

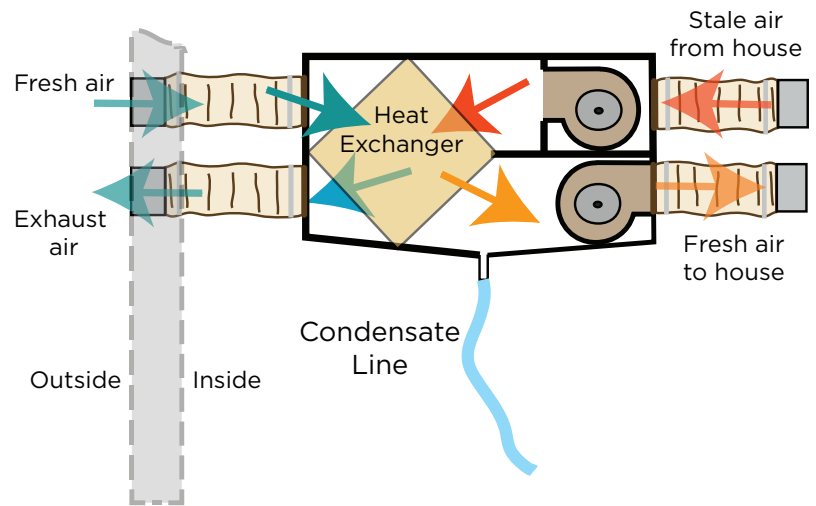
Heat Recovery Ventilator

The Need for Fresh Air

Modern energy-conscious homes are sealed tight to keep your house warm in the winter and cool in the summer. But a tight house also means less fresh air. Years ago, fresh air was not an issue since most homes were naturally ventilated from a myriad of cracks and crevices located throughout the house, all happily leaking air.

Getting fresh air into your house is vital because it dilutes and replaces indoor pollutants such as

smoke, odors, chemicals from cleaning supplies, off-gassing cabinets, carpets and furniture, as well as moisture generated from showering and cooking. Fresh air can only be achieved with good ventilation. The ideal ventilation rate is 1/3 air change per hour, meaning that every three hours a volume of air equivalent to the volume of air in your home is exchanged with fresh air. Without mechanical ventilation, this rate is rarely achieved, particularly in newer, tight homes.



Ventilation

The old fashioned approach to ventilation involves a powerful exhaust fan that pushes stale air out of the house, resulting in a depressurization that draws fresh air in through natural leakage points. This approach, however, will not likely work in a new, tight house that has few, if any, leakage points. Second, depressurization may affect the drafting of your furnace and/or hot water heater.

A ventilation fan can also be flipped around so that it draws air into the house, forcing stale air out through cracks and crevices. This approach may be better for your furnace, but it tends to drive damp air into wall cavities where it can condense (become water), causing damage to the insulation and structure. These two approaches are called unbalanced ventilation.

A heat-recovery ventilator device (HRV) offers a balanced approach. The HRV brings fresh air from outside and expels stale air from inside. The air streams pass through a simple heat exchanger to recover some of the heat that would be otherwise lost. If the home has forced-air heating, an HRV can be added with minimum fuss. If an HRV is installed as part of the original construction, it will be even more effective because extra ducting will have been added to draw stale air directly from problem locations such as bathrooms, kitchen, and the laundry room. The end result is fresh air, and lots of it, without creating an unbalanced air exchange in the home, and all with a minimal loss of energy.

ERV

ERV stands for energy recovery ventilator. An ERV is similar to an HRV but with one difference: an ERV exchanges the humidity as well. As such, it is a more complicated device than an HRV. In hot, humid climates with heavy air-conditioning loads, an ERV is preferable since it removes humidity from incoming fresh air, reducing the load on the air-conditioning system and maintaining a comfortable humidity level in the home.

General Maintenance and Tips

- Follow the manufacturer's instructions to clean the filter and heat recovery core
- Verify that the location from which you are drawing fresh air is free of contaminants such as pigeon droppings, car exhaust, clothes dryer exhaust, garbage cans, etc.

Installation

If you are thinking of installing an HRV or an ERV, hire a good installer who will consider the home holistically, looking at the following:

- The existing HVAC equipment
- Local climate
- Home construction type
- Natural leakage rate
- HRV or ERV

Experts who specialize in assessing homes for energy efficiency and air quality can do a full energy audit of your home.

