AN ECO-SUSTAINABLE *beauty*

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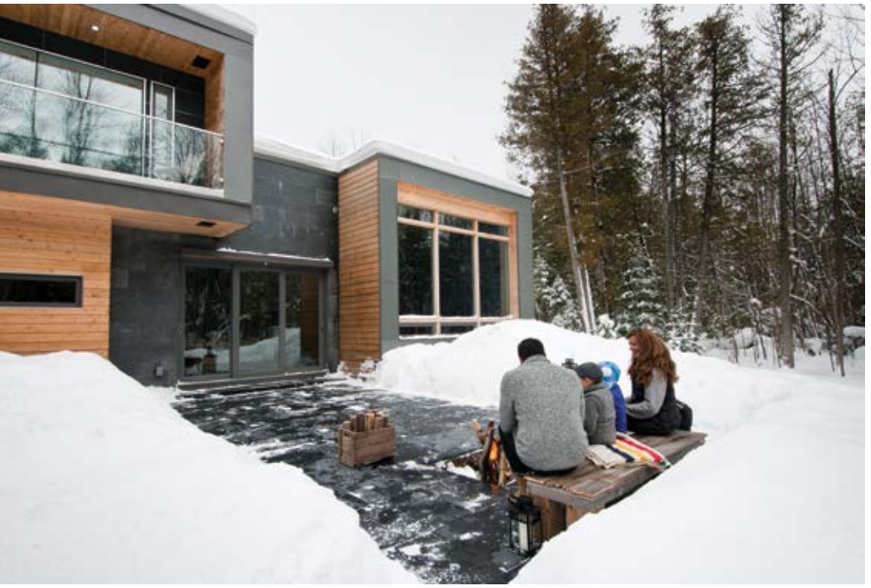
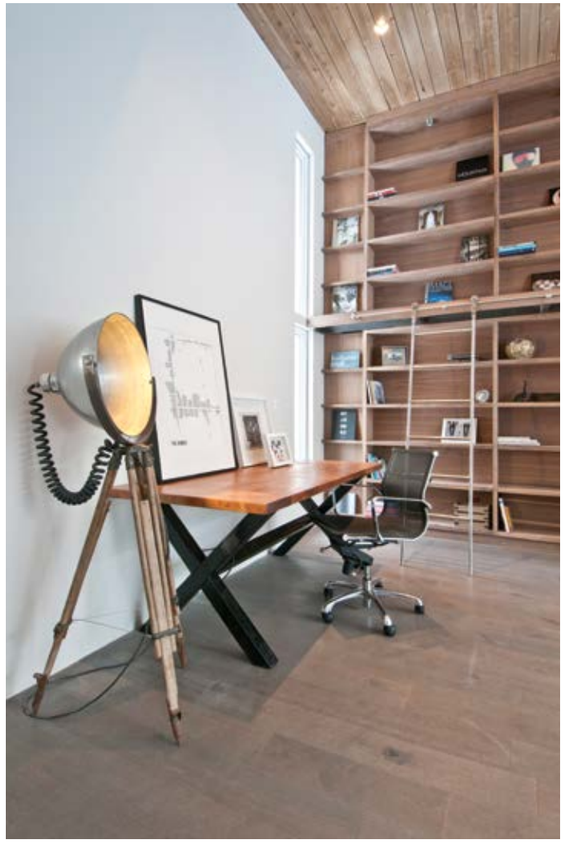
The Gabriel family enjoying the great outdoors. From left to right: Ben Gabriel, pup Dakota, daughter Hudson, son Jameson and wife Kirsten.



LEFT: With the help of his brother and a small team, Gabriel framed the entire home with formaldehyde-free engineered lumber. The eastern white cedar cladding was milled locally by Mennonites. **BELOW:** An open-concept library-office space was specifically designed to take advantage of the warmth generated by the stunning fireplace.



Ben Gabriel of **Northland Eco-Homes** builds in a modern, clean-lined style, an approach that distinguishes his company from the pack. That approach – more like a philosophy – is an adherence to sustainable principles wherever possible. His knowledge of these principles, materials and techniques is deep, and his dedication to them is obvious.

Gabriel has a background in millwork and architectural design. His interest in sustainable building and design came about initially through his family. "After being married and having children, I had a general shift in attitude – I started considering their future," he says. He also attributes the change to his wife, Kirsten, who is active in environmentalism. Today, Gabriel proudly upholds sustainable principles throughout all Northland projects.

The framing and the Oriented Strand Board (OSB) are made from Forest Stewardship Council-certified wood. (The OSB is made from pre-consumer recycled material.) "We don't want to promote any destruction of old-growth forests," says Gabriel. "No old-growth is cut as a result of any home that we build."

This home is a perfect example of the Northland building philosophy: at 2,600 sq. ft., it's spacious, but its footprint is conservative. Gabriel doesn't build big. "We're not looking to build multi-million dollar monstrosities. If someone came to me and asked me for one, I wouldn't be interested." His astute design sense makes more out of less.

The home has no basement. Gabriel prefers to design his homes without basements, considering that the area has such a high water table. Instead, under the engineered hardwood on the ground floor is a concrete slab underlain by R30 insulation reclaimed

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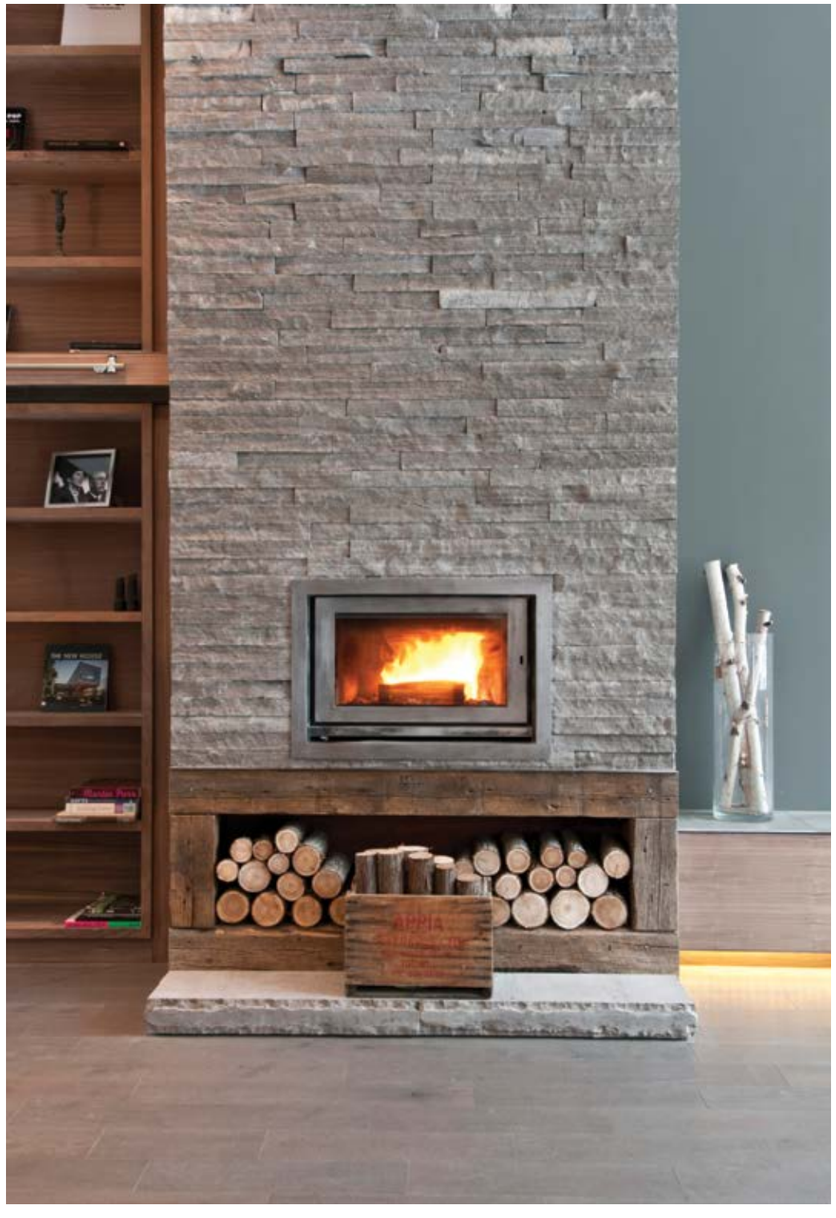
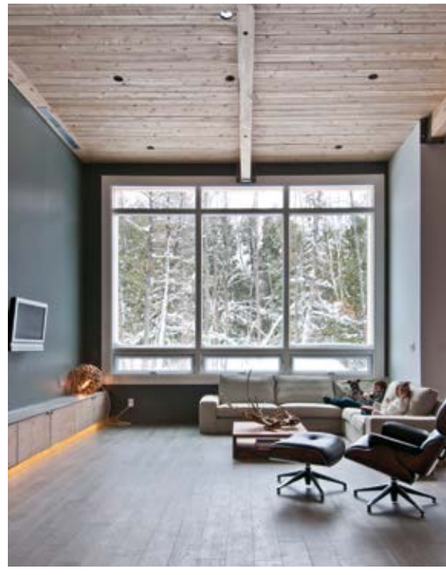
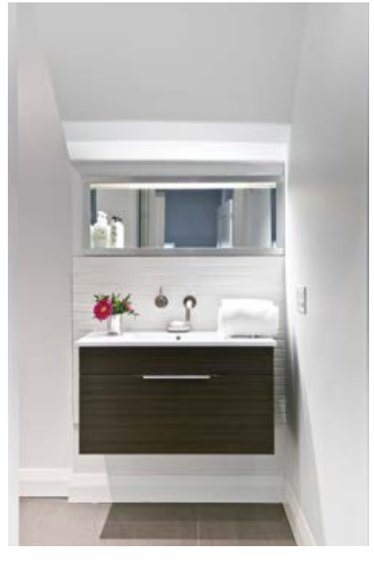
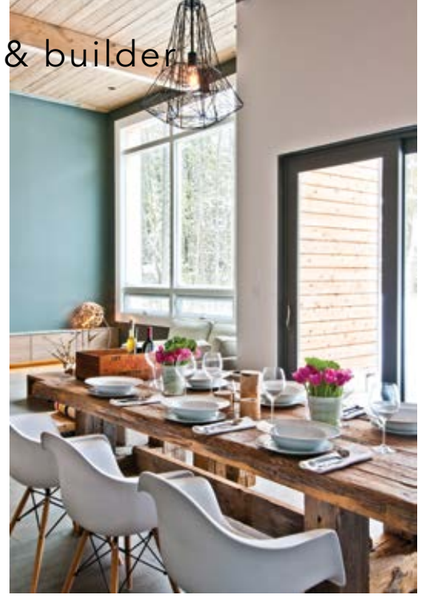
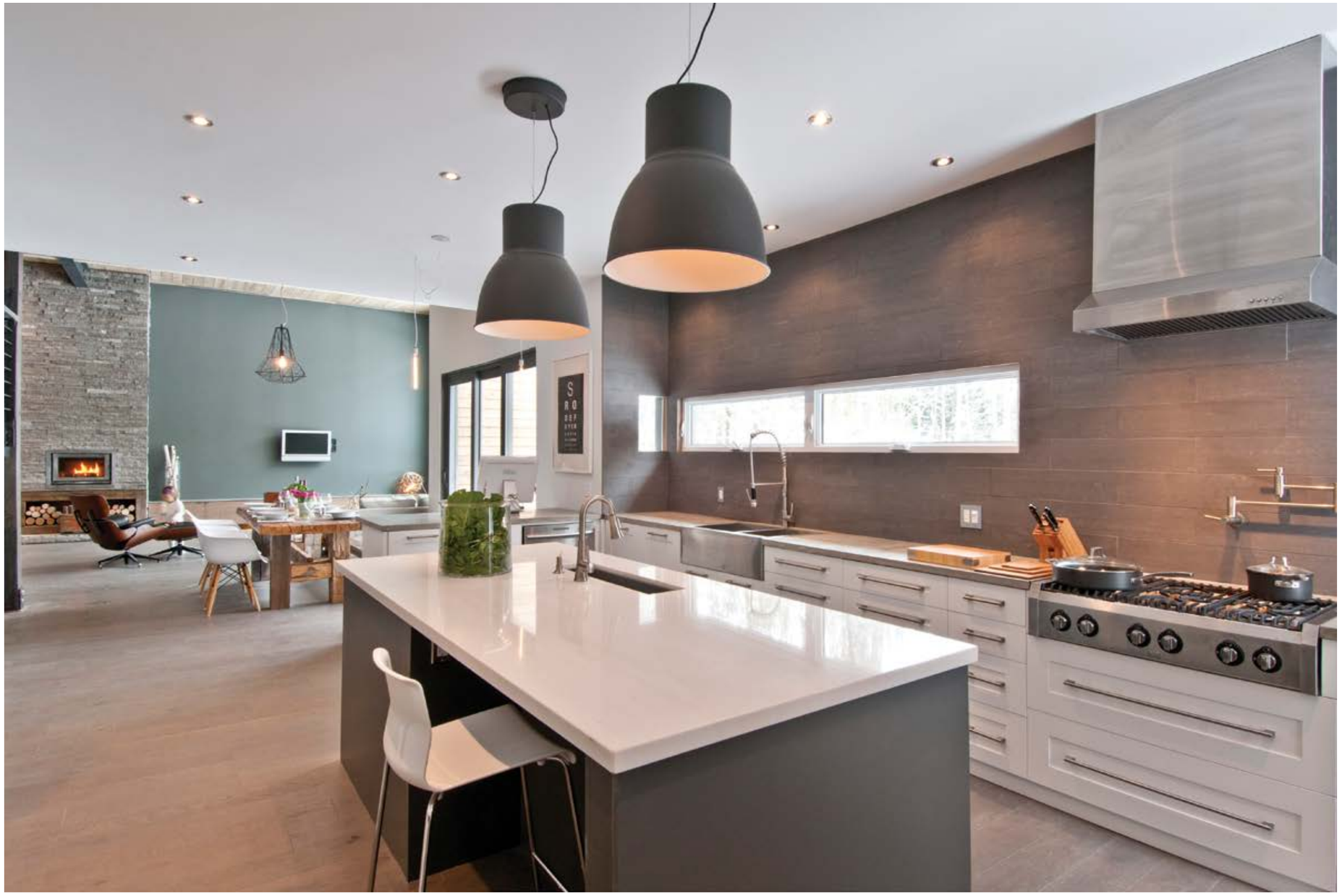


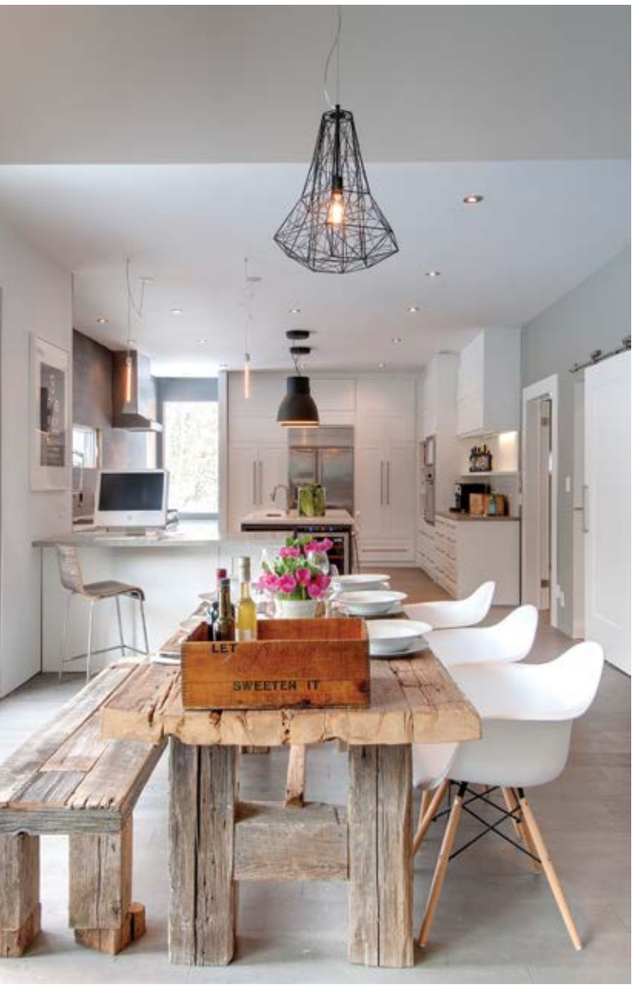
LEFT: The thermal mass of quartzite stone radiates plenty of heat from an airtight, high-efficiency Lennox wood-burning fireplace. Masonry by Aiden Mesh of Mesh Masonry. **BELOW:** Gabriel built all the frames for the triple-glazed windows, juxtaposing big sliders with narrow linear windows to play with the light. **BOTTOM:** Environmentally respectful water-borne formaldehyde-free paint was used throughout the home.











TOP LEFT: Gabriel describes this extremely efficient chalet as: "modern-rustic with a clean industrial aesthetic, everything a family of four would need in a relaxed, informal setting." **LEFT:** The builder meticulously dovetailed every solid maple cabinet and drawer in the kitchen, designed and made the exposed filament kitchen fixtures and installed highly efficient appliances. **ABOVE:** Northland Eco-Homes is grateful for the architectural planning and interior design assistance received from Cara McBride Design.

from factory demolitions. Between the insulation layer and the slab is an in-floor hydronics heating system. "The hydronics system is highly efficient," says Gabriel, "especially under a concrete slab, since you benefit from the principles of thermal mass – the slab provides radiant-conductive properties. If the system turns off, the slab continues to radiate heat."

That heat is well contained, since all exterior walls are a robust two-feet-by-eight-feet, compared to the standard two-feet-by-six-feet or two-feet-by-four-feet, "which means a greater amount of space to place insulation," explains Gabriel, "and it allows us to achieve an R30 rating, which is comparable to Insulating Concrete Form (ICF) construction, but at a reduced cost." The insulation is a hybrid system comprised of natural mineral wool (made from stone), soy-based spray foam, Greenguard certified blown-in fiberglass that is free of chemical

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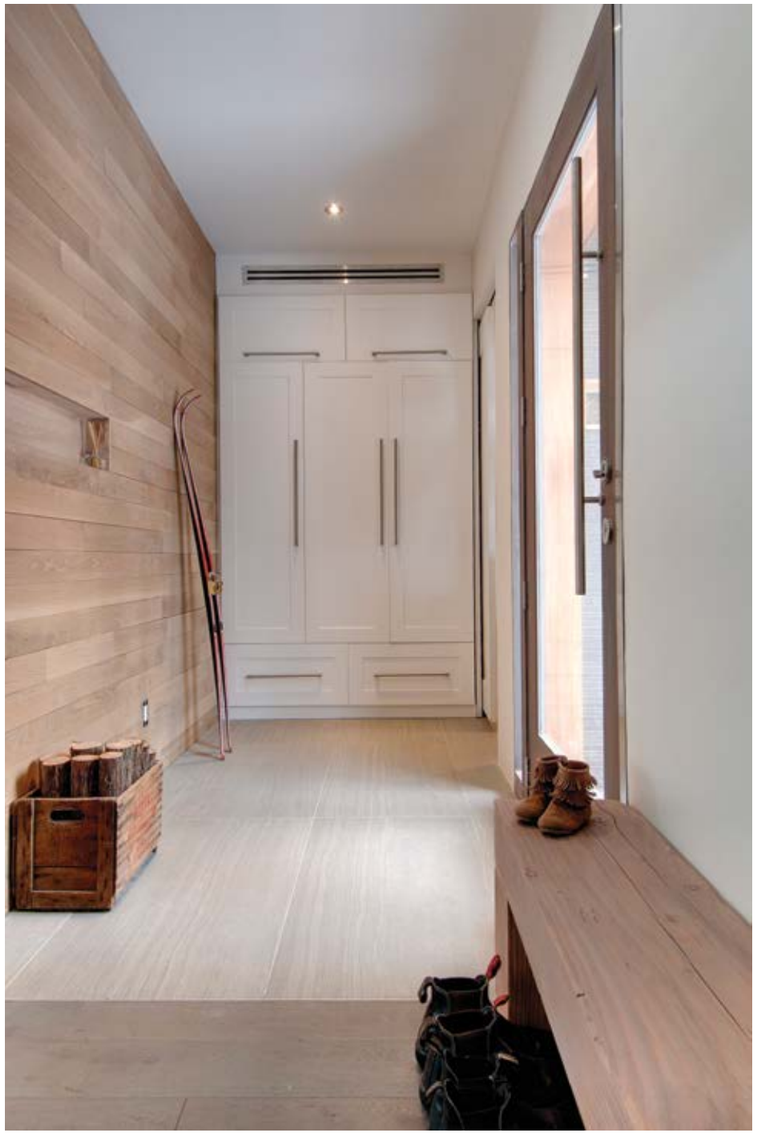
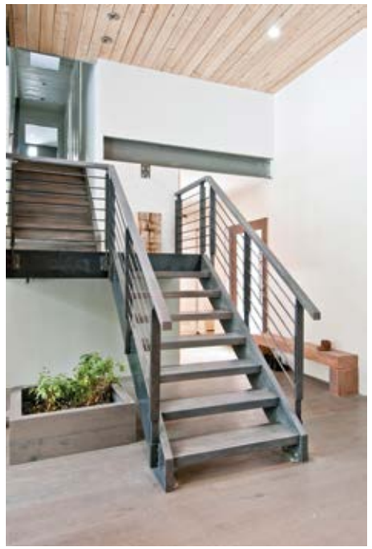
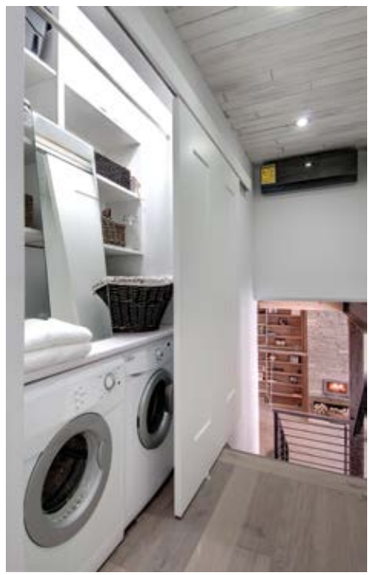


LEFT: Two-foot-by-eight-foot exterior walls create an ultra-quiet environment, lofty 16-foot ceilings highlight a spacious interior and engineered oak floors add texture. **BELOW:** Exposed I-beams and metal provide an industrial look. When mixed with other materials like wood and stone, they really warm up the space. **BOTTOM:** A neat laundry area is conveniently tucked away behind a sliding barn door on the second floor landing.





binding agents, as well as UltraTouch (post-consumer recycled denim insulation).

Gabriel proceeds to walk through what he calls the home's "passive inclusions," fundamental features that by their intrinsic structure serve to boost energy efficiency in all seasons. For example, the ground-floor concrete slab naturally cools the interior in summer; the windows are triple-glazed, with the highest Low-E rating for cooling, and placed to maximize airflow.

The gently sloped roof also provides multi-seasonal virtues. "For every foot of snow sitting up there, you gain R10 of insulation in the months that you need it, and it's free," Gabriel explains. "The low-parapet design with hidden slopes assists in natural offloading of the snow, so you never have more than two feet – even last winter when we had a huge amount of accumulation." In addition, the roof membrane – a composite material that features recycled content – is white, and therefore boasts a high-reflective value. Atop the garage, Gabriel installed a

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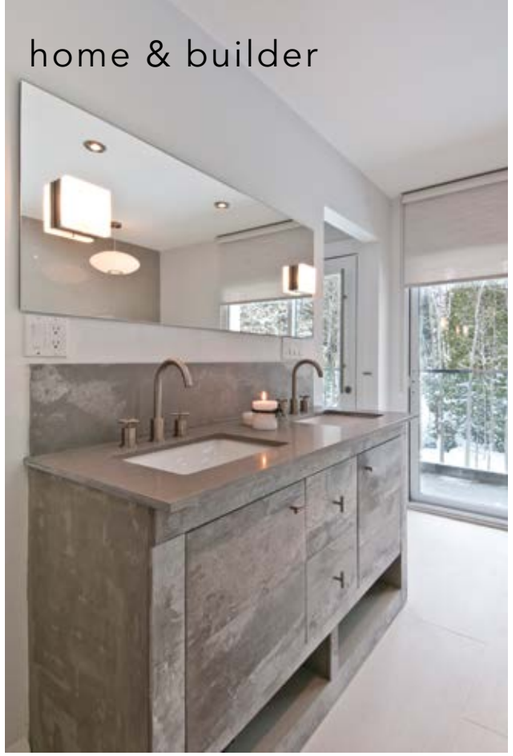

LEFT: Using eco-sustainable products, like this vanity, throughout the home, Gabriel hopes to carve a niche in the Southern Georgian Bay area by building more efficient green homes. **BELOW:** Custom glass railings and showers throughout the four-bedroom, three-bathroom home were created and installed by Tom Loughlin of All Glass Showers.

turnkey green roof. *And* Gabriel designs all his homes with at least a one-kW solar panel-loading capability on the roof (enough to power the small air conditioning (AC) unit upstairs; the load rating can support up to a 10 kW solar system if desired.) Clearly, a Northland roof is far from ordinary.

Due to the home's innate efficiency, the small AC unit is not often needed. And the Navien Combi-Boiler hydronic tankless heating system is smart. If you turn on a couple of showers and the unit can't keep up with the load, it will automatically send priority from the hydronics to the showers. To supplement the boiler is a high-efficiency wood-burning fireplace whose quartzite stone chase dominates the main floor. Rated to heat 3,000 sq. ft., this unit has a large secondary burn chamber that removes almost all emissions. The interior of the chase is

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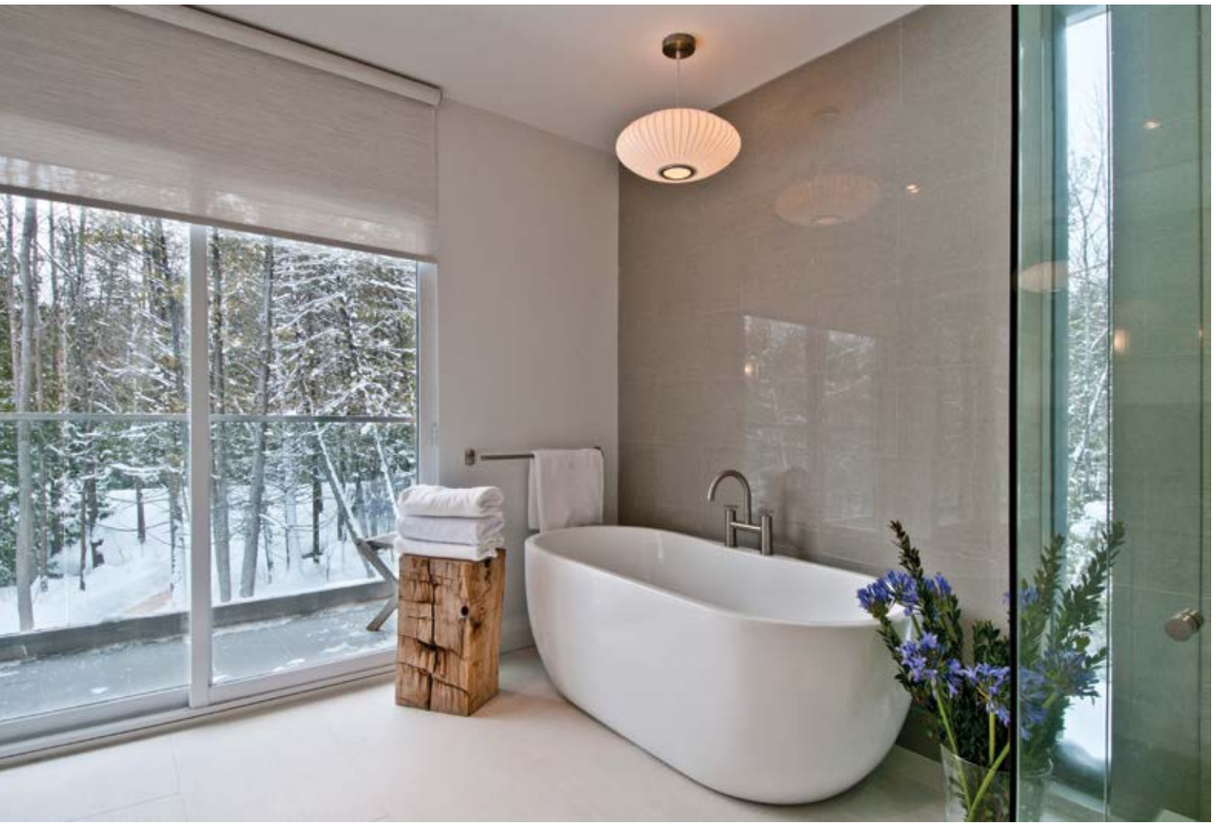

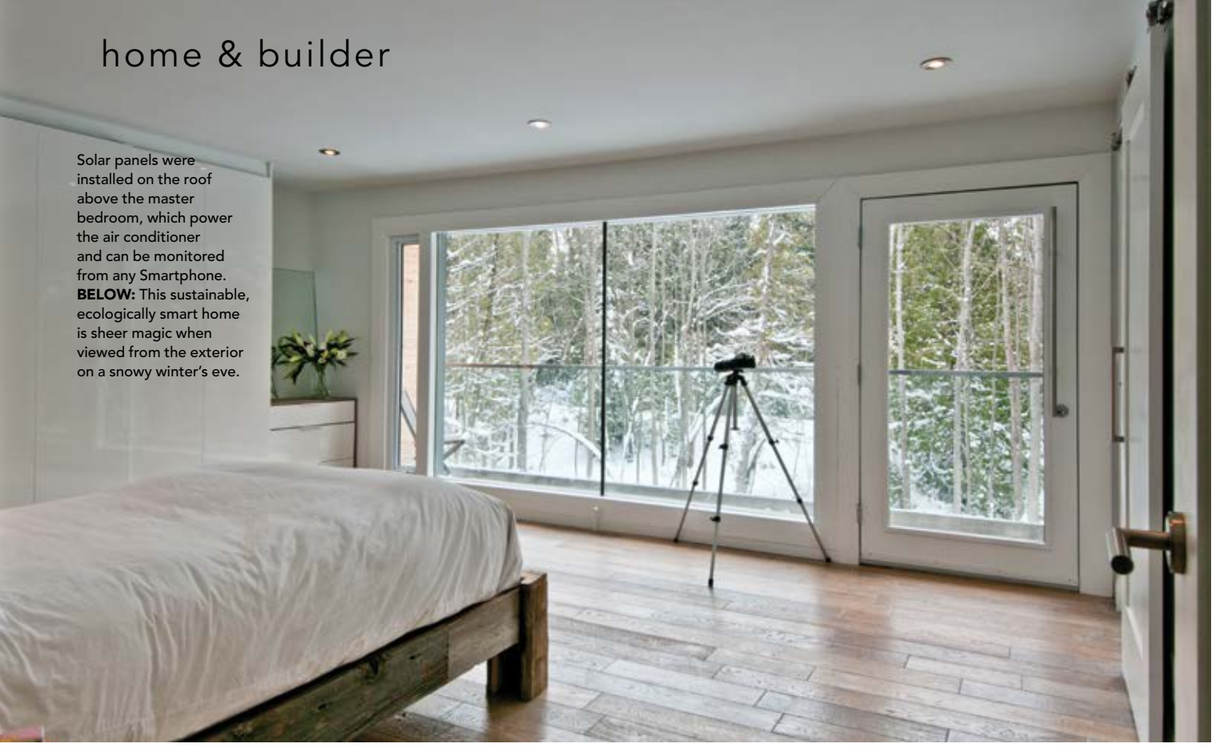

Solar panels were installed on the roof above the master bedroom, which power the air conditioner and can be monitored from any Smartphone. **BELOW:** This sustainable, ecologically smart home is sheer magic when viewed from the exterior on a snowy winter's eve.

piped with offsets to deliberately slow down the release of waste gases, so more heat radiates from the stone.

The exterior of the home features locally-sourced-and-milled eastern white cedar siding, and recycled sheet metal cladding. The eco-sustainable details are numerous, but unfortunately we don't have the space to cover them all. It will have to suffice to say that Ben Gabriel's company, Northland Eco-Homes, is filling a niche that will hopefully become a way of life in this region and beyond. **OH**

LOCAL SOURCE GUIDE

City Stone • DB Electric • Hudson-James & Co. • Northland Eco-Homes • Paperwhite Flowers • Tyson Purdy of Purdy's Mechanical • Shane Gabriel Carpentry • Skiis and Bikes • John Biggar of Sundial Solar PV • Peter Ferreira Carpentry • Jason Gobin of Weld-Done Fabrication

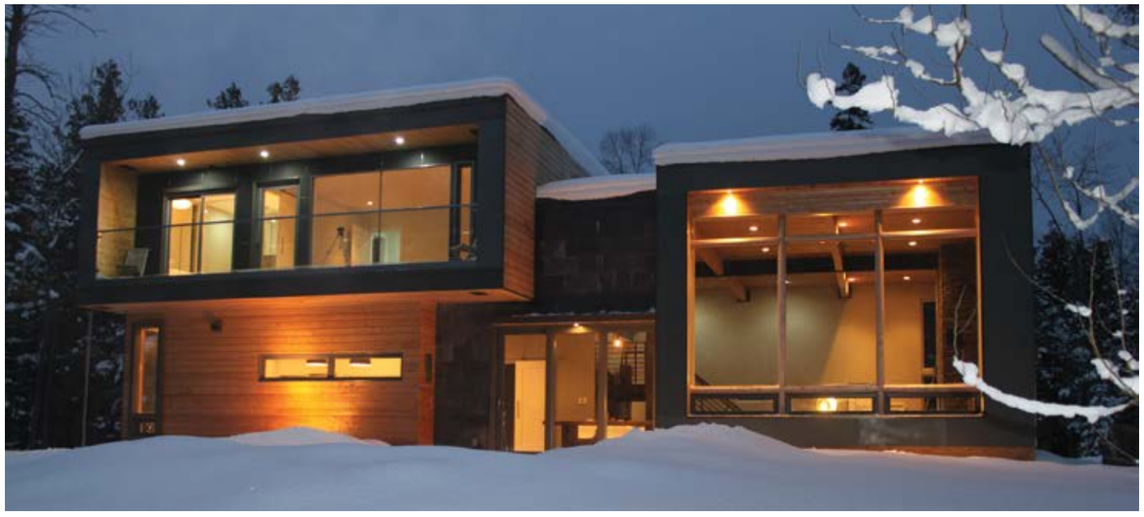

PHOTO BY BEN GABRIEL