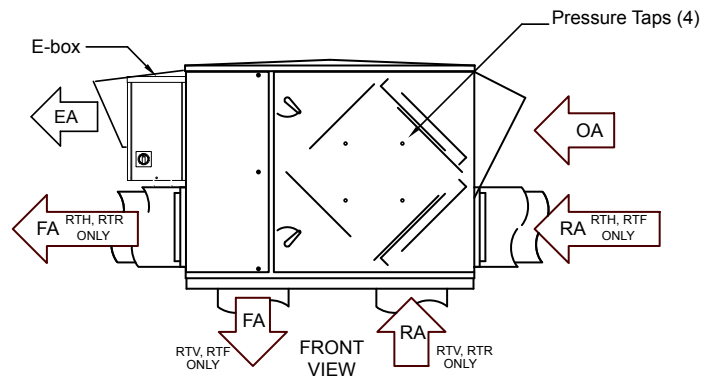
# Measuring Airflow

## 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													
HE1XRT		DSP	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.10	
	Fresh Air (FA)	CFM	180	280	370	460	550	640	740	830	920	1010	
	Room Air (RA)	CFM	170	250	330	410	500	580	660	740	830	910	

## CAUTION

The proper operating airflow range for this model is 250 - 870 CFM.

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## Maintenance

### SUMMARY MAINTENANCE REQUIREMENTS

Change Filters  
Inspect Blower  
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 (2) filters. Replace all (2) 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.

### 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.

## 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.

## CAUTION

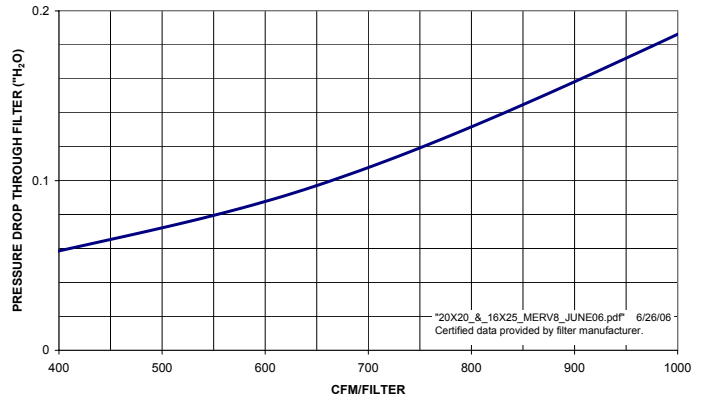
DO NOT WASH THE ENERGY EXCHANGE CORE. Keep it away from water or fire to avoid damaging it. Always handle the core carefully.

## ⚠ WARNING

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:

INITIAL PRESSURE DROP 20" x 20" MERV 8 FILTERS  
RENEWAIRE SERVICE PART NUMBER 990083



### Filter Specifications:

(2) 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

## 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.

## ⚠ WARNING

### RISK OF INJURY OR DAMAGE.

Motor may have a manual reset thermal protector. Disconnect power before servicing or resetting motor thermal protector. Use caution, motor may be hot. Allow the motor to cool before resetting the thermal protector.

If the motor thermal protector tripped, correct the issue that caused the motor to overheat (e.g. over motor rated amperage or locked rotor).

If the motor has a manual reset thermal protector, the red thermal protector reset button is located on the motor body, on or near the lead end of the motor. If the button does not reset, the motor may still be too hot. Allow the motor to fully cool to reset the thermal protector, you should feel or hear a click when the thermal protector resets while pushing the reset button.