IMPORTANT WARNINGS

IMPORTANT SAFETY INSTRUCTIONS

Suncourt recommends professional installation of the Airiva (or by an accomplished DIY person)

Please read and save these entire instructions before starting the installation.

WARNING To reduce the risk of fire or electrical shock, do not use this fan device with a speed control of any kind. This device is for general ventilating use only. Do not use with hazardous, toxic or flammable vapors.

WARNING To reduce the risk of fire, electric shock or injury to persons or animals, observe the following: Use this unit only in the manner intended by the manufacturer. If you have any questions or doubts, contact a qualified installer or Suncourt Inc. Before servicing or cleaning this unit, disconnect the power by unplugging it from the 110-120 Volt AC outlet. If a suitable Ground Fault Interrupter (GFI) 110-120 Volt AC grounded outlet is not within reach of the AirivaÊ power cord, a new GFI outlet needs to be installed. The installation of this outlet must be done by a qualified person(s) in accordance with all applicable Codes and Standards. The Airiva is equipped with a grounded plug. This safety feature must never be defeated.

WARNING For your safety and protection follow all instructions and adhere to applicable safety, building and electrical codes.

WARNING Install this product inside a building or dwelling only.

WARNING Do not operate this product without ductwork or approved grilles being installed at the fan openings to prevent contact with the fans. Contact with the operating fans will cause serious injury.

WARNING Do not install this product where it can come in contact with water from flooding or otherwise.

WARNING Protect the outside vent hoods from ingress of water from rain or other sources.

WARNING Never expose this product to air temperatures over 120°F (49°C).

INSTALLATION AND MAINTENANCE INSTRUCTIONS

Suncourt recommends installation of the AirivaÊ by a professional.
Please read and save these instructions in their entirety before starting the installation.

WHERE AND HOW TO MOUNT

The AirivaÊ should be mounted on shelf brackets that can easily support 75lbs.

DO NOT Set the AirivaÊ flat on a shelf. Condensation will occur between the surface of the AirivaÊ and the shelf.

The minimum mounting height should be 8" off the floor to provide clearance for the condensate drain. For convenience when servicing, mounting the AirivaÊ at chest height is recommended.

The Airiva should be mounted such that the latches for the door are on top. The hinges for the door should be on the bottom of the unit and slightly hanging over the stand or shelf.

When preparing the Airiva shelf brackets, allow for a slight angle so that condensation (if any) will flow to the end of the housing. That will be the location where you will install the condensate drain (low side), if necessary.

It is recommended that each connection point to the Airiva be within 25 feet from its outlet/inlet.

As a general rule, keep the total ductwork as short as possible.

ELECTRICAL POWER

You will need a 110-120 Volt AC GFI electrical outlet that can be reached by the Airiva power cord. The short length of the Airiva power cord is dictated by the National Electrical Code. The housing of the Airiva is equipped with a door safety interlock switch. This switch cuts the electrical power to the electric fans and electronic control system when the door of the housing is opened. NEVER defeat or bypass this feature!

Regardless of this safety interlock, you must disconnect the power cord at the electrical outlet before opening the housing.

CONDENSATE DRAIN

Choose a drain location (i.e. sink, floor drain, washer drain, etc.) to run the condensate drain hose to. The inside diameter of the hose needed is 3/8". (Hose not provided)

NOTE: The condensate drain provision is given for installations in humid climates. Condensation will not accumulate inside the Airiva housing in every installation. You may want to operate the Airiva for a few weeks and then determine if you need to install the condensate drain. If moisture collects in the bottom of the Airiva, you should install the drain. You will need to make a 5/8" diameter hole in the bottom of the Airiva at the lowest point.

The AirivaÊ deserves its own ducts; forced air system connection is a distant second choice only.

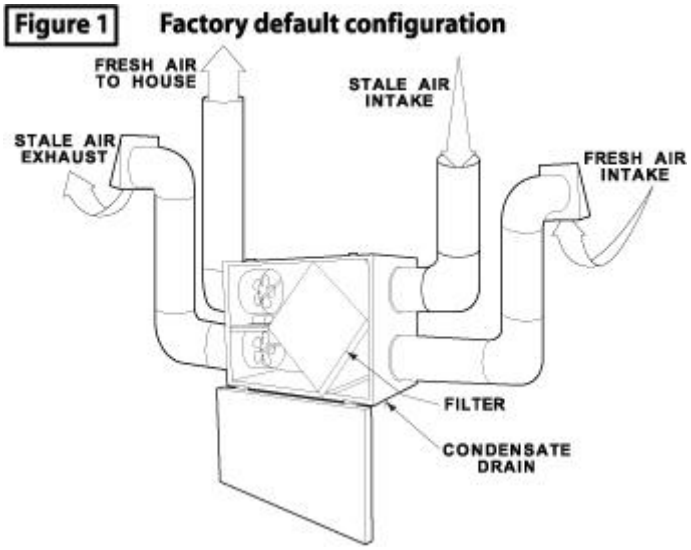
STANDARD DUCT CONNECTIONS

The fresh outside air intake and stale air exhaust ducts should be kept as short as possible. On the outside of your home, you will need to install hoods to protect the openings from rain. Select a hood that has a built-in screen to prevent access of rodents or birds. If at all possible, install the ducts where they are protected from prevailing winds. Keep the two hoods a minimum of 48" apart to avoid air re-circulation from one hood to the other. Keep the fresh air intake at least 72" away from dryer vents, furnace exhausts, etc.

The fresh air intake duct must be sloped slightly to the outside, away from the Airiva. This way, condensation collecting in that duct will run to the outside. This duct must also be insulated.

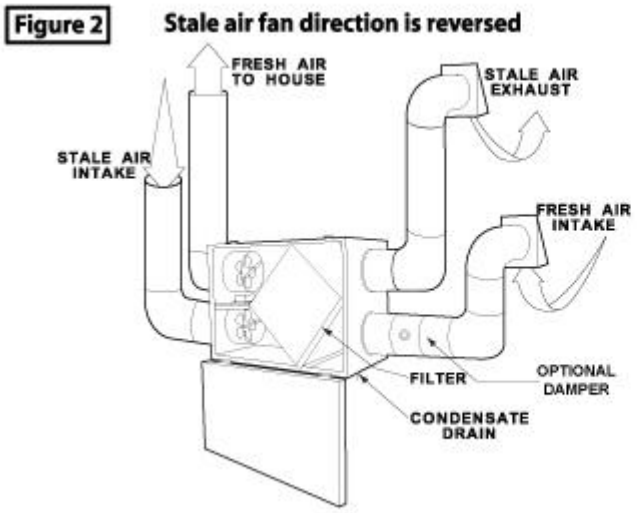
The fresh air to house and stale house air exhaust should be ducted away from each other. The stale house air intake can be located in your furnace room if there is circulation from the house to the furnace room. If there is no ventilation, you will have to install a vent grille in the furnace room door or wall to allow for free air movement. The minimum grille opening should be 64 square inches.

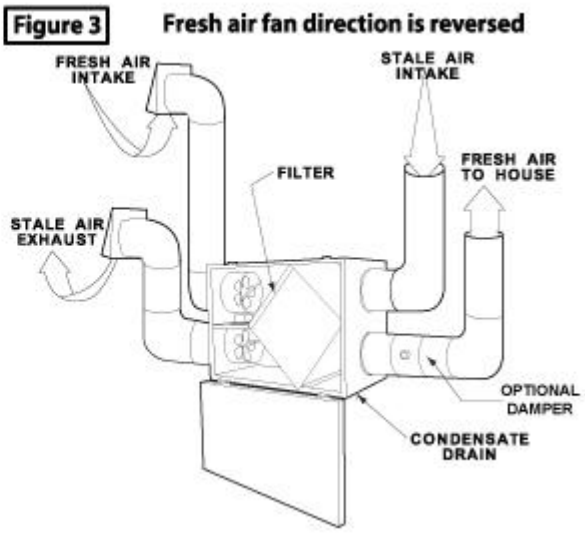
The fresh air to house should be ducted to a location where this fresh air will not be sucked into the stale air intake and be blown outside. Normally, ducting to an adjacent room or the upstairs level of a house will be adequate. Natural circulation inside a home will distribute the fresh air.



MANUALLY REVERSIBLE FANS

The stale and fresh air fans can be manually turned 180 degrees to allow for both vent hoods exiting the house to be on the same side of the heat exchanger. This makes routing the ductwork easier in certain applications. To switch the direction of airflow through one of the fans first make sure that the unit is switched off and not hooked up to power. Next inspect **Figures 2 & 3** and determine which fan needs to be reversed to fit your installation. Disconnect the 3 quick connects going to the fan that is being reversed. Remove the (2) 5/16ò hex head screws from the fan mounting bracket and remove the mounting brackets. Flip the fan around and re-secure it with the (2) mounting brackets and screws. Re-connect the quick connectors and the airflow direction change is complete. **Figure 2** displays the duct connections if the stale air fan is reversed and **Figure 3** shows the duct connections if the fresh air fan is reversed. Please note that if the fresh air fan is reversed the filter must move to the other side of the heat exchanger core as shown in Figure 3.





NOTE: Suncourt recommends that you use metal duct to connect the AirivaÊ . Flexible duct does not have a smooth inside surface. This creates turbulence in the airflow and will reduce the flow of air.

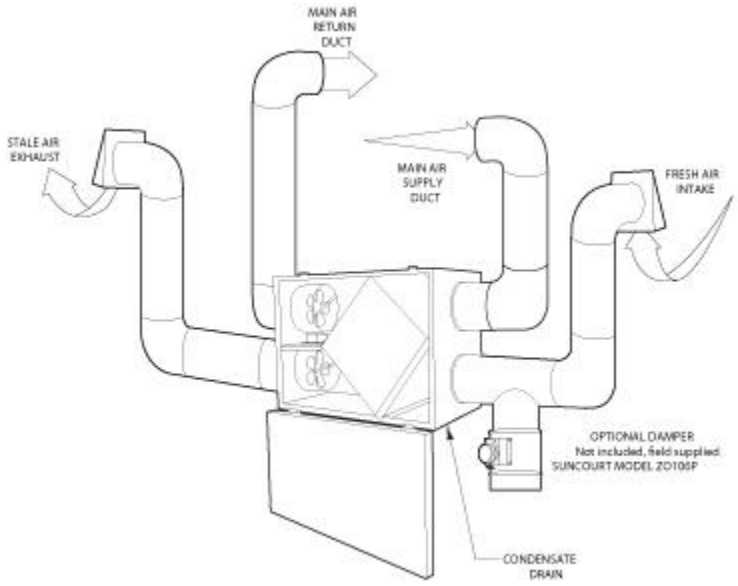
INTERNAL FROST PROTECTION

When set on Internal Frost Protection, the built-in electronic thermostat will protect the unit from freezing up under very cold outside conditions. This thermostat is preset at the factory to stop the operation when the fresh air to house cannot be held above approximately 45 degrees F (70 degrees C). When the temperature in your home is 70 degrees F (21 degrees C) the frost protection can normally be expected to activate at an outside temperature of 0 degrees F (-18 degrees C) or lower.

If the fresh air to house fan is reversed, stale house air will flow over the frost control sensor instead of fresh air to the house. The frost control will not operate in this configuration

EXTERNAL FROST PROTECTION

When the Airiva is in the external frost protection mode, the unit will not shut down during very cold outside conditions as it would in internal frost control mode. Instead of shutting down to protect the unit from freezing up, it will provide 24 VAC power to the terminals on the control panel. The 24 VAC terminals are to be used with a 6", 24 VAC, damper. This damper will be installed in a "T" fitting on the fresh air intake side of the Airiva. When the fresh air to the house is below 45 degrees F (4 degrees C), it will open the damper, allowing some warm house air to mix with the incoming, cold fresh air. This allows for an uninterrupted supply of fresh air, while avoiding freezing of the unit's core. The Suncourt ZO106P Zone Damper is recommended for this application. See Airiva External Frost Control instructions for more details.

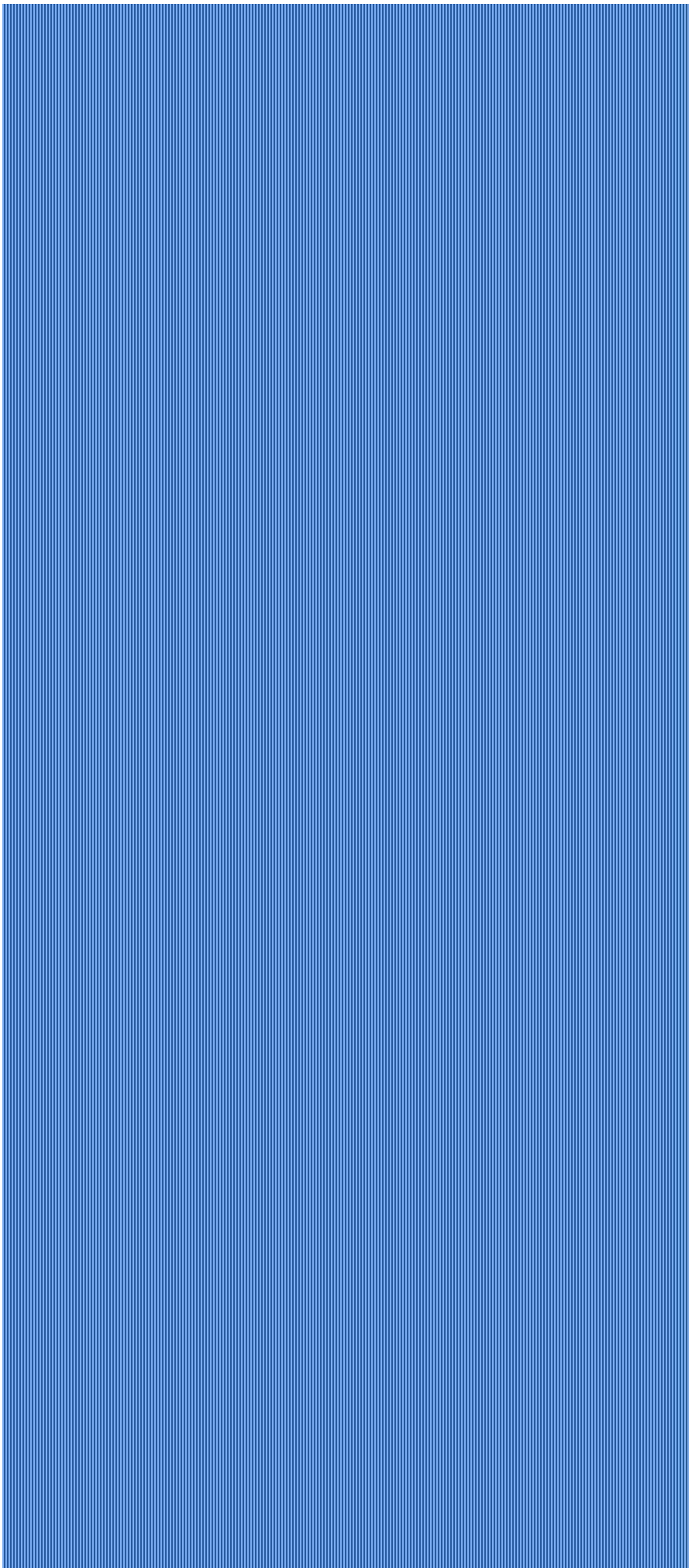


CLEANING AND MAINTENANCE

It is important to inspect the internal air filter at least once a month and wash if required. At the same time, inspect the heat exchanger core for dust, lint or anything else blocking the air channels in the heat exchanger plates. **Always unplug the power first!**

If the heat exchanger needs cleaning, simply slide out the metal rods that hold the top plate in place. Lift out all plates and wash with a mild detergent. Rinse under running water and shake any remaining water out of the air channels. Often, light dust can be cleaned without removing the heat exchanger core, using your vacuum cleaner and a small brush attachment. If available, you may carefully blow out the air channels with compressed air.

Place each plate, alternating the airflow channels on each layer. Lock the top plate in place with the metal rods, being careful not to bend them. Clean the screens of the outside vents as necessary.



SPECIAL INSTRUCTIONS FOR CONNECTION TO FORCED AIR SYSTEM.

READ THESE INSTRUCTIONS BEFORE COMMENCING INSTALLATION.

Suncourt® AirivaÊ
Heat Recovery Ventilator

The Airiva deserves its own ducts; forced air system connection is a distant second choice only.

The way to avoid this complicated installation is to run the forced air system fan 24 hours per day, every day of the year. (Set thermostat to Fan-On). Balance your system and adjust the Airiva to the recommended airflow in CFM by closing the two manual dampers the correct amount and securely locking them in that position. You will not need motorized dampers. Follow the instructions as they pertain to the manually adjustable dampers only.

REMEMBER: THE FORCED AIR SYSTEM FAN MUST RUN 24/7

FAILURE TO INSTALL AN ACTIVE DAMPER SYSTEM WHEN CONNECTING TO A FORCED AIR DUCT CAN:

ÅCause excessive airflow through the Airiva.
ÅReduce the efficiency from about 70% to less than 10%.
ÅAllow raw outside air to enter the home in great volume, resulting in much higher utility bills.
ÅCause excessive water collection inside the Airiva. Normally no water will collect in the Airiva except on very high outside humidity days (85% or higher and an indoor air-conditioned temperature of less than 80º F or 27º C.)
ÅThe Airiva heat exchanger core will accumulate an excessive amount of dust and dirt as a result of excessive airflow.

Connecting the Airiva to the air supply and air return ducts of the forced air system requires a good understanding of airflow dynamics and the following supplies and equipment:

Tools and Parts to be field supplied:

1. Motorized electric airflow dampers Suncourt part ZO106. Two required.
2. Manual airflow control dampers for 6ò duct. Two required.
3. Airflow measuring equipment. i.e.
(a) Probe Mass Airflow Sensor or insert station using a moving vane, and/or
(b) Electronic or equivalent indicator calibrated in FPM or CFM, and/or
(c) Airflow Collar, and/or
(d) Pitot Tubes and Magnehelix, and/or
(e) Mechanical or Electronic Manometer.

Follow the manufacturer's instructions and use their charts for the equipment of your choice.

4. Low voltage 18 Gauge bell wire, wire connectors and ties.
5. Calibration Control for dampers (An adjustable damper stop). Suncourt Part: CC100. Two required.

6. Rubber or vinyl plugs and grommets to seal openings made for airflow probes or wires to pass through holes in sheet metal.
7. Tin snips.
8. Phillips and flat blade screwdrivers.
9. Wire stripper and cutter.
10. Electric drill, drill bits and step drill.
11. Quality duct tape and electrical tape.
12. Pliers.

Motorized dampers must be installed in both the main air supply duct and main air return duct of the forced air system connected to the Airiva.

Never connect both Airiva ducts to the same forced air system duct such as the main air supply duct or main air return duct. This may result in a large portion of the airflow to/from the Airiva just to flow around and around without bringing in fresh air or expelling stale air.

These motorized dampers are ***in addition to*** two manual dampers to be installed in the same ducts for airflow balancing when the forced air system is **NOT** operating. The manual dampers must be balanced first ***before*** balancing the motorized dampers. The balancing of the manual dampers must be performed when the main forced air system is not operating. These manual dampers may be installed either upstream or downstream from the motorized dampers or in the Outside Fresh Air intake duct and Outside Stale Air exhaust duct.

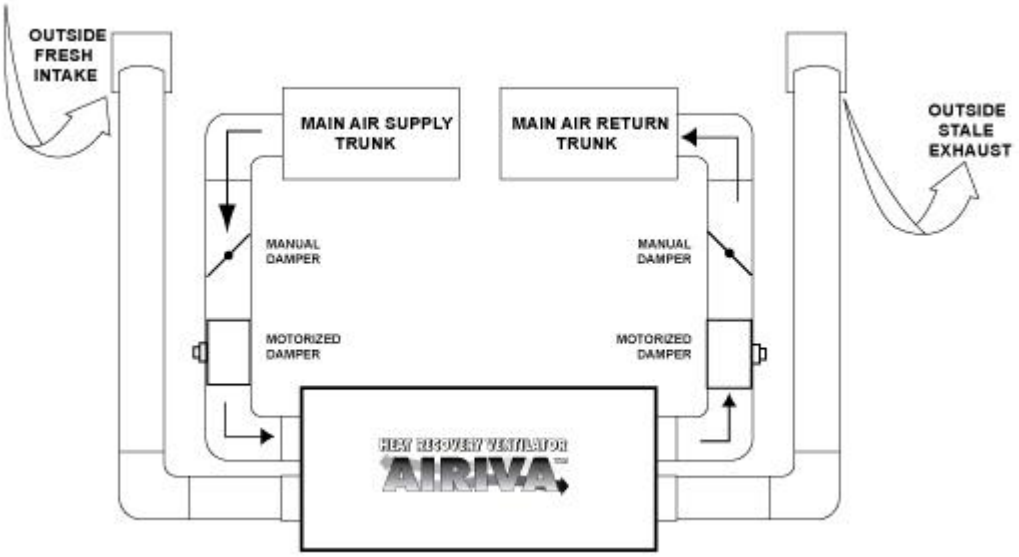
Similarly, when connecting to a forced air system, the fan is operating continuously year round (thermostat set to ñFan-Onò), the manual dampers must be calibrated when the forced air system fan is operating.

After calibration, securely lock the dampers in their position.

NEVER CHANGE THESE DAMPER SETTINGS

MECHANICAL INSTALLATION

The mechanical installation will look as in the diagram below:



Before installing the motorized dampers in the ductwork, install the calibration controls in the motorized dampers as shown in the instructions provided with the calibration control. These calibration controls are adjustable stops for the motorized damper blade to stop against at the correct airflow.

ELECTRICAL WIRING

There are two options for the electrical wiring.

Option 1: Depending on the capacity of the low voltage transformer built into your forced air system; you may connect the dampers directly to the 24 VAC output that is controlled by the thermostat of the system. The capacity of the 24 VAC transformer is sometimes greater than the capacity required for normal forced air system operation allowing for powering optional equipment. You will find the available capacity either on the wiring diagram inside the enclosure cover of your furnace and/or in the furnace installation manual. The load of each ZoneMaster motorized damper is 7 Watts.

Option 2: If you are either unsure of the 24 VAC transformer spare capacity or if the transformer has no spare capacity, use one of the 24 VAC transformers supplied with your ZoneMaster motorized damper. One transformer will comfortably operate both dampers.

The transformer primary connections must be connected to the power connector inside the furnace that has power only when the main furnace fan is running. You should find this connection location on the wiring diagram inside the enclosure cover of your furnace and/or in the furnace installation manual. You may install the stud mount transformer in one of several knockouts on your furnace. The primary connections will be inside the furnace for safety. Connect the secondary 24 VAC power to both ZoneMaster motorized dampers in parallel.

~ Never connect the ZoneMaster dampers or transformer to a DC circuit. ~

AIRFLOW CALIBRATION

Following the completion of the mechanical and electrical installation use this calibration process to adjust the manual dampers and the closing position of the motorized dampers:

Before commencing the Airflow Calibration of the motorized dampers, ensure that:

1. The airflow is balanced using the manual dampers*.
2. All ducts connected.
3. The main forced air system fan is **Off** (motorized dampers will be fully **Open**).
4. The Airiva frost control, if installed, is disabled.

*Partially close the manual dampers (if necessary) as little as possible to achieve an acceptable airflow balance in each the fresh and state airflow path.

Now proceed with the adjustment of the motorized dampers.

5. Turn **On** the Airiva at High Speed.
6. Make sure that the forced air system is **not** operating at this time.
7. Check that the motorized dampers are in the fully **Open** position.
8. Now turn On the forced air system by selecting **Fan – On** at the thermostat.
9. Verify that both motorized dampers are now fully **Closed**.
10. Insert the airflow-measuring instrument into the **Stale** air from the forced air system supply duct.

11. Adjust the Calibration Control to give airflow of 100 to 120 CFM (that is 500 to 600 FPM for 6ò diameter duct).
12. Securely tighten the Calibration Control wing nut.

Note: Do not be surprised if the dampers are open only a very little bit when the airflow is set. The much higher power of your forced air system fan will force 100 to 120 CFM through a small opening.

13. Repeat this procedure for the **Fresh** air to furnace return air duct.
14. Once these two dampers have been initially calibrated, repeat the calibration for both dampers since the position of one damper may somewhat affect airflow through the other.
15. When you are satisfied that both airflows are within specification, tightly secure the Calibration Control wing nuts and instruct the customer to **never alter** these calibrated settings.

YOU WILL HAVE TWO MANUAL DAMPERS AND TWO MOTORIZED DAMPERS INSTALLED

The airflow through the Airiva is now in balance and will be within the specified airflow range whether the forced air system is operating or not.

Specifications

The following table gives the number of air exchanges per day at airflows in cubic feet per minute (CFM) for various size homes in square feet.

AIRFLOW	SQUARE FEET OF THE HOME					
	1500	2000	2500	3000	3500	4000
150 CFM	20.0	15.0	12.0	10.0	8.6	7.5
140 CFM	18.6	14.0	11.2	9.3	8.0	7.0
130 CFM	17.3	13.0	10.4	8.6	7.4	6.5
* 120 CFM	15.8	12.0	9.6	7.9	6.8	6.0
110 CFM	14.6	11.0	8.8	7.3	6.3	5.5
* 100 CFM	13.3	10.0	8.0	6.6	5.7	5.0
90 CFM	12.0	9.0	7.2	6.0	5.1	4.5
80 CFM	10.6	8.0	6.4	5.3	4.6	4.0
70 CFM	9.3	7.0	5.6	4.7	4.0	3.5

To reduce the number of air exchanges in smaller homes, the **AIRIVA™** must be operated using a timer switch. For instance, at an airflow of 120 CFM in a 2000 sq. ft. home, 24 hour operation would give 12 exchanges per day. The desired 8 air exchanges per day requires 16 hours of operation each day.

Performance:		**HE100**	**HE150**
Unit Dimensions:		31" x 19.5" x 14"	31" x 19.5" x 14"
Unit Weight:		70 Lbs.	67 Lbs.
120 Volt AC 60 Hz:	Startup Amps	1.7A	1.7A
	Running draw	100 Watt	100 Watt
Airflow Capacity (nominal):	High speed	120 CFM	150 CFM
	Typical installation	**100 CFM ***	**120 CFM ***
	Low speed	70 CFM	90 CFM
Heat recovery efficiency:	High speed	73.5%	63.5%
	Typical installation	**82.2%**	**72.5%**
	Low speed	86.0%	79.1%
Heat exchanger core:		91 Square feet	72 Square feet
		6370 Channels	5040 Channels
Pressure drop over core:		0.05" W.C.	0.04" W.C.
Internal balance within:		0.01" W.C.	0.01" W.C.
Temperature stabilization:		< 5 Minutes	< 5 Minutes

* Typical installation with 25 feet of 6 inch diameter metal duct and 4 - 90° elbows for each of the stale and fresh air paths

MODEL Efficiency in percent based on airflow in CFM*

CFM	150	140	130	120	110	100	90	80	70	60
HE100	–		73.5	76.5	79.5	**82.2**	84.5	86.0	87.5	89.0
HE150	63.5	66.3	69.5	**72.5**	74.7	76.9	79.1	81.2	83.0	84.0

* Percentages shown are the averages of multiple measurements, including variations for internal air leakage, air density fluctuations, airflow variations, outside and inside temperature changes as in an actual operating environment.

MANUFACTURER'S WARRANTY

Subject to the follow limitations, Suncourt ("Manufacturer") warrants that the AirivaÊ Heat Recovery Ventilator will for three (3) years from the date of manufacture remain free from appearance of defects in workmanship or materials. The core has a limited lifetime warranty. This warranty is subject to the following limitations: (a) Manufacturer's liability is limited to the replacement or repair of the unit, as decided by the manufacturer; (b) this warranty does not apply to defects resulting from alteration, abuse, accidental damage, unauthorized repair or misuse of the unit; (c) a defective unit must be returned, prepaid, with proof of purchase after obtaining a return good authorization from Suncourt Inc. The unit must be returned in the original packaging and packaged as per enclosed instructions. This warranty is given in lieu of all other warranties, guarantees and conditions on Manufacturer's part, and the Manufacturer shall have no tortious or other liability in respect to this AirivaÊ Heat Recovery Ventilator.

Visit www.suncourt.com for additional information.

INSTALLER, LEAVE THESE INSTRUCTIONS WITH THE HOMEOWNER.

INSTALLER, PLEASE COMPLETE FOR FUTURE REFERENCE.

Date of Installation: _____

Installer Name: _____

Installer Company: _____ Phone: _____

Airflow Adjusted To: _____ CFM

Airiva Serial Number: _____

Airiva™ External Frost Control Instructions

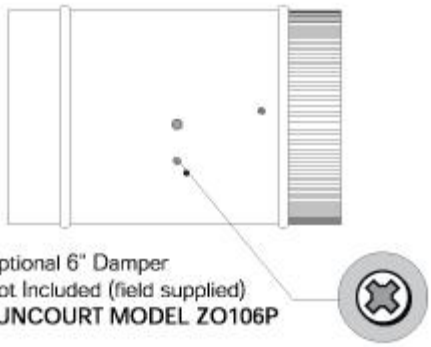
TOOLS NEEDED

STEP 1:

Using needle-nose pliers, remove the screw cap

STEP 2:

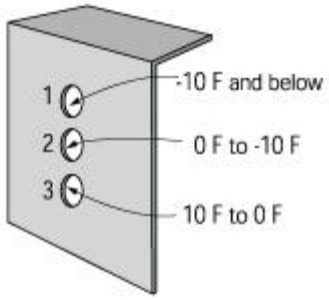
Remove pictured screw with Phillips screwdriver



Optional 6" Damper
Not Included (field supplied)
SUNCOURT MODEL ZO106P

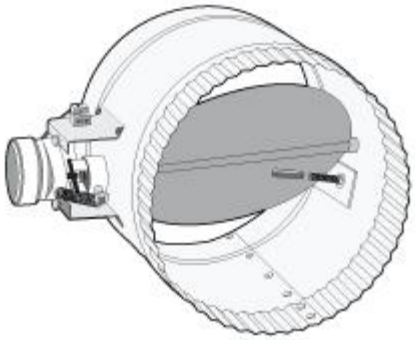
STEP 3:

If 3 or more days in a month fall into one of the temperature ranges below, use the bracket hole corresponding with that temperature range.



STEP 4:

Holding back the damper, hook the bracket behind the damper, lining up the correct bracket hole with the screw hole and screw the nut back onto the screw.

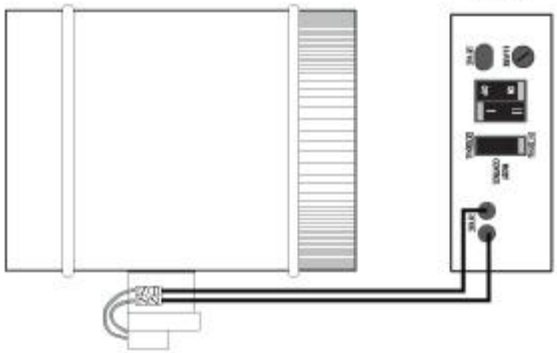


STEP 5:

Wiring for external frost control

Optional 6" Damper
Not Included (field supplied)
SUNCOURT MODEL ZO106P

Airiva™ Control Panel



Manufacturer reserves the right to change product specifications without notice.

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