

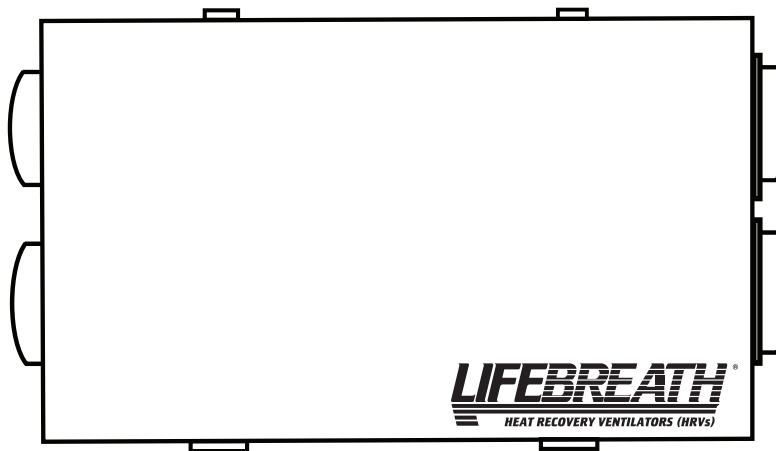
# LIFEBREATH<sup>®</sup>

**THE ULTIMATE AIR EXCHANGER**

Operation and Installation Manual

## Max Series

5 Speed Electronics  
Lifestyle MAX Digital Control included



**Models**

**150 ERV**

**200ERV**

## Residential Energy Recovery Ventilators (ERV)

**INSTALLER: Leave this manual for the homeowner**

Installation and wiring to be in accordance with CEC, NEC and local electrical codes.

Important: Read and save these instructions.



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## Max Series Electronics

Max Series ERVs (Energy Recovery Ventilators) contain fully featured 5 Speed electronics to provide complete ventilation control.

The **Lifestyle MAX Digital Control** (included with each unit) should be mounted in a central location of the home.

Electronic features include:

- 5 Speed Operation on each mode
- 2 user selectable operational modes to provide
  - Continuous Ventilation
  - 20 Minutes ON, 40 Minutes OFF
- Humidity Control through dehumidistat
- Automatic Dehumidistat Disable
- Built-in Relay for Interfacing to furnace

## Warranty

All Energy Recovery Ventilators carry a 5 (five) year warranty on the energy recovery core and a 5 (five) year replacement parts warranty.

During the warranty period, if any core experiences a failure or perforation caused by normal use while owned by the original purchaser, a replacement core (FOB our plant) will be supplied at no expense.

## CAUTION

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

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

### NOTE

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

## ATTENTION

**Do not apply electrical power to the unit until installation has been fully completed (including low voltage control wiring).**

## LEAVE FOR HOMEOWNER

TO BE COMPLETED BY CONTRACTOR AFTER INSTALLATION

Installing Contractor \_\_\_\_\_ Telephone / Contact \_\_\_\_\_

Serial Number \_\_\_\_\_ Installation Date \_\_\_\_\_

Model \_\_\_\_\_

### ENGINEERING DATA

#### LATENT RECOVERY/MOISTURE TRANSFER CORE

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

#### MOTORS AND BLOWERS

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

#### FILTERS

Washable air filters in exhaust and supply air streams.

#### MOUNTING THE ERV

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

#### CASE

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

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

**DEFROST**—not available on this model

#### CONTROLS & ELECTRONICS

The **Lifestyle MAX Digital Control** (included with unit) can be wall mounted in a central location of the home. (3 wire) 20 gauge wire (min.) 100' length

Electronic features include:

- 5 Speed Operation on each mode
- 2 user selectable operational modes: Continuous Ventilation, 20 ON/40 OFF
- Built-in Relay for Interfacing to furnace

#### OPTIONAL PROGRAMMABLE CONTROL

**99-LS-01 Lifestyle MAX Programmable Control** - contains all the features of the Lifestyle MAX Digital Control with 7/24 programmable ventilation, (3 wire) 20 gauge wire (min.) 100' length

#### OPTIONAL TIMERS

**99-DET01 Lifestyle 20/40/60 Minute Timer** - Initiates high speed ventilation for 20, 40, or 60 minutes. (3 wire) 20 gauge wire (min.) 100' length

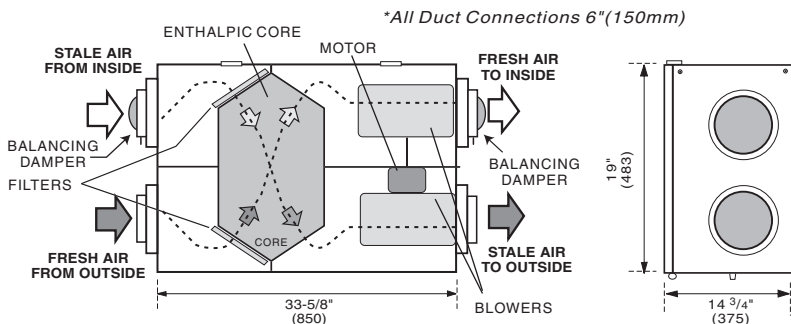
**99-20M01 Lifestyle 20 Minute Timer** - Initiates high speed ventilation for 20 minutes, (3 wire) 20 gauge wire (min.) 100' length.

**99-101 Mechanical Timer** - Initiates High speed ventilation for up to 60 minutes. (2 wire) 20 gauge wire (min.) 100' length

#### OPTIONAL ACCESSORIES

**99-DH-01 Lifestyle Dehumidistat** - Initiates high speed ventilation when the indoor humidity level is above the set point. (3 wire) 20 gauge wire (min.) 100' length

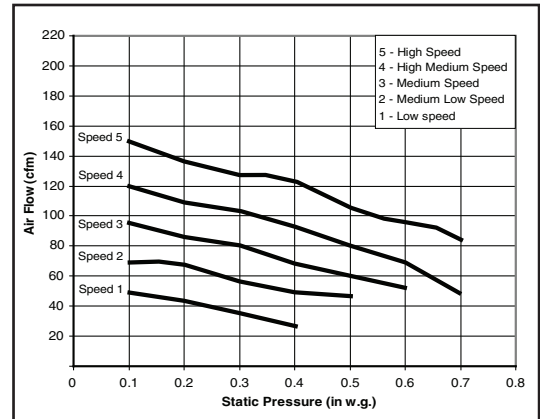
#### DIMENSIONS 150ERV inches (mm)



Performance (HVI Certified)		
Net supply air flow in cfm (L/s) against external static pressure		
E.S.P. (external static pressure)	[cfm (L/s)]	
@ 0.1" (25 Pa)	151	(71)
@ 0.2" (50 Pa)	141	(67)
@ 0.3" (75 Pa)	132	(62)
@ 0.4" (100 Pa)	124	(59)
@ 0.5" (125 Pa)	107	(50)
@ 0.6" (150 Pa)	98	(46)
@ 0.7" (175 Pa)	81	(38)
@ 0.8" (200 Pa)	60	(28)
Sensible Effectiveness		
@ 64 cfm (30 L/s)	32°F (0°C)	81%
*Sensible Efficiency		
@ 64 cfm (30 L/s)	32°F (0°C)	69%
Total Efficiency		
@ 64 cfm (30L/s)	95°F (35°C)	47%
VAC @ 60HZ	120	
WATTS / Low speed	70	
WATTS / High speed	108	
Amp rating	1.4	

\*Sensible Efficiency – thermal

Note: Effectiveness - based on temp. differential between the 2 airstreams  
Efficiency - takes into account all power inputs



All units conform to CSA and UL standards.

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

#### WARRANTY

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

Date: \_\_\_\_\_  
 Tag: \_\_\_\_\_ Qty: \_\_\_\_\_  
 Project: \_\_\_\_\_  
 Engineer: \_\_\_\_\_

Contractor: \_\_\_\_\_  
 Supplier: \_\_\_\_\_  
 Quote#: \_\_\_\_\_  
 Submitted by: \_\_\_\_\_



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 T (937) 439-6676  
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 Website: www.lifebreath.com



### ENGINEERING DATA

#### LATENT RECOVERY/MOISTURE TRANSFER CORE

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

#### MOTORS AND BLOWERS

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

#### FILTERS

Washable air filters in exhaust and supply air streams.

#### MOUNTING THE ERV

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

#### CASE

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

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

**DEFROST**—not available on this model

#### CONTROLS & ELECTRONICS

The **Lifestyle MAX Digital Control** (included with unit) can be wall mounted in a central location of the home. (3 wire) 20 gauge wire (min.) 100' length

Electronic features include:

- 5 Speed Operation on each mode
- 2 user selectable operational modes: Continuous Ventilation, 20 ON/40 OFF
- Built-in Relay for Interfacing to furnace

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#### OPTIONAL ACCESSORIES

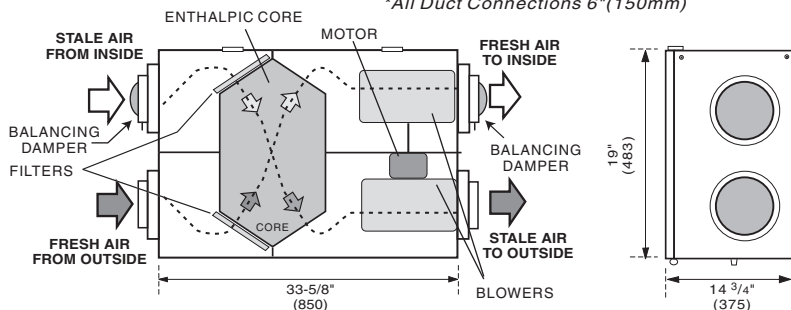
**99-DH-01 Lifestyle Dehumidistat** - Initiates high speed ventilation when the indoor humidity level is above the set point. (3 wire) 20 gauge wire (min.) 100' length

**99-163 Duct Heater w/Electronic SCR Thermostat**, 1 Kw, 6" (150 mm)

**99-186 Weatherhoods**, Two — 6" (150 mm) c/w 1/4" (6 mm) mesh screen

#### DIMENSIONS 150ERV inches (mm)

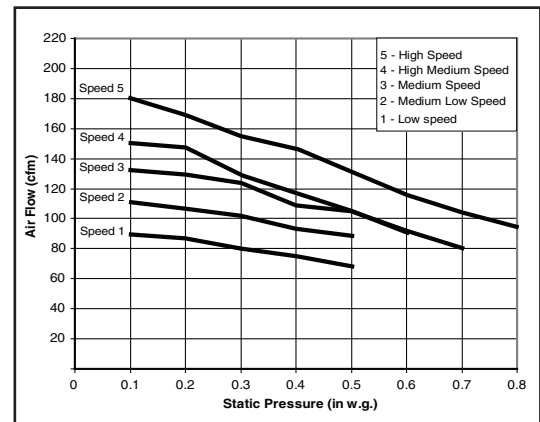
\*All Duct Connections 6" (150mm)



Performance (HVI Certified)		
Net supply air flow in cfm (L/s) against external static pressure		
E.S.P (external static pressure)	[cfm (L/s)]	
@ 0.1" (25 Pa)	180 (85)	
@ 0.2" (50 Pa)	169 (80)	
@ 0.3" (75 Pa)	157 (74)	
@ 0.4" (100 Pa)	146 (69)	
@ 0.5" (125 Pa)	132 (62)	
@ 0.6" (150 Pa)	118 (56)	
@ 0.7" (175 Pa)	101 (48)	
Sensible Effectiveness		
@ 116 cfm (55 L/s)	32°F (0°C)	76%
*Sensible Efficiency		
@ 116 cfm (55 L/s)	32°F (0°C)	69%
Total Efficiency		
		50%
VAC @ 60HZ		
		120
WATTS / Low speed		
		68
WATTS / High speed		
		97
Amp rating		
		1.4

\*Sensible Efficiency – thermal

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



All units conform to CSA and UL standards.

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

#### WARRANTY

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

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 Tag: \_\_\_\_\_ Qty: \_\_\_\_\_  
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 Engineer: \_\_\_\_\_

Contractor: \_\_\_\_\_  
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## Controlling your ERV

Today's modern, tight homes require fresh outdoor air to maintain a healthy indoor air environment. The amount of ventilation you require in your home will depend upon:

- the number of occupants and their activity levels
- the way your home was built
- your personal preferences for fresh air

The ERV introduces fresh air to your home while recovering energy from the air it exhausts. Specifically, a properly installed, operated, maintained ERV will perform the following:

- exhaust stale, contaminated air
- recover the majority of the energy from the exhausted stale air
- use the recovered energy to preheat or precool outside air drawn into the house
- distribute the fresh air throughout the house

## HOW MUCH VENTILATION DO I NEED?

During seasons when your windows and doors are closed (winter, and summer if air conditioned), the ERV should be set to operate continuously on low speed with the option of going to high speed as the need arises. For example: if you are entertaining and there is a large number of people present, the unit should be switched temporarily to high speed.

You may wish to use an intermittent operational mode if your home is unoccupied (20 minutes ON / 40 minutes OFF).

## Selecting the Mode of Operation that's Right for You

Your Lifebreath MAX SERIES ERV has 2 Operational Modes and 5 speeds on each mode to adjust indoor ventilation levels. Experiment with the ventilation levels in your home to evaluate the best amount of ventilation to suit your home and preferences.

### I. Continuous Ventilation Mode

This is the most popular mode since it provides continuous ventilation within the home. You may, for example, select Continuous Ventilation at high speed for high household activity levels or Continuous Ventilation for lower activity levels.

### II. 20 minutes ON, 40 minutes OFF Mode

This Operational Mode will provide 20 minutes of ventilation each hour. You may wish to use this ventilation mode in low speed for low household activity levels or if the home is unoccupied.

<b>GOOD</b>	Standby (fan speed set to 0)	Allows unit to run on demand from remote controls such as Timer and Dehumidistat.
<b>BETTER</b>	Intermittent low speed operation 20 ON/40 OFF	Provides 20 minutes air exchange and 40 minutes off.
<b>BEST</b>	Continuous low speed operation	Ensures continuous air exchange within the home. Air is always fresh and healthy.

## Glossary

**RESET** - whenever resetting of the ERV is required, simply disconnect power for 30 seconds. The Self Test will occur when the ERV is reconnected.

**SELF TEST** - each time the ERV is powered/energized the self test function will automatically initiate. During the self test the ERV will cycle through all the speeds available (1-5), test the damper motor operation and will default back to the previous operational mode and speed selection. Total self test duration is approximately 90 seconds.

**STANDBY MODE** - the ERV is powered/energized and waiting for fan operation to be initiated. For example, the ERV is set to Continuous Ventilation Operational Mode at Speed 0.

**THERMISTOR** - the ERV's temperature sensor which measures electrical resistance in a known manner, as outdoor temperatures fluctuate.

## The Lifestyle MAX Digital Control (Included Wall Control)

### Part # 99-DXPL01

The **Lifestyle MAX Digital Control** is fully digital and allows you to easily control your home's ventilation.

#### Key Features

- 5 Speed Fan setting
- Electronic Dehumidistat
- Four Selectable Modes of Operation
  - 20 min. ON / 40 min. off
  - 20 min. ON / 40 min. recirculate \*
  - Continuous Ventilation
  - Continuous Circulation \*
- 20 / 40 /60 High Speed override timer
- Service/Maintenance Reminder display
- Backlit LCD screen is easy to read
- \* Recirculation not available on all models

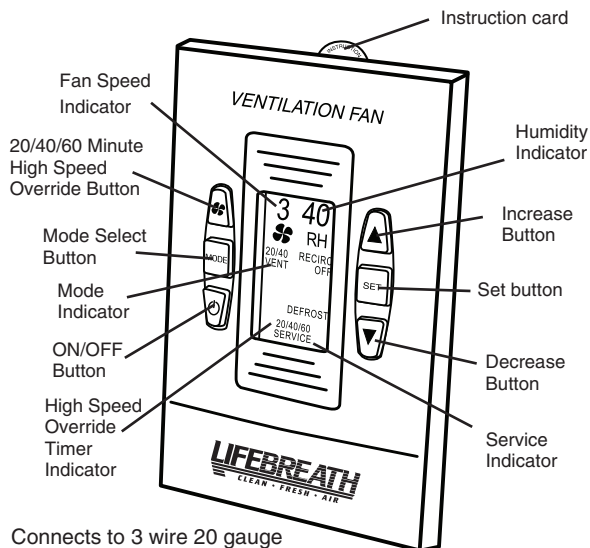
#### Setting the Control

1. Press and release SET Select Button until the FAN symbol appears on the screen.
2. SCROLL (using Increase/Decrease Buttons) to select desired fan speed (0-5). Press SET Button.
3. SCROLL to select the desired operational mode (VENT, 20/40, 20/40 RECIRC\*, RECIRC\*, OFF). Press SET. (Refer to "Operational Modes" in this manual.)

#### Setting the Dehumidistat

Refer to "How the Dehumidistat Works" in this manual before setting the Dehumidistat.

1. Press and release MODE until "RH" and a number flashes. SCROLL to desired number. Press MODE Select Button to exit.



Connects to 3 wire 20 gauge low voltage wire

#### 20/40/60 Minute High Speed Override Button

This function temporarily initiates high speed ventilation for 20, 40 or 60 minutes. Press FAN button once for 20, twice for 40 and three times for 60 minutes.

#### Service Indicator

After 4 months, a 'SERVICE' indicator will appear. Refer to "Maintenance Routine for your ERV" in this manual.

To reset the service indicator:

- Press and release the Increase/Decrease buttons simultaneously. The "SERVICE" icons will flash for 5 seconds..
- Press SET within the 5 seconds and the service indicator will reset.

\* RECIRCULATION not available on all models.

## How the Dehumidistat Works

Often today's well insulated and tight homes will have high indoor humidity levels during the heating season. High humidity levels are apparent from the visible condensation on windows. The amount of condensation on the windows will increase as outdoor temperatures drop.

Your ERV will reduce indoor humidity levels when outdoor air is drier than indoor air. This usually occurs during the heating season when outdoor temperatures are less than 15°C (59°F).

Your **Lifestyle MAX Digital Control** or the optional **Lifestyle MAX Programmable Control** has an adjustable dehumidistat which can be set to achieve a further dehumidification effect from your ERV. High speed ventilation will be initiated upon exceeding the dehumidistat set point regardless of the mode and speed of operation. Once the humidity in the house is reduced, the ERV will revert back to its previous setting.

We suggest operating the ERV for the first few days without use of the dehumidistat function to observe if a further dehumidification effect will be required. The dehumidistat operates in % of RH (relative humidity) with 80 being high and 20 being low. Set the Dehumidistat to 80% to disable. If, after a few days, further dehumidification is required (the house is still too humid), set the humidity level to a lower amount.

#### Dehumidistat Notes:

The dehumidistat function will be disabled if outdoor temperatures exceed 15°C (59°F) for a 24 hour period.

The dehumidistat function will be re-enabled if the unit is unplugged for 3 minutes or if the outdoor temperature drops below 15°C (59°F) for a 24 hour period.

The average person is comfortable between 30-50% RH. The dehumidistat should be set to OFF for all seasons except the heating season. OFF is achieved by setting the dehumidistat to 80.

#### How to Synchronize the Humidity Setting

The Lifestyle Digital wall control has a feature that will allow it to be synchronized with other humidity instruments in your home.

1. Turn off the control with the ON/OFF button.
2. Simultaneously press and release the ON/OFF button and the 20/40/60 Minute High Speed override button.
3. Use the Increase/Decrease buttons to adjust the Humidity Indicator on the display screen to the number of degrees difference between your humidity measuring device. Minus is indicated by flashing.
4. Press the MODE button.

## The Lifestyle MAX Programmable Control (Optional)

### Part # 99-LS-01

The optional **Lifestyle MAX Programmable Control** is fully digital and allows you to program when and how much fresh air will be entering your home.

#### Key Features

- 24 / 7 programmable ventilation
- 4 programmable events per day
- 5 Speed Fan setting
- Electronic Dehumidistat
- Four Selectable Modes of Operation
  - 20 min. ON / 40 min. off
  - 20 min. ON / 40 min. recirculate \*
  - Continuous Ventilation
  - Continuous Recirculation \*
- 20 / 40 /60 High Speed override timer
- Service/Maintenance Reminder display
- Backlit LCD screen is easy to read

#### Setting Date & Time

1. Press and release MODE Select Button until "TIME" and "SET" appear on the screen. Press SET Button.
2. The letter for the day of the week flashes. SCROLL (using Up/Down Arrows) to the correct day of the week. Press SET Button.
3. The hour and "AM" or "PM" flashes. SCROLL to the correct hour using the Increase or Decrease Buttons. Press SET button.
4. The minutes will flash. SCROLL to the correct minute. Press SET button to complete entry.

#### Programming Your Control

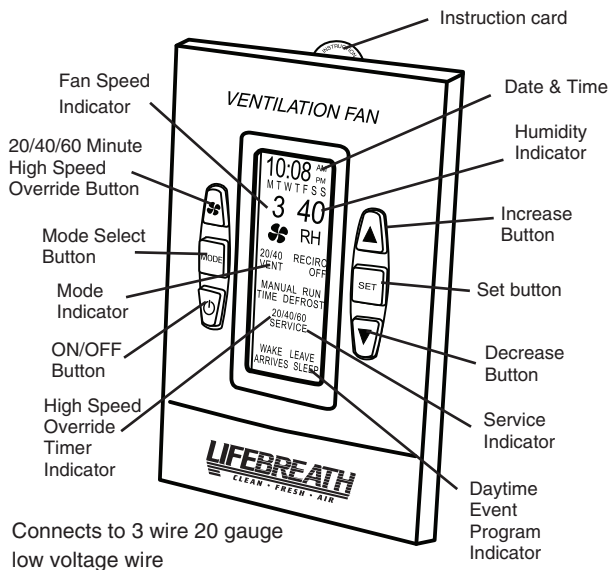
1. Press and release the MODE Button until "PROGRAM SET" appears. Press SET Button.
2. Weekday letters (MTWTF) will flash. Press SET Button.
3. "WAKE" flashes. Press SET Button.
4. "AM" or "PM" flashes. SCROLL to desired time (in 20 minute intervals). Press SET Button.
5. "FAN" flashes. SCROLL to desired fan speed (0-5). Press SET Button.
6. "OFF" flashes. SCROLL to desired operation mode (VENT, 20/40, 20/40 RECIRC\*, RECIRC\*, OFF). Press SET Button two times. (Refer to "Selecting the Best Mode of Operation" in this manual for a description of operational modes.)
7. "LEAVE" flashes. Repeat steps 4 to 6 to program up to 4 events per day.
8. "ARRIVE" flashes. Repeat steps 4 to 6 to program up to 4 events per day.
9. "SLEEP" flashes. Repeat steps 4 to 6 to program up to 4 events per day.
10. "Weekend" letters (SS) flash. Press SET. Repeat steps 3 to 9.

\* RECIRC not available on all models.

#### Running the Programmed Setting

Once the programming has been completed you must activate the program.

- Press the MODE Button until "PROGRAM" and "RUN" are indicated.



## ATTENTION

Only one main control can be installed on your system.

#### Setting the Dehumidistat

Refer to "How the Dehumidistat Works" in this manual before setting the Dehumidistat.

1. Press and release the MODE Button until "RH" and a number flashes. SCROLL using the Increase or Decrease Buttons to desired number (RH Set Point). Press the MODE Button to exit. Refer to "How the Dehumidistat Works" in this manual for a description of the functionality of the Dehumidistat.
2. Press the MODE Button to return to operational features.

#### Manually Setting the Control

1. Press and release MODE until "MANUAL" and "RUN" are indicated. Press SET.
2. SCROLL to select desired fan speed (0-5). Press SET.
3. Use SCROLL to select the desired operational mode (VENT, 20/40, 20/40 RECIRC\*, RECIRC\*). Press SET.
4. The control will remain in the "MANUAL RUN" position until you change back to "PROGRAM RUN" (refer to "Running the Programmed Setting").

#### 20/40/60 Minute High Speed Override Button

This function temporarily initiates high speed ventilation for 20, 40 or 60 minutes. Press FAN button once for 20, twice for 40 and three times for 60 minutes.

#### Service Indicator

After 4 months, a 'SERVICE' indicator will appear. Refer to "Maintenance Routine for your ERV" in this manual.

To reset the service indicator:

- Press and release the Increase/Decrease buttons simultaneously. The "SERVICE" icons will flash for 5 seconds..
- Press SET within the 5 seconds and the service indicator will reset.

## Optional Timers

Depending on the type of ERV installation, you may have timers in areas such as restrooms. The timer will override the Operational Mode (regardless of the setting) and initiate high speed ventilation. Upon completion of the timer cycle, the ERV will return to your selected Operational Mode and speed setting.

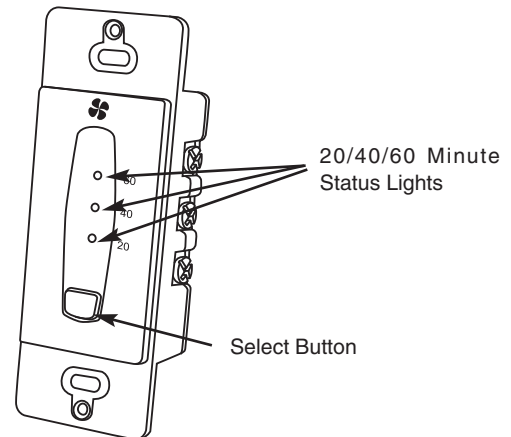
### Lifestyle 20/40/60 Minute Timer

#### Part # 99-DET01

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

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

Connect to 3 wire 20 gauge low voltage wire. Mounts in a standard 2" x 4" electrical box.



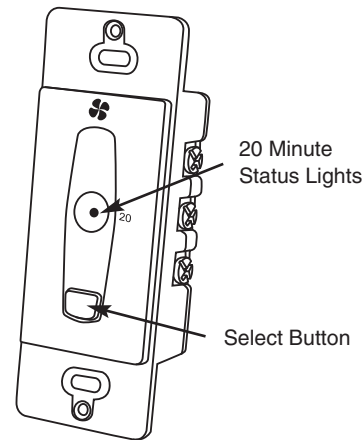
### Lifestyle 20 Minute Timer

#### Part # 99-20M01

Initiates high speed ventilation for 20 minutes. The 20 Minute Status Light indicates high speed operation.

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

Connect to 3 wire 20 gauge low voltage wire. Mounts in a standard 2" x 4" electrical box.

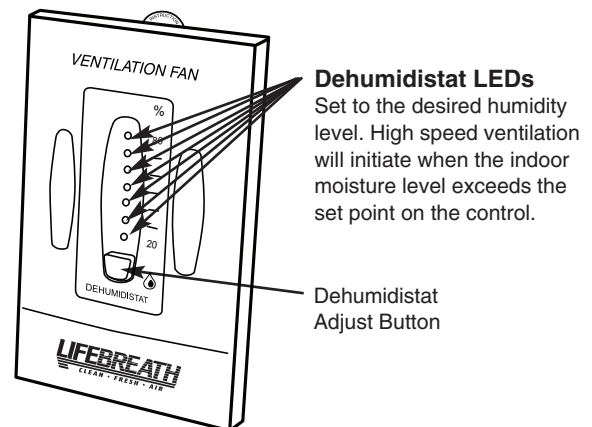


### Lifestyle Dehumidistat

#### Part # 99-DH-01

initiate high speed ventilation when the moisture level in the home exceeds the set point on the control. Once the humidity in the house is reduced, the ERV will revert back to its previous setting. The Dehumidistat should be set to OFF for all season except the heating season.

Refer to "How the Dehumidistat Works" in this manual before setting the Dehumidistat.



### The Three Methods of Installation

The three methods of installation for the ERV system are:

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

### Simplified Installations

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

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

### Partially Dedicated Installations

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

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

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

### Fully Dedicated Installations

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

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

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

Optional in-line duct heaters are available for mounting in the supply duct work to add heat if required. Refer to the equipment specification sheet in this manual for your Max Series model in this manual for duct heater part numbers.

### Installing the Ducting Between the ERV & Living Areas in the House

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

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

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

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

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

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



## ATTENTION

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

## Simplified Installation Diagrams

### Simplified Installation (Return/Return Method)

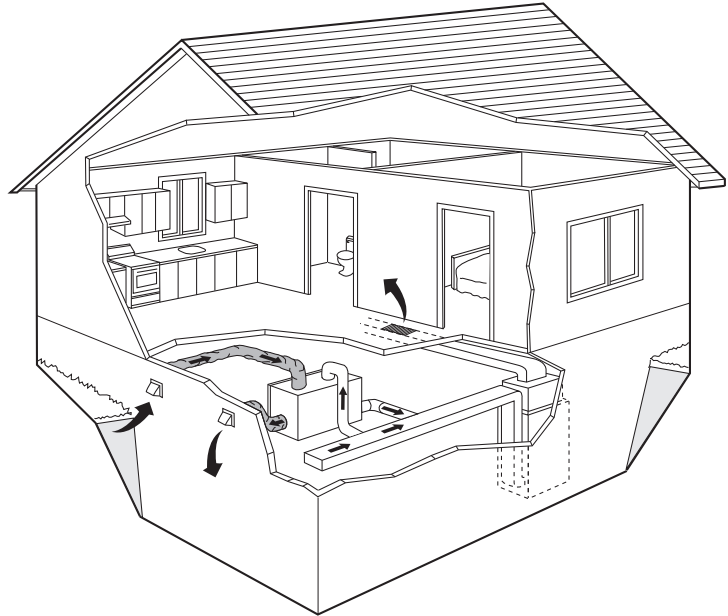
#### Key Points

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

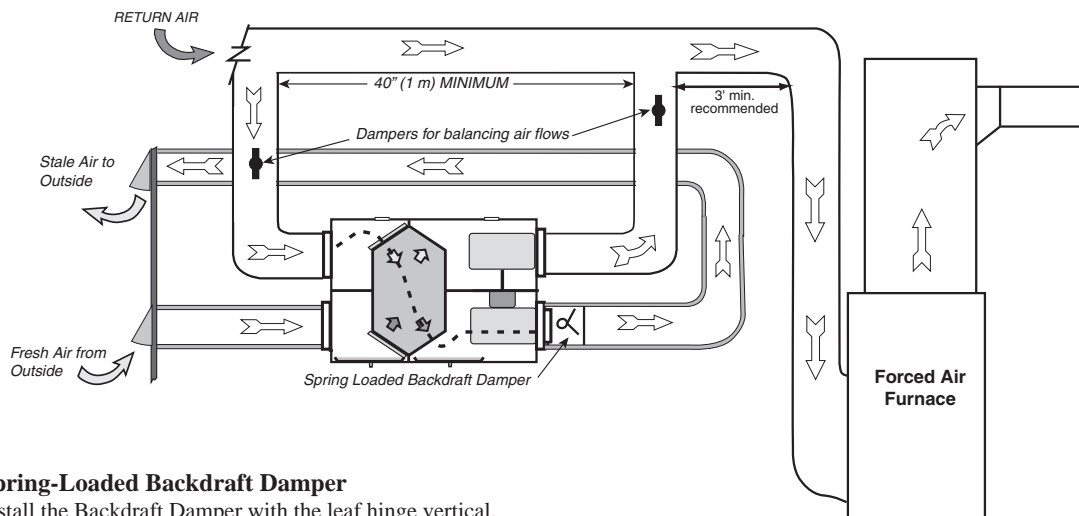
#### Sizing the Ductwork

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

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



#### **DIRECT CONNECTION of both the ERV SUPPLY AIR STREAM and EXHAUST AIR STREAM to the FURNACE COLD AIR RETURN**



#### Spring-Loaded Backdraft Damper

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

6" (152mm) Backdraft Damper Part No. 99-RSK6

#### Installation Notes

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

### **⚠ WARNING**

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

## Partially Dedicated Installation Diagrams

### Partially Dedicated System

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

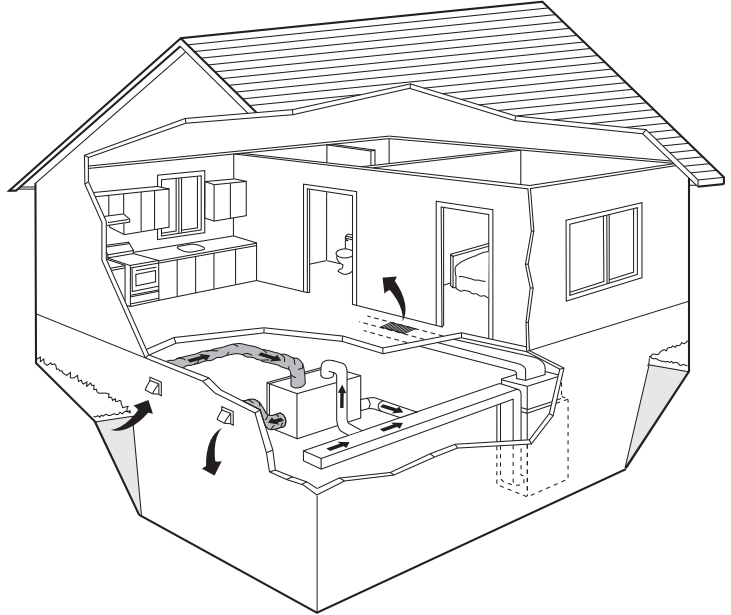
#### Key Points

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

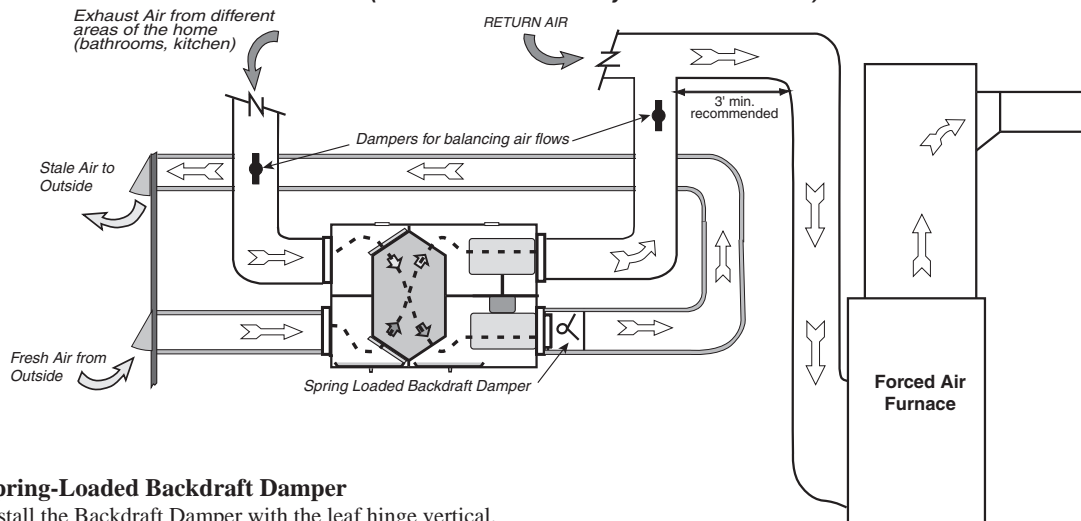
#### Sizing the Ductwork

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

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



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



#### Spring-Loaded Backdraft Damper

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

6" (152mm) Backdraft Damper Part No. 99-RSK6

#### Installation Notes

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

### **⚠ WARNING**

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

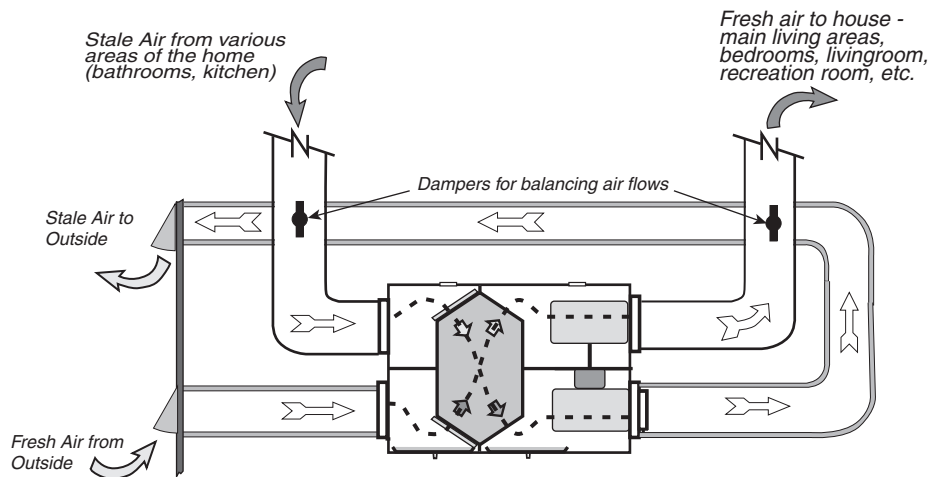
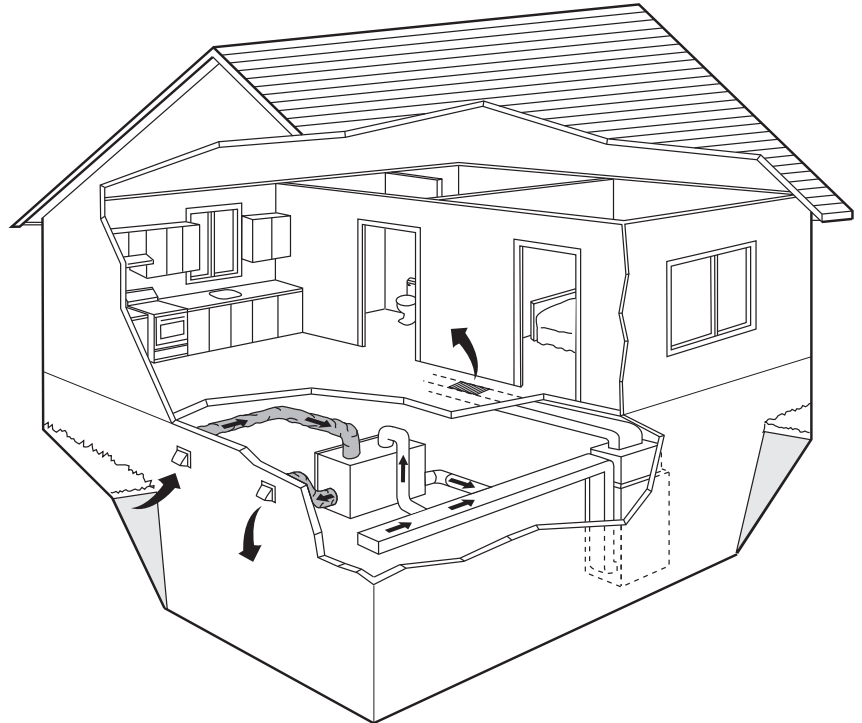
## Fully Dedicated Installation Diagrams

### Fully Dedicated System

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

#### Key Points

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



### Installation Notes

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

## Installation

### Location

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

Attic installations are not recommended due to:

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

Leave sufficient clearance at the front of the access door for servicing the air filters and core. The recommended clearance is a minimum of 25" (635 mm) for opening and closing the door.

Airia provides four straps for hanging the unit from the basement floor joists.

### ⚠ WARNING

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

### Suspending the Unit with Adjustable Hanging Straps

The adjustable hanging straps are designed to reduce the possibility of noise, resonance and harmonics.

NOTE: Provide a front clearance of 25 inches (635 mm) for servicing the unit.

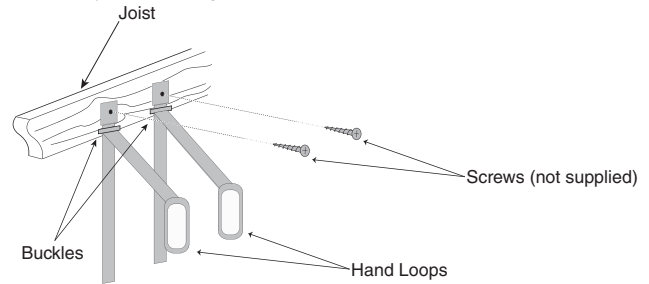
### ⚠ CAUTION

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

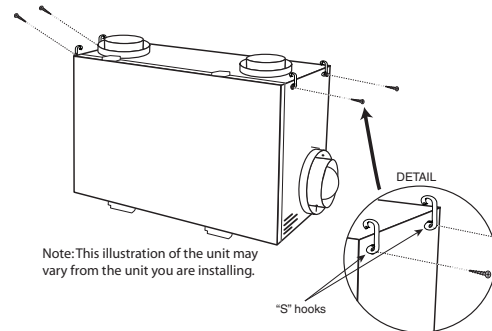
### Electrical

Plug the unit into a standard designated (120 VAC) electrical outlet with ground. The use of an extension cord with this unit is not recommended. If the installation requires further wiring, have a licensed electrician make all of the electrical connections. The recommended circuit is a separate 15 amp/120 volt circuit.

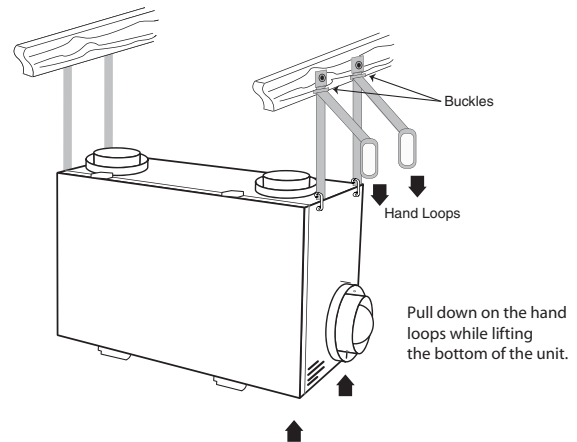
1. Insert screws (not included) through the Hanging Strap grommets and fasten to the joists. Ensure the screw head is wider than the eyelet of the grommet.



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



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



4. Make certain the unit is level. Adjust the unit down by lifting up on the buckle. Fold the hand loops and excess strap and secure with a nylon tie.

### WARNING:

To prevent electrical shock while either cleaning or servicing the unit, it is **extremely important** to confirm the polarity of the power line that is switched by the safety (disconnect) switch. The hot line (black) is the proper line for switching. To confirm the proper polarity, use a voltmeter or test lamp to ensure there is no voltage after the switch when the door is open. Check between that point and ground (on the cabinet). This procedure must be followed, as dwellings are occasionally wired improperly. Always ensure the proper grounding of the unit.

## Grilles

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

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

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

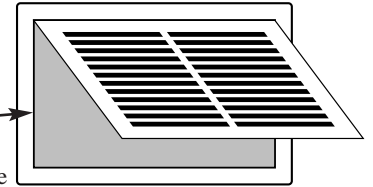
### CAUTION

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

### The Lifebreath Kitchen Grille

(Part No. 99-10-002 6" x 10")

Removable filter



The Lifebreath Kitchen Grille includes a removable grease filter.

Most building codes require that kitchen grilles be equipped with washable filters.

### The Lifebreath Techgrille

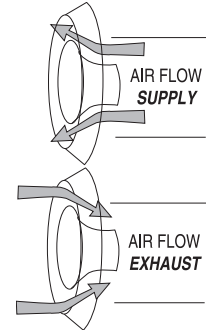
The TECHGRILLE is a round, fully adjustable grille, which provides superior, quiet air distribution.

4" (100 mm) Part No. 99-140

5" (125 mm) Part No. 99-141

6" (150 mm) Part No. 99-142

8" (200 mm) Part No. 99-148



## Weatherhood Installation

### Installing the Ducting from the Weatherhoods to the ERV

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

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

Twisting or folding the duct will severely restrict air flow.

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

### Intake Weatherhood Requirements

- Should be located upstream (if there are prevailing winds) from the exhaust outlet
- At least 6' (2 m) from the exhaust weatherhood
- At least 6' (2 m) away from dryer vents and furnace exhaust (medium or high efficiency furnaces)
- A minimum of at least 6' (2 m) from driveways, oil fill pipes, gas meters, or garbage containers
- At least 18" (457 mm) above the ground, or above the depth of expected snow accumulation
- At least 3' (1 m) from the corner of the building
- Do not locate in a garage, attic or crawl space

### Exhaust Weatherhood Requirements

- At least 6' (2 m) from the ventilation air intake
- At least 18" (457 mm) above ground or above the depth of expected snow accumulation
- At least 3' (1 m) away from the corner of the building
- Not near a gas meter, electric meter or a walkway where fog or ice could create a hazard
- Not into a garage, workshop or other unheated space

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

## ⚠ ATTENTION

Local codes may require greater distances for exhaust and intake.

### Lifebreath Weatherhoods

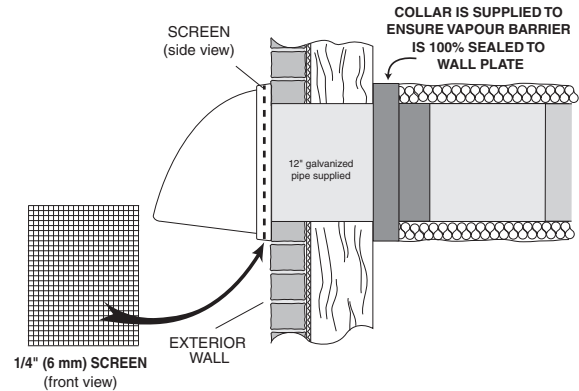
Fixed covered weatherhoods have a built-in bird screen with a 1/4" (6mm) mesh to prevent foreign objects from entering the ductwork.

5" (125 mm) Part No. 99-185

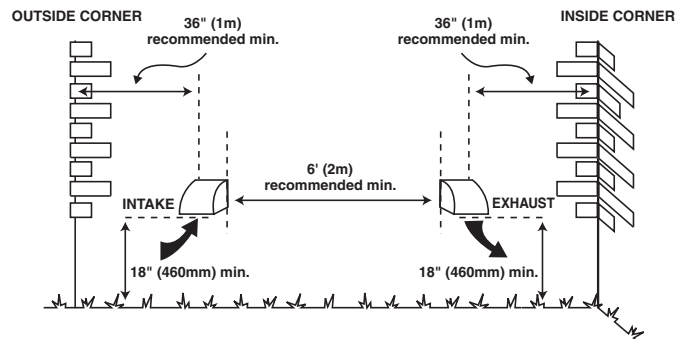
6" (150 mm) Part No. 99-186

7" (200 mm) Part No. 99-187

### Weatherhood Installation



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



## ⚠ CAUTION

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

## Installation of the Main Control

The Lifestyle MAX Digital Control or optional Lifestyle MAX Programmable Control may be installed onto a flush mounted 2" x 4" electrical switch box or it may be surface mounted onto a wall.

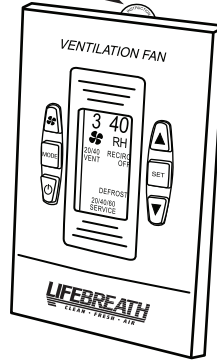
Only 1 master control should be installed to a ventilation system (the Face Plate on this illustration may not be exactly the same as yours).

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

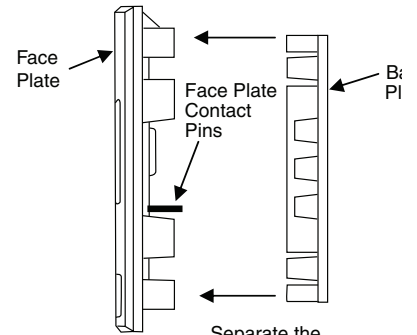
## ⚠ ATTENTION

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

Operating Instructions Card

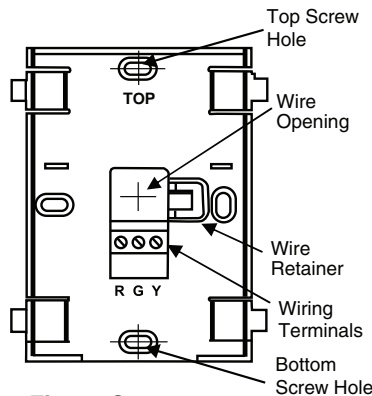


**Figure A - Face Plate**  
(Illustration of Face Plate may vary from actual control)

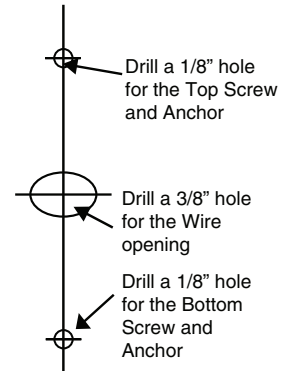


**Figure B**  
Side View

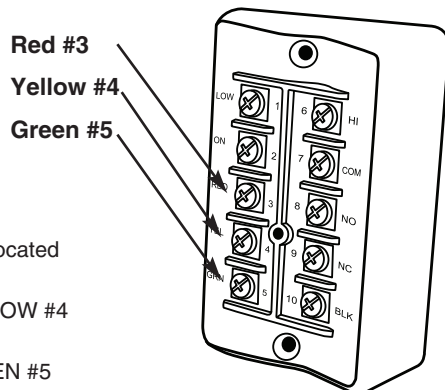
Separate the Face Plate from the Back Plate.



**Figure C**  
Front View of Back Plate



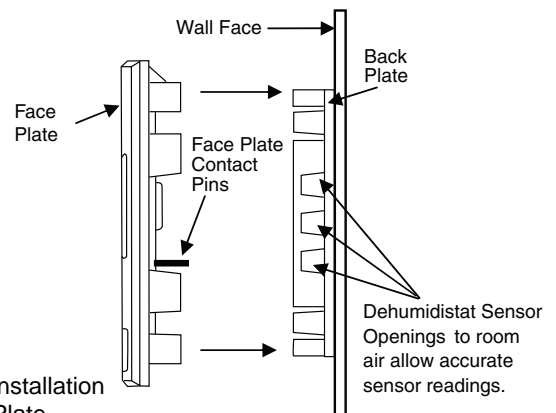
**Figure D**  
Drill holes in wall



**Figure E**

Terminal Block located on ventilator

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



**Figure F**  
Correct Installation of Back Plate

## Installation and Operation 20/40/60 Minute Timers Part # 99-DET01

### Operating your Lifestyle 20/40/60 Minute Fan Timer

Press and release the *Select Button* to activate a 20, 40 or 60 minute high speed override cycle. The *High Speed Status Light* will illuminate and the unit will run on high speed ventilation for the selected time.

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

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

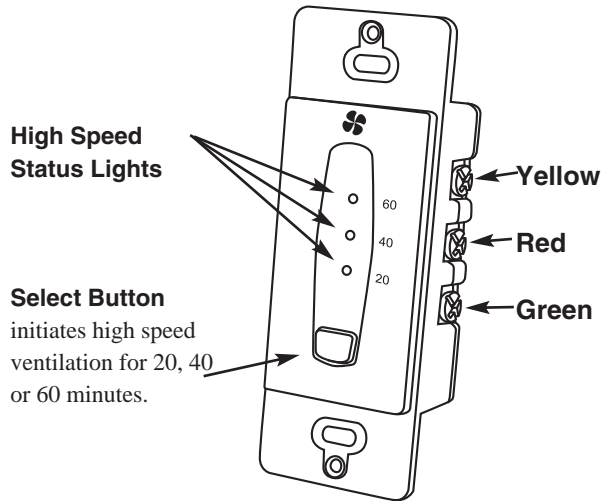
All timers connected to the unit will illuminate for the duration of the override when the *Select Button* is pressed.

### Lockout Mode

Lockout Mode is useful if you wish to disable the timers.

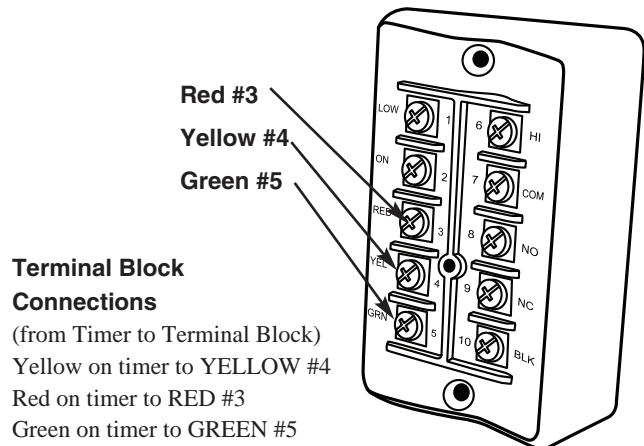
The timer can be set to lockout mode by pressing and holding the *Select Button* for five seconds. After five seconds, the *High Speed Status Light* will flash; release the *Select Button*. The timer is now in lockout mode. If the *Select Button* is pressed during lockout mode the *High Speed Status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

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



### NOTE ABOUT TIMERS

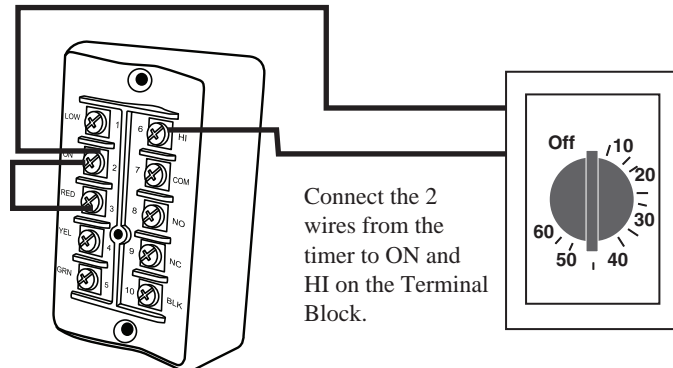
- Timers mount in standard 2" x 4" electrical boxes.
- Wire multiple timers individually back to the unit.
- Use 3/20 low voltage wire



## Installation of Mechanical Timers Part # 99-101

The Mechanical timer is a 2 wire "dry contact" timer. A jumper wire must be connected between ON and RED. Connect the 2 timer's wires to ON and HI. Refer to illustration.

2 wire timers require a jumper wire between ON and RED on the terminal block.



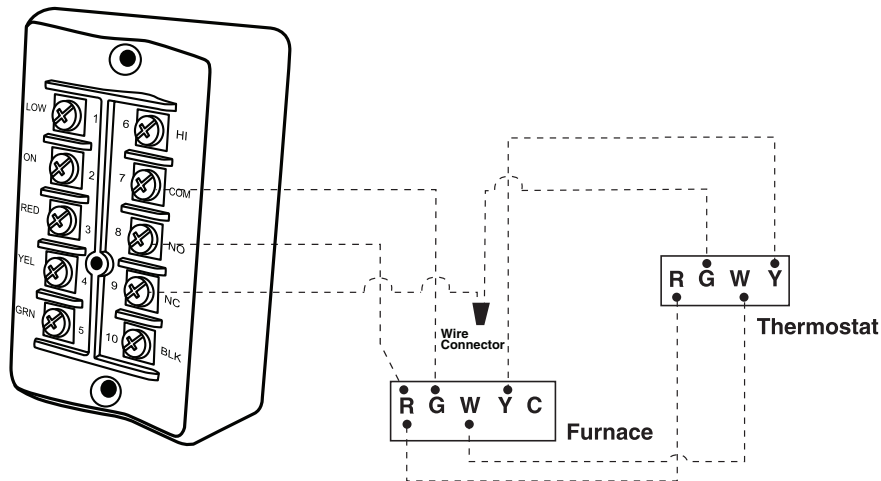
## Interlocking the ERV to an Air handler/Furnace Blower

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

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

## ⚠ CAUTION

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

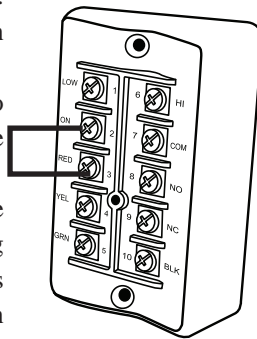


## Setting “Standby” when using a Main Control

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

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

\* Speed 0 is not available on all controls



The Terminal Block  
(located on the ERV)

## ⚠ CAUTION

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

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

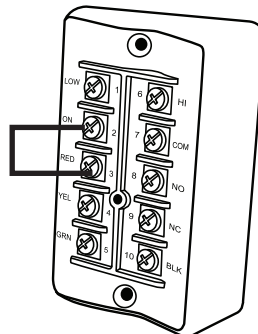
A jumper must be in place between 2 (ON) and 3 (RED) on the Terminal Block to activate the ERV for timers and/or dry contact controls.

### Adding Dry Contact Controls

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

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

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



The Terminal Block  
(located on the ERV)

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

## Balancing the Air Flows

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

- A positive or negative pressure may occur in the house
- ERV may not operate at its maximum efficiency

### Air Flow Measuring Gauges

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

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

### Gauge Attachments

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

Consult with your Lifebreath Distributor for available options such as a pitot tube, flow measuring station, and an air flow measuring probe.

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

### Balancing Preparation

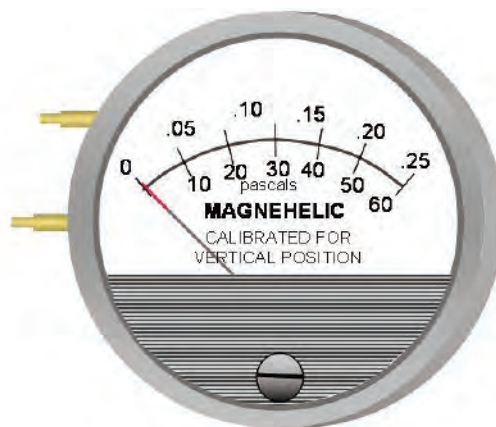
Prior to performing the air balancing procedure, perform the following steps:

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

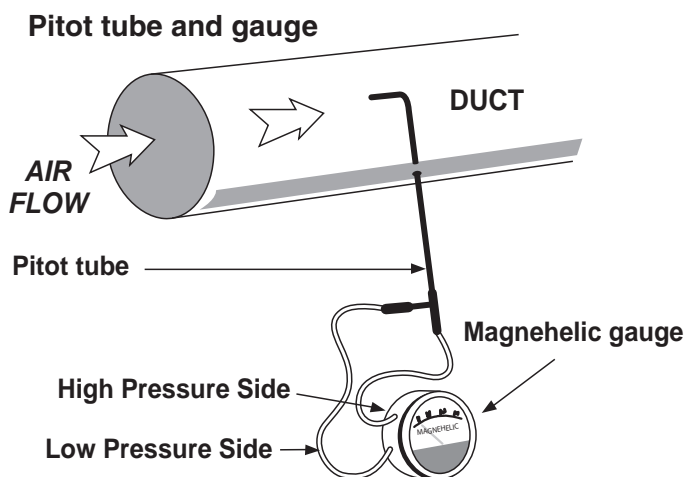
## ⚠ ATTENTION

Continuous, excessive, positive pressure may drive moist indoor air into the external walls of the building. Once inside the external walls, moist air may condense (in cold weather) and degrade structural components or cause locks to freeze.

Continuous, excessive, negative pressure may have several undesirable effects. In some geographic locations, soil gases such as methane and radon gas may be drawn into the home through basement or ground contact areas, and may also cause the backdrafting of vented combustion equipment.



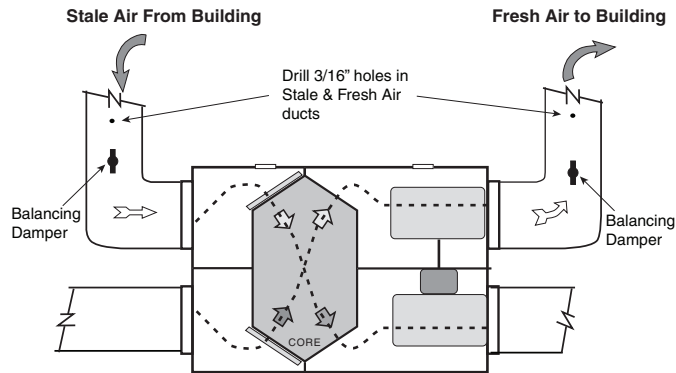
Magnehelic Gauge with a scale of 0 to .25" w.c.



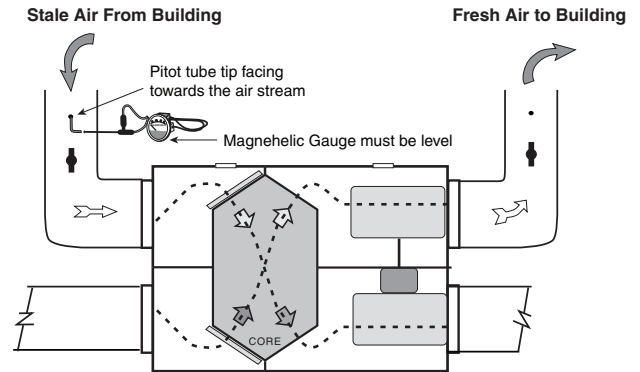
Magnehelic Gauge (scale of 0 to .25" w.c.) with a Pitot Tube Attachment

## Balancing the Air Flows with a Pitot Tube

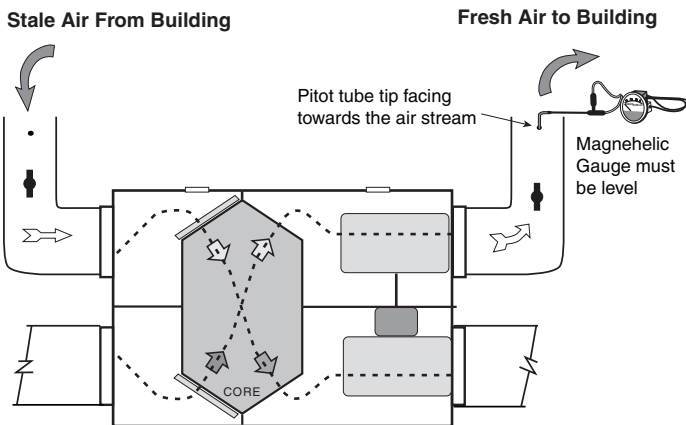
**STEP 1.** Drill a 3/16" hole in the duct (ideally 3 feet downstream of any elbows or bends and 1 foot upstream of any elbows or bends) in the Fresh Air and Stale air streams.



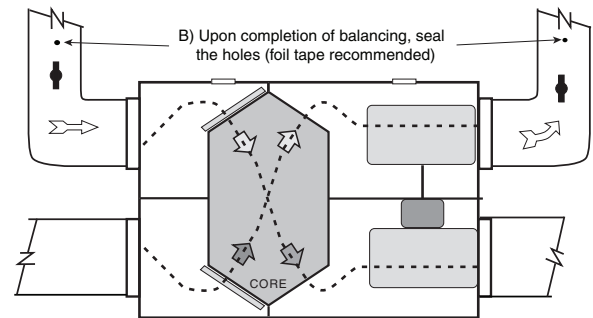
**STEP 2.** Insert the Pitot tube with the tip facing towards the air stream in the Stale Air From Building air stream. Move the Pitot tube around in the duct (facing towards the airflow) and take an average reading. Record the reading.



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



**STEP 4.**



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

## Determining the cfm

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

### Example

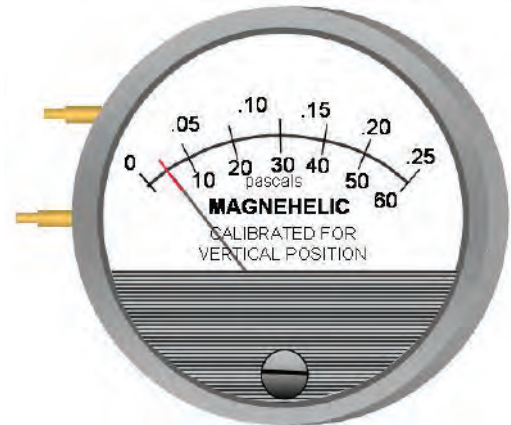
This example shows how to determine the air flow for a 6" diameter duct. As shown in the illustration, the duct velocity pressure reads 0.025" w.c. on the magnehelic gauge. Use the chart that came with the magnehelic gauge to determine a duct velocity of 640 feet per minute for a duct velocity pressure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

### Cfm Calculation

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

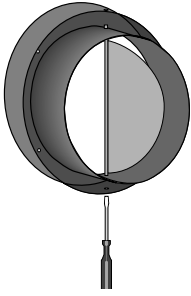
Cross Section Area of some common round duct sizes:

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

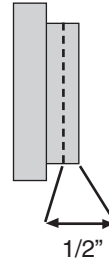
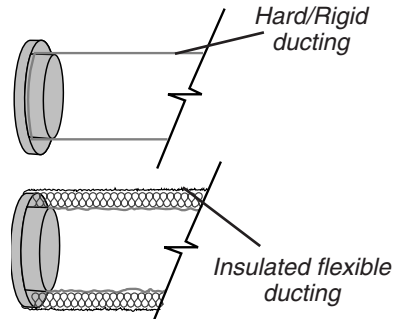


**Magnehelic Gauge reading .025" w.c.**

## Balancing Collar Instructions



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



When connecting ductwork to the collar, take note where screws are located. Screws should be located no further than 1/2" from outside edge of collar, so as not to impede operation of the damper.

Install with the dampers fully open. Damper down the duct with the higher air flow to equal the lower air flow. Refer to the Air Flow Balancing Procedures found in this manual.

### NOTE

Installations where the ERV is ducted directly to the return of a furnace may require additional dampening on the *fresh air to building duct*. This is due to the high return static pressures found in some furnace installations.

## Balancing Instruments and Kits

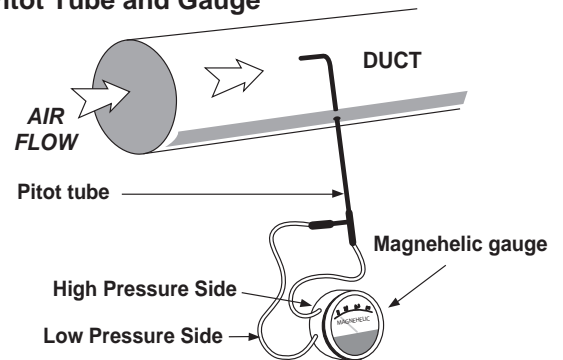
### Magnehelic Gauge with pitot tube Air Flow Balancing Kit

#### Part No. 99-167

Use this kit to determine airflow in the ERV ductwork.

- 1 - Magnehelic Gauge (scale 0 to 0.25" w.c.)
- 1 - Carry Case
- 1 - Pitot Tube
- 1 - Instruction page

#### Pitot Tube and Gauge



## Maintenance Routine for ERV

### 1. Inspect Exterior Hoods at least once a month.

Make sure exhaust and fresh air supply hoods are not blocked or restricted by leaves, grass, or snow.

**WARNING:** Blockage of hoods may cause an imbalance.

### 2. Clean Air Filters (clean twice a year)

The standard filters are removable and washable.

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

### 3. Clean Core Twice a Year

#### **ATTENTION**

- Vacuum the ERV core or rinse with cold water
- Do not use cleaning solutions (such as soap) on the ERV Core
- Do not use a pressure washer on the ERV core
- Do not place the ERV core in a dishwasher

- open access door.
- carefully grip ends of core and pull evenly outward. Core may be snug, but will slide out of the channel
- once removed from the cabinet remove filters
- ERV core** - Vacuum the core or rinse with cold water (DO NOT USE SOAP, DISHWASHER OR A PRESSURE WASHER.)
- install the clean filters
- install clean core

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

#### To install the clean core:

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

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

### 4. Motors - Maintenance Free

### 5. Clean Duct Work if Required

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

### 6. General Maintenance - Twice a Year

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

### 7. Cleaning the Fans

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

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

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

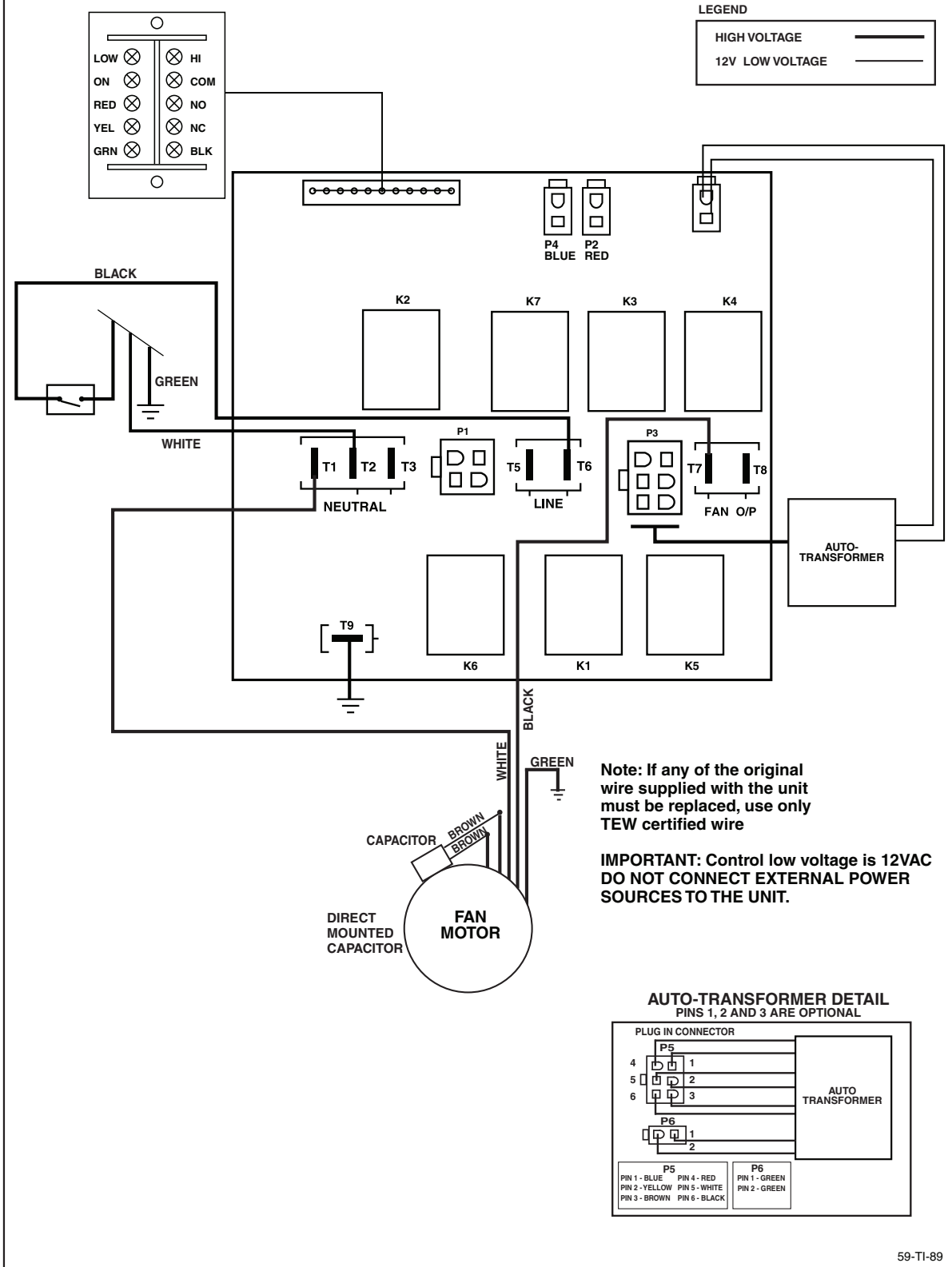
#### **WARNING**



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

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

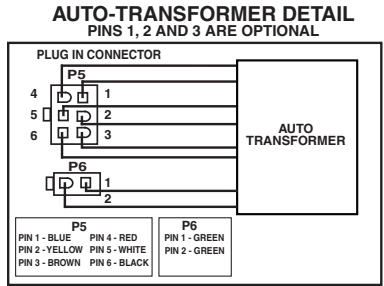
**CAUTION: ELECTRICAL CONTROL PANEL, SERVICE BY ELECTRICIAN ONLY**



**LEGEND**  
 HIGH VOLTAGE   
 12V LOW VOLTAGE

**Note: If any of the original wire supplied with the unit must be replaced, use only TEW certified wire**

**IMPORTANT: Control low voltage is 12VAC DO NOT CONNECT EXTERNAL POWER SOURCES TO THE UNIT.**



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