

HRVXXSVU HRVCCLVU Heat Recovery Ventilator



Product Data



HRVXXSVU

A11189



HRVCCLVU

A11244

The Heat Recovery Ventilation (HRV) system offered by Carrier is the finest on the market today. These HRV units provide efficient and cost effective heat recovery during the heating season when needed most.

As temperatures drop below 23°F (-5°C), indoor air is recirculated periodically through the heat exchanger core to prevent frost from forming. Competitors' methods of supplementary electric defrost waste energy. Unlike rotary wheel heat exchangers which mix air streams, these cross-flow heat exchangers ensure that there is no mixing of the stale air stream with the fresh outdoor air stream.

A filter installed on the incoming outdoor air stream removes large airborne particles from the intake air stream before they enter the heat exchanger and reduces the maintenance required. The units' acoustically engineered design makes the Carrier HRV the quietest on the market and ensures that comfort is felt, not heard.

Unlatching two (2) suitcase style latches allows easy removal of the filters and core for cleaning on LVU model.

NOTE: The HRV should not be installed in an attic or unconditioned space unless provisions are made for drain line freezing and condensation.

STANDARD FEATURES

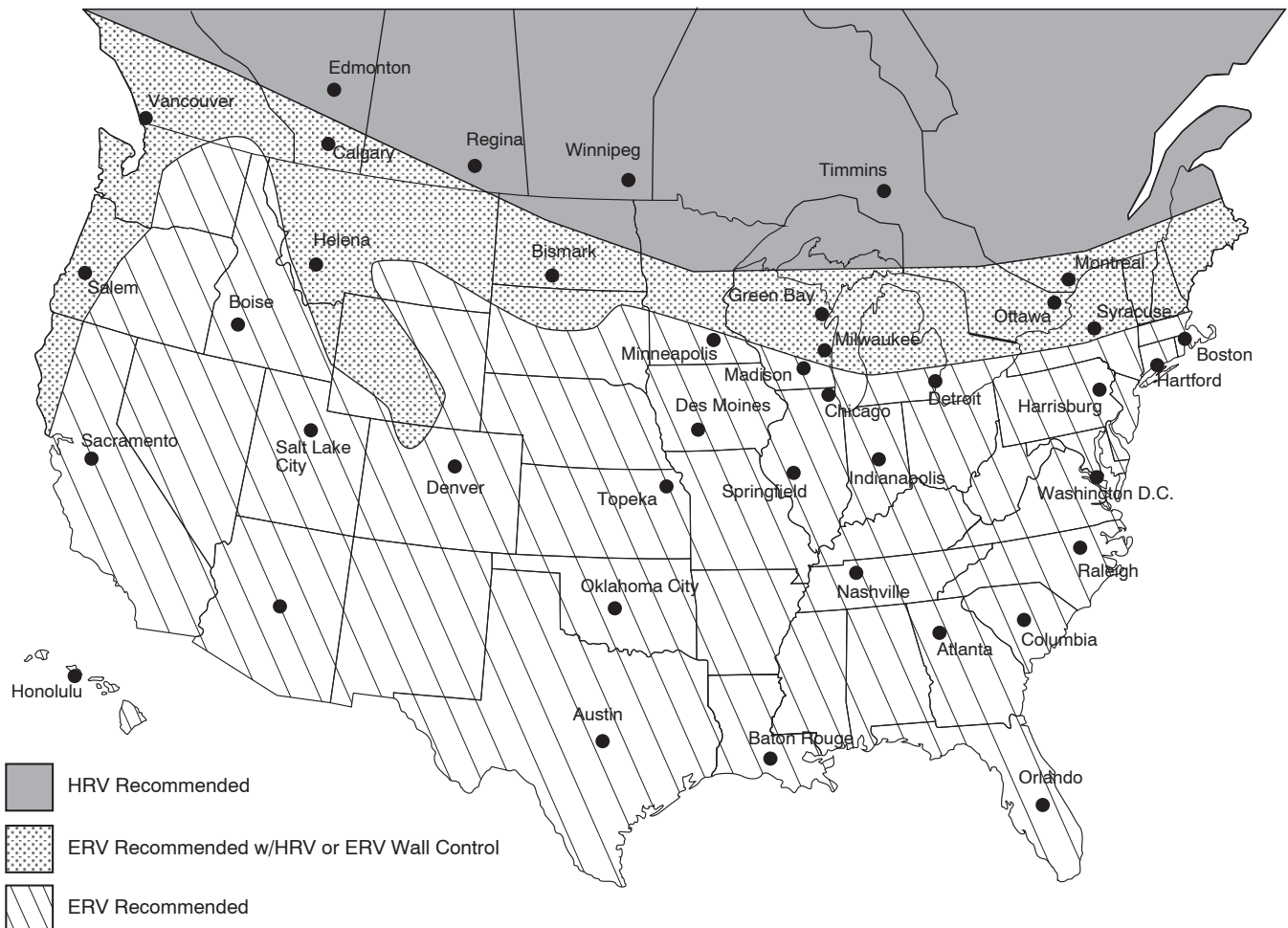
- Energy saving defrost cycle
- Cross-flow heat exchangers
- One filter on incoming air; one filter on outgoing air to protect core
- Acoustical design
- No-tools maintenance
- Polypropylene heat exchanger core
- SVU model meets Energy Star Canada requirements

MODEL NUMBER NOMENCLATURE

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---------------------|--|---|---|---|---|---|---|---|---|----|----|----|
| | H | R | V | C | C | L | V | U | 1 | 3 | 3 | 0 |
| Product Type | HRV - Heat Recovery Ventilator | | | | | | | | Maximum Capacity 157 - 157 CFM 330 - 330 CFM | | | |
| Brand | CC - Carrier XX - Carrier | | | | | | | | Electrical Supply 1 - 115 Volts | | | |
| Description | LVU - Large Vertical Unit SVU - Small Vertical Unit | | | | | | | | | | | |



Climate Map for Energy and Heat Recovery Ventilators



A00099

**CONTROLS AND ACCESSORIES
PART NUMBER NOMENCLATURE**

1 2 3 4 5 6 7 8 9 10 11 12
K V B C N 0 1 0 1 C A U

Product Type

K - Accessory Kit

Description

V - Heat Recovery Ventilator

Series

A - Original Series
B - Second Series

Kit Type

AC - Accessory
CN - Control
FL - Filter Media
TM - Timer

Kit Sequence

01 - Part Number

Quantity

01 - Single Pack

Control Description

CAU - Carrier Automatic Control
CBS - Carrier Basic Control
CST - Carrier Standard Control

Accessory Description

6FM - 6-in Flow meters (2)
7FM - 7-in Flow meters (2)
8FM - 8-in Flow meters (2)
EXH - Exhaust Hood
HOD - Intake Hood
KIT - Balancing Kit
VIR - Interlock Relay

Timer Description

20C - 20-minute Timer Kit
60M - 60-minute Timer Kit

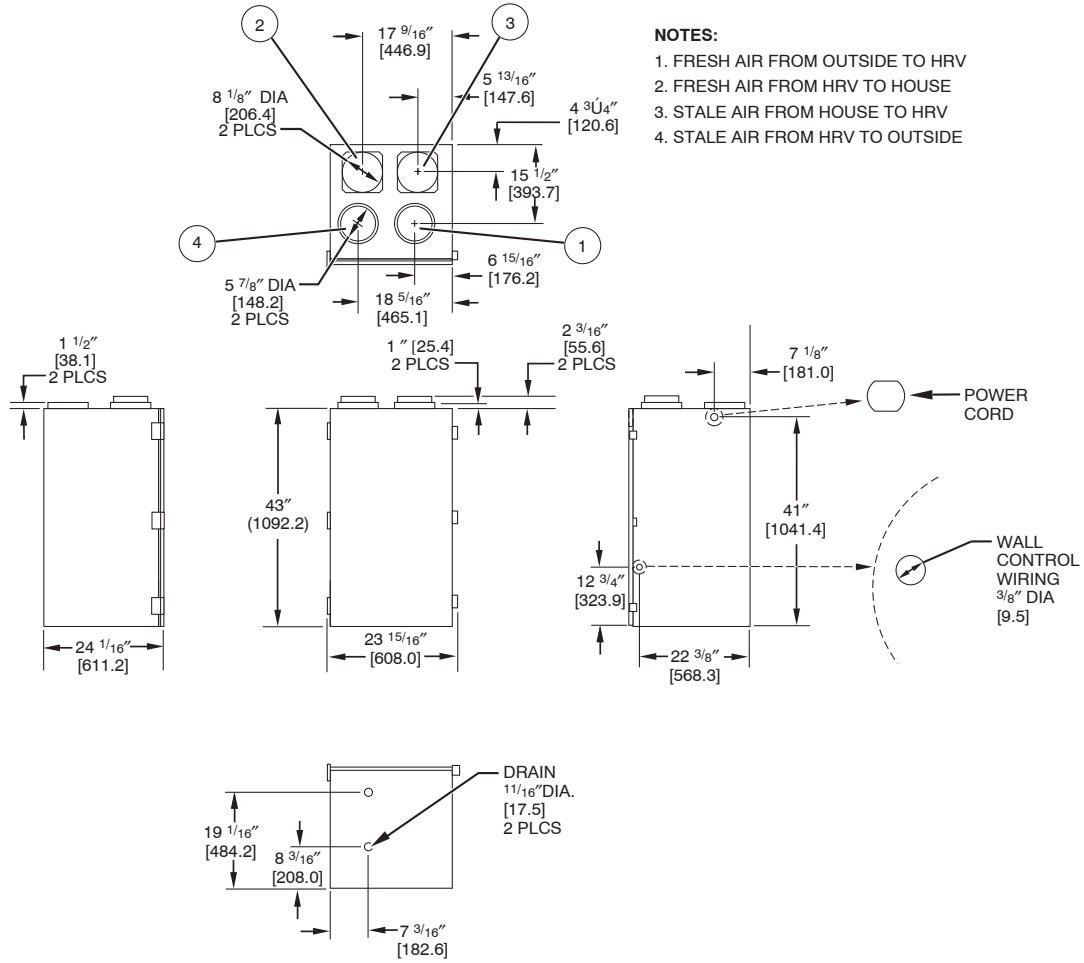
Filter Description

145 - 14-3/8 X 15-1/2
810 - 8-1/8 x 10-3/4
18204 (RCD) - 9-1/4 x 14-1/4 (2)

ACCESSORIES

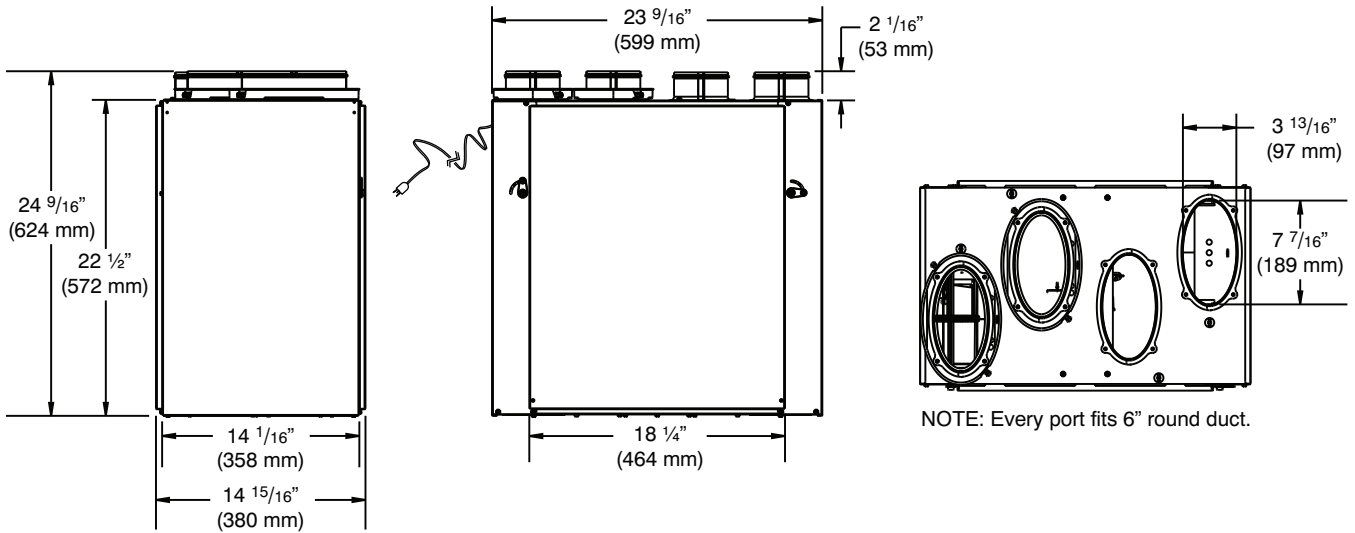
| KIT NUMBER | DESCRIPTION | WHERE USED |
|--------------|----------------------------------|--|
| KVBCN0101CBS | Basic HRV Control | Used with all HRVs |
| KVBCN0101CST | Standard HRV Control | Used with all HRVs |
| KVBCN0101CAU | Automatic HRV Control | HRVXXSVU, HRVCCLVU |
| KVAAC0101VIR | Interlock Relay | When combining an HRV with a Furnace or Fan Coil |
| KVATM010120C | 20 Minute Push Button Timer | Used with all HRVs when 20 minute manual operation is required |
| KVATM010160M | 60 Minute Timer | Used with all HRVs, time is adjustable between 10 and 60 minutes |
| KVAAC0101HOD | Exterior Intake and Exhaust Hood | 2 Required |
| KVAAC0101KIT | Start up Balancing Kit | Start up Balancing Kit, includes (2) 6 in. Flow Meter Collars & Magnehelic Gauge |
| KVAAC01016FM | 6 in. Flow Meter Collar | At start up, when 6 in. duct work is connected to HRV |
| KVAAC01017FM | 7 in. Flow Meter Collar | At start up, when 7 in. duct work is connected to HRV |
| KVAAC01018FM | 8 in. Flow Meter Collar | At start up, when 8 in. duct work is connected to HRV |
| KVAFL0101145 | Internal Filter | Used with HRVCCLVU 1330 Unit 14-3/8 x 15-1/2 (1) |
| KVAFL0101810 | Internal Filter | Used with HRVCCLVU 1330 Unit 8-1/8 x 10-3/4 (1) |
| 18204 (RCD) | Internal Filter | Used with HRVXXSVU 1157 Unit 9-1/4 x 14-1/4 (2) |

DIMENSIONS



HRVCLVU1330

A98001



HRVXXSVU1157

A11192

PHYSICAL DATA

| MODEL | HRVXXSVU1157 | HRVCCLVU1330 |
|---------------------------|--------------------------|--------------------------|
| Port Locations | Top | Top |
| Core Type | Polypropylene Cross Flow | Polypropylene Cross Flow |
| Weight — lb (kg) | 52 (23.6) | 120 (54.5) |
| Shipping Weight — lb (kg) | 56 (25.4) | 143 (64.9) |
| Dimensions in. (mm) | | |
| Height | 24–9/16 (624) | 43 (1092) |
| Width | 23–9/16 (599) | 24 (608) |
| Depth | 15 (380) | 24–1/16 (611) |

ELECTRICAL DATA

| MODEL | HRVXXSVU1157 | HRVCCLVU1330 |
|-------------------|--------------|--------------|
| Voltage | 120 | 120 |
| Max Power — watts | 125 | 500 |
| Max Amps | 1.0 | 5.4 |

VENTILATION PERFORMANCE

| MODEL | EXT. STATIC PRESSURE | | NET SUPPLY AIR FLOW | | GROSS AIR FLOW | | | |
|--------------|----------------------|---------|---------------------|-----|----------------|-----|---------|-----|
| | | | | | SUPPLY | | EXHAUST | |
| | PA | IN W.G. | L/S | CFM | L/S | CFM | L/S | CFM |
| HRVXXSVU1157 | 25 | 0.1 | 91 | 193 | 92 | 195 | 91 | 194 |
| | 75 | 0.3 | 80 | 170 | 81 | 171 | 80 | 169 |
| | 100 | 0.4 | 74 | 157 | 74 | 158 | 74 | 157 |
| | 150 | 0.6 | 62 | 132 | 62 | 133 | 63 | 133 |
| | 200 | 0.8 | 47 | 101 | 48 | 101 | 49 | 104 |
| HRVCCLVU1330 | 25 | 0.1 | 168 | 357 | 172 | 364 | 148 | 314 |
| | 75 | 0.3 | 158 | 334 | 160 | 340 | 132 | 279 |
| | 100 | 0.4 | 151 | 321 | 155 | 328 | 126 | 266 |
| | 150 | 0.6 | 136 | 288 | 139 | 294 | 109 | 232 |
| | 200 | 0.8 | 126 | 246 | 118 | 251 | 93 | 198 |

NOTE: For additional data points, refer to HVI Directory at www.hvi.org

HVI RATED ENERGY PERFORMANCE

| MODEL | MODE | SUPPLY TEMP | | NET AIR FLOW | | POWER CONSUMED (WATTS) | SENSIBLE RECOVERY EFFICIENCY | APPARENT SENSIBLE EFFECTIVENESS | LATENT RECOVERY MOISTURE TRANSFER |
|--------------|------|-------------|-----|--------------|-----|------------------------|------------------------------|---------------------------------|-----------------------------------|
| | | °C | °F | L/S | CFM | | | | |
| HRVXXSVU1157 | Heat | 0 | 32 | 32 | 67 | 56 | 70 | 78 | 0.00 |
| | | 0 | 32 | 40 | 86 | 64 | 68 | 75 | 0.01 |
| | | 0 | 32 | 56 | 120 | 86 | 64 | 70 | 0.01 |
| | | -25 | -13 | 30 | 63 | 79 | 61 | 83 | 0.01 |
| HRVCCLVU1330 | Heat | 0 | 32 | 55 | 117 | 219 | 80 | 94 | -0.07 |
| | | 0 | 32 | 86 | 183 | 290 | 74 | 86 | 0.02 |
| | | 0 | 32 | 117 | 249 | 436 | 70 | 83 | -0.01 |
| | | -25 | -13 | 115 | 117 | 264 | 74 | 88 | 0.07 |

CONTROL FEATURES

Basic Control: Allows the user to manually set fan speed to low or high as required to maximize comfort.

Standard Control: Offers automatic dehumidistat control and the option to select continuous or intermittent fan operation. Setting the wall control to low will activate the continuous mode.

Automatic Control: In addition to the features found with standard control, this package offers a recirculation mode. These controls may only be used to operate stand-alone units with the defrost option which enables the recirculation feature.

| CONTROL DESCRIPTION | FAN SPEED CONTROL | DEHUMIDISTAT CONTROL | CONTINUOUS MODE* | INTERMITTENT MODE* | CIRCULATION MODE† |
|---------------------|-------------------|----------------------|------------------|--------------------|-------------------|
| Basic | Yes | No | Yes | No | No |
| Standard | Yes | Yes | Yes | Yes | No |
| Automatic‡ | Yes | Yes | Yes | Yes | Yes |

* Air exchange with outside.

† No air exchange with outside.

‡ Use only on units with defrost.

CONTROL DESCRIPTION AND USAGE

Fan Speed Control — Enables user to modulate fan speed from low to high air exchange with outside.

Dehumidistat Control — Allows the user to select the relative humidity level at which the unit would change fan speed for dehumidification in the winter months.

Continuous Mode — If the relative humidity inside the building is lower than selected, air exchange occurs with the outside at low speed. If the relative humidity inside the house is higher than selected, air exchange occurs with the outside at high speed. Ensures continuous air exchange for constant air quality.

Intermittent Mode — If the relative humidity inside the building is lower than selected, no air exchange occurs and the system turns off. If the relative humidity inside the house is higher than selected, air exchange occurs with the outside at high speed. Ensures minimum air exchange level when the building is unoccupied to minimize operating costs.

Circulation Mode — If the relative humidity inside the building is lower than selected, the ambient air would be circulated and filtered at high speed. If the relative humidity inside the house is higher than selected, air exchange would occur with the outside at high speed. Ensures continuous movement and filtration of air for maximum comfort. Available with automatic control only.

AUTOMATIC DEFROST CYCLE FEATURES

All models offer a non-electric defrost cycle feature which prevents frost and ice buildup within the heat recovery core. When the outside air temperature falls below 23°F (-5°C) it is electronically sensed and the dampers close the outside air ports. This allows warm indoor air to recirculate within the heat recovery core. The frequency of this cycle increases as the outside air temperature decreases.

| MODEL | 23°F TO 55°F (-5°C TO -15°C) | | 4°F TO -17°F (-15.6°C TO -27.3°C) | | BELOW -18°F (-27.8°C) | |
|----------|------------------------------|------------|-----------------------------------|------------|-----------------------|------------|
| | DEFROST* | EXCHANGE† | DEFROST* | EXCHANGE† | DEFROST* | EXCHANGE† |
| HRVXXSVU | 6 Minutes | 60 Minutes | 6 Minutes | 32 Minutes | 6 Minutes | 20 Minutes |
| HRVCCLVU | 6 Minutes | 60 Minutes | 6 Minutes | 32 Minutes | 6 Minutes | 20 Minutes |

* All defrost times are in the standard mode (as shipped)

† Time between defrost when within specified temperature range

VENTILATOR SIZING

The tables below should be used to determine the required airflow for a home. These guidelines are taken from ASHRAE 62.2-2007.

Ventilation Air Requirements, cfm

| FLOOR AREA (ft ²) | BEDROOMS | | | | |
|-------------------------------|----------|-----|-----|-----|-----|
| | 0-1 | 2-3 | 4-5 | 6-7 | >7 |
| <1500 | 30 | 45 | 60 | 75 | 90 |
| 1501-3000 | 45 | 60 | 75 | 90 | 105 |
| 3001-4500 | 60 | 75 | 90 | 105 | 120 |
| 4501-6000 | 75 | 90 | 105 | 120 | 135 |
| 6001-7500 | 90 | 105 | 120 | 135 | 150 |
| >7500 | 105 | 120 | 135 | 150 | 165 |

Ventilation Air Requirements, L/s

| FLOOR AREA (m ²) | BEDROOMS | | | | |
|------------------------------|----------|-----|-----|-----|----|
| | 0-1 | 2-3 | 4-5 | 6-7 | >7 |
| <139 | 14 | 21 | 28 | 35 | 42 |
| 139.1-279 | 21 | 28 | 35 | 42 | 50 |
| 279.1-418 | 28 | 35 | 42 | 50 | 57 |
| 418.1-557 | 35 | 42 | 50 | 57 | 64 |
| 557.1-697 | 42 | 50 | 57 | 64 | 71 |
| >697 | 50 | 57 | 64 | 71 | 78 |

ADDITIONAL HEATING AND COOLING LOAD CHARTS

Although the ventilators process the outside air before it enters the home, additional heating and cooling loads need to be considered.

HEATING LOAD BTU

| OUTSIDE TEMP °F | HEAT LOAD (BTUH) @ INSIDE DESIGN TEMP 72°F | |
|-----------------|--|---------|
| | SVU1157 | LVU1330 |
| -25 | 7,690 | 9,990 |
| -20 | 7,090 | 9,310 |
| -15 | 6,520 | 8,650 |
| -10 | 5,970 | 8,000 |
| -5 | 5,440 | 7,380 |
| 0 | 4,840 | 6,640 |
| 5 | 4,360 | 6,060 |
| 10 | 3,900 | 5,500 |
| 15 | 3,400 | 4,870 |
| 20 | 3,000 | 4,350 |
| 25 | 2,610 | 3,850 |
| 30 | 2,250 | 3,370 |
| 35 | 1,880 | 2,870 |
| 40 | 1,560 | 2,430 |

The heating load chart shows the heating loads in Btuh for a range of winter design temperatures for each model of ventilator.

EXAMPLE:

The heating design temperature for Milwaukee, WI is -4°F.

COOLING LOAD BTU

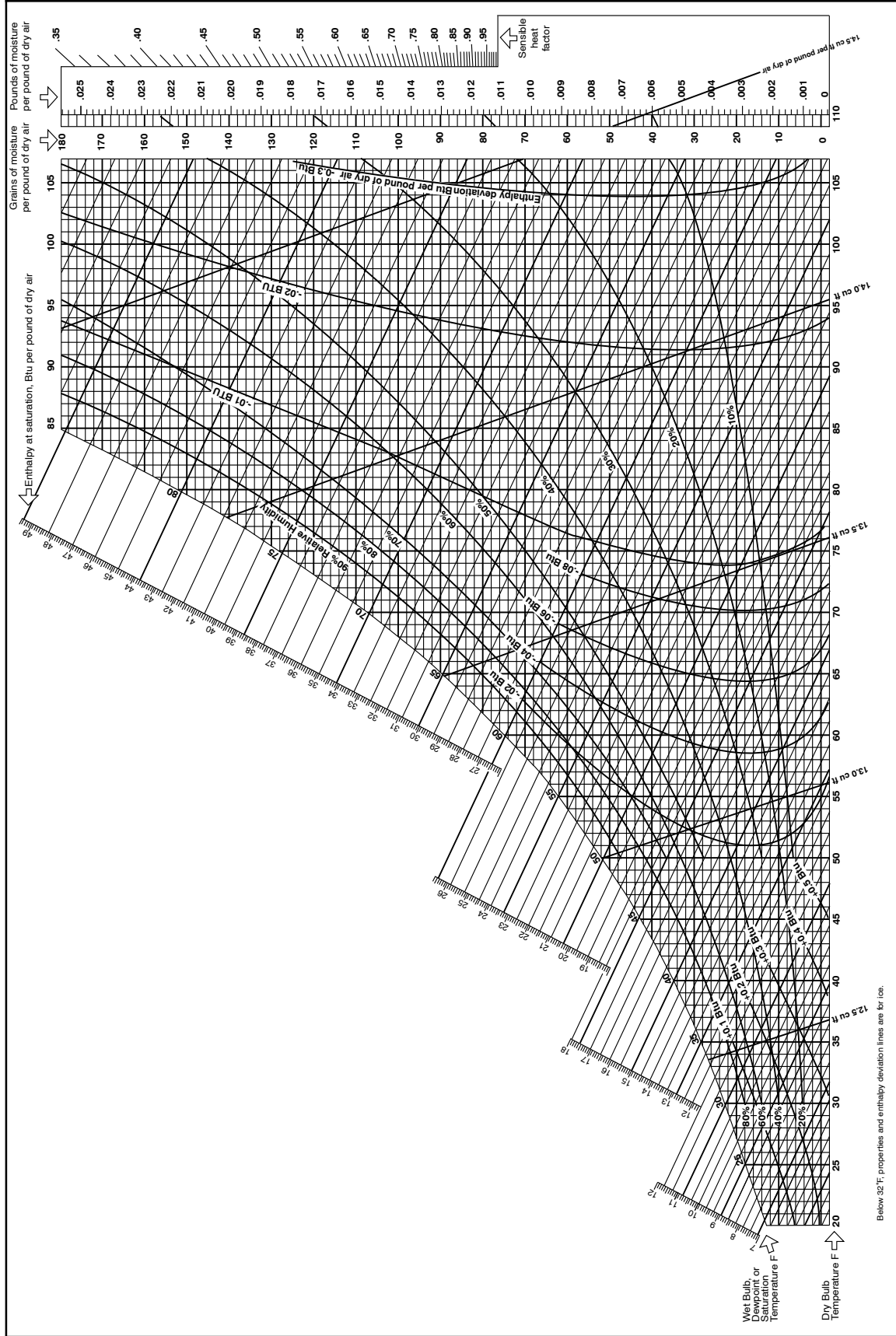
| OUTSIDE ENTHALPY BTU/LB | COOLING LOAD (BTUH) @ INSIDE DESIGN TEMP 75°F AND 50% RELATIVE HUMIDITY | |
|-------------------------|---|---------|
| | SVU1157 | LVU1330 |
| 30 | 990 | 1,390 |
| 31 | 1,650 | 2,310 |
| 32 | 2,310 | 3,240 |
| 33 | 2,970 | 4,170 |
| 34 | 3,630 | 5,090 |
| 35 | 4,290 | 6,020 |
| 36 | 4,950 | 6,940 |
| 37 | 5,610 | 7,870 |
| 38 | 6,270 | 8,790 |
| 39 | 6,930 | 9,720 |
| 40 | 7,590 | 10,650 |
| 41 | 8,250 | 11,570 |
| 42 | 8,910 | 12,500 |

The cooling load chart shows loads in Btuh. To use the cooling load chart, first find the design enthalpy from a psychrometric chart using the design dry bulb and wet bulb temperatures. (See psychrometric chart.) The cooling load can then be found for a range of enthalpies for each ventilator.

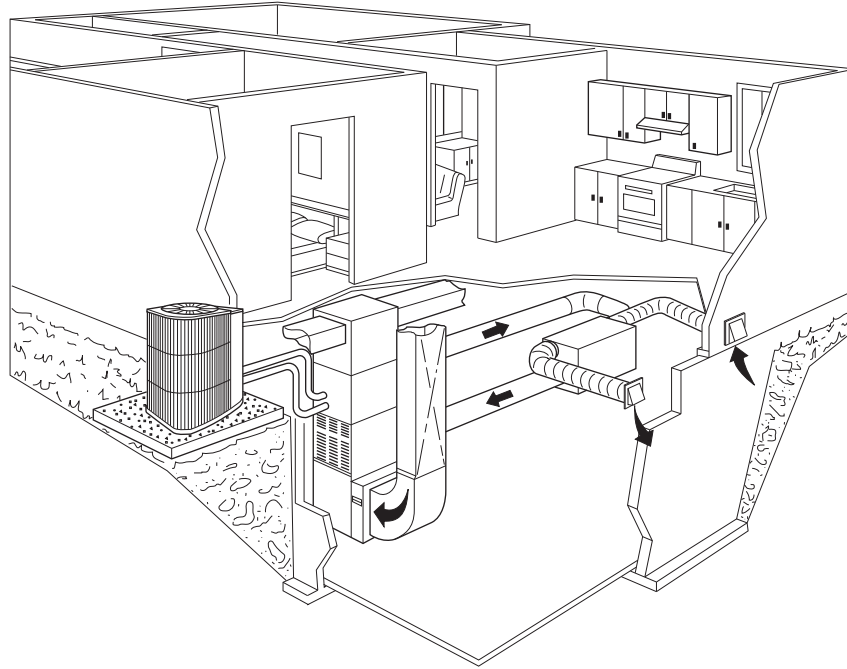
EXAMPLE:

The cooling design dry bulb temperature for Milwaukee, WI is 87°F and the average wet bulb at that temperature is 73°F. On the psychrometric chart the enthalpy is about 37.7 Btu/lb of dry air which will round up to 38 Btu/lb of dry air.

PSYCHROMETRIC CHART

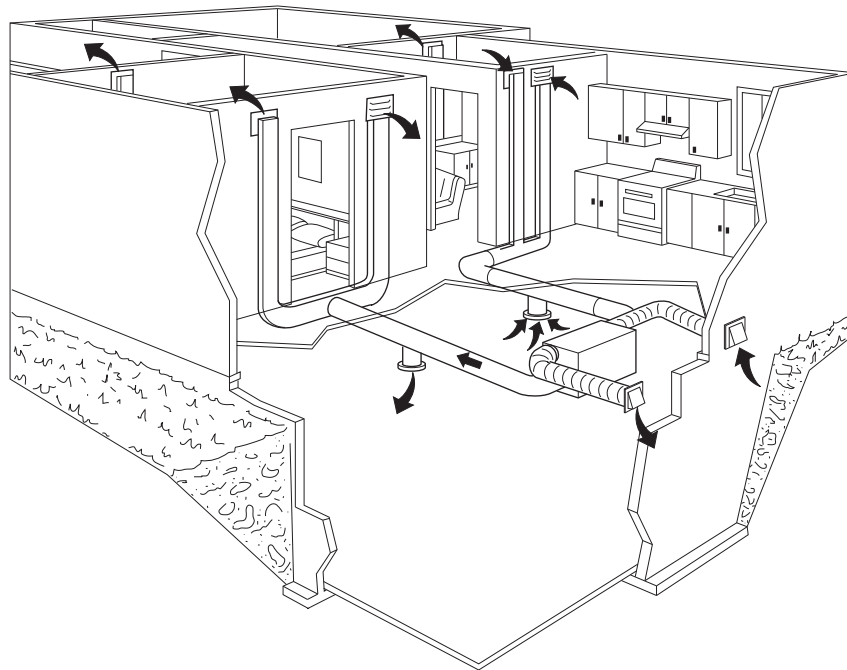


HRV INSTALLED WITH FORCED AIR SYSTEM



A99297

HRV INSTALLED WITH INDEPENDENT AIR DISTRIBUTION



A99298

