



Eco-Solar Home Tour 2021

Sunday 13 June, 1:00 to 1:40 pm

Montgomery NNZ Home

4 Elements

www.4Elements.eco



innotech
windows + doors



SkyFireEnergy
Solar Energy Systems

Calgary



SOLAR
CLUB

Tour Day: Sunday 13 June
Time: 1:00 to 1:40 pm
Hosts: Homeowners
Energuide Rating: 29 GJ/yr

Summary points why people need to see your home

- Near net-zero
- All electric home
- PV & solar thermal
- Scandinavian design

What will people see and learn about at your home?

- The house performs at near net-zero with our habits and lifestyle
- The house is all-electric!
- We didn't do anything that out of the ordinary – just chose to spend more on mechanical systems and better windows/insulation instead of high-end finishes
- Operating costs are kept to a minimum, thanks to the significant energy production onsite

What are the main things people will see at your home?

- 7.6 kW PV system and 3 flat plate solar thermal collectors
- House orientation
- Strategic window placement and shading design

Are there main items that they can't see?

- Insulation is blown-in fibreglass in a double stud wall
- Passive solar heating in winter
- Appropriately designed shading for passive cooling in summer
- DWHR system in the mechanical room





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Why is this home on the tour?

Our goal in building this house was to be as sustainable and energy efficient as possible, within a budget, and to create a simple, small, uniquely designed home that fit with our lifestyle and growing family. The home is almost net zero (based on our lifestyle) with the addition of photovoltaic and solar thermal systems and significantly reduced energy requirements due to increased insulation, passive heating and cooling and triple glazed windows. Our behaviours significantly reduce energy consumption as well – we keep the heat low and don't use a dryer, for example. The house is small (but spacious), efficient, comfortable, bright, warm, welcoming and unique!



What features save on energy costs?

- 7.6 kW PV system (4.68kW on house roof, 2.92kW added to garage in 2018)
- Solar thermal system (3 flat plate collectors)
- Drain Water Heat Recovery system
- Passive solar heating in winter
- Shading for passive cooling in summer
- High efficiency wood stove
- Triple glazed low e fibreglass windows
- Double stud walls with blown in fibreglass insulation ~R40, Roof is ~R50
- Decent air tightness (1.7 ACH at 50Pa)
- ICF basement walls and insulated slab

What features save on water costs?

- Low flush toilets (3.0/4.8 lpf)
- Low flow showerheads (0.75gpm and 1.5gpm)
- Large rainwater cistern for garden watering (1200 L)
- On-site rainwater harvesting via permaculture design

Other special features

- Permaculture & food garden – the entire garden is permaculture and provides a bounty of produce throughout the summer! The strawberries are particularly productive.
- House is oriented directly south with a 45-degree roof pitch for optimal solar gain
- The house is all electric – there is no gas line
- No installed clothes dryer – everything is hung to dry
- Solar thermal system heats domestic hot water and hydronic in-floor heat in the basement
- Use, on average, 7-10 m³ of water per month, for a household of four. The average Calgary home uses 7m³ per person per month