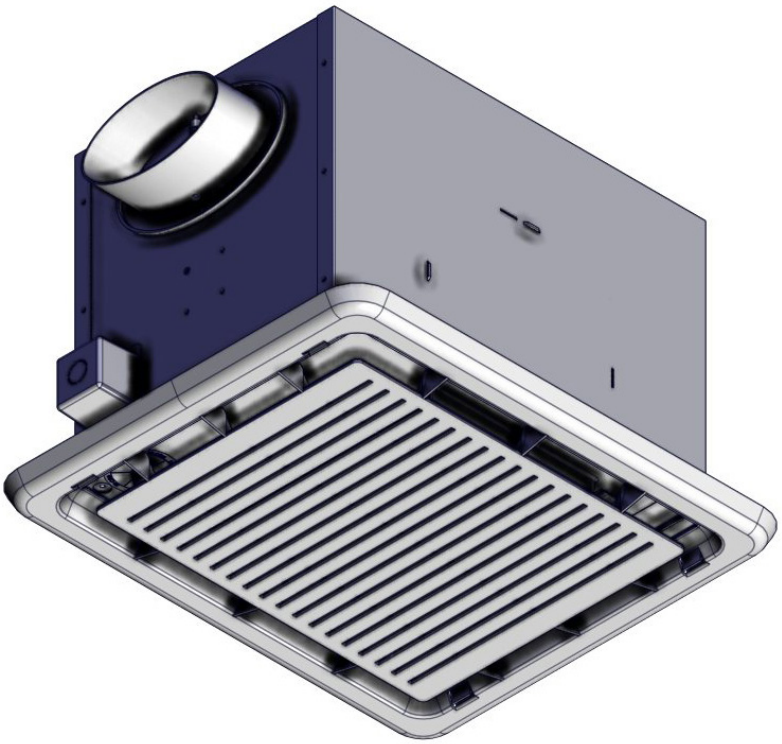
RenewAire
Energy Recovery Ventilation

Evergreen™ SH ERV

Installation, Operation and Maintenance Manual

EG-110SB-H020-XE0



Intertek

⚠ CAUTION

RISK OF ELECTRIC SHOCK OR EQUIPMENT DAMAGE

Whenever electrical wiring is connected, disconnected or changed, the power supply to the ERV and its controls must be disconnected. Lock and tag the disconnect switch or circuit breaker to prevent accidental reconnection of electric power.

⚠ CAUTION

RISK OF CONTACT WITH HIGH SPEED MOVING PARTS

This appliance has two high speed fans that can cause injury or be damaged if objects come into contact with the impellers when they are spinning. The fans may be controlled by external controllers and switch on at any time. When working in the area of the fans, electric power to the unit must be disconnected.

IMPORTANT

All ductwork is to be designed and installed in accordance with SMACNA guidelines.

IMPORTANT

This ERV is intended for ducted ventilation only. Ducting at least 40 inches [1 meter] in length must be installed on all three airstreams aside from the grille (RA).

⚠ CAUTION

RISK OF INJURY FROM FALLING OBJECTS

Installation of this unit requires hoisting hardware overhead and working directly beneath heavy objects during the installation process. Observe all OSHA-approved work practices. Always wear OSHA-approved Personal Protective Equipment (PPE).

IMPORTANT

Only persons who have been properly trained and authorized are to access the ERV electrical box and the controller. Changes to the controller are to be made only by trained and authorized personnel.

IMPORTANT

This equipment is to be installed by following industry best practices and all applicable codes. Any damage to components, assemblies, subassemblies or the cabinet which is caused by improper installation practices will void the warranty.

READ AND SAVE THIS MANUAL

NOTICE

This manual has space for recording operating settings at time of unit commissioning that must be completed by the installer. See Section 4.2 of this manual.

Information that is recorded is specific to just one ERV. If additional ERVs are being documented, please make copies of these pages and identify each copy by its unit tag.

UNIT INFORMATION

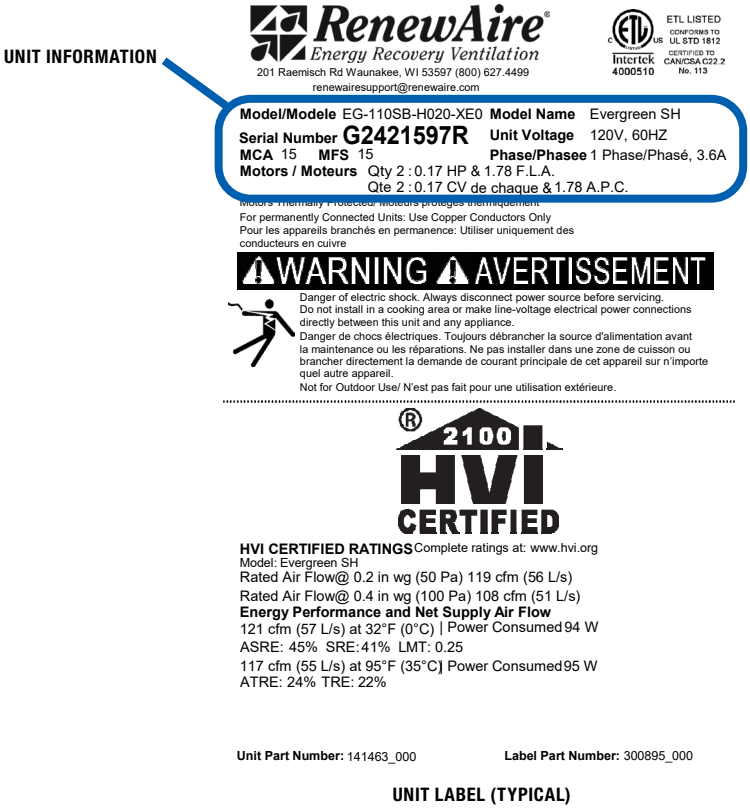
Record information as shown below. In the unlikely event that factory assistance is ever required, this information will be needed.

Locate the RenewAire unit label, to be found outside of the appliance, near the terminal block. Record the model and serial numbers below.

NOTE: This information is for purposes of identifying the specific air handling appliance. Unit-specific option data can then be obtained, as needed, from the Model Number.

ERV Model: ☐ EG-110SB-H020-XE0

Serial Number: _____



UNIT LABEL (TYPICAL)

NOTE: Sections 1–4 of this manual contain information for the installer and sections 5–8 contain information for the Homeowner or end user.

TABLE OF ILLUSTRATIONS

FOR THE INSTALLER

1.0 OVERVIEW

1.1 INTRODUCTION

RenewAire's Evergreen™ units are multi-speed air-to-air energy recovery ventilators. Each unit contains a static-plate, crossflow core that separates the outgoing, polluted indoor airstream from the incoming fresh air stream which transfers both sensible and latent energy. Airstreams do not mix, and pollutants are not transferred across partition plates. In the winter, that means that the cold, dry outside air is preheated and humidified by the outgoing warm interior air. And in the summer, the warm, humid outside air is precooled and dehumidified by the outgoing air-conditioned interior air.

NOTE: This unit is an Energy Recovery Ventilator, or ERV. It is commonly referred to throughout this manual as an ERV.

NOTE: Sensible energy is often referred to as "heat energy."

NOTE: Latent energy is often referred to as "moisture energy."

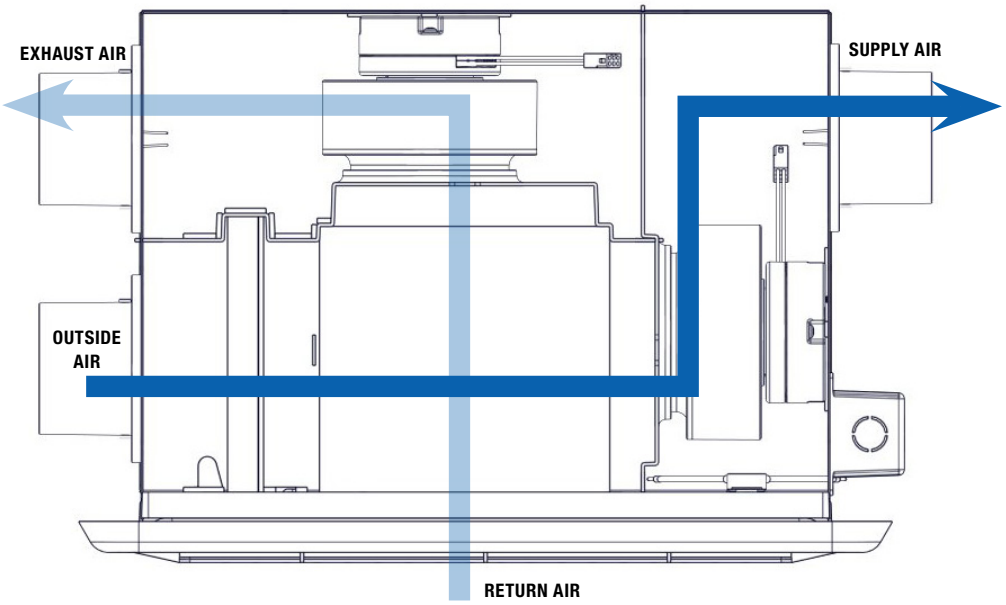


FIGURE 1.1.0 EVERGREEN AIRFLOW LAYOUT

1.2 UNIT FEATURES

Evergreen™ ERVs can be installed in residential and light commercial applications. The units feature high efficiency, speed controllable EC motors and a control dial to allow dual adjustment of the fresh air stream and exhaust air stream. Evergreen™ ERVs come factory equipped with MERV 7 filters, with MERV13 accessories available.

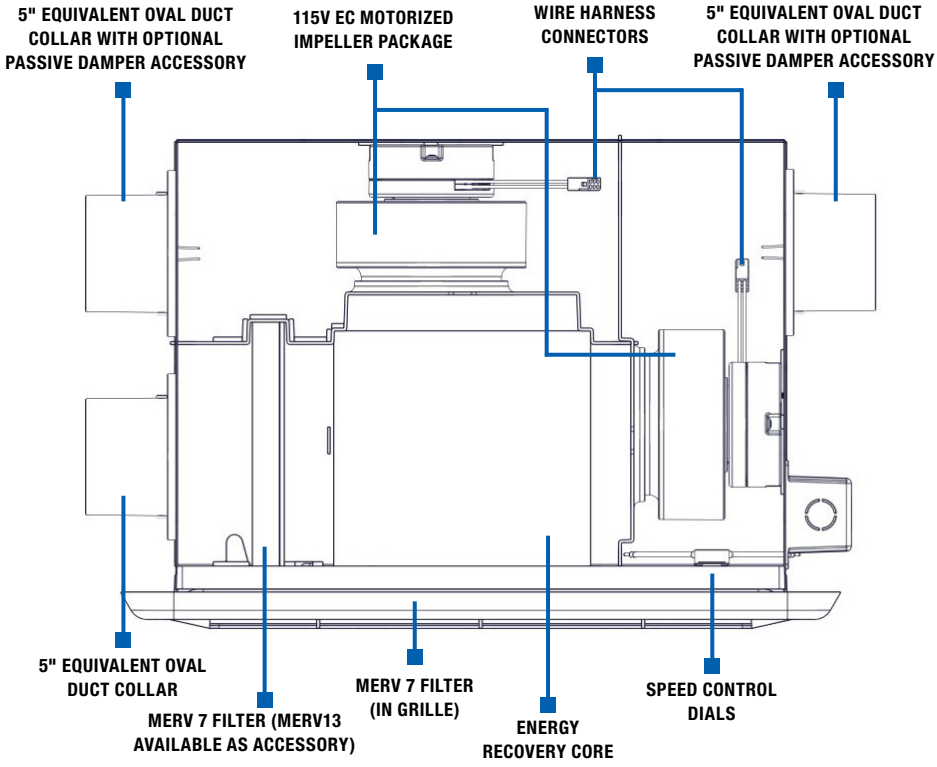


FIGURE 1.2.0 EVERGREEN CUTAWAY VIEW

2.0 INSTALLATION

2.1 MOUNTING THE UNIT

Evergreen™ ERVs are designed to be mounted to the joists of a ceiling, typically in a bathroom. While there is some variety in how the unit can be secured, for all mounting options, the grille will be accessible through the cut away dry wall. The rest of the unit will fit snuggly into the ceiling space.

The Evergreen™ SH will be mounted by sliding the unit up into a ceiling joist and fastening the unit to the bottom of the joists using the 8 mounting holes on the unit flange.

To do this, create a mounting frame for the unit in the joists such that the distance between joists for the unit to fit in is between 12" and 12.5". This can be done either by using one joist as is and installing a spacer piece on the other joist, or by installing spacers on both sides and centering the unit in the joist framing. Make sure to maintain a minimum of 35" between any cross braces used to construct the mounting frame.

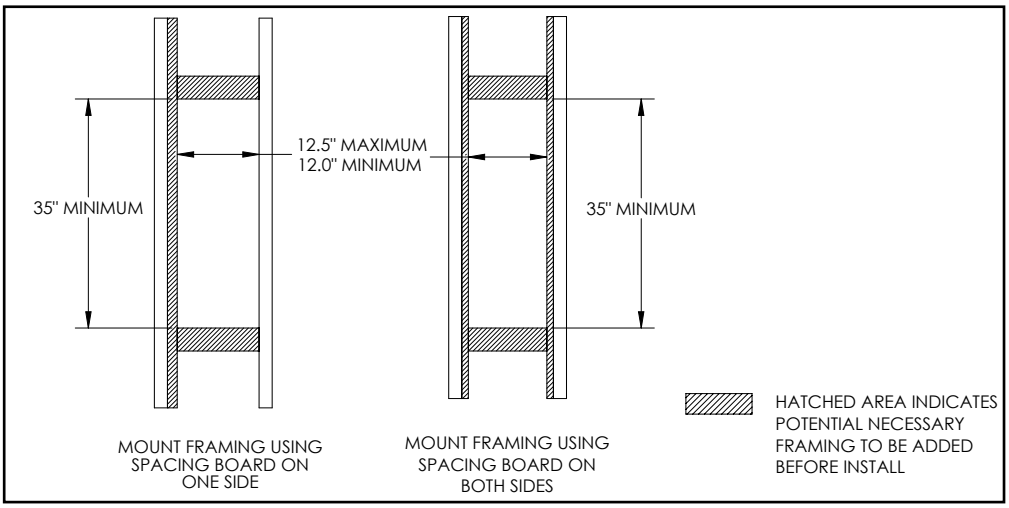


FIGURE 2.1.0 FRAMING REQUIREMENTS

Once the mounting frame is secured, slip the unit into the opening. Rest the flanges on each side of the unit at the bottom of the joists and fasten wood screws through the 8 mounting holes on the unit.

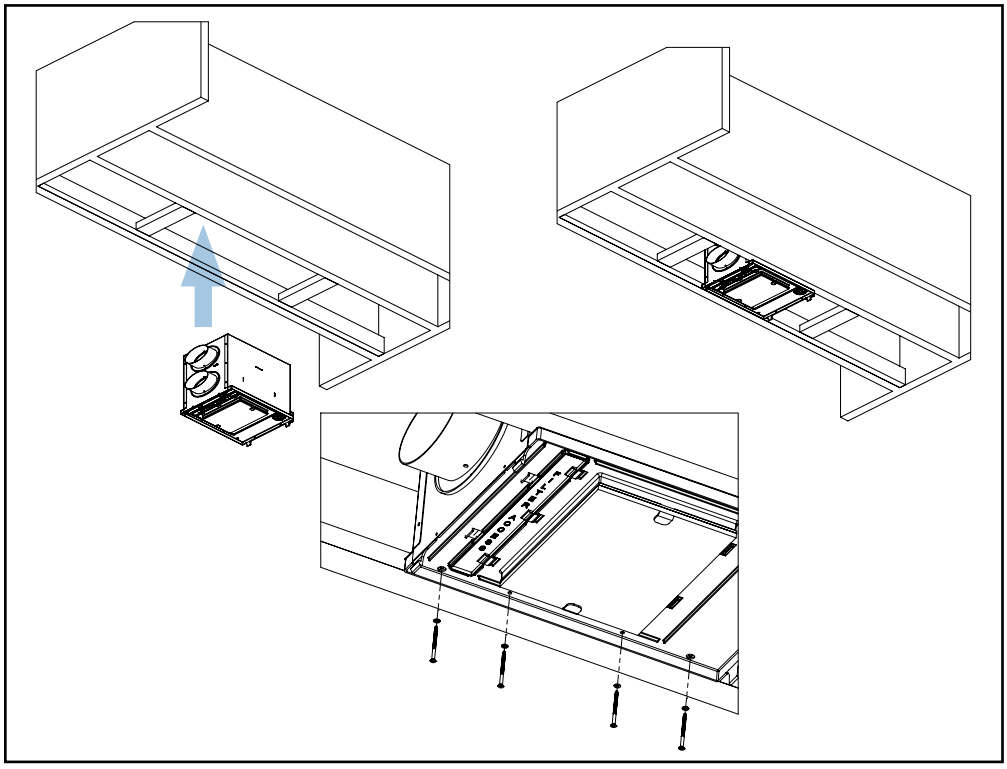


FIGURE 2.1.1 UNIT MOUNTED BETWEEN CEILING JOISTS

After the unit is secured, it can be ducted and wired. See section 2.2 for instructions on installing ductwork, and section 3.0 for wiring instructions. After the unit is fully commissioned, drywall can be installed and the grille can be connected. Install drywall panels tight around the Evergreen™ unit so all that remains visible is the front face with the filter access and fan speed control dial. Finally, push the grille up onto the unit until the retaining tabs click in place.

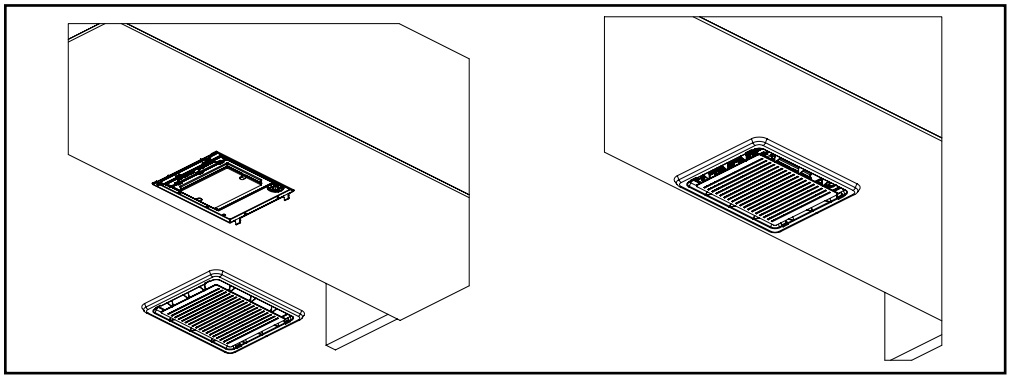


FIGURE 2.1.2 INSTALLING THE GRILLE

2.2 INSTALLING DUCTWORK

IMPORTANT

It is important to understand and use the equipment airstream terminology as it is used in this manual. The airstreams are defined as:

- Outside Air (OA): Air taken from the external atmosphere and, therefore, not previously circulated through the system.
- Supply Air (SA): Air that is downstream of the enthalpic core and is either supplied to the occupied space or to an additional conditioner.
- Return Air (RA): Air that is returned to a heating or cooling appliance from a conditioned space.
- Exhaust Air (EA): Air that is removed from a heating or cooling appliance and discharged.

Evergreen™ units have three plastic duct collars for attaching rigid or flexible duct runs. Model EG-110SB-H020-XE0 features one 5" oval collar for the OA inlet as well as two 5" oval collars with optional backdraft damper accessories for the SA, and EA outlets. Flexible or rigid 5" duct may be used for installation. The damper accessories are spring loaded plastic dampers that will open while the unit is operating and air is flowing. The dampers will return to closed if the unit shuts off. For more information refer to the accessory manual for the damper accessory.

For all installations, SMACNA guidelines for duct installation should be followed. The most commonly used ducting is 5" diameter flexible due to ease of installation, sound attenuation, and cost, however, rigid ducting is preferred because there is less resistance to airflow, resulting in less power consumption to deliver the same amount of air.

All duct collars come pre-installed on the unit. Flexible duct can be fitted over the collars as they are attached to the unit, or fitted over the collars once removed from the unit then reattached. The EA duct length is recommended to be equal or greater in length than the SA duct length. To remove ducts from the unit, unscrew the four screws securing the duct to the unit.

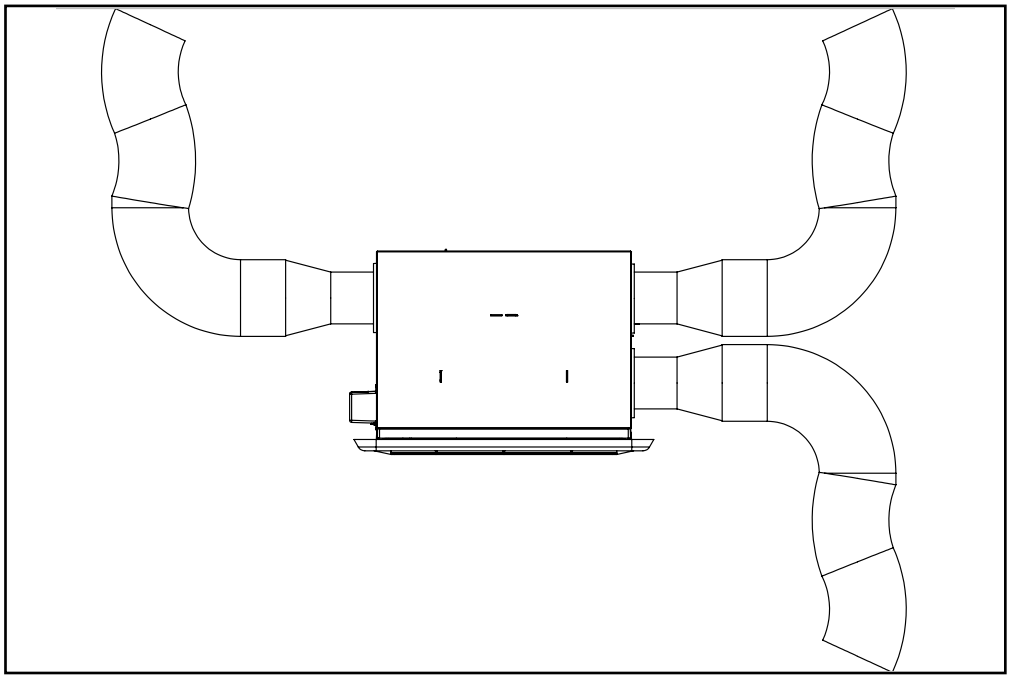


FIGURE 2.2.1 FLEX DUCT INSTALLATION

A total of three duct runs and direct room intake will be used:

- Outdoor Air Intake (Outdoor Air): This duct will provide clean outdoor air to the unit, and is normally capped by an air inlet cap mounted on the exterior side wall of a residence and equipped with a bird screen.
  Wall intakes must be located at least 10' from any appliance vent or any vent opening from a plumbing drainage system and 10' from any exhaust fan discharge outlet unless that outlet is 3' or more above the intake location (IRC 2006, Section M1602.2). If a combined exhaust/intake termination is used (with non-kitchen exhaust only) then no minimum separation is required when the exhaust air concentration within the intake airflow does not exceed 10% as established by the manufacturer. (ASHRAE 62.2-2019, Section 6.68).
- Fresh Air Supply (Supply Air): This duct will deliver fresh, conditioned air from the ERV to a desired location in the residence. This duct run may end in a floor or wall grate with an area of at least 28 square inches. Alternatively, the Supply Air duct may be connected directly into the return air duct or the supply air duct for the main heating and cooling system. When connecting to the main return air duct, it must be at least 3' from the return plenum to minimize suction from the furnace blower.
- Indoor Air Return (Return Air): This unit will collect indoor air directly from unit's built-in return grille and run it through the ERV for energy recovery before being exhausted to the outdoors.
- Exhaust Air Vented Outside (Exhaust Air): This duct exhausts stale indoor air to the outdoors after being run through the energy recovery core. This duct will normally end at an exhaust cap located on an exterior wall of a residence.

If the unit is located in a conditioned space, only the OA and EA ducts need to be insulated. For unconditioned space installations such as an attic or crawl space all three ducts must be insulated and have the application evaluated by a HVAC design professional or RenewAire.

NOTE: Ducts inside a building that are connected to the outside must be insulated with a sealed vapor barrier on both the inside and the outside of the insulation.
Insulation must have an R-value of at least R-6, but R-8 is recommended.

3.0 ELECTRICAL HOOK-UP AND CONTROLS

The power requirements for Evergreen™ units are: 120VAC, 3.0 amps. These ERVs have an 8" long power supply cord. The cord is a hardwired connection which typically will be hard wired to a light switch, a countdown timer, or a percentage timer in the room. Check all local codes.

3.1 WIRING DIAGRAMS

Evergreen™ units accept direct 120V line power. Once power is supplied to the unit, the unit will run continuously. To use a control to operate the unit, the line voltage must be routed through a disconnect, like a light switch or a timer accessory.

3.1.1 Wiring to a Standard Switch

To wire to a standard toggle switch, connect the incoming line voltage to one terminal on the switch, and the line supply wire on the Evergreen™ unit to the other terminal on the switch. If a light is to be wired to the same switch, connect the switched line voltage wire to both the ERV and the light fixture. The neutral and ground wires will also be tied together for the ERV and the light fixture.

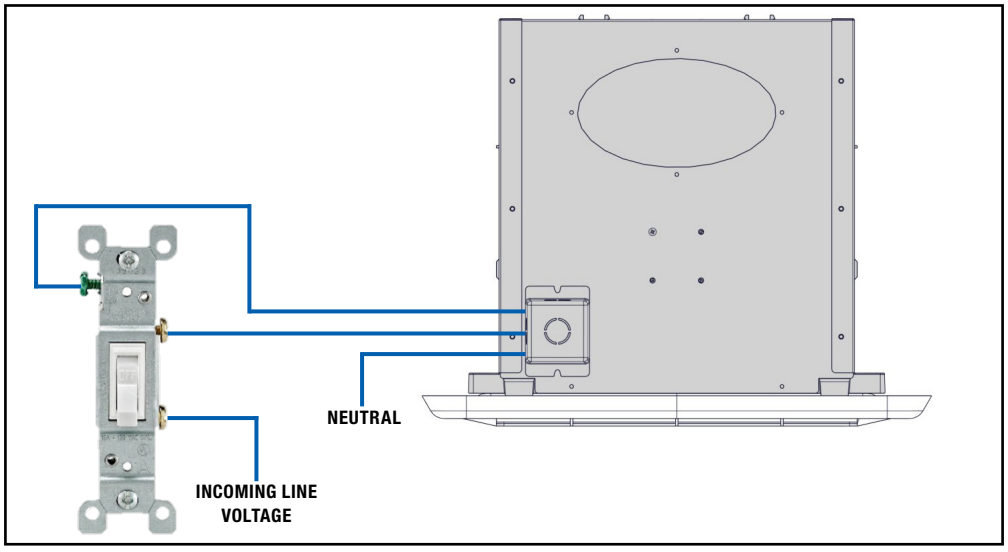


FIGURE 3.1.0 WIRED TO STANDARD TOGGLE SWITCH

3.1.2 Wiring to a Countdown or Percentage Timer

The unit can also be wired to a countdown timer or percentage timer. RenewAire's. Standard Voltage Countdown Timer (SVCT) or Standard Voltage Percentage Time (SVPT) can be used for this. The countdown timer will run the unit for the selected time interval, then shut off. The percentage timer will run the unit for the selected percentage of every hour. For information on how to wire these accessories, refer to the SVCT and SVPT accessory manuals.

3.3 WIRING SCHEMATICS

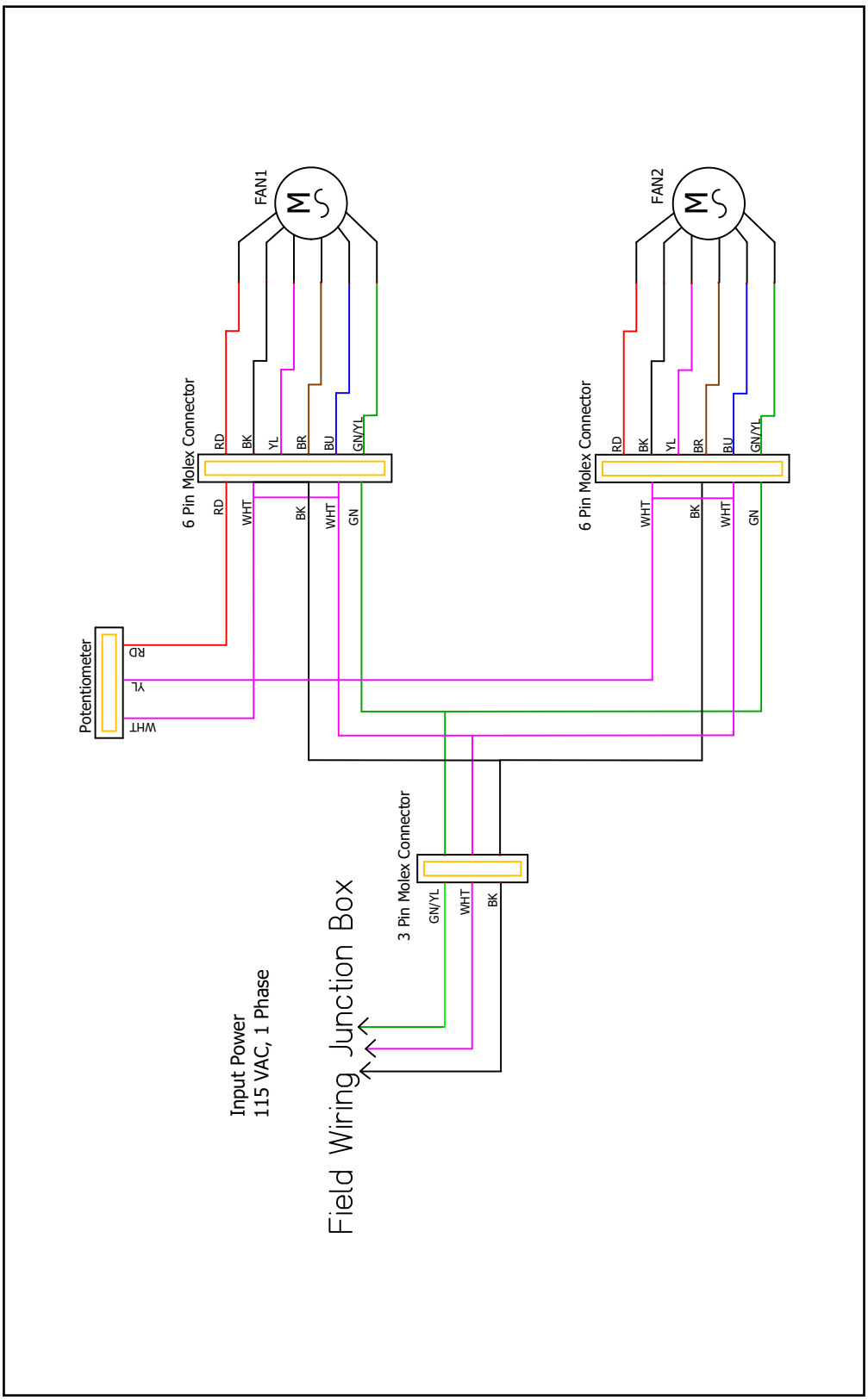


FIGURE 3.3.0 EVERGREEN WIRING SCHEMATIC

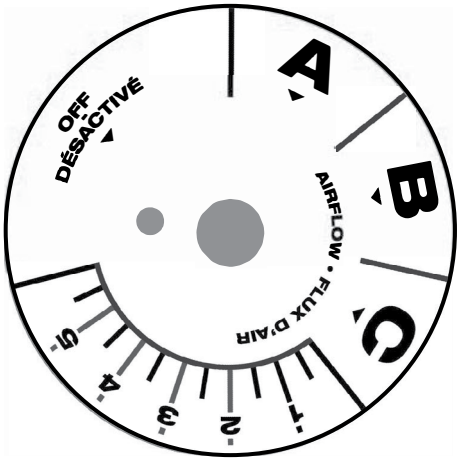
4.0 START-UP AND COMMISSIONING

4.1 FAN OPERATING MODES

Evergreen™ units have two main fan operating modes–either a quick select minimum exhaust or a constant speed airflow setpoint. The desired mode is selected by using the airflow control knob on the front face of the unit. Under the airflow control knob is a sticker showing the selected airflow setting. If the knob is set to OFF, the unit will not run. If the knob is set to a lettered section, the unit will operate in a quick select mode at the selected setting. If the knob is set to constant speed mode shown with the numbered tick marks, the speed of the fan can be ramped up and down by turning the knob. Both fans in the unit are controlled with a singular airflow control knob, so the fans cannot be operated at different settings.

4.1.1 Minimum Exhaust Airflow Operation

Evergreen™ ERVs have three quick select airflow setpoints. These setpoints are shown as the lettered ranges on the fan control label. Each letter corresponds to a minimum exhaust airflow. See table below for the airflow setpoints in CFMs. When using the quick select airflow controls, the fans will adjust speed to maintain the nominal airflow within a tolerance airflow regardless of static pressure while not allowing the exhaust to drop below that setpoint's minimum exhaust airflow. This means the fan speed will ramp up as filters load to maintain airflow. When using the quick select airflow operating selections, the airflow cannot be changed from the set value. To use one of the quick select airflow setpoints, align the pointer on the airflow control knob to the center of the corresponding range on the fan control label.



Setting	ESP	Minimum Exhaust Airflow (CFM)	Nominal Airflow (CFM)	Exhaust Tolerance (CFM)	Supply Tolerance (CFM)
A	0.2"–0.4"	30	45	+/- 10	+/- 15
B	0.2"–0.4"	40	55	+/- 15	+/- 20
C	0.2"–0.4"	50	70	+/- 15	+/- 20

FIGURE 4.1.0 VOLTAGE SETTING TO AIRFLOW TABLE AND CONTROL KNOB

4.1.2 Constant Speed Airflow Selection

The constant speed mode does not adjust the airflows, but allows the user to select a speed anywhere within the operating range of the unit by rotating the dial. This section is shown on the fan control label as numbered tick marks ranging from 0.0 to 6.0. The amount of airflow through the ERV in this operation depends on the fan speed and amount of external static pressure in the system. The amount of airflow will need to be confirmed using a flow hood or flow meter. At the end of section 5 there are lookup tables detailing how to use this manual airflow feature.

4.2 SELECTING AIRFLOW SETTINGS (CONSTANT SPEED OPERATION ONLY)

For assistance in determining correct airflow settings, go to https://www.renewaire.com/how-tobuy/home-ventilation-solutions/. This site will provide a continuous ventilation for a residence based on factors such as square footage and the number of bedrooms that are to be entered by the user. The resulting airflow volume is to be used as a guide and modified as desired

The need for intermittent ventilation varies by situation. For example, ventilation with this unit could be tied to bathroom and shower usage. Alternatively, the unit might be set for specific times of the day when more people will be in the space being ventilated. In all cases, an HVAC professional should be consulted to determine how to best set the airflow volumes to provide maximum benefit to the inhabitants.

Airflow setting at commissioning: CFM ☐

NOTE: Airflow volumes can be changed at any time by the user as experience dictates.

NOTE: If used for bathroom exhaust, it is recommended that the unit should run continuously.

FOR THE HOMEOWNER

5.0 ERV INTRODUCTION AND COMPONENTS

The purpose of your Evergreen™ ERV is to bring fresh air into your home, and exhaust stale room air improving your indoor air quality. While bringing fresh air into your home, the ERV uses the stale exhaust air to transfer heat and moisture without mixing, reducing the demand on the rest of your HVAC system.

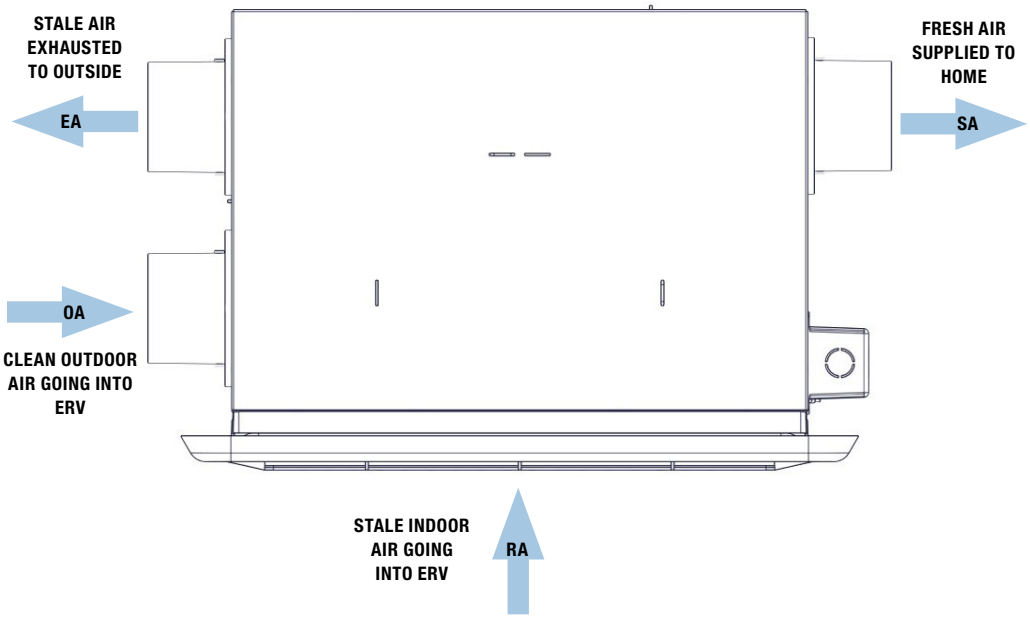


FIGURE 5.0.0 EVERGREEN AIRFLOW PATTERN

5.1 ERV COMPONENTS

The main components in your Evergreen™ ERV are the static plate core, two filters, two motorized fans and the controls system.

5.1.1 Enthalpic Core

As mentioned above, each Evergreen™ ERV has a static-plate, cross-flow core that separates the outgoing, polluted indoor airstream from the incoming supply airstream while simultaneously transferring total energy (heat and water vapor) between the two. Airstreams do not mix, and pollutants are not transferred across partition plates.

5.1.2 Filters

Each unit is equipped at the factory with mesh-type anti-microbial MERV 7 filters on both the OA and RA sides of the core. If desired, the mesh-type OA filter can be replaced with an optional MERV 13 pleated paper filter accessory, which will ship loose.

5.1.3 Fans

Evergreen™ units have two advanced, high efficiency electronically commutated (EC) 120VDC variable speed motorized impellers. One impeller is used for intake air (Outdoor Air/Supply Air) and the other impeller is for the exhaust airstream (Return Air/Exhaust Air). The speed of each impeller is controlled by a 0–10VDC signal from the controlling potentiometer dial.

5.1.4 Grille

Each unit has a return grille that attaches to the unit. Removal is necessary to access filters and airflow setting.

5.1.5 Airflow Setting Dial

Evergreen™ units have a single dial with 3 quick select settings and a constant speed. The operating mode of the unit is controlled by power to the unit.

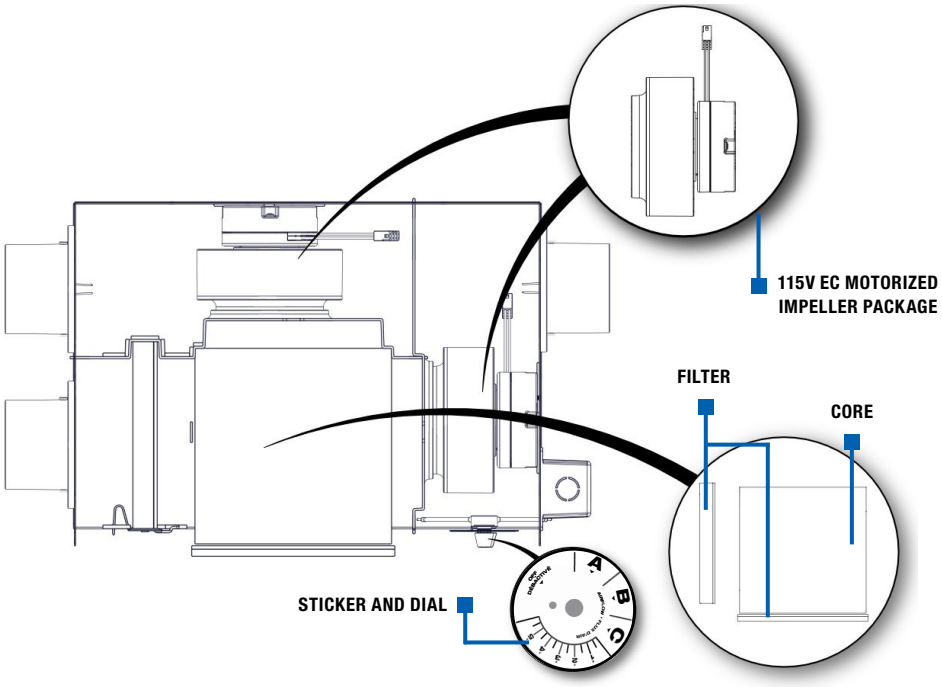


FIGURE 5.1.1 ERV COMPONENTS

5.2 CONSTANT SPEED AIRFLOW LOOKUP TABLES

These tables are lookup tables for setting the desired airflow based on the effective duct length. The four tables represent using 5" hard ducting, 5" flex ducting, 6" hard ducting or 6" flex ducting. Following the effective duct length, and knowing the desired cfm, these tables show what to set the potentiometer dial to on the constant speed range of the label. The dial setting follows the tick marks on the label. When the adjustment is made, the setting will get the unit close to the desired cfm, but a flow hood is recommended for reaching the exact desired cfm.

5" FLEX TABLE

CFM	Effective Duct Length (ft)																			
	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
25																0.0	0.0	0.0	0.0	0.0
30						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5
35					0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.0	1.0	1.0
40	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5
45	0.5	0.5	0.5	0.5	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5
50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.0
60	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
70	1.0	1.0	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.0	3.0
80	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.5	2.5	3.0	3.0	3.0	3.0	3.0	3.0	3.5	3.5	3.5	3.5
90	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5	3.0	3.0	3.0	3.0	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0
100	2.0	2.5	2.5	2.5	3.0	3.0	3.0	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0				
110	3.0	3.0	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0							
120	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.5											
130	3.5	4.0	4.0	4.0	4.0															

5" HARD PIPE TABLE

CFM	Effective Duct Length (ft)																			
	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
25																				
30										0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35								0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
45	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5
50	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5
60	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.0
70	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
80	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.0	3.0
90	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5	3.0	3.0	3.0	3.5	3.5	3.5	3.5	3.5
100	2.0	2.0	2.5	2.5	2.5	2.5	2.5	3.0	3.0	3.0	3.0	3.0	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0
110	2.5	3.0	3.0	3.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
120	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5				
130	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0											

6" FLEX TABLE

CFM	Effective Duct Length (ft)																		
	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
25																				
30															0.0	0.0	0.0	0.0	0.0	0.0
35									0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.0	1.0
45	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.0	1.0	1.0	1.0	1.0
50	0.5	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
60	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
70	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
80	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.5
90	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
100	2.0	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.0	3.0	3.0	3.0	3.0	3.0	3.5	3.5	3.5	4.0
110	2.5	3.0	3.0	3.0	3.0	3.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0
120	3.5	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
130	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.5							

6" HARD PIPE TABLE

CFM	Effective Duct Length (ft)																		
	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200
25																				
30																				
35									0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
45	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0	1.0	1.0	1.0
50	0.5	0.5	0.5	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
60	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5
70	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
80	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
90	1.5	1.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
100	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.5	3.5	3.5	3.5
110	2.5	2.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
120	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
130	3.5	3.5	3.5	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0

IMPORTANT

This unit is only to be used after completion of building construction. It is not to be used during construction.

IMPORTANT

The energy recovery core is not removable.

6.0 MAINTENANCE

The primary maintenance requirement is filter replacement. Filters are not to be cleaned, they must be replaced. The standard filter as shipped from the factory is a mesh-type, anti-microbial MERV 7. These standard filters are NOT to be sprayed with filter treatments or dust adhesives. The standard mesh-type OA MERV 7 filters may be replaced with pleated paper MERV 13 filters post-construction, if desired. Both filters should be replaced every three months, or more frequently, if needed, based on the cleanliness of the OA and RA air entering the unit.

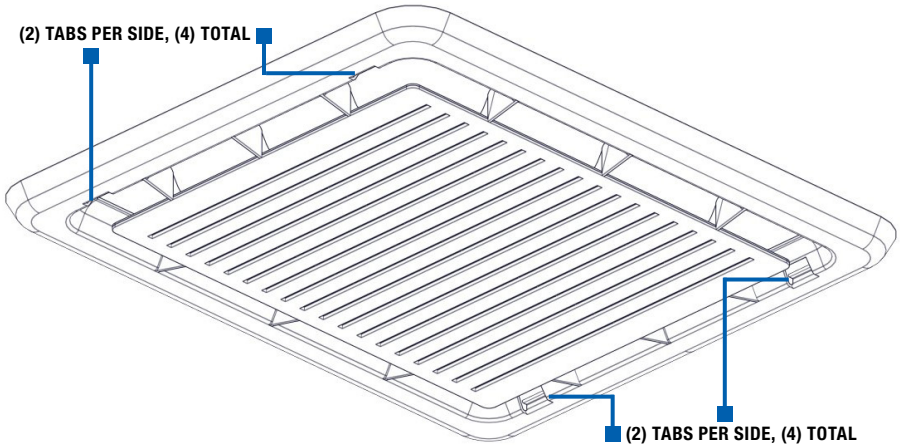
The enthalpic core should be vacuumed annually. Remove the grille and then remove the filter for access to the core. Use a soft bristled nozzle on a good vacuum and carefully vacuum the RA face of the core. Ducts should be inspected annually. Ensure all ducts and joints are free from damage, contaminants, or leaks for the system to behave properly.

6.1 MAINTENANCE AFTER 30 DAYS OPERATION

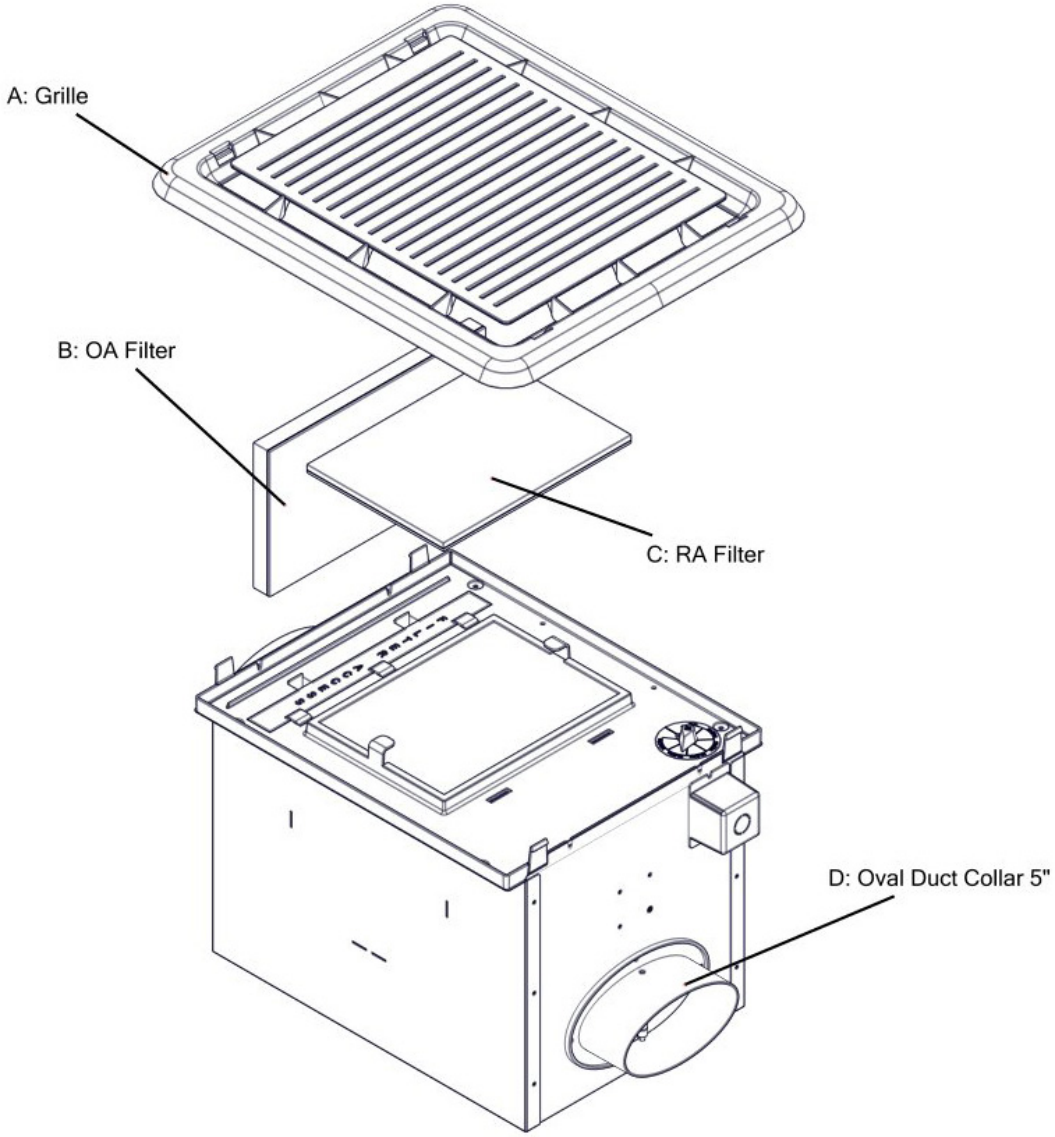
After 30 days of unit operation, check/tighten all mounting and support hardware. Inspect filters for cleanliness. There is often construction dust collected during initial operation. If filters appear dirty, replace them.

6.2 FILTER ACCESS COVER REMOVAL

The grille on Evergreen™ units can be removed simply by pinching in the tabs from the cover access and pulling down on the grill itself. The supply air filter can be accessed via removal of the filter access cover. This is done by pinching in the fastening tabs of the filter access cover toward the center of the unit.



6.3 SERVICE PARTS



Callout	Part Number	Quantity	Description
A	993307	1	Grille
B	993300	1	OA Filter (Standard); 10.125" x 7.35" x 0.375"
	993301	8	
	993302	16	
B (Alternate)	993303	1	OA Filter (MERV 13); 11.65" x 6.65" x 0.875"
	993304	8	
	993305	16	
C	993300	1	RA Filter (Standard); 10.125" x 7.35" x 0.375"
	993301	8	
	993302	16	
D	993306	1	Oval duct collar 5"

FIGURE 6.3.0 EVERGREEN SERVICE PARTS

7.0 TROUBLESHOOTING

7.1 INDICATION OF PROBLEM

Indications of a problem with the ERV may be the perception that fresh air is not being delivered. The first step in resolving an apparent problem with an Evergreen™ ERV is to verify that there actually is a problem.

Regardless of the reason for thinking there is a problem with the ERV, the first steps in troubleshooting are to check the air filters to make sure they are clean and properly positioned.

Due to the many different ways of ducting the Supply Air into a dwelling, it is often difficult to say with certainty that the fresh air provided by the ERV is not reaching its intended destination or if the ERV is simply no longer providing enough fresh air. Determine where and how the fresh air is supposed to be delivered—if it is carried in a dedicated duct directly to the air outlet, check for airflow at the outlet.

- Verify that dampers are still correctly positioned (open). If the ERV is being ducted into a main air handling system, shut the air handling system down so that airflow at the ducts can be detected.
- Check for airflow at the air openings nearest to the ERV, not at the far end of the house. It may be necessary to hold a thin strip of tissue paper in front of a vent to realize whether or not there is airflow.
- Check ducts and duct runs and problems with bends, sagging, etc.

7.2 ERV HAS AIRFLOW BUT IS MAKING NOISE

Feel the ERV while it is running to see if there is excessive vibration from the fans. Fan noise and vibration can be caused by an imbalance in the rotors or possibly by a bad bearing. Turn off power to the unit and rotate the fan impellers by hand. Make sure impellers rotate freely. Use wet swabs to clean any dust/dirt buildup off the impeller blades. If problem continues, a fan may have a bad bearing.

7.3 NO APPARENT AIRFLOW FROM THE ERV

If it seems that there is no apparent airflow, verify that it has power.

- If it does not have power, trace the power supply back to its source and isolate the problem or symptoms. Look for a switch turned off, a blown fuse or a tripped circuit breaker. If necessary, use a multimeter to trace the power supply and isolate the problem.
- If it has power and the fans will not run, disconnect all power to the unit and check the disconnect switch with an ohmmeter.
- If it has power, check to see if the fans are running by listening for fan noise and feeling the unit for vibration from the fans.
- If it has power and the fans are running, check the filters to make sure they are clean. Check the entire length of the ducts, all the way from the outdoor vent hoods to the indoor vent openings. Make sure a duct has not fallen off or that a flexible duct has not been pinched. In rare cases, there may be obstructions inside the duct. Look to see if a louver in an outdoor vent cap is stuck or blocked or if an indoor louver has been shut.
- If it has power but only one fan is running, disconnect all power to the unit and check the fan connectors to make sure they are still making contact.

7.4 INADEQUATE OR REDUCED AIRFLOW FROM THE ERV

If the unit has power and both fans are running, check ducts for bends, blockages, or leaks.

8.0 FACTORY ASSISTANCE

In the unlikely event that you need assistance from the factory for a specific issue, make sure that you have the information called for in the Unit Information page in the front of this manual. The person you speak with at the factory will need that information to properly identify the unit.

To contact RenewAire Customer Service:

Call 800-627-4499

Email: RenewAireSupport@RenewAire.com

About RenewAire

For over 40 years, **RenewAire has been a pioneer in enhancing indoor air quality (IAQ)** in commercial and residential buildings of every size. This is achieved while maximizing sustainability through our fifth-generation, static-plate, enthalpic-core **Energy Recovery Ventilators (ERVs) that optimize energy efficiency**, lower capital costs via load reduction and decrease operational expenses by minimizing equipment needs, resulting in significant energy savings. Our ERVs are competitively priced, simple to install, easy to use and maintain and have a quick payback. They also enjoy the industry's best warranty with the lowest claims due to long-term reliability derived from innovative design practices, expert workmanship and **Quick Response Manufacturing (QRM)**.

As the pioneer of static-plate core technology in North America, RenewAire is the largest ERV producer in the USA. We're **committed to sustainable manufacturing** and lessening our environmental footprint, and to that end our Waunakee, WI plant is 100% powered by wind turbines. The facility is also one of the few buildings worldwide to be LEED® Gold and Green Globes certified, as well as having achieved ENERGY STAR Building status. In 2010, RenewAire joined the Soler & Palau (S&P) Ventilation Group in order to provide direct access to the latest in energy-efficient air-moving technologies. For more information, visit: renewaire.com

201 Raemisch Road | Waunakee, WI | 53597 | 800.627.4499 | RenewAire.com

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