

Light commercial models

Commercial Heat Recovery Ventilators



SHR6904 • SHR6905R • SHR8004 • SHR11004 • SHR11005R • SHR14104

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

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Please visit our website www.fantech.net for more detailed technical information.



				
Note	Warning/ Important note	Information	Technical information	Practical tip



PLEASE READ THIS MANUAL BEFORE INSTALLING UNIT

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 pressure. After installation, the compatibility of the two pieces of equipment must be confirmed by measuring the airflows of the Heat / Energy Recovery Ventilator. 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!!!



Products are designed and manufactured to provide reliable performance, but they are not guaranteed to be 100% free of defects. Even reliable products will experience occasional failures, and this possibility should be recognized by the user. If these products are used in a life support ventilation system where failure could result in loss or injury, the user should provide adequate back-up ventilation, supplementary natural ventilation or failure alarm system, or acknowledge willingness to accept the risk of such loss or injury.

Your ventilation system should be installed in accordance with the local building code that is in effect. In absence of such requirements, it is recommended to check with local authorities having jurisdiction in your area prior to installing this product.

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SHR6905R / SHR11005R16

Understanding Fantech Product Numbers

SHR 6904

S = Side Ducting

H = Heat Recovery

R = Remote Control Option

690 = 690cfm @0.4 W.G

4 = Four Ports

5 = Five ports

R = Recirculation

Installation

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, above a drop ceiling or an area close to the outside wall where the weatherhoods will be mounted. Attic installations are not normally recommended due to extreme temperatures, and difficulty in performing required service & maintenance. If an attic is selected, special care should be taken in ensuring the unit will perform as intended. Unit may need to be protected with insulated shelter, built on site.

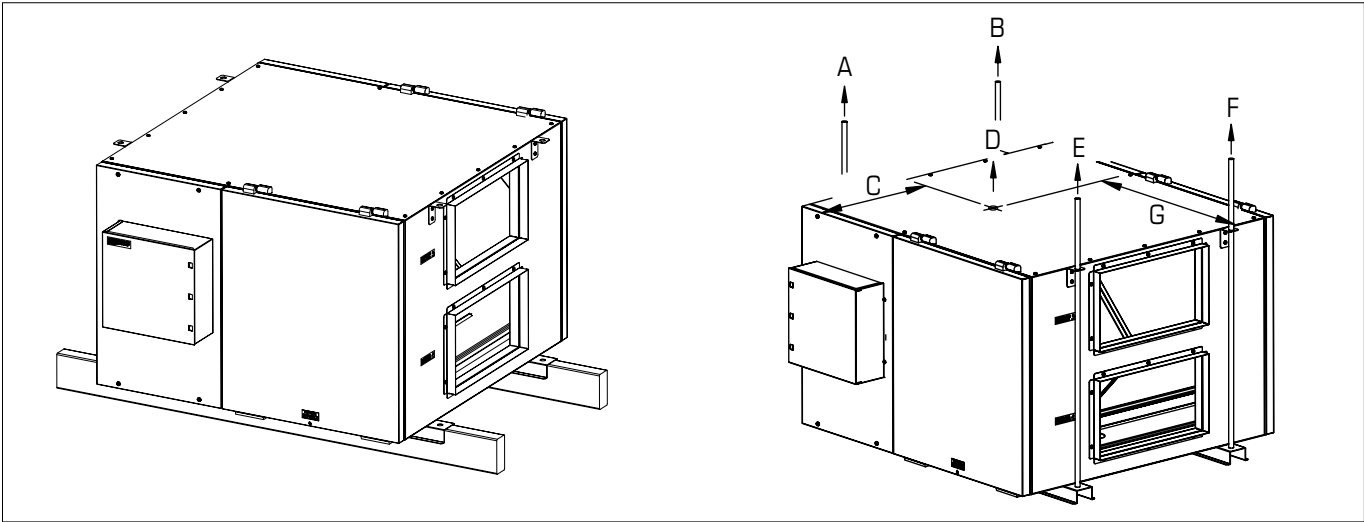
Connecting appliances to the HRV It is not recommended, including:

- clothes dryer
- kitchen exhaust hoods
- combustion venting
- central vacuum system

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



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

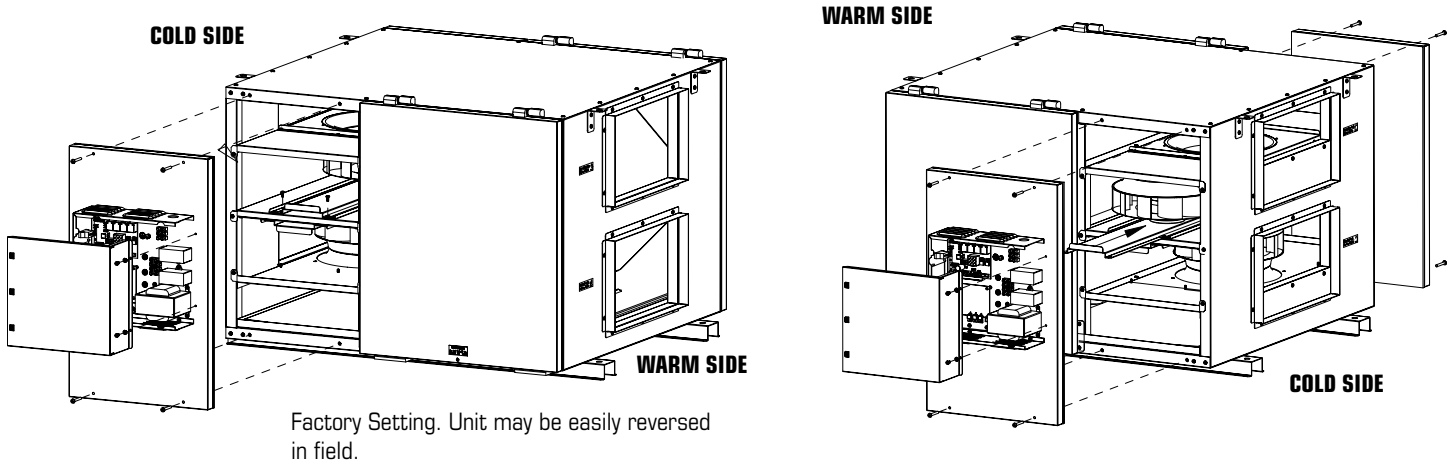


Model	A		B		C		D		E		F		G	
	Kg	lbs	Kg	lbs	in.	mm.	Kg	lbs	Kg	lbs	Kg	lbs	in.	mm.
SHR 6904/6905R	23.8	22.5	22.5	49.6	15.4	390	85	187	20	44	18.8	41.3	17.6	448
SHR 8004	20	44	17	37.5	15.9	404	71.5	158	19	41.9	16.5	36.4	11	282
SHR 11004/11005R	30.4	67	27	60	21.4	544	109	241	27.7	61	24.3	53.5	18	455
SHR 14104	29.2	64.4	24.5	54	19	483	116	255	30	66.2	34.7	76.5	10	254

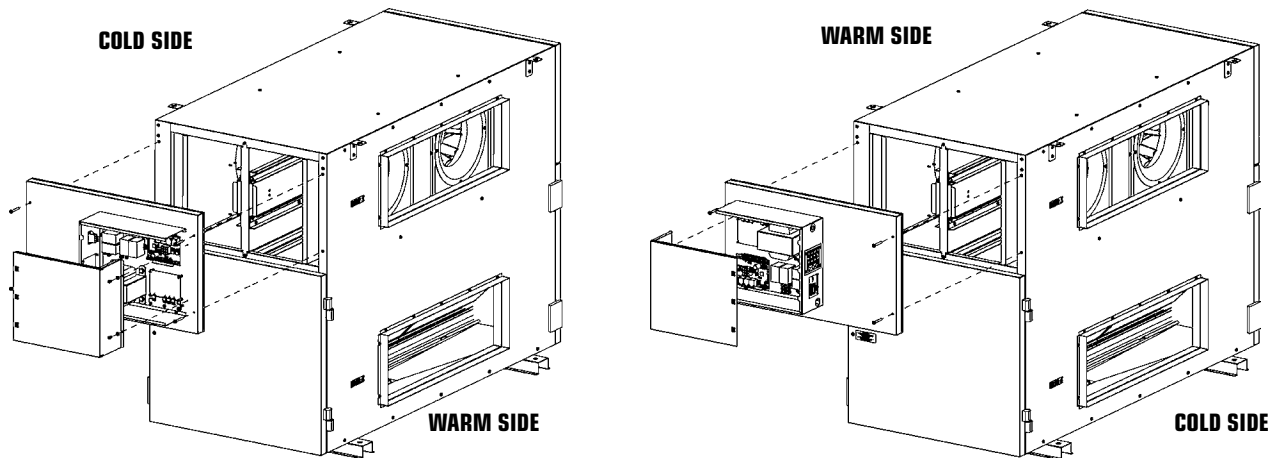
Port configuration

The unit has access doors on the front and back. Also, the main control panel may be moved from front to back allowing for ducting layout.

SHR 6904, SHR 6905R, SHR 11004, SHR 11005R



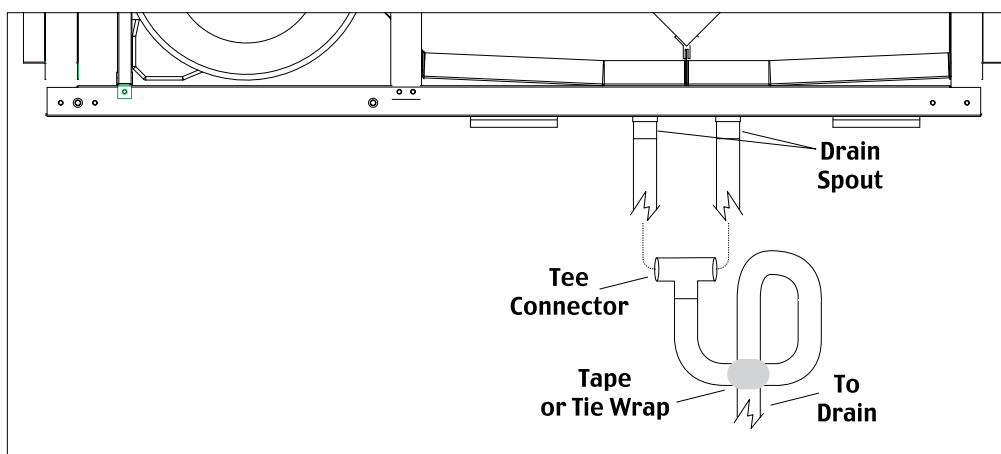
SHR 8004, SHR 14104



Installing Drain Line

Through normal operation and including 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.

Install the drain hose, making a "P" trap



Installing ducts going to / from outside

Installing the ducting to the weatherhoods

Outside weatherhoods

The weatherhoods must have built-in "bird" screens with 1/4 inch (6.35 mm) minimum mesh to prevent birds and rodents from entering into the ductwork. Do not use smaller mesh as it will be very susceptible to plugging up. The preferred location of the weatherhoods is:

- No less than 10 ft. (3 m) apart from each other.
- At least 18 inches (457.2 mm) above snow line or ground level.
- Supply hood must be kept away from sources of contaminants, such as automobile exhaust fumes, gas meters, garbage cans, containers, cooling towers, tar roofs, etc.
- Avoid prevailing winds, whenever reasonably possible.

The outside perimeter of the weatherhood must be sealed to prevent leakage into the building.

The design and size of the weatherhoods or louvers chosen by the installer must allow for adequate free area. Water and snow penetration of the system is minimized when the airflow does not exceed 1000 FPM (5.08 m/s) free area velocity.

Ducting from the weatherhoods—To and From the hrv

Galvanized sheet metal ducting with sufficient cross section with an integral single piece of insulated wrap with vapor barrier should be used to connect the HRV to the weatherhoods. The R-value of the insulation should be adequate for condensation control. Insulated flex duct may be used in moderation, if sized and installed properly. (Consult local codes)

All ducts should be sealed using a good bead of high quality caulking (preferably acoustical sealant) and a high quality aluminum foil tape, or other approved duct sealant.

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 duct tape to prevent leakage. Aluminum foil duct tape is recommended.

Supply air ducting

In buildings without a forced air HVAC systems, fresh air should be supplied to all habitable areas. It should be supplied from high wall or ceiling locations. Grilles that diffuse the air comfortably such as grille {MGE (metal) or CG (plastic)} grilles with "coanda effect" are recommended.

Optional inline duct heaters may be used to add heat if required.

Direct connection to furnace/ air handler return duct

- Should you wish to hard duct the supply air directly into the cold air return of the HVAC systems, remember to check the airflow balance of the HRV with the HVAC systems fan both "on" and "off" to determine that it does not imbalance the HRV more than 10%. Make sure you respect the minimum distance from the supply air in of the HRV and the HVAC systems.
- It may be necessary to install a separate fresh air supply ductwork system if the heating is other than forced air.

When installing an HRV, the designer and installer should be aware of local codes that may require smoke detectors and/or firestats in the HVAC or HRV ductwork.

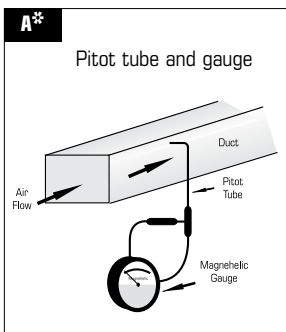
Because an HRV is designed to bring fresh air into the building, structures may require supply voltage interrupt when smoke or flame sensors are triggered, or when a central fire alarm system is activated.

Exhaust air ducting

The stale air exhaust system is used to draw air from the points in the building where the worst air quality problems occur. (See installation examples in the manual.)

Airflow balancing

- The balancing procedure consists of measuring the exhaust air leaving the system and the supply air entering the system and ensuring that these two are equal. A deviation of 10% or less is acceptable.



A The duct's airflow velocity is generally measured with a magnehelic gauge and a pitot tube.

- To avoid airflow turbulence and incorrect readings, the airflow velocity should be measured on steel ducting a minimum of 3 duct cross-sections from the unit or elbow and before any transition.



A professional air balancer should be contacted to commission the system properly. A skilled HVAC Tech may complete the balance of air providing they possess the proper equipment. Call Fantech Technical support for assistance.

Installation examples

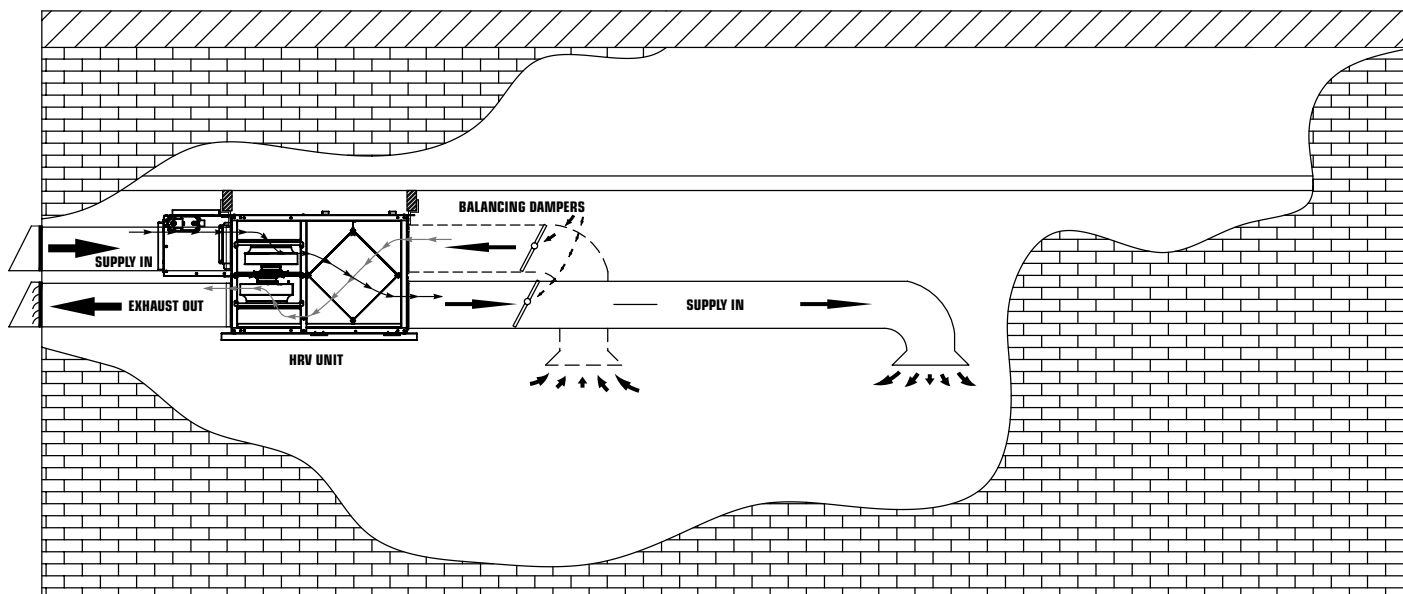


* Drawings are illustrations only and actual port locations and airflow directions may vary, consult unit spec sheets.

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 HRV 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.

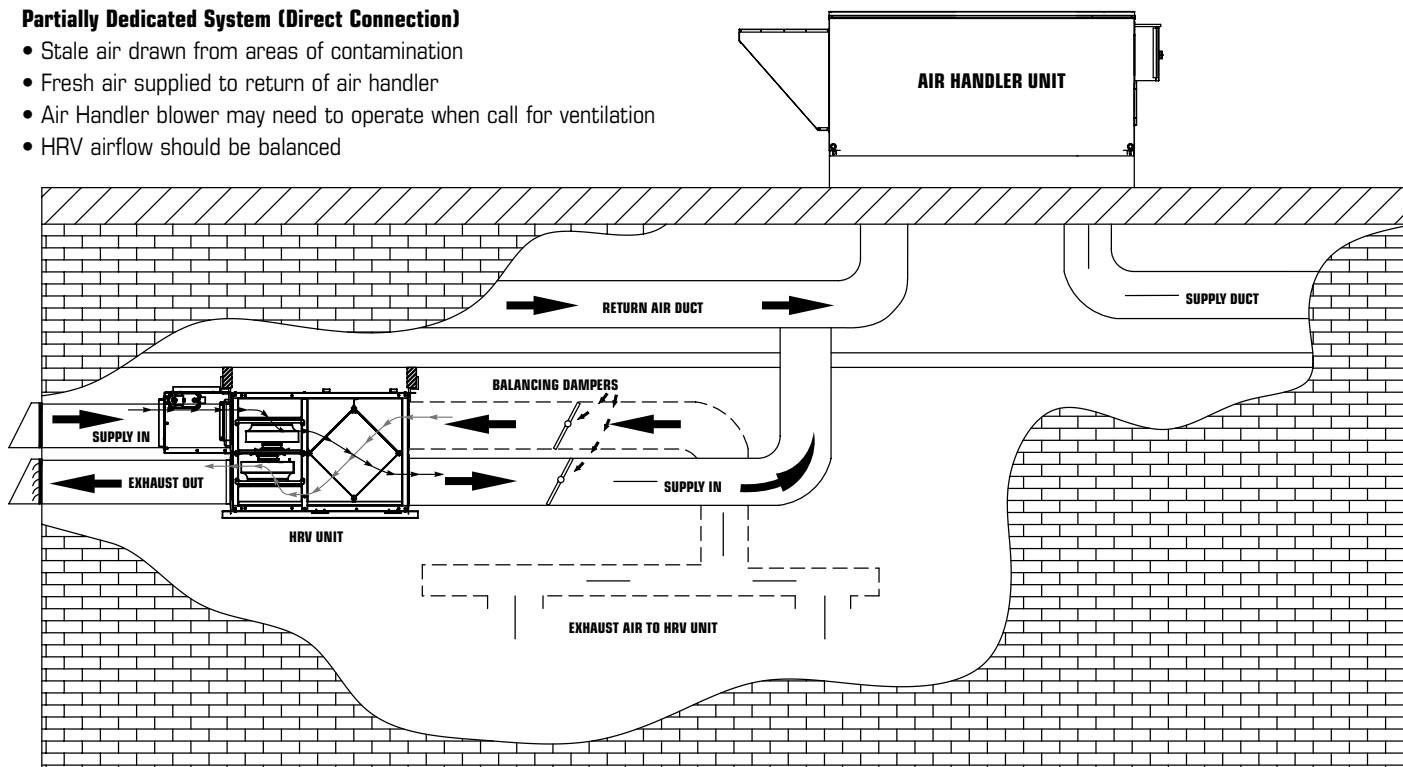
Fully Dedicated System

- Stale air drawn from areas of contamination
- Fresh air supplied to main areas
- HRV airflow should be balanced
- External heating or cooling coil may be needed if air is not able to mix comfortably.



Partially Dedicated System (Direct Connection)

- Stale air drawn from areas of contamination
- Fresh air supplied to return of air handler
- Air Handler blower may need to operate when call for ventilation
- HRV airflow should be balanced



Installation examples (Cont'd)

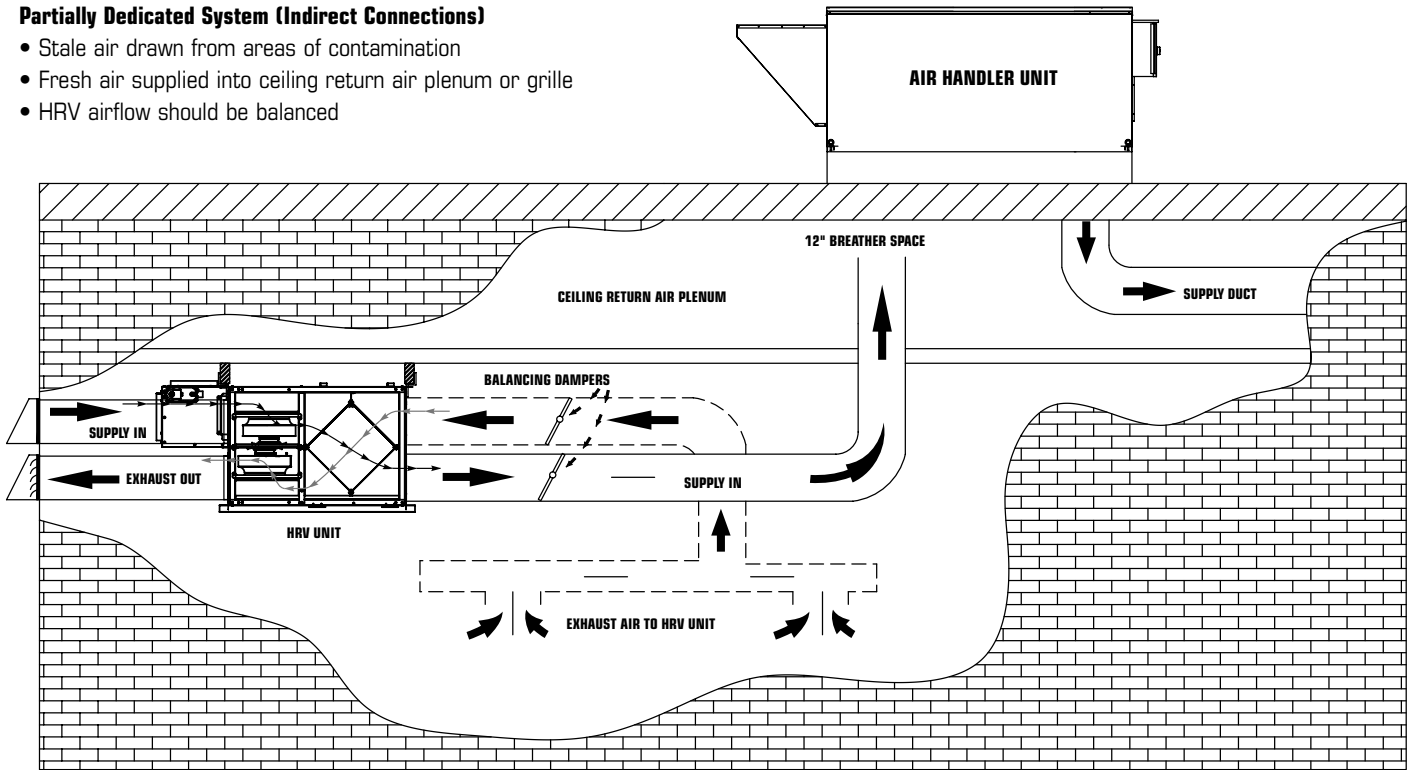


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It is the responsibility of the installer to ensure all ductwork is sized and installed as designed to ensure the system will perform as intended. The amount of air (CFM) that an HRV will deliver is directly related to the total external static pressure (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.

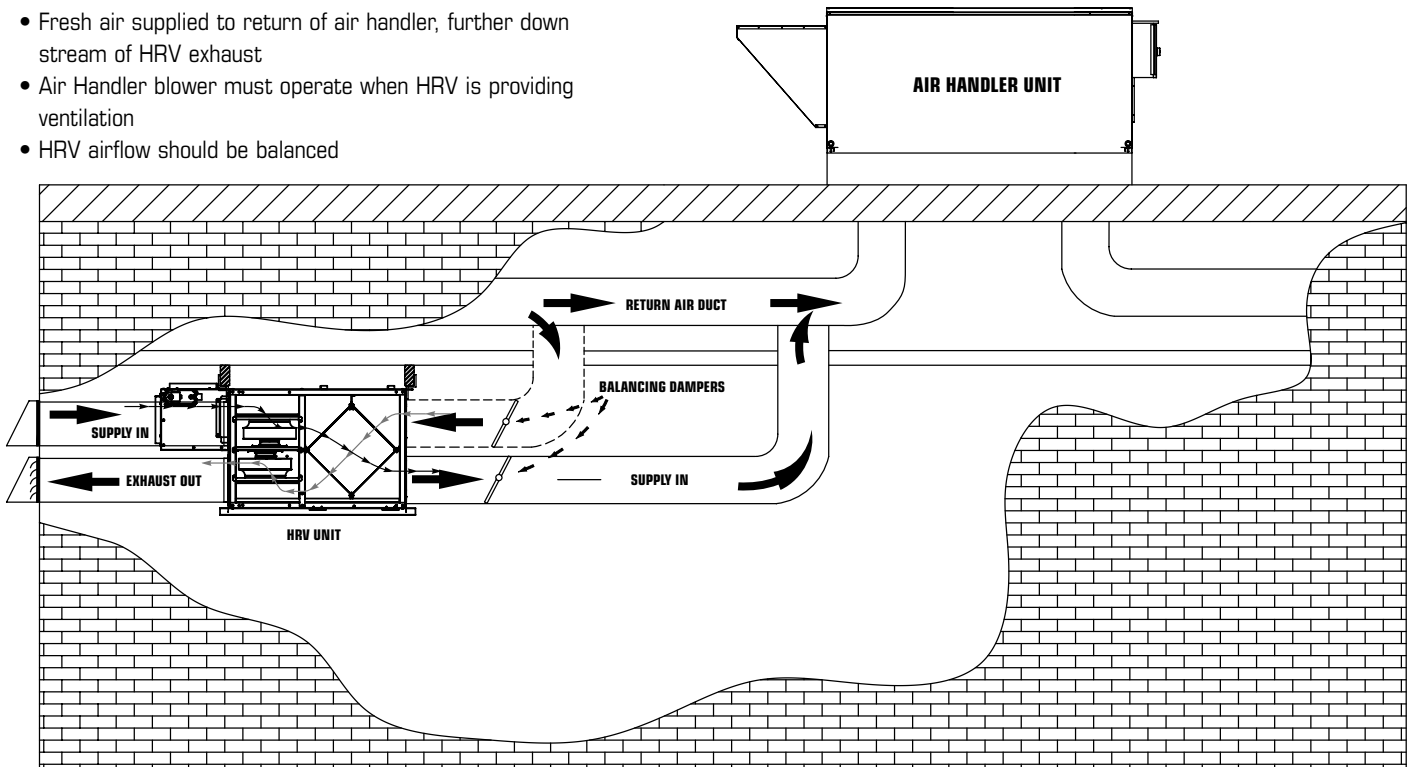
Partially Dedicated System (Indirect Connections)

- Stale air drawn from areas of contamination
- Fresh air supplied into ceiling return air plenum or grille
- HRV airflow should be balanced



Simplified Installation

- Stale air drawn from return of air handler
- Fresh air supplied to return of air handler, further down stream of HRV exhaust
- Air Handler blower must operate when HRV is providing ventilation
- HRV airflow should be balanced



Modes of operation

1. Continuous / Ventilation Mode

In this mode of operation both fans are operating and exchanging air with the outside. The heat recovery ventilator (HRV) constantly exchanges the air at the rate you select, either at low or medium speed, and switches to high speed when activated by an optional remote control. The "Low" and "Med" fan speed selection will cause the unit to operate in continuous exchange mode at a reduced exchange rate. Continuous mode is recommended, since pollutants are slowly but constantly being generated in a building.

2. Intermittent / Standby Mode

The system is always on standby and operates at high speed when activated by an optional remote control (required):<. "Standby" should be selected if the user wishes to stop the unit from continuous exchange.

3a. Defrost (SHRXX04 Model) by evacuation

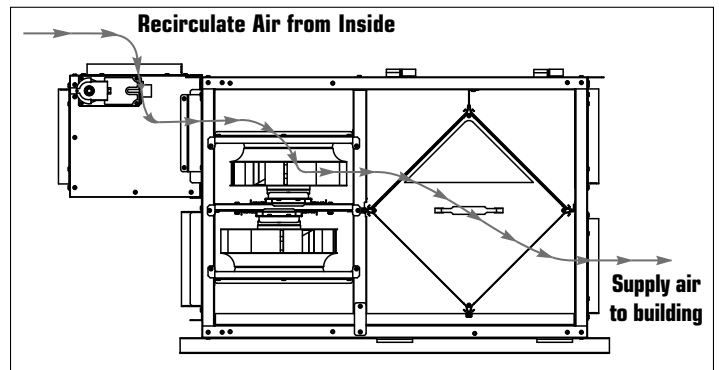
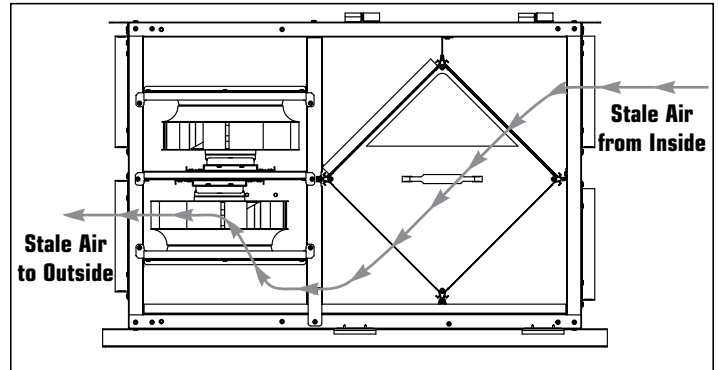
A preset defrost sequence is activated at an outdoor air temperature of 23°F (-5°C) and lower.

During the defrost sequence, the supply blower shuts down & the exhaust blower continues to ventilate for a preset time. The unit then returns to normal operation, and continues the cycle.

3b. Defrost (SHRXX05R Model)

A preset defrost sequence is activated at an outdoor air temperature of -5°C (23°F) and lower.

During the defrost sequence, the motorized damper in the bypass module (BPM) temporarily blocks the incoming fresh air stream so that the warm air from the room can circulate through the HRV. The exhaust blower shuts down and the supply blower switches into high speed to maximize the effectiveness of the defrost strategy. During this cycle, the unit will not create a negative pressure. Please note that these systems are configured to defrost with the BPM devices installed on the fresh air from outside port. Alternate configuration are available by contacting our technical support department.



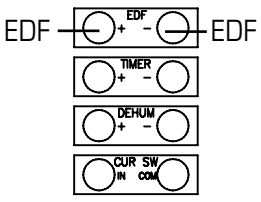
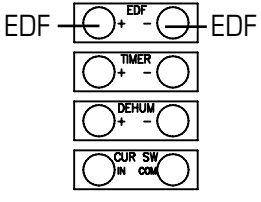
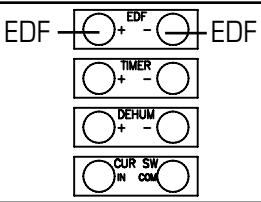
Setting speed

The ERV is shipped from the factory on low speed, intermittent operation can be obtained by toggling switch located on outside of cabinet. External low voltage contacts allow for high speed operation when optional remote control is used.

Low Voltage Control Systems

* Please see instruction manuals for individual controls for proper wiring and set up of control systems.

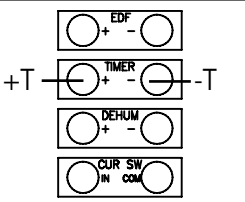
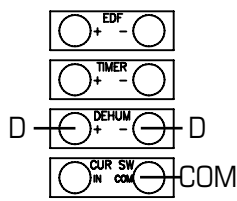
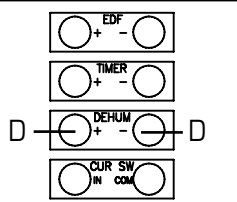
CENTRAL CONTROLS – These control options can only be used individually

CONTROLS	FEATURES	CONNECT TO
ECO-Touch 	- Our most complete, yet easy to use control system - Sleek design with backlight touchscreen LCD - ECO mode selects the best operating mode and speed for the season, minimizing energy use associated with ventilation - Set preferred indoor relative humidity range and ventilation mode for day and night conditions - No battery to replace, all programmed settings are retained during power outage - Maintenance reminder indicator - Error code messages reduce troubleshooting time	
EDF7 	- MODE button provides 3 modes of operations: Ventilation, Recirculation and Standby - User selected fan speed: Low, Medium, Normal and 20 minutes per hour - AUTO setting allows the homeowner to deactivate the dehumidistat - When the humidity exceeds the desired setpoint, the ventilation system operates at Normal speed. - Once the desired humidity level is achieved, you ventilation system resumes to its previous mode of operation	
EDF1 	- Press button once for continuous LOW speed - Press button twice and the unit will cycle 20 minutes ON/ 40 minutes OFF and repeat - Press button a third time and the system will run continuously on HIGH speed	



1. Ensure that unit is not plugged when connecting the control
2. Recirculation mode is only available with the "R" suffix at the end of the model number.

AUXILIARY CONTROL – These controls can be paired

RTS2* 	20- minute timer with LED light - Boosts system to high speed with the touch of a button - Up to 5 can be used in one system - Use in bathroom, kitchen, laundry room	
RTS3 	- Press button once and unit will operate in continuous mode on HIGH speed for 20 minutes (Green). - Press button a second time and unit will operate in continuous mode on HIGH speed for 40 minutes (Yellow). - Press button a third time and unit will operate in continuous mode on HIGH speed for 60 minutes (Red). - Press button a fourth time to cancel the timer (LED turns off).	
MDEH1 	- Rotary dial Dehumidistat - Multiple units can be used - We recommend setting the relative humidity above 80% during the summer	

*Maintain polarity between control and HRV

(+ → + ; - → -)

Maintenance



CAUTION MAKE SURE UNIT IS UNPLUGGED BEFORE ATTEMPTING ANY MAINTENANCE WORK

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

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

The unit - The inside of the unit should be wiped clean as needed.

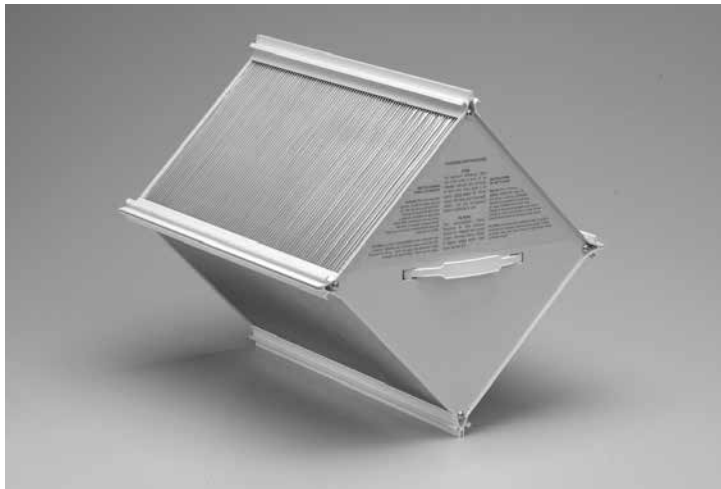
Condensation Pan - Units with drain hoses should have their line and connection checked regularly.

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 need to be checked and cleaned once a month or when they appear dirty.

Fixed plate



Clean core on a average every 3-6 months or as needed.

- a) Open access door & remove filters.
- b) Carefully grip ends of core and pull evenly outward. Core may be snug, but will slide out of the channel.
- c) Wash the core in warm soapy water or light coil solution.
- d) Install clean core
- e) Install the clean filters
- f) Replace access door



Core installation label on the outer end of the core.

To install the clean Core and Filters.

- a) First mount the bottom flange of the core guide into the bottom channel approximately 1/4" (6mm)
- b) Mount the left or right side flange of the core guide approximately 1/4" (6mm) followed by the other side
- c) Mount the top flange of the core guide into the top channel approximately 1/4" (6mm)
- d) With all four corners in place and the core straight and even, push hard in the centre of the core until the core stops on the back of the cabinet.

Wiring Diagram SHR6904/SHR8004/SHR11004/SHR14104

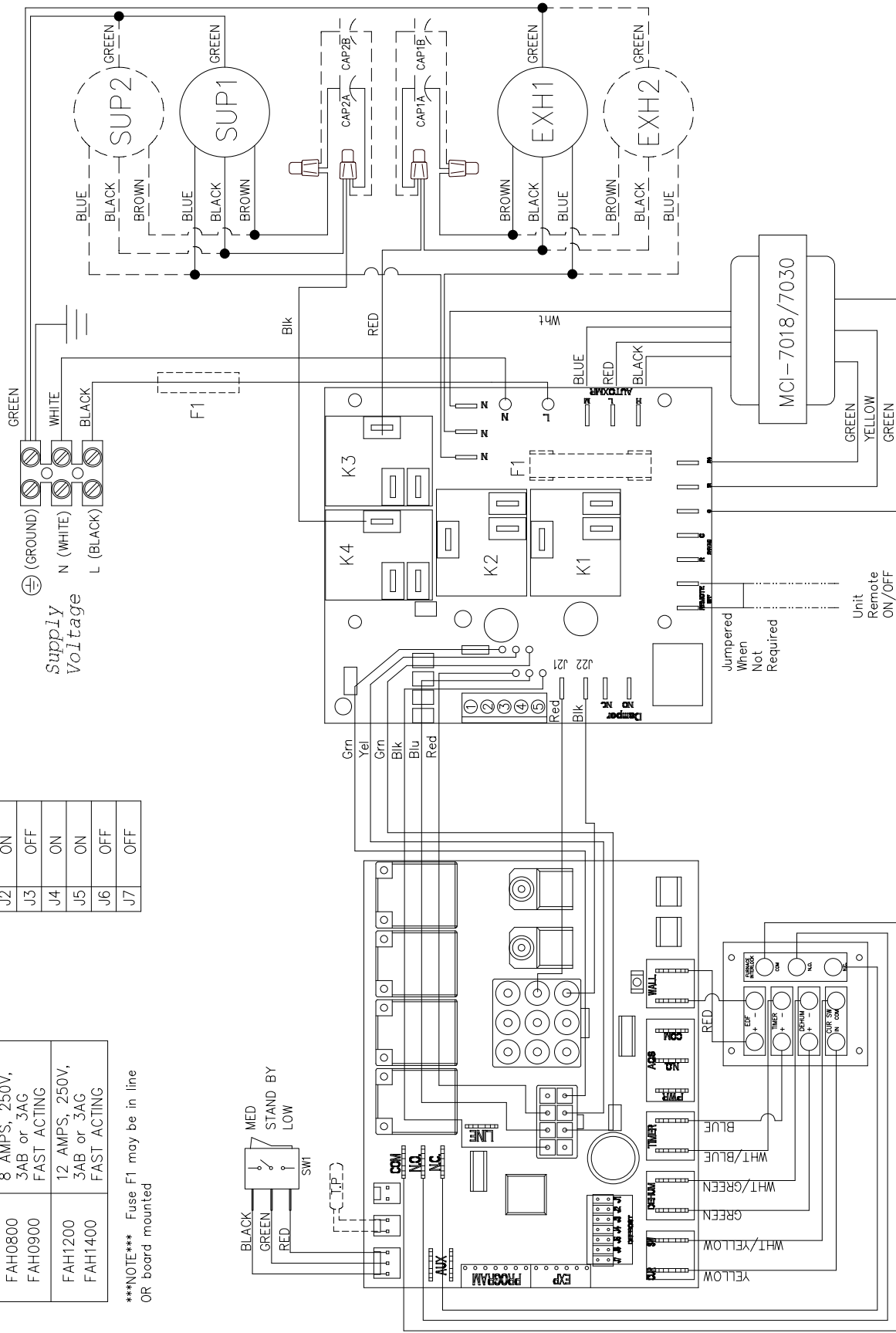
HCE PCB REPLACEMENT
FUSE SPECIFICATION

UNI-CTRL
JUMPER SETTINGS

TYPE	FUSE RATING
FAH0800	8 AMPS, 250V, 3AB or 3AG FAST ACTING
FAH0900	
FAH1200	12 AMPS, 250V, 3AB or 3AG FAST ACTING
FAH1400	

J1	OFF
J2	ON
J3	OFF
J4	ON
J5	ON
J6	OFF
J7	OFF

NOTE Fuse F1 may be in line
OR board mounted



--- INDICATES OPTIONAL COMPONENTS DEPENDING ON MODEL
— INDICATES CONTROL WIRING (BY OTHERS)

Wiring Diagram SHR6905R/SHR11005R

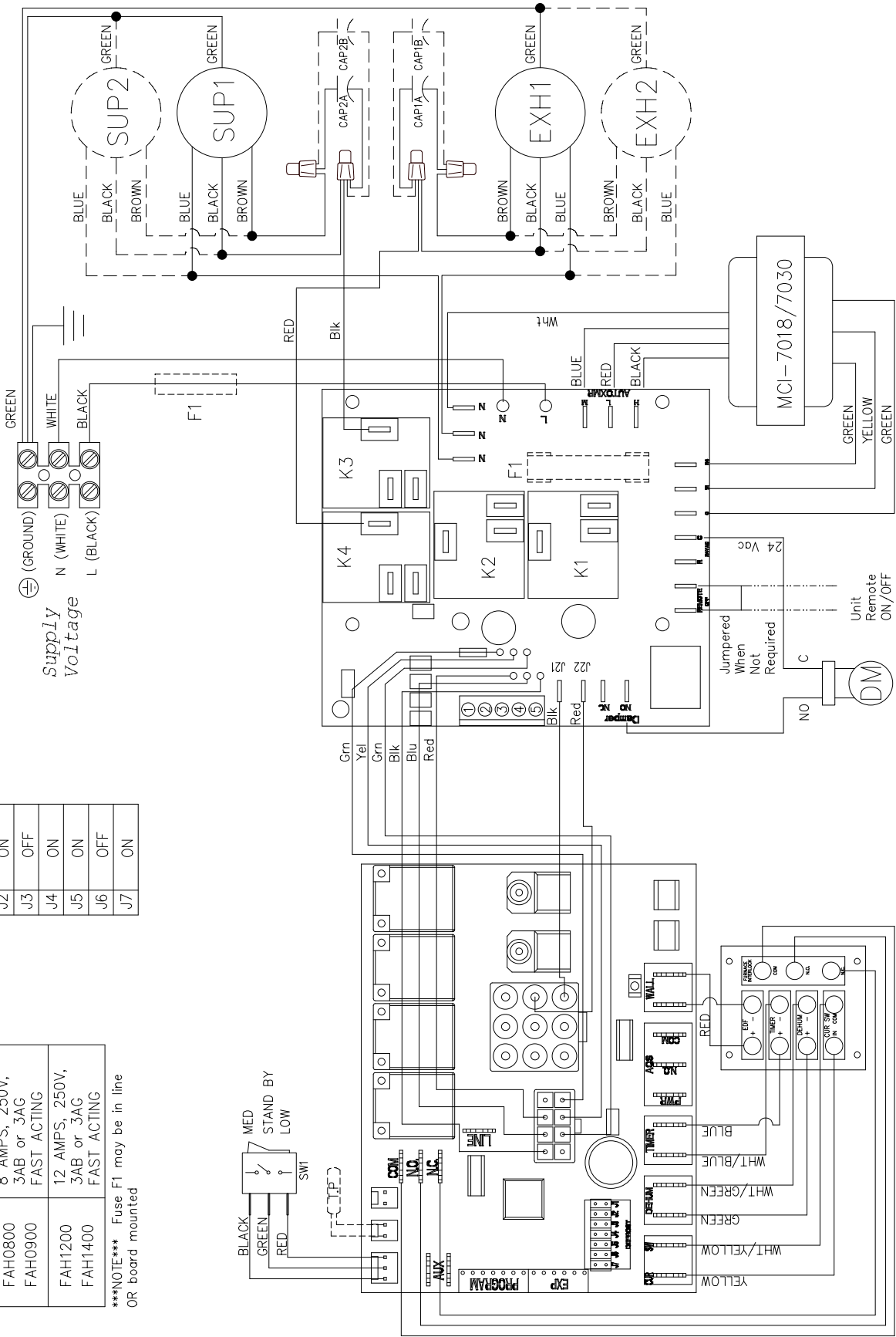
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FAH1400	

J1	OFF
J2	ON
J3	OFF
J4	ON
J5	ON
J6	OFF
J7	ON

NOTE Fuse F1 may be in line OR board mounted



----- INDICATES OPTIONAL COMPONENTS DEPENDING ON MODEL
- - - - - INDICATES CONTROL WIRING (BY OTHERS)

Installation Verification Test

SHR 6904, SHR 8004, SHR 11004, SHR 14104 Models

Without external control

1. Fan speed selector switch
 - Set fan Speed selector switch to Standby.
2. Start-up
 - Apply power to unit
 - Unit should enter **Exhaust only defrost** mode for a 30 second duration and the following should occur:
 - ☐ Exhaust fan runs in HIGH speed
 - ☐ Supply fan remains off
3. Standby
 - Following the start-up unit should enter **Standby** mode. The following should occur:
 - ☐ Exhaust fan shuts off
 - ☐ Supply fan remains off
4. LOW speed
 - Set fans speed selector switch LOW speed. The following should occur:
 - ☐ Exhaust fan runs in LOW speed
 - ☐ Supply fan runs in LOW speed
5. Medium speed
 - Set fans speed selector switch MED speed. The following should occur:
 - ☐ Exhaust fan ramps up to MED speed
 - ☐ Supply fan ramps up to MED speed
6. Test completion
 - Set fan speed selector switch to desired setting
 - Installation Verification test is complete

With external control

1. Start-up
 - Apply power to unit
 - Unit should enter **Exhaust only defrost** mode for a 30 second duration and the following should occur:
 - ☐ Exhaust fan runs in HIGH speed
 - ☐ Supply fan remains off
2. External control
 - Following start-up unit will respond to external control
 - Consult user manual/instruction provided with external controller and ensure unit responds appropriately.
3. Test completion
 - Installation Verification test is complete

Installation Verification Test

SHR 6905R, SHR 11005R Models

Without External Control

1. Fan speed selector switch
 - Set fan Speed selector switch to Standby.
2. Start-up
 - Apply power to unit
 - Unit should enter **Recirculation** mode for a 30 second duration and the following should occur:
 - ☐ Supply fan runs in HIGH speed
 - ☐ Exhaust fan remains off
3. Standby
 - Following the start-up unit should enter **Standby** mode. The following should occur:
 - ☐ Supply fan shuts off
 - ☐ Exhaust fan remains off
4. LOW speed
 - Set fans speed selector switch low speed. The following should occur:
 - ☐ Supply fan runs in LOW speed
 - ☐ Exhaust fan runs in LOW speed
5. Medium speed
 - Set fans speed selector switch MED speed. The following should occur:
 - ☐ Supply fan ramps up to MED speed
 - ☐ Exhaust fan ramps up to MED speed
6. Test completion
 - Set fan speed selector switch to desired setting
 - Installation Verification test is complete

With external control

1. Start-up
 - Apply power to unit
 - Unit should enter **Recirculation** mode for a 30 second duration and the following should occur:
 - ☐ Supply fan runs in HIGH speed
 - ☐ Exhaust fan remains off
2. External control
 - Following start-up unit will respond to external control
 - Consult user manual/instruction provided with external controller and ensure unit responds appropriately.
3. Test completion
 - Installation Verification test is complete

Limited Warranty

- The heat recovery aluminum core has a lifetime warranty.
 - Fantech HRV's have a warranty that is limited to 3 years on all parts 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.
 - The motors found in all Fantech HRVs 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 for adhering to all codes in effect in his area.
- * 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.

Notes

Notes

Fantech reserves the right to make technical changes.
For updated documentation please refer to www.fantech.net

Fantech®

