LAKEHEAD SUSTAINABILITY

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LINKS TO SUSTAINABILITY DOCUMENTS AND RESOURCES

Sustainability Website

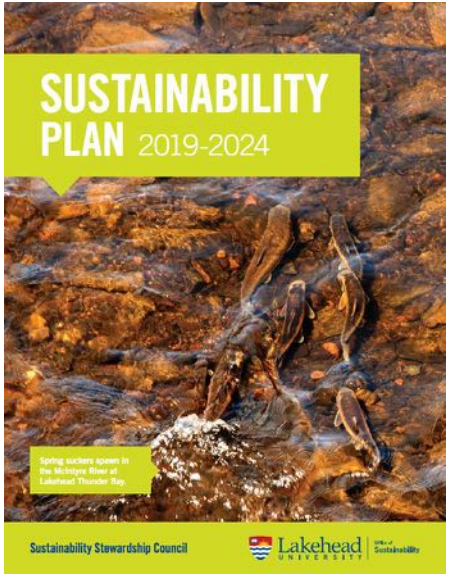
2019-2024 Sustainability Plan

Sustainability Newsletter

Lakehead University Orillia Bottled Water Policy

Lakehead University Sustainable Building Policy

Braun Building Rain Garden Video



SUSTAINABLE LIVING AT THUNDER BAY CAMPUS

Recycling

To request a recycling bin for your office or room, contact the Work Order Clerk at ext. 8273.

- Recyling bins in offices are for paper products only
- Place cardboard outside office doors
- Place containers in multi-unit receptacles found on most main corridors

SORTING

Containers

- pop cans
- milk cartons
- juice boxes
- plastic #1 and #2
- glass bottles and jars
- clean aluminum foil
- metal cans
- no container lids please!

Paper Products

- newspapers
- flyers
- junk mail
- magazines
- soft cover books
- fine paper
- paper egg cartons
- ceral boxes and dry food boxes

Cardboard

- flattened corrugated cardboard

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SUSTAINABLE LIVING AT THUNDER BAY CAMPUS

Recycling

Office Supplies

- You can save your pens, pencils, highlighters, markers, ink and toner cartridges, drum units, and more to recycle on Office Supply Recycling Days, dates for 2020/2021 to be determined due to COVID-19.

Cigarette Recycling

- All designated smoking areas on campus are outfitted with ashtrays. The butts are recycled into plastic products and any remaining tobacco is composted.

Battery Drop-off

- Physical Plant – AC148
- Campus Tech
- Security - UC1014
- Bartley Building – Atikokan 200, Dryden 200, Ear Falls 200, Fort Frances 200, Geralton 200,
- Kenora 200, Longlac 200, Marathon 200, Nipigon 200, Rainy River 200
- Avila Building – Wawa 104BA, Shabaqua 230A
- North Apartment Building – Shebandowan 112, Armstrong 212, Upsala 312
- South Apartment Building – Schreiber 112, Balmerton 212, Jelico 312
- North Spirit Heights Townhouse – Laundry Building
- Deer Lake Ridge Townhouse – Laundry Building
- Bearskin Lake Townhouse – Laundry Building

SUSTAINABLE LIVING AT THUNDER BAY CAMPUS

Water Bottle Filling Stations

- Patterson Library 1st, 2nd, 3rd, and 4th floors
- Ryan Building 2nd floor
- University Centre across from Security
- Bora Laskin Building 1st floor
- CASES Building ground floor and main floor
- Avila Centre by gym
- Bartley Residence main hallway
- Wolf Den (forthcoming)

All Gender and Single Use Washrooms

- CASES Building main floor FB 2022
- Student Health and Wellness
- Centennial Building CB4011, CB4023, and CB4059
- University Centre 2nd floor UC (only accessed through security or accessibility) UC 2025
- ATAC Building main floor AT1011 and AT1012
- School of Nursing Building main floor SN1021F (accessed in a lab)
- PACI Building main floor PA1014A and PA1016

Universal Washroom

- CASES Building main floor FB 2021

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SUSTAINABLE LIVING AT THUNDER BAY CAMPUS

Nature Trails

Take a health and wellbeing moment and check out the many nature trails that Lakehead's Thunder Bay campus offers (see attached map). These trails follow the McIntyre River and the Trans Canada Trail.

SUSTAINABLE LIVING AT ORILLIA CAMPUS

Water Bottle Filling Stations

- OA Building 1st floor, 2nd, and 3rd Floor
- Cafeteria
- Heritage Place Commons

All Gender and Single Use Washrooms

- OA Building 1st floor
- Heritage Place

Batteries

- Currently accepted at Home Depot

Cell Phones

- Currently accepted at Best Buy

SUSTAINABILITY HIGHLIGHTS AT LAKEHEAD

LEED Buildings at Orillia

Lakehead University's commitment to sustainable building began with its Orillia campus. Designed to be built at the highest of environmental standards, it was the first university campus Canada build to LEED Platinum. Leadership in Energy and Environmental Design, or LEED, claims to be the highest green building rating system in the world, with platinum being their highest designation.

The Orillia campus is also home to sustainability-focused academic programming, including the Sustainability Science Department, the Certificate in Environmental Sustainability, and the Ontario Master Naturalist program.

As a result of Lakehead's commitment to the Orillia buildings, the Sustainable Building Policy was created, projecting all future builds on the Orillia campus to be LEED Platinum, and in Thunder Bay, which had the challenge of a preexisting campus, to LEED Gold.

Orillia Academic Building
Photo credit Moriyama & Teshima Architects

The following information was collected from the Moriyama & Teshima Architects report on the Orillia LEED highlights:

Geothermal

A vertical ground loop system extracts heating and cooling from the earth by way of central heat pumps. These pumps then boost the temperature of the ground to a useful temperature for heating and cooling. As the ground maintains a steady and mild temperature, the efficiency of the heat pumps improves. This system helps the Academic Building to be 50 percent more energy efficient than a typical building of this type and size.

Bioswales

Bioswales are landscape elements designed to remove silt and pollution from surface runoff water. They consist of a swaled drainage course with gently sloped sides and filled with vegetation. The water's flow path, along with the wide and shallow ditch, is designed to maximize the time water spends in the swale, which aids the trapping of pollutants and silt. Biological factors also contribute to the breakdown of certain pollutants. A common application is in parking lots, where substantial automotive pollution is collected by the paving and then flushed by rain. The bioswale treats the runoff before releasing it to the watershed or storm sewer.

Bioswales | Photo credit Moriyama & Teshima Architects

Materials and Resources

More than 56 percent of the construction materials in the Academic building were extracted and manufactured regionally, thus strengthening the University's link to the community and minimizing the project's carbon footprint

The feature stone wall consists of Algonquin and Eramosa limestone, locally quarried and manufactured. The stone adds a layer of scale, rhythm, and texture to the overall building design, emphasizing unique elements of the Canadian landscape.

Dual Duct Dedicated Outdoor Air VAV System

This system utilizes two parallel air distribution systems: one for delivering ventilation air only, and one for cooling on an as-needed basis. This allows for greater effectiveness and lowers the required quantities of ventilation air while maintaining high air quality. The second system provides space cooling only when needed, allowing for the quality and energy saving benefits of a traditional dedicated outdoor air system with central equipment for easy maintenance.

Orillia Academic Building | Photo credit Moriyama & Teshima Architects

Light and Air

Natural light, excellent air quality, and connection to the outdoors were prioritized to enhance user experience and sustainability. Tall windows allow natural light into the Academic Building's rooms, while remaining within the 30 percent building envelope opening limit to help control energy demands. Motorized blinds, occupancy sensors, and dimming controls have been installed, as well as controls for air-flow, temperature, and lighting, which allow user control over the environment thereby improving user satisfaction and productivity.

Site Ecology

Native plantings have been used where possible. Adaptive and drought-tolerant species have been selected to minimize the need for supplemental watering.

Orillia Academic Building | Photo credit Moriyama & Teshima Architects

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Native plantings have been used where possible. Adaptive and drought-tolerant species have been selected to minimize the need for supplemental watering.

Life Cycle Considerations

The Academic Building is designed for a 'long life' and is adaptable to current and future needs through a simple structural grid, 'loose-fit' ceiling spaces, clear organization of spaces and circulation, and interior partitions that are easy to change with no major services within walls. Materials and systems were chosen and detailed with a focus on low maintenance.

Green Roof

50 percent of roofing incorporated to control stormwater runoff, reduce heat island effect and reduce building cooling loads.

Green Roof | Photo credit Moriyama & Teshima Architects

Green Roof | Photo credit Moriyama & Teshima Architects

Bicycle Storage and Changing Rooms

Reduced automobile transportation strategies included supplying bike racks and showers for building users, negotiating to extend bus transit to the campus, limiting parking capacity to just meet by-law requirements, and inclusion of carpool spaces in preferred locations for building occupants, and the university has an online carpool site.

Orillia Academic Building | Photo credit Moriyama & Teshima Architects

SUSTAINABILITY HIGHLIGHTS AT LAKEHEAD

LEED Buildings at Thunder Bay

The first major build since Lakehead Orillia, the Centre for Advanced Studies in Engineering and Sciences (CASES) building meets LEED Gold standards. Funded by federal, provincial, and municipal dollars it is the first official green building on Thunder Bay's campus. The building is a retrofit of the former Centre for Northern Forest Ecosystem Research (CNFER), along with a 20,000 square foot addition.

CASES Building | Photo Credit i4architecture

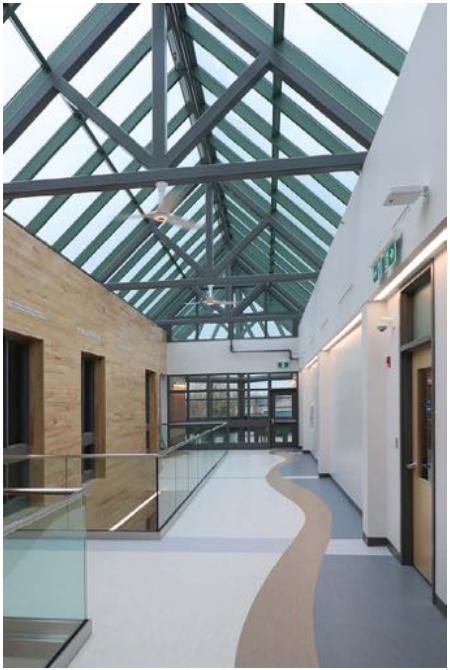
Enhanced Daylighting

Similar to Orillia's Academic Building, the CASES building is designed with the ability to turn lights off purposely. Enhanced daytime lighting reduces the need for artificial lighting until necessary. The abundance of natural light also creates a warm atmosphere, promoting health and wellbeing and ample viewing to the outdoors.

The window design creates the conditions for passive solar heating which reduces reliance on energy. During the summer season, blinds are in place to help reduce heat gain or discomfort and prevent overheating.

The existing atrium was incorporated into the design, bringing natural light onto both the core and sub-ground floor of the building.

The building is also equipped with LED and motion censored lighting.



CASES Building
Photo Credit i4architecture

The Old With The New: Building Materials and Indoor Air Quality

i4architecture designed the building so that "The materials, finishes, and colors will extend between the existing building and new addition, creating a seamless integration of interior spaces." For example, in the centre of the subfloor, the brick of the old building transitions into wood where the new building begins.

Materials for the building were chosen for their environmental sustainability, quality, durability and recycled content or ability to be recycled at the end of their expected life. To meet this standard, materials had low emovided energy and no-to-low volatile organic compounds. Essentially, this means that products were chosen based on criteria that they will not off-gas harmful compounds that could disrupt allergies or indoor air quality. This applies to materials like drywall, paint, plastic laminate counters, furniture, sealants, flooring material, and the construction materials that are contained within the walls.

CASES Building
Photo Credit i4architecture

The design uses as much wood as possible, including an exposed wood structure on the inside Wood is used where possible because it is a rapidly renewable product. The use of wood, though integrated throughout, was limited due to the classification of the building as non-combustible. The metal studs used in the walls are made from recyclable material.

Energy Efficiency and Plumbing

The building uses heat recovery exhaust systems, low-flow plumbing, and is connected to the University's efficient central hot water heating system.

Access to Clean Water

There are several chilled water bottle filling stations in the building, encouraging users to avoid single-use plastic.

CASES Building | Photo Credit i4architecture

Active Transportation

Roofed bike shelters promote the use of alternative means of transportation during extended lengths of the season. In inclement weather--yes even in winter--people can cycle because their bikes are protected from the elements. There are also showers in the basement to increase comfortability of walking or cycling to work. Cycling promotes health and wellbeing as well as a sustainable method of transportation that doesn't rely on fossil fuels.

Accessibility

The building has an all-gender washroom, and a universal washroom which features a power door, barrier-free toilet and sink, turning space to accommodate a wheeled mobility device, and an infant changing table.

Bike Storage | Photo Credit i4architecture

Stormwater Management

A move away from most campus buildings constructed in the 60s and 70s, the CASES building features low impact stormwater management landscaping that aims to divert stormwater from the storm system whenever possible. The building is collecting roof and ground stormwater and distributing it into the ground. In the event of an unexpected or extreme weather event, an overflow is in place that connects to the storm sewer system in order to avoid damage to the building.

The landscaping features indigenous and drought tolerable plants. Since all stormwater on campus flows into the McIntyre River, the landscaping in this design helps filter pollutants and slow down the rate of the runoff, protecting the long term health of the watershed and mitigating flooding.

Bioretention Area | Photo Credit Ledah McKellar

Health and Wellbeing

A labyrinth was constructed on the grounds of the building to encourage contemplative and mindfulness practices. The labyrinth is a walking, meditative path with twists and turns that mimic those that we may experience on our own life journey. It encourages the walker to slow down and reflect.

Labyrinth | Photo Credit Ledah McKellar

SUSTAINABILITY HIGHLIGHTS AT LAKEHEAD

SUSTAINABILITY HIGHLIGHTS AT LAKEHEAD

Braun Building Rain Garden

What is a rain garden?

Rain gardens are a form of low-impact development (LID) designed to mimic the natural absorption and movement of water in urban landscapes. Rain gardens can take on a variety of sizes, shapes, and compositions to suit the needs of the specific sites where they are located. While there are many different benefits to installing a rain garden, managing stormwater, filtering toxins and reducing pollution, and providing habitat and food for local wildlife are three of the most prominent.

Managing stormwater: In built-up areas, like the Lakehead University campus, impermeable surfaces like parking lots and pathways encourage water runoff and prevent water absorption. Rain gardens slowly process precipitation, helping to reduce the amount of runoff and alleviate the stress of high precipitation periods on the stormwater system.

Filtering toxins and reducing pollution: Water that enters city storm drains does not receive any treatment before entering local rivers and Lake Superior. This untreated water encounters various pollutants including garbage on the street, oil runoff from cars, and animal waste. Rain gardens utilise the natural abilities of the plants and the soil to help filter this runoff and reduce the amount of pollutants entering larger bodies of water. storm drains does not receive any treatment before entering local rivers and Lake Superior. This untreated water encounters various pollutants including garbage on the street, oil runoff from cars, and animal waste. Rain gardens utilise the natural abilities of the plants and the soil to help filter this runoff and reduce the amount of pollutants entering larger bodies of water.

Providing habitat for food and local wildlife: Rain gardens often utilise native wildflowers and shrubs that are well suited to local temperatures, soil types and soil moisture levels. In addition to their aesthetic value, these flowers are often incredible sources of food for pollinators like bees, butterflies and birds. With declines in populations of many pollinator species, the presence of native wildflowers are more important than ever.

Development of this garden

In June 2018, a group of university students and staff came together to bring the rain garden to life. Over a series of three workshops led by EcoSuperior, students learned about stormwater management, native plants and rain garden site assessments. In the final workshop, students developed two candidate garden designs which played a considerable role in shaping the final garden design and composition.

It is the hope of all involved that the garden will be not only a relaxing outdoor space, but also a living laboratory where students can engage in hands on learning.

We'd like to thank the following groups for their support and contribution to this project: EcoSuperior, Great Lakes Guardian Fund, Lakehead University Faculty of Health Sciences, Lakehead University Physical Plant.

SUSTAINABILITY HIGHLIGHTS AT LAKEHEAD

M'wade Gaazhi Namaadibinaanowin Outdoor Classroom

Hard surfaces, such as parking lots, rooftops, and paved courtyards disrupt the natural water cycle by causing poor drainage and flooding. When precipitation washes over these areas it turns into stormwater that carries with it heavy metals, excess nutrients, salt, bacteria, and other pollutants that flow directly into rivers, and ultimately to one of our largest sources of freshwater, Lake Superior. Since stormwater flows quickly over paved surfaces it increases flood risk, which can cause damage to habitat, infrastructure, and property.

This project transformed the Centennial Building courtyard into an outdoor classroom and is part of a broader movement to 'depave' hard surfaces. By removing the concrete from the courtyard and replacing it with native plants, we are restoring the land and allowing Mother Nature to do what she does best—manage rain as it falls, naturally.

To make this outdoor classroom accessible to all types of mobility the concrete walkways were retained and crusher fines were used in the seating area. Crusher fines are composed of the left-over dust and chips at gravel pits which in this area are usually composed of granite. While they may appear to be a hard surface, they are a permeable alternative to asphalt or concrete and allow precipitation to be absorbed slowly into the ground. Together, the vegetation and crusher fines filter pollutants and mitigate flooding.

Development of the "M'wade Gaazhi Namaadibinaanowin" Outdoor Classroom
(Anishinaabemowin for "Where People Sit Down")

This outdoor classroom is nestled within the University's arboretum. To continue the theme of ecological learning, it was designed as a space where students and community members can both gather outdoors for classes, and also learn about native plants. The four demonstration gardens represent the boreal forest ecosystem, the tallgrass prairie ecosystem, medicinal and edible uses of plants, and pollinator-friendly plants. Many of these plants are locally and culturally significant and are used widely by Indigenous Peoples for edible, medicinal, ceremonial, and craft-making purposes.

In August and September of 2019, a group of students, staff, faculty, EcoSuperior employees, and community members helped to install the classroom and demonstration gardens. Many of the native plants were grown in the University Greenhouse.

This project was made possible by Depave Paradise, Green Communities Canada, Lakehead University Physical Plant, TD Friends of the Environment, Lakehead University Office of Sustainability, EcoSuperior Environmental Programs, as well as many students, staff, faculty, and community members who contributed to this project.