

4.1 Institutional Sustainability

4.1.1 Institutional Sustainability Policy

The University of Calgary Sustainability Policy confirms the U of C's commitment to "excellence and leadership in advancing the pursuit of Sustainability in teaching, research, campus operations and community service". It also confirms the principles and accountabilities that will govern how the U of C acts upon this commitment and provides authority to the President and VPs to approve supporting policies in alignment with the Sustainability Policy.

4.1.2 Institutional Sustainability Plan

The Institutional Sustainability Plan confirms how the UofC will act upon the Institutional Sustainability Policy. It confirms institutional goals, measurable indicators of progress, and increasing targets over time. Further, the University of Calgary has developed a Climate Action Plan that addresses more detailed objectives in the areas of energy supply and energy demand within the sectors of built environment and transportation. To ensure that all projects are in alignment with these strategic planning documents, each project initiation package will include a Project Sustainability Brief outlining project specific requirements beyond the basic sustainability requirements included in the University of Calgary Design Standards.

For new construction and major renovations, the UofC will pursue a minimum certification level of LEED Silver under LEED Canada for New Construction and Major Retrofits 2009 (LEED Canada NC 2009). The Project Sustainability Brief will identify required LEED credits and outline minimum performance thresholds.

Interior retrofits greater than 4,000 m² will pursue LEED certification under LEED Canada for Commercial Interiors (LEED Canada CI); specific requirements will be confirmed in the Project Sustainability Brief. The UofC is pursuing a multi-year portfolio approach to LEED Canada for Existing Building Operations and Maintenance; related requirements will be included in the Project Sustainability Brief.

All projects pursuing LEED certification will pursue an innovation credit for implementing a Green Education Program and shall follow the UofC template for related signage and case studies. Consultants shall provide the UofC copies of all LEED documentation.

4.1.3 Building Total Cost of Ownership

The University of Calgary is a long-term building owner/operator and as such desires, as far as practicable, to design and construct buildings which minimize the total cost of ownership over the life of the building.

During the facility design and development process, project design teams shall strive to;

- Maximize building longevity by providing a fully functioning facility for varied uses and functions over the building's anticipated lifetime
- Provide controls to operate building systems permitting portions of the building to be used efficiently while other portions are unoccupied or closed
- Enhance ease of operation and maintenance of infrastructure systems



- Permit retrofit and renewal of infrastructure systems
- Provide features which will permit flexibility and change of spaces to new/other occupancies at a minimum cost

Building life expectancy should reflect the University's long term goals within the context of the building/facilities program and the Calgary climate extremes. All buildings shall be designed for a building life expectancy as follows:

- 100 years for the structure and inaccessible components
- 50 years for the building envelope, except roofing
- 25 years for shingle or membrane roofing (metal roofing should provide a 100 year life expectancy)
- 25 years for interior components
- 30 years for mechanical systems (without major upgrade or replacement)
- 30 years for electrical systems
- Finishes shall be selected that require minimum maintenance.

Additions will be designed with a life expectancy equal to the expected life of the building receiving the addition.

Major interior renovations will be designed for a life expectancy of 20 years.

Building design decisions with respect to alternative solutions shall be guided by this desire to minimize the total cost of ownership over the life of the system or component.

4.1.4 Energy Use

Buildings are the largest user of energy and source of greenhouse gas emissions on campus. In order to meet the University's greenhouse gas reduction targets all new buildings and major building retrofits or additions must be designed to meet the following energy use targets through the design approach noted below. The Project Sustainability Brief will provide specific energy performance requirements.

4.1.4.1 Design Approach

In the design of new campus buildings, or significant renovation/addition of existing buildings, the consulting team must have a comprehensive, integrated approach to energy optimization that seeks to:

- Reduce heating, cooling, and lighting loads through climate-responsive building massing, orientation and envelope design
- Evaluate opportunities associated with the use of passive/natural energy sources such as economizer cycle free cooling, passive solar heating and natural ventilation
- Specify HVAC and lighting systems that consider efficient operation at full and part-load conditions



- Optimize building performance through the use of energy modeling programs early in the design process; demonstrate compliance with performance targets at each project phase (including Schematic Design) prior to advancing to the next project phase
- Specify sufficient system metering to allow on-going analysis of building performance and effective re-commissioning
- Comply with the LEED Canada NC 2009 requirements for Measurement and Verification

For major retrofits, create an existing building energy and water performance baseline against which the proposed improvements can be assessed.

Explore viable building based renewable energy technologies that offer a return on investment and opportunities for experiential learning/research or partnerships for technology development and transfer.

4.1.4.2 Energy Use Targets

Design all new buildings to provide an annual energy cost reduction in the proposed building of 38% when compared to a baseline defined according to Appendix G of ANSI/ASHRAE/IESNA Standard 90.1-2010.

Design all major retrofits to provide an annual energy cost reduction in the proposed building of 36% when compared to a baseline defined according to Appendix G of ANSI/ASHRAE/IESNA Standard 90.1-2010.

The proposed design will include all energy consumption and costs within and associate with the building project. Unregulated loads are to be modelled accurately to reflect the actual expected energy consumption of the building.

The University of Calgary will establish an emissions performance target as part of the Project Sustainability Brief. The target will be established as tonnes CO₂ equivalent per square meter-year (tonnes CO₂e/m²•yr).

4.1.5 Indoor Environmental Quality

Facilities must be designed and constructed with an appreciation of the importance of providing high-quality, interior environments for all users.

During the facility design and development process, projects must have a comprehensive, integrated perspective that seeks to:

- Facilitate quality IEQ through good design, construction, and operating and maintenance practices
- Value the importance of views and daylighting as well as the integration of natural and man-made elements
- Provide thermal comfort with a maximum degree of personal control over comfort parameters
- Supply adequate levels of ventilation and outside air to ensure indoor air quality



- Control outside air quantities provided to spaces with highly variable occupancies through the use of CO₂ monitoring or occupancy based demand controlled ventilation
- Prevent airborne bacteria, mold, and other fungi through heating, ventilating, air-conditioning (HVAC) system designs that are effective at controlling indoor humidity, and building envelope design that prevents the intrusion of moisture
- Avoid the use of materials high in pollutants, such as volatile organic compounds (VOCs) or toxins - comply with LEED Canada NC 2009 (or equivalent for LEED Canada CI) requirements for Low Emitting Materials
- Assure acoustic privacy and comfort through the use of sound absorbing material and equipment isolation
- Control disturbing odors through contaminant isolation
- Create a high performance luminous environment through the careful integration of natural and artificial light sources.

Construction activities shall seek to prevent indoor air quality problems resulting from the construction/renovation process in order to help sustain the comfort and well being of construction workers and building occupants, through the use of;

- A Construction IAQ Management Plan - comply with LEED Canada NC 2009 (or equivalent LEED Canada CI) requirements for IAQ management during construction.
- a building flush-out after construction ends and before or overlapping with occupancy.

Project contract documents shall include a requirement for baseline indoor air quality testing. A representative sample of spaces, as determined on a project-by-project basis, shall be tested for formaldehyde, PM10, TVOC and carbon monoxide levels after construction ends.

All University of Calgary buildings are designated non-smoking facilities. Any exterior smoking spaces provided shall be adequately distant from the building so as to not contribute to smoke infiltration into the building. Comply with LEED Canada NC 2009 (or equivalent for LEED Canada CI) prerequisite for Environmental Tobacco Smoke Control.

[U of C Indoor Air Quality \(IAQ\) Management Plan During Construction for Projects > \\$2M](#)

4.1.6 Construction Waste Management (CWM)

All projects must comply with the UofC CWM Guideline to achieve a waste diversion rate of 75% minimum.

[U of C Construction Waste Management Plan for New Building and Major Renovations](#)

[U of C Construction Waste Management Plan for Minor Renovations](#)

4.1.7 Erosion and Sedimentation Control (ESC)

All projects, including non-LEED projects involving site disturbance must comply with the U of C ESC Guideline.

[U of C Erosion and Sedimentation Control \(ESC\) Plan](#)



Revision History

Revision Date	Version	Description
Mar 2013	1.0	Baseline version
July 6, 2023	1.0	Added Revision History table to end of document and reset to Version 1.0.