GOLD for École Polytechnique de Montréal's new "green" buildings
A tangible response to the challenge of climate change

November 30th, 2005 *- It's official: École Polytechnique de Montréal's new "green" buildings, the Claudette-MacKay-Lassonde and Pierre-Lassonde buildings, have received Gold certification from the U.S. Green Building Council (USGBC). This makes École Polytechnique the first university institution in Canada to obtain international LEED (Leadership in Energy and Environmental Design) certification from the USGBC. The energy performance of the Lassonde buildings -- training grounds for tomorrow's engineers -- is 60% better than the standard set by the Model National Energy Code of Canada for Buildings. Scoring 46 on the LEED points scale, the highest score ever obtained in Canada, the Lassonde buildings, which officially opened last month, have raised the bar in sustainable construction practices and in so doing, have paved the way to other similar initiatives.*

Savings equivalent to the CO2 emissions from 20,000 cars

"Because we are conscious that in North America buildings alone generate one-third of CO2 emissions, the innovative practices adopted throughout the construction of the Lassonde buildings are our tangible response to the challenges posed by climate change," says Michel Rose, Director of Major Construction Projects at Polytechnique. "Based on the current Canadian average and a 40-year forecast horizon, our choices and energy efficiency alone mean savings equivalent to the CO2 generated by 20,000 cars throughout one year."

Mr. Rose added: "Notable among the various measures implemented to help reduce greenhouse gases are the extensive use of recycled materials and the fact that approximately 50% of the materials chosen were extracted and manufactured within 805 kilometres, thus reducing the emissions produced by transport. What's more, we are encouraging alternative modes of transportation by promoting public transit, bicycles, carpooling and even (by providing electrical outlets for recharging) the use of hybrid vehicles. Lastly, our energy consumption is optimized through building automation and

commissioning."

Tangible measures to increase energy efficiency and reduce the environmental impact of construction

The LEED certification process that Polytechnique chose to undertake has numerous components: sustainable site management; water savings; energy efficiency and atmospheric preservation; the use and re-use of materials and resources; interior environment quality; and innovation.

Among the distinctive features of the Lassonde buildings are the recycling of heat from the chimneys of adjacent facilities to generate two-thirds of the heating for the new buildings; the use of HFC-134a in mechanical systems to minimize damage to the ozone; BACnet control systems that allow energy and water needs to be constantly monitored; interior sensors that automatically shut off lights and air conditioning in peripheral areas; energy-efficient lighting; the use of paint, coverings, furnishings and doors that emit little or no volatile organic compounds or urea formaldehyde; the recovery of 82% of construction waste; a "green roof" composed of grass and white stone; and the collection of rainwater and drainage water for re-use in the sanitation system, leading to a 92% reduction in the consumption of drinking water.

Polytechnique leads the way

The Lassonde buildings construction site was the first in Québec to adopt the USGBC-LEED evaluation system. Though the team may not have contained any one LEED-certified member at the start of the project, many of the professionals who participated have acquired certification since. And in the wake of the Lassonde buildings, other Canadian universities are falling into step and choosing to build "green."

Multiple-award-winning buildings

In January 2004, before work on the Claudette-MacKay-Lassonde and Pierre-Lassonde buildings was even complete, the architectural project received Canadian Architect magazine's Award of Merit. In October 2004, École Polytechnique received a Pilier d'or from the Association des gestionnaires de parcs immobiliers institutionnels (AGPI), coming first in the "Technical Merit and Innovation" category. Just recently, the project was honoured with the Trophée Contech 2005 in the "Innovative Practice in Sustainable Development" category.

Primary firms involved in the Lassonde building construction project

- Architecture: Saia et Barbarese architectes / Desnoyers Mercure et associés / Menkès Shooner Dagenais architectes
- Mechanical and electrical engineering: Bouthillette Parizeau et associés inc. / Pageau Morel et associés inc.
- Civil and structural engineering: Pasquin St-Jean et associés

LEED: Leadership in Energy and Environmental Design

The LEED (Leadership in Energy and Environmental Design) Green Building Rating System® is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. Members of the U.S. Green Building Council representing all segments of the building industry developed LEED and continue to contribute to its evolution. LEED standards are currently available or under development for:

- New commercial construction and major renovation projects (LEED-NC)
- Existing building operations (LEED-EB)
- Commercial interiors projects (LEED-CI)
- Core and shell projects (LEED-CS)
- Homes (LEED-H)
- Neighborhood Development (LEED-ND)

USGBC member committees are actively collaborating on new and existing LEED standards. Check for periodic LEED updates.

LEED was created to:

- define "green building" by establishing a common standard of measurement
- promote integrated, whole-building design practices
- recognize environmental leadership in the building industry
- stimulate green competition
- raise consumer awareness of green building benefits
- transform the building market

LEED provides a complete framework for assessing building performance and meeting sustainability goals. Based on well-founded scientific standards, LEED emphasizes state of the art strategies for sustainable site development, water savings, energy efficiency, materials selection and indoor environmental

quality. LEED recognizes achievements and promotes expertise in green building through a comprehensive system offering project certification, professional accreditation, training and practical resources.

Click below to view the LEED Foundations documents:

- LEED Committee Charters - describes the purpose and scope of each LEED Committee
- LEED Foundations Policy Manual - describes USGBC policy for consensus based development of the LEED family of products
- LEED Product Development Handbook - describes the operating procedures for management and administration of LEED Products

See website at www.usgbc.org/DisplayPage.aspx?CategoryID=19

ÉCOLE POLYTECHNIQUE MONTRÉAL
Affiliée à l'Université de Montréal

PAVILLONS LASSONDE,

SYMBOLES DE L'EXPERTISE DE POLYTECHNIQUE EN DÉVELOPPEMENT DURABLE

PERFORMANCE ÉNERGÉTIQUE

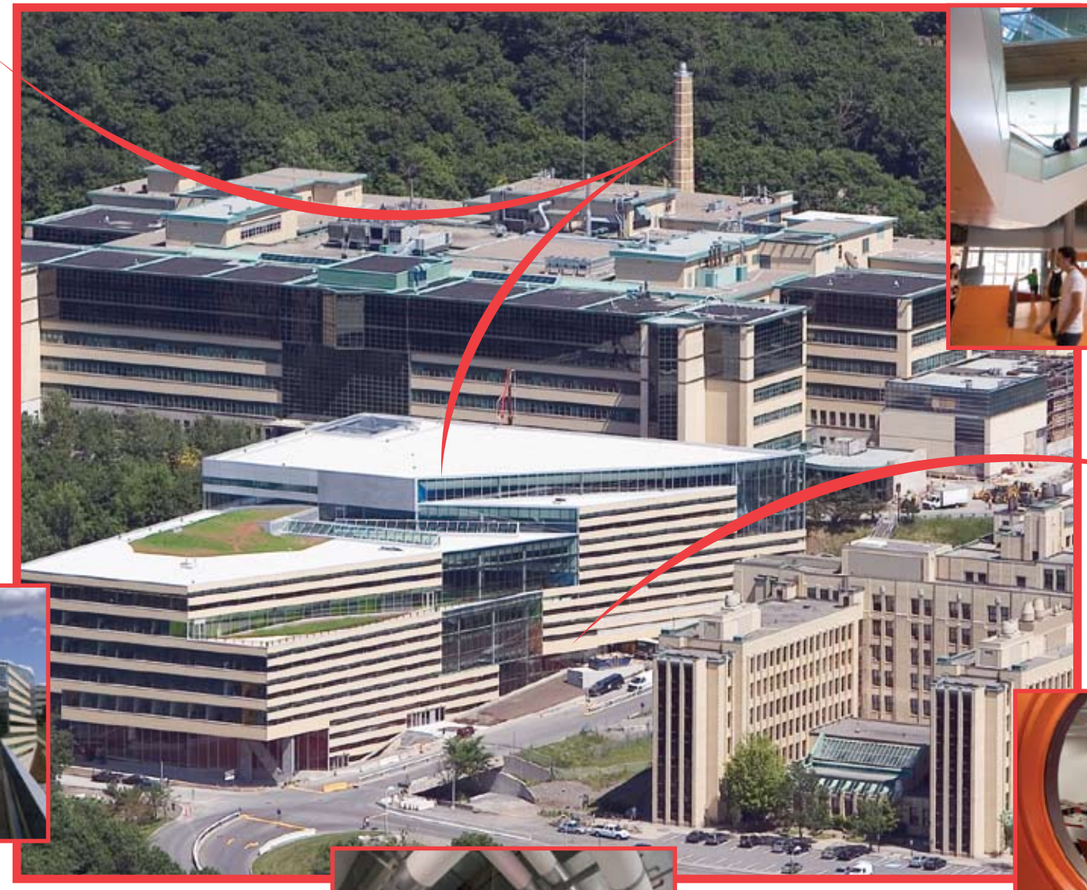
- **60 %** plus efficace énergétiquement que la norme fixée par le *Code modèle national de l'énergie pour les bâtiments*.
- Systèmes mécaniques utilisant du HFC-134a pour protéger la couche d'ozone.

ÉCONOMIE DE CHAUFFAGE

* Environ les **2/3** du chauffage proviennent de la chaleur récupérée des gaz de la cheminée du pavillon principal.

HEATING SAVINGS

Approximately 2/3 of the heating comes from the energy recoverable in the flue gases of the principal chimney.



L'ATRIUM

L'Atrium situé au coeur du bâtiment reflète le virage écologique de Polytechnique. La peinture utilisée sur les murs intérieurs des huit étages symbolise les éléments de la Terre.

Rouge : Magma
Orange : Terre
Vert : Verdure
Bleu : Ciel

STATIONNEMENT

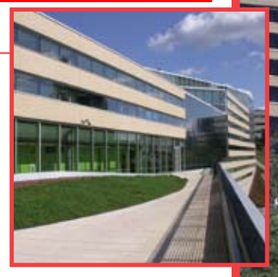
185 espaces de stationnement :

- **2/3** réservés au **covoiturage**.
- 6 espaces prévus pour la recharge électrique de **véhicules hybrides**.

TOITURE ET FENÊTRES

900 m² de toiture verte et le reste est composé de pierres blanches pour minimiser les charges thermiques.

50 % de l'enveloppe externe du bâtiment est fenestrée.



IMMOTIQUE

Détecteurs de présence
éteignant automatiquement la lumière et la climatisation dans les locaux situés en périphérie.

RÉCUPÉRATION DE LA PLUIE

En récupérant l'eau de pluie et de drainage pour alimenter les équipements sanitaires, nous utilisons **92 %** moins d'eau qu'un bâtiment conventionnel.

CONSTRUCTION

- **Récupération** de **82 %** des déchets de construction.
- Forte utilisation de **matériaux recyclés**.
- Environ **50 %** des matériaux choisis ont été extraits et fabriqués à moins de 805 km, réduisant les émissions produites par le transport.

www.polymtl.ca/lassonde