

ERV GUIDE

— INDOOR AIR QUALITY MATTERS —

- ◆ **Deficient IAQ** is an EPA **top-five** health risk
- ◆ People spend **90%** of their **time indoors**
- ◆ **Indoor air** can be 2–5 times and up to 100 times **more polluted than outdoor air**



BENEFITS OF INCREASED VENTILATION



**BETTER
HEALTH**



**IMPROVED
COGNITIVE
FUNCTION**



**INCREASED
PRODUCTIVITY**

— RENEWAIRE EVERYWHERE —

EVERY GEOGRAPHY, EVERY CLIMATE, EVERY HOME,
EVERY BUILDING AND EVERY APPLICATION

DEFICIENT INDOOR AIR QUALITY THREATENS OCCUPANT HEALTH

As construction methodologies have improved, buildings are becoming increasingly airtight in order to reduce air leakage, improve energy efficiency, reduce heating and cooling costs, further occupant comfort and strengthen structural durability. However, an unintended consequence is deficient indoor air quality (IAQ). This is a serious threat to occupant health, cognitive function, productivity and general wellbeing. Industry standards are changing to **COMBAT DEFICIENT IAQ**, and codes that adopt these new standards are driving the application of **ENERGY RECOVERY VENTILATOR (ERV)** technologies. The World Health Organization (WHO) estimates that 30% of all new or renovated buildings, including homes, suffer from deficient IAQ.¹



Deficient IAQ needs to be addressed since people spend about **90% of their time indoors** according to the National Safety Council (NSC).²



Standardized **test scores can increase by 10%** when ventilation rates are doubled.³



Doubling the ventilation rate from 20 CFM to 40 CFM per person costs only \$32 per person and **improves productivity \$6,500 per person per year**.⁴

ADVERSE EFFECTS OF DEFICIENT IAQ

Deficient IAQ has numerous adverse effects on health, cognitive function, productivity and general wellbeing.



Health Problems: Acute allergies, headaches, coughs, asthma, skin irritations and breathing difficulties, as well as chronic illnesses such as cancer, liver disease, kidney damage and nervous-system failure.



Cognitive Impairment: Studies by the Harvard School of Public Health and the Lawrence Berkeley National Laboratory found that carbon dioxide (CO₂)—a constituent of exhaled breath—negatively impacted thinking and decision-making at levels commonly found inside homes and buildings.



Reduced productivity: Worker sickness and absenteeism cause serious losses for businesses of every type, which is estimated to cost the U.S. economy \$168 billion annually.

¹ "Indoor Air Pollution: Introduction for Health Professionals," U.S. Consumer Product Safety Commission, <https://www.cpsc.gov/safety-education/safety-guides/home/indoor-air-pollution-introduction-health-professionals>.

² "Indoor Air Quality," National Safety Council, http://www.nsc.org/NSCDocuments_Advocacy/Fact%20Sheets/Indoor-Air-Quality.pdf.

³ "Frequently Asked Questions about Improved Academic Performance," U.S. Environmental Protection Agency (EPA), <https://www.epa.gov/iaq-schools/frequently-asked-questions-about-improved-academic-performance>.

⁴ Source of data and statements: Int. J. Environ. Res. Public Health 2015, 12 (11), 14709-14722.



RENEWAIRE ERVs

ACHIEVE SUSTAINABLE IAQ

RenewAire is **A PIONEER IN ENHANCING IAQ** while maximizing sustainability through enthalpic-core, static-plate ERVs that **OPTIMIZE ENERGY EFFICIENCY**, lower costs by **REDUCING HVAC LOADS** and therefore reduce environmental footprints. Our ERV technology preconditions incoming air with the otherwise-wasted sensible and latent energy (heat and humidity) of the exhaust air going out—all while the airstreams are kept physically separate as certified by the Air Conditioning, Heating and Refrigeration Institute (AHRI) for zero exhaust air transfer at normal balanced operating conditions. As the pioneer of static-plate core technology in North America, RenewAire is the largest ERV producer in the USA.

HIGHEST-QUALITY INDOOR AIR

Stale indoor air is replaced with fresh, conditioned and filtered outdoor air, resulting in enhanced IAQ by removing harmful contaminants from the indoor air. Airstreams do not mix and pollutants are not transferred across partition plates.

OPTIMIZING ENERGY EFFICIENCY

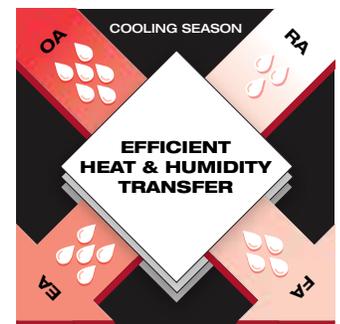
Energy efficiency is optimized by preconditioning the outside air coming in with the **otherwise-wasted sensible and latent energy** of the exhaust air going out. This exchange of energy moderates temperatures and moisture, decreases HVAC equipment needs, drives operational efficiencies and conserves energy.

REDUCING HVAC LOADS

RenewAire technology **reduces HVAC loads** during both winter and summer. The size of the HVAC equipment (furnace and air conditioner) can be decreased. This ensures efficient operation and keeps both energy use and operating costs low while maintaining high-level IAQ.

MINIMIZING ENVIRONMENTAL IMPACT

The combination of optimized energy efficiency and reduced HVAC loads conserves resources. Further, our Madison, WI plant is 100% powered by renewable wind energy. It is also one of the few buildings worldwide to be LEED, Green Globes and ENERGY STAR certified. This commitment to sustainable manufacturing minimizes our overall production and distribution environmental footprint.



THE RENEWAIRE DIFFERENCE

For over 30 years, RenewAire has been a leader in enhancing IAQ in commercial and residential buildings. Our ERVs are competitively priced, **simple and easy to use and maintain**, have a quick payback, return on investment, and due to **unparalleled reliability** derived from innovative design practices, expert workmanship and **Quick Response Manufacturing (QRM)**, we provide an **industry-leading warranty**. In 2010, RenewAire joined the Soler & Palau (S&P) Ventilation Group, providing access to the latest in energy-efficient air-moving technologies.



RENEWAIRE ERVs

— VENTILATION SOLUTIONS FOR EVERY APPLICATION —

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



BR SERIES

- ◆ Residential ERVs—two-duct design
- ◆ Indoor
- ◆ 40-140 CFM



EV SERIES

- ◆ Residential and light commercial ERVs—four-duct design
- ◆ Indoor (EV450 also available as Outdoor)
- ◆ 40-540 CFM



HE SERIES

- ◆ Commercial ERVs—packaged solutions
- ◆ Indoor/outdoor
- ◆ 250-7,950 CFM



LE SERIES

- ◆ Commercial ERVs—large capacity
- ◆ Indoor/outdoor
- ◆ 1,500-11,000 CFM



FOR CERTIFICATION DETAILS SEE UNIT SUBMITTALS ON RENEWAIRE.COM

RENEWAIRE ERVs

— VENTILATION SOLUTIONS FOR EVERY APPLICATION —



CA SERIES

- ◆ Applied ERVs—modular cabinets
- ◆ Indoor/outdoor
- ◆ 500-4,400 CFM
- ◆ Stackable to 20,000 CFM



PA SERIES

- ◆ Applied ERVs—modular panels
- ◆ Indoor
- ◆ 1500-unlimited CFM



RD SERIES

- ◆ Commercial—Dedicated Outdoor Air System (DOAS)
- ◆ Indoor/outdoor
- ◆ 500-4,250 CFM



OPTIONS & ACCESSORIES

- ◆ ECM motors
- ◆ Variable frequency drives
- ◆ Motorized isolation dampers
- ◆ Combo curbs
- ◆ Bypass economizers
- ◆ Electric duct heaters
- ◆ Indirect gas-fired duct furnaces
- ◆ Filter alarms



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— VENTILATION SOLUTIONS FOR EVERY APPLICATION —

SUSTAINABLE INDOOR AIR QUALITY



REDUCE INDOOR AIR CONTAMINANTS

- 1. HUMIDITY**
Exhaled breath, water sources (faucets, showers, leaks, floods)
- 2. CARBON DIOXIDE**
Constituent of exhaled breath
- 3. FORMALDEHYDE**
Off-gassed from adhesives, fabric treatments, stains, varnishes
- 4. ODORS**
Bathrooms, kitchens, dry-erase markers, occupant odors (perfume, soap/shampoo residue, clothing detergent, general odors), pets
- 5. TOBACCO SMOKE**
Smoking areas close to building entrance
- 6. PHTHALATES**
Off-gassed from adhesives, vinyl flooring, wood finishes, plastic plumbing pipes, other building materials
- 7. VOCs, TOXIC GASES, VAPORS**
Off-gassed from furniture, carpets, paints, cleaners, solvents, glues, building materials
- 8. OZONE**
Off-gassed from copiers, electrostatic air cleaners, other office equipment



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