**CITY OF TORONTO**

**Request for Proposals Template Guide**

**(Net Zero Emissions parts)**

# Part 3 – Requirements for Deliverables

### Applicable to New Construction and Additions greater than 100m2 (GFA)

Include in the title "net zero emissions building". For example: Request for Proposal No. For: Professional and Technical Services for Design, preparation of Tender Documents and contract administration of the new construction of the targeted net zero emissions building of ABCD building at 1234 Street, Toronto]

**RFP Part 3 details the Requirements for Deliverables SECTION 1.1 - SCOPE OF WORK**

) [The following scope of work must be included in accordance with Council direction dated March 28, 2017:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2017.PG18.3>

The Client and Buyer are to ensure appropriate language is included in the Proposal Content section and Scope of Work section, and that compliance with the Toronto Green Standard (TGS) and net-zero feasibility study are included. These requirements are also to be included in the evaluation criteria and as its own line item in the pricing form. In addition, the Procurement of a third party TGS evaluator must be accounted for in the project's budget and Divisions will be responsible to procure these services.

For questions on the Toronto Green Standard and third party evaluator requirements contact the City Planning Division, Strategic Initiatives, Policy & Analysis- Environmental Policy Section at sustainablecity@toronto.ca.

For questions on net-zero emissions requirements contact the Environment and Energy Division at EnergyReview@toronto.ca]

[Scope Item Addition]

**Net Zero Energy/Emissions Building- Feasibility Study**

City Council has directed that all new buildings and additions over 100m2 (GFA), starting in 2018, must aim to achieve Net Zero Energy/Emissions, where technically practical and financially feasible. In addition, in 2019 the Council has requested for all new projects to report back during the design phase for any additional costs to achieve net zero emissions ([MM12.10 - Building Net Zero Buildings Now](http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2019.MM12.10)). While achieving Net Zero is not yet a mandatory requirement for all City buildings, the feasibility assessment will be a required component of each. The requirements of this Net Zero Emissions Feasibility Study are described herein.

To meet this mandate the Vendor shall, during Conceptual design, perform a Net Zero Emission (NZE) Feasibility study, as described in this RFP. Through this feasibility study it will be the responsibility of the Vendor to recommend the feasibility of designing to Net Zero Emissions standards. The City, at its sole discretion, will determine if NZE Design shall proceed.

The Net Zero Energy/Emissions Feasibility Study shall include the following:

[Client to add most recent NZE Terms of Reference information from link below:

<https://www.toronto.ca/wp-content/uploads/2021/04/8dce-CityPlanningNZETOR20210301.pdf>

[Scope Item Addition]

**Toronto Green Standard- Third Party Evaluator coordination and support**

In addition, City Council has mandated that all City Agency, Corporation and Division-owned facilities be certified to achieve the equivalent of a Tier 2 level of performance by a 3rd party evaluator registered with the City of Toronto. This evaluation will be performed by an independent [Registered Project Evaluator](https://www.toronto.ca/city-government/planning-development/official-plan-guidelines/toronto-green-standard/toronto-green-standard-version-3/development-charge-refund-program-version-3/) through a two stage evaluation process.

The first stage will be a document review and the second stage will be an on-site verification evaluation. The Vendor shall be required to compile this documentation in the format required (in named folders) to facilitate this 3rd party evaluation.

The Supplier will be required to act upon the comments and discrepancies noted by the 3rd party evaluator. The 3rd party TGS evaluator will be retained by the City of Toronto.

[Scope Item Addition- optional item as noted in TGS]

**Toronto Green Standard- Building Resiliency- Back up Generation feasibility investigations (TGS GHG 5.2)**

To meet TGS Building Resiliency- Back up Generation GHG 5.2 requirements, the Vendor is required to provide feasibility investigations and a report recommending the viability of emergency backup power including a solar photovoltaic + storage (battery) system and/or natural gas power.

The Back-up power load panel shall include:

One large central room

Office

Lighting

Elevator(s) for one trip to ground floor

Security system (may be omitted if the security system is on a separate UPS system)

[Scope Item Addition- Optional for buildings that want to verify building performance through a 3rd party assessment, additional costs will apply]

**Canadian Green Building Council's Zero Carbon Building Standard- Design and Certification support**

Additionally, the Supplier needs to demonstrate that the building design will meet the requirements of a Canada Green Building Council's Zero Carbon Building Standard (<http://www.cagbc.org/CAGBC/Zero_Carbon/Zero_Carbon_Building_Initiative/CAGBC/Zero_Carbon/The_CaGBC_Zero_Carbon_Building_Program.aspx?hkey=db3da92e-e4e0-4088-a463-95045bf55b89>).

Certification to ZCB Standard is required and the application process will be administered by the Vendor.

**RFP Part 3 details the Requirements for Deliverables SECTION 2.1 BACKGROUND**

The intention of the owner, the City of Toronto, is for the future Building to be targeted as Net Zero Emissions Building. The purpose of this RFP is to retain a qualified consultant that can design the site to this Standard, meet the Toronto Green Standard (City Agency, Corporation & Division-Owned Facilities, Version 3 or most current version), and meet the Net Zero feasibility requirements described herein.

The Supplier design must comply with this and all applicable requirements from governing bodies having jurisdiction and RFP requirements.

**Toronto Green Standard Sustainable Building Policy**

The Toronto Green Standard implements the environmental policies of the City of Toronto [Official Plan](https://www.toronto.ca/city-government/planning-development/official-plan-guidelines/official-plan/) and the requirements of multiple City divisions, and is an effective tool to achieve the City's greenhouse gas emission reduction targets for new buildings.

All new City buildings and additions over 100m2 (GFA) must comply with the Toronto Green Standard for City Agency, Corporation and Division-Owned Facilities (Version 3.0 or current), In addition, these projects must further aim to achieve Net Zero Energy/Emissions, where technically practical and financially feasible. City-owned residential buildings must comply with the Tier 2 level of performance in either the Mid to High Rise Standard or the Low-Rise Residential standard. These requirements are in accordance with Council direction dated March 28, 2017:

 <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2017.PG18.3>

As directed by City Council, a third party evaluator assessment will be retained by the City and will also need to be required to certify that all new capital facilities have met the Tier 2 Core performance requirements.

The Toronto Green Standard for City Agency, Corporation and Division-Owned Facilities can be found at:

<https://www.toronto.ca/city-government/planning-development/official-plan-guidelines/toronto-green-standard/toronto-green-standard-version-3/city-agency-corporation-division-owned-facilities-version-3/>

[Appendix inclusion-*Optional]*

**APPENDICIES SECTION**

APPENDIX - Sustainable Design Principles

These sustainable design principles will guide the development to achieve Toronto Green Standard Version 3 Standard for high performance city building projects and assist with attaining a net zero carbon development.

For guidance, the Supplier may want to use the following fundamental principles of sustainable building design as defined by the National Institute of Building Sciences:

1. Optimize Site Potential - site design must integrate with sustainable design to achieve a successful project. It begins with the proper site selection, as the location, orientation, and landscaping of a building all affect local ecosystems, transportation methods, and energy use.
2. Optimize Energy Use - Improving the energy performance of buildings through energy modeling is vital to increasing the building’s energy independence. Operating net zero carbon buildings is one way to significantly reduce dependence on fossil fuel derived energy.
3. Protect and Conserve Water - A sustainable building will need to use water efficiently, and reuse or recycle water for on-site use, when feasible.
4. Optimize Building Space and Material Use - As the world population continues to grow; the use of natural resources and the demands for them, continues to increase. A sustainable building is designed and operated to use and reuse materials in the most productive and sustainable way across its entire life cycle.
5. Enhance Indoor Environmental Quality - The indoor environmental quality of a building has a significant impact on occupant health, comfort, and productivity. Among other attributes, a sustainable building maximizes daylighting, has appropriate ventilation and moisture control, optimizes acoustic performance, and avoids the use of materials with high-VOC emissions.
6. Optimize Operational and Maintenance Practices – The design team will need to specify materials and systems that simplify and reduce maintenance requirements; require less water, energy, and toxic chemicals and cleaners to maintain; and are cost-effective and reduce life-cycle costs.

To minimize energy requirements, the Vendor should explore recommendations for efficient design listed in the following references, among others:

1. City of Toronto's Zero Emissions Buildings Framework (<https://www1.toronto.ca/wps/portal/contentonly?vgnextoid=f85552cc66061410VgnVCM10000071d60f89RCRD>)
2. Net Zero Energy Buildings: Passive House + Renewables by North American Passive House Network

(<http://naphnetwork.org/NAPHN_NZEB_2015_V2/mobile/index.html>)

1. Vancouver's Passive Design Toolkit

(<http://vancouver.ca/files/cov/passive-home-design.pdf>, and <http://vancouver.ca/files/cov/passive-design-large-buildings.pdf>)

1. Whole Building Design Guide

(<http://www.wbdg.org/design-objectives/sustainable/optimize-energy-use>).

Some of specific recommendations include, but are not limited to:

1. Reduce Heating, Cooling, and Lighting Loads through Climate-Responsive Design and Conservation Practices
* Use passive solar design; orient, size, and specify high-performance, energy efficient windows (e.g. U-0.14); and locate landscape elements with solar geometry and building load requirements in mind.
* Use high-performance building envelopes; select walls (e.g. R-30 or higher), roofs (e.g. R-40 or higher), and other assemblies based on long-term insulation, air barrier performance, and durability requirements.
* Consider an integrated landscape design that provides deciduous trees for summer shading (but do not shade solar PV system!), appropriate planting for windbreaks, and attractive outdoor spaces.
1. Specify Efficient HVAC and Lighting Systems
* Use energy efficient HVAC equipment and systems – the expectation is that design will utilize ground source or air source dual stage heat pump system.
* Evaluate hydronic radiant in floor heating system combined with ground source system.
* Evaluate energy recovery systems that pre-heat or pre-cool incoming ventilation air.
* Use lighting systems that consume less than 1 watt/square foot for ambient lighting.
* Use Energy Star® approved energy efficient appliances.

1. Optimize Building Performance and System Control Strategies
* Employ energy modeling programs early in the design process.
* Use sensors to control loads based on occupancy, schedule and/or the availability of natural resources such as daylight or natural ventilation.
* Evaluate the use of modular components such as boilers or chillers to optimize part-load efficiency and maintenance requirements.
* Employ centralized remote meter reading and management to provide accurate analysis of energy use and monitor power quality.
* Use a comprehensive, building commissioning plan throughout the life of the project.
1. Employ Renewable Energy Sources
* On-site Renewable energy sources that may be appropriate for this location include solar water heating, photovoltaic (PV) (e.g. on roof, carport over parking lot), and ground source heat pumps.
* Renewable energy Feasibility study is a requirement under Toronto Green Standard for City owned buildings and is now incorporated into Net Zero Feasibility Study.

The Supplier will, at a minimum, design the building to be able to accept the solar PV system, using solar ready requirements provided in the Net Zero feasibility study terms of reference.

Sample/Example Additional Definitions

[For new construction and additions greater than 100m2 - add the following terms]

"Net Zero Emissions" means meeting TGS v3 Tier 4 requirements combined with renewable energy systems to offset remaining carbon emissions associated with the use of the building. Can be used interchangeably with Zero Carbon Building – see definition below.

"ZCB" means Zero Carbon Building and is defined as a highly energy efficient building that produces onsite, or procures carbon-free renewable energy in an amount sufficient to offset the annual carbon emissions associated with building operations. In a ZCB building, carbon-based energy consumption is reduced first through building design strategies and efficiency measures, then through on-site renewable energy generation, and finally through procurement of Renewable Energy Certificates (RECs) that locally produce off-site renewable energy.

# Part 4 – Submission Forms

**Subsection 3- Experience and Qualifications of the Supplier**

[The score for NZE and TGS experience should be at least 15-20% of the points available for this subsection. Consider adding the following qualification requirements:]

The Supplier is to demonstrate the necessary skills, experience and expertise in the design and delivery of the proposed total Solution. The Supplier shall demonstrate the successful completion of at least two (2) comparable NZE project within the past ten (10) years.

If NZE status has not been achieved on these projects than, at a minimum, the projects are to have achieved high standards of sustainable design. Acceptable standards will include LEED Gold or better, the Canadian Green Building Council's Zero Carbon Building Standard, Passive House, Living Building Challenge or another widely used, industry recognized, rating/certification system centered on sustainable design, approved by the City via an addenda.

- **Subsection 4- Proposed staff team and resources**

**[**The score for NZE and TGS experience should be at least 15-20% of the points available for this subsection. Consider adding the following qualification requirements:]

The Supplier team is to demonstrate the necessary skills, experience and expertise in the design and delivery of the proposed total Solution.

Key project individuals are to be named together with their professional qualifications and experience performing similar work for projects of comparable nature, size, and scope.

Demonstrated staff experience is to include the proposed staff's experience with NZE/E and high performance building design and implementation.

Supplier Team is to include competent energy modelling professional with good experience dealing with complex systems, preferably on NZE/E buildings.

Attach resumes for all proposed staff.

**Subsection 5- Proposed System/Solution team and resources**

**{**The score for NZE and TGS experience should be at least 10-20% of the points available for this subsection. Consider adding the following qualification requirements:]

The supplier shall provide a statement of the Supplier's understanding of the goals and objectives of the project. In this statement the Supplier addresses how they will achieve the NZE goals for this project.

# Part 5 – Pricing Form

#### Optional and/or Additional Pricing - If Applicable

[For New construction and addition projects over 100m2 (GFA) - Add the following scope items in the Itemized Pricing Form]

1. Net Zero Emissions Building- Feasibility Study
2. Toronto Green Standard 3rd party Evaluator- coordination and support
3. Canadian Green Building Council's Zero Carbon Building Standard- Design and Certification support- optional item
4. Toronto Green Standard Building Resiliency- Back up Generation GHG 5.2- optional item