

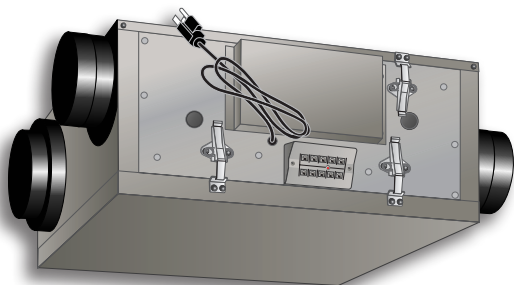


INDOOR AIR QUALITY KIT AND ACCESSORIES

507363-04
3/2020
Supersedes 10/2019

HEALTHY CLIMATE® ERV AND HRV VENTILATORS

INSTALLATION INSTRUCTIONS AND HOMEOWNER GUIDE FOR HEALTHY CLIMATE® ENERGY RECOVERY VENTILATOR (ERV) AND HEAT RECOVERY VENTILATOR (HRV)



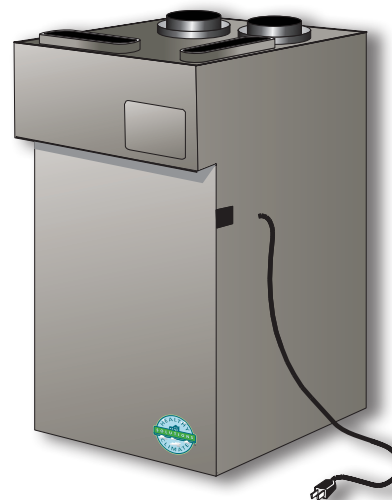
ERV5-130



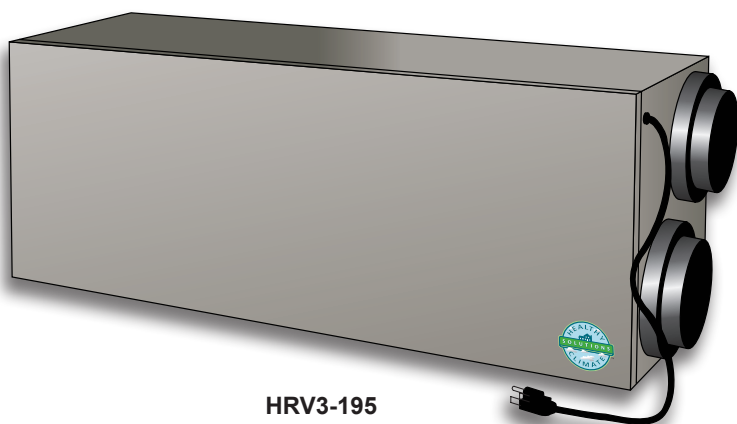
HRV3-150-TPD, HRV5-200-TPD,
HRV5-HEX095-TPD, HRV5-270-TPD-ECM,
ERV5-150-TPD, ERV5-170-TPD



HRV5-150



HRV3-095



HRV3-195

THIS MANUAL MUST BE LEFT WITH THE OWNER
FOR FUTURE REFERENCE



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! WARNING

Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life.

Installation and service must be performed by a licensed professional HVAC installer (or equivalent) or a service agency.

! IMPORTANT

The ERV/HRV may be used with an S30 and E30 control system. The iComfort S30 will require a smart hub 2.0.

Do not connect the S30 or E30 to the ERV/HRV before confirming the thermostats have 0.03.5.0XXX or higher software.

Shipping and Packing List

Package 1 of 1 contains:

1 - Assembled ventilator

1 - Bag assembly contains the following:

Table 1. Bag Assembly Contents

Quantity Included	Description
2	Drain spout assemblies with one drain tee (included with all models except ERV5-130)
2	Drain plugs (included only with ERV5-150-TPD and ERV5-175-TPD)
4	Mounting brackets (included only with ERV5-130)
4	Hanging straps (included with all models except ERV5-130)
1	Installation instruction and warranty

General Information

This instruction is intended as a general guide and does not supersede local codes in any way. Consult authorities who have jurisdiction before installation.

! IMPORTANT

All controls referenced in this instruction are field-provided. Lennox catalog numbers are provide for all reference controls.

Model and Catalog Number Cross-References

Table 2. Models and Catalog Numbers

Model	Catalog #	Description
HRV3-095***	17Y61	Heat Recovery Ventilation, 70, WC, DC
HRV3-195***	17Y65	Heat Recovery Ventilation, 181 WC
HRV3-150-TPD	17Y64	Heat Recovery Ventilation, 149, WC
HRV5-150***	17Y58	Heat Recovery Ventilation, 146, WC
HRV5-200-TPD***	17Y62	Heat Recovery Ventilation, 183, WC
HRV5-HEX095-TPD*	17Y52	Heat Recovery Ventilation, 95
HRV5-270-TPD-ECM***	17Y53	Heat Recovery Ventilation, 267
ERV5-130	17Y54	Energy Recovery, 131
ERV5-150-TPD***	17Y55	Energy Recovery, 147
ERV5-175-TPD	17Y57	Energy Recovery, 172

***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.

All of the above reference ERV/HRV models are compatible with iComfort S30, Smart Hub 2.0 and E30 with firmware 3.50.xxx. Use only the catalog numbers reference above for ordering when using either a iComfort E30 or S30 to control the accessory.

Terms and Definitions

- **Defrost Mode (ERV/HRV)** - to ensure reliable operation during cold weather, the ERV/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 ERV/HRV is required, simply unplug the power cord for 30 seconds. The Self-Test will occur when the ERV/HRV is reconnected.
- **Self-Test** - each time the ERV/HRV is powered/energized, the self test function will automatically initiate. During the self-test, the ERV/HRV 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 ERV/HRV 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** - This is the temperature sensor for both ERV and HRV that measures electrical resistance in a known manner, as outdoor temperatures fluctuate.
- **HVI** - Home Ventilating Institute.
- **HRAI** - Heating Refrigeration Air Conditioning Institute.

Application

CAUTION

As with any mechanical equipment, contact with sharp sheet metal edges can result in personal injury. Take care while handling this equipment and wear gloves and protective clothing.

This equipment is designed to provide fresh air while exhausting an equal amount of stale air. Refer to “Application Map - ERV/HRV Ventilators” on page 60.

ENERGY RECOVERY VENTILATOR (ERV)

The ERV unit is equipped with an enthalpic core. 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.

HEAT RECOVERY VENTILATOR (HRV)

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.

Required Tools and Materials

Table 3. Field-Provided Materials

Low voltage control wire	Mastic tape
1/2" I.D. Drain hose	Caulking material
Aluminum foil duct tape	Zip ties (duct)
Fabric flexible or insulated rigid ducts – class II rated	Zip ties

Table 4. Balancing Tools

Product	Catalog #	Description
Balancing Tool	Y6484	Digital Manometer with a range of 0 - 4.000 inches w.c. (0 - 995 kPa)
H/C Door Port Balance Kit without Gage	Y2207	Can be used to balance the following models: HRV3-150-TPD, HRV5-200, HRV5-HEX095-TPD, HRV5-270-TPD-ECM, ERV5-150-TPD and ERV5-175-TPD This kit includes: <ul style="list-style-type: none"> • Two connection hoses, • Two rubber fittings • Instructions Digital manometer. Will read down to 0 with resolution of 0.001 inches w.c.(0.00024884 kPa) or Magnehelic® gauge - scale of 0 to 1.0 inches w.c. (0 - to 0.24884 kPa) is not furnished and must be field-supplied.

CAUTION

Potential equipment malfunction or damage.

May require repairs and/or void warranty.

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

Specifications

Table 5. Specifications

Specifications	Single-Core HRV Units						Dual – Core HRV Unit	Single-Core ERV Units		
Model No.	HRV3-150-TPD (17Y64)	HRV3-095 (17Y61)	HRV5-150 (17Y58)	HRV5-200-TPD (17Y62)	HRV5-HEX095-TPD (17Y52)	HRV5-270-TPD-ECM (17Y53)	HRV3-195 (Y2143)	ERV5-130 (17Y54)	ERV5-150-TPD (17Y55)	ERV5-175-TPD (17Y57)
Energy Star® qualified (Canada Only)	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Unit Weight in pounds (kilograms)	45 (20)	55 (25)	62 (28)	58 (26)	59 (27)	59 (27)	82 (37)	41 (19)	42 (19)	54 (24)
Unit Dimensions	Refer to dimension drawings starting with “Figure 1. Dimensions and Airflows” on page 7.									
**High Speed (HVI Certified)										
inches 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)	CFM (L/s)
0.1 (25)	169 (80)	68 (32)	184 (87)	203 (96)	110 (52)	280 (132)	216 (101)	133 (63)	161 (76)	195 (92)
0.2 (50)	156 (73)	66 (31)	163 (77)	193 (91)	104 (49)	273 (129)	195 (92)	129 (61)	155 (73)	184 (87)
0.3 (75)	149 (70)	64 (30)	146 (69)	182 (86)	95 (45)	267 (126)	181 (85)	125 (59)	146 (69)	172 (81)
0.4 (100)	136 (64)	59 (28)	132 (62)	172 (81)	89 (42)	261 (123)	158 (74)	123 (58)	138 (65)	161 (76)
0.5 (125)	126 (59)	55 (26)	115 (54)	159 (75)	78 (37)	254 (120)	144 (68)	119 (56)	127 (60)	150 (71)
0.6 (150)	116 (55)		92 (43)	148 (70)	70 (33)	248 (117)	125 (59)	112 (53)	117 (55)	140 (66)
0.7 (175)	103 (48)		60 (28)	136 (64)	59 (28)	242 (114)	107 (50)	108 (51)	104 (49)	129 (61)
0.8 (200)	89 (42)			121 (57)	47 (22)	235 (111)	72 (34)	102 (48)	93 (44)	117 (55)
0.9 (225)	77 (36)			108 (51)		227 (107)		95 (45)	83 (39)	106 (50)
1.0 (250)	58 (27)			93 (44)		220 (104)		87 (41)	74 (35)	93 (44)
**Adjusted Sensible Recovery Efficiency @ 32 °F (0°C)	@ 66 CFM (31 L/s) 68%	@ 59 CFM (28 L/s) 88%	@ 64 CFM (30 L/s) 82%	@ 64 CFM (30 L/s) 82%	@ 64 CFM (30 L/s) 79%	@ 64 CFM (30 L/s) 77%	@ 73 CFM (35 L/s) 88%	@ 64 CFM (30 L/s) 77%	@ 64 CFM (30 L/s) 82%	@ 66 CFM (31 L/s) 85%
**Sensible Recovery Efficiency @ 32 °F (0°C)	@ 66 CFM (31 L/s) 61%	@ 59 CFM (28 L/s) 75%	@ 64 CFM (30 L/s) 75%	@ 64 CFM (30 L/s) 76%	@ 64 CFM (30 L/s) 75%	@ 64 CFM (30 L/s) 75%	@ 73 CFM (35 L/s) 82%	@ 64 CFM (30 L/s) 72%	@ 64 CFM (30 L/s) 75%	@ 66 CFM (31 L/s) 75%
**Adjusted Sensible Recovery Efficiency @ -13 °F (-25°C)	@ 76 CFM (36 L/s) 65%	@ 61 CFM (29 L/s) 86%	@ 69 CFM (33 L/s) 76%	@ 102 CFM (48 L/s) 73%	@ 68 CFM (32 L/s) 71%	@ 70 CFM (33 L/s) 71%	@ 112 CFM (53 L/s) 74%	@ 55 CFM (26 L/s) 60%	@ 70 CFM (33 L/s) 64%	@ 68 CFM (32 L/s) 62%
**Sensible Recovery Efficiency @ -13 °F (-25°C)	@ 76 CFM (36 L/s) 61%	@ 61 CFM (29 L/s) 68%	@ 69 CFM (33 L/s) 72%	@ 102 CFM (48 L/s) 70%	@ 68 CFM (32 L/s) 69%	@ 70 CFM (33 L/s) 70%	@ 112 CFM (53 L/s) 72%	@ 55 CFM (26 L/s) 56%	@ 70 CFM (33 L/s) 60%	@ 68 CFM (32 L/s) 58%
**Latent Efficiency 95°F (35°C)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	@ 64 CFM (30 L/s) 38%	@ 66 CFM (31 L/s) 43%	@ 64 CFM (30 L/s) 41%
**Total Efficiency 95°F (35°C)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	@ 64 CFM (30 L/s) 44%	@ 66 CFM (31 L/s) 48%	@ 64 CFM (30 L/s) 48%
Number of speeds available with S30/E30 and basic wall control	2	2	2	2	2	2	2	2	2	2
Number of speeds available with optional wall control	5	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	Energy Recovery

Table 5. Specifications

Specifications	Single-Core HRV Units						Dual - Core HRV Unit	Single-Core ERV Units		
Model No.	HRV3-150-TPD (17Y64)	HRV3-095 (17Y61)	HRV5-150 (17Y58)	HRV5-200-TPD (17Y62)	HRV5-HEX095-TPD (17Y52)	HRV5-270-TPD-ECM (17Y53)	HRV3-195 (Y2143)	ERV5-130 (17Y54)	ERV5-150-TPD (17Y55)	ERV5-175-TPD (17Y57)
Heat/Energy Recovery Core	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Enthalpic	Enthalpic	Enthalpic
Number of ERV/HRV Cores	1	1	1	1	1	1	2	1	1	1
Defrost Type	Recirculating	Recirculating	Recirculating	Recirculating	Recirculating	Recirculating	Damper	Recirculating	Recirculating	Recirculating
Door Port Balancing	Yes	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Balancing Damper in Supply & Exhaust Collar	Yes	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Number of Ports	4	4	4	4	4	4	5	4	4	4
Pre-Filters Supply & Exhaust	MERV6						MERV6 or MERV13***			
Wall Controller Included	No	No	No	No	No	No	No	No	No	No
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	No	Yes	Yes
Drain Plug Included	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Hanging Strap kit Included	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Bracket Included	No	No	No	No	No	No	No	Yes	No	No
Electrical Characteristics: 120 Volts, 60 Hertz, 1 phase										
Fan HP	1/20	1/20	1/10	1/10	1/10	1/10	1/10	1/10	1/20	1/20
Motor Type	PSC	PSC	PSC	PSC	PSC	ECM	PSC	PSC	PSC	PSC
Fan Watts - High Speed @HVI Test SRE max rated CFM**	140	89	119	92	46	44	123	86	102	96
Fan Watts - Low Speed @HVI Test SRE min rated CFM**	74	58	71	60	32	22	74	48	66	62
Amp Rating	1.2	0.9	1.4	1.4	0.5	2.1	1.5	1.4	1.7	1.4
*** To be ordered separately. Comes in a set of 4 and is installed in the Fresh Side only. When a MERV 13 filter is installed for the first time, airflow will need to be balanced (see "Airflow Balancing" on page 39 for further details).										

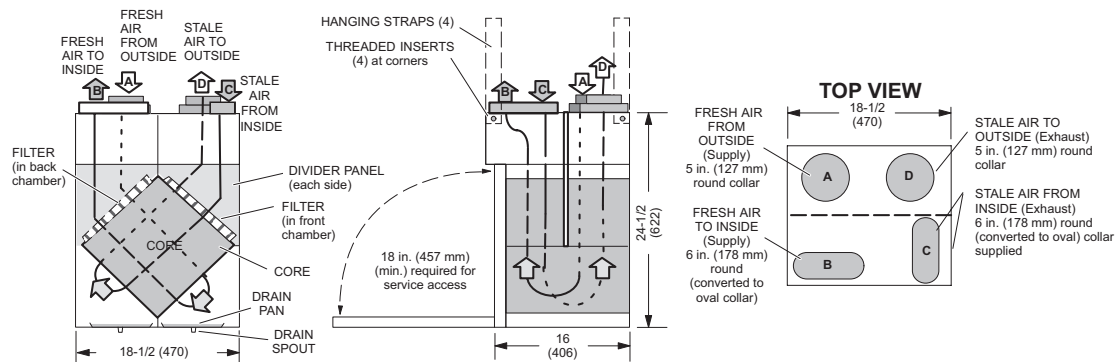
Optional Fan Curve Speeds

Table 6. Optional Fan Curves Speeds (Factory Tested)

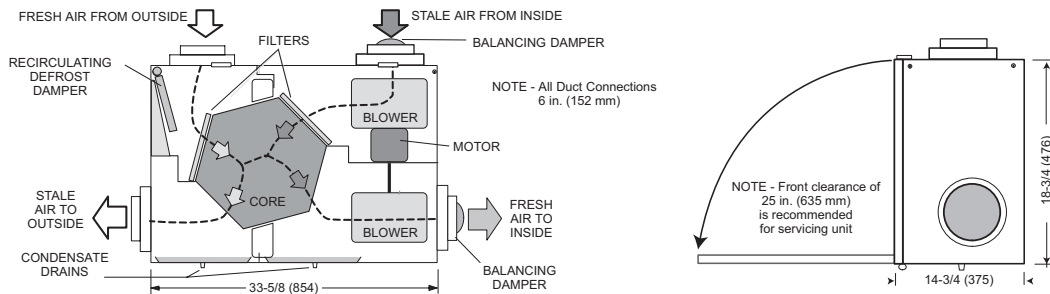
NOTE: All specifications are subject to change without notice.

	Single-Core HRV Units												Dual-Core HRV Units		Single-Core ERV Units							
Model No.	HRV3-150-TPD (17Y64)		HRV3-095 (17Y61)		HRV5-150 (17Y58)		HRV5-200-TPD (17Y62)		HRV5-HEX095-TPD (17Y52)		HRV5-270-TPD-ECM (17Y53)		HRV3-195 (17Y65)		ERV5-130 (17Y54)		ERV5-150-TPD (17Y55)		ERV5-175-TPD (17Y57)			
Speed 4 – Medium High																						
inches 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	CFM	L/s		
0.1 (25)	129	61	67	32	153	72	189	89	98	47	249	120	167	78	117	56	127	61	150	71		
0.2 (50)	119	56	65	31	141	67	170	80	95	46	239	115	159	75	112	54	119	57	138	66		
0.3 (75)	110	52	50	24	131	62	153	72	89	43	228	110	150	71	110	53	112	54	123	59		
0.4 (100)	101	48	31	15	117	55	136	64	80	38	217	104	140	66	105	50	105	50	112	54		
0.5 (125)	91	43			96	45	120	57	70	34	204	98	124	58	98	47	96	46	101	49		
0.6 (150)	82	39			80	38	106	50	60	29	190	91	110	52	95	46	89	43	88	42		
0.7 (175)	69	33					91	43			176	84	93	44	88	42	80	38	74	36		
0.8 (200)	60	28					78	37			160	77			80	38			62	30		
Speed 3 – Medium																						
0.1 (25)	114	54	65	31	144	68	161	76	95	46	209	100	142	67	100	48	100	48	128	60		
0.2 (50)	105	50	60	28	130	61	141	67	90	43	198	95	136	64	96	46	98	47	115	55		
0.3 (75)	92	43	48	23	120	57	123	58	80	38	185	89	127	60	92	44	90	43	101	49		
0.4 (100)	82	39	30	14	106	50	108	51	72	35	171	82	118	55	89	43	82	39	90	43		
0.5 (125)	71	34			88	42	92	43	60	29	155	74	103	48	84	40	75	36	75	36		
0.6 (150)	60	28					77	36			137	66	92	43	80	38	64	31	63	30		
0.7 (175)							64	30			118	57	72	34	75	36			50	24		
0.8 (200)							52	25			97	46										
Speed 2 – Medium Low																						
0.1 (25)	90	42	62	29	127	60	127	60	88	42	158	76	115	54	n/a	n/a	n/a	n/a	102	48		
0.2 (50)	81	38	54	25	116	55	108	51	80	38	142	68	107	50	n/a	n/a	n/a	n/a	89	42		
0.3 (75)	70	33	42	20	106	50	90	42	70	34	123	59	100	47	n/a	n/a	n/a	n/a	75	36		
0.4 (100)	60	28	26	12	97	46	73	34	60	29	101	48	90	42	n/a	n/a	n/a	n/a	60	29		
0.5 (125)	46	22			86	40	60	28			75	36	81	38	n/a	n/a	n/a	n/a	47	23		
0.6 (150)							48	22			45	22	66	31	n/a	n/a	n/a	n/a				
0.7 (175)							38	22							n/a	n/a	n/a	n/a				
0.8 (200)															n/a	n/a	n/a	n/a				
Speed 1 – Low																						
0.1 (25)	76	36	51	24	108	51	100	48	70	34	106	51	88	41	63	30	66	32	74	35		
0.2 (50)	61	29	45	21	100	47	78	37	58	28	79	38	80	38	60	29	60	29	61	29		
0.3 (75)	49	23	33	16	91	43	60	28	45	22	45	22	73	34	57	27	54	26	48	23		
0.4 (100)	35	17	18	8	78	37	46	22	36	17			63	30	53	25	45	22	35	17		
0.5 (125)							32	15					56	26	50	24	37	18				
0.6 (150)													43	20	44	21						
0.7 (175)																						
0.8 (200)																						

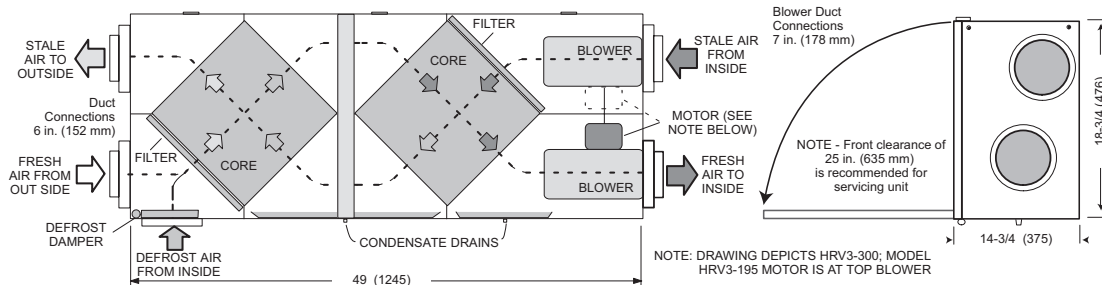
HRV3-095 HEAT RECOVERY VENTILATOR



HRV5-150 HEAT RECOVERY VENTILATORS



HRV3-195 HEAT RECOVERY VENTILATORS



HRV3-150-TPD and ERV5-150-TPD

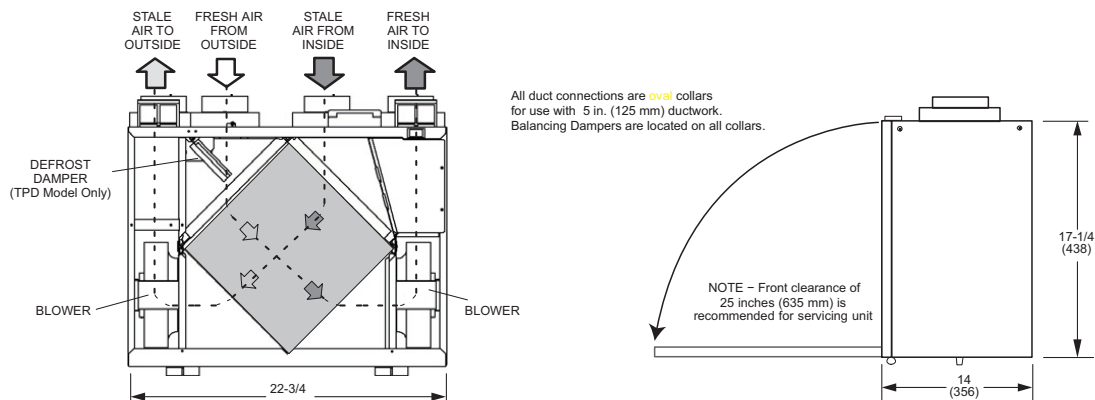


Figure 1. ERV5-150-TPD, HRV3-095, HRV3-150-TPD, HRV3-195 AND HRV5-150

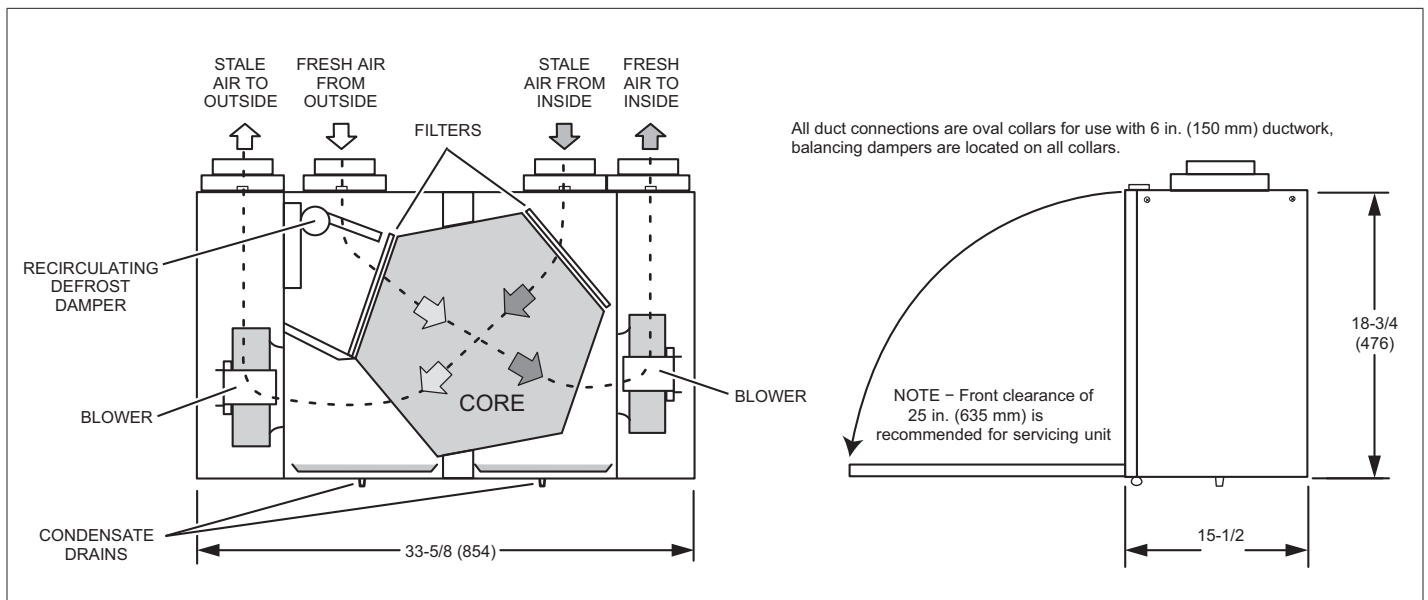


Figure 2. ERV-175-TPD, HRV5-200-TPD AND HRV5-270-TPD-ECM

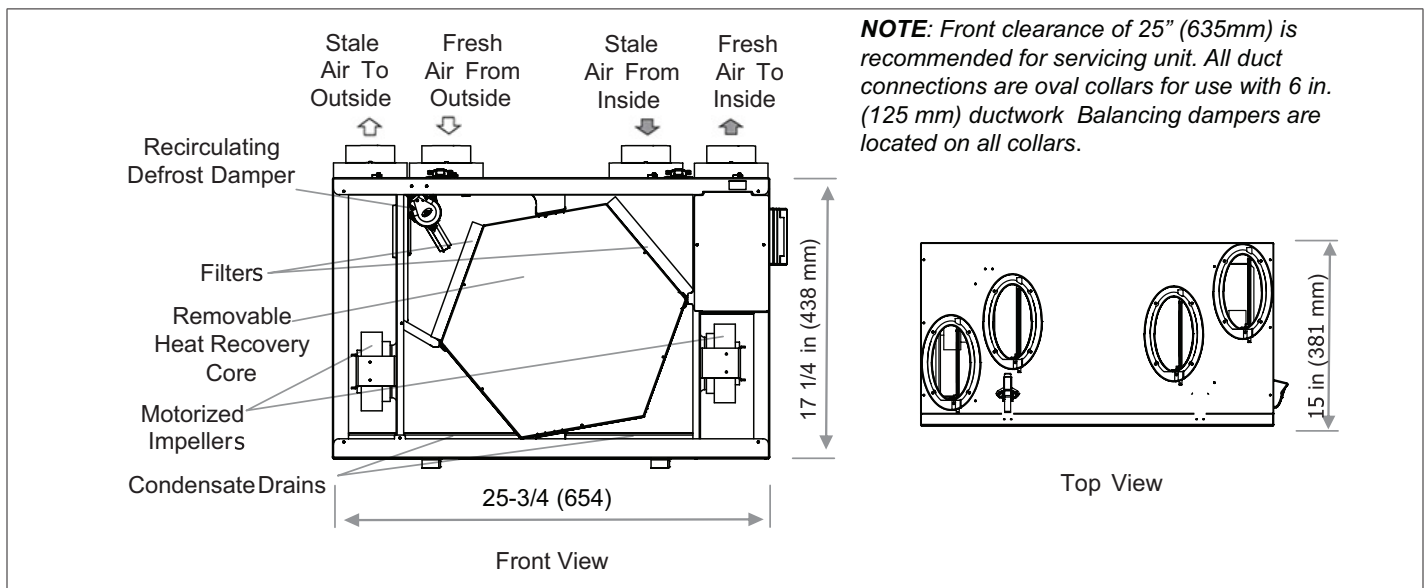


Figure 3. HRV5-HEX095-TPD

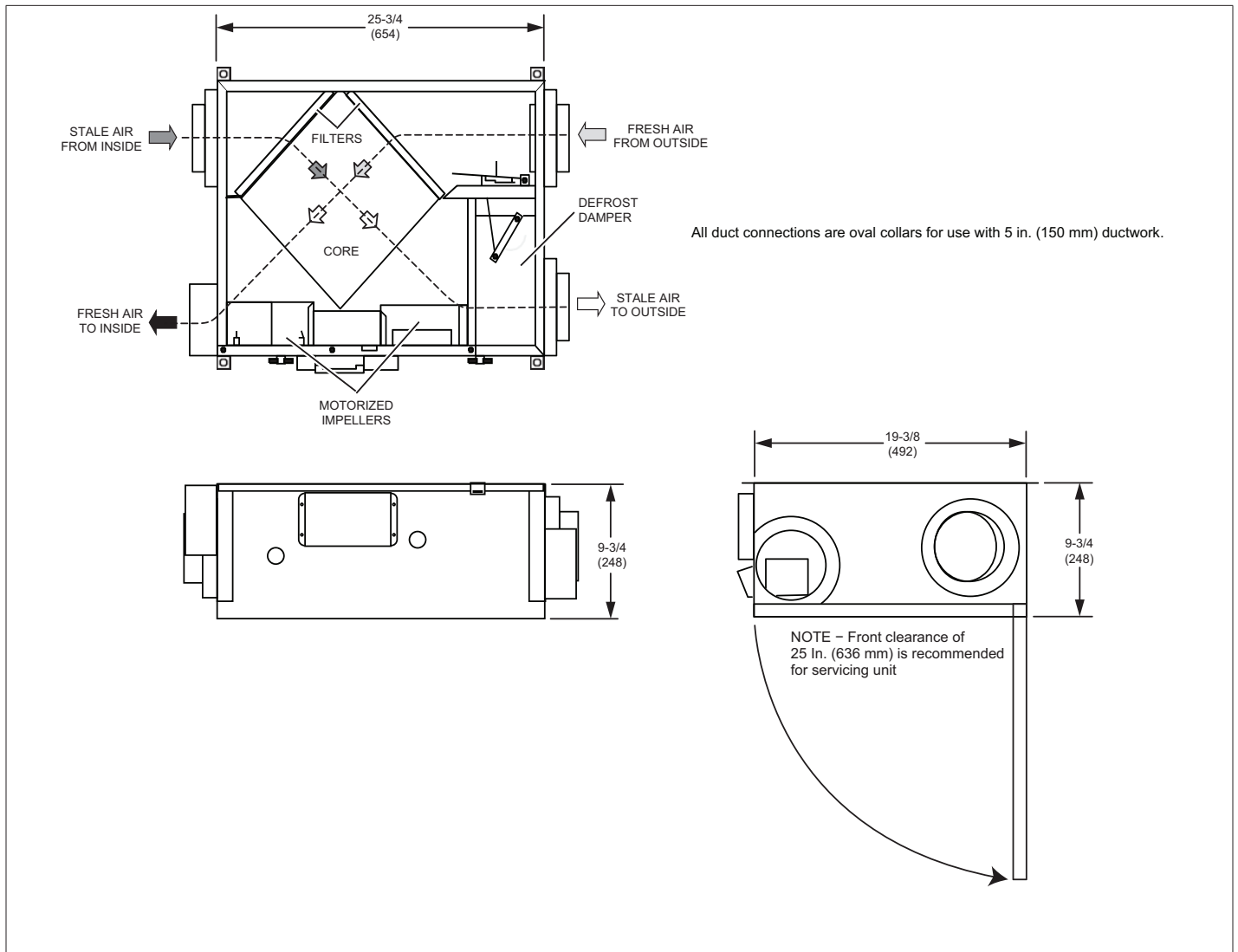


Figure 4. ERV5-130

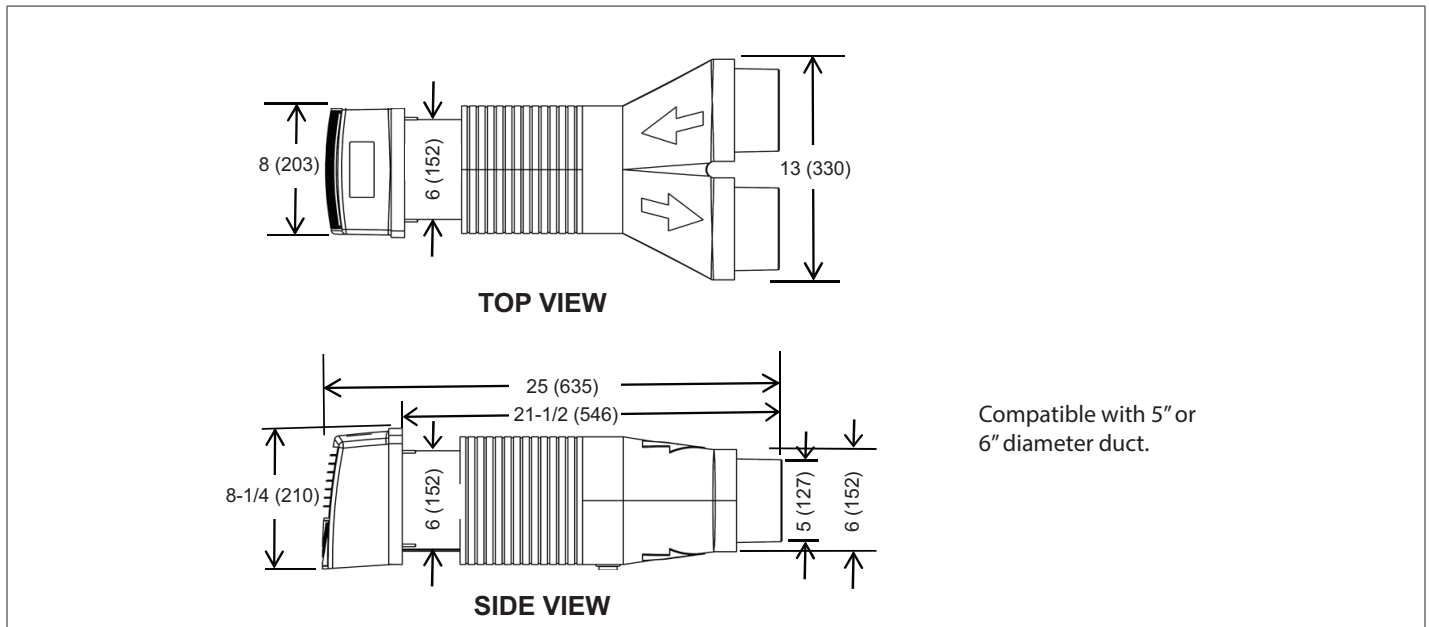


Figure 5. Dual Hoods

Shaping Ducting to Fit Oval Ports

Applicable Units:

HRV3-095, HRV3-150-TPD, HRV5-200-TPD, HRV5-HEX095-TPD, HRV5-270-TPD-ECM, ERV5-150-TPD and ERV5-175-TPD

These units have oval supply and return ports. This enables these units to be as space efficient as possible. Circumference of the port remains the same as round ducting. Simply bend a standard duct fitting to the correct shape and attach to the oval port using the same method as for a round port.

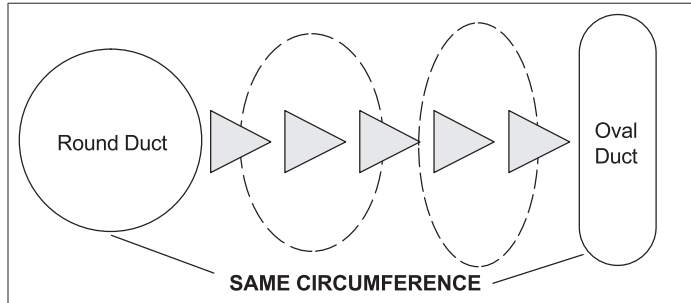


Figure 6. Shaping Ducting to Fit Oval Ports

Requirements

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

- Clothes dryer
- Range top
- Stove top fan
- Central vacuum system

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

ERV/HRV unit must be properly balanced (see page 30 or 32) 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.

Defrost Cycle (ERV/HRV)

The ERV/HRV has an electronically controlled defrost system. The defrost cycle is activated when the outdoor temperature drops below 27°F (-3°C). 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) ERV/HRV runs in defrost for three minutes and runs in ventilation for 25 minutes
- At -4°F (-20°C) ERV/HRV runs in defrost for 4.5 minutes and runs in ventilation for 17 minutes
- At -31°F (-35°C) ERV/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 ERV/HRV defaults to previous settings. If the cycle is completed and the thermistor continues to measure defrost temperature the defrost cycle is repeated.

Recirculating Damper Defrost

Applicable Units:

(HRV3-095, HRV3-150-TPD, HRV5-150, HRV5-200-TPD, HRV5-HEX095-TPD, HRV5-270-TPD-ECM, ERV5-150-TPD, ERV5-175-TPD and ERV5-130)

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 – Five Port Model (HRV3-195) - 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 re-peats until the temperature rises above 27°F (-3°C). (The defrost port can also be ducted to another location.)

Ventilation Operational Modes for both ERV and HRV

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 air

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

- Exhaust stale and contaminated air
- Introduce an equal amount of fresh outdoor air

- Recover the majority of the energy from the exhausted stale air
- Use the recovered energy to pre-heat or pre-cool 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 ERV/HRV 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.

Selecting the Ventilation Rate That is Right for You.

The modes of operation and speeds are used to adjust your indoor ventilation rate. Experiment with the ventilation levels in your home to evaluate the ideal amount of ventilation to suit your home and personal preferences. Operational modes available to you will depend on the main control that is installed. Some features and modes may be unavailable to you.

Table 7. Operational Modes





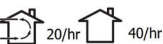
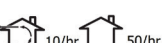


Mode	Icon	Description
Continuous High Fan Speed		This mode will operate the fan in high speed continuously at the selected operating mode (Ventilation or Recirculation). This mode is HI useful when occupancy or activity levels in the home is high for an extended period of time.
Recirculation		Recirculates existing household air without introducing fresh air. Recirculation modes (II and V) are not applicable if your HRV is connected to a forced air system, since your forced air system already circulates the household air. Recirculation modes are unavailable on some models.
* This mode of operation is only available on the Digital 5 Speed / 5 Mode Control (Y8250).		

Table 7. Operational Modes

Mode	Icon	Description
Continuous Ventilation		This mode of operation provides continuous ventilation within the home. You may, for example, select Continuous Ventilation at low speed for normal operation and increase to high speed during increased activity levels, such as cooking and showering, etc.
20 Minutes On, 40 Minutes Recirculation*		This mode ventilates for 20 minutes and circulates the household air for 40 minutes each hour. This mode is not applicable if your HRV is connected to a forced air system. This mode is useful when "Continuous Ventilation" mode is providing too much ventilation.
20 Minutes On, 40 Minutes Standby*		This mode of operation provides 20 minutes of ventilation each hour. You can use this ventilation mode at low speed for low household activity levels or when the home is unoccupied. This mode is useful if "Continuous Ventilation" mode is providing too much ventilation.
10 Minutes On, 50 Minutes Standby*		This mode of operation provides 10 minutes of ventilation each hour. You can use this ventilation mode at low speed for low household activity levels or when the home is unoccupied. This mode is useful if "20 Minutes On, 40 Minutes Standby" mode is providing too much ventilation.
Continuous Recirculation*		This mode continuously recirculates your household air (no ventilation). This mode is not applicable if your HRV is connected to a forced air system.
Continuous Low Fan Speed		This mode will operate the fan in low speed continuously at the selected operating mode (Ventilation or Recirculation).

iComfort E30 (15S63) or S30 (12U67) Ventilation Control Installation and Setup Guide



Figure 7. iComfort S30 with Smart Hub 2.0



Figure 8. iComfort E30

All of the models reference in “Table 2. Models and Catalog Numbers” on page 3 are compatible with iComfort S30 using the Smart Hub 2.0 or E30.

!IMPORTANT

The ERV/HRV may be used with an S30 and E30 control system. The S30 will require a 2.0 smart hub, Do not connect the S30 or E30 to the ERV/HRV before confirming the thermostats have 03.50.XXX or higher software.

FEATURES

The E30 or S30 can operate the ERV or HRV in the following modes:

- ASHRAE 62.2 compliant mode.
- Non-ASHRAE compliant mode - Environmental overrides uses outdoor temperature and outdoor dew point within a set parameter range.
- Timed mode - Runs ventilation equipment for a timed amount per hour.
- User demanded ventilation.
- Provides ventilation for zoned and non-zoned applications.

INSTALLATION OVERVIEW

- Refer to “ERV and HRV Wiring diagrams” on page 14 for wiring connections.
- For installer information concerning ventilation rates and ventilation rates, thermostat ventilation control parameters, see the following sections.
- For end user information go to “iComfort E30 (15S63) or S30 (12U67) Ventilation Control User Guide” on page 19.
- Additional help and on-line tutorials are also available on the iComfort support page at:

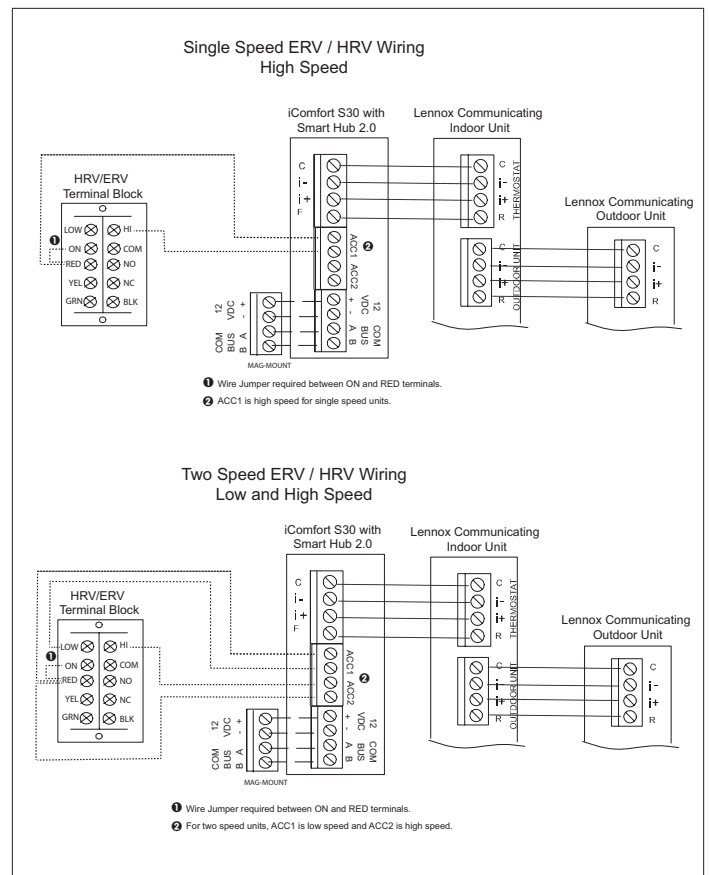
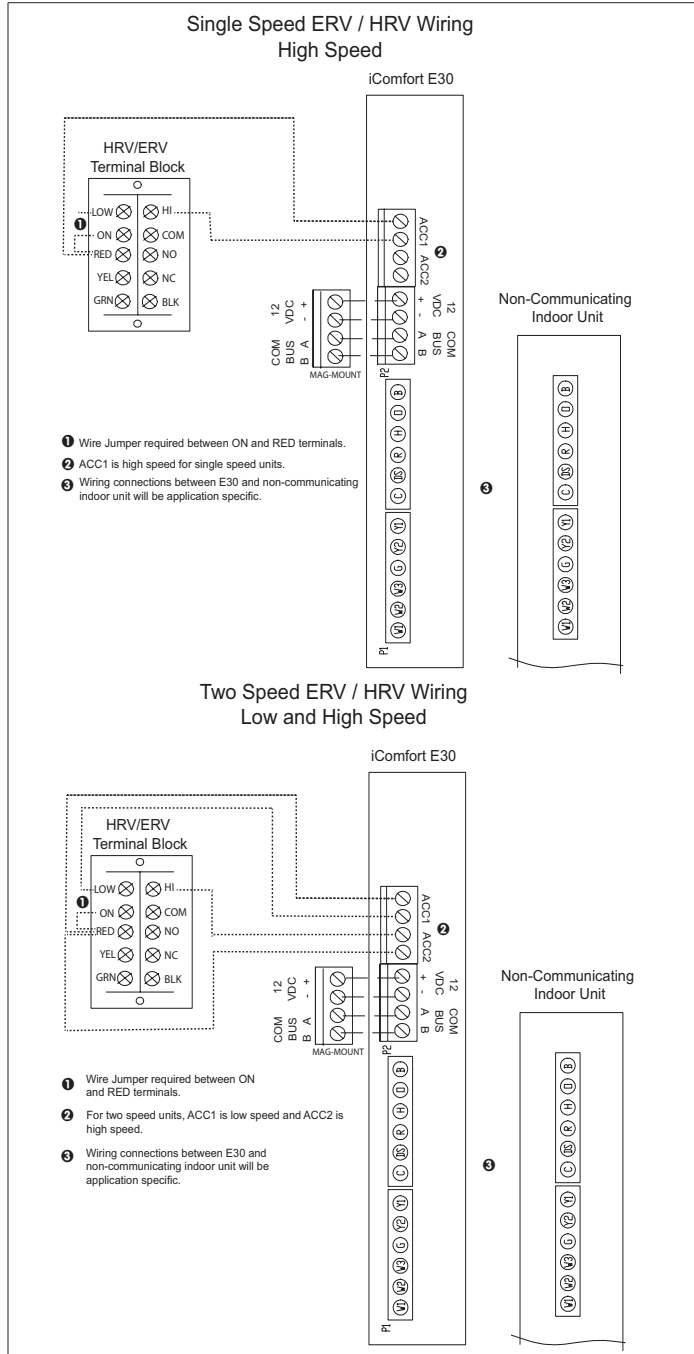
<http://www.support.lennoxicomfort.com/help/index.html>

ERV AND HRV WIRING DIAGRAMS

Use the applicable wiring diagram to connect your ventilation equipment.

! IMPORTANT

Interlocking is NOT required on ventilation equipment when controlled by either an iComfort E30 or S30 thermostat.



DETERMINING VENTILATION RATE

The following information is used to set both the timed or ASHRAE compliant high and low speed ventilation rate for ERV or HRV single and two-speed units when using either the iComfort E30, M30 or S30 thermostats.

Thermostat ventilation CFM parameters are to be adjusted only after the HRV/ERV set up is completed and the CFMs are known. Once the thermostat's CFMs are adjusted they are used with the thermostat's timer algorithm to determine how long to run the HRV/ERV and to change from low to high speed if a 2-stage HRV/ERVs.

See "Installer Selectable High Speed Settings" on page 38 for configuring CFM on the ERV / HRV equipment.

Ventilation Rate for High Speed

When using ERV/HRV as a single or two speed units you must set the blower to the highest speed to balance airflow to be ASHRAE 62.2 compliant.

- Use the door port balancing chart (see "Airflow Balancing Charts" on page 42) or pitot tube to determine the ventilation rate.

- Use the calculated CFM rate in the S30 or E30 configuration set up for both timed and ASHRAE Compliant CFM rate at high speed.

Ventilation Rate for Low Speed

Use the following procedure to set the system blower to low speed on two-speed units.

- When a Pitot tube is not available use the 0.1" w.g static value CFM for speed 1 - low from "Table 6. Optional Fan Curves Speeds (Factory Tested)" on page 7 as default.
- Use the calculated CFM rate in the S30 or E30 configuration set up for a ASHRAE Compliant CFM rate at low speed.

VENTILATION CONTROL MODES

The following tables provides a quick reference to which parameters are applicable to specific equipment.

Table 1. Ventilation Control Modes

Ventilation Control Mode	Fresh Air Damper	1 Speed HRV	2 Speed HRV	1 Speed ERV	2 Speed ERV
Timed					
Ventilation Minutes Per Hour (0 to 60 min., default is 20 min.)	✓	✓	✓	✓	✓
Ventilation Rate (20 to 500 cfm, default is 130 cfm)	---	✓	---	✓	---
Ventilation Rate for Low Speed (10 to 200 cfm, default is 50 cfm)	---	---	✓	---	✓
Ventilation Rate for High Speed (20 to 500 cfm, default is 130 cfm)	---	---	✓	---	✓
Ventilation High Outdoor Temperature Limit (60 to 115°F, default is 100°F)	✓	✓	✓	✓	✓
Ventilation Low Outdoor Temperature Limit (-20 to 55°F, default is 0°F)	✓	✓	✓	✓	✓
Ventilation High Outdoor Dew Point Limit (45 to 80°F, default is 55°F)	✓	✓	✓	✓	✓
ASHRAE (62.2)					
In this mode the thermostat can assist the installer by validating the ventilation CFMs are capable of meeting the ASHRAE required ventilation volumes, but the thermostat has no ability to control CFM from the HRV/ERV.					
Ventilation Rate (20 to 500 cfm, default is 130 cfm)	---	✓	---	✓	---
Ventilation Rate for Low Speed (10 to 200 cfm, default is 50 cfm)	---	---	✓	---	✓
Ventilation Rate for High Speed (20 to 500 cfm, default is 130 cfm)	---	---	✓	---	✓
ASHRAE Compliance Check	NO	YES	YES	YES	YES
ASHRAE Infiltration Credit (0 to 200 cfm, default is 0 cfm)	✓	✓	✓	✓	✓
ASHRAE House Floor Area Serviced by this Ventilator	✓	✓	✓	✓	✓
ASHRA Number of Bedrooms	✓	✓	✓	✓	✓
Ventilation Outdoor Condition Override - Enabled					
Ventilation High Outdoor Temperature Limit (60 to 115°F, default is 100°F)	✓	✓	✓	✓	✓
Ventilation Low Outdoor Temperature Limit (-20 to 55°F, default is 0°F)	✓	✓	✓	✓	✓
Ventilation High Outdoor Dew Point Limit (45 to 80°F, default is 55°F)	✓	✓	✓	✓	✓

Timed

- When timed mode is selected, the system assures that low speed ventilation has run for at least the selected time per hour.
- The system first tries to satisfy the required ventilation run time by only ventilating while conditioning is occurring.
- The time remaining in the hour time block is compared to the required ventilation run-time remaining and if the time remaining in the hour is equal to or less than the remaining ventilation run time required, then low speed ventilation is started and stops when the hour time block is over or the required timed ventilation duration is satisfied.
- If ventilation now is selected by homeowner the unit will change from low speed operation to high speed.
- If the time is greater than the ventilation run-time the unit will switch to high speed until the run-time ventilation rate is satisfied.

ASHRAE

- ASHRAE 62.2 is a national standard that provides methods for achieving acceptable indoor air quality in typical residences. It was developed and is maintained by the American Society of Heating and Air-Conditioning Engineers (ASHRAE).
- One of the standard three main components is Whole House Ventilation which is exhausting stale indoor air and replacing it with fresh outdoor air.
- The exhaust fan dilutes the air in the main living spaces with outside air to remove unavoidable contaminants from people, pets, cleaning, off gassing, etc.
- The whole house fan flow rate is determined based on the floor space and the number of bedrooms. The whole house fan provides multiple air exchanges within the home each day. The operation can be continuous or intermittent (much higher airflow cycled by a timer) if 1 zone or less.

Formula Method

Example a 2000 square foot home with 4 bedrooms from ASHRAE 4.1 a quick reference chart predicts 98 cfm.

Formula:

$$(\text{Square feet} \times 0.03) + (\text{bedrooms} + 1 \times 7.5) = 97.5$$

$$(2000 \times 0.03) + (4+1) \times 7.5 = 97.5$$

Table Method

The following table complies with ASHRAE Standard 62.2, Table 4.1a, Continuous Whole-Building Ventilation rate in cfm.

Table 8. Whole Building Ventilation Air Requirements

Floor Area (Square Feet)	Number of Bedrooms				
	1	2	3	4	5
	cfm	cfm	cfm	cfm	cfm
<500	30	38	45	53	60
501 - 1000	45	53	60	68	75
1001 - 1500	60	68	75	83	90
1501 - 2000	75	83	90	98	105
2001 - 2500	90	98	105	113	120
2501 - 3000	105	113	120	128	135
3001 - 3500	120	128	135	143	150
3501 - 4000	135	143	150	158	165
4001 - 4500	150	158	165	173	180
4501 - 5000	165	173	180	188	195

For more information about ASHRAE, go to:

<https://www.ashrae.org>.

THERMOSTAT VENTILATION PARAMETERS

Thermostat ventilation CFM parameters are to be adjusted only after the HRV/ERV set up is completed and the CFMs are known. Once the thermostat's CFMs are adjusted they are used with the thermostat's timer algorithm to determine how long to run the HRV/ERV and to change from low to high speed if a 2-stage HRV/ERVs.

Go to **menu > settings > advanced settings > view dealer control center > equipment > smart hub**. Locate the parameters listed in "Table 9. Smart Hub Parameters (Ventilation)".

The following parameter will be application specific and are only listed where applicable to the type of equipment and control mode being used, for example, types of equipment would be ERV or HRV and control mode would be either Timed or ASHRAE.

Table 9. Smart Hub Parameters (Ventilation)

Parameter	Description
Ventilation Control Mode - timed (default)	
Ventilation Minutes Per Hour	<p>Parameter range is 0.0 - 60.0 minutes. Default is 20.0 minutes. Can be adjusted in increments of 1.0 minutes.</p> <ul style="list-style-type: none"> The system first tries to satisfy the ventilation time by only ventilating while conditioning is occurring. NOTE: Continuous fan is NOT considered conditioning. When the required time remaining to ventilate for the hour does not equals the amount of time remaining in that hour, the system begins ventilation and does not stop until the ventilation time requirement is satisfied. When ventilating without a conditioning demand, the ventilation output is active as well as a continuous indoor fan demand. When ventilating with a conditioning demand, the ventilation output is active with the conditioning demand outputs.
<p>Ventilation Rates</p> <p>Thermostat ventilation CFM parameters are to be adjusted only after the HRV/ERV set up is completed and the CFMs are known. Once the thermostat's CFMs are adjusted they are used with the thermostat's timer algorithm to determine how long to run the HRV/ERV and to change from low to high speed if a 2-stage HRV/ERVs.</p>	
Ventilation Rate	Parameter range is 20 - 200 CFM. Default is 130 CFM. Can be adjusted in increments of 1.0 CFM.
Ventilation Rate for Low Speed	Parameter range is 10 - 200 CFM. Default is 50 CFM. Can be adjusted in increments of 1.0 CFM.
Ventilation Rate for High Speed	Parameter range is 20 - 500 CFM. Default is 130 CFM. Can be adjusted in increments of 1.0 CFM.

Table 9. Smart Hub Parameters (Ventilation)

Parameter	Description
Ventilation High Outdoor Temperature Limit	<p>Parameter range is 60 to 115°F. Default is 100°F. Can be adjusted in increments of 5°F.</p> <p>While the outdoor temperature is equal to or higher than the setting for Ventilation High Outdoor Temperature Limit, ventilation does not run. When locked out due to high outdoor temperature, it will become unlocked when either the outdoor temperature is missing, or when the temperature reported is 1°F less than the Ventilation High Outdoor Temperature Limit setting when display units are in Fahrenheit, or is reported as 0.5°C less than lock out setting when the display units are Celsius.</p>
Ventilation Low Outdoor Temperature Limit	<p>Parameter range is -20 to 55°F. Default is 0°F. Can be adjusted in increments of 5°F.</p> <p>While the outdoor temperature is lower than the setting for the Ventilation Low Outdoor Temperature Limit, ventilation does not run.</p> <p>When locked out due to low outdoor temperature, it will become unlocked when the outdoor temperature is missing, or when the temperature reported is 1°F higher than the Ventilation Low Outdoor Temperature Limit setting when display units are Fahrenheit, or is reported as 0.5°C higher than lock out setting when the display units are Celsius.</p>
Ventilation High Outdoor Dew Point Limit	<p>Parameter range is 45 to 80°F. Default is 55°F. Can be adjusted in increments of 5°F.</p> <p>While the outdoor dew point is higher than the setting for the high outdoor dew point limit, ventilation does not run.</p> <p>When locked out due to high outdoor dew point limit, it will become unlocked when the outdoor dew point is missing, or when the dew point temperature reported is 1°F less than the lock-out setting when display units are Fahrenheit, or is reported as 0.5°C less than lock-out setting when the display units are Celsius.</p>
Ventilation Control Mode - ASHRAE	
<ul style="list-style-type: none"> In this mode the thermostat can assist the installer by validating the ventilation CFMs are capable of meeting the ASHRAE required ventilation volumes, but the thermostat has no ability to control CFM from the HRV/ERV. The system first tries to satisfy the ventilation volume by only ventilating while conditioning is occurring. Continuous fan is not considered conditioning. The total volume of ventilation air is accumulated and stored to compare against the target hourly ventilation volume (Vhr). The accumulated value resets each hour. When the remaining required volume of ventilation air for the hour divided by the fan only ventilation rate is equal to or greater than the time remaining to ventilate for the hour and no conditioning is occurring, the system begins ventilation using continuous fan and does not stop until the target hourly ventilation volume requirement is satisfied. When ventilating without a conditioning demand, the ventilation output is active as well a continuous indoor fan demand. When ventilating with a conditioning demand, the ventilation output is active with the conditioning demand outputs. When the system is ventilating, the user interface can indicate as such by showing "ventilating" to the user on the home screen. 	

Table 9. Smart Hub Parameters (Ventilation)

Parameter	Description
Ventilation Rates Thermostat ventilation CFM parameters are to be adjusted only after the HRV/ERV set up is completed and the CFMs are known. Once the thermostat's CFMs are adjusted they are used with the thermostat's timer algorithm to determine how long to run the HRV/ERV and to change from low to high speed if a 2-stage HRV/ERVs.	
Ventilation Rate	Parameter range is 20 - 500 CFM. Default is 130 CFM. Can be adjusted in increments of 1.0 CFM.
Ventilation Rate for Low Speed	Parameter range is 10 - 200 CFM. Default is 50 CFM. Can be adjusted in increments of 1.0 CFM.
Ventilation Rate for High Speed	Parameter range is 20 - 500 CFM. Default is 130 CFM. Can be adjusted in increments of 1.0 CFM.
Ventilation Outdoor Condition Override	Options are Disabled (default) or Enabled.
ASHRAE Compliance Check	= NO (Ventilation CFM too low to comply with ASHRAE 62.2) or YES (Current settings comply with ASHRAE 62.2)
ASHRAE Infiltration Credit	Parameter range is 0.0 - 200.0 CFM. Default is 2500 square feet. Can be adjusted in increments of 1.0 CFM.
ASHRAE House Floor Area Served by This Ventilator	Parameter range is 500.0 - 5000.0 square feet. Default is 2500.0 CFM. Can be adjusted in increments of 100.0 square feet. The formula for calculating how much ventilation is required is: (total square footage of the home/100) + (number of bedrooms+1) x 7.5 cfm)
ASHRAE Number of Bedrooms	Parameter range is 1.0 - 10.0. Default is 3.0. Can be adjusted in increments of 1.0.
Ventilation Outdoor Condition Override - Enabled	
Ventilation High Outdoor Temperature Limit	Parameter range is 60 to 115°F. Default is 100°F. Can be adjusted in increments of 5°F. While the outdoor temperature is equal to or higher than the setting for Ventilation High Outdoor Temperature Limit , ventilation does not run. When locked out due to high outdoor temperature, it will become unlocked when either the outdoor temperature is missing, or when the temperature reported is 1°F less than the Ventilation High Outdoor Temperature Limit setting when display units are in Fahrenheit, or is reported as 0.5°C less than lock out setting when the display units are Celsius.
Ventilation Low Outdoor Temperature Limit	Parameter range is -20 to 55°F. Default is 0°F. Can be adjusted in increments of 5°F. While the outdoor temperature is lower than the setting for the Ventilation Low Outdoor Temperature Limit , ventilation does not run. When locked out due to low outdoor temperature, it will unlocked when the outdoor temperature is missing, or when the temperature reported is 1°F higher than the Ventilation Low Outdoor Temperature Limit setting when display units are Fahrenheit, or is reported as 0.5°C higher than lock out setting when the display units are Celsius.

Table 9. Smart Hub Parameters (Ventilation)

Parameter	Description
Ventilation High Outdoor Dew Point Limit	Parameter range is 45 to 80°F. Default is 55°F. Can be adjusted in increments of 5°F. While the outdoor dew point is higher than the setting for the high outdoor dew point limit, ventilation does not run. When locked out due to high outdoor dew point limit, it will become unlocked when the outdoor dew point is missing, or when the dew point temperature reported is 1°F less than the lock out setting when display units are Fahrenheit, or is reported as 0.5°C less than lock out setting when the display units are Celsius.

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VENTILATION HOME SCREEN ICONS

The ventilation icon that appears along the left side of the home screen will appear when a pre-defined system level routine for ventilation is running. The system level routine was defined by your installer using the thermostats' available parameter settings.

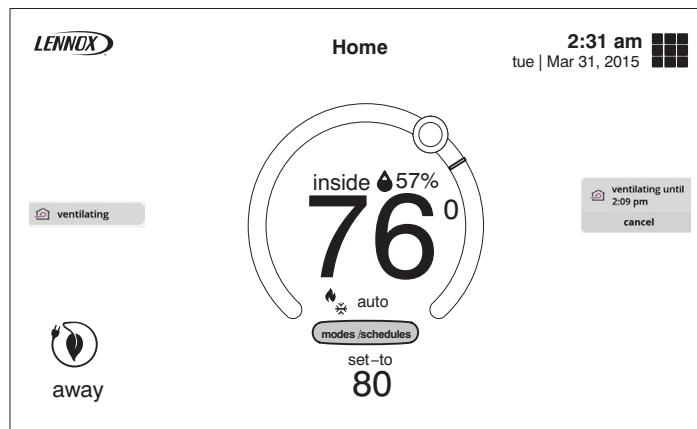


Figure 11. Ventilation Home Screen Notifications

VENTILATION SETTINGS

Menu Selection

From the thermostat's home screen, go to **menu > settings > ventilation**. The ventilation menu option will only appear if a ERV or HRV is installed and configured by your installer. Any Lennox ERV or HRV reference in this instruction can be configured as either a single or two-speed unit.

When selecting this menu option, selections will be either:

- Timed or ASHRAE (either Timed or ASHRAE is set by your installer during setup of your thermostat).
- On (always).
- Off (always).

Factory default is ASHRAE. Your installer will need to change it to Timed if that mode is desired.

User Demand Ventilation

You can also select "ventilate now" to start a ventilation function immediately. Those menu options are 10, 20, 30, 40 and 50 minutes, 1 hour, 1-1/2 hours, 2 hours, 2-1/2 hours, 3 hours, 3-1/2 hours and 4 hours and custom. Custom will allow a specific time to be set.

NOTE: Once ventilation is started, a notification appears on the right-side of the home screen indicating a time when that specific cycle will end and the option to cancel the demand (see "Figure 11. Ventilation Home Screen Notifications").

NOTE: Fan is running icon may also appear on the left-side of the home screen when ventilation is running and there is no cooling or heating demand active.

REMINDERS

From the thermostat home page, go to **menu > settings > reminders**.

This screen allows you to set reminders as either disabled or 3, 6, 12 or 24 months and also custom by specific date. The other options on this screen is to trigger the reminder event either by calendar or actual system run-time.

Reminders may be set for ventilation maintenance and ventilation filter. Once a reminder is set for a specific item, touch done to return to the previous screen. An "expires on date" will appear next to the item just set.

How the Dehumidistat Works

When using either an H/C ERV/HRV Ventilation Push Button Control (Y8249) or H/C ERV/HRV Deluxe Ventilation Control (Y8250) a built-in dehumidistat is present. The following information is provided on how it works.

High indoor humidity levels, during the heating season, have become a problem in many well insulated, tight homes. Excessive condensation on the windows is a visual sign of high indoor humidity levels. High indoor humidity levels can result in mold, mildew and the eventual degradation of the building structure itself. Your HRV reduces indoor humidity levels when the outdoor air is drier than the indoor air.

These conditions usually occur during the heating season when outdoor temperatures are less than 59°F (15°C).

During the heating season, the operation of the HRV may reduce indoor humidity levels sufficiently to eliminate the need for further dehumidification. Use the adjustable dehumidistat feature located on the main control if your home requires further dehumidification during the heating season.

This feature aggressively addresses high indoor humidity levels by initiating high speed ventilation when the indoor humidity levels rise above the set point on the control. Once the humidity in the house is reduced, the HRV will revert back to its previous setting.

We suggest operating the HRV 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 percentage of RH (relative humidity) with 60 being high and 20 being low. If after a few days, further dehumidification is required (the house is still too humid), set the humidity level to a lower amount.

The average person is comfortable between 30% and 50% RH. The Dehumidistat should be set to **OFF** for all seasons except the heating season since a dehumidifying effect only occurs when the outdoor air is dryer than the indoor air.

Dehumidistat Notes

Dehumidistat Disable automatically disables the dehumidistat function on the main control when outdoor temperatures exceed 59°F (15°C) for a full 24 hour period. All other HRV features and functions operate normally while the Dehumidistat Function is disabled.

Dehumidistat Re-Enable automatically re-enables the dehumidistat function when the outdoor temperature drops below 59°F (15°C) for a full 24 hour period or if the HRV is reset (unplugged for 30 seconds).

H/C ERV/HRV Ventilation Push Button Control (Y8249)

The control offers the following features to control your home's ventilation.

- Two speed fan setting (LOW / HIGH)
- Standby setting (fan OFF)
- Electronic dehumidistat
- Compatible with wireless timers. Connect to 3-wire 20 gauge low voltage wire.
- Designed to be mounted in a standard 2 x 4" (51 x 102 mm) electrical box or surface mounted to a wall.

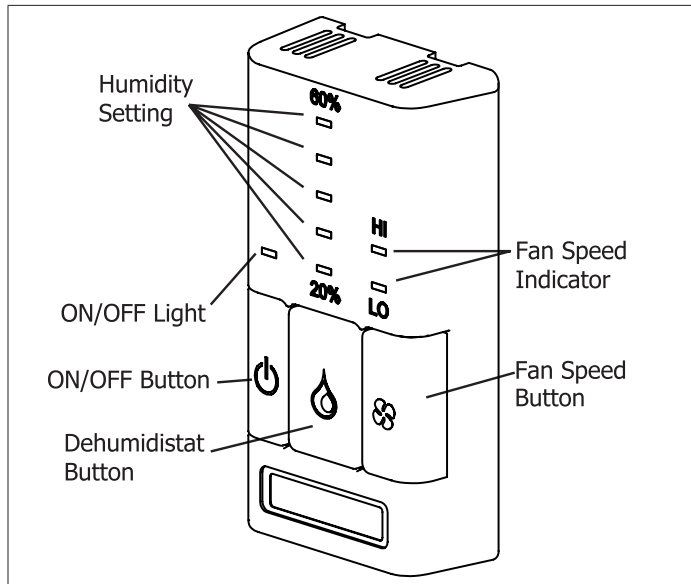


Figure 12. H/C ERV/HRV Ventilation Push Button Control (Y8249)

Table 10. H/C ERV/HRV Ventilation Push Button Control (Y8249) Settings

Settings	Icon	Description
Turning on the Control		Press and release the ON/OFF button. The light above will illuminate.
Setting the Ventilation Speed		Press and release the Fan button to select LOW or HIGH fan speed. The corresponding "Indicator Light" will illuminate. If both LO and Hi indicator lights are off, the fan is OFF but will turn ON if required by the Dehumidistat or remote Timer (if installed).
Humidity Control		Your unit will reduce indoor humidity when outdoor humidity levels are lower than indoor humidity levels. This feature is only effective when the outdoor temperature is below 59° F (15° C).

Table 10. H/C ERV/HRV Ventilation Push Button Control (Y8249) Settings

Settings	Icon	Description
Setting the Dehumidistat		Press and release the Dehumidistat button until the Dehumidistat Light is at the desired setting. After a few seconds the Dehumidistat light will either flash or be on continuous. 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. The Dehumidistat will override the current speed setting to HIGH speed. The Dehumidistat function can be turned OFF by pressing the button until no Dehumidistat light is on. Refer to the "How the Dehumidistat Works" on page 19 section of this instruction for a detailed description of Dehumidistat functionality.

!IMPORTANT

Only one main control can be installed on the system. Timers will not function when mode of operation is set to "OFF", unless specifically installed for that function. See "Main Control Standby Setting" on page 34 in this instruction.

H/C ERV/HRV Deluxe Ventilation Control (Y8250)

The control offers the most advanced features to control your home's ventilation.

- Five speed fan setting
- Standby setting (fan speed 0)
- Electronic dehumidistat
- 20/40/60 HIGH speed override button
- Compatible with H/C Ventilation Wireless Timer (Y8251)
- Easy to read back-lit LCD screen
- Slim-line design
- Connect to 3-wire 20 gauge low voltage wire

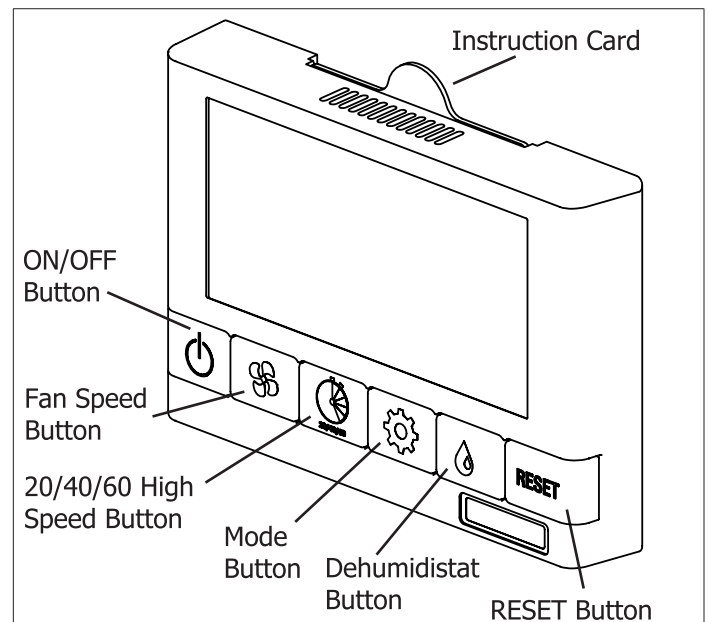


Figure 13. H/C ERV/HRV Deluxe Ventilation Control (Y8250)

Table 11. Operational Modes

Function	Icon
Continuous Ventilation	
20 Minutes On, 40 Minutes Recirculation	
20 Minutes On, 40 Minutes OFF	
10 Minutes On, 50 Minutes OFF	
Continuous Recirculation	

Table 12. Digital Control Operations

Mode	Icon	Description
Turning on the Control		Press and release the ON/OFF button. The light above will illuminate.
Setting the Ventilation Speed		Press and release the Fan button to select one of the five fan speeds. The fan speed will be displayed on the screen beside the Fan symbol. Standby mode (Fan OFF) is indicated as speed 0. The fan will turn ON if required by a remote Timer (if installed).
20/40/60 High Speed Button		Press and release the 20/40/60 High Speed button to temporarily initiate HIGH Fan speed for 20, 40 or 60 minutes. Press once for 20 minutes, twice for 40 minutes, three times for 60 minutes and four times to disable. The timer symbol will appear on the screen and the corresponding section of the clock will flash to indicate the time interval selected. When the timer runs out, the unit will return to it's previous operating speed.
Setting the Mode of Operation		There are five modes of operation available with the Digital 5-Speed / 5-Mode Control. Pressing the Mode button will display the different modes of operation on the screen.
Setting the Dehumidistat		The Digital 5-Speed / 5-Mode Control displays the current indoor humidity in LARGE numbers and the Dehumidistat setting in SMALL numbers on the screen. If the indoor humidity is above the set point, the control will initiate HIGH Fan speed operation in Ventilation mode until the indoor humidity has been reduced below the set point. Press and release the Dehumidistat button to adjust the Dehumidistat setting. The Dehumidistat can be set between 25% RH and 60% RH. To disable the Dehumidistat function on the control, cycle through the setting until OFF is displayed. Refer to "How the Dehumidistat Works" on page 19 in this instruction for a detailed description of the Dehumidistat function.
Reset Button RESET		The RESET button will clear the current Fan, Timer, Mode and Dehumidistat settings and set the unit into LOW fan speed, Ventilation mode and a Dehumidistat setting of 40%.

Table 12. Digital Control Operations

Mode	Icon	Description
Service Indicator		A service indicator appears when the unit requires routine maintenance. Refer to "Blower Assembly Service (Dealer Only)" on page 58" in this instruction. Press and hold the ON/OFF button for 5 seconds to reset the service indicator once maintenance has been performed.

H/C 20/40/60 Minute Timer (Y2169) (Optional) and H/C Ventilation Wireless Timer (Y8251)

Timers are available as wired or wireless. The Timer will override the operational mode of the main control (regardless of the setting) and initiate HIGH fan speed Ventilation for 20, 40 or 60 minutes. The ERV/HRV will return to your selected operational mode and fan speed setting upon completion of the timer cycle.

You may wish to have timers installed in the poorest air quality areas of you home (bathrooms, kitchen etc.).

USING TIMERS

Press the select button to initiate high speed ventilation for 20, 40 or 60 minutes. The corresponding status light will illuminate to indicate either 20, 40 or 60 minutes of high speed fan operation. Press the Select Button until the status lights are no longer illuminated to cancel high speed timer operation.

H/C 20/40/60 MINUTE TIMER (Y2169) (OPTIONAL)

The Wired Timer has a lockout mode feature that can be set to disable the Timer. Set lockout by holding the select button for five seconds. Unlock by holding for 5 seconds.

Connect to 3-wire, 20-gauge (min.) low-voltage wire and install in a standard 2 x 4" (51 x 102 mm) electrical box.

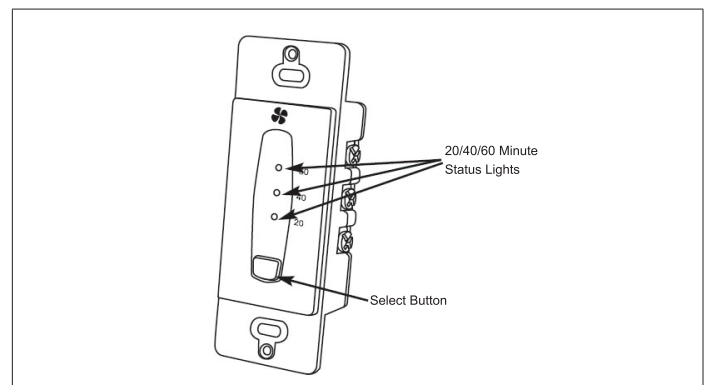


Figure 14. H/C 20/40/60 Minute Timer (Y2169) (Optional)

H/C VENTILATION WIRELESS TIMER (Y8251)

NOTE: Can only be used with basic control Y8249 or digital control Y8250.

The Ventilation Wireless Timer may be located in a remote location in the home (ex. Bathroom) when paired to the main wall control. Wireless Timers have an estimated range of 40 feet (12 meters) with no obstructions. To increase the range of a Wireless 20/40/60 Minute Timer, a Repeater (Y8252) may be used. Multiple timers can be paired to a single main

control. Designed to be mounted in a standard 2 x 4" (51 x 102 mm) electrical box or surface mounted to a wall.

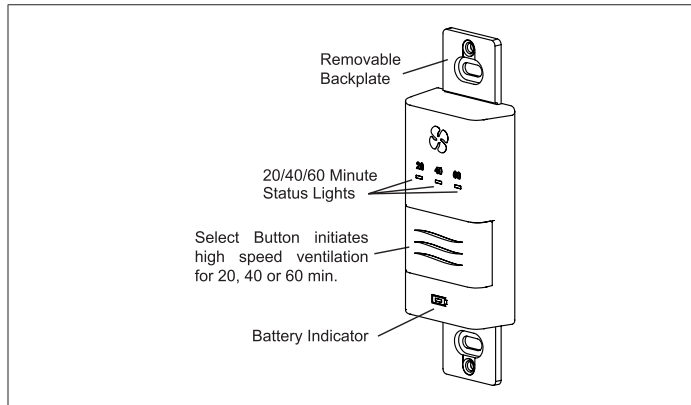


Figure 15. H/C Wireless 20/40/60 Minute Timer (Y8251)

REPLACING THE BATTERY

The red LED Battery indicator will illuminate when the battery on the timer needs to be replaced in the Wireless 20/40/60 Minute Timer. Replace the battery by:

- Pulling the face plate off the wall.
- Replacing the battery located on the back of the Timer Face Plate.
- Re-attaching the face plate to the back plate. Be careful not to damage the tabs on the back plate when re-attaching the face plate.

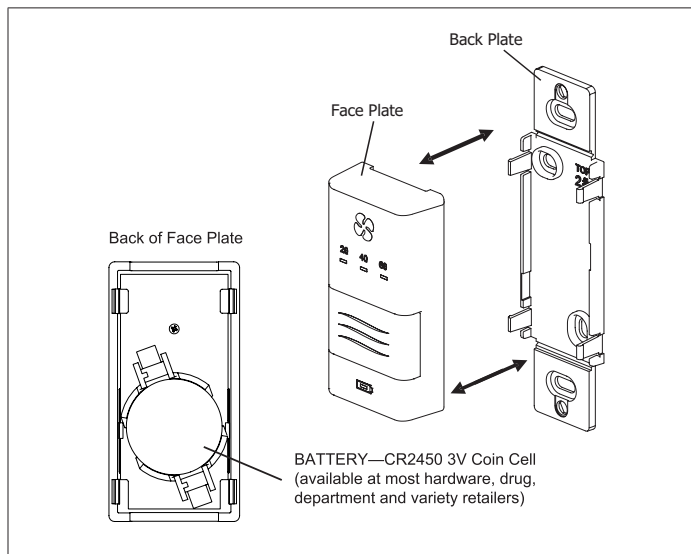


Figure 16. Replacing the Battery

H/C Ventilation Wireless Repeater (Y8252)

This device is used to extend range of the Wireless Timers (Y8251). The wireless repeater plugs directly into a 120V power outlet.

The Repeater should be installed at the halfway point between the Wireless 20/40/60 Minute Timer and the main wall control if the timer is out of range.

When the Repeater is positioned correctly, a solid green LED will illuminate indicating the Repeater has a strong connection to the main wall control and may be moved far-

ther away if necessary.

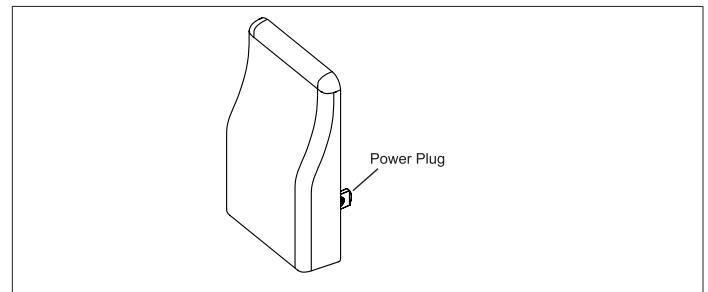


Figure 17. H/C Ventilation Wireless Repeater (Y8252)

Overview of Installation Methods

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

- Simplified installation - See "Installation Methods - Simplified (Return/Return)" on page 24.
- Partially dedicated installation - See "Installation Methods - Partially Dedicated" on page 25.
- Fully dedicated installation - See "Installation Methods - Fully Dedicated" on page 26.

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 that the ERV/HRV unit will deliver is directly related to the total external static pressure 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 ERV/HRV UNIT AND LIVING AREAS IN THE HOUSE

A well designed and installed ducting system will allow the ERV/HRV 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 ERV/HRV 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 inches [300 mm]) of non-metallic flexible insulated duct should be connected between the ERV/HRV 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, atrium, swimming pools, saunas, etc. have unique ventilation requirements which should be addressed with an isolated ventilation system.

Installation Methods - Simplified (Return/Return)

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 as illustrated in the following figures.

Key Points

The ERV/HRV unit must be balanced.

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

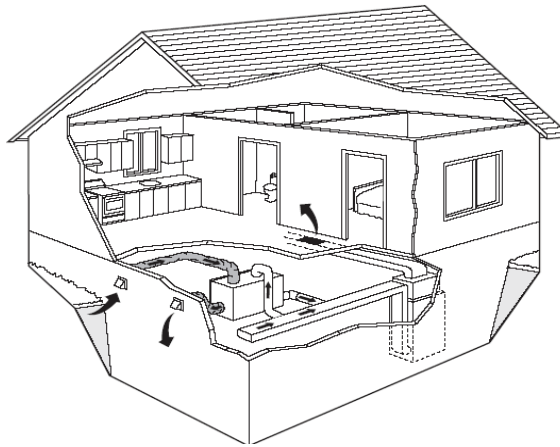


Figure 18. Simplified Installation (Return/Return)

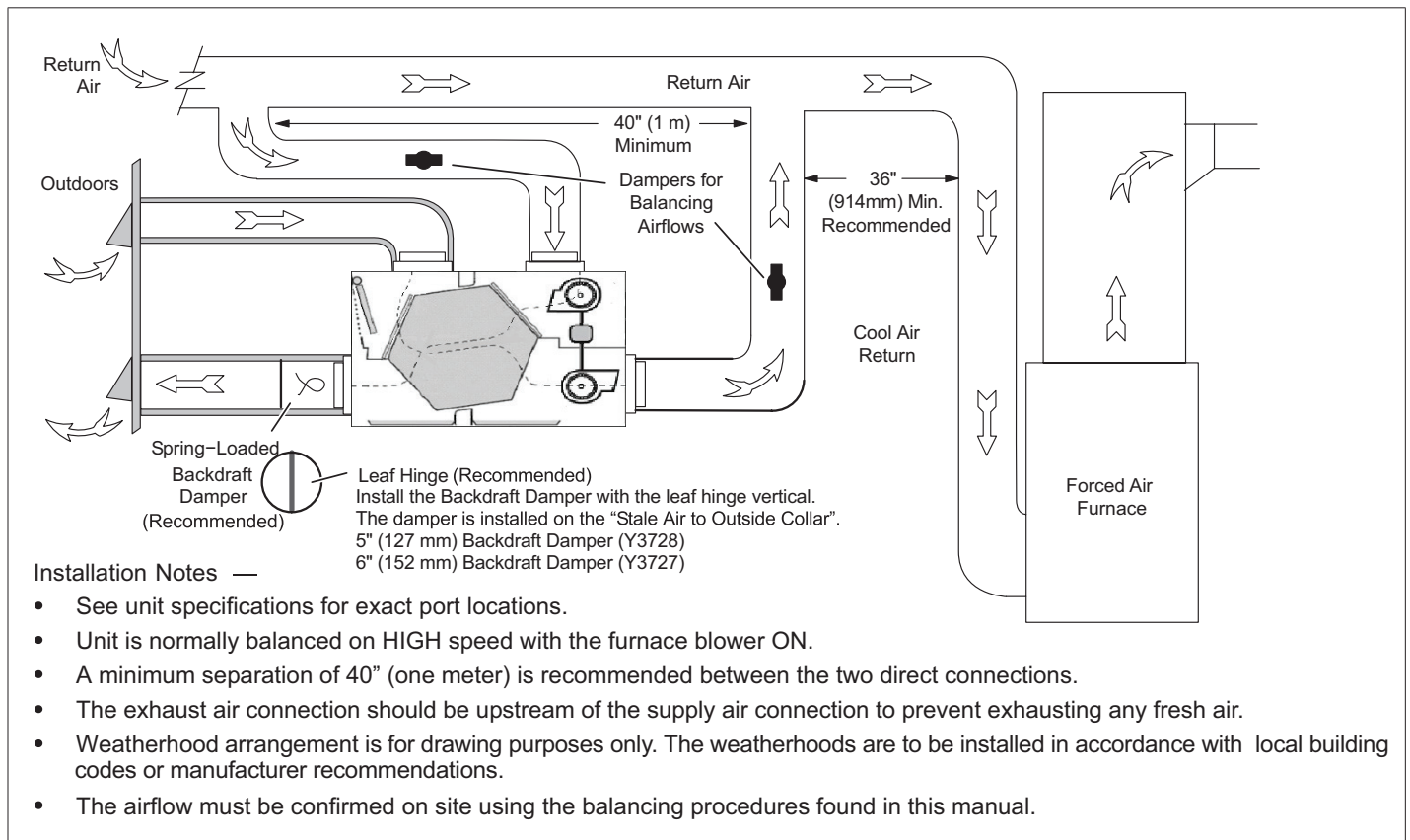


Figure 19. Simplified Installation (Return/Return)

Installation Methods - Partially Dedicated

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 as illustrated in the following figures.

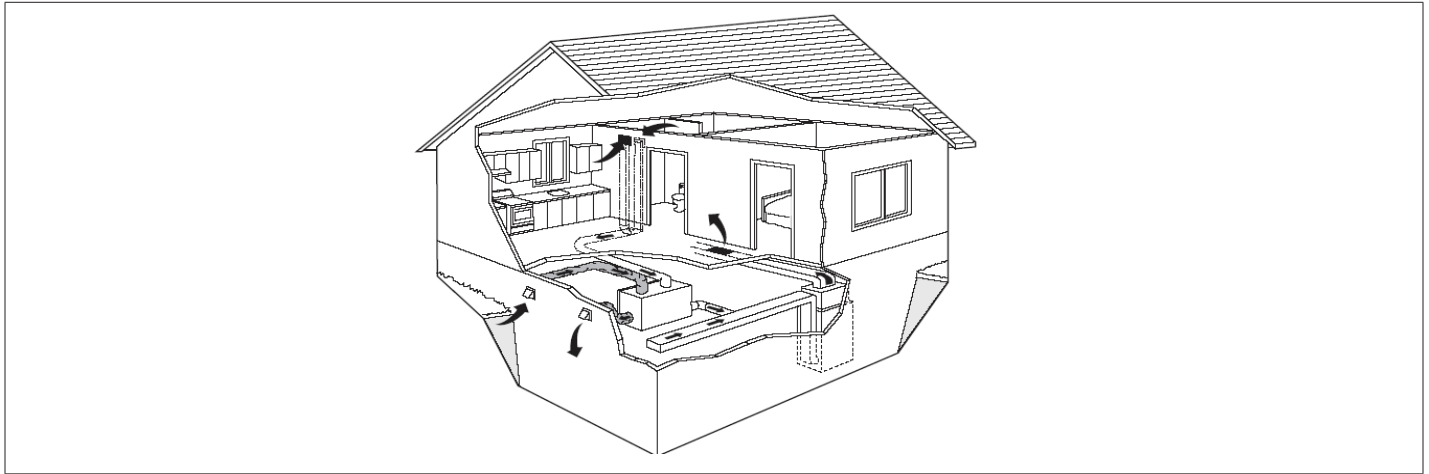


Figure 20. Partially Dedicated System

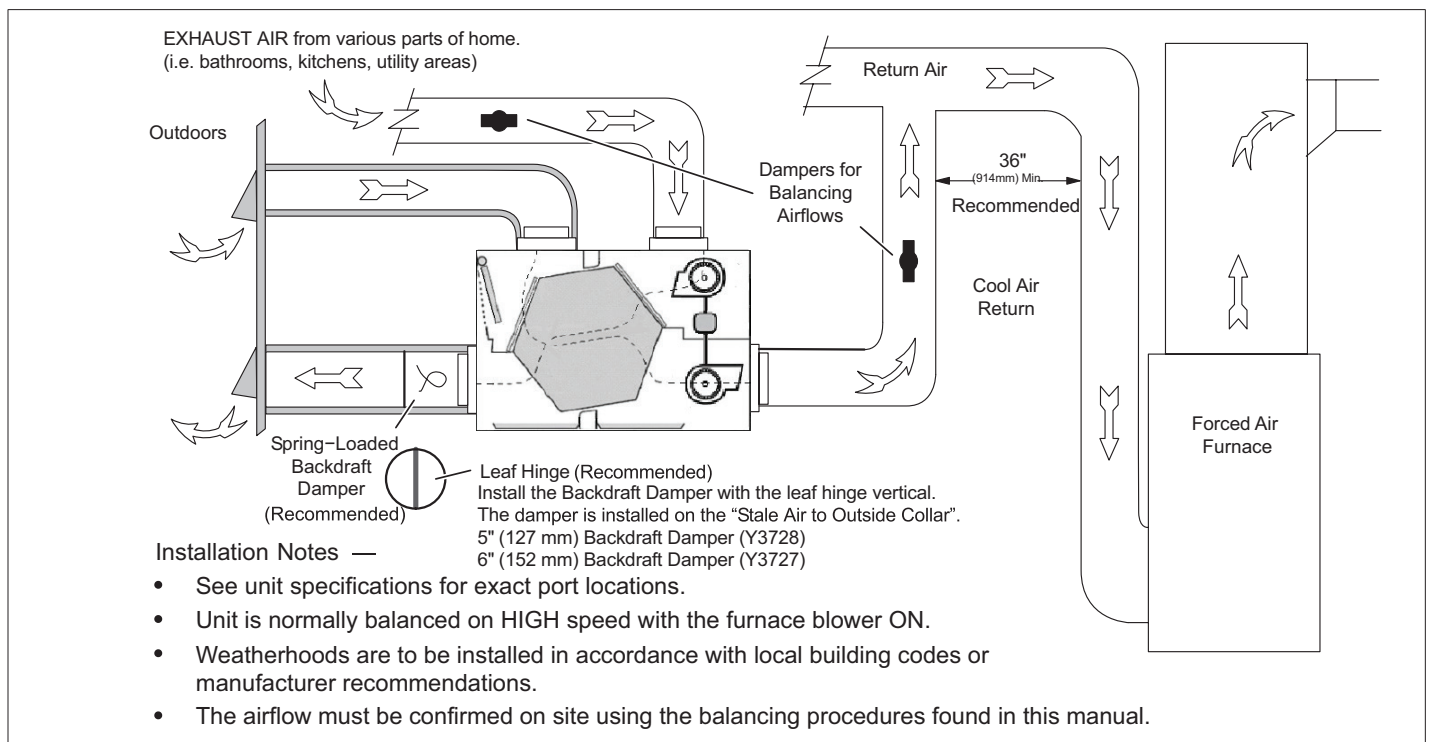
Stale air ducts should be installed in areas of the home where the poorest indoor air quality exists (bathrooms and kitchen). Each location with a stale air duct should have a timer to initiate high-speed ventilation. Refer to "H/C 20/40/60 Minute Timer (Y2169) (Optional) and H/C Ventilation Wireless Timer (Y8251)" on page 21.

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 ERV/HRV Blower to Air Handler/Furnace Blower" on page 34.

Key Points

The ERV/HRV must be balanced.

- It is recommended that the furnace blower run continuously or ERV/HRV 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 ERV/HRV model. See specifications for your unit.
- Check local codes and authority having jurisdiction for acceptance.



**Figure 21. Direct Connection of Supply Air Stream to the Furnace Cold Air Return
(Stale air drawn from key areas of home)**

Installation Methods - Fully Dedicated

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 the following figures).

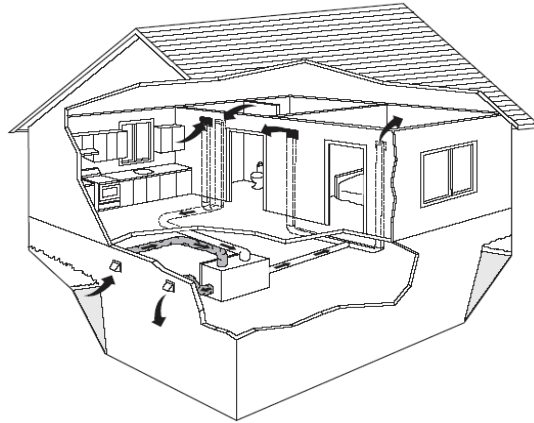


Figure 22. Fully Dedicated System

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 "H/C 20/40/60 Minute Timer (Y2169) (Optional) and H/C Ventilation Wireless Timer (Y8251)" on page 21.

The air handler/furnace blower should be running when the ERV/HRV is operating to evenly distribute the fresh air throughout the house. Refer to "Interlocking ERV/HRV Blower to Air Handler/Furnace Blower" on page 34.

Key Points

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

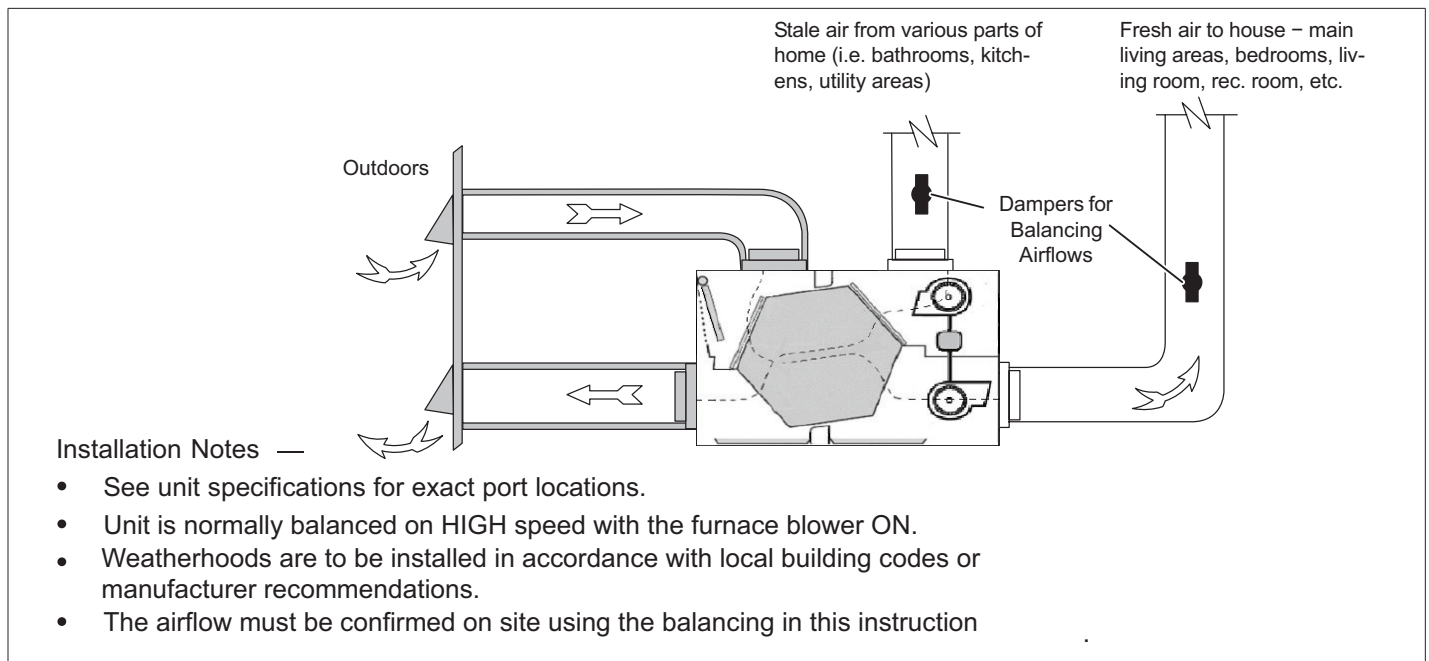


Figure 23. Fully Dedicated System (Not connected to forced air system)

Unit Installation Location

It is recommended that the ERV/HRV unit be located in a conditioned space where it will be possible to conveniently service the unit. Typically the ERV/HRV unit would be located in the mechanical room or an area close to the outside wall where the weather hoods will be mounted. A utility or laundry room may be used if a basement area is not present. Attic installations are not normally recommended for ERV/HRV units due to:

- 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" (635 mm) clearance is recommended so the door can be opened. Four adjustable hanging straps are provided for hanging the ERV/HRV except for the ERV5-130 which comes with four mounting brackets.

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 ERV/HRV. The use of an auxiliary drain pan under the installation should be considered.

CAUTION

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.

Suspending the Unit

This is a procedure for suspending the unit using adjustable hanging straps. Use four screws and washers (field-provided) to attach the hanging straps. 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.

1. Insert the screws and washers (field provided) through the hanging strap grommets and fasten to the joists.

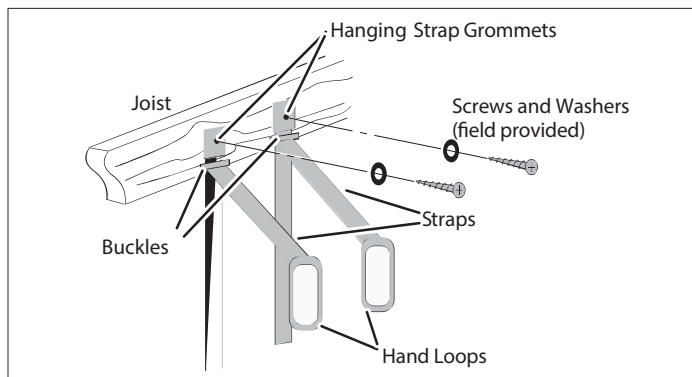


Figure 24. Insert Screws and Washers

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

NOTE: The following illustration of the unit may vary from the unit you are installing.

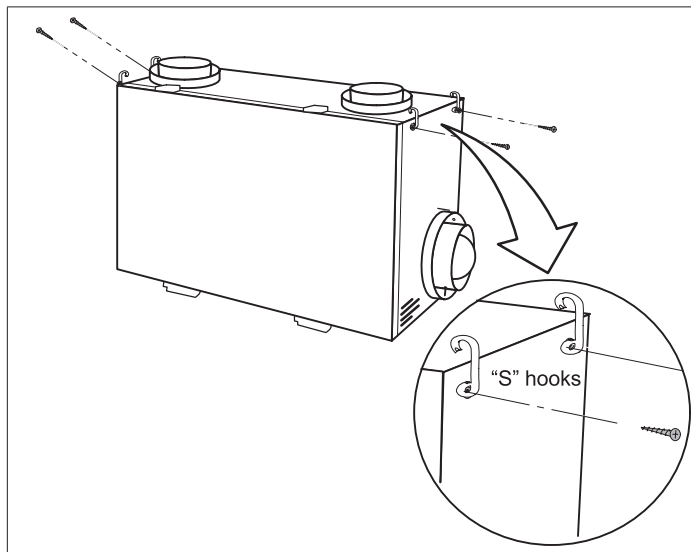


Figure 25. Unscrew

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.

NOTE: Do not pull the hand loops in a horizontal direction (laterally with the unit) during installation or during adjustment of the straps.

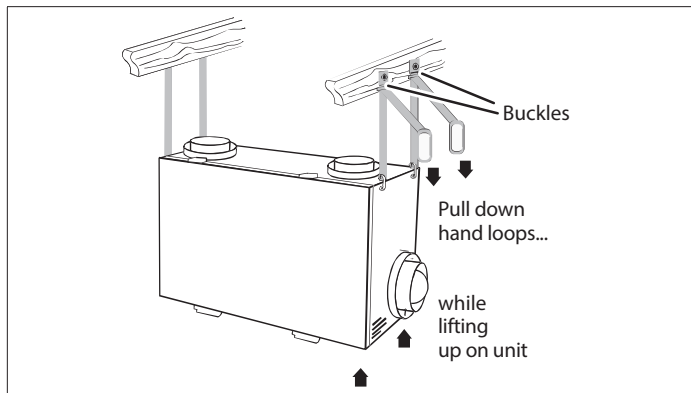


Figure 26. Hook the Grommets

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

Installing the ERV5-130

It is important to isolate the mounting bracket from the attached surface to minimize vibration. Use the hardware provided (see "Table 1. Bag Assembly Contents" on page 3) to attach the mounting brackets to the unit.

! IMPORTANT

Do not drill additional holes in the ERV.

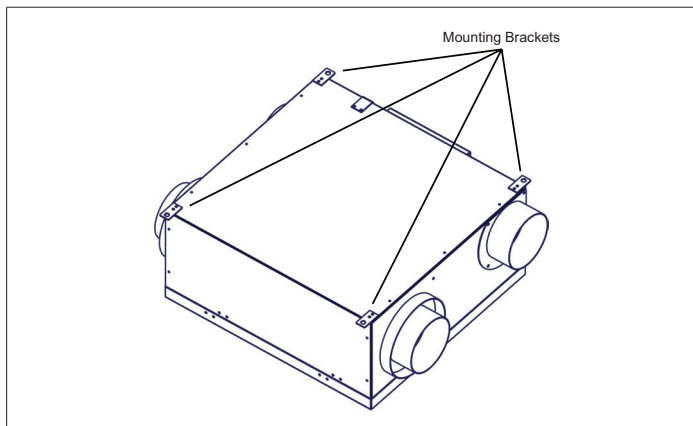


Figure 27. ERV5-130

Installing the Drain Connection

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.

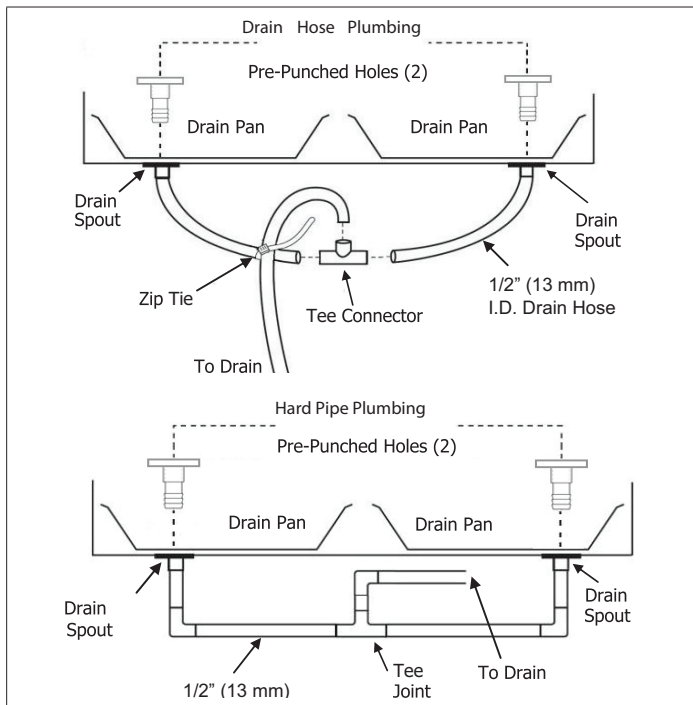


Figure 28. Drain Holes and P-Trap (ERV/HRV)

! CAUTION

Do not use sealant when installing the drain spout.

! CAUTION

Potential Freeze Conditions leading to Water Damage.

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

Do not install ERV/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.

All ERV/HRV cabinets (except ERV5-130) have pre-punched holes for the drain as illustrated in "Figure 28. Drain Holes and P-Trap (ERV/HRV)".

1. Insert the drain spout through the hole in the drain pan.
2. Be sure to install the **O-ring** (if supplied) which seals each spout to the pan.
3. Tighten the nut which holds the drain spout in place.

Construct a P-Trap using the plastic tee connector as illustrated in "Figure 28. Drain Holes and P-Trap (ERV/HRV)".

1. 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.
2. Position the T fitting to point upward, and connect the drain line. Tape or fasten base to avoid any kinks, creating a "trap".
3. 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.

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

Installing Optional Plug (ERV5-150-TPD and ERV5-175-TPD Unit Only)

The plugs are located in the ERV manual bag. The plugs will be installed into the two holes located in the bottom tray of the ERV. They must be inserted from the inside of the unit to ensure the holes are fully sealed, see detail below.

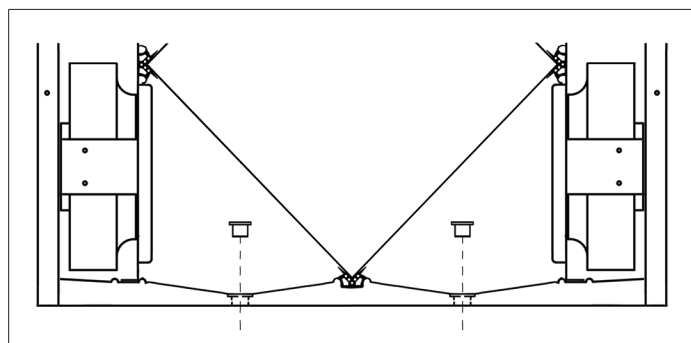


Figure 29. Plug Installation

!CAUTION

A drain is required. However in climates where the outdoor temperature remains above 13°F (25°C) combined with an indoor humidity less than 30%, the use of a drain is optional.

Installing Grilles and Diffusers

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 four feet (1.2 meters) 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 "Airflow Balancing" on page 39.

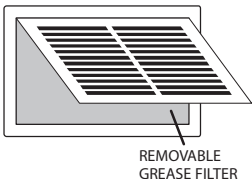
!CAUTION

Potential equipment malfunction or damage.
May require repairs and/or void warranty.
Do not install intake grille within four 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.

Table 13. Kitchen Grille

Size	Catalog Number	
6 x 10" (152 x 254 mm)	18N48	

ROUND DIFFUSER

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

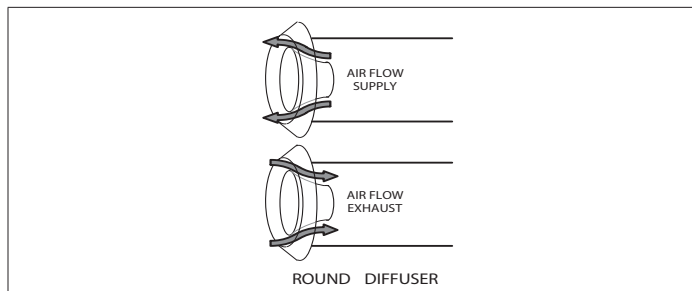


Figure 30. Round Diffusers

Table 14. Round Diffusers Sizes

Size	Catalog Number
4" (102 mm)	92E54
5" (127 mm)	92E55
6" (152 mm)	92E56
7" (203 mm)	56N81

Installing Weatherhoods

INSTALLING DUCTING FROM WEATHERHOODS TO THE (ERV/HRV) UNIT

The inner and outer liners of the flexible or rigid insulated duct must be clamped to the sleeve of the weatherhoods (as close to the outside as possible) and the appropriate port on the ERV/HRV. 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 ERV/HRV port and the weatherhood prior to clamping.

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

Twisting or folding the duct will severely restrict airflow. Refer to local building codes for complete local installation requirements.

INTAKE WEATHERHOOD REQUIREMENTS

Observe the following when installing the intake weatherhood:

- Should be located upstream (if there are prevailing winds)
- At least six feet (two meters) away from dryer vents and furnace exhaust (medium or high efficiency furnaces)
- A minimum of at least six feet (two meters) from driveways, oil fill pipes, gas meters, or garbage containers
- At least 18" (457 mm) above the ground, or above the depth of expected snow accumulation
- At least three feet (one meter) from the corner of the building
- DO NOT locate in a garage, attic or crawl space
- AFTER installing the weatherhood, its outside perimeter must be sealed with exterior caulking
- To be installed in accordance with local building codes or manufacturer recommendations.

EXHAUST WEATHERHOOD REQUIREMENTS

Observe the following when installing the exhaust weatherhood:

- At least 18" (457 mm) above ground or above the depth of expected snow accumulation
- At least three feet (one meters) away from the corner of the building
- Not near a gas meter, electric meter, or a walkway where fog or ice could create a hazard.
- Not into a garage, workshop, or other unheated space

- AFTER installing the weatherhood, its outside perimeter must be sealed with exterior caulking
- To be installed in accordance with local building codes or manufacturer recommendations.

WEATHERHOODS

Fixed covered weatherhoods have a built-in bird screen with a 1/4" (6 mm) mesh to prevent foreign objects from entering the 12" (305 mm) insulated ducting labeled SUPPLY and EXHAUST.

Table 15. Fixed Covered Weatherhoods

Size	Catalog Number
5" (127 mm)	92E66
6" (152 mm)	95P07
7" (203 mm)	17N11

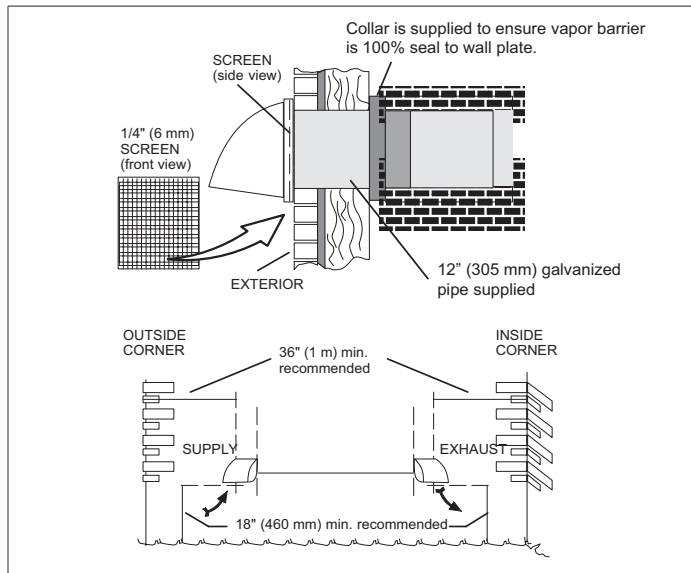


Figure 31. Typical Weatherhood Installation

! 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.

Local codes may require a minimum distance between openings.

1. Thermal collar slides over galvanized sleeve of weatherhood.
2. Fasten thermal collar to belt.
3. Slide insulated flexible or rigid ducting over the galvanized sleeve of the weatherhood and fasten to the thermal collar.
4. Hood is hinged to allow for easy access for cleaning screen.

H/C ERV/HRV Dual Hood Kit (Y3813)

The H/C ERV/HRV Dual Hood Kit (Y3813) offers the benefit of requiring only one 6" (152 mm) 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 ERV and HRV models, 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).

Table 16. Blower Data with Optional Dual Hood

Model No.	Airflow in CFM & L/S at Nominal External Static Pressure						Compatible with dual hood
	0.3	75	0.4	100	0.5	125	
	(in. w.g.)	(Pa)	(in. w.g.)	(Pa)	(in. w.g.)	(Pa)	
HRV3-095	60	28	56	26	53	25	YES
HRV3-150-TPD	124	58	116	54	107	50	YES
HRV3-195	135	63	123	58	108	51	YES
HRV5-150	116	54	102	48	87	41	YES
HRV5-200-TPD	N/A	N/A	138	65	129	61	NO @ 0.3 in. w.g.
HRV5-HEX095-TPD	87	41	80	38	72	34	YES
HRV5-270-TPD-ECM	N/A	N/A	N/A	N/A	N/A	N/A	NO
ERV5-130	118	55	113	53	109	51	YES
ERV5-150-TPD	124	58	116	54	108	51	YES
ERV5-175-TPD	N/A	N/A	133	62	125	59	NO @ 0.3 in. w.g.

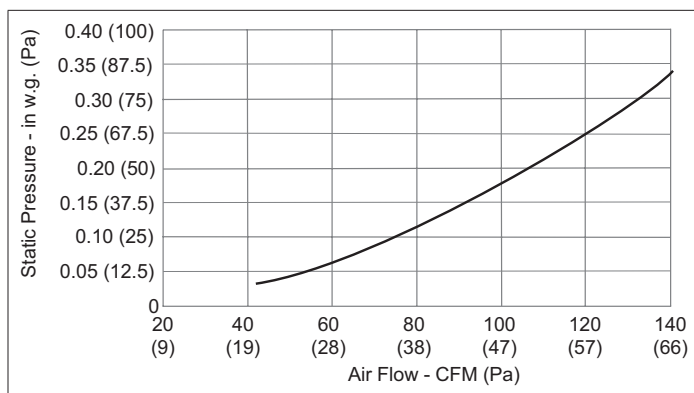


Figure 32. Intake Airflow Chart

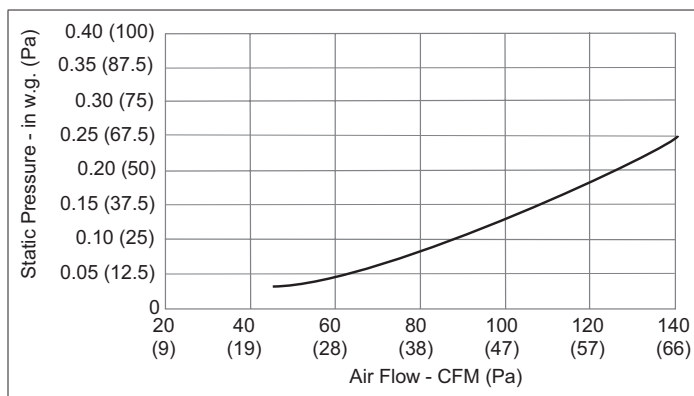


Figure 33. Exhaust Airflow Chart

! CAUTION

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

Installing H/C ERV/HRV Ventilation Push Button Control (Y8249)

This control may either be installed onto a flush mounted electrical switch box or surface mounted onto the wall. The optional ERV/HRV Deluxe Ventilation Control (Y8250) is to be surface mounted onto a wall. Only one master control should be installed to a ventilation system.

! IMPORTANT

Pay special attention not to damage the contact pins when removing and detaching the face plate.

1. For the Digital 5-Speed / 5-Mode Control, remove the operating instructions card from the top of the control (Figure 34, Box A).
2. Separate the face plate from the back plate by firmly pulling apart (Figure 34, Boxes B or C). Be careful not to damage face plate contact pins.
3. For the Digital 5-Speed / 5-Mode Control, place the back plate of the control in the desired location on the wall and pencil mark the wall with the right and left screw holes (Figure 34, Box D).

4. For the Wall Mount Dehumidistat/ Ventilation Control, place the back plate of the control in the desired location on the wall and pencil mark the top and bottom screw holes (Figure 34, Boxes E or F). For mounting the control without a decorative plate, break off top and bottom tabs and refer to Figure 34, Box F for mounting.
5. Remove the back plate from the wall and mark the center hole for the wires in the middle of the screw holes. Refer to Figure 34, Boxes D, E or F for dimensions.
6. Drill (two) 1/8" (3 mm) holes for the screws and wall anchors (Figure 34, Boxes D, E or F). For the Digital 5-Speed / 5-Mode Control, drill a one inch hole in the center (Figure 34, Box D). For the Wall Mount Dehumidistat/Ventilation Control, cut in a 3/4" (19 mm) by 1" (25 mm) oval hole in the wall (Figure 34, Boxes E or F).
7. Pull 3-wire 20 gauge (minimum) 100 feet (30-1/2 meters) length (maximum), through the opening in the wall.
8. Connect red, green, and yellow to the wiring terminals located on the back plate (Figure 34, Boxes D, E or F).

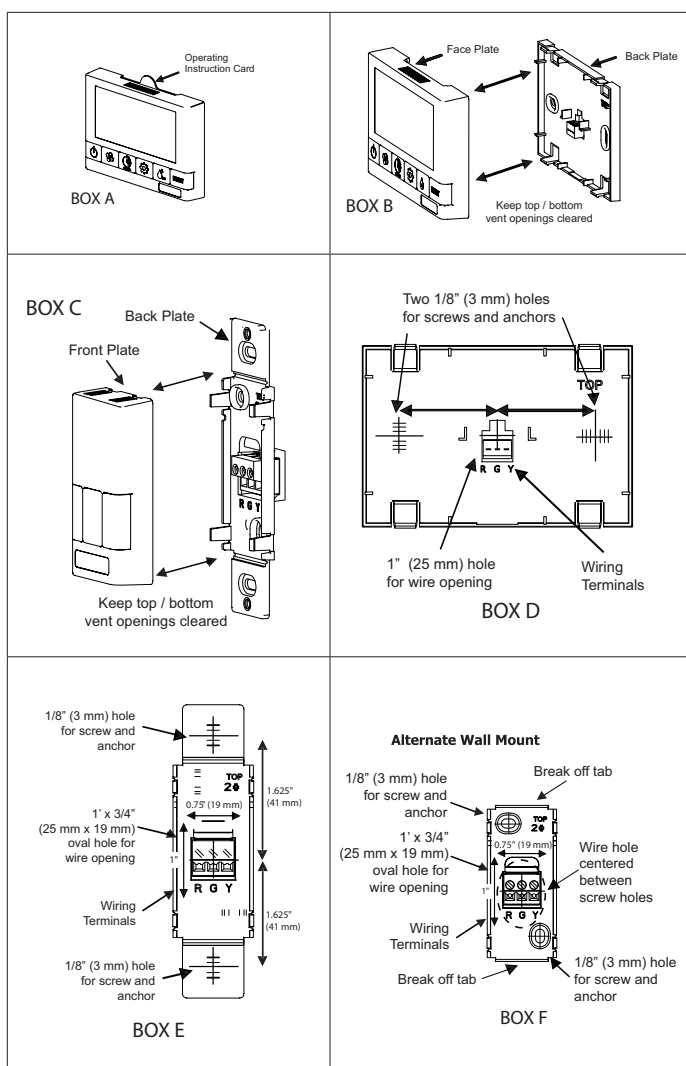


Figure 34. Digital Control Installation

9. Attach the back plate to the wall using two supplied screws and anchors.

10. Attach the face plate to the back plate (Figure 34, Boxes B or C).

NOTE: Be careful to correctly align the face plate to avoid damaging the face plate contact pins.

11. For the Digital 5-Speed / 5-Mode Control, insert the instructions card into the control (Figure 34, Box A).

12. Connect the 3-wire 20 gauge (minimum) 100 feet (30-1/2 meters) length (maximum to the terminal block located on ventilator (Red #3, Yellow #4 and Green #5).







Installation and Operation of H/C Ventilation Wireless Timers (Y8251)

NOTE: Wireless timers can only be used with wall mounted H/C ERV/HRV Ventilation Push Button Control (Y8249) or H/C ERV/HRV Deluxe Ventilation Control (Y8250).

The wireless timers may be installed onto a flush mounted electrical switch box or it may be surface mounted onto a wall. Multiple wireless timers (maximum six timers) may be installed in a ventilation system.

To increase the range of a wireless timer, a H/C Ventilation Wireless Repeater (Y8252) should be used.

PAIRING

1. Turn on the main wall control by pressing the ON/OFF button  and remove the battery from Timer.
2. Pairing **Wireless 20/40/60 Minute Timer with Digital 5-Speed / 5-Mode Control:** Press the left and right buttons simultaneously on the main wall control  (and RESET buttons). The screen will go blank and the wireless symbol  appear flashing on the bottom right of the display. This indicates that the main control is now in pairing mode (Figure 35, Box D).
3. Pairing **Wireless 20/40/60 Minute Timer with Wall Mount Dehumidistat/Ventilation Control:** Press the left and right buttons simultaneously on the main wall control  and either  or  buttons, depending on the main control). The bottom row of three LEDs will begin flashing. This indicates that the main control is now in pairing mode (Figure 35, Box E).
4. Keep the timer within 16" (406 mm) of the main wall control when pairing.
5. Install the battery in the wireless timer. All four lights on the Timer will immediately flash five times, then only the red battery light will remain on for approximately 12 seconds after which the 40 light flashes the rev code. 20, 40, 60 lights will flash until paired or will stop if not paired within 12 seconds. If pairing was not successful you now must return to step 1 to restart the pairing process.
6. Press the button on the main wall control to exit pairing mode when wireless timers have been successfully paired.

To pair additional wireless timers with the same wall control, or if pairing was not successful, repeat steps 1-6.

When paired, the wireless timers can be moved and installed elsewhere.

Estimated range of the wireless timer is 40' with no obstructions. A ventilation wireless repeater may be installed to increase the range of the wireless timers.

Test if pairing was successful by pressing the Select button and listen for the ERV/HRV to initiate HIGH fan speed ventilation.

UN-PAIRING

1. Remove the battery from the back of the wireless timer.
2. Press and hold the Select button on the front of the Timer.
3. While holding the Select **Button**, reinsert the battery in the Timer. Continue holding the select button until the LED under **40** begins flashing. The wireless timer will now be unpaired with the main wall control.

INSTALLATION

1. Separate the face plate from the back plate by firmly pulling apart (Figure 35, Box A).
2. For mounting the control without a decorative plate, break off top and bottom tabs and refer to Figure 35, Box C for mounting.

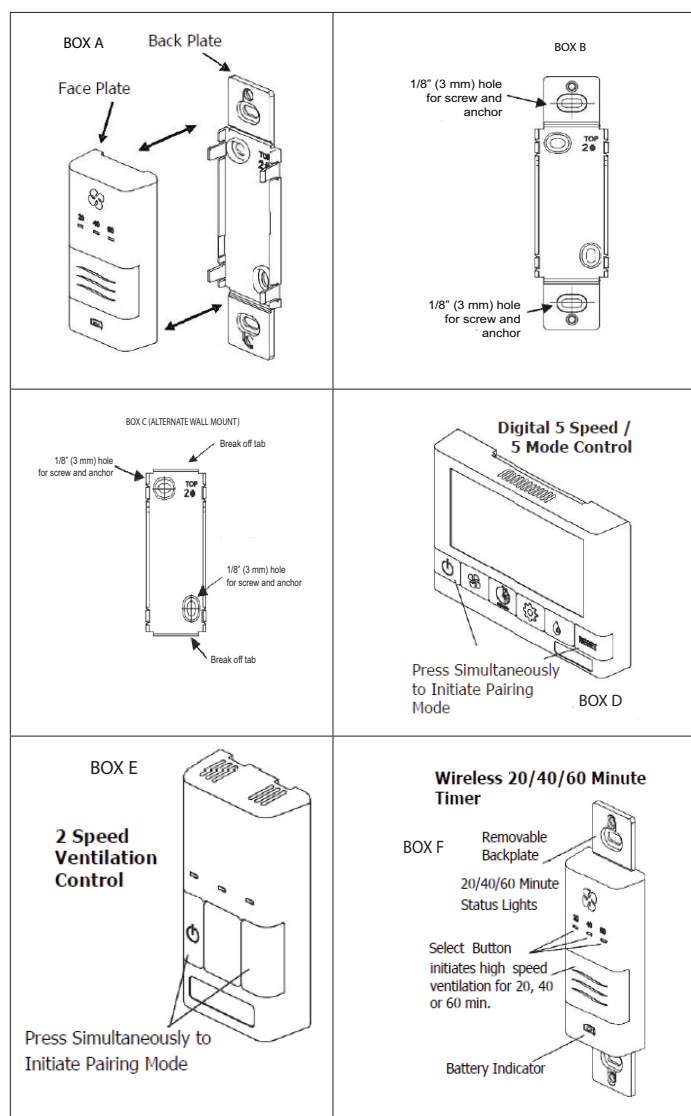


Figure 35. Wireless Timer Installation

- Place the back plate of the control in the desired location on the wall and pencil mark the top and bottom screw holes (Figure 35, Boxes B or C). Drill two 1/8" (3 mm) holes.
- Attach the back plate to the wall using the two supplied screws and anchors.
- Attach the face plate to the back plate (Figure 35, Box A).

!IMPORTANT

The wireless timers and repeaters must be matched to the main wall control of the HRV / ERV. This process is called "Pairing". Multiple Timers and Repeaters can be paired to a single wall control.

Installation and Pairing of H/C Ventilation Wireless Repeaters (Y8252)

A Repeater may be necessary to install if the distance of the Wireless 20/40/60 Minute Timer is too great to communicate directly with the main ventilation control. The Repeater is plugged directly into a 120V power outlet.

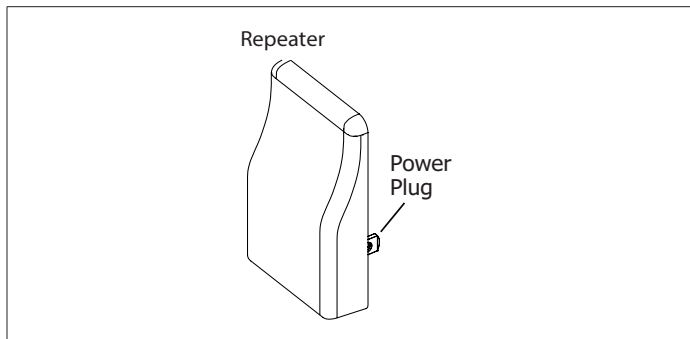


Figure 36. Wireless Repeater (Y8252)

- Turn on the main wall control by pressing the ON/OFF button .
- Repeater (Y2852) with Digital 5-Speed / 5-Mode Control:** Press the left and right buttons simultaneously on the main wall control (and RESET buttons). The screen will go blank and the wireless symbol will appear flashing on the bottom right of the display. This indicates that the main control is now in pairing mode. Repeater (Y2852) with Wall Mount Dehumidistat/Ventilation Control: Press the left and right buttons simultaneously on the main wall control (and buttons, depending on the main control). The bottom row of three LED's will begin flashing. This indicates that the main control is now in pairing mode.
- The repeater must be powered within 16" (406 mm) of the main wall control for pairing. If an outlet is not available an extension cord should be used to power the repeater initially for pairing.
- Plug the repeater into the power outlet. The green light will flash after approximately 12 seconds indicating that the repeater is paired with the main wall control.
- Press the ON/OFF button on the main wall control to exit pairing mode and the repeater may now be unplugged and moved to its permanent location.

To pair additional repeaters with the same wall control, repeat steps 1-5 until all repeaters have been paired.

When installed in its permanent location, the green LED will remain solid to indicate the best location and the Repeater can be moved farther if required. The green LED will flash to indicate it is in a good location. A red light indicates the Repeater is out of range and needs to be moved closer to the main wall control.

Installation of Wired Fan Timers

INSTALLATION REQUIREMENTS

The following installation requirements must be followed:

- Timers mount in standard 2 x 4" (51 x 102 mm) electrical boxes.
- Wire multiple timers individually back to the unit.
- Use 3-wire 20-gauge (min.) low-voltage wire.

OPERATING 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 five minutes of the cycle.

LOCKOUT MODE

The timer can be set to lockout mode (timers disabled) as follows: press and hold **SELECT** for five 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.

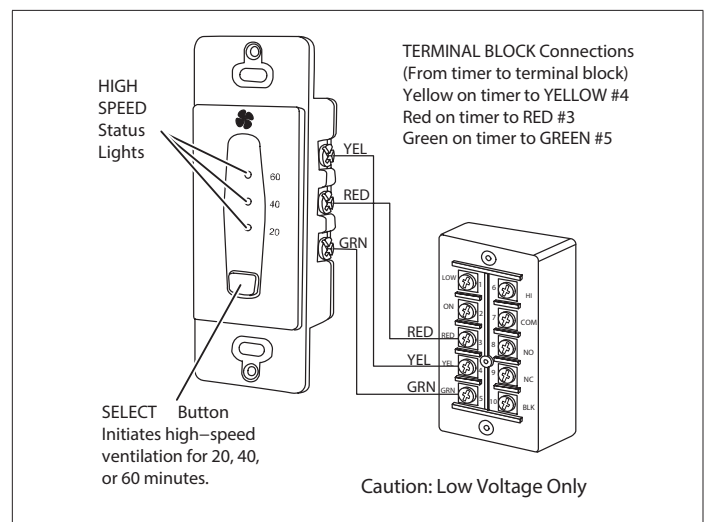


Figure 37. Wired Timer Installation

Installation of Mechanical Timers

The Healthy Climate ERV/HRV is compatible with two wire, “dry contact” mechanical timers. This may be useful for retrofit situations where only two wires are available for the timer.

Install the two wire timer by connection a jumper wire between ON and RED. Connect the two timer wires to ON and HI.

NOTE: An alternative to using the 2-wire timers is to install the system with wireless timers.

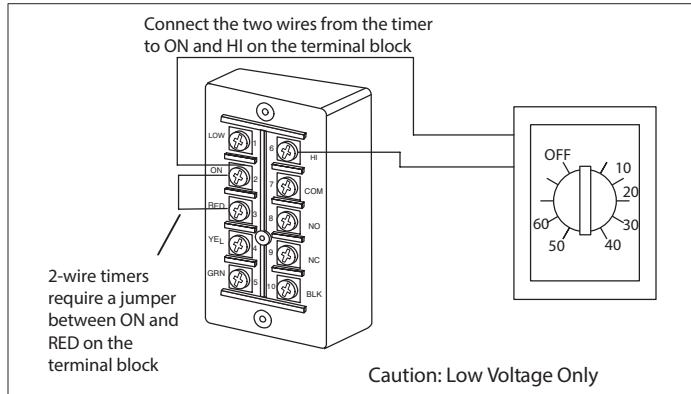


Figure 38. Mechanical Timer Installation

Interlocking ERV/HRV Blower to Air Handler/Furnace Blower

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

The ERV/HRV unit must be interlocked to the furnace/air handler or iComfort E30 with a simplified (return/return) installation and should be interlocked with a partially dedicated installation as illustrated in the following figure.

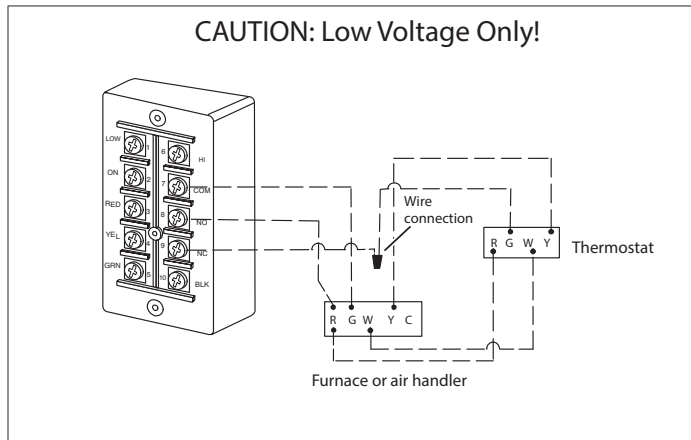


Figure 39. Interlocking

NOTE: Interlock is only required with either the S30 or E30 if another control can activate ventilation, such as a wall switch, etc.

Electrical Connections

Plug the ERV/HRV 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. See wiring diagrams for the units described in section titled “Unit Wiring Diagrams” on page 36.

! WARNING

Electric Shock Hazard

Can cause injury or death.

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

MAIN CONTROL STANDBY SETTING

The ERV/HRV 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 ERV/HRV 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) as illustrated in the following figure.

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.

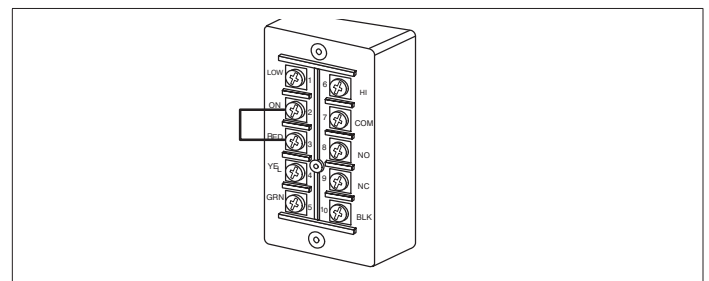


Figure 40. ERV/HRV Terminal Block

! CAUTION

Building codes in some areas require fully-off functionality. Check with your local building authority before modifying the unit to standby-off.

Unintentional operation of the ERV/HRV by the end user may occur if the unit is modified from fully-off to standby-off.

ACTIVATING DRY CONTACT CONTROLS

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

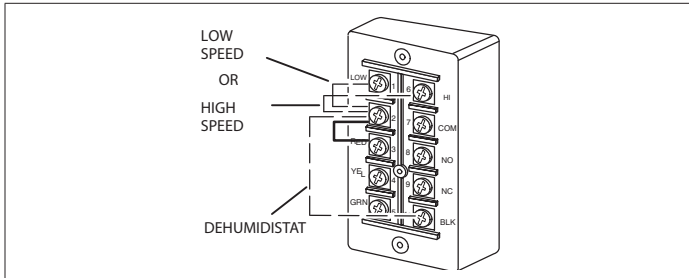


Figure 41. Adding Dry Contact Controls

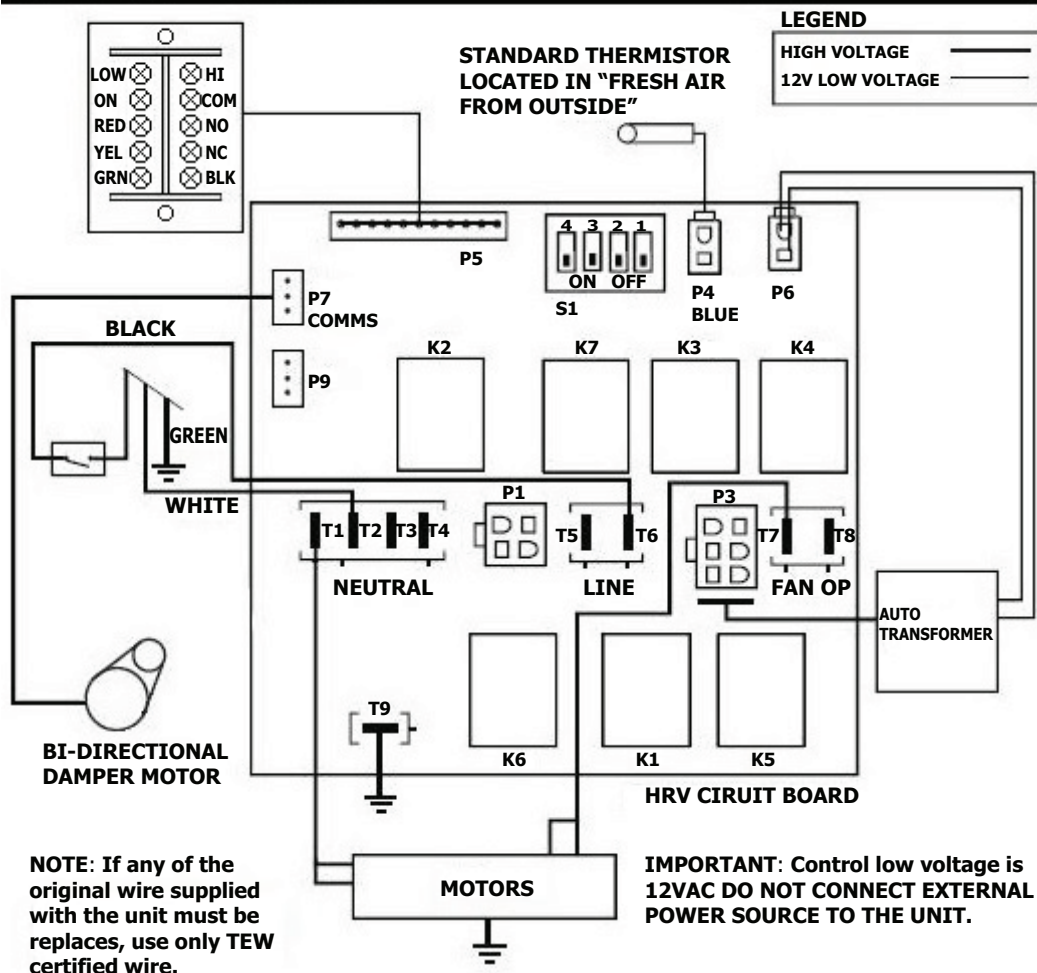
! IMPORTANT

The ERV/HRV must have a jumper in place between 2 (ON) and 3 (RED) on the Terminal Block when installing the unit without an Optional Main Control.

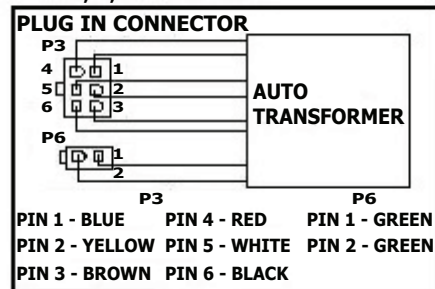
Table 17. Adding Dry Contact Controls

Speed	Description
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).

CAUTION: ELECTRICAL CONTROL PANEL, SERVICE BY ELECTRICIAN ONLY



AUTO-TRANSFORMER DETAIL PINS 1, 2, AND 3 ARE OPTIONAL



FAN MOTOR DETAILS

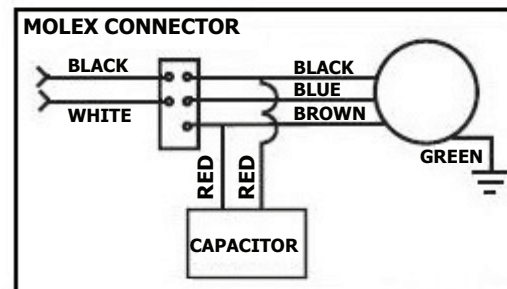


Figure 42. Wiring Diagram (HRV3-150-TPD, HRV5-200-TPD, ERV5-130, ERV5-150-TPD and ERV5-175-TPD)

CAUTION: ELECTRICAL CONTROL PANEL, SERVICE BY ELECTRICIAN ONLY

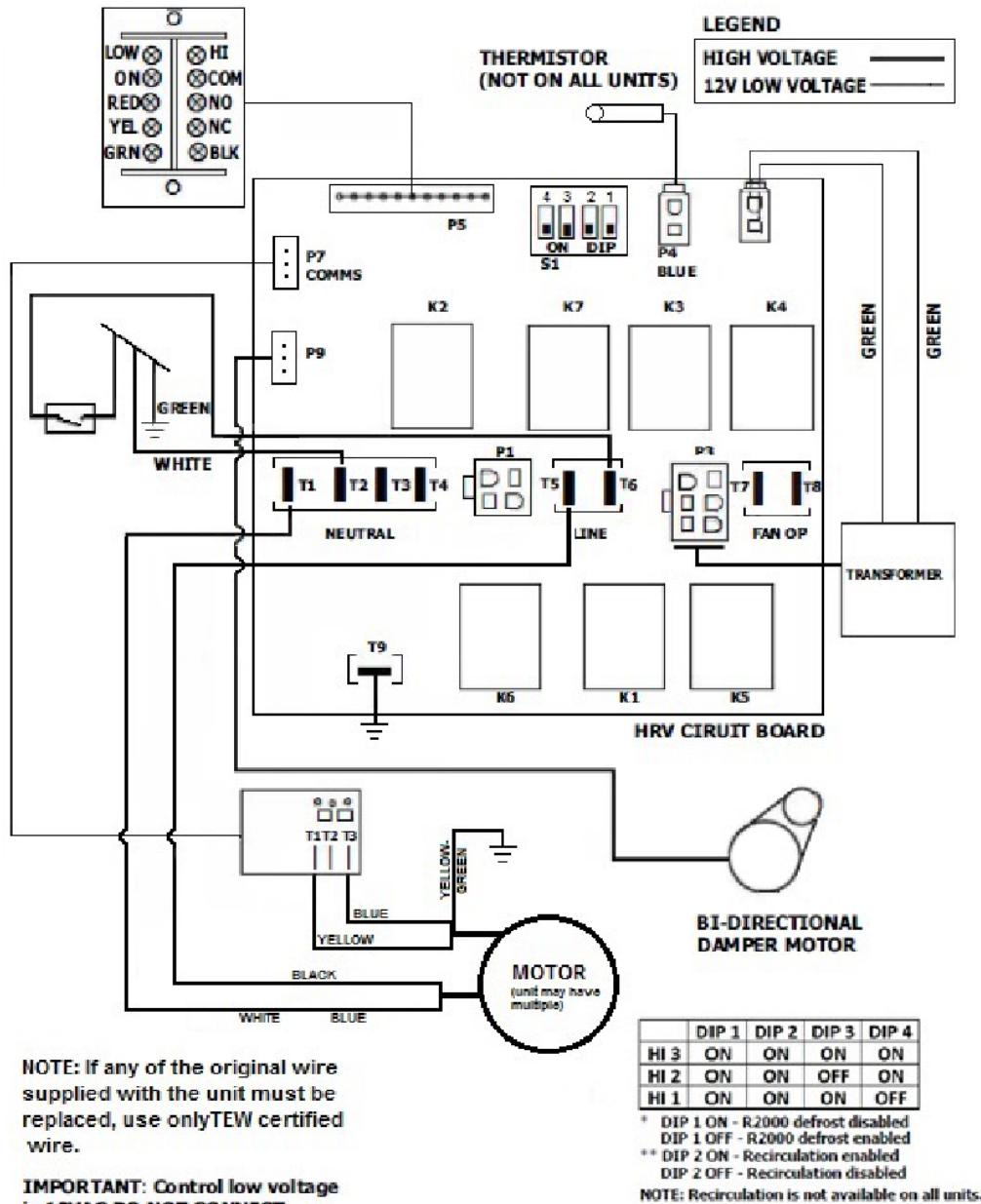


Figure 43. Wiring Diagram HRV5-270-TPD-ECM

Installer Selectable High Speed Settings

!CAUTION

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.

ERV/HRV 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.

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.

Table 18. High Speed Settings

Description	Switch Position 1	Switch Position 2	Switch Position 3	Switch Position 4
High Speed 5 (factory default)	Factory setting ON	Leave on factory setting	ON	ON
High Speed 4			OFF	ON
High Speed 3			ON	OFF

ERV/HRV Connected with an Basic and Deluxe Control

Balance the HRV or ERV at High speed using door port balancing chart or pitot tube to required CFM making sure the system blower is on at high speed.

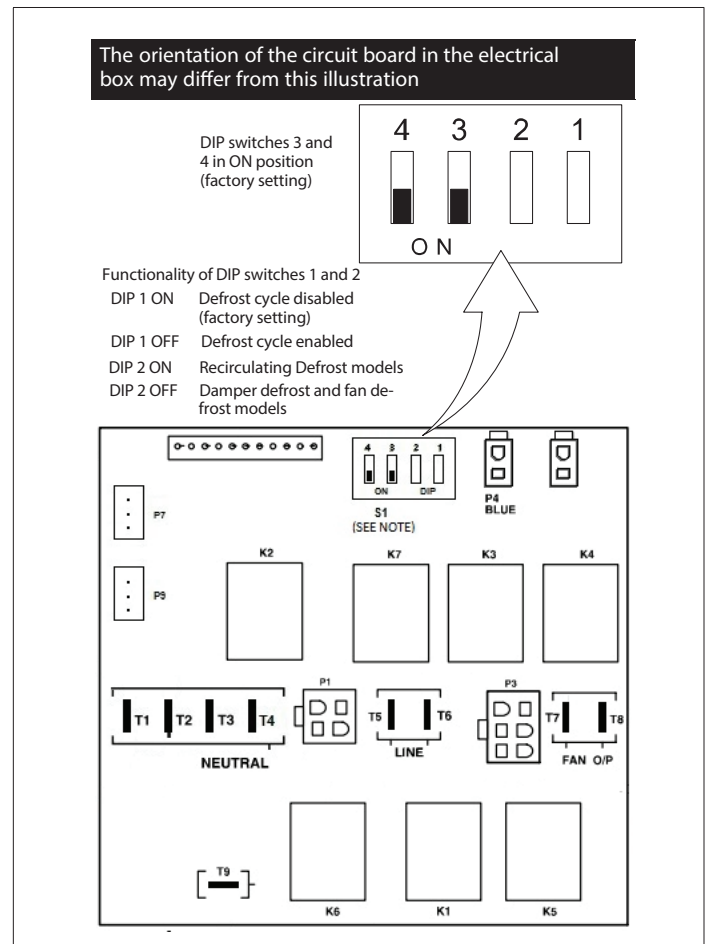


Figure 44. Speed Settings

!CAUTION

Potential Condensation Damage. Condensation can cause damage to building structures.

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

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 the "Requirements" on page 11 of this instruction.

BALANCING PREPARATION

1. All sealing of the duct system has been completed.
2. All of the ERV/HRV 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. Operate air handling unit to fan speed for normal operation.

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 Gauge

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" w.g. (0.02 Pa) or a magnehelic gauge for airflow measurement.

NOTE: A Magnehelic Gauge with a scale of 0 to 0.25" w.g. (0 to 62 Pa) is necessary for using with a Pitot Tube and Magnehelic Gauge with a scale of 0 to 1.00" w.g. (0 to 249 Pa) is necessary for using on Door Port Balancing).

Gauge Attachments

Common gauge attachments for measuring ERV/HRV airflows are:

- The **Pitot Tube** - This will measure the airflow in the ductwork for any ERV/HRV.
- **Door Port Gauge Tube Set** - This will measure the airflow using the door ports for models HRV3-150-TPD, HRV5-150, HRV5-200-TPD, HRV5-270-TPD-ECM and ERV5-150-TPD and ERV5-175-TPD.

- Flow Stations - These are installed into the duct work.

Pitot Tube Recommendation

Use a field-provided pitot tube comparable to the Dwyer® Series 160 Stainless Steel Pitot Tubes.

Pitot Tube Balancing Procedure

1. Operate all mechanical systems that have influence on the ventilation system at high speed. These systems include the ERV/HRV 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. Refer to next page for illustrations of Airflow Balancing Using the Pitot Tube.

Determining the Actual Airflow

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 liters 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 six inch (152 mm) duct with a Pitot tube reading of 0.025" w.g. (6.2 Pa) water.

From the chart, this equates to 640 feet (16 meters) per minute. The 6 inch (152 mm) duct cross-sectional area is 0.2 sq. ft. (0.019 m²) The airflow is 640 cfm x 0.2 sq. ft. = 128 cfm (302 L/s x 0.019 m² = 60 L/s)

The cross sectional area of some common round duct is:

- 5" (127 mm) diameter duct has 0.14 sq. ft. (0.013 m²) cross-section area
- 6" (152 mm) diameter duct has 0.20 sq. ft. (0.019 m²) cross-section area
- 7" (178 mm) diameter duct has 0.27 sq. ft. (0.025 m²) 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.

AIRFLOW BALANCING USING THE PITOT TUBE (ALL MODELS)

NOTE: Required method for HRV3-195 and ERV5-130

1. Drill a 3/16" (5 mm) in hole in the duct, ideally three feet (914 mm) downstream and 12" (305 mm) upstream of any elbows or bends in the fresh air and stale air streams.

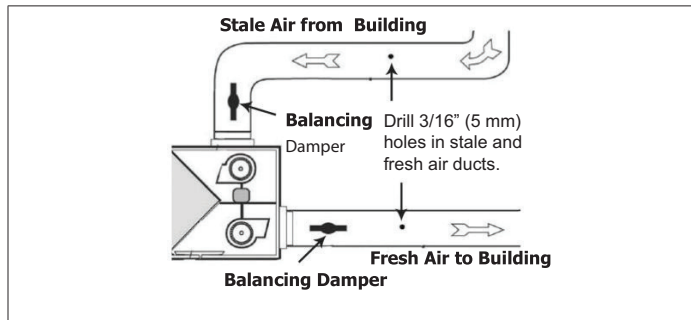


Figure 45. Drill

2. Insert the pitot tube with the tip facing towards the air stream in the stale air from Building air stream. Move the pitot tube around in the duct (facing toward the airflow) and take an average reading. Record the reading.

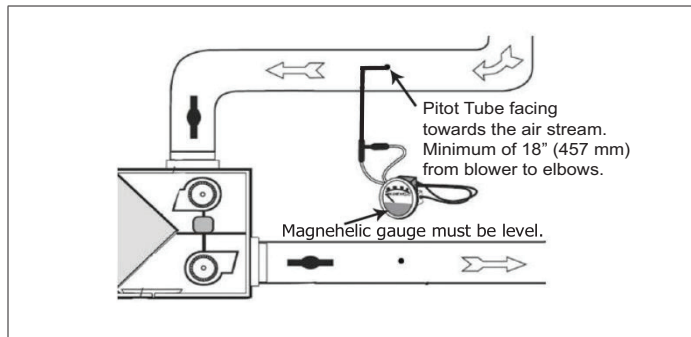


Figure 46. Insert Pitot Tube

3. Repeat step 2 to measure the fresh air to building duct.

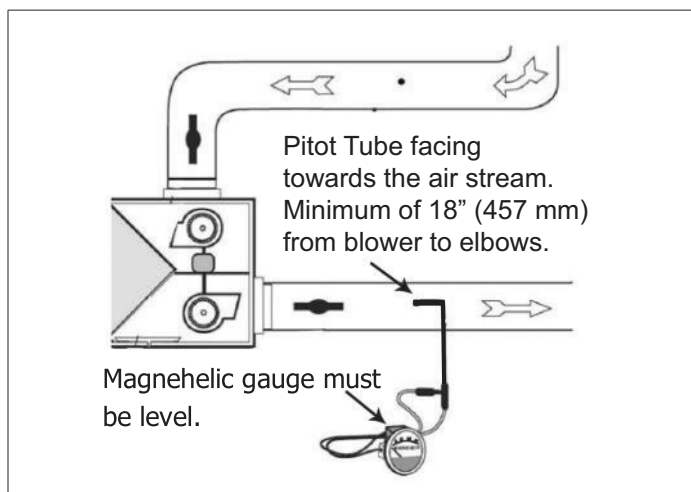


Figure 47. Repeat Step

4. Review the readings and damper down the duct with the highest duct velocity pressure. Repeat step 2 and step 3 until both ducts show identical readings.
5. Upon completion of balancing, seal the holes (foil tape)

recommended).

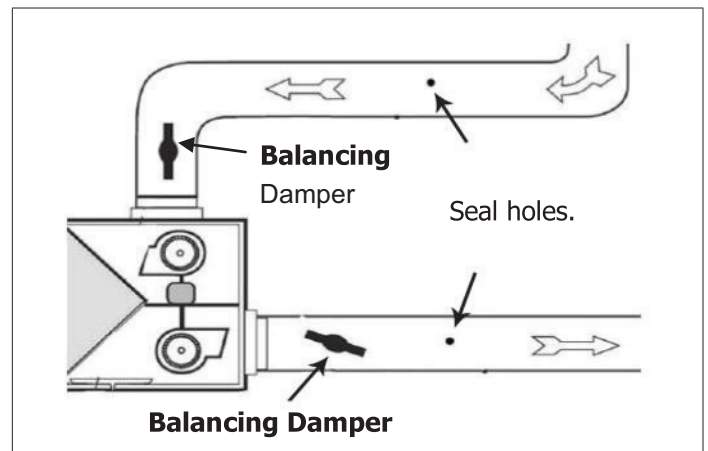


Figure 48. Balancing Damper

BALANCING DAMPERS

Balancing Dampers are located in the round collars of the HRV5-150, and the oval collars of the HRV3-150TPD, HRV5-200-TPD, HRV5-HEX095-TPD, HRV5-270-TPD-ECM, ERV5-150-TPD and ERV5-175-TPD.

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 required to be installed in the fresh air and stale air ducting for HRV3-095, HRV3-195, and ERV5-130. Refer to ducting illustrations located in the "Overview of Installation Methods" on page 22.

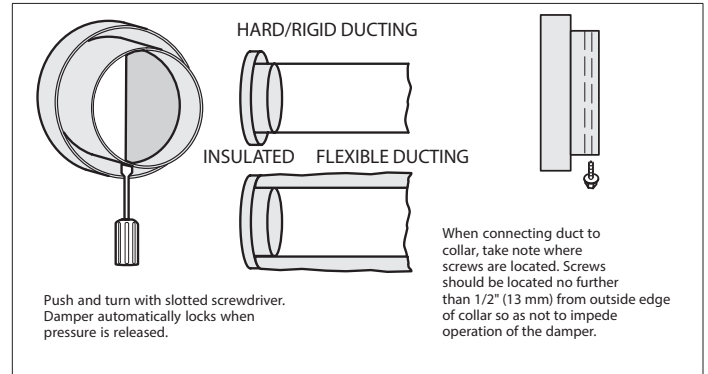


Figure 49. Balancing Collars

AIRFLOW BALANCING USING THE DOOR PORTS (AVAILABLE ON SELECTED MODELS)

Applicable Units:

HRV5-150, HRV5-200-TPD, HRV3-150-TPD, HRV5-HEX095-TPD, HRV5-270-TPD-ECM, ERV5-150-TPD and ERV5-175-TPD)

Door balancing ports for the above reference models are designed 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 requires the Magnehelic gauge or Digital Manometer pressure measurement scale to match the pressure range in the airflow balancing chart for the model of ERV or HRV being balance. Refer to “” on page 42.

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 Gauge Tube Set (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 four 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 two rubber fittings from the gauge to the STALE AIR Balancing Ports (see Figure 51 on page 41). Seal the FRESH AIR Balancing Ports (upper left and lower right) with tape. Record your reading.
6. Measure Fresh air insert the two rubber fittings from the gauge to the FRESH AIR Balancing Ports (see Figure 50 on page 41). Seal the STALE AIR Balancing Ports (upper right and lower left) with tape. Record your reading.
7. Refer to the “” on page 42 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 four Door Port Covers.

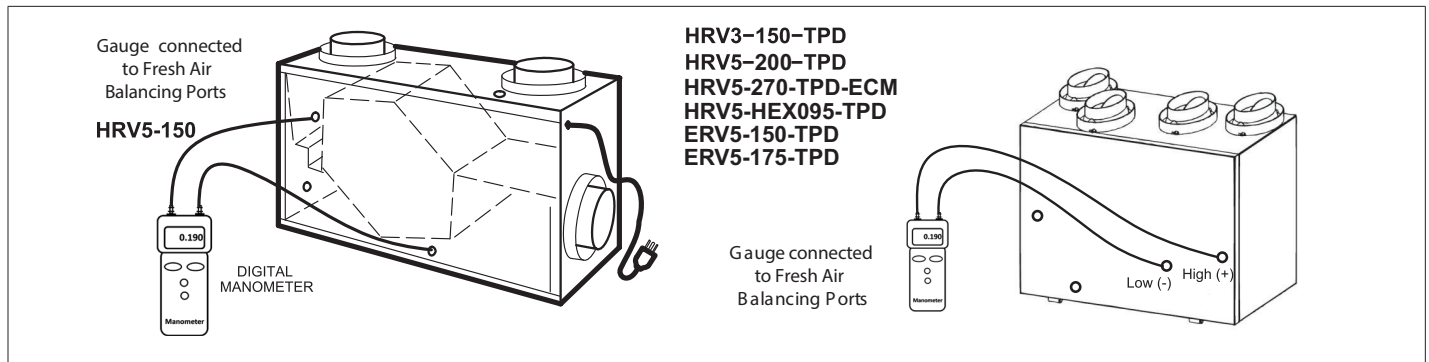


Figure 50. Door Balancing Ports - Fresh Air

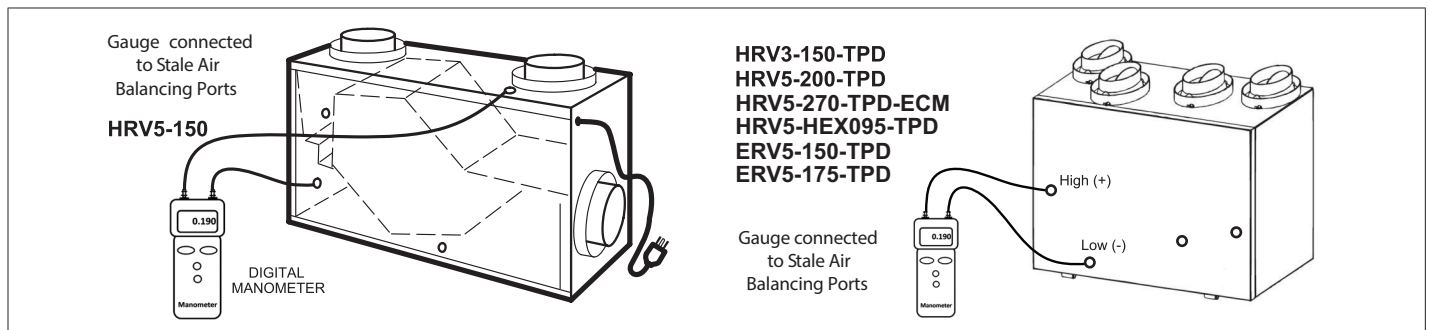


Figure 51. Door Balancing Ports - Stale Air

Airflow Balancing Charts

Table 19. Airflow Balancing - Reference HRV3-150-TPD

Speed 5 (factory setting)						Speed 4						Speed 3					
Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air	
in. w.g.	Pa	cfm	L/s	cfm	L/s	in. w.g.	Pa	cfm	L/s	cfm	L/s	in. w.g.	Pa	cfm	L/s	cfm	L/s
0.50	70			189	89	0.31	70			154	73	0.32	70			124	58
0.51	127			187	88	0.32	80			152	72	0.33	82			122	58
0.52	130			185	87	0.33	82			150	71	0.34	85			120	57
0.53	132			183	86	0.34	85			149	70	0.35	87			119	56
0.54	135			181	86	0.35	87			147	69	0.36	90			117	55
0.55	137			179	85	0.36	90			145	69	0.37	92			115	54
0.56	140			177	84	0.37	92			143	68	0.38	95			113	53
0.57	142			175	83	0.38	95			142	67	0.39	97			111	53
0.58	145			173	82	0.39	97			140	66	0.40	100			110	52
0.59	147			171	81	0.40	100			138	65	0.41	102			108	51
0.60	150			169	80	0.41	102			137	64	0.42	105			106	50
0.61	152			167	79	0.42	105			135	64	0.43	107			104	49
0.62	154			165	78	0.43	107			133	63	0.44	110			103	48
0.63	157			163	77	0.44	110			131	62	0.45	112			101	48
0.64	159			162	76	0.45	112			130	61	0.46	115			99	47
0.65	162			160	75	0.46	115			128	60	0.47	117			97	46
0.66	164			158	74	0.47	117			126	60	0.48	120			96	45
0.67	167			156	73	0.48	120			125	59	0.49	122			94	44
0.68	169			154	73	0.49	122			123	58	0.50	125			92	43
0.69	172			152	72	0.50	125			121	57	0.51	127			90	43
0.70	174			150	71	0.51	127			119	56	0.52	130			89	42
0.71	177			148	70	0.52	130			118	56	0.53	132			87	41
0.72	179			146	69	0.53	132			116	55	0.54	135			85	40
0.73	182			144	68	0.54	135			114	54	0.55	137			83	39
0.74	184			142	67	0.55	137			113	53	0.56	140	126	60	81	38
0.75	187			140	66	0.56	140			111	52	0.57	142	122	58	80	38
0.76	189			138	65	0.57	142			109	51	0.58	145	118	56	78	37
0.77	192			136	64	0.58	145			107	51	0.59	147	114	54	76	36
0.78	194			134	63	0.59	147			106	50	0.60	150	110	52	74	35
0.79	197			132	62	0.60	150			104	49	0.61	152	106	50	73	34
0.80	199			130	61	0.61	152			102	48	0.62	154	102	48	71	33
0.81	202			128	60	0.62	154			100	47	0.63	157	99	47	69	33
0.82	204			126	60	0.63	157			99	47	0.64	159	95	45	67	32
0.83	207			124	59	0.64	159			97	46	0.65	162	92	43	66	31
0.84	209			122	58	0.65	162			95	45	0.66	164	89	42	64	30
0.85	212			120	57	0.66	164			94	44	0.67	167	85	40	62	29
0.86	214			118	56	0.67	167	156	74	92	43	0.68	169	82	39	60	28
0.87	217	188	102	116	55	0.68	169	151	71	90	43	0.69	172	79	37	58	28
0.88	219	184	103	114	54	0.69	172	145	68	88	42	0.70	174	76	36	57	27
0.89	222	180	105	112	53	0.70	174	139	66	87	41	0.71	177	74	35	55	26
0.90	224	176	106	110	52	0.71	177	134	63	85	40	0.72	179	71	33	53	25
0.91	227	172	107	108	51	0.72	179	129	61	83	39	0.73	182	68	32	51	24
0.92	229	169	108	106	50	0.73	182	124	59	82	39	0.74	184	66	31	50	23
0.93	232	165	109	104	49	0.74	184	120	56	80	38	0.75	187	64	30	48	23
0.94	234	161	111	103	48	0.75	187	115	54	78	37	0.76	189	61	29	46	22
0.95	237	157	112	101	47	0.76	189	111	52	76	36	0.77	192	59	28	44	21

Refer to "Installer Selectable High Speed Settings" on page 38 in this manual for more information.

Table 19. Airflow Balancing - Reference HRV3-150-TPD

Speed 5 (factory setting)						Speed 4						Speed 3					
Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air	
in. w.g.	Pa	cfm	L/s	cfm	L/s	in. w.g.	Pa	cfm	L/s	cfm	L/s	in. w.g.	Pa	cfm	L/s	cfm	L/s
0.96	239	153	113	99	47	0.77	192	107	50	75	35	0.78	194	57	27	43	20
0.97	242	150	114	97	46	0.78	194	103	49	73	34	0.79	197	55	26	41	19
0.98	244	146	115	95	45	0.79	197	99	47	71	34	0.80	199	53	25		
0.99	247	143	116	93	44	0.80	199	96	45	70	33	0.81	202	52	24		
1.00	249	139	118	91	43	0.81	202	93	44	68	32	0.82	204	50	24		
1.01	252	136	119	89	42	0.82	204	90	42	66	31	0.83	207	49	23		
1.02	254	132	120	87	41	0.83	207	87	41	64	30	0.84	209	47	22		
1.03	257	129	121	85	40	0.84	209	84	39	63	30	0.85	212	46	22		
1.04	259	125	122	83	39	0.85	212	81	38	61	29	0.86	214	45	21		
1.05	262	122	123	81	38	0.86	214	78	37	59	28	0.87	217	44	21		
1.06	264	119	125	79	37	0.87	217	76	36	58	27	0.88	219	43	20		
1.07	267	116	126	77	36	0.88	219	74	35	56	26	0.89	222	42	20		
1.08	269	113	127	75	35	0.89	222	71	34	54	26	0.90	224	41	19		
1.09	272	109	128	73	34	0.90	224	69	33	52	25	0.91	227	40	19		
1.10	274	106	129	71	34	0.91	227	67	32	51	24						
1.11	277	103	131	69	33	0.92	229	65	31	49	23						
1.12	279	100	132	67	32	0.93	232	63	30	47	22						
1.13	282	97	133	65	31	0.94	234	61	29	46	21						
1.14	284	95	134	63	30	0.95	237	60	28	44	21						
1.15	287	92	135	61	29	0.96	239	58	27	42	20						
1.16	289	89	136	59	28	0.97	242	56	27								
1.17	292	86	138	57	27	0.98	244	55	26								
1.18	294	83	139	55	26	0.99	247	53	25								
1.19	297	81	140	53	25	1.00	249	52	24								
1.20	299	78	141	51	24	1.01	252	50	24								
1.21	302	76	142	49	23	1.02	254	49	23								
1.22	304	73	143	47	22	1.03	257	47	22								
1.23	306	71	145	45	21	1.04	259	46	22								
1.24	309	68	146	44	21	1.05	262	44	21								
1.25	311	66	147	42	20	1.06	264	43	20								
1.26	314	63	148			1.07	267	41	19								
1.27	316	61	149			1.08	269	40	19								
1.28	319	59	151														
1.29	321	57	152														
1.30	324	54	153														
1.31	326	52	154														
1.32	329	50	155														
1.33	331	48	156														
1.34	334	46	158														
1.35	336	44	159														
1.36	339	42	160														

Refer to "Installer Selectable High Speed Settings" on page 38 in this manual for more information.

Table 20. Airflow Balancing - Reference HRV5-150

Speed 5 (factory setting)						Speed 4						Speed 3					
Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air	
in. w.g.	Pa	cfm	L/s	cfm	L/s	in. w.g.	Pa	cfm	L/s	cfm	L/s	in. w.g.	Pa	cfm	L/s	cfm	L/s
0	0	---	---	40	19	0	0	---	---	35	17	0	0	---	---	39	18
0.005	1	---	---	45	21	0.005	1	---	---	40	19	0.005	1	---	---	44	21
0.010	3	---	---	50	24	0.010	3	---	---	44	21	0.010	3	---	---	48	23
0.015	4	---	---	54	25	0.015	4	---	---	49	23	0.015	4	---	---	53	25
0.020	5	---	---	59	28	0.020	5	---	---	54	25	0.020	5	---	---	58	27
0.025	6	---	---	63	30	0.025	6	---	---	59	28	0.025	6	---	---	62	29
0.030	8	---	---	68	32	0.030	8	35	17	63	30	0.030	8	---	---	67	32
0.035	9	---	---	72	34	0.035	9	38	18	68	32	0.035	9	---	---	71	34
0.040	10	---	---	76	36	0.040	10	41	19	72	34	0.040	10	---	---	76	36
0.045	11	---	---	81	38	0.045	11	43	20	77	36	0.045	11	38	18	81	38
0.050	13	39	18	85	40	0.050	13	46	22	81	38	0.050	13	42	20	85	40
0.055	14	43	20	89	42	0.055	14	49	23	85	40	0.055	14	45	21	90	42
0.060	15	46	22	93	44	0.060	15	52	25	90	42	0.060	15	49	23	94	44
0.065	16	49	23	97	46	0.065	16	54	25	94	44	0.065	16	52	25	99	47
0.070	18	53	25	101	48	0.070	18	57	27	98	46	0.070	18	55	26	104	49
0.075	19	56	26	105	50	0.075	19	60	28	102	48	0.075	19	58	27	108	51
0.080	20	59	28	109	51	0.080	20	62	29	106	50	0.080	20	61	29	113	53
0.085	21	62	29	113	53	0.085	21	65	31	110	52	0.085	21	64	30	117	55
0.090	23	65	31	117	55	0.090	23	67	32	114	54	0.090	23	67	32	122	58
0.095	24	68	32	120	57	0.095	24	70	33	118	56	0.095	24	70	33	127	60
0.100	25	71	34	124	59	0.100	25	73	34	122	58	0.100	25	73	34	131	62
0.105	26	74	35	128	60	0.105	26	75	35	126	59	0.105	26	76	36	136	64
0.110	28	76	36	131	62	0.110	28	78	37	129	61	0.110	28	79	37	140	66
0.115	29	79	37	135	64	0.115	29	80	38	133	63	0.115	29	82	39	145	68
0.120	30	81	38	138	65	0.120	30	83	39	137	65	0.120	30	84	40	149	70
0.125	31	84	40	141	67	0.125	31	85	40	140	66	0.125	31	87	41	154	73
0.130	33	86	41	145	68	0.130	33	88	42	144	68	0.130	33	89	42	158	75
0.135	34	89	42	148	70	0.135	34	90	42	147	69	0.135	34	92	43	163	77
0.140	35	91	43	151	71	0.140	35	93	44	150	71	0.140	35	94	44	167	79
0.145	36	93	44	154	73	0.145	36	95	45	154	73	0.145	36	97	46	172	81
0.150	38	96	45	157	74	0.150	38	97	46	157	74	0.150	38	99	47	176	83
0.155	39	98	46	160	76	0.155	39	100	47	160	76	0.155	39	102	48	181	85
0.160	40	100	47	163	77	0.160	40	102	48	163	77	0.160	40	104	49	---	---
0.165	41	102	48	166	78	0.165	41	104	49	166	78	0.165	41	107	50	---	---
0.170	43	104	49	169	80	0.170	43	107	50	169	80	0.170	43	109	51	---	---
0.175	44	106	50	172	81	0.175	44	109	51	172	81	0.175	44	111	52	---	---
0.180	45	108	51	174	82	0.180	45	111	52	175	83	0.180	45	113	53	---	---
0.185	46	110	52	177	84	0.185	46	113	53	178	84	0.185	46	116	55	---	---
0.190	48	112	53	180	85	0.190	48	116	55	181	85	0.190	48	118	56	---	---
0.195	49	114	54	182	86	0.195	49	118	56	184	87	0.195	49	120	57	---	---
0.200	50	116	55	185	87	0.200	50	120	57	186	88	0.200	50	123	58	---	---
0.205	51	118	56	187	88	0.205	51	122	58	189	89	0.205	51	125	59	---	---
0.210	53	120	57	189	89	0.210	53	124	59	192	91	0.210	53	127	60	---	---
0.215	54	122	58	192	91	0.215	54	127	60	---	---	0.215	54	129	61	---	---
0.220	55	123	58	194	92	0.220	55	129	61	---	---	0.220	55	132	62	---	---
0.225	56	125	59	196	92	0.225	56	131	62	---	---	0.225	56	134	63	---	---
0.230	58	127	60	198	93	0.230	58	133	63	---	---	0.230	58	136	64	---	---
0.235	59	129	61	200	94	0.235	59	135	64	---	---	0.235	59	138	65	---	---

Refer to "Installer Selectable High Speed Settings" on page 38 in this manual for more information.

Table 20. Airflow Balancing - Reference HRV5-150

Speed 5 (factory setting)						Speed 4						Speed 3					
Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air	
in. w.g.	Pa	cfm	L/s	cfm	L/s	in. w.g.	Pa	cfm	L/s	cfm	L/s	in. w.g.	Pa	cfm	L/s	cfm	L/s
0.240	60	131	62	202	95	0.240	60	137	65	---	---	0.240	60	141	67	---	---
0.245	61	132	62	---	---	0.245	61	139	66	---	---	0.245	61	143	67	---	---
0.250	63	134	63	---	---	0.250	63	141	67	---	---	0.250	63	145	68	---	---
0.255	64	136	64	---	---	0.255	64	143	67	---	---	0.255	64	148	70	---	---
0.260	65	138	65	---	---	0.260	65	145	68	---	---	0.260	65	150	71	---	---
0.265	66	139	66	---	---	0.265	66	147	69	---	---	0.265	66	152	72	---	---
0.270	68	141	67	---	---	0.270	68	149	70	---	---	0.270	68	155	73	---	---
0.275	69	143	67	---	---	0.275	69	151	71	---	---	0.275	69	157	74	---	---
0.280	70	145	68	---	---	0.280	70	153	72	---	---	0.280	70	160	76	---	---
0.285	71	146	69	---	---	0.285	71	154	73	---	---	0.285	71	162	76	---	---
0.290	73	148	70	---	---	0.290	73	156	74	---	---	0.290	73	165	78	---	---
0.295	74	150	71	---	---	0.295	74	158	75	---	---	0.295	74	167	79	---	---
0.300	75	152	72	---	---	0.300	75	160	76	---	---	0.300	75	170	80	---	---
0.305	76	154	73	---	---	0.305	76	162	76	---	---	0.305	76	173	82	---	---
0.310	78	156	74	---	---	0.310	78	163	77	---	---	0.310	78	176	83	---	---
0.315	79	158	75	---	---	0.315	79	165	78	---	---	0.315	79	178	84	---	---
0.320	80	159	75	---	---	0.320	80	167	79	---	---	0.320	80	181	85	---	---
0.325	81	161	76	---	---	0.325	81	169	80	---	---	---	---	---	---	---	---
0.330	83	163	77	---	---	0.330	83	170	80	---	---	---	---	---	---	---	---
0.335	84	165	78	---	---	0.335	84	172	81	---	---	---	---	---	---	---	---
0.340	85	167	79	---	---	0.340	85	174	82	---	---	---	---	---	---	---	---
0.345	86	170	80	---	---	0.345	86	175	83	---	---	---	---	---	---	---	---
0.350	88	172	81	---	---	0.350	88	177	84	---	---	---	---	---	---	---	---
0.355	89	174	82	---	---	0.355	89	179	84	---	---	---	---	---	---	---	---
0.360	90	176	83	---	---	0.360	90	180	85	---	---	---	---	---	---	---	---
0.365	91	178	84	---	---	0.365	91	182	86	---	---	---	---	---	---	---	---
0.370	93	181	85	---	---	0.370	93	183	86	---	---	---	---	---	---	---	---
0.375	94	183	86	---	---	0.375	94	185	87	---	---	---	---	---	---	---	---
0.380	95	185	87	---	---	0.380	95	186	88	---	---	---	---	---	---	---	---
0.385	96	188	89	---	---	0.385	96	188	89	---	---	---	---	---	---	---	---
0.39	98	190	90	---	---	0.390	98	189	89	---	---	---	---	---	---	---	---
0.395	99	193	91	---	---	0.395	99	191	90	---	---	---	---	---	---	---	---
0.400	100	196	92	---	---	0.400	100	192	91	---	---	---	---	---	---	---	---
0.405	101	198	93	---	---	---	---	---	---	---	---	---	---	---	---	---	---
0.410	103	201	95	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Refer to "Installer Selectable High Speed Settings" on page 38 in this manual for more information.

Table 21. Airflow Balancing - Reference HRV5-200-TPD

Speed 5 (factory setting)						Speed 4						Speed 3					
Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air	
in. w.g.	Pa	cfm	L/s	cfm	L/s	in. w.g.	Pa	cfm	L/s	cfm	L/s	in. w.g.	Pa	cfm	L/s	cfm	L/s
0.500	125	220	104	233	110	0.400	100	174	82	188	89	0.300	75	167	79	175	83
0.510	128	217	102	230	109	0.410	103	171	81	185	87	0.310	78	163	77	172	81
0.520	130	214	101	227	107	0.420	105	168	79	182	86	0.320	80	160	76	169	80
0.530	133	210	99	224	106	0.430	108	164	77	179	84	0.330	83	156	74	165	78
0.540	135	207	98	221	104	0.440	110	161	76	176	83	0.340	85	153	72	162	76
0.550	138	204	96	218	103	0.450	113	158	75	173	82	0.350	88	149	70	159	75
0.560	140	201	95	215	101	0.460	115	155	73	171	81	0.360	90	146	69	156	74
0.570	143	197	93	213	101	0.470	118	152	72	168	79	0.370	93	143	67	153	72
0.580	145	194	92	210	99	0.480	120	149	70	165	78	0.380	95	140	66	151	71
0.590	148	191	90	207	98	0.490	123	146	69	162	76	0.390	98	136	64	148	70
0.600	150	188	89	204	96	0.500	125	143	67	160	76	0.400	100	133	63	145	68
0.610	153	185	87	201	95	0.510	128	140	66	157	74	0.410	103	130	61	142	67
0.620	155	182	86	198	93	0.520	130	137	65	154	73	0.420	105	127	60	139	66
0.630	158	179	84	195	92	0.530	133	134	63	152	72	0.430	108	124	59	136	64
0.640	160	176	83	192	91	0.540	135	131	62	149	70	0.440	110	121	57	134	63
0.650	163	173	82	190	90	0.550	138	128	60	146	69	0.450	113	118	56	131	62
0.660	165	170	80	187	88	0.560	140	125	59	144	68	0.460	115	115	54	128	60
0.670	168	167	79	184	87	0.570	143	122	58	141	67	0.470	118	112	53	125	59
0.680	170	164	77	181	85	0.580	145	120	57	139	66	0.480	120	109	51	123	58
0.690	173	161	76	179	84	0.590	148	117	55	136	64	0.490	123	107	50	120	57
0.700	175	158	75	176	83	0.600	150	114	54	134	63	0.500	125	104	49	118	56
0.710	178	155	73	173	82	0.610	153	112	53	131	62	0.510	128	101	48	115	54
0.720	180	152	72	171	81	0.620	155	109	51	129	61	0.520	130	99	47	113	53
0.730	183	149	70	168	79	0.630	158	106	50	126	59	0.530	133	96	45	110	52
0.740	185	146	69	165	78	0.640	160	104	49	124	59	0.540	135	93	44	108	51
0.750	188	144	68	163	77	0.650	163	101	48	121	57	0.550	138	91	43	105	50
0.760	190	141	67	160	76	0.660	165	99	47	119	56	0.560	140	88	42	103	49
0.770	193	138	65	158	75	0.670	168	96	45	117	55	0.570	143	86	41	100	47
0.780	195	135	64	155	73	0.680	170	94	44	114	54	0.580	145	84	40	98	46
0.790	198	133	63	152	72	0.690	173	91	43	112	53	0.590	148	81	38	96	45
0.800	200	130	61	150	71	0.700	175	89	42	110	52	0.600	150	79	37	93	44
0.810	203	127	60	147	69	0.710	178	87	41	107	50	0.610	153	77	36	91	43
0.820	205	125	59	145	68	0.720	180	84	40	105	50	0.620	155	74	35	89	42
0.830	208	122	58	142	67	0.730	183	82	39	103	49	0.630	158	72	34	87	41
0.840	210	119	56	140	66	0.740	185	80	38	101	48	0.640	160	70	33	85	40
0.850	213	117	55	138	65	0.750	188	78	37	99	47	0.650	163	68	32	82	39
0.860	215	114	54	135	64	0.760	190	76	36	96	45	0.660	165	66	31	80	38
0.870	218	112	53	133	63	0.770	193	73	34	94	44	0.670	168	64	30	78	37
0.880	220	109	51	130	61	0.780	195	71	34	92	43	0.680	170	62	29	76	36
0.890	223	107	50	128	60	0.790	198	69	33	90	42	0.690	173	60	28	74	35
0.900	225	104	49	126	59	0.800	200	67	32	88	42	0.700	175	58	27	72	34
0.910	228	102	48	123	58	0.810	203	65	31	86	41	0.710	178	56	26	70	33
0.920	230	99	47	121	57	0.820	205	63	30	84	40	0.720	180	55	26	68	32
0.930	233	97	46	119	56	0.830	208	61	29	82	39	0.730	183	53	25	66	31
0.940	235	95	45	116	55	0.840	210	59	28	80	38	0.740	185	51	24	65	31
0.950	238	92	43	114	54	0.850	213	57	27	78	37	0.750	188	49	23	63	30
0.960	240	90	42	112	53	0.860	215	56	26	76	36	0.760	190	48	23	61	29
0.970	243	88	42	110	52	0.870	218	54	25	74	35	0.770	193	46	22	59	28

Refer to "Installer Selectable High Speed Settings" on page 38 in this manual for more information.

Table 21. Airflow Balancing - Reference HRV5-200-TPD

Speed 5 (factory setting)						Speed 4						Speed 3					
Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air	
in. w.g.	Pa	cfm	L/s	cfm	L/s	in. w.g.	Pa	cfm	L/s	cfm	L/s	in. w.g.	Pa	cfm	L/s	cfm	L/s
0.980	245	85	40	107	50	0.880	220	52	25	72	34	0.780	195	45	21	57	27
0.990	248	83	39	105	50	0.890	223	50	24	70	33	0.790	198	43	20	56	26
1.000	250	81	38	103	49	0.900	225	48	23	68	32	0.800	200	42	20	54	25
1.010	253	79	37	101	48	0.910	228	47	22	66	31	0.810	203	40	19	52	25
1.020	255	77	36	99	47	0.920	230	45	21	65	31	0.820	205	39	18	51	24
1.030	258	74	35	97	46	0.930	233	43	20	63	30	0.830	208	37	17	49	23
1.040	260	72	34	95	45	0.940	235	42	20	61	29	0.840	210	36	17	47	22
1.050	263	70	33	92	43	0.950	238	40	19	59	28	0.850	213	35	17	46	22
1.060	265	68	32	90	42	0.960	240	39	18	57	27	0.860	215	34	16	44	21
1.070	268	66	31	88	42	0.970	243	37	17	56	26	0.870	218	32	15	43	20
1.080	270	64	30	86	41	0.980	245	36	17	54	25	0.880	220	31	15	42	20
1.090	273	62	29	84	40	0.990	248	34	16	52	25	0.890	223	30	14	40	19
1.100	275	60	28	82	39	1.000	250	33	16	51	24	0.900	225	29	14	39	18
1.110	278	58	27	80	38	1.010	253	32	15	49	23	0.910	228	28	13	37	17
1.120	280	56	26	78	37	1.020	255	30	14	47	22	0.920	230	27	13	36	17
1.130	283	54	25	76	36	1.030	258	29	14	46	22	0.930	233	26	12	35	17
1.140	285	52	25	74	35	1.040	260	28	13	44	21	0.940	235	25	12	33	16
1.150	288	50	24	73	34	1.050	263	26	12	43	20	0.950	238	25	12		0
1.160	290	48	23	71	34	1.060	265	25	12	41	19	---	---	---	---	---	---
1.170	293	47	22	69	33	1.070	268	24	11	40	19	---	---	---	---	---	---
1.180	295	45	21	67	32	1.080	270	23	11	38	18	---	---	---	---	---	---
1.190	298	43	20	65	31	1.090	273	22	10	37	17	---	---	---	---	---	---
1.200	300	41	19	63	30	---	---	---	---	---	---	---	---	---	---	---	---
1.210	303	39	18	61	29	---	---	---	---	---	---	---	---	---	---	---	---
1.220	305	38	18	60	28	---	---	---	---	---	---	---	---	---	---	---	---
1.230	308	36	17	58	27	---	---	---	---	---	---	---	---	---	---	---	---
1.240	310	34	16	56	26	---	---	---	---	---	---	---	---	---	---	---	---
1.250	313	33	16	54	25	---	---	---	---	---	---	---	---	---	---	---	---
1.260	315	31	15	53	25	---	---	---	---	---	---	---	---	---	---	---	---
1.270	318	29	14	51	24	---	---	---	---	---	---	---	---	---	---	---	---
1.280	320	28	13	49	23	---	---	---	---	---	---	---	---	---	---	---	---
1.290	323	26	12	48	23	---	---	---	---	---	---	---	---	---	---	---	---
1.300	325	25	12	46	22	---	---	---	---	---	---	---	---	---	---	---	---
1.310	328	23	11	44	21	---	---	---	---	---	---	---	---	---	---	---	---
1.320	330	22	10	43	20	---	---	---	---	---	---	---	---	---	---	---	---

Refer to "Installer Selectable High Speed Settings" on page 38 in this manual for more information.

Table 22. Airflow Balancing - Reference HRV5-270-TPD-ECM

Speed 5 (factory setting)						Speed 4						Speed 3					
Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air	
in. w.g.	Pa	(cfm)	L/s	(cfm)	L/s	in. w.g.	Pa	(cfm)	L/s	(cfm)	L/s	in. w.g.	Pa	(cfm)	L/s	(cfm)	L/s
1.10	274			325	153	0.860	214			250	118	0.650	162			222	105
1.120	279			324	153	0.870	217			249	118	0.660	164	221	104	225	106
1.140	284			322	152	0.880	219			248	117	0.670	167	219	103	222	105
1.160	289			320	151	0.890	222			247	117	0.680	169	216	102	220	104
1.180	294			319	151	0.90	224			245	116	0.690	172	214	101	217	102
1.200	299			317	150	0.910	227			244	115	0.700	174	211	100	214	101
1.220	304			315	149	0.920	229			242	114	0.710	177	209	99	212	100
1.240	309			313	148	0.930	232			241	114	0.720	179	207	98	209	99
1.260	314			311	147	0.940	234			240	113	0.730	182	204	96	206	97
1.280	319			309	146	0.950	237			238	112	0.740	184	202	95	203	96
1.300	324			307	145	0.960	239	250	118	236	111	0.750	187	199	94	201	95
1.320	329			305	144	0.970	242	248	117	235	111	0.760	189	197	93	198	93
1.340	334	323	152	303	143	0.980	244	246	116	233	110	0.770	192	194	92	195	92
1.360	339	320	151	300	142	0.990	247	243	115	232	109	0.780	194	192	91	192	91
1.380	344	317	150	298	141	1.000	249	241	114	230	109	0.790	197	190	90	190	90
1.400	349	313	148	296	140	1.010	252	239	113	228	108	0.800	199	187	88	187	88
1.420	354	310	146	293	138	1.020	254	237	112	227	107	0.810	202	185	87	184	87
1.440	359	307	145	291	137	1.030	257	235	111	225	106	0.820	204	182	86	181	85
1.460	364	304	143	288	136	1.040	259	233	110	223	105	0.830	207	180	85	179	84
1.480	369	300	142	286	135	1.050	262	230	109	221	104	0.840	209	177	84	176	83
1.500	374	297	140	283	134	1.060	264	228	108	219	103	0.850	212	175	83	173	82
1.520	379	293	138	280	132	1.070	267	226	107	217	102	0.860	214	172	81	170	80
1.540	384	290	137	277	131	1.080	269	223	105	215	101	0.870	217	170	80	168	79
1.560	389	287	135	275	130	1.090	272	221	104	214	101	0.880	219	168	79	165	78
1.580	394	283	134	272	128	1.100	274	219	103	212	100	0.890	222	165	78	162	76
1.600	399	279	132	269	127	1.110	277	216	102	210	99	0.90	224	163	77	160	76
1.620	404	276	130	266	126	1.120	279	214	101	207	98	0.910	227	160	76	157	74
1.640	409	272	128	263	124	1.130	282	211	100	205	97	0.920	229	158	75	154	73
1.660	414	268	126	259	122	1.140	284	209	99	203	96	0.930	232	155	73	151	71
1.680	419	265	125	256	121	1.150	287	207	98	201	95	0.940	234	153	72	149	70
1.700	424	261	123	253	119	1.160	289	204	96	199	94	0.950	237	150	71	146	69
1.720	429	257	121	250	118	1.170	292	201	95	197	93	0.960	239	148	70	143	67
1.740	434	253	119	246	116	1.180	294	199	94	195	92	0.970	242	146	69	140	66
1.760	439	249	118	243	115	1.190	297	196	92	192	91	0.980	244	143	67	138	65
1.780	444	245	116	239	113	1.200	299	194	92	190	90	0.990	247	141	67	135	64
1.800	449	241	114	236	111	1.210	302	191	90	188	89	1.000	249	138	65	132	62
1.820	453	237	112	232	109	1.220	304	189	89	185	87	1.010	252	136	64	129	61
1.840	458	233	110	229	108	1.230	306	186	88	183	86	1.020	254	133	63	127	60
1.860	463	229	108	225	106	1.240	309	183	86	180	85	1.030	257	131	62	124	59
1.880	468	225	106	221	104	1.250	311	181	85	178	84	1.040	259	129	61	121	57
1.900	473	220	104	217	102	1.260	314	178	84	175	83	1.050	262	126	59	119	56
1.920	478	216	102	213	101	1.270	316	175	83	173	82	1.060	264	124	59	116	55
1.940	483	212	100	209	99	1.280	319	172	81	170	80	1.070	267	121	57	113	53
1.960	488	207	98	205	97	1.290	321	169	80	168	79	1.080	269	119	56	110	52
1.980	493	203	96	201	95	1.300	324	167	79	165	78	1.090	272	116	55	108	51
2.000	498	199	94	197	93	1.310	326	164	77	162	76	1.100	274	114	54	105	49
2.020	503	194	92	193	91	1.320	329	161	76	160	76	1.110	277	111	53	102	48

Refer to "Installer Selectable High Speed Settings" on page 38 in this manual for more information.

Table 22. Airflow Balancing - Reference HRV5-270-TPD-ECM

Speed 5 (factory setting)						Speed 4						Speed 3					
Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air	
in. w.g.	Pa	(cfm)	L/s	(cfm)	L/s	in. w.g.	Pa	(cfm)	L/s	(cfm)	L/s	in. w.g.	Pa	(cfm)	L/s	(cfm)	L/s
2.040	508	190	90	189	89	1.330	331	158	75	157	74	1.120	279	109	51	99	47
2.060	513	185	87	184	87	1.340	334	155	73	154	73	1.130	282	107	50	97	46
2.080	518	180	85	180	85	1.350	336	152	72	151	71	1.140	284	104	49	94	44
2.100	523	176	83	176	83	1.360	339	149	70	149	70	1.150	287	102	48	91	43
2.120	528	171	81	171	81	1.370	341	146	69	146	69	1.160	289	99	47	88	42
2.140	533	166	78	167	79	1.380	344	143	67	143	67	1.170	292	97	46	86	40
2.160	538	162	76	162	76	1.390	346	140	66	140	66	1.180	294	94	45	83	39
2.180	543	157	74	157	74	1.400	349	137	65	137	65	1.190	297	92	43	80	38
2.200	548	152	72	153	72	1.410	351	134	63	134	63	1.200	299	90	42	77	37
2.220	553	147	69	148	70	1.420	354	131	62	131	62						
2.240	558	142	67	143	67	1.430	356	128	60	128	60						
2.260	563	137	65	138	65	1.440	359	125	59	125	59						
2.280	568	132	62	133	63	1.450	361	122	58	122	58						
2.300	573	127	60	128	60	1.460	364	119	56	119	56						
2.320	578	122	58	123	58	1.470	366	115	54	116	55						
2.340	583	117	55	118	56	1.480	369	112	53	112	53						
2.360	588	112	53	113	53	1.490	371	109	51	109	51						
2.380	593	106	50	107	50	1.500	374	106	50	106	50						
2.400	598	101	48	102	48	1.510	376	102	48	103	49						

Refer to "Installer Selectable High Speed Settings" on page 38 in this manual for more information.

Table 23. Airflow Balancing - Reference HRV5-HEX095-TPD

Speed 5 (factory setting)						Speed 4						Speed 3					
Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air	
in. w.g.	Pa	(cfm)	L/s	(cfm)	L/s	in. w.g.	Pa	(cfm)	L/s	(cfm)	L/s	in. w.g.	Pa	(cfm)	L/s	(cfm)	L/s
0.200	50	113	53	108	51	0.200	50			104	49	0.200	50	97	46	96	45
0.210	52	113	53	108	51	0.210	52	104	49	103	49	0.210	52	96	45	95	45
0.220	55	112	53	107	50	0.220	55	104	49	102	48	0.220	55	95	45	93	44
0.230	57	112	53	107	50	0.230	57	103	49	101	48	0.230	57	94	44	92	43
0.240	60	111	52	106	50	0.240	60	102	48	100	47	0.240	60	93	44	91	43
0.250	62	110	52	106	50	0.250	62	102	48	99	47	0.250	62	93	44	90	42
0.260	65	110	52	106	50	0.260	65	101	48	98	46	0.260	65	92	43	88	42
0.270	67	109	51	105	50	0.270	67	100	47	97	46	0.270	67	91	43	87	41
0.280	70	108	51	105	50	0.280	70	99	47	96	45	0.280	70	90	42	86	41
0.290	72	108	51	104	49	0.290	72	98	46	95	45	0.290	72	89	42	85	40
0.300	75	107	50	103	49	0.300	75	97	46	94	44	0.300	75	87	41	84	40
0.310	77	106	50	103	49	0.310	77	96	45	93	44	0.310	77	86	41	82	39
0.320	80	105	50	102	48	0.320	80	96	45	92	43	0.320	80	85	40	81	38
0.330	82	105	50	102	48	0.330	82	95	45	91	43	0.330	82	84	40	80	38
0.340	85	104	49	101	48	0.340	85	94	44	90	42	0.340	85	83	39	79	37
0.350	87	103	49	100	47	0.350	87	93	44	89	42	0.350	87	82	39	78	37
0.360	90	102	48	100	47	0.360	90	92	43	88	42	0.360	90	81	38	76	36
0.370	92	101	48	99	47	0.370	92	91	43	87	41	0.370	92	80	38	75	35
0.380	95	100	47	98	46	0.380	95	90	42	86	41	0.380	95	78	37	74	35
0.390	97	99	47	97	46	0.390	97	89	42	85	40	0.390	97	77	36	73	34
0.400	100	98	46	97	46	0.400	100	87	41	84	40	0.400	100	76	36	71	34
0.410	102	97	46	96	45	0.410	102	86	41	83	39	0.410	102	75	35	70	33

Refer to "Installer Selectable High Speed Settings" on page 38 in this manual for more information.

Table 23. Airflow Balancing - Reference HRV5-HEX095-TPD

Speed 5 (factory setting)						Speed 4						Speed 3					
Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air	
in. w.g.	Pa	(cfm)	L/s	(cfm)	L/s	in. w.g.	Pa	(cfm)	L/s	(cfm)	L/s	in. w.g.	Pa	(cfm)	L/s	(cfm)	L/s
0.420	105	96	45	95	45	0.420	105	85	40	82	39	0.420	105	73	34	69	33
0.430	107	95	45	94	44	0.430	107	84	40	81	38	0.430	107	72	34	68	32
0.440	110	94	44	93	44	0.440	110	83	39	80	38	0.440	110	71	34	67	32
0.450	112	93	44	93	44	0.450	112	82	39	79	37	0.450	112	69	33	65	31
0.460	115	92	43	92	43	0.460	115	80	38	77	36	0.460	115	68	32	64	30
0.470	117	91	43	91	43	0.470	117	79	37	76	36	0.470	117	67	32	63	30
0.480	120	90	42	90	42	0.480	120	78	37	75	35	0.480	120	65	31	62	29
0.490	122	89	42	89	42	0.490	122	77	36	74	35	0.490	122	64	30	60	28
0.500	125	88	42	88	42	0.500	125	75	35	73	34	0.500	125	63	30	59	28
0.510	127	87	41	87	41	0.510	127	74	35	71	34	0.510	127	61	29	58	27
0.520	129	85	40	86	41	0.520	129	73	34	70	33	0.520	129	60	28	57	27
0.530	132	84	40	85	40	0.530	132	71	34	69	33	0.530	132	58	27	55	26
0.540	134	83	39	84	40	0.540	134	70	33	68	32	0.540	134	57	27	54	25
0.550	137	82	39	83	39	0.550	137	68	32	67	32	0.550	137	55	26	53	25
0.560	139	80	38	81	38	0.560	139	67	32	65	31	0.560	139	54	25	52	25
0.570	142	79	37	80	38	0.570	142	65	31	64	30	0.570	142	52	25	51	24
0.580	144	78	37	79	37	0.580	144	64	30	63	30	0.580	144	50	24	49	23
0.590	147	76	36	78	37	0.590	147	62	29	62	29	0.590	147	49	23	48	23
0.600	149	75	35	77	36	0.600	149	61	29	60	28	0.600	149	47	22	47	22
0.610	152	73	34	75	35	0.610	152	59	28	59	28	0.610	152	46	22	46	22
0.620	154	72	34	74	35	0.620	154	58	27	58	27	0.620	154	44	21	44	21
0.630	157	71	34	73	34	0.630	157	56	26	56	26	0.630	157	42	20	43	20
0.640	159	69	33	72	34	0.640	159	54	25	55	26	0.640	159	41	19	42	20
0.650	162	68	32	70	33	0.650	162	53	25	54	25						
0.660	164	66	31	69	33	0.660	164	51	24	52	25						
0.670	167	65	31	68	32	0.670	167	49	23	51	24						
0.680	169	63	30	66	31	0.680	169	48	23	49	23						
0.690	172	62	29	65	31	0.690	172	46	22	48	23						
0.700	174	60	28	63	30	0.700	174	44	21	47	22						
0.710	177	58	27	62	29	0.710	177	42	20	45	21						
0.720	179	57	27	61	29	0.720	179	41	19	44	21						
0.730	182	55	26	59	28	0.730	182			42	20						
0.740	184	53	25	58	27	0.740	184			41	19						
0.750	187	52	25	56	26	0.750	187			40	19						
0.760	189	50	24	54	25												
0.770	192	48	23	53	25												
0.780	194	46	22	51	24												
0.790	197	45	21	50	24												
0.800	199	43	20	48	23												
0.810	202	41	19	46	22												
0.820	204			45	21												
0.830	207			43	20												
0.840	209			41	19												
0.850	212			40	19												

Refer to "Installer Selectable High Speed Settings" on page 38 in this manual for more information.

Table 24. Airflow Balancing - Reference ERV5-150-TPD

Speed 5 (factory setting)						Speed 4						Speed 3					
Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air	
(" w.g.)	(Pa)	(cfm)	L/s	(cfm)	L/s	(" w.g.)	(Pa)	(cfm)	L/s	(cfm)	L/s	(" w.g.)	(Pa)	(cfm)	L/s	(cfm)	L/s
0.750	70			157	74	0.530	70			127		0.500	70			100	47
0.760	189			155	73	0.540	135			125		0.510	127			98	46
0.770	192			152	72	0.550	137			123		0.520	130			96	45
0.780	194			150	71	0.560	140			122		0.530	132			94	44
0.790	197			148	70	0.570	142			120		0.540	135			92	43
0.80	199			146	69	0.580	145			118		0.550	137			90	42
0.810	202			144	68	0.590	147			116		0.560	140			88	42
0.820	204			142	67	0.600	150			114		0.570	142			86	41
0.830	207			139	66	0.610	152			112		0.580	145			84	40
0.840	209			137	65	0.620	154			111		0.590	147			83	39
0.850	212			135	64	0.630	157			109		0.600	150			81	38
0.860	214			133	63	0.640	159			107		0.610	152			79	37
0.870	217			131	62	0.650	162			105		0.620	154			77	36
0.880	219			129	61	0.660	164			103		0.630	157	103	49	75	35
0.890	222			126	59	0.670	167			102		0.640	159	100	47	73	34
0.900	224			124	59	0.680	169			100		0.650	162	97	46	71	34
0.910	227			122	58	0.690	172			98		0.660	164	93	44	69	33
0.920	229			120	57	0.700	174			96		0.670	167	90	42	67	32
0.930	232			118	56	0.710	177			94		0.680	169	88	42	65	31
0.940	234			115	54	0.720	179			93		0.690	172	85	40	64	30
0.950	237			113	53	0.730	182	127	60	91		0.700	174	82	39	62	29
0.960	239	162	76	111	52	0.740	184	124	59	89		0.710	177	79	37	60	28
0.970	242	158	75	109	51	0.750	187	121	57	87		0.720	179	77	36	58	27
0.980	244	154	73	107	50	0.760	189	118	56	85		0.730	182	74	35	56	26
0.990	247	150	71	105	50	0.770	192	115	54	84		0.740	184	72	34	54	25
1.000	249	146	69	102	48	0.780	194	112	53	82		0.750	187	69	33	52	25
1.010	252	142	67	100	47	0.790	197	109	51	80		0.760	189	67	32	51	24
1.020	254	138	65	98	46	0.80	199	106	50	78		0.770	192	65	31	49	23
1.030	257	134	63	96	45	0.810	202	103	49	76		0.780	194	62	29	47	22
1.040	259	130	61	94	44	0.820	204	100	47	75		0.790	197	60	28	45	21
1.050	262	126	59	92	43	0.830	207	98	46	73		0.800	199	58	27	43	20
1.060	264	122	58	89	42	0.840	209	95	45	71		0.810	202	56	26	42	20
1.070	267	119	56	87	41	0.850	212	92	43	69		0.820	204	54	25	40	19
1.080	269	115	54	85	40	0.860	214	90	42	67		0.830	207	52	25		
1.090	272	112	53	83	39	0.870	217	87	41	66		0.840	209	51	24		
1.100	274	108	51	81	38	0.880	219	85	40	64		0.850	212	49	23		
1.110	277	105	50	79	37	0.890	222	82	39	62		0.860	214	47	22		
1.120	279	102	48	76	36	0.900	224	80	38	60		0.870	217	46	22		
1.130	282	99	47	74	35	0.910	227	77	36	58		0.880	219	44	21		
1.140	284	95	45	72	34	0.920	229	75	35	57		0.890	222	43	20		

Table 24. Airflow Balancing - Reference ERV5-150-TPD

Speed 5 (factory setting)						Speed 4						Speed 3					
Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air	
(" w.g.)	(Pa)	(cfm)	L/s	(cfm)	L/s	(" w.g.)	(Pa)	(cfm)	L/s	(cfm)	L/s	(" w.g.)	(Pa)	(cfm)	L/s	(cfm)	L/s
1.150	287	92	43	70	33	0.930	232	73	34	55		0.900	224	42	20		
1.160	289	89	42	68	32	0.940	234	71	34	53		0.910	227	40	19		
1.170	292	87	41	66	31	0.950	237	69	33	51							
1.180	294	84	40	63	30	0.960	239	66	31	49							
1.190	297	81	38	61	29	0.970	242	64	30	48							
1.200	299	78	37	59	28	0.980	244	62	29	46							
1.210	302	76	36	57	27	0.990	247	60	28	44							
1.220	304	73	34	55	26	1.000	249	59	28	42							
1.230	306	70	33	53	25	1.010	252	57	27	40							
1.240	309	68	32	50	24	1.020	254	55	26	39							
1.250	311	66	31	48	23	1.030	257	53	25								
1.260	314	63	30	46	22	1.040	259	51	24								
1.270	316	61	29	44	21	1.050	262	50	24								
1.280	319	59	28	42	20	1.060	264	48	23								
1.290	321	57	27	39	18	1.070	267	47	22								
1.300	324	55	26			1.080	269	45	21								
1.310	326	53	25			1.090	272	44	21								
1.320	329	51	24			1.100	274	42	20								
1.330	331	49	23			1.110	277	41	19								
1.340	334	48	23			1.120	279	40	19								
1.350	336	46	22			1.130	282	38	18								
1.360	339	44	21														
1.370	341	43	20														
1.380	344	41	19														
1.390	346	40	19														
1.400	349	39	18														

Table 25. Airflow Balancing - Reference ERV5-175-TPD

Speed 5 (factory setting)						Speed 4						Speed 3					
Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air		Pressure Drop		Fresh Air		Stale Air	
"w.g.	Pa	CFM	L/s	CFM	L/s	"w.g.	Pa	CFM	L/s	CFM	L/s	"w.g.	Pa	CFM	L/s	CFM	L/s
0.750	187	199	94	201	95	0.640	159			152	72	0.470	117	138	65		
0.760	189	197	93	198	93	0.650	162	151	71	149	70	0.480	120	135	64	139	66
0.770	192	194	92	195	92	0.660	164	148	70	146	69	0.490	122	132	62	135	64
0.780	194	192	91	192	91	0.670	167	145	68	143	67	0.500	125	129	61	132	62
0.790	197	190	90	190	90	0.680	169	143	67	140	66	0.510	127	126	59	129	61
0.800	199	187	88	187	88	0.690	172	140	66	137	65	0.520	130	124	59	125	59
0.810	202	185	87	184	87	0.700	174	137	65	134	63	0.530	132	121	57	122	58
0.820	204	182	86	181	85	0.710	177	134	63	132	62	0.540	135	118	56	119	56
0.830	207	180	85	179	84	0.720	179	132	62	129	61	0.550	137	115	54	116	55
0.840	209	177	84	176	83	0.730	182	129	61	126	59	0.560	140	112	53	113	53
0.850	212	175	83	173	82	0.740	184	126	59	123	58	0.570	142	110	52	110	52
0.860	214	172	81	170	80	0.750	187	124	59	120	57	0.580	145	107	50	107	50
0.870	217	170	80	168	79	0.760	189	121	57	117	55	0.590	147	104	49	104	49
0.880	219	168	79	165	78	0.770	192	119	56	115	54	0.600	150	102	48	101	48
0.890	222	165	78	162	76	0.780	194	116	55	112	53	0.610	152	99	47	98	46
0.900	224	163	77	160	76	0.790	197	114	54	109	51	0.620	154	97	46	95	45
0.910	227	160	76	157	74	0.800	199	111	52	106	50	0.630	157	94	44	92	43
0.920	229	158	75	154	73	0.810	202	109	51	104	49	0.640	159	92	43	89	42
0.930	232	155	73	151	71	0.820	204	106	50	101	48	0.650	162	89	42	86	41
0.940	234	153	72	149	70	0.830	207	104	49	98	46	0.660	164	87	41	84	40
0.950	237	150	71	146	69	0.840	209	101	48	96	45	0.670	167	85	40	81	38
0.960	239	148	70	143	67	0.850	212	99	47	93	44	0.680	169	82	39	78	37
0.970	242	146	69	140	66	0.860	214	96	45	91	43	0.690	172	80	38	76	36
0.980	244	143	67	138	65	0.870	217	94	44	88	42	0.700	174	78	37	73	34
0.990	247	141	67	135	64	0.880	219	92	43	86	41	0.710	177	75	35	71	34
1.000	249	138	65	132	62	0.890	222	89	42	83	39	0.720	179	73	34	68	32
1.010	252	136	64	129	61	0.900	224	87	41	80	38	0.730	182	71	34	66	31
1.020	254	133	63	127	60	0.910	227	85	40	78	37	0.740	184	69	33	63	30
1.030	257	131	62	124	59	0.920	229	83	39	76	36	0.750	187	67	32	61	29
1.040	259	129	61	121	57	0.930	232	80	38	73	34	0.760	189	65	31	59	28
1.050	262	126	59	119	56	0.940	234	78	37	71	34	0.770	192	63	30	56	26
1.060	264	124	59	116	55	0.950	237	76	36	68	32	0.780	194	61	29	54	25
1.070	267	121	57	113	53	0.960	239	74	35	66	31	0.790	197	59	28	52	25
1.080	269	119	56	110	52	0.970	242	71	34	63	30	0.800	199	57	27	50	24
1.090	272	116	55	108	51	0.980	244	69	33	61	29	0.810	202	55	26	48	23
1.100	274	114	54	105	50	0.990	247	67	32	59	28	0.820	204	53	25	46	22
1.110	277	111	52	102	48	1.000	249	65	31	56	26	0.830	207	51	24	44	21
1.120	279	109	51	99	47	1.010	252	63	30	54	25	0.840	209	49	23	42	20
1.130	282	107	50	97	46	1.020	254	61	29	52	25	0.850	212	48	23	40	19
1.140	284	104	49	94	44	1.030	257	59	28	50	24	0.860	214	46	22		
1.150	287	102	48	91	43	1.040	259	57	27	47	22	0.870	217	44	21		
1.160	289	99	47	88	42	1.050	262	55	26	45	21	0.880	219	42	20		
1.170	292	97	46	86	41	1.060	264	53	25	43	20	0.890	222	41	19		
1.180	294	94	44	83	39	1.070	267	51	24	41							
1.190	297	92	43	80	38	1.080	269	49	23								
1.200	299	90	42	77	36	1.090	272	47	22								
1.210	302	87	41	75	35	1.100	274	45	21								

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Sequence of Operations

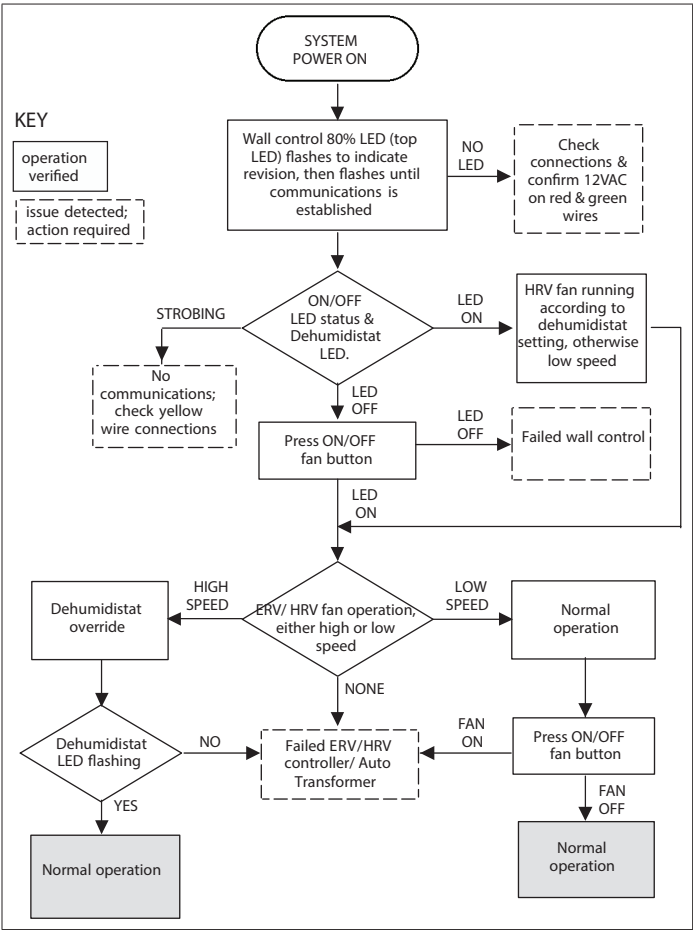


Figure 52. ERV /HRV Operational Flowchart

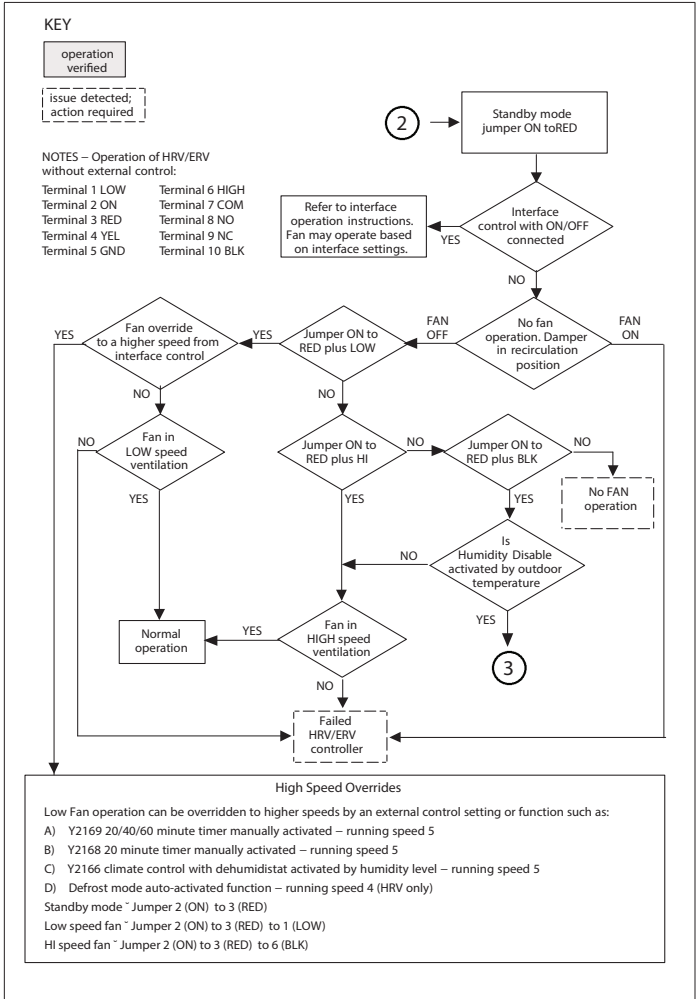
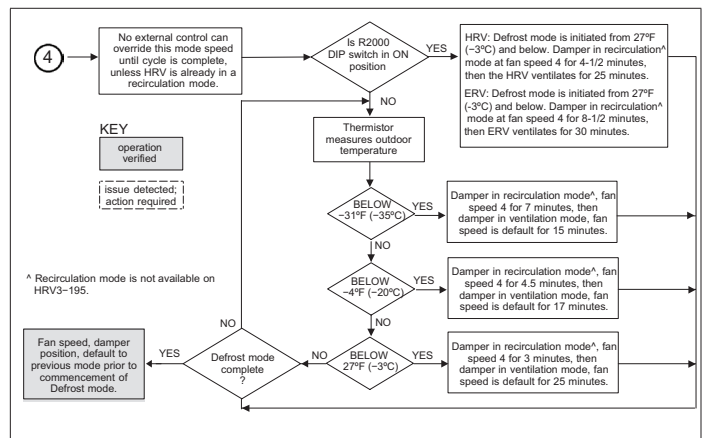
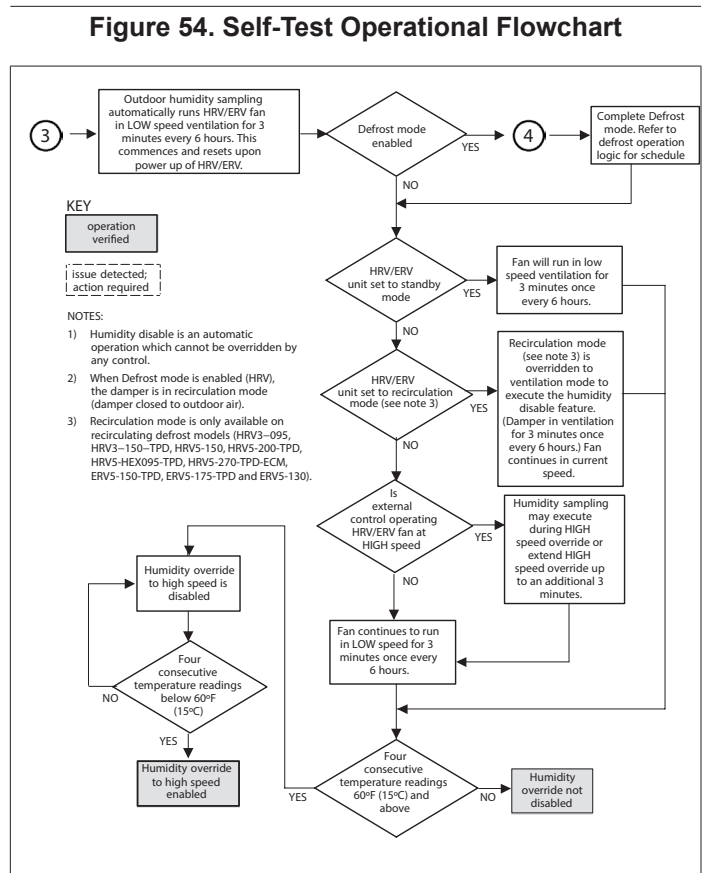
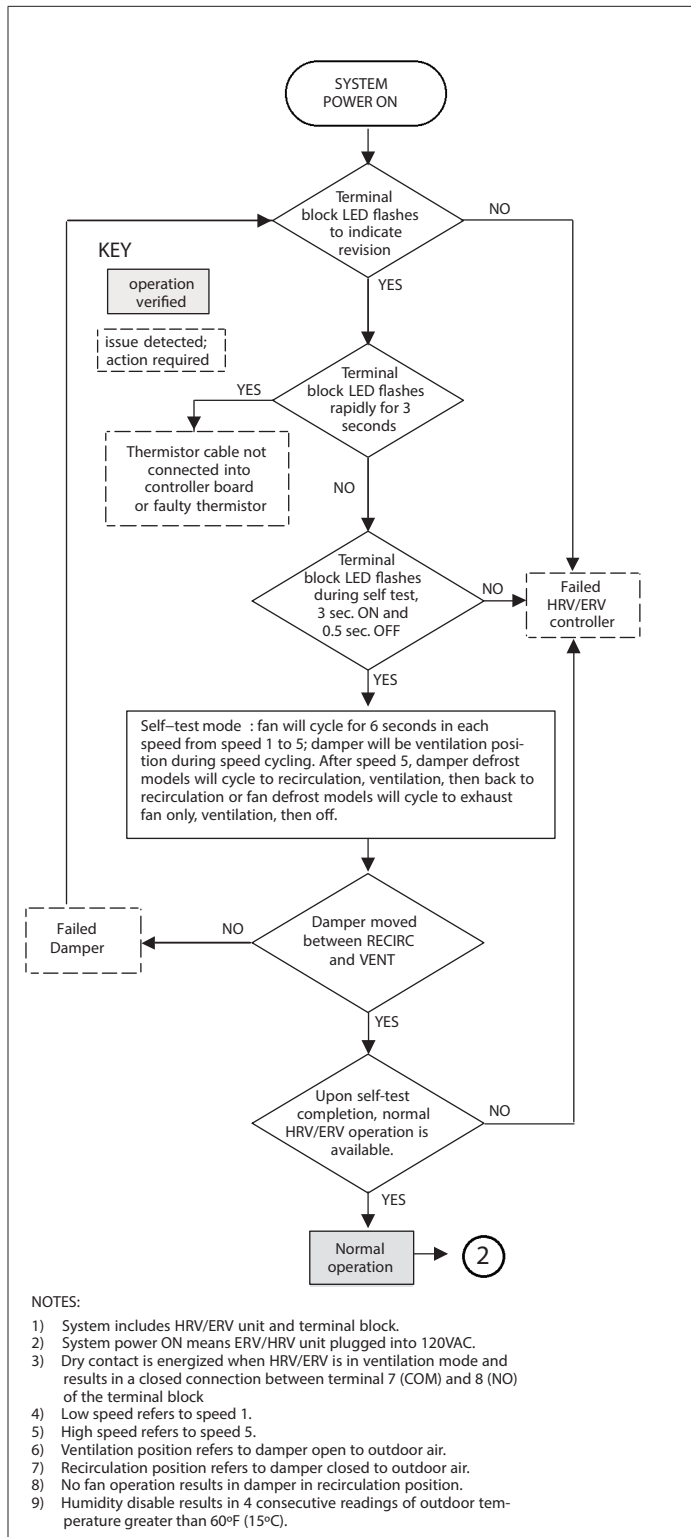


Figure 53. Terminal Block Operation



Troubleshooting

Prior to proceeding with troubleshoot, make certain the unit passes the self-test. Refer to “Figure 54. Self-Test Operational Flowchart” on page 55. 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.

Table 26. Troubleshooting

Symptom	Cause	Solution
Poor airflow(s)	<ul style="list-style-type: none"> • 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 ERV/HRV • Improper speed control setting • ERV/HRV airflow improperly balanced 	<ul style="list-style-type: none"> • Clean exterior hoods or vents • Remove and clean both filter and core • If unit is equipped with MERV 13 filters, replace every 3 months. • Check and open grilles • Open and adjust dampers • Have electrician check supply voltage at house • Check duct installation • Increase the speed of the ERV/HRV Have contractor balance the ERV/HRV.
Supply air feels cold	<ul style="list-style-type: none"> • Poor location of supply grilles • Airflow may irritate occupants • Outdoor temperature extremely cold 	<ul style="list-style-type: none"> • 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 ERV/HRV 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	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Dehumidistat is functioning normally (see “Figure 55. Dehumidistat Disable” on page 55). • 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	<ul style="list-style-type: none"> • Dehumidistat set too high • ERV/HRV unit is undersized to handle a hot tub, indoor pool, etc. (Occupant Lifestyle) • Moisture coming into the home from an non-vented or non-heated crawl space • Moisture remaining in washroom and/or kitchen areas • Condensation seems to form in the spring and fall seasons • ERV/HRV is set at too low a speed 	<ul style="list-style-type: none"> • Set dehumidistat at lower level. • Cover pool or 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 ERV/HRV use. Increase speed of ERV/HRV.
Humidity levels are too low	<ul style="list-style-type: none"> • Dehumidistat control set too low • Blower speed of ERV/HRV is too high • Occupant lifestyle issue • ERV/HRV airflows may be improperly balanced 	<ul style="list-style-type: none"> • Set dehumidistat at higher level. Decrease ERV/HRV blower speed. • Humidity may have to be added through use of humidifiers. • Have a contractor balance ERV/HRV airflows.
HRV units and/or ducts frosting up	<ul style="list-style-type: none"> • HRV air flows are improperly balanced • Malfunction of the HRV defrost system 	<p>NOTE: <i>Minimal frost build-up is expected on cores before unit initiates defrost cycle functions.</i></p> <p>Have HVAC contractor balance the HRV airflows. Ensure damper defrost is operating during self-test.</p>
Condensation or ice build-up in insulated duct to the outside	<ul style="list-style-type: none"> • Incomplete vapor barrier around insulated duct • Hole or tear in outer duct covering 	<ul style="list-style-type: none"> • 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 ERV/HRV unit	<ul style="list-style-type: none"> • Drain pans plugged • Improper connection of ERV/HRV drain lines • ERV/HRV is not level • Drain lines obstructed • ERV/HRV heat exchange core is not properly installed 	<ul style="list-style-type: none"> • 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

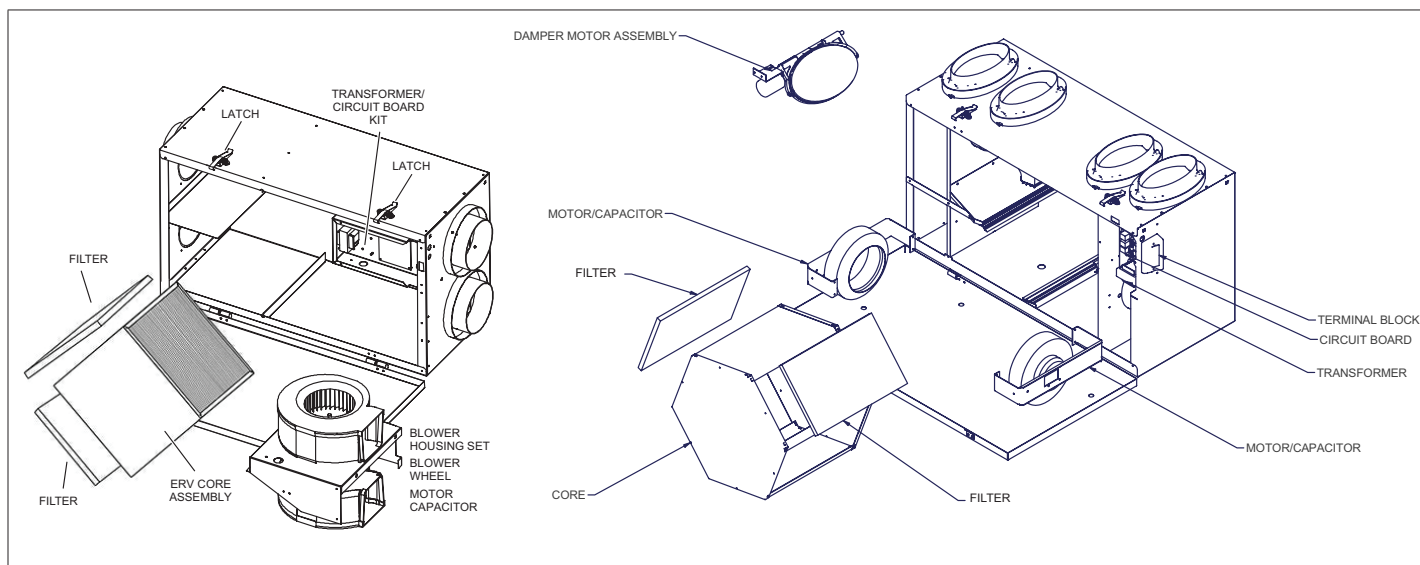


Figure 57. Parts Locations

Table 27. Replacement Parts Summary

Replacement Parts	HRV3-095 (17Y61)	HRV3-150-TPD (17Y64)	HRV3-195 (17Y65)	HRV5-150 (17Y58)	HRV5-200-TPD (17Y62)	HRV5-270-TPD-ECM (17Y53)	HRV5-HEX095-TPD (17Y52)	ERV5-130 (17Y54)	ERV5-150-TPD (17Y55)	ERV5-175-TPD (17Y57)
Polyester Filter Set (2)	Y2163	Y2162	Y2162	Y5442	Y5442	Y5442	Y5442	Y9956	Y2162	Y2162
MERV 13 Filter Set (4)								20A91	29A90	29A90
Motor / Capacitor	Y2146	N/A	Y2145	Y5437	N/A	N/A	N/A	Y9951	N/A	N/A
Motor Top Port Models	N/A	Y5438	N/A	N/A	Y6450	Y9952	Y9953	N/A	Y6450	Y5438
Blower Housing Set	Y2149	N/A	Y2150	Y5439	N/A	N/A	N/A	N/A	N/A	N/A
Blower Wheel CW Red Dot	Y2153	N/A	Y2152	Y2152	N/A	N/A	N/A	N/A	N/A	N/A
Blower Wheel CCW	Y2156	N/A	Y2155	Y2154	N/A	N/A	N/A	N/A	N/A	N/A
Core Assembly	Y2159	Y5441	Y2159	Y5440	Y5440	Y5440	Y5440	Y9955	10F87	Y9954
Transformer / Circuit Board Kit	Y2164	Y2164	Y2164	Y2164	Y2164	Y9957	Y2164	Y9958	Y9958	Y9958
Damper Motor	Y6447	Y6447	Y6448	Y6448	Y6448	Y6448	Y6448	Y6448	Y6448	Y6448
Latches/Keeper	11U82	11U82	11U82	11U82	11U82	11U82	11U82	11U82	11U82	11U82

Damper Motors:

Y6447 -- Clockwise DC Damper Motor for HRV

Y6448 --Counter Clockwise Damper Motor for HRV

Blower Assembly Service (Dealer Only)

BLOWER ASSEMBLY REMOVAL

! 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 ERV/HRV and open the service door.
2. Remove core.
3. Remove ¼ inch (6 mm) sheet metal screws on front lip of cabinet.
4. Remove two Phillips head screws on right side panel.
5. Remove ¼ inch (6 mm) 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.

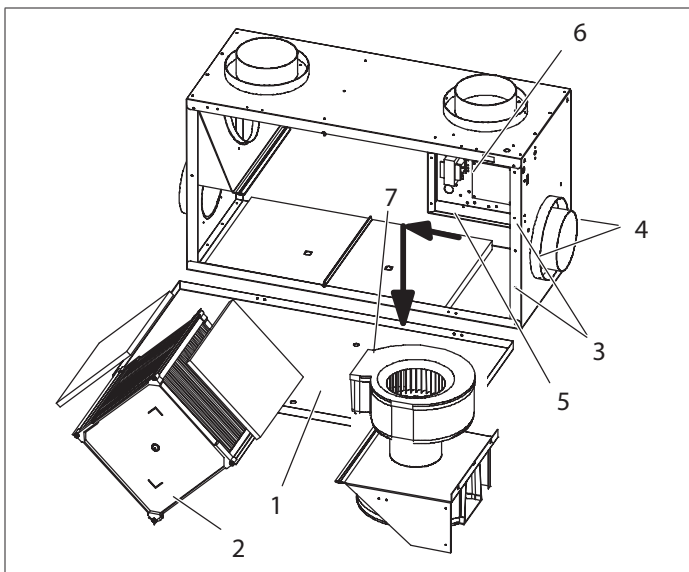


Figure 58. Removing Blower Assembly

! IMPORTANT

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

BLOWER MOTOR DISASSEMBLY

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.

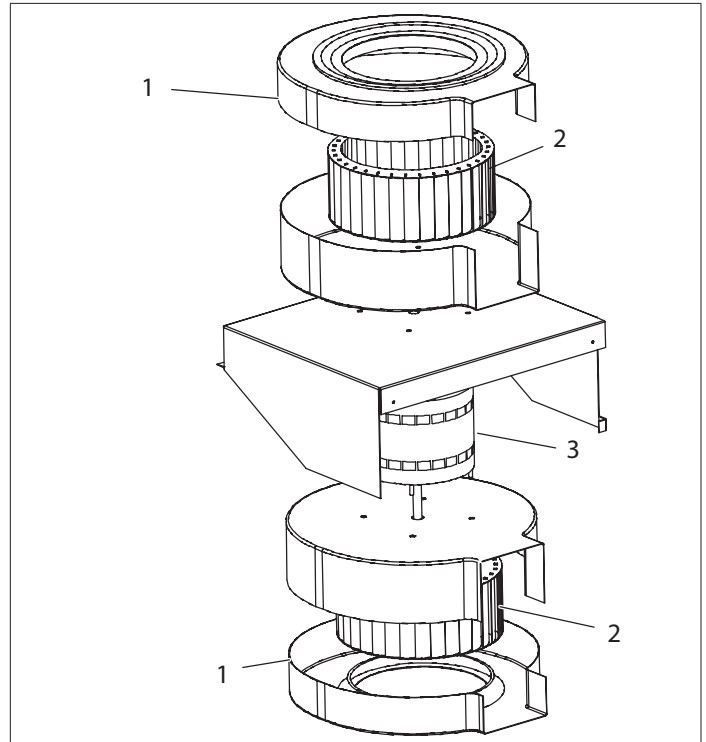


Figure 59. Replacing Motor

BLOWER MOTOR REASSEMBLY

Follow the above steps in reverse order.

BLOWER ASSEMBLY INSTALLATION

Follow the steps in reverse order from the Blower Assembly Removal section.

Homeowner Maintenance Information

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 and 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. If your unit is equipped with MERV13 filters, replace every 3 months. Do not wash MERV13 filters but wash the polyester filter. The standard filters equipped with the ERV/HRV 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 **ONLY** to clean 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 ERV or HRV core.
DO NOT use dishwasher to clean the ERV or HRV 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).
 - f. **ERV Core** - vacuum **ONLY** to clean core, do not get wet.
 - g. Install clean filters.
 - h. 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. A Install the bottom flange of the core guide into the bottom **H** channel approximately 1/4" (6 mm).
 - b. Install the left or right side flange of the core guide approximately 1/4" (6 mm) followed by the other side flange.
 - c. Install the top flange of the core guide into the top **H** channel approximately 1/4" (6 mm).
 - 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" (3 mm). 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 ERV/HRV 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 ERV/HRV 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 ERV/HRV 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 in-line 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 - ERV/HRV Ventilators

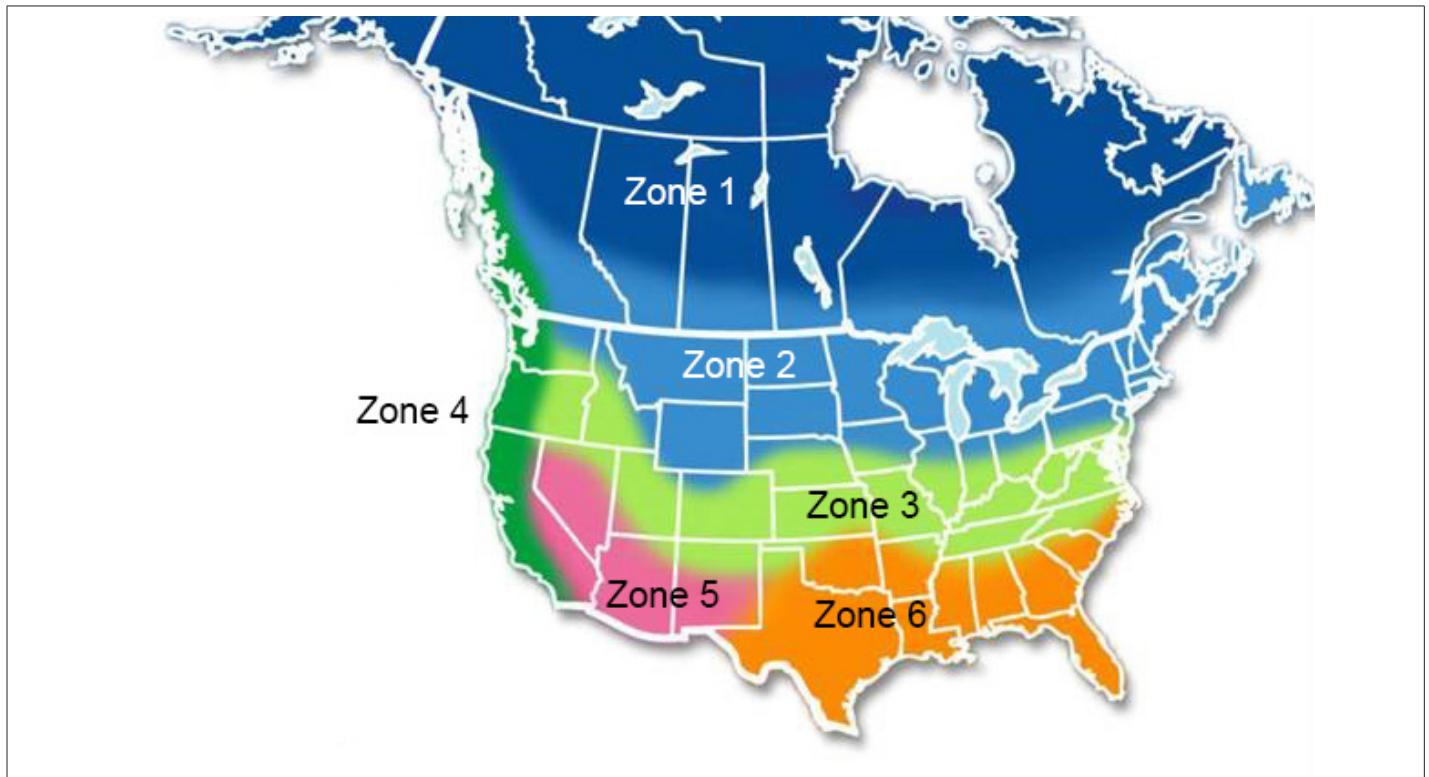






Figure 60. Application Map - ERV/HRV Ventilators

Table 28. Application Map Descriptions

	ZONE 1	True North - Cold Winter and Dry Summer HRV	HRV is best for a very cold and prolonged winter.
	ZONE 2	US - Canada Border - Cold Winter and Hot Humid Summer - HRV or ERV	HRV is best for a cold or prolonged winter. ERV will help reduce the AC load in the summer by transferring moisture.
	ZONE 3	Central US - Moderate Climate - HRV or ERV	HRV and ERV will work equally well. ERV will help reduce the AC load in the summer by transferring moisture.
	ZONE 4	Marine Climate - HRV or ERV	Humidity and temperature are moderated by HRV or ERV.
	ZONE 5	Arid Climate - Hot and Dry - HRV	HRV will transfer energy summer and winter. With little moisture to transfer an ERV is not needed.
	ZONE 6	Gulf Region - Hot and Humid Climate - ERV	ERV is recommended. Primary benefit is transferring energy and moisture throughout summer and winter.

NOTE: All HRV and ERV models have an integrated defrost system for cold climates..

ERV is recommended in regions where high outdoor humidity causes air conditioning operation for dehumidification more frequently than heating system operation.

** Certified by the Home Ventilating Institute (HVI) according to test procedures developed by HVI members and based on internationally recognized standards. For performance ratings at other conditions not shown, please visit the HVI website.