

POLICY MUNICIPAL SUSTAINABLE BUILDING POLICY



Policy C7006

Adopted by Council:	2021.04.26	Administrative Responsibility:	Planning & Development and Engineering
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1.0 POLICY

The Town of Banff will incorporate prescriptive environmental performance standards for all new municipal buildings and building expansions and achieve the Town's broader sustainability objectives by requiring certification through one or more green building rating systems.

2.0 PURPOSE

The purpose of the Town of Banff Municipal Sustainable Building Policy is to demonstrate commitment to environmental, social, and economic improvements and to provide leadership in the application and development of sustainable building practices locally, regionally, and nationally.

Adoption of this policy will also serve to:

- 2.1 Align the design, construction and operation of municipal buildings with the goals of the Environmental Master Plan and Renewable Energy Transition Roadmap.
- 2.2 Ensure that all future Town of Banff buildings have exceptional energy performance that either 1) achieves net zero energy and/or emissions, or 2) can achieve net zero in the future with only minor upgrades.
- 2.3 Significantly reduce the amount of construction and renovation waste being sent to landfill by requiring source separation of construction, renovation, and demolition wastes for reuse, recycling, or disposal in support of local and regional landfill reduction targets.
- 2.4 Yield long-term cost savings to rate payers and building occupants through reduced life cycle energy, maintenance, and retrofit costs for all buildings under municipal control.
- 2.5 Preserve, compliment, and enhance the pristine natural environment that surrounds the Banff townsite while ensuring a healthy and productive built environment for employees, residents, and visitors.

3.0 SCOPE

This policy applies to all new buildings or building expansions wholly or partially owned by the Town of Banff or the Banff Housing Corporation regardless of size, location, or intended function.

This policy is also intended to apply to major renovations of existing buildings, as applicable on a case-by-case basis depending on project scope.

Any exception to this policy other than those described herein must be approved by Council.

4.0 RESPONSIBILITIES

4.1 Planning, development, and environment staff are responsible for:

- a) Working with project owners to ensure project budgets are adequate to achieve the standards outlined in this policy.
- b) Leading efforts to communicate the Town's successes and experiences with green buildings and renewable energy projects locally, regionally, and nationally.
- c) Recognizing various achievements with green building initiatives in Banff and considering the development of incentives to encourage the private sector to adopt green building practices.
- d) Revising Town processes and policies as necessary to compliment and support the Municipal Sustainable Building Policy.
- e) Leading the process of developing regular updates to this policy.

4.2 The engineering department is responsible for:

- a) Working with project owners to ensure project budgets are adequate to achieve the standards outlined in this policy.
- b) Ensuring all applicable requirements of this policy are included in procurement documents for all building projects, regardless of size or type.
- c) Establishing appropriate project timelines recognizing the requirements of this policy.
- d) Considering life-cycle costing analysis prior to tendering for all construction and retrofit projects, with the support of environmental staff.
- e) Continuing to undertake operational retrofits of existing facilities to improve energy and water efficiency in keeping with the aims of this policy.

4.3 The operations department is responsible for:

- a) Ensuring that facilities operating budgets are sufficient to support regular maintenance of buildings and installed equipment.
- b) Identifying opportunities to combine maintenance/replacement activities with energy efficiency improvements.
- c) Ensuring that Town buildings are operated and are performing as intended, consistent with the environmental objectives agreed upon during the design process.
- d) Communicating the benefits and challenges of operating green buildings to guide future improvements to this policy.
- e) Continuing to undertake operational retrofits of existing facilities to improve energy and water efficiency in keeping with the aims of this policy.

5.0 SPECIFIC DESIGN REQUIREMENTS

5.1 The following energy efficiency requirements shall apply:

- a) No new building or building expansion's thermal energy demand intensity (TEDI) may exceed **30 kWh/m²/year** based on energy modeling completed using final design drawings.
- b) Thermal imaging inspection(s) of the building envelope must be completed during a phase of construction when deficiencies may be easily corrected.

- c) An airtightness target of **1.0 air changes per hour** (ACPH) shall apply. The final airtightness score must be measured and documented using a depressurization test.
- d) Prior to completion, new buildings or building expansions with a gross floor area (GFA) greater than 250 m² must undergo a commissioning process consistent with contemporary ASHRAE standards.
- e) Computer systems, electronics, appliances, heating, ventilation, air conditioning, and refrigeration equipment must be certified to the highest applicable Energy Star rating, where products are available.
- f) All lighting equipment must utilize LED or similarly efficient lighting technology.

5.2 The following solar energy requirements shall apply:

- a) In the Commercial Services District, a roof area equal to at least 40% of the building footprint must be designed and built to be solar ready.
- b) In all other land use districts, a roof area equal to at least 20% of the building footprint must be designed and built to be solar ready.
- c) Within one year of building completion, a solar array must be installed that takes full advantage of the solar ready roof area.
- d) The above requirements do not apply:
 - i. Where solar energy is utilized for an alternative application such as passive solar heating for Passive House certification, greenhouses, etc.
 - ii. To buildings located on heavily shaded sites where the solar PV production yield is likely to be <700 kWh_{ac}/kW_{dc}.
 - iii. To building expansions, except where the footprint of the expansion exceeds that of the original building.

5.3 The following waste management requirements shall apply:

- a) Building occupants must be provided with facilities that allow for easy and effective diversion of all recyclable or compostable waste streams, as applicable.
- b) Construction, renovation, and demolition (CRD) waste separation, storage, and transportation must be conducted in full compliance with all Town of Banff waste bylaws and council/administrative policies.
- c) Prior to the start of construction/demolition, available wood wastes should be offered to the Operations Department for use in the Town's biomass heating system(s).
- d) Building removal activities must be conducted according to deconstruction principles rather than conventional demolition to ensure the value of recoverable materials is maximized and the quantity of waste sent to landfill is minimized.

5.4 The following additional sustainability requirements shall apply:

- a) Projects must fully comply with the Town of Banff Engineering Design Guidelines.
- b) Low flow or ultra-low flow plumbing fixtures must be used in all applications.
- c) Drain water heat recovery systems are recommended for residential buildings.
- d) Rainwater harvesting and water reclamation/recycling systems should be considered.
- e) Low-VOC glues, paints, stains, and other finishes/adhesives are strongly preferred.
- f) Particulate emissions from wood/biomass combustion equipment must not exceed 50 mg/m³ under normal operating conditions.
- g) Vehicle idling should be actively discouraged through signage or operating policies.

- h) Preferred parking for zero emissions vehicles should be considered.
- i) 240V/40A wiring (minimum) must be roughed-in to all residential parking stalls to support future electric vehicle charging.
- j) Destination EV chargers should be considered for staff/public parking areas.
- k) Indoor or outdoor bicycle storage (bike rooms and/or bike racks) must be installed at all occupied buildings to encourage year-round active transportation.
- l) Indoor real-time transit information displays should be considered to encourage the use of public transit.
- m) Building materials with a high recycled content or low embodied energy/carbon should be utilized where appropriate.
- n) Building materials from local sources should be selected when possible.
- o) Landscaping, hardscaping, gates, fences, and other exterior finishes should be designed to be permeable to wildlife wherever possible.
- p) Outdoor lighting must be dark sky friendly.
- q) For facilities located adjacent to natural areas, wildlife corridors, or undeveloped lands indoor and outdoor lighting systems must only be active during facility operating hours. Automatic timers/schedules should be used where appropriate.

6.0 CERTIFICATIONS

New building projects with a gross floor area greater than 250 m² are required to earn certification through at least one of the following green building programs:

PROGRAM	PROGRAM FOCUS
Passive House, EnerPHit, PHI Low Energy Building	energy and greenhouse gas emissions
Leadership in Energy and Environmental Design (LEED)	overall sustainability
Zero Carbon Standard	energy and greenhouse gas emissions

Certification may be achieved via any valid pathway, grade, or level. This certification requirement does not apply to building expansions, except where the footprint of the expansion exceeds that of the original building.

7.0 EXEMPTIONS TO THIS POLICY

Exemptions to specific clauses in this policy are permissible where they conflict with critical operational, security, or safety requirements.

Exemptions to specific clauses in this policy are permissible if required by a Development Officer to ensure compliance with any legally enforceable bylaw, code, or standard such as the Land Use Bylaw, Community Standards Bylaw, etc.

An exemption shall be granted to any specific clause in this policy that would conflict with the preservation, restoration, or celebration of the heritage value or character-defining elements of a building, as described in a heritage Statement of Significance. If necessary, additional time will be granted for the preparation and/or revision of a Statement of Significance prior to the completion of a project’s design.

Where exemptions are necessary, it is expected that project teams will strive to comply with all other applicable clauses to ensure that the purposes of this policy are achieved.

8.0 ATTACHMENTS

Appendix 1: Definitions

9.0 RELATED DOCUMENTS

Banff Community Plan (2008)
Environmental Master Plan (2019)
Renewable Energy Transition Roadmap (2019)

This policy shall be in effect on the date it is approved by resolution of Council.

On Original

Karen Sorenson
Mayor

On Original

Kelly Gibson
Town Manager

APPENDIX 1: DEFINITIONS

ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers. Develops and maintains international standards for energy efficiency, ventilation, safety, and other building topics.
Depressurization test	A procedure for measured the airtightness of a building envelope by depressurizing the interior using a door-mounted fan.
Building or building expansion	Any structure used for support or shelter of any use or occupancy, as defined by the Building Code. For the purposes of this policy, a building expansion is any new construction that adds to the heated gross floor area of a building.
Deconstruction	The systematic disassembly of a building's components to maximize the quality and value of recovered materials for reuse, recycling, or waste-to-energy applications, and to reduce the quantity of material send to landfill and resulting environmental impacts.
GFA	Gross Floor Area, as defined in the Town of Banff Land Use Bylaw
LED	Light-emitting diode; a very efficient, modern lighting technology.
Life-cycle costing analysis	An evaluation tool that assesses the net present value of the design, construction, and operational costs of a building. It can also include qualitative measures such as the health and productivity of occupants, cost of environmental impacts and costs of social impacts
Occupied building	Any building that is occupied by staff, residents, or visitors on a daily basis.
Renovation	Any change, addition or modification to an existing building or structure that does not add to the heated gross floor area of the original building.
Solar ready	A solar ready roof is designed and built to provide direct rooftop solar exposure for the purposes of energy generation. The ideal orientation and pitch of the solar ready roof area are unique to each building depending on shading (trees, buildings, mountains), land parcel orientation, and other factors. A solar ready roof must also be designed to support additional static and dynamic structural loads including the weight of solar modules, racking, ballast, electronics, snow loads, and wind loads. The building's electrical service and equipment should be designed with sufficient capacity, and conduit should be roughed in to provide easy access to the electrical room from the roof.

Natural Resources Canada's *Solar Ready Guidelines for Solar Domestic*

Hot Water and Photovoltaic Systems is a good general resource.

Sustainable building

Integrating building materials and methods that promote environmental, economic, and social benefit through the design, construction and operation of the built environment. Green building design encompasses the following areas: strategic site location, appropriate management of land, efficient use of energy and water resources, management of materials and waste, protection of environmental quality, and protection of occupant health/wellness and indoor air quality. Other terms used to describe green buildings include sustainable buildings and high-performance buildings.

Thermal imaging inspection

A procedure for identifying air leaks and thermal bridges in a building envelope using an infrared camera capable of detecting temperature variations.