

12 new winners in energy-friendly home design



CMCH Chair, Dino Chiesa (from left) Monte Solberg; Karen Kinsley; and Jacques Gourde, in Ottawa, Feb. 13, 2007, view the designs of the 12 Canadian homebuilder teams that won CMHC's Equilibrium sustainable housing competition. (PR / CMHC)

David Akin, CTV News

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A plan to turn a tiny Second World War-era home into a heat-saving, water-saving machine is one of twelve winners in a national contest for homebuilders to design energy-efficient homes.

[The Now House Project](#), and every other winner, each received \$50,000 in the contest, sponsored by the [Canada Mortgage and Housing Corporation](#), the federal government housing agency.

Lorraine Gauthier and her firm [Work Worth Doing](#) of Toronto led a team that researched and designed an energy retrofit of a home built in 1946. The home, in the Topham Gardens neighbourhood in Toronto, was typical of the more than 1 million homes built by the Wartime Housing Corporation in Canada during and shortly after the Second World War. The Wartime Housing Corporation would eventually grow into the Canada Mortgage and Housing Corporation.

Among other things, Work Worth Doing's proposal will cut greenhouse gas emissions from the 600-square foot home by nearly two-thirds, from 9.7 tonnes

a year down to 3.72 tonnes.

The home will also be a 'zero-energy' home, a phrase that means the home will create enough surplus energy, though the use of solar power, that the homeowner can sell power back to the local utility and that revenue will offset the annual bill needed to purchase the natural gas which heats the home.

Gauthier said one of the key design parameters of the project is that it would be repeatable, that with the difficult design work done, the owners of the million other homes like it in Canada could get going on their own retrofit programs.

"Our whole approach is to find a way to put a simple formula in the hands of the homeowners," Gauthier said."

As part of the rules of the CMHC competition, each homebuilder must now complete the construction of their project by the end of the calendar year. And, then once the project is complete, each homebuilder or homeowner must open their property for public tours for at least six months in 2008.

Here's a quick summary of some of the other winners in CMHC's "Equilibrium" Healthy Housing Initiative with links to more on each project. The information in this section is drawn from a CMHC backgrounder:

QUEBEC

[EcoCité-Sodero](#) -- Verdun

The "Abondance Montréal" project is a triplex using a design that will draw energy from several sources including a GeoExchange heat pump system, photovoltaic panels, and solar thermal vacuum tubes. It features toilets that run on captured rainwater. The triplex will boast a total of 84 solar panels. The suites have been designed in great detail to maximize solar penetration -- for example, the refrigerator is located in a spot where it does not cast a shadow on the kitchen counter.

[Alouette Homes](#) -- Eastman

The Alouette Homes Equilibrium Initiative couples readily-available renewable energy technologies with energy-efficient construction techniques. The design focuses on using factory pre-engineered modular sections to reduce environmental impact at a rural building site. The home will be connected to the electrical grid using a net-metering system, allowing the eventual owner to "sell" excess electricity generated by the home's photovoltaic system to the grid. Space heating will provided by a combination of innovative strategies. The rural setting means all the home's water systems are completely self-contained.

[Team Montréal Zero](#) -- Hudson

"Equilibrium #1" is a single-family, detached house which will have a very air-tight and well-insulated building envelope. It will rely heavily on passive heating and cooling



Equilibrium #1 relies on



EcoCite is a triplex in Montreal, with 84 solar panels



Alouette Homes use modular sections and renewable energy technology

techniques to achieve its EQuilibrium target. In order to ensure air quality, careful consideration will be given to design and construction techniques that protect and enhance the indoor environment. A large portion of the site will remain undisturbed and act as a natural wildlife habitat.

passive heating and cooling techniques

ONTARIO

Ampas Architect -- Toronto

Ampas' "Sustainable Urbanism Initiative" proposal is made up of three townhouses to be built in Toronto's downtown Annex area. The townhouses will incorporate energy-efficient features such as spectrally selective window glazing. They will also showcase ground source heat pumps powered by electricity generated through photovoltaic cells covering the roof of each unit. The fact that the townhouses will be located in a part of town well-served by transit highlights two sustainable urban design imperatives -- reducing dependence on the automobile, and efficient use of existing infrastructure.



Sustainable Urbanism Initiative is all about location

Minto Manotick House -- Ottawa

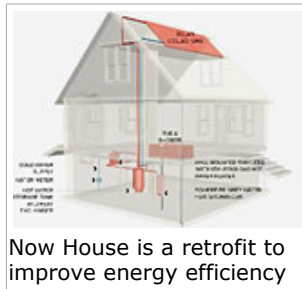
The "Minto Manotick House" will be located in the south-end of Ottawa. One of the most important features of the house is the high level of insulation in the building envelope including double-wall construction with strategically located triple-pane windows. The design incorporates several innovations, one of which is an "all-off" switch -- it not only turns off all lights, but all computers, cable boxes, amplifiers, etc. When the homeowners leave their home, they can be confident that a minimal amount of energy is being used.



The Minto Manotick House features an 'all-off' switch

Now House™ -- Toronto

Now House™ will take an existing post-World War II house in Toronto and retrofit it to meet EQuilibrium's goals. Insulation upgrades, new windows, Energy Star appliances, wastewater heat recovery, and solar panels are some of the ways the house's



Now House is a retrofit to improve energy efficiency

energy usage footprint and greenhouse gas emissions will be reduced. The larger goal of this plan is to demonstrate how homeowners and their local contractors can improve energy efficiency of older housing with a few simple but innovative modifications.

MANITOBA

Winnipeg Housing Rehabilitation Corporation -- Winnipeg

The Corporation's "Urban Ecology" design will build a semi-detached, environmentally-friendly development in an inner-city Winnipeg neighbourhood. The two units in the development will be fully adapted to Winnipeg's climate. This will require, for example, the units to have a combination of flat and pitched roofs so the photovoltaic system powering them can be snow-free in winter. The team is confident that high-efficiency appliances, low-flow fixtures and sustainable building materials present in the design make "Urban Ecology" an attractive and successful EQuilibrium demonstration project.



This inner-city home is designed for the cold climate

SASKATCHEWAN

Nexus Solar Corporation -- North Battleford

The Nexus Solar and Battlefords Tribal Council project "YIPI!" (YIPI! stands for Yellowhead Innovation Park Inc.) will take advantage of Saskatchewan's sunny climate for solar power. Its healthy features include the use of low-toxicity construction materials. Nexus has also incorporated innovative refrigeration and clothes drying technologies into the YIPI! Project, as well as factory-built construction that will ensure consistently high quality, affordability, and easy on-line ordering. To help increase consumer awareness of EQuilibrium design objectives, Nexus will locate the project next to a major highway.

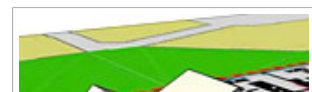


Nexus will take advantage of solar power features

ALBERTA

Avalon Master Builder -- Red Deer

"Discovery III" is the name of Avalon Master Builder's EQuilibrium submission. This grid-tied solar home will produce as much energy as it uses annually. It will



also feature a grey-water recycling system to reduce the home's reliance on the municipal water system. To boost the home's overall resource efficiency, its innovative wall and window systems will reduce space-heating requirements. The home will also use solar systems to preheat air and water. The design builds on Avalon's ongoing work to deliver resource-efficient homes to customers.

Canadian Housing Energy Sustainable Solutions (CHESS) -- Red Deer

CHESS' "Equilibrium Concept Home" is customized for Central Alberta's climate and pays close attention to the issue of resource efficiency. Not only will 65 per cent of the construction waste generated by the home be recycled, but many of the materials used to build it can be re-used when the home is eventually demolished. The home is also intended to evolve with the owner's needs. For example, an optional second floor can be developed to accommodate a growing family. Later in life, the main floor can easily be adapted to be barrier-free.



Chess makes innovative use of construction materials



Discovery III has innovative wall and window systems

Echo-Logic Land Corporation -- Calgary

The "Echo Haven" project covers the construction of 25 community homes in Calgary with other features such as a greenhouse and a community building with guest accommodation and work-at-home office.



Special plumbing features in the Echo Haven project

The design of the homes will demonstrate healthy and durable materials, rain water harvesting, composting or low-flush toilets and site-sensitive orientation to maximize both solar exposure and integration with surrounding nature.

Habitat Studio & Workshop Ltd. -- Edmonton

The goal of Habitat's "Riverdale" project is to prove that it is possible to build houses that foster a high quality of life while also reducing greenhouse gas production and environmental impact. "Riverdale" involves the construction of an Equilibrium-compliant energy duplex, which will produce as much energy as it consumes through a combination of use of rigorous energy conservation, energy efficiency measures and the use of renewable energy sources. The materials used to build the home will include regionally-produced lumber and recycled newspaper. "Riverdale" will be located in downtown Edmonton.



The Riverdale project works with the surrounding environment