ENERMODAL ENGINEERING

Creating energy and resource efficient buildings

Brock University Plaza 2006

Hollow core Construction for HVAC efficiency

St. Catharines, Ontario

Owner:
Brock University

Design Architect:
Mackay-Lyons Sweetapple Architects Limited

Project Architect:
Rounthwaite, Dick & Hadley Architects Inc.

Our Services:
- Sustainable Design Facilitation
- Energy Efficiency Consulting
- LEED® Consulting & Certification

Status:
LEED-NC Silver Certified
Completed 2007

Brock University made environmental responsibility top priority when planning an expansion of campus facilities. Plaza 2006 is a 7,880 m² building that houses the university book store, offices, classroom, and laboratory spaces. The building floor is constructed of hollow-core concrete slabs. Air from the air handling system is directed through the "holes" in the hollow core and into each room of the building. This design eliminates the need for conventional distribution ductwork in each room. In addition, the thermal mass of the floor system acts to even out the peak heating and cooling demands on HVAC systems. Water conservation strategies include drought-resistant landscaping, the use of stored rainwater for toilet flushing, and low-flow plumbing fixtures.

Notable Features

- Xeriscaping to eliminate irrigation system
- Rainwater cistern to supply water for toilet flushing
- Low-flow plumbing fixtures, including dual-flush toilets
- Well-insulated building shell
- High performance windows
- Condensing gas boiler
- Hollow core concrete design
- Occupancy sensors control lighting
- Extensive construction waste management plan
- Campus transportation plan includes bike storage and cyclist showers, online carpool matching system, and student bus passes

LEED® Project Facts

Gross Floor Area:	7880	(m^2)
Energy Density:	205	(kWh/m^2)

Category	% Performance	
Water Savings		
Irrigation	100	%
Indoor Use	62	%
Energy Savings	33	%
Waste Diversion	86	%
Recycled Content	17	%
Regional Content	33	%

LEED® Silver

33% Energy Savings

62% Indoor Water Savings

17% Raw Materials Savings

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