Air Quality

Table 1: Requirements for Tier 1 and Tier 2 of the Air Quality section of the Toronto Green Standard

Development Feature	Tier 1	Tier 2 Core	Tier 2 Optional
Urban Heat Island Reduction: At Grade Reduce ambient surface temperatures, and provide shade for human health and comfort	**AQ 4.1 UHI, Non-roof hardscape** **All uses:** Use a combination of the following strategies to treat at least 50% of the site's non-roof hardscape (including driveways, walkways, courtyards, surface parking areas, artificial turf and other on-site hard surfaces): • High-albedo surface materials with an initial reflectance of at least 0.3 or SRI of 291 • Open grid pavement with at least 50% perviousness • Shade from existing tree canopy or within 5 years of landscape installation • Shade from structures covered by solar panels. Non-residential uses option: Select one or a combination of the above strategies **OR** Place a minimum of 50% of required parking spaces under cover. Any roof used to shade or cover parking must have an SRI of at least 29, be green roof or be covered by solar panels that produce energy to offset some non-renewable resource use.	**Enhanced UHI, Non-roof hardscape CORE** Use any combination of the following strategies to treat at least 75% of the site's non-roof hardscape (including driveways, walkways, courtyards, parking areas, artificial turf and other on-site hard surfaces): • High-albedo surface materials with an initial reflectance of at least 0.3 or SRI of 29 • Open grid pavement with at least 50% perviousness • Shade from existing tree canopy or within 5 years of landscape installation • Shade from structures covered by solar panels. **Source: LEED 2009**	
Low-emitting and Fuel Efficient Vehicle Infrastructure Encourage the use of low emitting, fuel efficient vehicles, car pooling and	**AQ 1.1 LEV spaces** Residential: If providing more than the minimum parking required under the Zoning Bylaw, include: Physical provision for future electric vehicle charging for the excess number of parking spaces provided above the minimum Zoning Bylaw		**Enhanced LEV spaces OPTIONAL** Electrical provision for at least 2% of all parking spaces for future electric vehicle charging in accordance with

Development Feature	Tier 1	Tier 2 Core	Tier 2 Optional
car- sharing	required parking spaces and distributed to each parking level. Institutional/Commercial: If providing more than the minimum parking required under the Zoning Bylaw, the excess spaces must be provided only for dedicated priority parking spaces for low-emitting vehicles (LEV), carpooling or for publicly accessible spaces dedicated to car-sharing.		the Ontario Electrical Safety Code.
Cycling Infrastructure Encourage cycling as a clean air alternative	**AQ 2.1- Bicycle parking rates** All other uses: Bicycle Zone 1 and Bicycle Zone 2: Provide long term and short-term bicycle parking spaces consistent with the non-residential bicycle parking rates identified in Chapter 230 of the City-wide Zoning Bylaw. **AQ 2.2 Long-term bicycle parking location** Long-term bicycle parking must be provided in a secure controlled-access bicycle parking facility or purpose-built bicycle locker in the following locations: 1. on the first storey of the building; 2. on the second storey of the building; 3. on levels of the building below-ground commencing with the first level below ground and moving down, in one level increments when at least 50% of the area of that level is occupied by bicycle parking spaces, until all required bicycle parking spaces have been provided. **AQ 2.3 Short-term bicycle parking location** Locate short-term bicycle parking in a highly visible and publicly accessible location at-grade or on the first parking level of the building below grade.		

Development Feature	Tier 1	Tier 2 Core	Tier 2 Optional
	AQ 2.4 Shower & change facilities Non-residential uses: Provide shower and change facilities for each gender consistent with the rate identified in Chapter 230 of the City-wide Zoning Bylaw.		
Pedestrian Infrastructure Encourage walking as a clean air alternative for all ages and abilities	**AQ 3.1 Connectivity** Provide safe, direct, universally accessible pedestrian routes, including crosswalks and midblock crossings that connect the buildings onsite to the off-site pedestrian network and priority destinations. **AQ 3.2 Sidewalk space** Provide a pedestrian clearway at least 2.1 m wide,* to safely and comfortably accommodate pedestrian flow. **AQ 3.3 Weather protection** Provide covered outdoor waiting areas for pedestrian comfort and protection from inclement weather. **AQ 3.4 Pedestrian specific lighting** Provide pedestrian-scale lighting that is evenly spaced, continuous and directed onto sidewalks, pathways, entrances, outdoor waiting areas and public spaces.		
Urban Heat Island Reduction: Roof Reduce ambient surface temperatures on or from rooftops	**AQ 5.1 Green & cool roofs** <u>City-owned buildings and all Agencies, Boards, Commissions and Corporations:</u> For new buildings or building additions with a GFA greater than 600 m^2 install a green roof for at least 50% of the Available Roof Space or meet the requirements of the Green Roof Bylaw, whichever is greater. Cover the remaining Available Roof Space with cool roofing materials.		**No Enhancement Needed; City already has higher T1 requirement**

Greenhouse Gas Emissions / Energy Efficiency

Table 2: Requirements for Tier 1 and Tier 2 of the Energy Efficiency section of the Toronto Green Standard

Development Feature	Tier 1	Tier 2 Core	Tier 2 Optional
Minimum Energy Performance Minimize energy demand through efficient building design and encourage renewable energy supply	**GHG 1.1 Energy Efficiency** Design the building(s) to achieve at least 15% energy efficiency improvement over the current Ontario Building Code. **GHG 1.2 On-site renewable energy** <u>City-owned buildings and all Agencies, Boards, Commissions and Corporations:</u> For new buildings with a GFA greater than 600 m^2 install renewable energy devices to supply at least 5% of the building's total energy load from one or a combination of energy sources.	**Enhanced Energy Efficiency CORE** **Part 3 Buildings** Design and construct the building(s) to achieve an energy efficiency improvement of at least 12% better than the Ontario Building Code*, Supplementary Standard SB-10 Division 3. *(2017 OBC) **Part 9 Buildings** Design and construct the building(s) to achieve at least ENERGY STAR or R2000 requirements and energy efficiency rating. **GHG 1.2 No Enhancement Needed; City already has higher T1 requirement**	
Operational Systems Ensure building systems function efficiently and as designed		**Fundamental Building Commissioning & Verification CORE** Commission the project using best practice commissioning **All details will be specified in accordance with LEED version 4**	**Building-level Energy Metering OPTIONAL** Install new or use existing building-level energy meters, or submeters that can be aggregated to provide building-level data representing total building energy consumption

Development Feature	Tier 1	Tier 2 Core	Tier 2 Optional
			(electricity, natural gas, chilled water, steam, fuel oil, propane, biomass, etc). Utility-owned meters capable of aggregating building-level resource use are acceptable. **Source LEED Version 4 Building-level Energy Metering**

Water Quality, Quantity and Efficiency

Table 3: Requirements for Tier 1 and Tier 2 of the Water Quality section of the Toronto Green Standard

Development Feature	Tier 1	Tier 2 Core	Tier 2 Optional
Water Efficiency Reduce demand for potable water	**WQ 4.1 Drought-tolerant landscapes** Provide drought-tolerant plants for at least 50% of the landscaped site area (including at-grade landscapes, vegetated roofs and walls).	**Indoor Water Use reduction CORE** Install water fixtures and appliances that achieve at least a 30% reduction in potable water consumption for the building (not including irrigation) over the baseline water fixtures and appliances. **Outdoor Water Use Reduction CORE** Where soft landscaping exists on the site, reduce potable water use for irrigation by 50%. **Source LEED NC 2009 LEED Version 4**	
Construction Activity Ensure protection of water quality during construction and demolition	**WQ 1.1 Erosion & sediment control** Follow the Erosion and Sediment Control Guideline for Urban Construction (Greater Golden Horseshoe Conservation Authorities, December 2006) during construction and demolition activities.		

Development Feature	Tier 1	Tier 2 Core	Tier 2 Optional
Stormwater Retention (Water Balance) Minimize stormwater that leaves the site	**WQ 2.1 Stormwater balance** Retain stormwater on-site to the same level of annual volume of overland runoff allowable under predevelopment conditions. **WQ 2.2 Stormwater retention & reuse** Retain at least the first 5 mm from each rainfall through rainwater reuse, on-site infiltration and evapotranspiration **OR** Ensure that the maximum allowable annual runoff volume from the development site is no more than 50% of the total average annual rainfall depth.		**Enhanced Stormwater Retention & Reuse OPTIONAL** Retain 10 mm of each 24 hour rainfall event, or 70% of total average annual rainfall depth, for rainwater reuse, on-site infiltration and/or evapotranspiration.
Water Quality- Stormwater Run-Off Manage and clean stormwater that leaves the site	**WQ 3.1 Total suspended solids (TSS)** Remove 80% of total suspended solids (TSS) on an annual loading basis from all runoff leaving the site based on the post-development level of imperviousness. **WQ 3.2 E. Coli reduction** Control the amount of E. Coli directly entering Lake Ontario and waterfront areas as identified in the Wet Weather Flow Management Guidelines.		

Ecology

Table 4: Requirements for Tier 1 and Tier 2 of the Ecology section of the Toronto Green Standard

Development Feature	Tier 1	Tier 2 Core	Tier 2 Optional
Urban Forest: Tree Protection Preserve the existing urban forest	**EC 1.1 Tree protection** Adhere to the Tree Protection Policy and Specifications for Construction Near Trees for tree protection and barriers during construction. **EC 1.2 Preservation of mature trees** Protect and retain all trees that are 30 cm or more DBH (diameter at breast height) from injury or removal. **EC 1.3 Ravine protection** Within the Ravine Protected Area, protect and retain trees of all diameters from injury or removal. **EC 1.4 Street tree retention** Protect and retain trees of all diameters adjacent to City of Toronto streets and roadways and City-owned Parkland.		
Urban Forest: Increase Tree Canopy Make Space for trees, enhance the urban forest	**EC 2.1 Tree Planting** Provide tree canopy cover distributed across the site area and the public boulevard at a minimum rate of: 1 tree for every 66 m2 of 40% of the site area. **EC 2.2 Soil volumes** Provide all trees planted with a minimum volume of 30 m3 of high quality soil per tree. The minimum soil volume can be 20 m3 per tree where the soil volume is shared. **EC 2.3 Trees along street frontages** Plant large growing shade trees at the equivalent of 8 to 10 m intervals along all street frontages, including along private		**Enhanced Tree Planting OPTIONAL** Provide additional tree planting at a minimum rate of: 1 tree for every 200 m^2 of 40% of the total site area. **Enhanced Tree Planting in Parking Lots OPTIONAL** If surface parking is provided, plant internal shade trees at a minimum ratio of one tree planted for every three parking

Development Feature	Tier 1	Tier 2 Core	Tier 2 Optional
	streets and in the public boulevard. **EC 2.4 Trees in parking lots** If surface parking is permitted and provided, plant shade trees throughout the parking lot interior at a minimum ratio of one tree planted for every five parking spaces supplied. **EC 2.5 Watering program** Provide a watering program for trees for at least the first 2 years after planting.		spaces supplied.
Natural Heritage Protect, restore and enhance the natural environment and increase biodiversity	**EC 3.1 Biodiversity in landscapes** Plant the landscaped site area using a minimum of 50% native species (including trees, shrubs and herbaceous plants). **EC 3.2 Ravines and natural areas buffers** Where a setback from top-of-bank is required, plant the landscaped area of the setback with native species. **EC 3.3 Invasive species** Do not plant any invasive species on properties along streets abutting ravines and natural areas.		**Enhanced landscaping OPTIONAL** Restore or protect a minimum 50% of the site area (excluding the building footprint) or 20% of the total site area (including building footprint), whichever is greater, with native or drought tolerant vegetation. **Source LEED NC 2009**
Bird Collision Deterrence Design buildings to reduce bird collisions and mortality	**EC 4.1 Bird friendly glazing** Use a combination of the following strategies to treat a minimum of 85% of all exterior glazing within the first 12 m of the building above grade (including balcony railings, clear glass corners, parallel glass and glazing surrounding interior courtyards and other glass surfaces): • Low reflectance, opaque materials • Visual markers applied to glass with a		**EC 4.1 No Enhancement Needed; City already has higher T1 requirement** **Opaque Building Materials OPTIONAL** Provide at least 50% of the exterior surface of the building as

Development Feature	Tier 1	Tier 2 Core	Tier 2 Optional
	maximum spacing of 100 mm x 100 mm • Building-integrated structures to mute reflections on glass surfaces. <u>Balcony railings:</u> Treat all glass balcony railings within the first 12 m of the building above grade with visual markers provided with a spacing of no greater than 100 mm x100 mm. <u>Fly-through conditions:</u> Glass corners: Within the first 12m of the building, treat all glazing located at building corners with visual markers at a spacing of no greater than 100 mm x 100 mm. <u>Parallel glass:</u> Treat parallel glass at all heights with visual markers at a spacing of no greater than 100 mm x 100 mm. <u>City-owned buildings and all Agencies, Boards, Commissions and Corporations:</u> For new buildings or major renovations, treat all exterior glazing within the first 16 m of the building above grade as per the requirements of EC 4.1 above; visual markers applied to glass must have a maximum spacing of 50 mm x 50 mm*. * This requirement applies to City-owned non- residential facilities. **EC 4.2 Rooftop vegetation** Treat the first 4 m of glazing above the feature and a buffer width of at least 2.5 m on either side of the feature using strategies from EC 4.1. **EC 4.3 Grate porosity**		non-reflective opaque materials to significantly reduce bird collisions with buildings.

Development Feature	Tier 1	Tier 2 Core	Tier 2 Optional
	Ensure ground level ventilation grates have a porosity of less than 20 mm X 20 mm (or 40 mm x10 mm).		
Light Pollution Reduce nighttime glare and light trespass	**EC 5.1 Exterior lighting** Shield all exterior light fixtures to meet the IESNA Full Cutoff Classification or an Uplight rating of 0, to prevent glare and/or light trespass onto any neighbouring properties.	**Enhanced lighting CORE** Rooftop architectural illumination must be directed downward. **Lighting Controls CORE** <u>Institutional /Commercial</u>: Install an automatic device that reduces the outward spillage of internal light by: Reducing the input power to lighting fixtures by at least 50% between the hours of 11 PM and 6 AM **OR** Shielding all openings in the envelope with a direct line of sight to any non-emergency light fixture between the hours of 11 PM and 6 AM.	

Solid Waste

Table 5: Requirements for Tier 1 and Tier 2 of the Solid Waste section of the Toronto Green Standard

Development Feature	Tier 1	Tier 2 Core	Tier 2 Optional
Storage and Collection of Recycling and Organic Waste Facilitate waste sorting and reduction	**SW 1.1 Waste collection & sorting** Residential: Provide a waste sorting system using a single chute with a tri-sorter or two chutes, one with a bi-sorter. **SW 1.2 Waste storage space** Residential: Provide an easily accessible waste storage room with a minimum floor space of 25 m^2 for the first 50 units plus an additional 13 m^2 for each additional 50 units. **SW 1.3 Bulky waste** Residential: Provide a minimum of 10 m2 for bulky items and additional diversion programs.		**No enhancement required for waste sorting and separation; City must follow its own waste separation and diversion requirements by facility type**
Building Reuse Maintain existing walls, floors and roof			
Construction and Demolition Waste Management Reduce waste going to landfill			**Construction & Demolition Waste Management OPTIONAL** Divert at least 75% of the total non-hazardous construction and demolition material including at least three material streams. **Source LEED NC 2009 and LEED Version 4**
Recycled Content Reduce demand for new materials and increase market for recycled materials			**Recycled content OPTIONAL** Ensure that at least 20% of a project's construction materials (based on value) comprise recycled content

Development Feature	Tier 1	Tier 2 Core	Tier 2 Optional
			Source LEED NC 2009; LEED V4 appears to have replaced this credit with other materials disclosure credits; needs updated as part of LEED comparison and TGS V3 update.
Regional Materials Increase demand for building materials and products extracted, processed and manufactured in the region			**Regional Materials OPTIONAL** Ensure that at least 20% of a project's building materials or products have been extracted, harvested, recovered or processed within 800 km (2400 km if moved by rail or water) of the final manufacturing site. **Source: LEED NC 2009**