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# Active Lifestyle

The architecture firm **superkül** and home builder **Great Gulf** create a prefab with a self-regulating indoor climate.

TEXT BY  
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**Like many cities around the Great Lakes,** Thorold in Ontario's wine country clenches its teeth through long, cold winters, but it's the climactic unpredictability that really rankles. For example, spring temperatures dip to 35 degrees Fahrenheit, clouds usurp sunny skies, and snow enters the mix. The Great Gulf Active House, in a new subdivision called Rolling Meadows, responds to these fluctuations and uses automation to cultivate a comfortable living environment.

The first of its kind in Canada, the prefabricated abode is the final result of a collaboration between Great Gulf, a home builder; **superkül**, a Toronto-based architecture firm; and the Active House Alliance, a European organization that seeks to create hyper-efficient living spaces. Conceived as a smart house from the ground up, this design deploys high- and low-tech features to forge the ne plus ultra of modern living.

Outside, the two-story, brick-and-cedar-clad house stands out as a contemporary interpretation of the surrounding homes. "The subdivision had design guidelines," says Andre D'Elia, a founding principal, with Meg Graham, of **superkül**. "It wasn't 'Thou shalt not'—but you could understand why all the houses look the way they do." The firm saw the prescribed peaked roof as an opportunity to create a dramatic cathedral cant, all the better to accommodate 14 skylights by Velux and two solar collectors for heating water. Inside, a vestibule with a low ceiling gives way to a soaring living area, blasted with sunshine and naturally ventilated thanks to the stack effect of the open plan, which draws cool air in as hot air rises. >

PROJECT  
Great Gulf Active House  
ARCHITECT  
**superkül**,  
[superkul.ca](http://superkul.ca)  
LOCATION  
Thorold, Ontario

Strategic site planning and smart technology help the 3,200-square-foot Great Gulf Active House achieve hyper-efficiency. The Toronto-based architecture firm, **superkül**, used triple-glazed windows; a solar hot water system; zoned heating; a fully automated HVAC system, skylights, and roller shades; LED lights; and spray foam insulation, among other green strategies.



PHOTO BY TORBEN ESKEROD





Motorized skylights by Velux, 14 in all, welcome natural light into the house (far left). Low-flow bathroom fixtures by Hansgrohe reduce water consumption (left). An underground cistern collects rainwater to irrigate the yard and rooftop solar collectors heat water for domestic use (below). The panelized wood structure was prefabricated to reduce construction time and material waste.

The brains of the operation occupy the basement. The app-controlled Somfy Tahoma Smart House System augments the indoor air quality and thermal performance of the 3,200-square-foot house by activating skylights, windows, and roller blinds, and regulating heating and cooling in response to the weather. If the house needs to “breathe,” Somfy Tahoma opens the motorized skylights and a number of the 23 windows. Great Gulf programmed the home so that if the outside temperature surpasses 77 degrees Fahrenheit, the automated system (remote-controlled, thanks to wireless radio technology) shuts the open windows and turns on the air conditioner. Customizable settings also allow the homeowner to roll down the blinds to minimize solar heat gain and glare.

The residence’s three levels are thermally zoned, with separate thermostats ensuring the high-efficiency HVAC system never works on overdrive (for example: warming the second-floor bedrooms when everyone’s in the kitchen). Two heat-recovery ventilators automatically kick in to treat intake air, boosting HVAC performance and replenishing fresh air throughout the house.

Just as the home rarely needs artificial lighting (studies ensured sunlight would penetrate into every corner), it also consumes 35 percent less fresh water than a similar residence, thanks to its rainwater

cistern. Renewable energy supplied by Bullfrog Power, a green utility, brings the house to full self-sufficiency.

This is no cookie-cutter builder’s special superkül sees it as a potential game changer in the suburban home development market. The firm is now working with Great Gulf on a second Active House, this

time in the Toronto borough of Etobicoke. “We see them as concept houses, except we’re building them for the real world,” says Christopher J. Wein, the president of Great Gulf. “There’s a segment of the population looking for energy-efficient homes with contemporary design and open spaces—I think you have to serve that market.” >

