

CA & PA SERIES

APPLIED ENERGY RECOVERY MODULES



CA2XRT shown



- ◆ Static-plate total energy recovery core modules
- ◆ 500-4,400 CFM (CA Series)
1,500-13,200 CFM (PA Series)
- ◆ Modular design
- ◆ Stackable (CA only)
Side-by-side installation (PA only)
- ◆ Knockdown available (PA only)



 **VENTILATION SOLUTIONS
FOR EVERY APPLICATION**

CA & PA SERIES APPLIED ENERGY RECOVERY MODULES

DEFICIENT INDOOR AIR QUALITY IS A THREAT

As **buildings get tighter to seal weather out, they seal in contaminants**, causing deficient indoor air quality (IAQ). Typical contaminants include off-gassing from carpeting, furniture and building materials, excess humidity and mold, odors, cooking and cleaning fumes, CO2, hair and fibers, to name a few.

Deficient IAQ is a threat since it can harm occupant health and cognitive function, damage structures and hurt the bottom line. It's especially concerning since people spend about 90% of their time indoors, and indoor air can be two to five times—and up to 100 times—more polluted than outdoor air. The EPA ranks indoor air pollution as a top-five health risk.¹

ADVERSE EFFECTS OF DEFICIENT IAQ



HEALTH PROBLEMS

Deficient IAQ can cause allergies, headaches, coughs, asthma, skin irritations and breathing difficulties, as well as cancer, liver disease, kidney damage and nervous-system failure.



COGNITIVE IMPAIRMENT

Harvard and Berkeley Lab found that CO2—a constituent of exhaled breath—negatively impacts thinking and decision-making at levels commonly found indoors.²



REDUCED PRODUCTIVITY

Berkeley Lab found that deficient IAQ can cost \$200 billion in debilitated worker performance and \$58 billion in lost sick time.³



RENEWAIRE VENTILATION SOLUTIONS IMPROVE HEALTH & WELLNESS

¹ "Why Indoor Air Quality is Important to Schools," United States Environmental Protection Agency (EPA), <https://www.epa.gov/iaq-schools/why-indoor-air-quality-important-schools>.

² Joe Romm, "Exclusive: Elevated CO2 Levels Directly Affect Human Cognition, New Harvard Study Shows," Climate Progress, October 26, 2015, <http://thinkprogress.org/climate/2015/10/26/3714853/carbon-dioxide-impair-brain/>.

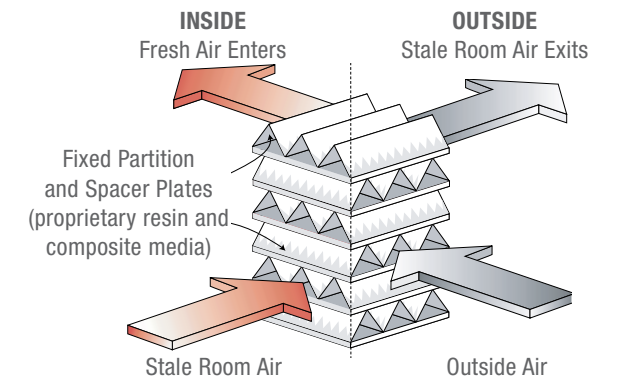
³ Leon Alevantis, (Department of Health Services), Adam Berman (Capital E), Evan Mills (Lawrence Berkeley National Laboratory), Jeff Perlman (Capital E), "The Costs and Financial Benefits of Green Buildings," U.S. Green Building Council (USGBC), October 2003, https://noharm-uscanada.org/sites/default/files/documents-files/34/Building_Green_Costs_Benefits.pdf.

HIGHEST-QUALITY INDOOR AIR VIA VENTILATION

The solution to pollution is dilution achieved via **increased and balanced ventilation**, which is the most effective way to realize cleaner and healthier indoor air. With enough controlled fresh and filtered outdoor air coming in to replace equal parts of stale indoor air via balanced design, IAQ will be enhanced.

This can be done energy-efficiently, cost-effectively and sustainably with RenewAire's energy recovery ventilation solutions, which reuse otherwise-wasted total energy from the exhaust airstream to condition incoming outdoor air. The results are improved IAQ, greater ventilation efficiency and major energy cost savings.

AIRSTREAMS DO NOT MIX & POLLUTANTS ARE NOT TRANSFERRED ACROSS PARTITION PLATES



ASHRAE BUILDING CODES & STANDARDS

With the goal of building sustainably and creating healthy environments for all, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) has written several standards and guidelines. By enhancing IAQ and saving energy, RenewAire technologies provide the means to meet and exceed all ASHRAE standards and guidelines. Following these parameters leads to greener structures and healthier occupants.

- **ASHRAE Standard 62.1:** "Ventilation for Acceptable Indoor Air Quality" is the recognized standard for designing ventilation systems to achieve acceptable IAQ. ERVs play a key role by creating cleaner and healthier indoor air while optimizing energy efficiency.
- **ASHRAE Standard 90.1:** "Energy Standard for Buildings Except Low-Rise Residential Buildings" is a benchmark for commercial building energy codes in the U.S. and across the world. ERVs are required in several instances based on climate zone and percent of outdoor air at full design airflow rate.

RENEWAIRE CORE TECHNOLOGY

CERTIFICATION

- Certified by the Air Conditioning, Heating and Refrigeration Institute (AHRI) for an industry-leading, low-to-zero Exhaust Air Transfer Ratio (EATR) at typical static pressure differentials
- Superior core flammability performance; passes UL-723 and UL-1812

MAINTENANCE

- RenewAire cores are easy to clean without removing them from the unit, and they never require washing

INNOVATIVE CONSTRUCTION

- Core exchanger material is cellulosic-based and doesn't contain or use halogenated flame retardants or PVCs
- Manufactured with a galvanized steel frame

RELIABILITY

- An industry-leading 10-year structural and performance warranty for the static-plate core, two-year warranty for commercial products and five-year warranty for residential products

EXCEPTIONAL PERFORMANCE

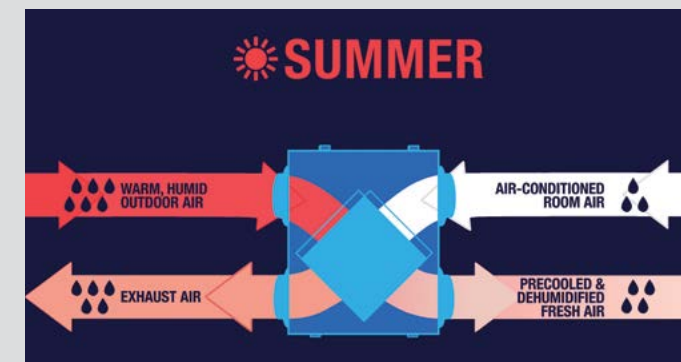
- Moderates heat and humidity via total energy recovery to maintain a comfortable indoor environment
- No need for frost protection or condensate pans
- Laminar airflow ensures that particulates do not accumulate in the core

REDUCED COSTS

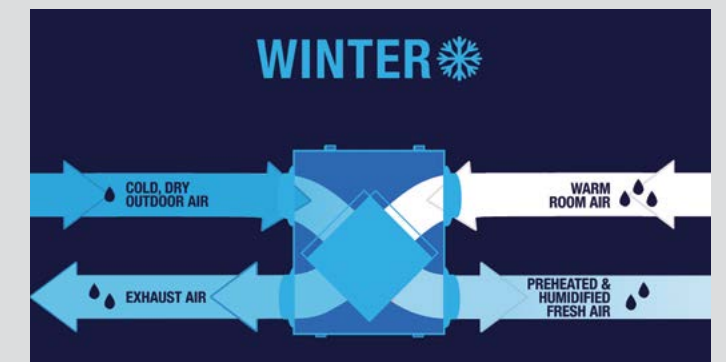
- Optimized energy efficiency via core energy transfer decreases ventilation energy requirements, which can result in smaller air conditioning and heating needs

RENEWAIRE ERVs TEMPER THE AIR

Our ERVs moderate the extremes of outdoor supply-air temperature and humidity year-round, providing a sustainable ventilation solution for every climate.



IN SUMMER, THE WARM, HUMID OUTSIDE AIR IS PRECOOLED AND DEHUMIDIFIED BY THE OUTGOING COOL INTERIOR AIR



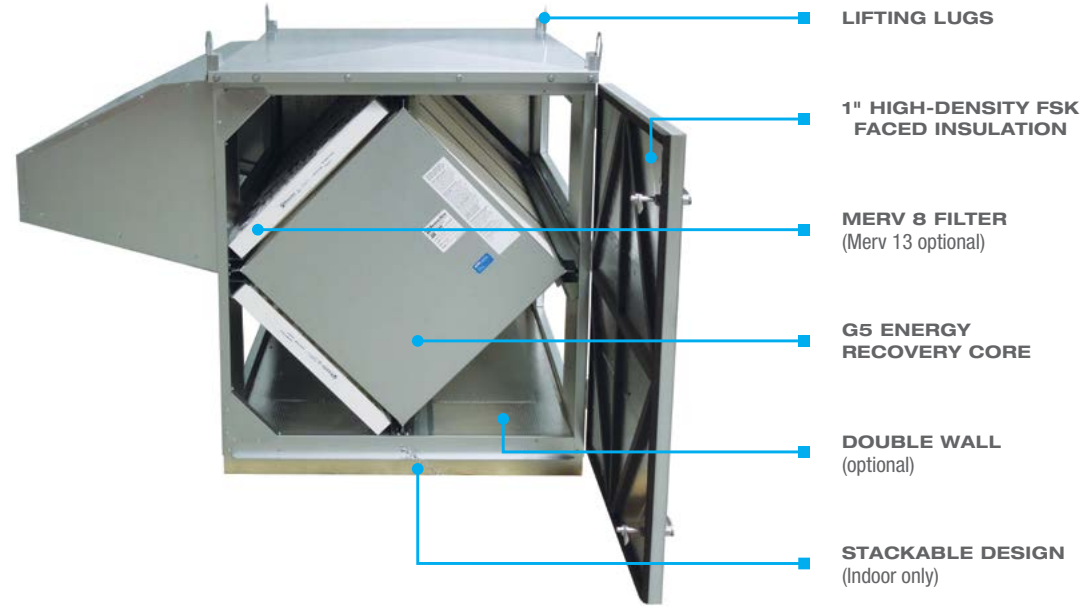
IN WINTER, THE COLD, DRY OUTSIDE AIR IS PREHEATED AND HUMIDIFIED BY THE OUTGOING WARM INTERIOR AIR

A CLOSER LOOK

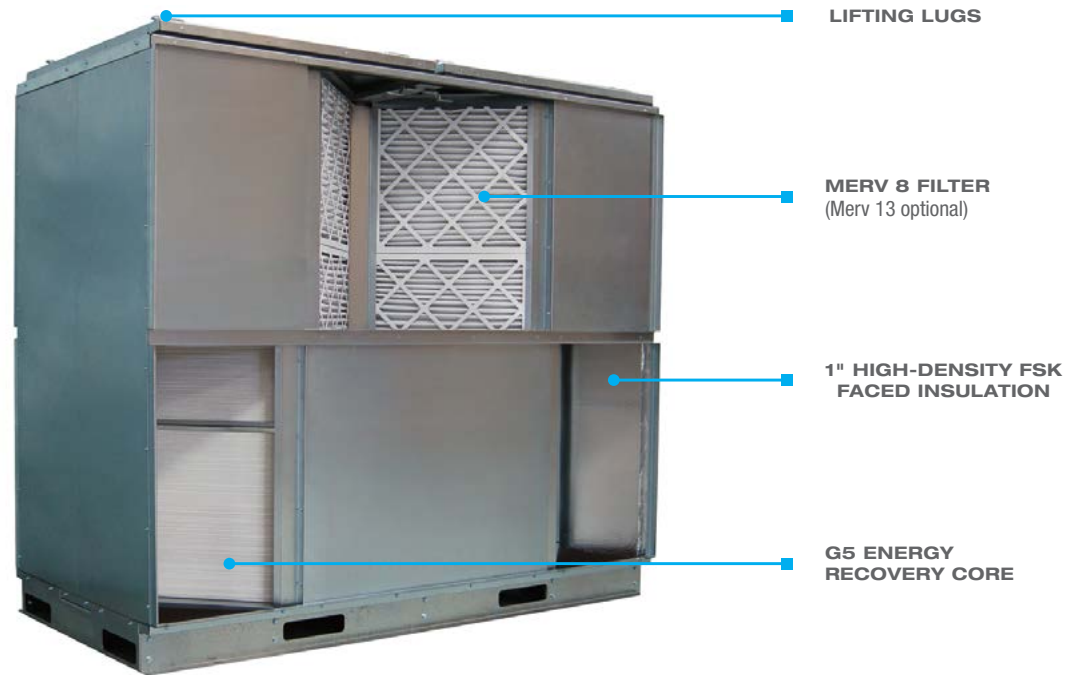
CA & PA SERIES

Making up our Applied Products line, the CA and PA Series are modular cabinets and panels respectively of static-plate, enthalpic energy-exchange cores. These cost-effective and innovative units allow for **complete application flexibility**, including accommodating unlimited airflow capacities using multiple unit arrays. The RenewAire CA and PA Series are the perfect complement to any project for **maximizing ventilation effectiveness**.

CA3XRT shown



PA6XIN shown



**RENEWAIRE VENTILATION SOLUTIONS
INCREASE MONETARY BENEFITS**

RenewAire in Action CASE STUDY: HOSPITAL INSTALLATION



OVERVIEW:

- Holy Family Memorial Hospital was founded in 1899
- It's a multi-use facility clinic and surgical area that needed more air
- Average winter temperatures range from 29° F to well below zero

RESULTS OF INSTALLING RENEWAIRE TECHNOLOGIES:

- The hospital now has increased and balanced ventilation, while saving energy, via one efficient system
- All air-quality and budget requirements were met
- Low-to-no transfer air was achieved as allowed per the CDC
- Patients and staff are breathing in cleaner and healthier indoor air

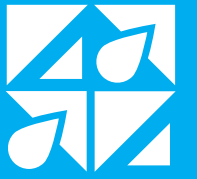


Read our case study, Holy Family Memorial Cancer Care Center:
http://bit.ly/casestudy_CA

GREEN BUILDING TRENDS

Trends in high-performance green buildings up the ante with stricter standards. Their guidelines not only place an emphasis on energy reduction, but also call for increased ventilation that aims to improve health, wellness, IAQ and indoor environmental quality (IEQ). **Sustainable design** initiatives like ASHRAE Standard 189.1, LEED® certification, the 2030 Challenge, the Living Building Challenge and the WELL Building Standard have grown in popularity among architects, contractors and building owners alike.

Our ventilation technologies create healthier and more comfortable indoor environments while optimizing energy efficiency by reusing otherwise-wasted total energy from exhaust air. The results are exceptional IAQ, IEQ and energy savings are critical components to **earning the distinction of being a "high-performance green building."**



RenewAire supports the

PILLARS OF SUSTAINABILITY

PEOPLE

- Reduce acute and chronic health problems
- Improve alertness and cognitive function
- Boost productivity

PLANET

- Committed to green manufacturing since 1982
- Protect the environment with less energy use
- Achieve a green structure with greater energy efficiency

PROFIT

- Can benefit from a short payback period
- Realize annual energy savings
- Trouble-free operations and maintenance



RENEWAIRE ERVs ARE THE SUSTAINABLE VENTILATION SOLUTION



CA & PA MODELS AT A GLANCE



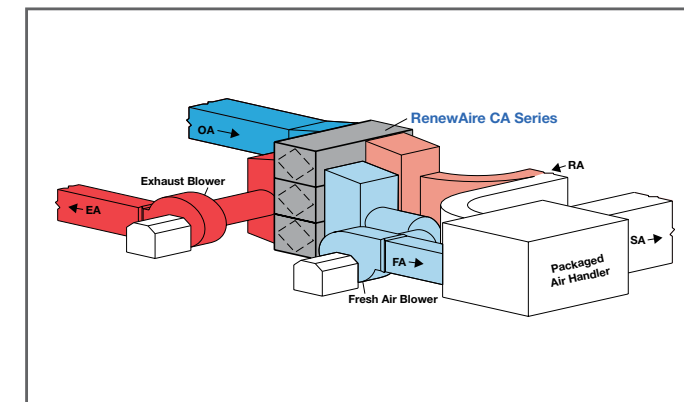
	CA2X	CA3X	CA4X	PA6X	PA8X	PA9X	PA12X	
UNIT	Airflow Range	500-2,200 CFM	750-3,300 CFM	1,000-4,400 CFM	1,500-6,600 CFM	2,000-8,800 CFM	2,250-9,900 CFM	3,000-13,200 CFM
	Indoor & Outdoor Installation Location	✓	✓	✓	✗ (Indoor only)	✗ (Indoor only)	✗ (Indoor only)	✗ (Indoor only)
	Energy Recovery Static-Plate Heat & Humidity Transfer	✓	✓	✓	✓	✓	✓	✓
CABINET	Single & Double Wall (optional) Construction	✓	✓	✓	✗	✗	✗	✗
	Knockdown	✗	✗	✗	✓	✓	✓	✓
	Structural Forklift Base	✗	✗	✗	✓	✓	✓	✓
	1" Foil-Faced Insulation	✓	✓	✓	✓	✓	✓	✓
	2,500-Hour Salt Spray Rated in White & Custom (optional) Painted Cabinets	✓	✓	✓	✗	✗	✗	✗
ACCESSORIES	Roof Curbs	✓ (Outdoor only)	✓ (Outdoor only)	✓ (Outdoor only)	✗	✗	✗	✗
	MERV 8 Filters (standard)	✓	✓	✓	✓	✓	✓	✓
	MERV 13 Filters (optional)	✓	✓	✓	✓	✓	✓	✓
FEATURES	Stackable Units (for larger air volume)	✓ (Indoor only)	✓ (Indoor only)	✓ (Indoor only)	✗	✗	✗	✗
	Side-by-side installation (for larger air volume)	✗	✗	✗	✓	✓	✓	✓
CERT.	Certifications							

SYSTEM INTEGRATION SOLUTION

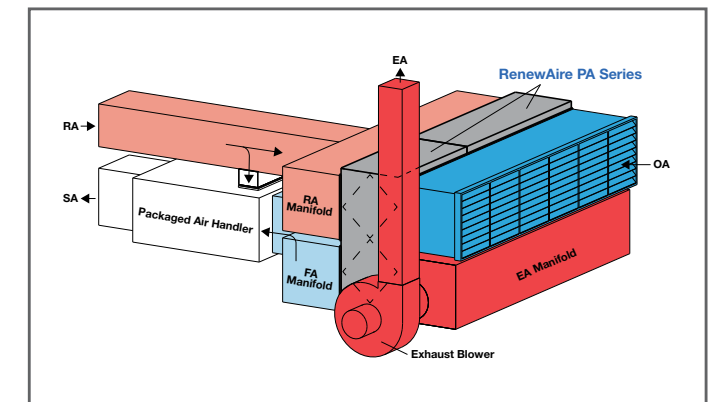
- Packaged air conditioning
- Variable refrigerant flow/volume
- Heat pumps
- Fan coils
- Active chilled beam
- Chilled beam
- Radiant floor heating and cooling

APPLICATION STRATEGIES

AIR SUPPLIED TO INTAKES OF TERMINAL UNITS

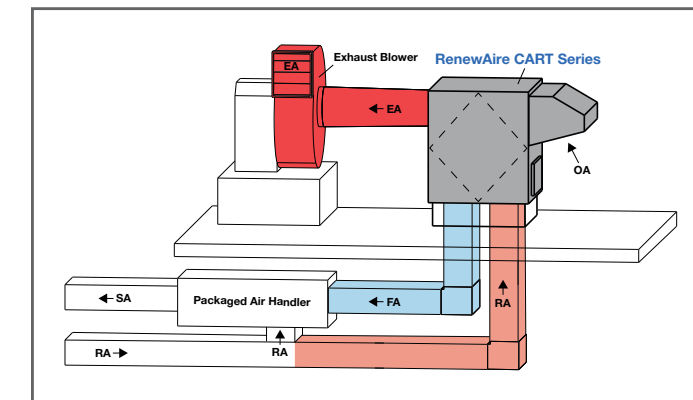


Indoor Model Application Example



Indoor Model Application Example

SUPPLY AIR TO MIXING BOXES FOR INDOOR TERMINAL UNITS OR ROOFTOPS



Outdoor Model Application Example

MAINTENANCE IS SIMPLE

Disposable filters should be checked and replaced as needed. Additionally, once a year, vacuum the four core faces using a soft brush. The RenewAire core does not need to be washed as particulates do not accumulate in the core.

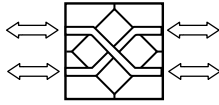


FLEXIBLE DESIGN

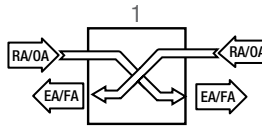
AIRFLOW ORIENTATIONS

INDOOR

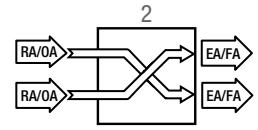
CA2X
CA3X
CA4X



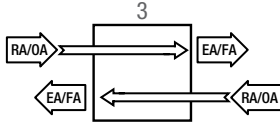
PA6X
PA8X
PA9X
PA12X



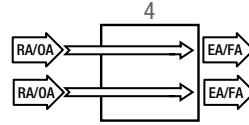
PA6X
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PA6X
PA8X
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PA12X

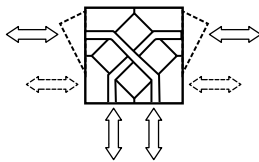


PA6X
PA8X
PA9X
PA12X



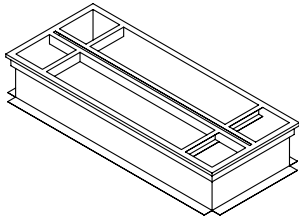
OUTDOOR

CA2X
CA3X
CA4X



ACCESSORIES

ROOF CURB



Standard 14"

FILTERS



2" MERV 13 Filters

RENEWAIRE EVERYWHERE

RenewAire ERVs can be applied everywhere across all residential and commercial buildings, and everything in between. Our technology excels in every geographic region, every climate and every size project.