



Making a Sustainable City Happen

Toronto Green Standard &
Green Roof Bylaw
Municipal Leaders Forum

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ENVIRONMENTAL PRESSURES

1. Air Quality

2. Green House Gas Emissions, Energy Efficiency and Climate Change

3. Water Quality and Efficiency

4. Urban Ecology

5. Solid Waste



•GREEN ROOF BYLAW: REQUIRING & GOVERNING CONSTRUCTION OF GREEN ROOFS



•City of Toronto Act, S. 108 provides authority to require and govern construction of green roofs



•Green Roof By-law in effect January 31, 2010 (industrial 2012)



•December 2009- Applicable law in the Building Code



GREEN ROOF BYLAW: THRESHOLDS FOR REQUIRING GREEN ROOFS



- Coverage requirement based on building size



- Applies to residential and non-residential buildings



- Industrial building standard



- Variances/Exemptions



Gross Floor Area (Size of Building)	Coverage of Available Roof Space (Size of Green Roof)
2,000 – 4,999 m ²	20%
5,000-9,999 m ²	30%
10,000-14,999 m ²	40%
15,000-19,999 m ²	50%
20,000 m ² or greater	60%

•Industrial

2,000 m ² or greater	Lesser of 10% or 2,000 m ²
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GREEN ROOF CALCULATION: AVAILABLE ROOF SPACE

Total Roof Area Excludes

- areas devoted to renewable energy
- private terraces
- required outdoor amenity areas
- Tower roof area (<750 sq.m floorplate)



Documentation: Green Roof Statistics

- Green Roof Statistics required on all roof plan drawings submitted

- Available online for download and application to Plans and drawings

- Summary statistics reviewed during site plan circulation



Green Roof Statistics Table	
General Project Description	m2
Total Gross Floor Area of new development	
Total number residential units (if applicable)	
Available Roof Space	m2
Total Roof Area	
Residential Private Terraces	
Residential Outdoor Amenity Space (roof only)	
Area designated for Renewable Energy Devices	
Tower Floor Plate	
Tower Roof Area	
Total Available Roof Space	
Green Roof Required	
Percentage of Available Roof Space Required	
Total Area of Green Roof Required	
Total Area of Green Roof Provided	

The Toronto Green Standard



Background

Voluntary

Green Development Standard:
- *Council Approved July 2006*

New Toronto Green Standard:
- *Council Approved December 2008*

- *Revised October 2009*
- *Required January 31, 2010*

TIER 1 TARGETS: MINIMUM STANDARD



+ 25%
Energy
Efficiency
above
MNECB



TIER 2 – VOLUNTARY, RAISE THE BAR



- Superior performance targets for some development features plus 7 additional targets for Tier 2



- 35% energy efficiency above MNECB
- 30% reduction in potable water consumption



- Eligible for 20% Refund on Development Charges paid to the City if Tier 2 targets are met



THE TORONTO GREEN STANDARD TARGETS 3 TYPES OF DEVELOPMENT



1. Low-rise non-residential
≤ 3 stories



2. Low-rise residential
≤ 3 stories, ³ 5 units



3. Mid-rise to High Rise (any use)
³ 4 stories

AIR QUALITY



For New Mid to High-Rise Residential and Industrial, Commercial and Institutional (ICI) Development

Development Feature	Required Tier 1	Voluntary Tier 2	Specifications, Definitions and Resources	Potential Strategies
<p>Urban Heat Island Reduction: At Grade</p> <p>Reduce ambient surface temperatures, and provide shade for human health and comfort</p>	<p>AQ 4.1 Use high-albedo surface materials¹ for at least 50% of the site's non-roof hardscape²</p> <p>OR</p> <p>Use open grid pavement for at least 50% of the site's non-roof hardscape³</p> <p>OR</p> <p>Shade within 5 years at least 50% of the site's non-roof hardscape, including surface parking areas, walkways and other hard surfaces⁴</p> <p>OR</p> <p>Use a combination of high-albedo surface materials, open grid pavement and shade for at least 50% of the site's non-roof hardscape.</p> <p>AQ 4.2 Plant large growing shade trees at the equivalent of 6-8m intervals starting from the property line:</p> <ul style="list-style-type: none"> • along all street frontages, • along all open space frontages and • along all public walkways, excluding driveways and easements.^{5, 6} <p>AQ 4.3 If surface parking is permitted and provided, plant shade trees at a minimum ratio of one tree planted for every five parking spaces supplied.⁷</p>	<p>AQ4.4 Use high-albedo surface materials¹ for at least 75% of the site's non-roof hardscape²</p> <p>OR</p> <p>Use open grid pavement for at least 75% of the site's non-roof hardscape³</p> <p>OR</p> <p>Shade at least 75% of the site's non-roof hardscape, including surface parking areas, walkways and other hard surfaces⁴</p> <p>OR</p> <p>If surface parking is provided, plant internal shade trees at a minimum ratio of one tree planted for every three parking spaces supplied.⁷</p> <p>OR</p> <p>Install a green wall on an exterior surface that is either free-standing or part of a building to a minimum height of one-storey⁸</p> <p>OR</p> <p>Use a combination of high-albedo surface materials, open grid pavement and shade for at least 75% of the site's non-roof hardscape.</p>	<ol style="list-style-type: none"> 1. High albedo surface materials must have an initial reflectance of at least 0.3 or SRI of 29. Solar Reflectance Index (SRI) combines the reflectivity and emittance values as a measure of a coating's overall ability to reject solar heat. Black asphalt has an SRI of 0, while new white Portland cement concrete has an SRI of 86. Other pavement types range between these values, with a 35 SRI for gray concrete. 2. Non-roof hardscape (hard landscaping) includes: parking areas, walkways, plazas and other hard surfaces. 3. Open grid pavement consists of concrete or hard plastic grid systems with large pore spaces filled with a planted growing medium or light coloured aggregate. 4. Shade must be measured at solar noon at the summer solstice (Approximately June 21) and may be provided by shade trees or shade structures. For examples of native, large growing shade trees refer to: www.toronto.ca/trees/pdfs/Tree_List.pdf. 5. Open space frontages include public or privately owned, but publicly accessible open spaces, such as parks, squares, plazas, courtyards, etc. Easements include those for utilities (only if the utility type or location directly precludes tree planting), driveways, laneways, and other such access routes. 6. Provide trees with sufficient soil volume to support crown growth diameter equivalent to proposed tree spacing. Refer to the Ecology section for soil specifications. 7. Distribute internal shade tree planting such that no parking space is more than 30m from a tree. For details on parking lot materials, landscaping and layout including small sites refer to the <i>Design Guidelines for 'Greening' Surface Parking Lots</i>: www.toronto.ca/planning/urbdesign/greening_parking_lots.htm. 8. Green wall is defined as a wall, that is partially or completely covered with vegetation and, in some cases a growing medium. 	<p>High-albedo materials include: grey or white concrete, light-coloured asphalt, selected interlocking concrete pavers and other light coloured pavers</p> <p>Soft landscaping</p> <p>High-branching deciduous shade trees</p> <p>Bioswales</p> <p>Design site to reduce the size of hardscaped area (i.e. smaller parking lots, shorter driveways and below grade parking)</p>

⁴ Apply this standard to New Residential Apartment Development and Industrial, Commercial and Institutional (ICI) Development, 7 storeys or higher.



TGS IMPLEMENTATION: TIER 1 REQUIRED



WHEN DOES the TGS APPLY?

- Rezoning, **Site Plan** and Subdivision applications received on or after January 31, 2010 apply Tier 1

HOW IS THE TGS APPLIED?

- TGS compliance is documented on the **plans, drawings and reports** currently required with planning applications
- New Site Specific Site Plan Conditions
- Standard wording for **S.37 Agreements** to secured the TGS as a matter of legal convenience:

“The Owner shall construct and maintain the development in accordance with Tier 1 performance measures of the Toronto Green Standard, as adopted by Toronto City Council at its meeting held on October 26 and 27, 2009 through the adoption of Item PG32.3 of the Planning and Growth Committee” (Page 4, CPIT update 18)

TOOLS: GREEN STANDARD CHECKLIST

Application Submitted



Site Plan Control Zoning Bylaw Amendment Draft Plan of Subdivision

Office Use Only:

District Offices: North York District Toronto - East York District
 Scarborough District Etobicoke York District

Date Received: _____ Planner: _____ Application no. _____

Property and Applicant

Address of Subject Land
 (Street Number / Name) _____

Applicant/Agent:

Name _____ Telephone _____

E-mail _____ Registered Owner _____

Proposal Description:

Building Type: Residential Apartment/condominium Commercial Institutional
 Other _____

Gross Floor Area: _____ # of Storeys: _____ # of Units: _____

Project Information (include a narrative of your project highlighting green attributes or performance targets)

➤ Tier 1 performance measures are required by the City and must be addressed as part of your approved development application.

★ Tier 2 performance measures are voluntary measures with higher performance levels. Achieving 2 means you are eligible for a Development Charge Refund of 20%.

Check here if you intend to achieve Tier 2 of the Toronto Green Standard (complete pages 10-12)

TORONTO GREEN STANDARD CHECKLIST - For New Mid-High Rise Residential, Commercial, Industrial and Institutional (4-storeys and higher)

The Toronto Green Standard Checklist



For New Mid-High Rise Residential, Commercial, Industrial and Institutional (4 storeys and higher) Complete in conjunction with the full Toronto Green Standard and Specifications available at: <http://www.toronto.ca/greendevlopment>

Tier 1: Air Quality

Section	Development Feature	Performance Measure	Tier 1 Compliance Level	Description (How is this performance measure being met)	Reference Plans, Drawings or Reports
AQ 1.1	Automobile infrastructure EXAMPLE	Parking above minimum requirements is provided with roughed-in conduits for electric vehicles or dedicated priority parking spaces	Required	A minimum of 100 automobile parking spaces are required under the ZB. 115 automobile parking spaces are provided for this development. Conduits for electrical outlets will be roughed in to 15 spaces.	Site Plan # AT-01 Underground Garage Plan # _____ Other: _____
AQ 1.1	Automobile infrastructure	Parking above minimum requirements is provided with roughed-in conduits for electric vehicles or dedicated priority parking spaces	Require		Site Plan # _____ Underground Garage Plan # _____ Other: _____
AQ 2.1	Cycling infrastructure	Minimum bicycle parking rates	Required		Site Plan # _____ Underground Garage Plan # _____ Cover # _____
AQ 2.3	Cycling infrastructure	Secure, well-protected occupied bicycle parking	Required		Site Plan # _____ Underground Garage Plan # _____ Cover # _____
AQ 2.4	Cycling infrastructure	Well-lit, accessible e-bike level bicycle parking	Required		Site Plan # _____ Cover # _____
AQ 2.5	Cycling infrastructure	Shower and change facilities (commercial/institutional only)	Required		Site Plan # _____ Cover # _____

Tier 1: Air Quality continued on page



SITE STATISTICS TEMPLATE



Toronto Green Standard Statistics Template

For Mid to High Rise Development

The Toronto Green Standard Template is submitted with Site Plan Control Applications and stand alone Zoning Bylaw Amendment applications. Complete the table and copy it directly onto the Site Plan submitted as part of the application. Information marked with (*) are required fields for stand alone Zoning Bylaw Amendment applications. All fields should be completed for Site Plan Control applications. Refer to the full Toronto Green Standard for Mid to High Rise Development for the complete set of standards and detailed specifications:
(<http://www.toronto.ca/planning/environment/greendevdevelopment.htm>)

Toronto Green Standard Statistics

General Project Description	GFA (m ²)	%
Total Gross Floor Area		
Breakdown of project components:		
Residential		
Retail		
Office		
Industrial		
Institutional/other		
Total number residential units		
Automobile Infrastructure	Surface	Below Grade
*Number of parking spaces required		
*Number of parking spaces provided		
*Number of roughed-in conduits		
*Number of dedicated priority parking spaces		
Cycling Infrastructure	Visitor	Occupant
*Number of bicycle parking spaces required		
*Number of bicycle parking spaces provided		
Number of at-grade bicycle parking spaces		
*Number of male shower and change facilities		
*Number of female shower and change facilities		
Urban Heat Island Reduction: At-Grade	m ²	% of total hardscape
Total non-roof hardscape area		
Total non-roof hardscape area covered by:		
a) high-albedo surface material (SRI > 29)		
b) open-grid pavement		
c) shade		
Number of Trees required along frontages/walkways		
Number of Trees provided along frontages/walkways		
Number of Trees required in surface parking area		
Number of Trees provided in surface parking area		
Urban Heat Island Reduction: Roof	m ²	% of Available Roof Space
Total Available Roof Space		
Roof Area provided as:		
a) Green Roof		
b) Cool Roof (SRI > 78 for low sloped, SRI > 28 for steep sloped)		
Water Efficiency	m ²	% of landscaped site area
Total landscaped area planted with water efficient plants		
Urban Forest: Encourage Tree Growth	m ²	%
Total number of trees required		
Total number of trees provided		



Toronto Green Standard Energy Report



Design Stage Energy Modelling Report
requested prior to approvals (25% or better
than MNECB)



Small buildings Checklist (NRCan Screening
Tool) is used for buildings <2000m²



Energy Efficiency Office reviews reports and
provides standard conditions and sign-off



Exception - in limited situations where the
Energy Report is provided after Site
Plan Approval



City of Toronto Act

New Site Plan Control Powers

Section 114

- ∅ Two new Site Plan Control powers
 - Building - exterior design / sustainability
 - R.O.W. - sustainable design elements
- ∅ Act requires provisions in the Official Plan and a Site Plan Control By-law to implement these new powers
- ∅ Planning Act provides these new SPC powers to other municipalities (section 41)

Section 114

Two new powers:



- 1) matters relating to exterior design, including without limitation the character, scale, appearance and design features of buildings, and their sustainable design, but only to the extent that it is a matter of exterior design; and



- 2) the sustainable design elements on any adjoining highway under a municipality's jurisdiction including without limitation trees, shrubs, hedges planting or other ground cover, permeable paving materials, street furniture, curb ramps, waste and recycling containers and bicycle parking facilities.



5.1.3, Site Plan Control (OPA 66)



MUNICIPAL PLAN

CHAPTER FIVE

c) environmental protection, remediation or mitigation measures;
 d) measures to protect a natural heritage area or environmentally sensitive natural features;
 e) professional or technical studies to assess potential development impacts;
 f) phasing of development;
 g) entering into agreements, including subdivision agreements or agreements pursuant to Section 41 of the Planning Act, to secure any of the matters required to satisfy the conditions for removal of the holding provision; and
 h) measures to protect heritage buildings, properties with archaeological potential and archaeological sites.

3. Holding provision by-laws legally in effect at the time of adoption of the Plan are deemed to comply with this Plan.

5.1.3 SITE PLAN CONTROL

Site Plan Control is an important means of encouraging well-designed, functional and universally accessible development in Toronto. This involves the City reviewing plans that show the location, design and massing of buildings, the relationship to adjacent streets and buildings, public access areas, the layout of parking and service areas, site landscaping and other aspects of the development. For areas and types of development where site plan control is applied, Council or delegated staff may approve the plans and drawings and the owner may be required to enter into an agreement to secure the construction of the project as shown in the plans.

Policies

1. The entire City of Toronto is a Site Plan Control Area. The area comprising the entire City of Toronto is designated as an area wherein Council may require submission of the drawings mentioned in Section 41(4)(2) of the Planning Act for a residential building containing less than 25 dwelling units. The Site Plan Control By-law will define classes of development that will be subject to Site Plan Control.

2. Site Plan Control will be used to implement the policies of this Plan and to achieve attractive, functional, safe, environmentally sound and universally accessible development.

3. Property owners may be required to provide for a nominal sum road widenings to the extent of the planned right-of-way as shown or as described in the Plan.

MUNICIPAL PLAN

- Site Plan & Accessible Design
 - ∅ link between Accessibility Design Guidelines and SPC powers for the design of facilities accessible for persons with disabilities
- Site Plan & Sustainable Design
 - ∅ reference to the Toronto Green Standard
 - ∅ identifies SPC as one of the planning tools to secure sustainable

Site Plan Control By-Law 1034-2010 Exterior Design

Exterior Design – drawings sufficient to display:

- a) exterior character, scale and appearance of the development, including without limitation the exterior materials, facades, doors, roofs, windows and elements, such as cornices and belt-courses; and
- b) In addition, where development is five storeys or higher detailed colour elevation drawings to a scale of 1:50 for a minimum building width of three typical bays, including the main building entrance, for the first three-storeys of the development shall be provided.

Exterior Design 1:50 Drawing

- ∅ full colour / 1:50 scale
- ∅ minimum building width / storeys
- ∅ label exterior design features, exterior materials and window type
- ∅ fenestration patterns and treatment to reduce bird collisions
- ∅ a sample board of select exterior materials may be requested during review





TGS IMPLEMENTATION: TIER 2 VOLUNTARY



Tier 2/ DC Refund

- Site Plan Control applications received on or after May 1, 2009
- Verification of Tier 2 performance measures is conducted by a third party project evaluator, registered with the City of Toronto
- 2 Stage verification: Construction documentation and Occupancy
- Evaluators are hired and retained by the owner by 50% construction documentation stage
- Verification Report completed and submitted to the satisfaction of the Chief Planner
- Deadline for submission of the completed Verification Report is **5 years** from the date that DC's were payable



EVALUATOR'S VERIFICATION REPORT TEMPLATE

TORONTO GREEN STANDARD: TIER 2 EVALUATOR'S VERIFICATION REPORT TEMPLATE MAY, 2010

TIER 2 PERFORMANCE MEASURES:

AIR QUALITY SECTION

(READ & COMPLETE IN CONJUNCTION WITH THE FULL TORONTO GREEN STANDARD)

(Optional) Cycling Infrastructure (MID TO HIGH RISE RESIDENTIAL, ICI DEVELOPMENTS ONLY)

- AQ 2.2 Residential: Downtown, Centres and Central Waterfront, bicycle parking that meets or exceeds 1.2 spaces per dwelling unit

Supporting documents:

Site Plan
Underground Parking Plan (where applicable)
Transportation Impact Study (where applicable)
Parking Study (where applicable)

Verification of performance (Construction Documents Stage):

Review and describe the site plan, underground garage plan statistics shown to validate that the minimum capacity requirements for residential bicycle parking are being met.

Verification of performance (Occupancy Stage):

Conduct a walk-through survey and record that the parking spaces are present below.

References Used:

List documentation sources and plan numbers used as proof of compliance. These may be requested for auditing purposes by the City of Toronto.

Project Photos:

Include photos demonstrating green technologies employed or as additional supporting documentation.

(Core) Urban Heat Island Reduction: At Grade (FOR ALL DEVELOPMENT TYPES)

AQ 4.4 One of the following provided:

- High albedo surface materials for at least 75% of the site's non-roof hardscape OR
 Open grid pavement for at least 75% of the site's non-roof hardscape OR
 Shade at least 75% of hardscape, including surface parking, walkways and others OR
 For surface parking areas, plant internal shade trees at a minimum ratio of one tree for every three parking spaces supplied OR
 Install a green wall on an exterior surface that is either free-standing or part of a building to a minimum height of one-storey OR
 Combination of high albedo surface materials, open grid pavement and shade for at least 75% of the site's non-roof hardscape

* High albedo surface materials must have a minimum reflectance value of 0.3 (SRI 29)

Supporting Documents:

Site Plan
Landscape Plan
Declaration template



2011 Statistics

Green Roofs Bylaw



Approx. **85,000 sq m** of green roof identified in site plan and rezoning applications; they will be built out over the next few years



Prior to 2010, 133 green roofs were built in Toronto (more than 36,517m²)



No applications have been received for variances or exemptions to the Green Roof Bylaw



Toronto Green Standard

Approx. **250 applications (developments)** where the TGS is required

- 2 proposed developments have submitted applications for the DC refund and are being verified as we speak
- 5 developments/site plan applicants have indicated their intent to apply for the program.



WEB/CONTACTS

www.toronto.ca/greendevlopment

www.toronto.ca/greenroofs

http://insideto.toronto.ca/uds/city_planning/tqs.htm

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