



INDOOR AIR QUALITY KITS AND ACCESSORIES

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Supersedes 06/2014

HEALTHY CLIMATE® HRV & ERV VENTILATORS

INSTALLATION INSTRUCTIONS & HOMEOWNERS GUIDE FOR HEALTHY CLIMATE® HEAT RECOVERY VENTILATOR (HRV) & ENERGY RECOVERY VENTILATOR (ERV)



*HRV3-095
(Y2142)
*HRV3-095-GDX**
(Y2967)



*HRV5-150
(Y6419)
*HRV5-150-GDX**
(Y6420)



*HRV5-200-TPD
(Y6421)
*HRV5-200-TPD-GDX**
(Y6422)
HRV3-150-TPD
(Y5447)
HRV3-150-TPD-GDX**
(Y6423)
HRV3-150-TPF
(Y5448)
HRV3-150-TPF-GDX**
(Y6424)



ERV3-150
(Y2138)
ERV3-200
(Y2139)



*HRV3-195
(Y2143)
*HRV3-300
(Y2144)
Dual-core (door removed)

THESE INSTRUCTIONS MUST REMAIN WITH THE
HOME-OWNER FOR FUTURE REFERENCE

*These models have earned the ENERGY STAR® mark by meeting strict energy efficiency guidelines set by Natural Resources Canada and the US EPA. These models meet ENERGY STAR requirements only when used in Canada

**Available in Canada only



⚠ WARNING

Risk of property damage, injury or death.

Installation, adjustments, alterations, service and maintenance must be performed by a qualified service technician.

Shipping and Packing List

Package 1 of 1 contains:

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

General Information

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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Terms & Definitions

Defrost Mode (HRV)—to ensure reliable operation during cold weather, the HRV will automatically cycle through its defrost mode as needed.

Dehumidistat—a control device that senses the amount of moisture in the air and activates high-speed ventilation when the air moisture level exceeds the set point.

Reset—whenever resetting of the HRV/ERV is required, simply unplug the power cord for 30 seconds. The Self Test will occur when the HRV/ERV is reconnected.

Self Test—each time the HRV/ERV is powered/energized, the self test function will automatically initiate. During the self test, the HRV/ERV will cycle through all the speeds available (1 - 5), test the damper motor operation, and will default back to the previous operational mode and speed selection. Total self test duration is approximately 90 seconds.

Standby Mode—the HRV/ERV is powered/energized and waiting for fan operation to be initiated. For example, the HRV is set to Continuous Ventilation Operational Mode at speed 0.

Thermistor—the HRV/ERV's temperature sensor which measures electrical resistance in a known manner, as outdoor temperatures fluctuate.

HVI—Home Ventilating Institute.

R2000—Canada Home Building Energy Efficiency Standard.

HRAI—Heating Refrigeration Air Conditioning Institute.

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 42.

The HRV unit 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 unit is equipped with an enthalpic core. This device is designed for use in warm, humid climates with heavy air conditioning loads. The ERV unit 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 unit is not suitable for use in climates where the temperature drops below 25°F (-4°C) for more than 5 days continuously.

Required Tools/Materials

Recommended Materials

low voltage control wire	mastic tape
1/2" I.D. drain hose	caulking material
aluminum foil duct tape	zip ties (duct)
fabric flexible duct - class II rated	zip ties

Balancing Tools - Various Options

Pitot Tube Balancing Kit (8 ft. vinyl tubing, Pitot tube, magnehelic gauge [0 - 0.25"], & mounting plate) **56N82**
Pitot Tube only **72X52**

Digital Manometer with range of 0 - 4.000 in. w.c. **Y6484**

Door Port Gauge Tube Set (can be used to balance HRV3-150-TPD/TPF, HRV5-150/200 Models Only)

Includes two connection hoses, two rubber fittings and instructions. Digital manometer (reading down to 0 with resolution of 0.001 in. w.c.) or Magnehelic gauge (scale of 0 to 1.0 in. w.c.) is not furnished and must be field supplied. **Y2207**

Optional Accessories

20 Minute Fan Timer **Y2168**

20/40/60 Minute Fan Timer **Y2169**

Digital Control (wall mounted) **Y2171**

Programmable Control (wall mounted) **Y2172**

Weatherhood Kit (includes 2 hoods, 2 screens, 2 12" sleeves, 2 collars and supply/exhaust labels):

5" (127 mm) **92E66**

6" (152 mm) **95P07**

7" (178 mm) **17N11**

Round Diffusers:

4" (102 mm) **92E54**

5" (127 mm) **92E55**

6" (152 mm) **92E56**

8" (203 mm) **56N81**

Dual Hood kit (includes hood assembly, foam gasket, duct splitter, duct insulator, retainer screw assembly, nylon cable tie, screens, labelled Supply/Exhaust.

6" (152 mm) **Y3813**

Kitchen Grille, 6" x 10"(152mm x 254mm)) (May be required by code for kitchen applications; contains removable grease filter) **18N48**

Back Draft Dampers:

5" (127 mm) **Y3728**

6" (152 mm) **Y3727**

Butterfly Balancing Dampers:

6" (152 mm) **91X09**

7" (178 mm) **field supplied**

Duct Heaters:

6" (152 mm) 1KW **97E73**

6" (152 mm) 2KW **20N16**

7" (178 mm) 2KW **97E74**

Specifications	Single-Core HRV Units					Dual-Core HRV Units		Single-Core ERV Units	
Model No.	HRV3 -150-TPD/-150-TPD-GDX (Y5447/Y6423)	HRV3-150 -TPF/-150TPF-GDX (Y5448/Y6424)	HRV3 -095/-095-GDX (Y2142/Y2967)	HRV5 -150/-150-GDX (Y6419/Y6420)	HRV5 -200-TPD/-200-TPD-GDX (Y6421/Y6422)	HRV3-195 (Y2143)	HRV3-300 (Y2144)	ERV3-150 (Y2138)	ERV3-200 (Y2139)
Energy Star® qualified (Canada Only)	No	No	Yes	Yes	Yes	Yes	Yes	No	No
Cabinet Size (Inches)	14 x 17-1/4 x 22-3/4	14 x 17-1/4 x 22-3/4	16 x 24-1/2 x 18-1/2	14-3/4 x 19 x 33-5/8	15 x 18-3/4 x 33-5/8	14-3/4 x 19 x 49	14-3/4 x 19 x 49	14-3/4 x 19 x 33-5/8	14-3/4 x 19 x 33-5/8
Weight	51	51	52	71	57	106	106	75	75
Shipping Weight	54	54	56	73	67	108	108	77	77
High Speed (HVI Certified)									
in. w.g. (Pa)	CFM (L/s)	CFM (L/s)	CFM (L/s)	CFM (L/s)	CFM (L/s)	CFM (L/s)	CFM (L/s)	CFM (L/s)	CFM (L/s)
0.1 (25)	169 (74)	174 (82)	76 (36)	184 (87)	222 (105)	216 (101)	232 (110)	151 (71)	180 (85)
0.2 (50)	156 (69)	165 (77)	73 (34)	163 (77)	207 (98)	195 (92)	212 (100)	141 (67)	169 (79)
0.3 (75)	149 (63)	154 (73)	70 (33)	146 (69)	193 (91)	181 (85)	202 (95)	132 (62)	157 (74)
0.4 (100)	136 (59)	143 (67)	66 (31)	132 (62)	179 (84)	158 (74)	183 (86)	124 (59)	146 (69)
0.5 (125)	126 (54)	132 (62)	60 (28)	115 (54)	165 (78)	144 (68)	163 (77)	107 (50)	132 (62)
0.6 (150)	116 (49)	120 (56)		92 (43)	150 (71)	125 (59)	144 (68)	98 (46)	118 (55)
0.7 (175)	103 (45)	107 (521)		60 (28)	135 (63)	107 (50)	123 (58)	81 (38)	101 (47)
0.8 (200)	89 (40)	95 (45)			119 (56)	72 (34)	92 (43)	60 (28)	82 (39)
0.9 (225)	77 (33)	83 (39)			102 (49)				
1.0 (250)	58 (29)	71 (34)			84 (40)				
Sensible Effectiveness @ 32°F (0°C)	@ 66 CFM (31 L/s) 74%	@ 66 CFM (31 L/s) 75%	@ 60 CFM (28 L/s) 88%	@ 59 CFM (28 L/s) 84%	@ 100 CFM (47 L/s) 77%	@ 114 CFM (54 L/s) 86%	@ 117 CFM (55 L/s) 90%	@ 63 CFM (30 L/s) 81%	@ 116 CFM (55 L/s) 76%
Sensible Efficiency @ 32°F (0°C)	@ 66 CFM (31 L/s) 61%	@ 66 CFM (31 L/s) 66%	@ 60 CFM (28 L/s) 75%	@ 59 CFM (28 L/s) 75%	@ 100 CFM (47 L/s) 68%	@ 114 CFM (54 L/s) 78%	@ 117 CFM (55 L/s) 79%	@ 63 CFM (30 L/s) 69%	@ 116 CFM (55 L/s) 69%
Sensible Efficiency @ -13°F (-25°C)	@ 76 CFM (31 L/s) 63%	@ 76 CFM (30 L/s) 56%	@ 61 CFM (29 L/s) 68%	@ 64 CFM (30 L/s) 72%	@ 100 CFM (47 L/s) 68%	@ 112 CFM (53 L/s) 72%	@ 132 CFM (62 L/s) 70%	N/A	N/A
Latent Efficiency 95°F (35°C)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	@ 65 CFM (30 L/s) 37%	@ 117 CFM (55 L/s) 41%
Total Efficiency 95°F (35°C)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	@ 65 CFM (30 L/s) 47%	@ 117 CFM (55 L/s) 50%
Number of speeds available with included wall control	2	2	2	2	2	2	2	1	1
Number of speeds available with optional wall control	5	5	5	5	5	5	5	5	5
Ventilator Type	Heat Recovery	Heat Recovery	Heat Recovery	Heat Recovery	Heat Recovery	Heat Recovery	Heat Recovery	Energy Recovery	Energy Recovery
Heat/Energy Recovery Core	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Enthalpic	Enthalpic
Number of HRV/ERV Cores	1	1	1	1	1	2	2	1	1
Defrost Type	Recirculating	Fan	Recirculating	Recirculating	Recirculating	Damper	Damper	None	None
Door Port Balancing	Yes	Yes	No	Yes	Yes	No	No	No	No
Balancing Damper in Supply & Exhaust Collar	Yes	Yes	No	Yes	Yes	No	No	Yes	Yes
Number of Ports	4	4	4	4	4	5	5	4	4
Pre-Filters (Foam) Supply & Exhaust	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wall Controller Included	Y2166/Y2171	Y2166	Y2166/Y2171	Y2166/Y2171	Y2166/Y2171	Y2166	Y2166	N/A	N/A
H/C ERV Wall Control- on/off, Service Indicator (Y2165)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes	Yes
Electrical Characteristics	120 Volts, 60 Hertz, 1 phase								
Fan HP	1/20	1/20	1/20	1/10	1/10	1/10	1/4	1/20	1/10
Motor Type	PSC	PSC	PSC	PSC	PSC	PSC	PSC	PSC	PSC
Fan Watts - High Speed @ 0.3 in. w.g.	110	118	150	118	96	173	333	173	182
Fan Watts - Low Speed @ 0.3 in. w.g.	57	66	60	66	64	100	150	63	70
Amp Rating	1.3	1.4	0.9	1.4	1.4	1.5	2.9	1.4	1.4
Condensate Drain Connections: Spouts: qty. 2 (1/2" o.d.) Drain Tee: qty. 1 (1/2" o.d.)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	N/A	N/A

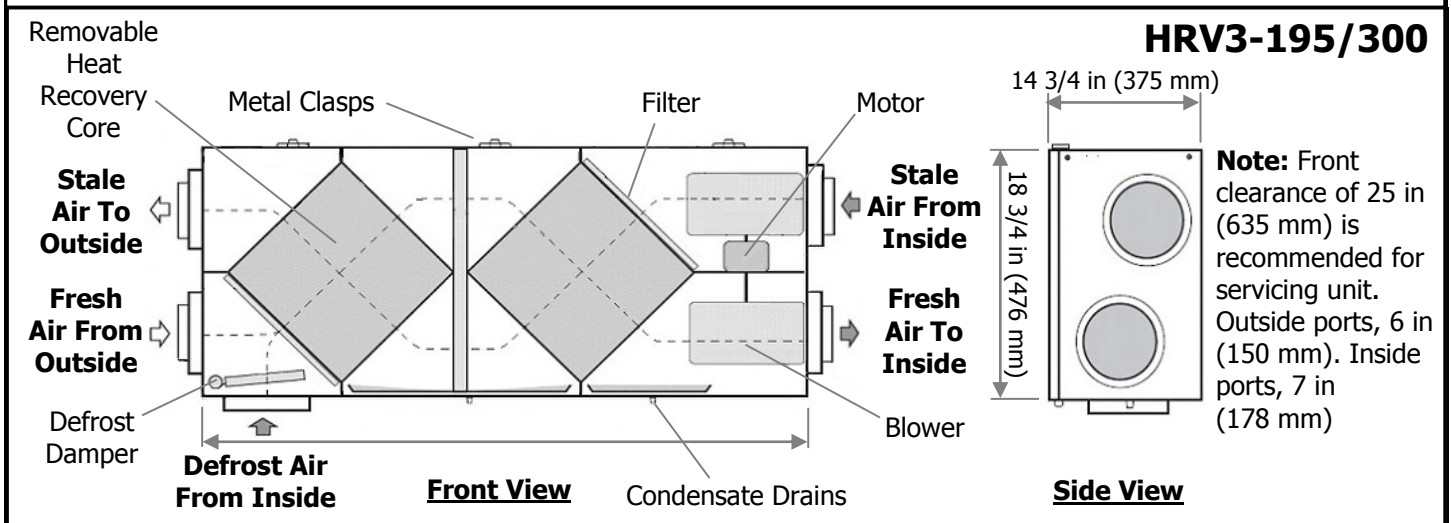
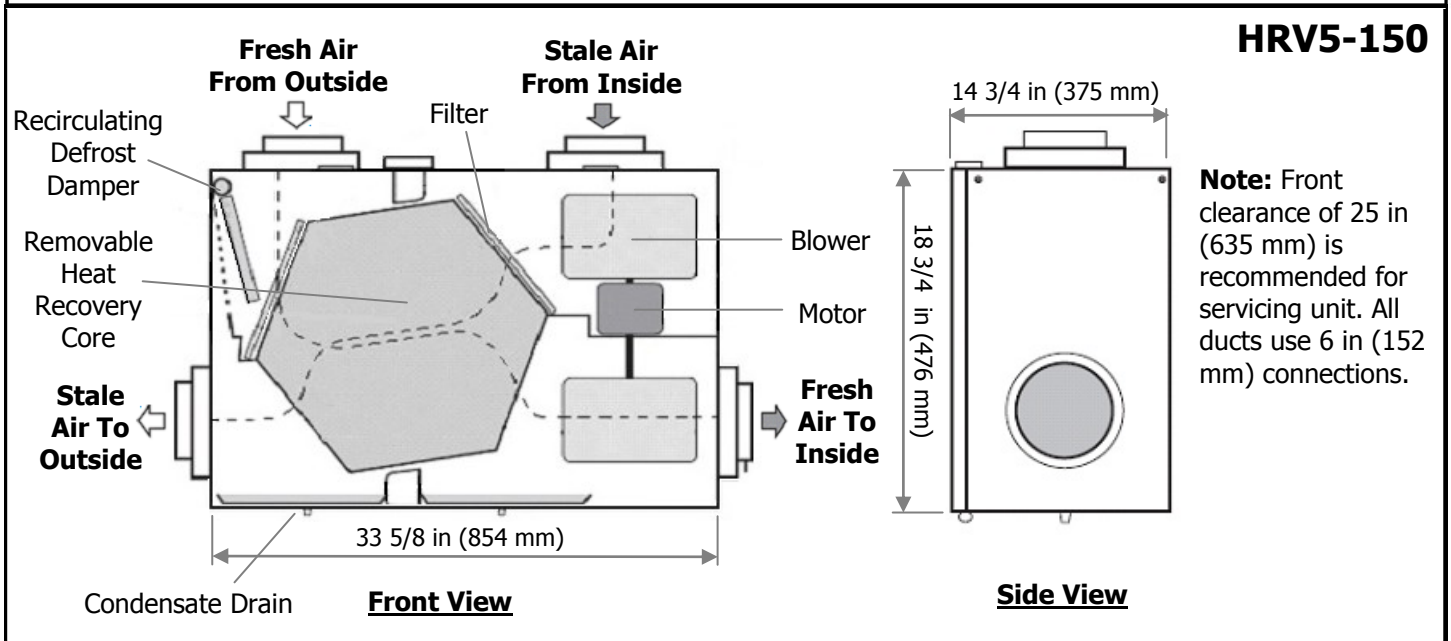
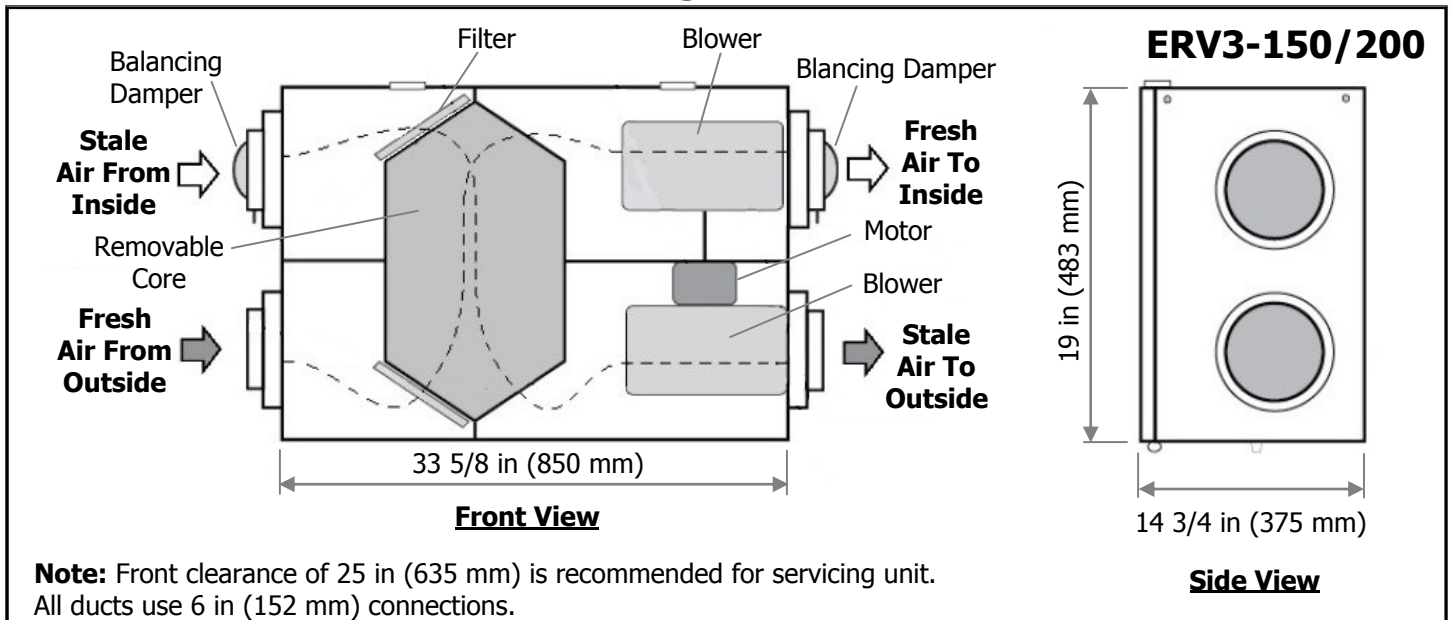
NOTE: All specifications are subject to change without notice.

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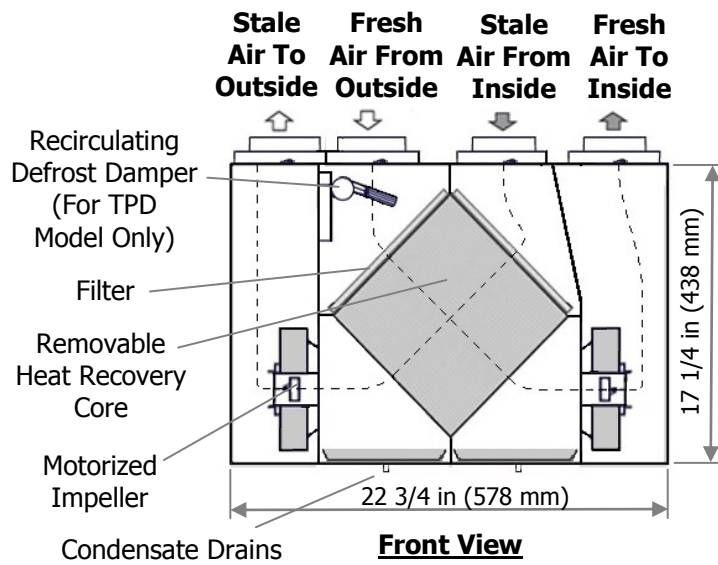
Specifications	Single-Core HRV Units					Dual-Core HRV Units		Single-Core ERV Units	
Model No.	HRV3 -150-TPD/-150-TPD-GDX (Y5447/Y6423)	HRV3-150 -TPF/-150-TPF-GDX (Y5448/Y6424)	HRV3 -095/-095-GDX (Y2142/Y2967)	HRV5 -150/-150-GDX (Y6419/Y6420)	HRV5 -200-TPD/-200-TPD-GDX (Y6421/Y6422)	HRV3-195 (Y2143)	HRV3-300 (Y2144)	ERV3-150 (Y2138)	ERV3-200 (Y2139)
OPTIONAL FAN CURVES SPEEDS (FACTORY TESTED)									
Speed 4-med high									
in. w.g. (Pa)	CFM (L/s)	CFM (L/s)	CFM (L/s)	CFM (L/s)	CFM (L/s)	CFM (L/s)	CFM (L/s)	CFM (L/s)	CFM (L/s)
0.1 (25)			70 (33)	153 (72)	189 (89)	167 (78)	220 (103)	120 (56)	151 (71)
0.2 (50)			65 (31)	141 (67)	170 (80)	159 (75)	202 (94)	111 (52)	147 (69)
0.3 (75)			50 (24)	131 (62)	153 (72)	150 (71)	186 (87)	103 (48)	129 (61)
0.4 (100)	101 (48)	101 (48)	31 (15)	117 (55)	136 (64)	140 (66)	169 (79)	92 (43)	118 (55)
0.5 (125)	91 (43)	91 (43)		96 (45)	120 (57)	124 (58)	158 (74)	80 (38)	104 (49)
0.6 (150)	82 (39)	82 (39)		80 (38)	106 (50)	110 (52)	134 (62)	64 (30)	89 (42)
0.7 (175)	69 (33)	69 (33)			91 (43)	93 (44)	108 (50)	43 (20)	63 (30)
0.8 (200)	60 (28)	60 (28)			78 (37)		79 (37)		
Speed 3-med									
0.1 (25)			65 (31)	144 (68)	161 (76)	142 (67)	194 (91)	97 (46)	133 (63)
0.2 (50)			60 (28)	130 (61)	141 (67)	136 (64)	178 (83)	87 (41)	130 (61)
0.3 (75)	92 (43)	92 (43)	48 (23)	120 (57)	123 (58)	127 (60)	170 (79)	81 (38)	124 (58)
0.4 (100)	82 (39)	82 (39)	30 (14)	106 (50)	108 (51)	118 (55)	154 (72)	72 (34)	114 (54)
0.5 (125)	71 (34)	71 (34)		88 (42)	92 (43)	103 (48)	139 (65)	61 (29)	104 (49)
0.6 (150)	60 (28)	60 (28)			77 (36)	92 (43)	118 (55)	53 (25)	94 (44)
0.7 (175)					64 (30)	72 (34)	94 (44)		80 (38)
0.8 (200)					52 (25)				
Speed 2-med low									
0.1 (25)			62 (29)	127 (60)	127 (60)	115 (54)	170 (79)	73 (34)	112 (53)
0.2 (50)	81 (38)	81 (38)	54 (25)	116 (55)	108 (51)	107 (50)	163 (76)	67 (31)	107 (50)
0.3 (75)	70 (33)	70 (33)	42 (20)	106 (50)	90 (42)	100 (47)	151 (70)	59 (28)	101 (47)
0.4 (100)	60 (28)	60 (28)	26 (12)	97 (46)	73 (34)	90 (42)	136 (63)	51 (24)	96 (45)
0.5 (125)	46 (22)	46 (22)		86 (40)	60 (28)	81 (38)	129 (60)	45 (21)	88 (41)
0.6 (150)					48 (22)	66 (31)	107 (50)		77 (36)
0.7 (175)					38 (18)		88 (41)		60 (28)
0.8 (200)									
Speed 1-low									
0.1 (25)			51 (24)	108 (51)	100 (48)	88 (41)	144 (67)	53 (25)	88 (41)
0.2 (50)	61 (29)	61 (29)	45 (21)	100 (47)	78 (37)	80 (38)	137 (64)	44 (21)	85 (40)
0.3 (75)	49 (23)	49 (23)	33 (16)	91 (43)	60 (28)	73 (34)	134 (62)	38 (18)	80 (38)
0.4 (100)	35 (17)	35 (17)	18 (8)	78 (37)	46 (22)	63 (30)	121 (56)	32 (15)	77 (36)
0.5 (125)					32 (15)	56 (26)	110 (51)		67 (31)
0.6 (150)						43 (20)	95 (44)		
0.7 (175)							84 (39)		
0.8 (200)									
OPTIONAL ACCESSORIES-MUST BE ORDERED EXTRA									
Backdraft Damper 5"	Y3728	Y3728	Y3728	N/A	N/A	N/A	N/A	N/A	N/A
Backdraft Damper 6"	N/A	N/A	N/A	Y3727	Y3727	Y3727	Y3727	Y3727	Y3727
Butterfly Damper, 6"	N/A	N/A	91X09	Included in the unit	N/A	N/A	N/A	Included in the unit	
Butterfly Damper, 7"	N/A	N/A	N/A	N/A	N/A	Field Supplied		N/A	N/A
Insulated Flexible Ducting: (Qty Req'd) "Dia.	(2) 5	(2) 5	(2) 5	(2) 6	(2) 6	(2) 6	(2) 6	(2) 6	(2) 6
COMMON ACCESSORIES - AS REQUIRED, BASED ON USER APPLICATION									
Door Port Balancing Kit (same kit w/o Gauge)	N/A	N/A	Y2206						
	Y2207								
Digital Handheld Manometer	Y6484								
Magnehelic Gauge only (0-0.25")	N/A	N/A	79P83						
Pitot Tube Balancing Kit	N/A	N/A	56N82						
Pitot Tube only	72X52								

NOTE: All specifications are subject to change without notice.

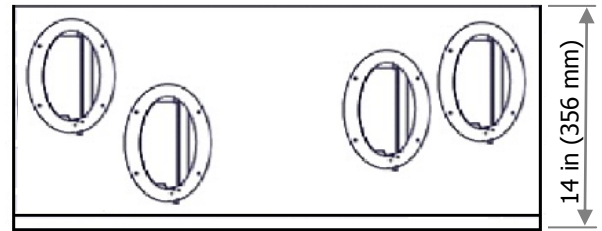
Ventilator Dimensions and Flow Diagrams



HRV3-150-TPD/TPF

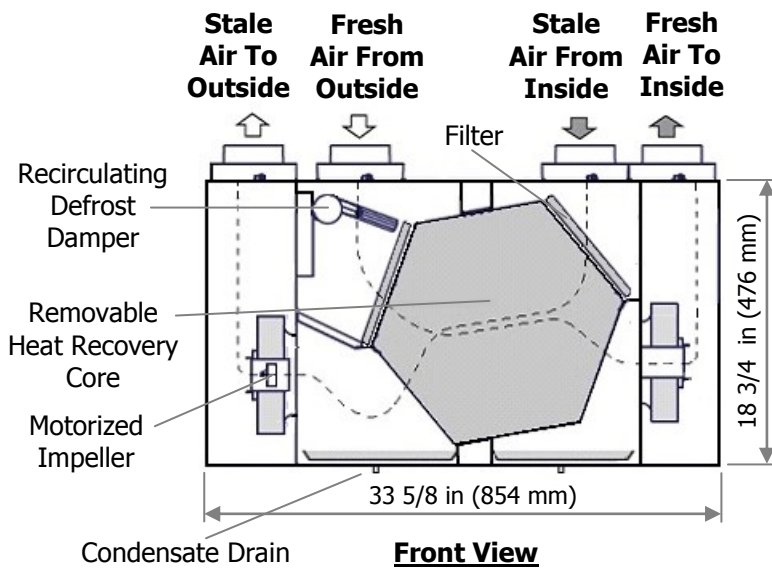


Note: Front clearance of 25 in (635 mm) is recommended for servicing unit. All ducts use 5 in (125 mm) oval collars, balancing dampers are located on all collars.

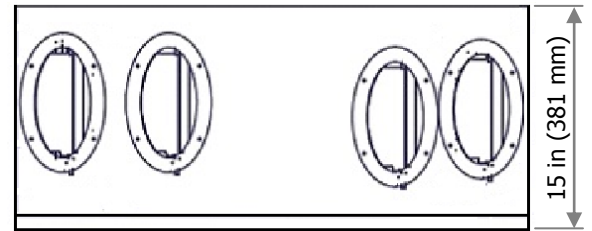


Top View

HRV5-200-TPD

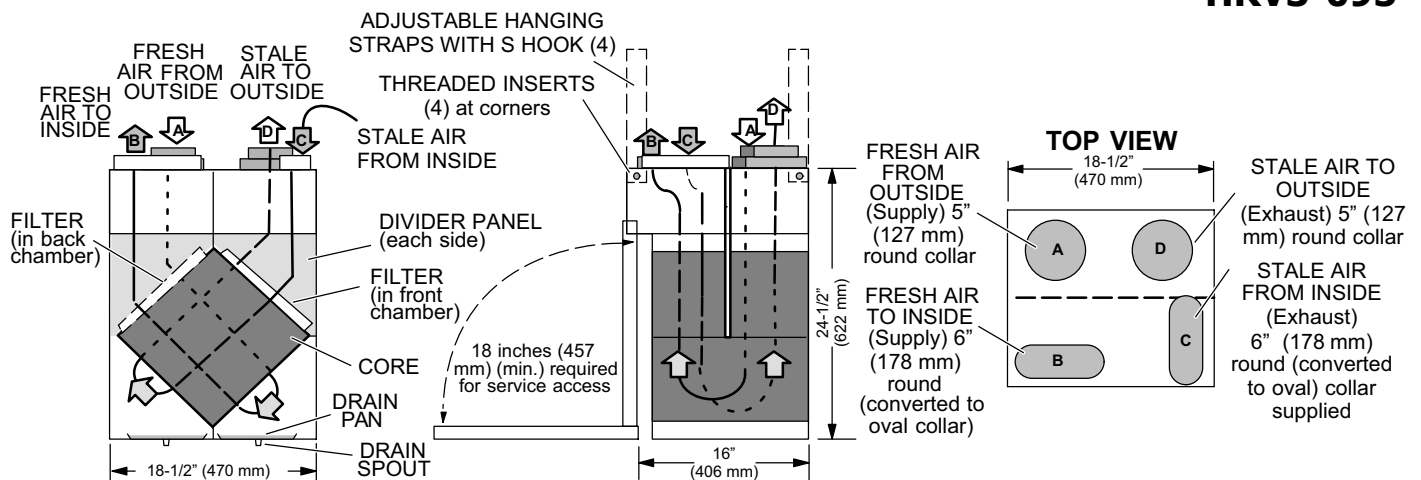


Note: Front clearance of 25 in (635 mm) is recommended for servicing unit. All ducts use 6 in (150 mm) oval collars, balancing dampers are located on all collars.



Top View

HRV3-095



HRV3-095 Air Flow Direction

The top half of the unit is divided front to back. This unique configuration allows the air to actually travel through the core twice, making the HRV3-095 unit almost as efficient as a double core unit.

Stale air enters the front right side port. The air will pass down the front half of the core, then up the back half of the core and out the right rear port. Fresh outdoor air will enter the left rear port and pass down the back half of the core. It will then pass up the front half of the core, and out the left front port.

Defrost Cycle (HRV)

The HRV has an electronically controlled defrost system. The defrost cycle is activated when the outdoor temperature drops below 27°F (-3°C). There are three levels of defrost mode based on the outdoor temperature. Incoming fresh air is measured to set the defrost times and the run times while in the defrost mode. The three defrost settings are:

- At 27°F (-3°C) HRV runs in defrost for 3 minutes and runs in ventilation for 25 minutes
- At -4°F (-20°C) HRV runs in defrost for 4.5 minutes and runs in ventilation for 17 minutes
- At -31°F (-35°C) HRV runs in defrost for 7 minutes and runs in ventilation for 15 minutes

No remote device can override this defrost mode or selected speed until the cycle is complete. After the cycle is completed the HRV defaults to previous settings. If the cycle is completed and the thermistor continues to measure defrost temperature the defrost cycle is repeated.

ERV's have no defrost cycle and are not recommended where outdoor temperatures fall below 25°F (-4°C) continuously for more than 5 days.

Recirculating Damper Defrost (HRV3-095, HRV3-150-TPD, HRV5-150, HRV5-200-TPD)

During defrost a motor driven damper door mechanism closes off the supply air from outside allowing exhaust air to recirculate through the unit's core. During defrost cycle no ventilation is occurring. After the defrost period, the damper operates in the opposite direction to reopen the fresh air port. Defrost cycle repeats until the temperature rises above 27°F (-3°C).

Damper Defrost - 5 port Models (HRV3-195/300)

During defrost a motor driven damper door mechanism closes off the supply air from outside allowing a fifth port to open enabling warm air to be drawn in from around the unit. During defrost cycle stale air exhaust is still occurring. After the defrost period, the damper operates in the opposite direction to reopen the fresh air port. Defrost cycle repeats until the temperature rises above 27°F (-3°C). (The defrost port can also be ducted to another location.)

Fan Defrost (HRV3-150-TPF)

During defrost cycle, the Fresh Air supply motor will shut off and the Stale Air exhaust motor will continue to run. After the defrost period, the Fresh Air supply motor will resume. Defrost cycle repeats until the temperature rises above 27°F (-3°C).

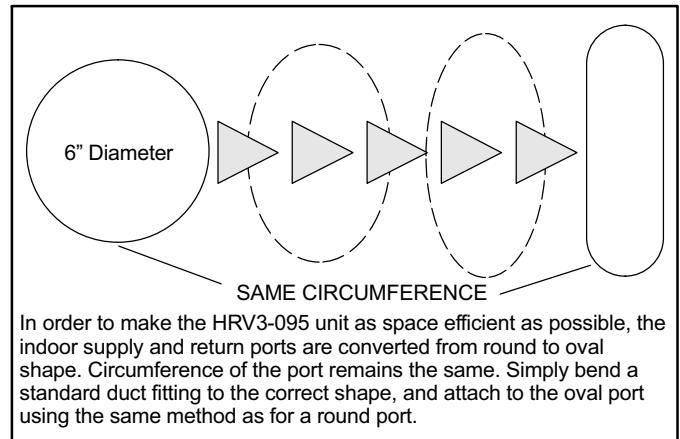


Figure 1. Shaping Ducting to fit Oval Indoor Supply Port

Requirements

Connecting appliances to the HRV/ERV unit

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

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

NOTE - Failure to follow this instruction will void the HRV/ERV unit warranty.

DANGER

Risk of Carbon Monoxide Poisoning and/or Explosion.

Can cause injury or death.

Combustion and flue gases from heating appliances must never be allowed to enter living spaces.

HRV/ERV unit must be properly balanced (see page 28 or 31) to prevent negative pressure in structure. Negative pressure can cause back-drafting of combustion gases in other household appliances such as Gas Furnaces, Oil Furnaces, Hot Water Heaters, Wood Stoves, Fireplaces, etc.

(5-Port HRV models only) Defrost cycles will cause negative pressure in equipment room. Install ductwork and route to areas that do not contain appliances with vented combusted gases.

Never connect a return or supply duct to other heating units such as fireplaces, wood stoves.

CAUTION

Potential equipment malfunction or damage.

May require repairs and/or void warranty.

Do not interconnect HRV/ERV to other appliances such as Stove Vents, Clothes Dryer Vents, Central Vacuum Systems, Auxiliary Fans, etc.

Controlling the HRV/ERV

Today's modern, air tight homes require fresh outdoor air to maintain a healthy indoor air environment. The amount of ventilation required in a home depends upon:

- the number of occupants and their activity levels.
- the way the home was built,
- personal preferences for fresh air.

The HRV/ERV introduces fresh air to your home while recovering energy from the air it exhausts. Specifically, an HRV/ERV that is properly installed, operated, and maintained will:

- exhaust stale, contaminated air,
- recover the majority of the energy from the exhausted stale air,
- use the recovered energy to preheat or precool outside air that is drawn into the house,
- distribute the fresh air throughout the house.

How much ventilation is needed?

During seasons when windows and doors are closed (winter and summer, if air conditioned) the HRV/ERV should be set to operate continuously on low speed with the option of going to high speed as the need arises. For example, if a large number of people are present in the home, the unit should be switched temporarily to high speed. Conversely, when the home is unoccupied, an intermittent operational mode (e.g. 20 minutes on / 40 minutes off) may be used.

Electronics

All units include a Wall Control. Optional controls can be installed at the time of the installation or at a later date, providing a number of choices for upgrading the basic features of the ventilation system.

Dehumidistat Operation

Often, well insulated and air tight homes will have high indoor humidity levels during the heating season. High humidity levels are apparent from the visible condensation on windows. The amount of condensation on the windows will increase as outdoor temperatures drop.

The HRV/ERV will reduce indoor humidity levels when outdoor air is drier than indoor air. This usually occurs during the heating season when outdoor temperatures are less than 59°F (15°C).

HRV controls include a dehumidistat function which can be set to achieve a dehumidification effect from the HRV during the winter heating season. High-speed ventilation will be initiated upon exceeding the dehumidistat set point. Once the humidity in the house is reduced, the HRV will revert back to its previous setting.

It is recommended that the unit be operated for the first few days without use of the dehumidistat function to observe if a further dehumidification effect will be required. The dehumidistat operates in % of RH (relative humidity) with 80 being high and 20 being low. Set the Dehumidistat to 80% RH to disable. If, after a few days, further dehumidification is required (the house is too humid), set the humidity level to a lower setting. Comfortable humidity levels range between 30 and 50% RH, depending on personal preference.

The dehumidistat should be off for all seasons except the heating season (set to 80% RH).

Synchronizing the Humidity Setting

The optional wall controls (Y2171 and Y2172) have a feature that allows the controls to be synchronized with other humidity instruments in the home. To synchronize:

1. Turn off the control with the ON/OFF button.
2. Simultaneously press and release the ON/OFF button and the 20/40/60 minute high-speed override button.
3. Use the Up/Down arrow buttons to adjust the Humidity Indicator on the display screen to the number of degrees difference between your humidity measuring device. Minus is indicated by flashing.
4. Press the MODE button.

Dehumidistat Disable Feature

The new auto dehumidistat function prevents unwanted use of the dehumidistat when outdoor temperature exceeds 59°F (15°C).

The dehumidistat function will be disabled if the outdoor temperature exceeds 59°F (15°C) for a 24-hour period.

The dehumidistat function will be re-enabled if the unit is unplugged for 3 minutes or if the outdoor temperature drops below 59°F (15°C) for a 24-hour period. The dehumidistat disable feature is permanently enabled in the ERV unit.

Ventilation Controls (included)

ERV Ventilation Control (Y2165)

Home ventilation provided by the ERV unit is easily controlled with included ERV Ventilation System control.

Key features—

- ON/OFF button with ON LED
- Service indicator
- Connect to 3-wire, 20-gauge (min.), low-voltage wire.

UNIT ON/OFF Control—Press and release the ON/OFF button. “ON” indicator light illuminates; press again to turn OFF.

Service Indicator LED—After 4 months, a “SERVICE” indicator will appear. Refer to Homeowner Maintenance Information, page 41. Upon completion of maintenance, reset service light by pressing and holding RESET button for 5 seconds.

HRV Ventilation Control (Y2166)**

Home ventilation provided by the HRV unit is easily controlled with included HRV Ventilation System control.

**HRV -GDX (Canada only) units come with Y2171 Digital 2-Speed/4-Mode Control (see figure 4, Page 10).

Key features—

- ON/OFF button with ON LED
- Dehumidistat with LED indications
- Service indicator
- Connect to 3-wire, 20-gauge (min.), low-voltage wire.

UNIT ON/OFF Control—Press and release the ON/OFF button. “ON” indicator light illuminates; press again to turn OFF.

Humidity Control—Unit will produce a dehumidifying effect when outdoor humidity levels are lower than indoor humidity levels. Dehumidistat should not be used when outdoor temperatures are above 59°F (15°C). Press and release DEHUMIDISTAT button until the DEHUMIDISTAT LED is at the desired setting. After seconds, the dehumidistat light will either flash or be on continuously. A flashing light indicates the humidity level is higher than the setting and the unit is operating on high-speed ventilation. A continuous light indicates the humidity level is lower than the setting.

NOTE - Only 1 dehumidistat should be active on a system.

Service Indicator LED—After 4 months, a “SERVICE” indicator will appear. Refer to Homeowner Maintenance Information, page 41. Upon completion of maintenance, reset service light by pressing and holding RESET button for 5 seconds.

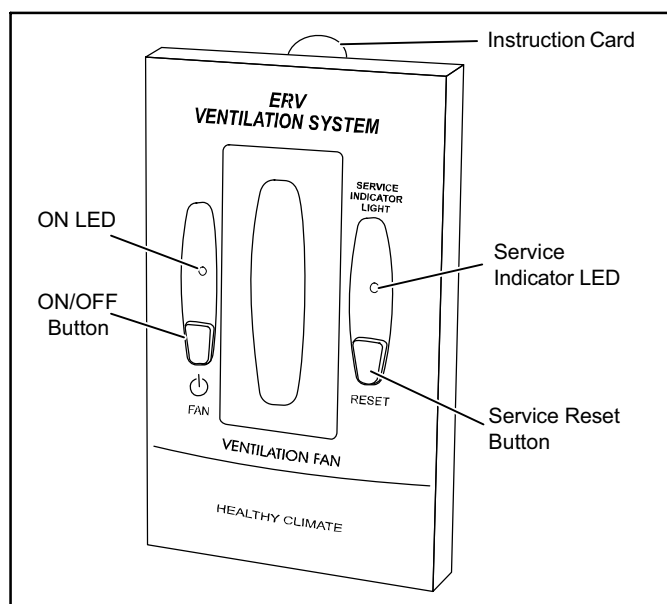


Figure 2. ERV Control (Y2165)

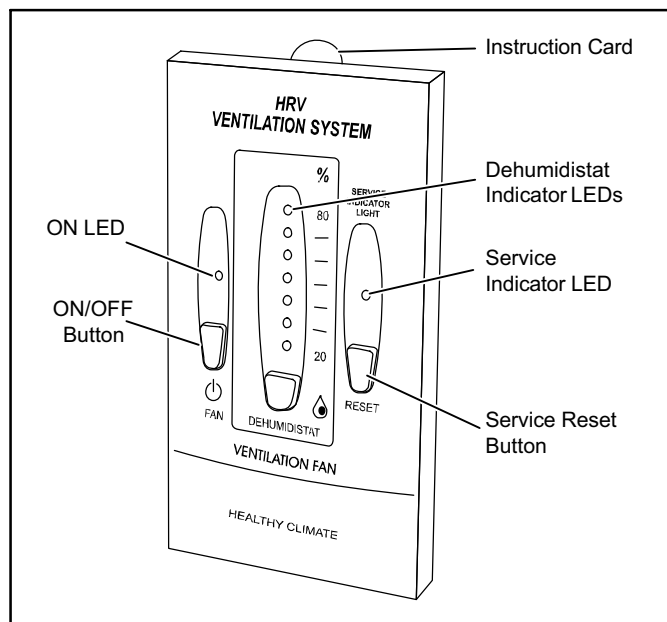


Figure 3. HRV Control (Y2166)

Ventilation Controls (optional)

* **NOTE:** Recirculation is available on HRV3-095, HRV5-150, HRV5-200-TPD only.

4-Mode Descriptions

The two optional digital controls have 4 operational modes and 2 or 5 speeds on each mode to adjust indoor ventilation levels. Experiment with the ventilation levels in the home to evaluate the best amount of ventilation to suit the homeowner needs and preferences.

1. Continuous Ventilation Mode (VENT)

This is the most popular mode since it provides continuous ventilation within the home. You may, for example, select Continuous Ventilation at high speed for high household activity levels, or Continuous Ventilation at low speed for lower activity levels.

2. 20 minutes ON, 40 minutes OFF Mode (20/40)

This mode provides 20 minutes of ventilation each hour. Use this mode in low speed for low household activity levels or if the home is unoccupied.

3. 20 minutes ON, 40 minutes, Recirculation Mode* (20/40/RECIRC)

This mode provides 20 minutes of ventilation each hour and 40 minutes of recirculated air. Use this mode if the HRV is NOT connected to a forced air system (forced air system already circulates household air).

4. Continuous Recirculation Mode* (RECIRC)

This mode recirculates household air (no ventilation). Use this mode if the HRV is NOT connected to a forced air system.

Synchronizing the Humidity Setting on Digital Controls

Either optional control has a feature that allows it to be synchronized with other humidity instruments in the home. To synchronize:

1. Turn off the control by pressing ON/OFF.
2. Simultaneously press and release ON/OFF and the 20/40/60 minute high-speed OVERRIDE buttons.
3. Use the UP/DOWN arrows to adjust the Humidity Indicator on the display screen to the number of degrees difference between your humidity measuring device. Minus is indicated by flashing.
4. Press MODE.

Digital 2-Speed/4-Mode Control (Y2171)

This fully-digital device allows control of when and how much fresh air will enter the home.

Key features—

- 2-speed fan setting (Low-1/High-2)

- Standby setting (Fan speed 0)
- Electronic dehumidistat
- Four selectable modes of operation (see “4-Mode Descriptions” in left column of this page)
 - Continuous Ventilation (VENT)
20 min. On / 40 min. Off (20/40)
 - 20 min. On / 40 min. Recirculate* (20/40/RECIRC)
 - Continuous Recirculation* (RECIRC)
- 20 / 40 / 60 High speed override button
- Instruction card inserted in control
- Easy-to-read LCD screen
- Connect to 3-wire, 20-gauge (min.), low-voltage wire

Setting the Control

1. Press and release MODE until FAN symbol appears on the screen. Press SET.
2. Use UP/DOWN arrows to select desired fan speed (0, 1, 2). Press SET.
3. Use UP/DOWN arrows to select the desired operational mode (VENT, 20/40, 20/40 RECIRC*, RECIRC*, OFF). Press SET.

20/40/60 Minute High Speed Timer Override—This function temporarily initiates high-speed ventilation for 20, 40, or 60 minutes. Press OVERRIDE once for 20, twice for 40, and three times for 60 minutes.

Setting Dehumidistat—Refer to “Dehumidistat Operation” (Page 8) before setting the dehumidistat.

1. Press and release MODE until “RH” and a number flashes. Use UP/DOWN arrows to select desired number. Press MODE to exit.
2. Press MODE again to return to operational features.

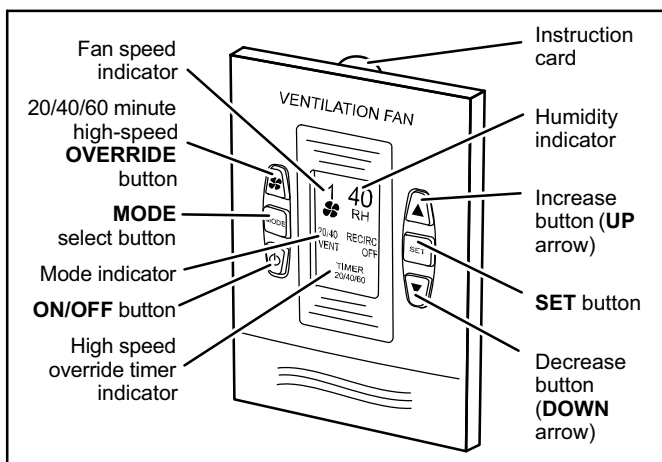


Figure 4. Digital 2-Speed/4-Mode Control (Y2171)

Ventilation Controls (optional) - continued

* **NOTE:** Recirculation is available on HRV3-095, HRV5-150, HRV5-200-TPD only.

Programmable 5-Speed/4-Mode Control (Y2172)

The optional Programmable 5-Speed/4-Mode Control is fully digital and allows programming that determines when, and how much, fresh air will be entering the home.

Key features—

- 24/7 programmable ventilation
- 4 programmable events per day
- 5-speed fan setting
- Electronic dehumidistat
- Four selectable modes of operation (see “4-Mode Descriptions” on page 10)
 - Continuous Ventilation (VENT)
 - 20 min. On / 40 min. Off (20/40)
 - 20 min. On / 40 min. Recirculate* (20/40/RECIRC)
 - Continuous Recirculation* (RECIRC)
- 20 / 40 / 60 High speed override button
- Service/Maintenance reminder display
- Easy-to-read, backlit LCD screen
- Connect to 3-wire, 20-gauge (min.), low-voltage wire

Setting Date & Time—

1. Press and release MODE until “TIME” and “SET” appear on the screen. Press SET.
2. The day of the week letter flashes. Use UP/DOWN arrows to find the correct day of the week. Press SET.
3. The hour and “AM” or “PM” flashes. Use UP/DOWN arrows to find the correct hour. Press SET.
4. The minutes will flash. Use UP/DOWN arrows to find the correct minute. Press SET to complete entry.

Programming the Control—

1. Press and release MODE until “PROGRAM SET” appears. Press SET.
2. Weekday letters (MTWTF) flash. Press SET.
3. “WAKE” flashes. Press SET.
4. “AM” or “PM” flashes. Use UP/DOWN arrows to find desired time (in 20 minute intervals). Press SET.
5. “FAN” flashes. Use UP/DOWN arrows to find desired fan speed (0 - 5). Press SET.
6. “OFF” flashes. Use UP/DOWN arrows to find desired operation mode (VENT, 20/40, 20/40/RECIRC*. RECIRC*, OFF). Press SET button two times. (Refer to “4-Mode Descriptions” [Page 10] for a description of operational modes.)
7. “LEAVE” flashes. Repeat steps 4 to 6 to program up to 4 events per day.
8. “ARRIVE” flashes. Repeat steps 4 to 6 to program up to 4 events per day.
9. “SLEEP” flashes. Repeat steps 4 to 6 to program up to 4 events per day.
10. “Weekend” letters (SS) flash. Press SET. Repeat step 3 to 9.

Running the Programmed Setting—After the programming has been completed, activate the program:

- Press the MODE button until “PROGRAM” and “RUN” are indicated.

Setting the Dehumidistat—See “Dehumidistat Operation” (Page 8) before setting the dehumidistat.

1. Press and release MODE until “RH” and a number flashes. Use UP/DOWN arrows to find the desired number (RH set point). Press the MODE button to exit.
2. Press MODE again to return to operational features.

! IMPORTANT

Only one main control can be installed on the system.

Manually Setting the Control—

1. Press and release MODE until “MANUAL” and “RUN” flashes. Press SET.
2. Use UP/DOWN arrows to select the desired fan speed (0 - 5) using the UP/DOWN arrows. Press SET.
3. Use UP/DOWN arrows to select the desired operation mode (VENT, 20/40, 20/40 RECIRC*. RECIRC*, OFF) using the UP/DOWN arrows. Press SET.
4. The control will remain in the “MANUAL RUN” position until you change back to “PROGRAM RUN” (refer to “Running the Programmed Setting” above).

20/40/60 Minute high-speed Override Button—This function temporarily initiates high-speed ventilation for 20, 40, or 60 minutes. Press OVERRIDE once for 20, twice for 40, and three times for 60 minutes.

Service Indicator—After 4 months, a “SERVICE” indicator will appear. To reset the service indicator:

- Press and release the UP/DOWN arrows simultaneously. “SERVICE” icons will flash for 5 seconds.
- Press SET within the 5 seconds and the service indicator will reset.

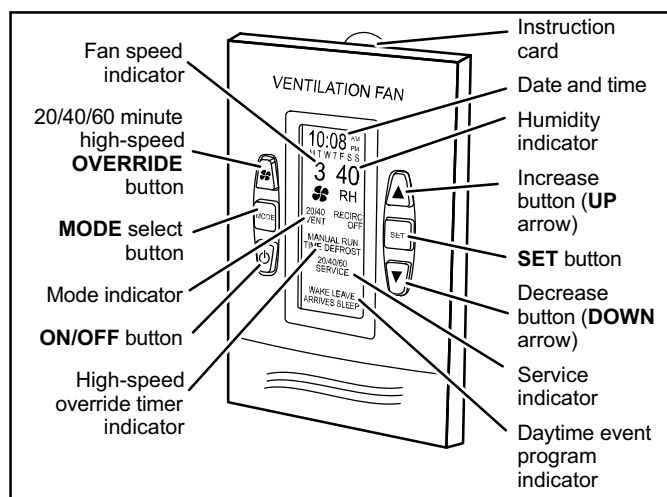


Figure 5. Programmable 5-Speed/4-Mode Control (Y2172)

Optional Timers

The timer will override the Operational Mode (regardless of the setting) and initiate high-speed ventilation. Upon completion of the timer cycle, the HRV/ERV will return to preselected operational mode and speed setting.

20 Minute Timer (Y2168)

Initiates high-speed ventilation for 20 minutes. The 20 minute status light indicate high-speed operation.

Lockout Mode is useful to disable the timer. Set lockout by holding the SELECT button for 5 seconds; similarly, unlock by holding the SELECT button for 5 seconds.

Connect to 3-wire, 20-gauge low-voltage wire and is installed in a standard 2" x 4" electrical box.

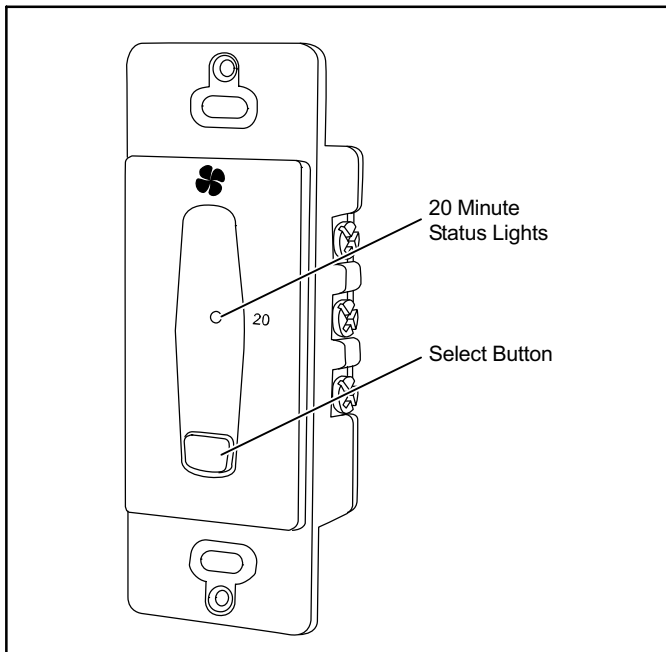


Figure 6. 20 Minute Timer (Y2168)

20/40/60 Minute Timer (Y2169)

Initiates high-speed ventilation for 20, 40, or 60 minutes. The 20/40/60 minute status lights indicate high-speed operation.

Lockout Mode is useful to disable the timer. Set lockout by holding the SELECT button for 5 seconds; similarly, unlock by holding the SELECT button for 5 seconds.

Connect to 3-wire, 20-gauge (min.) low-voltage wire and is installed in a standard 2" x 4" electrical box.

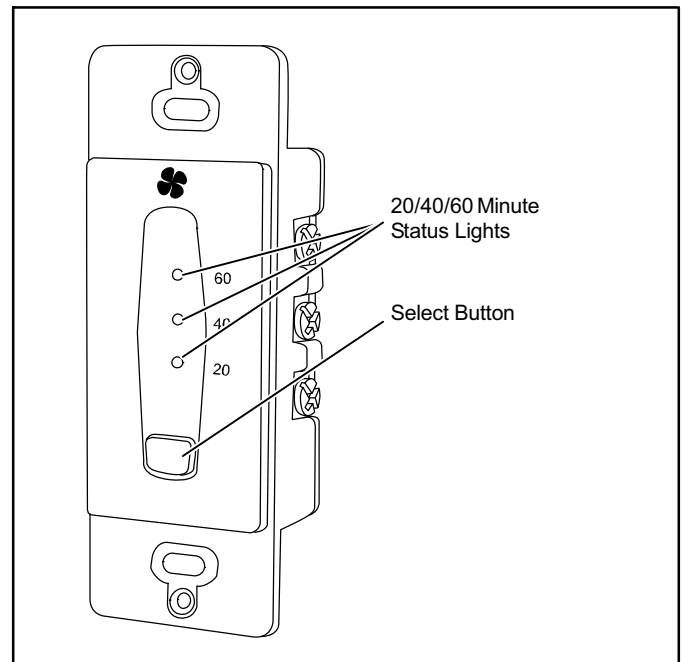


Figure 7. 20/40/60 Minute Timer (Y2169)

Installation Methods

There are three methods of installation for the HRV/ERV:

- Simplified installation (Page 14)
- Partially dedicated installation (Page 15)
- Fully dedicated installation (Page 16)

Sizing the Ductwork

The installer must ensure all ductwork is sized and installed as designed to ensure the system will perform as intended.

The amount of air (cfm) that the HRV/ERV unit 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 ductwork plus the number of fittings used in the ductwork.

Installing Ducting Between the HRV/ERV Unit and Living Areas in the House

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

All ducts should be kept short and have as few bends or elbows as possible to maximize airflow. Forty-five degree elbows are preferred to 90° elbows. Use “Y” tees instead of straight tees whenever possible.

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

Galvanized (rigid) 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.

A short length (approximately 12” [300mm]) of non-metallic flexible insulated duct should be connected between the HRV/ERV and the supply/exhaust duct system to avoid possible noise transfer through the duct system.

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



IMPORTANT

Applications such as greenhouses, atriums, swimming pools, saunas, etc. have unique ventilation requirements which should be addressed with an isolated ventilation system.

Installation Methods—Simplified (Return/Return)

Simplified Installation (Return/Return Method)

The simplified method draws stale air from the cold air return duct of the air handler/furnace and introduces an equal amount of fresh air farther downstream into the cold air return (see figures 8 and 9).

Key points

- The HRV/ERV unit must be balanced.
- It is mandatory (to eliminate recirculation) that either the furnace blower run continuously or HRV/ERV unit operation be interlocked with the furnace blower.
- The duct configuration may change depending on the HRV/ERV model. See specifications for your unit.
- Check local codes and authority having jurisdiction for acceptance.

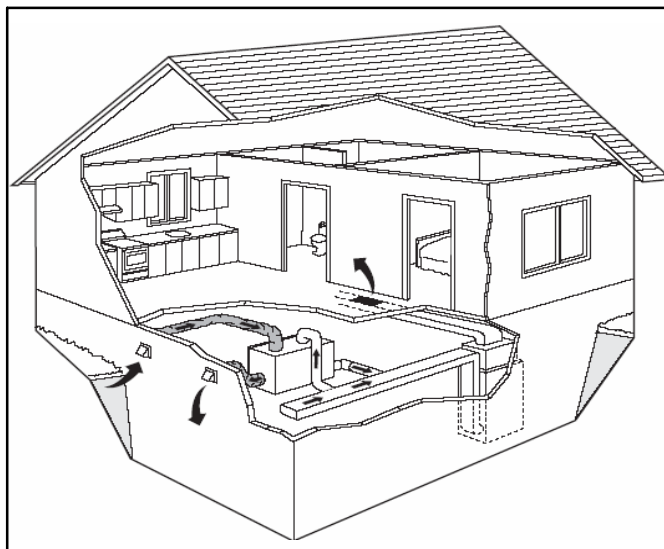


Figure 8. Simplified Installation (Return/Return)

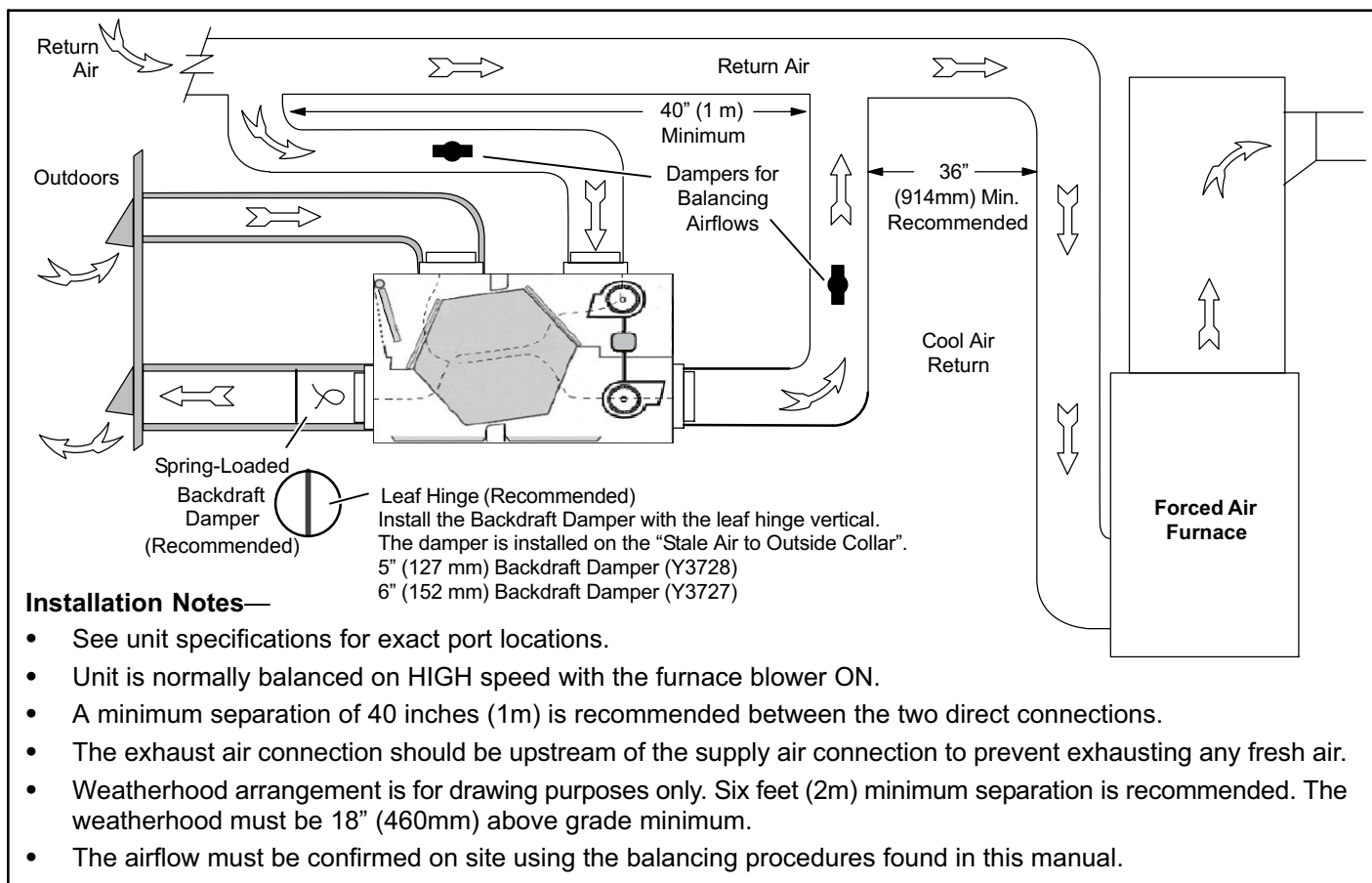


Figure 9. Direct Connection of both HRV/ERV Supply Air Stream & Exhaust Air Stream to Furnace Cold Air Return

Installation Methods—Partially Dedicated

Partially Dedicated Installation

The partially dedicated installation draws stale air from specific points in the house and introduces an equal amount of fresh air into the cold air return (see figures 10 and 11).

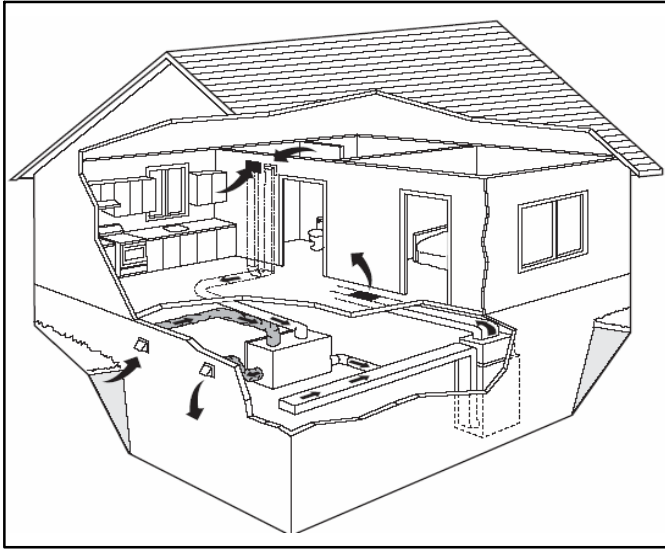


Figure 10. Partially Dedicated System

Stale air ducts should be installed in areas of the home where the poorest indoor air quality exists (bathrooms and kitchen). Each location with a stale air duct should have a timer to initiate high-speed ventilation. (Refer to Optional Timers on page 12.)

The air handler/furnace blower should be running when the HRV is operating to evenly distribute the fresh air throughout the house. (Refer to Interlocking the HRV to an Air Handler/Furnace Blower on page 24.)

Key points

- The HRV/ERV must be balanced.
- It is recommended that the furnace blower run continuously or HRV/ERV operation be interlocked with the furnace blower to evenly distribute the fresh air throughout the house. Refer to building code.
- The duct configuration may change depending on the HRV/ERV model. See specifications for your unit.
- Check local codes and authority having jurisdiction for acceptance.

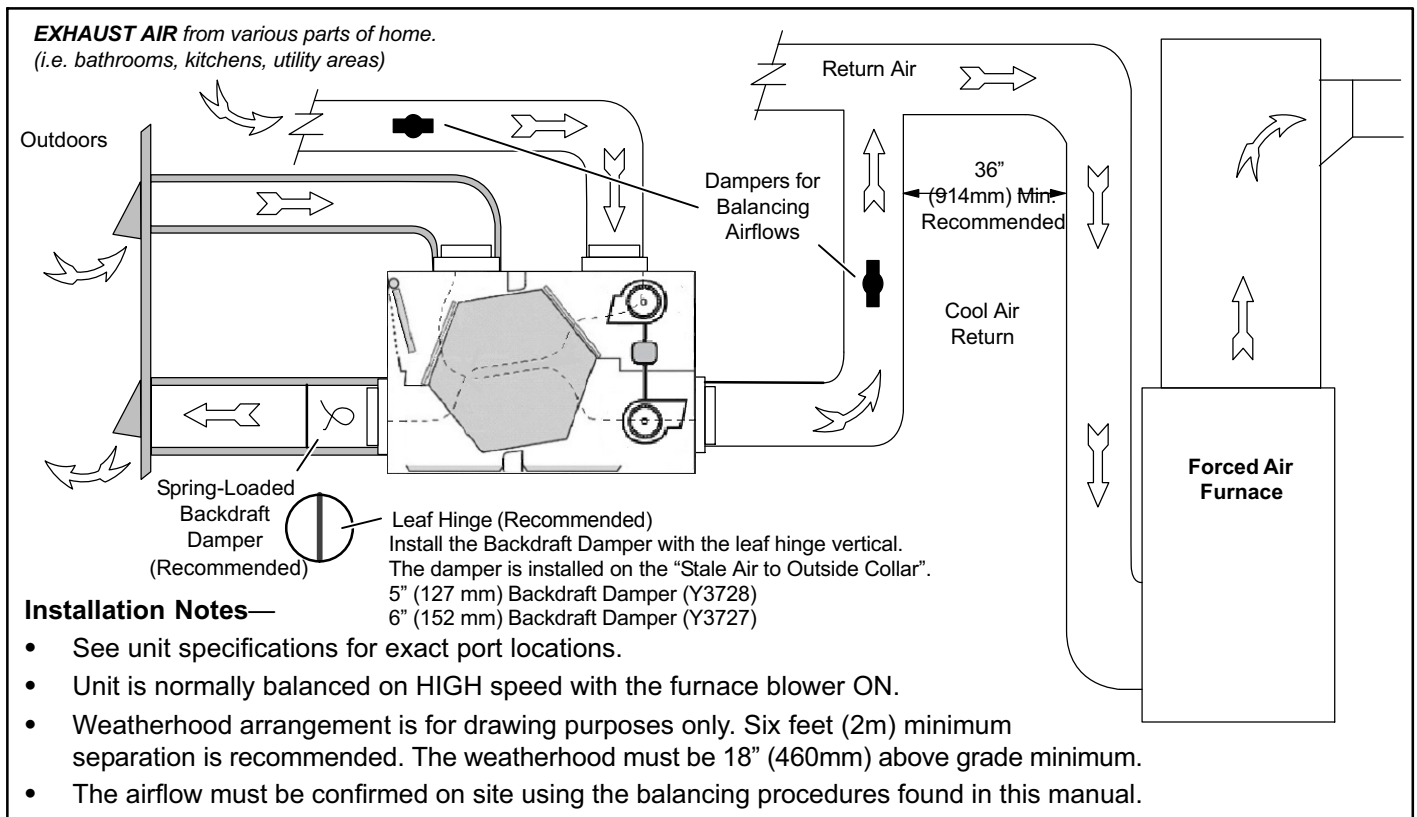


Figure 11. Direct Connection of Supply Air Stream to the Furnace Cold Air Return
(Stale air drawn from key areas of home)

Installation Methods—Fully Dedicated

Fully Dedicated Installation

The fully dedicated installation draws stale air from specific points in the house and delivers fresh air to specific locations of the house. This system is not connected to an air handler/furnace (see figures 12 and 13).

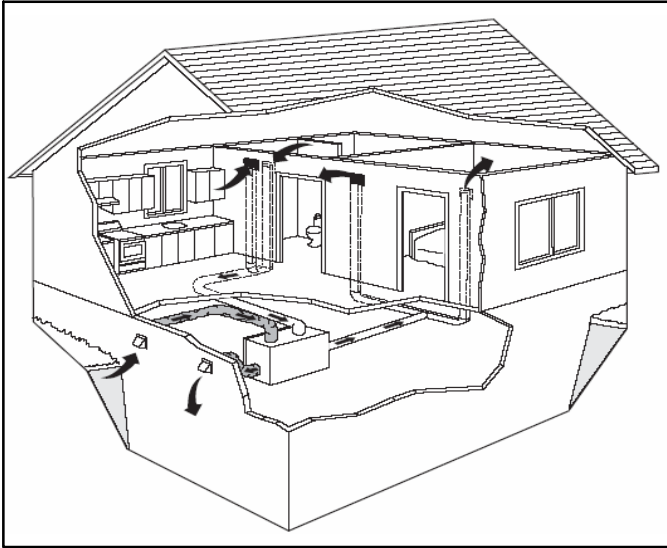


Figure 12. Fully Dedicated System

Stale air ducts should be installed in areas of the home where the poorest indoor air quality exists (bathrooms and kitchen). Each location with a stale air duct should have a timer to initiate high-speed ventilation. (Refer to Optional Timers” on page 12.)

Fresh air ducts should be installed 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 are recommended. (Refer to Grilles on page 19.) Special care should be taken in locating grilles if the floor is the only option available. Areas such as under baseboard heaters will help to temper the air.

Optional inline duct heaters are available for mounting in the supply air duct work to add heat if required.

Key points

- The HRV/ERV must be balanced.
- The duct configuration may change depending on the HRV/ERV model. See specifications for your unit.
- Check local codes and authority having jurisdiction for acceptance.

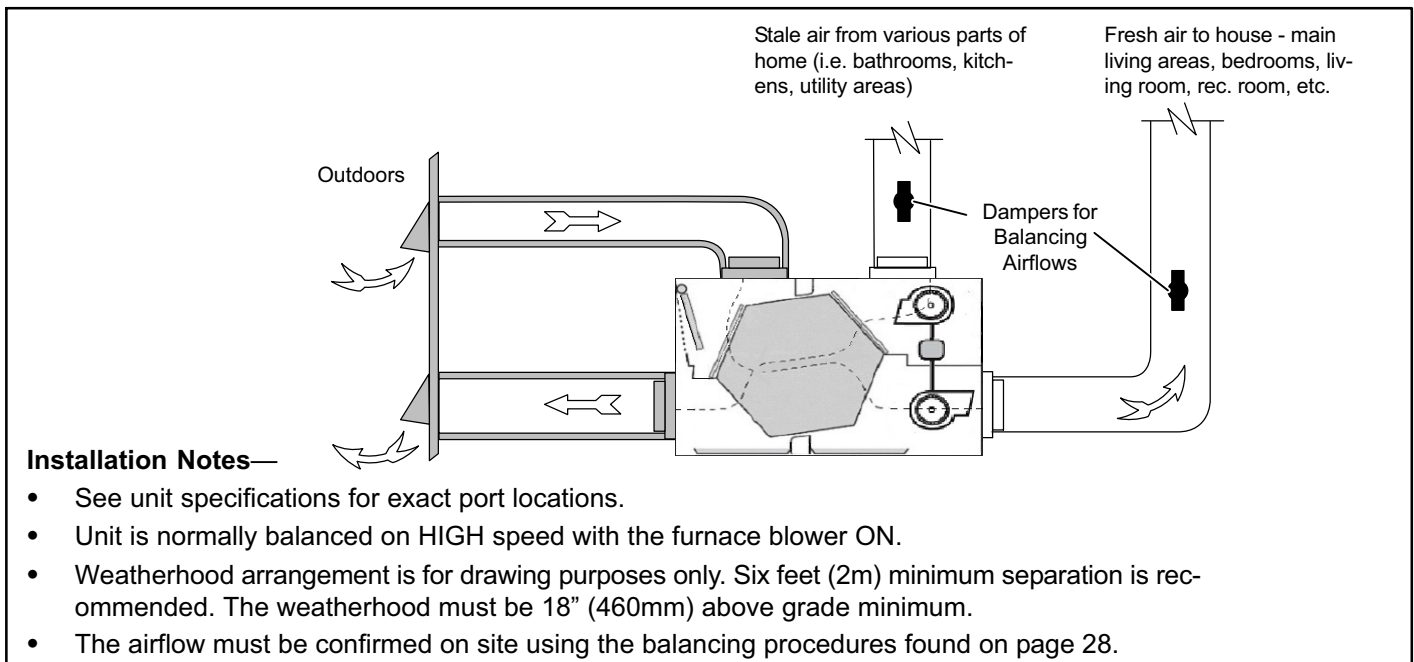


Figure 13. Fully Dedicated System (Not connected to forced air system)

WARNING



Electric Shock Hazard.

Can cause injury or death.

Disconnect all remote electrical power supplies before servicing. Unit may have multiple power supplies.

Unit must be connected to a grounded power supply in accordance with national and local codes.

CAUTION

Potential Water Damage.

Condensation can accumulate and cause water damage to equipment, finished surfaces and structures.

Unit must be installed level to ensure proper condensation drainage.

If possible, avoid installing units above areas or equipment that are sensitive to water damage. Otherwise, the use of an auxiliary drain pan under the installation is recommended.

Connect condensate drains in accordance with national and local codes.

P-Trap and tubing must be located below the HRV door with a minimum of 1/4" per foot downward slope away from unit.

Location Selection

It is recommended that the HRV/ERV unit be located in a

conditioned space where it will be possible to conveniently service the unit. Typically the HRV/ERV unit 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/ERV units due to:

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

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 unit from the basement floor joists.

Consideration should be given to unforeseen events such as a clogged drain line or water intrusion due to rain. This may cause water to form below the HRV/ERV. The use of an auxiliary drain pan under the installation should be considered.

CAUTION

Potential poor air quality results.

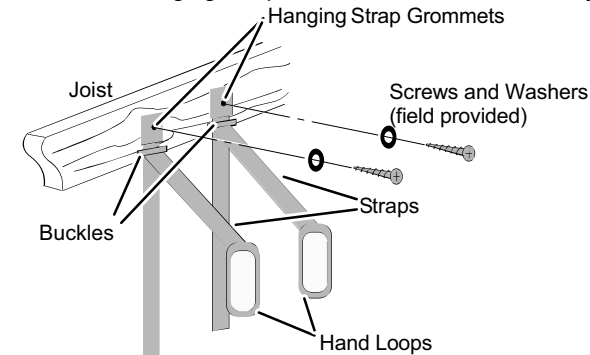
HRV3-195 & HRV3-300 defrost cycles will draw in air surrounding the defrost intake opening and distribute throughout the home.

Avoid locating defrost intake duct/opening in an area that may draw in undesirable temperatures or poor air quality. This is often achieved by drawing in air from a conditioned living space through a dedicated duct installed on the defrost intake fitting.

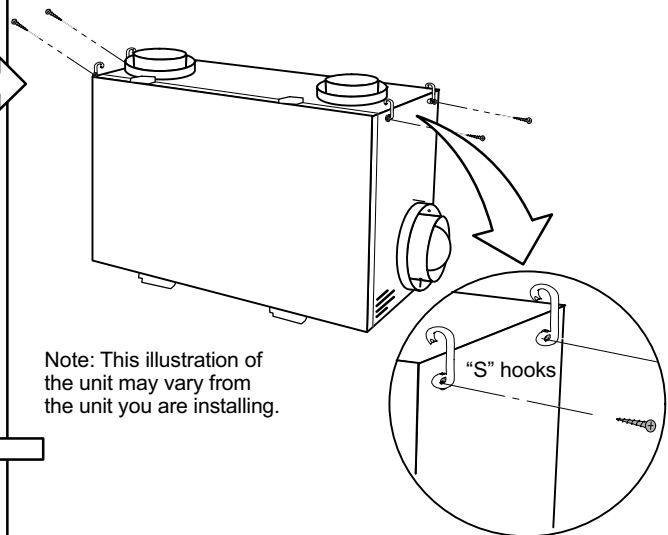
Suspending the Unit using adjustable hanging straps

Use 4 screws and 4 washers (field provided) to attach the hanging straps to the floor joists. The washer must be wider than the eyelet of the grommet on the hanging strap. By design, the adjustable hanging straps reduce the possibility of noise, resonance, and harmonics.

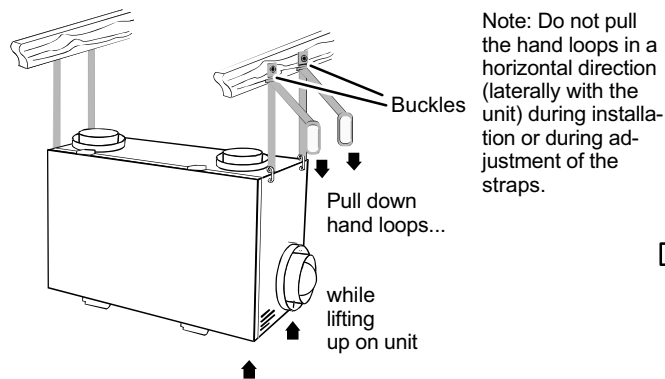
Step 1. Insert the screws and washers (field provided) through the Hanging Strap Grommets and fasten to the joists.



Step 2. Unscrew the 4 machine screws located on the upper side of the unit. Attach the "S" hooks and reinsert the machine screws.



Step 3. Hook the bottom grommets of the straps through the "S" hooks. Pull down vertically on the hand loops while lifting up the bottom of the cabinet. Repeat at opposite end of the unit,



Step 4. Level the unit from left to right and front to back.
 - Adjust the unit down by lifting up on the buckles.
 - Adjust the unit up by pulling down vertically on the hand loops while lifting up the bottom of the cabinet.

Step 5. Fold the hand loops and excess strap and secure with a nylon tie (field provided).

Figure 14. Suspending unit using provided Hanging Straps (HRV unit shown)

Installing Drain Connection (HRV unit only)

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

! CAUTION

Potential Freeze Conditions leading to Water Damage.

Condensation can accumulate and cause water damage to equipment, finished surfaces and structures.

Do not install HRV or route condensate drain lines in areas that can be subjected to freezing.

Potential Water Damage.

Unit must be installed level to ensure proper condensation drainage. Avoid installing units above areas or equipment that are sensitive to water damage.

Connect condensate drains in accordance with national and local codes.

P-Trap and tubing must be located below the HRV door with a minimum of 1/4" per foot downward slope away from unit.

The HRV cabinet has prepunched holes for the drain (see figure 15). Insert the drain spout through the hole in the drain pan. Be sure to install the "O-ring" (if supplied) which seals each spout to the pan. **HAND TIGHTEN** the washer and lock nut which hold the drain spout in place.

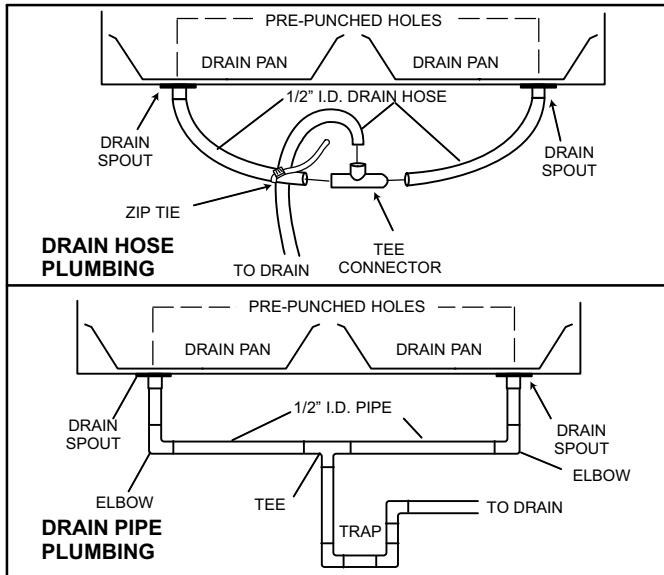


Figure 15. "P" Trap (HRV unit only)

Construct a P-Trap using the plastic tee connector (see Drain Hose Plumbing, figure 15). 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, creating a "trap." Pour a cup of water into the drain pan of the HRV after the drain connection is complete. This creates a water seal which will prevent odors from being drawn up the hose and into the fresh air supply of the HRV. (Fig. 15 also shows Drain Pipe Plumbing.)

NOTE - Secondary drain pan may be required to protect from condensate leakage, especially when unit is installed above living space.

Installing Grilles

Use adjustable grilles or diffusers to balance the flow rates into and out of various rooms. The grilles should not be adjusted after balancing the unit.

Install grilles or diffusers high on the wall or in the ceiling. Kitchen grilles must never be connected to a range hood. Install grilles at least 4 feet (1.2 m) horizontally away from the stove.

Install field-supplied balancing dampers external to the unit to balance the amount of stale air being exhausted with the amount of fresh air being brought into the house. (Refer to Air Flow Balancing on page 28.)

! CAUTION

Potential equipment malfunction or damage.

May require repairs and/or void warranty.

Do not install intake grille within 4 feet (1.2 m) of a kitchen stove or cooking surface that emit cooking vapors.

Kitchen Grille

The kitchen grille includes a removable grease filter. Most building codes require that kitchen grilles be equipped with a washable grease filter.

6" (152 mm) x 10" (254 mm)
18N48

Round Diffuser

The round diffuser is a fully adjustable grille which provides superior, quite air distribution. These diffusers are available:

4" (102 mm)	92E54
5" (127 mm)	92E55
6" (152 mm)	92E56
8" (203 mm)	56N81

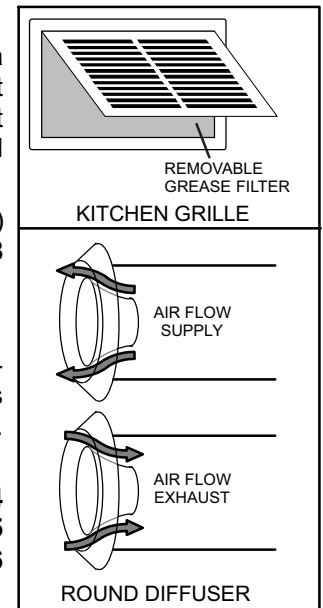


Figure 16. Kitchen Grille & Round Diffuser

Installing Weatherhoods

Installing Ducting from Weatherhoods to the (HRV/ERV) Unit

The inner and outer liners of the flexible insulated duct must be clamped to the sleeve of the weatherhoods (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 acoustical sealant) will seal the inner flexible duct to both the HRV/ERV port and the weatherhood prior to clamping.

To minimize airflow restriction, the flexible insulated duct that connects the two outside weatherhoods to the HRV/ERV unit should be stretched tightly and be as short as possible.

Twisting or folding the duct will severely restrict airflow.

Hard (rigid) ducting which has been sealed and insulated should be used for runs over 10' (3.3m). Refer to local building codes.

Intake Weatherhood Requirements

Observe the following when installing the intake weatherhood:

1. Should be located upstream (if there are prevailing winds)
2. At least 6' (2m) from the exhaust weatherhood
3. At least 6' (2m) away from dryer vents and furnace exhaust (medium or high efficiency furnaces)
4. A minimum of at least 6' (2m) from driveways, oil fill pipes, gas meters, or garbage containers
5. At least 18" (457mm) above the ground, or above the depth of expected snow accumulation
6. At least 3' (1m) from the corner of the building
7. DO NOT locate in a garage, attic or crawl space
8. AFTER installing the weatherhood, its outside perimeter must be sealed with exterior caulking

Exhaust Weatherhood Requirements

Observe the following when installing the exhaust weatherhood:

1. At least 6' (2m) from the ventilation air intake
2. At least 18" (457mm) above ground or above the depth of expected snow accumulation
3. At least 3' (1m) away from the corner of the building
4. Not near a gas meter, electric meter, or a walkway where fog or ice could create a hazard
5. Not into a garage, workshop, or other unheated space
6. AFTER installing the weatherhood, its outside perimeter must be sealed with exterior caulking

Weatherhoods

Fixed covered weatherhoods have a built-in bird screen with a 1/4" (6mm) mesh to prevent foreign objects from entering the ducting labeled SUPPLY and EXHAUST.

5" (127 mm) Part no. **92E66**

6" (152 mm) Part no. **95P07**

7" (203 mm) Part no. **17N11**

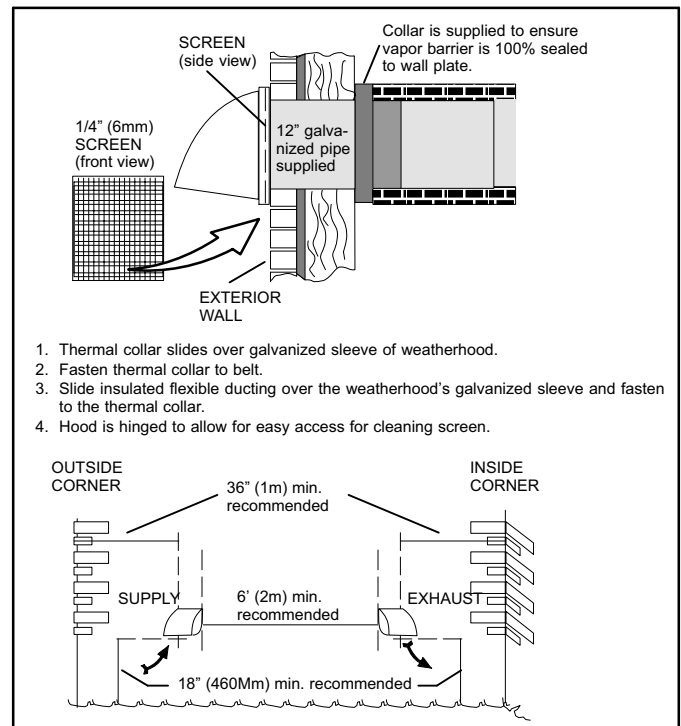


Figure 17. Weatherhood Installation

CAUTION

Potential equipment malfunction or damage.

May require repairs and/or void warranty.

Snow accumulation may block airway of weatherhoods. Install intake and exhaust weatherhoods at least 18 inches (457 mm) above the ground or above the depth of expected snow accumulation.

Install intake and exhaust weatherhoods with at least 6 feet distance between openings to prevent short circuit air routes. Local codes may require a greater distance between openings.

Units with Dual Hood Kit

The Dual Hood Kit (Y3813) offers the benefit of requiring only one 6" hole in the exterior wall to complete the connections for fresh air intake and stale air exhaust. The pressure drop/airflow charts should be referred to when matching the Dual Hood to the HRV / ERV.

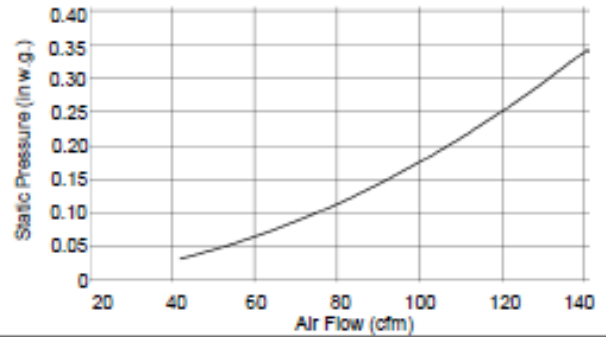
Equipment Performance with the Dual Hood

These charts and table illustrate the External Static Pressure (ESP) and the corresponding airflows of Lennox HRVs and ERVs, when using the Dual Hood in the system. Perform all calculations for duct sizing in the usual manner (taking into account measured and equivalent lengths).

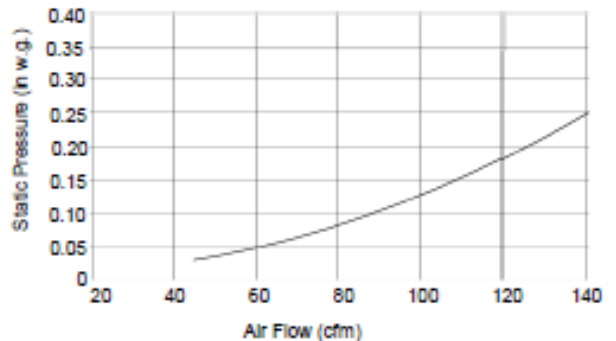
Model	Airflow (cfm) See Note			Compatible with Dual Hood?
	0.3	0.4	0.5	
HRV5-200-TPD	128	120	110	Yes
HRV3-150-TPD	115	104	95	Yes
HRV3-150-TPF	120	107	100	Yes
HRV3-095	66	60	n/a	Yes
HRV5-150	115	103	87	Yes
HRV3-195	125	114	107	Yes
HRV3-300	n/a	n/a	n/a	NO
ERV3-150	107	98	81	Yes
ERV3-200	125	118	101	Yes

Note — Normal system design ESP is 0.3 to 0.5

Intake Airflow Chart



Exhaust Airflow Chart



Component Rating

All plastic components are rated UL 94V-0.
Foam components are rated 5/50 Flame spread/smoke development.

IMPORTANT

Contact your local building authority before installation of the Dual Hood kit to verify compliance with local building codes.

Refer to the installation instruction (507040-01) which come with the Dual Hood for complete installation instructions.

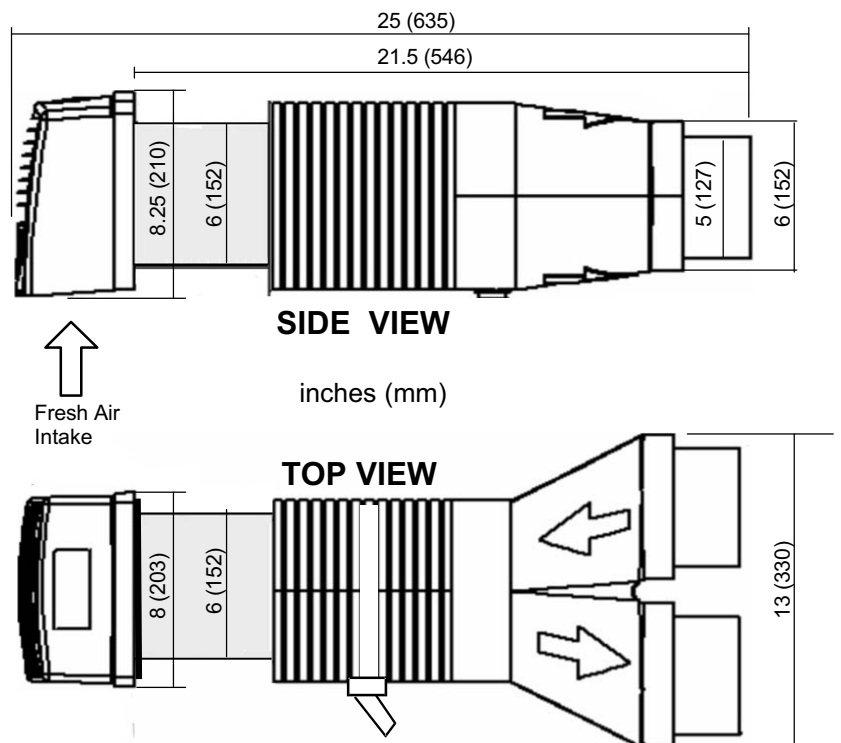


Figure 18. Dual Hood Dimensions and ratings

Installing Main Control

The main control may be installed onto a 2" x 4" electrical switch box or it may be surface-mounted onto a wall.

Only one master control should be installed to a ventilation system (Note, the face plate on this illustration may not be exactly the same as yours).

1. Remove the Operating Instructions card from the top of the control (see figure 19, detail A).
2. Separate the faceplate from the back plate by firmly pulling apart (detail B). Be careful not to damage faceplate contact pins.
3. Place the back plate of the control in the desired location on the wall and pencil mark the wall in the center of the wire opening, top screw hole and bottom screw hole (detail C).
4. Remove the back plate and drill a 3/8" opening in the wall to allow for the wire opening and a 1/8" hole for the wall anchors for the top and bottom screw holes (detail D).
5. Pull 3 wires (20 gauge, min.) through the opening in the wall and the wire opening of the back plate (detail C).

6. Connect red, green and yellow to the wiring terminals located on the back plate (detail C).
7. Secure a single wire to the wire retainer located on the back plate (detail C).
8. Attach the back plate to the wall using the 2 supplied screws and anchors.
9. Attach the faceplate to the back plate (detail B). BE CAREFUL to correctly align the faceplate to avoid damaging the faceplate contact pins.
10. Insert the Operating Instructions card into the control (detail A).
11. Connect the 3 wires (20 gauge, min.) to the terminal block located on the ventilator (detail E).

! IMPORTANT

Inspect contact pins for damage or misalignment. Pins must be perpendicular to printed circuit board and evenly spaced for proper alignment to face plate.

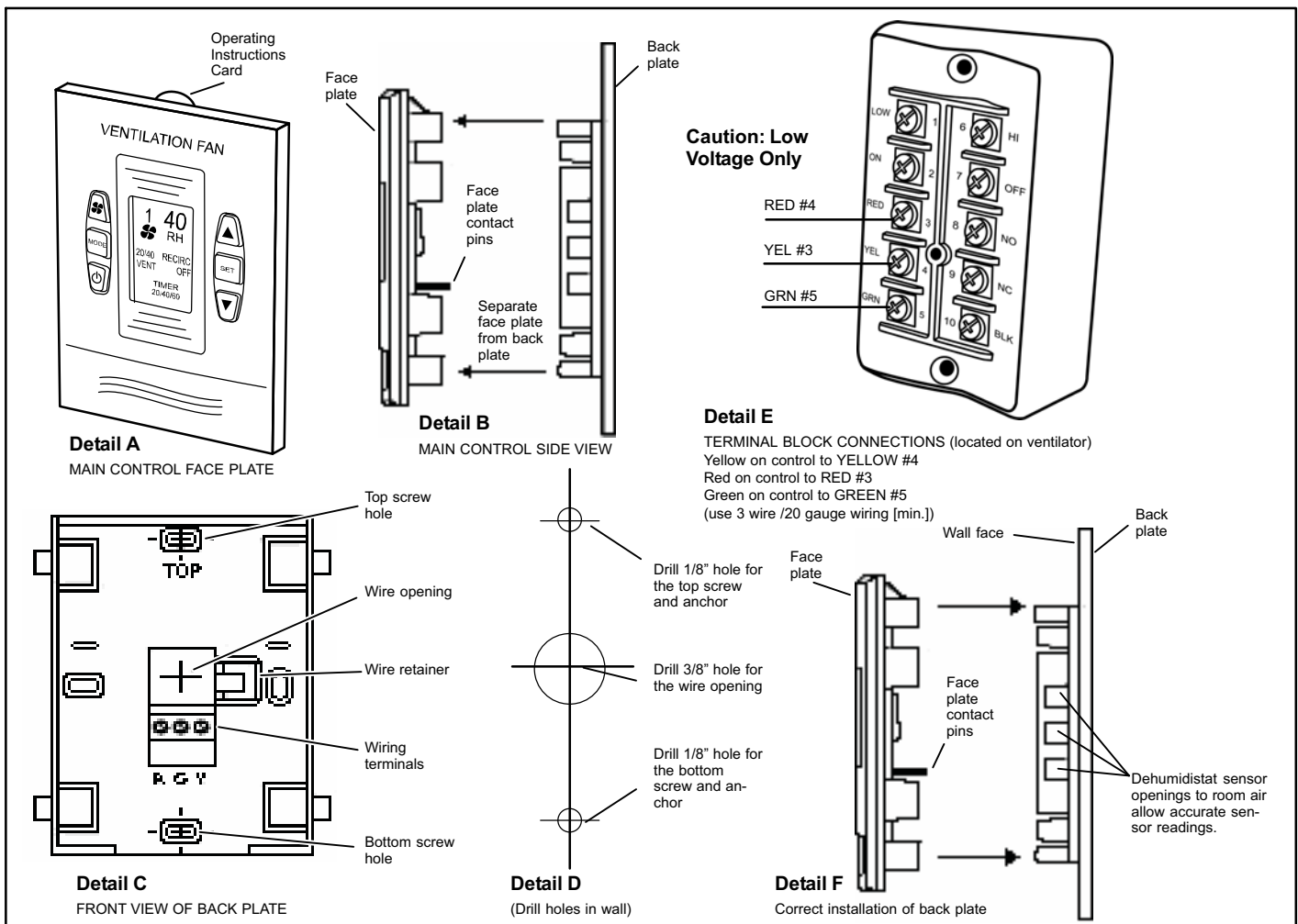


Figure 19. Main Control Installation

Setting “Standby” when using an Optional Main Control

The HRV/ERV will be “fully-off” when the OFF position is selected on the optional Main Control. Timers and/or other controls will not function when the HRV/ERV is in the OFF position.

The “fully-off” feature can be modified to “standby-off” by adding a jumper on the Terminal Block between 2 (ON) and 3 (RED) (see figure 20).

“Standby” can also be achieved by setting the main control to the ON position and selecting speed 0 (see note). Timers and/or additional controls will initiate high speed ventilation when activated.

NOTE - Speed 0 is not available on all controls.

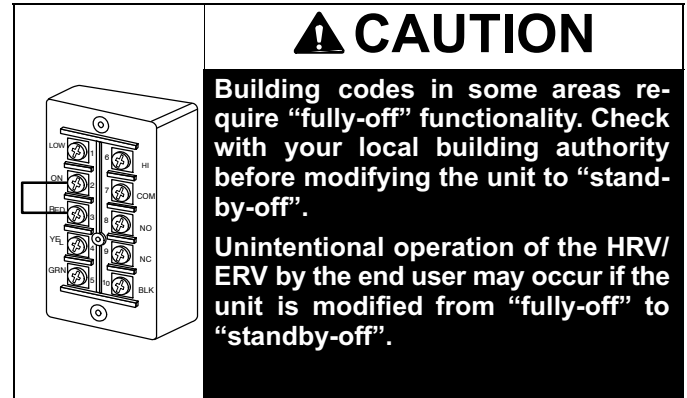


Figure 20. Terminal Block on HRV/ERV

Operating HRV/ERV without an Optional Main Control & Adding Dry Contact Controls

A Jumper must be in place between 2 (ON) and 3 (RED) on the Terminal Block to activate the HRV/ERV for timers and/or dry contact controls.

Adding Dry Contact Controls (see figure 21):

Low speed

A jumper between 2 (ON) and 1 (LOW) initiates low speed ventilation.

High speed

A jumper between 2 (ON) and 6 (HI) initiates high speed ventilation.

Dehumidistat

A dry contact for a dehumidistat is connected between 2 (ON) and 10 (BLK).

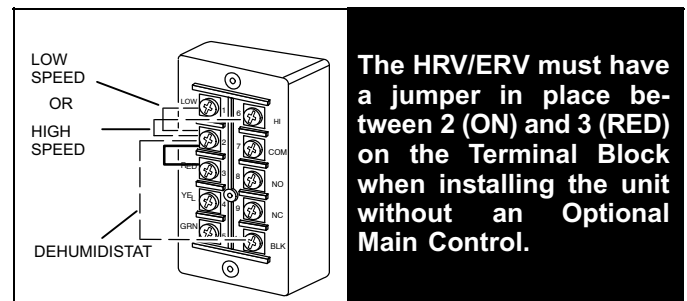


Figure 21. Adding Dry Contact Controls on Terminal Block on HRV/ERV

Installing/Operating Fan Timers

Installing 20 or 20/40/60 minute fan timers

NOTES –

- Timers mount in standard 2" x 4" electrical boxes.
- Wire multiple timers individually back to the unit.
- Use 3 wire 20-gauge (min.) low-voltage wire.

Operating 20 or 20/40/60 minute fan timers

Press and release the select button to activate a 20, 40, or 60 minute high-speed override cycle. The high-speed status light will illuminate and the unit will run on high-speed ventilation for the selected time.

The high-speed status light will dim after 10 seconds of run time.

The high-speed status light will flash during the last 5 minutes of the cycle.

All timers connected to the unit will illuminate for the duration of the override when the select button is pressed.

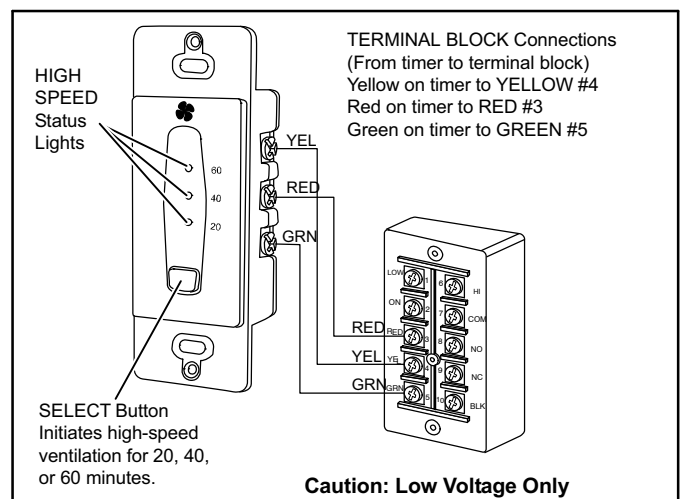


Figure 22. 20 or 20/40/60 Minute Timer Installation

Lockout mode

The timer can be set to lockout mode (timers disabled) as follows: press and hold SELECT for 5 seconds; then the high-speed status light will flash; then release the button. The timer is now in lockout mode. If SELECT is pressed during lockout mode, the high-speed status light will momentarily illuminate but no override will be initiated.

If lockout mode is initiated when the timer is activated, the timer will continue it's timed sequence but will not allow any further overrides to be initiated. To unlock lockout mode, press and holding SELECT for five seconds; then the high-speed status light will stop flashing; release the button. The timer will now operate normally.

Installing mechanical timers

The mechanical timer is a two-wire "dry contact" timer. A

jumper wire must be connected between ON and RED. Connect the 2 timers wires to ON and HI (see figure 23).

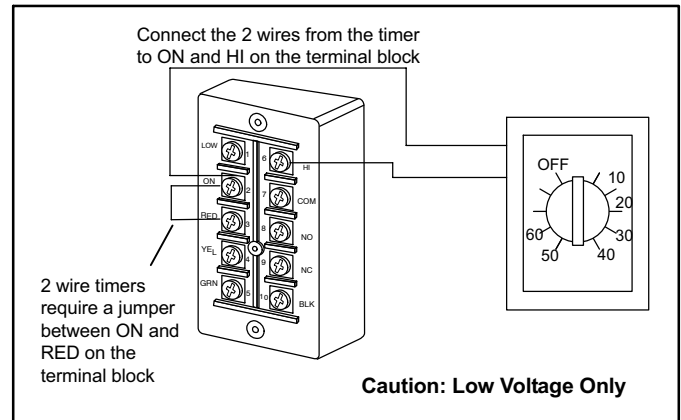


Figure 23. Mechanical Timer Installation

Interlocking the HRV/ERV Blower to Air Handler/Furnace Blower

Connecting the HRV/ERV unit as illustrated will ensure the air handler/furnace blower motor is operating whenever the HRV/ERV blower is ventilating.

The HRV/ERV unit must be interlocked to the furnace/air handler with a simplified (return/return) installation and should be interlocked with a partially dedicated installation (see figure 24).

⚠ CAUTION

Potential equipment malfunction or damage.

May require repairs and/or void warranty.

When interconnecting HRV/ERV ductwork with HVAC duct system, HRV/ERV blower must be interlocked with HVAC blower. System air circulation must not be allowed to backflow through HRV/ERV.

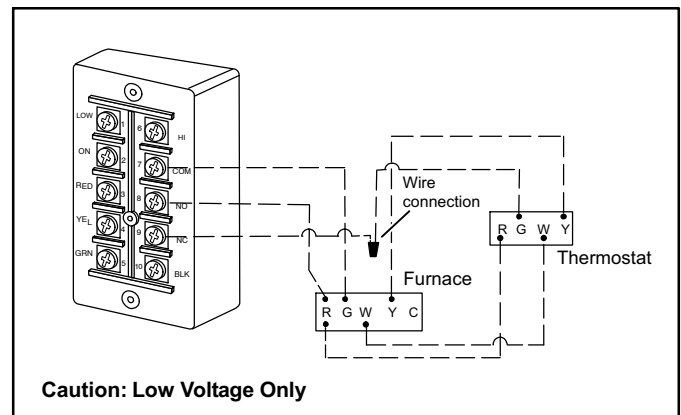


Figure 24. Interlocking HRV/ERV Unit Blower to the Air Handler/Furnace Blower

Electrical Connections

Plug the HRV/ERV directly into a standard designated 120VAC electrical outlet. Use of an extension cord is NOT RECOMMENDED for this appliance.

If further wiring is required, then a licensed electrician

should make all electrical connections. It is recommended that a separate 15 amp/120 volt circuit be used.

Figures 25 thru 27 (Page 25 thru Page 27) show wiring diagrams for the units described in this manual.

⚠ WARNING

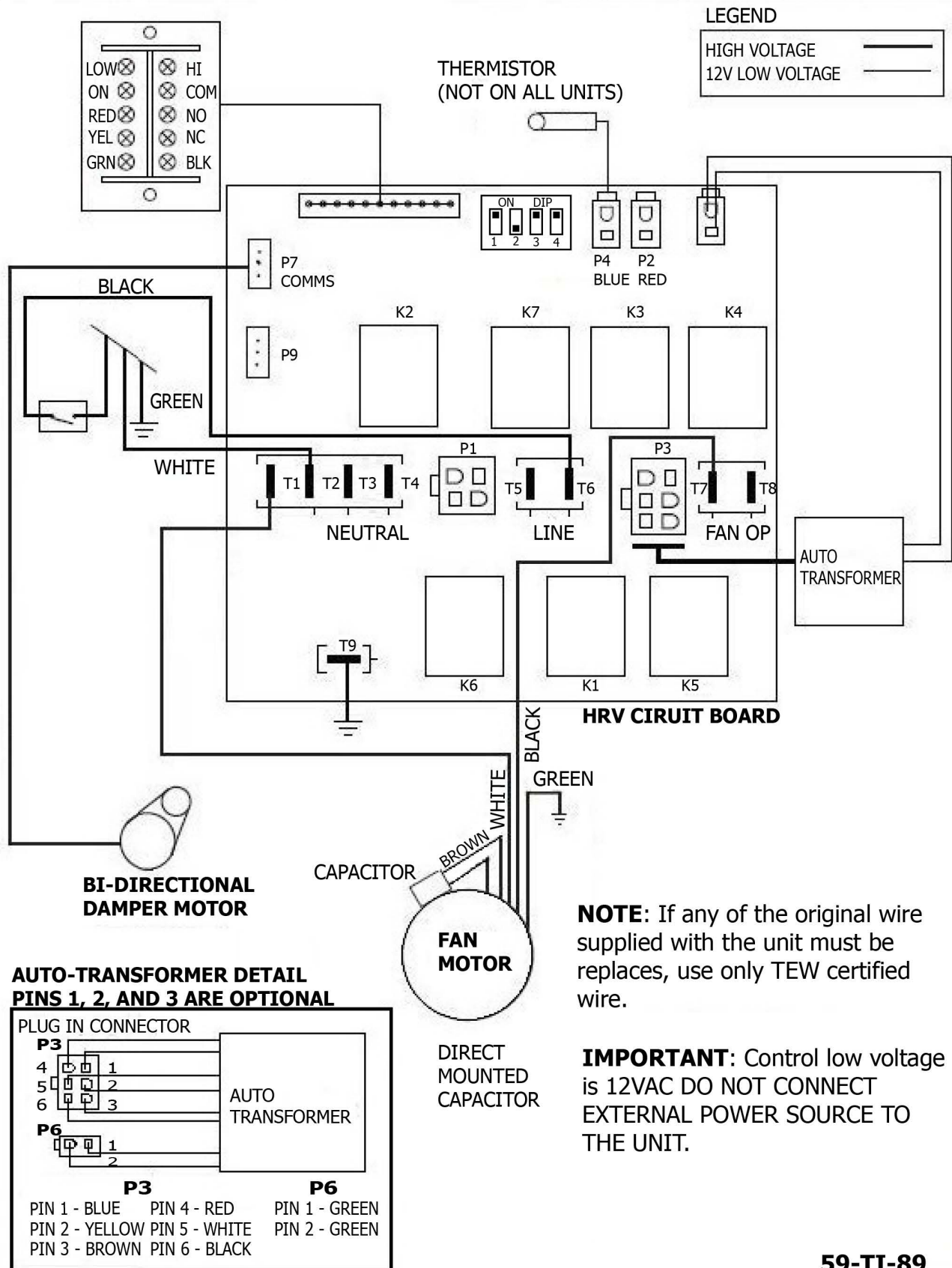
Electric Shock Hazard

Can cause injury or death.

Confirm the polarity of the 120 Volt supply source at the receptacle for the HRV/ERV device. The door safety switch of the HRV/ERV can cause an electrical shock hazard if the polarity is not properly wired. The grounding means of the HRV/ERV device should also be confirmed.

The proper polarity and ground can be checked at the receptacle using a 3-prong plug device called a 'polarity tester'. Another method to check for proper polarity is to use a volt-ohm meter to check for voltage from hot (black) to ground (chassis) at the HRV/ERV.

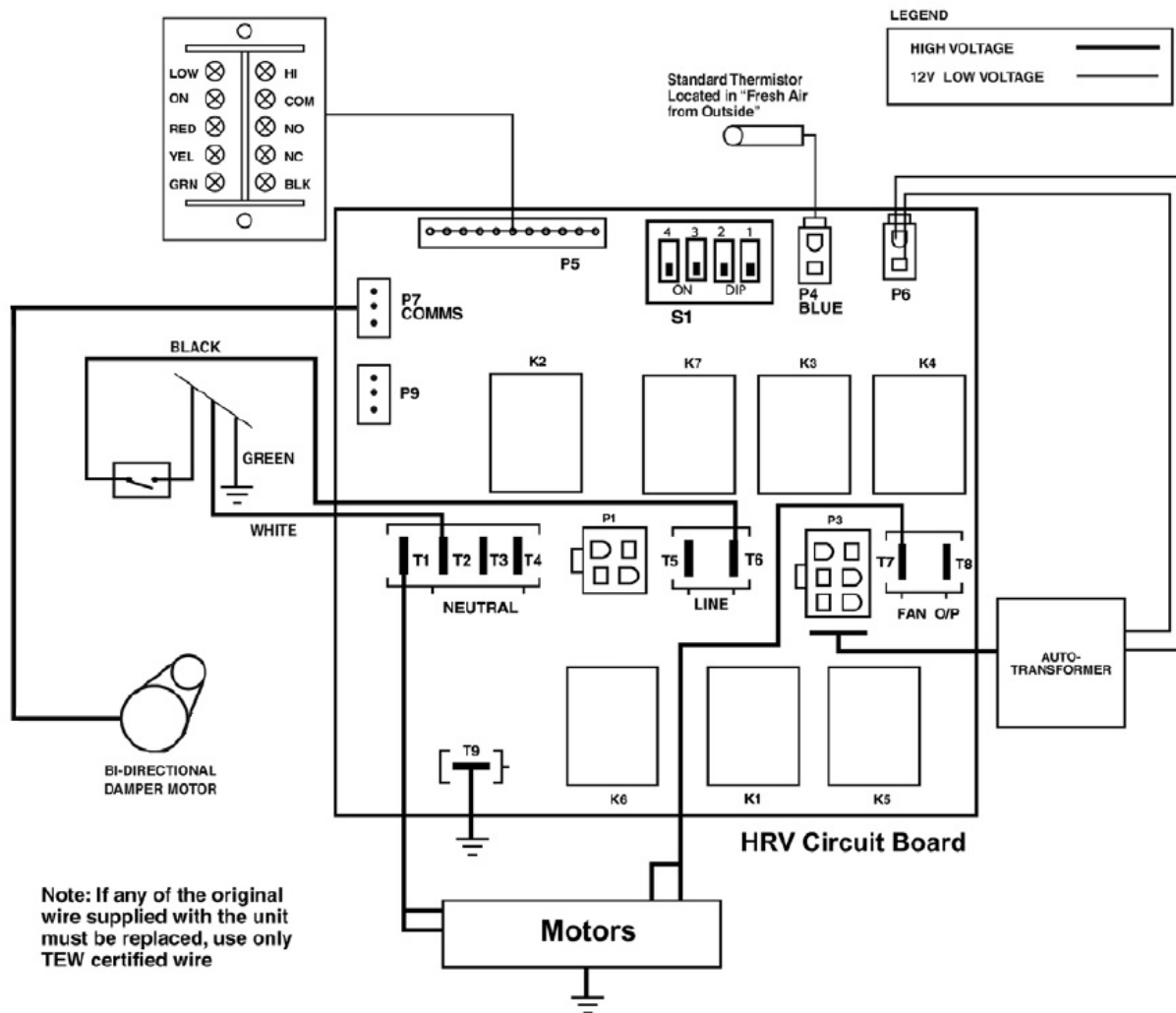
CAUTION: ELECTRICAL CONTROL PANEL, SERVICE BY ELECTRICIAN ONLY



59-TI-89

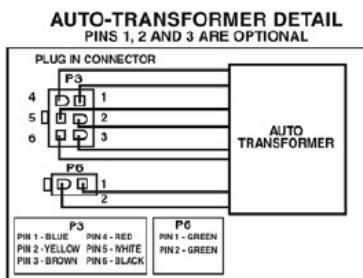
Figure 25. Residential Wiring Diagram
HRV3-095, HRV5-150, HRV3-195, HRV3-300, ERV3-150, ERV3-200

CAUTION: ELECTRICAL CONTROL PANEL, SERVICE BY ELECTRICIAN ONLY



Note: If any of the original wire supplied with the unit must be replaced, use only TEW certified wire

IMPORTANT: Control low voltage is 12VAC
DO NOT CONNECT EXTERNAL POWER SOURCES TO THE UNIT.



FAN MOTOR DETAILS

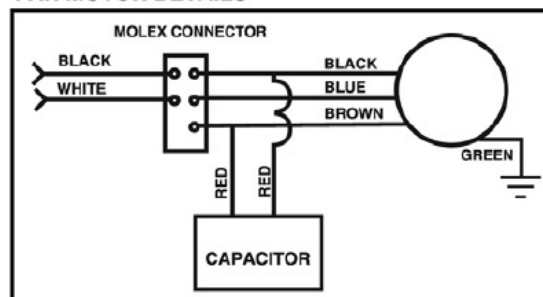


Figure 26. Residential Wiring Diagram HRV3-150-TPD and HRV5-200-TPD

CAUTION: ELECTRICAL CONTROL PANEL, SERVICE BY ELECTRICIAN ONLY

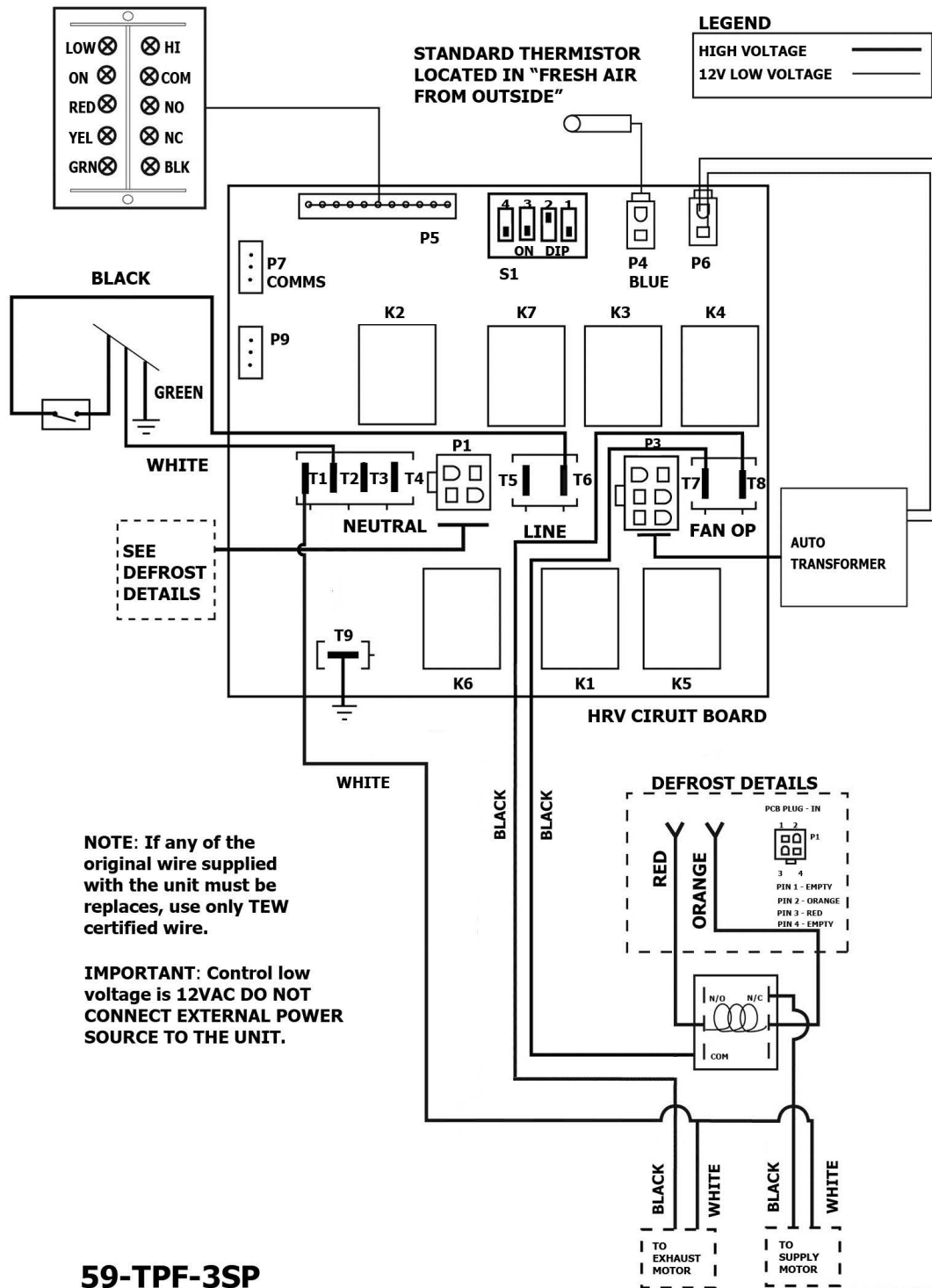


Figure 27. Residential Wiring Diagram HRV3-150-TPF

Installer Selectable High Speed Settings

The circuit board on this unit has adjustable DIP switches to select the maximum air flow at high speed. Adjusting high speed can be useful to accurately satisfy the calculated ventilation rate. The chart below indicates how to adjust high speed to High Speed 4 and High Speed 3. Refer to the specification pages in the manual for the air flow rates for Speeds 5, 4 and 3. The factory setting is High Speed 5.

NOTE - Low speed is not adjustable.

Description	Switch Position 1	Switch Position 2	Switch Position 3	Switch Position 4
High Speed 5 factory setting	Factory setting ON	Leave on factory set- ting	ON	ON
High Speed 4			OFF	ON
High Speed 3			ON	OFF

The orientation of the circuit board in the electrical box may differ from this illustration

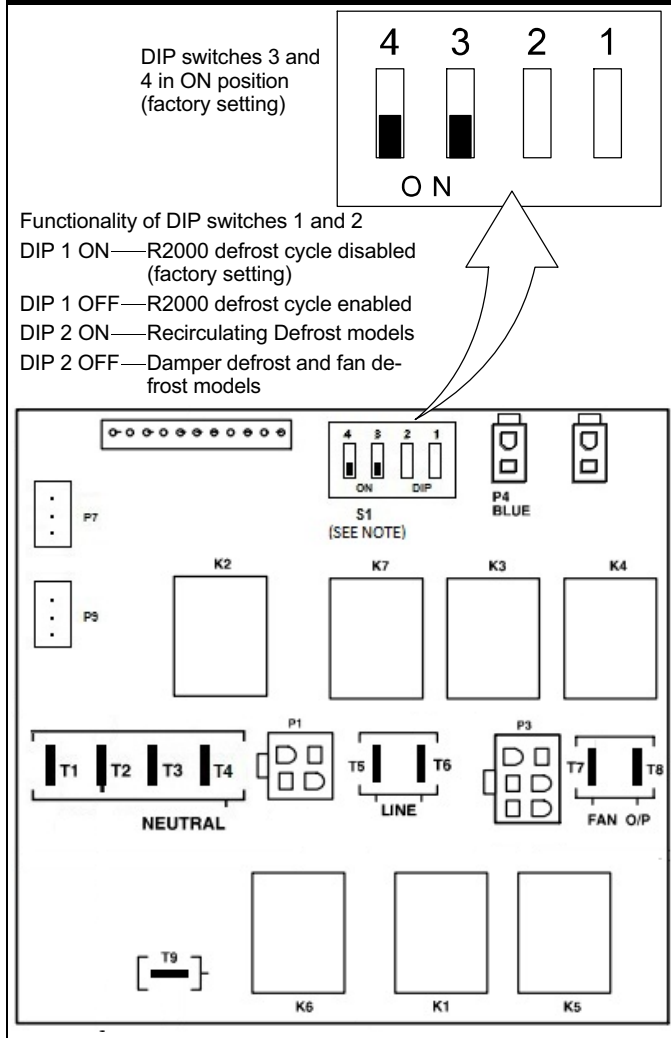


Figure 28. Speed Settings

⚠ DANGER

Risk of Carbon Monoxide Poisoning and/or Explosion.

Can cause injury or death.

Combustion and flue gases from heating appliances must never be allowed to enter living spaces.

HRV/ERV unit must be properly balanced to prevent negative pressure in structure. Negative pressure can cause back-drafting of combustion gases in other household appliances such as Gas Furnaces, Oil Furnaces, Hot Water Heaters, Wood Stoves, Fireplaces, etc.

(5-Port HRV models only) Defrost cycles will cause negative pressure in equipment room. Install ductwork and route to areas that do not contain appliances with vented combusted gases.

Never connect a return or supply duct to other heating units such as fireplaces, wood stoves.

⚠ CAUTION

Potential Condensation Damage.

Condensation can cause damage to building structures.

Ensure proper HRV/ERV balancing. Excessive positive pressure in a home can force warm/moist indoor air through wall insulation towards external walls. In cold weather, this may cause unseen condensation to collect on the interior surfaces of external walls.

Airflow Balancing

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

1. The HRV/ERV unit may not operate at its maximum efficiency.
2. A negative or positive air pressure may occur in the house.
3. The (HRV) unit may not defrost properly.
4. Failure to balance HRV/ERV units properly may void warranty.

Airflow Balancing (Cont'd)

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

Read the application warning in Clearances and Requirements section of this manual (see page 7).

Balancing Preparation

1. All sealing of the duct system has been completed.
2. All of the HRV/ERV system components are in place and functioning properly.
3. Balancing dampers are fully open.
4. Unit is on HIGH speed.
5. Airflow 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 airflow.
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 the Unit

Balance the unit by measuring the unit's incoming fresh and exhausting stale airflows and dampering down the higher airflow to match the lower airflow.

Airflow Measuring Gauges

Airflow measurement is achieved by using a gauge with an airflow measuring attachment connected to the high-pressure and the low-pressure side of the gauge. Use a Digital Manometer (reading down to 0 with resolution of 0.001 in. w.g.) or a Magnehelic Gauge for airflow measurement.

Note: A Magnehelic Gauge with a scale of 0 to 0.25 in. w.g. is necessary for using with a Pitot Tube and Magnehelic Gauge with a scale of 0 to 1.00 in. w.g. is necessary for using on Door Port Balancing)

Gauge Attachments

Common gauge attachments for measuring HRV/ERV airflows are:

- The pitot Tube - This will measure the airflow in the ductwork for any HRV/ERV.
- Door Port Gauge Tube Set - This will measure the airflow using the door ports for models HRV3-150-TPD/TPF, HRV5-150-200
- Flow Stations - These are installed into the ductwork.

Pitot Tube Balancing Procedure

1. Operate all mechanical systems that have influence on the ventilation system at high speed. These systems include the HRV/ERV unit itself and the air handler/furnace (if applicable). This will provide the maximum pressure that the system will need to overcome, and allow for, an accurate system balance.
2. Drill two small holes in the duct (about 3/16"), one hole 3 feet downstream of any elbows or bends, and another 1 foot upstream of any elbows or bends. These are recommended distances but the actual installation may limit the amount of straight duct.
3. Connect the Pitot Tube to the Digital Manometer or Magnehelic Gauge. 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.
4. Insert the Pitot tube into the duct, pointing the tip into the airflow.
5. For general balancing, it is sufficient to move the Pitot tube around in the duct to take an average or typical reading. Repeat this procedure in the other (supply or return) duct.
6. Determine which duct has the highest airflow (highest reading on the gauge). Then damper that airflow back to match the lower reading from the other duct. The flow should now be balanced.
7. Refer to next page for illustrations of Airflow Balancing Using the Pitot Tube.

Determining the Actual Airflow in CFM

Actual airflow 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 airflow velocity based on the velocity pressure indicated by the gauge. This velocity will be either feet per minute or meters per second. To determine the actual airflow, multiply the velocity by the cross-sectional area of the duct being measured.

This is an example for determining the airflow in a 6" duct with a Pitot tube reading of 0.025 inches of water. From the chart, this equates to 640 feet per minute.

The 6" duct has a cross-sectional area equal to:

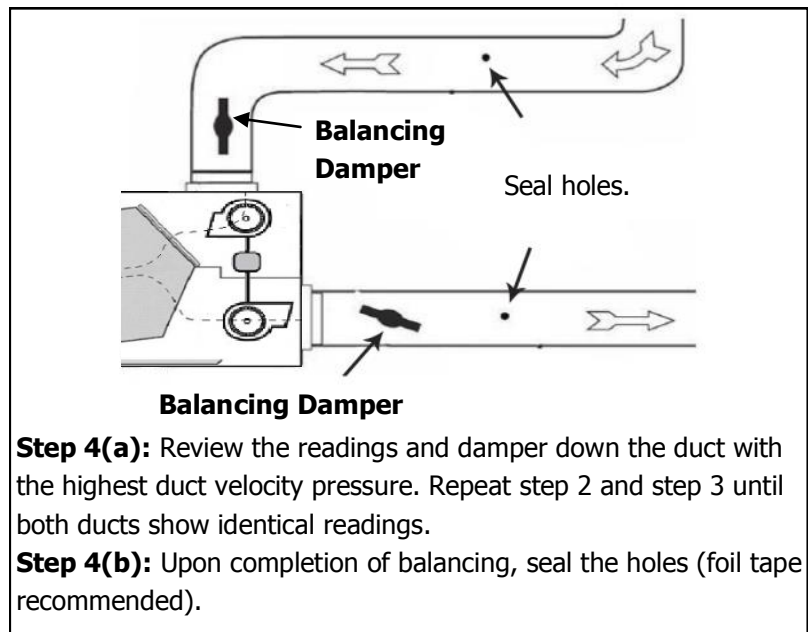
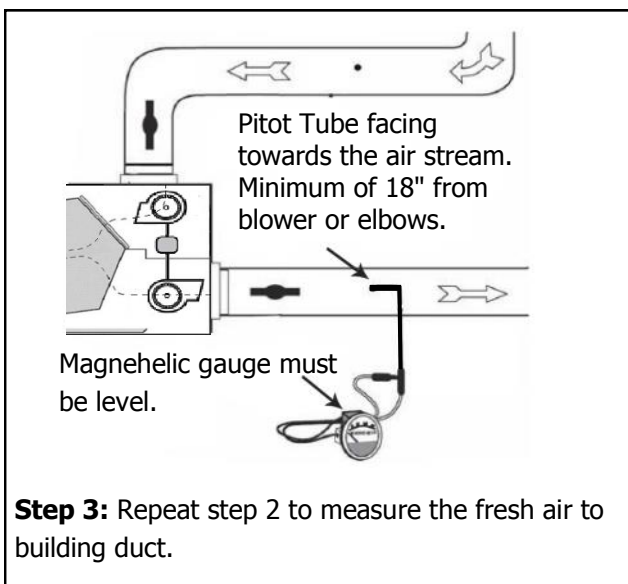
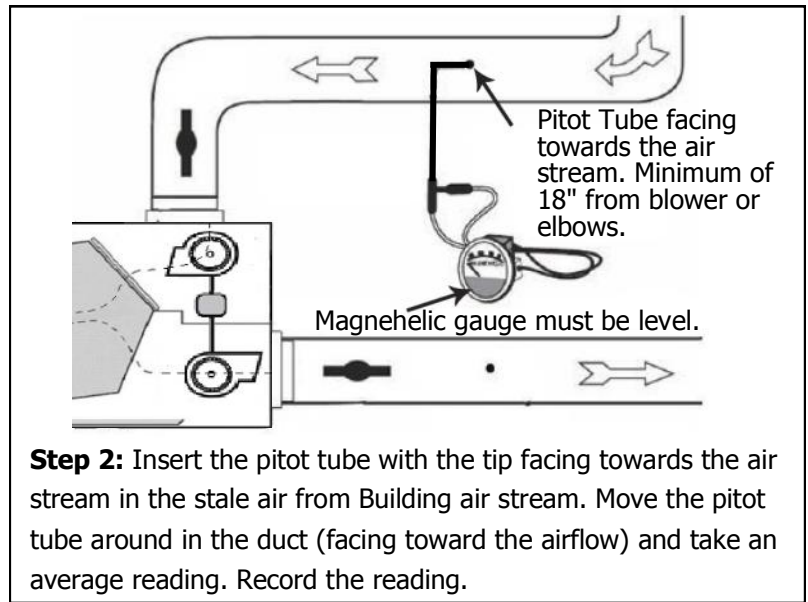
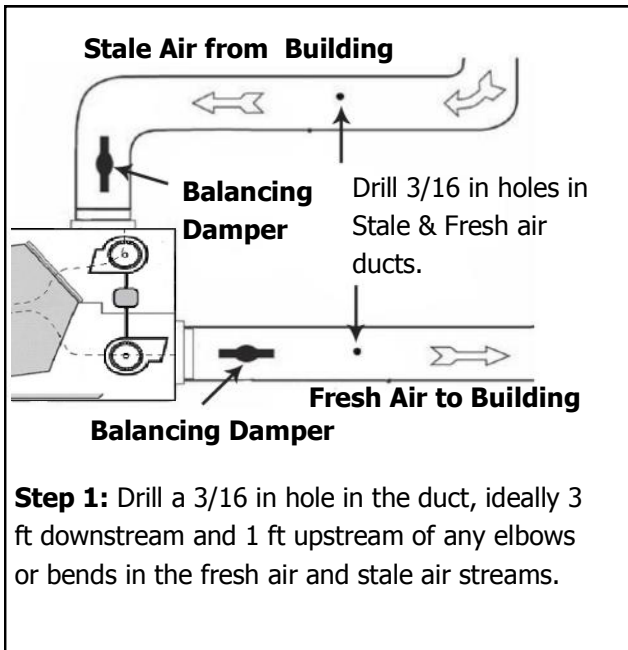
$$[3.14 \times (6"/12)^2]/4 = 0.2 \text{ sq. ft.}$$

The airflow is then $640 \text{ (ft./min.)} \times 0.2 \text{ (sq. ft.)} = 128 \text{ cfm.}$

The cross sectional area of some common round duct is:

- 5" diameter duct has 0.14 sq. ft. cross-section area
- 6" diameter duct has 0.20 sq. ft. cross-section area
- 7" diameter duct has 0.27 sq. ft. cross-section area

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



Balancing Dampers

Balancing Dampers are located in the round collars of the HRV5-150, ERV3-150, ERV3-200 and the oval collars of the HRV3-150TPD/TPF, HRV5-200TPD. Installations where the HRV is ducted directly to the return of a furnace or air handler may require additional dampering on the fresh air to building duct. This is due to the high return static pressures found in some forced air installations.

Balancing dampers are necessary to be installed in the fresh air and stale air ducting when installing HRV3-95, HRV3-195, and HRV3-300. Refer to ducting illustrations located in the "INSTALLATION METHODS" section of this manual.

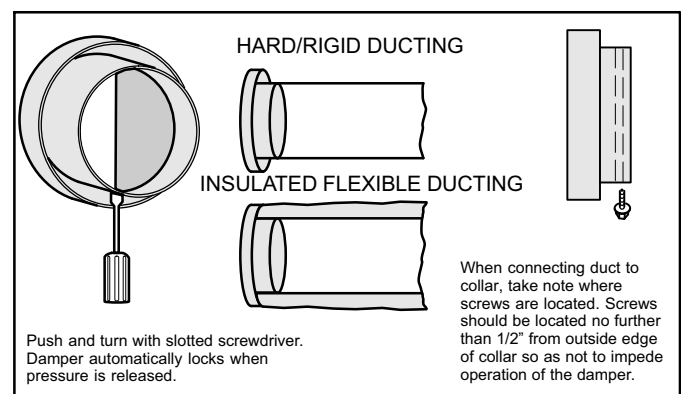


Figure 29. Built-In Balancing Collars (HRV3-150/200 & ERV3-150/200 only)

Door balancing ports (available only for HRV5-150, HRV5-200-TPD, HRV3-150-TPD, and HRV3-150-TPF) are de-signed to be used in conjunction with a Magnehelic Gauge or Digital Manometer to measure the stale and fresh air-flows for balancing.

NOTE - Door port balancing on the HRV3-150-TPD and HRV3-150-TPF requires a Magnehelic Gauge with a scale of 0 to 1.00" w.c. HRV4-150 and HRV4-200 require a Magnehelic Gauge with a scale of 0 to 0.50" w.c.

Balancing Procedure

1. Prepare the airflow measuring device (Magnehelic Gauge or Digital Manometer) by connecting the hoses to the low and high pressure side of the gauge.
2. Insert the hoses into the rubber fittings from the optional Door Port Adapter Kit (Y2206 or Y2207). Use light pressure and rotate until fitting is snug. Do not extend the hose past the rubber fitting.
3. Open the HRV Door. Remove the 4 Door Port Covers by carefully pushing them out from the back side of the door (use the blunt end of a large drill bit etc.).

4. Close the HRV Door. Initiate power and operate the HRV on high speed. Operate the forced air system on high speed (if the HRV is connected to the forced air system) .
5. **Measure Stale air**—Insert the 2 rubber fittings from the gauge to the STALE AIR Balancing Ports (see figure 32). Seal the FRESH AIR Balancing Ports (upper left and lower right) with tape. Record your reading.
6. **Measure Fresh air**—Insert the 2 rubber fittings from the gauge to the FRESH AIR Balancing Ports (see figure 31). Seal the STALE AIR Balancing Ports (upper right and lower left) with tape. Record your reading.
7. Refer to the Airflow Balancing Reference (see tables 1, 2, 3) for your model and determine the FRESH AIR and STALE AIR flow rates.
8. Damper down the higher airflow and repeat Steps 5 to 7 as required until both airflows are identical (balanced).
9. Remove the tape and rubber fittings and reinstall the 4 Door Port Covers.

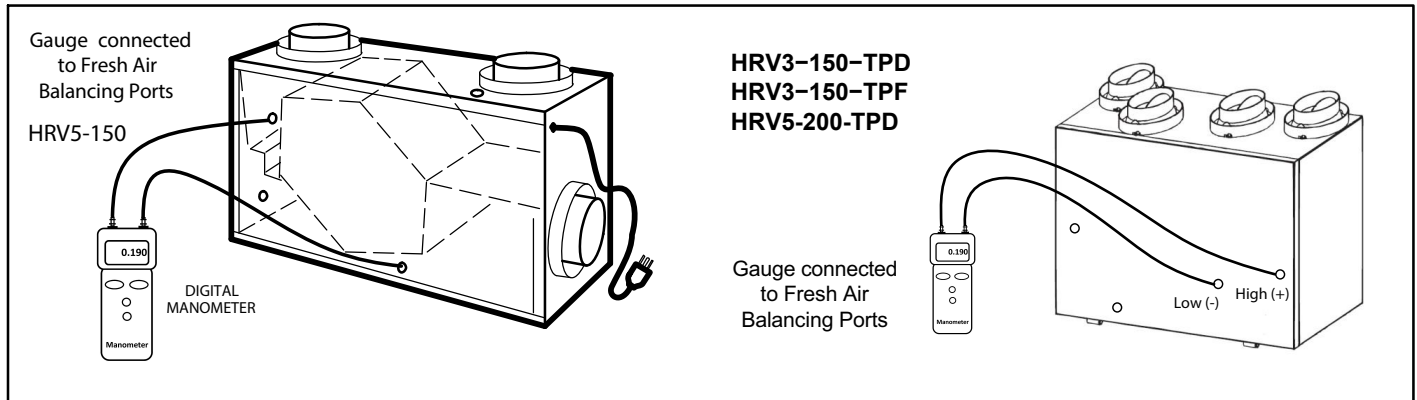


Figure 31. Door Balancing Ports—Fresh Air

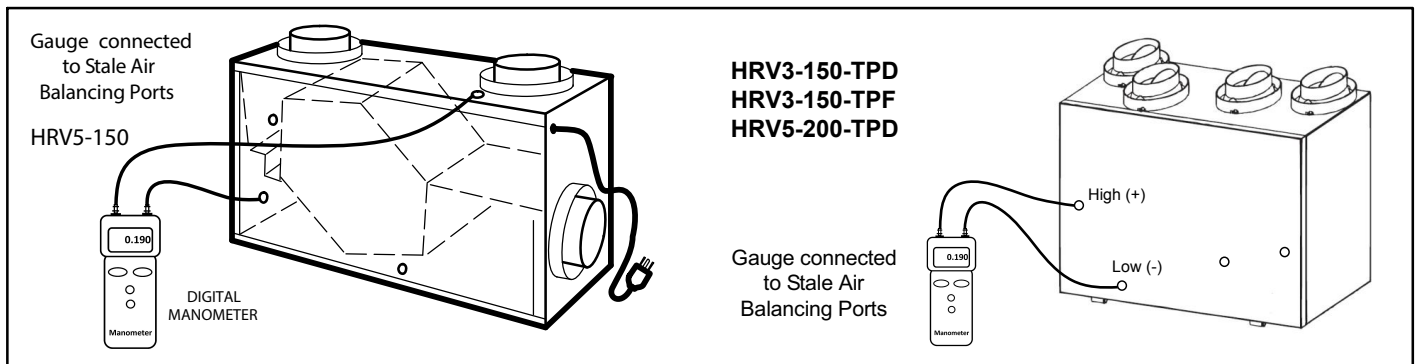


Figure 32. Door Balancing Ports—Stale Air

Table 1. Airflow Balancing Reference HRV3-150-TPD & HRV3-150-TPF											
Speed 5 (factory setting)				Speed 4				Speed 3			
Pressure Drop		Fresh Air CFM	Stale Air CFM	Pressure Drop		Fresh Air CFM	Stale Air CFM	Pressure Drop		Fresh Air CFM	Stale Air CFM
"w.g.	Pa			"w.g.	Pa			"w.g.	Pa		
0.580	145		177	0.360	90		160	0.280	70		140
0.590	148		174	0.370	93		158	0.290	73		138
0.600	150		172	0.380	95		156	0.300	75		135
0.610	153		169	0.390	98		154	0.310	78		133
0.620	155		167	0.400	100		151	0.320	80		131
0.630	158		164	0.410	103		149	0.330	83		129
0.640	160		162	0.420	105		147	0.340	85		126
0.650	163		159	0.430	108		144	0.350	88		124
0.660	165		157	0.440	110	155	142	0.360	90		122
0.670	168		154	0.450	113	153	140	0.370	93	139	120
0.680	170		152	0.460	115	151	138	0.380	95	137	117
0.690	173		149	0.470	118	149	135	0.390	98	135	115
0.700	175		147	0.480	120	147	133	0.400	100	133	113
0.710	178		144	0.490	123	145	131	0.410	103	131	111
0.720	180		142	0.500	125	144	129	0.420	105	129	108
0.730	183		139	0.510	128	142	126	0.430	108	127	106
0.740	185		137	0.520	130	140	124	0.440	110	125	104
0.750	188	175	134	0.530	133	138	122	0.450	113	123	102
0.760	190	172	132	0.540	135	136	119	0.460	115	121	99
0.770	193	169	129	0.550	138	134	117	0.470	118	119	97
0.780	195	167	127	0.560	140	132	115	0.480	120	117	95
0.790	198	164	124	0.570	143	130	113	0.490	123	115	93
0.800	200	161	121	0.580	145	129	110	0.500	125	113	90
0.810	203	158	119	0.590	148	127	108	0.510	128	111	88
0.820	205	155	116	0.600	150	125	106	0.520	130	109	86
0.830	208	153	114	0.610	153	123	104	0.530	133	107	84
0.840	210	150	111	0.620	155	121	101	0.540	135	105	81
0.850	213	147	109	0.630	158	119	99	0.550	138	102	79
0.860	215	144	106	0.640	160	117	97	0.560	140	100	77
0.870	218	141	104	0.650	163	115	94	0.570	143	98	75
0.880	220	139	101	0.660	165	114	92	0.580	145	96	72
0.890	223	136	99	0.670	168	112	90	0.590	148	94	70
0.900	225	133	96	0.680	170	110	88	0.600	150	92	68
0.910	228	130	94	0.690	173	108	85	0.610	153	90	66
0.920	230	127	91	0.700	175	106	83	0.620	155	88	63
0.930	233	125	89	0.710	178	104	81	0.630	158	86	61
0.940	235	122	86	0.720	180	102	79	0.640	160	84	59
0.950	238	119	84	0.730	183	100	76	0.650	163	82	57
0.960	240	116	81	0.740	185	99	74	0.660	165	80	54
0.970	243	113	79	0.750	188	97	72	0.670	168	78	52
0.980	245	111	76	0.760	190	95	69	0.680	170	76	50
0.990	248	108	74	0.770	193	93	67	0.690	173	74	48
1.000	250	105	71	0.780	195	91	65	0.700	175	72	45
1.010	253	102	69	0.790	198	89	63	0.710	178	70	43
1.020	255	100	66	0.800	200	87	60	0.720	180	68	41
1.030	258	97		0.810	203	85	58	0.730	183	66	39
1.040	260	94		0.820	205	84	56	0.740	185	64	
1.050	263	91		0.830	208	82	54	0.750	188	62	
1.060	265	88		0.840	210	80	51	0.760	190	60	
1.070	268	86		0.850	213	78		0.770	193	58	
1.080	270	83		0.860	215	76		0.78	195	56	
1.090	273	80		0.870	218	74		0.79	198	54	
1.100	275	77		0.880	220	72		0.8	200	52	
1.110	278	74		0.890	223	70		0.81	203	50	
				0.9	225	69		0.82	205	48	
				0.91	228	67		0.83	208	45	
				0.92	230	65		0.84	210	43	
				0.93	233	63		0.85	213	41	
				0.94	235	61					
				0.95	238	59					
				0.96	240	57					
				0.97	242	55					
				0.98	245	54					
				0.99	247	52					
				1	250	50					
Refer to "Installer Selectable High Speed Settings" in this manual for more information. NOTE - Door port balancing on the HRV3-150-TPD and HRV3-150-TPF requires a Magnehelic Gauge with a scale of 0 to 1.00" w.c.											

Table 3. Airflow Balancing Reference HRV5-150											
Speed 5 (factory setting)				Speed 4				Speed 3			
Pressure Drop		Fresh Air CFM	Stale Air CFM	Pressure Drop		Fresh Air CFM	Stale Air CFM	Pressure Drop		Fresh Air CFM	Stale Air CFM
"w.g.	Pa			"w.g.	Pa			"w.g.	Pa		
0.000	0		40	0.000	0		35	0.000	0		39
0.005	1		45	0.005	1		40	0.005	1		44
0.010	3		50	0.010	3		44	0.010	3		48
0.015	4		54	0.015	4		49	0.015	4		53
0.020	5		59	0.020	5		54	0.020	5		58
0.025	6		63	0.025	6		59	0.025	6		62
0.030	8		68	0.030	8	35	63	0.030	8		67
0.035	9		72	0.035	9	38	68	0.035	9		71
0.040	10		76	0.040	10	41	72	0.040	10		76
0.045	11		81	0.045	11	43	77	0.045	11	38	81
0.050	13	39	85	0.050	13	46	81	0.050	13	42	85
0.055	14	43	89	0.055	14	49	85	0.055	14	45	90
0.060	15	46	93	0.060	15	52	90	0.060	15	49	94
0.065	16	49	97	0.065	16	54	94	0.065	16	52	99
0.070	18	53	101	0.070	18	57	98	0.070	18	55	104
0.075	19	56	105	0.075	19	60	102	0.075	19	58	108
0.080	20	59	109	0.080	20	62	106	0.080	20	61	113
0.085	21	62	113	0.085	21	65	110	0.085	21	64	117
0.090	23	65	117	0.090	23	67	114	0.090	23	67	122
0.095	24	68	120	0.095	24	70	118	0.095	24	70	127
0.100	25	71	124	0.100	25	73	122	0.100	25	73	131
0.105	26	74	128	0.105	26	75	126	0.105	26	76	136
0.110	28	76	131	0.110	28	78	129	0.110	28	79	140
0.115	29	79	135	0.115	29	80	133	0.115	29	82	145
0.120	30	81	138	0.120	30	83	137	0.120	30	84	149
0.125	31	84	141	0.125	31	85	140	0.125	31	87	154
0.130	33	86	145	0.130	33	88	144	0.130	33	89	158
0.135	34	89	148	0.135	34	90	147	0.135	34	92	163
0.140	35	91	151	0.140	35	93	150	0.140	35	94	167
0.145	36	93	154	0.145	36	95	154	0.145	36	97	172
0.150	38	96	157	0.150	38	97	157	0.150	38	99	176
0.155	39	98	160	0.155	39	100	160	0.155	39	102	181
0.160	40	100	163	0.160	40	102	163	0.160	40	104	
0.165	41	102	166	0.165	41	104	166	0.165	41	107	
0.170	43	104	169	0.170	43	107	169	0.170	43	109	
0.175	44	106	172	0.175	44	109	172	0.175	44	111	
0.180	45	108	174	0.180	45	111	175	0.180	45	113	
0.185	46	110	177	0.185	46	113	178	0.185	46	116	
0.190	48	112	180	0.190	48	116	181	0.190	48	118	
0.195	49	114	182	0.195	49	118	184	0.195	49	120	
0.200	50	116	185	0.200	50	120	186	0.200	50	123	
0.205	51	118	187	0.205	51	122	189	0.205	51	125	
0.210	53	120	189	0.210	53	124	192	0.210	53	127	
0.215	54	122	192	0.215	54	127		0.215	54	129	
0.220	55	123	194	0.220	55	129		0.220	55	132	
0.225	56	125	196	0.225	56	131		0.225	56	134	
0.230	58	127	198	0.230	58	133		0.230	58	136	
0.235	59	129	200	0.235	59	135		0.235	59	138	
0.240	60	131	202	0.240	60	137		0.240	60	141	
0.245	61	132		0.245	61	139		0.245	61	143	
0.250	63	134		0.250	63	141		0.250	63	145	
0.255	64	136		0.255	64	143		0.255	64	148	
0.260	65	138		0.260	65	145		0.260	65	150	
0.265	66	139		0.265	66	147		0.265	66	152	
0.270	68	141		0.270	68	149		0.270	68	155	
0.275	69	143		0.275	69	151		0.275	69	157	
0.280	70	145		0.280	70	153		0.280	70	160	
0.285	71	146		0.285	71	154		0.285	71	162	
0.290	73	148		0.290	73	156		0.290	73	165	
0.295	74	150		0.295	74	158		0.295	74	167	
0.300	75	152		0.300	75	160		0.300	75	170	
0.305	76	154		0.305	76	162		0.305	76	173	
0.310	78	156		0.310	78	163		0.310	78	176	
0.315	79	158		0.315	79	165		0.315	79	178	
0.320	80	159		0.320	80	167		0.320	80	181	
0.325	81	161		0.325	81	169					
0.330	83	163		0.330	83	170					
0.335	84	165		0.335	84	172					
0.340	85	167		0.340	85	174					
0.345	86	170		0.345	86	175					
0.350	88	172		0.350	88	177					
0.355	89	174		0.355	89	179					
0.360	90	176		0.360	90	180					
0.365	91	178		0.365	91	182					
0.370	93	181		0.370	93	183					
0.375	94	183		0.375	94	185					
0.380	95	185		0.380	95	186					
0.385	96	188		0.385	96	188					
0.390	98	190		0.390	98	189					
0.395	99	193		0.395	99	191					
0.400	100	196		0.400	100	192					
0.405	101	198									
0.410	103	201									

Refer to “Installer Selectable High Speed Settings” in this manual for more information. NOTE - Door port balancing on the HRV5-150 requires a Magnehelic Gauge with a scale of 0 to 1.00” w.c.

Table 4. Airflow Balancing Reference HRV5-200-TPD

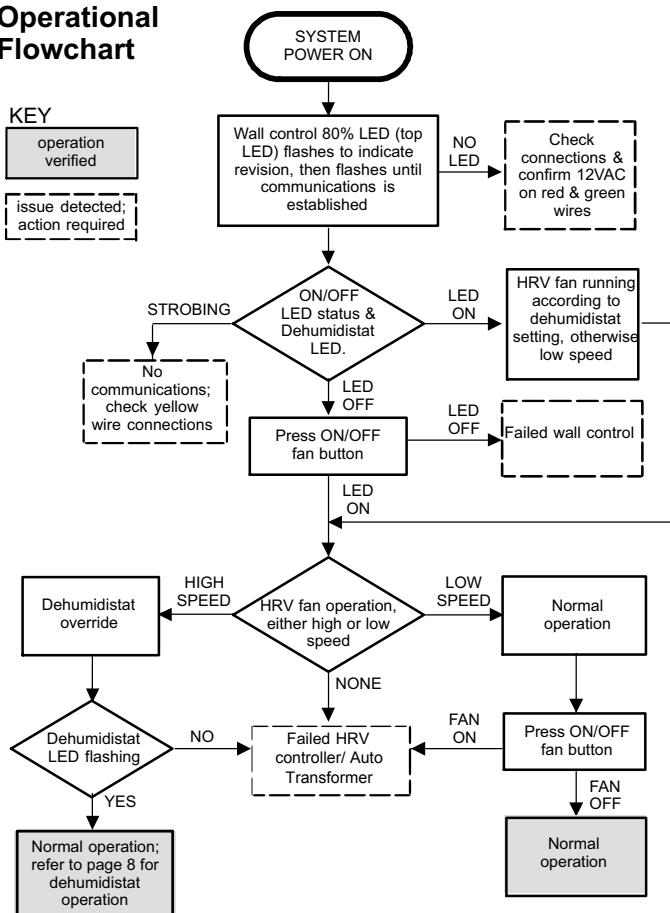
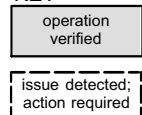
Hi 3				Hi 2				Hi 1			
Pressure Drop	Supply Air	Exhaust Air		Pressure Drop	Supply Air	Exhaust Air		Pressure Drop	Supply Air	Exhaust Air	
(" w.g.) (Pa)	(cfm)	(cfm)		(" w.g.) (Pa)	(cfm)	(cfm)		(" w.g.) (Pa)	(cfm)	(cfm)	
0.500	125	220	233	0.400	100	174	188	0.300	75	167	175
0.510	128	217	230	0.410	103	171	185	0.310	78	163	172
0.520	130	214	227	0.420	105	168	182	0.320	80	160	169
0.530	133	210	224	0.430	108	164	179	0.330	83	156	165
0.540	135	207	221	0.440	110	161	176	0.340	85	153	162
0.550	138	204	218	0.450	113	158	173	0.350	88	149	159
0.560	140	201	215	0.460	115	155	171	0.360	90	146	156
0.570	143	197	213	0.470	118	152	168	0.370	93	143	153
0.580	145	194	210	0.480	120	149	165	0.380	95	140	151
0.590	148	191	207	0.490	123	146	162	0.390	98	136	148
0.600	150	188	204	0.500	125	143	160	0.400	100	133	145
0.610	153	185	201	0.510	128	140	157	0.410	103	130	142
0.620	155	182	198	0.520	130	137	154	0.420	105	127	139
0.630	158	179	195	0.530	133	134	152	0.430	108	124	136
0.640	160	176	192	0.540	135	131	149	0.440	110	121	134
0.650	163	173	190	0.550	138	128	146	0.450	113	118	131
0.660	165	170	187	0.560	140	125	144	0.460	115	115	128
0.670	168	167	184	0.570	143	122	141	0.470	118	112	125
0.680	170	164	181	0.580	145	120	139	0.480	120	109	123
0.690	173	161	179	0.590	148	117	136	0.490	123	107	120
0.700	175	158	176	0.600	150	114	134	0.500	125	104	118
0.710	178	155	173	0.610	153	112	131	0.510	128	101	115
0.720	180	152	171	0.620	155	109	129	0.520	130	99	113
0.730	183	149	168	0.630	158	106	126	0.530	133	96	110
0.740	185	146	165	0.640	160	104	124	0.540	135	93	108
0.750	188	144	163	0.650	163	101	121	0.550	138	91	105
0.760	190	141	160	0.660	165	99	119	0.560	140	88	103
0.770	193	138	158	0.670	168	96	117	0.570	143	86	100
0.780	195	135	155	0.680	170	94	114	0.580	145	84	98
0.790	198	133	152	0.690	173	91	112	0.590	148	81	96
0.800	200	130	150	0.700	175	89	110	0.600	150	79	93
0.810	203	127	147	0.710	178	87	107	0.610	153	77	91
0.820	205	125	145	0.720	180	84	105	0.620	155	74	89
0.830	208	122	142	0.730	183	82	103	0.630	158	72	87
0.840	210	119	140	0.740	185	80	101	0.640	160	70	85
0.850	213	117	138	0.750	188	78	99	0.650	163	68	82
0.860	215	114	135	0.760	190	76	96	0.660	165	66	80
0.870	218	112	133	0.770	193	73	94	0.670	168	64	78
0.880	220	109	130	0.780	195	71	92	0.680	170	62	76
0.890	223	107	128	0.790	198	69	90	0.690	173	60	74
0.900	225	104	126	0.800	200	67	88	0.700	175	58	72
0.910	228	102	123	0.810	203	65	86	0.710	178	56	70
0.920	230	99	121	0.820	205	63	84	0.720	180	55	68
0.930	233	97	119	0.830	208	61	82	0.730	183	53	66
0.940	235	95	116	0.840	210	59	80	0.740	185	51	65
0.950	238	92	114	0.850	213	57	78	0.750	188	49	63
0.960	240	90	112	0.860	215	56	76	0.760	190	48	61
0.970	243	88	110	0.870	218	54	74	0.770	193	46	59
0.980	245	85	107	0.880	220	52	72	0.780	195	45	57
0.990	2 48	83	1 05	0.890	2 23	50	70	0.790	1 98	43	56
1.000	2 50	81	1 03	0.900	2 25	48	68	0.800	2 00	42	54
1.010	2 53	79	1 01	0.910	2 28	47	66	0.810	2 03	40	52
1.020	2 55	77	99	0.920	2 30	45	65	0.820	2 05	39	51
1.030	2 58	74	97	0.930	2 33	43	63	0.830	2 08	37	49
1.040	2 60	72	95	0.940	2 35	42	61	0.840	2 10	36	47
1.050	2 63	70	92	0.950	2 38	40	59	0.850	2 13	35	46
1.060	2 65	68	90	0.960	2 40	39	57	0.860	2 15	34	44
1.070	2 68	66	88	0.970	2 43	37	56	0.870	2 18	32	43
1.080	2 70	64	86	0.980	2 45	36	54	0.880	2 20	31	42
1.090	2 73	62	84	0.990	2 48	34	52	0.890	2 23	30	40
1.100	2 75	60	82	1.000	2 50	33	51	0.900	2 25	29	39
1.110	2 78	58	80	1.010	2 53	32	49	0.910	2 28	28	37
1.120	2 80	56	78	1.020	2 55	30	47	0.920	2 30	27	36
1.130	2 83	54	76	1.030	2 58	29	46	0.930	2 33	26	35
1.140	2 85	52	74	1.040	2 60	28	44	0.940	2 35	25	33
1.150	2 88	50	73	1.050	2 63	26	43	0.950	2 38	25	32
1.160	2 90	48	71	1.060	2 65	25	41				
1.170	2 93	47	69	1.070	2 68	24	40				
1.180	2 95	45	67	1.080	2 70	23	38				
1.190	2 98	43	65	1.090	2 73	22	37				
1.200	3 00	41	63	1.100	2 75	21	35				
1.210	3 03	39	61								
1.220	3 05	38	60								
1.230	3 08	36	58								
1.240	3 10	34	56								
1.250	3 13	33	54								
1.260	3 15	31	53								
1.270	3 18	29	51								
1.280	3 20	28	49								
1.290	3 23	26	48								
1.300	3 25	25	46								
1.310	3 28	23	44								
1.320	3 30	22	43								

Refer to "Installer Selectable High Speed Settings" in this manual for more information. NOTE - Door port balancing on the HRV5-200-TPD requires a Magnehelic Gauge with a scale of 0 to 1.00" w.c.

Sequence of Operation

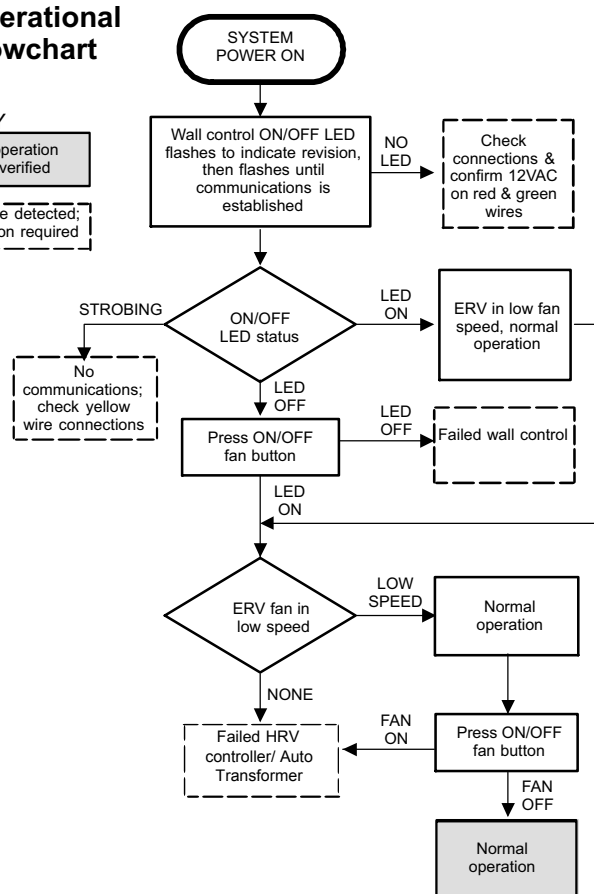
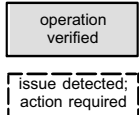
HRV Operational Flowchart

KEY



ERV Operational Flowchart

KEY

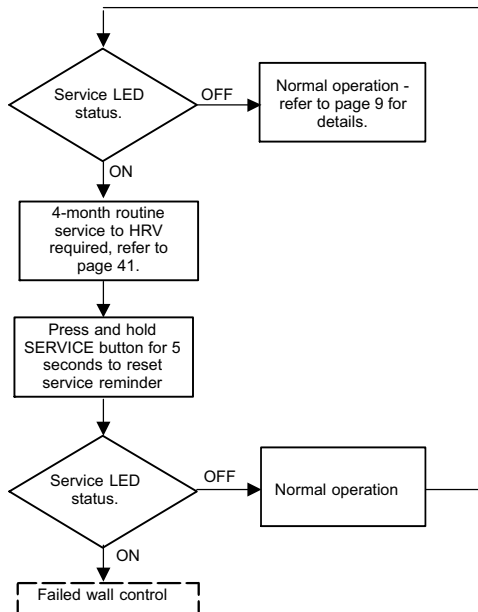


NOTES:

- 1) Upon activation of a button, the corresponding LED illuminates bright for 5 seconds; then remains dim.
- 2) System power ON means HRV/ERV unit plugged into 120 VAC.
- 3) System includes HRV/ERV unit and wall control.

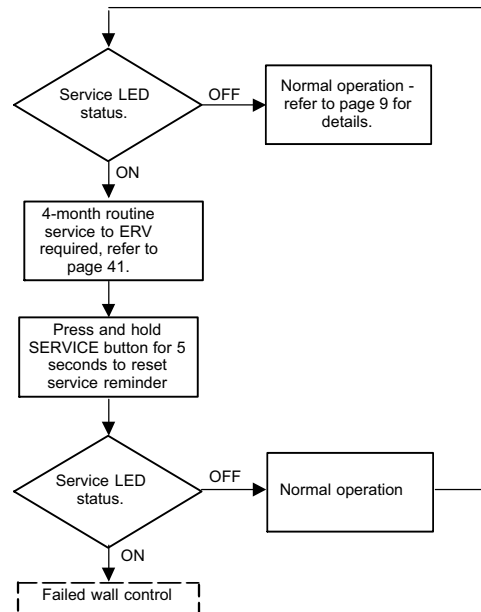
HRV Service Indicator Functions

KEY



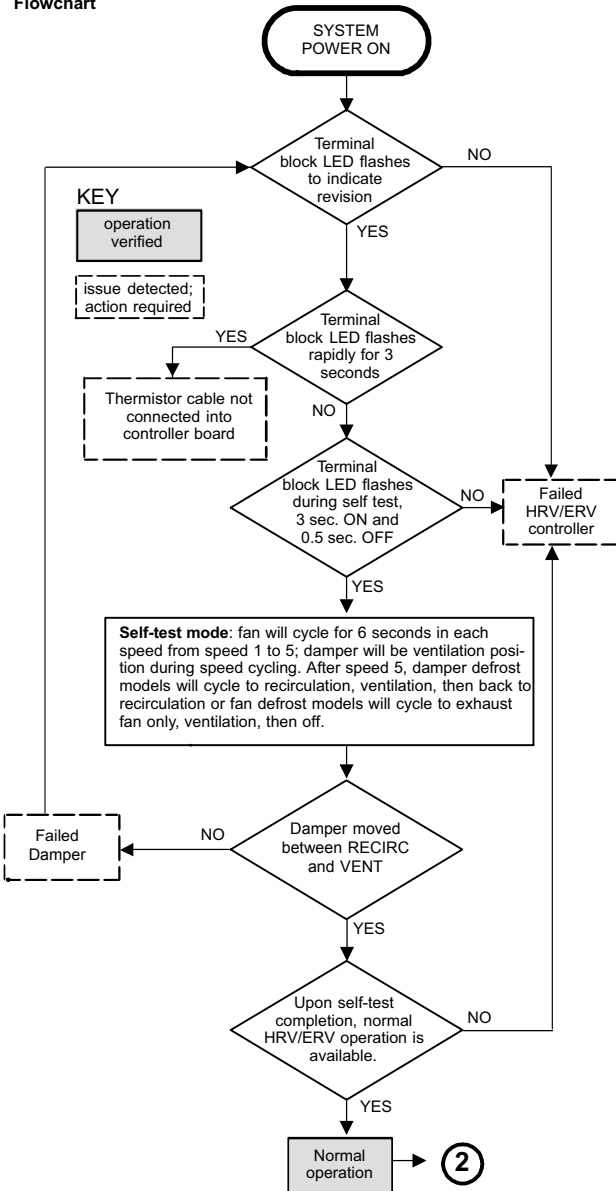
ERV Service Indicator Functions

KEY



Sequence of Operation (continued)

Self-Test Operational Flowchart

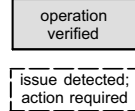


NOTES:

- 1) System includes HRV/ERV unit and terminal block.
- 2) System power ON means HRV unit plugged into 120VAC.
- 3) Dry contact is energized when HRV/ERV is in ventilation mode and results in a closed connection between terminal 7 (COM) and 8 (NO) of the terminal block
- 4) Low speed refers to speed 1.
- 5) High speed refers to speed 5.
- 6) Ventilation position refers to damper open to outdoor air.
- 7) Recirculation position refers to damper closed to outdoor air.
- 8) No fan operation results in damper in recirculation position.
- 9) Humidity disable results in 4 consecutive readings of outdoor temperature greater than 60°F (15°C).

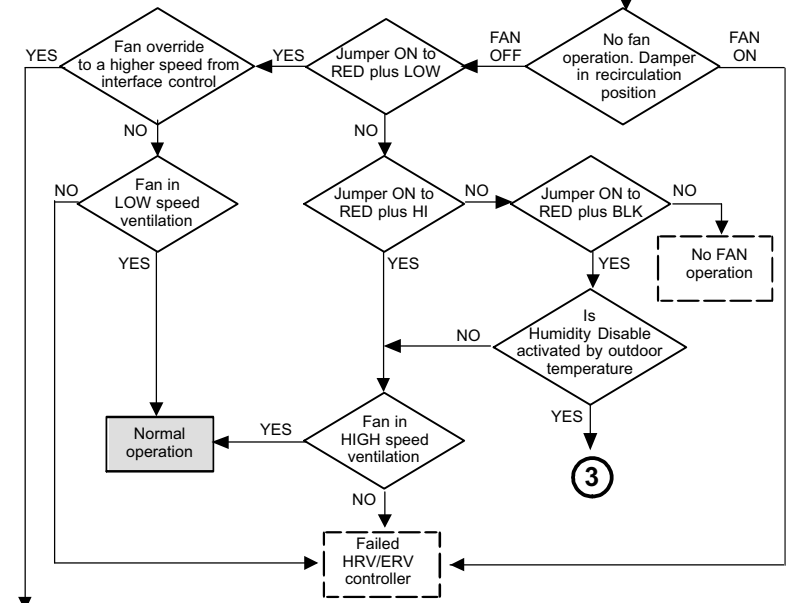
Terminal Block Operation

KEY



NOTES - Operation of HRV/ERV without external control:

Terminal 1 LOW	Terminal 6 HIGH
Terminal 2 ON	Terminal 7 COM
Terminal 3 RED	Terminal 8 NO
Terminal 4 YEL	Terminal 9 NC
Terminal 5 GND	Terminal 10 BLK



High Speed Overrides

Low Fan operation can be overridden to higher speeds by an external control setting or function such as:

- A) Y2169 20/40/60 minute timer manually activated - running speed 5
 - B) Y2168 20 minute timer manually activated - running speed 5
 - C) Y2166 climate control with dehumidistat activated by humidity level - running speed 5
 - D) Defrost mode auto-activated function - running speed 4 (HRV only)
- Standby mode – Jumper 2 (ON) to 3 (RED)
- Low speed fan – Jumper 2 (ON) to 3 (RED) to 1 (LOW)
- HI speed fan – Jumper 2 (ON) to 3 (RED) to 6 (BLK)

Sequence of Operation (continued)

Dehumidistat Disable

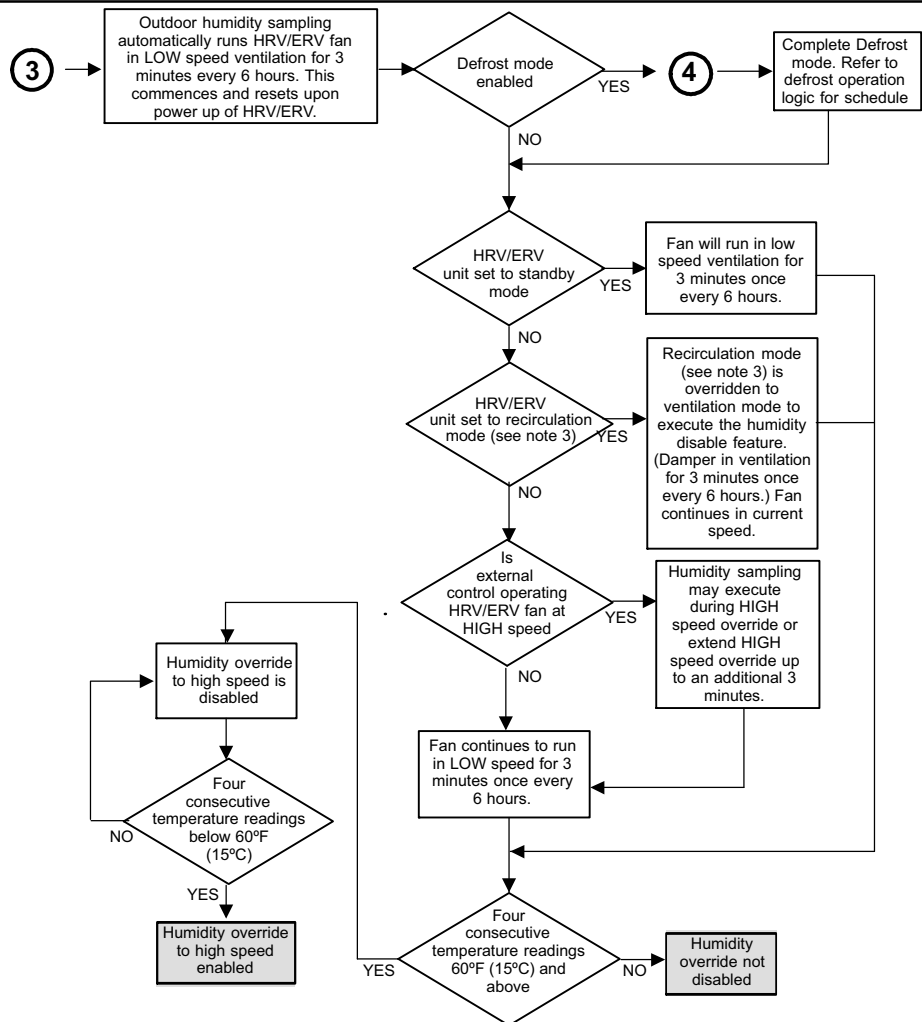
KEY

operation
verified

issue detected;
action required

NOTES:

- Humidity disable is an automatic operation which cannot be overridden by any control.
- When Defrost mode is enabled (HRV), the damper is in recirculation mode (damper closed to outdoor air).
- Recirculation mode is only available on recirculating defrost models (HRV3-095, HRV3-150-TPD, HRV4-150, HRV4-200).



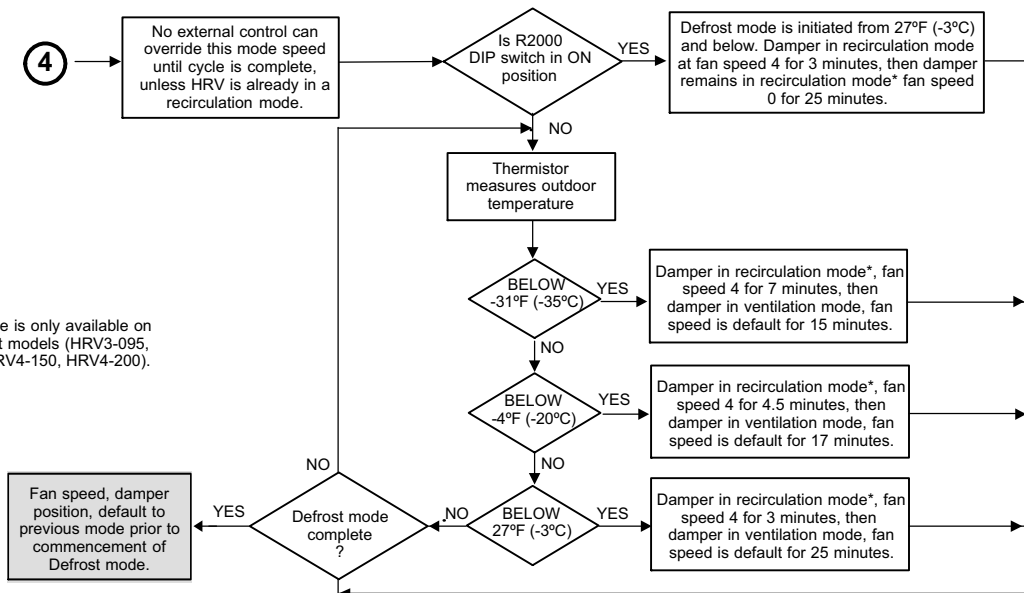
Defrost Mode (HRV)

KEY

operation
verified

issue detected;
action required

* Recirculation mode is only available on recirculating defrost models (HRV3-095, HRV3-150-TPD, HRV4-150, HRV4-200).



Troubleshooting

Prior to proceeding with troubleshooting, make certain the unit passes the self-test.

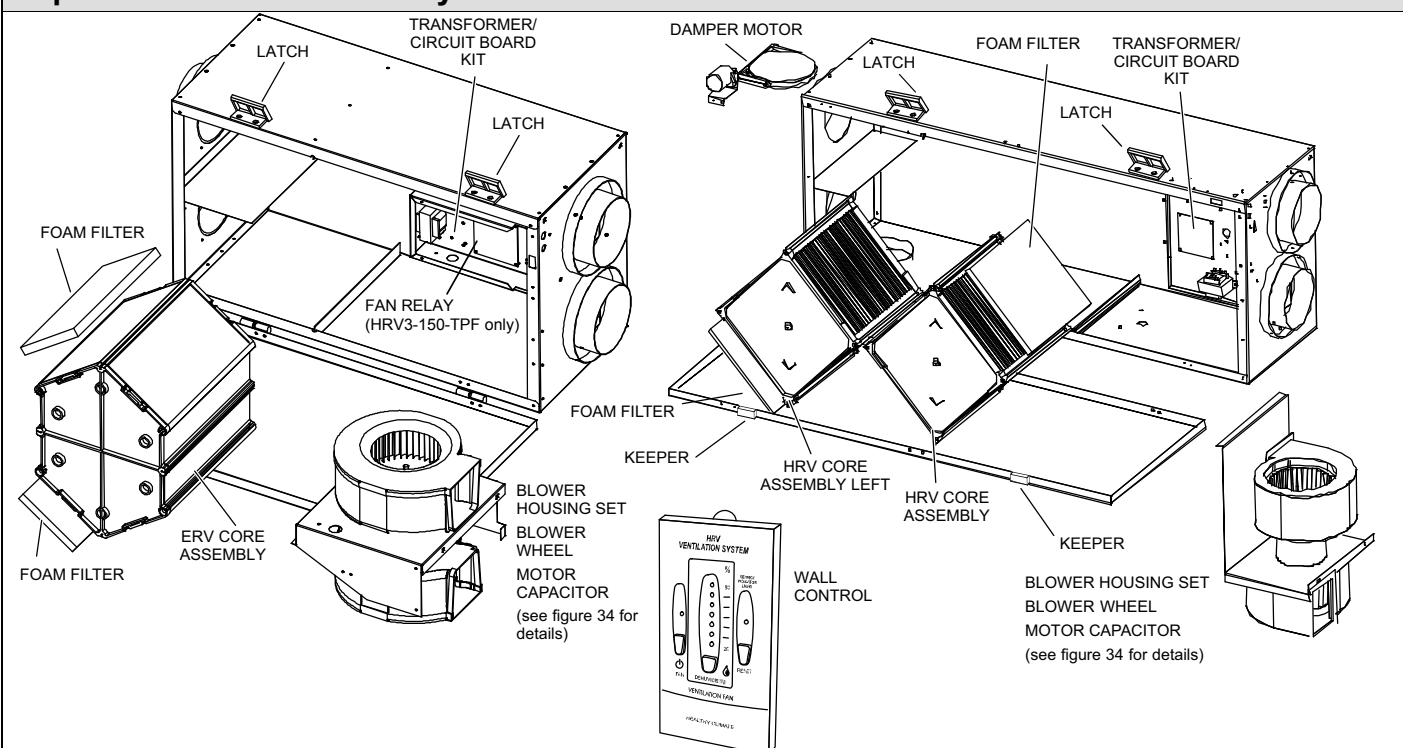
Refer to "Self Test Operational Flow Chart" located in the "Sequence of Operation" section of this manual.

Follow these steps to initiate Self Test:

- 1) Open the Access Door. (This will release the door switch).
- 2) Depress the door switch located on the cabinet to energize the unit.
- 3) Observe the sequence of operation to verify the unit is operating correctly.

Troubleshooting		
Symptom	Cause	Solution
Poor airflow(s)	Mesh on outside hoods plugged Filters plugged Core obstructed House grilles closed or blocked Dampers closed (if installed) Poor power supply at site Ductwork is restricting HRV/ERV Improper speed control setting HRV/ERV airflow improperly balanced	Clean exterior hoods or vents Remove and clean filter Remove and clean core Check and open grilles Open and adjust dampers Have electrician check supply voltage at house Check duct installation Increase the speed of the HRV/ERV Have contractor balance the HRV/ERV
Supply air feels cold	Poor location of supply grilles; airflow may irritate occupants Outdoor temperature extremely cold	Locate the grilles high on the walls or under the baseboards; install ceiling mounted diffuser or grilles so as not to direct airflow onto occupants (e.g. over a sofa). Turn down the HRV/ERV supply speed. A small duct heater (1kw) could be used to temper the supply air. Placement of furniture or closed doors restricting movement of air in home; consider rearranging. If supply air is ducted into furnace return, the furnace fan may need to run continuously to distribute ventilation air comfortably.
Dehumidistat is not operating	Outdoor temperature is above 59°F (15°C) Improper low-voltage connection External low voltage is shorted out by a staple or nail Check dehumidistat setting; it may be OFF	Dehumidistat is functioning normally (see Auto Dehumidistat Disable in this manual). Check that the correct terminals have been used, Check external wiring for a short. Set the dehumidistat at the desired level.
Humidity levels are too high; condensation is appearing on windows	Dehumidistat set too high HRV/ERV unit is undersized to handle a hot tub, indoor pool, etc. (occupant lifestyle) Moisture coming into the home from an unvented or unheated crawl space Moisture remaining in washroom and/or kitchen areas Condensation seems to form in the spring and fall seasons HRV/ERV is set at too low a speed	Set dehumidistat at lower level. Cover pool, hot tub, when not in use. Avoid hanging clothes to dry indoors, storing wood indoors, and venting dryer inside. Vent crawl space and place a vapor barrier on the floor of the crawl space. Ducts from washroom should be sized to remove moist air as effectively as possible; use of a bathroom fan for short periods will remove additional moisture. On humid days, as seasons change, some condensation may appear but the home's air quality will remain high with some HRV/ERV use. Increase speed of HRV/ERV.
Humidity levels are too low	Dehumidistat control set too low Blower speed of HRV/ERV is too high Occupant lifestyle issue HRV/ERV airflows may be improperly balanced	Set dehumidistat at higher level. Decrease HRV/ERV blower speed. Humidity may have to be added through use of humidifiers. Have a contractor balance HRV/ERV airflows.
HRV units and/or ducts frosting up	HRV air flows are improperly balanced Malfunction of the HRV defrost system	Note – minimal frost build-up is expected on cores before unit initiates defrost cycle functions. Have HVAC contractor balance the HRV airflows. Ensure damper defrost is operating during self-test.
Condensation or ice build-up in insulated duct to the outside	Incomplete vapor barrier around insulated duct Hole or tear in outer duct covering	Tape and seal all joints. Tape any holes or tears made in the outer duct covering. Ensure that the vapor barrier is complete sealed.
Water in the bottom of the HRV/ERV unit	Drain pans plugged Improper connection of HRV/ERV drain lines HRV/ERV is not level Drain lines obstructed HRV/ERV heat exchange core is not properly installed	Ensure o-ring on drain nozzle sits properly. Look for kinks in the drain line. Check water drain connections. Make sure water drains properly from pan(s).

Replacement Parts Summary



Replacement Parts	HRV3-150-TPD/-150-TPD-GDX (Y5447/Y6423)	HRV3-150-TPF/-150-TPF-GDX (Y5448/Y6424)	HRV3-095/-095-GDX (Y2142/ Y2967)	HRV5-150/-150-GDX (Y6419/ Y6420)	HRV5-200-TPD/-200-TPD-GDX (Y6421/ Y6422)	HRV3-195 (Y2143)	HRV3-300 (Y2144)	ERV3-150 (Y2138)	ERV3-200 (Y2139)
Motor / Capacitor	N/A	N/A	Y2146	Y5437	N/A	Y2145	Y2147	Y2145	Y2145
Motor Replacement Kit (Top Port Models)	Y5438	Y5438	N/A	N/A	Y6450	N/A	N/A	N/A	N/A
Blower Housing Set	N/A	N/A	Y2149	Y5439	N/A	Y2150	Y2150	Y2148	Y2148
Blower Wheel CW red dot	N/A	N/A	Y2153	Y2152	N/A	Y2152	Y2152	Y2151	Y2152
Blower Wheel CCW	N/A	N/A	Y2156	Y2154	N/A	Y2155	Y2155	Y2154	Y2155
Core Assembly	Y5441	Y5441	Y2159	Y5440	Y5440	Y2159	Y2159	Y2157	Y2157
Core Assembly Left	-	-	-	-	-	Y2160	Y2160	-	-
Foam Filter Set (2)	Y2162	Y2162	Y2163	Y5442	Y5442	Y2162	Y2162	Y2161	Y2161
Transformer / Circuit board kit	Y2164	Y2164	Y2164	Y2164	Y2164	Y2164	Y2164	Y2164	Y2164
Damper Motor	Y6447	N/A	Y6447	Y6448	Y6448	Y6448	Y6448	-	-
Wall Control with the Unit	Y2166/Y2171	Y2166/Y2171	Y2166/Y2171	Y2166/Y2171	Y2166/Y2171	Y2166	Y2166	Y2165	Y2165
Fan Relay	N/A	Y5473	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Latches/Keeper	Y6449	Y6449	Y6449	Y6449	Y6449	11U82	11U82	Y6449	Y6449

DAMPER MOTOR ROTATION

Y6447 -- CW rotation

Y6448 -- CCW rotation

Blower Assembly Service (Dealer Only)

To Remove Blower Assembly (figure 33)

⚠ WARNING



Electric Shock Hazard.

Can cause injury or death.

Disconnect all remote electrical power supplies before servicing. Unit may have multiple power supplies.

Unit must be connected to a grounded power supply in accordance with national and local codes.

1. Unplug the HRV/ERV and open the service door.
2. Remove core.
3. Remove ¼ inch sheet metal screws on front lip of cabinet.
4. Remove two Phillips head screws on right side panel.
5. Remove ¼ 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

Follow the above steps in reverse order.

⚠ IMPORTANT

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

To Replace Motor (figure 34)

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 the blower outlets.

To Assemble Motor

Follow the above steps in reverse order.

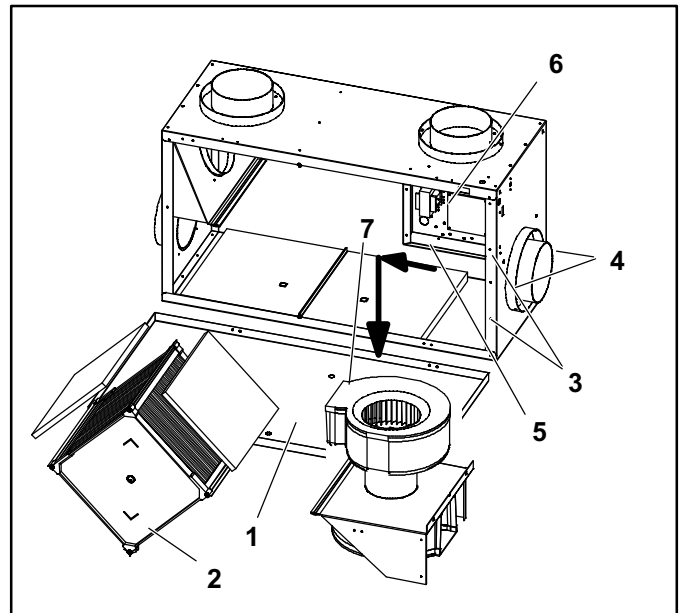


Figure 33. Removing Blower Assembly

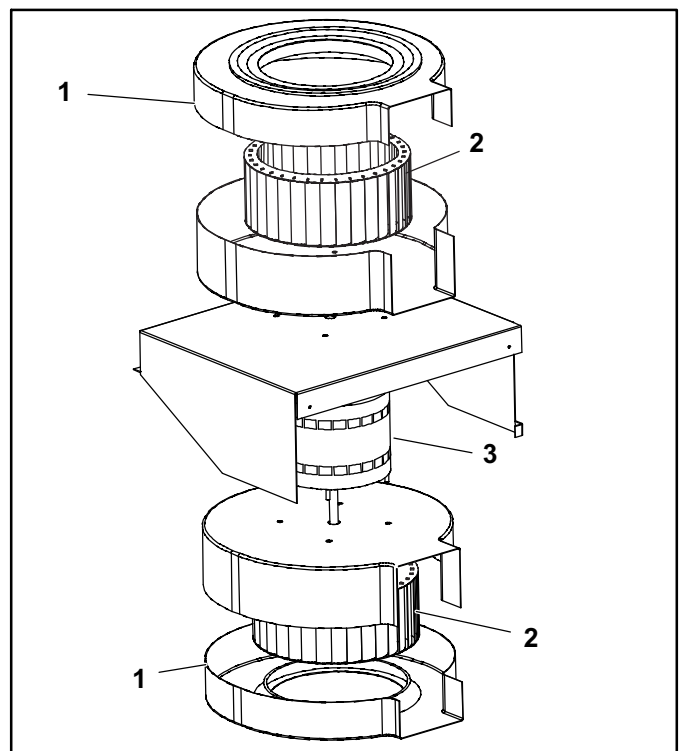


Figure 34. Replacing Motor

WARNING

Risk of property damage, injury or death.

Installation, adjustments, alterations, service and maintenance must be performed by a qualified service technician.

WARNING



Electric Shock Hazard.

Can cause injury or death.

Disconnect all remote electrical power supplies before servicing. Unit may have multiple power supplies.

Unit must be connected to a grounded power supply in accordance with national and local codes.

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).

IMPORTANT – Blockage of hoods or vents may cause an airflow imbalance.

2. **Clean air filters three times a year**—the standard filters equipped with the HRV/ERV are removable and washable:
 - A Remove power to the unit.
 - B Open access door.
 - C Slide the core out.
 - D Remove filter clips if present.
 - E Remove filters off the core.
 - F Rinse filters with water or a combination of mild soap and water. Do not clean in the dishwasher.
 - G To reassemble, place clean filter(s) – wet or dry – back into their positions against the core and return clips to their original position.
 - H Slide core back into its original position.

IMPORTANT

Vacuum the ERV core or rinse with warm water.

DO NOT use cleaning solutions for the ERV core.

Soak and rinse the HRV core in warm soapy water.

DO NOT use bleach or chlorine.

DO NOT use pressure washer to clean the HRV or ERV core.

DO NOT use dishwasher to clean the HRV or ERV core.

3. **Clean core and inside of cabinet three times a year**
 - A Remove power to the unit.
 - B Open access door.

- C Carefully grip ends of core and pull evenly outward. Core may be snug, but will slide out of the channel.

- D Remove filters as above.

- E HRV Core—wash core in warm soapy water (do not use dishwasher).

ERV Core—vacuum the core or rinse with warm water (do not use soap, dishwasher, pressure wash).

- F Install clean filters.

- G Wipe down the inside of the cabinet with a damp cloth to remove dirt, bugs, and any debris.

4. **Install clean core as follows:**

- A Install the bottom flange of the core guide into the bottom “H” channel approximately 1/4” (6mm).

- B Install the left or right side flange of the core guide approximately 1/4” (6mm) followed by the other side flange.

- C Install 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.

5. **Motors are maintenance free.**

6. **Clean drain (condensate) line at least once a year**—inspect drain line, drain spout, and “P” trap for blockage, mold, or kinks in the line. Flush with warm soapy water and replace line if worn, bent, or cannot be cleaned.

7. **Clean duct system if required**—the duct system from outside to and from the HRV/ERV unit may accumulate dirt. Wipe and vacuum the inside of the duct once every year. (A capable HVAC service company will best perform this procedure.)

8. **Clean the blowers** **NOTE** - *A capable HVAC service company will best perform this procedure.*—blowers may accumulate dirt causing an imbalance and/or excessive vibration of the HRV/ERV unit. A reduction in the airflow may also occur. In new construction, this may result within the first year due to heavy dust and may occur periodically thereafter over time depending on the outdoor conditions.

- A Unplug the HRV/ERV unit; open the service door.

- B Remove the core.

- C Remove ducting (metal and/or flexible insulated type) from the ports which are connected immediately inline with the fan assembly.

- D Use a small brush and insert through the large opening of the fan assembly and then through the smaller opening in the end of the fan assembly.

- E 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).

- F Vacuum and wipe out.

- G Reassemble. Be sure ducting is attached firmly. Seal and tape insulation and moisture barrier.

Application Map—HRV/ERV Ventilators

