

Indoor Air Quality

PREPARE NOW TO BREATHE EASIER THIS WINTER



hrv installed

A heat Recovery ventilator (HRV) is a permanently installed household air exchange appliance. It trades stale indoor air for fresh outdoor air during winter, while keeping most of the heat energy in your home. An HRV is the single most effective way to combat window condensation and it also boosts indoor air quality. *Photo credit: Steve Maxwell*



hrv HEPA filter

Leading HRVs include a fine HEPA-rated filter. In addition to adding fresh air to your home, the filter reduces pollen and dust levels, too. *Photo credit: Steve Maxwell*

For at least the last 30 years, we Canadians have been urged to seal up our homes to keep out drafts and save energy. New homes and recently renovated ones, in particular, now include features that keep warm air in and cold air out better than ever. And while all of this is a very good thing, there's a hidden and detrimental side effect to this progress, one that may be affecting your health.

As Canadian homes have become tighter, indoor air quality has become correspondingly worse. One classic sign of this is rivulets of condensation that run down window panes during cold weather. And while it's true that this won't happen for at least a few months yet, now is the time to take steps to improve your indoor air quality if your home is tight enough to keep out drafts.

All of this is why I consider a heat recovery ventilator (HRV) to be such an important home-improvement feature. It's a ventilation appliance that draws fresh outdoor air into your home, expels moist, stale indoor air outside, while also retaining about 80% of the heat energy invested in the old air. Outdoor wintertime air becomes bone dry when it's brought inside and heated up, and this is why HRVs are so effective at reducing sweaty windows. They lower indoor humidity levels like nothing else can. Leading HRVs also feature a replaceable HEPA-rated filter that helps lower indoor levels of pollen and some pollutants.

Although HRVs are the technology of choice for eliminating window condensation, they're not cheap. The unit itself typically costs \$1000 to \$1500, with installation by a ventilation

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technician costing an additional \$1000 or more. All this is why some folks try to solve their wet window problem using a dehumidifier. And while this seems logical, there's a problem. Two problems, in fact. Dehumidifiers can't lower relative humidity levels enough to prevent window condensation during winter, and even if they could you'd still only have dry, stale air.

Will an HRV work in a home that has no ducts to distribute the fresh air? This is a question I'm often asked, and I wondered the same thing 15 years ago. After failing to find anyone who would give me a definitive answer, I went ahead and installed my own HRV in a second-story storage area, with one stale air intake pipe going through the floor to draw air from the level below, and one fresh air outlet leading into the second story room just outside the storage area. The result has been excellent performance, despite no ducts. Having the inlet and outlet on separate floors forces house-wide circulation. Even in single-story homes, by strategically locating your HRV in the basement (perhaps with a small amount of ducting) you can expect pretty good results even in an otherwise ductless home.

Before you go ahead and commit to an HRV, check on a few things first. Is the humidifier on your furnace turned off? No point in adding more moisture to the air if you've already got too much. Shutting off the humidifier may solve your condensation problem. Also, if your current windows have only one pane of glass, they may still sweat even with an HRV on your side. With such low insulation properties, the glass

surface will remain a potent source of condensation because it gets so cold.

You must also realize that unless you have windows with very good insulation properties, you'll probably have to make your home uncomfortably dry in order to completely eliminate condensation. During very cold weather you'll need to discover the balancing point between comfort and a tolerable and harmless amount of window condensation.

One thing that's easy to get used to about an HRV is breathing fresher indoor air. Experience it for yourself and you'll be glad your wet windows told you there was more of a problem than just damp glass.

■ *Steve Maxwell is technical editor of Canadian Home Workshop magazine. Send questions to steve@stevemaxwell.ca. Letter volume may prevent individual response.*

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