Three Nations ENERGY

Energy Efficiency: Saving With Heat Recovery

(General)

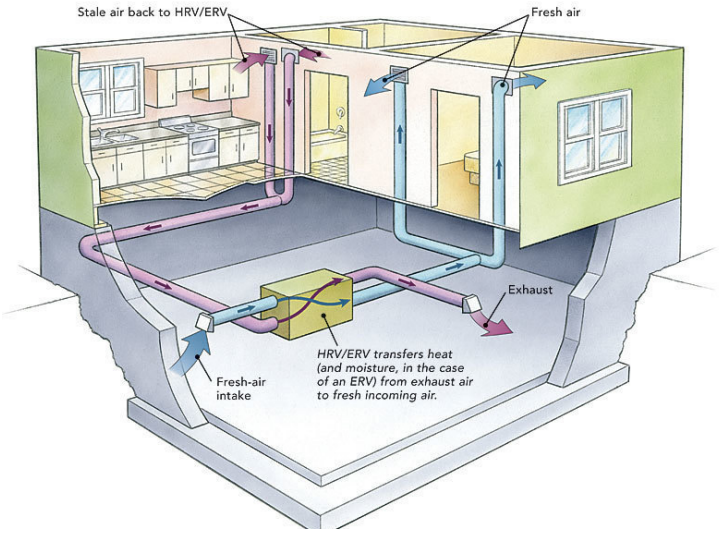
What are HRV's?

An **HRV** or Heat Recovery Ventilation system captures exhaust air from inside the home, and uses it to preheat incoming outside air. This is done to save money and fuel by reducing the amount of work a furnace does.

Similarly, an **ERV** or Energy Recovery Ventilation system will do the same, but with the added bonus of capturing humidity in your home. In climates where dry air is the norm, some homes may have a humidifier connected to their furnace. An ERV will collect humidity within bathrooms or kitchen and then re-inject it into incoming air so that a home's humidifier does not use as much energy.

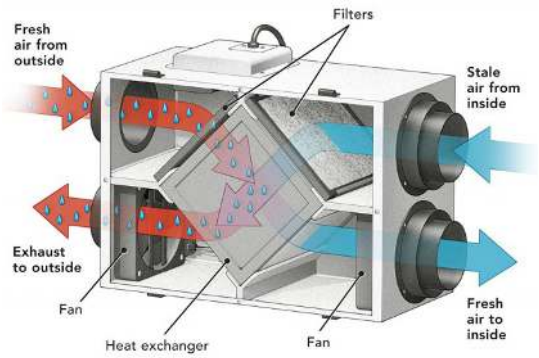
How Do HRV's Work?

High efficiency furnaces collect air directly from outside the home, unlike old furnace systems that would suck air from the basement. These old systems worked because the homes were nowhere near airtight. High efficiency furnaces draw air from outside, meaning they must work harder to warm up the air before circulating it throughout your home especially in colder climates. This is where an HRV increases efficiency.



https://www.finehomebuilding.com/2014/11/05/ducting-hrvs-and-ervs

An exhaust fan collects warm air from inside the home, most often the bathroom and kitchen, sending it to an air exchanger. The two air flows never mix, but the exhaust air will pass next to the intake air, transferring warmth to it.



https://www.intelligentheatandpower.com/does-an-erv-save-money/

Increased Energy Efficiency

An HRV's efficiency rate is determined by the amount of energy, both fuel and electricity, saved by the forced air furnace system. An HRV's only moving parts is the continual operation of small fans. Energy efficiency usually ranges between 55% and 75%, however some units have been recorded as high as 93% efficient.

When homes were made "leaky", they would breathe naturally, meaning fresh air would find its way into a house through windows, doors, electrical boxes, attics etc. This can bring along lots of unintended consequences such as heat loss, dampness or mould. Now that building codes are designed to deliver increased energy efficiency, homes are built air tight.

What Are the Benefits?

- Increases furnace efficiency which save fuel and the environment.
- Reduces chance of mould by controlling humidity levels.
- Improves air quality by cycling in new air and filtering it.
- Maintains healthy oxygen levels. (When people breath, they use up oxygen - a fact often overlooked when dealing with more air-tight homes.
- Overall comfort is improved.

Useful Link

Renovating Your Home to Net Zero - Green Energy Futures
https://www.greenenergyfutures.ca/episode/178-renovating-your-home-to-net-zero