

APPENDIX 3



WATERFRONTToronto

Green Building Requirements

The revitalization plan for the Toronto waterfront is intended to position the city as a world leader in creating sustainable communities. To help achieve this objective the attached Green Specification was developed. It defines Waterfront Toronto's "green building" design and construction requirements in a format suitable for inclusion in RFP's to developers. The Specification builds on the concepts developed in the West Don Lands Precinct Plan (June 2004) and the Sustainability Framework (September 2004).

The intent of the Specification is to:

- Motivate developers to adopt new approaches to create more sustainable buildings;
- Set requirements that, while requiring changes to existing practices, are economically viable in the market; and
- Result in a development that reflects Waterfront Toronto's financial, societal and environmental drivers for sustainability.

The Specification consists of 8 Mandatory Requirements each with a definition of:

- Intent;
- Requirements; and
- Submittals

The Green Specification includes and builds upon the Canada Green Building Council's LEED® rating system. LEED® was chosen because it is the most widely recognized system in North America; it provides third-party certification; and it includes green building standards consistent with Waterfront Toronto's objectives. LEED® Gold is a requirement of Waterfront Toronto's Green Building Specification, as are six normally optional Credits which each address specific Waterfront Toronto priorities.

LEED® does not capture all of the Waterfront Toronto's sustainability objectives and therefore additional requirements, specific to this development, were added.

A summary of the Green Specification Mandatory Performance Requirements is attached in tabular form.

Table 1
Mandatory Performance Requirements
(July, 2007)

No.	Requirement	Description and Reference
1	Experienced Team	All development teams must be experienced with creating high performance, green buildings.
2	Integrated Design Process	The developer must follow an integrated design process (IDP). An IDP is a formalized process that encourages developer/design teams to work collaboratively to: set targets, share knowledge, and test design ideas for success, early in the design process.
3	District Energy	All buildings must be designed to rely on the Waterfront Toronto's district energy system and onsite renewable energy sources.
4	LEED Gold Certification	All eligible buildings must achieve a minimum LEED Gold certification as defined in LEED Canada-NC Version 1.0.
	a) Credit EAc1 Optimize Energy Performance	All buildings must achieve a minimum of 4 EAc1 Optimize Energy Performance credits by achieving a 40% reduction in design energy cost relative to MNECB with a preferred target of 60% better.
	b) Credit EAc5 Measurement and Verification	Install continuous metering equipment to measure and verify the required information (as per LEED), at the building level. The required information is given by LEED Canada NC v 1.0 application guide for multi-unit residential buildings.
5	Minimum Energy Use	The following energy conserving initiatives must be implemented:
	a) Use Energy Star Appliances	All Energy-Star eligible appliances (such as refrigerators and dishwashers) that are supplied by the developer shall be Energy-Star Rated.
	b) Meter Energy and Water Consumption at Each Suite	Provide the necessary infrastructure to allow sub-metering or direct metering of domestic water (hot and cold separately), heating energy, cooling energy, and electricity consumption for each dwelling unit or retail/commercial suite.
6	Long Term Flexibility	All buildings to be developed with the floor to underside of floor height of: - residential space 2.7m - ground floor space 5m - above grade parking decks 2.4m (after leveling the deck)
7	Green Roofs	All buildings over 3 storeys must include vegetated roofs with a minimum total area of 50% the gross area of the ground floor. 50% of the area of all parking garage roofs not used for parking or roadways shall be vegetated.
8	Waste Management	All kitchen suites must be designed to have separated cabinet space for segregated collection of waste in three streams: Waste, Recyclables, and Organics.

(1) LEED Green Building Rating System Reference Guide, Canada Green Building Council, December 2004



Mandatory Requirement No.1 Experienced Team

Intent

Increase potential for the design and development of high performance, green buildings.

Requirements

The development team must include at least one member with the each of the following qualifications and experience(s) (see definitions following):

- LEED Accredited Professionals;
- Energy Modeler with CBIP experience;
- ASHRAE member;
- Experienced Green Building Design Concept (Charrette) Leader.

The qualified individuals shall not be removed from the team without written consent from Waterfront Toronto (WT).

Definitions

A *LEED Accredited Professional* must have working experience with the LEED Rating System and must have earned the LEED Accredited Professional designation by successfully completing one of the exams offered by the Canada Green Building Council or United States Green Building Council.

The *Energy Modeler* must have proven knowledge of the Model National Energy Code (MNECB) and energy simulation through experience using EE4 and EEWizard. The energy modeler must have submitted to Natural Resources Canada (NRCan) a minimum of 3 successful CBIP projects.

<http://www.oee.nrcan.gc.ca/commercial/newbuildings/consultants.cfm?attr=20>

The *Green Building Design Concept (Charrette) Leader* must have experience leading projects through an integrated design process.

An *ASHRAE member* maintains formal membership with the American Society of Heating, Refrigerating, and Air-Conditioning Engineers.

The *Development Team* includes but is not limited to the following: Architect, Mechanical Engineer, Structural Engineer, Cladding Engineers, Landscape Architect, General Contractor, Subcontractors, Quantity Surveyor, Developer, Cost Consultant.



Submittals

Provide the attached letter template, signed by the developer, or other responsible person. Include with the template a list of roles and qualifications for each team member. For both the Energy Modeler and the Design Concept Leader provide a list of previous projects including:

- ▶ A description of the project;
- ▶ The consultant's role on the project;
- ▶ Client reference information.



Mandatory Requirement No.2 Integrated Design Process

Intent

To ensure that the *Development Team* realizes the benefits of an integrated design process (IDP) for the project. IDP enables all relevant project disciplines to work together in providing design solutions that optimize relationships between systems. The creative design that results brings multiple benefits, often at a reduced cost.

Requirements

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

1. 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 Modeler* and cost consultant) and, where possible, the contractor. The *Green Building Design Concept Leader*, defined under Mandatory Requirement No.1 (Experienced Team), must facilitate the meetings.
2. Integrated Design team meetings are to be held, as a minimum, during design development, and at the 10%, 60% and 90% working drawing stages.

Waterfront Toronto will provide support to the development team by:

- ▶ Providing experienced IDP professionals for participation in up to three Concept Design meetings. Their role will be to provide support with process, and to suggest design strategies that might be valuable for the development team to explore.
- ▶ Reviewing IDP reports (see below) for compliance with WT's sustainability requirements and, where possible, provide recommendations for simplifying the process of achieving or exceeding the targets.

Submittals

The following documentation will be required at each of the following milestones:

1. Concept Report

The Concept Report shall describe the planned activities and expected outcomes of the Integrated Design Process for the project. Submit a LEED Canada credit checklist showing the target credits for achieving LEED Gold. "Buffer credits" should be included to allow for credits that are found not to be feasible during the design phase, or are not awarded by the CaGBC in the final credit submission (ie a minimum of 43 credits should be targeted - more may be required depending on risk level of selected target credits).



For all Mandatory Requirements, LEED Prerequisites and targeted LEED Credits (the Credits), provide the following:

- List of parties responsible for implementation and documentation (the "Credit Owner");
- A Memo of Understanding from each Credit Owner stating that they have read and understood the requirements as outlined in this document as described in the LEED Reference Guide (including errata and related credit rulings posted by the CaGBC), as applicable.
- A brief narrative (could be point form) describing the preliminary strategy, possible obstacles and next steps for achieving the Credit, as agreed by the Design Team. Note that the strategy could change during design development.

2. Design Development Report

Report on the continuing Integrated Design Process.

Submit the current LEED Canada credit checklist as described in part 1, above.

For all Credits, provide a brief narrative (could be point form) from the Credit Owner describing the status, outstanding obstacles and next steps, to achieve the Credit.

Submit a copy of the Design Development energy model, indicating that the targeted annual energy consumption levels are being achieved.

3. 60% Design Submission

Submit the current LEED Canada credit checklist as described in part 1, above.

Credit Owners are to update the status report for each credit describing outstanding issues, next steps and how the Requirement, Prerequisite or Credit has been incorporated into the 60% Documents.

Provide the available supporting documentation for each Credit. Identify dates, agreed upon by the design team, for submission of outstanding supporting documentation. Where the final supporting documentation is to be provided by the Contractor (eg. LEED Credit EQc4.2 - Low Emitting Materials), provide documentation showing that the design consistently requires that the Credit be met.

4. 90% Design Submission

Submit the current LEED Canada credit checklist as described in part 1, above.

Credit Owners are to update the status report for each credit describing outstanding issues, next steps and how the Requirement, Prerequisite or Credit has been incorporated into the 90% Documents.



5. Final Design Documents

Submit the current LEED Canada credit checklist as described in part 1, above.

For all Credits provide updates or changes since the 90% status report.

Provide the required supporting documentation for all Credits, except where the final supporting documentation is to be provided by the Contractor.

Provide a copy of the CBIP assessment report from NRCan indicating that the targeted annual energy surveys are being achieved.

6. Substantial Completion

Provide a copy of the LEED Canada submission and all Mandatory Requirement Letter Templates (signed, with all required submittals).



Mandatory Requirement No.3 District Energy

Intent

To provide cost-effective, sustainable energy sources to buildings.

Requirements

Design buildings and building systems as required by the Waterfront Toronto Energy Service Agreement. Refer directly to the Service Agreement for further details.



Mandatory Requirement No.4 LEED Gold Certification

Intent

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

Requirements

All buildings eligible for certification under LEED Canada-NC version 1.0 shall be awarded, by CaGBC, Gold level certification (a minimum of 39 credits plus all prerequisites);

AND

Credits awarded must include:

- ▶ EAc1 Optimize Energy Performance (minimum of 4 credits) energy consumption 40% min and 60% target less than MNECB
- ▶ EAc5 Measurement and Verification

Submittals

Provide CaGBC's final building assessment confirming that the above requirements have been achieved.



Mandatory Requirement No.5a) High Efficiency, Energy Star Rated Appliances

Intent

Maximize energy and water efficiencies to reduce the burden on energy supply, municipal water, and waste water systems.

Requirements

All appliances supplied by the developer, which are eligible for rating under the Energy Star program, must be Energy Star compliant.

Submittals

Provide the attached letter templates, signed by the developer or other responsible person. Include a list of developer-supplied appliances. Identify and provide documentation indicating that eligible appliances meet Energy Star rating.

Documentation should include:

Cut sheets from the manufacture confirming Energy Star compliance; or
CSA Energy Star test reports.

Definitions

Energy Star- international symbol used to identify products that are among the most energy-efficient on the market. Only manufacturers and retailers whose products meet the ENERGY STAR criteria can label their products with this symbol. Products are tested to CSA standards. For a list of eligible products refer to NRCAN website.

<http://oee.nrcan.gc.ca/energystar/english/consumers/products.cfm?PrintView=N&Text=N>

Eligible Products Categories include:

Clothes Washers (including washer/dryer combination units)
Refrigerators
Dishwashers
Ventilating Fans (kitchen, bathroom exhaust)



Mandatory Requirement No.5b)

Meter Energy and Water Consumption at Each Suite

Intent

Encourage conservation on the part of building residents/occupants by providing them with the means to examine their utility usage, and to benefit from their efforts to conserve.

Requirements

Each residential unit or leaseable commercial space within the building will be individually submetered with revenue grade meters for all water and energy inputs. Until such time as revenue grade metering becomes economically feasible for district energy, allocation alternatives will be acceptable. The submeters shall individually measure at each suite the consumption of electricity (time of day), natural gas, energy supplied through district supplied heated and chilled water, domestic hot and domestic cold water. The submetering for electricity must include time of day usage in order to facilitate differential rate billing and consequently encourage peak time reduction. Suites are to be independently billed for their utilities based on consumption.

Submittals

Provide the attached letter template, signed by the electrical and mechanical engineers (or other responsible parties), demonstrating and declaring that the utilities, under their design control, for each unit of the building in question, have been submetered including time of day usage meters for electricity.

****Note:** We have not required that a firm be retained to generate utility bills for individual residents, though this is an option. We are leaving the decision, regarding bill collection, to the residents or building owner. A condo corporation can generate bills for suite owners to be paid as part of their maintenance fees and retain responsibility for paying the utilities directly. One advantage of this is, that as a large consumer, the corporation can often negotiate better rates than an individual resident. **



Mandatory Requirement No.6 Long-Term Flexibility

Intent

Provide building characteristics that allow for changes in use in the future without structural modifications.

Requirements

Provide the following height and structural loading capacity for each of the follow assemblies.

For all developments excluding low rise residential ground floor (to allow for a variety of future uses such as retail, commercial, and/or residential):

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

Typical Floors Above Ground (to allow for the expected increase in human stature over the life of the project):

1. Clear slab to slab height: 2.75m

Above Grade Parking (to allow for future uses such as storage and possibly retail or commercial):

1. Clear slab to slab height: 2.4m (after leveling floor slopes)
2. Structural live load capacity (slab on grade): minimum 7.2 kPa
3. Structural live load capacity after leveling (suspended slabs): minimum 4.8 kPa

Submittals

Provide the attached letter template, signed by the Structural Engineer, or other responsible person, confirming the structure is designed and built to conform to the above requirements. Include details of the future parking garage leveling plan on structural drawings.



Mandatory Requirement 7: Green Roofs

Intent

Create buildings that provide visual connection between community residents and plant life.

Requirements

For all buildings over 3 storeys in height and all parking garages:

Design all low slope roofs to accommodate an intensive green roof (8.2 kPa superimposed dead load).

AND

On Buildings - Install a vegetated roof over an area of at least 50% of the gross ground floor area. Vegetated roof can be intensive or extensive.

On Parking Garages - Install a vegetated roof over an area of at least 50% of the roof area not used for parking or roadways. Vegetated roof can be intensive or extensive.

Submittals

Provide the Letter Template, signed by the architect, structural engineer, or responsible party, referencing the building plan and demonstrating that the building structure has been designed to accommodate an extensive green roof over 100% of all flat roofs and a vegetated roof has been provided over at least 50% of the roof area.

Provide specifications and cut sheets describing the extent and makeup of the vegetated roof systems.



Mandatory Requirement No.8 Waste Management

Intent

Minimize waste to landfill for the entire building, and encourage tenants to participate in responsible waste management.

Requirements

Kitchen Suites must be designed to have separated cabinet space for segregated collection of waste in three streams.

1. Waste
2. Recyclables
3. Organics

Submittals

The letter template is to be signed by the Architect, or other responsible person, confirming that Kitchen Suites have been designed and built to conform to the above requirements. Include a narrative describing anticipated waste flows and how they will be accommodated in the design, support with architectural/interior drawings if required.



Date:

Waterfront Toronto

Address

Address

Address

Attn: ***contact***

Re: Requirement No.1 – Experienced Team
Project Name and Municipal Address

To Whom It May Concern:

I, _____, as the (developer/responsible person) certify that the following individuals, with the experience noted, are permanent members of the design and development team for this project.

Name	Firm	Role	Qualifications
		LEED Accredited Professional	
		CBIP Consultant	
		ASHRAE Member	
		Concept (Charrette) Leader	

I have attached a list of project examples with references demonstrating the required experience of the:

- CBIP Consultant; and
- Concept (Charrette) Leader.

Name: _____

Organization: _____

Role in Project: _____

Signature: _____

Date: _____

Date:

Waterfront Toronto

Address

Address

Address

Attn: ***contact***

Re: Requirement No.2 - 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 was accomplished using an integrated design process as outlined in the Request for Proposals.

I have provided:

- all submittals as defined in Mandatory Requirement No.2 at the appropriate project milestones.

With this document I have attached copies of:

- meeting minutes and signed attendance sheets from the design concept and integrated design team meetings;
- energy simulation file and output; and
- LEED Canada submission.

Name: _____

Organization: _____

Role in Project: _____

Signature: _____

Date: _____

Date:

Waterfront Toronto

Address

Address

Address

Attn: ***contact***

Re: Requirement No.4 – LEED Gold Certification
Project Name and Municipal Address

To Whom It May Concern:

I, _____, as the (developer/responsible person) certify that LEED Gold Certification has been awarded to this project.

I am attaching certification documents as provided by the Canada Green Building Council.

Name: _____

Organization: _____

Role in Project: _____

Signature: _____

Date: _____

Date:

Waterfront Toronto

Address

Address

Address

Attn: ***contact***

Re: Requirement No.5a – High Efficiency Appliances

Project Name and Municipal Address

To Whom It May Concern:

I, _____, as the (developer/responsible person) certify that all appliances being supplied on this project, which are eligible for rating under the Energy Star program, are Energy Star rated.

The following appliances are being supplied:

Appliance	Manufacturer	Model	Energy Star Eligibility	Energy Star Rated
Clothes washer				
Refrigerator				
Dishwasher				
Ventilation fan				

Name: _____

Organization: _____

Role in Project: _____

Signature: _____

Date: _____

Date:

Waterfront Toronto

Address

Address

Address

Attn: ***contact***

Re: Requirement No.5b – Suite Energy and Water Meters

Project Name and Municipal Address

To Whom It May Concern:

I, _____, as the (mechanical engineer/responsible person) certify that all energy and water flows to each suite are being metered with revenue grade meters including time of day usage meters for electricity. Until such time as revenue grade metering becomes economically feasible for district energy, allocation alternatives will be acceptable.

Name: _____

Organization: _____

Role in Project: _____

Signature: _____

Date: _____

Date:

Waterfront Toronto

Address

Address

Address

Attn: ***contact***

Re: Requirement No.6 – Long Term Flexibility
Project Name and Municipal Address

To Whom It May Concern:

I, _____, as the (structural engineer/responsible person) certify that the following heights and structural loading criteria have been met:

For all developments excluding low rise residential ground floor (to allow for future uses such as retail, commercial, and/or residential):

1. Top of ground floor slab to underside of 2nd floor slab: 5m
2. Ground floor live load capacity: minimum 4.8 kPa

Typical Floors Above Ground: Clear slab to slab height: 2.7m

Above Grade Parking (to allow for future uses such as retail, commercial, residential and/or storage):

1. Headroom Criteria: 2.4m (after leveling floor slopes)
2. Structural live load capacity (slab on grade): minimum 7.2 kPa
3. Structural live load capacity after leveling (suspended slabs): minimum 4.8 kPa

I have provided:

- Details from the structural drawings showing the leveling plan for sloped parking decks

Date:

Waterfront Toronto

Address

Address

Address

Attn: ***contact***

Re: Requirement No.6 Continued – Long Term Flexibility

Project Name and Municipal Address

Name:

Organization:

Role in Project:

Signature:

Date:

Date:

Waterfront Toronto

Address

Address

Address

Attn: ***contact***

Re: Requirement No.7 – Green Roofs

Project Name and Municipal Address

To Whom It May Concern:

I, _____, as the (structural engineer/responsible person) certify that all building over 3 storeys in height and all parking garages:

- Are built to accommodate an intensive green roof (8.2kPa superimposed dead load) at all flat roofs and garage roof decks;
- Include on buildings a vegetated roof over an area of at least 50% of the gross ground floor area; and
- Include on parking garage roofs a vegetated roof over an area of at least 50% of the roof area not used for parking or roadways.

Name: _____

Organization: _____

Role in Project: _____

Signature: _____

Date: _____

Date:

Waterfront Toronto

Address

Address

Address

Attn: ***contact***

Re: Requirement No.8 – Waste Management
Project Name and Municipal Address

To Whom It May Concern:

I, _____, as the (architect/responsible person) certify that the suite kitchen waste separation criteria have been met:

Kitchen Suites designed to have separated cabinet space for segregated collection of wastes in three streams (to encourage tenant participation in waste management):

1. Waste
2. Recyclables
3. Organics

I have provided:

- Narrative for anticipating waste flows and how they will be accommodated in the design; and included supporting architectural/interior design drawings if required

Name: _____

Organization: _____

Role in Project: _____

Signature: _____

Date: