HPNC

HIGH PERFORMANCE
NEW CONSTRUCTION

École secondaire Roméo Dallaire – Le succès s'exprime en français

The Conseil scolaire de district du Centre-Sud-Ouest (CSDCSO), an Ontario French language public school board, has stepped to the forefront of green building practices for its new schools.

The École secondaire Roméo Dallaire is a brand new facility that opened September 2009 in Barrie to provide French language instruction for 500 high school students. Located on Essa Road adjacent to new sub-divisions, the 70,800 ft^2 school incorporates a broad spectrum of environmentally advanced features and has been entered for LEED® Gold certification.

École secondaire Roméo Dallaire

Saving Energy and Reducing Electricity Demand

Energy conservation is a key component of green buildings. The Barrie school is among the first in Canada to use a geothermal exchange system for heating and cooling, including a dedicated outside air system for displacement ventilation. Designed by Enermodal Engineering and installed by CleanEnergy™ the system incorporates floor level ventilation grilles and in-floor radiant heating to enhance comfort and help keep floors dry in the area's heavy snow season. This energy-saving technology also works to drive down peak electricity demand – cutting operating costs and relieving pressure on the province's electricity supply. Other measures taken that reduce electricity use and peak demand include:

- heat recovery ventilators
- occupancy controlled, variable volume ventilation
- increased insulation levels in walls and roofs
- high performance windows
- efficient lighting design
- daylight and occupancy sensors to shut off or dim lights in response to actual needs
- variable speed pumps

As a result of these green building features, the school will use 1,123,059 kWh less electricity annually compared with a reference school built to Ontario Building Code 2006. That's a 68% reduction. Summer peak electricity demand is 125 kW less than the reference school.

Overall the building will use 54.57% less energy than the reference school. This enhanced energy efficiency will result in 332 tons less CO_2 emitted into the atmosphere each year.

Going for lower environmental impact inside and out

Sustainability was incorporated in every aspect of the project. Wherever possible locally sourced and rapidly renewable materials were used in construction. The L-shaped plan of the building and the orientation of the teaching spaces facilitate use of natural light in the classrooms. The new school's many environmentally friendly features include:

- low-emission finishes - including sealants, paints, carpets and composite wood
- rooftop collection of rainwater for use in toilets
- low-flow plumbing fixtures
- parking lot water used to irrigate landscaping
- storm water management and treatment
- high albedo (reflectivity) landscaping to mitigate heat island effect
- bike racks and change rooms to encourage cycling
- limited parking and preferential parking for carpools
- exterior lighting strategy to ensure lower power density and limit night sky impact

Reaping the benefits

Sustainable schools offer substantial reductions in energy and water costs. But the benefits go beyond utility savings. The CSDCSO is well aware that greener schools provide a more comfortable environment for teaching and learning. Several studies have indicated that measures such as abundant natural light in classrooms and excellent indoor air quality have the potential to reduce absenteeism and boost academic performance.

École secondaire Roméo Dallaire

École secondaire Roméo Dallaire

Designing it right.
Reaping the rewards.

The project's significant reduction in electricity demand garnered recognition and support from the Ontario Power Authority's High Performance New Construction (HPNC) program:

$50,040
incentive to the school board

$12,510
incentive to the designer

$10,000
towards the cost of modeling building performance

54.6% more energy efficient than a reference school

125 kW less than reference school for summer peak demand for electricity

Lower emissions and reduced environmental footprint

More comfortable teaching and learning environment

The École secondaire Roméo Dallaire received a total incentive of

$72,550

from the Ontario Power Authority's High Performance New Construction (HPNC) Program.

HPNC's custom program stream is designed to promote a wide range of green building features and technologies to achieve reductions in electricity use. It's an approach that works well with LEED's Green Building Rating System™ which also encourages exploration of various building options in order to find the best fit with goals and constraints of individual projects.

LEED specialists Enermodal Engineering worked with Robertson Simmons Architects and other members of the design team from the early schematic design phase, using building simulation software to explore different sustainability strategies and helping the client choose cost-effective approaches. Their ongoing review and verification ensured that the project met targeted energy savings.

The Conseil scolaire de district du Centre-Sud-Ouest aims to ensure that its new schools provide an excellent learning experience in a green environment. Although green schools require a higher investment up front, Mrs. Suzanne Labrecque, Director of Building Planning and Maintenance, is confident that the benefits of sustainability far outweigh the costs.

"We feel strongly that all school boards have a great responsibility towards minimizing our impact on the environment. Ensuring that all new schools are built to be as sustainable as possible should be seen as an important priority. We believe that students learn by example and we are proud that the buildings we provide them demonstrate the Board's commitment to environmental responsibility."

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OPA's High Performance New Construction (HPNC) Program

The Ontario Power Authority's HPNC program, delivered by Enbridge Gas Distribution and Union Gas, offers incentives to incorporate electricity efficiency in the design and construction phases of new buildings, additions and major renovations.

Incentives are available for both prescriptive projects (where builders choose from the OPA's menu of pre-approved technologies) and custom projects (where building modelling is used to determine the impact of site-specific efficiency upgrades).

Eligible new building projects include: office buildings, industrial buildings, retail spaces, multi-unit residential buildings, affordable housing complexes, colleges, universities, schools, hospitals, long-term care facilities, agricultural buildings, hotels and motels. Single-family dwellings are not eligible.

Find out how you can qualify by phoning 1-888-OPA-HPNC, visiting **www.hpnc.ca**, or emailing **hpnc@enbridge.com.**

To qualify for the HPNC Program, a project must be located in Ontario (excluding the 416 area code), conform to Part 3 of the Ontario Building Code (OBC), and be intended for commercial, institutional, industrial or multi-unit residential occupancy. Agricultural buildings may apply. Applications will be accepted for approval through late fall 2010, and projects must be completed, evaluated, and delivering energy savings by December 2012. Buildings that obtained a building permit between August 2007 and March 2008 may also be eligible.

Program Highlights

$250 per verified kW saved in the prescriptive stream

$200-$250 available per verified ton for alternative energy measures

Up to $60 per eligible in-suite appliance in multi-residential new construction

$250-$400 per verified kW saved in the custom stream

$50-$100 per verified kW saved available to design decision-maker in custom stream

100% of building modelling costs, up to $10,000

Available throughout Ontario outside 416 area code.

ONTARIO POWER AUTHORITY

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