



JULIE OLIVER, THE OTTAWA CITIZEN

Jonathan Ham, a green-home tester, uses a fan to suck air out of a client's house.

# BLOCKING the flow

## Energy consultant finds deficiencies in old and very new homes



PATRICK LANGSTON

No need to check the attic, the condo owner assured Jonathan Ham. A contractor had lugged plenty of insulation up there. But the Nepean-based energy adviser with a commitment to detail, had a peek anyway. Yup, the insulation was there, neatly stacked in one corner, still in the original bags.

Usually Ham's energy audits yield less dramatic findings: leaky windows, decrepit water heaters, inefficient furnaces. But these can add up to higher energy costs and greenhouse gas emissions. It's Ham's mission to stanch the flow.

Most folks call his nine-year-old company, Green Home Inspections Ltd. ([greenhi.com](http://greenhi.com)), because they want to tap into Natural Resources Canada's EcoEnergy program. Introduced last spring to replace the old EnerGuide for Houses program, EcoEnergy reimburses homeowners up to \$5,000 for energy-saving retrofits.

The province of Ontario matches that reimbursement dollar for dollar. To qualify, homeowners first need to have someone like Ham conduct an energy audit (\$350) and then a post-retrofit inspection (\$150). Ontario rebates up to \$150 of the audit costs.

Ham's two-hour energy audit includes everything from an evaluation of window and door quality to a draft test. The latter involves lowering inside air pressure by extracting air with a powerful fan. "Every

changed the windows and made the house more airtight. My heat loss calculation was 45,000 BTUs."

Such overkill could be avoided if contractors used the Heating Refrigeration Air Conditioning Institute of Canada system to calculate BTU needs, he says.

"If they don't do a calculation, it's better to be too big than too small because you don't want people not to have heat on the coldest day of the year."

Furnace and air conditioning, both big-ticket items, should be the last item on a retrofit list, Ham says, coming only after a homeowner knows the heating and cooling requirements.

Even new homes come under Ham's environmental gun. Most of them, he notes, don't have low-E (low-emittance) windows. The glass-coating process, which reduces heat flow, adds \$300 to construction costs, he estimates, yet reduces the size of an air-conditioning system by up to a third.

Ham cautions that the Canadian building code isn't a great guide to energy efficiency. "The code is the minimum you can do without going to jail."

High on Ham's energy-saving hit parade are tankless hot water systems, which produce hot water on demand instead of gobbling up energy to keep it warm all the time, and heat recovery ventilators. The latter, he says, are the No. 1 omission in new homes. Costing about \$2,200 for a retrofit,

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draft is accentuated," explains Ham. "On a cool day, you can feel the cold air coming in where there are leaks. You see cobwebs moving."

He also uses a chemical smoke "pencil" that, when squeezed, emits a stream of draft-detecting smoke.

Ham takes the audit results, plugs them into EcoEnergy's computer software to simulate various retrofits, and winds up with a list of improvements rated by a star system for their energy-saving potential.

Ham's written report supplements the stars with a percentage-based estimate of potential savings, making the homeowner's priority-setting a more exact science.

He's also happy to advise on product lines and retrofit techniques to cut energy losses.

The McGill University graduate in Environmental Science says his audits show oversized furnaces and air conditioning systems to be common problems in Ottawa homes. "I was at a home today that had a 65,000 BTU furnace and the contractor was putting in an 80,000 BTU model, even though they've

the technology vents mould-inducing humid air outside, but first uses it to warm fresh, in-drawn air. Beats the heck out of running a bathroom fan around the clock.

Add all Ham's recommendations up, and a typical homeowner could reduce annual heating costs by roughly 30 per cent. That's over two tonnes of greenhouse gases, by the way.

Ham, who also consults on ice dam problems, residential heat and cool distribution, and energy efficiency in new home construction, suggests homeowners shop carefully for an energy adviser.

Make sure that your adviser is licensed under the EcoEnergy program if you plan to apply for grants.

Ask how many houses the adviser has audited (Ham has done over 1,600) and whether the houses were in your region, simply because energy-consuming habits of Ottawa's wood frame homes are very different from Toronto's brick structures, he says.

Finally, "get someone who's willing to spend time in your house and talk to you. Someone who's ready to answer questions."