Eco-Solar Home Tour – 2011

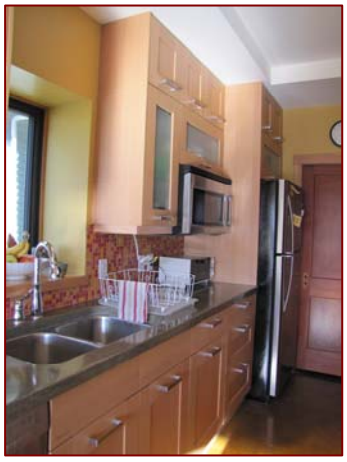
Saturday, June 4, noon to 4pm

Better Choices
Better Homes
Better Lives

Site #3: Mill Creek NetZero Energy House

Address: 9805 84 Avenue, Edmonton
Hosts: Conrad Nobert and Rechel Amores (homeowners)
Parking: available on street. Edmonton Transit is 2 short blocks away.
Rating: (modified) EnerGuide rating: 100+

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



- Imagine…
  - a beautiful stylish comfortable house
  - generating your own electricity, space heating and hot water heating
  - ultra comfort and fresh indoor air
  - ultra quiet
  - ultra-secure energy supply
  - no furnace, no noise, no natural gas bill, no need for concern about home energy costs
  - 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 only $60,000 over standard construction, after receiving Alberta's leading-edge $10,000 incentive for ultra-efficient homes rated at or more than EnerGuide 86

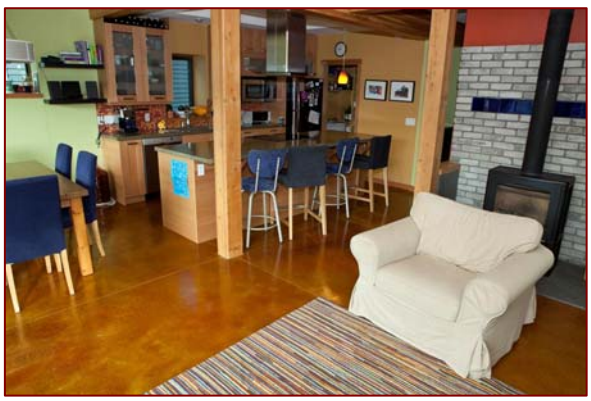
➔ Find out lots of information about the house at www.greenedmonton.ca and about net zero housing at www.riverdalenetzero.ca and www.hme.ca.

➔ The house has been occupied for over a year now. Come and speak with the homeowners to see what it is really like to own and live in a house like this.

➔ Experts are on site to explain everything and answer your questions.

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

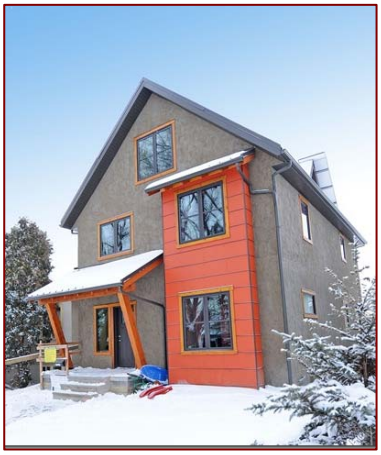
➔ To demonstrate how normal commercially-available products can be designed and integrated into a house so that the house has a net zero energy consumption, net zero greenhouse gas emissions, no natural gas bill, and high levels of comfort, energy security and quietness.



➔ To empower people to take ideas from the house to use on their own new house or retrofit projects.

(Continued on other side)

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



Eco-Solar Home Tour – 2011

Site #3: Mill Creek NetZero Energy Home

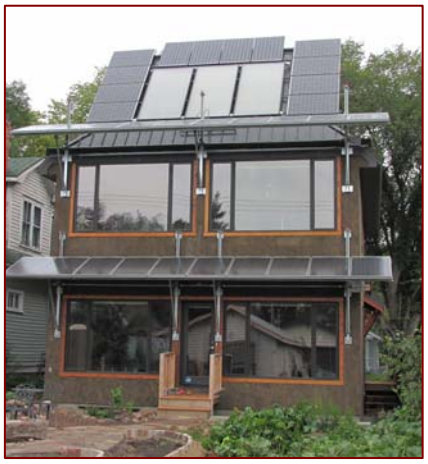
(Continued from other side)

C. Net zero energy plus much more…

- Based on Canada Mortgage and Housing Corporation's world-class EQuilibrium Sustainable Housing Initiative <www.equilibriumhousing.ca>, which focuses on:
  - affordability
  - health
  - energy efficiency
  - water efficiency
  - sustainable materials
  - indoor air quality
  - renewable energy
  - management of water and air emissions
- Saves ~16,000 kg of greenhouse gas emissions annually
- House is integrated into walk ways, bicycle ways, and nearby low-emission Edmonton Transit System

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

Amount of energy expected to be produced by the house (kWh per year)	
Passive solar heating	8300
Active solar heating	2500
Solar electricity	8000+



- ❖ 65% savings in heating consumption. Can heat the house with the equivalent of 8 hair dryers at midnight at -32°C.
- ❖ Ultra-high insulation levels: walls (R-56), ceiling (R-90), floor (R-24)
- ❖ Ultra-tight air leakage (tested at 0.36 air changes per hour (compared to 4 to 7 air changes per hour for an average house)
- ➔ High-efficiency air heat-recovery ventilator feeds fresh air to each room to ensure high-quality indoor air
- ➔ High performance, high solar-gain Duxton windows, provide 50% of wintertime space heating
- ➔ High thermal-mass concrete floors store heat from solar windows, provide summer cooling and even house air temperatures
- ➔ Very simple heat distribution system using electric baseboards, with small wood stove for heat security
- ➔ Innovative, simple, solar thermal domestic hot water system
- ➔ Drain water heat recovery unit recovers 50% of shower water heat
- No need for natural gas line saves $510 in annual gas connection fees

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
- ➔ 32-module, 6 kW solar electric system
  - expected to generate more electricity than the house uses in a year
  - 20 modules of the solar array are mounted on a tilt-able awning that increase the electricity generated both in summer (shallower tilt angle) and winter (higher tilt angle, no snow cover plus reflection off snow)
  - awnings provide heat and glare control for the south windows in summer and autumn
- surplus electricity fed back into the grid is credited to the electricity bill. Annual bill expected to be $50 to $200 per year after $248 annual electrical-grid connection charges.

F. Features that save on cold and hot water, and increase the quality and security of food

- ➔ Ultra low flush toilets, shower heads, faucets, clothes washer, dishwasher, rainwater collection save 75% on cold and hot water heating costs
- ➔ Low-water permaculture, highly-local, highly-edible, highly-nourishing, no herbicide, all-natural pesticide landscaping (formerly called "a garden")