WATERFRONTToronto

Waterfront Toronto

MINIMUM GREEN BUILDING REQUIREMENTS

Version 2.0
August 2012

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BACKGROUND

Waterfront Toronto is committed to making the city's waterfront both a national and global model for sustainability. What we do on the waterfront can and will set new standards for best practices not only in Canada but throughout the world. To meet corporate policy objectives and achieve the goals set out in Waterfront Toronto's Sustainability Framework (2005), the Mandatory Green Building Requirements (MGBR) were originally developed in 2006 and last updated in 2009. Waterfront Toronto recognized that more detailed revisions for improved performance were required.

WHY UPDATE THE EXISTING MGBR?

These revisions reflect the growing market acceptance of green building strategies which allows for higher performance standards within Waterfront Toronto precincts. The result will be a high-performance community with emphasis on reduced carbon emissions and improved occupant well-being. In addition, the title of the MGBR has been revised from "Mandatory" to "Minimum" to encourage design teams to go beyond the thresholds set within the requirements.

HOW THIS DOCUMENT IS STRUCTURED

The MGBR defines minimum performance measures and targets for building development related to energy, water, waste, transportation, and materials, as well as considerations related to the design process and progress tracking. Together, these measures and targets intend to have a positive impact on the environment and community at Toronto's waterfront.

This document outlines each of the minimum performance targets for each requirement. Submittal templates for some of the requirements are provided in the Appendix, and must be read in conjunction with the Requirements. In case of accidental discrepancy between the Requirements and the Submittal documents, the Requirements shall take precedence.

SUBMITTAL REQUIREMENTS

All development governed by Waterfront Toronto's development agreement shall demonstrate compliance with the MGBR. Documentation will be reviewed at regular intervals as per the Progress Tracking Process by Waterfront Toronto staff. Waterfront Toronto may, at its discretion, engage a 3rd party consultant to conduct a review of the documentation submitted by the development teams.

EXPLANATION OF VERSION NUMBERS

This document represents Version 2.0 (August 2012) of the MGBR for which compliance is required for any new development. Projects procured prior to January, 2011 can continue to use MGBR Version 1.0 (November 2009), unless otherwise agreed to. The current requirements will be reviewed and assessed over time to reflect ongoing and continuous improvement and best practice.

Contents

1. LEED® GOLD CERTIFICATION

Intent

To confirm, through third-party certification, that high-level green building performance has been achieved.

Requirements

Achieve Gold certification under LEED® Canada-NC 2009, or the most up-to-date version of LEED® Canada-NC at the time of RFP issuance, for all eligible buildings;

AND

Achieve the following credits:

a) WEc1: Water Efficient Landscaping (4 points)
b) WEc3: Water Use Reduction (4 points)
c) EAc1: Optimize Energy Efficiency (50% cost savings relative to MNECB (1997) [excluding process loads and assuming a code-compliant heating and cooling plant])
    - Modeling shall follow LEED® Canada-NC 2009 Energy Modeling Guidelines, *except* process loads shall be excluded. Energy model software can separate process loads with no additional effort.
    - Modelling shall assume a code-compliant, in-building, heating and cooling plant. i.e. the minimum performance must be achieved without considering the actual performance of the district energy system.
    - The model shall demonstrate:
        - Peak heating demand 65% less than MNECB (1997)
        - Peak cooling demand 30% less than MNECB (1997)
d) EAc2: On-Site Renewable Energy (3% of annual energy cost, 2 points)
    - As an alternate compliance path, where renewable energy is not cost competitive, increased building energy performance as per EAc1 (with modifications as discussed above) will be accepted. For each 1% of on-site renewable energy not provided, an additional 2% increase in energy cost savings must be demonstrated beyond the minimum 50%.
    - As per LEED® Canada-NC CIR #565, grid-tied and/or 3rd party-owned systems within the project boundary may qualify.
e) EAc5: Measurement & Verification (3 points)

2. SMART BUILDING

Intent

To encourage conservation among building residents and occupants by providing them with a means to track and control their utility usage, and to pay for energy based on each suite's actual consumption, and to satisfy the requirements for data transfer associated with the Waterfront Toronto Intelligent Communities (WTIC) network.

Requirements

Provide the following components for metering and data collection:

- A central system that collects consumption data for energy (electricity and natural gas) and water (hot and cold) for the whole building and includes infrastructure for remote access. Thermal meters are to be certified by CSA, EN, UL, ETL, or other applicable standardization authority.
- The infrastructure for suites to be independently billed for their utilities based on consumption.
- A system that displays suite real-time hourly energy consumption data in each suite. The displays must include time–of-day usage to encourage peak time reduction.
- An "all off" switch at each suite main entrance controlling all hardwired lighting.
- A report from the commissioning agent, or other qualified professional, demonstrating that the central data collection system has been calibrated for each meter.

Provide the following components to support the WTIC network:

- A suitable, secure space within each building for the deployment of WTIC telecommunications equipment. The room shall have a minimum size of 5' x 5' of useable space (excluding door swing) and include a duplex 15A receptacle.
- Rooftop access for deployment of wireless communications access points.
- One ¾" flex or EMT horizontal conduit from the riser room of each floor to each residential suite of the associated floor.
- Three ¾" flex or EMT conduits from "in suite" utility closet to wall-plate locations within the residential suite (one conduit to master bedroom; one conduit to living room; one conduit to a location within the suite, to be determined through discussions with Waterfront Toronto).
- One 15A duplex receptacle and wall-space (16" width x 28" height) to support WTIC infrastructure in the utility closet in each residential suite.

3. ELECTRIC VEHICLE INFRASTRUCTURE

Intent

To reduce non-point source emissions associated with automobile use.

Requirements

- Provide electric vehicle (EV) infrastructure for 2% of residential parking spaces for which specific installation requirements are located in the electrical code
- Provide a minimum Level 2 (40 A) electric vehicle supply equipment (EVSE) that connects each of the provided EV infrastructure outlets to an EV using SAE Standard J1772.
- Provide metering with the ability to bill the user for the electricity delivered to each parking space
- Deliver the remaining residential and 100% of commercial parking spaces as "EV-ready" by providing roughed-in raceways (including conduits, cable trays, etc.) to allow for future installation of Level 2 EV infrastructure that connects the utility electrical supply to the planned future electrical equipment and to all remaining parking spaces
- Provide a plan, acceptable to the electrical authority having jurisdiction, for upgrading the building's power infrastructure to accommodate future demand from completed EV charging infrastructure for 100% of parking spaces.
- Provide the necessary additional space required to accommodate EV infrastructure (such as panels, transformers, and other electrical infrastructure) to meet future EV demand.

4. GREEN ROOF

Intent

To create buildings that provide a visual connection between community residents and plant life, provide habitat and increase biodiversity, help reduce the urban heat island effect, and contribute to sustainable stormwater management.

Requirements

For all buildings over 3 storeys and parking garages:

- Install a green roof for 50% of available roof space, or the percentage required by the City of Toronto Green Roof Bylaw (Toronto Municipal Code Chapter 492, Green Roofs), whichever is greater. Available roof space shall be calculated in accordance with the City of Toronto's Green Roof Bylaw, with the following exceptions:
    - For parking garages "available roof space" is defined here as the roof area not used for parking or roadways.
    - All outdoor amenity space shall be **included** in the available roof space calculation (not as it is defined in defined in Section 492-1). Pools (water surface area only) may be excluded from the available roof space calculation.
    - No variation or exemption of coverage requirements for a green roof through a cash-in-lieu payment (Sections 492-11 and 492-12 of the Bylaw) is permitted
- Construct and install all green roofs in accordance with the Toronto Green Roof Construction Standard.

- Design and construct 100% of all low-slope roofs to accommodate the loads that would be imposed by an intensive green roof (8.2 kPa superimposed dead **load). Low slope roofs are those with a slope less than or equal to 2:12 (20%).**

Optional Alternate Compliance for Buildings installing Rooftop Renewable Energy Production (PV or Solar Thermal):

- **Meet all requirements above.**
- **The roof area covered by renewable energy systems shall be included in the available roof space and may be considered "green roof" for the calculations. Note that this does not guarantee compliance with the TGS.**

For all cases, projects are encouraged to incorporate outdoor amenity space with the green roof areas.

5. ENGAGEMENT AND SUPPORT

Intent

To provide building owners/operators and occupants with the information necessary to operate and maintain the building optimally.

Requirements

Provide building owners/operators and occupants with the following material:

- Residential Occupant and Operating Manual that includes:
  - An overview of the sustainability objectives of Waterfront Toronto (this content will be provided by Waterfront Toronto);
  - A summary of the green building features incorporated in the building;
  - Maintenance requirements and recommendations for all in-suite equipment;
  - Operation instructions for in-suite equipment;
  - List of products used in base building that occupants should consider, such as low VOC paint, carpet, energy efficient light bulbs, etc.;
  - Housekeeping policy, including a list of available green cleaners;
  - Information about further opportunities for involvement in environmental initiatives across the city (e.g. car-sharing, urban agriculture, etc.) (This content will be provided by Waterfront Toronto).
- Signage placed around the building teaching occupants and visitors about the green features of the building and sustainability objectives of Waterfront Toronto.
- Support material for Service Contracts (landscaping, snow removal, housekeeping, etc.).
- Instructions to the condominium corporations on how consumption-based billing may be implemented based on the provisions installed as per the "Smart Building" requirement.

6. BICYCLE PARKING AND STORAGE

Intent
To reduce emissions associated with automobile use by supporting effective bicycle infrastructure.

Requirements
Residential buildings are to install 1.2 secure and covered bike racks and/or storage per suite at a convenient and easily accessible location. (This is equivalent to the Toronto Green Standard, Cycling Infrastructure Tier 2 for residential buildings.)

7. WASTE MANAGEMENT

Intent
To minimize waste going to landfills and to encourage all building residents and occupants to participate in responsible waste management.

Requirements
All kitchen suites must provide separated cabinet space for segregated collection of three waste streams:

- Recyclables
- Organics
- Waste

Residential buildings above three storeys must provide tri-sorting or separate chutes, for collection of each of the three waste streams on all floors.

All buildings must provide collection areas for household hazardous wastes (HHW), including paints & solvents, cleaners & detergents, oils, batteries, electronics, and compact fluorescent light bulbs. HHW does not include propane or other explosives.

8. DISTRICT ENERGY

Intent
To provide buildings with cost-effective, energy from community-scale clean energy sources.

Requirements
In cases where district energy facilities are available by Waterfront Toronto, design and construct buildings and building systems as required by the Energy Service Agreement.

9. HIGH-EFFICIENCY APPLIANCES

Intent
To maximize energy and water efficiencies to reduce the burden on energy supply and municipal water and waste water systems.

Requirements
All appliances supplied by the developer that are eligible under the Energy Star program must be Energy Star compliant.

Eligible appliances include:

- Clothes Washers
- Combination washer-dryers (when available, 2011)
- Dishwashers
- Freezers
- Refrigerators
- Ventilating Fans (kitchen, bathroom exhaust)

10. COMMUNITY INTEGRATION

Intent
To engage the development team to consider how building design options can positively impact the adjacent buildings and surrounding community.

Requirements
At Design Review Panel or other update meetings with Waterfront Toronto, present strategies employed at the site to encourage sustainable communities. Include the following items for discussion:

- Energy synergies with different uses (i.e. how potential resources such as waste heat can be shared between buildings with different uses)
- How the building design and site features support:
    - pedestrian and bicycle networks
    - transportation demand management
    - access to parks and recreation
    - urban agriculture
- How the following building design options impact the site:
    - Façade materials (i.e. colour, type, transparency, etc.)
    - Window size and height
    - Location of entrances relative to roadways, parking, bicycle racks, transit facilities
- How the design contributes to LEED®-ND

11. LONG-TERM FLEXIBILITY

Intent

To provide building characteristics that allow for future changes in use without structural modifications.

Requirements

Provide the following flexibility measures:

Construct the building using a column and slab structural system. Lateral support to be provided by the elevator core and exit stairs only (no shear walls between suites).

Ground Floor for all development, excluding residential buildings that are within the category of Part 9: Housing and Small Buildings, of the Ontario Building Code:

- Clear slab-to-slab height (to underside of 2nd floor slab): minimum 5m
- Structural live load capacity: minimum 4.8 kPa

Typical Floors Above Ground:

- Clear slab-to-slab height: 2.75 m

Above Grade Parking:

- Clear slab-to-slab height: 2.4 m (after levelling floor slopes; include a narrative describing how the design allows for levelling)
- Structural live load capacity (slab on grade): minimum 7.2 kPa
- Structural live load capacity after levelling (suspended slabs): minimum 4.8 kPa

Residential Suites:

Design the building to ensure that residential suites which initially contain fewer than three bedrooms can be converted or combined with other suites to form new suites that contain three or more bedrooms. The design shall be carried out such that modifications to the mechanical, electrical, and plumbing systems for the conversions will be confined to the boundary of the expanded suite (i.e. will not require entry into suites above, below, or beside the converted suite to execute the work).

12. INTEGRATED DESIGN PROCESS

Intent

The intent is to ensure that the Development Team realizes the benefits of an Integrated Design Process (IDP). An IDP enables all project disciplines to work together in providing design solutions that optimize relationships between systems. The resulting creative design brings multiple benefits, often at a reduced cost.

Requirements

The project design shall follow an Integrated Design Process that includes the following:

- A Concept Design phase focused on sustainability. The recommended approach is to hold conceptual design meetings (charrettes) attended by at least one individual from each member of the Development Team (including the Energy modeller and cost consultant) and, where possible, the contractor.
- IDP team meetings are to be held, as a minimum, during the conceptual design, schematic design, design development, and construction document stages.
- At each Design Review Panel presentation, the project team must speak to their approach to the IDP, planned activities, and outcomes.
- The responsible person for the IDP must attend all Design Review Panel presentation to speak to the process.
- Update reports must be submitted at each Design Review Panel presentation stage, which includes details on target credits for achieving LEED Gold, key activities, outcomes, as well as examples of issues that were raised and how creative solution were devised as a result of the IDP.
- Signed letter template.

13. PROGRESS TRACKING SYSTEM

Intent

To track developer progress with respect to fulfilling Waterfront Toronto's Minimum Green Building Requirements.

Requirements

Complete Waterfront Toronto's Sustainability Progress Tracking System. Please refer to the "Minimum Green Building Requirements Reporting, Waterfront Toronto's Design Review Panel Process" document for full details.

APPENDIX A: Submittal Declaration Letters

Date:

Waterfront Toronto

Address*

Address*

Address*

Attention: ***contact***

Re: Minimum Green Building Requirement - Integrated Design Process

*****Project Name and Municipal Address*****

To Whom It May Concern:

I, _____, as the (architect/responsible person) certify that the design of this project is being accomplished using an integrated design process and I agree to attend all Design Review Panel presentations to speak to this process.

Yours truly,

Name: _____

Organization: _____

Role in Project: _____

Signature: _____

Date: _____

encl.

Date:

Waterfront Toronto

Address*

Address*

Address*

Attention: ***contact***

Re: Minimum Green Building Requirement – Eac1: Optimize Energy Efficiency

*****Project Name and Municipal Address*****

To Whom It May Concern:

I, _____, as the mechanical engineer, certify the accuracy of the energy model developed for this project and agree to attend all Design Review Panel presentations to speak to the building's predicted energy efficiency.

Yours truly,

Name: _____

Organization: _____

Role in Project: _____

Signature: _____

Date: _____

encl.