



## RAINWATER RECOVERY AT UQAM – A PROMISING APPLICATION !



The UQÀM Biological Sciences building, located downtown Montreal, received the prestigious **LEED-NC Silver USGBC** certification (*Leadership in Energy and Environmental Design*) in August 2007 with a total of 34 points. It is the second sustainable university building in the province of Quebec, after the Lassonde Pavilions of the École Polytechnique de Montreal, which obtained the first LEED-NC Gold institutional certificate in 2006. The project was designed by Tétrault, Parent & Languedoc (PTL)/ Saia & Barbarese Architects and the mechanical and electrical engineering performed by HBA/BPA Consortium.

The highest part of the building has 11 floors with a total surface of 373,507 ft<sup>2</sup> (34 700 m<sup>2</sup>). The academic section of the building is distributed over the five lower floors. The upper floors will be used as rental space. Its tinted glass facade refers to the spiral structure of DNA. The

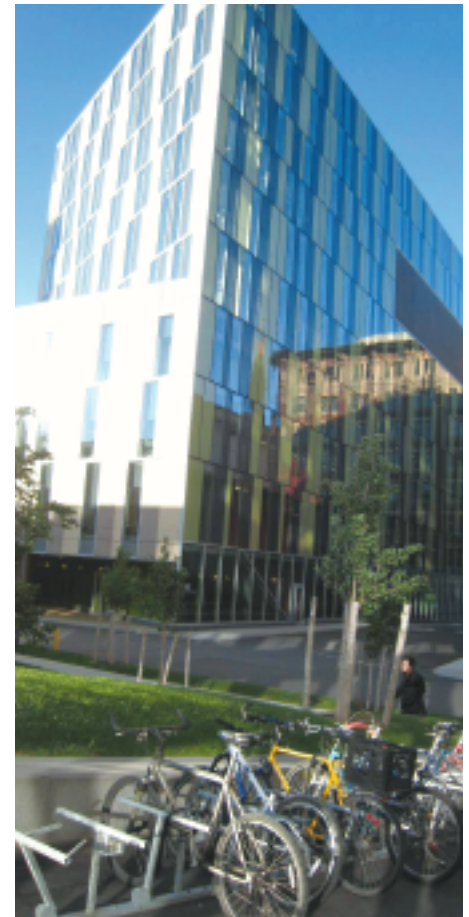
building also houses various laboratories, centres, research groups and chairs.

UQÀM has succeeded in implementing a large number of the criteria defined in the LEED grid: site access to public transport; bicycle parking; car pooling reserved for cyclists; thermal performance of the exterior envelope; use of ecological cleaning products; etc.

### RAINWATER RECOVERY

In order to obtain LEED-NC certification and taking budgetary restrictions into **account, UQAM integrated an innovative design to save drinking water.** Particular attention has been paid to the management of rainwater, which is recovered and used to supply grey water for toilets and landscaping usage. Following the green trend, the low-consumption toilets only use 6 litres per flush (1.6 gpf) compared to the old standard systems which use 9 lpf (2.4 gpf). This

UQÀM





results in a water saving of 33%. Waterless urinals also give an additional saving of 380,000 litres (100,000 gallons) of water per year. The septic systems are used by around 900 people (enrolled students and tenants).

The rainwater comes from roof surfaces and neighbouring alleys. The water is collected and accumulated in an underground reservoir with a capacity of 15,000 gallons (56 700 litres) and then undergoes a primary disinfection treatment (chlorination). The water is then filtered with two Vortisand® AWT1-30-SI (2-micron) filters, each with a capacity of 100 gpm (22,7 m³/h).

The Biological Science Pavilion's installation gives a substantial water saving with a global drinking water reduction of 59,5%, in which is 11%

related to rainwater polishing. The combined wastewater technologies resulted in an overall 92% reduction – meaning less water to be treated upstream at the filtration plant.

**FILTRATION OF COOLING WATER – FOR OPTIMAL HEAT EXCHANGE**

Two other Vortisand® systems are used to filter the water from the cooling systems, as the building has two independent water cooling systems. The first, comprising two 800-ton cells (totalling 1,600 tons), provides air conditioning in summertime. One Vortisand® AWT2 24 SP filter, with a bypass capacity of 150 gpm (34,1 m³/h) , ensures the optimal removal of particles in suspension. The second 200 tons cooling tower system, is smaller and provides air conditioning during the winter period. A



Vortisand filter model AWT1-16-SP with a capacity of 30 gpm (6,8 m³/h) keeps it clean. The advantages of very fine filtration of cooling system water can be summed up in short by the optimisation of heat exchange and the reduction in the use of more powerful chemicals due to the absence of particles in suspension. Energy savings could be made by opting for better heat exchange knowing that microbiological problems in cooling water systems cost enormous amounts each year due to high energy costs.



For more information on the Vortisand® filters contact Sonitec at:  
**1-888-876-9655**  
 or visit the website:  
[www.vortisand.com](http://www.vortisand.com)



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