

Owner:

Upper Thames River Conservation Authority

Architect:

Randy Wilson Architect Inc.

LEED Consultant:

MMM Group Ltd. (formerly Enermodal Engineering Ltd.)



LEED® New Construction and Major Renovations (version 1.0) Platinum Certified
Completed: January 2013
London, Ontario



Structural Engineer:

Hastings & Aziz Ltd.

Civil Engineer:

EXP Services Inc.

Mechanical/Electrical Engineer:

Vanderwestern Rutherford Mantecon

Energy Engineer:

MMM Group Ltd. (formerly Enermodal Engineering Ltd.)

Interior Designer:

Mackenzie Howson Intern Interior Designer – Randy Wilson Architect Inc.

Landscape Architect:

Ron Koudys Landscape Architect Inc.

Contractor/Builder:

Graceview Enterprises Inc.

The Upper Thames River Conservation Authority (UTRCA) is a community-based watershed management agency dedicated to conserving, restoring and managing water, land and natural habitats, through programs that balance human, environmental and economic needs.

The design of the UTRCA's Watershed Conservation Centre (WCC) was influenced by the organization's responsibility for environmental stewardship and its relationship to the watershed community. As a publicly funded organization, the UTRCA is required to be fiscally responsible by making decisions resulting in lower operating costs over the lifetime of the building, and to promote environmental stewardship through organizational operations and educational programs. The WCC embodies these mandates.



Community & Environment

The interior of the building and the various gathering spaces outside were designed to encourage interaction. The building has spaces for education and community use, and the location provides grounds for walking.

The site has been designed to protect and restore open space to promote biodiversity. All plant materials installed on site are native to the area and require little to no irrigation. A tree preservation plan resulted in very few trees being removed.

The WCC is located within a conservation area, and is not part of local or regional transportation services. The UTRCA encourages staff to use alternative transportation by providing an indoor bicycle storage room and change rooms with showers. Designated parking for high-efficiency and carpool vehicles, electric car plug-in parking spots, and hybrid vehicles in the UTRCA's corporate fleet encourage conservation.

Water Conservation

A subsurface drainage system around the building's footings collects and directs water to a cistern used for all non-potable water requirements and any exterior irrigation. Surface water runoff is directed into bioswales. Subsurface perched water constantly replenishes a retention pond. All site stormwater is managed to ensure that waterways are cleaned through natural processes.

With the combination of low flow plumbing fixtures and the cistern used for toilet flushing, indoor water use has been reduced by 60% compared to conventional fixtures. A Waterloo Biofiltration System treats waste water and releases the cleaned water on site.

Energy & Atmosphere

The building has a partial green roof along the entry promenade and a white roof over the remainder of the building, to reduce heat island effect. All glazing has low-emittance coatings to mitigate solar gain. The south-facing solar wall and geothermal ground tubes temper all fresh air introduced into the building.

A variable refrigerant flow system and energy recovery ventilator allow for efficient and cost effective mechanical systems operations, with precise controls reacting to fluctuations in occupancy. The building achieves a 71% reduction in design energy cost compared to baseline (MNECB). A nearby hydroelectric generating plant at Fanshawe Dam provides renewable energy for all the building's operations, eliminating the need for fossil fuel.

Materials & Resources

The selection of materials was based on local availability, manufactured sustainability, minimal off-gassing qualities, and ability to showcase interior and exterior green spaces. Local resources were used including concrete, stone, glass and engineered wood products.

During construction, over 90% of the waste generated was diverted from landfill. Of the products and materials used in the WCC, nearly 20% of the content is recycled and over 25% is sourced regionally to the site. Over 80% of the wood-based materials are FSC Certified.

Light & Air

Triple glazing assemblies on the north facing wall provide efficiency, with natural ventilation by operable windows. Fresh air is tempered by the south-facing solar wall and geothermal earth tubes, which are controlled by a digital monitoring system. Interior green roofs purify the air, allowing natural air currents and strategically placed ventilation to direct air flow. All mechanical and electrical systems are set on sensors to respond to fluctuating occupancy loads.

Nearly all lighting is on occupancy or daylighting sensors to respond to outdoor light levels. Exterior lighting has been designed to reduce lighting power density by 25% compared to ASHRAE baseline, with full cut off to ensure there is no negative impact on the nocturnal environment.