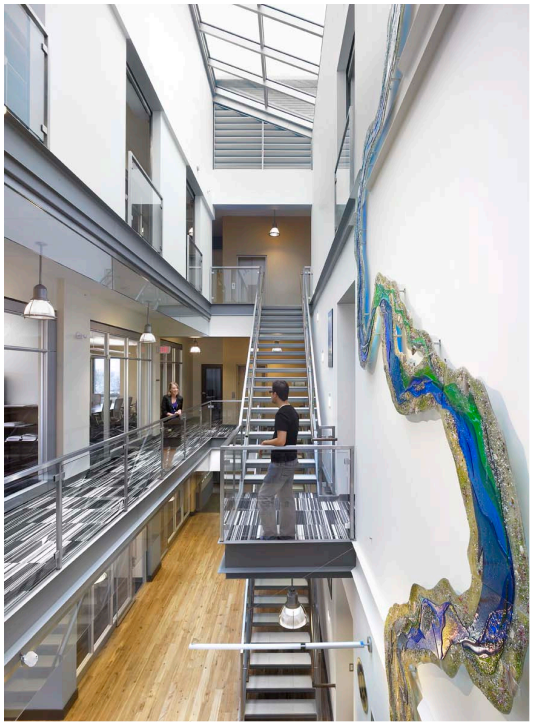
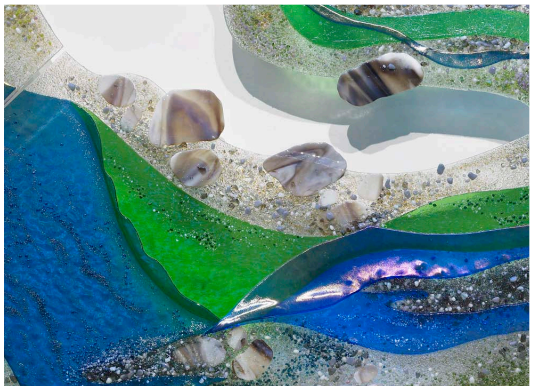




"A Grander View"

Entrant Information

Name: Robertson Simmons architects inc. (RSai)
Address: 130 Weber Street West, Suite 100
Kitchener ON N2H 4A2 CANADA
Phone: 519.745.4754
Contact: Patrick Simmons, Partner (psimmons@rsarchitects.ca)

Category: **Build**

Firm Description: With a corporate history dating back to 1946, RSai is the longest running architectural firm in Waterloo Region. With offices in Kitchener and Toronto, RSai provides insightful feasibility studies, as well as inspiring architectural and interior design services for new facilities, additions, and renovations within the corporate, educational, municipal, and healthcare sectors.

The firm is dedicated to enhancing public and private realms by approaching every project with a view towards sustainability, not just those targeting LEED® certification. Sustainable design is more than just implementing green strategies; it's a holistic approach to the process, exploring alternate construction elements and materials, while relentlessly engaging in innovative design discussions.

Client Name:
Enermodal Engineering Limited

Building Location:
582 Lancaster Street West
Kitchener, ON CANADA

Building Type:
New 3-storey, 22,000 sq. ft. office

Building Use:
Corporate headquarters for 75 staff

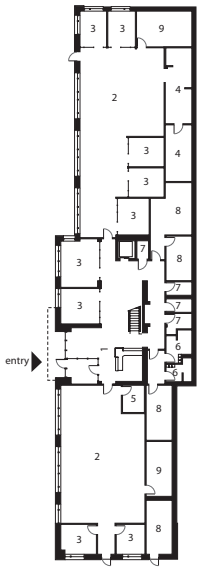
Completion Date:
September 2009

LEED® Canada Certifications:
Platinum NC (New Construction)
Platinum CI (Commercial Interiors)
Platinum EB: OM (Existing Buildings: Operations & Maintenance)

Architecture Project Team: **Robertson Simmons architects inc.**
Patrick Simmons, Partner-In-Charge & Design Architect
Yanan Li, Designer
Grant Taylor, Associate, Senior Contract Admin. Coordinator
Ashley Feeney, Contract Admin.
Alex Moore, Senior Coordinator, Contract Documents
Kevin Drehmer, Senior Technologist, Contract Documents
Craig Gill, Technologist, Contract Documents
Colleen Barron, Contract Documents

Interior Design Project Team: **Elemental Interior Design**
Lorelie Ratz, Senior Designer
Jamie Mclaughlin, Intermediate Designer
Tahani Gunal, Intermediate Designer

Contractor: **Melloul Blamey Construction Inc.**
Mechanical & Electrical Engineering: **Enermodal Engineering Ltd.**
Civil & Structural Engineering: **MTE Consultants Inc.**
Landscape Architect: **roth associates landscape architecture inc.**



1 reception
2 open office
3 office
4 library
5 copy room
6 change room
7 bathroom
8 mechanical
9 storage

Entry Description

An Explanation of Excellence in Sustainability & Environmental Responsibility

Land Use:

The building is located on an urban infill site that had been a gravel lot in a revitalized area of Kitchener, Ontario and is adjacent to the Grand River (a main water source that flows 300 km through southwestern Ontario from the highlands of Dufferin County to Port Maitland on Lake Erie).

With the site's close proximity to the Grand River, special efforts were made to prevent erosion and avoid river pollution by installing silt fences along the river bluff and double-wrapping storm drains in filter cloth to strain debris and soil from stormwater.

The 22,000 sq. ft. structure was strategically designed to have a long, narrow footprint (40 ft. wide x 200 ft. long, see floor plan bottom left) to minimize environmental impact, maximize sustainability benefits, and maintain efficient pedestrian circulation through and beyond the site by seamlessly integrating with a nearby trail network. The land's east-west position was selected as the optimal location for the building because it offered the greatest amount of daylight, air flow and views of the river.

In addition to having on-site employee garden plots that add a special element of beautification, sod-free, native species landscaping (which can adapt and cope with local climate conditions and pests) contributes to the site's natural setting, while eliminating the need for hazardous pesticides or fertilizers, as well as irrigation waste.

Sustainable Materials:

To responsibly use resources and lessen environmental impact, a list of criteria such as salvage, high recycled content, and FSC (Forestry Stewardship Council) certified, was given priority when selecting materials.

Regional supplies in particular received precedence to decrease carbon emissions associated with transportation (resulting in 50% of materials coming from local providers).

The following construction materials came from salvaged sources:

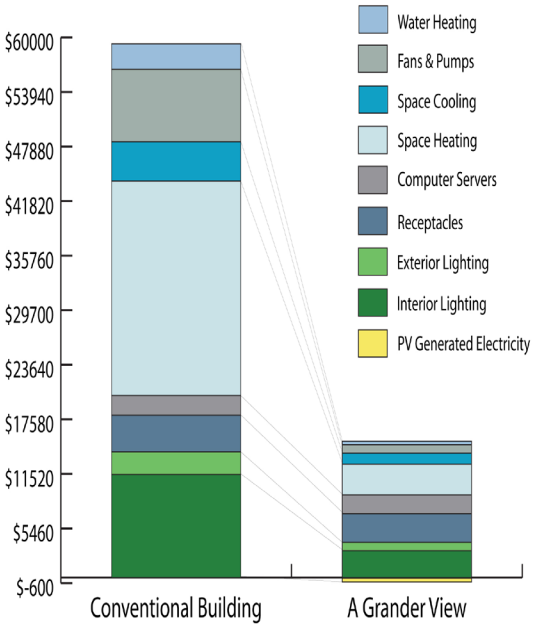
- The stone façade for most of the first floor was from the demolition of Calvary Pentecostal Church in Woodstock, Ontario
- The beech flooring in the lobby was from a demolished Toronto building
- The retaining wall on the north side of the property was from the demolished St. Clair River Tunnel (a Canadian and US Civil Engineering landmark) in Sarnia, Ontario
- 70% of the furniture from the previous office was re-used

The building includes a variety of materials with high recycled content such as:

- exterior steel (27%), structural steel (74), rebar (100%)
- metal studs (62%), concrete (30%), gypsum board (95%)
- paint (100%), carpet tile (80%), ceiling tile (80%), porcelain tile (40%)

Paper-based countertops (made of 100% recycled content) were also integrated into the reception desk, kitchenette and window sills.

Annual Energy Costs



Entry Description

Description of Excellence in Sustainability & Environmental Responsibility

Sustainable Materials Continued:

A Grander View was constructed with all FSC-certified wood. Due to its rapid renewability, bamboo was selected for the custom bathroom and kitchen (see image top left) cabinetry millwork.

To continue its commitment to sustainability beyond construction of the building, Enermodal Engineering has enacted a sustainable purchasing policy where recycled and/or sustainable products are purchased whenever possible.

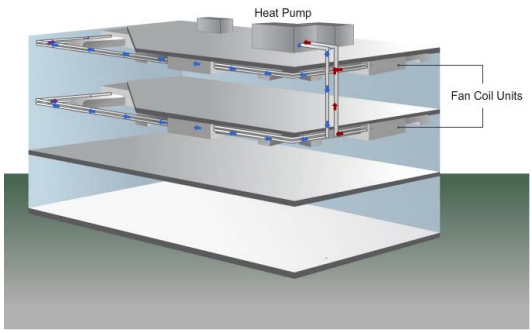
Energy/Water Efficiency:

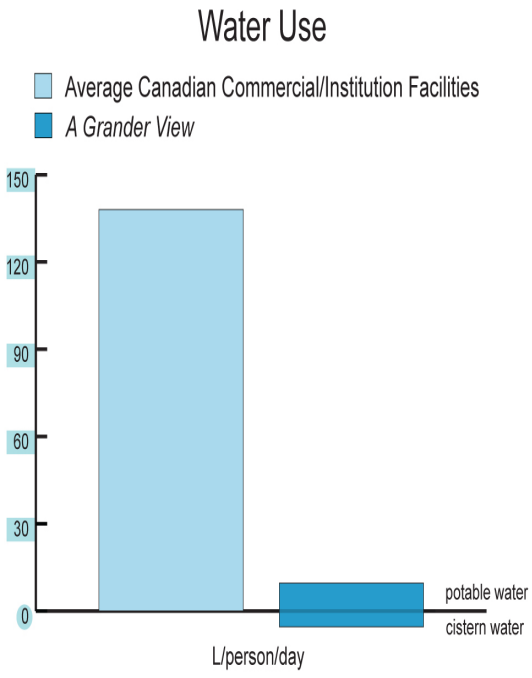
Energy - The energy costs for A Grander View (see bar chart on left) are substantially less in every category compared to an average office building.

Using a metered 69 kWh/m^2 compared to the Canadian average of at least 394 kWh/m^2 has earned the building its status as Canada's most energy efficient office building.

Some of the ways this structure uses less energy includes:

- an extremely airtight and well-insulated building envelope composed of insulated concrete form (ICF) walls with sealed joints to prevent moisture from penetrating the building shell, insulated-lined window openings to avoid thermal bridging, plywood protected insulation, and triple-glazed, low-emissivity windows that are argon-filled with insulation for better protection than traditional aluminum frames.
- using large windows (combined with a 12 m wide building footprint and several internal glass partitions) to achieve maximum daylighting to decrease the need for artificial lighting and allow daylighting sensors to automatically dim lights.
- implementing automated exterior shades on the east, west, and south sides, that are activated by a programmed level of incident solar radiation, to prevent glare and keep any absorbed radiant heat outside to prevent unnecessary cooling costs due to solar heat gain.
- occupant-sensor-controlled lighting, ventilation, and heating/cooling.
- 60 individually controlled thermostats (rare for a building this size) that allow staff to set individual temperatures for their work zone, in addition to operable windows to bring cool air in (see diagram bottom left). Using an automated louvre to open the top of the building's atrium also helps to exhaust hot air.
- the use of 24 rooftop photo voltaic solar panels (see top image next page) which provide 5.5 kW peak electricity and purchasing the building's remaining electricity needs from green power hydro, wind, and solar sources.
- one, electrical powered heating/cooling system (consisting of three air-source heat pumps on the roof, one for each floor) that never performs both heating and cooling functions at the same time, unlike other traditional systems.





Entry Description

Description of Excellence in Sustainability & Environmental Responsibility

Energy/Water Efficiency Continued:

- a heat pump "multi-split" heating/cooling system that is connected to 60 small fan coil units throughout the building (see diagram on left) and is joined by piping that carries refrigerant by variable flow compressors at very low speeds, rather than full-on or full-off operation.

- using the air-to-water heat source pump system, heat from the computer server room is reused to provide the building's entire domestic hot water demands (thereby also reducing the energy needed to constantly cool the server room).

- using a screen to remove sediment from the underground cistern, and delivering the water at a reduced speed so settled sediment at the bottom is not disturbed, eliminates the need for traditional filters that can use a significant amount of energy.

Water - This building has achieved an 89% metered indoor water savings as compared with a conventional office. Only 9L of potable water is used per person, per day (see bar chart on left).

Some of the ways this structure conserves water includes:

- a rooftop drain that directs rainwater into an underground 30m^3 concrete cistern to supply the building's toilet flushing.

- a municipal water system that is not connected to the cistern (to avoid unnecessary 'top-ups'), and only flows directly to the plumbing fixtures when rainwater is insufficient. This conserves water and reduces energy use to run pumps, while preserving pressure built into the municipal system.

- landscaping with native draught-resistant plants to eliminate irrigation waste.

- creating additional potable water by recapturing and using heat pump condensate created during the building's cooling process.

- water conservative plumbing fixtures and waterless urinals.

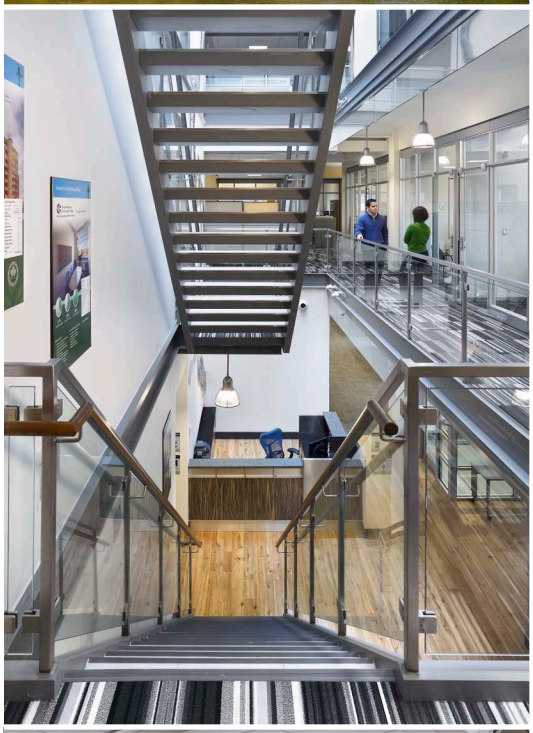
Community Impact:

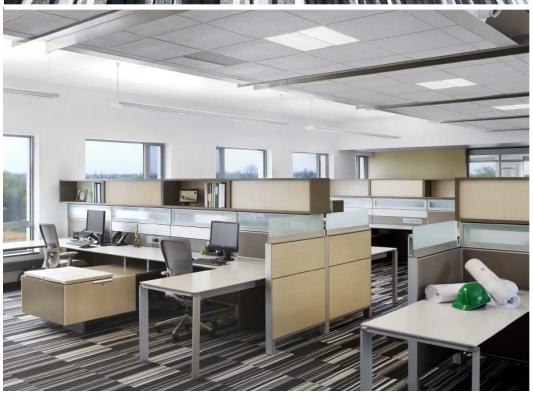
Good buildings make good neighbours.

Considerations given for the surrounding community included:

- preventing dirt and debris from defiling the neighbourhood and entering storm drains during construction by creating a special truck entrance lined with gravel so vehicle tires would not track soil onto the roadways.

- minimizing light pollution on neighbouring properties, adjacent sites and the night sky (where migratory birds can be drawn off course from upward facing light) by installing energy-efficient, downward facing exterior lights.





Entry Description

Description of Excellence in Sustainability & Environmental Responsibility

Community Impact Continued:

- clean and tidy deep collection waste and recycling units compress waste and maintain a pleasant visual environment.
- a native species landscaping maintenance policy that includes no pesticides or noisy power tool use.
- extending the Walter Bean Community Trail along the property for cyclists and walkers to promote healthy living.

Considerations given for the community of users included:

- a green housekeeping program whereby only non-toxic and/or Eco-Logo certified products are used.
- a hybrid car for staff (who take alternate transportation to work) to use if attending a meeting, as well as video-conferencing technology to reduce business and inter-office travel, traffic congestion and carbon footprint.
- all of the natural light and HVAC provisions mentioned previously that contribute to a healthy work environment.

Design:

Should a building reflect a commitment to sustainability and, if so, how? This building contains a catalogue of sustainability measures, visible and invisible, possibly the largest range of green building strategies and details per square foot of any building in its class. How can this fact be communicated to the visitor and user without the building becoming a showcase facility? How can people feel comfortable in a building that is intended to actively demonstrate the knowledge and commitment of the organization it houses?

This was the underlying challenge to all members of the design team: to allow visitors and clients to tour the building and experience the full menu of LEED® features without making the regular building users, the employees, feel uncomfortable or distracted. To do this, a tall narrow sliver of an atrium was installed, bisecting the building and creating a vertical and horizontal circulation node. As well as providing light into the entry lobby and core of the building, it served as a space for people to cross paths as they travelled from one department to another, up the open staircase from one floor to another, and into the core to use the building amenities.

It is in this space that visitors are brought into the building, connected with their hosts and introduced to the building. Most of the sustainable features in the building can be seen or accessed from this central space. Employees can be seen at their desks, but remain undisturbed, unless they want to engage the visitors, as they often do, as they travel through the central hub. This simple three-storey high space allows guests to experience the basic technical and design concepts without venturing deeply into the building. Those who are interested in more detail can be taking for more personal and extensive tours.