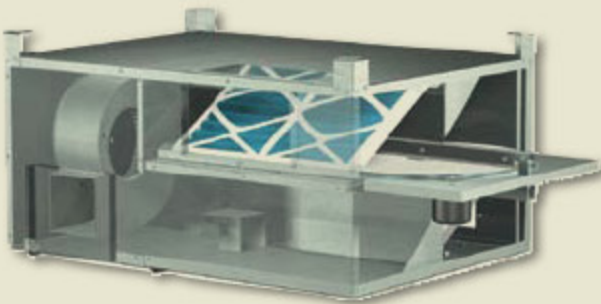


Earn New Revenue with Energy Recovery Ventilators

ASHRAE 62 specifies the minimum amount of outdoor air required within a building to maintain acceptable air quality for its occupants. With the application of this standard, the amount of outdoor air required to be introduced into a building significantly increases.

As a result of growing concerns around indoor air quality (IAQ) and the rising costs of energy, Energy Recovery Ventilators (ERVs) are becoming a more common design component in commercial and institutional building HVAC systems to reduce outdoor air load and provide ongoing energy savings.

If you don't already, you should understand how ERVs work and how to promote these units to customers early on in the design process.



ERV Filter Service

How ERVs Work

ERVs are based on a simple design. Fresh outdoor air flows through one side of the unit, while stale, exhaust air (from the building) flows through the other side. An energy recovery wheel rotates between the two airstreams, transferring temperature and moisture properties. In the summer, this transfer reduces the temperature and moisture level of the outdoor air. Likewise in winter, this transfer increases the temperature and moisture of the outdoor air. The overall effect is a significant reduction in the amount of energy used to condition the outdoor air – meaning the building owner saves money – which is a great selling point for you.

The installation images shown here contrast a traditional HVAC system to one equipped with an ERV for a typical summer day.

With a traditional system, the 75°F room air is exhausted directly out of the building, requiring the cooling unit to condition the 91°F outdoor air to the desired temperature and humidity level before it's supplied into the building. The system with the energy recovery unit is still configured to exhaust the same amount of 75°F room air, however before the air leaves the building, room air properties are transferred to the incoming outdoor air, which is then supplied to the cooling unit at 79°F. Because the outdoor air being introduced into the system is closer to the properties of the room air, the workload of the cooling unit has been greatly reduced, saving a significant amount of energy.



Grainger No. 2RB84

Traditional HVAC System

Benefits

- Familiarity

Drawbacks

- Uses "brute force" A/C to treat outdoor air
- Wastes conditioned exhaust/relief air to outdoors
- Unreliable humidity control

HVAC System with ERV

Benefits

- Reduces cooling by 3-4 tons per 1,000 CFM
- Recycles energy dollars (75% effective)
- Significantly improves humidity control

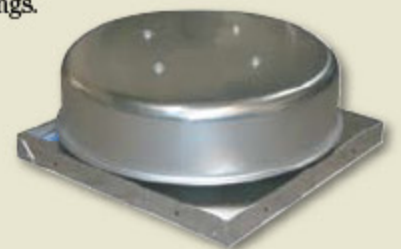
Drawbacks

- Some additional duct work

Benefits for the Building Occupants and Owners

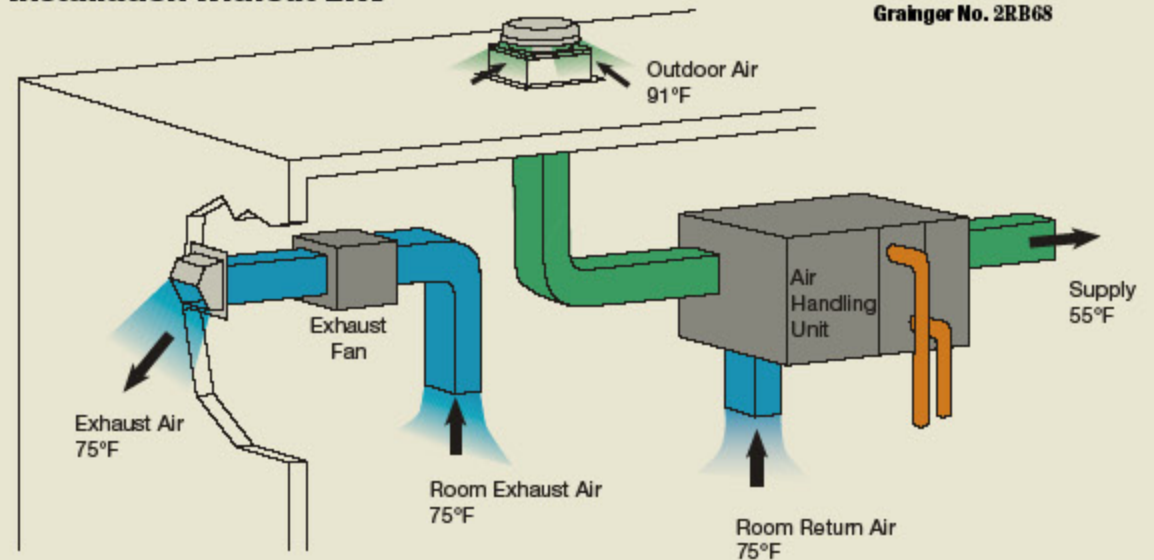
Humidity control and energy savings are two significant benefits. ERVs are suited to help control the humidity level. In the summer, when outside humidity is high, the energy recovery wheel dehumidifies the outside air, reducing the latent load on the air conditioning equipment. It also eliminates the problems associated with high indoor moisture levels. In the winter, when outside air is dry, the energy recovery wheel humidifies the incoming outside air. The result is an overall improvement to the indoor air quality of a building and increased comfort for its occupants.

Energy savings is the main benefit for the building owner. With energy at record highs, operation costs are weighing on building owners. Outdoor air is required by code and the cost to condition that air is significant. ERVs reduce ventilation costs by as much as 75%, producing year-round energy savings.

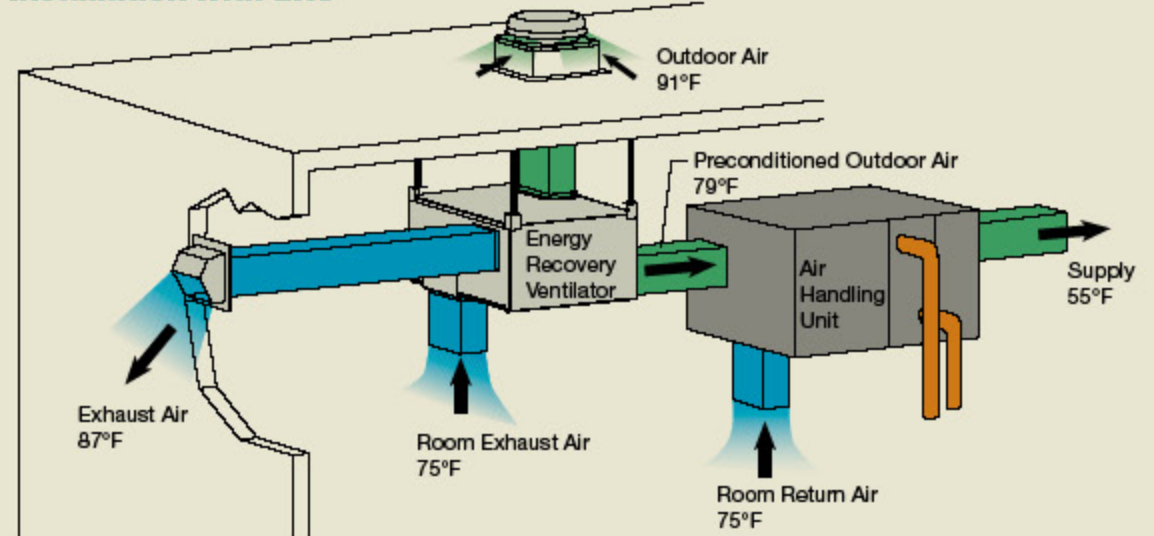


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Installation without ERV



Installation with ERV



Continued on page 3

Best Applications

Energy recovery technology is well-suited for commercial and institutional applications such as classrooms, offices, meeting rooms, condominiums and assisted living facilities.

A Simple Rule of Thumb for ERV Usage

If at least 20% of the air being supplied to the space is outdoor air and the air that is being exhausted is breathable, the use of an ERV makes sense.

You wouldn't want to apply an ERV to the exhaust stream from a laboratory fume hood or kitchen hood. These airstreams are considered contaminated and not breathable.

Service and Maintenance

ERVs are engineered for minimal maintenance and have numerous panels for easy access to internal components requiring maintenance. Outdoor air and exhaust airstreams typically have throwaway filters that need to be replaced on a regular schedule. The energy wheel slides out to allow personnel to transport the wheel to a convenient location for cleaning. While the wheel should be checked annually, cleaning is required only once every 2-3 years, and mild detergent and water is all that's required. Direct drive blower motors eliminate the need for pulley adjustments or belt replacements.



Recovery Wheel

Benefits for Contractors

Contractors stand to gain credibility in the eyes of their customers, as well as grow their bottom line when recommending energy recovery technology.

Boyd Hansen, PE, mechanical engineer for Graef, Anhalt and Schloemer, a Milwaukee-based engineering and consulting firm, said promoting ERVs early on in the design process will make the ventilation system more efficient while increasing revenue for Contractors.

"In designing an HVAC system, when you incorporate ERVs to work in conjunction with other types of heating and cooling equipment, such as furnaces or roof top units, you can often downsize the equipment because of reduced outside air loads," Hansen said.

"The advantage of downsized equipment is that it will reduce capital costs, operate more efficiently and will last longer because it will cycle on-off less frequently."

"The Contractor will make more money because he's now selling more, and the building owner saves money through reduced energy costs."

By showing building owners and managers how energy recovery technology works and the cost savings that can be gained, you can position your business as providing solutions that are in the best interests of your customers.

For a complete offering of HVAC/R equipment and supplies, see pages 3687 - 4068 of Grainger catalog No. 397 or go online at grainger.com/contractor

Energy Recovery vs. Heat Recovery Ventilators

There are differences between ERVs and Heat Recovery Ventilators (HRVs). For starters, HRVs only recover heat, whereas ERVs recover heat and moisture. The chart below summarizes the differences between the two technologies.

	ERV	HRV
Reduces sensible load	Yes	Yes
Reduces latent load	Yes	No
Effective at reducing part load	Yes	No
Improves humidity control	Yes	No
Minimizes compressor short cycling	Yes	No
Self-cleaning	Yes	No
Typical payback	Less than 2 years	More than 5 years
Full load tonnage reduction	3-4 tons/1,000 CFM of outdoor air	1-1.5 tons/1,000 CFM of outdoor air

Measure Twice. Cut Once.

Thanks for the Stories! Here are More of Our Favorites

Things That Go Thump in the Night

Your **On the Job**® stories in the January 2006 publication reminded me of an experience I had several years ago. I received a late night call from a resident at an apartment complex regarding an unknown problem. When I arrived at the complex at about 12:30 am I was greeted by a young woman who was hysterical and almost unintelligible.

After a minute or so I understood that she had an unwelcome guest in her bathroom. She had gotten up from bed to go to the bathroom and when she walked into the unlit room, heard a strange noise and turned on the light before sitting down. When the light came on, a large sewer rat sat upright in the toilet and hissed at her. She slammed the toilet seat down and ran out of the house making the call from a neighbor's apartment.

When I entered the bathroom and raised the lid, a 12 - 14 inch rat sat upright looking at me daring me to mess with it. After some mental regrouping

and getting additional tools, the rat was quietly removed. To this day I think about that rat every time I get up in the dark to go to the bathroom.

Sid Welch

Can You Spare a Dime?

I wanted to enter this story with y'all because it relates to a screwdriver, actually a problem of not having one. Several years ago I went on an air conditioning call, to a customer's house, to try and fix their "it's not cooling" problem. When I arrived at the house, I first asked the wife if the air filter had been changed recently. She said her husband had just changed it last week. After checking the refrigerant charge, I discovered there was not enough air flow through the system inside. When I checked the air filter myself, I found something that looked like a sweater for a filter. It was so matted, that the air suction on it had sucked a softball size hole in the filter. When I showed it to the wife, she immediately got her husband. He said he was not able to change

the filter because he did not have a flat head screwdriver to open the filter grill cover. I showed them how to get the cover open using a dime. With a new filter installed, they were back to normal.

Paul McAlister

Send your stories, anecdotes and photos and include your name, mailing address, email address and daytime phone number to:

On the Job
510 College Avenue
Racine, WI 53403

Or email: contractor_marketing@grainger.com
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