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**Effect Home Builders, Edmonton, Alberta**

# Belgravia Green Net Zero Project



*Les Wold (left), managing partner of Effect Home Builders, discusses Belgravia Green with local media.*

**BY JUDY PENZ SHELUK**

An innovative project in Edmonton’s Belgravia district is proving there is more than one path to sustainability when it comes to housing design. The development, known as Belgravia Green, consists of three homes built side-by-side along a quiet, tree-lined street in the University-area neighbourhood.

The 1500-square-foot middle house, at 11536-74 Avenue, is a show home for **Effect Home Builders**, an Edmonton company known for its energy efficient houses. Flanking it on either side are two privately owned custom homes. All three are designed to approach or achieve net-zero energy status, where a house produces as much energy throughout the year as it consumes.

“Over the years we’ve been continually pushing the envelope, building homes that are more and more energy efficient, and one of the big things we’ve learned is that there are multiple ways to approach building energy efficient homes,” said **LES WOLD**, managing partner, Effect Home Builders. “Belgravia Green brings together a lot of the experience we’ve gathered over the years into one project. There are three different homes and they are all reaching towards the same goal, but approaching it with different considerations and different technologies.”

### **A Cohesive Whole**

Collaboration was instrumental in pulling together the many disparate elements into a cohesive whole. Homeowners, local experts and Effect’s team met regularly to hammer out the best way to balance energy efficiency goals with the characteristics of the building sites, the needs of the owners, and the budgets they were working with. “Everybody had their laptops and we were bouncing ideas back and forth and really honing in on what was going to be best for the project,” said Wold.

Central to the discussion was the building envelope, the foundation of any energy efficient design. All three houses are built to be airtight, with highly efficient heat-recovery ventilation systems used to exchange stale indoor air with fresh outdoor air. The houses each have 10 centimetres of polystyrene under the basement slab to reduce heat loss, as well as three-paned windows filled with high R-value argon gas and three coats of Low Emissivity. Two of the

houses feature a 30 cm Nascor wall system that uses engineered wood and expanded polystyrene to achieve an insulation value of R-42, while the third uses 41 cm double stud wood frame to get to R-56.

### **Built-in Flexibility**

When it came to heating systems, Effect opted for three different heating systems, utilizing electric baseboard, geothermal, and air-source heat pump technologies. “The homes are also designed to take advantage of sunlight to passively warm the house,” said Wold. “The show home has a whole bank of windows on the south-facing wall and a concrete main floor that absorbs the sun’s heat and then slowly radiates it to supply 32 per cent of yearly heating for the home.”

Sunlight also supplies the electricity the show home needs to run its heating system, lights and appliances and to heat its hot water tanks via a 12 kW solar electric system. The modules are tied into Edmonton’s electricity distribution system, allowing the house to feed any excess output onto the grid and draw from it when the solar panels aren’t producing enough to meet the home’s demand.

The other two homes at Belgravia Green are also set up to install solar systems, although the decision about when has yet to be made. ► **29**



*The Effect homes have been successfully marketed with a mix of educational tours and media coverage.*

**16 ▶** “Flexibility is deliberately built into the design using ‘the simple tweak of having a conduit run from the mechanical room up to the roof’ to make it easy for homeowners to add the modules when their budgets allow,” said Wold.

### The Cost of Net Zero

Solar generation is only one part of the additional cost incurred when building net-zero. Wold estimates the cost is about 7-8 per cent more than a standard house to get these homes to net-zero ready, which includes everything but the solar component. “It’s manageable, and we’re constantly working to keep the cost down,” said Wold.

There is little doubt that interest in the kind of homes being built at Belgravia Green is growing. With electricity rates assumed to be \$0.08/kWh and gas at \$3 GJ the utility savings on the Belgravia Green Show Home (when compared to a standard built house) is approximately \$1,100 per year—without the solar-electric generation.



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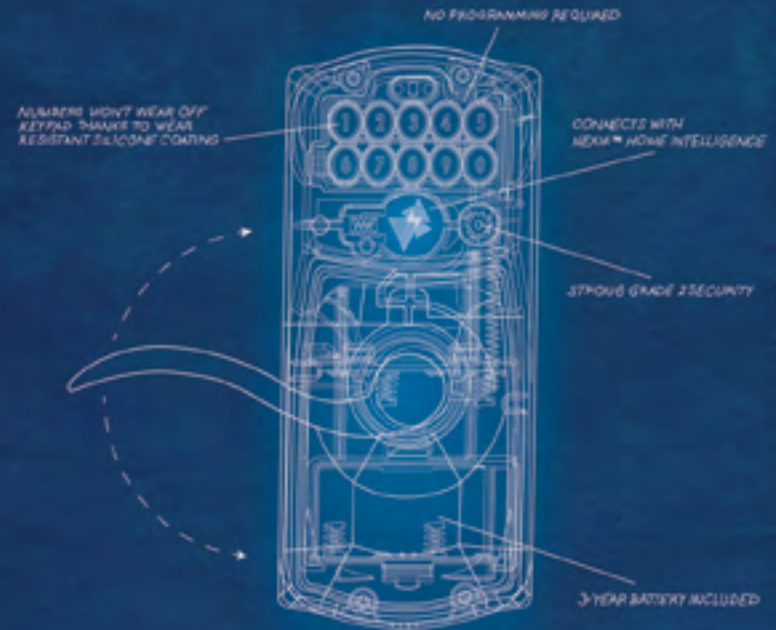
“Doing the math, to bring a 1,540 square foot house costing \$375,000 to Net Zero ready status would be approximately \$26,000,” said Wold. “If we are using \$1,100 in annual utility savings, the cost recovery payback period (with 5 per cent utility cost inflation), is approximately 15 years.”

### Selling Net Zero

The Effect homes have been successfully marketed with a mix of educational tours and media coverage. “Thousands of people have visited the homes,” said Wold. “Tours were arranged for elementary, high school and post-secondary student groups, teachers, gardening groups, provincial solar society, government departments, utility companies and local media.”

It worked. The project was given broad support with participation by the MLA, as well as the mayor of Edmonton, city councillors, community league executives, the neighbouring school principal, community members and the general public.

For more information and images, visit [www.effecthomes.ca](http://www.effecthomes.ca).



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