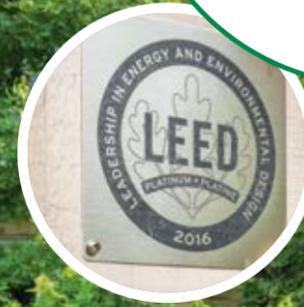




3

The house is built with recycled Ontario brick from a 110-year-old church. Gord says that the yellow brick helps the custom build fit in with the older homes in the neighbourhood. The driveway is made of pervious concrete, which allows water to run through the stone and out either side of the raised property.



4 The single glycol solar panel on the roof conducts energy to a heat pump in the mechanical room, which heats water before sending it to the floor and showers. The solar shingles generate more than enough electricity for the home over the course of a year and are an alternative to the typical Photo Voltaic (PV) panels in widespread use today.

5 At the front door, a LEED platinum plaque shines proudly. A LEED certification is awarded by the Canada Green Building Council, and stands for Leadership in Energy and Environmental Design. The platinum level is the highest rating on the LEED scale.

6 The exterior of the home is protected with what Gord calls the "Gore-Tex of building." The DuPont Tyvek Building Envelope is a full weather barrier system that ensures the house is kept safe from those strong Lake Huron winds, keeps water out but allows the home to breathe and dry out. The insulation levels of the main walls in the home have a thermal resistance level (R-Value) of R48 and the attic is R70. The single biggest waste of energy in homes is unwanted air leakage through holes in walls and attics. Derek worked very hard to ensure this home has minimal unwanted air leaks and the result is the most airtight house known in Canada with 0.19 ACH (air changes per hour) at 50 Pascals (Pa), as measured by a blower door test.

*Continued on page 56*

# THE LEADING EDGE

STORY **TAIGAN DANCE**  
PHOTOGRAPHY **SANDY MACKAY**

Southampton has always felt like home for **Gord Cooke** and his family. As an engineering consultant, and president of **Building Knowledge Canada Inc.**, Gord travels a lot for work – training, educating and lecturing about the importance of improving air quality and building energy-efficient homes.

Practicing what he preaches, Gord and his wife Linda started planning a custom cottage on an empty lot between Southampton's downtown core, the river and the shore. Local third generation builder **Derek Seaman** of **Seaman & Sons Builders** was the couple's first call. Gord had worked with the Seaman family for many years and knew they were familiar with the kind of R-2000 home he was looking to build. R-2000 homes are described by Natural Resources Canada as the "best-in-class energy-efficient homes that include high levels of insulation, clean air features and measures to help protect the environment."

Together, Derek, with architectural designer **John Peirson**, and the Cookes, set out to build a net-zero home (a home that only uses as much energy as it generates on site) with many sustainability features sure to provide a cosy, quiet retreat for family and friends.

## HERE ARE 20 IMPRESSIVE FACTS ABOUT THIS LEED CERTIFIED HOME:

1 Gord Cooke travels North America to speak at conferences with builders and provide on-site training sessions. When Linda and Gord are in Southampton, they enjoy entertaining friends and family and spending quality time with their grandson, Oliver, 2.

2 Derek Seaman has been framing homes since he was 13 years old, and, after graduating with a business degree from the University of Guelph, has been running the family business since 2002. Seaman & Sons Builders has been operating in Southampton since 1954. It is their impeccable attention to detail and commitment to learning the newest technologies and practices that sets them apart in their field.



Gord Cooke and Derek Seaman



**7** The flooring on the main level is an acid-washed epoxy-coated recycled slag concrete (**Extreme Linings and Coatings**) and is heated by solar-preheated circulating water. The beautiful blues in the flooring are reflected on the walls in the main living area, which are painted in the colour Pacific from the ECO Collection at **RONA Southampton**, which is all recycled paint and continues the marine theme the couple were hoping to achieve.

**8** A commissioned piece of stained glass welcomes people through the front door. Gord and Linda asked a local artist **Paul Villani** (who has since retired) to incorporate all of the themes they enjoy about the area into a transom for their new cottage – including the Chantry Island lighthouse and Southampton shoreline.

Since it is a secondary home, it is handy for Gord to be able to monitor and adjust the heat in the house through apps on his phone that are connected to the water heater and thermostat.



**9** All of the lighting in the cottage is 100 per cent LED, with fixtures from **BJS Electric**. Visitors are shocked at how quiet the appliances are, an added bonus of the high efficiency, top performing Energy Star qualified kitchen fixtures. A zero VOC (volatile organic compound) finish was used on the kitchen cabinets (The Bamco Group), instead of the oil-based lacquer that can be found on most kitchen cabinets.

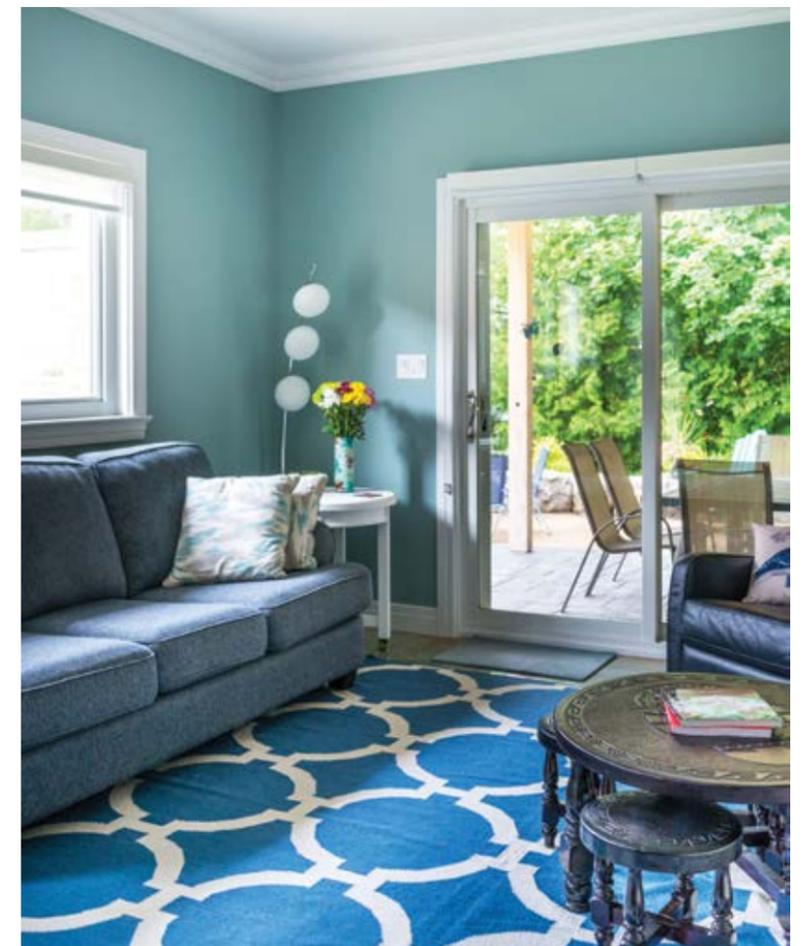
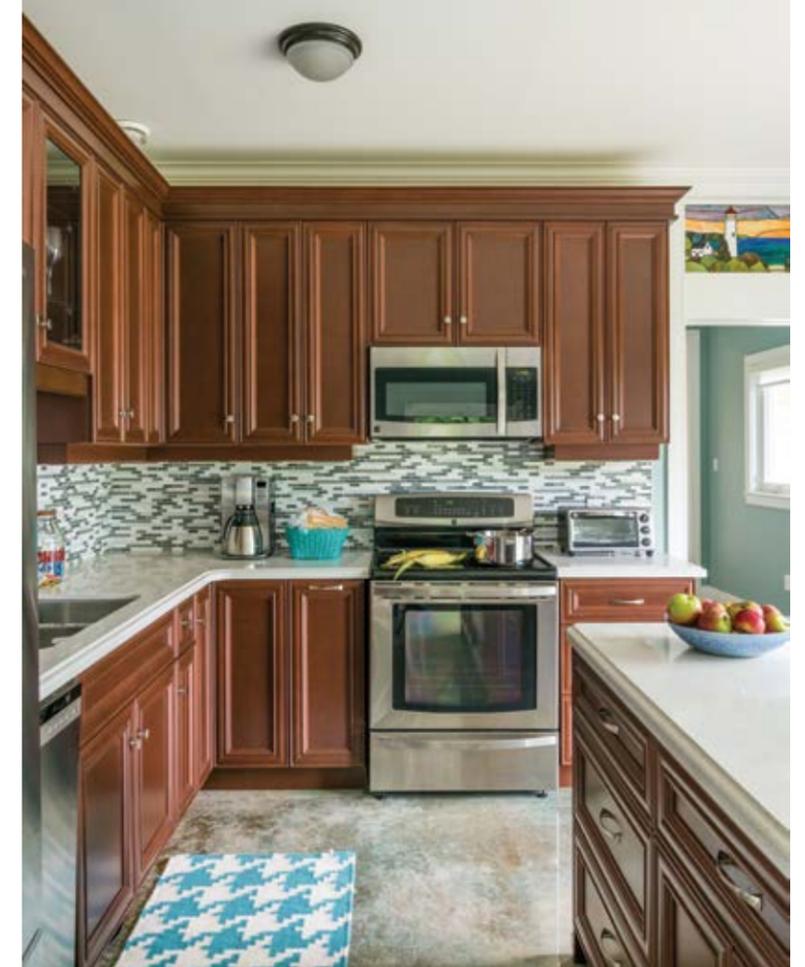
All of the glasses on this shelf were found in the sand during excavation and construction. Upon researching the lightbulb, Gord discovered that manufacturing was halted on this particular model in the 1940s – incredible that it is still intact!



**10** All of the windows (Armor Windows & Doors) are triple-glazed, designed to optimize the solar gains and losses related to heating and cooling the home. The south-facing windows have a higher solar gain coating to draw heat in during cooler months and the overhangs on these windows keep the heat out during warmer months, reducing the overall energy usage. North and east-facing windows are coated to minimize winter radiant heat losses and the west windows minimize solar gain. Window coverings from Blinds-to-Go.

**11** A cosy and welcoming living area walks out onto the back patio. The furniture in the living room was purchased from **Smitty's Fine Furniture** with TVs from **Square Deal Neil's TV & Appliances** and audio visual by **Advanced Technologies**.

Continued on page 58



**12** The Vetrazzo blue slab countertop in the main bathroom is made of recycled glass. A recirculation loop in the mechanical room ensures that water is not wasted waiting for warm water to wash hands at the sink. It does so by “trickling a little bit of hot water periodically so when you turn on the tap, hot water comes immediately,” Gord says.

**13** All of the toilets are dual flush, ultra low-flow and are flushed with rainwater that is collected in a 4,000-litre cistern underground in the backyard. The water in the eight-by-four foot cistern is collected from downspouts from the roof and is also used to irrigate the property as needed.



**14**

This is an H<sub>2</sub>Okinetic Delta showerhead. It sprays water in larger droplets that retain heat better. Water is sprayed in a wave pattern to give the user the illusion it uses more water than it actually does, while simultaneously spraying air, which helps maintain the pressure of a regular showerhead.



**15** Both bedrooms on the main floor feature custom built-ins for efficient storage. Gord says, “we’ve had people tell us they’ve never had a better night’s sleep than in this house.” He credits this to the fresh air he has running directly to each bedroom. In order to ventilate the air-tight house and still receive the benefits of air circulation from ventilation, a heat recovery ventilator (HRV) was installed to bring fresh air inside without having to open any windows. Fresh, cold air from outside comes through a duct across a heat exchange core to a high efficiency HEPA filter, and is warmed before delivering a little bit of fresh air to every bedroom. In the opposite direction, on the other side of the filter, exhaust air from the bathrooms and kitchen is passed across the other side of the heat exchange core, “the whole system recovers 85 per cent of waste heat,” Gord says. The furniture in the second floor bedroom was sourced from **Crate Designs Ltd.** *Continued on page 60*

**16** A sloped ceiling with exposed pine beams defines the 600 square foot upper level of the cottage. The coffee table in the sitting area is made from a slice of an oak trunk that was taken down at the Cookes' primary residence.



**17** Insulated storage and crawl space areas run the length of the living area upstairs (carpet from **Paul Eagleson Furniture Carpets & Bedding**). Behind one door is a playroom space that Gord finished for his grandson, Oliver. This upper-level floor acts as a guest space and bedroom for visitors.



**18** A small mechanical room is tucked away off the laundry room at the front of the house – and inside is where all the magic happens. The high-tech mechanics of this net-zero home really don't need that much space (**Bridge Plumbing & Heating**).

**19** Gord collaborated with other industry professionals to develop an app called *Construction Instruction* that is used by over 120,000 builders. It was designed for on-site learning for builders and tradespeople with videos that explain the technology behind energy-efficient builds.

INSULATION LEVELS	
Attic	R70
Main walls	R48
Windows	U=0.15 (R 6.7)
Under floor slab	R30
Concrete slab edge and frost wall	R30

**20** Gord explains that he has been solving mould issues in basements for years. Rather than include a basement, Gord and Linda opted for a slab on grade to avoid the complications that often occur with water damage (a significant issue for homes in Southampton). Around the back of the home, an outdoor entertaining area with furnishings from **Martin's Home Hardware** is anchored by an Ontario brick outdoor fireplace by **JR Masonry**. The surrounding landscape work was completed by **Ground Effects Landscapes**. OH



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