



Eco-Solar Home Tour 2021

Sunday 13 June, 1:40 to 2:20 pm

Montgomery Passive House

4 Elements

www.4Elements.eco



innotech
windows + doors



SkyFireEnergy
Solar Energy Systems

Calgary



SOLAR
CLUB

Tour Day: Sunday 13 June
Time: 1:40 to 2:20 pm
Hosts: Homeowners /
Passive House Alberta
Energuide Rating: 42 GJ/yr



Summary points why people need to see your home

- This home combines passive house, solar generation, rainwater harvesting and permaculture

What will people see and learn about at your home?

- Envelope first approach to energy saving
- Application of the 5 principles of Passive House
- Electric resistance heating is often most cost effective once you reduce the demand by 80-90%
- Home as a means to meet your lifestyle goals
- Lessons learned from designing, building and living in a passive house for over 3 years
- How orientation and simple compact design affect energy efficiency

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

- Simple, Open floor plan
- Triple pane tilt and turn windows
- Zehnder ERV
- Permaculture landscaping
- Roof mounted; grid connected solar panel system

Are there main items that they can't see?

- Can't see the insulation behind the walls, but have photos
- Can't see the basement suite, but have photos





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Montgomery Passive House

Why is this home on the tour?

The Montgomery Passive House with Secondary suite is one of the first Calgary homes designed and built to the Passive House standard. The owner designed, built and occupied family home has a secondary suite in the basement, 7.2kW solar array on the roof, electric resistance heat, combi on-demand natural gas hot water heater for domestic hot water and hydronic space heating after the two Zehnder ERV units. The landscaping is a permaculture perennial food forest in the front and annual food beds in the back. Rainwater is captured and used for irrigation.



What features save on energy costs?

- The Air tightness is 0.3 ACH@50pa, current code min is 3.2 ACH@50pa
- R37 below slab and on foundation walls, R43 split insulated walls, R60 roof and R6+ triple pane tilt and turn windows
- Extensive south windows have high solar heat gain glass to supply up to 60% of homes heat demand, large overhangs minimize summer overheating
- LED lights used throughout
- Compact design and few corners reduce heat loss

What features save on water costs?

- Rainwater is used for exterior irrigation
- Low flow faucets and shower heads are used
- Even with 6 occupants working from home the average monthly water use is under 15 m³ per month, or under 100 L / person / day, less then half the Alberta average.

Are there any other special features you want to highlight?

- permaculture perennial food forest and annual raised food beds
- No garage, Prius V hybrid car is only family vehicle plus electric and pedal bikes
- Open floor plan that accommodates ageing in place
- Basement secondary suite provides stable income

