



CITY POLICY

POLICY NUMBER: C532

REFERENCE:

City Council 10 April 2007

ADOPTED BY:

City Council May 9, 2017

SUPERSEDES:

C532

PREPARED BY: Sustainable Development

DATE May 2, 2017

TITLE: **Sustainable Building Policy**

Policy Statement:

The City of Edmonton will lead-by-example in establishing, implementing and maintaining sustainable building practices for the buildings it owns, leases and funds, over the course of their entire lifecycle. As part of this commitment, and with support from other relevant City Policies, the City will strive to mitigate the effects of climate change by reducing the carbon emissions of its buildings with the goal to support The Way We Green goal of a carbon neutral Edmonton.

The sustainable building practices identified in this policy will be integrated into City operating procedures. Compliance to the policy will be evaluated on an ongoing basis and reported to City Council every two years.

This policy is subject to any specific provisions of the Municipal Government Act or other relevant legislation or Union Agreement.

The purpose of this policy is to:

- Demonstrate the City of Edmonton's commitment to sustainable building practices for buildings it owns, leases and funds, with an aim to:
 - o Reduce overall expenditures through improved building performance and a life cycle approach to costing,
 - o Reduce the City of Edmonton's exposure to price volatility relating to the long-term consumption of non-renewable fossil fuels,
 - o Minimize the negative environmental impacts associated with new building construction, renovation, operation, maintenance, repair and demolition without impairing the intended use or function of the building,
 - o Reduce greenhouse gas emissions from City buildings by improving energy efficiency and increasing the use of clean, renewable energy,
 - o Capitalize on other benefits often achieved by sustainable buildings such as healthier, more productive indoor environments and improved asset values,
 - o Create economic opportunities for Edmonton businesses by stimulating the demand for green building products and services,
 - o Advance these same best practices Edmonton-wide.

DEFINITIONS

Annual Heating Demand: The amount of heating energy required (based on envelope, ventilation losses and internal gains) to the project that is outputted from any and all types of heating equipment, per unit of modeled floor area. A project specific calculation methodology will be detailed in the project specific consultant design manuals and guidelines.

Buildings: as defined by the Alberta Building Code

City-Owned Buildings: Buildings that are legally owned by the City including arenas, pools, leisure centres, libraries, fire stations, police stations, administration buildings, maintenance and shop facilities.

City Leased Buildings: Buildings or portions of buildings that the City leases from non-City building owners that support City staff accommodations, programs and services. City-leased buildings includes buildings occupied by Edmonton Public Library and Edmonton Police Services.

Occupied building: A building that is regularly occupied by staff, contractors or visitors.

Unoccupied: A building that is not regularly occupied by staff, contractors or visitors and is not occupied for extended periods of time (e.g., storage building, pump stations, etc.); or a building that is not occupied by individuals year-round (e.g., a seasonal park pavilion, outdoor pool, etc.).

Construction Certification-Exempt Building: Buildings that are exempt from third-party certification requirements related to design and construction, including newly constructed buildings that have gross floor area less than 500 square meters, additions that have gross floor area less than 500 square meters, and unoccupied buildings of any size..

City Operations Greenhouse Gas Management Plan: A City plan that sets goals, strategies, action plans and budgets for reducing greenhouse gas emissions in City operations.

Leadership in Energy and Environmental Design (LEED) certification: A building rating system that provides independent, third-party verification that a building, home or community was designed and built using strategies aimed at achieving high performance in key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. Refer to external Canada Green Building Council and LEED resources for more information.

BOMA BEST: A voluntary certification program that provides a framework for assessing the environmental performance and management of existing buildings. The rating system assess ten key areas including: energy, water, air, comfort, health and wellness, custodial, purchasing, waste, site and stakeholder engagement. Refer to external BOMA BEST resources for more information.

Lifecycle Cost: The total cost of ownership of an asset over its life. Lifecycle cost takes into account all costs of acquiring, owning, operating, maintaining and disposing of an asset in order to maximize return on investment and achieve the highest, most cost-effective performance.

Lifecycle Cost Benefit Analysis: The analysis entails an assessment of key building elements on a 30-year lifecycle, apply net present value methodology, include energy costs and maintenance costs (above business-as-usual), include element replacement costs over the 30-year lifespan, and apply a City-approved discount rate. Refer to Consultant Design Manuals and RFP specifications for most current project-specific requirements.

Sustainable Return on Investment (SROI): An enhanced form of lifecycle cost benefit analysis that provides a triple-bottom line view of the a project's economic results and monetizes all relevant social and environmental impacts related to the given project, and provides the equivalent financial metrics. Refer to Consultant Design Manuals and RFP specifications for most current project-specific requirements.

Major Renovation: Any renovation to a City-owned building that exceeds 40% of the existing gross floor area of the building and involves Capital Replacement, Rehabilitation, or Retrofits of Major Buildings Systems (see definition) that impact 40% or more of the existing gross floor area; or is characterized as 'Major' in accordance with the Project Classification Tool of the City of Edmonton - Project Management Reference Guide.

Minor Renovation: Any renovation to a City-owned building that is less than 40% of the existing gross floor area of the building or any project characterized as 'Minor' or 'Medium' in accordance with the Project Classification Tool of the City of Edmonton - Project Management Reference Guide.

Capital Replacement, Rehabilitation or Retrofits of Major Building System: Capital projects that address lifecycle requirements (e.g., necessary replacement of end-of-life major HVAC equipment, building envelope components such as roofing, windows and insulation) or opportunistic capital projects that can deliver significant, long-term improvement in energy efficiency or cost savings/avoidance (e.g., lighting, co-generation, submetering and building envelope optimization) or projects that may be characterized as 'Medium' in accordance with the Project Classification Tool of the City of Edmonton - Project Management Reference Guide.

Renewable Energy: Energy that is obtained from natural resources that can be naturally replenished or renewed within a human lifespan (i.e., the resource is a sustainable source of

energy). These resources include moving water, wind, biomass, solar, geothermal, and ocean energy. Biomass is a renewable resource only if its rate of consumption does not exceed its rate of regeneration.

Alternative energy (and onsite generation): Energy generated from alternatives to fossil fuels such as renewable energy, biofuel, biogas, biomass and hydrogen fuel cell. For the purpose of this policy, alternative energy also refers to alternative, localized, on-site energy generation such as heat and power cogeneration.

Sustainable Building Practices: Identified processes, practices or systems widely recognized as ways of improving building sustainability. Such practices extend beyond green building certification that is based on initial sustainable design and construction, and emphasizes sustainable practices throughout the entire building lifecycle.

1. Policy

The City of Edmonton will establish, implement and maintain sustainable building practices for all buildings it owns relative to their acquisition, planning, design, construction, operations, maintenance, renovation, and decommissioning to meet or exceed the following requirements as summarized below:

1.1 Design and Construction of City-Owned Buildings

1.1.1 The City will recognize the significant resource requirements and greenhouse gas impacts of new construction, as well as the value of the embodied carbon in its existing building stock. As part of the business case development, the City will assess whether an identified real estate need of its programs or services can be met through its existing building portfolio and achieved in the absence of new construction.

1.1.2 New City-Owned buildings will be designed and constructed in a manner that mitigates the risks and impacts of future energy and carbon pricing (e.g., through passive design strategies, durable energy conserving building envelopes, etc.) and provides flexibility to incorporate emerging technologies that become cost effective in the future. (e.g., solar ready roofs, provisions for future geothermal, energy storage, etc.)

1.1.3 For design and construction of new City-owned and Occupied (see definition) buildings, or new additions with gross floor area of 500 square meters or greater to City-Owned and occupied Buildings:

- a. All new construction and major renovations shall meet and attain LEED Silver certification at a minimum (or an alternative sustainable building certification that can be demonstrated to meet or exceed LEED Silver). Notwithstanding the prior statement, the City will strive to attain the highest LEED rating possible.
- b. All new construction shall be designed to achieve 40% or greater energy efficiency than the National Energy Code of Canada for Buildings (NECB) 2011; 40% or greater greenhouse gas reduction than the NECB 2011 reference building; and shall not exceed 50 kilowatt hours per square meter for Annual Heating Demand for office buildings and 80 kilowatt hours per square meter (ekWh/m²) for Annual Heating Demand for all non-office building archetypes.
- c. 1% of the total capital project budget of new construction will be dedicated to the

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incorporation of on-site renewable and or alternative energy generation systems.

1.1.4 Construction Certification-Exempt projects (i.e., those smaller than the 500 square meter or unoccupied) will demonstrate how the project will be designed and constructed to meet the intent of this Policy, as per 2.1.1c.

1.2 Sustainability in existing City-Owned buildings

1.2.1 The City will demonstrate excellence in sustainable practices in existing City-Owned Buildings and City-occupied buildings through the establishment of a BOMA BEST certification program.

1.2.2 The City will strive to continuously reduce energy use and greenhouse gas emissions in its buildings in support of long-term corporate, community, provincial and national climate change targets and priorities. In so doing, it will periodically renew the Corporate Greenhouse Gas Management Plan and ensure its implementation.

1.2.3. Sustainable building practices employed by the City shall include:

- Monitoring and benchmarking the performance of all City-owned buildings,
- Conducting energy efficiency audits to identify opportunities for improvement,
- Integrating energy modeling, energy audits, lifecycle cost benefit analysis and sustainable return on investment analysis methodologies into routine lifecycle replacement and capital rehabilitation planning processes,
- Strengthening the integration and accountability with the Corporate Greenhouse Gas Management Plan through the creation of four-year building energy retrofit plans that align with budget cycles, outline proposed energy efficiency upgrades, provide project-specific details and anticipated lifecycle cost benefits,
- Establishing requirements for determining an optimal building portfolio upgrade/retrofit strategy that extends over multiple budget cycles in support of the Corporate Greenhouse Gas Management Plan and creating a path to zero-carbon emissions for the building portfolio,
- Publicly sharing and communicating its sustainable building practices through the establishment and implementation of a Green Building Education Program that incorporates both passive public education tactics (e.g., building signage and online information) and active public engagement and awareness.

1.2.4. Buildings will be effectively operated and maintained to optimize energy performance, minimize resource consumption, minimize environmental impacts and align with corporate asset management principles (without compromising program and service deliverables) as per 2.1.1 d and e.

1.2.5. All eligible City-owned and City-leased buildings will participate in the City of Edmonton Large Building Energy Reporting and Disclosure Program, with phased-in participation beginning in 2017 and full participation achieved by 2019.

1.3 City Acquisition of Existing Buildings

1.3.1 Prior to the acquisition of an existing building that the City intends to retain for its own use or for lease to others, the City shall require an energy assessment be performed and integrated into the existing pre-acquisition process. The energy assessment will determine the building's energy consumption and greenhouse gas performance and the extent of upgrades needed to raise the energy performance to an optimized level of lifecycle cost benefit as per 2.2 e.

1.4 City Owned Buildings Leased to Others

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1.4.1 The policy standards for existing City-owned buildings (that are leased to others who are also responsible for sustainable building practices in those buildings) applies only when incorporated within the leasing agreements at the time of lease renewal or creation of a new lease agreement.

1.5 City-leased Buildings

1.5.1 The City will understand the energy use and greenhouse gas impacts of the buildings it leases from others prior to entering into leases, and will consider these impacts as a part of its selection criteria.

1.5.2. The energy consumption and GHG emissions attributed to City-leased buildings (or portions of buildings leased to the City) will be calculated as part of the Corporate Greenhouse Gas Inventory.

1.5.3. BOMA BEST certification, at a minimum, will be required for new office and commercial leases and lease renewal over 1,000 sq.m in situations where the term is greater than 5 years and that leased space is greater than 50% of the total building area.

1.5.4. All eligible leased buildings will participate in the City of Edmonton's Large Building Energy Reporting and Disclosure Program as per 1.2.5.

1.6 City-funded non-City owned Buildings

1.6.1 New non-City owned buildings that are more than 33% funded by the City shall meet the same policy standards that are required of new City-owned building if they are greater than 1,000 square meters in gross floor area and anticipated to be greater than \$3 million in capital project cost.

1.7 Exceptions to this Policy

1.1.7 The policy standards may be adjusted by the appropriate Deputy City Manager(s), whose business unit(s) are responsible for achieving the specific policy standard(s) in cases where the cost to achieve an applicable policy standard(s) outweighs the expected benefits, as demonstrated by a Lifecycle Cost Benefit Analysis, to be completed in accordance with 2.1.1b.

2. PROCEDURES

2.1 Governance

2.1.1 The Deputy City Manager(s) who has oversight of facility planning, design, construction, operation, maintenance, renovation and demolition of City-owned buildings shall be responsible for ensuring that City buildings comply with the Sustainable Building Policy.

2.1.1 The business sections responsible for facility planning, design and construction, corporate energy management, and real estate and housing will ensure the development and implementation of operational policies, procedures, performance standards, best practices and tools to support Policy implementation and decision making. This includes, but not limited to:

- a. Evaluation of alternative certification options;
- b. Lifecycle Cost Benefit Analysis and Sustainable Return On Investment Methodologies;
- c. Sustainable Design and Construction of Certification Exempt Buildings;
- d. BOMA BEST Certification Program;
- e. Procedures on energy education, energy benchmarking, audits, inspections, and development of development of 4 year energy retrofit plans; and

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f. Sustainable leasing;

2.1.3 City Administration shall maintain a Sustainable Building Team, consisting of representatives of business sections involved in facility planning, design, construction, operation and maintenance, corporate energy management, corporate environmental strategic planning, and corporate financial services to provide oversight over policy implementation and evaluation including the development and implementation of:

- all aforementioned operational policies and procedures;
- an annual reporting process to City Council on policy compliance, within which all exemptions to the Policy will be reported; and
- periodic evaluations of the appropriateness and effectiveness of the Policy.

2.1.4. City Administration through training and recruitment shall ensure there is sufficient internal expertise related to sustainable building practice, to ensure effective and efficient project and program delivery. This includes support for key Policy users to have and maintain appropriate green building, building operations and maintenance, and asset management related professional accreditations or designations.

2.1.5 The Sustainable Building Team reports to the Deputy City Manager(s) who has oversight of facility planning, design, construction, operations and maintenance of City-owned facilities, corporate energy management, and corporate environmental strategic planning.

2.2 Budgeting

2.2.1 Capital and operating budgets which are impacted by this Policy will be budgeted to meet the determined policy standards; and to develop and establish new operational policies, procedures, best practices and tools to support policy implementation.

2.3 City-Funded, Non-City Owned Building Projects:

2.3.1 In collaboration with business section(s) responsible for community investments and grants that meet the requirements of 1.6.1, operational policies and procedures will be established, implemented and maintained to enable effective policy application to non-City entities' capital building projects, and to ensure the relevant policy standards are integrated into City funding and grant processes.