THE MAG
SCIENCE & NATURE

in ACCESSIBLE HOMES

PHOTOS SUPPLIED TO THE STAR

Dennis Radovic (left), his wife, Melissa, and their son Bryson, are enjoying their new home, which is not just an accessible home, but is also a green one.

The first of its kind

Suzanne ELSTON
Your Earth

From the street it looks like any other new house. But for Dennis Radovic and his family, the beautiful new bungalow has provided them with an opportunity to ease the strain of living with a terrible disease. Dennis, 43, a former teacher and guidance counselor, was diagnosed with Primary Progressive Multiple Sclerosis (PPMS) in 2001.

The Radovic's new home, the first of its kind to be built to both GreenHouse and Accessible Homes standards, was built by Durham Custom Homes (DCH) in Oshawa, ON. Earlier this year, the company received the 2008 EnerQuality Award of Excellence as Canada's GreenHouse builder of the year.

The GreenHouse design combines the energy efficiency standards of ENERGY STAR for New Homes with resource management, indoor air quality and water conservation. The result is a house that produces three tonnes fewer greenhouse gases, consumes 30% less energy, and uses 15% fewer raw materials and 25% less water than homes built to the Ontario Building Code. When the home is completed, 25% less construction waste is sent to the landfill.

When construction began on the first GreenHouse last year, Victor Fiume, DCH general manager, said regardless of how environmentally responsible a house was constructed, if it wasn't accessible to everyone, then it really wasn't sustainable.

With the completion of the Radovic's new home, Durham Custom Homes has taken the idea of building sustainable living to a whole new level. When the Radovics move into the house this week, its many features will help make life much easier for Dennis and his wife, Melissa.

"Working with Victor Fiume, David Illiatovitch-Owen and Guy Mulder, we were able to accomplish everything we thought would be needed now and in the future," said Dennis. Dennis and Melissa used pencils and liquid paper to finalize the design.

Dennis continued working until last year, when his MS progressed to the point where everyday activities, like getting dressed and showering, pushed the limits of his physical capabilities. As Dennis explained, because he is confined to a wheelchair and walker, doing anything takes a tremendous amount of energy.

Their new home features a raised front porch slab, wider entrances, hallways and doorways, and an elevator that is accessed through the garage. When asked why Dennis opted for an elevator rather than ramp access to the house, he said, "How accessible is a ramp after an ice storm?"

Non-slip surfaces, both inside and outside the home, reduce the risk of falling, and denser materials offer stability and support. The galley kitchen features lowered countertops and appliances. Cupboards have pullout drawers for easier access, and handles and controls are placed to minimize reach.

The bathroom is barrier-free and designed to maximize turning for access to the sink, toilet and shower. Fixtures and grab bars are strategically located.

The windows are designed to open and close easily and locks are located to be within reach from a wheelchair. Even the laundry room features front-end loading appliances for lower access.

At last week's official opening of the home, Jeff Goldman, DCH principal, used the opportunity to challenge other builders.

"As excited as I am though of our collective accomplishment, I cannot help feeling a degree of frustration," said Goldman.

"We have built this house because we believe that constructing a better-built, environmentally-responsible, energy-efficient dwelling that is healthier for its inhabitants and can speak to individual needs is not just a corporate responsibility, but it makes good business sense."

Perhaps what makes Canada's first Accessible GreenHouse so remarkable is the price. With the exception of the added cost of the elevator, the price of the Radovic's new home is comparable to other houses on the street.

"We did this on our own dime with support and encouragement from others, but without handouts or special treatment," said Goldman. "So, if we can, it begs the question of why not for others?"

For Dennis and Melissa, the accessible features in their new home will help Dennis to conserve his remaining strength and give them more time to enjoy their 3 1/2-year-old son, Bryson.

■ Suzanne Elston is a Canadian author, broadcaster and environmentalist. Your Earth has been in publication for more than 16 years.

RELATED WEBSITES

➤ For more information on GreenHouse and Accessible Homes standards, visit KingswayForest.com;

➤ The Multiple Sclerosis Society of Canada www.mssociety.ca.

SCIENCE MATTERS

Let's get together with ecosystem management

David SUZUKI with Faisal MOOLA
www.davidsuzuki.org

The North Coast of B.C. is one of my favourite places. If you visit this spectacular and ecologically diverse region, you'll see people fishing, logging, travelling on boats and ships and raising families. You'll see mountains, forests, oceans, sea lions, puffins, and whales. If you are fortunate to dive into the ocean, you'll see salmon, herring, rockfish, sea anemones, giant scallops, kelp forests and — deep below — 9,000-year-old glass-sponge reefs. There is so much to see here, but we still have a lot to learn about how this ecosystem works.

It's absurd to think that we could manage our activities in such a vast and complex area by having different government departments oversee individual activities in isolation. But that's pretty much the way we've been doing things.

Fortunately, people are beginning to talk about a new way of managing our oceans, a way that's being tested in five large ocean areas in Canada. One of these areas is the North Coast of B.C., in a region stretching from northern Vancouver Island to the B.C.-Alaska border, which the Department of Fisheries and Oceans Canada (DFO) has labelled the Pacific North Coast Integrated Management Area, or Pncima.

DFO is attempting to engage an integrated management planning process here, in part based on the recognition that everything in nature is interconnected, including human activity. For years, many scientists, resource managers and environmentalists have encouraged government to adopt an ecosystem-based management, or EBM, approach that takes into account all values and interests. The Encyclopedia of Earth defines EBM as "an integrated, science-based approach to the management of natural resources that aims to sustain the health, resilience and diversity of ecosystems while allowing for sustainable use by humans of the goods and services they provide."

The federal government's planning processes in the Beaufort Sea, Gulf of St. Lawrence, Eastern Scotian Shelf, Placentia Bay/Grand Banks and Pacific North Coast could set an example for the EBM approach in all of Canada's oceans. Until now, there's been more talk than action.

The Pncima integrated management planning process has recently seen some significant breakthroughs, though. In December, DFO signed a formal governance agreement with First Nations in the area to move forward with a marine planning process. And in late March, more than 380 people — including representatives from government, First Nations, coastal communities, marine industries, and non-governmental organizations — took part in a two-day forum to discuss management and conservation options for the region.

That so many people from so many walks of life and so many communities were able to come together to discuss the needs of this area shows not just that cooperation is possible, but also that everyone understands the need for urgent action to protect the health of our oceans.

As with most processes involving a multitude of resources, interests and ecological values, government must continue to play a leading role. Even more importantly, our government must provide enough money for scientific research to ensure that decisions are made according to the best local and scientific knowledge.

We don't have a lot of time to waste. Many ocean ecosystems are at tipping points, with pollution, resource extraction and industrial impacts contributing to declines in fish, mammal and other marine-life populations. Add to that uncertainty about the effects climate change is having on these ecosystems, and the need for planning becomes even more urgent.

A credible, long-term plan for any ocean region must include an increase in protected areas where specific types of industrial activity are limited. Canada has the longest coastline of any nation on Earth, and 40% of our jurisdictional area is ocean, yet the federal government has set aside less than 1% of that as marine protected areas.

I hope governments, First Nations, and other interested people will continue the formal dialogue, scientific research and relationship-building required to ensure we have intelligent management and conservation in our oceans. I believe most people understand that our own health depends on the health of ocean ecosystems, and are willing to come together to ensure ecological and economic well-being provided by our oceans are maintained at as high a level as possible. I encourage everyone in Canada who cares about the future health of our oceans to let the government know we want a greater investment in science, management and conservation so our oceans stand a fighting chance in an all too uncertain future.

For more information, visit www.healthyoceans.ca.

■ Take David Suzuki's Nature Challenge and learn more at www.davidsuzuki.org

Pushing the limits

Leaman RODGERS
Science in the North

The word is out. Meagan McGrath, Sudbury's best-known adventurer, has her sights set on reaching the South Pole.

As you read this article, she is already involved in training, which aims to test her skills, and equipment, along with the limits of her mental and physical endurance, within a polar environment.

This past Thursday, Meagan, who is a captain in the Canadian air force, started on an expedition to the geographic North Pole. She expects to reach it, accompanied by a team of fellow adventurers, on April 27. You can follow Meagan's Polar Adventure online, through videos and audio blogs, at sciencenorth.ca/meagan.

In November, Meagan will undertake her biggest adventure yet — walking solo, unassisted and unsupported, from the coast of Antarctica at Hercules Inlet to the South Pole — a journey of 1,130 kilometres. The equivalent of walking from Sudbury to Toronto, not once, but three times.

This is not Meagan's first extreme adventure, as she has already climbed Mount Everest and is the only Canadian female and the first Canadian Forces Member, to achieve both versions of the seven summits. However, as extreme as they are, all of her previous adventures pale in comparison when considering the physical challenges Meagan will face during her dash for the South Pole.

Just imagine, pulling behind you everything that you need to survive for 60 days, all the while braving the freezing cold temperatures of Antarctica.

Travelling this distance requires a great amount of energy — hence a lot of food. In extremely cold environments your body burns even more calories just to keep warm and will need to burn even more to provide enough energy to pull a sled weighing at least 120 kilograms (265 lbs). Meagan estimates she will be burning 6,000 to 8,000 calories every day of her journey. The average person burns only 2,000 calories a day.

Fats are more energy intensive than proteins or carbohydrates, so Meagan's diet will be rich in fats. To get the same amount of calories from carbohydrates, or proteins, would require her to eat more than twice as much. Her diet will be a balancing act between high fat foods and getting enough carbohydrates and proteins to stay healthy.

Under such extreme stress the body breaks down fats and proteins to make up for any deficit in energy intake from your diet. Muscles are composed primarily of proteins, which are vital for them to function properly. Any breakdown of the body's proteins will weaken muscles.

When you think of Antarctica you envision a barren flat landscape covered in ice, but in fact the South Pole is at an altitude of 9,300 feet (2,835 metres). The Earth's rotation causes the air to be even thinner at the poles, making the air as thin as if you were at 11,000 feet. Meagan will have to breathe in more air than usual in order to get the same amount of oxygen in this environment.

A journey, such as Meagan's, shows the extreme abilities of the human body to withstand the harshest conditions on the planet.

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