THE SUSTAINABLE FUTURE

TODAY'S TRENDSETTERS PROVIDE A GLIMPSE INTO WHAT THE FUTURE HOLDS FOR HOUSING IN B.C.

BY NOA GLOUBERMAN

When it comes to residential construction these days, "sustainable" is one of those buzz words that gets thrown around without much thought about its meaning. But it's largely understood to mean homes that are energy efficient, healthy, green and affordable. And, given how mainstream the environmental movement has become in the last decade, it's hardly surprising that today's homebuyers are paying closer attention to what's coming up in sustainable home design.

Builders are following suit. In the energy arena alone, rising costs — both financial and environmental — have prompted the industry to start incorporating at least simple solutions, such as energy-efficient appliances, as a first step. And, as the going green movement continues to gain momentum, one can only assume the future of housing will continue on trend.

So what will sustainable homes look like 10, 20 years down the road? Several made-in-B.C. projects and local expertise serve as a crystal ball into the future steps of sustainable living.

GREEN BEGINNINGS

An award-winning property in Burnaby provides a shining example of what the future holds in eco-friendly development. Adera Development Corp.'s property at Southpoint Drive in south Burnaby, which is aptly named Green, is a collection of one-bedroom condos and two- and three-bedroom townhouses nestled between a 22-acre park and 80-acre forest. It was created with the mindset to promote energy conservation and provide healthy, sustainable living for families and the surrounding community.

"Green was the way the industry had to go," Adera president Norm Couttie has said in the past. The leader of the Vancouver-based firm foresaw the future colour of housing construction years ago and has been leading the way in sustainable real estate development since. "What I really believe in is 'practical' green," according to Couttie. "I am a big believer in practical, achievable approaches to doing things."

Eric Andreasen, Adera's vice-president of marketing and sales, agrees. "All of our projects are built with a high level of sustainability baked right into the DNA of our product," he says. "More and more, our entry-level buyers are looking to the future, so they recognize just what this means."

As a model of how to create housing with a sustainable focus, Adera's Green has garnered much attention for its small ecological footprint. At the Georgie Awards® this past March, for instance, the property nabbed top honours in four separate categories, including the Sustainable and Innovative Community Award and Built Green™ BC Builder of the Year.

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In fact, Green is the first multi-family residence in the province to achieve top-ranking gold status with Built Green Canada, the industry-driven program that promotes green building practices to reduce the environmental impact of development.

Accolades aside, what makes Green so … well … green? Besides utilizing locally sourced and recycled building products like lumber, drywall and insulation, Adera recycled various construction materials as the structures on the property went up.

It also includes a myriad of energy-saving products and innovations in its design. Beyond the basics — a solar-powered hot water preheat system, motion-activated faucets, low-flow aerators, Energy Star appliances and low-emission paints and carpeting — Green's architecture incorporates floor-to-ceiling glass to let in maximum daylight, plus Energy Star vinyl windows that are extremely efficient for retaining interior warmth while excluding exterior damp and cold.

It doesn't end there. The firm has turned things up a notch by throwing in a car co-op membership (plus purchasing six onsite car-share vehicles, including two hybrids) for all residents and making donations to rehabilitate and maintain neighbouring Byrne Creek. Finally, a rainwater collection system for irrigation of the landscaped gardens in the complex helps save water.

In terms of what this property says about the future of sustainable development, Andreasen notes that, while thinking about the environment is "simply, the right thing to do," it is also a smart thing to do as energy consumption costs will likely only get more expensive as time ticks on. So while the initial investment in building green may be higher than older building methods, a Built Green™-certified home like Green can save homeowners up to 35 per cent in energy consumption costs in the long run.

GREENER PASTURES

While Adera's Green is a cutting-edge example of sustainable living that's already in action (i.e., it's now selling!), there's another B.C. project that is pushing the sustainability envelope, this time in Sun Rivers, Kamloops, but it's still more dream than reality. The Green Dream Home is a unique partnership between the Canadian Home Builders' Association Central Interior and students from a variety of Thompson Rivers University (TRU) programs, including trade-entry and advanced technology pupils. The project's aim is to train a new generation of skilled home-building professionals by giving them the opportunity to help design and build a real, green home that is years ahead of what's readily available on the market today.

"TRU has had a partnership with the CHBA since 1990. For the past 13 years we have built 'Dream Homes,' purchased and raffled off by the local YMCA/YWCA," explains Hank Bangma, a construction trades instructor at the school. "Two years ago, we thought we would try something different, so someone suggested we look into the idea of building an EQuilibrium home."

Part of the Canadian Mortgage Housing Corporation's (CMHC) EQuilibrium Sustainable Housing Demonstration Initiative, such a home, he explains, can be likened to a "net-zero" residence that has absolutely no impact on energy consumption whatsoever. In other words, says Bangma, "the intent is that the home should be able to generate as much energy as it uses."

In order to accomplish such a feat, the university's school of advanced technologies and mathematics was brought into the fold. "The first-year design students were all asked to design a home for the project," Bangma explains. "Each design was evaluated by the building committee of the CHBA Central Interior and the plan by Jody Martens was selected."

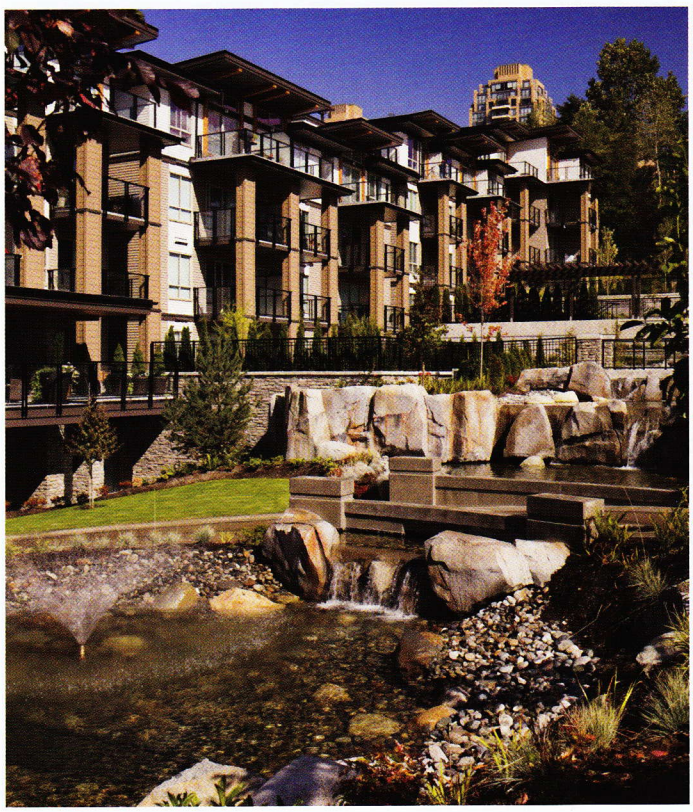
The concept for Martens' Green Dream Home net-zero design is as follows: reduce electrical demand through the use of efficient systems and effective envelope design, then produce the remaining energy required using grid-tied photovoltaic cells.

According to the official technical proposal to the CMHC, "This practical, comfortable and affordable home will be designed to fit comfortably into the neighbourhood. As such, we intend to show that the time for EQuilibrium housing has arrived. By featuring the five key principles of EQuilibrium housing [health, energy, resources, environment and affordability], this house will become a model for sustainable design and construction."

When asked about the net-zero components of the Green Dream Home, Bangma says that the position of the house on the lot is designed to also take full advantage of the winter sun. "With three-foot projections at the eave we are also blocking the direct sunlight during the hot summer months," he adds. "All this adds up to tremendous energy cost savings."

Further, the exterior walls of the home consist of eight inches of expanded polystyrene foam form filled with eight inches of concrete, and another two- and three-quarter inches of foam form on the inside face of the wall. "This allows us to use the thermal mass of the concrete to sustain our interior temperatures," Bangma explains.

Another green element of the residence is the geothermal technology used to heat and cool the house. "There are two solar panels mounted on the roof to assist with the hot water demand," Bangma says. "We have photovoltaic panels placed on the roof, as well as six bifacial photovoltaic panels used in the railing on the sundeck. The bifacial panels will accept heat reflected off the house and convert the heat into electricity.



GREEN: Adera Development Corp.'s Burnaby property, called Green, is an example of what the future holds in eco-friendly development. (Building exterior shown on opposite page.)

"There has been a lot of thought put into this house," he continues. "But it should be noted that this is a demonstration home. We have a long way to go to make a number of the ideas put into this home go mainstream."

GREEN FROM THE GROUND UP

But as the ideals of sustainability as a whole continue to become more and more mainstream, such ideas in residential construction need to follow suit. And Einar Halbig, CEO of Vancouver's E3 Eco Group, believes there is no time like the present for builders to start incorporating such sustainable practices before they break ground.

"There's a lot of focus right now on 'eco-friendly' and 'energy-saving' products that may be bought and installed after the fact," says Halbig, a certified EnerGuide evaluator for both new and existing homes. "When I flip through magazines I see many advertisements for sustainability products, but there are lots of opportunities to think about, 'Do I really need this product or this product or this product in my house?' before the home is actually constructed."

According to Halbig, products that promote residential sustainability and green living, like water reclaim systems, heat recovery systems and so on, need careful consideration during the design process — before construction begins.

"It's become a matter of taking a step back, going back to square one, which is the design process, and questioning if we really need all of these things in our homes," he explains. "It's like asking whether or not one residence really warrants five television sets, even if they're all Energy Star rated."

That's where certified energy evaluators like Halbig come in handy. "Rather than just relying on an architect who may or may not know much about sustainability, energy evaluators can help determine the necessity of certain items for maximum efficiency before the home is actually built," Halbig says. "Green shouldn't be an afterthought. Building first and then adding green 'bling' to new homes is where the cost goes through the roof. It's during the design process that we can do the looking, tweaking and adjusting that can help eliminate the unnecessary for truly sustainable living in every sense of the word, both environmental and financial."

In that case, the future of sustainable residential construction really starts today. ***BCHM***