

## 'Green dream home': Mill Street house is now a showcase for environment-friendly upgrades

BY BARBARA AGGERHOLM, RECORD STAFF

KITCHENER — The renovated yellow-brick house looks much like any other downtown home, but it's full of surprises.

Here's one surprise: The 105-year-old dwelling at 20 Mill St., just off Queen Street South in the area near the Joseph Schneider Haus Museum, costs only \$138 a year to heat.

Here's another: The bathroom flooring is an ingenious blend of recycled wine corks and the shingles on the roof, expected to last 50 years, were made mostly with recycled car tires and recycled industrial plastic.

And another surprise: During a recent rain storm, the street was underwater, but no water had pooled on the driveway. An engineered gravel bed beneath the surface allows water to soak into the soil.

What's more, a membrane beneath the "permeable paving" will collect any oil that leaks from vehicles in the driveway and keep it until microbes break it down.

The two-bedroom "green dream home," formally called the REEP House for Sustainable Living, will be open to the public from 10 a.m. to 5 p.m. today for the annual Doors Open Waterloo Region event.

It's among 40 sites featured in the self-directed heritage and architectural tour. Admission to all sites is free.

REEP stands for the Residential Energy Efficiency Project. It's a project of Waterloo Region Green Solutions, a community-based, non-profit environmental organization funded by local partners, provincial contracts, grants and client fees.

The "green dream home" is a one-stop showroom for green living ideas, says Cheryl Evans, the organization's outreach officer. The home also tests manufacturer claims about their products.

"At 20 Mill, we wanted to show people a wide variety of options, big and small, to open their minds up to lots of possibilities," Evans says.

The renovated home is evidence that all homeowners can be environmentalists, says Ben Barclay, project manager.

"I would like people to walk in here and recognize the enormous power they have to make environmental changes in their own life," he says.

"I want this house to be inspirational for people."

In addition to checking out the house, visitors will be able to see unique "modelling" software dreamed up by Barclay. The software will allow future clients of Waterloo Region Green Solutions to calculate the cost, payback and energy savings of green options after plugging in their own home's specifications, such as its age and type of furnace.

"We have 15 different kinds of insulation you can compare to see how efficient they are and the cost, and we can model that into your actual house," Barclay says.

Homeowners can also get information about provincial grants available for insulation, furnace upgrades, windows and other measures.

Barclay hopes the house will become the first in Canada to get a prestigious environmental rating for a renovation project.

"We don't know anyone else who has gone to this level," he says.

The project's design phase began in 2008 when the Region of Waterloo loaned the project two houses for green demonstration purposes. In addition to 20 Mill St., the house next door at 24 Mill was renovated to show what an average green-minded homeowner might do.

The four-bedroom house at 24 Mill St. will eventually be available for rent.

The fun began in June 2009 when the house at 20 Mill St. was mostly gutted. Upstairs, the pine subfloor was sanded to a beautiful sheen and became the new surface. On the main floor, the flooring is now fir wood, recycled from an old distillery.



Robert Wilson/Record staff REEP has retrofitted and renovated this century-old Kitchener house at 20 Mill St. with every conceivable green idea.



Robert Wilson/Record staff Ben Barclay, project manager, stands in the stairway with the newly installed stained glass window.



Robert Wilson/Record staff Painter Julia Skinner sands down the washroom window casings.

Government-certified polyurethane foam was applied on the inside of exterior walls throughout the house.

Insulating the basement and attic this way added 500 square feet of usable living space to the house, giving it 1,500 square feet.

"We estimate 20,000 old century homes in the region are largely uninsulated," Barclay says.

The house has three types of furnaces so that it can demonstrate the heating costs of each: a geothermal unit (\$138 a year), a hot water boiler furnace (\$178 a year), and a high-efficiency natural gas furnace (\$200 a year).

"With all the insulation, we almost don't need a furnace," Barclay says. "A large dog would make a neat furnace in this house."

A solar panel on the roof helps to warm the water.

The people working on this house share a passion for lessening their own impact on the environment. Some, like lead hand Jellal Tarabein and painter Julia Skinner, live close by and walk or bike to work.

"It makes me feel I'm actually doing something for the earth," says Skinner, who was swinging a hammer in the house two months after her son, Logan, was born.

"I have the bathroom and two closets to do," she said. "I love this work. Restoring and redoing old houses is inspiring."

Barclay, a soft-spoken Guelph resident with multiple skills in and knowledge about design, building, computers, environment-friendly furniture making and living a sustainable life, has been part of the environmental movement most of his adult life.

He doesn't own a car and uses a bicycle and bus to get to work.

Without a vehicle, some days are easier than others. With a daughter in rep hockey in Guelph, it means carpooling some days, renting a car at other times.

After moving from Toronto to British Columbia when he was in his late teens, Barclay, now 50, planted what he estimates to be 300,000 trees "with my bare hands." It began his lifelong desire to seek out ways to tread more lightly on the planet.

Evans, meanwhile, says she is anxious to learn what she can do with her own older home.

"For me, the exciting thing about REEP House is that it gets people past the paralysis of indecision," Evans says. "It's very comforting to come to a place that will help me get past the paralysis and move forward."

Using the sense of humour that helped them get through the visionary project, Evans and Barclay are now mulling over ways to promote the house on Mill Street — including a discussion of the "sexiness" of insulation.

They're considering a display that links insulation and lingerie.

"If you're uninsulated and there are cold drafts, are you going to wear lingerie?" Barclay says. "Canadians can have more fun in their lives with proper insulation," he says, laughing.

Note: There is limited parking behind the REEP House at 20 Mill St., but the Joseph Schneider Haus Museum is allowing Doors Open visitors on Saturday to park in its lot at Queen and Mill streets. There is no on-street parking.

After today's free Doors Open event, group tours of up to five people, with a demonstration of the software, will take place Mondays, beginning Sept. 27 from 1 to 3 p.m. A \$20 donation per person is suggested. Evening and weekend appointments can be requested. For information or to book tours, contact Cheryl Evans at 519-603-0323.

- For Doors Open information, phone 519-747-5139 or visit [www](http://www.region.waterloo.on.ca/doorsopen).

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Robert Wilson/Record staff Cheryl Evans, REEP House outreach officer, poses with an insulation display.



Robert Wilson/Record staff The REEP House is a century-old Kitchener house with green upgrades.



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Robert Wilson/Record staff  
Ben Barclay, project manager, demonstrates how water will soak into the eco-friendly engineered driveway.