DALHOUSIE UNIVERSITY

LEMARCHANT PLACE

Dalhousie University – Green Building Features (LEED® Gold Candidate)

Owner:
Dalhousie University

Architect:
DSRA Architecture with Zeidler Partnership Architects

Mechanical & Electrical Consulting Engineers:
O'Neill, Scriven & Assoc's Limited

LEED® Consultant:
Solterre Design

Construction Manager:
Aecon Atlantic Group

Project Manager:
Eastin Projects Ltd

LeMarchant Place

The $48 million dollar LeMarchant Place, is located on the corner of LeMarchant and South Street, Halifax, NS. It is a seven-story, 165,000-square-foot facility. The bottom two floors house a variety of student services, including: Welcome Centre and Recruitment Office; International Centre; Student Health Services; Student Health Promotion; and Counselling and Psychological Services. The top five floors are dedicated to residence rooms accommodating over 300 students. The building is estimated to have an office occupancy of 202 people and a residence occupancy of 326 people.

Green Building Features

Renewable Energy: Solar Domestic Hot Water

The building has 46 flat-plate solar hot-water collectors mounted on the roof, with a total collector area of 136 m². Three shell and tube water-to-water heat exchangers are piped to 16 domestic hot water storage tanks that each hold 435 litres. The system is anticipated to produce 127,180 kWhe worth of energy annually. A BTU meter measures the flow rate and the temperature into the system versus the temperature out. This information is used to calculate energy production.

Green Roof

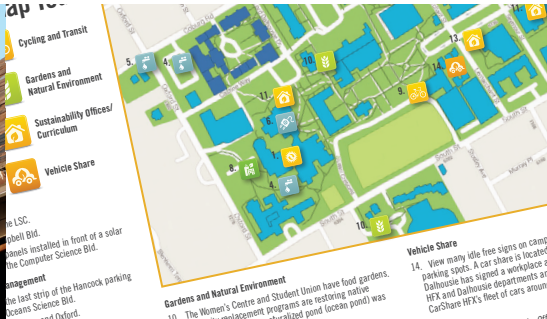
On level three, four vegetative green roofs help filter pollutants from the air and rainwater, increases biodiversity, reduce stormwater runoff, reduce heat loss, and increase the roof's life span. In total the green roofs cover an area of 218 square metres. Over 10 varieties of sedums are used. The roof soil depth is between 7.5–12.5 centimeters. The system helps to mitigate the "Urban Heat Island Effect".

Construction and Demolition Waste

Four houses were on the site where the building stands. In each house over 86% of materials were diverted from the landfill through salvage and recycling efforts. In one of the four houses, deconstruction processes were used. This involves dismantling the house systems to achieve cleaner material and higher diversion rates. In this particular house, deconstruction achieved a 93% diversion rate. On the full project including construction and demolition (C&D), approximately 88% percent of C&D materials were diverted from landfills. This includes aggregates, wood, metals, cardboard, glass, asphalt shingles and salvaged building components.

Green Building Education

LeMarchant Place green features are outlined in the Campus Sustainability Tour and in a two-page fact sheet. Utility meter information from the building will be provided on a public accessible dashboard that is used for the education and competitions such as the annual residence Ecolympics. Other relevant building features include native species tree selection to provide biodiversity and convenient bus and car share access.





Energy Efficiency

Key energy efficiency measures used in the building are projected to save 42% of the energy compared to a typical building. Measures include:

- Ventilation heat recovery through the use of multiple energy recovery ventilators (ERVs).
- Variable Refrigerant Flow (VRF) heat-recovery heat-pump system. VRF systems can be 25% more efficient than traditional systems. System compressors can be controlled to match the exact load of the room conditions as opposed to running in either off or on mode. This system also utilizes heat recovery by removing energy from one zone that doesn't need it, and applying it to a different zone that does.
- Variable speed drive pumps and fans. Controls on these units adjust the work level of the pumps and fans to match the required power requirements.
- Premium efficiency motors are typically 5% more efficient than standard motors. These motors have lower losses through enhanced insulation and design features such as more copper and efficient cooling.
- Reduced lighting power density with occupancy and daylight sensor controls are used throughout the building. LED lighting is utilized for exterior lighting. Inside, LED lighting is used in accent lighting, reception areas, vestibules, and quite areas. Through-out the rest of the building high efficiency T8s lamps are employed.
- High-performance, argon-filled, double-glazed windows with a low-e coating are used throughout the building.
- Enhanced, third-party, full building commissioning was utilized.

Green Cleaning and Waste Management

Green cleaning products and practices outlined in Dalhousie's green cleaning policy are used in the building. Four-bin waste management systems are used throughout the building (paper, recyclables, organics, and waste). A specific waste bin space guideline was created for campus spaces. LeMarchant Place is the first building to apply these standards on campus.

Cycling Facilities

28 bike spots are provided directly outside building entrances. Indoors two bike rooms are provided with end-of-trip facilities. One room is for student services employees. It includes 4 bike spots, 18 lockers, and 2 showers. Another shower is accessible in the main floor of the building. The second bike room is for residences and includes 61 bike spots. Students have access to showers and storage in residence areas.

Water: Low-Flow Fixtures and Rain-Water Cistern

This facility utilizes low-flow faucets (1.9 litres per minute); toilets (in residence dual flush 3/4.8 litres per flush and podium/public 4.8 litres per flush); urinals (0.5 litres per flush); and low-flow showerheads (7.5 litres per minute). A 20,000 litre rainwater cistern is located in the basement. Rainwater is used for the toilets, urinals, and green roof leading to a 48% reduction in potable water use.

Finishes

Most building finishes have zero or low emissions. These materials reduce the release of significant pollutants, such as volatile organic compounds (VOCs), into the indoor environment. As well, all manufactured wood products are produced with no added urea formaldehyde (NAF). These measures make for a healthier indoor environment. FSC certified wood was used in architectural trim, reception desks, and residence kitchen areas.

For more information on Dalhousie Green buildings and Sustainability Projects visit:

http://www.dal.ca/dept/sustainability/programs/Built_Environment.html

For more information on campus development visit:

http://www.dal.ca/dept/facilities/campus-development.html

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