

REZNOR®



IAQ VENTILATORS

FRESH AIR REQUIREMENTS

- » ASHRAE 62.1 & 90.1

Applications

- » HEALTH / BEAUTY / SPA
- » PET SHOP / VETERINARY CLINIC
- » OFFICE / CONFERENCE ROOM
- » SCHOOL / UNIVERSITY / DAY CARE
- » MEDICAL / PHARMACEUTICAL
- » MUSEUM / LIBRARY
- » RETAIL / RECREATIONAL / THEATRE



Capacities



500 - 1,500 CFM

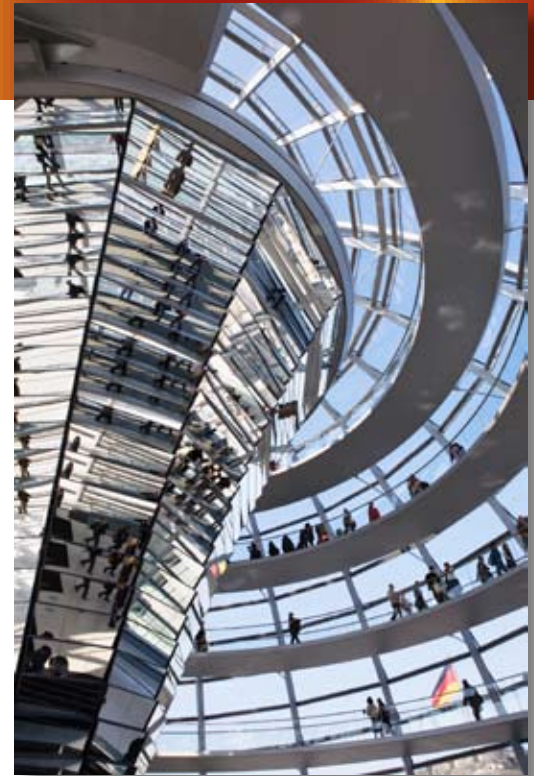


-10° - 115° F

www.RezSpec.com/Z.62

Building Ventilation

**Architects Create Great Buildings.
Mechanical Engineers Breathe Life into Them!**



Building design professionals struggle to strike a balance between codes, standards, real-world design parameters and costs.

Evolving standards and good design practices recommend increased ventilation air to achieve acceptable indoor air quality.

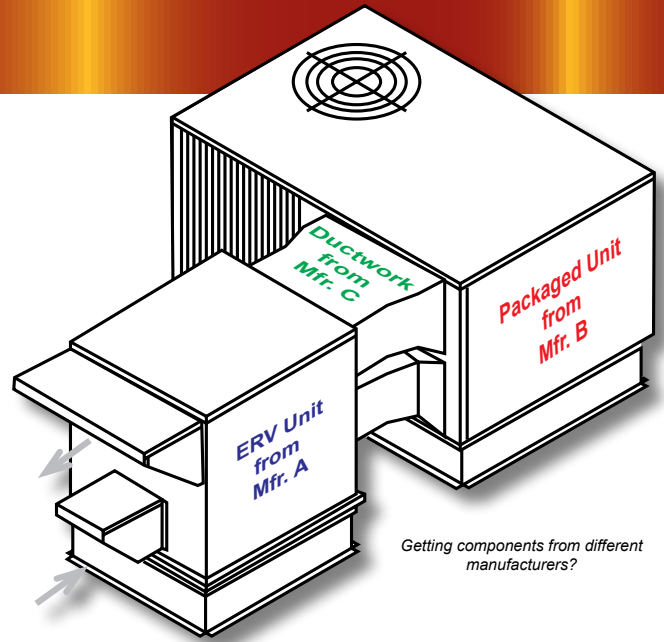
Dilution is the Solution

“Airborne infectious disease transmission can be reduced using dilution ventilation, specific in-room flow regimes, room pressure differentials, personalized and source capture ventilation, filtration, and UVGI.”

[Excerpted from ASHRAE Position Document on Airborne Infectious Diseases. Approved by ASHRAE Board of Directors June 24, 2009 - See a link to the complete ASHRAE Position Document at: www.RezSpec.com/Z.62e]



The “Compromise” Approach



You are typically given several options combining energy recovery ventilation and standard unitary products from different suppliers. But this is, at best, a compromised solution.

Potential Issues

Poor latent performance

- » High SHR space conditioning equipment leads to loss of building humidity control

Excessive air movement

- » The design moves 50-75% more air, wasting fan energy

Poor control

- » Most energy recovery systems cannot control discharge temperature which increases building load and system complexity
- » Limited or no economizer wastes more energy

Oversized equipment

- » Many design specifications will not allow the down-sizing of mechanical equipment

Complexity

- » Maintenance personnel often disconnect these confusing systems which compromises the original design

ASHRAE 62.1-2007 Typical Ventilation Rates	
Occupancy Category	CFM/person
Health Club /Weight Room	26
Pet Shop	26
Beauty and Nail Salon	25
Pharmacy (prep area)	23
Aerobics Room	22
Disco/Dance Floor	21
Art Classroom	19
Wood/Metal Shop	19
Day-care	17
Laundry Room	17
Libraries	17
Office Space	17
Photo Studio	17
Science Lab	17
Retail Store	16
Classroom	15
Supermarket	15
Bowling Alley	13
Music/Theater/Dance	12
Coin-operated Laundries	11
Hotel Room	11
Museum	11
Barbershop	10
Break Room	10
Confinement Center	10
Lobbies	10
Restaurant Dining Room	10
Bar/Cocktail Lounge	9
Booking/Waiting Room	9
Cafeteria/Fast Food Dining Room	9
Guard Station	9
Gym Spectator Area	8
Lecture Room	8
Multi-Use Assembly	8
Reception Area	7
Conference/Meeting Room	6
Courtroom	6
Place of Worship	6

Standards, Codes and Beyond

The design professional is being asked to use more energy intensive dilution ventilation air while reducing the overall building energy usage by 30%. How do you implement evolving building standards requirements while minimizing cost?

- ▶ ASHRAE 62.1-2007 - ventilation air per building type and activity.
- ▶ ASHRAE 90.1-2007 - equipment efficiency.
- ▶ ASHRAE 189.1-2009 – high performance green buildings.
- ▶ LEED - 30% more ventilation air using 30% less overall building energy.

These standards and guidelines will be codified in the coming years.

The Solution



INTRODUCING ...

the first fully integrated, commercial ventilation unit! The new patent-pending Reznor Z.62e precisely combines the benefits of a heatpump and an energy recovery wheel into one unit.

This hybrid unitary product maximizes the entire system to give you hassle free year round performance.

This Z.62e provides you, the building design professional, with a tested, verified plug-and-play product.

Advanced Energy Recovery Technology

- Recovers more than 80% of the exhaust air energy year round
- Cooling season energy efficiency ratio (EER) greater than 17
- Heating season COP of 6.23

Tested and Verifiable Performance

- Tested to ANSI/AHRI 210/240 and the draft ventilation standard AHRI 920P
- The capacity modulation directly controls the supply air temperature and dewpoint
- The DX system handles the full load even without the enthalpy wheel

Plug-and-Play

- Operates in extreme weather without the need for heat pump defrost or wheel frost control
- Hassle free airflow settings and adjustments

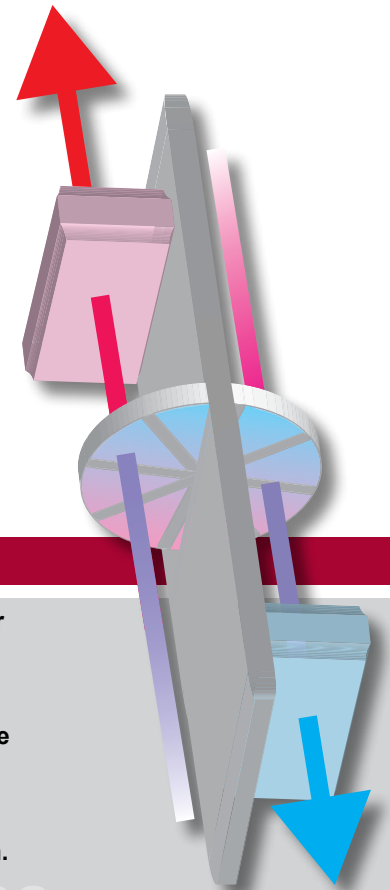


UL STD 1995
CAN/CSA STD C22.2 No. 236

Hybrid Ventilation

The HVAC industry needed a new class of ventilation products for engineers to use. Superior control and energy efficiency define this class of product. The Z.62e technology takes two reliable elements and combines them into one product. The Z.62e is greater than the sum of its parts.

- ▶ The Z.62e technology uses the least amount of energy required to precisely condition the ventilation air year round in low load, part load and full load conditions. It recovers more than 80% of the wasted energy. This is well beyond most energy recovery devices.
- ▶ The Z.62e efficiency allows payback within the 0-3 years period for more applications than stand alone energy recovery equipment or your normally high efficiency DX system.



www.RezSpec.com/Z.62

Unique Features

Reliable Mechanical Design

- Nominal 3 or 3.5 ton modulating heatpump
- Durable total enthalpy wheel (ARI Certified)
- Standard 2 year warranty on all parts (optional 5 or 10 years)
- Double wall construction
- Long lasting G90 painted exterior
- ElectroFin® coil coating option
- Corrosion-proof sloped drain

Configurable Airflow

- 500-1500 CFM @ 1" E.S.P.
- 96% efficient EC fan motors with speed control
- Field convertible vertical or horizontal supply/return air openings
- Factory installed spring return outside air damper
- MERV 8 filters for outside and return air



Versatile Installation

- Roof curb or outdoor pad mount
- Bottom lifting lugs
- Flanged connections

Convenient Electrical Features

- 208/230V or 460V power
- Unit mounted or remote disconnect
- Field or factory installed electric heat for extreme weather

Intuitive Controls

- Demand based ventilation: CO₂, VOC, occupancy, and time schedule control
- Unit mounted LCD display
- Unit test mode
- Remote mounted display

Demand Based Control

When applying ventilation equipment, the adage “when you need it ... you need it,” really does apply. The Z.62e controls are designed for all your ventilation demand needs:

- ▶ Time schedules
- ▶ Occupancy sensors
- ▶ CO sensors
- ▶ VOC sensors
- ▶ Or (the simplest) an on/off wall switch

We also offer BMS integration using BACNet and Lon protocols.



Adaptive Sequence

Moderate to Light Conditions

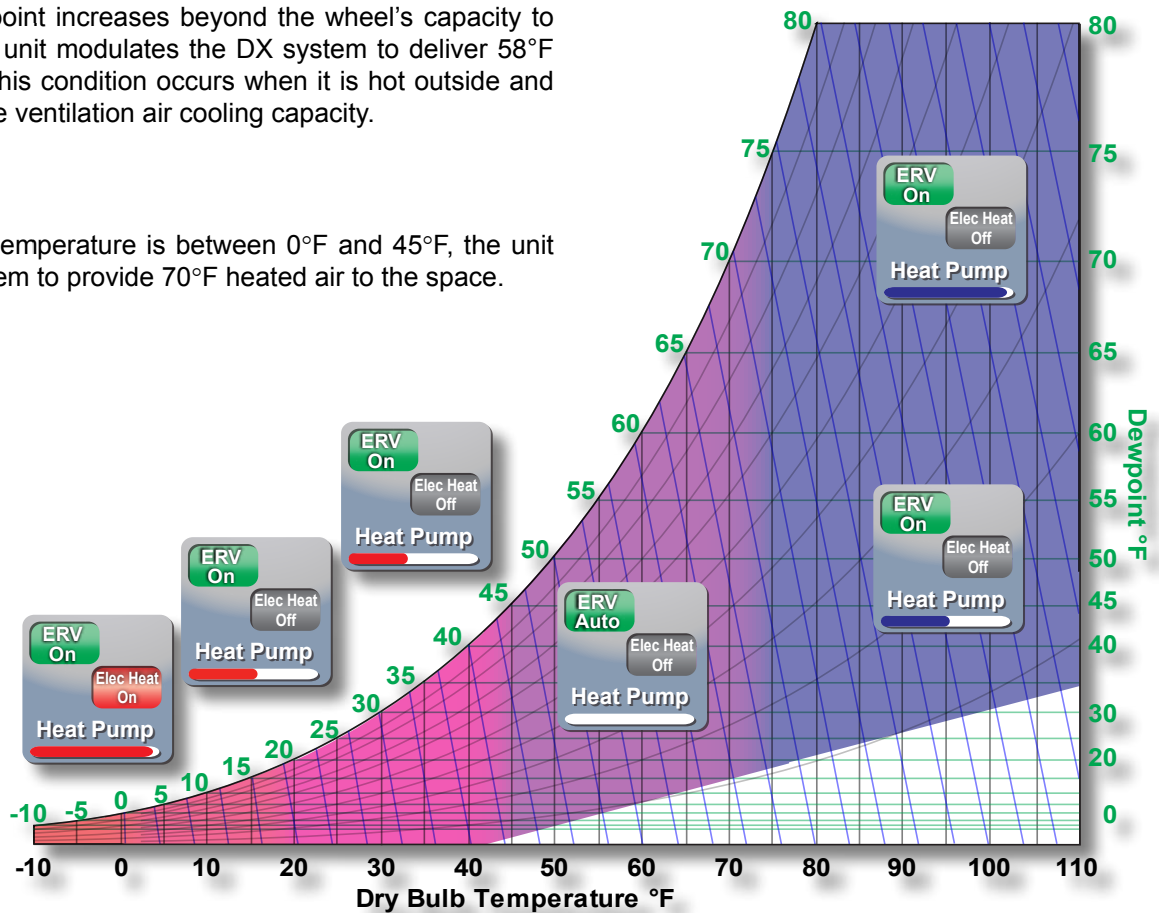
When the outdoor air temperature is between 45°F to 75°F, the unit modulates the DX compressor to deliver 70°F neutral air to the space. During this time, the enthalpy wheel dehumidifies the air to maintain a dewpoint of 58°F or below.

Hot Conditions

If the outdoor air dewpoint increases beyond the wheel's capacity to dehumidify the air, the unit modulates the DX system to deliver 58°F leaving air dewpoint. This condition occurs when it is hot outside and the building can use the ventilation air cooling capacity.

Cold Conditions

When the outdoor air temperature is between 0°F and 45°F, the unit modulates the DX system to provide 70°F heated air to the space.



Frost & Defrost Control

In extreme weather, the Z.62e easily conditions 0°F entering air. The unique combination of heatpump and wheel controls as eliminated the need for energy wasting defrost cycles. More importantly, the unit continues to provide conditioned ventilation air in these extreme conditions. If the climate routinely drops below 0°F, an electric heat option can ensure cold weather operation while maintaining unit efficiencies well beyond standard ventilation products.



Energy Efficiency and Tangible Savings



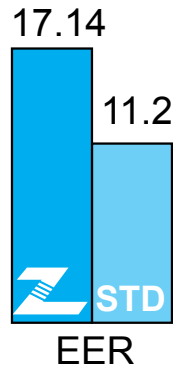
ADVANTAGES BEYOND SIMPLE PAYBACK

Cooling

A Reznor Z.62e unit can cool 1,200 cfm outdoor air from 96°F/78°F to 62.5°F/59.7°F with just 3 tons of DX capacity. It would take a 7 ton standard (STD) conventional DX cooling unit* to cool this volume of outside air.

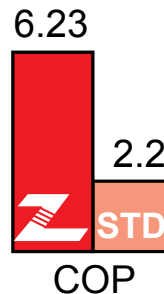
In cooling mode a Reznor Z.62e Series operates at 17.14 EER as compared to a conventional 11.2 EER.

*Conventional unit used for comparison purposes complies with ASHRAE 90.1-2007 efficiency standards.



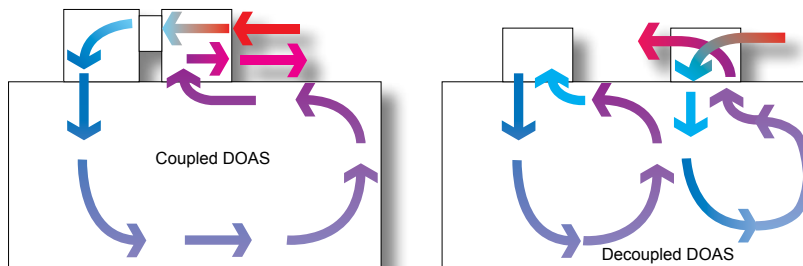
Heating

When heating 1,200 cfm outside air from 17°F to 70°F, a conventional 7 ton heat pump unit has a COP of 2.2. The Reznor Z.62e unit has a COP rating of 6.23 - almost 3 times as efficient.



Application

Units can be applied in multiple ways allowing you the flexibility to design the system that you need.



Intelligent Reheat

Building loads and the need for ventilation air vary throughout a day as well as throughout the year. When the Air Change (ACH) rate associated with the ventilation air is less than 5-6, a new energy saving reheat methodology can be used. This intelligent reheat takes advantage of the building load conditions.

In the low building cooling load conditions, the Z.62e delivers 70°Fdb /59°Fwb neutral air to the building. The ventilation air is dehumidified without the costly method of subcooling the air and then reheating it again.

In the high building cooling load conditions, the Z.62e delivers 58°F conditioned air to the building. This cooler air assists with the building cooling demand. The net result is lower overall building energy usage.

Typical HVAC Loads (btuh)		
	Source	Sensible
People	Theatre	225
	Office	250
	Retail	550
	Light Factory	275
	Dancing	305
	Heavy Factory	635
	Athletics	710
Equipment	Computer	300
	Copier	3685
	Snack Machine	940
	Refrigerator	1330
	Cash Register	160
	Florescent Fixture	558

ASHRAE Fundamentals Handbook

Reznor Ventilation Equipment

Energy Efficiency Experts for Over 40 Years

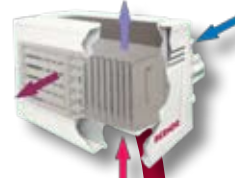
2010

Combining the benefits of an energy recovery ventilation system with the fuel efficiency of a heat pump, this latest innovation provides comfort along with improved indoor air quality (IAQ) and affordable fuel bills.



1970s

The energy crisis sent fuel rates through the roof. The first Reznor energy recovery unit was introduced before many people knew what energy recovery was. It helped to reduce fuel expenses during a difficult time.



2000s

Another energy crisis; another Reznor innovation. The next generation of Reznor condensing gas heating technology extended beyond unit heaters to split systems.

This unit is also energy efficient in cooling mode due to staged cooling control.



1980s

The world's first 93% efficient commercial/industrial unit heater is introduced almost 25 years before any other manufacturer. The Reznor Model SHE provided the same amount of heat as conventional unit heaters, but used less natural gas.



1990s

This Reznor energy recovery unit was designed to provide both latent AND sensible energy recovery.



Sample Schedule

Unit Tag	Model #	SCFM		ESP		Summer Design		Winter		EER / COP	Power	MCA / MOP
		Supply	Exhaust	Supply	Exhaust	EAT	LAT	EAT	LAT			
VENT-1	ZQYRA-8	800	800	0.8	0.8	95°F/78°F	62°F/58°F	0°F	70°F	14.8/6.8	208/3	35.5 / 45
						85°F/67°F	70°F/61°F	35°F	70°F	16.5/5.4		
VENT-2	ZQYRA-12	1500	1500	0.8	0.8	98°F/78°F	62°F/59°F	14°F	70°F	17.1/5.5	460/3	27.6 / 35
						85°F/69°F	70°F/61°F	35°F	70°F	17.4/6.2		

Notes:

1. Optional electric heat, motorized damper, coil coating & unit mounted disconnect
2. Optional CO₂, VOC, time clock, occupancy or manual control options
3. Optional Lon or BacNet Communication

For complete catalog information including submittals, energy calculations, dimension drawings, and more go to www.RezSpec.com or call 800-695-1901.

Note: In keeping with our policy of continuous product improvement, we reserve the right to alter, at any time, the design, construction, dimensions, weights, etc., of equipment information shown here.