

**Deputy City Manager's Office Report to
SPC on Utilities and Corporate Services
2019 April 17**

**ISC: UNRESTRICTED
UCS2019-0083**

Update to CS005 – Sustainable Building Policy

EXECUTIVE SUMMARY

The City of Calgary's 2008 Sustainable Building Policy has now reached a stage of maturity and a review was initiated as per Council Policy CC046 (Council Policy Program). The proposed updates to the Sustainable Building Policy (the Policy) have been developed using 10 years of lessons learned by The City and our project partners. In addition, the updates are in response to advancements in the green building industry, including the evolution of best practices, building certification programs, the introduction of the National Energy Code for Buildings, and multiple citizen, Council, and Corporate directives, policies, and targets.

There are five recommended updates to the Policy, developed in close consultation with a working group of building infrastructure design, construction, and operations subject matter experts, as well as City staff and industry partners. The recommended updates are intended to introduce greater clarity on policy applicability and City priorities, simplify governance, and focus on achieving high performing infrastructure.

ADMINISTRATION RECOMMENDATION:

That the SPC on Utilities and Corporate Services recommends that Council approve the proposed Sustainable Building Policy (Version 3.0, 2019).

PREVIOUS COUNCIL DIRECTION / POLICY

On 2008 February 25, Council approved revisions to the Sustainable Building Policy as recommended in UE2008-01, Sustainable Building Policy – Update, dated 2008 January 20.

BACKGROUND

The City of Calgary's Sustainable Building Policy (the Policy) was piloted in 2003 and permanently adopted in 2004, with the last major update approved by Council in 2008. As the first jurisdiction in Canada with a policy directing buildings to achieve mandatory levels of green building certification, Calgary's policy not only demonstrated significant leadership, but helped build a rapidly expanding green building sector in Alberta. To date, The City has achieved 52 green building certifications to date and has demonstrated significant leadership in the green building industry. Today, Calgary's real estate industry reflects The City's commitment to excellence in the design and operations of buildings, with over 390 certified green building projects, representing 8.5 million square feet of certified commercial/retail/office space. According to the Canadian Green Building Council's 2017 Annual Report, Alberta lead the way in the Country with the largest area per capita certified in the country; with The City leading as a top 5 industry champion nation-wide in the number of buildings certified in 2017.

INVESTIGATION: ALTERNATIVES AND ANALYSIS

The triple bottom line (TBL) vision that guided updates to the Policy is as follows:

A city that demonstrates smart infrastructure investment goes beyond the one-time cost of construction, by addressing the lifecycle impacts on operating cost, the environment, and the people who use the infrastructure.

Deputy City Manager's Office Report to
SPC on Utilities and Corporate Services
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UCS2019-0083

Update to CS005 - Sustainable Building Policy

There are five recommended updates to the Policy which are intended to introduce greater clarity on policy applicability and City priorities, simplify governance, and focus on achieving high performing infrastructure that will demonstrate value-for-investment. These recommendations are summarized in Table 1 **Error! Reference source not found.** below:

Table 1: Summary of recommended updates to the Sustainable Building Policy

CLARIFY	SIMPLIFY	FOCUS
The establishment of a set of sustainability principles to help guide decisions by setting project-specific performance objectives, investing in green infrastructure technologies, and the continued operations and maintenance of infrastructure, to which the Policy applies. These principles directly align with citizen priorities, council direction and administrative policies.	A change in policy governance, to provide clarity on the roles and responsibilities of Project Sponsors, Project Managers, and the Policy Steward (Corporate Analytics and Innovation).	Promoting the establishment of project objectives and owner requirements early in the project development process. Setting appropriate green building certification targets, in alignment with the City's Project Management Framework, including the stage gating processes.
	Revisions to the applicability and scope of the Policy and the introduction of performance targets. Green building certification will now be evaluated by the Policy Steward on a project-by-project basis; and, upon recommendation by the Steward, potentially pursued at the direction of the Project Sponsor.	The introduction of recommended sustainability performance requirements that demonstrate alignment with the sustainability principles that guide infrastructure investments, while demonstrating value-for-money.

Stakeholder Engagement, Research and Communication

Corporate Analytics and Innovation (CAI) has worked with a multi-disciplinary team of design, planning, project management, and facility operations experts to develop the recommendations for the updates to the 2008 Sustainable Building Policy. Also, CAI has engaged a team of industry experts to help determine relevant and achievable performance measure targets that helped direct the proposed revisions to the Policy. The policies of major Canadian jurisdictions such as Toronto, Vancouver, and Edmonton were also reviewed.

On 2018 October 9, the proposed updates were presented to the Accommodation and Infrastructure Steering Committee (AISC). AISC agreed to endorse the proposed amendments to the Policy.

The proposed updates were also presented to the Administrative Leadership Team (ALT) on 2019 January 15, with ALT approving the referral of the proposed updates to the Standing Policy Committee on Utilities and Corporate Services, with no amendments.

Deputy City Manager's Office Report to
SPC on Utilities and Corporate Services
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Update to CS005 - Sustainable Building Policy

Strategic Alignment

The first recommendation for the Policy update is to establish a set of sustainability principles to direct decision making that aligns with Citizen Priorities, Council Directives, and Corporate Policies.

Sustainability is a term with a broad definition. By specifying Council and Corporate leadership priorities, project teams can better identify sustainability strategies that should be considered as The City develops new infrastructure and maintains and improves existing assets. CAI proposes the following sustainability priorities that will contribute to better defining sustainability:

- 1. Optimize for energy efficiency and conservation, specifically through passive design, thereby reducing and avoiding Greenhouse Gas (GHG) emissions:**
Aligned with Calgary's Climate Resiliency Strategy and Corporate Energy Strategy, the optimization of energy performance (on an energy cost and consumption basis) will drive strategies that reduce and conserve energy. This will help diversify the sources of energy to a potentially lower cost and lower emitting sources, at a price justified by the value of the benefits achieved.
- 2. Reduce potable water use through conservation and efficiency measures:**
Aligned with Calgary's Water Efficiency Plan 30-in-30 by 2033, water efficiency and conservation will prioritize strategies that reduce the use of potable water while ensuring the functional requirements of the building program and the needs of the building occupants are fulfilled.
- 3. Encourage the integration of green stormwater infrastructure:**
Aligned with The City's Stormwater Management Strategy, Climate Resilience Strategy, improved on-site stormwater management will help reduce the impact of more extreme storm events on Calgary's rivers and stormwater infrastructure. Results can be achieved by implementing strategies in building and landscape design that support water retention during the most extreme rainfall events while encouraging the installation of drought tolerant native landscaping that provides habitat for wildlife.
- 4. Maintain and improve biodiversity:**
Calgary enjoys an abundance of wildlife and natural habitat. Aligned with The City's BiodiverCity Policy, we can promote healthy urban living while conserving sensitive natural areas and the creatures that share our city. By evaluating landscapes in Calgary, we look to set targets to reduce habitat fragmentation, avoid habitat loss, restore open space, manage invasive species, and utilize local plant species.
- 5. Address occupant comfort, provide access and maintain social wellbeing:**
Aligned with the Calgary Corporate Accessibility Policy, Access Design Standards and an emerging Social Wellbeing Policy, ensuring places and facilities strive to provide equitable services, by removing barriers to access, and including indoor and outdoor environments that encourage health, wellbeing, and productivity.
- 6. Select sites that have access to alternative transportation and consider the impact of site selection on the environment, people and the building:**
Aligned with the Calgary Corporate Accessibility Policy, the Calgary Transportation Plan, The City of Calgary's Environmental Policy and many other Corporate and Council

Deputy City Manager's Office Report to
SPC on Utilities and Corporate Services
2019 April 17

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UCS2019-0083

Update to CS005 - Sustainable Building Policy

objectives, ensuring places and facilities are accessible to those who use them is a top priority for The City. The selection of sites should also consider the impact to the environment, the people that use the building and to the building and its components.

7. Design for resiliency to changing economic, social, and environmental conditions:

Aligned with the Climate Resiliency Strategy and the Corporate Energy Plan, The City needs to prepare facilities for a changing climate and protect itself from economic uncertainties around utility rates. Strategies focus on rough-ins for onsite power production and electrical vehicle charging, as well as focusing on stormwater management, facility durability, and business continuity will help ensure The City is prepared to mitigate an evolving set of risks.

8. Divert waste from landfills during construction, occupancy and demolition:

Aligned with Calgary's Waste Diversion Strategy, the introduction of minimum waste diversion targets during building construction and demolition, and a program that encourages waste reduction post-occupancy, will help reduce the amount of waste sent to Calgary's landfills.

Although green building certification continues to provide value on City-owned and funded projects, the best approach to aligning with the listed sustainability principles is to define performance requirements before considering the applicability and benefit of certification programs.

Certification programs provide an audit service on building projects, helping The City confirm targeted sustainability objectives are achieved. However, a generic certification target does not always guarantee desired outcomes; highlighting a need to define minimum performance targets so project teams are guided by common measurable design and operational objectives.

In response to guidance provided by both internal and external subject matter experts and based on experience, minimum building performance requirements that are aspirational, while demonstrating value, have been developed. The list of performance requirements has been aligned with the sustainability principles noted above and therefore are informed by Council and corporate policies, directives, and strategies in addition to trends in the green building sector.

The Policy will direct all projects, to which the Policy applies, to reference the mandatory minimum performance measures, which are to be applied and interpreted under the guidance and direction of the Policy Steward. These requirements may be adjusted at the discretion of the Policy Steward and the Strategic Planning Team/Project Sponsor if achievement is restricted by the project type or scope. This means that the best-fit objectives and targets are specified on a project-by-project basis.

CAI continues to see value in the pursuit and achievement of green building certification for select project types. Building certification is part of a comprehensive building commissioning process, helping confirm that the basis of design and the physical construction of a project achieved specified sustainability objectives.

CAI has developed a project certification evaluation tool to be completed by the Strategic Planning Team/Project Sponsor to highlight specific certification pathways that would benefit each specific project. In addition to LEED certification, this evaluation tool encourages project teams to consider alternative certification programs including the Well Standard, Passive

Deputy City Manager's Office Report to
SPC on Utilities and Corporate Services
2019 April 17

ISC: UNRESTRICTED
UCS2019-0083

Update to CS005 - Sustainable Building Policy

House, Living Building Challenge, Envision, BuiltGreen, NetZero Emissions Framework, and other programs such as the Rick Hansen Accessibility Accreditation that may be more relevant to a project.

Below is a table highlighting a preliminary list of minimum performance measures:

Table 2: Summary of Proposed Minimum Building Performance Measures

¹ Performance Measure	Requirement Summary
Optimize Energy Performance	Achieve an energy use and energy cost performance improvement of at least 40% (26% for Affordable Housing projects) above the National Energy Code for Buildings (NECB) 2011 baseline. For interior renovations, achieve a lighting power density improvement of at least 40% above ASHRAE 90.1 2010.
Comprehensive Commissioning	Complete enhanced commissioning for the major energy consuming systems and the building envelope.
Green Power and Carbon Offset Procurement	Contact a Policy Steward or the Energy Management Office for consultation.
Future Resiliency Planning	Design the facility to be solar PV ready and electric vehicle charging station ready.
Stormwater Management	Manage stormwater on-site using green infrastructure and landscaping that encourages water retention and stormwater quality management.
Responsible Landscaping	Design landscaping in a manner that encourages the use of native species while reducing potable water use, manages stormwater, provides habitat, and is accessible for facility occupant / visitor use.
Multimodal Accessibility	Design the site providing priority access to pedestrians, cyclists, and public transit users. Ensure these groups can access the facility in a dignified and safe manner.
Indoor Water Use Reduction	Achieve a designed non-process plumbing fixture water savings of 35% above the defined baseline and do not exceed maximum fixture flow/flush rates.
Enhanced Refrigerant Management	Do not install refrigerants with an ozone depletion potential greater than 0 or a global warming potential greater than 50.
Construction and Demolition Waste Management	Divert at least 80% of non-hazardous construction and demolition waste from landfill.
Construction Indoor Air Quality Management	Develop and implement an indoor air quality management plan for project construction.
² Social Wellbeing	Conformance with the most current version of the Access Design Standard.

¹ Where applicable

² Social wellbeing performance standards are currently under development through a discovery process being undertaken at a new integrated civic facility project currently in the early stages of design.

Deputy City Manager's Office Report to
SPC on Utilities and Corporate Services
2019 April 17

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UCS2019-0083

Update to CS005 - Sustainable Building Policy

As the Policy Steward, CAI also recommends revising the applicability and governance of the Policy. The 2008 version of the Policy excludes any building project, where a building is not regularly occupied. Non-occupied buildings and infrastructure include all linear infrastructure projects (roads, water conveyance, transit system, transit platforms/stations, and facilities that house an industrial process, such as a water/wastewater treatment). The 2008 Policy also does not apply to building improvement and operation projects, unless classified as a major renovation.

The current definition of policy applicability has proven to result in many lost-opportunities to plan for and identify achievable and affordable sustainability performance objectives that would demonstrate value-for-money over the long-term nature of The City's infrastructure investments.

With the exclusion of linear infrastructure such as track-and-way, roads, bridges, and water conveyance systems, CAI recommends that the Policy should be applied to non-regularly occupied structures such as transit stations, platforms, buildings that house industrial processes (excluding the processes) and +15s.

With direction from Calgary Neighbourhoods, the applicability of the Policy to Civic and Community Partners will be limited to projects that exceed \$1 million in capital from The City making up a minimum of one-third of the project costs (not including the cost of land and site servicing).

From an operational perspective, the Policy, and associated sustainability principles and guidance manuals, will help provide a framework for building operators to maintain and improve the performance of their buildings over time. For example, if building systems are upgraded due to a lifecycle program, building operators are directed to consider what impact the project will have and demonstrate maintained or improved performance.

The Policy governance structure has been simplified where policy objectives are first determined by the Strategic Planning Team/Project Sponsor and the Policy Steward. Disagreements are escalated to a director level with the final decision resting with the director of the sponsoring business unit.

The Policy has been amended to specifically encourage the consideration of green roofs, as recommended in NM2017-36. Based on the direction provided under the revised Sustainable Building Policy, green roofs, along with a suite of other technologies and building techniques, will be considered by project design teams and the Policy Steward for their cost and technical effectiveness in addressing sponsor approved performance targets in alignment with Council approved priorities. The assessment of various building design options, including green roofs, is completed during the early phases of project design, on a project-specific basis. This helps ensure that best-fit technologies are identified, are thoroughly evaluated, and viable, cost-effective options are implemented.

Deputy City Manager's Office Report to
SPC on Utilities and Corporate Services
2019 April 17

ISC: UNRESTRICTED
UCS2019-0083

Update to CS005 - Sustainable Building Policy

Social, Environmental, Economic (External)

Social

Sustainable buildings contribute to an inclusive city by supporting access to City services along public transportation routes and supporting a city of vibrant neighbourhoods through inclusion of open spaces within the site. Sustainable buildings provide improved interior environments and contribute to improved occupant comfort, wellbeing, health and productivity.

Environmental

Sustainable buildings contribute to improving air quality, ensuring efficient land stewardship, protecting water resources through water conservation, protecting open space, improving energy efficiency, and addressing climate resilience.

Economic

Well defined sustainability performance objectives help guide the development of cost-effective facilities that will provide long-term value to Calgarians.

Financial Capacity

The inclusion of the guiding sustainability principles in the Policy update, and the establishment of the minimum sustainability performance requirements will help ensure project teams focus on strategies and investments that demonstrate value-for-money, which makes up, in part, the definition of sustainability in the Policy. Value-for-money is demonstrated through direct financial returns associated with avoided capital and operating costs, along with indirect returns related to benefits to the environment and society.

Current and Future Operating Budget:

Mitigating impact on future budgets will be achieved by designing and constructing buildings with resiliency in mind that are more durable, resulting in lower lifecycle maintenance and utility operational costs.

Current and Future Capital Budget:

The early establishment of a sustainability vision integrating performance specifications into the owner's project requirements, and the establishment of well-defined sustainability consultants scope of work documents early on will help reduce project costs. Projects that identify sustainability related performance measures and targets early in the scoping process have historically had higher rates of successfully addressing targets in both design and construction and result in fewer changes that are associated with additional fees.

Risk Assessment

The proposed Policy update is intended to reduce risk for The City as it relates to capital costs during design and construction as well as operating costs as they relate to utilities, operations, maintenance, and emerging environmental regulations. The inclusion of the sustainability principles and the early establishment of minimum sustainability performance requirements will help ensure City projects deliver on the intent of the Sustainable Building Policy, helping contribute to mitigating risks associated with change orders and lost opportunities to achieve avoided capital and operating costs.

Deputy City Manager's Office Report to
SPC on Utilities and Corporate Services
2019 April 17

ISC: UNRESTRICTED
UCS2019-0083

Update to CS005 - Sustainable Building Policy

The Policy updates will also help reduce the risk of The City not delivering on the objectives laid out by The City's Climate Resiliency strategy. Subsequently this will help reduce The City's risk to fluctuations and potential increases in utility costs by reducing the amount of energy and water The City consumes.

CAI has initiated trials of the proposed approach to the revised Policy, guidance documents, and consultant scopes of work on projects with Facility Management (Varsity Civic-District and Symons Valley Centre), Affordable Housing (Bridlewood), Transportation (Green Line), and Civic Partners (9th Avenue Platform Project) and CAI is confident that the proposed approach can be implemented, and encourages making value-for-money investments in improving infrastructure sustainability.

REASON(S) FOR RECOMMENDATION(S):

Multiple Citizen, Council, and Corporate directives, policies and targets direct us to develop and operate our infrastructure while considering sustainability priorities. The Sustainable Building Policy is now due for an update as per Council Policy. Based on lessons learned over the last 10 years, updates are presented to Council to provide greater clarity, focus, and simplicity within the Policy, thereby improving the probability of smarter infrastructure investments.

ATTACHMENT(S)

Proposed Sustainable Building Policy (Version 3.0, 2019)