

Bedford Institute of Oceanography Energy Centre

1 Challenger Drive
(902) 426-4306 or (902) 426-2373
John Miles
www.bio.gc.ca

Introduction

In 2002, the Bedford Institute of Oceanography built its 'Energy Centre' to house its new cooling system that uses sea water instead of a typical air conditioning system, greatly reducing energy consumption. The building is so outstanding that it earned the Lieutenant Governor's Award for Architecture when it was operational in 2003. Tours of the energy centre can be arranged by calling the number above.

Seawater Cooling

Cold seawater is pumped from 10 metres above the bottom of the Bedford Basin and passed through a heat exchanger where it lowers the water temperature of a closed loop cooling system. The seawater is then pumped through the buildings at BIO, effectively cooling the offices and other work areas without the need for an expensive, energy consuming air conditioning system.



Green Roof

In addition, the green roof on the Energy Centre has great insulating properties and helps keep the interior temperature cool. With 4 inches of Styrofoam covered by 8 inches of soil and grass, the centre has an R-value of 100.

Solar Panels

Photovoltaic panels on the south-facing windows collect energy from the sun to run the lights in the Energy Centre and power the natural ventilation system. The windows at the top of the building have an automated sensor system. The windows are open to let in fresh air and are set to close with the onset of rain.



Problems Encountered

BIO aims for environmental sustainability but sometimes finds it difficult because of the transient nature of the staff and experts working there. However, staff is encouraged to be careful with their waste and energy consumption. BIO has their own sewage system and they carefully monitor all the waste water.



Cost is an ongoing obstacle with those attempting to make large-scale green changes to their building because the initial investment is usually quite high. The installation of the green roof, for example, was much more expensive than a regular roof but it has a longer life span and minimizes heating costs thus saving money in the long run.

At the time when BIO was researching seawater cooling systems, there was a concern that releasing warmer water back into the basin may run the risk of causing an algal bloom. After further research the process was proven to be harmless because the released water is not of a significantly higher temperature and is being released near the surface instead of at deeper depths.

Future Initiatives

There are plans to install a grey water system in a new BIO building currently under construction.

Suppliers

PP Glass supplied the windows, and Bradford Roofing (Mt. Uniake) installed the green roof.