

# VENTILATORS

505,036M  
01/2005

## HEALTHY CLIMATE® HRV and ERV

### HOMEOWNERS MANUAL & DEALER INSTALLATION INSTRUCTIONS FOR HEALTHY CLIMATE® HEAT RECOVERY VENTILATOR (HRV) AND ENERGY RECOVERY VENTILATOR (ERV)

#### Shipping and Packing List

##### Package 1 of 1 contains:

- 1 - Assembled ventilator
- 1 - Bag assembly containing:
  - 2 - Drain spout assemblies (*HRV units only*)
  - 4 - Hanging straps
  - 1 - Installation manual
  - 1 - Wall-mounted remote control

#### Required Tools

##### Installation Tools

- tin snips
- assorted screw drivers
- electric drill
- hammer
- wire strippers
- knife
- caulking gun
- smoke pencil
- large zip ties (*pg. 6*)
- fabric flexible duct - class II rated (*pg. 6*)
- mastic tape (*pg. 7*)
- alum. foil duct tape (*pg. 7*)
- low voltage control wire
- zip ties (*pg. 8*)
- 1/2" I.D. drain hose (*pg. 8*)

##### Balancing Tools

- Pitot Tube Balancing Kit [Case, 8 ft. vinyl tubing, Pitot tube, magnehelic gauge (0 - 0.25"), and mounting plate] (*pg. 21*).....56N82
- magnehelic gauge (0 - 0.25") only .....79P83
- or*
- Pitot Tube with instructions .....72X52 and Digital Manometer (with resolution of 0 - 0.25" - must read to 1/100ths of an inch) ....86N62

##### Optional Accessories

- 20 Minute Fan Timer (*pg. 2,3*) .....89N18
- Wall Mounted Dehumidistat (*pg. 2,3*) .....27N53
- Weather hood Kit (*pg. 2,3*) .....95P07
- Round Diffuser (*pg. 8*)
  - 4" (100mm) .....72N59
  - 6" (150mm) .....72N60
  - 8" (200mm) .....72N65
- Kitchen Grille
  - *may be required by code for kitchen applications*
  - *contains removable grease filter (pg. 8)* .....18N48
  - 6" (150mm) Balancing Damper (*pg. 2,3*) .....91X09

#### Application

The Healthy Climate® Heat Recovery Ventilator (HRV) and Energy Recovery Ventilator (ERV) are designed to provide fresh air while exhausting an equal amount of stale air. Refer to application map on page 4.

The HRV is equipped with an aluminum core. The device uses the stale air that is being exhausted to condition the fresh air as it is being brought in.

The ERV is equipped with an enthalpic paper core. This device is designed for use in warm, humid climates with heavy air conditioning loads. The ERV transfers both sensible (temperature) and latent (moisture) heat from incoming fresh air to the stale air as it is being exhausted; thus, reducing the air conditioning load. The ERV is not suitable for use in climates where the temperature drops below 25°F (-4°C) for more than 5 days continuously.

#### General

These instructions are intended as a general guide and do not supersede local codes in any way. Consult authorities who have jurisdiction before installation.

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LEAVE THIS HOMEOWNER'S MANUAL AND DEALER INSTALLATION INSTRUCTIONS FOR THE HOMEOWNER

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

LNX-27-AH  
1204

**THERMALLY CONDUCTIVE, PATENTED ALUMINUM CORE**

The cross-flow heat recovery core transfers heat between the two air streams. It is easily removed for cleaning or service.

**MOTORS AND BLOWERS**

Each air stream has one centrifugal blower driven by a common PSC motor. High speed - 120 VAC.

**FILTERS** - Washable air filters in exhaust and supply air streams.

**MOUNTING THE HRV** - Four threaded inserts at corners of case designed to accept four PVC reinforced polyester straps that are supplied with the unit.

**DEFROST** - Damper defrost system; defrosts automatically as the outdoor temperature falls.

**CASE** - Twenty gauge prepainted galvanized steel (G60) for superior corrosion resistance. Insulated to prevent exterior condensation. Drain connections two - 1/2" (12mm) OD.

**WEIGHT** 58 lbs. **SHIPPING WEIGHT** 78 lbs.

**Performance**

Net supply air flow in cfm (L/s) against external static pressure

<b>E.S.P</b> <i>(external static pressure)</i>	<b>150</b> <i>[cfm (L/s)]</i>	<b>200</b> <i>[cfm (L/s)]</i>
@ 0.1" (25 Pa)	177 (83)	214 (101)
@ 0.2" (50 Pa)	164 (77)	206 (97)
@ 0.3" (75 Pa)	156 (73)	193 (91)
@ 0.4" (100 Pa)	143 (67)	184 (87)
@ 0.5" (125 Pa)	123 (58)	170 (80)
Max. Sensible Effectiveness 32°F (0°C) outdoor air 72°F (22°C) 40% RH indoor air	76%	67%
Test Parameters	68cfm (32L/s)	127cfm (60L/s)
Sensible Effectiveness 32°F (0°C)	76%	67%
*Sensible Efficiency 32°F (0°C)	66%	60%
*Sensible Efficiency -13°F (-25°C)	60%	59%
**Latent Efficiency 95°F (35°C)	0%	0%
Total Efficiency 95°F (35°C)	20%	20%
VAC @ 60HZ	120	120
WATTS / High @ .3" W.C.	173	182
WATTS / Low @ .3" W.C.	63	70

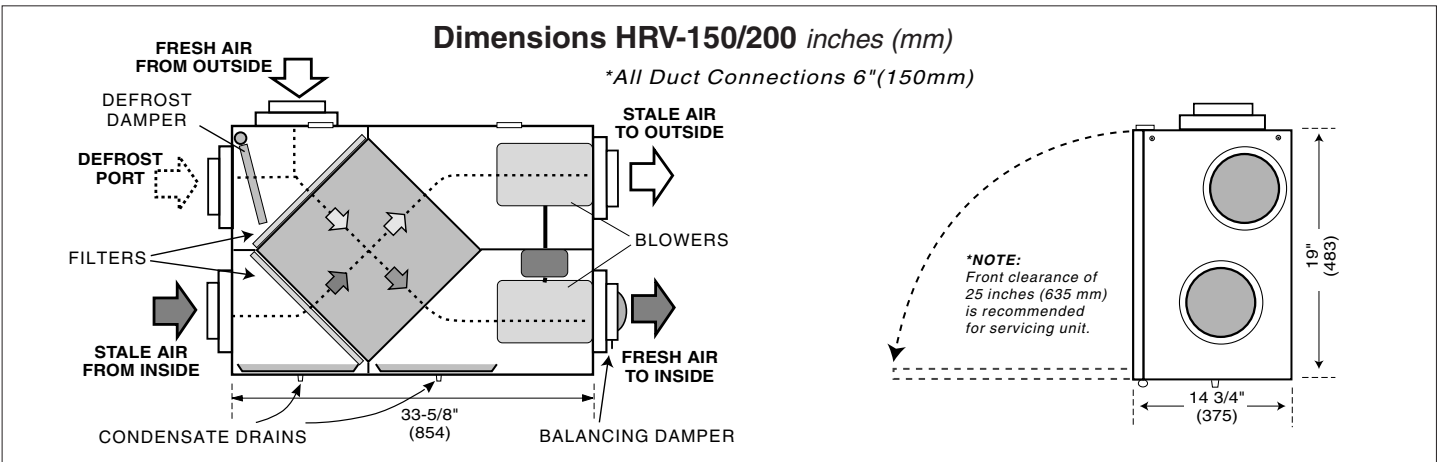
\*Sensible Efficiency - thermal

\*\*Latent Efficiency - moisture

Note: Effectiveness - based on temp. differential between the 2 airstreams  
Efficiency - includes parasitic losses from fan and defrosting

**Dimensions HRV-150/200 inches (mm)**

\*All Duct Connections 6" (150mm)



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

**CONTROLS**

72X53 HRV System Control

**HRV System Control**

HRV defaults to LOW SPEED when plugged in. HIGH SPEED option is accessible by connecting remote controls to designated terminals inside electrical box of HRV.

Standard LOW SPEED SETTING can be increased by manipulating switches in electrical box. OFF (Standby)/LOW or OFF/HIGH speed operation also available by manipulating switches.

**OPTIONAL ACCESSORIES**

- 89N18 20 Minute Fan Timer  
(3 wire) 20 gauge wire (min.) 100' length (max.)
- 72X52 Pitot Tube (for air balancing)
- 95P07 Weather Hoods, 2 - 6" (150mm) c/w 1/4" (6mm) screen
- 91X09 Balancing Damper, 6" (150mm)

All units conform to CSA and UL standards.

DATE: \_\_\_\_\_

PROJECT: \_\_\_\_\_

MECHANICAL CONTRACTOR: \_\_\_\_\_

**LATENT RECOVERY/MOISTURE TRANSFER CORE**

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

**MOTORS AND BLOWERS** - Each air stream has one centrifugal blower driven by a common PSC motor. High speed - 120 VAC.

**FILTERS** - Washable air filters in exhaust and supply air streams.

**MOUNTING THE ERV** - Four threaded inserts at corners of case designed to accept four PVC reinforced polyester straps that are supplied with the unit.

**CASE** - Twenty gauge prepainted galvanized steel (G60) for superior corrosion resistance. Insulated to prevent exterior condensation.

**WEIGHT** 58 lbs.    **SHIPPING WEIGHT** 78 lbs.

**Performance**

Net supply air flow in cfm (L/s) against external static pressure

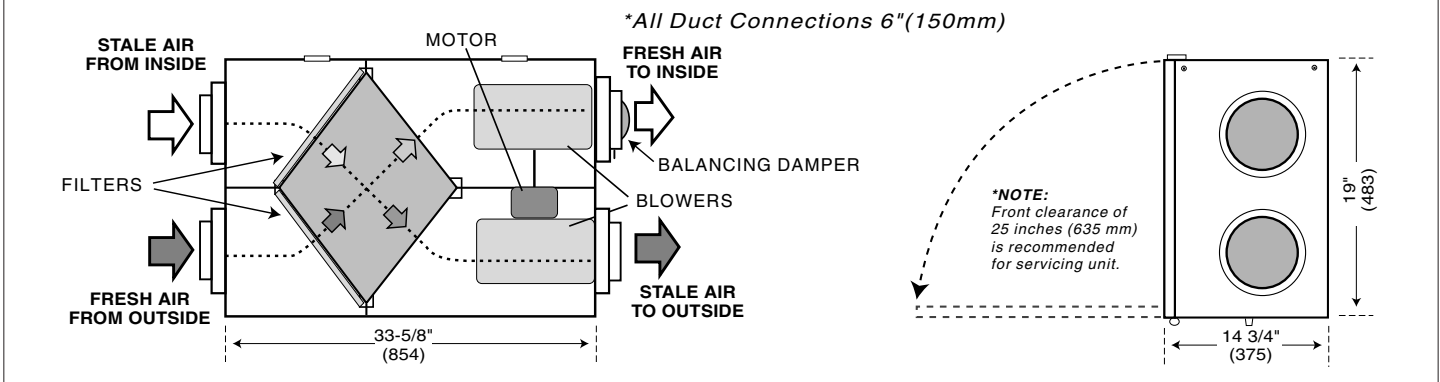
<b>E.S.P</b> (external static pressure)	<b>150</b> [cfm (L/s)]	<b>200</b> [cfm (L/s)]
@ 0.1" (25 Pa)	177 (83)	214 (101)
@ 0.2" (50 Pa)	164 (77)	206 (97)
@ 0.3" (75 Pa)	156 (73)	193 (91)
@ 0.4" (100 Pa)	143 (67)	184 (87)
@ 0.5" (125 Pa)	123 (58)	170 (80)
Max.Sensible Effectiveness 32°F (0°C) outdoor air 72°F (22°C) 40% RH indoor air	76%	67%
Test Parameters	58cfm (32L/s)	127cfm (60L/s)
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Total Efficiency 95°F (35°C)	50%	50%
VAC @ 60HZ	120	120
WATTS / High @ .3" W.C.	173	182
WATTS / Low @ .3" W.C.	63	70

\*Sensible Efficiency - thermal

\*\*Latent Efficiency - moisture

Note: Effectiveness - based on temp. differential between the 2 airstreams  
Efficiency - includes parasitic losses from fan and defrosting

**Dimensions ERV-150/200 inches (mm)**



**CONTROLS**

**72X54 ERV System Control**

**HRV System Control**

HRV defaults to LOW SPEED when plugged in. HIGH SPEED option is accessible by connecting remote controls to designated terminals inside electrical box of HRV.

Standard LOW SPEED SETTING can be increased by manipulating switches in electrical box. OFF(Standby)/LOW or OFF/HIGH speed operation also available by manipulating switches.

**OPTIONAL ACCESSORIES**

- 89N18 20 Minute Fan Timer**  
(3 wire) 20 gauge wire (min.) 100' length (max.)
- 72X52 Pitot Tube** (for air balancing)
- 95P07 Weather Hoods, 2 - 6" (150mm) c/w 1/4" (6mm) screen**
- 91X09 Balancing Damper, 6" (150mm)**

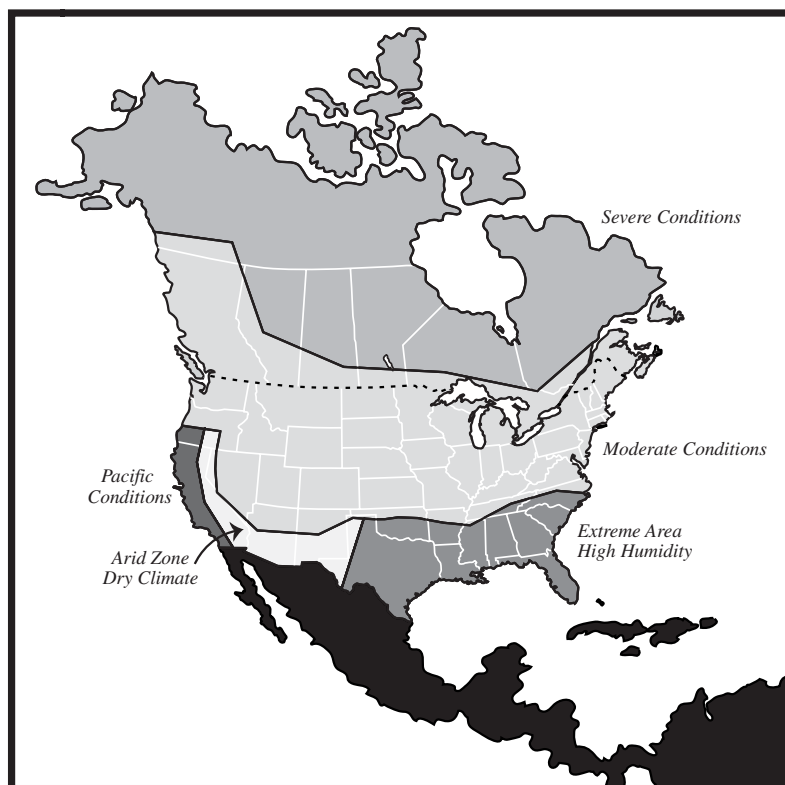
All units conform to CSA and UL standards.






DATE: \_\_\_\_\_

PROJECT: \_\_\_\_\_

MECHANICAL CONTRACTOR: \_\_\_\_\_

## HRV/ERV Application Map



-  **Severe Conditions**  
HRV required
-  **Pacific Conditions**  
HRV recommended  
ERV optional\*
-  **Extreme Area\*\* - High Humidity**  
ERV recommended\*
-  **Moderate Conditions**  
HRV recommended
-  **Arid Zone - Dry Climate**  
HRV recommended

\* ERV not recommended where temperatures fall below 25°F (-4°C) continuously for more than 5 days.

\*\* ERV's are recommended in regions where high outdoor humidity is cause for operating air conditioning/dehumidification more frequently than heating system

## Clearances and Requirements

### Connecting Appliances to the HRV/ERV

The following appliances should not be connected to the HRV/ERV:

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

**NOTE:** *Failure to follow this instruction will void the HRV/ERV warranty.*

### **WARNING**

Before installation, careful consideration must be given to how this system will operate if connected to any other piece of mechanical equipment, i.e. a forced air furnace or air handler, operating at a higher static. After installation, the compatibility of the two pieces of equipment must be confirmed by measuring the air flows of the ventilator. Please refer to page 21 for air flow balancing.

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!!!

### **WARNING**

Combustion and flue products must never be allowed to enter the return air system or the living space.

The return and supply air duct systems must never be connected to or from other heating devices such as a fireplace, or stove, etc. Fire, explosion, carbon monoxide poisoning, personal injury and/or property damage could result.

### **CAUTION**

HRV/ERV unit will be damaged if connected to Clothes Dryer, Range Top, Stove Top, Fan, Central Vacuum System or similar appliances.

## Dealer Installation

### ⚠ WARNING

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

### ⚠ WARNING



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

#### Location Selection

The HRV/ERV must be located in a space where it will be possible to conveniently service the unit. Typically the HRV/ERV would be located in the mechanical room or an area close to the outside wall where the weather hoods will be mounted. If a basement area is not convenient or does not exist, a utility or laundry room may be used.

Attic installations are not normally recommended for HRV due to:

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

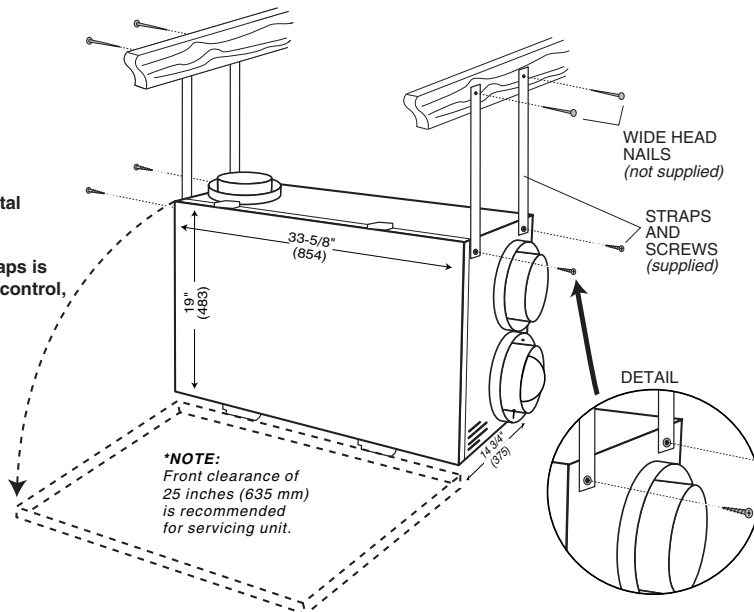
The HRV/ERV unit must be installed in a horizontal position as shown in the illustration below. The unit

### Suspending the Unit using the Provided Hanging Straps

(HRV unit shown)

Unit is designed for horizontal installation only as shown.

Using full length hanger straps is recommended for vibration control, but strap can be shorter if required.



should be suspended using the provided hanging straps. If necessary, the unit may be installed on a floor. Vibration pads will reduce vibration for installations where the unit is placed on the floor. The unit must be level.

Sufficient clearance at the front of the access door is required for servicing the air filters and core. A minimum of 25" (635mm) clearance is recommended so the door can be opened. Four PVC reinforced polyester hanging straps are provided for hanging the HRV/ERV from the basement floor joists.

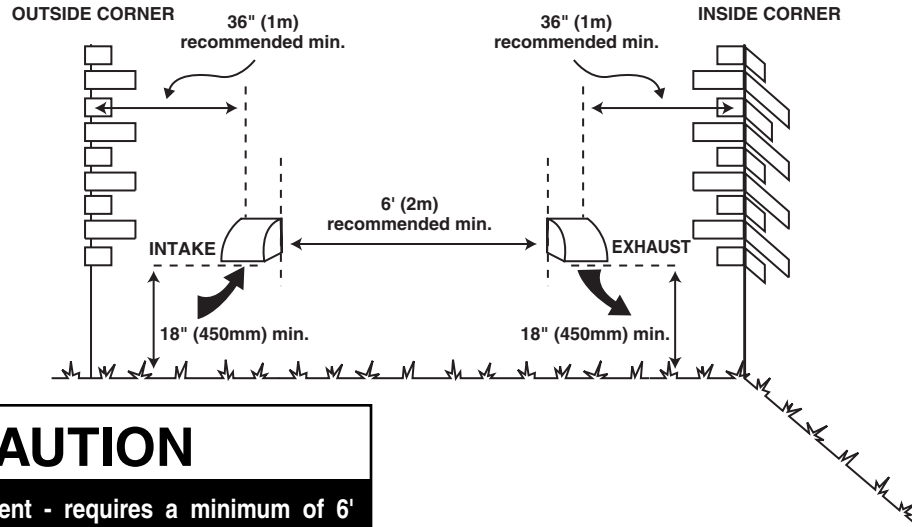
#### Suspending the Unit

The hanging straps should be attached to the unit at the top end corners (mounting screws are already located on the HRV/ERV case). Securely fasten the other end of the straps to the floor joists with wide head nails (not supplied), making sure the **UNIT IS LEVEL**. The straps are designed to reduce the possibility of noise, resonance or harmonics; therefore using the full length of the strap between the HRV/ERV and the floor joists is recommended.

### ⚠ CAUTION

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

## Weather Hood Clearances



### CAUTION

Weatherhood arrangement - requires a minimum of 6' (2m) separation and a minimum of 18" (460mm) clearance above the higher of the grade or anticipated snow level.

### Weather Hood Location and Installation

Weather hoods are available for separate order using part number 95P07. Each kit includes two fixed-cover hoods with a 1/4" (6mm) mesh screen.

#### Exhaust Weather Hood Requirements

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

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

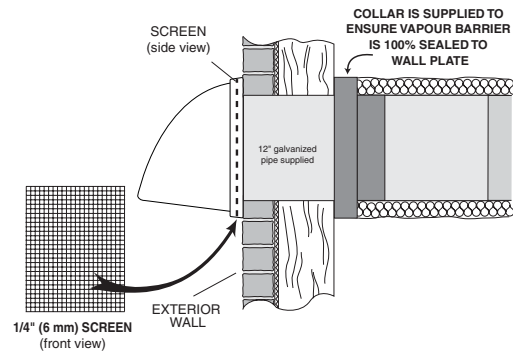
\* *Local code may require greater distances.*

#### Intake Weather Hood Requirements

- Should be located upstream so that if there are prevailing winds, exhaust blows away from the intake
- At least 6' (2 m) from the exhaust weather hood \*
- At least 6' (2 m) away from dryer vents and air handler exhaust (medium or high efficiency furnaces)\*
- A minimum of at least 6' (2 m) from sources of contaminated air (including driveways, oil fill pipes, gas meters, garbage containers or swimming pools)\*
- At least 18" (457mm) above the higher of the ground, or the depth of expected snow accumulation\*
- At least 3' (1 m) from the inside/outside corner of the building\*
- Do not locate in any indoor space

\* *Local code may require greater distances.*

### WEATHERHOOD INSTALLATION



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

### Air Duct Design and Installation

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

Always try to keep duct runs as short and straight as possible. See **Installation Diagrams** for various installation options.

The inner and outer liners of the flexible insulated duct must be clamped to the sleeve of the weather hoods (as close to the outside as possible) and the appropriate port on the HRV/ERV. **It is very important that the fresh air intake line be given special attention to make sure it is well sealed.** A good bead of high quality caulking (preferably silicone sealant) will seal the inner flexible duct to both the HRV/ERV port and the weather hood prior to clamping with a large zip tie.

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

Twisting or folding the duct will severely restrict air flow. See below for the recommended connection of flexible insulated ducts to the the outside weather hoods and the HRV/ERV.

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

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

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

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 if necessary.

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

The main supply and return lines to/from the HRV/ERV must be 6 inches (150mm) minimum. Branch lines to the individual rooms may be as small as 4 inches (100mm), but 5 inch (125mm) lines are preferred .

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

### Fresh Air Ducting

In applications that do not include an air handler, fresh air should be supplied to all bedrooms and living areas, excluding bathrooms, kitchen and utility areas. Grilles should be located high on a wall or in ceiling locations. Grilles that diffuse the air comfortably such as the Round Diffuser are recommended.

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.

### Direct Connection to Air Handler Duct System

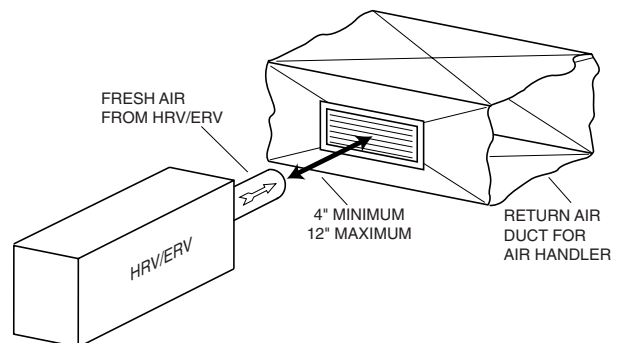
Should you wish to hard duct the fresh air from the HRV/ERV directly into the cold air return of the air handler, remember to check the air flow balance of the HRV/ERV with the air handler fan both "ON" and "OFF" to determine that it does not imbalance the unit more than 10%.

## ! WARNING

**Include a short length of fabric flex duct or other non-metallic connector in this hard ducted line in order to keep the HRV/ERV separately grounded (electrically) from the air handler. This will avoid a possible shock hazard to service people if a short to ground develops in one of the devices.**

### Indirect Connection to Air Handler Duct System

If permitted by local codes, an indirect connection may be made between the HRV/ERV fresh air duct and the air handler return plenum. The fresh air from the unit may be directed at a grille installed in the cold air return duct of the air handler. The fresh air outlet from the HRV/ERV should be no closer than 4 inches (100mm) and no more than 12 inches (300mm) from the grille.



### Stale Air Exhaust System

The stale air exhaust system draws air from the points in the house where some of the worst air quality problems occur. Stale air ducts should be installed in the bathroom, kitchen and laundry room. Do not draw stale air from applications such as greenhouses, atriums, swimming pools, saunas, etc. They have unique ventilation requirements which should be addressed with an isolated ventilation system.

There is also a Simplified Installation option. In this method, the exhaust air is not ducted back to the HRV/ERV with "dedicated lines" from bathrooms, kitchens, etc. Instead, the exhaust air is drawn out of the cold air return of the air handler. **The air handler blower must be running when the unit is operating for this system to be effective.** Refer to *Installation diagram on pages 9 - 14 of this manual.*

### Balancing Dampers and Grilles

Balancing dampers and/or adjustable grilles should be used to balance the flow rates into and out of various rooms.

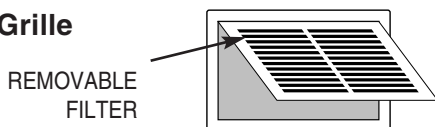
## CAUTION

**Do not mount exhaust grille within 4' (1.2m) (horizontally) from kitchen stove to prevent grease from entering the HRV/ERV.**

Grilles or diffusers should be positioned high on the wall or in the ceiling. Kitchen exhaust grilles must never be connected to a range hood. They should be installed at least 4 feet (1.2m) horizontally away from the stove. A hinged 6"X10" (150 X 250mm) rectangular kitchen exhaust grille is available as part number 18N48. This grille includes a removable grease filter. Canadian building codes require that kitchen grilles be equipped with washable filters.

Field-supplied balancing dampers should be installed external to the unit to balance the amount of stale air being exhausted with the amount of fresh air being brought into the house. Please refer to page 21 for air flow balancing.

### Kitchen Grille



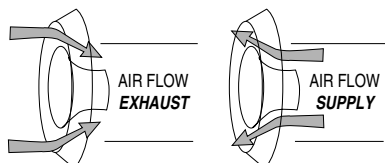
### The Round Diffuser is available in

4" (100mm) - Part No. 72N59

6" (150mm) - Part No. 72N60

8" (200mm) - Part No.

72N65



### Round Diffusers

### Drain Connection (HRV Only)

During a defrost cycle, the HRV may produce some condensation. This water should flow into a nearby drain, or be taken away by a condensate pump.

## CAUTION

**The HRV and all condensate lines must be installed in a space where the temperature is maintained above the freezing point or freeze protection must be provided.**

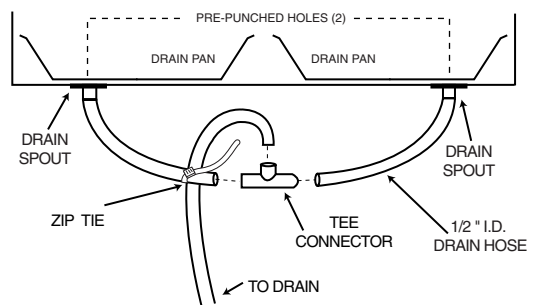
The HRV cabinet has prepunched holes for the drain (see below). Insert the drain spout through the hole in the drain pan. Do not forget the "O ring" which seals each spout to the pan. REMEMBER TO HAND TIGHTEN ONLY the washer and lock nut which hold the drain spout in place.

Construct a P-Trap using the plastic tee connector. Cut two lengths of hose and connect each piece to an end of the "T" fitting, then connect the other ends to the two drain spouts. Position the "T" fitting to point upward, and

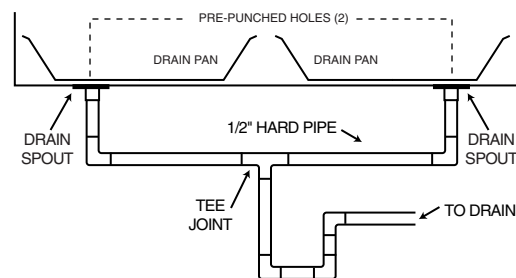
connect the drain line. Tape or fasten base to avoid any kinks. This creates a "trap" which will hold some condensate and prevent odors from being drawn up the hose and into the fresh air supply of the HRV.

### "P" Trap (HRV only)

#### DRAIN HOSE PLUMBING



#### HARD PIPE PLUMBING



**Note: Secondary drain pan may be required to protect from condensate leakage.**

Partially Dedicated System for HRV

Stale air drawn from key areas of home (bathroom, kitchen, laundry)

Fresh air supplied to return air duct of air handler

**⚠ WARNING**

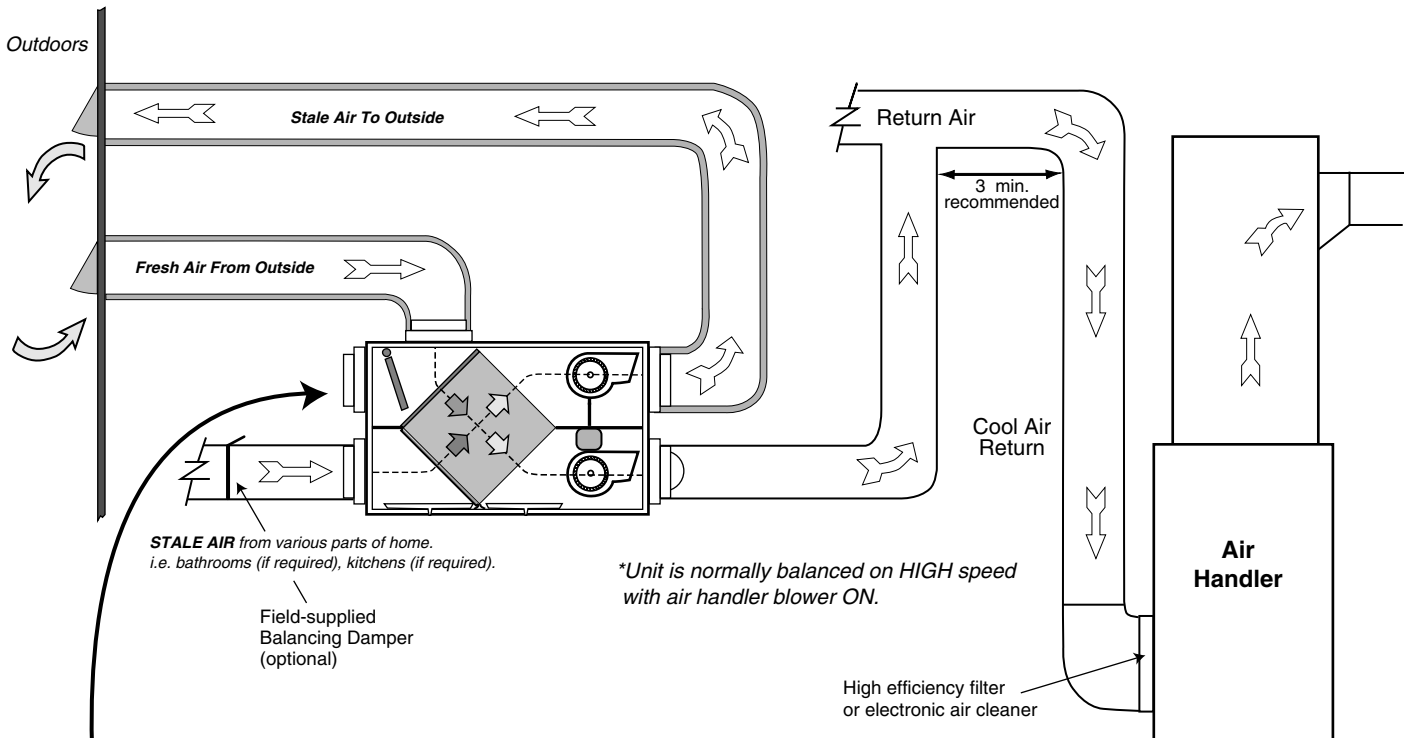
HRV must be balanced.

**⚠ WARNING**

Combustion and flue products must never be allowed to enter the return air system or the living space.

The return and supply air duct systems must never be connected to or from other heating devices such as a fireplace, or stove, etc. Fire, explosion, carbon monoxide poisoning, personal injury and/or property damage could result.

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



**NOTES:**

1. Air handler blower may be required to operate when HRV is on to provide good air distribution.
2. Weather hood arrangement is not to scale and is for illustration purposes only. 6' (2m) minimum separation required. 18" (460mm) above grade minimum or above anticipated snow level. See page 6.
3. Due to the differences in pressure between the HRV and the equipment it is being connected to, the HRV air flow must be confirmed on site, using the balancing procedure found in this installation manual on page 21.

**⚠ WARNING**

Warm air port needs to be drawn from clean area without combustion appliances. To avoid backdrafting of combustion products, never draw defrost air from a room with a naturally aspirated appliance, i.e. furnace, hot water heater, gas dryer, stove, fire place etc.

**⚠ CAUTION**

Weather hood arrangement - requires a minimum of 6' (2m) separation and a minimum of 18" (460mm) clearance above grade or anticipated snow level.

## Simplified Installation for HRV

(Return/Return Method)

It is mandatory that the air handler blower run continuously or HRV operation be interlocked with the air handler blower.

Check local codes/authority having jurisdiction.

### ⚠ WARNING

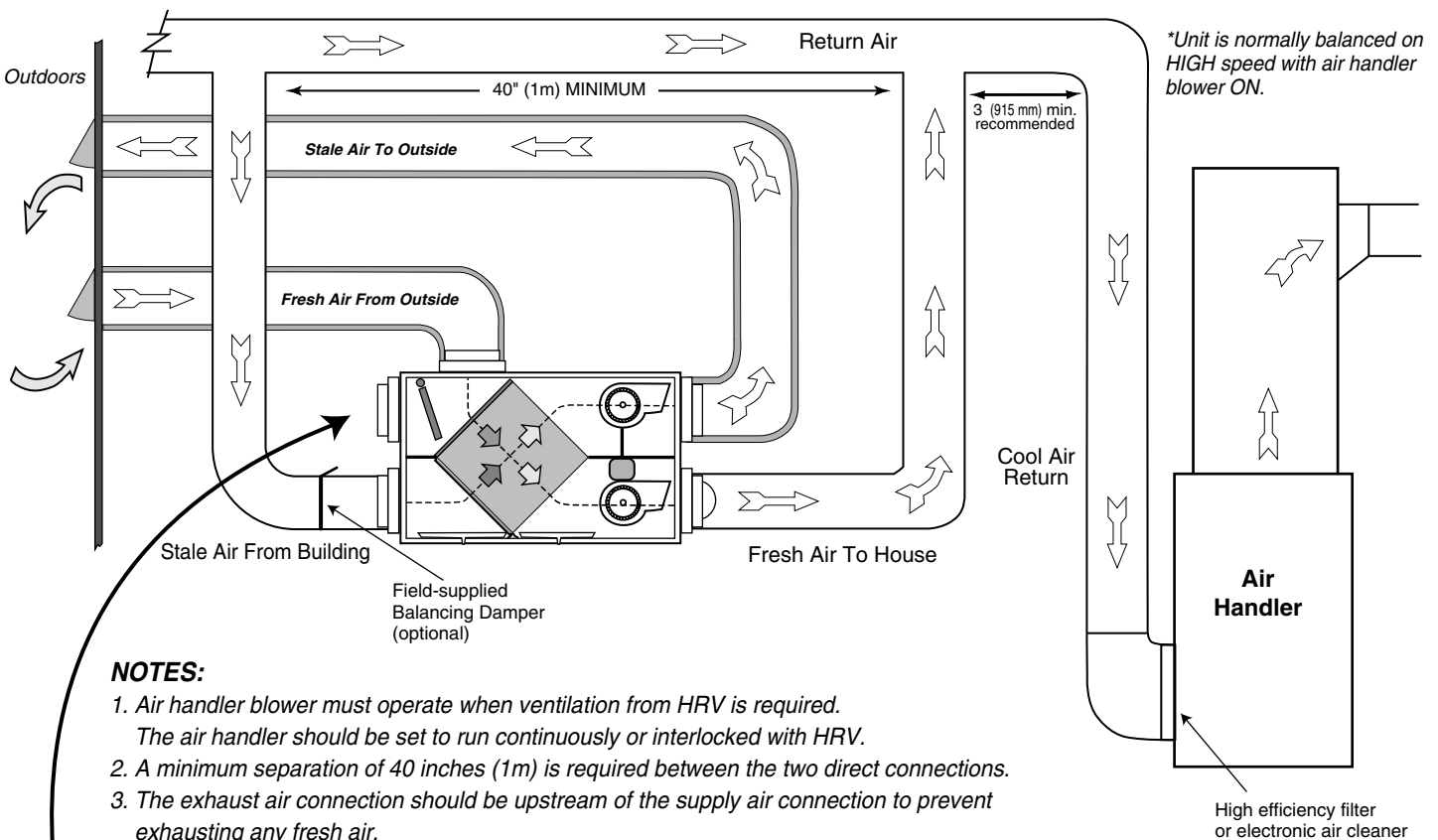
HRV must be balanced.

### ⚠ WARNING

Combustion and flue products must never be allowed to enter the return air system or the living space.

The return and supply air duct systems must never be connected to or from other heating devices such as a fireplace, or stove, etc. Fire, explosion, carbon monoxide poisoning, personal injury and/or property damage could result.

### DIRECT CONNECTION of both the HRV SUPPLY AIR STREAM and EXHAUST AIR STREAM to the AIR HANDLER COLD AIR RETURN



#### NOTES:

1. Air handler blower must operate when ventilation from HRV is required.  
The air handler should be set to run continuously or interlocked with HRV.
2. A minimum separation of 40 inches (1m) is required 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. Weather hood arrangement is not to scale and is for illustration purposes only. Six feet (2m) minimum separation required. 18" inches (460mm) above grade minimum or above anticipated snow level. See page 6.
5. Due to the differences in pressure between the HRV and the equipment it is being connected to, the HRV's air flow must be confirmed on site, using the balancing procedure found in this installation manual on page 21.

### ⚠ WARNING

Warm air port needs to be drawn from clean area without combustion appliances. To avoid backdrafting of combustion products, never draw defrost air from a room with a naturally aspirated appliance, i.e. furnace, hot water heater, gas dryer, stove, fire place etc.

### ⚠ CAUTION

Weather hood arrangement - requires a minimum of 6' (2m) separation and a minimum of 18" (460mm) clearance above grade or anticipated snow level.

## Fully Dedicated System for HRV

Stale air drawn from key areas of home (bathroom, kitchen, laundry)

Fresh air supplied to main living areas of house

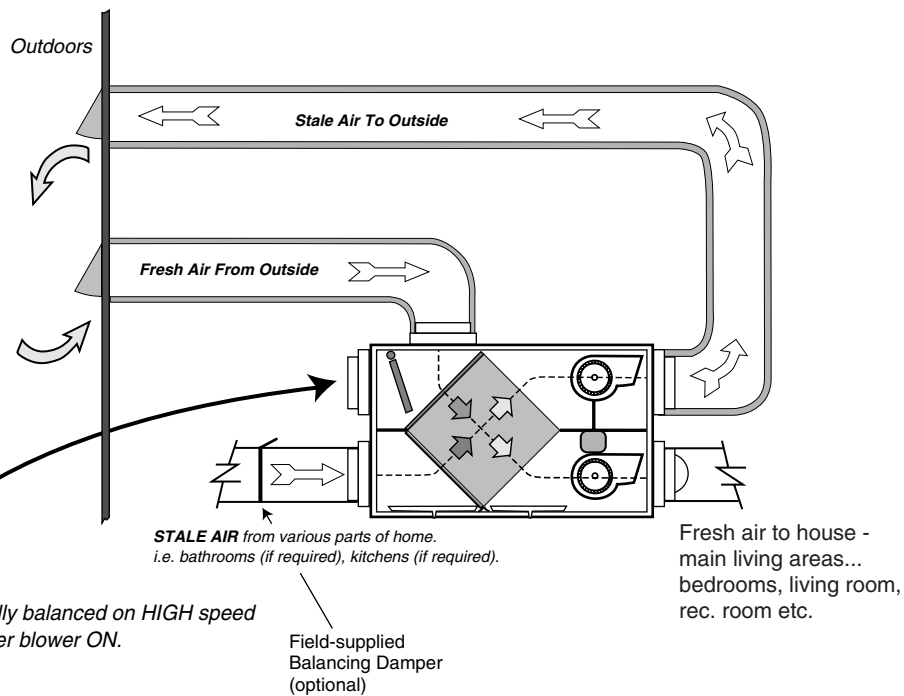
### ⚠ WARNING

HRV must be balanced.

### ⚠ WARNING

Combustion and flue products must never be allowed to enter the return air system or the living space.

The return and supply air duct systems must never be connected to or from other heating devices such as a fireplace, or stove, etc. Fire, explosion, carbon monoxide poisoning, personal injury and/or property damage could result.



#### NOTES:

1. Weather hood arrangement is not to scale and is for illustration purposes only. 6' (2m) minimum separation required. 18" (460mm) above grade minimum or above anticipated snow level. See page 6.
2. The HRV air flow must be confirmed on site, using the balancing procedure found in this installation manual on page 21.

### ⚠ WARNING

Warm air port needs to be drawn from clean area without combustion appliances. To avoid backdrafting of combustion products, never draw defrost air from a room with a naturally aspirated appliance, i.e. furnace, hot water heater, gas dryer, stove, fire place etc.

### ⚠ CAUTION

Weather hood arrangement - requires a minimum of 6' (2m) separation and a minimum of 18" (460mm) clearance above grade or anticipated snow level.

Partially Dedicated System for ERV

Stale air drawn from key areas of home (bathroom, kitchen, laundry)

Fresh air supplied to return air duct of air handler

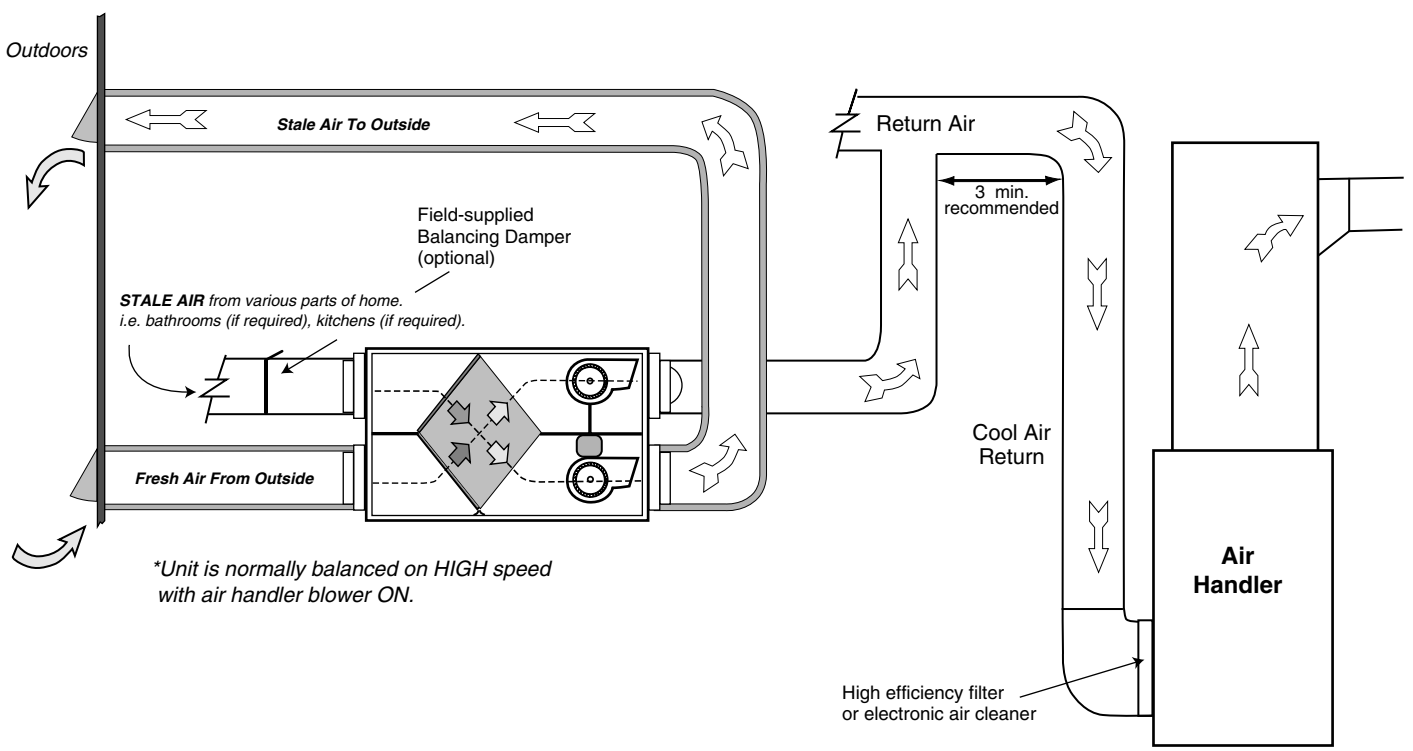
**! WARNING**

ERV must be balanced.

**! WARNING**

Combustion and flue products must never be allowed to enter the return air system or the living space. The return and supply air duct systems must never be connected to or from other heating devices such as a fireplace, or stove, etc. Fire, explosion, carbon monoxide poisoning, personal injury and/or property damage could result.

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



**NOTES:**

1. Air handler blower may be required to operate when ERV is on to provide good air distribution.
2. Weather hood arrangement is not to scale and is for illustration purposes only. 6' (2m) minimum separation required. 18" (460mm) above grade minimum. See page 6.
3. Due to the differences in pressure between the ERV and the equipment it is being connected to, the ERV's air flow must be confirmed on site, using the balancing procedure found in this installation manual on page 21.

**! CAUTION**

Weather hood arrangement - requires a minimum of 6' (2m) separation and a minimum of 18" (460mm) clearance above grade.

## Simplified Installation for ERV

(Return/Return Method)

It is mandatory that the air handler blower run continuously or ERV operation be interlocked with the air handler blower.

Check local codes/authority having jurisdiction for acceptance.

### ⚠ WARNING

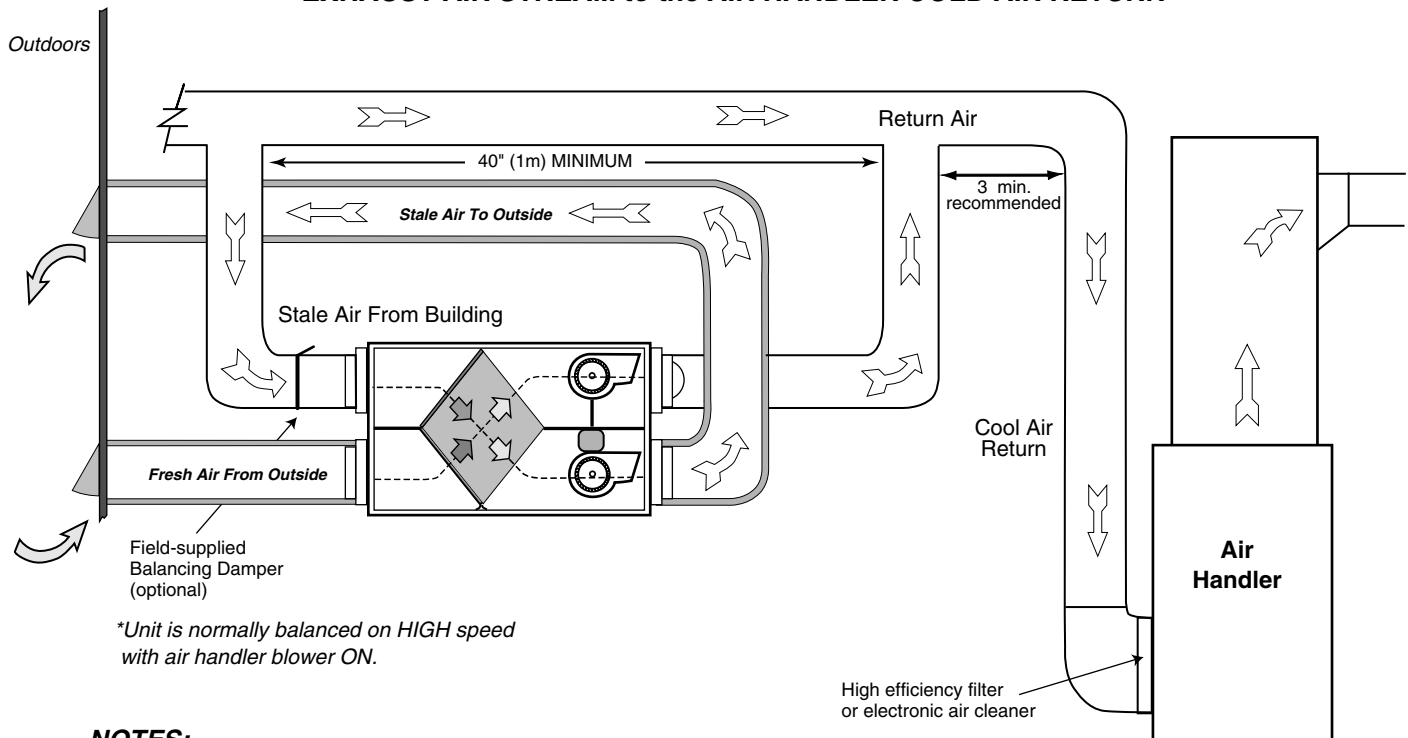
ERV must be balanced.

### ⚠ WARNING

Combustion and flue products must never be allowed to enter the return air system or the living space.

The return and supply air duct systems must never be connected to or from other heating devices such as a fireplace, or stove, etc. Fire, explosion, carbon monoxide poisoning, personal injury and/or property damage could result.

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



#### NOTES:

1. Air handler blower must operate when ventilation from ERV is required. The air handler should be set to run continuously or interlocked with ERV.
2. A minimum separation of 40 inches (1m) is required 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. Weather hood arrangement is not to scale and is for illustration purposes only. Six feet (2m) minimum separation required. 18" inches (460mm) above grade minimum. See page 6.
5. Due to the differences in pressure between the ERV and the equipment it is being connected to, the ERV's air flow must be confirmed on site, using the balancing procedure found in this installation manual on page 21.

### ⚠ CAUTION

Weather hood arrangement - requires a minimum of 6' (2m) separation and a minimum of 18" (460mm) clearance above grade.

## Fully Dedicated System for ERV

Stale air drawn from key areas of home (bathroom, kitchen, laundry)

Fresh air supplied to main living areas of house

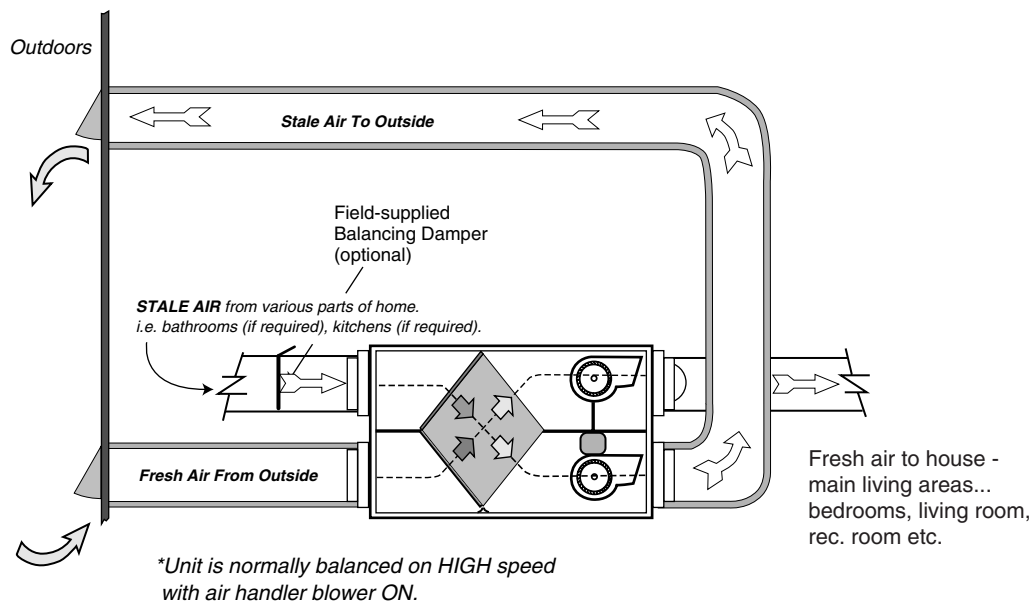
### ! WARNING

ERV must be balanced.

### ! WARNING

Combustion and flue products must never be allowed to enter the return air system or the living space.

The return and supply air duct systems must never be connected to or from other heating devices such as a fireplace, or stove, etc. Fire, explosion, carbon monoxide poisoning, personal injury and/or property damage could result.



### NOTES:

1. Weather hood arrangement is not to scale and is for illustration purposes only. 6' (2m) minimum separation required. 18" (460mm) above grade minimum. See page 6.
2. The ERV's air flow must be confirmed on site, using the balancing procedure found in this installation manual on page 21.

### ! CAUTION

Weather hood arrangement - requires a minimum of 6' (2m) separation and a minimum of 18" (460mm) clearance above grade.

## Electrical

The HRV/ERV unit should be plugged into a standard designated (120VAC) electrical outlet with a ground. The outlet should be serviced by a separate 15 amp/120V circuit. An extension cord should not be used with this appliance. A qualified electrical technician should make any required electrical connections.

### Remote Control Connections

Low voltage connections between the provided remote controls, the dehumidistat, or the fan timer should be made by a qualified electrical technician. Low voltage (24V) wires from the remote controls are connected to the HRV/ERV micro-processor board. See wiring diagrams on pages 16 and 17.

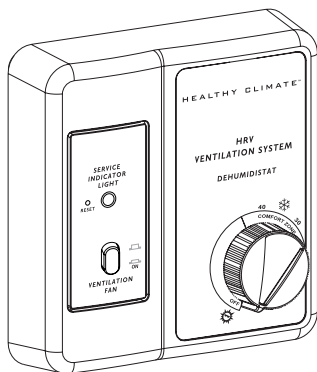
## ! WARNING

**In order to prevent electric shock when cleaning or servicing the HRV/ERV, it is extremely important to unplug the unit.**

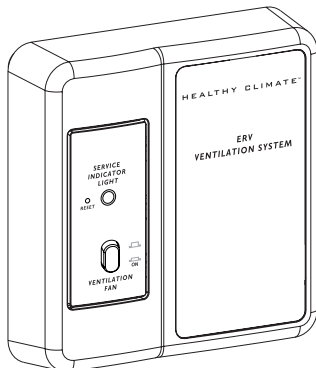
## Remote Controls

### Provided Controls

A wall-mounted remote control is shipped inside each HRV/ERV unit. The control should be installed on a wall in a central location. Refer to the illustrations below.



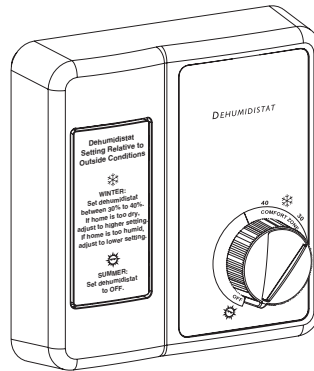
The **HRV remote control (72X53)** includes an ON/OFF switch, a dehumidistat, and a \*service reminder light. The low voltage control is connected to the HRV micro-processor board by three wires. This control satisfies many building code requirements. See the wiring diagram on page 16 of this manual.



The **ERV remote control (72X54)** includes an ON/OFF switch and a \*service reminder light. The low voltage control is connected to the ERV micro-processor board by two wires. This control satisfies many building code requirements. See the wiring diagram on page 17 of this manual.

### Optional Controls

An optional **wall-mounted dehumidistat (27N53)** may be used with the HRV in addition to the standard remote provided with the unit. The dehumidistat provides high-speed ventilation when the indoor humidity level exceeds the setpoint. This low voltage control connects to the HRV micro-processor board by two wires. See the wiring diagram on page 16 of this manual.



An optional **20-minute fan timer (89N18)** may be used with either the HRV or ERV. The fan timer allows 20 minutes of high-speed ventilation to combat odors, humidity requirements, etc. This low voltage control connects to the HRV/ERV micro-processor board by



three wires. Up to four fan timers may be used with each HRV/ERV unit. See the wiring diagram on pages 16 and 17 of this manual.

**\* Service reminder light will illuminate periodically to remind users that regular maintenance is required. To reset the light, use a paper clip to depress the reset button.**

# ⚠ CAUTION

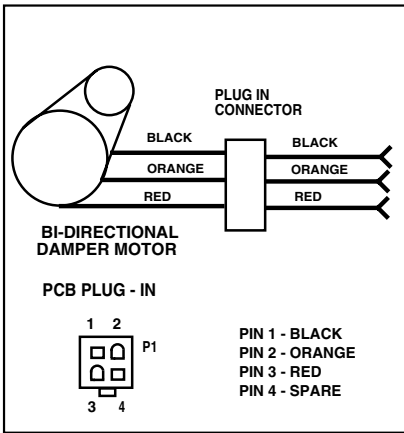
Static electricity can damage electrical circuits.  
Touch grounded cabinet prior to servicing.

**LEGEND**

HIGH VOLTAGE	———
12V LOW VOLTAGE	———
FIELD INSTALLED	---
12V LOW VOLTAGE	---

## DEFROST DETAILS

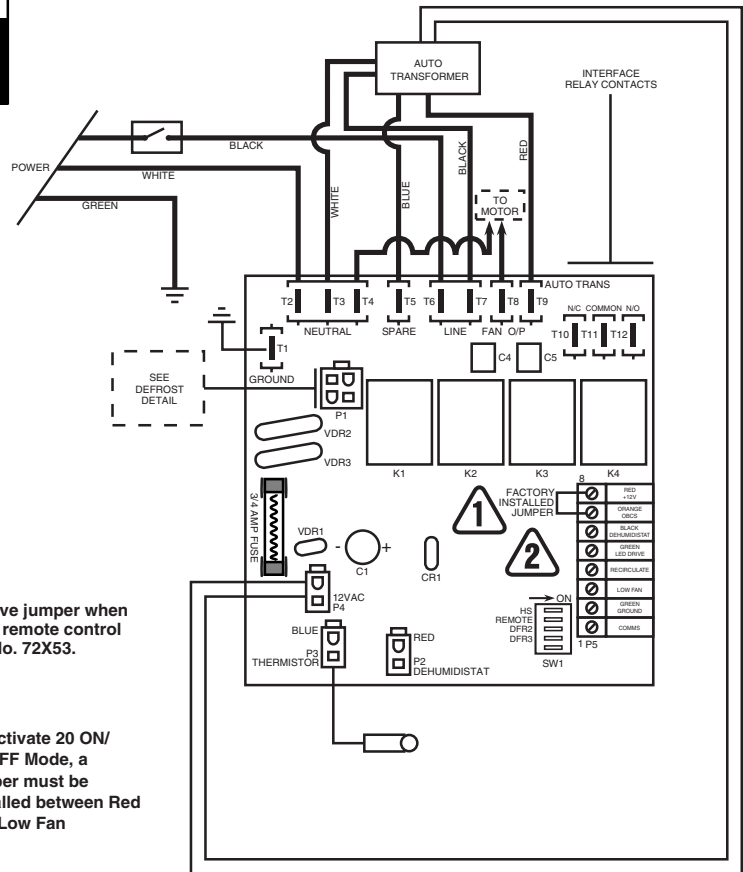
HRV Units Only



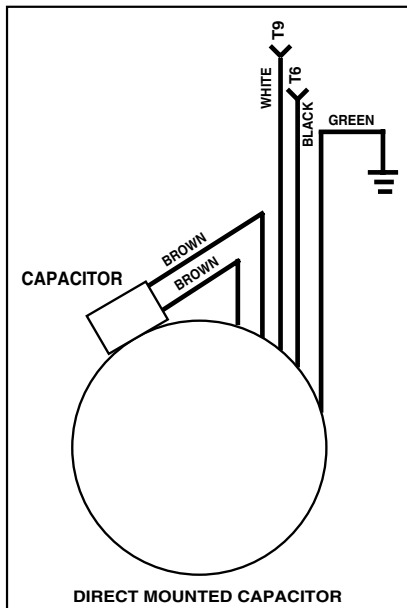
**Note:**  
Remove jumper when using remote control Part No. 72X53.



To activate 20 ON/40 OFF Mode, a jumper must be installed between Red and Low Fan

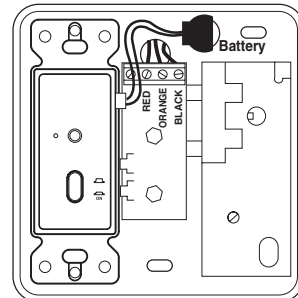


## FAN MOTOR DETAILS



## REMOTE CONTROL DETAILS

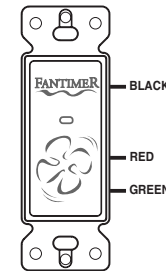
**HRV CONTROL**  
Part No. 72X53



**HRV Wiring Connections**

- Red to Red (12V)
- Black to Black (Dehumidistat)
- Orange to Orange (OBCS)

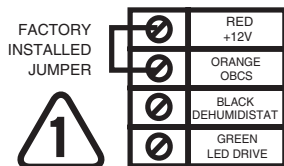
**20 MINUTE FAN TIMER**  
Part No. 89N18



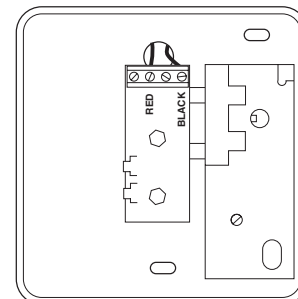
**FAN TIMER Wiring Connections**

- Red to Red (12V)
- Black to Black (Dehumidistat)
- Green to Green (LED Drive)

## REMOTE CONTROL CONNECTIONS



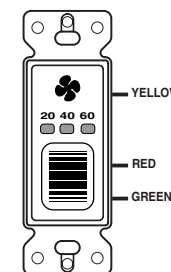
**WALL MOUNTED DEHUMIDISTAT**  
Part No. 27N53



**DEHUMIDISTAT Wiring Connections**

- Red to Red (12V)
- Black to Black (Dehumidistat)

**DIGITAL ELECTRONIC TIMER**  
Part No. 15N24



**Wiring Connections**

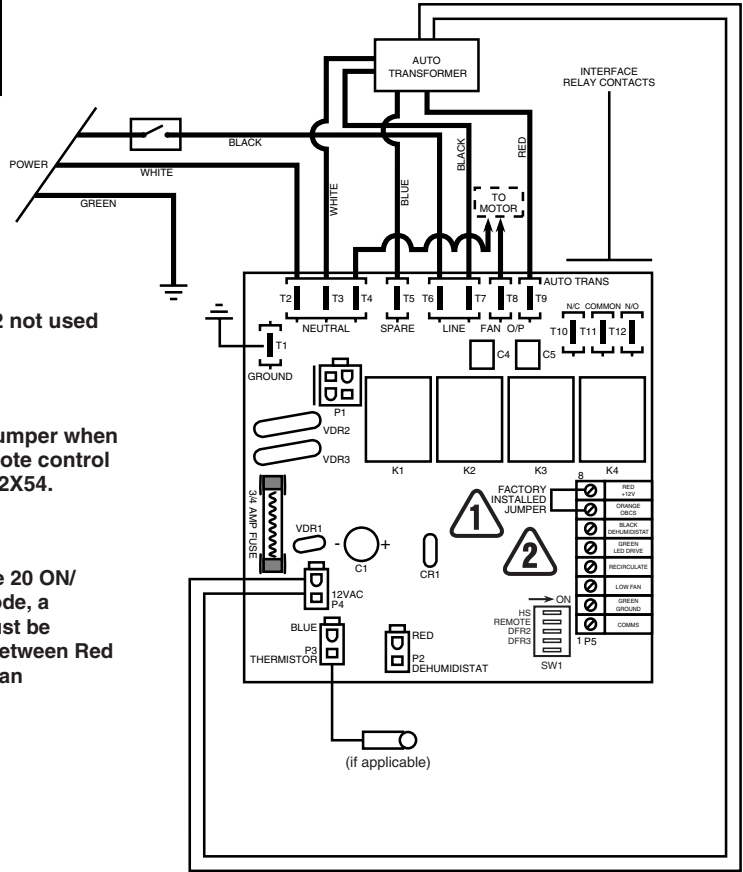
- Yellow to COMMS
- Red to Red (12V)
- Green to Green Ground

**CAUTION**

Static electricity can damage electrical circuits.  
Touch grounded cabinet prior to servicing.

LEGEND

HIGH VOLTAGE	—
12V LOW VOLTAGE	—
FIELD INSTALLED	---
12V LOW VOLTAGE	---



Note:  
P1 and P2 not used

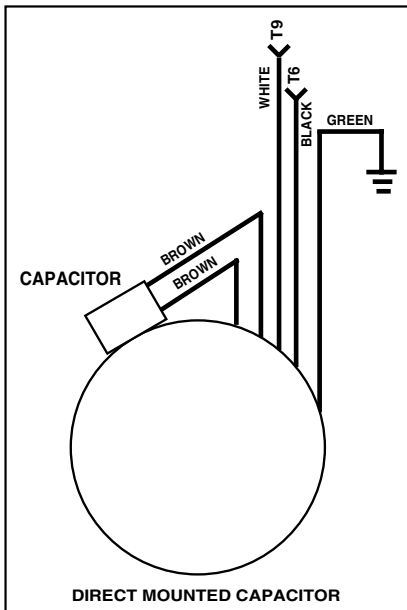


Note:  
Remove jumper when using remote control Part No. 72X54.



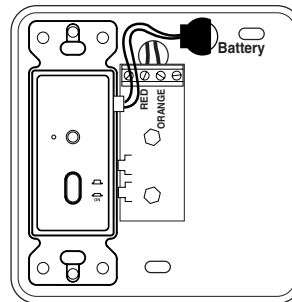
To activate 20 ON/40 OFF Mode, a jumper must be installed between Red and Low Fan

FAN MOTOR DETAILS



REMOTE CONTROL DETAILS

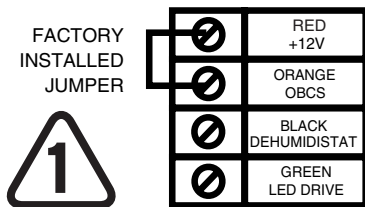
ERV CONTROL  
Part No. 72X54



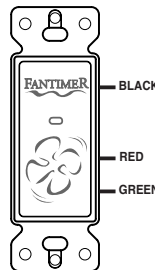
ERV Wiring Connections

- Red to Red (12V)
- Orange to Orange (OBCS)

REMOTE CONTROL CONNECTIONS



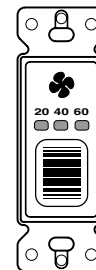
20 MINUTE FAN TIMER  
Part No. 89N18



FAN TIMER Wiring Connections

- Red to Red (12V)
- Black to Black (Dehumidistat)
- Green to Green (LED Drive)

DIGITAL ELECTRONIC TIMER  
Part No. 15N24



Wiring Connections

- Yellow to COMMS
- Red to Red (12V)
- Green to Green Ground

## Operation

### Self Test

The ventilator will automatically initiate a self test sequence when power is applied. Fan motor is cycled and then damper motor is cycled. Duration: Approximately 1.5 mins.

### Changing Speeds

The ventilator is factory-wired to operate on low speed. If continuous medium low speed operation is desired, disconnect the blue wire from the T5 (spare) terminal and the red wire from the T9 terminal. Reconnect the blue wire to the T9 terminal and the red wire to the T5 terminal. High-speed operation is available on demand using of the optional remote control. When the remote is installed, remove the factory-installed jumper from the RED +12V and ORANGE OBCS terminals and set the HS and REMOTE DIP switches to the OFF position.

### To activate 20min. ON/40 min. OFF Module

A jumper must be installed between Red and Low Fan.

### How much ventilation do I need?

During seasons when your windows and doors are closed (winter and summer if air conditioned) the HRV should operate continuously when the dwelling is occupied, and either continuously or intermittently when not occupied.

For most installations the HRV will normally be set to operate continuously on low speed. To suit various lifestyles, the HRV offers a selection of operating modes (See "Operation Mode Selection" on this page).

### Method of Operation

- Good** - intermittent operation at all times
- Better** - continuous operation during day or occupied conditions, intermittent at night or unoccupied
- Best** - recommended continuous operation of both HRV and furnace/air handler blower

### Operation Mode Selection

Various combinations of operating modes are listed below should you wish to change the factory settings.

See Optional Controls for controlling options and descriptions.

### Installer selectable DIP Switches

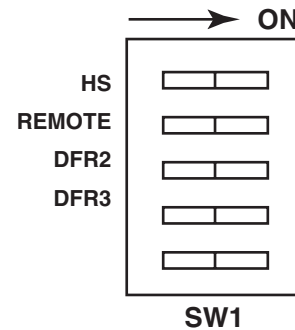
HS	OFF	OFF= Standby. When unit is switched off by a remote switch, all override devices activate high speed
REMOTE	OFF	

HS	OFF	Low speed ON and all devices activate high speed <b>Factory default setting</b>
REMOTE	ON	

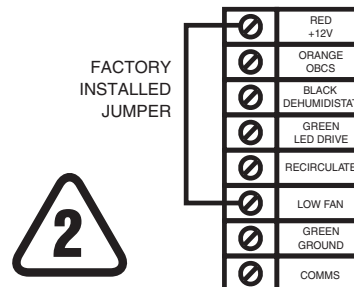
HS	ON	No low speed, high speed always on
REMOTE	OFF	

HS	ON	No low speed, all devices activate high speed Standby setting
REMOTE	ON	

### DIP Switches



### REMOTE CONTROL CONNECTIONS



### Automatic Damper Defrost (HRV only)

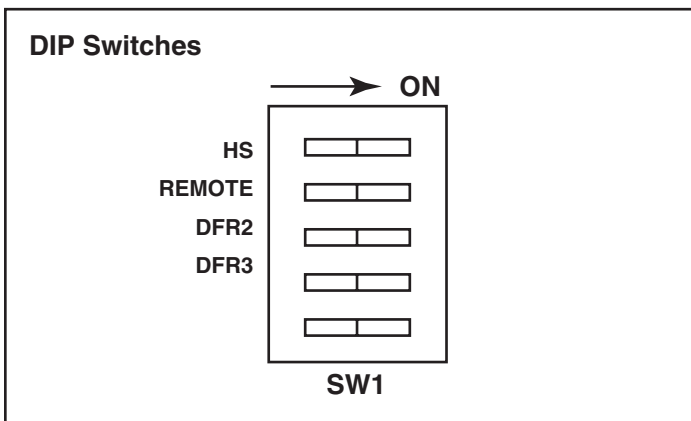
HRV models have an electronically controlled damper defrost mechanism. If the outside temperature drops below -4°C (25°F), the defrost timer is activated. As a self-test, the HRV will run a 3 minute defrost approx. 4 seconds after the thermistor (temperature sensor) is removed from the circuit board. In normal operation, when temperatures drop below -4°C (25°F) the timer will wait approximately 17 minutes (during which time the core may experience some nominal frost buildup), and then activate the motor-driven damper door mechanism, which opens the defrost port while at the same time closing off the supply air from outside. After approximately 3 minutes, the damper operates in the opposite direction to close off the defrost port and reopen the fresh air supply port. The 3 minute defrost cycle and 17 minute wait time repeat until the temperature again rises above -4°C (25°F). During defrost, the HRV will automatically switch to high speed in order to defrost the core.

*\*Note: The 3 minute defrost and 17 minute wait time are factory set. Should you wish to lengthen the wait time between defrosts, refer to chart below.*

### DIP Switch Settings

DFR2	DFR3	Defrost Time	Wait Time
ON	OFF	3 min.*	17 min.*
ON	ON	3 min.	25 min.
OFF	ON	3 min.	30 min.
OFF	OFF	3 min	17 min.

*Note: All times in defrost are 3 minutes. The defrost will not activate unless the fans are working.*



### Dehumidistat Operation (HRV only)

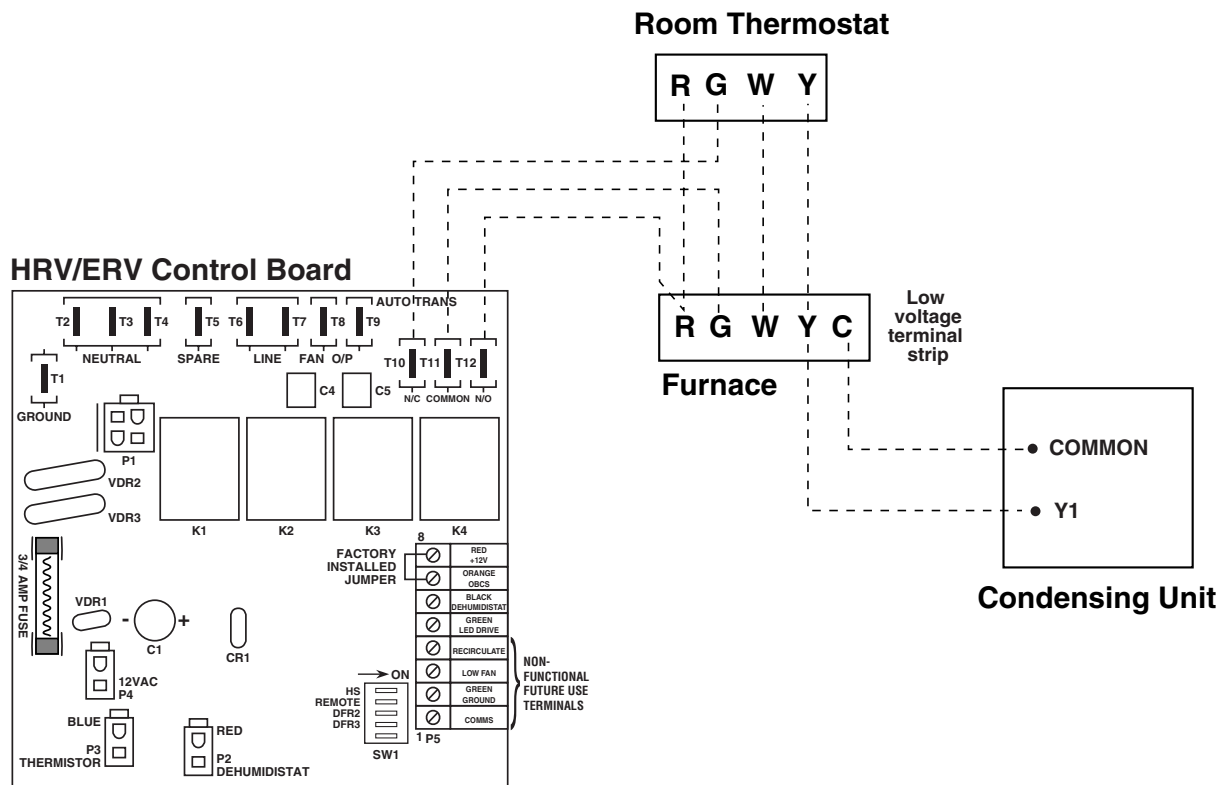
The optional HRV remote controls include a dehumidistat which controls humidity levels during the heating season. The control has a selector knob with setpoints ranging from 20% to 80% relative humidity (RH). Most people are comfortable when indoor relative humidity levels are in a range from 30 to 45%.

The dehumidistat switches the ventilator to high speed when the moisture level in the home exceeds the desired setpoint. The dehumidistat switches the HRV back to low speed ventilation when humidity has been reduced below the set point. **The dehumidistat should only be used during the heating season.** It must be set to the OFF position throughout the rest of the year.

# Interlocking HRV/ERV Operation to an Airhandler/Furnace Blower

When using the Interface relay contacts to initiate blower operation on a furnace, certain thermostats will initiate the outdoor cooling condenser when R and G are closed.

Use this wiring configuration to prevent the Interface relay contacts from initializing the condenser unit. This problem can occur at the thermostat if the **Y** terminal is connected to the **G** terminal internal to the stat. When **R** and **G** are closed at the furnace (by dehumidistat or relay) 24 Volts is sent to **G** at thermostat. 24 Volts is then sent through **Y** which will initiate outdoor condenser. Therefore, by routing **G** from the thermostat through the NC contacts T10, this prevents feedback through the thermostat to the condenser when **G** on the furnace is energized by the HRV/ERV interlock.



## LEGEND

HIGH VOLTAGE	—————
12V LOW VOLTAGE	—————
FIELD INSTALLED LOW VOLTAGE	- - - - -

## Air Flow Balancing

It is necessary to have balanced air flow in an HRV/ERV. The volume of air brought in from the outside must equal the volume of air exhausted by the unit. If the air flow is not properly balanced, then:

- The HRV/ERV may not operate at its maximum efficiency
- A negative or positive air pressure may occur in the house
- The unit may not defrost properly
- Failure to balance HRV/ERV properly may void warranty

### CAUTION

**Ensure balanced air flow in HRV/ERV. Excessive positive pressure may drive moist indoor air into the external walls of the building where it may condense (in cold weather) and degrade structural components and/or leave moisture on the building walls. May also cause key holes to freeze up.**

**Excessive negative pressure** may have several undesirable effects. In some geographic locations, soil gases such as methane and radon gas may be drawn into the home through basement/ground contact areas. In some humid areas of the country it may also cause condensation to form on inside wall.

**Read the Application Warning in Clearances & Requirements section of this manual! (starting on page 4)**

### WARNING

**Ensure balanced air flow in HRV/ERV. Excessive negative pressure may also cause the back-drafting of vented combustion equipment.**

### WARNING

**Combustion and flue products must never be allowed to enter the return air system or the living space.**

**The return and supply air duct systems must never be connected to or from other heating devices such as a fireplace, or stove, etc. Fire, explosion, carbon monoxide poisoning, personal injury and/or property damage could result.**

#### **Prior to balancing, ensure that:**

1. All sealing of the duct system has been completed.
2. All of the HRV/ERV's components are in place and functioning properly.
3. Balancing dampers are fully open.
4. Unit is on HIGH speed.
5. Air flow in branch lines to specific areas of the house should be adjusted first prior to balancing the unit. A smoke pencil used at the grilles is a good indicator of each branch line's relative air flow.
6. Return air handling unit to appropriate fan speed for normal operation

7. A field-supplied balancing damper for the stale air side is required for system balancing.

#### **BALANCING PROCEDURE**

The following is a method of field balancing an HRV/ERV using a Pitot tube, which is advantageous in situations when flow stations are not installed in the duct system. Procedure should be performed with the HRV/ERV on high speed.

The first step is to operate **all** mechanical systems on high speed, which have an influence on the ventilation system, i.e. the HRV/ERV itself and the air handler, if applicable. This will provide the maximum pressure that the HRV/ERV will need to overcome, and allow for a more accurate balance of the unit.

Drill a small hole in the duct (about 3/16"), three feet downstream of any elbows or bends, and one foot upstream of any elbows or bends. These are recommended distances but the actual installation may limit the amount of straight duct.

The Pitot tube should be connected to a magnehelic gauge or digital manometer Part # 86N62 capable of reading from 0 to 0.25 in. (0-62 Pa) of water, preferably to 3 digits of resolution. The tube coming out of the end of the Pitot is connected to the high pressure side of the gauge. The tube coming out of the branch of the Pitot is connected to the low pressure or reference side of the gauge.

Insert the Pitot tube into the duct; pointing the tip into the air flow.

For general balancing it is sufficient to move the Pitot tube around in the duct and take an average or typical reading. Repeat this procedure in the other (supply or return) duct. Determine which duct has the highest air flow (highest reading on the gauge). Then damper that air flow back to match the lower reading from the other duct. The flow should now be balanced.

Actual air flow can be determined from the gauge reading. The value read on the gauge is called the velocity pressure. The Pitot tube comes with a chart that will give the air flow velocity based on the velocity pressure indicated by the gauge. This velocity will be in either feet per minute or meters per second. To determine the actual air flow, the velocity is multiplied by the cross sectional area of the duct being measured.

This is an example for determining the air flow in a 6" duct.

The Pitot tube reading was 0.025 inches of water.

From the chart, this is 640 feet per minute.

The 6" duct has a cross sectional area of  $= [3.14 \times (6 \div 12)^2] \div 4$   
 $= 0.2$  square feet

The air flow is then:

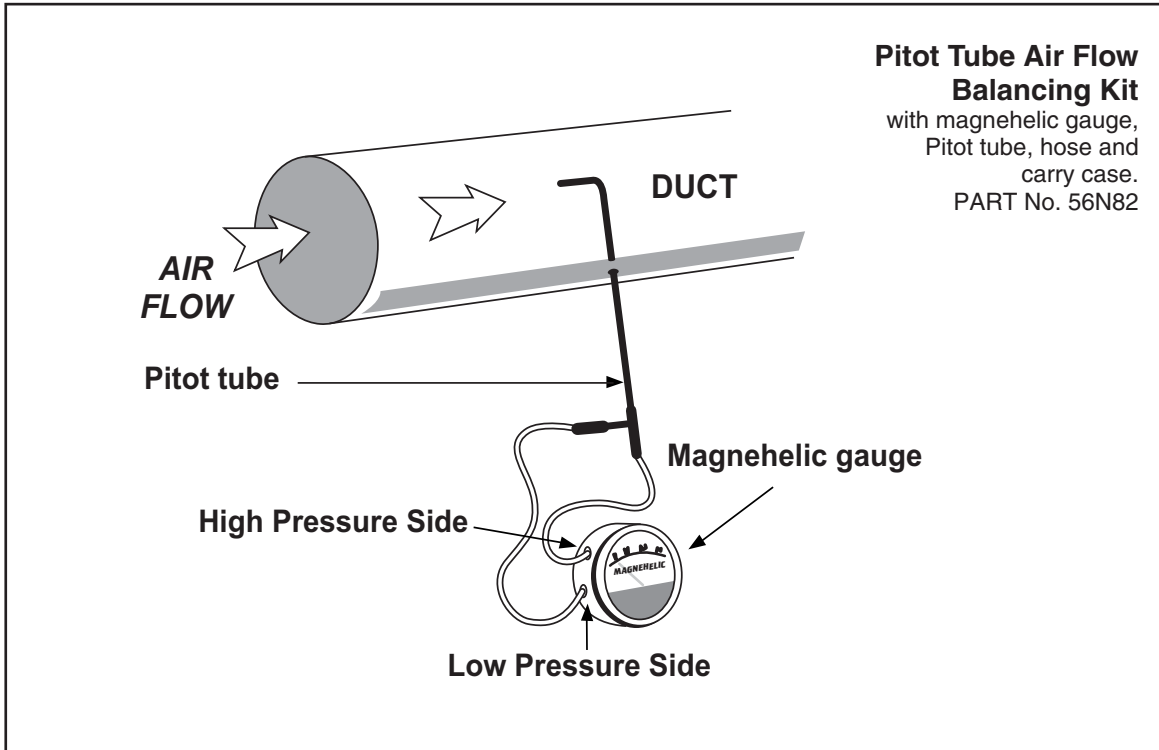
640 ft./min. x 0.2 square feet = 128 cfm

For your convenience, the cross sectional area of some common round duct is listed below:

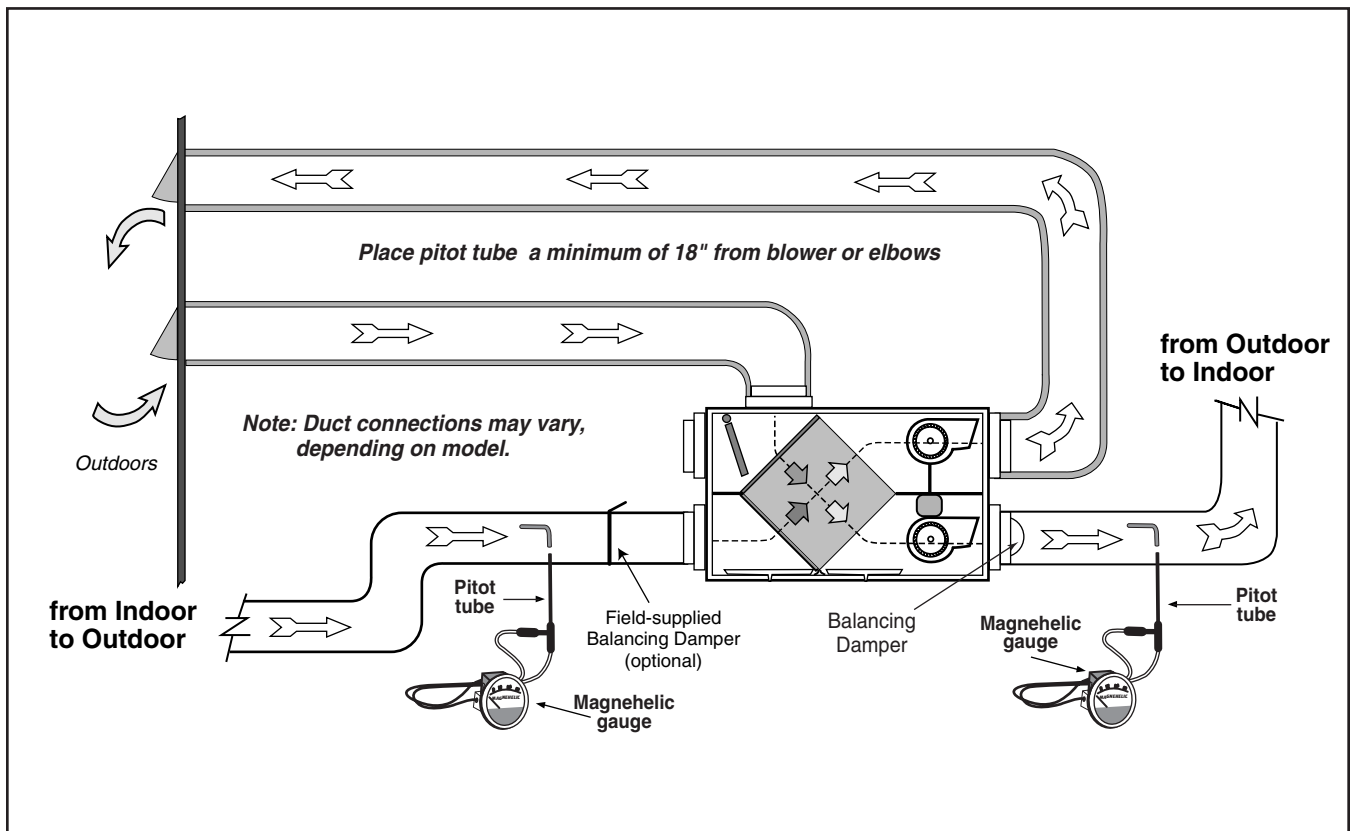
<b>DUCT DIAM. (inches)</b>	<b>CROSS SECTION AREA (sq. ft.)</b>
5	0.14
6	0.20
7	0.27

The accuracy of the air flow reading will be affected by how close to any elbows or bends the readings are taken. Accuracy can be increased by taking an average of multiple readings as outlined in the literature supplied with the Pitot tube.

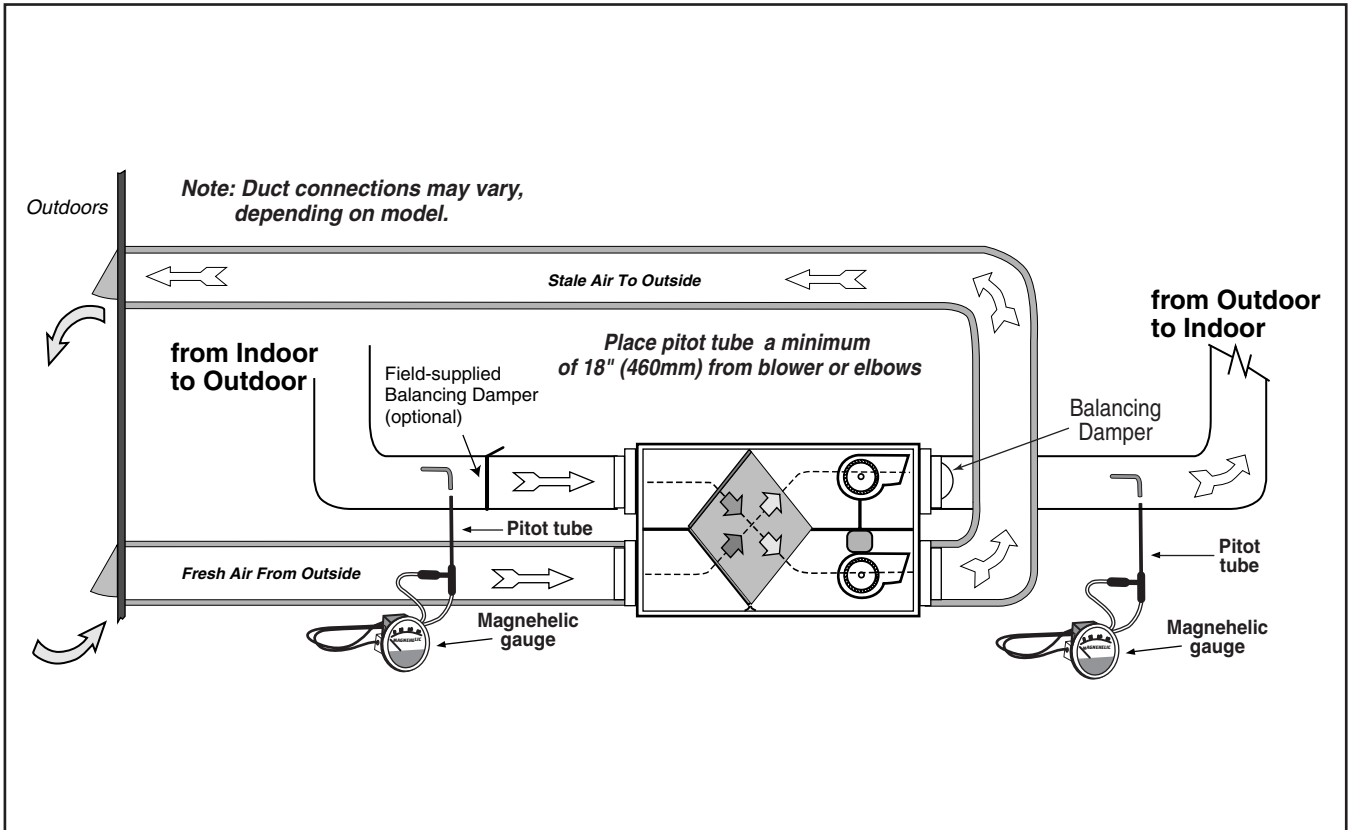
## Pitot Tube and Gauge



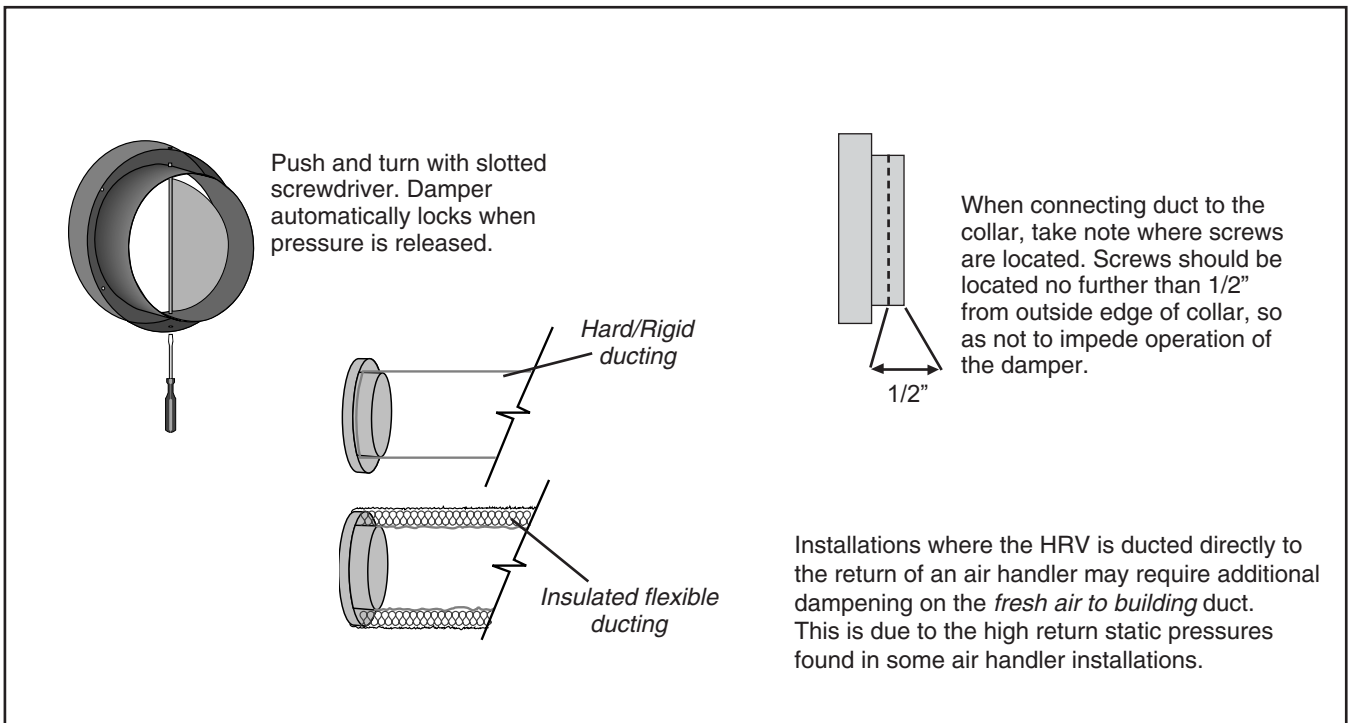
## Placement of Pitot Tube HRV



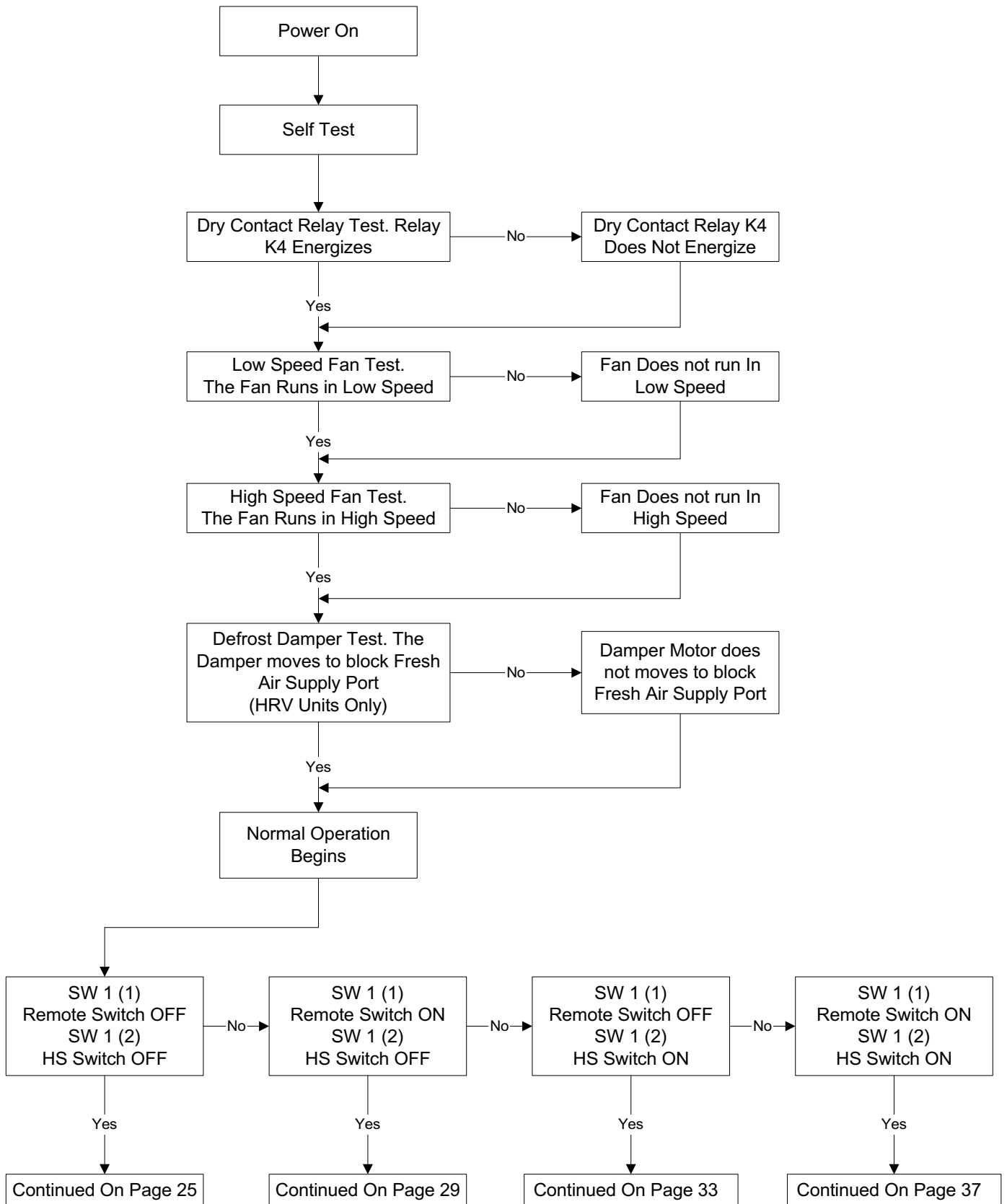
## Placement of Pitot tube ERV



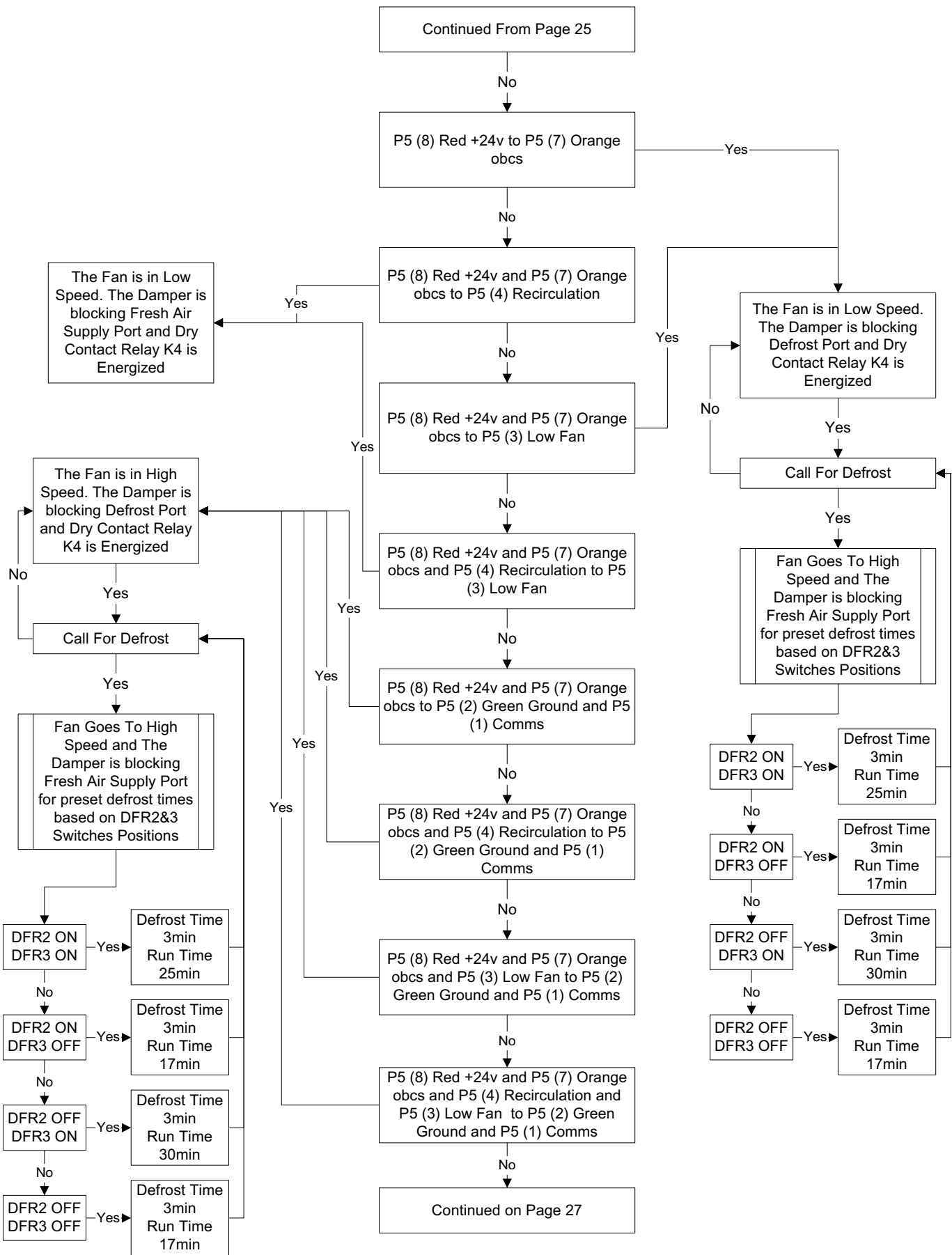
## Balancing Collar Instructions

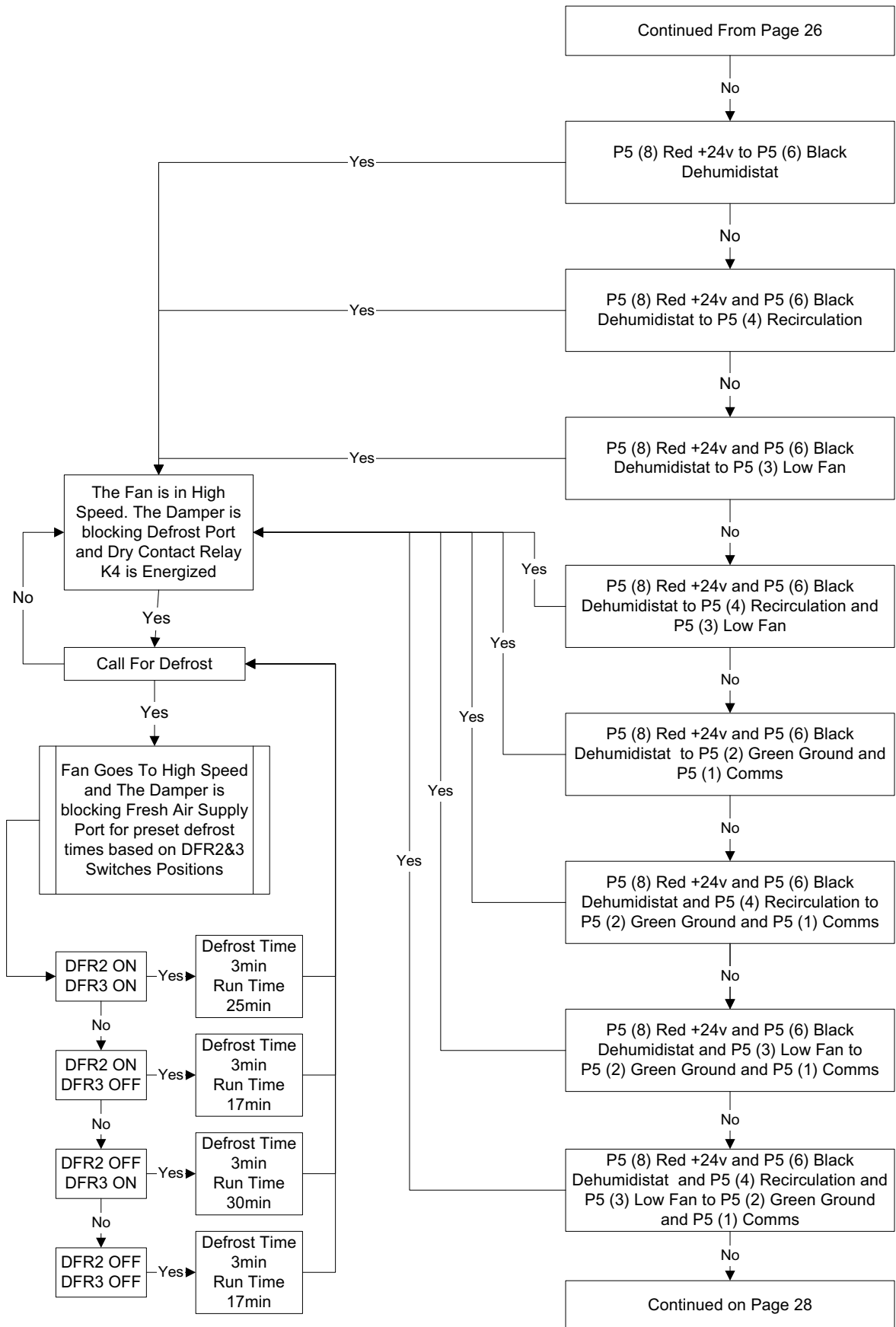


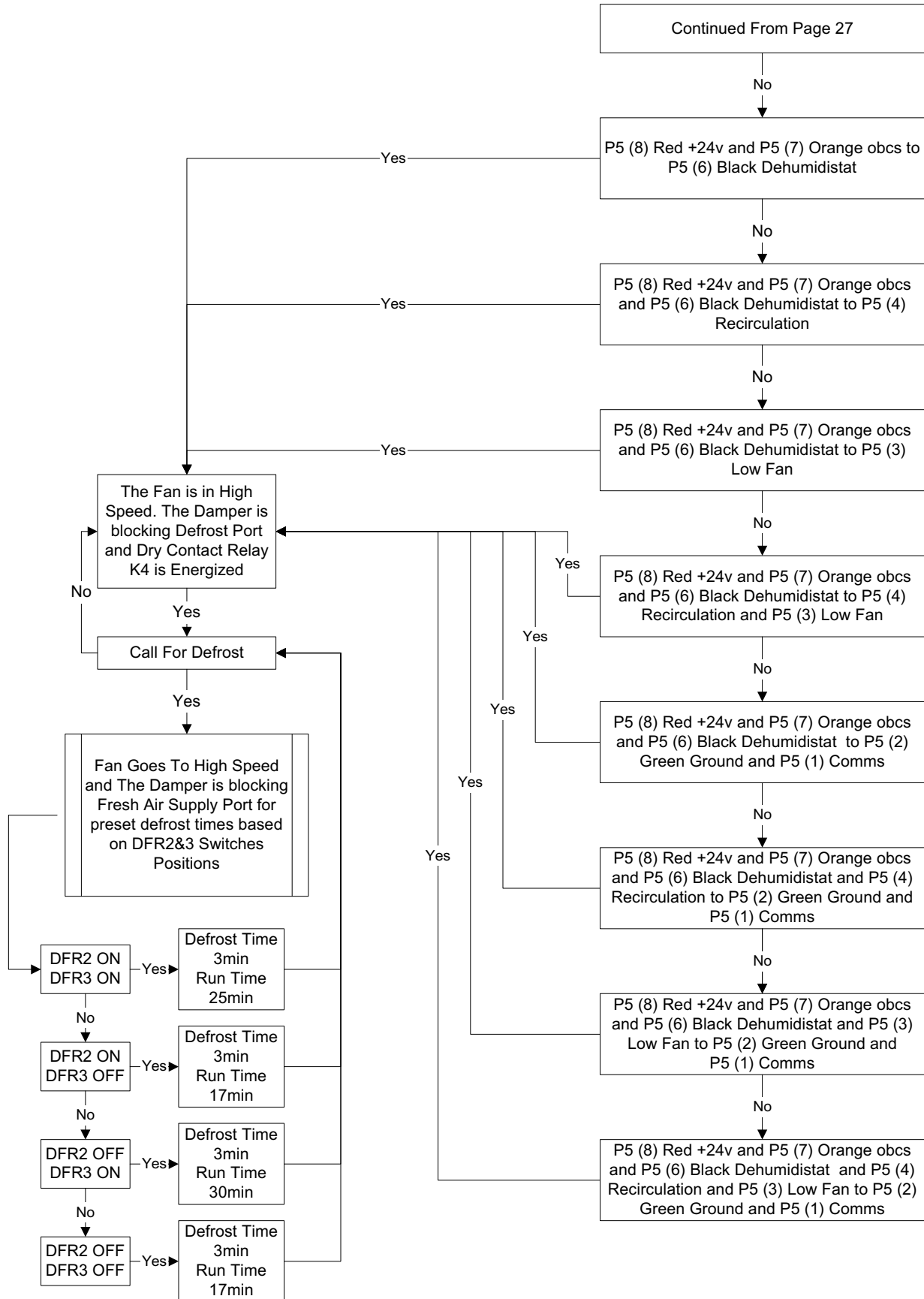
# Sequence of Operation

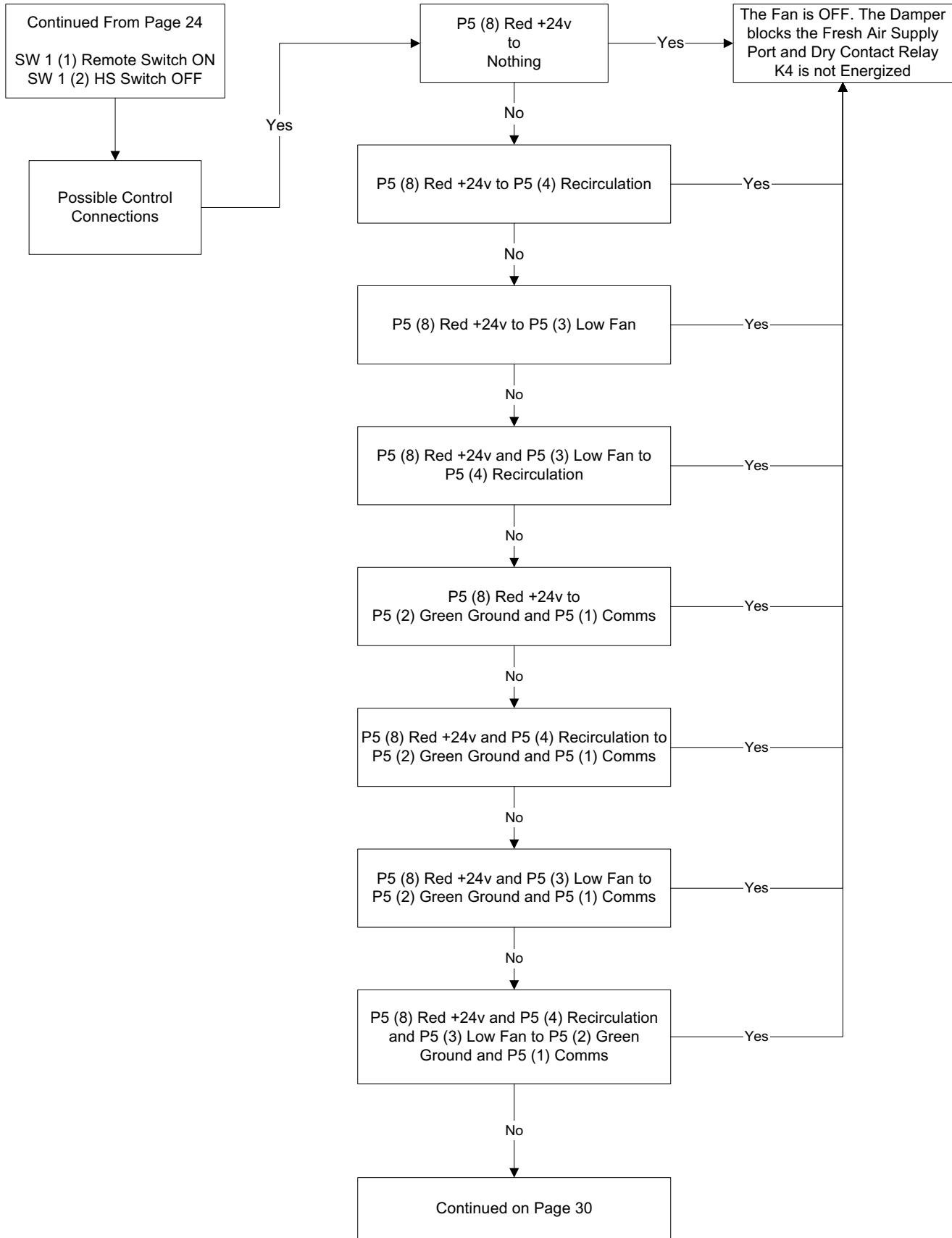


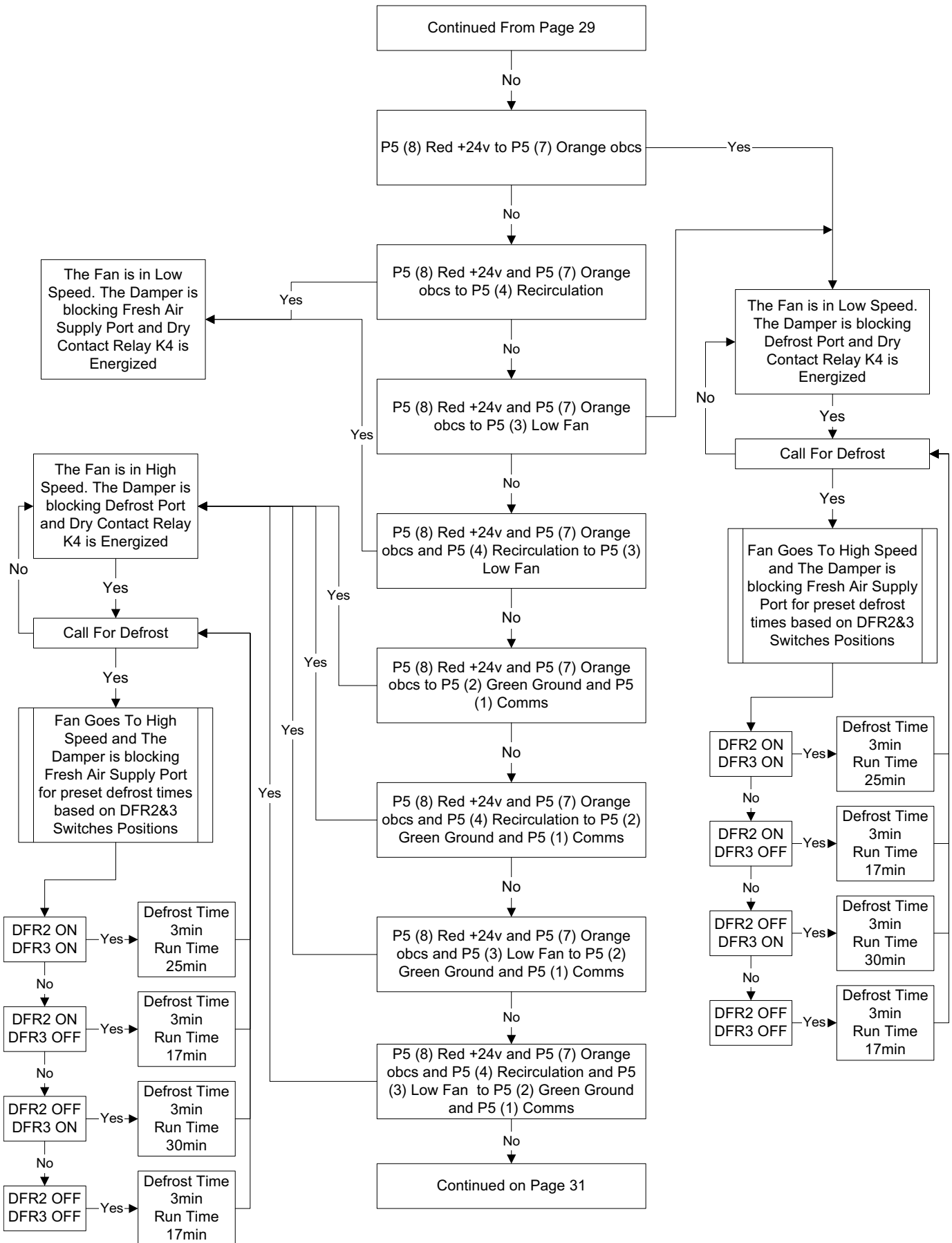


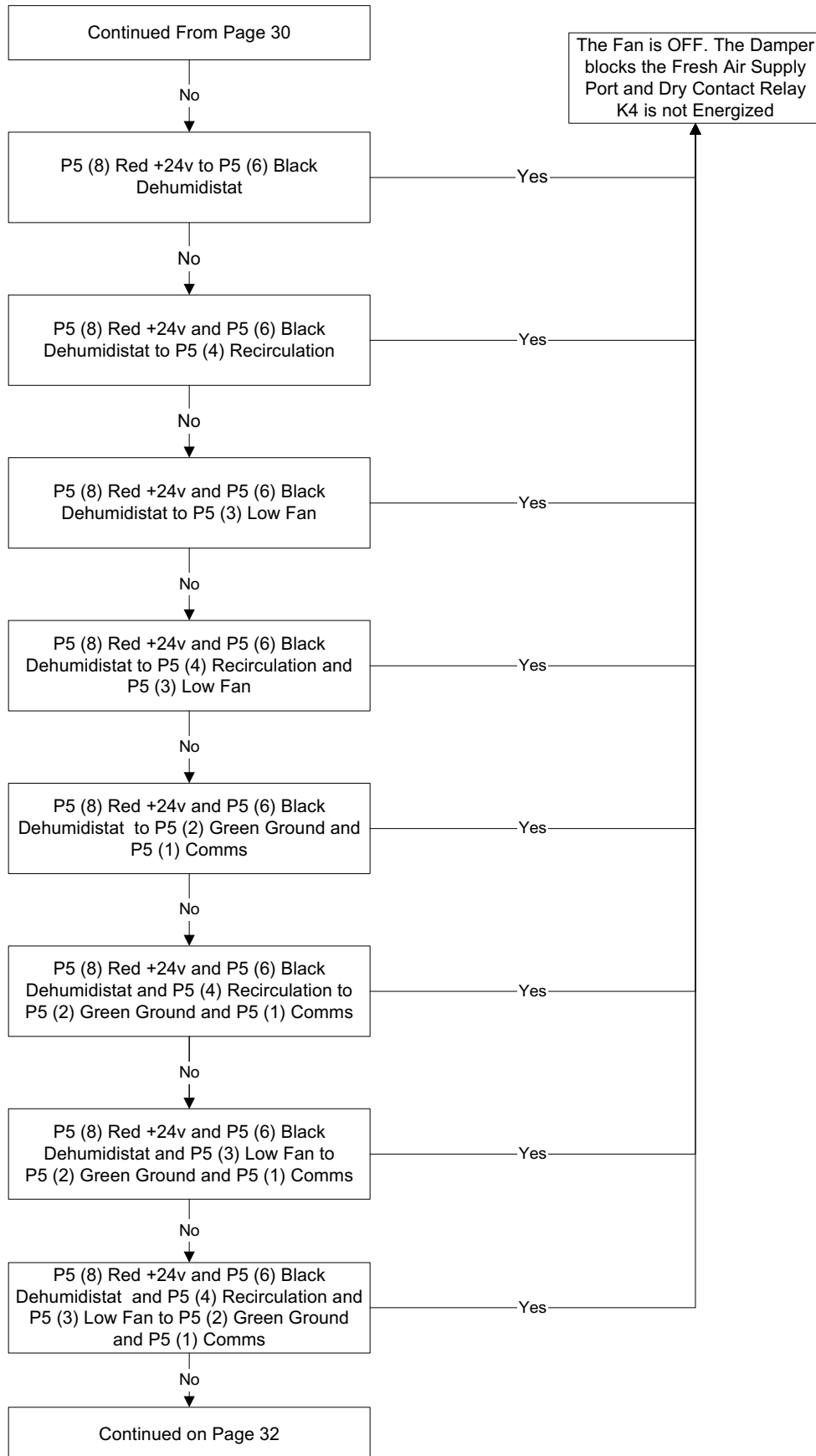


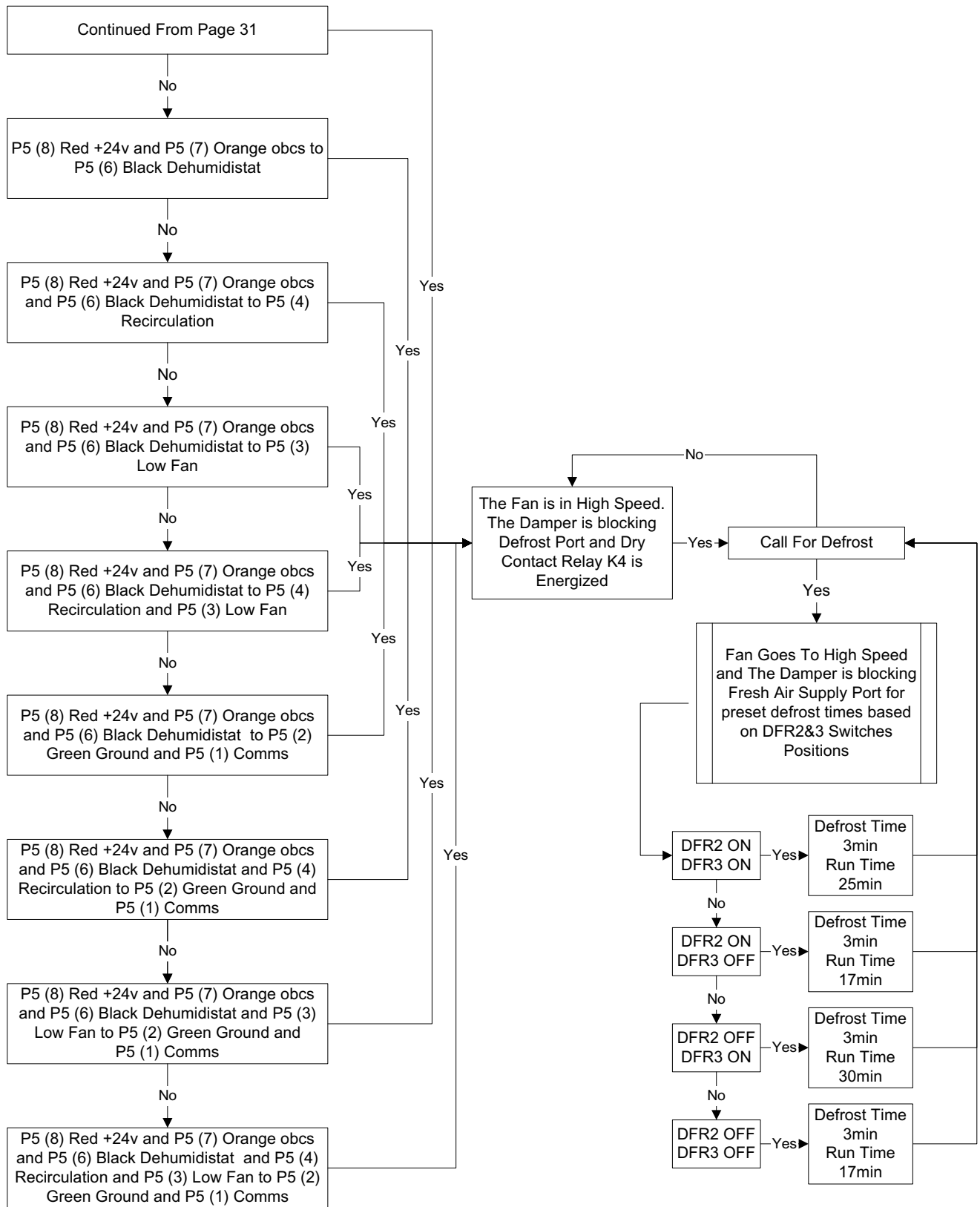


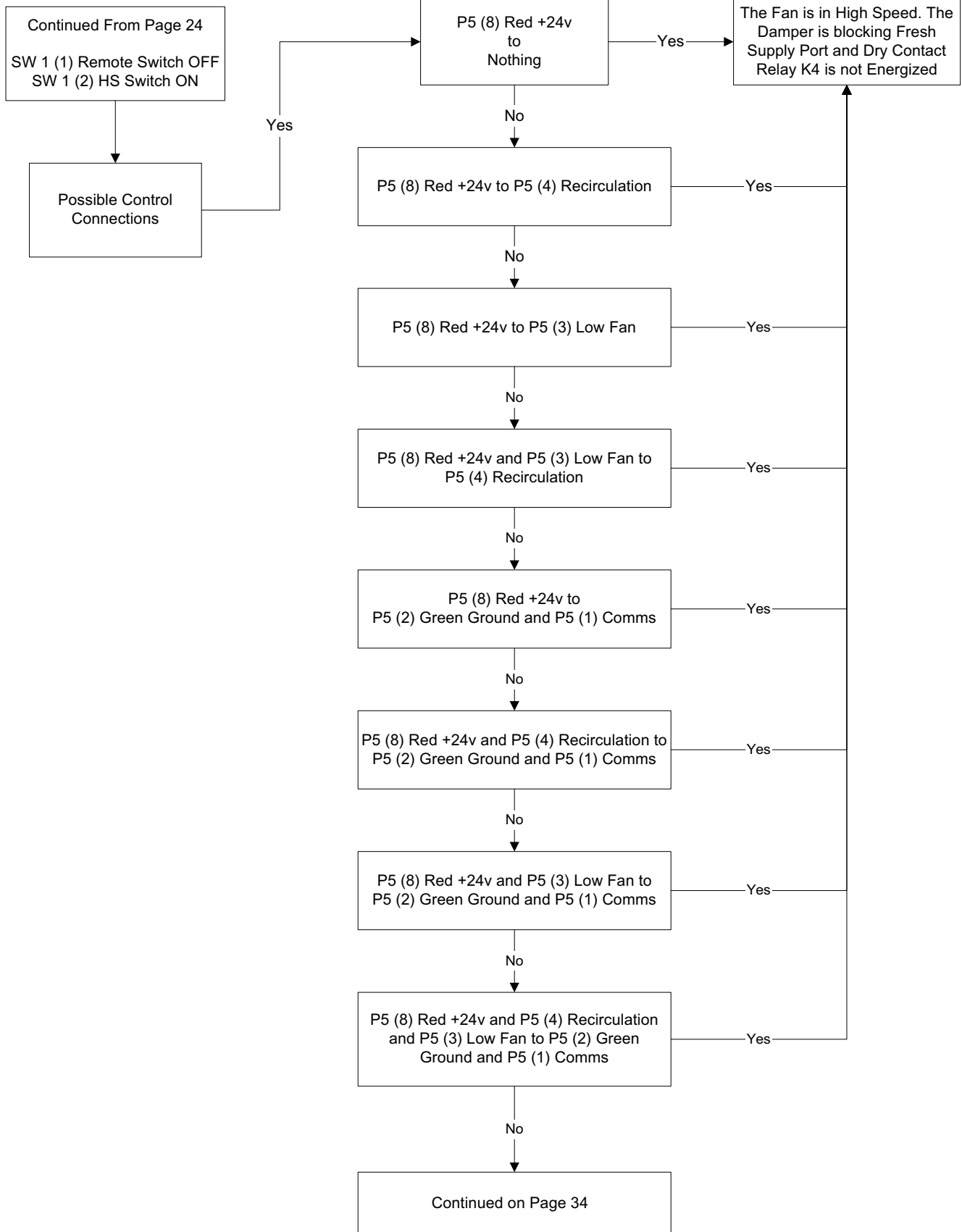


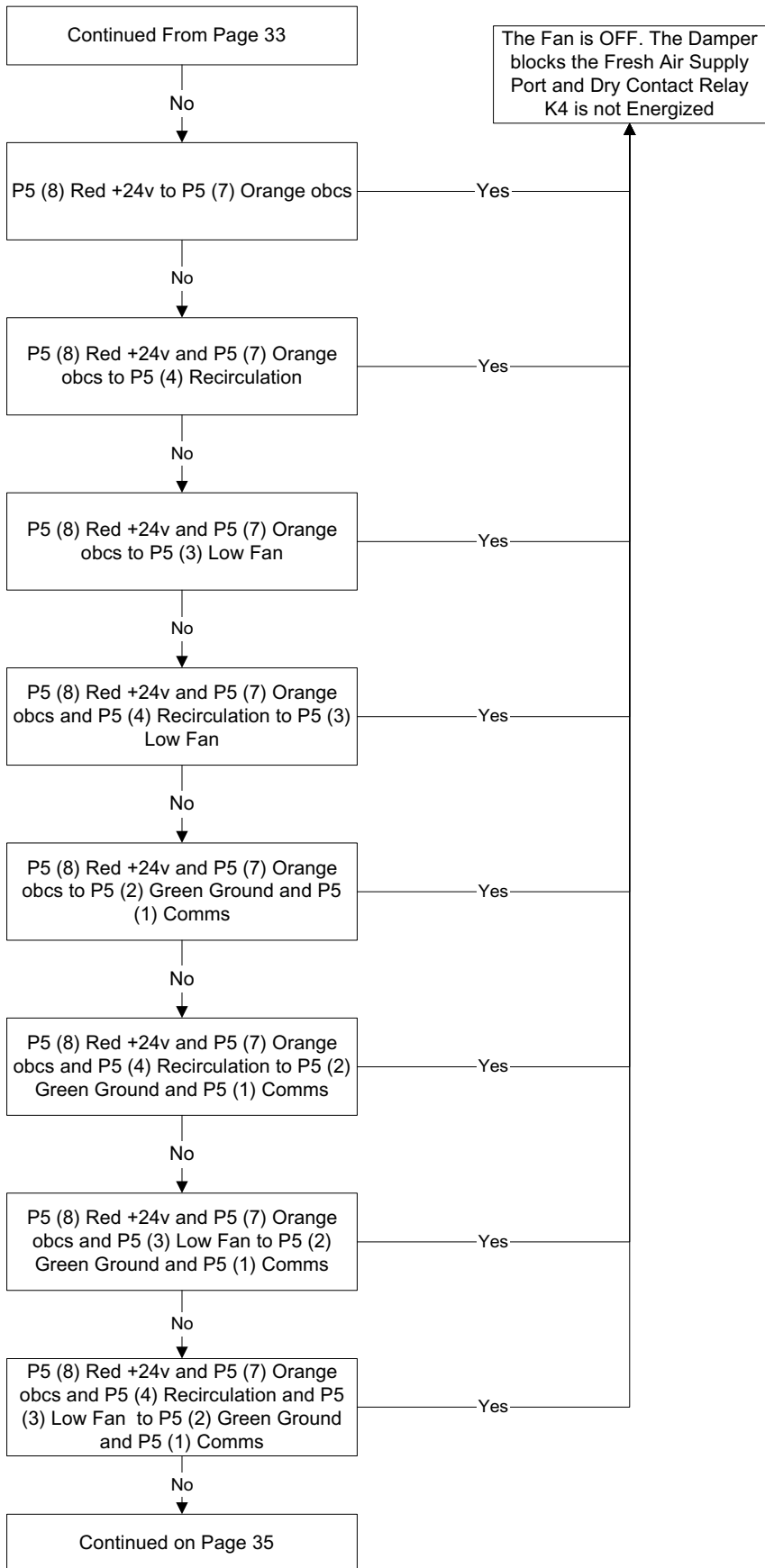


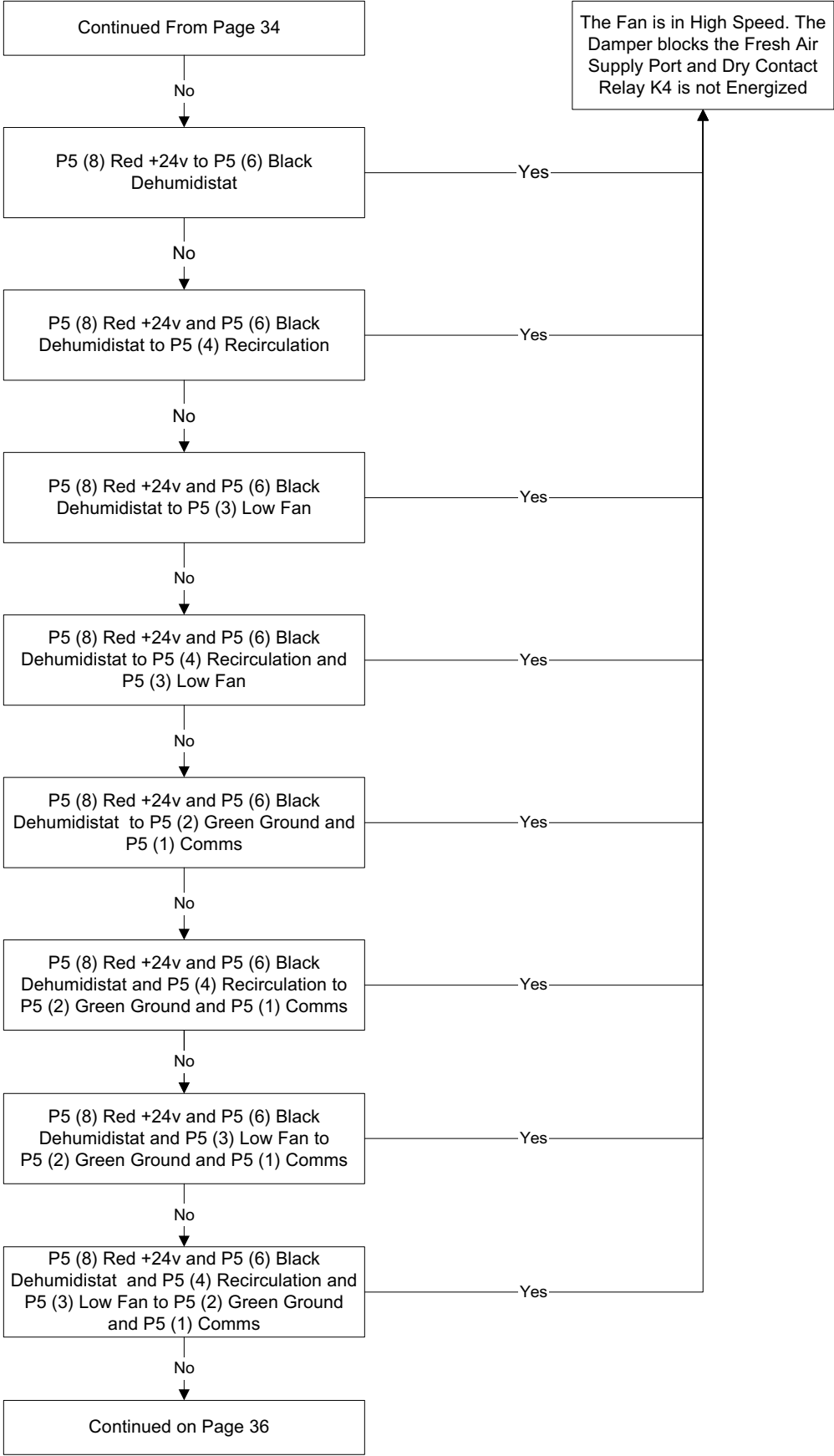


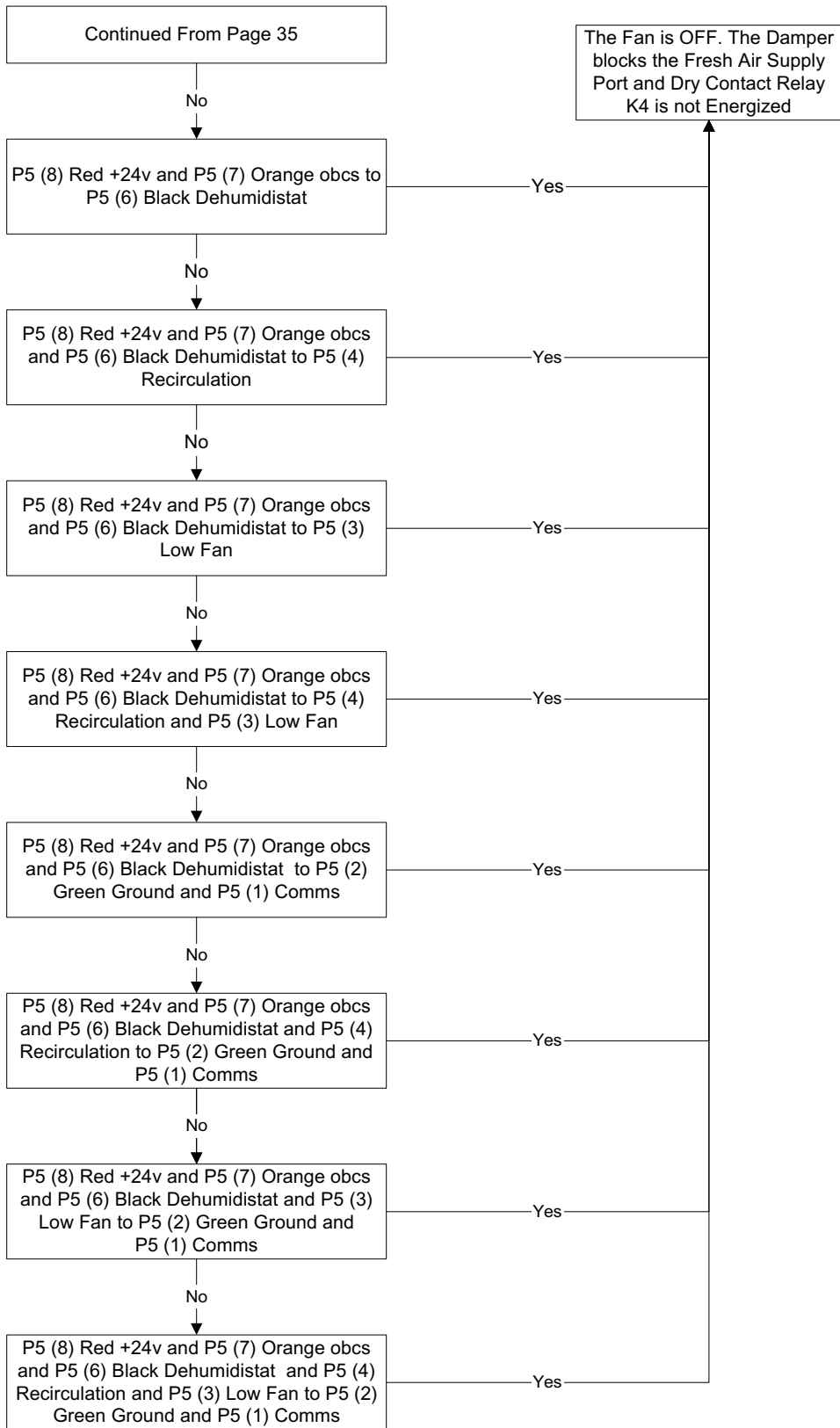


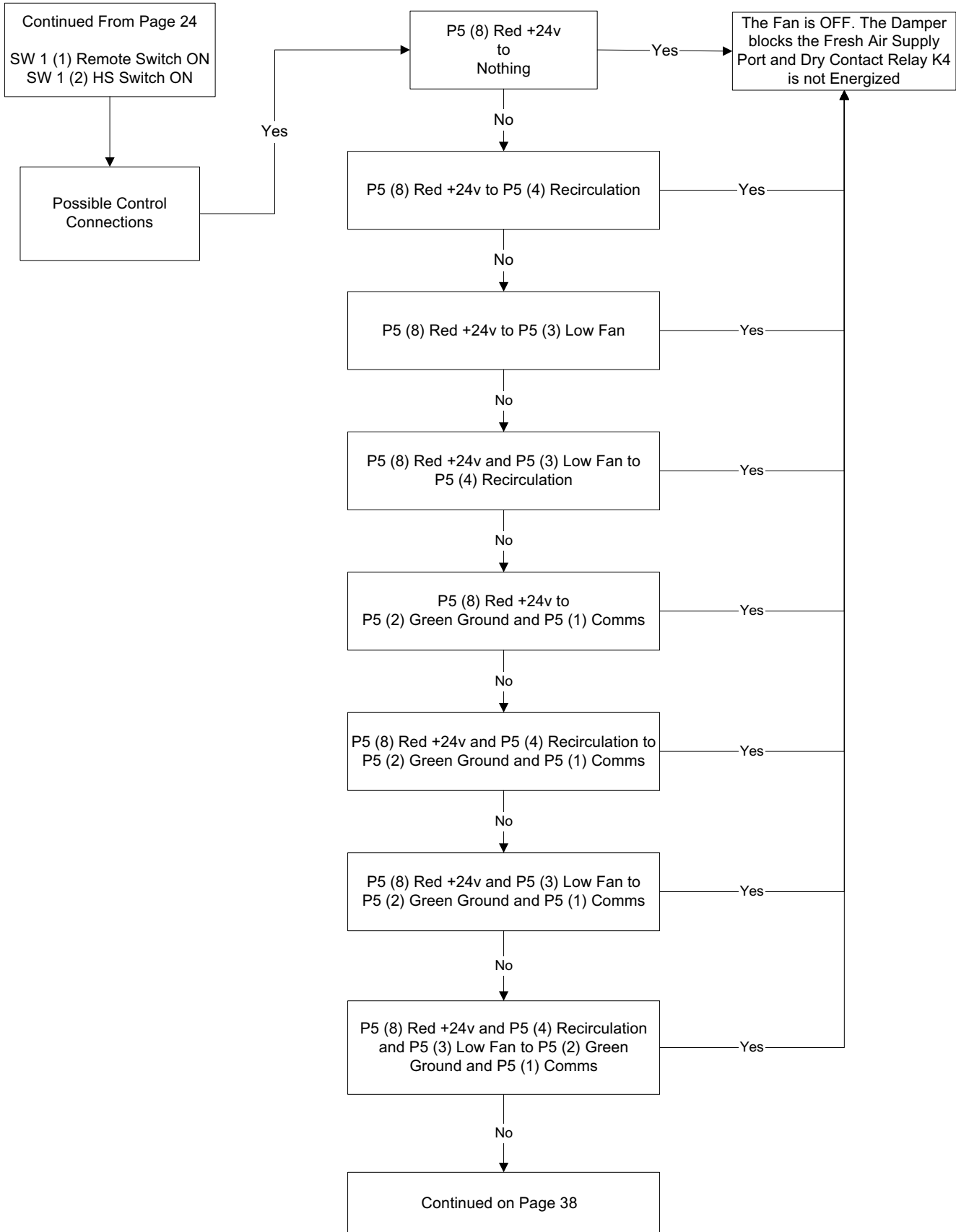




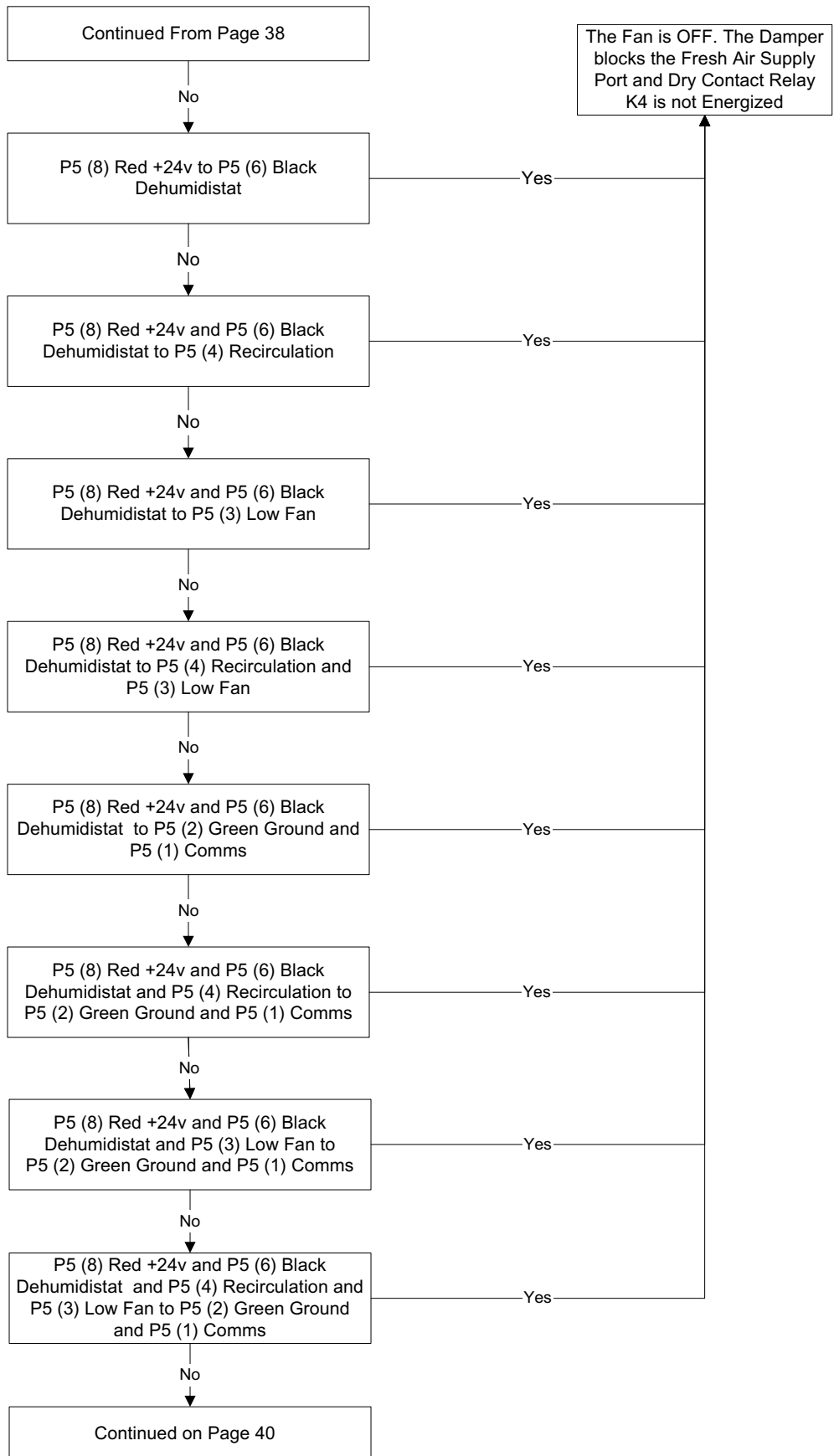


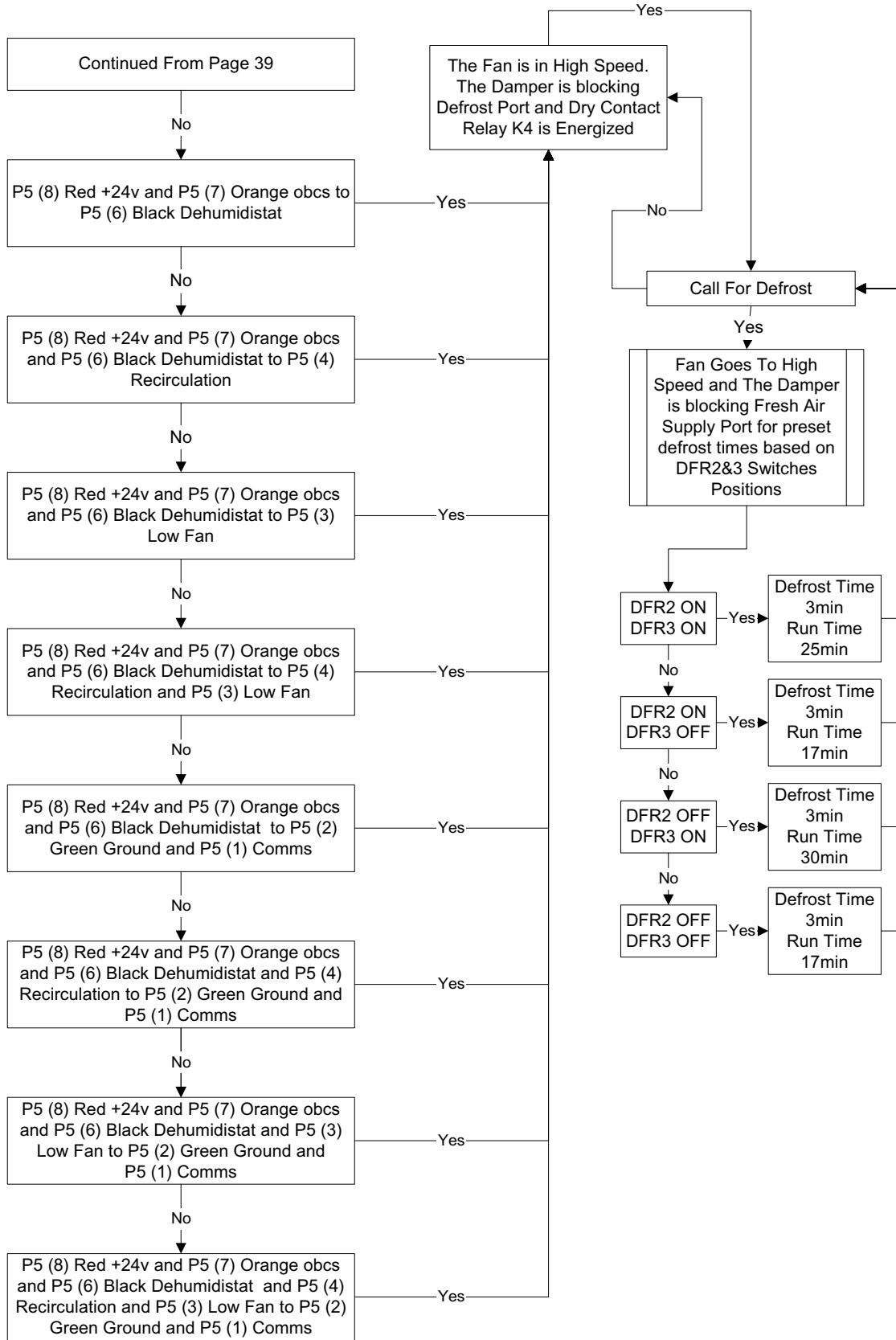












## Troubleshooting

Symptom	Cause	Solution
Poor Air Flow	<ul style="list-style-type: none"> <li>• 1/4" (6mm) mesh on the outside hoods or vents is plugged</li> <li>• filters plugged</li> <li>• core obstructed</li> <li>• house grilles closed or blocked</li> <li>• dampers are closed if installed</li> <li>• poor power supply at site</li> <li>• duct is restricting HRV/ERV</li> <li>• improper speed control setting</li> <li>• HRV/ERV air flow improperly balanced</li> </ul>	<ul style="list-style-type: none"> <li>• clean exterior hoods or vents</li> <li>• remove and clean filter</li> <li>• remove and clean core</li> <li>• check and open grilles</li> <li>• open and adjust dampers</li> <li>• have electrician check supply voltage at house</li> <li>• check duct installation</li> <li>• increase the speed of the HRV/ERV</li> <li>• have the Dealer balance HRV/ERV</li> </ul>
Supply air feels cold	<ul style="list-style-type: none"> <li>• poor location of supply grilles, the air flow may irritate the occupant</li> <li>• outdoor temperature extremely cold</li> </ul>	<ul style="list-style-type: none"> <li>• locate the grilles high on the walls or under the baseboards, install ceiling mounted diffuser or grilles so as not to directly spill the supply air on the occupant (eg. over a sofa)</li> <li>• turn down the HRV/ERV supply speed. A small duct heater (1kw) could be used to temper the supply air</li> <li>• placement of furniture or closed doors is restricting the movement of air in the home</li> <li>• if supply air is ducted into air handler return, the air handler fan may need to run continuously to distribute ventilation air comfortably</li> </ul>
Dehumidistat is not Operating - <b>HRV only</b>	<ul style="list-style-type: none"> <li>• improper connection to ventilator</li> <li>• external low voltage is shorted out by a staple or nail</li> <li>• check dehumidistat setting it may be on OFF</li> </ul>	<ul style="list-style-type: none"> <li>• check that the correct terminals have been used</li> <li>• check external wiring for a short</li> <li>• set the dehumidistat at the desired setting</li> </ul>
Humidity Levels are too High in Winter Condensation is appearing on the windows - <b>HRV only</b>	<ul style="list-style-type: none"> <li>• dehumidistat is set too high</li> <li>• lifestyle of the occupants</li> <li>• moisture coming into the home from an unvented or unheated crawl space</li> <li>• moisture is remaining in the washroom/bathroom and kitchen areas</li> <li>• condensation seems to form in the spring and fall</li> <li>• HRV is set at too low a speed</li> </ul>	<ul style="list-style-type: none"> <li>• set dehumidistat lower</li> <li>• avoid hanging clothes to dry, storing wood and venting clothes dryer inside. Heating wood may have to be moved outside</li> <li>• vent crawl space and place a vapor barrier on the floor of the crawl space</li> <li>• ducts from the washroom/bathroom should be sized to remove moist air as effectively as possible, use of a washroom/bathroom fan for short periods will remove additional moisture</li> <li>• timer or fan can be added to washroom/bathroom exhaust</li> <li>• on humid days, as the seasons change, some condensation may appear but the home's air quality will remain high with HRV operating</li> <li>• increase speed of the HRV</li> </ul>
Humidity Levels are too Low - <b>HRV only</b>	<ul style="list-style-type: none"> <li>• dehumidistat control set too low</li> <li>• blower speed of HRV is too high</li> <li>• lifestyle of occupants</li> <li>• HRV air flow may be improperly balanced</li> </ul>	<ul style="list-style-type: none"> <li>• set dehumidistat higher</li> <li>• decrease HRV blower speed</li> <li>• humidity may have to be added through the use of humidifiers</li> <li>• have the Dealer balance HRV air flow</li> </ul>
HRV and / or Ducts Frosting up	<ul style="list-style-type: none"> <li>• HRV air flow is improperly balanced</li> <li>• malfunction of the HRV defrost system</li> </ul>	<ul style="list-style-type: none"> <li>• Note: minimal frost build-up is expected on cores before unit initiates defrost cycle functions in extremely cold temperatures.</li> <li>• have the Dealer balance the HRV</li> <li>• ensure working properly.</li> </ul>
Condensation or Ice Build Up in Insulated Duct to the Outside - <b>HRV only</b>	<ul style="list-style-type: none"> <li>• incomplete vapor barrier around insulated duct</li> <li>• a hole or tear in outer duct covering</li> </ul>	<ul style="list-style-type: none"> <li>• tape and seal all joints</li> <li>• tape any holes or tears made in the outer duct covering</li> <li>• ensure that the vapor barrier is completely sealed</li> </ul>
Water in the bottom of the <b>HRV only</b>	<ul style="list-style-type: none"> <li>• drain pans plugged</li> <li>• improper connection of HRV drain lines</li> <li>• HRV is not level</li> <li>• drain lines are obstructed</li> <li>• HRV heat exchange core is not properly installed</li> </ul>	<ul style="list-style-type: none"> <li>• ensure O-Ring on drain nozzle sits properly</li> <li>• look for kinks in line</li> <li>• Level the HRV</li> <li>• check water drain connections</li> <li>• make sure water drains properly from pan</li> <li>• Install HRV heat exchange core properly as explained on page 42.</li> </ul>

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

Make sure exhaust and fresh air supply hoods are not blocked or restricted by leaves, grass, or snow. In winter, it is especially important to make sure snow is not blocking the hoods or that frost has not built up on the wire mesh (bird screen).

**WARNING:** Blockage of hoods or vents may cause an air-flow imbalance.

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

### 2. Clean Air Filters - Every Three Months or as Required

The standard filters equipped with your HRV are removable and washable:

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

### 3. Clean Core - Twice a Year

- unplug the HRV and open the service door
  - remove the core
- a) open access door
  - b) carefully grip ends of core and pull evenly outward. -core may be snug, but will slide out of the channel
  - c) once removed from the cabinet remove filters
  - d) wash core in warm soapy water (do not use dishwasher)
  - e) install the clean filters
  - f) install clean core (see below)

**Note:** Make sure core installation label is on the outer end of the core.

#### To install the clean core:

- a) first mount the bottom flange of the core guide into the bottom H 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 H channel approximately 1/4" (6mm)

d) with all four corners in place and the core straight and even, push hard in the center of the core until the core stops on the back of the cabinet

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

### 4. Motors - Maintenance Free

### 5. Drain (condensate) Line - Clean at least Once a Year

Inspect drain line, drain spout and "P" trap for blockage, biological growth or kinks. Flush with warm soapy water and replace line if worn, bent or unable to clean.

### 6. Clean Duct System if Required

The duct system running from the outside to the HRV and from the HRV to the return air may accumulate dirt. Wipe and vacuum the inside of the duct once every year. You may wish to contact a Heating/Ventilation company to do this.

### 7. General Maintenance - at least Twice a Year

- unplug the HRV and open the service door
- remove the core

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

### 8. Cleaning the Fans

**Before attempting this task, thought should be given to having the Dealer complete the service work.**

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

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

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

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

**WARNING:** Blockage of hoods or vents may cause an airflow imbalance.

### WARNING



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

## 2. Clean Air Filters - Four Times a Year

- unplug the ERV and open the service door

The standard filters equipped with your ERV are removable and washable.

- simply open access door and slide core out
- remove filter clips
- once clips are removed, filters can be taken off the core to be rinsed with water or a combination of soap and water
- to assemble, place clean dry filters back into their positions
- install core to its original position

## 3. Clean Core - Twice a Year

- unplug the ERV and open the service door

- open access door
- carefully grip ends of core and pull evenly outward -core may be snug, but will slide out of the channel
- once removed from the cabinet remove filters
- vacuum core to remove dust from core surface. DO NOT WASH!!**
- install the clean, **dry filters**
- install clean core

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

### To install the clean core:

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

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

## 4. Motors - Maintenance Free

## 5. Clean Duct System if Required

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

## 6. General Maintenance - Twice a Year

- unplug the ERV and open the service door

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

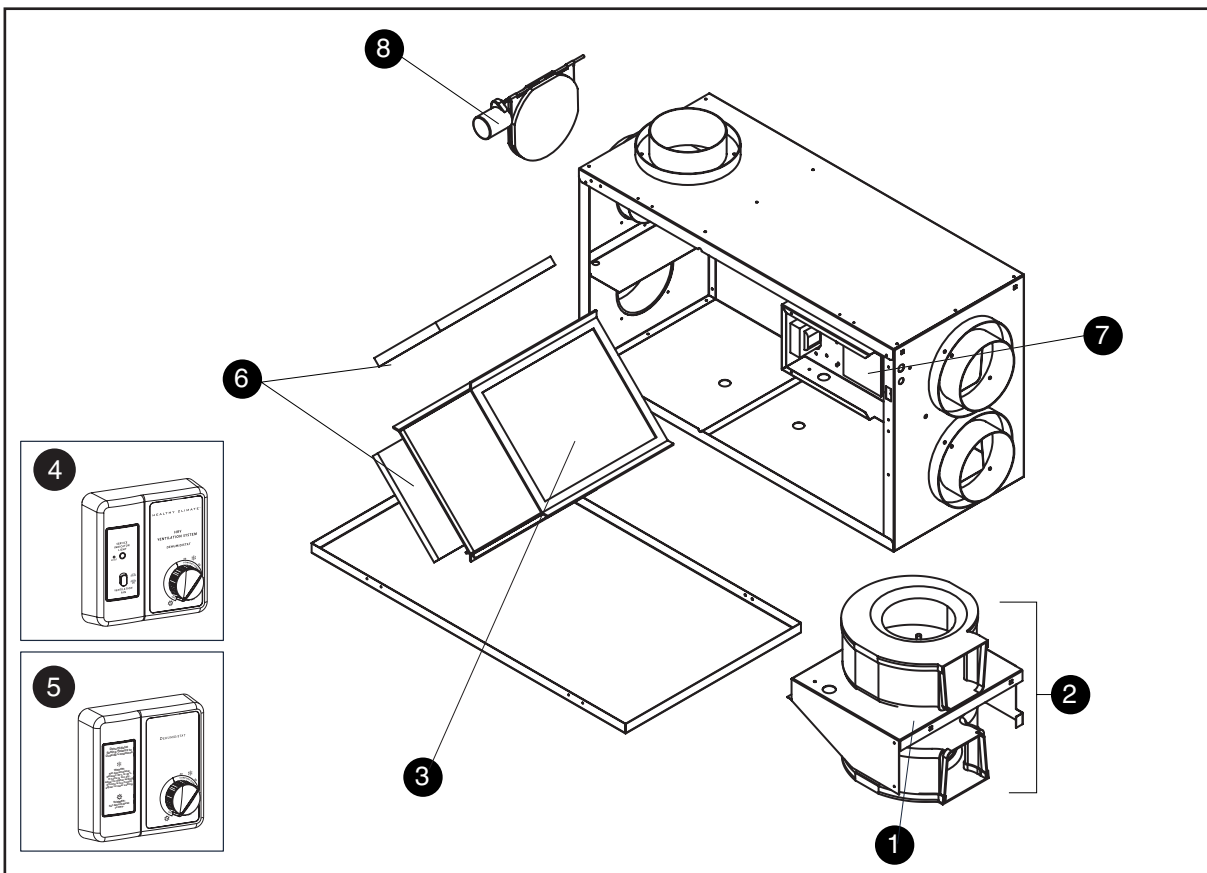
## 7. Cleaning the Fans

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

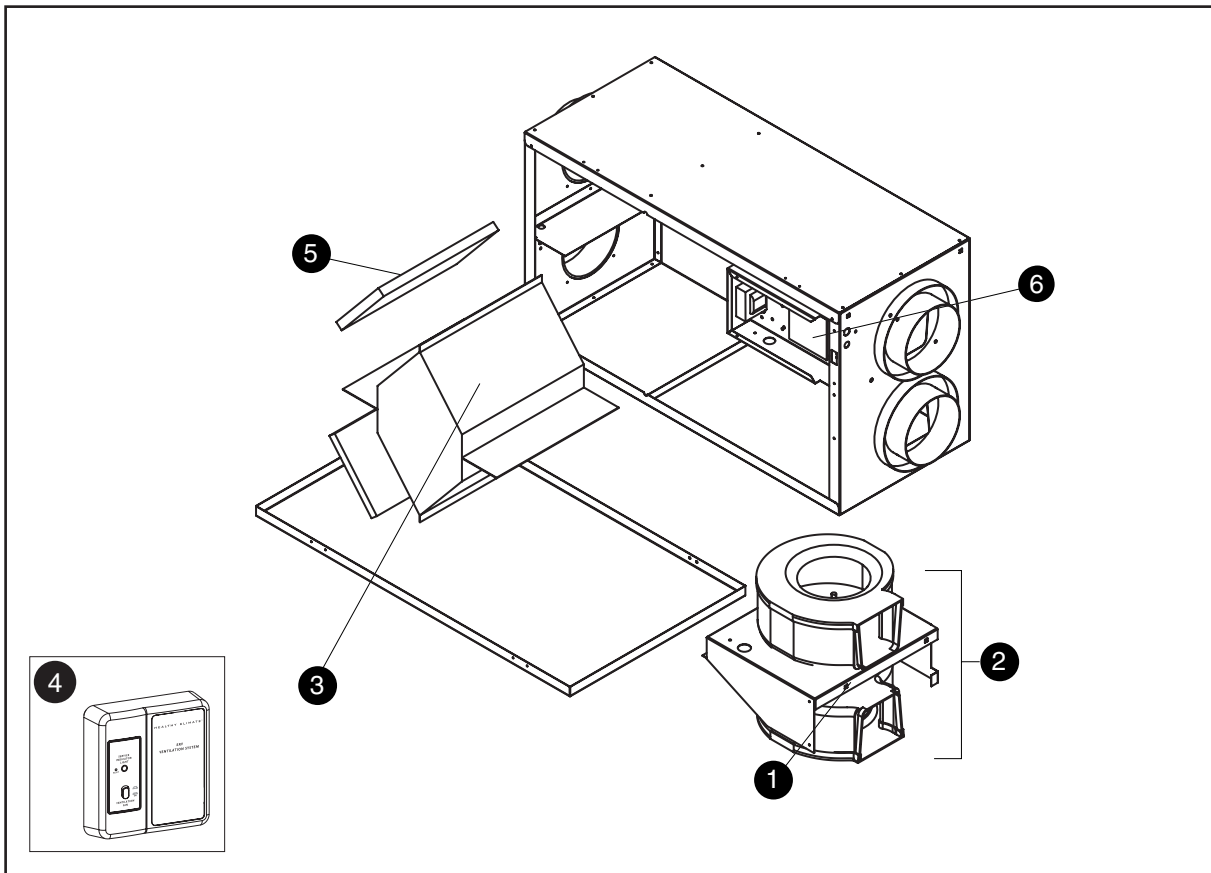
- unplug the ERV and open the service door
- remove the core
- remove ducting (metal and/or flexible insulated type) from the red and/or blue ports which are connected immediately inline with the fan assembly
- use a small brush, such as a toothbrush or pipe cleaner, and insert first
  - through the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

**Before attempting this task, thought should be given to having the Dealer complete the service work.**

HRV-150/200 Replacement Parts			
Model	Part #'s	Description	Qty. Req.
<b>Blower Parts</b>			
1 HRV-150/200	34E04	Motor with Capacitor	1
2 HRV-150/200	X4135	Blower Housing Set	1
2 HRV-150	72X43	Blower Wheel (CW) - <i>red dot</i>	1
2 HRV-150	72X44	Blower Wheel (CCW)	1
2 HRV-200	71N71	Blower Wheel (CW) - <i>red dot</i>	1
2 HRV-200	71N70	Blower Wheel (CCW)	1
3 HRV-150/200	72X49	Core Assembly - <i>aluminum</i>	1
4 HRV-150/200	72X53	HRV Ventilation System Remote Control	1
5 HRV-150/200	27N53	Wall Mounted Dehumidistat	1
6 HRV-150/200	64N56	Foam Filter	2
<b>Electrical Box Parts</b>			
7 HRV-150/200	X4136	Transformer/Circuit Board Kit	1
<b>Damper Parts</b>			
8 HRV-150/200	74N94	Damper Motor	1



ERV-150/200 Replacement Parts			
Model	Part #'s	Description	Qty. Req.
<b>Blower Parts</b>			
1 ERV-150/200	34E04	Motor with Capacitor	1
2 ERV-150/200	X4135	Blower Housing Set	1
2 ERV-150	72X43	Blower Wheel (CW) - <i>red dot</i>	1
2 ERV-150	72X44	Blower Wheel (CCW)	1
2 ERV-200	71N71	Blower Wheel (CW) - <i>red dot</i>	1
2 ERV-200	71N70	Blower Wheel (CCW)	1
3 ERV-150/200	72X50	Core Assembly - <i>enthalpic</i>	1
4 ERV-150/200	72X54	ERV Ventilation System Remote Control	1
5 ERV-150/200	72X45	Foam Filter	2
<b>Electrical Box Parts</b>			
6 ERV-150/200	X4136	Transformer/Circuit Board Kit	1



## Blower Assembly Service - Dealer Only

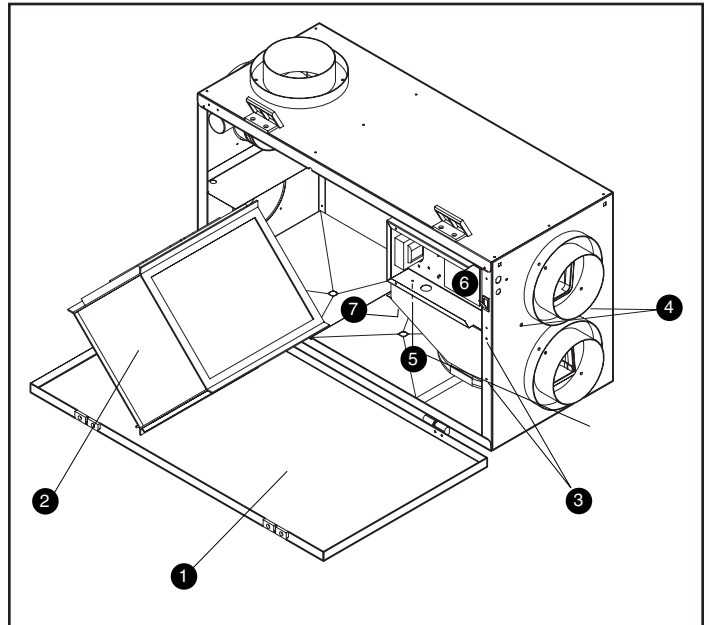
### To Remove Blower Assembly

#### **⚠ WARNING**



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

1. Unplug the HRV/ERV and open the service door.
2. Remove core
3. Remove 1/4 inch sheet metal screws on front lip on cabinet
4. Remove 2 Philips screws on right side panel
5. Remove 1/4 inch sheet metal screws securing electrical box to blower divider panel
6. Remove ground wire and black and white wire from circuit board leading to the motor, and pull wires to remove from the electrical box
7. Remove assembly (blower, motor, blower panel) by sliding left and down



### To Assemble Blower Assembly

1. Follow the above steps in reverse order.

### To Replace Motor

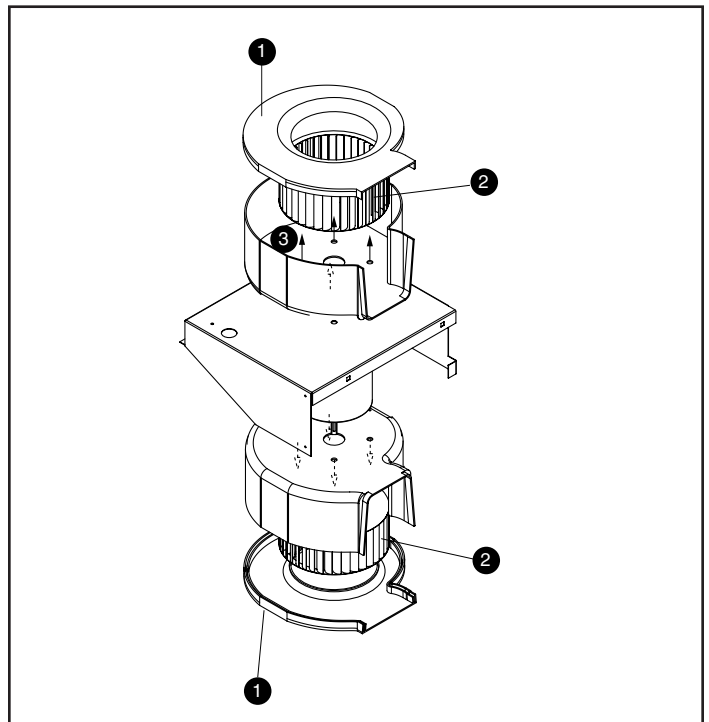
#### **⚠ ATTENTION**

**Note motor rotation BEFORE disassembling the motor assembly. Mark rotation on blower divider panel with a marker.**

1. Remove both blower end caps by applying pressure
  2. Remove blower wheels by loosening Allen screw on motor shaft
  3. Remove nuts from motor "through bolts"
- Ensure motor is replaced with proper rotation. The blower wheels are designed to "scoop" air and discharge towards blower outlets.

### To Assemble Motor

1. Follow the above steps in reverse order.



**HEALTHY CLIMATE<sup>®</sup>**  
Heat/Energy Recovery Ventilator