## Living Genily on the Land A County couple finds

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IN-TERMA

A County couple finds it easy to be green.

## Words by Catherine Stutt Photography by Daniel Vaughan

It was, on the surface, as is perhaps typical of a bio medical researcher, a logical process – locate a solid investment property in an attractive tourism region close to home base in Toronto, build an energy efficient home, and enjoy it on weekends and holidays until retirement.

The charm of the destination soon made this much more than a rational experiment and the continuing journey quickly became a much more personal adventure for David and Louise BazettJones. After combing Prince Edward County for the perfect land, the couple had a rather daring introduction to the property where they would eventually build their retirement home.

Their realtor, Sandra Foreman, recalled the day they found the ideal property. "I wanted to show them every aspect so I drove along the adjacent secondary road for a close-up view. It was passable a few days earlier, but heavy rain turned the lane into a lake, completely covered with water from one side to the other. Afraid of losing traction and becoming mired, I gunned the borrowed pickup truck and we made it. David and Louise instantly broke into applause and laughter, and lauded my driving skills. I'm happy to say, they bought that property and we're still friends!"

Much of David and Louise's journey from The Beaches in Toronto, where they still maintain a condo until they fully retire, to their 85-acre haven at the eastern reach of the County was equally planned, and substantially less dramatic. property in this attractive tourism region was a target destination. David began reading about energy and living more intelligently with nature. He renewed his interest in architecture and a larger plan developed.

"We were fortunate to have a great realtor, and Sandy understood we were looking for specific features, not just an open field." Located on County Road 7 near an accessible beach, the property has 55 acres of cropland used by a neighbouring farmer, a bog, and a woodlot. The custom-built über-energy efficient 2,000 depending on the season the overhang of the roof either blocks or allows sun penetration to the polished concrete floor. "In the summer, the sunlight barely gets to the window sills, and last December 21, the sunlight reached the back wall of the great room," explained David, noting the floor as a heat sink is a key element to the efficiency of the home.

Solar collectors on the sun porch roof collect and pre-heat domestic hot water and the water for the 100 per cent efficient electric 12 kW boiler. In-floor radiant heat supplied by



David is a respected researcher at The Hospital for Sick Children and Louise is an English teacher. Their familiarity with the area came via sending their two children to music camp in Milford every summer. "We came to know the County well," laughed David. "I think we've been in every church and community hall for recitals."

For several years, David and Louise considered different ways of investing, and

square foot home is strategically placed on four acres of clear land where David is strongly considering working with a local beekeeper and planting clover or buckwheat to help the local bee population.

Set well back from the road, the home faces due south with a wall of triple-glazed argonfilled windows customized with a specific film to allow maximum solar gain. Deliberately calculated to work with the tilt of the Earth, the boiler is zoned and sensors engage a pump to regulate even temperatures throughout the home. A woodstove augments the heat, and as a result, the boiler rarely engages. "In winter, the boiler might come on one hour a day, but it we have the woodstove lit, it is far less frequent," said David.

The basis to this energy-efficient home is the building envelope, starting with the double stud exterior wall - a two by six load-bearing



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wall, and then a second wall built four inches inside of two by four studs. The cavity is filled with cellulose resulting in an R-50 value. The slab floor was prepped to provide R-30, and the ceiling with 19 inches of insulation has an R-70 value.

David and Louise trusted this intricate engineering to Solares Architecture – a Toronto firm with strong roots in the County. Started by architecture school classmates Christine Lolley and Tom Knezic after graduation, the business and life partners are dedicated to incorporating new standards of energy efficiency into each of their projects.

Getting Solares to accept the project was a challenge in itself. "We had to write an essay on what we see as a typical day in our new home, we had to collect photos of things that reflect our interests, and we had to supply measurements of all the furniture we'd bring. Tom and Christine really wanted a sense of who we are," recalled David.

He liked the young couple's specialization in passive solar energy design and as the relationship grew, he appreciated their interaction with the family and the project. David would read about an energy efficient component or design and email his architecture team. They'd respond with the pros and cons, and they decided as a group what to use.

David and Louise learned much from their reading and collaboration, and the theory translates to reality in their home. In addition to the exceptional insulation, the building envelope is tightly sealed, resulting in fewer than two complete air exchanges per hour. The roof is pitched to allow the cellulose insulation to stay in place and to maximize the efficiency of the 10 kW photovoltaic array on the south exposure.

"We are minimally dependent on the grid for electricity," confirmed David. "Our heat and hot water is almost totally passive, and we generate more electricity than we consume and the surplus feeds back to the grid. The house is sealed so well it retains heat even under extreme conditions."

Last December, when much of the region was without hydro for days after the pre-Christmas ice storm, David and Louise arrived to find the home at a balmy 60 degrees, two days into the outage. They have since purchased an auxiliary generator for the mechanical system – it generates so much heat the circulation pumps need to work.

The house is more than an aggregate of its high tech parts – it is a comfortable and attractive home for a busy family. With a large master bedroom, a guest bedroom, a study each for David and Louise, and an open concept kitchen, dining, and great room, David admits is actually larger than they initially planned. It is also a different building type.

"We considered a straw bale home and almost went that direction but it requires a little more maintenance in the first year. If we were younger and here full time, we probably would have gone with it."

There were many surprises along the way, including the easy sourcing of building materials. "We researched high tech options but our architect said we could achieve the same results with what we could find at Home Depot."

Melodie Coneybeare, the project architect for Solares, said simple solutions were available. "We went with traditional framing because it is a familiar construction process for the trades



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and we achieved superior insulation values with an easy build." We used cellulose because it is economical. We started with a tight, economical floor plan and our first energy reduction comes from examining what we need for space. We then apply a really good building envelope and make it tight."

As design turned to construction, the homeowners and architects brought Kyle den Ouden of Hickory Homes into the project. For Kyle, it was the first double-walled house in his substantial experience, and the most extensive foray into energy efficiency. "We learned so much from working with Solares and the family," said Kyle. "We saw and implemented the design and more importantly learned the reasons behind each component and how they all worked together."

Acknowledging this calibre of energy efficiency isn't for everyone, Kyle is pleased with the opportunity. "We were part of a project to deliver one of the most energy efficient homes in Canada, and with that experience, we can provide more options to new clients. We're certainly pursuing this technology and enthused with the potential." From the production to construction, the team looked for ways to incorporate responsible methods, mechanical equipment, and fixtures. The spectacular kitchen is from IKEA. "It's flat-packed and assembled on-site," explained Melodie. "Flat-packing means fewer packaging materials, and reduced shipping space. IKEA follows the stricter European standards in volatile organic compounds and the adhesives are benign."

For Solares, it was a dream project. "All of our projects have strong elements of sustainability but in this case, we were able to incorporate so many technologies and achieve superior results. David's home is definitely one of the darker green projects with all of the bells and whistles," said Christine.

After the last independent test concluded the home was indeed one of the most energy efficient in Canada, David and Louise rained high praise on the architects and builder, and Melodie echoed the sentiment. "It's a testament to how good Hickory Homes is; it's about craftsmanship and how well they understand and use their tools and work with new ideas."

The project is now a home.

David and Louise both play the grand piano in the great room. David also plays the pipe organ and takes lessons at St. James Cathedral. He is working his way through the works of J.S. Bach and mastering the 20th century French organ repertoire is a goal.

Their son Jeffrey is a viola and violin teacher, and daughter Emily plays the cello, but her goal is to have Dad build a woodworking shop in the detached garage.

Milford was certainly a target destination, and music is a focal point. David envisions billeting teachers from Music at Port Milford. For David, music is a good balance from his lab, but he sees the connections. "Research, nature, music, they all have structure with freedom, and there is always the thrill of discovery," he smiled while looking out over his pasture, thinking about the large vegetable garden he will one day plant, and talking about the nutritional benefits of a wild plant most would consider a weed.

He is serious about this house, this community, and the conversation. "We have to reverse the tide," he admonished in his gentle style. "We're in a precarious situation. Our ecosystem is in peril; our economy is coming



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to a crisis point with debt and consumption. It is really important as we look into the future to have resilience. There will always be energy resources but they will not always be affordable."

Their choice of the County was deliberate for another reason. "We wanted to experiment and be part of a community of similar thinking minds and it is very hard to do in cities. I think the future employment will be farming for the next generation. The focus will be on local sourcing and more hands on than manufactured off shore. We're going to bike lanes and public transit and China is the largest consumer of private automobiles."

Listening to this renowned researcher discuss the rapidly flooding banks of the Rubicon in such a gentle yet defiant manner is both unsettling and reassuring. David clearly sees the problem and with even greater clarity sees the solution – even small steps matter.

David and Louise took larger leaps than many, opting for self-sustainability upon the land, harvesting energy resources in the most responsible of ways.

When asked what they sacrificed in terms of comfort to achieve this goal, David's response was succinct. "Nothing."  $C_{\infty}$ 



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