

# Home Designed to be Greenest Certified in Nova Scotia

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Local home design/builder, Natalie Leonard of Passive House E-Design, has a lofty goal for her latest project. She is setting her sights on building what may be the Greenest Certified house in Nova Scotia. Natalie's latest design is her third project using passive solar design principles and moving toward higher efficiency and green strategies.

In order to have the project completed by early autumn 2011, Natalie will be working hard on her ambitious list of goals. The home is targeting Passive House certification and LEED® Canada for Homes Gold certification. Passive House and LEED for Homes certification complement each other nicely. Passive House is the most ambitious energy conservation standard for buildings. LEED for Homes verifies that the construction of the home is environmentally responsible by offering third-party verification of broader green strategies, including energy-efficiency.

By achieving the German Passive House standard the heating costs are estimated at \$200/year. That's not a typo - \$200/year! This efficiency is achieved by conserving energy rather than generating energy via renewable technologies that are expensive to install and maintain. The Passive House approach makes the home's construction affordable by eliminating the need for a furnace and central heating system. Instead of spending money on expensive technology, dollars can be spent on insulation, which is virtuously maintenance-free.

This project is registered with the Canada Green Building Council and is pursuing LEED for Homes Gold certification, which includes green building strategies for energy-efficiency, superior indoor air quality, sustainable site practices, using local and recycled materials, construction waste reduction, and water use reduction. ThermalWise is offering LEED for Homes services on this project.

All of the home's energy costs are estimated to cost less than \$1000/year. These projects are made by entering extensive details including dimensions, building materials, mechanical systems and local climate data into German designed software that generates precise data for projected heat loss from the building and heat gain from the passive solar design.

The home's radiant electric heating is designed for the Nova Scotia Power Time of Use Service where power for heat is purchased by the homeowner at lower rates when demand is low. The heat is then stored for use during times of higher demand and higher rates. This service also allows the homeowner to use electricity at 50% of the normal rate during the weekends, great for doing laundry and cooking for the week ahead.

With the heating load reduced to this very low level, domestic hot water becomes the

largest energy consumption. The solar thermal roof-mounted domestic hot water system will reduce this energy by approximately 70%.

Once you have a super-insulated, airtight home, it is critical to provide a healthy amount of fresh air. This is done in the cold months using a high-efficiency ventilation system that recovers the heat from the exhaust air.

What is most impressive is that all of this green doesn't compromise the style of the house or the quality of the finishes. One of the myths Natalie wants to disprove with this demonstration project is, "that energy-efficient, green homes don't have to look like a spaceship crashed into the side of mountain". Any style house can be energy-efficient and green. Natalie has chosen to build a one-storey, open-concept bungalow, which is a more challenging shape than a standard two storey house to further prove the energy-efficiency possibilities.

### **Why would Natalie go to all this extra trouble to make sure the home is built in a sustainable way?**

As the first Certified Passive House Consultant in Canada, Natalie is dedicated to promoting the Passive House Concept in Canada and creating cost-effective, beautiful, ultra-low energy homes for the future. She is committed to reducing the energy in our homes both for the good of the planet and to create energy security for homeowners in the future. Energy rates will certainly rise over the next ten years. In the UK, where electricity rates are almost three times higher than here, there is already a term known as, "fuel poverty" for people that can't afford to heat their home.

Broader green strategies are also very important to Natalie. With firsthand experience seeing the health impacts that toxic finishing can have on homeowners, Natalie has embraced the LEED Canada for Homes Rating System. "LEED for Homes certification offers homebuyers and homeowners the assurance that green claims made by the builder are in fact verified on site by a third-party," says Natalie.

Project website: [www.hawkinshouse.ca](http://www.hawkinshouse.ca)