



# DOWNTOWN RETROFIT CHALLENGE TERMS OF REFERENCE

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## Summary

Converting your existing office building represents an ideal opportunity to invest in making the building more energy efficient and resilient to extreme weather events. If this approach aligns with your project objectives, then the **Downtown Retrofit Challenge** might be right for you. Learn more about how you may qualify to receive up to an additional \$1,200,000 to improve your building’s energy performance and climate resilience.

- The City of Calgary’s Downtown Retrofit Challenge (“the Challenge”) is open to projects that are approved participants in the Downtown Calgary Development Incentive Program.
- Funding may be allocated to one or two projects, depending on project proposals and funding availability, at the discretion of the Director of Climate and Environment (“Program Administrator”).
- The Challenge is a competition-styled grant program that supports qualified projects through the design and construction stages of their building conversion process.
- The Challenge will serve as a catalyst for accelerating retrofits in the commercial building sector, with a focus on greenhouse gas (GHG) emissions reductions and improving climate resilience in alignment with the [Calgary Climate Strategy: Pathways to 2050](#).
- The knowledge gained through the Challenge, such as the incremental cost of performance (\$/emissions saved), will be collected, analyzed, and shared publicly to further collective understanding of the opportunities and barriers associated with commercial building retrofits.
- A Funding Agreement must be in place for the Downtown Calgary Development Incentive Program before a Grant Agreement can be completed for the Retrofit Challenge (see [Appendix A](#) for more details)

All applications to the Downtown Retrofit Challenge must be submitted by **Monday, May 22<sup>nd</sup>, 2023**.

## About the Challenge

At this time, qualified projects will be selected by the Program Administrator to receive up to \$1,200,000 in grants to help offset the incremental design, construction, and performance verification costs required to maximize **emission reductions** and **climate resilience measures** that improve the building’s ability to handle severe climate hazards. The grant amounts available for each stage of the Retrofit Challenge are as follows:

Stage	Maximum Grant
Design	\$175,000 <sup>1</sup>
Construction	\$1,000,000 <sup>1</sup>
Building Performance	\$25,000

<sup>1</sup> Unused portion of the Design Grant will be applied toward the Construction Grant, which may result in an increase to the maximum amount of the Construction Grant.

## Project Selection

The preferred project(s) will best exemplify the ability to:

- Provide a comprehensive, whole-building energy consumption reduction approach that considers the building as a single, integrated system with components working together. For example, a holistic retrofit may include multiple components such as:
  - improved building envelope;
  - high performance HVAC system;
  - renewable energy systems;
  - natural daylighting;
  - lighting and building control systems;
  - passive/active sun shading; or
  - building operation systems.
- Integrate climate resilience measures limiting building exposure to extreme weather events such as extreme heat, severe storms (hail, high winds), wildfire smoke and intense rainfall (and associated localized overland flooding).
- Optimize grant spending to achieve the highest possible energy performance greenhouse gas emission reductions relative to the original project design.
- Model the building performance relative to NECB 2017 reference building.<sup>2</sup>
- Achieve a minimum energy performance level equal to NECB 2017 reference building.<sup>3</sup>

Preference will be given to the [Retrofit Challenge Application](#) that indicates a project's ability to:

- achieve the highest level of performance;
- improve the building's climate resilience; and
- incorporate additional building components that support other climate initiatives such as EV (electric vehicle) charging infrastructure, on-site energy renewable measures, or other innovative solutions

## Grant Agreement and Payment Structure

Once a project is approved for the Challenge, a Grant Agreement will be drafted between the City and the applicant that will outline the approved work and any additional terms and conditions applicable to the approval. Final and formal grant approval is not effective until this Grant Agreement has been fully executed. Subject to the terms of the Grant Agreement, the grant will be disbursed as follows:

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<sup>2</sup> Proof of compliance with NECB 2017 for the issuance of a Building Permit is not required unless the building was originally subject to NECB 2017.

<sup>3</sup> Projects that cannot achieve a minimum energy performance level equal to the NECB 2017 reference building may still be considered eligible.

### 1. Design Grant

The Design Grant provides up to \$175,000 to support the design phase of the project. Any unused portion of the Design Grant will be carried forward to the Construction Grant. The design phase grant is payable upon:

- a. Completion, submission, and City approval of all design phase participation requirements as detailed in the [Participation Requirements](#) and the Grant Agreement; and
- b. confirmation of the building permit application for the project.

### 2. Construction Grant

The Construction Grant provides up to \$1,000,000, plus any unused amount from the Design Grant, to support construction of the project. The Construction Grant is payable upon:

- a. Completion, submission, and City approval of all construction phase participation requirements as detailed in the Participation Requirements and in the Grant Agreement; and
- b. confirmation of occupancy permit issuance.

### 3. Building Performance Grant

The Building Performance Grant provides up to \$25,000 to support post-occupancy and operational reporting. The Building Performance Grant is payable upon:

- a. Completion, submission, and City approval of all Building Performance phase participation requirements as detailed in the Participation Requirements and in the Grant Agreement.

## Participation Requirements

The approved project(s) will be subject to the following minimum requirements to be eligible for grants. All materials must be provided within the designated time frames or grant eligibility will be revoked. The requirements are further detailed in [Appendix B](#), in the sections noted below.

Phase	Requirements
<b>Design</b>	Host a design charette in collaboration with the City of Calgary to identify project strategies to improve its energy performance, climate resilience, and reduce greenhouse gas emissions.
	Provide building energy performance modelling in accordance with NECB 2017, as amended or replaced ( <a href="#">B1</a> )
	Provide Utility Metering Strategy ( <a href="#">B2</a> )
	Provide Embodied Carbon Analysis ( <a href="#">B3</a> )
<b>Construction</b>	Provide a Design Report ( <a href="#">B4</a> )
<b>Construction</b>	Provide a Post Construction Report ( <a href="#">B5</a> )
<b>Building Performance</b>	Provide Building Performance Report – Part One ( <a href="#">B6</a> )
	Provide Building Performance Report – Part Two ( <a href="#">B7</a> ).

## Eligible Costs

Eligible recoverable costs for each phase of the Retrofit Challenge will be detailed in the Grant Agreement. Such costs may include, but are not limited to, those listed in the following table. Any costs covered by the Downtown Development Incentive Program are not eligible for reimbursement through the Retrofit Challenge.

Phase	Eligible Costs
<b>Design</b>	<p>Design work associated with the Retrofit Challenge aspects of the project including but not limited to:</p> <ul style="list-style-type: none"> <li>• Design charette</li> <li>• energy modeling</li> <li>• engineering feasibility assessments and studies</li> <li>• drawings</li> <li>• cost report breakout indicating additional costs for high performance design</li> </ul>
<b>Construction</b>	<p>Costs associated with the purchase or installation of high-performance mechanical, insulation or any other building assemblies or equipment contributing to the building's improved energy performance and/or climate resilience including, but not limited to:</p> <p>Renewable energy systems such as:</p> <ul style="list-style-type: none"> <li>• Downtown district heating connection</li> <li>• Building integrated solar photovoltaics</li> <li>• Solar photovoltaics</li> </ul> <p>High performance building envelope components such as:</p> <ul style="list-style-type: none"> <li>• Wall assemblies</li> <li>• Cladding</li> <li>• Windows and doors</li> <li>• Insulation</li> </ul> <p>High performance mechanical systems including such as:</p> <ul style="list-style-type: none"> <li>• Energy management systems</li> <li>• Heat recovery ventilation</li> <li>• Electric heat pumps</li> </ul> <p>Costs associated with preparing and writing the Post Construction Report.</p>
<b>Building Performance</b>	<p>Costs associated with the preparation and submission of Building Performance Reports.</p>

## Application Submission, Evaluation, and Approval

### *Applications*

To apply for the funding available through the Retrofit Challenge, applicants must submit the following information to [downtownstrategy@calgary.ca](mailto:downtownstrategy@calgary.ca). Email confirmation of receipt will be issued within two business days.

The application must indicate how the Retrofit Challenge funding will be used in your project to reduce GHG emissions and improve climate resiliency, and should include the following elements:

1. Provide a comprehensive, whole-building energy consumption reduction plan that considers the building as a single, integrated system with components working together. Clearly indicate all energy conservation measures that can be included into the project design using the grant funding.
2. Indicate all climate adaptation measures that can be included in the project design using the grant funding.
3. Provide the estimated energy consumption savings from the energy conservation measures that can be included in the project using grant funding.
4. Indicate the project's anticipated minimum energy performance in relation to NECB 2017 reference building. Calculations are not required at this time. Provide a written statement indicating how this would be achieved. (Note: NECB compliance is not required for building permit approval)
5. Written statement indicating agreement to submit energy modelling during design phase in accordance with NECB 2017.
6. Experience of the project team in retrofit work focused on improving building performance and climate resiliency.

All applications to the Downtown Retrofit Challenge must be submitted by **Monday, May 22<sup>nd</sup>, 2023**.

### *Evaluation*

The Evaluation Team will be comprised of City of Calgary representatives from:

- Climate and Environment
  - Downtown Strategy
  - Development, Business, and Building Services
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- The Evaluation Team will review applications based on the requirements set out by the Retrofit Challenge and Grant Agreement.
  - The Evaluation Team will endeavour to review applications within a timely manner, which requires the applicant and the Program Administrator to work collaboratively. The applicant must provide documentation or other information as required on a timely basis to facilitate these timelines.
  - Following review by the Evaluation Team, application(s) will be brought forward to the Program Administrator for decision (approval or refusal).
  - The Program Administrator will inform applicants of their application status once they decide to approve or refuse the application.

### **Approvals**

All application decisions made pursuant to this Retrofit Challenge are in the sole and exclusive discretion of the Program Administrator.

Application decisions, including approvals, made pursuant to the Retrofit Challenge do not: (1) constitute the granting by The City of Calgary of any approval or permit as may be required pursuant to the *Municipal Government Act (Alberta)* or any other legislation in force in the Province of Alberta, including approvals of subdivision, development permit, or building permit applications and any land use redesignation applications, or (2) restrict The City of Calgary, its Council, officers, employees or agents in the full exercise of any and all powers and duties vested in them in their respective capacities as an approving authority over subdivision, development permit and building permit applications and land use re-designation applications, or as a governmental authority.

Approvals will be provided under the following categories:

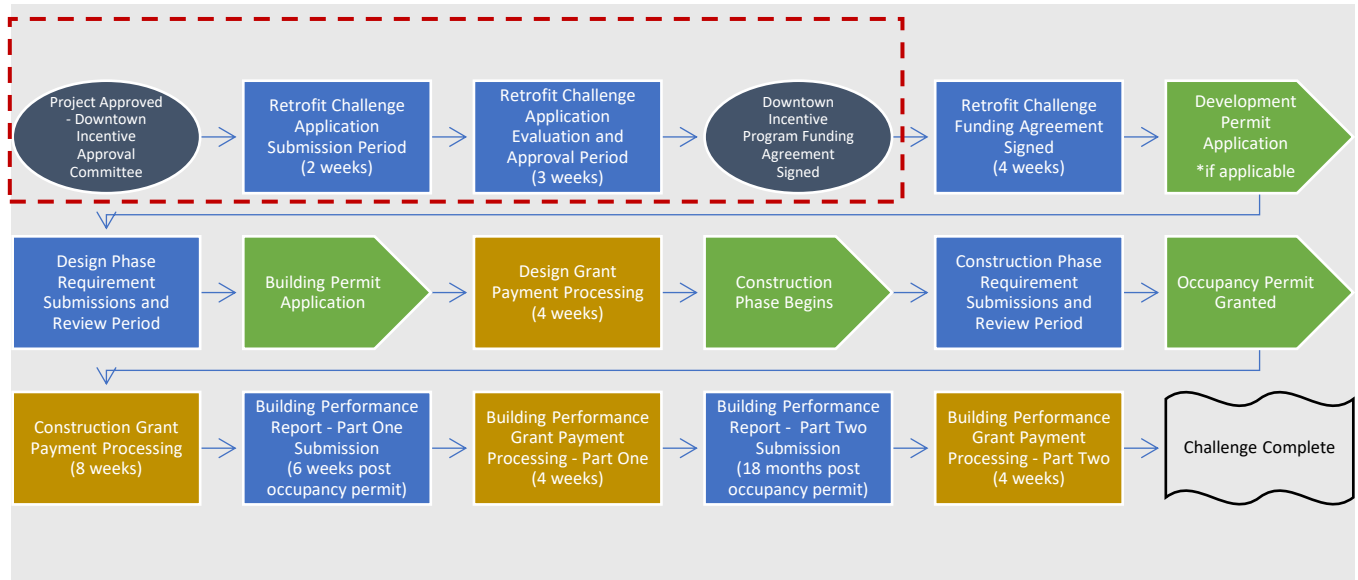
- a. Approval of Application  
Following application evaluation, an application may be approved by the Program Administrator which confirms satisfactory receipt of all application requirements.
- b. Formal signing of Grant Agreement  
Final commitment for the Retrofit Challenge. A Grant Agreement will be prepared for signing by the applicant and The City of Calgary, laying out the responsibilities and obligations of both parties. If Participation Requirements are not met, the Grant Agreement may be terminated.
- Successful applicants must provide regular reports to the Program Administrator on progress towards completion, as detailed in the Grant Agreement.



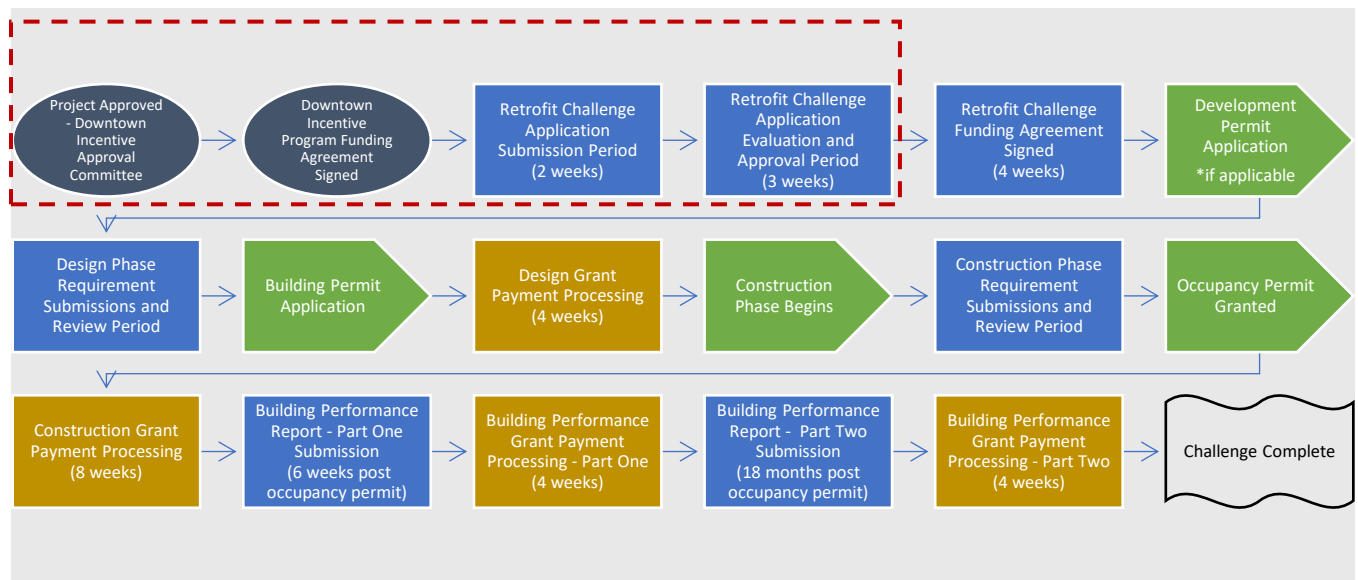
## Appendix A

The Retrofit Challenge application can be submitted for projects that have either an approval and a pending Funding Agreement, or approval and a completed Funding Agreement, with the Downtown Calgary Development Incentive Program. A Downtown Incentive Program Funding Agreement must be in place to complete a Retrofit Challenge Grant Agreement.

### Scenario 1: Retrofit Challenge Milestones with **Pending** Downtown Incentive Program Funding Agreement



### Scenario 2: Retrofit Challenge Milestones with **Confirmed** Downtown Incentive Program Funding Agreement



## Appendix B

The elements detailed below are the minimum deliverables required to receive funding at each stage. Further requirements may be detailed in the Grant Agreement, as determined by the Program Administrator.

### 1. Design – Energy Performance Model

An Energy Performance Model must be provided to determine the difference in energy performance between the proposed buildings and the NECB 2017 reference building. The Energy Performance Model should conform to the specifications provided in [NECB 2017](#), as amended, or replaced, however, alternative building energy modelling methodologies may be accepted. Submission of the Energy Performance Model to the Retrofit Challenge does not serve as proof of compliance for the issuance of a building permit.

### 2. Design - Utility Metering Strategy

The Utility Metering Strategy must be provided to determine how whole-building energy consumption data will be collected and tracked to create the Building Performance Reports. The Utility Metering Strategy must indicate how whole-building electricity, natural gas and water consumption will be measured and tracked using ENERGY STAR® Portfolio Manager.

### 3. Design - Embodied Carbon Analysis

The completion of the Embodied Carbon Analysis will help the project team and the City of Calgary better understand the lifecycle carbon impact of deep retrofit projects. The analysis is an exercise in understanding and not a determining factor in the disbursement of grants. Please submit the Embodied Carbon Analysis using the Canada Green Building Council's [Embodied Carbon Reporting Template](#). A list of software to assist design teams with calculating and reducing their project's embodied carbon can be found [here](#).

### 4. Design Report

Provide two design reports - Class C report at 50% Design Development and Class A report at Pre-Tender Stage, as defined by [Public Services and Procurement Canada](#). The design reports to include:

- a) Incremental consulting/design cost and estimated person-hours to incorporate energy performance measures, climate resilience measures, and all other climate-related initiatives into the overall design;
- b) Estimated incremental construction cost to incorporate energy performance measures, climate resilience measures, and all other climate-related initiatives;
- c) Estimated total annual energy consumption, annual energy consumption savings, and costs savings due to incorporation of energy performance measures;
- d) Estimated total annual water consumption, annual water consumption savings, and cost savings due to the incorporation of water consumption measures; and
- e) Details of costs associated with preparing the report including invoices

## 5. Construction - Post Construction Report

A Post Construction Report must be provided within four (4) weeks of building occupancy permit issuance to verify the eligible costs for disbursement of the Construction Grant, and must include:

- a) All statements of work and invoices associated with purchasing, installing, and commissioning energy performance measures, climate resilience measures, and all other climate-related initiatives outlined in the project design.
- b) Estimated person-hours associated with each statement of work.
- c) Manufacturer's specifications of all energy performance and climate resilience measures, and all other climate-related initiatives outlined in the project design.
- d) Details of costs associated with preparing the report including invoices

## 6. Building Performance – Part One – Building Performance Report

The Building Performance Report – Part One must be provided within six (6) weeks of occupancy permit issuance to summarize the lessons learned throughout the design, construction, and operational phases of the retrofit project. The Building Performance Report must include:

- a) Project Overview
- b) Major successes of building design, construction, commissioning, and operation
- c) Provide descriptions on any major changes to mechanical and envelope, climate adaptation and energy conservation measures and related costs between design and construction. Rationale for including or excluding energy performance, climate resilience, and other climate-related measures into the building design and construction.
- d) Opportunities and challenges related to designing and constructing to a higher standard in terms of building energy performance, greenhouse gas emissions performance, and climate resiliency;
- e) a report post-commissioning that includes observations on successes, problems, concerns, and any lessons learned;
- f) Details of costs associated with preparing the report including invoices;
- g) Estimated person-hours required to produce this report; and
- h) Authorization for The City of Calgary to make the report available to the public by publishing it on its website or through any such other means that The City deems appropriate.

In addition to the Building Performance Report, within six (6) weeks of building occupancy permit issuance:

- i) Buildings must be registered in the City of Calgary's [Commercial and Institutional Building Energy Benchmarking Program](#).

## 7. Building Performance – Part Two – Energy Benchmarking

Building energy benchmarking data must be provided within 18 months of building occupancy permit issuance to compare the as-built building performance to the modeled performance. Building Performance – Part Two – Energy Benchmarking requires:

- a) A minimum of 12 months of whole-building energy and water consumption data be submitted to the City's Energy Benchmarking Program using [ENERGY STAR® Portfolio Manager](#).

The datasets provided to the Energy Benchmarking Program will be reviewed and approved by the Program Administrator. Following review, the Program Administrator will identify the key energy and water performance metrics.

- b) Key metrics identified by the Program Administrator must be included as an amendment to the Building Performance Report.