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ENERGY FOCUS

The HRV Myth

By: Thorsten Chlupp, REINA Properties Corporation an Energy Star & GREEN Builder

One of the main goals in building a high energy efficient home in our extreme climate is to seal the inside of the home as tight as possible. This eliminates any heat loss through air leaks and saves real money on the heating bill.

But of course that tightness comes with a considerable trade off. If no heat can escape the home then no fresh air can infiltrate into the home, and the tighter the home the more this becomes an issue. This is a very important fact which needs to be considered carefully—as we all need to breathe. Lots of fresh air, at all times.

That is a fact—and in our climate a healthy and comfortable climate can only be achieved by mechanically exchanging the house air. That's why every tight home needs a Heat Recovery Ventilator (HRV) to work properly. Everything else is a short cut, which will not work as desired by the homes occupants.

So, what does an HRV do? First and foremost it supplies fresh outdoor air to the inside of the home while exhausting the inside air to the outside via a balanced ventilation system. Of course, if the fresh air is cold, it will need to be warmed up, and that costs money. A heat-recovery ventilator uses the heat in the outgoing stale air to warm up the fresh air. A typical unit features two fans: one to take out household air and the other to bring in fresh air.

What makes an HRV unique is the heat-exchange core. The core transfers heat from the outgoing stream to the incoming stream in the same way that the radiator in your car transfers heat from the engine's coolant to the outside air. It's composed of a series of narrow alternating passages through which incoming and outgoing airstreams flow. As the streams move through heat is transferred from the warm side of each passage to the cold, while the airstreams never mix.

HRVs can recover up to 85 percent of the heat in the outgoing airstream, making these ventilators a lot easier on your budget than any passive system or opening a few windows. But what about electricity costs?

Yes, of course an HRV is not only expensive to install, but also requires energy in form of electricity to work. But at fuel prices over three dollars the payback outweighs the costs by a big margin. In the end however the main question is—how much is a healthy house environment worth? It is priceless.

Thorsten Chlupp is owner of REINA Properties Corporation an Energy Star & GREEN Builder and recipient of the first Platinum certification on GREEN build homes in the State of Alaska. Mr. Chlupp is

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This week's Energy Focus article is brought to you in cooperation with the Cold Climate Housing Research Center. Visit www.cchrc.org or call us at 457-3454 for more on cold climate construction, energy efficiency, and ventilation and HRVs.