



# Fantech

Your Ventilation Solutions Company

## SH, VH & SE Series Heat & Energy Recovery Ventilators

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

**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 should be confirmed by measuring the airflow's of the Heat Recovery or Energy Recovery Ventilators.

It is always important to assess how the operation of any HRV/ERV may interact with vented combustion equipment (i.e. Gas Furnaces, Oil Furnaces, Wood Stoves, etc.).

**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!!!



Your ventilation system should be installed in conformance with the appropriate provincial or state requirements or in the absence of such requirements with the current edition of the National Building Code, and / or ASHRAE's "Good Engineering Practices".

## SH, VH & SE Models

SH704 • VH704 • SE704

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

## The Best Limited Warranty in the Business

- The heat recovery aluminum core has a limited lifetime warranty and the enthalpy energy recovery core has a 5 year limited warranty.
- The motors found in all Fantech HRV/ERVs require no lubrication, and are factory balanced to prevent vibration and promote silent operation.
- The limited warranty covers normal use. It does not apply to any defects, malfunctions or failures as a result of improper installation, abuse, mishandling, misapplication, fortuitous occurrence or any other circumstances outside Fantech's control.
- Inappropriate installation or maintenance may result in the cancellation of the warranty.
- Any unauthorized work will result in the cancellation of the warranty.
- Fantech is not responsible for any incidental or consequential damages incurred in the use of the ventilation system.
- Fantech is not responsible for providing an authorized service centre near the purchaser or in the general area.
- Fantech reserves the right to supply refurbished parts as replacements.
- Transportation, removal and installation fees are the responsibility of the purchaser.
- The purchaser is responsible to adhering to all codes in effect in his area.
- The warranty is limited to 5 years on parts and 7 years on the motor from the date of purchase, including parts replaced during this time period. If there is no proof of purchase available, the date associated with the serial number will be used for the beginning of the warranty period.

\* This warranty is the exclusive and only warranty in effect relative to the ventilation system and all other warranties either expressed or implied are invalid.

**\*\*\*Illustrations & images in this manual may not be exactly like unit purchase, these illustrations & images are for examples only.\*\*\***

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### Sizing (Example) for minimum airflow normally required.

HRV/ERV units are typically sized to ventilate at 0.35 air changes per hour. To calculate, simply take the square footage of the space and multiply by the height of the ceiling to get cubic volume. Then, divide by 60 and multiply by 0.35.

Example:	Total SQFT	1100
	Height of ceiling	x 8
	Cubic volume	8800
		/ 60
		147
		x 0.35
	Airflow required (CFM)	51 cfm total

\* Always consult your local code for sizing requirements in your area.

\* If additional exhaust capacity is required, installation of a fantech bath kit in main bath area is recommended.

### ASHRAE Standard 62.2 - 2004

### Sizing (Example) for minimum airflow normally required.

#### Ventilation Air Requirements, cfm

Floor Area (ft <sup>2</sup> )	Bedrooms				
	0-1	2-3	4-5	6-7	>7
<1500	30	45	60	75	90
1501-3000	45	60	75	90	105
3001-4500	60	75	90	105	120
4501-6000	75	90	105	120	135
6001-7500	90	105	120	135	150
>7500	105	120	135	150	165

#### Ventilation Air requirements, L/s

Floor Area (m <sup>2</sup> )	Bedrooms				
	0-1	2-3	4-5	6-7	>7
<139	14	21	28	35	42
139.1-279	21	28	35	42	50
279.1-418	28	35	42	50	57
418.1-557	35	42	50	57	64
557.1-697	42	50	57	64	71
>697	50	57	64	71	78



# Fantech

## Heat Recovery Ventilator

# SH704

**S** = Side discharge

**H** = Heat recovery

**704** = 70cfm, 4 port design



Compact HRV with easy-mount wall bracket. Brings a continuous supply of fresh air into a home while exhausting an equal amount of contaminated air. HRVs use what is called a "sensible" heat recovery core. This special core transfers heat from the exhaust air stream to the incoming air stream. Fresh incoming air is tempered by the heat that is transferred from the outgoing air to save on energy costs. The SH704 is equipped with automatic defrost mechanisms so even if you live in the coldest climates you can use your HRV all year long.

### FEATURES

- Super Compact Size
- Includes Easy-Mount Wall Bracket
- Aluminum Heat Recovery Core
- 4" (100mm) Duct Connections
- No Balancing Required
- Easy Access Service Door
- 3' (914mm) Plug-in Power Cord
- Automatic Exhaust Defrost Allows Units to Always Stay in Ventilation Mode
- Only 25 lbs (11 kg)
- Electrostatic Filters (washable)
- Easy Core Guide Channels For Removing Core
- Single Speed Ventilation

### ACCESSORIES

- FDT 7 – 7 Day Digital Programmable Timer
- COM 4P – 4" Weather Hoods (1 supply & 1 exhaust)
- FEL 4 – 4" 90° Elbow
- CG 4 – 4" Adjustable Grille

Distributed by:

### SPECIFICATIONS

**CASE** 24 gauge galvanized steel. Baked powder coated paint, antique white. Cabinet fully insulated with 1" (25 mm) aluminum foil-face high density polystyrene foam to prevent condensation and meet the requirements of the UL 94HF.

**MOTORS** Two (2) German-manufactured, factory-balanced ebm™ motors with backward curved blades. Motors come with permanently lubricated sealed ball bearings guarantee long life and maintenance-free operation. Seven (7) year warranty. Steep fan curves requires no balancing of airflows.

**CORE** Aluminum heat recovery core configured for efficient cross-flow ventilation. Core is 8.5" x 8.5" (216 x 216mm) with a 8" (203mm) depth. Cores are manufactured by Fantech to withstand extreme temperature variations.

**FILTERS** Two (2) Washable Electrostatic Panel Type Air Filters, 8.5" (216mm) x 8" (203mm) x 0.125" (3mm).

**CONTROLS** Unit is designed to operate continuously on a single speed. See FDT 7 under accessories or contact Tech Support for possible intermittent, line-voltage options.

**DEFROST** The automatic defrost cycle consists of a fan shutdown. When the supply air stream temperature goes below 23°F (-5°C), the supply motor shuts down while the exhaust motor continues to ventilate. Ambient air is passed through the unit for a period of 3 or 5 minutes. (see chart below) The supply motor will then re-start and run at the preset speed. This fan shutdown defrost cycle continues until the supply air stream rises above 23°F (-5°C).

Temperature range °F (°C)	Run/Defrost cycle (minutes)
23 (-5) to 14 (-10)	40 / 3
14 (-10) to 5 (-15)	30 / 5
5 (-15) & lower	20 / 5

**SERVICEABILITY** Core, filters, motors and drain pan can be easily accessed through latched door. Core conveniently slides out on our new easy glide core guides. 10" (250mm) of clearance is recommended for removal of core.

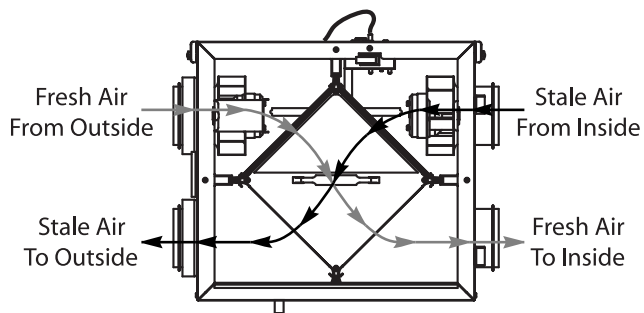
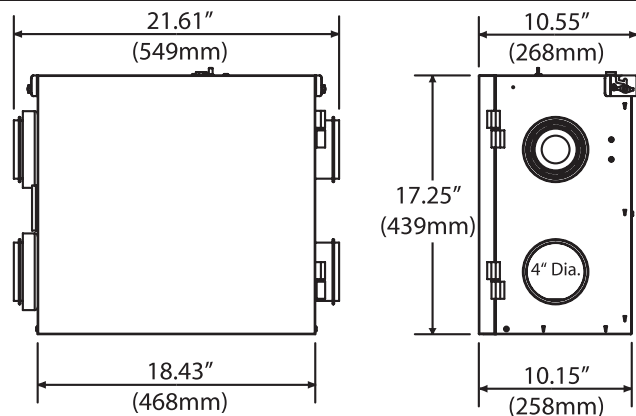
**DUCT CONNECTION** 4" (100mm) steel duct connections with rubber gasket for easy sealing.

**DRAIN** 1/2" (13mm) OD (outside diameter) drain spout (provided), and the entire bottom of unit covered by pan.

**WARRANTY** Limited lifetime on aluminum core, 7 years on motors, and 5 years on parts.

## Dimensions & Airflow

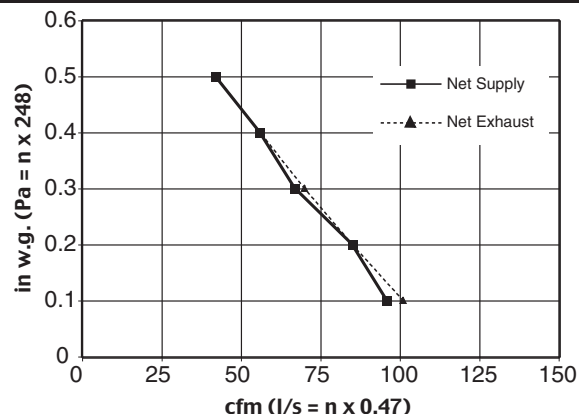
All units feature three foot plug-in power cord with 3-prong plug.



- Continuous ventilation mode of supply and exhaust airstreams
- 10" (254mm) of clearance is recommended for removal of core

## Ventilation Performance

EXT. STATIC PRESSURE		NET SUPPLY AIR FLOW		GROSS AIR FLOW			
Pa	in wg	L/s	cfm	L/s	cfm	L/s	cfm
25	0.1	45	96	47	99	49	104
50	0.2	40	85	41	88	41	88
75	0.3	32	67	33	69	34	72
100	0.4	26	56	27	58	28	58
125	0.5	20	42	20	43	20	43



## Energy Performance

	SUPPLY TEMPERATURE		NET AIRFLOW		POWER CONSUMED WATTS	SENSIBLE RECOVERY EFFICIENCY	APPARENT SENSIBLE EFFEC-TIVENESS	LATENT RECOVERY/MOISTURE TRANSFER
	°C	°F	L/s	cfm				
Heating	0	32	26	55	36	57	67	—
	0	32	32	68	40	55	63	—
	0	32	39	83	40	54	60	—
	-25	-13	34	72	35	53	66	—

## Specifications and Ratings

- Model: SH704
- Total assembled weight: 25 lbs (11kg)
- Cabinet: 24 ga. steel w/powder coat finish
- Motors: ebm motors w/backward curved blades
- Filters: 2 washable electrostatic filters 8.5" (216mm) x 8" (205mm) x 0.125" (3mm)
- Insulated with 1" (25 mm) aluminum foil-face high density polystyrene foam to prevent condensation and meet the requirements of the UL 94HF.
- Core: Aluminum 8.5" (216mm) x 8.5" (216mm) x 8" (205mm)
- Supply & exhaust ducts: 4" (100mm)
- Mounting: Wall bracket included
- Electrical requirements:
 

Volts	Frequency	Amps	Watts
115V	60Hz	0.36A	40W

 3' plug-in power cord w/ 3-prong plug

## Contacts

Submitted by:	Date:
Qty:	Model #:
Comments:	
Project #:	
Location:	
Architect:	
Engineer:	
Contractor:	



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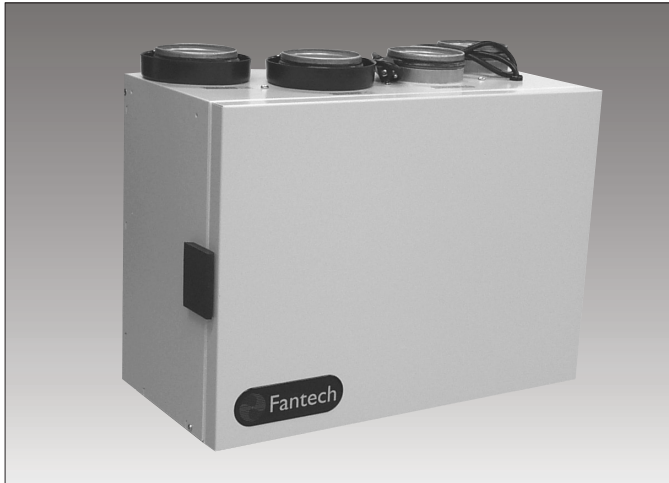


Article #: 412120  
Rev Date: 092410



# Fantech

## Heat Recovery Ventilator



Compact top port design HRV with easy-mount wall bracket. Brings a continuous supply of fresh air into a home while exhausting an equal amount of contaminated air. HRVs use what is called a "sensible" heat recovery core. This special core transfers heat from the exhaust air stream to the incoming air stream. Fresh incoming air is tempered by the heat that is transferred from the outgoing air to save on energy costs. The VH704 is equipped with automatic defrost mechanisms so even if you live in the coldest climates you can use your HRV all year long.

### FEATURES

- Super Compact Size
- Top Port Design Fits in Tight Spaces
- Includes Easy-Mount Wall Bracket
- Aluminum Heat Recovery Core
- 4" (100mm) Duct Connections
- No Balancing Required
- Easy Access Service Door
- 3' (914mm) Plug-in Power Cord
- Automatic Exhaust Defrost Allows Units to Always Stay in Ventilation Mode
- Only 26 lbs (12 kg)
- Electrostatic Filters (washable)
- Easy Core Guide Channels For Removing Core
- Single Speed Ventilation

### ACCESSORIES

- FDT 7 — 7 Day Digital Programmable Timer
- COM 4P — 4" Weather Hoods (1 supply & 1 exhaust)
- FEL 4 — 4" 90° Elbow
- CG 4 — 4" Adjustable Grille

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# VH704

**V** = Vertical discharge  
**H** = Heat recovery  
**704** = 70cfm, 4 port design

### SPECIFICATIONS

**CASE** 24 gauge galvanized steel. Baked powder coated paint, antique white. Cabinet fully insulated with 1" (25 mm) aluminum foil-face high density polystyrene foam to prevent condensation and meet the requirements of the UL 94HF.

**MOTORS** Two (2) German-manufactured, factory-balanced ebm™ motors with backward curved blades. Motors come with permanently lubricated sealed ball bearings to guarantee long life and maintenance-free operation. Seven (7) year warranty. Steep fan curves requires no balancing of airflows.

**CORE** Aluminum heat recovery core configured for efficient cross-flow ventilation. Core is 8.5" x 8.5" (216 x 216 mm) with a 8" (205 mm) depth. Cores are manufactured by Fantech to withstand extreme temperature variations.

**FILTERS** Two (2) Washable Electrostatic Panel Type Air Filters, 8.5" (216mm) x 8" (203mm) x 0.125" (3mm).

**CONTROLS** Unit is designed to operate continuously on a single speed. See FDT 7 under accessories or contact Tech Support for possible intermittent, line-voltage options.

**DEFROST** The automatic defrost cycle consists of a fan shutdown. When the supply air stream temperature goes below 23°F (-5°C), the supply motor shuts down while the exhaust motor continues to ventilate. Ambient air is passed through the unit for a period of 3 or 5 minutes. (see chart below) The supply motor will then re-start and run at the preset speed. This fan shutdown defrost cycle continues until the supply air stream rises above 23°F (-5°C).

Temperature range °F (°C)	Run/Defrost cycle (minutes)
23 (-5) to 14 (-10)	40 / 3
14 (-10) to 5 (-15)	30 / 5
5 (-15) & lower	20 / 5

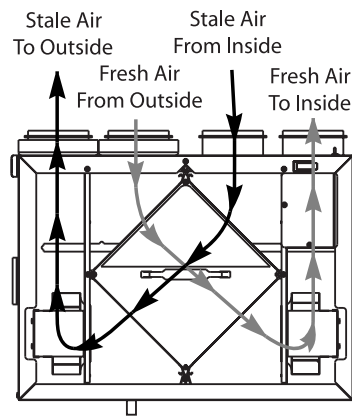
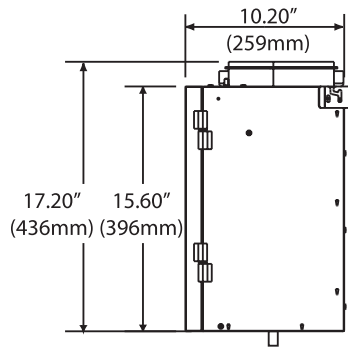
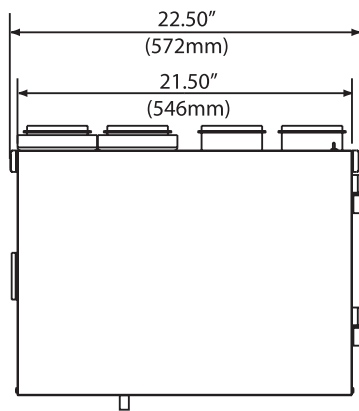
**SERVICEABILITY** Core, filters, motors and drain pan can be easily accessed through latched door. Core conveniently slides out on our new easy glide core guides. 10" (250mm) of clearance is recommended for removal of core.

**DUCT CONNECTION** 4" (100mm) steel duct connections with rubber gasket for easy sealing.

**DRAIN** 1/2" (13mm) OD (outside diameter) drain spout provided, entire bottom of unit covered by pan.

**WARRANTY** Limited lifetime on aluminum core, 7 year on motors, and 5 year on parts.

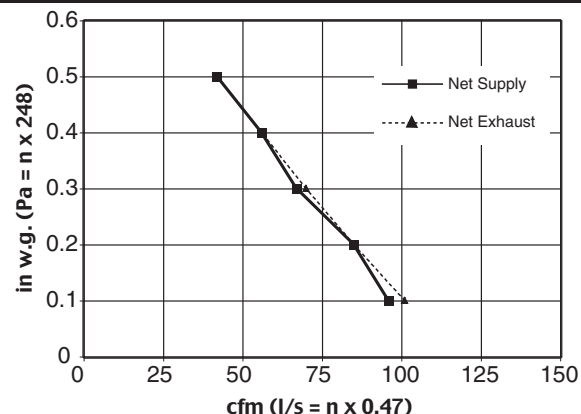
## Dimensions & Airflow - All units feature three foot plug-in power cord with 3-prong plug.



- Continuous ventilation mode of supply and exhaust airstreams
- 10" (254mm) of clearance is recommended for removal of core

## Ventilation Performance

EXT. STATIC PRESSURE		NET SUPPLY AIR FLOW		GROSS AIR FLOW SUPPLY EXHAUST			
Pa	in wg	L/s	cfm	L/s	cfm	L/s	cfm
25	0.1	45	96	47	99	49	104
50	0.2	40	85	41	88	41	88
75	0.3	32	67	33	69	34	72
100	0.4	26	56	27	58	28	58
125	0.5	20	42	20	43	20	43



## Energy Performance

	SUPPLY TEMPERATURE		NET AIRFLOW		POWER CONSUMED WATTS	SENSIBLE RECOVERY EFFICIENCY	APPARENT SENSIBLE EFFECTIVENESS	LATENT RECOVERY/MOISTURE TRANSFER
	°C	°F	L/s	cfm				
Heating	0	32	26	55	36	57	67	—
	0	32	32	68	40	55	63	—
	0	32	39	83	40	54	60	—
	-25	-13	34	72	35	53	66	—

## Specifications and Ratings

- Model: VH704
- Total assembled weight: 26 lbs (12kg)
- Cabinet: 24 ga. steel w/powder coat finish
- Motors: ebm motors w/backward curved blades
- Filters: 2 washable electrostatic filters 8.5" (216mm) x 8" (205mm) x 0.125" (3mm)
- Insulated with 1" (25 mm) aluminum foil-face high density polystyrene foam to prevent condensation and meet the requirements of the UL 94HF.
- Core: Aluminum 8.5" (216mm) x 8.5" (216mm) x 8" (205mm)

- Supply & exhaust ducts: 4" (100mm)
- Mounting: Wall bracket included

### Electrical requirements:

Volts	Frequency	Amps	Watts
115V	60Hz	0.36A	40W

3' plug-in power cord w/ 3-prong plug

## Contacts

Submitted by:	Date:
Qty:	Model #:
Comments:	
Project #:	
Location:	
Architect:	
Engineer:	
Contractor:	



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Article #: 412120  
Rev Date: 092410





# Fantech

## Energy Recovery Ventilator

# SE704N

**S** = Side discharge  
**E** = Energy recovery  
**704** = 70cfm, 4 port design  
**N** = No defrost & drain pan



Compact ERV with easy mount wall bracket. Brings a continuous supply of fresh air into a home while exhausting an equal amount of contaminated air. The enthalpic core at the center of the unit transfers heat and moisture from the incoming air to the outgoing air. The air brought into the living area is cooled and the humidity is reduced for maximum comfort. Reduces the load on a home's air conditioner to save on cooling costs.

### FEATURES

- Super Compact Size
- Includes Easy-Mount Wall Bracket
- Enthalpy Core
- 4" (100mm) Duct Connection
- No Balancing Required
- Unit Can Be Installed In Any Position
- No Defrost or Drain Pan Needed
- Easy Access Service Door
- 3' (914mm) Plug-in Power Cord
- Only 25 lbs (11 kg)
- Electrostatic Filters (washable)
- Easy Core Guide Channels For Removing Core
- Single Speed Ventilation

### ACCESSORIES

- FDT 7 – 7 Day Digital Programmable Timer
- COM 4P – 4" Weather Hoods (1 supply & 1 exhaust)
- FEL 4 – 4" 90° Elbow
- CG 4 – 4" Adjustable Grille

### SPECIFICATIONS

**CASE** 24 gauge galvanized steel. Baked powder coated paint, antique white. Cabinet fully insulated with 1" (25 mm) aluminum foil-face high density polystyrene foam to prevent condensation and meet the requirements of the UL 94HF.

**MOTORS** Two (2) German-manufactured, factory-balanced ebm™ motors with backward curved blades. Motors come with permanently lubricated sealed ball bearings to guarantee long life and maintenance-free operation. Seven (7) year warranty. Steep fan curve requires no balancing.

**CORE** Enthalpy core configured for efficient cross-flow ventilation. Core is 8.5" x 8.5" (216 x 216 mm) with a 8" (205 mm) depth. Cores are manufactured to withstand large temperature variations.

**FILTERS** Two (2) Washable Electrostatic Panel Type Air Filters, 8.5" (216mm) x 8" (203mm) x 0.125" (3mm).

**CONTROLS** Unit is designed to operate continuously on a single speed. See FDT 7 under accessories or contact Tech Support for possible intermittent, line-voltage options.

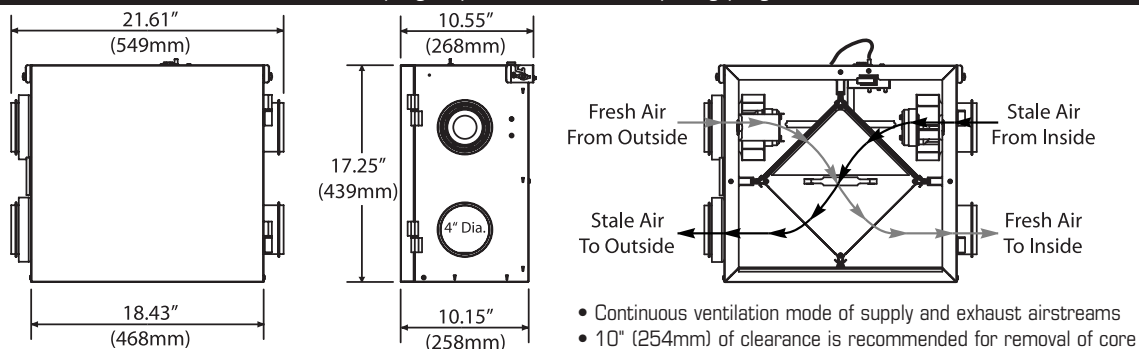
**SERVICEABILITY** Core, filters, and motors can be easily accessed through latched door. Core conveniently slides out on our new easy glide core guides. 10" (250mm) of clearance is recommended for removal of core.

**DUCT CONNECTION** 4" (100mm) steel duct connections with rubber gasket for easy sealing.

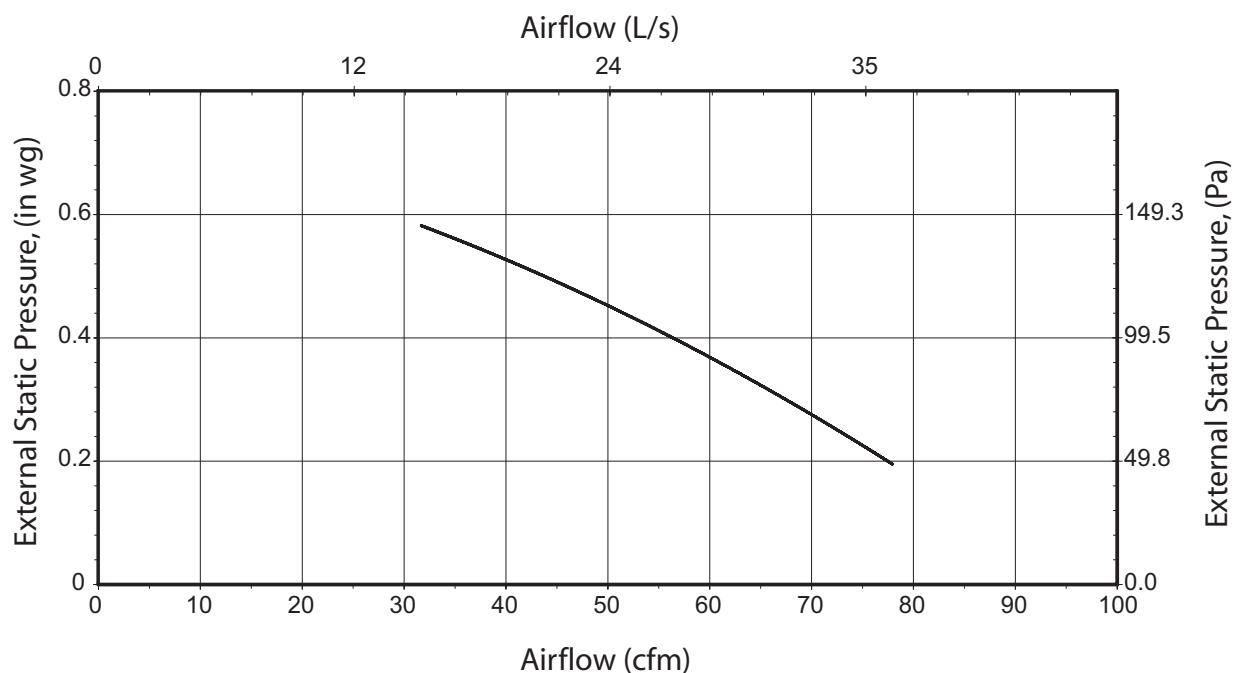
**WARRANTY** Limited 5 year on Enthalpy core, 7 year on motors, and 5 year on parts.

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## Dimensions & Airflow - All units feature three foot plug-in power cord with 3-prong plug.



## Ventilation Performance



## Specifications and Ratings

- Model: SE704N
- Total assembled weight: 25 lbs (11kg)
- Cabinet: 24 ga. steel w/powder coat finish
- Motors: ebm motors w/backward curved blades
- Filters: 2 washable electrostatic filters  
8.5" (216mm) x 8" (205mm) x 0.125" (3mm)
- Insulated with 1" (25 mm) aluminum foil-face high density polystyrene foam to prevent condensation and meet the requirements of the UL 94HF.
- Core: Enthalpy  
8.5" (216mm) x 8.5" (216mm) x 8" (205mm)
- Supply & exhaust ducts: 4" (100mm)
- Mounting: Wall bracket included
- Electrical requirements:
 

Volts	Frequency	Amps	Watts
115V	60Hz	0.36A	40W

 3' plug-in power cord w/ 3-prong plug

## Contacts

Submitted by:	Date:
Gty:	Model #:
Comments:	
Project #:	
Location:	
Architect:	
Engineer:	
Contractor:	



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Article #: 412122  
Rev Date: 092410



## INSTALLATION

### PRACTICAL TIPS

- Install the unit close to the outside wall on which the supply and exhaust hoods will be mounted.
- Have a nearby power supply 120 Volts, 60Hz. (power cord is 3 feet long)
- Mount the unit as level as possible in order to allow proper condensate drainage. (SH704 & VH704 only)
- Have access to a water drain for the condensate of the unit during defrost. (SH704 & VH704 only)
- Have a certain amount of heat around the unit (attic installation is not recommended for SH704 and VH704).
- Installations close to the living space, such as closets, should be design and to minimize noise or vibration transfers.
- Have access for future maintenance. (10" is recommended for removal of core)

### ELECTRICAL

3 prong plug-in power card.

### LOCATION

The HRV must be located in a heated space where it will be possible to conveniently service the unit. Typically the HRV would be located in the mechanical room or an area close to the outside wall where the weatherhoods will be mounted. If a basement area is not convenient or does not exist, a utility room or laundry, closet, above drop ceiling or attic (SE704) and garage may be used.

Attic installations are not normally recommended due to:

- the complexity of work to install
- freezing conditions in the attic
- difficulty of access for service and cleaning

**Connecting the following appliances to the HRV is not recommended**, including:

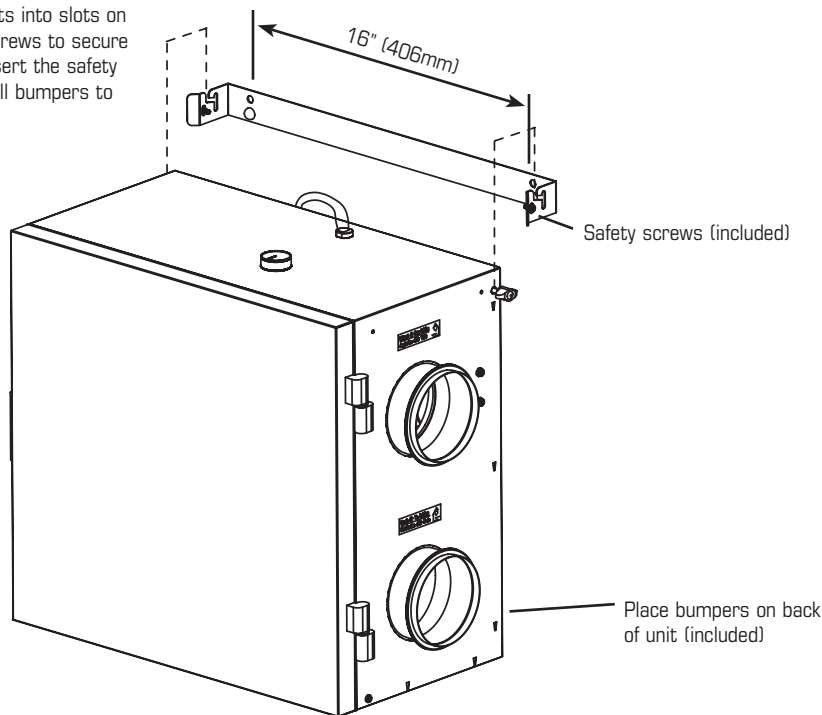
- clothes dryer
- range top
- stovetop fan
- central vacuum system

These appliance may cause lint, dust or grease to collect in the HRV, damaging the unit.

**NOTE:** Connecting any of these type of appliances to the HRV will invalidate your warranty

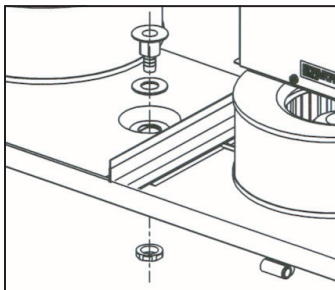
### MOUNTING - EASY WALL MOUNT

Attach bracket to wall, lift unit (25 lbs SH704 and SE704 or 26 lbs VH704) & slide nuts into slots on bracket, tighten screws to secure unit to bracket. Insert the safety screws & place wall bumpers to level off the unit.

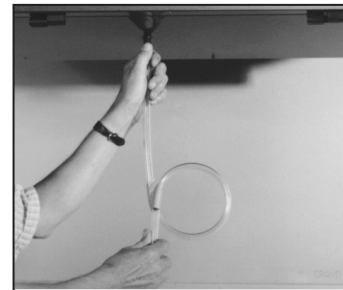


### INSTALLING DRAIN LINE - (SH704 & VH704 ONLY) - Drainline not included in kit

Through normal operation and during its defrost mode, the HRV may produce some condensation. This water should flow into a nearby drain, or be taken away by a condensate pump. The HRV and all condensate lines must be installed in a space where the temperature is maintained above the freezing point. A "P" trap should be made in the drain line. This will prevent odors from being drawn back up into the unit.



1 Install the drain nipple.



2 Install the drain hose, making a "P" trap

# INSTALLING DUCTS GOING TO / FROM OUTSIDE

## PRACTICAL TIPS

- Decide where your intake and exhaust hoods will be located.

### Locating the Intake Weatherhood

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

### Locating the Exhaust Weatherhood

- At least 18" (457mm) above ground or above the depth of expected snow accumulation
- At least 3' (1m) 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, it's outside perimeter must be sealed with exterior caulking.

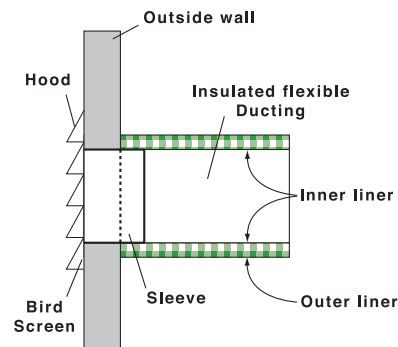
A well designed and installed ducting system will allow the HRV to operate at its maximum efficiency. Always try to keep duct runs as short and straight as possible.

**See Installation Diagrams for installation examples.**

## INSTALLING THE DUCTING TO THE WEATHERHOODS

The inner liner of the flexible insulated duct must be clamped to the sleeve of the weatherhoods (as close to the outside as possible) and to the appropriate port on the HRV. The insulation should remain full and not be compressed. The outer liner, which acts as a vapor barrier must be completely sealed to outer wall and the HRV using tape and or caulking. A good bead of high quality caulking (preferably acoustical sealant) will seal the inner flexible duct to both the HRV port and the weatherhood prior to clamping.

To minimize air flow restriction, the flexible insulated duct that connects the two outside weatherhoods to the HRV should be stretched tightly and be as short as possible. Twisting or folding the duct will severely restrict air flow.



### Model

RC4  
UEV4  
HS4W

### Description

4" Roof cap  
4" Soffit vent  
4" Louvered shutters

\* Application for Supply or Exhaust



**1** Using the collar of the outside hood, outline the intake & exhaust holes to be cut. The holes should be slightly larger than the thickness of the insulated flexible duct. Cut a hole for both the intake and exhaust hoods.



**2** Pull the insulated flexible duct through the opening until it is well extended and straight. Slide the duct's inner vinyl sleeve over the hood collar and secure, pull the insulation over the duct and then the vapor barrier over the sleeve and secure with duct tape.



**3** Push the hood into the opening. Attach the hood to the outside wall with mounting screws. Repeat the installation procedure for both the Supply and Exhaust hood.



**4** Using a caulking gun, seal around both hoods to prevent any leaks.

## INSTALLING DUCTS TO / FROM INSIDE

To maximize airflow in the ductwork system, all ducts should be kept short and have as few bends or elbows as possible. Forty-five degree are preferred to 90° elbows. Use “Y” tees instead of 90° elbows whenever possible.

All duct joints must be fastened with screws or duct sealant and wrapped with a quality tape to prevent leakage. Aluminum foil duct tape is recommended. Galvanized ducting from the HRV/ERV to the living areas in the house is recommended whenever possible, although flexible duct can be used in moderation when necessary.

**Warning:** The SH704 & VH704 should be installed with a 4" (100mm) duct system that has less than 80 ft (25m) of equivalent duct length on the supply and on the exhaust side. If longer runs are required, increasing the duct diameter or following the instructions below might help.

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. All air movement devices have a performance curve. The amount of air (CFM) that an HRV/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/number of fittings used in duct work, duct heater etc.

## SUPPLY AIR DUCTING

In homes without a forced air furnace, fresh air should be supplied to all habitable rooms including, bedrooms and living areas. It should be supplied from high wall or ceiling locations. Grilles that diffuse the air comfortably such as Fantech Contour Grilles are recommended. To avoid possible noise transfer through the ductwork system, a short length (approximately 12", 300 mm) of nonmetallic flexible insulated duct should be connected between the HRV/ERV and the supply/exhaust ductwork system. If the floor is the only option available, then special care should be taken in locating grilles. Areas such as under baseboard heaters will help to temper the air. Also optional inline duct heaters are available for mounting in the supply duct work to add heat if required. In homes with a forced air furnace, you may want to connect the HRV/ERV to the furnace ductwork (see information below).

## PRACTICAL TIPS

- Building Codes and Combustion Appliance Installation Codes do not allow location of return air grilles or any opening such as a “breathing tee” in an enclosed room with spillage susceptible combustion appliances.
- The fresh air inlet from the HRV needs to respect a minimum distance from the furnace return drop to ensure proper air mixing and temperature at the furnace core. See furnace manufacturer for appropriate specifications.

## Exhaust Air Ducting

The stale air exhaust system is used to draw air from the points in the house where the worst air quality problems occur. Due to its lower capacity, the SH704, VH704 and SE704 are designed to vent from a single source point only and to the bathroom that is closest to the unit or directly out of the furnace return. Additional source points may be drained from if designed properly or installed on a separate Fantech fan bath kit to ventilate additional areas. Fantech bath kits are listed below and are ideal for both new construction and retro fit.

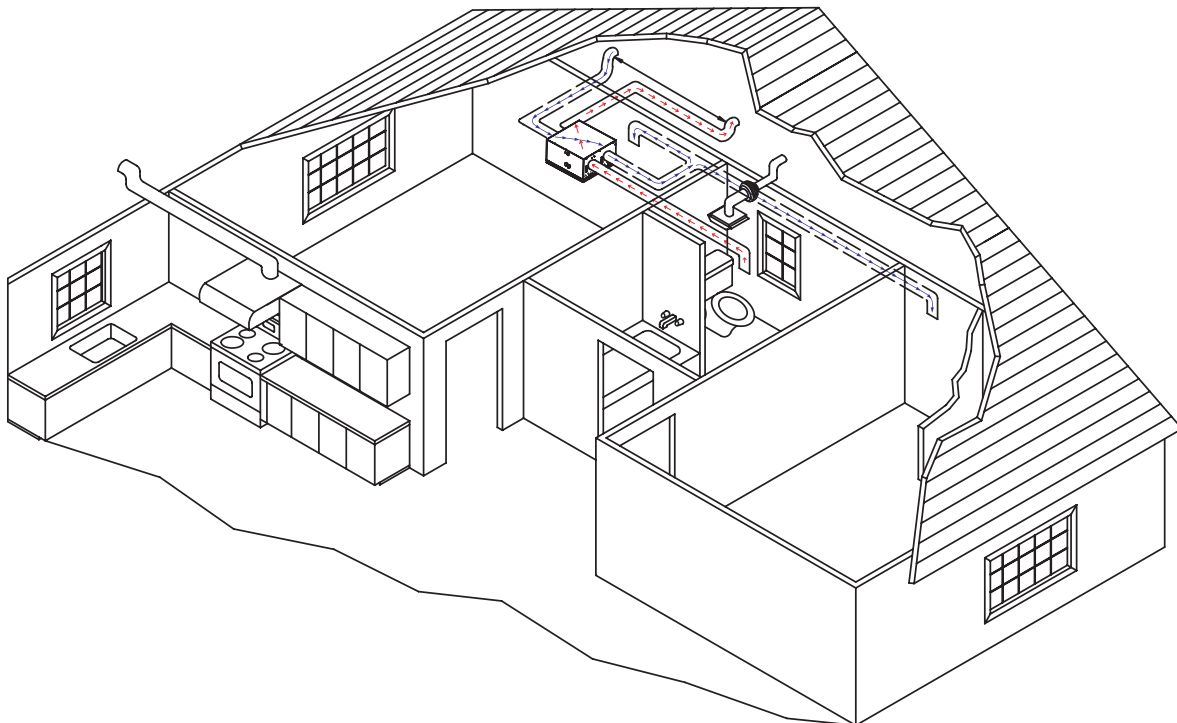
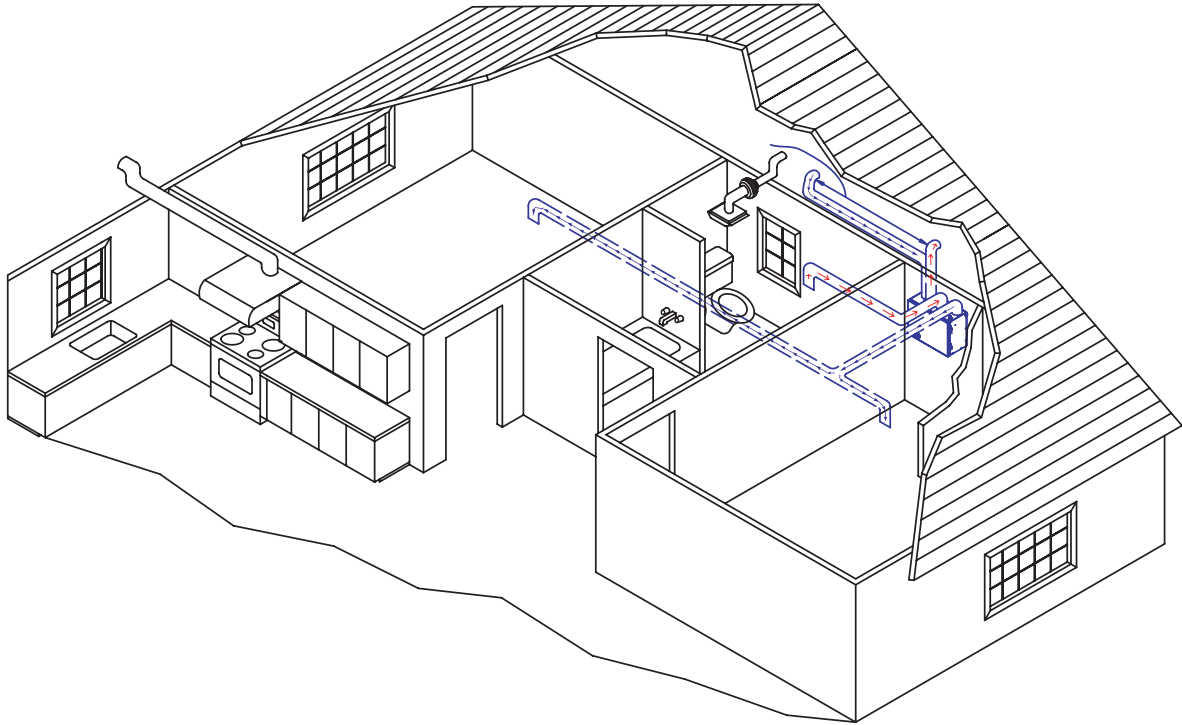
Fantech bathroom kits for supplemental exhaust:

- |                 |                |
|-----------------|----------------|
| • REG100 (L/FL) | 100cfm per fan |
| • REG140        | 190cfm per fan |
| • DLX110        | 150cfm per fan |
| • DLX150 (L/FL) | 230cfm per fan |
| • DLX200        | 360cfm per fan |

## INSTALLATION EXAMPLES

### Fully Dedicated System (suggested for new construction)

Stale air drawn from key areas of home (bathroom, kitchen, laundry)  
Fresh air supplied to main living areas



Example diagram only-duct configuration may change depending on model

## INSTALLATION EXAMPLES (CONT'D)

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

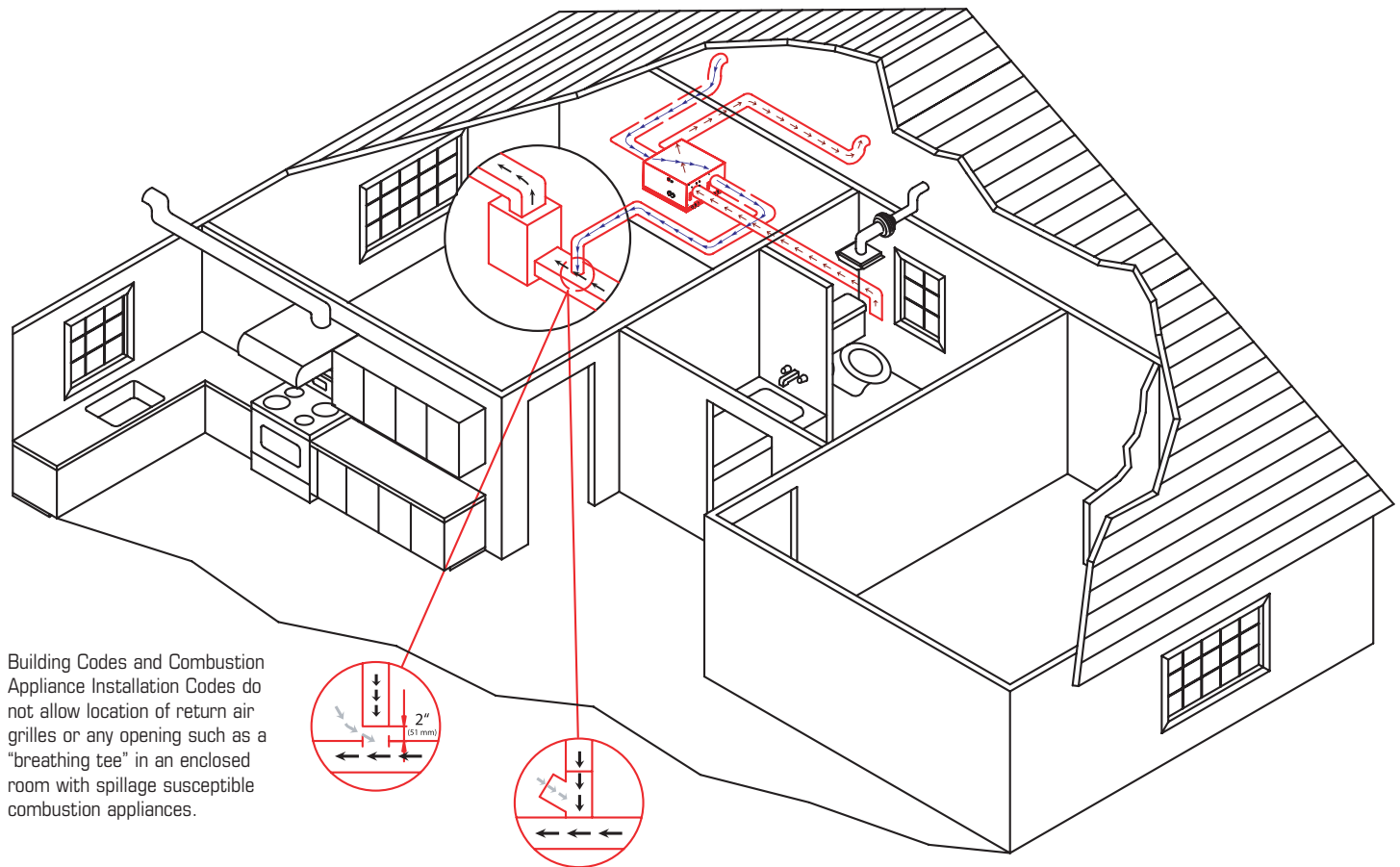
### Partially Dedicated System

Stale air drawn from key areas of home (bathroom)

Fresh air supplied to main living areas via the forced air system.

#### NOTES:

1. Furnace blower may be required to operate when HRV/ERV is on to provide good air distribution.
2. Weatherhood arrangement is for drawing purposes only.
3. Due to the differences in pressure between the HRV/ERV and the equipment it is being connected to, the HRV/ERV's airflow should be confirmed on site, using the balancing procedure found in the installation manual. If a release is required due to the furnace pulling too much air from the HRV/ERV, special care and attention is needed to its design.



**Example diagram only-duct configuration may change depending on model**

## INSTALLATION EXAMPLES (CONT'D)

### Example diagram only-duct configuration may change depending on model

DIRECT CONNECTION of both the HRV/ERV SUPPLY AIR STREAM and EXHAUST AIR STREAM to the FURNACE COLD AIR RETURN

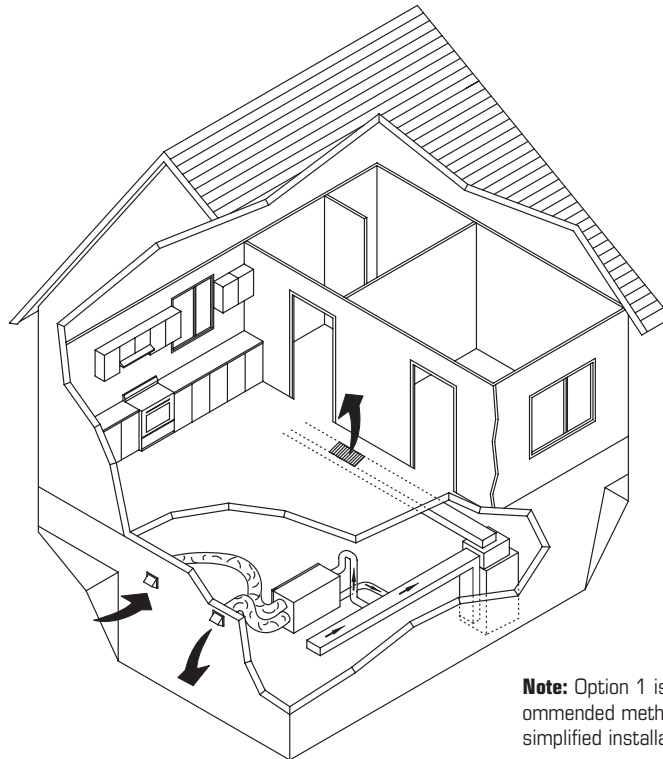
### Simplified Installation

#### Option 1 (Return/Return Method)

- It is mandatory that the furnace blower run continuously or HRV/ERV operation be interlocked with the furnace blower
- Check local codes/authority having jurisdiction for acceptance

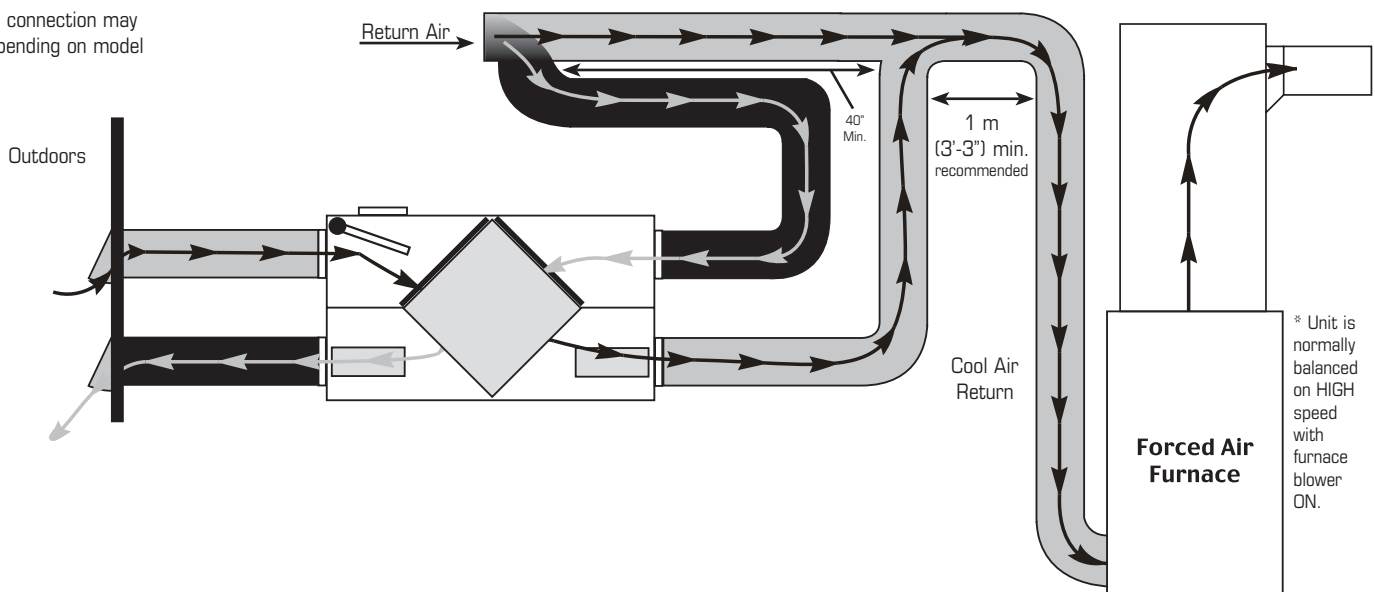
#### NOTES:

1. Furnace blower is required to run when HRV/ERV is operating. The furnace should be set to run continuously or interlocked with HRV/ERV.
2. A minimum separation of 39 inches (1m) is recommended between the two direct connections.
3. The exhaust air connection should be upstream of the supply air connection to prevent exhausting any fresh air.
4. Weatherhood arrangement is for drawing purposes only. 18" (460 mm) above grade minimum.
5. Due to the differences in pressure between the HRV/ERV and the equipment it is being connected to, the HR/ERV's airflow should be confirmed on site, using the balancing procedure found in the installation manual.



**Note:** Option 1 is the preferred/recommended method when doing a simplified installation

\* Ducts connection may vary depending on model





## INSTALLATION EXAMPLES (CONT'D)

### Example diagram only-duct configuration may change depending on model

DIRECT CONNECTION of both the HRV/ERV SUPPLY AIR STREAM & EXHAUST AIR STREAM to the FURNACE COLD AIR RETURN & SUPPLY AIR SIDE

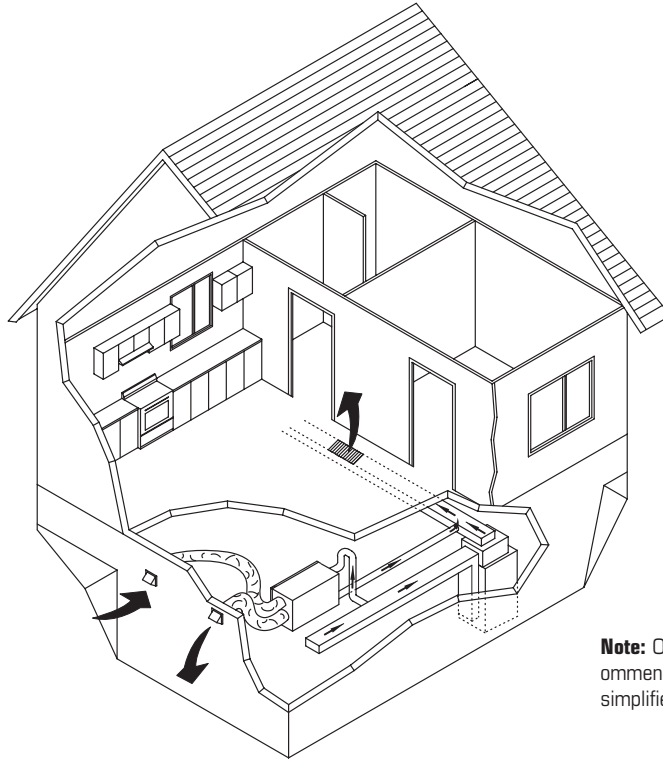
### Simplified Installation

#### Option 2 (Supply/Return Method)

- Check local codes /authority having jurisdiction for acceptance

#### NOTES:

1. Furnace blower may be required to operate when ventilation from HRV/ERV is required.
2. The exhaust air connection should be upstream of the supply air connection to prevent exhausting any fresh air.
3. Weatherhood arrangement is for drawing purposes only. Eighteen inches (460 mm) above grade minimum.
4. Due to the differences in pressure between the HRV/ERV and the equipment it is being connected to, the HRV/ERV's airflow should be confirmed on site, using the balancing procedure found in the installation manual.

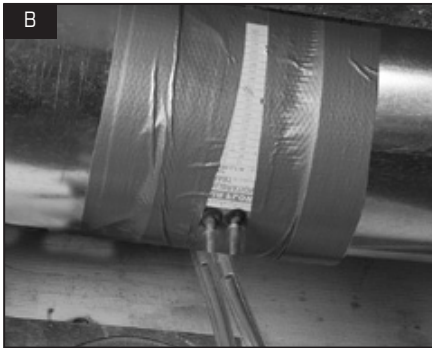


**Note:** Option 1 is the preferred/recommended method when doing a simplified installation

## AIR FLOW BALANCING

\* Fantech's superior design and use of EBM motors results in a steep fan curve that usually does not require balancing. Commissioning the system after installation is recommended which include confirming the proper operation of the system and how it interacts with other components within the home.

### AIRFLOW STATION (GRID) METHOD



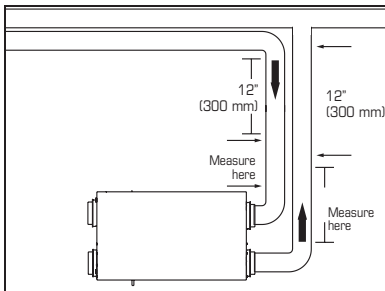
**1** For this flow measuring station, cut the duct and place the flow measuring station between each section of duct. Make sure that the flow measuring station's air direction arrow points in the direction of the airflow. Secure the flow measuring station with duct tape.



**2** Before taking the reading, make sure that the magnehelic gauge is level and at 0. Refer to the flow measuring station's chart to determine your unit's airflow velocity.



**3** Adjust the "Supply Air Out" damper until you reach the desired velocity. Follow the previous steps to adjust the "Exhaust Air Out" damper, if needed.



- To avoid airflow turbulence and incorrect readings, the airflow velocity should be measured on steel ducting a minimum of 12" (300 mm) from the unit or elbow and before any transition.

## MAINTENANCE

### CAUTION MAKE SURE UNIT IS UNPLUGGED BEFORE ATTEMPTING ANY MAINTENANCE WORK

The following components should also be inspected regularly and well maintained.

### PRACTICAL TIPS

- To prevent electrical shock, check that the unit is unplugged before doing any repairs or maintenance.
- A yearly inspection is recommended to ensure the efficiency and trouble-free use of your system. Run through the system and verify the different operating modes.

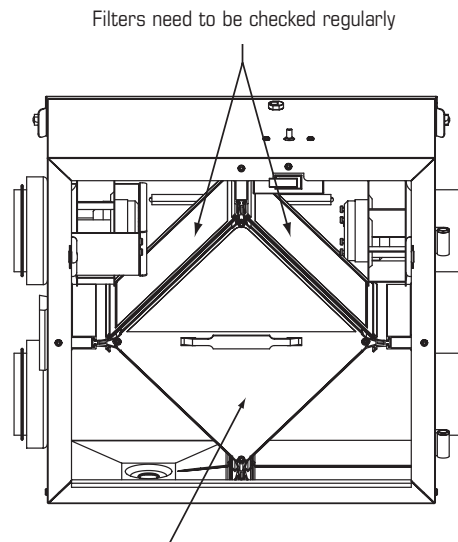
**The motor** - The motors are factory balanced and lubricated for life. They require no maintenance.

**The unit** - The inside of the unit should be vacuumed yearly. Be careful not to damage any of the mechanical components and electrical connections.

**Outside hoods** - The outside hoods need to be checked every season to make sure there are no leaves or insects blocking the airflow. Check regularly that there are no pollutants near the intake hood. Make sure they are clear of any snow accumulation during the winter months.

### FILTERS

The filters (2) need to be checked and cleaned every three months or when they appear dirty. Wash in warm sudsy water (mild detergent) or use a soft brush vacuum. The filters should be replaced when they can no longer be cleaned properly.



### HEAT RECOVERY CORE (SH704 & VH704 ONLY)

The heat recovery core needs to be checked and cleaned every six months. The core can be cleaned using a mild soap and water. Rinse thoroughly. Handle with care. Hot water and a strong detergent will damage the heat recovery core.

**The drain pan and drain line** - Units with drain lines should have their line and connection checked regularly.

#### Clean Core and Filters Every 3-6 Months.

Unplug unit before doing any repairs or maintenance

- Open access door.
- Carefully grip handle of core and pull out. Core will slide out of the channel.
- Once removed from the cabinet remove filters.
- Wash core in warm soapy water (do not use dishwasher).

- Install clean core by:
  - First mounting the bottom flange of the core guide into the bottom 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 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.

- Install the clean filters.

### ENERGY RECOVERY CORE (SE704)

The energy recovery core needs to be checked and cleaned every six months.

DO NOT wash this core, instead use a vacuum to lightly draw dirt away from the core.

#### Clean Core and Filters Every 3-6 Months.

Unplug unit before doing any repairs or maintenance

- Open access door.
- Carefully grip handle of core and pull out. Core will slide out of the channel.
- Once removed from the cabinet remove filters.
- Vacuum core to slightly remove dirt away.

- Install clean core by:
  - First mounting the bottom flange of the core guide into the bottom 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 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.

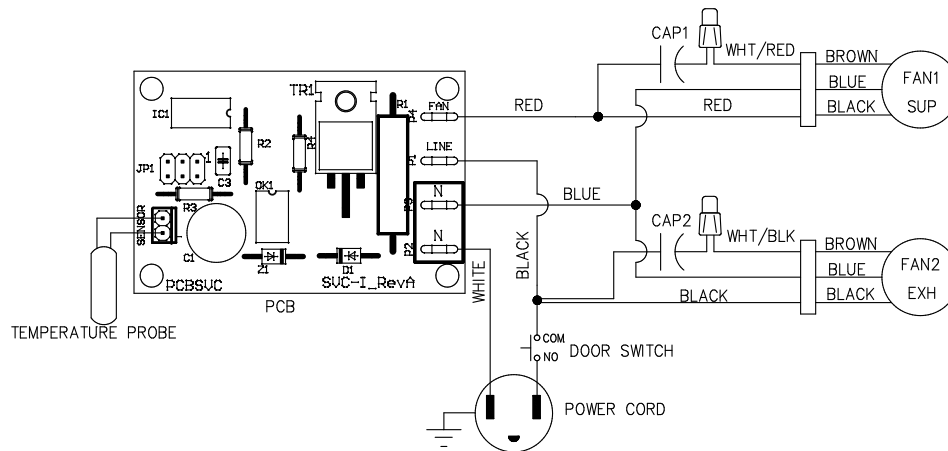
- Install the clean filters.

## TROUBLESHOOTING

Problem	Causes	Solutions
Air is too dry	Insufficient water vapor generated	Install humidifier
Air is too humid	<p>Sudden increase in humidity by cooking or bathing</p> <p>Sudden change in temperature</p> <p>Storing too much wood for heating</p> <p>Dryer vent exhaust is inside home</p> <p>Poor air circulating near windows</p> <p>HRV not operating (during winter)</p>	<p>Ventilate at the source of the problem using a HRV or additional fan</p> <p>Wait until outside temperature stabilizes (winter). Heating will also improve situation.</p> <p>Store a majority of your wood outside. Even dried, a cord of wood contains more than 20 gallons of water.</p> <p>Arrange outside vent for dryer.</p> <p>Open curtains or blinds. Bay or bow windows may require mechanical method.</p> <p>Check power to the unit</p>
Persistent condensation on window	Poor air circulating near windows	Open curtains or blinds. Bay or bow windows may require mechanical method.
Poor Air Flows	<p>-1/4" (6mm) mesh on the outside hoods is plugged</p> <p>-Filters plugged</p> <p>-Core obstructed</p> <p>-House grilles closed or blocked</p> <p>-Dampers are closed (if installed)</p> <p>-Poor power supply at site</p> <p>-Ductwork is restricting HRV/ERV</p>	<p>-Clean exterior hoods or vents</p> <p>-Remove and clean filter</p> <p>-Remove and clean core</p> <p>-Check and open grilles</p> <p>-Have electrician check supply voltage at house</p> <p>-Check duct installation</p>
Supply air feels cold	<p>-Poor location of supply grilles, the airflow may irritate the occupant(s)</p> <p>-Outdoor temperature extremely cold</p>	<p>-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)</p> <p>-Use superior grilles such as Fantech CG grille - A small duct heater (1kw) could be used to temper the supply air</p> <p>-Placement of furniture or closed doors is restricting the movement of air in the home</p> <p>-If supply air is ducted into furnace return, the furnace fan may need to run continuously to distribute ventilation air comfortably</p>
HRV / ERV and / or Ducts Frosting up	<p>-HRV/ERV air flows are improperly balanced</p> <p>-Malfunction of the HRV/ERV defrost system</p> <p>-Outdoor temp. extremely cold</p>	<p>-Note: minimal frost build-up is expected on cores before unit initiates defrost cycle functions</p> <p>-Have HVAC contractor balance the HRV/ERV</p> <p>-Install duct heater</p>
Condensation or Ice Build Up in Insulated Duct to the Outside	<p>-Incomplete vapor barrier around insulated duct</p> <p>-A hole or tear in outer duct covering</p>	<p>-Tape and seal all joints</p> <p>-Tape any holes or tears made in the outer duct covering</p> <p>-Ensure that the vapor barrier is completely sealed.</p>

## ELECTRICAL CONNECTIONS

## SH704 & VH704

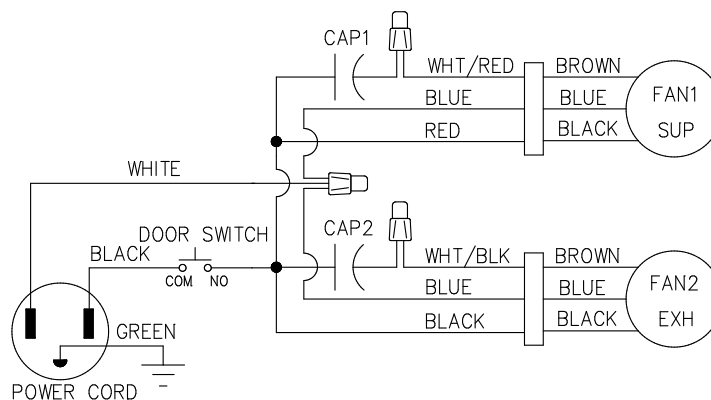
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REVISIONS	DATE
PROJECT	SH704 VH704
DESCRIPTION	Wiring Diag,SH704/VH704
DATE	06-07-10
ITEM NO.	403135
DRAWN BY	
SHEET	SHEET 1 OF 1
DRAWING NO./ ITEM NO.	W\ 403135

## SE704

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REVISONS	DATE
PROJECT	
SE704	
DESCRIPTION	
Wiring Diag, SE704	
DATE	06--07--10
ITEM NO.	403136
DRAWN BY	
SHEET	
SHEET 1 OF 1	
DRAWING NO. /	ITEM NO.
W\	403136



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