

Heat Recovery Ventilators (HRV)

Q. What purpose do Heat Recovery Ventilators serve?

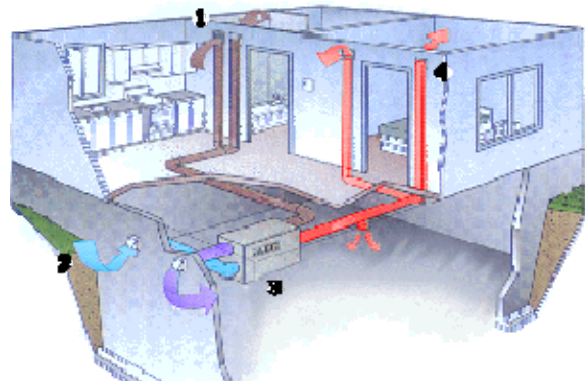
A. They provide an energy efficient way to bring in fresh filtered air while removing stale air.

A heat recovery ventilator (HRV) brings in fresh air from the outside, preheats the incoming air during the winter and precools the incoming air during the summer. It can provide clean fresh air every day while helping to keep energy costs low.

The American Lung Association recommends HRVs and sealing of air leaks to protect your health while conserving energy.

Q. How Does an Air-to-Air Heat Recovery Ventilator Work?

A. The heart of an air-to-air HRV system is the heat recovery ventilation unit which houses the heat exchange core.



The HRV unit can connect to existing ductwork.

- 1.** One set of ducts collects stale moist air from the kitchen, laundry and bathrooms. This stale contaminated air passes through the HRV unit and is exhausted to the outside.
- 2.** The other ducting system draws in fresh clean air from outdoors through the HRV unit.
- 3.** As the two air streams pass each other within the heat exchanger core, heat is transferred from the outgoing stale air to the fresh incoming air. There is no mixing of air streams.
- 4.** The HRV unit is able to capture up to 85% of the energy from the outgoing stale air. Filtered, preconditioned fresh air is delivered where you need it - in the living areas of your home.

Q. Why is an HRV Useful?

A. Tight buildings reduce energy costs by keeping in the heated or air conditioned air. But tight buildings without adequate ventilation trap humidity and pollutants so they feel "stuffy", aggravate allergies and cause general discomfort for you and your family. Moisture damage to windows and other parts of the building shell can result when humidity is too high.

Q. Why not just open a window? Isn't the old-fashioned way the best?

A. An open window doesn't filter the incoming air or accurately control ventilation rates. An HRV is designed to be energy efficient and exchange the air to:

1. Bring in fresh air you want at a rate you choose,
2. Clean the incoming air,
3. Exhaust stale air, pollutants, and moisture, while
4. Recovering up to 85% of the heating or cooling energy.

An open window can't do all these things for you.

Q. I already have an energy-efficient heating and air conditioning system. Isn't that enough?

A. Maybe, but do you ever notice a build up of moisture on your windows and window sills? If you do, an HRV is recommended to exhaust excessively humid air. In today's tightly built homes moisture can build up. Each average person puts about 6 pounds of water into their home each day while breathing, cooking, and cleaning. Excessive moisture build-up on windows and sills shows that your current system isn't working well enough.

Do you want to provide just the amount of ventilation you need for comfort and safety while avoiding expensive and uncomfortably excessive ventilation. You can achieve these goals by following two steps recommended by The American Lung Association recommendations:

5. Use a heat recovery ventilator to provide all the fresh clean air you need while removing stale and polluted air from indoors.
6. Seal air leaks in the building shell to block entry of dust, insects and cold drafts.

Q. Is moisture a problem?

A. It can be a problem both for you and for your home.

Excess moisture can contribute to health problems associated with mold allergies, and microorganisms. Excess moisture can seep into the walls and woodwork, causing dry rot and other structural problems. Other bad effects of excess humidity include peeling wallpaper, discoloration of paint, musty odors and condensation in walls and on windows. This can result in structural damage.

Q. I've noticed I tire easily and don't have any energy. Can this be related to the air I'm breathing in my home?

A. Yes, it can.

Trapped inside, air cannot renew itself and becomes stale. Today's homes are built so tightly that carbon dioxide (CO₂) can build up in them. And what is the chief source of carbon dioxide? It's people — you and your family. Each time you breathe, you exhale carbon dioxide. And in a tightly built home, carbon dioxide can build up to an unhealthy level. Add more people and CO₂ can build up fast. Symptoms of excess CO₂ may include nagging headaches, general lethargy, and grogginess.

If you suffer from frequent colds or allergy symptoms, an HRV can help relieve these problems. In newly constructed homes, pollutants can be released into the air by household chemicals, carpeting and construction materials. These can often be the cause of headaches, asthma, allergic reactions to dust, and the common cold that lingers on in the winter months. An HRV brings in a steady supply of fresh filtered air so that you can breathe easy and safely.

Q. Can an HRV reduce entry of radon and water from the soil into my home?

A. Yes. The amount of stale air *removed* and the amount of fresh air *brought in* by an HRV are equal so a partial vacuum is not created in your home. Ordinary exhaust-only systems create a partial vacuum that pulls radon and water vapor in through pores and cracks in the basement. Radon causes lung cancer. Condensation of water vapor in cool basements contributes to growth of molds and other microbes that emit odors and dangerous volatile organic compounds.

Q. If this is such a problem, why haven't I heard about this before? No one mentioned it to me when I purchased my home.

A. You do have a ventilation system in your home if you have a fan in your bathroom or a hood over your range. These are both small units which attempt to solve the problem of removing moist air from the bathroom and hot air and cooking smells from your kitchen. However, these are inadequate for most newly constructed homes and they only solve half the problem: they remove moist air or cooking odors but they draw in replacement air in ways you may not like:

- Dusty pollen-filled air from outside.
- Radon and water vapor from the soil.
- Fumes from an attached garage.
- Hot (up to 150 degrees F.) air from attic during summer.
- Smelly air from within walls and attic.

Q. O.K., so I need to learn more about this technology. Where is it in use now?

A. Heat recovery ventilators have long been popular in Canada and are becoming popular in the USA. In fact, Canada has a national ventilation law. In 1992 there were more than 125,000 units sold there. In the U.S., there are three states which have ventilation laws and there are more than 15,000 units currently in use in the USA.

Q. Where can I get a modern HRV?

A. Most heating, ventilating, and air conditioning dealers can sell and install heat recovery ventilators. Manufacturers include:

- [FanTech](#)
- [LENNOX](#)
- [HONEYWELL](#)
- [United Air Specialists, Inc.](#) (400 to 1,200 CFM)
- [VENMAR](#)

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