

# IAQ by Gord Cooke

## Are Houses “Too Tight”?



Many HVAC contractors know about the Natural Resources Canada ecoENERGY Retrofit program that is driving interest in replacing inefficient furnaces, adding insulation, replacing windows and doing air sealing. The program also provides incentives for adding heat recovery ventilators.

However, I continue to hear energy evaluators and contractors cautioning homeowners about making houses “too tight” and thereby “having” to put in an HRV. Even the popular Mike Holmes from the “Holmes on Homes” cable TV show gets this basic building science message wrong. Insulated wall and attic assemblies need to be very air tight for insulation to work properly and to avoid moisture-laden air from entering the cavities and causing condensation problems. But houses need to be ventilated to ensure healthy air for occupants.



We therefore need tight building envelopes in houses that are well ventilated. It is not possible to make building envelopes “just tight enough.” If you do get the question from builders, homeowners or TV show hosts, try this: take out a one-inch drill and ask them how many holes they would like you to drill through their house and where they would like them.

What we really want is to control natural leakage in houses by making wall and attic assemblies as tight as possible. This saves a huge amount of energy, prevents drafts, insects, dust and noise from entering and ensures that insulated cavities will not be full of condensation. Then we want to add back small amounts of controlled ventilation air matched to the needs of occupants.

HRVs and ERVs, of course, do this quietly, comfortably and more controllably at a fraction of the cost of opening windows or turning on exhaust fans. In fact, once you install a properly sized heat recovery ventilation system, the homeowner can go ahead and make their house as tight as they want without fear of air quality or moisture issues; ventilate right, so you can build tight. This is the lesson learned from over 25 years of Canadian building science research when it comes to providing the most energy-efficient and healthy homes possible.

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Special Contributor