

New in Homes

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John Wilson and Leigh Geraghty's new home near Orangeville is so energy efficient that its solar panels and wind turbine often produce enough electricity to sell power back to Ontario's power grid.

Natural dream



Large south-facing windows, skylights, an air-tight wood stove and energy-efficient appliances help reduce power consumption.

MONO MILLS—When it comes to living green, you can't do much better than the Wilson family.

On most days, their hydro meter even runs backward at times, as they export electricity to Ontario's power grid.

It's a great example of what one family can accomplish in doing what's right for the environment.

For years, software developer John Wilson and his wife, former teacher Leigh Geraghty, scrimped and saved to build a home that's becoming a model of sustainable living.

Their house, northeast of Orangeville, includes straw bale walls, eight photovoltaic solar panels and a 1 KwH wind turbine to generate electricity.

It has large energy-efficient windows that face south to best catch the rays of the sun and help warm the home in the winter. Skylights at the top of an interior, 35-foot-high, open-space tower can be opened in summer to expel hot air and draw cooler air in from the basement.

A concrete floor stores heat and is pierced with a network of

Energy-efficient house is a model of sustainable living
Family taps into solar and wind power, *by Brian Dexter*

water-filled plastic pipes that can be warmed when necessary by a small, but efficient, in-line electric water heater.

The house also has an airtight wood stove, the most efficient energy-saving appliances, such as a convection oven, plus such

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things as low-voltage lighting (available at Ikea) and compact fluorescent bulbs.

Geraghty says the ability to show their children — Ian, 10, and Claire, 8 — what environmental benefits can be gained by building and operating a "natural house" was a big factor in proceeding with the venture.

"They are both very excited about it," she says. "They see we

are doing something for them and their generation. Being energy-efficient is just day-to-day stuff for us and it's really not hard to do."

The Wilsons hired Toronto eco-architect Martin Liefheber to design their home. He was the architect for Canada Mortgage and Housing Corp.'s demonstration Healthy House, built in 1996 in Toronto's Riverdale neighbourhood.

The Wilsons owned a home near the home and they were inspired by the features of the Healthy House.

They moved to a Mississauga townhouse for four years "to cut living expenses in half" and worked toward building their dream home on a four-hectare lot they bought in the town of Mono. They moved to their

"natural home" in May, 2001.

Next Saturday (Sept. 6), the Wilsons will hold an open house, dubbed SunFest, giving guided tours from noon to 6 p.m.

It's at 248108 No. 5 Sideroad, a road that runs north of Highway 9, west of Airport Rd., at Mono Mills, about 8 kilometres north-east of Orangeville.

A 20-minute, family-produced video of their story will be shown, which includes commentary by architect Liefheber on how far behind Canada is, compared with many other countries, in building natural homes.

Wilson concedes their 3,500-square-foot, four-bedroom home, on which they've spent about \$400,000, is fairly upscale, but he stresses that what they're doing will have a big pay-back over the years ahead.

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New in Homes

Going natural from roof to cellar

► **Green** From L1

Eventually, he wants to put in composting toilets and a system for recycling gray water, but held off on this partly because of building permit hassles and a mandatory requirement to have an expensive septic tank.

He also plans to install a solar water heater and plant grass on part of the roof, which is designed to be topped with eight inches of soil. Planting a lawn on the roof will improve insulation and make the house at least 30 per cent cooler in summer.

The home is partly post-and-beam construction and straw-bale walls are encased in stucco to allow the house to breathe. They took care in choosing environmentally acceptable and non-toxic building materials. Their floors, for example, are made of bamboo.

Wilson reckons that since both the photovoltaic and wind-turbine systems started operating last January, they're on their way to saving \$500 a year on the previous bills from Hydro One.

In June and July, their hydro use was down to 10 kWh on many days. They carefully record the details, which are often at odds with Hydro One monthly billing estimates.

Household records show that daily usage for the all-electric home spiked at 262 kWh last Christmas Eve and, for January to March, was generally between 50 and 130 kWh.

"So far as the wood stove goes, I think we used just a cord and a half of wood (a cord is a pile of stacked wood measuring 4 feet deep, by 4 feet high, by 8 feet long) last winter and it was really bitter weather," says Wilson.

If a good wind blows and the sun shines, the solar panels and the wind turbine, set away from the house in a field, produce more than enough electricity to run household appliances.

All excess power flows to the provincial grid. Although the house will disconnect from the grid automatically in the event of a blackout, like the one Aug. 14 when the family was away, the Wilsons can flick a switch, continue using their own power independently and store backup power in batteries to run things such as a well water pump and a fridge.

The automatic disconnect is mandatory, in order to protect hydro repair crews when it is assumed area households won't be on the grid.

"The real issue for us is elimination of fossil fuels, and being able to maximize our environmental efficiencies," Wilson says.

"We're totally thrilled. We're very comfortable with our home and the open concept is very inspiring."

To commute to work in Toronto, he normally drives to Malton and catches the GO train. Geraghty, a leadership trainer, works in Brampton.

"I love my home," she says. "It really gives you a positive feeling. We don't run appliances or keep lights on when we don't need them and, in summer, I hang my clothes outside to dry on the line. We have a regular washer, dryer and dishwasher but energy-efficient ones."

To ensure that electronics such as the TV stay completely off and don't draw any power, Wilson installed special switches. "Otherwise they're almost like a leaky faucet," he explains, adding that TVs draw power even when turned off. "Many people don't know this."

The home is sheltered from the cold north wind by a stand of tall pine trees that line the side-road.

Although much of the garden has been left in a natural state, the family grows vegetables such as tomatoes, carrots, beans and peas and has plans for an indoor greenhouse.

They're also into composting and recycling — producing about half a bag of garbage per week — and have a dog named Niko, whose bark is guaranteed to announce when visitors arrive in the yard.

For more information about Sun-Fest, the Wilson open house and a map to the location, visit www.naturallifenetwork.com