Building Performance Equipment, Inc.®

Sustainable, Reliable, and Energy Efficient Ventilation Systems

ENERGY STAR PARTNER

Busting Energy Recovery Ventilation (ERV) Myths with Building Performance Equipment, Inc.®

It is the plight of professionals in most industries: You introduce your company to potential clients only to discover their perception of your product or concept has already been influenced by myths or outdated information.

It's no different for the sales force at BPE when we explain energy recovery via ERVs is ***the*** cost-effective answer for bringing fresh, thermally conditioned air into homes and buildings. Therefore, part of what we do involves educating folks so they don't rule out the very thing that can improve Indoor Air Quality (IAQ), promote thermal comfort and lower heating and cooling bills. Let's start dismantling some of the myths surrounding ERVs with an oldie but a goodie:

MYTH: *"Cross-contamination of airstreams is a big problem with ERVs."*

The Facts:

- ASHRAE standard 62.1 limits acceptable leakage or the Exhaust Air Transfer Ratio (EATR) to 5 to 10% depending on the class of air exhausted.
- In ERV designs, the two airstreams often pass close to each other, opening the possibility for exhausted particles, odors, and condensation to return indoors.
- Many cross-flow ERVs leak a mere 3 to 5% of exhaust into the fresh airstream, however enthalpic wheel designs can see up to 10% leakage. Fixed plate designs such as BPE's patented true direct, counter-flow line of 'Long Ass ERV' units often test at less than 1% transfer between streams.
- Indeed, ASHRAE (2000 ASHRAE Systems and Equipment Handbook, Chapter 44) states that one of the advantages of a plate exchanger is that, "It is a static device built so that little or no leakage occurs between airstreams."

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Bottom Line:

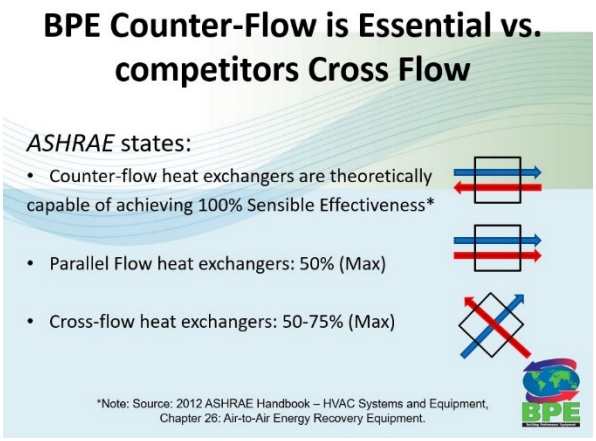
Fear of cross-contamination should not prevent implementing an ERV to enjoy superior ventilation, and with BPE ERVs, it's not a problem! The technology is a cost-effective, quiet, comfortable, and environmentally-conscious boon for turning airtight indoor spaces into physically and fiscally healthy environments.

MYTH: *"Word on the street says ERVs, on average, are only 50% to 70% thermally efficient."*

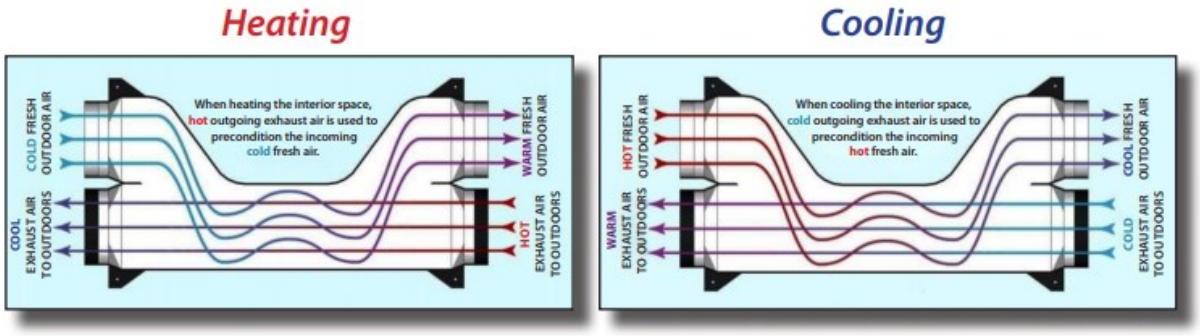
A little story: Not long ago, we drove across the Canadian border on a business trip. We had to disclose that we were carrying some of our BPE ERV units in the van. The border guard said, "Oh, I have an ERV in my house." We were impressed. But he continued by saying he turns it off when it's really cold out because it's not that efficient. What did we do? We gave him a business card and told him we can do better by him if he's so inclined!

The Facts:

- There are many ERVs on the market with average efficiencies of 45% to 70%, and quite frankly, such units give today's high-efficiency models bad press.
- Ventilation technology has come a long way, and high-performance ERVs can perform ten times more efficiently than standard HVAC equipment when properly installed and utilized.
- High-efficiency models like those in BPE's product line routinely recover 70% to 90+% of the energy that would otherwise be sent out of the building as exhaust.
- BPE ERVs boast Energy Efficiency Ratio Ratings (EER) of 36 to 160. The industry standard is 10. EER is derived by dividing BTUs by the electrical watts used to generate airflow. So, when a model can run on a mere 38 watts of fan power, you have a superior system in place.



- High pressure drops can interfere with efficiency. Look for energy recovery technology with pressure drops as low as a quarter of an inch.
- The more efficient an ERV the more you'll save on energy bills.
- In some cases, an ERV with superior efficiency can act as your complete HVAC system! Think off-the-grid and/or passive house applications.



Bottom Line:

Superior ERV tech design includes larger cores than older tech as well as the ability to run on lower fan pressure. But if you want to know how truly efficient a model is, ask the manufacturer how long it will take to recoup your investment thanks to recovering all that energy. At BPE, Inc., we routinely note payback periods of two years or less. Nice, right?

MYTH: *"ERVs installations are difficult and complicated."*

Rubbish, we say! For many applications, installing an ERV is as easy as hooking up one unit and two fans. Air in … air out.

The Facts:

- BPE ERVs are lightweight, so you don't need to be Atlas to maneuver a smaller unit. For bigger, modular, and rooftop jobs, a couple of people can usually get the unit where it needs to go without hiring a crane.
- For most applications, it doesn't matter whether you set up and ERV with its own duct work or connect it to the HVAC system already there.
- When using a unit that boasts efficiencies of 80% to 90+%, as seen in counter-flow designs, you can afford to lose a little efficiency if system is not set up optimally.
- Thanks to an extra-long flow path, BPE ERVs are quite forgiving when it comes to airflow balance for most applications. You might, however, consider adding dampers to ductwork.

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Bottom Line:

As long as you ensure that one fan brings fresh air in to pass through the unit's heat exchanger and another sends the stale air back out of the building, the IAQ and efficiency benefits of an ERV system will outweigh minor imperfections in setup. That said, you might want to hire a professional for installations such as indoor pools and data centers.

The Point Is …

When we bust ERV myths at BPE, Inc., we aren't just talking theory. We have demonstrated what today's super-efficient ERVs can do in the real world. Take a moment to check out some of our accomplishments:

Haglid Engineering & Associates, Inc.® ENERGY STAR® School Building Success Story using BPE ventilation solutions.

EBie Award Winner: Retrofitting a 650,000+ square foot industrial complex to Net Zero.

Case Study: A hot yoga facility acquires healthy IAQ amid a pandemic.

Case Study: An athletic facility chooses BPE for thermal comfort, IAQ, and energy savings.

Case Study: BPE ERVs display their versatility at McGuire Air Force Base.

Take action on your HVAC energy bills and less-than-healthy IAQ!

Regardless of whether your building needs a simple or more complex ventilation setup, it's good to know help is out there. At BPE, we're always enthusiastic to take your installation questions and challenges. Give us a call at 201.722.1414 or contact us for a quote.



BPE, Inc.: BPE-XE-MIR-200i; BPE-XE-MIR-2000; BPE-SC-UNI-1000