

Dalhousie University Sustainable Building Approaches

New Construction, Existing Buildings, and Operations and Maintenance

Updated January 2021

Background

This document outlines Dalhousie Universities' approach to green building for building operations including new construction, retrofits and renovations, and operations and maintenance.

Dalhousie University passed a [Sustainable Building Policy](#) in 2011 that identified targets and approaches to green building. Ongoing education, workshops, lesson learned sessions, helps to refine and enhance our work.

Goals:

- Lower the total cost of ownership
- Improve workplace well-being and productivity
- Reduce environmental and health impacts
- Support sustainable transport and landscapes
- Demonstrate reputational and community leadership
- Support teaching and research

Building Principles:

Simplicity and Durability: Consideration should be given to maintenance costs and time, system complexity for maintenance and integration, and longevity of systems and products.

Right Sizing: Designing systems not to be oversized resulting in higher energy and capital costs.

System Integration: To capture waste energy and water for other buildings systems and to ensure systems are programmed to work together.

Key Focus Areas:

Site Management and Landscapes: Includes consideration and targets for integrated pest management, restoring and enhancing landscapes, reducing light and heat from buildings, and managing the building sites for erosion control, hazards, and tree protection.

Transportation: Includes support for sustainable transportation modes from vehicle sharing, low-emitting and alternative vehicles, and active transportation.

Water Reuse and Efficiency: Includes reusing gray and rain water and reducing total water consumption.

Energy and Atmosphere: Includes reducing carbon emissions, criteria air contaminants, and ozone depleting chemicals. This is achieved through the reduction of energy, using renewable energy, installing appropriate air quality controls, and reducing and/or eliminating the most potent types of ozone depleting chemicals.

Materials: Includes sustainable purchasing of goods and services and reducing and diverting material from the landfill.

Indoor Environments: Includes following a green cleaning program that includes products and equipment, reducing indoor air contaminants and following best management practices, and considerations for occupant comfort.

Innovation and Leadership: Includes being a leader in understanding, testing, and re-evaluating and implementing new systems to achieve the best performance in green building. This includes a commitment to a detailed metering plan and building level meters for all utilities (water, heat/cooling, electricity, renewable energy). Sub-metering (in particular electricity) is also advocated for buildings to understand different energy loads.

As part of University strategic planning efforts in 2020-2021, environment and sustainability consultations and study process identified a number of strategies for the future including an updated green building policy that moves to the next level and provides an updated comprehensive targeted approach for new construction, existing buildings, and operations and maintenance for the next decade. The revision of the sustainable building policy is slated for the 2021-2022 fiscal year.

Current Approaches

New Construction:

In the current Sustainable Building Policy, LEED® Gold certification or higher is outlined as a policy target for new construction. Progress made on this target is reported to campus and community members through the [University Sustainability Progress reports](#) and the [Sustainability Tracking Assessment and Rating System](#).

Existing Building/Campus Upgrades and Building Operation and Maintenance:

Dalhousie has developed a number of programs, plans, policies and guidelines that provide direction, standards, and targets for building construction, renovation, and management for the following focus areas. Third party certification programs have been and are being assessed for ongoing use in existing building construction and operations. Renewed assessment information will be used to help frame recommendations for the renewal of the Sustainable Building Policy.

Site Management and Landscapes:

- Goals and Objectives are articulated in the [University Sustainability Plan](#) and [Sustainability Policy](#), [Campus Master Plan](#) and the [Dalhousie Natural Environment Plan](#). Required implementation directives are outlined in the [Facilities Management \(FM\) Design Landscape guidelines](#). A number of topics are included in the guidelines including general landscape principles minimizing light and heat pollution, tree replacement standard, tree protection, storm-water management, and green roofs.

Transportation:

- Goals, objectives and targets are outlined in the [University Sustainability Plan](#) and [Sustainability Policy](#), The [University Transportation Demand Management Plan](#), the [Campus Master Plan](#) and the [Institutional Cycling Plan](#).

- In the [FM Design guidelines for Active Transportation](#) certain requirements are outlined for cycling infrastructure including type of bike rack, numbers required for projects, and end-of-trip facilities. The [Vehicle Share and Green Fleet guidelines](#) provide support and standards for low-emitting and alternative use vehicles.

Water Reuse and Efficiency:

- Goals, objectives and targets are outlined in the [University Sustainability Plan](#) and [Sustainability Policy](#), the [Campus Master Plan](#) and The Campus Energy Master Plan which includes energy and water.
- The [University Procurement Policy and sustainability considerations](#) outlined in the policy highlight the requirements for the consideration to total cost of ownership and purchasing water efficient products.
- In the [FM Design guidelines HVAC and plumbing](#) specific standards are outlined for water efficient fixtures and ensuring process water used for uses like AC are not installed with inefficient once through systems.

Energy and Atmosphere:

- Goals, objectives and targets are outlined in the [University Sustainability Plan](#) and [Sustainability Policy](#), the [Campus Master Plan](#), The Campus Energy Master Plan, and the [University Climate Change Plan](#).
- In the [FM Design guidelines for HVAC and plumbing](#) specific standards are outlined for energy efficient equipment and systems.
- The [University Procurement Policy and sustainability considerations](#) outlined in the policy highlight the requirements for the consideration to total cost of ownership, purchasing energy efficient products, and purchasing ENERGY STAR products.
- In the [FM Electrical guidelines](#), specific standards are outlined for energy efficient systems such as lighting.
- In the [FM Commissioning guidelines](#), specific standards are outlined for conducting building commissioning.
- As a signatory to the Climate Change Statement of Action for Canada the University commits to having a Climate Change Plan, posting annual GHG reports, and reducing GHGs.
- The university has [idle-free guidelines](#) to reduce outdoor air pollution.

Materials:

- The [University Procurement Policy and sustainability considerations](#) outlined in the policy highlight the requirements for the consideration a number of sustainability factors for goods and services including eliminating and/or reducing toxins and re-using goods.
- Through the university food services contract local and third-party certified requirements are outlined for food purchases along with additional requirements for waste management and energy and water efficiency. More specific university targets are being developed for the future.
- Goals, objectives and targets are outlined in the [University Sustainability Plan](#) and Waste Management Plan for reducing and diverting material from the landfill. All three levels of government regulate waste management bans and targets. The university has recently passed waste bin space guideline standards to help with contamination. More programs are in development to reduce amounts and contamination.

Indoor Air Quality:

- The university has a smoke free campus policy.
- A comprehensive [green cleaning policy and program](#) are followed. More work is being done on blue cleaning.
- Indoor air quality standards for ventilation are outlined in FM design guidelines.

Innovation and Leadership:

- A formal Energy Management Information System plan, software and meters have been implemented.
- Innovative building systems such as geothermal and building batteries are implemented and tracked.

Monitoring:

The Office of Sustainability and Facilities Management meets regularly with a number of FM staff to track, support and work on implementation of policies, guidelines, and programs. Progress is also tracked and publically reported in the [three year Sustainability Progress report](#) and [Sustainable Tracking Assessment Rating System \(STARS\)](#). Examples of regular forums to discuss progress on key topic areas include:

- Energy committee meetings (scope includes energy, water, and air quality) – programs, issues, and monitoring are discussed.
- Monthly Transportation and Security meetings – Transportation Demand Management is a standing item.
- Yearly meetings with FM planners to review elements like energy efficiency opportunities for Facilities Renewal projects.
- Materials, Waste, and Cleaning – Regular meetings and ongoing project development and tracking with Grounds and Custodial group.

Training and Education.

- [Educational tours, maps, videos, signage and overview documents](#) are used to provide ongoing education and engagement.
- Dal project managers received LEED GA certification.
- Training on related topics like solar pv have been organized.