



# HRV and ERV Systems

Today's new homes are far better sealed, trapping humidity and pollutants indoors. Central ventilation and filtration effectively eliminate airborne pollutants and excess humidity, thereby protecting your family's health and the structure of your house. The building science community has reached a consensus: build tight and ventilate right, however, every tight home needs a mechanical ventilation system.

Two popular ventilation options are Heat Recovery Ventilation (HRV) and Energy Recovery Ventilation (ERV).

HRV's are balanced ventilation systems in which most of the heat from outgoing exhaust air is transferred to incoming fresh air via an air-to-air heat exchanger. HRVs can potentially recover 50% to 80% of the heat in exhausted air. In hot climates, the function is reversed so that the cooler inside air reduces the temperature of the incoming hot air. In cold climates, water vapor captured from the outgoing airstream by ERVs can humidify incoming air. In hot-humid climates, ERVs can help maintain (but not reduce) the interior relative humidity as outside air is conditioned by the ERV. The best ventilation performance and lowest operating cost comes from an HRV or ERV with dedicated ventilation ductwork.

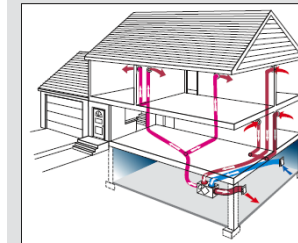


Diagram of a fully ducted HRV system.

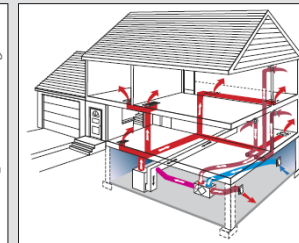
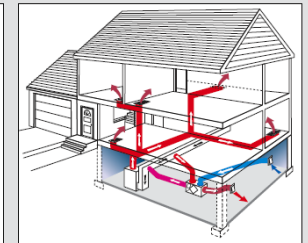
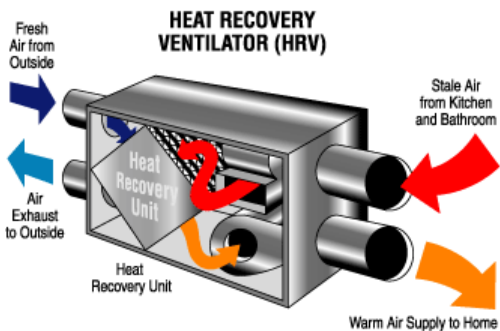


Diagram showing dedicated exhaust points, with distribution of fresh supply air through HVAC system.



Exhaust from HVAC return and distribution of fresh air through HVAC system.



## GENERAL GUIDELINES

- For a small, tight house in a cold climate — especially a house with a large family — choose an HRV.
- For a large house in a cold climate — especially a house with few occupants — choose an ERV.
- In a hot, humid, climate, an ERV will cost a little less to operate during the summer than an HRV.
- In mixed climates, choose either appliance.
- The number of occupants and area of a home will directly impact the ventilation requirements.

## COMMON HOUSEHOLD POLLUTANTS

Room	Pollutants
LIVING ROOM	Carpets Fireplace Dust, allergens and mites Cigarette smoke
BEDROOM	Carpets Carbon Dioxide (CO2) Dust, allergens and mites Hair and animal dander
OFFICE	Printer and copiers (ozone/VOC) Melamine Furniture (noxious fumes/Formaldehyde)
BATHROOM	Excessive moisture Aerosols and sprays Mold spores Household cleaners
BASEMENT	Wood stove Combustion unit Paints and chemicals Household cleaners
ATTIC	Asbestos Insulation Fiberglass Dust and mites
KITCHEN	Persistent odors Cooking pollutants Household cleaners Bacteria