

The Atmospheric Fund

Prefabricated Overcladding Solutions for Deep Retrofits

Market Assessment and
Procurement

October 2024

wsp

TAF



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Executive Summary

Human-induced climate change is accelerating. Significant cuts to the building sector's carbon emissions are needed to achieve our reduction targets in Canada. Stricter energy codes for new buildings are only part of the solution – we need to expedite the retrofits of our aging and inefficient existing building stock.

The scale of deep retrofits necessary to achieve our climate goals require innovative solutions that can be rapidly implemented. Prefabricated overcladding systems are a technological approach that can reduce a building's heating and cooling needs by using highly insulating façade panels. These panels are built and assembled off-site and can be installed faster than traditional methods. However, few prefabricated façade systems are currently tailored for retrofits due to several unique challenges.

The goals of this project are to study prefabricated solutions available in North America, stimulate market innovation and interest in these solutions, and identify manufacturers, fabricators, and contractors currently providing high-performance prefabricated overcladding systems.

The first phase of the project involved reviewing existing studies and current prefabricated façade solutions to understand the state of the market and what obstacles are currently present. The second phase involved developing and executing a procurement approach for local providers of prefabricated overcladding systems.

The literature review highlighted that while prefabricated overcladding has been successfully used in Europe and some North American pilot projects, its adoption in Canada is limited due to several obstacles. Market demand for these solutions has not yet been clearly demonstrated, the need for extensive building surveying and adaptation to existing building conditions has limited the use of prefabricated systems to new construction, and limited offsite manufacturing capacity and R&D funding are some of the key challenges highlighted. Recommended actions that can address some of the roadblocks found are described in the report, ranging from short-term to long-term activities for retrofit accelerators, building owners, manufacturers, and different levels of government.

The team used the findings from the research phase to develop and implemented a technical RFSQ process to prequalify overcladding suppliers. The published RFSQ documents are included in Appendix A of this report. The prequalified list is intended to help building owners and housing providers select appropriate systems for their upcoming retrofit projects. Engaging community housing providers as part of the RFSQ process and aligning with their procurement needs was crucial to the development of the evaluation criteria. We utilized similar market initiatives as a basis to ensure we capture previous lessons learned. Three systems successfully met the requirements of the RFSQ and were added to the prequalified roster. The team intends to complete additional rounds of the RFSQ process in the future, possibly on an annual basis, to stimulate market interest and continue expanding the pool of options for building owners.

The next steps include ongoing market outreach, refining technical specifications, and fostering collaboration between stakeholders to advance the use of prefabricated overcladding systems for building retrofits.

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1. Introduction

The science is clear: human-induced climate change is accelerating.

Warmer air and oceans, rising sea levels, changes in precipitation, and the frequency and severity of natural disasters are all being driven by atmospheric concentrations of greenhouse gases (GHGs). Governments, companies, and organizations are responding by planning their transition to a decarbonized future, including the Government of Canada's commitment to reach net-zero GHG emissions by 2050.

The building sector accounts for approximately 30% of GHG emissions across Canada and approximately 46% within the Greater Toronto and Hamilton Area (GTHA)ⁱ. These emissions are mainly from the energy used to heat and cool buildings, known as operational carbon. There are also significant emissions from the embodied (up-front) carbon involved in the refinement, manufacture, and construction of buildings. While building energy codes are becoming increasingly stringent, more than half of the buildings anticipated to be in use in 2050 have already been built. A large-scale strategy to retrofit existing buildings is necessary to meet our emission reduction goals.

Deep retrofit projects include upgrading existing systems to achieve major emissions reductions and save energy. Starting with building enclosure upgrades can reduce the heating and cooling demand before replacing its mechanical systems. Enclosure upgrades typically involve improving the thermal insulation of walls, windows, and roofs, managing or enhancing passive solar gain, and reducing air leakage.

ⁱ<https://carbon.taf.ca/>

Hundred of thousands of buildings will need to be retrofitted every year to achieve net-zero emissions by 2050ⁱⁱ. Today, however, deep retrofits are rarely done, and an extensive list of barriers is standing in the way.

In some Canadian regions, a common approach to retrofitting the enclosure of existing multi-unit residential buildings (MURBs) is to install exterior insulation and finishes onto existing cladding – known as overcladding. One example is an exterior insulation finishing system (EIFS) installed over existing brick walls.

Overcladding can reduce waste and be less disruptive to the people who live in these buildings. But most current overcladding jobs can take years depending on the size of the building, because of the need to assemble them on-site, piece by piece.

Prefabricated façade systems are a technological option that can help roll out these badly-needed retrofits faster. Wall components of these overcladding systems can be manufactured and assembled off-site and delivered to the site as complete panels. This approach has several advantages including improved quality control and faster on-site installation.

Still, few prefabricated façade systems today are tailored to retrofits in North America, likely because existing buildings present unique and substantial challenges.

ⁱⁱCanada's Renovation Wave, Pembina Institute, July 2021

The Atmospheric Fund (TAF) asked WSP to help prequalify companies capable of providing high-performance prefabricated overcladding solutions for MURBs in the GTHA.

The main goals of this project are to:

01

Study prefabricated solutions currently available in the North American market.

02

Identify and prequalify system manufacturers, fabricators, and/or contractors capable of providing high-performance prefabricated overcladding systems for deep retrofits of MURBs in the GTHA.

03

Stimulate market innovation and interest in high-performance prefabricated unitized overcladding panels for retrofits.

1.1 METHODOLOGY

This project generally consisted of two phases:

01

Reviewing studies that have been done on prefabricated overcladding retrofits and looking into current prefabricated façade solutions

02

Development and execution of the prefabricated system procurement approach.

LITERATURE REVIEW AND MARKET STUDY

There has been a great deal of research and development into deep retrofits that use prefabricated façade systems. Multiple organizations in North America have market initiatives currently underway to promote and advance the use of prefabricated overcladding. The objective of the literature review and market study was to understand the state-of-the-art and the potential barriers for implementing these solutions.

Based on the findings, organizations involved in retrofit initiatives were contacted to further understand the feasibility of the prefabricated overcladding approach. The team consulted with other organizations involved in similar market initiatives such as Rocky Mountain Institute's REALIZE team, RetrofitNY, Pembina Institute's Reframed Initiative, and the ReCover Initiative.

PROCUREMENT APPROACH

WSP and TAF discussed the findings from the market assessment report and the possibility of using prefabricated wall systems on deep retrofit projects with the Durham Regional Local Housing Corporation and Toronto Community Housing Corporation.

Together, we set out to create a roster of prequalified organizations by coming up with a Request for Supplier Qualifications (RFSQ) program. The RFSQ documents were developed to include technical requirements for prefabricated overcladding systems that would significantly improve the performance of existing building enclosures.

The roster list will be used by building owners to issue project-specific Requests for Proposal (RFPs) for future retrofits that include the potential for prefabricated wall systems.



2. Literature Review and Market Study

2.1 STATE OF THE MARKET OBSERVATIONS

A review of published literature shows that using prefabricated overcladding can be a useful approach to tackle many of the known challenges involved with deep energy retrofits. This approach has reportedly been used successfully in Europe, showcased by the Energiesprong Initiative in the Netherlandsⁱⁱⁱ. Similar initiatives, such as RetrofitNY and REALIZE-CA, in the United States are also attempting to implement retrofit projects that use prefabricated overcladding panels.

The potential benefits of prefabrication are well understood. Offsite fabrication can be completed in a quality-controlled indoor environment, where bad weather doesn't hamper workers or damage construction materials. The Canadian workforce is expected to be short on skilled labourers in the next 10 years^{iv} and prefabrication can keep them working efficiently in a fabrication shop while reducing the need for on-site labour. Prefabrication can also help expedite on-site construction activities, reducing disruption to building occupants and construction waste.

Despite these advantages, the use of prefabricated overcladding systems in North America remains limited. Governmental organizations, retrofit accelerators, and others have published research that helps us understand why. Some key findings from these studies are summarized as follows:

ⁱⁱⁱEnergiesprong: A Dutch Approach to Deep Energy Retrofits and Its Applicability to the New York Market, NYSERDA, March 2018

^{iv}Green Retrofit Economy Study, CaGBC, June 2022



It's still early days.

Several manufacturers offer prefabricated wall panels for new construction projects. Some manufacturers are developing ways their panels can be installed onto existing buildings with certain modifications; however, our research found prefabricated wall systems designed specifically for retrofit projects are not readily available in the North American market^v. Extensive building surveying is required prior to fabrication and overcladding systems must cope with potential defects found in existing buildings, like irregular and non-plumb walls, unknown concealed components, and existing structural capacity limits.

Based on our research, systems are currently at the proof-of-concept stage or early in development. Initiatives such as RetrofitNY and REALIZE-CA are partnering with providers to include prefabricated overcladding systems in retrofits, but these programs are just getting off the ground.

^vMarket Opportunities and Challenges for Decarbonizing US Buildings, Advanced Building Construction Collaborative, July 2021



Several pilot projects in Canada have successfully used prefabricated panels for deep retrofit projects.

Pilot projects such as [Sundance Housing Co-op](#) and [Prefabricated Exterior Energy Retrofit \(PEER\)](#) have used prefabricated overcladding for retrofits to existing buildings.

The systems used on these projects were mostly assembled off-site by contractors with manufacturers providing only the base wall panels. The PEER project developed and tested several schematic designs of overcladding panels. The lessons learned are presented in the Prefabricated Exterior Energy Retrofit (PEER) Project Guide published by Natural Resources Canada (NRCan). These projects have helped lower barriers for future prefabricated overcladding applications. However, fully prefabricated overcladding systems are not yet widely available.

Until then, retrofit projects beginning in the short-term that wish to use prefabricated unitized systems will have a very limited number of options or will need to rely on systems assembled by general contractors instead of fully manufactured systems.



A wide range of retrofit solutions are needed.

Each building's unique factors will affect what type of prefabricated overcladding system is used in a retrofit. The size, shape, and current use of the building all matter. The success of large retrofit initiatives in other countries such as Energiesprong relied on grouping a large number of similar building topologies in the community housing sector, which allowed manufacturers to develop reproducible solutions and achieve economies of scale^{vi}.

In Canada, smaller Part 9 buildings seeking retrofits might be able to use combustible construction, allowing for a wider range of solutions. Larger buildings and Part 3 buildings have additional combustibility and performance requirements, restricting materiality choices. Mid- and high-rise buildings would benefit from standardized overcladding solutions that have been engineered and tested to withstand heavier wind and precipitation loads.

^{vi} Aggregation of energy retrofits in affordable housing: Opportunities and challenges in adapting the Energiesprong model in B.C., Pembina Institute, October 2017

2.2 BARRIERS TO DEVELOPMENT AND IMPLEMENTATION

Though prefabricated overcladding systems offer a useful solution to many of the challenges involved with building envelope retrofits, there are significant obstacles in the way of making them widespread, including:

- Market demand for manufactured solutions has not been clearly demonstrated and aggregated;
- Capacity for offsite manufacturing and prefabrication is limited in Canada;
- Lack of R&D funding for manufacturers;
- Challenges with as-built data capture (including limited expertise, expensive measurement methods, and high level of accuracy needed), though capture technology is rapidly improving;
- Complexity of integrating overcladding systems with penetrations for existing building services and transitions to adjacent enclosure systems such as windows and doors;
- Current market focus for prefabricated panel providers is new construction; and
- Regional climate differences in Canada make finding a universal solution harder.



2.3 RECOMMENDED ACTIONS

We recommend several key actions based on the review of published literature and discussions with RMI, RetrofitNY, ReCover, Sustainable Buildings Canada, Pembina Institute, and NRCan.

The recommendations range from what can be done for upcoming retrofit projects, to longer-term recommendations for how the whole industry can work together to spur innovation and interest.



Focus on social housing as a logical catalyst market.

Much of Canada's social housing stock—roughly 550,000 units or about 3.5% of the housing stock - was built in the 1970s and '80s, before any energy efficiency standards^{vii}. Also:

- High costs and disruptive social implications with displacing or relocating tenants means that rapid retrofits from the exterior may be more attractive to housing providers.
- These buildings tend to be simpler and architecturally similar, allowing for an assembly-line approach.
- Housing providers take a long-term view to the ownership and management of their housing portfolio, which is critical for realizing returns on such investments.
- Overcladding solutions improve climate adaptation and resiliency, an important consideration for buildings that house vulnerable residents.

^{vii}G. Suttor, Still Renovating: A History of Canadian Social Housing Policy, Montreal: McGill-Queen's University Press, 2016.



Develop a Request for Supplier Qualifications process.

Short-Term Retrofit Projects - Within Next Two Years

Community housing and portfolio owners looking to implement large retrofit projects in the next two years should engage interested contractors and manufacturers of prefabricated overcladding panels and create a roster or pre-qualified providers.

This can help demonstrate demand to companies that are considering developing prefabricated overcladding panels. RFSQ requirements can be largely based on similar initiatives such as REALIZE and RetrofitNY, with necessary changes for the local market.

The RFSQ needs to include performance criteria such as thermal performance, airtightness, moisture management, structural performance, code compliance, weight and dimensions, embodied carbon, and MEP considerations. Other criteria to be evaluated include product costs, installation costs, life cycle costs, warranty, and servicing costs.

Refer to Section 3 of the report for a description of our RFSQ development and final results. Appendix A includes the RFSQ documents.



Commission design exercises for interested retrofit solution providers.

Medium-Term Market Facilitation - Within Four Years

Interested manufacturers, contractors and retrofit designers can be commissioned to design a retrofit solution for existing buildings. Using a sample building that has been retrofitted with conventional techniques, the teams can be prompted to design a retrofit solution using prefabricated overcladding systems.

This can demonstrate to building owners the feasibility of using prefabricated overcladding over conventional retrofits and help evaluate the suitability of different overcladding systems.

The performance objectives of the designs should be the same across the different systems and can be based on our RFSQ performance criteria found in Appendix A.

The formation of an industry working group, similar to the one formed as part of OCH's PEER Pilot Project, can be useful to encourage engagement.



Develop a national knowledge sharing platform.

Long-Term Action

There is a great amount of work and interest that has been devoted to building retrofits. Information is starting to be more widely shared, however, a central repository for case studies, research papers, financial incentives, and best practices is still being developed.

This will make things easier for anyone looking to get more involved. Efforts by TAF, Pembina Institute, CaGBC, Retrofit Canada, and the Zero Emissions Innovation Centre (ZEIC) can provide a basis for this work.

LONG-TERM ACTION

Many reports have been published in the past few years that recommend a wide range of critical activities for the industry as a whole to facilitate deep energy retrofit projects.

Recommendations related to the development of prefabricated panel solutions can be broadly categorized as follows:

RESEARCHERS AND RETROFIT ACCELERATORS

- Complete regional typology studies and characterize local building stock for retrofit applicability.
- Support funding pilot studies to vet prefabricated panel technologies and processes.
- Support housing providers with technical and financial tools and expertise.
- Develop a knowledge sharing platform from the regional to international level.

HOUSING PROVIDERS AND MUNICIPALITIES

- Evaluate building portfolios and aggregate demand.
- Develop specific performance criteria and standardize scope of work.
- Engage housing providers and communities to publicize the idea of deep retrofits and secure buy-in for these projects.

MANUFACTURERS AND SUPPLIERS

- Invest in internal R&D to produce innovative solutions.
- Participate in design exercises and pilot studies to demonstrate feasibility of prefabricated systems.



PROVINCIAL AND FEDERAL GOVERNMENT

- Provide gap funding to encourage early adopters.
- Support and establish innovative financing and insurance options and communicate clearly to the public.
- Develop and implement mandatory performance targets for existing buildings.
- Facilitate faster permit approval for retrofit projects targeting significant reductions.
- Include code requirements for prefabricated panel certification, such as CSA-A277 for quality control and code compliance, to facilitate permit approval and building inspections.
- Develop funding tools to link demand/carbon reduction with retrofit financing and incentives
- Provide funding to help develop a qualified workforce as market scales up.
- Facilitate zoning changes where setback requirements unnecessarily restrict overcladding retrofits.



3. Procurement Approach

3.1 REQUEST FOR SUPPLIER QUALIFICATIONS (RFSQ)

We developed an open RFSQ process for prefabricated overcladding systems to identify suppliers that have solutions ready to be implemented. The process also provides an identifiable business case that helps along the design development of solutions we knew were already in the works. To this end, the team partnered with representatives from some of the largest community housing providers in Ontario: Toronto Community Housing Corporation (TCHC) and Durham Regional Local Housing Corporation (DRLHC).

These ownership groups were committed to considering prefabricated overcladding systems in future retrofit projects and helped to show potential manufacturers/contractors that there was demand for these systems.

The RFSQ program allowed manufacturers, contractors, and suppliers working on prefabricated façades systems to propose systems that can meet specific performance requirements intended for deep retrofit projects. Proposals were evaluated and an approved list of systems that can be used for upcoming retrofit projects was created.

RFSQ Development Team

- The Atmospheric Fund
- WSP
- Toronto Community Housing Corporation
- Durham Regional Local Housing Corporation
- University of Toronto

Organizations Interviewed

- CanmetENERGY
- Rocky Mountain Institute
- RetrofitNY
- Pembina Institute
- ReCover



3.2 RFSQ DEVELOPMENT

Through biweekly discussions, the RFSQ program was developed to provide a roster of prequalified organizations, building on similar market initiatives. The technical performance requirements were tailored to our local market based on the team's experience with deep retrofits.

Minimum levels were determined for envelope performance while allowing for a wide range of solutions. In addition to the mandatory requirements, supplemental targets were identified and were split into categories for envelope performance, window integration, panel system attributes, retrofit application, production information, and project administration. The representatives from community housing providers were instrumental in providing feedback on which parameters mattered most.

Our market assessment determined that prefabricated overcladding solutions may be categorized in two groups: pre-engineered panelized systems¹ and pre-assembled panelized systems². Refer to the RFSQ documents in Appendix A for further discussion on these two categories.

With the performance requirements finalized, it was time to create a process for evaluating responses. A weighted scoring procedure was developed.

Weighting was determined by consensus through discussion with all stakeholders. Refer to Tables C.2 and C.3 in the appended RFSQ documents for the evaluation tables.

The top scoring submissions would be added to a pre-qualified roster. The roster will be available to building owners who can then issue project-specific Requests for Proposal (RFPs) to the pre-qualified suppliers for retrofit projects that include prefabricated wall systems. TAF will also make the rosters public via the Retrofit Accelerator website.

¹Pre-engineered panelized systems include engineered and tested proprietary systems that are fully constructed in a manufacturing plant. These may be more suitable for Part 3 buildings.

²Pre-assembled panelized systems refers to retrofit panels that are assembled off-site by a fabricator/contractor that builds the panel assembly from a base wall panel and other manufactured wall components.



3.3 RFSQ RESULTS

The RFSQ process was completed in April 2024. The resulting list of approved prefabricated overcladding systems is below:

Pre-Engineered Panelized Systems:

- SpeedWall by Flynn Group of Companies

Pre-Assembled Panelized Systems:

- Non-Combustible Panel by Quantum Passivhaus
- Wood-Framed Panel by Quantum Passivhaus

The RFSQ program is expected to allow for more applications on an annual basis. Reopening the RFSQ annually will continue to drive market interest, help evaluate new systems, and provide more options for housing providers and building owners.

The evaluation team received significant interest from many cladding system providers that did not end up submitting proposals. A common reason given for not submitting a proposal on this initial round was that the timing of the RFSQ did not align with some of the proponents' business or product development timeline. We expect additional systems to be submitted for evaluation during the next round of submissions.

These ownership groups were committed to considering prefabricated overcladding systems in future retrofit projects and helped to show potential manufacturers/contractors that there was demand for these systems.

The RFSQ program allowed manufacturers, contractors, and suppliers working on prefabricated façades systems to propose systems that can meet specific performance requirements intended for deep retrofit projects. Proposals were evaluated and an approved list of systems that can be used for upcoming retrofit projects was created.

4. Lessons Learned and Next Steps

From the procurement approach, we learned it's important to:



Include key stakeholders:

Input from housing providers was key, as they will ultimately use the pre-approved roster list on their retrofit projects. To make it easier for them to use pre-approved roster list on planned and future retrofit projects, we coordinated their existing procurement approaches with the specific requirements set out in the RFSQ.

Further, including some of the largest social housing providers in Canada as part of the team shows contractors/manufacturers that there is demand for these solutions, so they should put themselves forward.



Build on similar market initiatives:

Initiatives such as RMI's REALIZE and RetrofitNY are working toward net-zero carbon retrofits using prefabricated wall retrofit systems. Those teams are assessing potential solutions and their providers through an RFSQ process that sets out standards and a grading system. The information found in the RFSQs and discussions with these organizations helped form a foundation for our procurement approach.

Performance requirements were developed in reference to these published RFSQs but tailored to our market's needs.

Our RFSQ documents are now published and can be used as a resource for the GTHA market to advance the use of prefabricated overcladding systems for retrofits.



Consider separating panelized systems for different building types:

Market initiatives such as Reframed Lab and ReCover Initiative, as well as pilot retrofit projects such as Sundance Housing Co-op and Ottawa Community Housing's Net-Zero PEER project, have mostly been limited to studying retrofits of low-rise residential buildings. These studies have produced potential prefabricated overcladding solutions to low-rise wood-framed buildings, which may not be applicable for larger MURBs. The intent of our RFSQ is to identify prefabricated panelized solutions for existing buildings ranging from low-rise to high-rise, with various back-up wall assemblies.

Panelized systems that are applicable to low-rise buildings may not be appropriate for high-rise buildings due to combustibility, structural capacity, or constructability limitations. Low-rise building retrofits typically use systems assembled off-site by a fabricator/contractor using a wood-framed base wall panel and other manufactured wall components. We expect retrofits of larger buildings will require proprietary systems that are fully constructed in a manufacturing plant and are engineered and tested to higher loads.

As a result, the technical performance criteria in the RFSQ were split into pre-assembled panelized systems and pre-engineered panelized systems so that an adequate evaluation can be made for comparable systems. Refer to the appended RFSQ documents for further discussion on these categories.





Keep the evaluation technical:

The team discussed at length the scope of this prequalification, ultimately deciding that the best approach would be to focus the evaluation criteria on technical requirements. Project or building-owner specific criteria (e.g. costs, liability insurance, workplace safety, etc.) are not part of the RFSQ. The intention is that building owners would subsequently issue project-specific RFPs to the prequalified roster to supply and install prefabricated panel systems, and non-technical requirements can be included in these subsequent project-specific RFPs.

The team refined and pared-down the evaluation criteria over time, keeping only the ones essential for technical evaluation. As building envelope performance is a key consideration for retrofit projects, metrics for thermal performance, airtightness, and water penetration control were prioritized. Heavily weighted evaluation criteria also included adjustability of overcladding panels to be installed onto existing walls, durability and service life, and panel sizes and weights.



Develop detailed technical specifications for enclosure performance:

Deep retrofit projects help buildings improve thermal performance and reduce air leaks. This decreases the demand for heating and cooling, improving comfort, and improving resilience. As a result, mechanical systems can usually be downsized to reduce overall energy consumption and demand on the energy grid.

The team discussed the minimum effective thermal resistance required to unlock such HVAC savings opportunities. By looking at the thermal performance of previous retrofit projects that reduced building energy use and researching available panelized solutions, the team established a baseline thermal value of $R-15 \text{ ft}^2 \cdot \text{F} \cdot \text{h} / \text{BTU}$. Crucially, systems that do better than the minimum should be awarded higher scores during evaluation, so a sliding scale was determined for panels with higher R-values.

These systems must also provide effective building envelope control such as airtightness, water penetration control, and vapour diffusion control. The team set the minimum targets based on the CSA A440 fenestration standard, based on a Performance Class CW system to ensure all proposed solutions will have a high level of performance.





Continue market outreach:

Given the maturity of the market, the response to the RFSQ was not as strong as we had hoped. Some suppliers opted not to respond as they did not think they would qualify or did not have capacity to complete a submission.

More activities that spur development in these technologies and that raise market interest are needed. After the closing of the RFSQ evaluation, the team has continued to identify contractors and manufacturers in the local market that may be interested in this RFSQ process.

The use of prefabricated overcladding systems is still relatively new to our market and, therefore, the team needs to keep expanding the pool of potential applicants that would be interested in this work and ensure that the technical requirements for prequalification are clearly understood.



Provide clear evaluation criteria and align weights with project priorities:

Early on, the team understood that the RFSQ must be an open and competitive process that clearly describes how each response will be evaluated. The evaluation process includes a mandatory submission requirements stage and a rated criteria stage. Responses that successfully satisfy the mandatory requirements qualify to be evaluated further and are given a weighted score.

Coming up with the right weights for the supplemental targets and information criteria was an iterative process that all stakeholders took part in to set priorities according to the expected project needs.

The weighting was based on the desired performance of the panelized system, the importance to the project's overall targets, indirect costs, and minimizing the owner's risk and cost.

The RFSQ describes how each criterion will be scored according to the category of supplemental targets/information that it covers. Proponents were asked to submit back-up documentation for all requirements to ensure scoring was assigned appropriately. Scores were combined with the given weights to determine a weighted score for each proposed system. Responses were compared and the top scoring performers were identified.



4.1 Resources Reviewed

Initiatives

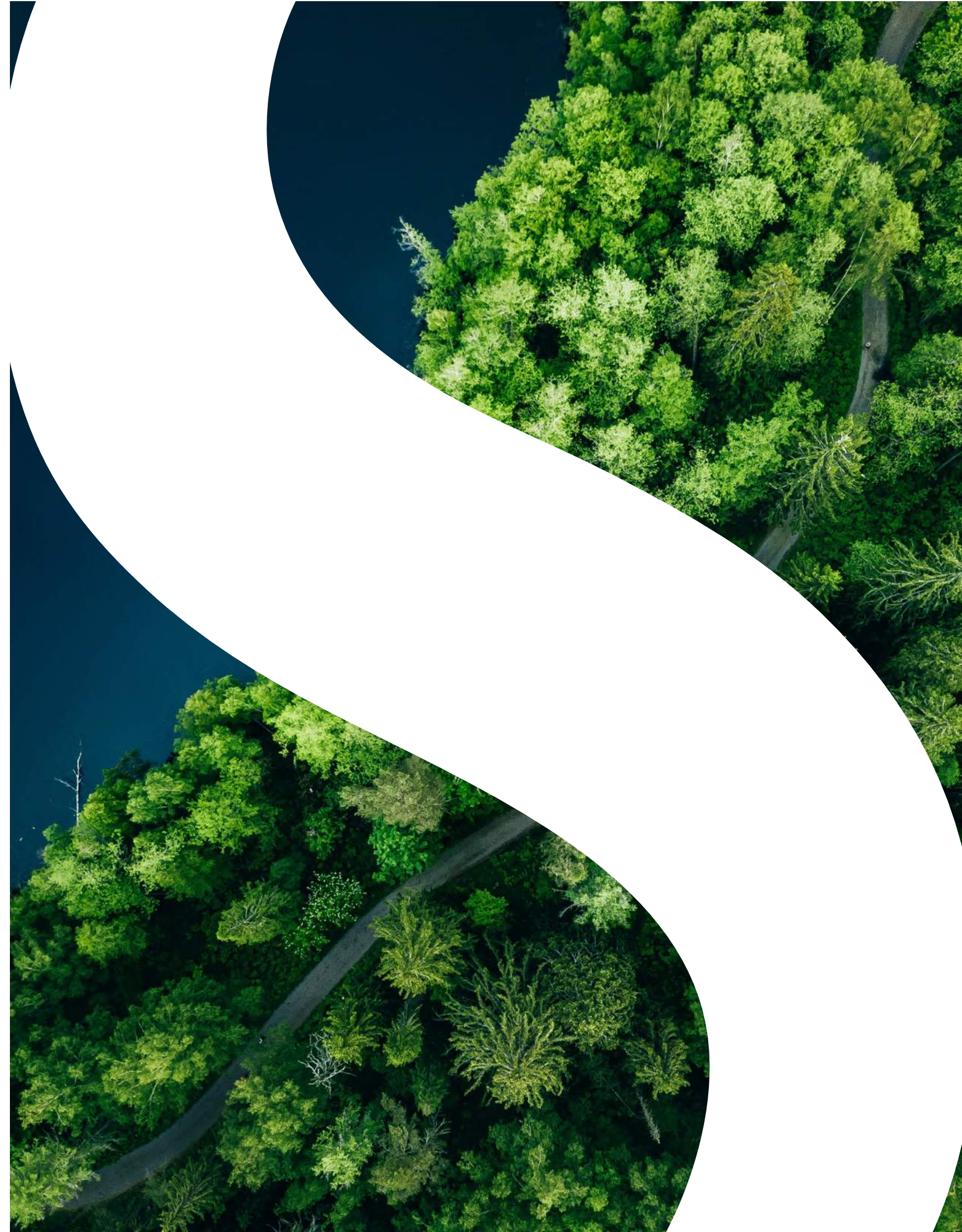
- REALIZE – Rocky Mountain Institute, <https://rmi.org/our-work/buildings/realize/realize-ca/>
- RETROFITNY – NYSERDA, <https://www.nyserda.ny.gov/All-Programs/RetrofitNY-Program>
- ReCover Initiative, <https://www.recoverinitiative.ca/>

Case Studies

- Sundance Housing Co-Op Retrofit Project, <https://sundancecoop.org/sundance-retrofit-project/>
- Reframed Lab – Reframed Initiative, BC Housing & MVHC, <https://www.pembina.org/pub/reframed-initiative-outcomes-analysis>
- Prefabricated Exterior Energy Retrofit (PEER) Pilot Project – OCH & NRCAN, <https://natural-resources.canada.ca/energy-efficiency/data-research-insights-energy-efficiency/housing-innovation/peer-prefabricated-exterior-energy-retrofit/19406>

Reports and Other Publications

- Prefabricated Exterior Energy Retrofit (PEER) Project Guide, CanmetENERGY, Natural Resources Canada, 2023
- Green Retrofit Economy Study, CaGBC, June 2022
- Decarbonizing Canada's Large Buildings: A Path Forward, CaGBC, January 2022
- Environmental and Economic Assessment of Multi-Unit Residential Building Retrofits in Toronto, TCHC & SBC, October 2021
- Market Opportunities and Challenges for Decarbonizing US Buildings, Advanced Building Construction Collaborative, July 2021
- Canada's Renovation Wave: A plan for jobs and climate, Pembina Institute, July 2021
- Deep Retrofits for Multifamily: Experiences in Scaling to Zero Energy, NREL, August 2020
- Recover Phase One Case Study Report, ReCover, June 2020
- Prefabricated Zero Energy Retrofit Technologies: A Market Assessment, U.S. DOE, March 2020
- The Case for Deep Retrofits, TAF, 2020
- Energiesprong: A Dutch Approach to Deep Energy Retrofits and Its Applicability to the New York Market, NYSERDA, March 2018
- Aggregation of energy retrofits in affordable housing: Opportunities and challenges in adapting the Energiesprong model in B.C, Pembina Institute, October 2017
- Energiesprong Summary Report: Background Research, Design Workshop Results and Recommendations, SBC, 2017
- A Roadmap for Retrofits in Canada: Charting a path forward for large buildings, CaGBC, 2017





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Appendix A

Request for Supplier Qualifications

REQUEST FOR SUPPLIER QUALIFICATIONS

Prefabricated Overcladding Rosters

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1.0 Purpose

The Atmospheric Fund (TAF) is inviting Proponents to respond to a *Request for Supplier Qualification* (RFSQ) to supply prefabricated overcladding panels for use by housing providers in the Greater Toronto and Hamilton Area (GTHA). Proponents that are approved in the technical prequalification screening process will be added to a multi-use *Prequalified Supplier* roster that will pre-qualify suppliers for bid calls regarding retrofits of multi-residential buildings in the GTHA. This roster will be shared with the City of Toronto and various housing providers including Toronto Community Housing (TCHC) and Durham Regional Local Housing Corporation (DRLHC). The housing providers may decide, in their sole discretion, to invite successful Proponents to respond to subsequent Request for Quotations (RFQs) or Request for Proposals (RFPs) regarding prefabricated overcladding solutions as needed or otherwise desired for specific retrofit projects in the GTHA. In addition, TAF intends to make the applicable Prequalified Supplier rosters public.

For purposes of this prequalification process, prefabricated overcladding panels are those that are primarily constructed offsite and transported to the retrofit site for installation. Not all panel construction must be done off-site; however, Proponents must identify which components (e.g., windows, cladding, etc.) would be contemplated by the Proponent to be installed on-site and the reason(s) for doing so.

TAF will prequalify up to sixteen (16) Proponents as part of this initiative, split between two Prequalified Supplier rosters. One roster will be established for *pre-engineered* panelized systems (i.e., engineered and tested proprietary systems primarily constructed in a manufacturing plant) and a second roster for *pre-assembled* panelized systems (i.e., assembled offsite by a contractor/ fabricator) – together, they constitute the Prequalified Supplier rosters. These Prequalified Supplier rosters will remain valid for three (3) years and may be extended by TAF twice, for up to one (1) year each time, at TAF's sole discretion. The maximum validity for any prequalification shall be five (5) years. Proponents are allowed to submit multiple applications, where each application is for an individual product, but must meet all submission requirements for each application. TAF may, at its sole discretion, add Proponents to the Prequalified Supplier rosters through additional calls for prequalification.

1.1 Background Information

TAF is a regional climate agency that collaborates with stakeholders in the private, public, and non-profit sectors across the GTHA. Since 1991, TAF has been focused on supporting and implementing concepts that reduce carbon emissions as well as improve people's health, create new green jobs, boost urban resiliency, and contribute to a fair society. TAF is focused on enabling the acceleration and scale-up of low-carbon solutions with the goal of making the GTHA carbon neutral by 2050.

In 2021, TAF launched its *Retrofit Accelerator* – a program intended to increase the pace, scale, and ambition of retrofits in the GTHA and beyond. To this end, TAF looks to compress costs and timelines and expand the options by which buildings can become carbon neutral or zero carbon ready by supporting the adoption of prefabricated overcladding panel solutions for multi-residential buildings. This initiative is also intended to signal to the housing market that there is demand today for prefabricated overcladding panel

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solutions, and that this demand is going to grow substantially. TAF sees this demand existing today, with numerous retrofit projects in planning, completed, or underway, where insulated overcladding is in scope. These projects represent over 550 homes and nearly 60,000 m² of floor area. We also know from discussions with housing providers that overcladding is seen as a key component to meeting building decarbonization goals and capital renewal needs.

2.0 Scope of Work

The successful Proponents will:

- Specify whether they are applying for the *Pre-engineered* Supplier roster or the *Pre-assembled* Supplier roster,
- Submit all of the required deliverables (see below)
- Meet or exceed the technical requirements (see Appendices A and B)

Technical Requirements:

Please see Appendix A (Technical Performance Requirements).

Deliverables, required for each submission:

A. Completed Application Form, see Appendix C, with each submission package.

B. Corporate Profile and Project Qualifications:

1. Profile of the Proponent.
2. Experience and qualifications of the Proponent.
3. Proposed staff team and resources, including individual experience working with overcladding and on retrofit projects. Include details about the professional history and experience between manufacturer and installer teams and/or provide details on the installers that are approved by the manufacturer.

C. Delivery Approach:

1. A narrative describing the general process (and approximate timelines) for overcladding an existing building with the Proponent's panels, from design and fabrication through installation and commissioning. Identifying which particular panel components, if any, are installed on-site rather than prefabricated. If applicable, also note any planned improvements in this process.

D. Principal Projects Completed:

1. Examples of at least two prefabricated overcladding panel projects successfully completed during the five years prior to the RFSQ submission date. Examples can include projects that were retrofits or new construction.
2. Schedule showing the high-level tasks and timelines associated with the example projects.

E. Technical Evaluation

1. Based on Table B.2 or B.3, see Appendices A and B for more information.

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Qualifications:

The Successful Proponent should have:

- Experience supplying and installing engineered or pre-assembled overcladding panels on existing buildings.
- An understanding of the construction methods, building materials, and building conditions expected to be seen in retrofits of typical Multi-Unit Residential Buildings (MURB) in the GTHA.
- Experience doing, or a plan for doing, retrofits in occupied buildings without requiring residents to vacate and minimizing disruption to residents.

Health and Safety

Health and Safety requirements may need to be demonstrated as part of subsequent calls.

3.0 Evaluation

Evaluation Committee

All Proposals will be evaluated through a comprehensive review and analysis by an Evaluation Committee that will include members from TAF, regional housing providers, and other organizations with appropriate subject matter expertise. The Evaluation Team may, at its sole discretion, retain members or advisors as it deems appropriate. The Evaluation Team will determine which Responses best meet the requirements as set out in this RFSQ. By responding to this RFSQ, Proponents will be deemed to have agreed that the decisions of the Evaluation Team will be final.

Stages of Submission Evaluation

TAF will lead the evaluation of Responses in the following Stages:

Stage 1 - Mandatory Submission Requirements

Stage 1 will consist of a review to determine which Responses substantially comply with all mandatory submission requirements, as listed in Table B.1. Responses failing to satisfy the mandatory submission requirements as of the date of the Submission Deadline will be notified and provided with an opportunity to rectify submission deficiencies. The duration of the Rectification Period will be 48 hours unless otherwise noted on the Rectification Notice. Responses failing to satisfy the mandatory submission requirements within the Rectification Period will be excluded from further consideration.

Stage 2A – Mandatory Technical Requirements and Rated Criteria

Responses that are deemed compliant in Stage 1, will qualify to be evaluated further. Stage 2A will consist of scoring by the Evaluation Committee of each qualified Response on the basis of the rated criteria and mandatory technical requirements. Responses failing to meet the minimum score requirements for a rated requirement, where applicable, will be disqualified and not evaluated further. Proponents must have an overall score at least sixty percent (60%) in Stage 2A (Table B.1 – Evaluation Table) in order to be invited to the Pre-qualified Vendor roster.

Although it is the intention of TAF to invite sixteen (16) highest scoring Proponents to one of two Prequalified Supplier rosters (8 for each roster), TAF may choose to invite additional Proponents if their total score is within ten percent (10%) of the highest scoring Proponent. TAF may also invite fewer than 8 highest scoring

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Proponents to be on a Prequalified Supplier roster by choosing not to invite Proponents with a total score that is not within twenty percent (20%) of the total score of the highest scoring Proponent.

Stage 2B - Interviews (Optional)

The Evaluation Committee may decide to invite Proponents to interviews. If interviews are held, then each Proponent exceeding the minimum score will be invited to an interview. The results of these interviews, if conducted, will be used by the Committee as a mechanism to revisit, revise, confirm, or finalize the score and select the recommended Proponents. The following requirements apply to any interviews conducted:

1. The representatives of the Proponent, as designated by the Evaluation Committee in its invitation to the Proponent, must attend any interview scheduled as part of this evaluation process. Note: the invitation is not limited to the representatives.
2. The representatives of a Proponent at any interview scheduled is expected to be thoroughly versed and knowledgeable with respect to the requirements of this RFSQ and the contents of its Response, and at least one representative must have the authority to make decisions and commitments with respect to this RFSQ.
3. Where the staff team proposed by the Proponent is an important element in the selection criteria, the staff team proposed shall be present for the interviews.
4. No Proponent will be entitled to be present during or otherwise receive any information regarding any interview with any other Proponent.
5. Refusal of a Proponent to participate in an interview requested by TAF may, in TAF's sole discretion, be considered a failure of the Proponent to comply with a mandatory requirement of this RFSQ and thus subject to disqualification.

3.1 Evaluation Table

Please see Appendix B (Evaluation Table).

4.0 Schedule of Events

Milestone	Scheduled Date
RFSQ issue date	November 9, 2023
Information Session (optional*)	November 28, 2023
Final day for Clarifications / Questions	January 31, 2023
Final day to register	February 16, 2024
Submission Deadline	March 8, 2024
Approval and roster award date	April 8, 2024
Form of Agreement signed	May 3, 2024

* Proponents interested in attending the Information Session should register with purchasing@taf.ca.

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5.0 Terms and Conditions

1.1 Responses Must be Submitted on Time

Responses must be submitted before the Submission Deadline. Proponents interested in responding must register with purchasing@taf.ca to receive access to a private SharePoint folder where response materials can be submitted.

2.1 Withdrawing / Updating Responses

At any time throughout the RFSQ process, a Proponent may withdraw a submitted Response by sending an email to purchasing@taf.ca. Proponents may amend their Response prior to the Submission Deadline by updating any documents submitted to the Proponent's private document folder. Proponents may amend their Response as many times as they wish prior to the Submission Deadline.

3.1 Requests for Clarity / Additional Information

Proponents may direct questions (or seek additional information) in writing to purchasing@taf.ca before the Deadline for Questions. TAF is under no obligation to provide additional information but will make every reasonable effort to do so where appropriate. TAF shall not be responsible for any misunderstanding on the part of the Proponent concerning this RFSQ or its process.

4.1 All New Information to Proponents by Way of Addenda

If TAF, for any reason, determines that it is necessary to provide additional information relating to this RFSQ, then such information will be communicated to all registered Proponents by Addenda. Each Addendum shall form an integral part of this RFSQ. Such Addenda may contain important information, including significant changes to this RFSQ.

5.1 Extension of Submission Deadline

TAF may at its discretion extend the Submission Deadline.

6.1 Verify, Clarify and Supplement

When evaluating Responses, TAF may request further information from the Proponent or third parties in order to verify, clarify or supplement the information provided in the Proponent's Response. TAF may revisit and re-evaluate the Proponent's Response or scoring on the basis of any of such information.

7.1 No Incorporation by Reference

The entire content of the Proponent's Response should be submitted in a complete and fulsome form and without any incorporation by reference to or reliance upon the contents of any other documents, websites or other references.

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8.1 Selection of Successful Proponent(s)

The Successful Proponent(s) ultimately selected by TAF to enter onto a Prequalified Supplier roster will be so notified by TAF in writing.

6.0 Response Content

Responses are expected to address the RFSQ content requirements as outlined herein, and should be well ordered, detailed and comprehensive. Clarity of language, adherence to suggested structuring, and adequate accessible documentation is essential to TAF's ability to conduct a thorough evaluation. TAF is interested in Responses that demonstrate innovation, performance, and efficiency. General marketing and promotional material will not be reviewed or considered.

As described above, Proponents should register with purchasing@taf.ca to receive access to a private SharePoint folder where submission materials should be uploaded as PDF documents.

The Response should contain the following items:

1.1. Subsection 1 – Letter of Introduction / Executive Summary

1.1.1. Attach a letter introducing the Proponent and providing a summary of the key features of the Response. It must be signed (electronic signature is admissible) by the person(s) authorized to sign on behalf of and to bind the Proponent to statements made in response to this RFSQ. This should be the same authorized signing officer of the Proponent who is indicated in the Application Form (Appendix B).

1.2. Subsection 2 – Completed Application Form

1.2.1. See Appendix B

Corporate Profile and Project Qualifications

1.3. Subsection 3 – Proponent Profile

Proponents should have staff, organization, culture, and financial resources adequate to ensure their ongoing ability to deliver and support the proposed total Solution throughout the system's useful lifetime, including the ability to provide timely response and service to TAF and its partners over the period of any Agreement.

1.3.1. To permit the Proponent to be evaluated fully as a viable and sound enterprise, include the following

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information with respect to the Proponent, and if applicable, for each consortium member.

a) A profile and summary of corporate history including:

- date that the Proponent's business operations started;
- products and/or services offered;
- total number of employees;
- major clients;
- business partners;
- a listing and description of the products/services that the Proponent offers.

b) A profile and summary of corporate history of any corporate affiliates and the nature of the Proponent's relationship to them (i.e., research, financing, etc.).

c) A copy of the Proponent's Corporate Profile Report(s) (Ontario), or equivalent official record issued by the appropriate government authority regarding the Proponent as well as each applicable consortium member, if any.

d) If the Proponent is a member of a consortium, then provide a description of the relationship(s) between or among the consortium members. Please note section 2 of Part 3 – RFSQ Process Terms and Conditions regarding consortiums and the requirement that there be a single Proponent.

1.3.2. Equity and Diversity: provide any relevant information that explains the Proponent's commitment to employee and supplier equity and diversity.

1.3.3. WSIB Clearance Certificate: a WSIB Clearance Certificate indicating the Proponent's WSIB registration number and being in good standing must be included in the Bid Submission.

1.4. Subsection 4 – Proposed Staff Team and Resources

It is important that the team can demonstrate specific knowledge of the design, construction, and installation of prefabricated overcladding panelized systems.

In particular, the Proponent should provide the following:

1.4.1. A list of key staff that the Proponent would propose to use for this work together with their professional qualifications, related project experience and an indication of their duties and responsibilities.

1.4.2. Attach resumes for up to three key individuals. Additional resumes will not be reviewed.

1.4.3. Provide a statement of any conflict of interest, if applicable.

Delivery Approach

1.5. Subsection 5 – Proposed System/Solution

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The Proponent should provide the following:

- 1.5.1. Provide a statement of the Proponent's understanding of the goals and objectives of the prequalification.
- 1.5.2. Provide a detailed description of how the Proponent's proposed solution will achieve the goals and objectives of this initiative:
 - a brief description outlining why the specific Solution/System has been recommended.
 - the detailed functions/characteristics/specifications of the goods/services, including any drawings, lab/test reports, models, etc. needed to meet technical requirements documented in Appendix A.
 - a summary of any risks/problems/issues associated with the solution and how they will be mitigated.
- 1.5.3. Provide a statement confirming that the Proponent has the right to represent, sell, license, deliver, install, train in the use of, service, maintain and support the products proposed, including any documentation to be provided in relation thereto.
- 1.5.4. Provide a statement confirming that the Proponent has the right to provide any required ownership, license rights, pass-through warranties and other ancillary rights for all proposed goods and services and that the provision of such products and services will not infringe or otherwise violate the rights of any third party.

Principal Projects Completed

1.6. Subsection 6 – Experience and Qualifications of the Proponent

It is important that the work be undertaken by a Proponent that can demonstrate experience in the design, construction, and installation of prefabricated overcladding panelized systems.

Please note that where the skills/expertise/experience are being provided by a subcontractor or other legal entity apart from the Proponent, a Response that does not include the information requested in this Subsection for each such subcontractor or other entity will not be awarded full marks during the evaluation process.

In particular, the Proponent should demonstrate the following:

- 1.6.1. Experience of the Proponent with other similar projects.
- 1.6.2. Preferably provide a minimum of two (2) and a maximum of three (3) references for the purpose of evaluating the Proponent's experience and track record of success. Note that TAF prefers references for solutions that are similar to the solution being proposed in response to this RFSQ. For example, solutions for the municipal/public sector, using the same or similar products proposed, projects of similar size, scale, and complexity. Each reference should include:
 - the identity of the reference client organization;
 - a contact name and title, address, and telephone number;
 - the size and nature of the client's business;
 - the number of years dealing with the client;
 - a description of the project;
 - the timing and duration of the Proponent's involvement in the project;

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- the services that were provided by the Proponent (installation, support, training and/or project management, etc.);
 - date of the project;
 - details regarding the scale of the project; and
 - client's URL address.

In providing references, Proponents agree that TAF can contact the individuals provided as part of the evaluation process. TAF's evaluation may include information provided by the Proponent's references. TAF will make its own arrangements in contacting the references. Substitution of references will not be permitted after the close of the RFSQ.

- 1.6.3. Necessary skills, experience and expertise in the design, construction, and installation of prefabricated overcladding panelized systems.

6.1 Form of Agreement

Please see Appendix D (Form of Agreement).

APPENDIX A: TECHNICAL PERFORMANCE REQUIREMENTS

The following tables summarize the performance criteria for prefabricated panelized systems designed for retrofit applications. The targets include mandatory performance requirements and supplemental targets and information:

1. **Mandatory requirements** are *mandatory*. Any system that does not meet the mandatory requirements will not be accepted or reviewed.
2. **Supplemental targets** are *optional*. Applications that meet these additional supplemental targets will receive additional points which will contribute to a higher evaluation score. Back-up documentation shall be submitted for each criterion to be considered complete. Applications will be evaluated based on the weightings shown in Appendix B.

There are also different performance criteria for: 1) **pre-engineered panelized systems** (Table A.1) and **pre-assembled panelized systems** (Table A.2). The requirements have been split this way so as to categorize the retrofit solutions into two separate groups that may be more applicable to specific building types:

- *Pre-engineered panelized systems* include engineered and tested proprietary systems that are fully constructed in a manufacturing plant. These may be more suitable for Part 3 buildings which need to withstand higher environmental loads, can benefit from economies of scale, and have additional combustibility requirements; however, they could also potentially be used for low-rise Part 9 buildings.
- *Pre-assembled panelized systems* refers to retrofit panels that are assembled off-site by a fabricator/contractor that builds the panel assembly from a base panel and other manufactured wall component, but are not necessarily pre-engineered. These are more likely candidates for low-rise Part 9 buildings.

Further explanation and context for each performance criterion is provided in the section “Criteria Definition and Context” set out further below.

Table A.1 – Performance Requirements for Pre-Engineered Panelized Systems

	#		
		Mandatory Requirements	Back-up Documentation Required
	1	Clear Field R-value: Minimum 15 ft ² ·°F·h/BTU.	Thermal modeling report or engineering analysis
	2	Water Penetration Resistance: Minimum 300 Pa including joints between panels, tested in accordance with ASTM E331.	Lab test report by a certified testing agency
	3	Air Leakage Resistance: Maximum 0.2 L/s/m ² at 75 Pa including joints between panels, tested in accordance with ASTM E283	Lab test report by a certified testing agency
	4	Moisture Management: Drained and vented assembly.	Drawings showing panel system assembly and typical detail drawings, including panel joint details. Identify which components are plant-assembled vs. site-installed.
	5	Building Type Intended Use: Describe the building height and the back-up wall structure of existing buildings that the proposed panelized system is applicable for.	Written response
		Supplemental Targets/Information	Back-up Documentation/ Response Required
Envelope Performance	6	Higher Clear Field R-Value: Demonstrate range of R-values achievable above the minimum requirement.	Thermal modelling report or engineering analysis
	7	Higher Water Penetration Resistance: Demonstrate superior water penetration resistance values, tested in accordance with ASTM E331.	Lab test report by qualified testing agency
	8	Higher Air Leakage Resistance: Demonstrate superior air leakage resistance values, tested in accordance with ASTM E283.	Lab test report by qualified testing agency
	9	Thermal Bridging Values: Provide linear transmittance (ψ) in W/m-K values.	Thermal bridging analysis
Window Integration	10	Window Integration: Are there specific window systems that can be integrated during prefabrication of panelized system?	List window manufacturer and system
	11	Window Thermal Performance: If windows can be integrated with panelized system, the thermal performance including U-values, SHGC, and condensation resistance must be provided.	NFRC modeling report

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		Maximum Recommended NFRC Window U-Value: 0.35 BTU/ft²·°F·h	
	12	Window Airtightness and Water Penetration Resistance: If windows can be integrated with panelized system, demonstrate window compliance with CSA A440-11 (NAFS) and Canadian Supplement CSA A440S1-17. Minimum NAFS Performance: Performance Class LC, Performance Grade 45	NAFS test report
Panel System Attributes	13	Combustibility: Is the system combustible or non-combustible as defined by the Ontario Building Code?	Written response and/or fire rating test report
	14	Embodied Carbon: Carbon associated with the production of the panel system from a lifecycle perspective.	Material EPDs. If not available, describe plans to study and submit this information.
	15	Dimensions: Specify range of panel sizes.	Written response
	16	Weight: Specify panel weight per unit area (lbs/sqft or kg/m ²)	Written response
	17	Exterior Finish and/or Cladding Panel Type: Describe the range of cladding options.	Written response
	18	Service life and durability: Expected service life of panel system.	Durability plan for repair and replacement
	19	System Maintenance: What type of maintenance is required for the system?	Maintenance plan
Retrofit Application	20	Adjustability: Panel system tolerance for non-plumb and non-square existing wall conditions.	Written response
	21	Wall Penetrations: Are there mechanical, electrical, or plumbing solutions integrated within the panel system (e.g., louvers, vents, etc.)?	Written response
	22	Panel Support: Specify the type and/or specific product used to secure panel to the existing building structure.	Written response and include in submitted drawings
	23	Building Capture: Does the design of the panel system include site measuring and surveying of existing conditions?	Written response
Production Information	24	Panel Production: Location of manufacturing plant and production capacity (sq. ft. per day)	Written response
	25	Plant Quality Control: Does manufacturing plant have CSA A277 and/or ISO 9001 certification?	Certifications and QA/QC plan

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Project Administration	26	Supply and Install: Is the panel system supplied and installed by the same entity?	Written response
	27	Installer Qualification: Specify pre-qualification procedure and provide list of approved installers.	Written response
	28	Installation QA/QC: Describe quality control and quality assurance plan for site installation of the system.	Written response
	29	Warranty: Type and duration of warranty for panel system.	Sample warranty
	30	Lead times: Describe expected total lead times. If windows are included, what is the additional lead time expected?	Written response
	31	Project References: Information for previously completed projects using the panel system. Provide at least two references.	Reference list and contact information for project owner and/or design authority

Table A.2 – Performance Requirements for Pre-Assembled Panelized Systems

	#		
		Mandatory Requirements	Back-up Documentation Required
	1	Clear Field R-value: Minimum 15 ft ² ·°F·h/BTU.	Thermal modeling report or engineering analysis
	2	Moisture Management: Drained and vented assembly.	Drawings showing panel system assembly and typical detail drawings, including panel joint details. Identify which components are plant-assembled vs. site-installed.
	3	Project Applicability: Describe the building height and the back-up wall structure of existing buildings that the proposed panelized system is applicable for.	Written response
		Supplemental Targets/Information	Back-up Documentation/Response Required
Envelope Performance	4	Higher Clear Field R-Value: Demonstrate range of R-values achievable above the minimum requirement.	Thermal modeling report or engineering analysis
	5	Water Penetration Resistance: Minimum 300 Pa tested per ASTM E331 including joints between panels.	Lab or in-situ test report
	6	Air Leakage Resistance: Minimum 0.2 L/s/m ² at 75 Pa including joints between panels.	Lab or in-situ test report
	7	Thermal Bridging Values: Provide linear transmittance (ψ) in W/m-K values.	Thermal bridging analysis
Window Integration	8	Window Integration: Are there specific window systems that can be integrated during prefabrication of panelized system?	List window manufacturer and system
	9	Window Thermal Performance: If windows can be integrated with panelized system, the thermal performance including U-values, SHGC, and condensation resistance must be provided. Maximum Recommended NFRC Window U-Value: 0.35 BTU/ft²·°F·h	NFRC modeling report

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	10	Window Airtightness and Water Penetration Resistance: If windows can be integrated with panelized system, demonstrate window compliance with CSA A440-11 (NAFS) and Canadian Supplement CSA A440S1-17. Minimum NAFS Performance: Performance Class LC, Performance Grade 45	NAFS test report
Panel System Attributes	11	Combustibility: Is the system combustible or non-combustible as defined by the Ontario Building Code?	Written response and/or fire rating test report
	12	Embodied Carbon: Carbon associated with the production of the panel system from a lifecycle perspective.	Material EPDs. If not available, describe plans to study and submit this information.
	13	Dimensions: Specify range of panel sizes.	Written response
	14	Weight: Specify panel weight per unit area (lbs/sqft or kg/m ²)	Written response
	15	Exterior Finish and/or Cladding Panel Type: Describe the range of cladding options.	Written response
	16	Service life and durability: Expected service life of panel system.	Durability plan for repair and replacement
	17	System Maintenance: What type of maintenance is required for the system?	Maintenance plan
Retrofit Application	18	Adjustability: Panel system tolerance for non-plumb and non-square existing wall conditions.	Written response
	19	Wall Penetrations: Are there mechanical, electrical, or plumbing solutions integrated with the panel system (e.g., louvers, vents, etc.)?	Written response
	20	Panel Support: Specify the type and/or specific product used to secure panel to the existing building structure.	Written response and include in submitted drawings
	21	Building Capture: Does the design of the panel system include site measuring and surveying of existing conditions?	Written response
Production Information	22	Panel Production: Location of manufacturing plant and production capacity (sq. ft. per day)	Written response
	23	Plant Quality Control: Does assembly plant have CSA A277 and/or ISO 9001 certification? Describe quality assurance and quality control plan for panel production.	Certifications and QA/QC plan

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Project Administration	24	Supply and Install: Is the panel system supplied and installed by the same entity?	Written response
	25	Installer Qualification: Specify pre-qualification procedure and provide list of approved installers.	Written response
	26	Installation QA/QC: Describe quality control and quality assurance plan for site installation of the system.	Written response
	27	Warranty: Type and duration of warranty for panel system.	Sample warranty
	28	Lead times: Describe expected total lead times. If windows are included, what is the additional lead time expected?	Written response
	29	Project References: Information for previously completed projects using the panel system. Provide at least two references.	Reference list and contact information for project owner and/or design authority

Criteria Definition and Context

General

Building Type Intended Use: The intent is for these systems to be used for existing buildings exterior envelope retrofits. This includes buildings ranging from low-rise to high-rise, with various back-up wall assemblies. Some cladding panel systems, however, will only be intended for use on certain building types due to combustibility, structural, or constructability limitations. In your written response, indicate the existing building heights that the submitted panel system is applicable for:

- Low-rise (1 – 3 storeys)
- Mid-rise (4 – 8 storeys)
- High-rise (9+ storeys)

Indicate the existing back-up wall structures that the submitted panel system is applicable for:

- Wood Frame
- Masonry
- Concrete
- Steel Frame

Envelope Performance

Clear-Field R-Value: The clear field R-value provided shall be the effective R-value that includes thermal bridging effects of repetitive framing elements such as studs, support girts, or thermal clips. This shall not account for any R-value provided by the existing walls. The minimum R-value criteria listed was selected based on experience with previous similar projects. Higher scoring will be awarded for systems that can demonstrate higher R-value. Thermal modeling or engineering analysis needs to be submitted as back-up documentation.

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Water Penetration Resistance: The water leakage resistance demonstrated by lab testing at 300 Pa of differential pressure in accordance with ASTM E331. For qualification of *pre-engineered panelized systems*, panels must be lab-tested resulting in no water leakage. The tested specimen must include multiple panels to ensure typical joint detailing passes the water penetration test. Projects may have higher exposures and require higher levels of performance than the minimum 300 Pa, so demonstrating superior water penetration resistance is encouraged. Prequalified *pre-engineered* and *pre-assembled* panelized systems will still require a full-sized mock-up be tested in order to satisfactorily demonstrate conformance with project design requirements prior to construction, but not as part of this technical prequalification.

Air Leakage Resistance: Air leakage demonstrated by lab testing to minimum 75 Pa of differential pressure in accordance with ASTM E283. For qualification of *pre-engineering panelized systems*, panels must be lab-tested resulting in air leakage lower than 0.2 L/s/m². The tested specimen must include multiple panels in the panelized system to ensure typical joint detailing passes the air leakage test. Systems achieving higher levels of airtightness are encouraged. Prequalified *pre-engineered* and *pre-assembled* panelized systems will still require a full-sized mock-up be tested in order to satisfactorily demonstrate conformance with project design requirements prior to construction, but not as part of this technical prequalification.

Moisture Management: The proposed system must include a drainage cavity and be vented, following best practices for rainscreen assemblies. As back-up documentation, applicants must submit detailed drawings that show the panelized system's components, tolerances, anchorage, path of cavity drainage, and continuity of the envelope control layers. Drawings to include panel profiles, plans, sections, and typical penetration details showing which components are assembled off-site versus assembled on-site.

Thermal Bridging Values: Linear transmittances at all typical thermal bridging locations, including but not limited to panel joints, inside/outside corners, top/base of wall, window perimeters, and slab edges. Provide thermal bridging calculations showing assumptions for dimensions, detailing, and adjacent assemblies.

Window Integration

Window Integration: If applicable, provide list of window or door systems that can be integrated during pre-fabrication of the panelized systems. One of the goals of using panelized systems is to reduce construction times and impact to building occupants so integration of window systems is encouraged. Window to wall integration details should be submitted in response.

Window Thermal Performance: If windows are integrated into panelized system, window thermal performance must meet the minimum performance listed as calculated in accordance with NFRC standard. NFRC modeling report must be submitted as back-up documentation.

Window Airtightness and Water Penetration Resistance: If windows are integrated into panelized system, window airtightness and water penetration resistance must comply with the minimum performance class and grade in accordance with NAFS standard. NAFS testing report must be submitted as back-up documentation.

Panel System Attributes

Combustibility: Compliance with combustible or non-combustible construction as defined by latest version of the Ontario Building Code. Describe fire safety performance of the panelized system and provide back-up documentation, such as CAN/ULC S134 test reports, as necessary to demonstrate compliance.

Embodied Carbon: The carbon associated with the panelized system from a lifecycle perspective. Submit an Environmental Product Declaration (EPD) or similar independent, third-party verified embodied carbon disclosure document, with detailed breakdown, for a standard panel size that includes the embodied carbon of all components in the panelized system. EPDs for individual panel system components are also acceptable. Overcladding projects that retain the existing building cladding can significantly reduce the embodied carbon of a retrofit project by avoiding unnecessary demolition and disposal. Therefore, panelized systems that can be installed over existing wall cladding are encouraged.

Dimensions and Weight: The range of sizes and weights of the panelized system. Include assumptions for the normalized weights, such as panel components and thicknesses. A wider range of sizes is encouraged to allow for more design options.

Exterior Finish and/or Cladding Panel Type: The different types of finishes and cladding material types that can be included with the panelized system. A wider range of finishes is encouraged to allow for more design options and will be awarded higher points.

Service Life and Durability: The period of time during which the panelized system can perform its functions to the required level of performance. Response should confirm compliance with CSA S478 – Durability in Buildings standard.

System Maintenance: Actions taken periodically to maintain the panelized system’s level of performance. Provide maintenance plan that includes program for cleaning, maintenance, repair, or replacement of specific components.

Retrofit Application

Adjustability: The ability of the panelized system to account for imperfections in the existing building’s as-built conditions (e.g., non-plumb and non-square conditions). The walls of existing buildings may not be ideal substrates for typical cladding panel installation so the design must accommodate for these expected deficiencies (see **Panel Support** description). Response should include strategy to account for as-built conditions and any limitations of the panelized system.

Wall Penetrations: Specify how panelized system is detailed at wall penetrations. Panelized systems used for overcladding projects will need to accommodate for existing services. Integrated solutions during the prefabrication phase are encouraged to limit site modifications.

Panel Support: The method of structural load transfer between the panel and the existing building. Response should include description of all support components, tolerances, and limitations. Provide the typical spacing of panel support components. Describe the structural element that the panels are intended to be fastened to (e.g., slab edge, studs, perimeter beam, etc.)

Building Capture: Cladding retrofit projects require detailed measurements of as-built conditions of the existing building. Accurate information of the existing building is necessary for panel design and fabrication. Describe the level of site measurement included in the design of the panelized system. Digital capture methods such as 3D laser scanning and photogrammetry are expected as hand measurements can be time consuming and difficult to capture necessary level of detail.

Production Information

Panel Production: The location where the panelized system is manufactured, fabricated, and/or assembled. Include the daily production rate (sq. ft. per day) for fully assembled panels expected for each product line and if there are future plans or ability to increase these rates.

Warranty: Describe the deficiencies that are covered by warranty in the design, construction, installation, and performance of the panelized system. Define/identify typical type of warranty provided, such as labour and materials, any limitations, and warranty period.

Plant Quality Control: The quality assurance and quality control procedures for the plant where the panelized system is manufactured, fabricated, and/or assembled. Provide proof of compliance with quality control standards such as *ISO 9001 – Quality Management Systems* or *CSA A277 - Procedure for certification of prefabricated buildings, modules, and panels*.

Project Administration

Supply and Install: Describe typical procurement for the panelized system and whether it includes supply and install by the same entity. Installation by the same entity that produces the panelized system is encouraged to simplify the procurement approach.

Installer Qualifications: Describe the qualifications required of the installers of the panelized system. If the system is supplied and installed by the same entity, then describe the installer's training program. If the installers are third parties, then describe the pre-qualification procedure and provide a list of approved installers.

Installation QA/QC: The quality assurance and quality control procedures on site for installation of the panelized system. Submit any QA/QC procedures and checklists used by installers.

Warranty: Describe the deficiencies that are covered by warranty in the design, construction, installation and performance of the panelized system. Define/identify the typical type of warranty provided, such as labour and materials, any limitations, and warranty period.

Lead Times: Describe the timeline and your process from start of the project to delivery of the first panel on site. List assumptions in response.

Project References: Provide a list of recently completed projects where the panelized system has been used. Project information should include location, panel system details, area of panelized system, any site-

specific modifications, and contact information (email address and telephone number) for project owner and/or design authority.

APPENDIX B: EVALUATION TABLES

All applications will be reviewed through an open, competitive process. The intent is to select up to sixteen (16) successful Proponents to enter onto two Prequalified Supplier rosters. The evaluation tables for mandatory requirements (Table B.1), pre-engineered panel systems (Table B.2) and pre-assembled panel systems (Table B.3) can be found below.

Weights

The weight for each criterion is based on performance of the panelized system, importance to the project overall targets, indirect costs associated with each criterion, and minimizing owner’s risk and cost.

Scores

The performance criteria shown in Appendix B have been separated into Mandatory Requirements and Supplemental Targets/Information. Supplemental Targets/Information are subdivided into the following separate categories: Envelope Performance, Window Integration, Panel System Attributes, Retrofit Application, Production Information, and Project Administration. Scores for each category will be evaluated as follows:

Mandatory Requirements are mandatory. Proponents that do not submit back-up documentation satisfactorily demonstrating that mandatory requirements are met will not be evaluated further. Meeting mandatory requirements is a pre-condition for consideration and does not contribute to the total evaluation score contemplated hereunder.

Supplemental Targets include quantifiable criteria for the panelized system’s thermal resistance, water penetration and airtightness that is beyond what is required by the Mandatory Requirements. The scoring of Higher Clear Field R-Value is as follows:

0.25 points for every R-Value over 15 ft²·°F·h/BTU to a maximum of 5 points for 35 ft²·°F·h/BTU.

For example:

- Panel system that demonstrates an effective R-value of R21 will receive 1.5 points.
- Panel system that demonstrates an effective R-value of R37 will receive 5 points.

The scoring of the rest of the envelope performance items is as follows:

Score	Criteria
0	Fails to provide response or back-up documentation.
1	Provides back-up documentation but shows minimal improvement over Mandatory Requirement values.
2	Response shows moderate improvement over Mandatory Requirement values.
3	Response shows significant improvement over Mandatory Requirement values.

4	Response shows best-in-class performance in airtightness and water penetration resistance.
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Window Integration includes quantifiable criteria for window systems that may be integrated with the prefabricated panelized system. The criteria for scoring is as follows:

Score	Criteria
0	Fails to provide response or back-up documentation or does not include integrated windows.
1	Provides back-up documentation and barely meets the maximum NFRC U-Value and minimum NAFS performance.
2	Response shows lower NFRC Window U-value (U0.25 – U0.30) and higher NAFS Performance (Class CW)
3	Response shows much lower NFRC Window U-Value (<U0.25) and much higher NAFS Performance (Class AW)

Panel System Attributes, Retrofit Application, Production Information, and Project Administration include criteria that provides further information of the panelized system without a specific target or response expected. Refer to the Criteria Definition and Context section in Appendix A for a description of each criterion. The criteria for scoring is as follows:

Score	Criteria
0	Fails to provide response or back-up documentation.
1	Provides back-up documentation but minimally addresses the supplemental target or response is unclear.
2	Back-up documentation addresses the supplemental target with a comprehensive response.

Proponents will be evaluated using the following table:

Table B.1 – Evaluation Table

COMPLIANCE WITH MANDATORY SUBMISSION REQUIREMENTS:	PASS/FAIL		
A) Completed Application Form (Appendix C)			
RATED CRITERIA	POINTS AVAILABLE	SCORE (0-5)	POINTS AWARDED (points available x score / 5)
B) Corporate Profile and Project Qualifications	10		

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<ul style="list-style-type: none"> • Profile of the company • Experience and qualifications of the Proponent • Proposed staff team and resources, including individual experience working with overcladding and on retrofits projects 			
C) Delivery Approach A narrative describing the general process (and approximate timelines) for overcladding an existing building with the Proponent’s panels, from design and fabrication through installation and commissioning. If applicable, also note any planned improvements in this process.	10		
D) Principal Projects Completed Examples of two prefabricated overcladding panel projects successfully completed in the five years prior to the RFSQ submission date.	10		
E) Technical Evaluation Based on criteria from Table B.2 – Evaluation Scores for Pre-Engineered Panelized Systems OR Table B.3 – Evaluation Scores for Pre-Assembled Panelized Systems	70		
TOTAL SCORE	100		

Table B.2 – Evaluation Scores for Pre-Engineered Panelized Systems

#	Mandatory Requirements	✓		
1	Clear Field R-value			
2	Water Penetration Resistance			
3	Air Leakage Resistance			
4	Moisture Management			
5	Building Type Intended Use			
#	Supplemental Targets/Information	Weight (W)	Score (S)	(W) x (S)
Envelope Performance				
6	Higher Clear Field R-Value	8		
7	Higher Water Penetration Resistance	6		
8	Higher Air Leakage Resistance	6		

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9	Thermal Bridging Values	4		
Window Integration				
10	Window Integration	2		
11	Window Thermal Performance	2		
12	Window Airtightness and Water Penetration Resistance	2		
Panel System Attributes				
13	Combustibility	6		
14	Embodied Carbon	2		
15	Dimensions	5		
16	Weight	5		
17	Exterior Finish and/or Cladding Panel Type	4		
18	Service Life and Durability	8		
19	System Maintenance	2		
Retrofit Application				
20	Adjustability	5		
21	Wall Penetrations	5		
22	Panel Support	4		
23	Building Capture	3		
Production Information				
24	Panel Production	3		
25	Plant Quality Control	3		
Project Administration				
26	Supply and Install	3		
27	Installer Qualification	2		
28	Installation QA/QC	2		
29	Warranty	3		
30	Lead Times	3		
31	Project References	2		
TOTAL WEIGHTED SCORE				

Table B.3 – Evaluation Scores for Pre-Assembled Panelized Systems

#	Mandatory Requirements	✓
1	Clear Field R-value	
2	Moisture Management	
3	Building Type Intended Use	

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#	Supplemental Targets/Information	Weight (W)	Score (S)	(W) x (S)
Envelope Performance				
4	Higher Clear Field R-Value	8		
5	Higher Water Penetration Resistance	6		
6	Higher Air Leakage Resistance	6		
7	Thermal Bridging Values	4		
Window Integration				
8	Window Integration	2		
9	Window Thermal Performance	2		
10	Window Airtightness and Water Penetration Resistance	2		
Panel System Attributes				
11	Combustibility	6		
12	Embodied Carbon	2		
13	Dimensions	5		
14	Weight	5		
15	Exterior Finish and/or Cladding Panel Type	4		
16	Service Life and Durability	8		
17	System Maintenance	2		
Retrofit Application				
18	Adjustability	5		
19	Wall Penetrations	5		
20	Panel Support	4		
21	Building Capture	3		
Production Information				
22	Panel Production	3		
23	Plant Quality Control	3		
Project Administration				
24	Supply and Install	3		
25	Installer Qualification	2		
26	Installation QA/QC	2		
27	Warranty	3		
28	Lead Times	3		
29	Project References	2		
TOTAL WEIGHTED SCORE				

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APPENDIX C: APPLICATION FORM

Request for Supplier Qualifications Application Form

Please fill this form out for each application submitted and make it the first page for all submission packages. Applications should be done on a per product basis.

Project Name **RFSQ: Overcladding Roster**

Date of Submission (YYYY-MM-DD)

Proponent Information

Name of Organization _____

Address _____

Telephone Number _____

Name of Signatory _____

Email Address _____

Product Information

Product Name /
Reference _____

This product is a: *(Please check one)*

- Pre-engineered Panelized System
- Pre-assembled Panelized System

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Submission Checklist

Response Materials that respond to the following required sections:

- Letter of Introduction / Executive Summary
- Proponent Profile
- Proposed Staff Team and Resources
- Proposed System / Solution
- Principal Projects Completed

APPENDIX D: FORM OF AGREEMENT

AGREEMENT FOR ROSTER FRAMEWORK (the “Agreement”)

BETWEEN:

THE ATMOSPHERIC FUND
(referred to as “TAF”)

AND:

[LEGAL NAME OF SUPPLIER]
(referred to as the “Supplier”)

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WHEREAS, TAF issued the RFSQ for Prefabricated Overcladding Suppliers (the “**RFSQ**”) to qualify potential suppliers for eligibility to provide prefabricated overcladding panels for building retrofits (the “**Deliverables**”);

AND WHEREAS, pursuant to the RFSQ, the Supplier was selected to be included on a multi-use Prequalified Supplier Roster (the “**Prequalified Supplier Roster**”) for eligibility to participate in potential competitive processes (“**Roster Competitions**”) for the procurement of the Deliverables;

NOW THEREFORE, the parties hereto hereby agree as follows:

1. **Term of Agreement**

This Agreement shall take effect on the **[insert date]** (the “**Effective Date**”) and shall remain in effect until **[insert date]** (the “**End Date**”) unless it is terminated earlier in accordance with the terms of this Agreement or otherwise by operation of law. TAF shall have the option to extend the Term twice, for up to one (1) year each time. The term of this Agreement is hereinafter called the “**Term**”.

2. **Organization and Supplier Representatives**

TAF Representative and contact information for the Agreement is:

Name: Keith Burrows
Address: The Atmospheric Fund
Metro Hall (C/O Union Station, 2nd Floor East Wing)
55 John Street
Toronto, Ontario M5V 3C6
Phone: 416-392-0271
Email: kburrows@taf.ca

The Supplier Representative and contact information for the Agreement is:

Name:
Address:
Phone:
Email:

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3. Scope of Agreement

- (a) This Agreement governs the relationship between TAF and the Supplier in respect to the Prequalified Supplier Roster.
- (b) The Supplier acknowledges that there is no obligation whatsoever binding upon TAF to request, offer, invite or select the Supplier to provide any Deliverables under this Agreement or otherwise.
- (c) The Supplier acknowledges that the selection by TAF of a particular supplier at any time or from time to time from the Prequalified Supplier Roster is at TAF's sole and unfettered discretion.
- (d) No undertaking or any form of statement, promise, representation shall be deemed to have been made by TAF under this Agreement, save and except only as explicitly set out herein.
- (e) The Supplier acknowledges and agrees that it has not entered into this Agreement on the basis of any undertaking, statement, promise or representation by TAF.
- (f) The Supplier acknowledges that in entering into this Agreement no form of exclusivity has been conferred on, or volume guarantee has been granted by TAF in relation to the provision of the Deliverables by the Supplier and that TAF is at all times entitled to enter into other contracts and agreements with other suppliers for the provision of any or all services or goods.
- (g) The Supplier acknowledges that the Prequalified Supplier Roster may be made public by TAF (including its publication on its website), and that building owners and municipalities may use the Prequalified Supplier Roster while following their own respective procurement policies for service-provider selection.

4. Management of the Prequalified Supplier Roster

- (a) The Supplier acknowledges that TAF may and will permit other suppliers during the Term to apply for qualification and inclusion on the Prequalified Supplier Roster, all as determined by TAF in its sole and unfettered discretion.
- (b) The Supplier acknowledges that, during the Term, TAF may upon notice suspend or remove suppliers (including but not limited to the Supplier) from the Prequalified Supplier Roster.
- (c) If the Supplier is suspended from the Prequalified Supplier Roster, then the Supplier will not be eligible to participate in Roster Competitions during the period of suspension.

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- (d) If the Supplier is removed from the Prequalified Supplier Roster, then the Supplier will no longer be eligible to participate in Roster Competitions.
 - (e) The Supplier acknowledges that TAF intends to make the Prequalified Supplier Roster public so as to encourage its use.

5. Provision of Deliverables

- (a) The Supplier is a potential provider of Deliverables.
- (b) The Supplier may be selected to provide Deliverables to building owners or to TAF (in either case a **Requestor** hereunder).
- (c) If a Requestor requires the Deliverables, then Requestor may invite suppliers listed on the Prequalified Supplier Roster to participate in a RFP/RFQ.
- (d) The provision of the Deliverables will be governed by the terms and conditions of the contract between the Supplier and the Requestor, including, as applicable, the Standard Terms and Conditions contained in Schedule 1 hereof.

[Remainder of page intentionally left blank]

6. Execution

This Agreement may be executed by counterpart and/or through the use of digital signatures or scanned and/or delivered by electronic transmission, and when so executed and delivered, will be deemed an original.

IN WITNESS WHEREOF the parties hereto have executed this Agreement as of the date written below.

THE ATMOSPHERIC FUND

Signature:

Name: Julia Langer

Title: CEO

Date of Signature:

I have the authority to bind TAF.

[SUPPLIER'S FULL LEGAL NAME]

Signature:

Name:

Title:

Date of Signature:

I have the authority to bind the Supplier.

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SCHEDULE 1 – STANDARD TERMS AND CONDITIONS

ARTICLE 1 TERM AND TERMINATION

- 1.1 The term of this Agreement begins on the Effective Date and continues until the End Date unless terminated earlier.
- 1.2 TAF reserves the right to terminate this Agreement upon at least 14 days' advance written notice to the Supplier.
- 1.3 The Supplier reserves the right to terminate this Agreement upon at least 30 days' advance written notice to TAF.

ARTICLE 2 CONFIDENTIALITY

- 2.1 For the purpose of this Agreement, "**Confidential Information**" means all non-public information belonging to TAF, including all strategic, technical, corporate, financial, economic, legal or other information or knowledge generally concerning TAF or any of its affiliates, subsidiaries or other parties in which it has an ownership interest, or specifically concerning the Services, whether disclosed orally, or in the form of written material, computer data or programs, and includes trade secrets, computer programs, code, methods, techniques, processes, computer applications, information about or relating to grantees and/or customers of TAF and financial information, however obtained, and whether obtained before or after the execution of this Agreement. Confidential Information does not include information that:
 - (a) is disclosed lawfully to the Supplier by a third party who has no obligation of confidentiality to TAF with respect to the disclosed information;
 - (b) is or becomes generally known to the public, other than by a breach by the Supplier of its obligations under this Agreement; or
 - (c) is obligated to be produced under order of a court of competent jurisdiction or similar requirement of a government entity, so long as prior notice of such order or requirement is provided to TAF and the Supplier co-operates to the extent reasonable in preserving its confidentiality.
- 2.2 The Supplier acknowledges and agrees that the Confidential Information is the property of TAF. The Supplier will maintain the Confidential Information in strict confidence and will not disclose Confidential Information to any employee (save and except only to the extent necessary to perform the Services) or to any third party (save and except only with the prior written consent of TAF).
- 2.3 Upon termination of this Agreement or otherwise upon the request of TAF, the Supplier will deliver to TAF all copies, whether written, in the form of computer data or otherwise,

of all Confidential Information in the possession of the Supplier or other parties to whom the Supplier has provided Confidential Information. Neither the Supplier nor any parties to whom the Supplier has provided confidential Information will retain copies of any Confidential Information.

ARTICLE 3 DISPUTE RESOLUTION AND INJUNCTIVE RELIEF

- 3.1 In the event of a disagreement, dispute or claim arising from or relating to this Agreement, the parties shall diligently in good faith use reasonable efforts to attempt to promptly resolve the Dispute.
- 3.2 The Supplier recognizes that violation, breach or anticipated breach of the Confidential Information obligations and/or the Intellectual Property obligations of the Supplier under this Agreement may cause serious and irreparable harm to TAF such that an action in damages may not be a sufficient remedy. Consequently, the Supplier recognizes, acknowledges and agrees that TAF may, in addition to an action in damages, have the right to take the appropriate proceedings to obtain an interlocutory or permanent injunction in any jurisdiction of its choice as soon as possible as a necessary remedy to enjoin any further breach or anticipated breach by the Supplier and without prejudice to the rights of TAF to obtain damages.

ARTICLE 4 INDEMNIFICATION

- 4.1 The Supplier agrees to fully indemnify and defend and save completely harmless TAF, and its directors, officers, employees, agents, successors, and permitted assigns (collectively, the “**Indemnified Party**”) from and against any and all claims, actions, causes of action, demands, proceedings, losses, damages, liabilities, deficiencies, costs, and expenses (including but not limited to legal fees and disbursements) suffered or incurred by the Indemnified Party that are related, directly or indirectly, to: (i) the provision of any services performed by the Supplier through its participation regarding the Prequalified Supplier Roster; (ii) any inaccuracy of any representation or warranty by the Supplier contained in this Agreement or in any document delivered pursuant to this Agreement; (iii) any negligence or willful misconduct by the Supplier; (iv) any breach or non-performance by the Supplier of any obligation to be performed by it that is contained in this Agreement or in any document delivered by the Supplier pursuant to this Agreement; and (v) any breach or alleged breach by the Supplier of any of intellectual property rights or privacy rights of any person.

ARTICLE 5 CONFLICT OF INTEREST

- 5.1 The Supplier warrants that it, its partners, directors, officers, employees, agents, suppliers, sub-suppliers and volunteers shall not during the term of this Agreement provide any services to any person, corporation, body, group or organization where the provision of such services, actually or potentially, creates a conflict of interest with the provision of the

Services pursuant to this Agreement, without the Supplier first disclosing to TAF the actual or potential conflict of interest and obtaining the express prior written consent of TAF.

**ARTICLE 6
REPRESENTATIVES AND NOTICES**

6.1 The Supplier's representative shall be as follows (unless indicated otherwise in writing by the Supplier):

Name:

Address:

Phone:

Email:

6.2 TAF's representative shall be as follows (unless indicated otherwise in writing by TAF):

Name: Keith Burrows

Address: The Atmospheric Fund
Metro Hall (C/O Union Station, 2nd Floor East Wing)
55 John Street
Toronto, Ontario M5V 3C6

Phone: 416-392-0271

Email: kburrows@taf.ca

6.3 All communications shall be given by or to the respective parties through the above individuals. The representatives of each party may be changed or substituted by notice to the other party of the name and address of the substitute representative.

6.4 All notices shall be in writing and shall be sufficiently given if personally delivered or mailed by pre-paid registered mail to the other party at the address shown above, in which case it shall be deemed to have been received on the 5th business day after it was mailed. Day-to-day communications may also be delivered by fax or electronic transmission, in which case they shall be deemed to have been received on the first business day following transmission.

**ARTICLE 7
GENERAL**

7.1 Compliance with laws. The Supplier shall comply with all applicable laws, regulations and ordinances. The Supplier has and shall maintain in effect all the licences, permissions, authorizations, consents and permits that it needs to carry out its obligations under this Agreement.

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- 7.2 **No Waiver.** The failure by TAF to insist in one or more instances upon the performance by the Supplier of any of the terms or conditions of this Agreement shall not be construed as a waiver of TAF's right to require future performance of any such terms or conditions, and the obligations of the Supplier with respect to such future performance shall continue in full force and effect. A waiver is binding on TAF only if it is in writing.
- 7.3 **Assignment.** The Supplier may not assign this Agreement or any part thereof without the prior written approval of TAF.
- 7.4 **Force Majeure.** A party shall not be liable or responsible to the other party, nor be deemed to have defaulted under or breached this Agreement, for any failure or delay in fulfilling or performing any term of this Agreement, when and to the extent such failure or delay is caused by or results from acts beyond the party's reasonable control, including, without limitation, the following: (a) acts of God; (b) flood, fire, earthquake, tsunami, epidemics, pandemics including the 2019 novel coronavirus pandemic (COVID-19), or explosion; (c) war, invasion, hostilities (whether war is declared or not), terrorist threats or acts, riot, or other civil unrest; (d) government order or law; (e) actions, embargoes, or blockades in effect on or after the date of this Agreement; (f) action by any governmental authority; (g) national or regional emergency; (h) strikes, labour stoppages or slowdowns, or other industrial disturbances; (i) shortage of adequate power or transportation facilities; and (j) other similar events beyond the reasonable control of a party.
- 7.5 **Enurement.** This Agreement will enure to the benefit of and will be binding upon the parties hereto and their respective successors and permitted assigns.
- 7.6 **Entire Agreement.** This Agreement embodies the entire Agreement between the parties hereto with regard to the matters dealt with herein and supersedes and replaces any prior understanding or agreement, collateral, oral or otherwise.
- 7.7 **Amendments.** No change to or modification of this Agreement shall be valid unless it is in writing and signed by the parties hereto.
- 7.8 **Severability.** If any provision of this Agreement shall be determined to be invalid or unenforceable at law, then such provision shall not affect the validity of any other provision hereof.
- 7.9 **Governing Law.** This Agreement shall be governed by and construed in accordance with the laws of the Province of Ontario and the federal laws of Canada applicable therein.
- 7.10 **Headings.** The headings which precede the paragraphs of this Agreement are merely for the assistance of the reader and do not affect the meaning, effect or construction of this Agreement or any part hereof.
- 7.11 **Technical Meanings.** Whenever words which have well-known technical or trade meanings are used in this Agreement, they are used in accordance with such recognized meanings.
- 7.12 **No contra proferentem.** This Agreement has been negotiated by each party hereto with the benefit of legal representation, and any rule of construction to the effect that any ambiguities are to be resolved against the drafting party does not apply to the construction or interpretation of this Agreement.

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- 7.13 Relationship between the parties. TAF and the Supplier are entirely independent and unrelated entities. Nothing whatsoever contained in this Agreement shall be deemed to establish or otherwise create a relationship of principal and agent as between TAF and the Supplier. It is understood and agreed by the parties hereto that the Supplier is independent of TAF, and that neither the Supplier nor any of its agents or employees shall have any right or authority whatsoever to assume or create any obligation of any type, nature or kind, whether express or implied, binding upon TAF.
- 7.14 Counterpart. This Agreement may be executed in any number of counterparts, each of which shall be deemed to be an original and all of which taken together constitute one agreement. Delivery of an executed counterpart of this Agreement by facsimile or transmitted electronically in legible form, including in a tagged image format file (TIFF) or portable document format (PDF), shall be equally effective as delivery of a manually executed counterpart of this Agreement.

[Remainder of page intentionally left blank]