



Better Choices
Better Homes
Better Lives

Eco-Solar Home Tour – 2010

Saturday, June 5, noon to 4pm

Site #5: Belgravia NetZero Energy House

Address: 11435 77 Avenue, Edmonton
Hosts: Bob Heath (homeowner)
Parking: available on street. McKernan LRT station is 1 block away.
Rating: (modified) EnerGuide rating: 100+

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www.climatechange
central.com



**Solar Energy Society
of Canada Inc.**
Northern Alberta Chapter
www.solaralberta.ca



www.cmhc.ca



A. Net zero energy housing – progressing towards affordability for everyone!

- Imagine...
 - a beautiful stylish comfortable house
 - generating your own electricity, space heating and hot water heating
 - ultra comfort and indoor air quality
 - ultra quiet
 - ultra secure energy supply and energy costs
 - no furnace, no natural gas bill
 - very simple technologies, simple operation...
- “Net zero energy” means generating the same amount of electricity and heat over the year as you consume... this is Edmonton’s 2nd net zero energy house.
- Extra cost is now down to around \$60,000 over standard construction, after receiving Alberta’s leading-edge \$10,000 incentive for ultra efficient homes rated at a minimum of EnerGuide 86

- Find out lots of information about net zero housing at www.greenedmonton.ca, www.riverdalenetzero.ca and www.hme.ca.
- The house is under construction. Come and speak with the homeowner to see what is his rationale for making these choices in his house.
- Experts are on site to explain everything and answer your questions. Find out about the wall construction details and how to easily use them on your new home. See how solar energy systems are becoming simpler and less expensive.

B. Why this house is on the Eco-Solar Home Tour...

- To demonstrate how normal commercially-available products can be designed and integrated to produce a house with net zero energy consumption, net zero greenhouse gas emissions, no natural gas bill, and high levels of comfort, energy security and quietness.
- To empower people to take ideas from the house to use on their own new house or retrofit projects.

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Note: Items with a "→" symbol here are presented on the Tour.
"❖" will not be presented. "•" are information points.



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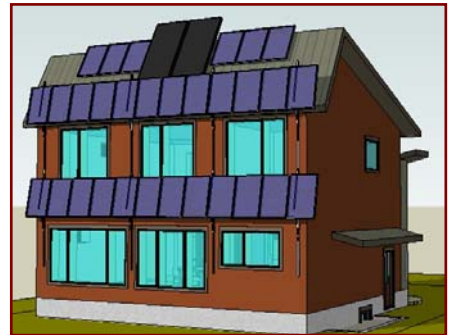
C. Net zero energy plus much more...

- Based on Canada Mortgage and Housing Corporation's world-class EQuilibrium Sustainable Housing Initiative, which focuses on: www.equilibriumhousing.ca
 - affordability
 - energy efficiency
 - water efficiency
 - indoor air quality
 - health
 - sustainable materials
 - management of water and air emissions
 - renewable energy
- Saves ~16,000 kg of greenhouse gas emissions annually
- ➔ House is integrated into walk ways, bicycle ways, and nearby low-emission McKernan station LRT.
- ➔ Incorporates a cold room for enhanced long-term low-energy food storage to accommodate a 10-metre diet

Amount of energy produced by the house (kWh per year)	
Passive solar heating	8600
Solar electricity	9900

D. Features that save on space heating and hot water heating costs

- ❖ 65% savings in heating consumption. Can heat the house with the equivalent of 7 hair dryers at midnight at -32°C.
- ❖ Ultra-high insulation levels: walls (R-56), ceiling (R-90), floor (R-24)
- ❖ Ultra-tight air leakage (expected to reach 0.4 air changes per hour, compared to 4 to 7 AC/h for an average house)
- ➔ High-efficiency air heat-recovery ventilator provides fresh air to each room
- ➔ High performance, high solar gain Duxton windows, which provide 60% of the house's wintertime space heating
- ➔ High thermal mass concrete floors to store passive solar heat
- ➔ Simple heat distribution system using electric baseboards
- ➔ Drain water heat recovery unit recovers 50% of shower water heat
- No need for natural gas line means saving \$520 per year in natural gas grid-connection fees in 2010 in Edmonton.



E. Features that save on electricity costs

- ➔ Electrically-efficient appliances, motors, lighting, natural daylighting, and control of phantom electrical loads save 50% on electricity costs
- ➔ 36-module, high efficiency, very simple 7.7 kW solar electric system
 - generates more electricity than the house consumes per year
 - provides all the additional space and hot water heating
 - 24 modules of the solar array are mounted on a tilt-able awning to increase the solar electricity generated both in summer and winter plus provide important shading for the south windows in the summer and autumn. The awning is due to be installed later in the summer.
- \$0 to \$100 net electricity bill per year results from being credited for surplus electricity fed back into the grid, which reduces the \$229 annual electrical-grid connection charges in Edmonton.

F. Features that save 75% on cold and hot water costs

- ➔ Ultra low flush toilets, shower heads, faucets, clothes washer, dishwasher, and rainwater collection for toilet flushing
- ➔ Low-water, high-eat landscaping will be installed.

Our Eco-Solar Contacts and Services List of web sites and companies can help you find information and resources for your own eco-solar actions... Download from (www.ecosolar.ca/links.html).