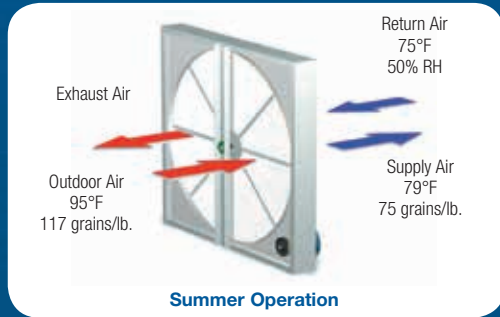


Energy Recovery Technologies

Energy recovery is the process through which energy is transferred between the conditioned return air from the space and the fresh outdoor air. Energy recovery reduces the outdoor air ventilation load by up to 50%.

Energy Wheel

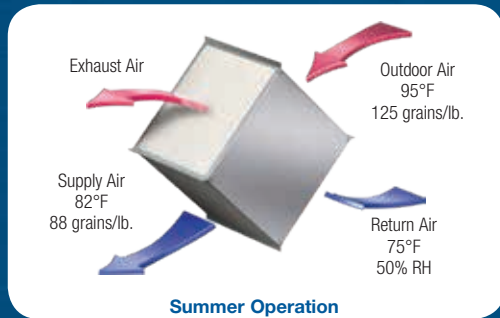
The energy wheel rotates between two airstreams while transferring both sensible (heat) and latent (moisture) energy. At balanced airflows, an enthalpy wheel will have an enthalpy recovery ratio of 70-80%.



All energy wheels include: polymer heat transfer media for sensible energy transfer, silica gel desiccant permanently bonded to polymer media for latent energy transfer, removable segments for ease of maintenance, and a five-year manufacturer's warranty.

Energy Core

The energy core crosses air within the core without direct air-to-air contact while transferring both sensible (heat) and latent (moisture) energy. At balanced airflows, an enthalpy core will have an enthalpy recovery ratio of 55-65%.



The total energy core is constructed of specially processed hydroscopic resin material layered in a cross-flow corrugated structure with a five-year manufacturer's warranty. The core is designed to separate the supply and exhaust air, ensuring only fresh air is introduced into the indoor space.

Preconditioners

Model MiniVent

- 150 - 850 cfm and 1 in. wg
- Indoor installation
- Total energy wheel
- Configurable intake positions
- Vari-Green® motors
- Optional base or hanging isolation kit



Model MiniCore

- 150 - 1,000 cfm and 1 in. wg
- Indoor installation
- Total energy core
- Side, vertical, or horizontal mounting
- Configurable intake and discharge positions
- Vari-Green® motors
- Optional base or hanging isolation kit



Model ERV

- 500 - 12,000 cfm and 1.5 in. wg
- Indoor or outdoor installations
- Total energy wheel
- Low profile design ideal for indoor applications
- Vari-Green® motors on model ERV-10
- Optional fan VFDs
- Optional BMS integration
- Optional wheel economizer



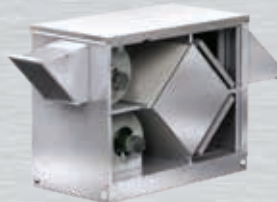
Model ERVe

- 1,000 - 6,000 cfm and 1 in. wg
- Outdoor or indoor installations
- Total energy wheel
- Double-wall construction
- Hinged access
- Optional fan VFDs
- Optional BMS integration
- Optional wheel economizer



Model ECV

- 500 - 3,300 cfm and 1 in. wg
- Indoor or outdoor installations
- Total energy core
- Vari-Green® motors on model ECV-10
- Optional fan VFDs
- Optional BMS integration
- Optional core economizer



Dedicated Outdoor Air Systems (DOAS)

Model ERCH

- 1,000 - 10,000 cfm and 1.75 in. wg
- 4 to 30 nominal tons of cooling
- Cooling options: packaged direct expansion, split direct expansion, chilled water, water-source heat pump, or evaporative cooling
- Heating options: indirect gas, electric, hot water, or water-source heat pump
- Modulating hot gas reheat for humidity control
- Optional high turndown furnace (up to 16:1) - patent pending
- Optional unoccupied recirculation damper for night setback
- Intake/discharge flexibility: top, bottom, end or side
- Ideal for dedicated outdoor air system applications paired with variant refrigerant flow, fan coils, or water-source heat pumps



Model ERT

- 2,000 - 10,000 cfm and 1.75 in. wg
- Wraparound heat pipe
- Heat pipe/energy wheel combination reduces outdoor air cooling load by 5 tons per 1,000 cfm
- Cooling options: split direct expansion or chilled water
- Heating options: electric or hot water
- Backward-curved fans
- Intake/discharge flexibility: top, bottom, end or side
- Ideal for dedicated outdoor air system applications paired with variant refrigerant flow, fan coils, and water-source heat pump units



Unit Control Options

Microprocessor

Optional microprocessor controller is factory-programmed, wired and tested prior to shipment. The controller can operate stand-alone or integrate with a Building Management System (BMS) using BACnet® MS/TP or IP, LonWorks® or Modbus® RTU protocols. Control features include:

- LCD display with full text readout
- Built-in keypad for easy set point adjustment
- Integral 7-day time clock
- Night setback option
- Auto changeover based on outdoor air conditions
- Heating and cooling temperature lockouts
- Building freeze protection
- Optional remote interface for service convenience
- Room temperature and humidity control
- Override controls for ease of start-up



DOAS Selection Software

Greenheck's free online eCAPS® Engineering Application Suite can now simplify and optimize your selection of Dedicated Outdoor Air Systems. Just CLICK on the Outdoor Air product category. ENTER your project requirements. REVIEW your selections for size, weight and electrical load specifications. Then create a SCHEDULE. eCAPS also helps you locate or contact your nearest Greenheck rep. It's easy to use....and always up-to-date.



Dedicated Outdoor Air Systems (DOAS)

Models RV and RVE (all sizes)

- 2-inch double-wall with R13 foam construction
- Heating options: indirect gas, electric, or hot water
- Optional total energy wheel
- Optional recirculation damper for 20-100% outside air and night setback operation
- Modulating hot gas reheat for humidity control
- Direct drive, VFD driven, backward-inclined fans
- Horizontal duct configurations for side return and supply
- Ideal for 100% outdoor air, variable air volume, and single zone applications

Models RV-25, 45, 70 and RVE-40, 85, 120

- 800 - 13,500 cfm and 3 in. wg
- 5 to 45 nominal tons of cooling
- Optional high turndown furnace (up to 16:1) - patent pending
- Low sound condenser fans
- Optional electronically commutated (EC) motor on lead condenser fan
- Optional inverter compressor (5-30 tons)
- Cooling options: chilled water, packaged direct expansion, or split direct expansion with or without remote condenser



Remote Condenser

(Paired with Models RV-25, 45, 70 and RVE-40, 85, 120)

- 5 - 30 tons cooling capacity
- 800 - 8,500 cfm
- Hot gas reheat and compressors internally mounted within DOAS
- Low sound condenser fans
- Lead EC condenser fans



Models RV-110 and RVE-180

- 7,500 - 18,000 cfm and 3 in. wg
- Up to 70 nominal tons of cooling
- 10:1 high turndown furnace
- Optional VFD driven condenser fan for modulating head pressure control
- Standard digital scroll compressor
- Cooling options: packaged direct expansion, or chilled water

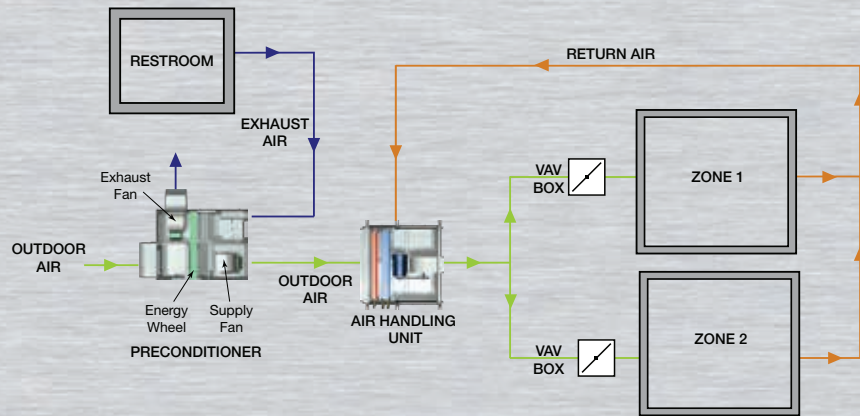


Energy Recovery Application

Models MiniVent, ERV, ERVe, MiniCore and ECV

Fresh, outdoor air enters the energy recovery unit and is pretreated before entering the heating and cooling equipment. Whether ducting into terminal units, such as air handlers, or directly feeding into a rooftop unit, the preconditioners provide the ability to reduce the outdoor air load of these systems.

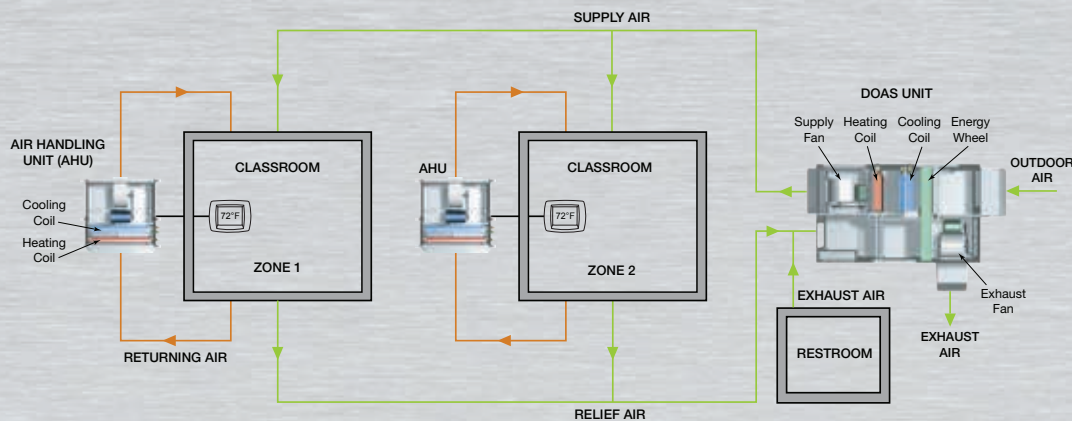
Energy Recovery with Variable Air Volume



Dedicated Outdoor Air System Application

Models RV, RVE, ERCH and ERT

A dedicated outdoor air system (DOAS) is a multiple zone application often used in schools, assisted living facilities, and dormitories. These systems incorporate a DOAS unit to handle 100% of the outside air and parallel heating and cooling units in each space. The DOAS unit handles the sensible and latent load of the outdoor air. The parallel units handle the sensible load within each space. Decoupling the latent and sensible loads allows for better humidity control, individual space temperature control, and more accurate verification that the ventilation requirements are being met for each space.



For additional questions regarding ERV or DOAS products, visit www.greenheck.com or contact the factory direct at 1-800-240-0870.

Optional Accessories

- CO₂ Sensor
- Coatings for Corrosive Environments
- Condensate Overflow Switch
- Dirty Filter Sensor
- Energy Wheel/Core Economizer Control
- Energy Wheel/Core Frost Control
- Energy Wheel Rotation Sensor
- Outdoor /Exhaust Airflow Monitor
- Outdoor/Exhaust Dampers
- Remote Control Panel
- Roof Curbs
- Service Receptacle
- Smoke Detectors

Common Applications

- | | |
|----------------------|-------------------|
| Schools | Hotels |
| Office Buildings | Dormitories |
| Locker Rooms | Nursing Homes |
| Conference Centers | Multifamily Units |
| Institutions | Animal Shelters |
| Veterinary Hospitals | |



ETL Listed for electrical and overall unit safety. Every unit is tested at the factory before it is shipped to the jobsite.



AHRI Certified coils. To guarantee your coil is going to perform as required, check for AHRI Certification.



Energy recovery wheels and cores are certified by the AHRI Air-to-Air Energy Recovery Ventilation Equipment Certification Program in accordance with AHRI Standard 1060. Actual performance in packaged equipment may vary. Certified ratings are available in the Certified Product Directory at ahridirectory.org.

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Energy Recovery Ventilators and Dedicated Outdoor Air Systems



Model ECV



Model MiniVent



Model ERCH



Model RV

