

REZNOR®



MODEL YDHA Space Conditioning

APPLICATIONS 0% - 50% Outside Air

- » HEALTH CLUBS
- » PET SHOPS
- » PHARMACIES
- » ART SCHOOLS
- » VOCATIONAL SHOP CLASS AREAS
- » DAY CARE CENTERS
- » SUPERMARKETS
- » THEATRES

Capacities



5 - 30

Tons



75 - 800

MBH



30 - 90

kW



750 - 10,550

CFM



High Outdoor Air Systems

ReznorHVAC.com

Do you Face these Challenges?

- Retrofit building HVAC to meet NEW ventilation codes.
- Need one package unit for high ventilation AND space conditioning loads.
- Add ventilation capacity by replacing an existing rooftop unit.
- Reduce the total number of rooftop units (i.e. 5 to 4 or 3 to 2)
- Accommodate highly variable ventilation but mostly at part load.
- Change existing building HVAC for new tenant or building use.

Then you need Model YDHA

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 62.1-2016 – ventilation air per building type and activity.
- ▶ ASHRAE 90.1-2016 – equipment efficiency.
- ▶ ASHRAE 189.1-2014 – high performance green buildings.

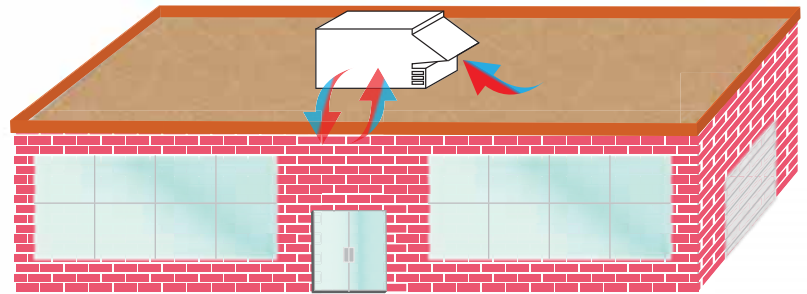
These standards and guidelines will be codified in the coming years.

The Model YDHA Solution

Difficult application challenges (like those listed on previous page) are beyond the capability of contemporary equipment.

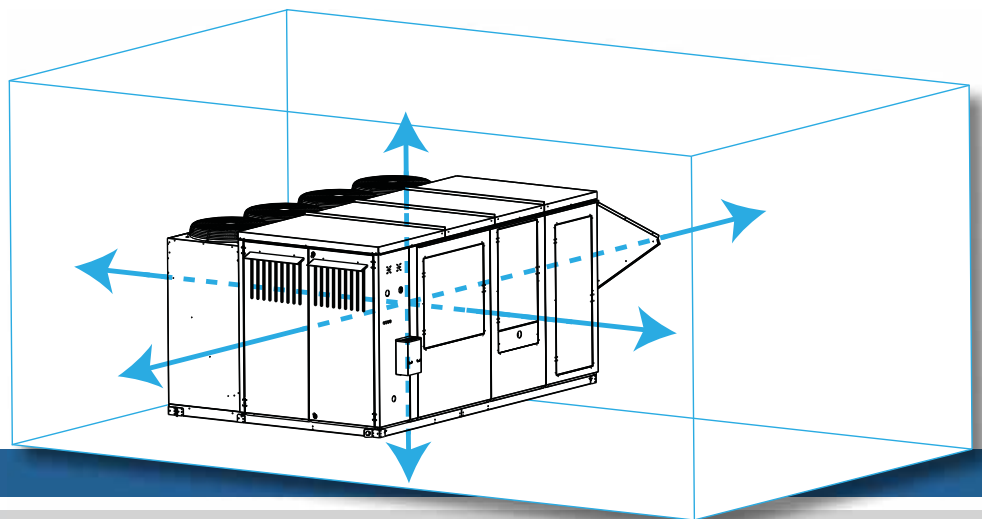
The right choice is Reznor.

YDHA



Packaged Hybrid System

- YDHA installed with YDMA (DOAS) = unified platform
- YDHA - 50/50 outdoor to return air flow ratio
- Continuous conditioning technology
- 90% condensing gas heat
- High efficiency DX system
- High efficiency supply fans
- Factory installed VFD
- Integrated energy recovery



Revit Models

Design teams are increasingly using 3D tools to better lay out building systems. Reznor brand products support this effort with REVIT drawings. The models have been specifically implemented to make the design professional's work easier, faster and more accurate.

The Reznor Model YDHA

Heating System

When it comes to heating efficiency and reliability, Reznor leads the world. The YDHA carries the fourth generation of condensing 90+% heat sections and fifth generation of standard efficiency 80+% heat sections. And don't forget, for many climates, heating (versus cooling) is where the savings potential really exists.

Features:

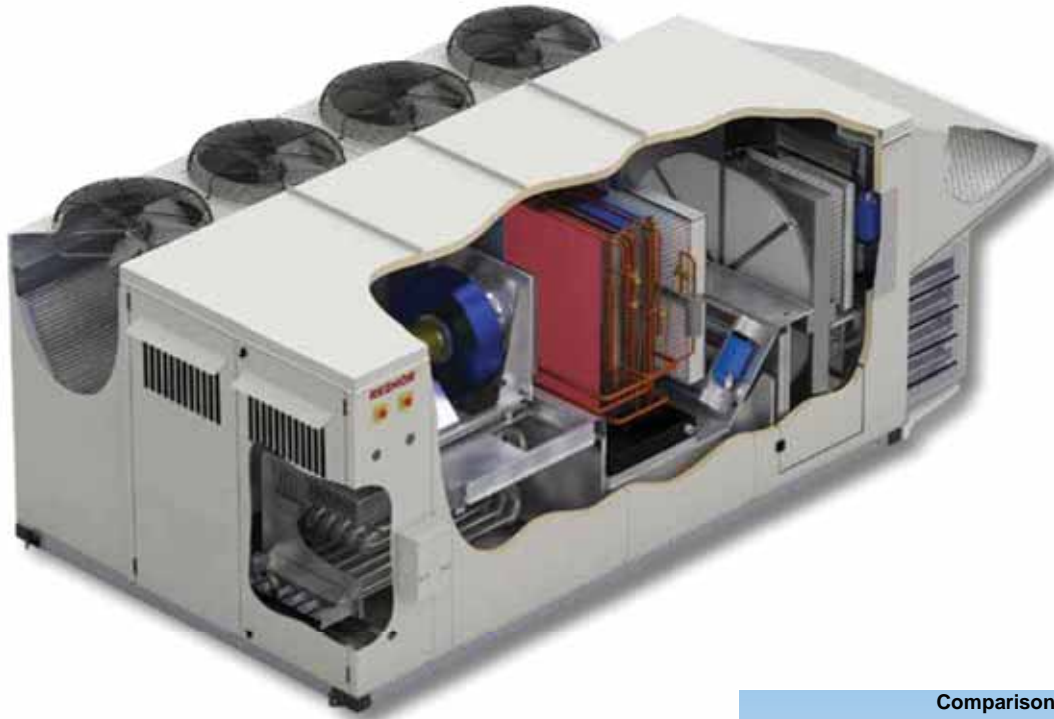
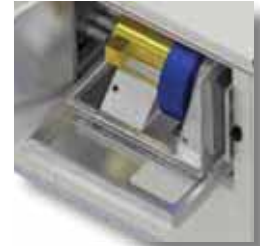
- 5:1 or 10:1 gas modulation
- 2 or 4 stage gas & electric control
- 92% & 80% gas heating efficiency
- Constant gas heating thermal efficiency
- 409 stainless steel heat exchangers
- SCR electric heat control
- ANSI Z83.3 certified
- Condensate neutralizer



Fan System & Construction

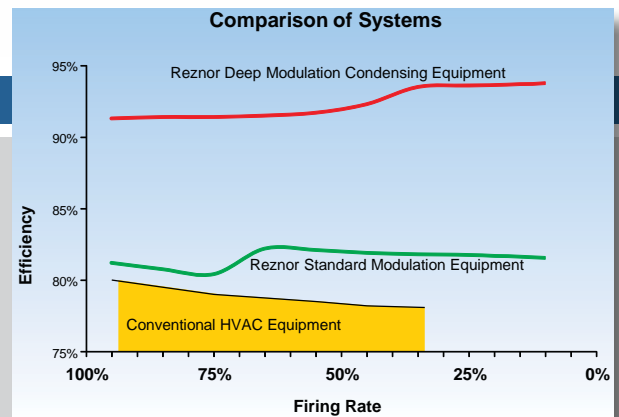
The supply fan is the heart of the system and the one component in a package unit that impacts all other mechanical functions. YDHA units exhibit state of the art fan technology and system design.

- Direct drive plenum fan
- Slide-out servicing & inspection
- VFD or ECM control (standard)
 - » Duct static pressure control
 - » Building static pressure (power exhaust)
 - » Constant volume
 - » High/Low speed control
 - » Supply fan tracking (power exhaust)
- High & low filtration hoods
- 11 configurations
- MERV 8 & 13 filters
- CFM monitoring



Gas Modulation Efficiency

Total cost of ownership is the truest measure of value for your HVAC investment. The ability to modulate the gas input allows greater control over constantly changing load conditions. Most heating systems lose over 6.25% of their thermal efficiency when modulating. Reznor models start with high efficiency and maintain that efficiency throughout the modulation range to maximize your HVAC investment dollars.



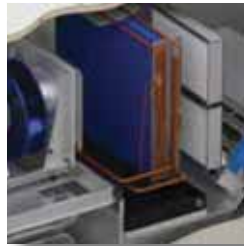
Features & Benefits

DX System

High efficiency DX system - up to 12.2 IEER. This efficiency translates into lower operation cost.

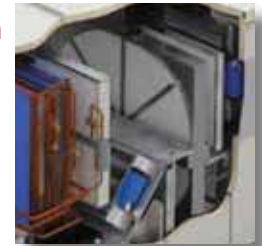
Features:

- Energy efficient digital scroll compressors
- 10%-100% capacity control
- ECM condenser fans
- Low ambient operation
- Corrosion-proof, double sloped drain pan
- Sound blankets
- Coil coating - 6,048 hours salt spray effectiveness
- Ozone friendly R410A
- Froststat, high and low pressure switches
- Anti-cycle programs
- Hot gas reheat
- ReHeat Pump™ - Dehumidification System
 - » Independent DX Circuit
 - » 15-17°F Temperature Rise
 - » Modulated Capacity
 - » COP > 20
 - » Low Ambient Operation



Energy Recovery & Exhaust Fan

Energy recovery systems recover exhaust air energy and re-introduce it into the conditioned space. Model YDHA, with the total enthalpy energy recovery module, integrates this savings allowing greater application flexibility.

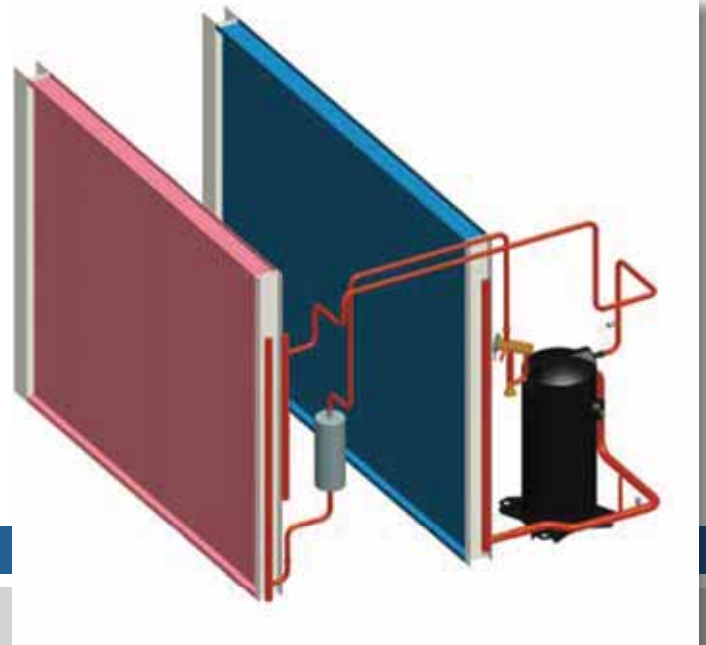


Features:

- Integrated power, controls, and mechanical
- ARI rated internal enthalpy wheel
- Minimal cross contamination (less than 5%)
- Slide out servicing
- Optional low ambient control kit for temperatures below 10°F
- Electric preheat
- Standard barometric relief exhaust damper
- Outdoor CFM measurement and monitoring

ReHeat Pump™

Model YDHA dedicated reheat system, provides stable and predictable year-round performance. The independent circuit design allows superior part load EER performance without the hassle of low ambient control. The digital capacity control reliably maintains a stable 52°-55°F discharge air during the spring, summer and fall months from the pre-cool DX coil and primary DX coils. The independent reheat circuit then applies reheat back into the airstream as needed.



Reheat Performance	Entering Air Conditions db/wb/dp	DX Capacity	Reheat Capacity	Leaving Unit (°F dB/wb/dp)
Warm Spring Day	83/69 62.5	31%	100%	72/59.8 52
Rainy Fall Day	68/64 62	31%	87%	72/59.9 52
Cold & Raining	60/60 60	OFF	100%	72/60.8 53

Note: Dry bulb and wet bulb temperatures show dewpoint.

Applications

High People Density

- Lecture Halls
- Multi Purpose Assembly
- Cafeteria/Fast Food Dining
- Cocktail Lounge
- Formal Dining Rooms
- Transportation Waiting
- Place of Worship
- Lobbies
- Casinos

High Ventilation Rate Applications (cfm/person) *

- Day Care = 17
- Pharmacy = 23
- Health Clubs = 26
- Libraries = 17
- General Manufacturing = 36
- Packing/Sorting Area = 25
- Office = 17
- Sales / Retail = 16
- Shipping/Receiving = 70
- Wood/Metal Shop = 19

High Exhaust Rate Applications (cfm/ft²)*

- Commercial Kitchen = 0.70
- Chemical Storage = 1.50
- Air Classroom = 0.70
- Auto Repair = 1.50
- Pet Store / Veterinary = 0.9
- Beauty / Barber Shop = 0.6
- Locker Room = 0.5
- Science Lab / Room = 1.0
- Arena = 0.5

*Rates per ASHRAE Standard 62.1-2010, table 6-1 & 6-4

Rules of Thumb

- 0.9 – 1.2 cfm/ft²
- 400 cfm/ton for internal space load
- 20°F heating temperature rise over ambient
- Maximum 65% space relative humidity (50% ideal)

Select the Right Unit

Size unit

- Select unit CFM from internal space load requirements
- Select cooling capacity to handle both internal and outside air loads: (200-300 cfm/ton; mixed air 85°F/72°F - 90°F/74°F)
- Select Heating to handle internal and outside air loads (20°F - 70°F temp rise; mixed air 25°F - 55°F)

Select Critical Options

- Modulating *Reheat Pump*TM for dehumidification
- Integrated energy recovery to meet ASHRAE 90.1 requirements
- CO₂ demand control ventilation/economizer to meet ASHRAE 90.1
- Building pressurization sequence
- High filtration outside air intake hoods to meet ASHRAE 62.1
- Stainless steel heat exchanger with 5:1 or 10:1 modulated controls

Continuous Conditioning Technology

The package unit operates to maintain space temperature control through the use of any thermostat. Upon a call for heating, cooling or dehumidification:

Cooling ⇨ Operates to maintain 52°F - 55°F discharge air temperature. (DAT)

Heating ⇨ Operates to maintain adjustable sliding DAT from 90°F - 110°F

Dehumidification ⇨ Operates to maintain 70°F - 74°F @ 50-55% relative humidity DAT.

No Call ⇨ Operates to maintain 70°F - 74°F DAT or OFF (neutral air)

The neutral air prevents high volumes of ventilation air from adversely affecting the space conditions. In addition, the supply fan can drop to a user-defined low air flow setting when the space is satisfied; otherwise the supply fan operates to maintain design CFM values.



Option CL23

The Importance of High Efficiency Heating

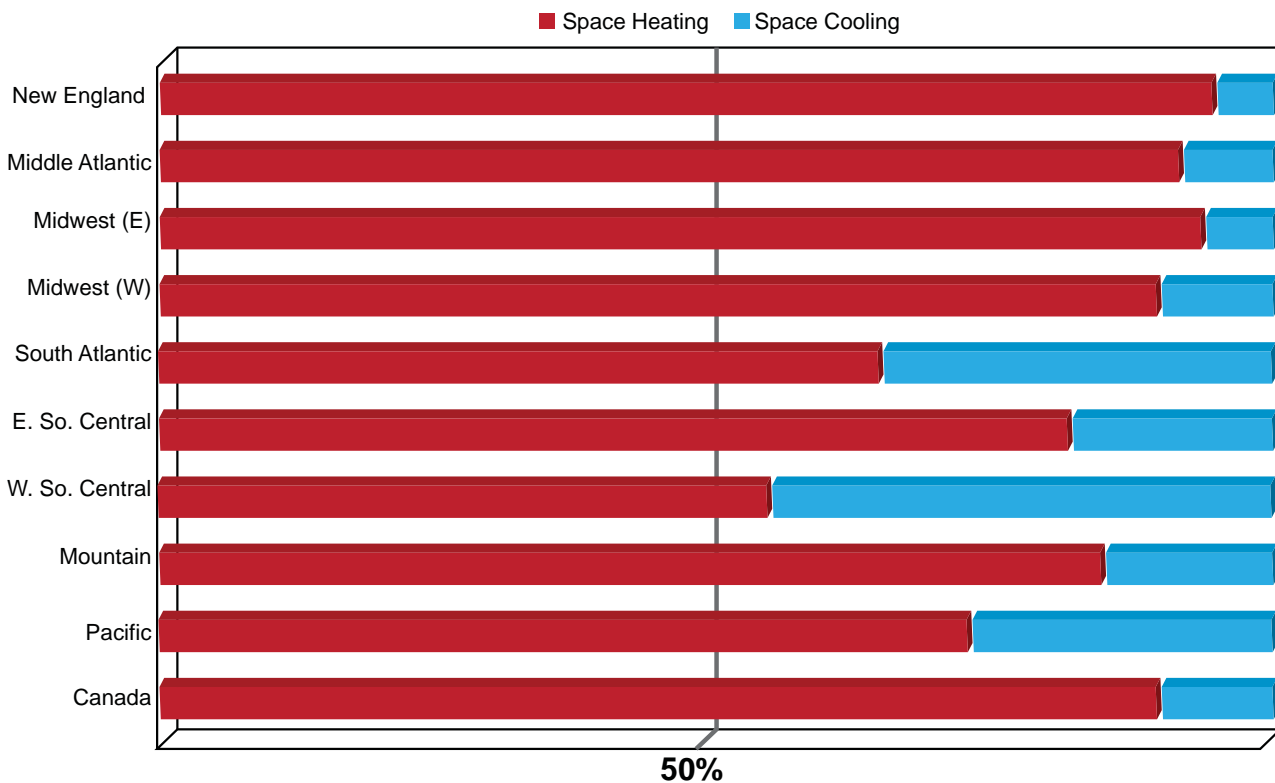
There are typically more heating hours than cooling hours.

High efficiency heating will provide the greatest energy saving potential - more than cooling.

The Reznor YDHA provides best-in-class high efficiency heating AND high efficiency cooling for commercial buildings

*IEER - 12.2
92% Gas Heating Efficiency*

Regional Percentage Heating vs. Cooling Energy Usage U.S. and Canada



Average of all building types.

Sources: U.S. Dept. of Energy CBECS Studies & NRCAN Energy Data Handbook 2010

Real Savings

Building Owners and Managers Association (BOMA) reports the typical office building has utilities costs of \$2.32 per square foot (ft²) for a typical 14,000 ft² property. For new LEED construction, the utility target is set for \$1.80 ft². This is an operational saving of \$7,280 annually. To reach this target, the building must reduce 22% of its power usage. The YDHA reduces heating energy usage up to 18%, and 19% for cooling with Fan & ERV providing an additional economizer (free cooling and heating) range for the building. Standard equipment can't do this. The YDHA is the ideal choice for LEED & Retrofit applications!





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

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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.

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