

HOMES

BRANCH MANAGER

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Les Wold is a managing partner at Effect Home Builders, an Edmonton-based company that builds energy-efficient and net-zero energy homes that can reduce the cost of home ownership.

BELGRAVIA HOME HAS ENERGY TO SPARE

Local company leads push toward low-carbon-footprint construction

RYAN GARNER

Rising heating and electricity costs and the new carbon tax have made energy consumption a priority for home builders and homeowners alike in recent years, but a Belgravia home built by a local company continues to lead the way in not only energy efficiency, but energy production.

In the simplest terms, a net-zero energy home produces as much energy as it consumes. Effect Home Builders constructed the Belgravia home in 2012 to demonstrate that a net-zero energy home was possible in Edmonton's climate. Since then the home, called Belgravia Green, has become a net-positive, generating a surplus of energy for three consecutive years.

"It has been unbelievably impressive," said the homeowner. "We have no gas bill and produce our own electricity, so our utility bills are next to nothing. When you look at our utility savings each month it is amazing how that reduces the cost of home ownership. Looking back it is obvious that it was a solid investment that directly contributes to a better environment."

A variety of building features help Belgravia Green achieve its remarkable energy efficiency. High-efficiency heat recovery ventilators draw in fresh air at a comfortable temperature, triple-pane windows keep cold air out,



A Belgravia net-zero energy home, built in 2012 by Effect Home Builders, has generated surplus energy for the last three years. That surplus electricity is fed back into the power grid and the homeowner receives a credit.

and a wood-burning stove picks up any heating slack during the winter months. The home's foundation has an insulation value of R-41, while 12-inch thick advanced

exterior wall systems achieve an insulation value of R-48. By comparison, the average fiberglass insulation has an R-value of anywhere from 21 from 26.

But two solar systems — active and passive — drive the home toward net-zero energy. The active solar system uses photovoltaic solar modules located on the south-

facing roof that capture sunlight and converts it to electricity. The passive solar system utilizes a concrete floor to absorb warmth from the sun and distribute it throughout the home.

"Passive solar is a very simple technology," said Les Wold, managing partner at Effect Home Builders.

"The home is designed to capture as much of the sun's energy as possible. Energy comes through windows and hits a thermal mass on the floor and releases that heat later on throughout the day. There aren't any moving parts, it just releases heat as it's needed and allows more natural light into the home."

The two solar systems combine to meet the home's energy requirements, and then some. Belgravia Green had generated a surplus of 4,800 kilowatt hours (kWh) by the end of 2014, achieved an additional 3,100 kWh in 2015, and had produced a surplus of 6,100 kWh through August 2016.

"When there's surplus energy, it's fed back into the grid, and the homeowner receives a credit for that," said Wold, who noted that various levels of government are exploring incentive programs. "We're thrilled with the way people are becoming more aware of this technology and buying into the concept. It really does make a difference in energy costs and the environment. And it's not just energy reduction benefits, but homes are quieter and more comfortable."

Building a custom, energy-efficient home from scratch costs approximately about seven to eight per cent more than a traditional home, depending on how expensive the solar electric system is. Of course, energy efficiency has cost benefits, as well as a boost to the home's resale value.

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