



Builder Guide



DESCRIPTION

Energy efficient houses are often built with tight construction practices to reduce energy bills and improve quality. Tight houses should be equipped with active ventilation to ensure good indoor air quality. Heat recovery ventilation provides both improved indoor air quality and recovers most of the energy normally lost with exhaust only ventilation systems.

These savings are made possible by an "air-to-air heat exchanger" in the ventilation unit that transfers heat or cooling from exhaust air to supply. An HRV is a self contained unit that includes fans to move air through the unit and the heat exchanger. These systems attach to dedicated ducts or connect into the central forced air heating and cooling system. The heat exchanger may be one of two types: Sensible and Total Energy. Sensible HRV's transfer only dry heat in the heat exchanger. They are well suited for cold climates, and are becoming common practice in many parts of Canada and the northern United States. Total Energy HRV's - called heat wheels, desiccant wheels, or Energy Recovery Ventilators (ERV's) - transfer both heat and moisture due to outdoor or indoor humidity. Total Energy HRV's work well in both hot/humid and cold climates, and can help prevent condensation problems that can occur by injecting humid outdoor air directly into the ducts and interior spaces.

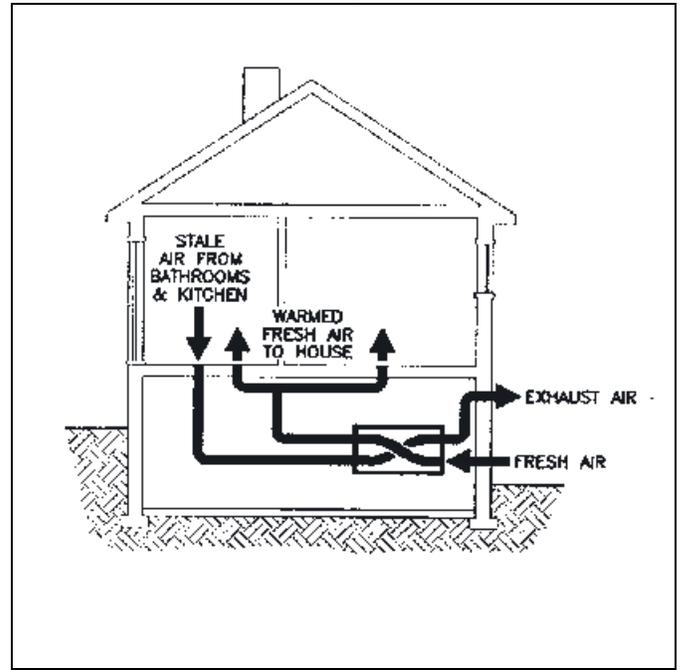


BENEFITS

Builders providing a comfortable, energy efficient house with active ventilation should look for increased customer satisfaction and referrals, and reduced callbacks. This can increase business and profits.

Improve Indoor Air Quality with Heat Recovery Ventilation

Heat Recovery Ventilation



- Heat Recovery Ventilation systems are cost effective in certain climates.**

Heat Recovery Ventilation systems can result in significant energy cost reductions compared with continuous exhaust systems (see "Continuous Exhaust Ventilation" fact sheet) in cold and hot/humid climates.

- Total Energy Recovery Ventilation provides needed dehumidification in hot/humid regions.**

Heat wheel ventilation systems exchange heat and moisture between the outdoor air and exhaust air streams. This reduces the dehumidification load on the air-conditioner, saving additional energy costs.

Heat Recovery Ventilation improves health.

Stale air can make people sick. It can be responsible for symptoms such as headaches, drowsiness, and respiratory problems. Rather than counting on "accidental" ventilation, which is weather dependent, Heat Recovery Ventilation assures occupants receive a continuous flow of healthy fresh air.

Heat Recovery Ventilation improves comfort.

Fresh air is easier to breathe. A house with a Heat Recovery Ventilation system can maintain a comfortable humidity level inside when it's hot and muggy outside. This leaves the house more comfortable, with a steady stream of clean fresh air evenly supplied throughout the house.

Heat Recovery Ventilation reduces odors.

Heat Recovery Ventilation systems continuously exhaust stale air and odors and replace them with fresh outside air. This continuous flow of fresh air reduces the possible accumulation of odors, humidity, and other indoor air pollutants.



INTEGRATION

Installation requires coordination between contractors.

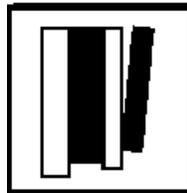
Installation of Heat Recovery Ventilation systems require coordination between HVAC, electrical, and plumbing contractors. The HVAC contractor usually leads the installation, but electrical and plumbing contractors may need to be involved as well. For instance, most HRV's generate condensate, which requires a drain connection.

Fresh air intake should be carefully placed to avoid contamination.

If the fresh air intake is positioned near a pollutant source such as a chimney, a vent stack, a dryer vent, or a busy street, the air supply will not be fresh. Careful placement of the fresh air intake is critical for a properly designed ventilation system.

Exhaust Only ventilation only makes sense if the house is well sealed.

A comprehensive sealing effort is critical to an effective ventilation system. Therefore contractors should work with their subcontractors to ensure all cracks, seams, rough openings, and penetrations in the building envelope are appropriately sealed. See fact sheet on "Preventing Air Leakage".



RESOURCES

- Understanding Ventilation* (John Bower), 1995. The Healthy House Institute, Bloomington, IN. Available at 1-800-346-0104.
- Energy Efficient Florida Home Building* (Florida Solar Energy Center), 1992. Available at 407-638-1000.
- Canadian Home Builder's Association Builder's Manual*, 1994. Available at 1-800-346-0104.
- Moisture Control Handbook: Principles and Practices for Residential and Small Commercial Buildings* (Lstiburek and Carmody), 1993. Available at 1-800-346-0104.