



INSTALLATION GUIDE

STATIC AND STATIC WITH MOTORIZED DAMPERS MODELS

Horizontal series

- MODEL SH™
- MODEL SHM™



• MODEL SH™



• MODEL SHM™

Greentek

Think Green™



Greentek

Think Green™



Redefining Indoor Air Quality

*Solutions worthy
of nature...™*



All Greentek™ products are backed by the best limited warranty in the industry, for your peace of mind.

You benefit from a lifetime warranty on the core, and a 5 year warranty on all other components. So you can breathe easy.



1. Read entire manual before attempting to install the unit.
2. Always determine how the operation of the unit will interact with Combustion Appliances (i.e. Gas furnace, Wood stoves, Oil furnace...)
3. Never install a unit in situations where normal operation, lack of operation or partial failure may result in backdrafting or improper functioning of Combustion Appliances.
4. Keep the units' Fresh air intake a safe distance from any potential source of contamination, which may cause health problems.

About Us

Imperial Air Technologies Inc. is the only manufacturer that offers you a complete range of products designed to improve indoor air quality, and that provides a wide selection of accessories to facilitate installation.

Our vision - To offer a complete range of Greentek™ products that satisfy environmental concerns.

Whether your needs involve ventilation, purification, humidification or filtration, Greentek™ has the customized solution for you, with its range of quality products backed by the best warranty in the industry.

Installation

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1. Ventilation Needs

Determine Your Ventilation Needs

installation

How much fresh air do I need? Good air quality is based in part on the capacity of the home's ventilation system.

Usually, the HRV's capacity is measured in CFM (Cubic Feet per Minutes) or L/s (Liters per Seconds) of fresh air being distributed in the living space. The Room Count Calculation or the Air Change per Hour Method shows you how to determine your ventilation needs.

A. Room Count Calculation

LIVING SPACE	Number of Rooms	CFM (L/s)	CFM Required
Master Bedroom	_____	x 20 cfm (10 L/s)	= _____
With Basement	_____	x 20 cfm (10 L/s)	= _____
Without Basement	_____		
Single Bedroom	_____	x 10 cfm (5 L/s)	= _____
Living Room	_____	x 10 cfm (5 L/s)	= _____
Dinning Room	_____	x 10 cfm (5 L/s)	= _____
Family Room	_____	x 10 cfm (5 L/s)	= _____
Recreation Room	_____	x 10 cfm (5 L/s)	= _____
Other	_____	x 10 cfm (5 L/s)	= _____
<hr/>			
Kitchen	_____	x 10 cfm (5 L/s)	= _____
Bathroom	_____	x 10 cfm (5 L/s)	= _____
Laundry Room	_____	x 10 cfm (5 L/s)	= _____
Utility Room	_____	x 10 cfm (5 L/s)	= _____

TOTAL ventilation requirement (add last column) = _____

1 CFM = 0.47189 L/s
1 L/s = 3.6 m³/hr

B. Air Change per Hour Method

TOTAL cu ft X 0.3 per hr = total

Take total and divide by 60 to get CFM

Example:

25' x 40' house with basement
1,000 sq. ft. x 8' high x 2 (1st floor = basement) = 16,000 cu. ft.
16,000 sq. ft. x 0.3 ACH = 4,800 cu. ft.
4,800 sq. ft. / 60 Minutes = 80 CFM

80 CFM is your ventilation needs

Air Volume Needed

installation

In a typical installation there must be an adequate air volume passing through the unit in proportion of the pressure from the heating system.

Exemple: On the warm side*, the air volume needed is based on a 26' rigid duct. On the cold side*, the proportional equivalent is 18' of rigid duct.

* Between the model SH and the forced air system.

**Between the model SH and the outside intake.

2. Typical Installation

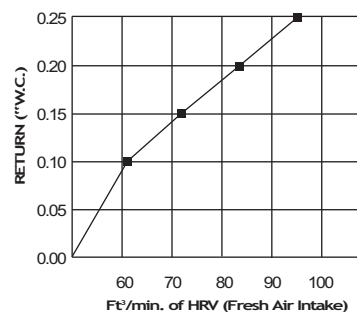
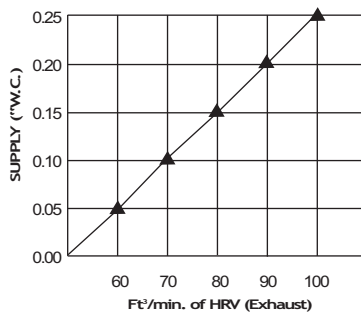
VENTILATION PERFORMANCE - MODEL SH

Supply

▲ Supply

Return

■ Return

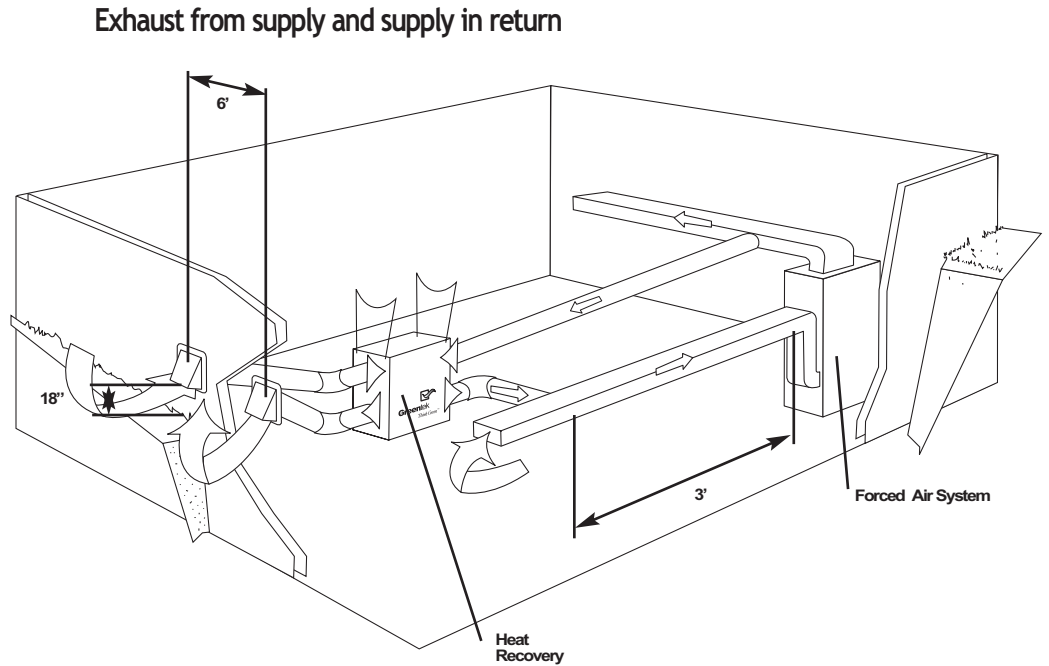




3. Typical Installation (continued)

Exhaust from the supply and supply in return installation

Make sure that the Supply air from HRV is at least 3 feet from the forced air system. Can be different from a region to another. You should check with your local code or the forced air system's manufacturer.



FOR MINIMUM DISTANCE BETWEEN RETURN AND FORCED AIR SYSTEM
Check with your local building codes and forced air system manufacturer

Airflow Direction installation

Check the airflow direction before starting the unit. If the airflow is not as indicated, flip the core to the appropriate side.

Note: To install the core unit accordingly to with the airflow, locate the four arrows on the core decal and read the directions. (Side A or side B)

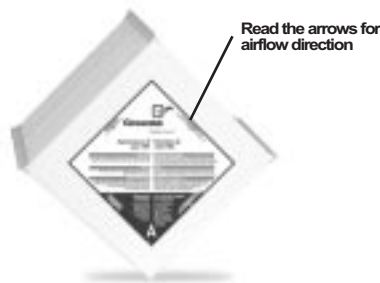


Figure 3.2 Core unit side A



Figure 3.3 Core unit side B

3. Greentek™ HRV Systems

Installation Kit

Included in the installation kit:

- 4 Collars
- 1 Condensation Drain Line
- 1 Drain Adapter with Nut
- 2 Tie Wraps (30")
- 16 screws (#10 x 5/8")
- 4 screws (#10 x 1")



Figure 3.1 Pull out the inserts first then use the straps to lift the unit out of the box

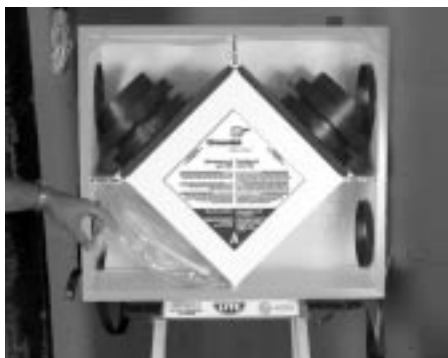


Figure 3.2 Installation kit is shipped inside the unit



Figure 3.3 Installation kit

4. Finding a suitable installation area for HRV.

The HRV unit should be installed in a mechanical room or as close to an outside wall as possible. This would assure a short run of insulated flexible duct.

The HRV unit must always be installed in an area where the air is tempered to avoid freezing of the condensate line. The contractor should install the unit in area that is very accessible to allow the homeowner easy access for maintenance.

You should have access to a condensate drain near the HRV to avoid the use of condensate pump.



5. Installation of the HRV

The SPM™ system is supplied with the HRV to allow one person mounting of unit.



SPM™ attachment system

The entire line of Greentek™ HRV products is designed for installation by a single person. "Single Person Mounting™" will enable you to save time and effort by offering you a variable attachment system and maximizing your basement space.



figure 5.1 Place HRV on a stepladder

Greentek™ TIPS to installer

If unit is not level, improper drainage will occur and could lead to moisture and leakage problems.



figure 5.2 Attach your four straps to the floor joist making sure that you attach thru the grommets.



figure 5.3 Pull on the middle strap and gently push upward on the unit. Repeat procedure on other side.



figure 5.4 When completing the procedure make sure that the HRV is level.

Greentek™ TIPS to installer

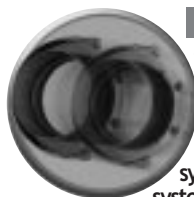
Always use rigid ducting between HRV and the forced air system.

6. Rigid Duct



figure 6.1 Mount rigid ducting to HRV

7. Insulated Flex



ISF™
collar system
(Patent Pending Technologies)

Quick and simple to install thanks to our revolutionary "Insert Slide and Fix™" collar system. The "ISF™" collar system by Greentek™ enables you to manipulate duct within your reach and then insert the collar to the HRV by sliding it in place, for a better and quicker installation.



figure 6.1 ISF™ Collar System - Removable Part

The installer can now benefit from Greentek's ISF™ System for his flex duct installation to the unit. Take four collars out of the unit. Insert the flex over the interior flange of the collar. Make sure that flex is pushed all the way, so the four tabs on the collar hooks on to the flex. Seal with tie wrap (2 tie wrap supplied with unit).

Pull insulation over the interior flange. Pull vapor barrier over outer flange on the collar and seal with duct tape.

Greentek™ TIPS to installer

To ensure a better installation and to avoid an undesired bend in the duct, align the duct with the collar before securing over the four hooks.



figure 6.2 Insert vinyl duct over the hooks and seal with a 30" Tie wrap.



figure 6.3 Insert insulation inside the collar.



figure 6.4 Finish by taping the duct on the collar.

Once insulated flex is attached to the collar, slide collar in keeper section, fixed collar to the unit with four screws supplied in installation kit.



figure 6.5 Slide collar on the unit.



figure 6.6 Fix and secure with four screws supplied.



8. Motorized Damper Assembly (Model SHM™ Only)



Motorized Damper balancing system

The HRV must be balanced properly in order to operate at maximum performance.

Greentek™ products are equipped with balancing damper to help eliminate the risks.



figure 8.1 Motorized damper kit



figure 8.2 Assembling damper motor



figure 8.5 Static model with motorized dampers (Model SHM)



figure 8.3 Closing damper

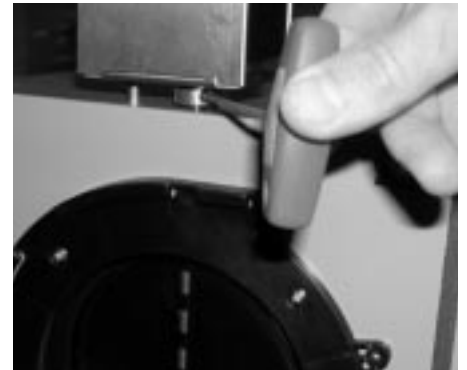


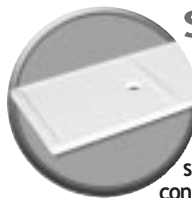
figure 8.4 Adjusting and tightening damper coupling

Mount the damper motor by aligning the pin on the damper motor to the hole on the unit's top plate and align the damper motor coupling with the damper shaft. (figure 8.2)

Align the damper in the fully closed position. (figure 8.3) Using a 1/8" Allen key tool inserted in the locking screw, rotate the coupling slightly clockwise just enough to exert a slight torque on the damper mechanism and tighten the lock screw. (figure 8.4)

Dampers should now be in the fully closed position with no power. Identify desired wiring diagram shown at page 14 of this guide. Activating the damper motor should open flaps to 90°. If the damper flap do not open fully, coupling might need to be readjusted to allow for more or less spring tension when fully closed.

9. Condensation Drain Line



Sloped Drain Pan drainage system

Greentek™ HRV units are equipped with an easy-access sloped drain pan. Excess condensation that might accumulate inside the unit migrate to the centre of the drain pan to be evacuated.



figure 9.1 Hand screw the drain adapter

Insert the threaded drain adapter thru the bottom of the HRV and hand tighten the plastic nut supplied with the drain kit.

Install the condensate line (10 feet included in drain kit). Insert condensate tubing by pushing clear plastic line over drain adapter. Make condensate trap by looping the clear plastic tubing. This procedure is to avoid foul odor to enter the HRV .



figure 9.2 Insert condensate line



figure 9.3 Make a loop in condensate line



figure 9.4 Use a condensate pump if you don't have access to the floor drain



10. Outside Hoods

Greentek™ TIPS to installer

figure 10.2- To make your installation easier use our double collar to install your flex pipe with the outside hoods.

Greentek™ INFO to installer

We manufacture a wide selection of :

- Insulated Flexpipe
- Hoods

Greentek™ TIPS to installer

Extend the sheet metal sleeve 1.5" inside the home. Attach Greentek™ specialty ISF™ collar to sheet metal sleeve.



figure 10.1 Locating Outside Hoods



figure 10.2 Insert vinyl duct over the hooks. Fix the collar on the floor joist.



figure 10.3 Insert insulation inside the collar and finish by taping the vapor barrier on the collar.



figure 10.4 Finish by taping the duct on the collar.



figure 10.4 Install Outside Hoods

11. Balancing Damper

Maximizing the unit's performance installation

The HRV must be balanced properly in order to operate at maximum performance and avoid problems.

Balancing the Unit installation

Balancing the unit is an important step in the installation of the HRV. The operation consists of measuring and regulating the volume of fresh air from outside passing through the unit is equal with the exhaust air from home.

A 10% variation is acceptable, in such case, the volume of exhaust air from home should be superior than the volume of fresh air from outside.

Refer to Ventilation Needs, page 3 to determine what is the volume of air needed for your specific installation.

Before Starting the Balancing Operations installation

A Magnehelic gauge equipped with an air flow grid is used to measure the volume of air passing through the unit and ducting system. Make sure that the airflow grid is the same size as the conduit being measured. Check for size on grid. (Figure 11.6)



figure 11.6 Magnehelic Gauge with Air Flow Grid



figure 11.1 Balancing Dampers- Model SHM™ and Model SH™

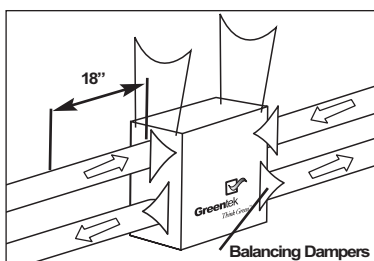


figure 11.2 Minimum of 18"

Step 1: To get proper readings, mount the air flow grid inside a rigid ducting at a minimum of 18 inches from the unit. This will avoid getting unstable airflow witch could offset the readings. (Figure 11.2)

Step 2: Start with the fresh air from outside duct. Drill a hole in the conduit and insert the air flow grid. Make sure to mount the grid following the direction of the airflow arrow. (Figure 11.3)



figure 11.3 Inserting Air flow grid in duct

Step 3: The magnehelic gauge needs to be leveled and should read «0» before taking any readings. Determine your airflow volume by consulting the grid's chart. It can differ from one gauge size to an other. (Figure 11.4)



figure 11.3 Magnehelic Gauge at «0»

Step 4: On this unit the airflow is regulated by a balancing damper installed inside the ISF™ collar system located on the top right side of the HRV. (Figure 11.1)

Measure and regulate the «fresh air from outside» damper until desired airflow volume. Repeat the same steps for the «exhaust air from home» damper.



figure 11.5 Avoid leakage by sealing air flow grid in duct with duct tape.

Step 5: Finish the balancing operation by tapping all the holes made from the mounting of the airflow grid. (Figure 11.5)



12. Controls (Model SHM™ Only)



Control

The GreenThinker™ model control is offered with features making your ventilation system simple, easy to operate and backed by a 5 year limited warranty.

GreenThinker model



RD-1 model™ DEHUMIDISTAT

Features

- Dehumidistat to select the humidity level

Greentek's RD-1 model™ allows the homeowner to select the indoor humidity level.



Peace of Mind

Ensure your comfort in the years to come by using Greentek™ systems and accessories to install any ventilation, humidification, purification or filtration product.

Need help? You benefit from certified customer service ready to guide you in the installation or operation of your Greentek™ system.

Call Toll free: 1 888 724-5211



FMA™ maintenance system

In order to improve air quality and offer the best possible air quality in your home, Greentek™ has developed one of the first maintenance service systems in the industry. The "Filter Maintenance Adviser™" will remind you by e-mail when the filter of your HRV system must be replaced, to maximize its performance and efficiency.

For more information call toll free: 1 888 724-5211

or visit us at: www.greentek.ca

13. Troubleshooting

PROBLEMS	SOLUTIONS
<ul style="list-style-type: none"> • Air is too dry 	<ul style="list-style-type: none"> • Increase humidity level on dehumidistat. • Switch ventilation mode from continuous to intermittent • Install a Greentek humidifier
<ul style="list-style-type: none"> • Air too humid 	<ul style="list-style-type: none"> • Reduce the humidity level on the controller. • Verify if dryer is venting in basement. • Verify if heating wood is stored in basement. • Wait for outside temperature to change. Ex. Summer can be extremely humid. • Verify balancing of the HRV. • Run furnace blower continuously to increase ventilation rate.



14. Maintenance



When should I Service my HRV?
service and accessories

HEAT RECOVERY CORE UNIT

Once a year or as needed, vacuum the four surfaces, let soak in warm water for three hours, then spray rinse and let dry.

FILTERS

Four times a year or as needed, vacuum the filters. Replace filters once a year.

INSIDE THE UNIT

Once a year or as needed, clean the interior of the unit (walls and drain pan) with a mild and non abrasive soap. It is recommended to use products that are environmentally-friendly



figure 14.1 Slide Out the Filters



figure 14.2 Vacuum the Filters



figure 14.3 Slide out the Energy Core



figure 14.4 Wash the Walls of the Unit



Greentek™ Accessories

Using the appropriate accessories, your system will be simple to install and its performance will be optimal.

Choose from the complete range of ventilation accessories and products by "Imperial Air Technologies Inc".

15. Accessories

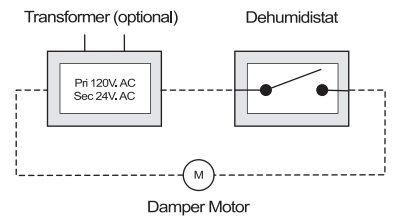


figure 15.1 Ventilation Accessories



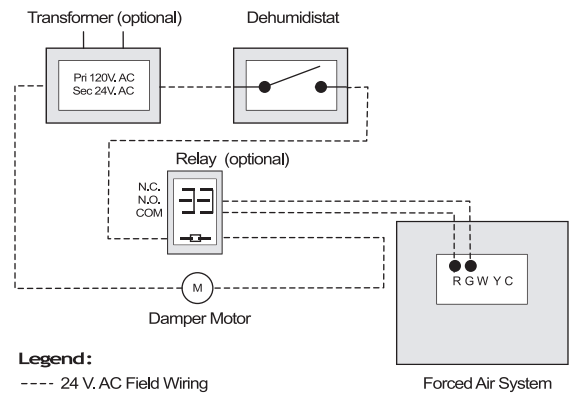
16. Wiring Diagram (Model SHM™ Only)

OPTION 1



Legend:
---- 24 V. AC Field Wiring

OPTION 2

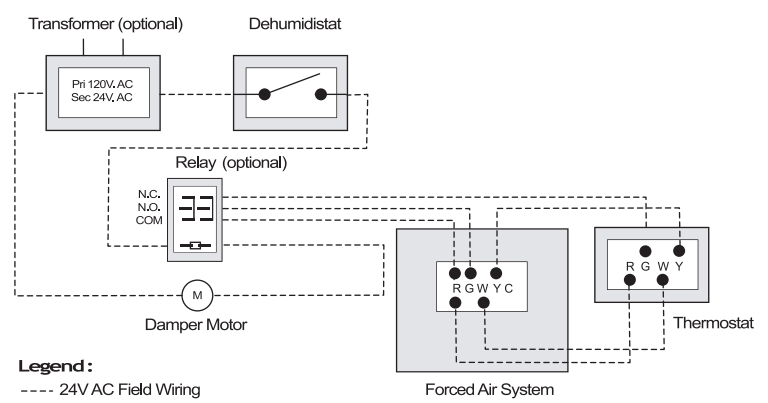


Legend:
---- 24 V. AC Field Wiring

Note
to installer

On older thermostats, energizing the R and G terminals at the forced air system has the effect of energizing the Y terminal at the thermostat and thereby activating the cooling system. If you identify this type of thermostat, you must use Option 3.

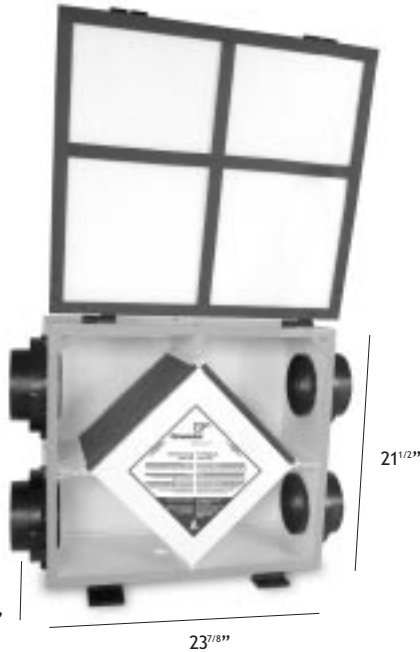
OPTION 3



Legend:
---- 24V AC Field Wiring

17. Specification and Technical Information

Easy Access Door
removable top hinge door



SPECIFICATIONS	SH 0.8	SH 0.12
Size	23 ^{7/8} "x21 ^{1/2} "x11 ^{3/8} "	23 ^{7/8} "x21 ^{1/2} "x16 ^{1/2} "
Heat exchanger (L x H x W)	12" x 12" x 10"	12" x 12" x 15"
CFM	80*	120*
Type of heat exchanger	cross-flow (Polypropylene)	cross-flow (Polypropylene)

SPECIFICATIONS	SHM 0.8	SHM 0.12
Size	23 ^{7/8} "x21 ^{1/2} "x11 ^{3/8} "	23 ^{7/8} "x21 ^{1/2} "x16 ^{1/2} "
Heat exchanger (L x H x W)	12" x 12" x 10"	12" x 12" x 15"
CFM	80*	120*
Type of heat exchanger	cross-flow (Polypropylene)	cross-flow (Polypropylene)

*Depending on the static pressure of the forced air system.

Note to installer

All Greentek™ products are backed by the best limited warranty on the market.

Imperial Air Technologies Inc. reserves the right to modify a product, without prior notice, whether in design, colour or specifications, in order to offer at all times a quality product that is highly competitive.

Please consult local authorities to find out whether the installation of electrical products requires the services of a certified technician or electrician.

*Protect the natural world from
harmful activities of humans*



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We choose to use recyclable and non-toxic materials when ever possible