

## CENTRE FOR SUSTAINABLE DEVELOPMENT

Located at 50 Sainte-Catherine Street West in Montreal, the **Centre for Sustainable Development**<sup>1</sup> offers over 200 workers a space of 65,000 sq. ft. divided between five floors. Led by Équiterre and designed to promote sustainable development, this project was created with the support of seven other socially conscious organizations, their partners and donors. At a cost of \$27 million, the building's goal is to receive platinum LEED certification, a challenge that has required many innovative actions.

To ensure the optimization of the building's energy performance, the Centre's designers turned to building automation, the preferred ally of any eco-responsible project. Therefore, with over 1150 control points, the infrastructure implemented by Regulvar orchestrates the work of most of the equipment required to manage the building's water, heating, air conditioning, ventilation and scheduled load shedding. A major advantage with the building automation system is that it includes measuring tools that provide data required to monitor and analyze consumption.

<sup>1</sup> Maison du développement durable

Photos courtesy of  
Bernard Fougères

To meet the majority of the building's air conditioning and heating needs, the Center can count on a mixed water network working with two heat pumps connected to 28 geothermal wells. To maximize energy savings, the building automation system combines temperature sensors, energy



meters and water meters, which also helps assess the condition of the system and quantify consumption of both cold water and grey water.

The Centre's ventilation is controlled by a fresh air system with heat exchanger, an air treatment system on the ground floor, and a dual duct air treatment system on the second and fifth floors that uses the space between the structural slab and the floor as a supply duct. This device reduces energy consumption given that it requires less thrusting power and fresh air. To improve energy reliability and efficiency, the building automation system controls innovative air treatment units made up of several rows of fans and linked to variable-speed drives. What's more, motion sensors help decrease the temperature and intensity of the ventilation in certain

rooms when they are empty. Finally, to clean the air and obtain LEED points, the Regulvar team flushed out the ventilation system over a period of two weeks before the occupants arrived.

An atrium, whose windows extend over the five floors, is located on the southwest side of the Centre. To avoid unnecessarily using air conditioning or heat, the building automation system controls the automated blinds that are positioned automatically based on the information received from the external ambient light sensors. In the summer, a system that automatically activates certain windows to open or close based on the weather will be used to improve air circulation. The green wall improves air quality but to preserve the plants, circulation will stop automatically if the detected humidity level is too low.

Finally, to reduce electricity costs, a scheduled load shedding automatically adjusts the operations of certain devices in order to limit demand.

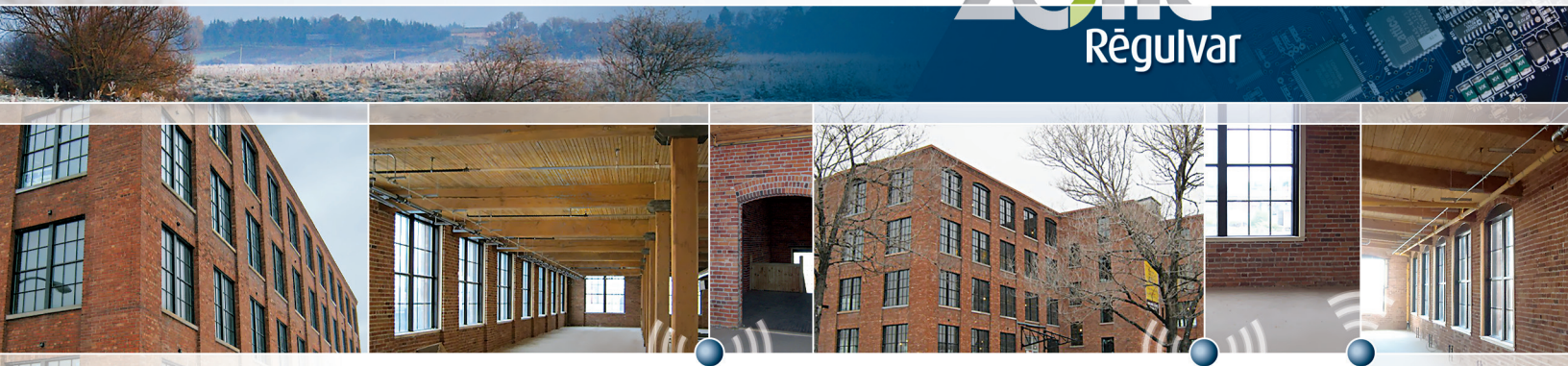
Other sustainable strategies have been implemented at the Centre, which will serve as an example for other green construction projects. The Centre's site provides additional information:

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## The Lampron Building 100% wireless

Now designated as an historic monument, the **Lampron Building** was built by the City of Trois-Rivières in 1916. At the time known as the *Usine municipale*<sup>1</sup>, its offices were rented to different types of industries—an innovative service for that time given that most industrial buildings had tenants from a single industry. Over the years, the building has housed Lampron Shirt Limited, which remained a tenant until the early 1980s, as well as *Le Nouvelliste* newspaper and the Balcer Glove Manufacturing Company.

In 2010<sup>1</sup>, after developers failed in their attempt to turn the building into a hotel, Mr. Pierre Barakett and Murray Couture purchased it, converting it into an office building. With a rental area of over 40,000 sq. ft., the building's architectural features are both of interest and well preserved: extensive fenestration, brick walls, wooden beam floors and ceilings, and wooden support columns.

<sup>1</sup> Municipal plant

The renovation project was designed to adapt the offices for various needs while protecting the integrity of the structures and the building's heritage. This presented a challenge for the stakeholders, who needed to propose customized solutions. For instance, the absence of closed walls and ceilings made it complicated to discreetly install material and cables and also increased the risk of damage. The building automation system implemented by Regulvar uses wireless technologies to resolve this issue.

The use of wireless instruments to control the lighting devices and the over 150 fan coil units, which control the temperature on the different floors, was a first. Each fan coil unit contains a programmable controller capable of creating a Zigbee mesh network connected to the four antennae on each floor. The antennae use wireless Zigbee technologies for the fan coil units and EnOcean for the thermostats and the lighting control devices. All the thermostats, occupancy detectors and light switches use EnOcean self-powered wireless technology, and the lighting relays are integrated into the lights.

The building automation system orchestrates and centralizes the operations of the

remaining heating, ventilation and cooling equipment, thereby ensuring collaboration between a variety of devices: the rotary heat exchanger, the solar wall used to preheat incoming air, the 13 geothermal wells, the gas boiler, pumps, heat pumps and the different metering devices, e.g. temperature and pressure sensors. The system makes it possible to prioritize geothermal energy resources and rely on backup energy only when necessary, resulting in maximized savings.

In total, over 1000 control points are used to monitor the work of several hundred devices and to co-ordinate their actions. The information obtained can be consulted at a dedicated computer station and operations can be modified if necessary. The managers of the Lampron Building therefore have all the tools they need to ensure occupant comfort and minimize operating costs.

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### UPCOMING TRAINING

**Laval (French) :**  
**ORCAVIEW 3.33**  
intermediate level  
February 6•7

**ORCAVIEW 3.33**  
advanced level  
February 8•9

**GCL + PROGRAMMING**  
February 13•14•15

**CREATION OF  
GRAPHIC INTERFACE**  
February 22•23

**Ottawa (English) :**  
**ORCAVIEW 3.33**  
intermediate level  
February 27•28

**ORCAVIEW 3.33**  
advanced level  
February 29 • March 1

**GCL + PROGRAMMING**  
March 5•6•7

**CREATION OF  
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For more  
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## Did you know?

Regulvar now has available the V3-DAC (DAC-R1108, DAC-R1136, DAC-R1180) from Delta Controls in replacement of V2-micro models (ICP040, ICP045). Because they are the same size as the previous model, installation is quick and easy.

