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Living under the greenest of roofs

Helps control storm runoff, adds oxygen to atmosphere and makes a scenic green vista

KATHY FLAXMAN
SPECIAL TO THE STAR

When the temperature hits 's' for sizzle, Colin Viebrock would like to sleep where he keeps his car.

As the owner of Green Garages, Viebrock is in a position to put vegetation such as sedum where it will do some good, like on a green roof, a trend that started some time ago in Europe and is taking root in Canadian cities such as Toronto. When summer turns on the heat, a green roof like the one he installed on his own garage cools the air, making the atmosphere inside less unbearably hot.

A green roof also helps control storm water, adds oxygen to the atmosphere and provides a scenic green vista, in this case for the Viebrock family and neighbours to enjoy.

Architect Heather Dubbeldam has a green roof on her own porch and regularly specifies them in her projects for clients. The building where she works, at Richmond and Adelaide Sts. in Toronto, has a green roof and Dubbeldam is quick to extol the benefits.

Water management is a huge factor. "In nature, runoff from rain is absorbed into the ground," she explains.

"In cities, where everything is all hard surfaces, when there are heavy rainstorms, the water pours into the sewers and the overflow, including sewage, can go right into the lakes," she points out. "Green roofs absorb water and slow this process, dramatically reducing the detrimental environmental impact."

Then there are the cooling and insulating properties of a green roof. "The Canadian climate has extremes from minus 40 to plus 40,"



KATHY FLAXMAN PHOTO

A green roof can reduce storm water runoff and help to insulate buildings from extreme heat and cold.

Dubbeldam says. "A green roof provides an insulation that mitigates that big differential, making the inhabitants inside much more comfortable.

Also, a green roof will last almost forever, maybe 100 years compared to say 25 years for standard roof construction, because the roof is not exposed to the massive climatic differentials. Green roofs provide enormous ecological benefits."

So what exactly is a green roof? It's a roof covered in a growing material (not to be confused in other circumstances a gardener might call dirt) where plants and vegetation grow. Often, there is just a few inches of a rather rock-like substance low in organic content with varieties of plants such as sedum and delosperma. This is a garden resembling what you might see in a desert or an alpine setting, a place where condi-

tions are harsh but plant life survives, alive with plump succulents. There might be some taller grasses. The range of plants is limitless, dependent on the depth and type of growing material and sun and wind conditions.

Viebrock, whose company designs and installs green roofs on sheds, porches and garages set up his business after researching the process and installing his own.

"I am very interested in architecture and the environment and sustainability," he says. "When I wanted to do a green roof, I found most companies were geared to huge installations of more than 10,000 square feet. I find a lot of people want to do something for the environment and they want to increase the amount of open space around them in any way they can. They can do a garage or a shed or a fairly flat

roof and benefit the environment, themselves and their neighbours, who will be able to enjoy the view. When it's really hot I often think it would be good if I could just sleep in the garage."

Toronto homeowners Paul and Alison Fryer have a garden shed designed and built by Green Garages.

"We had a steel shed that collapsed and this is the replacement," Paul Fryer says.

"We wanted an authentic looking shed with a sliding door like the ones on rural farm buildings. Colin really nailed it. Our shed and green roof, which cost about \$4,000 is perfect — exactly what we want. The shed is cedar, the roof is mostly sedum and we are very proud to be doing something a bit ahead of the rest.

"We sold our SUV a few years ago and now, we have a green roof."

Get input from structural engineer, building permit before you start planting

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It is possible to build your own green roof. But just because your garage has some errant weeds sticking out the top doesn't mean you can merely toss on a layer of dirt and some seeds and call it a day. It's more complex than that. A shed, an area not on top of living space, is a good place to consider.

Structural concerns are paramount. A building has to be strong enough to hold all the growing material, the various membranes, the drainage layer and the plants.

The added weight of snow and ice in winter has to be factored in too, as well as if people will be up there.

A report and input from a structural engineer is your first step and a building permit is needed in Toronto.

After that you will need to buy the various materials and set about installing them. You will need waterproof membranes, drainage systems, growing materials and of course, plants. Colin Viebrock of Green Garages not only understands wanting to do your own green roof, he answers questions on a blog on his company's website and will cheerfully give advice.

Cost of a simple green roof? You might be able to install your own for about \$10 per square foot plus waterproofing. The waterproofing material could run you another \$2 per square foot, but installation can take some specialized knowledge. A good place to start your green roof project would be the city's web site: toronto.ca/greenroofs. Green Garages web site is greengarage.ca.

A list of sites that will help when trying to put up a green roof, supplied by Green Garages, is greenroofs.org.