

Biodome Garden Promotes Food Sustainability

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Ottawa's first Biodome Garden will extend the growing season and showcase sustainable approaches to food security, according to members of the Brewer Park Community Garden in Old Ottawa South. They're putting the finishing touches on a geodesic dome that will house garden beds, an aquaponics system and a community learning space.

"The goal is to be able to have four seasons of gardening in there," says Johanne Ranger, Biodome liaison on the Brewer Park Community Garden executive.

The dome will also serve as a demonstration garden to test and share knowledge about growing healthy, local food more sustainably. "It's to teach, learn, inspire and collaborate," says Guy Soulire, Biodome Garden project co-lead.

The striking design of the 13-foot-high, 26-foot-diameter geodesic structure serves several purposes. The rounded shape, formed by 75 plywood triangles surrounding transparent polycarbonate panels, is strong.

"We're estimating that we're using about 40 per cent less materials than would normally be in a structure of this type," says Michael Oster, Biodome Garden project lead.

The dome also allows air and energy to circulate more efficiently than in conventional buildings.

Passive solar energy will warm the interior. The aggregate surrounding the dome's base will store the heat and release it gradually. Water tanks will support temperature regulation and aquaponics, which integrate fish with vegetable production. Wastewater from the fish is cleaned by plants, which obtain nutrients in the process. Water for the Biodome will come from a rainfall capture system.

"The neat thing is that these are all structures that are available," says Ranger. "Geodesic domes have been around for a while, solar power's been around for a while...it's just combining all these neat systems with that role of growing food, and learning from that."

The Brewer Park Community Garden's founders had the idea of a year-round garden back in 2011, but getting it off the ground took time, research and hard work. Taking inspiration from Oregon-based author Patricia Watters' *The Biodome Garden Book*, as well as biodome and aquaponics projects in other North American communities, the committee pulled together a "dream team" with expertise in energy, permaculture, engineering, architecture and community engagement. Soulire's sustainable building company, EcoAce, is overseeing the project, and the team subcontracted an Ottawa area company, Future Foods Biodome Systems, to build the structure.

The building permit application went through five iterations. At the start of construction a dozen volunteers excavated 35 yards of aggregate by hand.

People also came out to two community consultations. "Old Ottawa South is really a hotbed of talented, engaged, community-minded people, and they've really come out of the woodwork to embrace this project," says Oster, a garden volunteer who works as president of the Ottawa Community Loan Fund.

Because the Biodome is built on City of Ottawa land, the structure could not be permanent or use external power sources. It also adheres to Rideau Valley Conservation Authority requirements, since the garden is on the Rideau River's floodplain.

In addition, gardeners must figure out what to plant to suit the Biodome's conditions. They'll monitor and document what grows well. "We'll be pushing the limits in some ways," says Ranger.

"It's time for enlightened cities to actually push the limit to address food security," adds Oster. "We're shipping lettuce and celery year round from Florida and California, it's 99 percent water and we're paying exorbitant transportation costs for greens which can be, we're convinced, grown locally."

Funding for the Biodome Garden has come from the Better Neighbourhoods Program at the City of Ottawa's Neighbourhood Connection Office, as well as TD Friends of the Environment Foundation and Just Food's Community Gardening Network. The Biodome was recognized as a Healthy Eating Active Living 2013 "champion" by Ottawa Public Health, and received a City of Ottawa 2014 Garden Day Certificate of Recognition for its volunteers' efforts.

"It demonstrates how hungry-no pun intended-people are for a different way of looking at things, and a creative way," say Oster and Ranger.

Brewer Park gardeners welcome visitors to the Biodome, which they intend to be a place for learning and community programming for people of all ages.

"The idea is hopefully people will learn, and either establish this in their own environment or whatever space they have," explains Ranger, whose day job is volunteer coordinator with Parks Canada.

"This is a community-scale solution, which can easily be adapted to family scale-if families decide they want biodomes in their backyards, or on their rooftops, we can help with that or through our connections," says Oster. "Hopefully this will inspire many people to emulate our work and take it to entirely different levels."

The Biodome Garden is set to open this summer. For more information or to get involved, visit <http://www.brewerparkcommunitygarden.com/>.

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