



BOYNE RIVER ECOLOGY CENTRE: SHELBURNE, ONTARIO



Firm's Role

Sustainable Building Design and Engineering

Description

The Boyne River Ecology Centre is a 560 m² (6000 ft²), award winning internationally renowned educational facility at the Toronto Board of Education's natural sciences school located on the Niagara Escarpment. Principles of environmental responsibility such as 100% renewable energy supply, zero sewage discharge, natural building materials, healthy indoor environment, material durability, and minimum site impact guided the design process.

Features

- Built into the foot of the Niagara escarpment with a sod roof for earth tempering and minimal site impact
- Passive heating accomplished with fully glazed south exposure, and trellis shading to reduce summer gain
- Passive cooling with low power fan assist, heat recovery, and displacement type distribution resulting in winter warming, air quality, and low noise
- Natural ventilation facilitated by low awning windows and a central monitor for air change
- Efficient thermal envelope using high performance windows, tight construction and highly insulated walls, roof, slab, and perimeter foundation walls
- Off-grid electricity generation using photovoltaics, a small wind turbine, and a small hydraulic generator providing 100% renewable energy supply
- Bioregenerative wastewater treatment discharging water at a higher quality than that entering the building
- Potable water from a pond and bioregenerated water treated with reverse osmosis and UV light producing safe and healthy drinking water
- Water heating supplied by solar collectors and wood stove
- Efficient water and lighting fixtures

Architect: Doug Pollard Architect

Owner: Toronto Board of Education

- North East Sustainable Energy Award
- Published in Canadian Architect and internationally