TORONTO GREEN STANDARD v4

2022

SUSTAINABILITY REQUIREMENTS FOR NEW DEVELOPMENT IN TORONTO

Low-rise Residential Development

Minimum of Five Dwelling Units

This document is intended for Toronto City Council review. Up to date and approved Toronto Green Standard Performance Measures with all associated Specifications and Resources will be published on the Toronto Green Standard page of the City of Toronto website following City Council approval.

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TORONTO

Development Feature

LOW EMISSIONS TRANSPORTATION

TIER 1

AQ 1.1 Electric Vehicle Infrastructure

Residential Uses:
1) For each dwelling unit with a residential parking space, provide an energized outlet or full Electric Vehicle Supply Equipment (EVSE) capable of providing Level 2 charging;

AND

2) In multi-unit apartments or townhomes with shared, common onsite residential parking spaces: each residential parking space, excluding visitor parking, shall include an adjacent energized outlet capable of providing Level 2 charging or higher to the parking space, either dedicated to the parking space or using an Energy Management System.

Development Feature

PEDESTRIAN INFRASTRUCTURE

TIER 1

AQ 2.1 Connectivity

Provide safe, direct, universally accessible pedestrian routes, including crosswalks and midblock crossings that connect the buildings on-site to the off-site pedestrian network and priority destinations.

AQ 2.2 Sidewalk Space

Provide a context-sensitive pedestrian clearway that is a minimum of 2.1m wide, to safely and comfortably accommodate pedestrian flow.

AQ 2.3 Weather Protection

Provide covered outdoor waiting areas for pedestrian comfort and protection from inclement weather.

AQ 2.4 Pedestrian Specific Lighting

Provide pedestrian-scale lighting that is evenly spaced, continuous and directed onto sidewalks, pathways, entrances, outdoor waiting areas and public spaces.

Development Feature

OPERATIONAL EMISSIONS REDUCTIONS

TIER 1

GHG 1.1 Building Energy Performance

Design, construct and label the building(s) to achieve at least ENERGY STAR® for New Homes, version 17.1 or R-2000 requirements.

For City-owned buildings (Agencies, Corporations and Divisions) Residential uses:
Design, construct and label the building to achieve at least ENERGY STAR® for New Homes, version 17.1 or R-2000 requirements. The CHBA Net Zero Home Labelling Program, Passive House or an alternative zero emissions standard certification is encouraged.

TIER 2

GHG 1.2 Buildings Energy and Greenhouse Gas Emissions Performance

Design and construct the building in accordance with the CHBA Net Zero Home Labelling Program or Passive House Standards.

Development Feature

RENEWABLE ENERGY

TIER 2

GHG 2.1 Solar Readiness

Ensure that buildings are designed to accommodate connections to solar PV or solar thermal technologies.

GHG 2.2 On-Site Renewable Energy

1) Provide a minimum of 5% of the building's annual energy consumption from one or a combination of acceptable renewable energy sources; AND

2) Minimum of 20% of the building's annual energy consumption from low-carbon thermal energy sources.

Low-carbon thermal energy sources include, but are not limited to: electric heat pumps (air-source, ground-source, etc.), wastewater heat recovery, and waste heat sources (e.g. data centres), at both the building scale and district scale.

Note: Tier 2 projects can choose to apply either GHG 2.1 or GHG 2.2

Development Feature

EMBODIED EMISSIONS IN MATERIALS

TIER 2

GHG 3.1 Material Emissions Assessment

Conduct a Materials Emissions Assessment using BEAM (Building Emissions Accounting for Materials tool), or an equivalent tool to measure A1-A3, upfront stage emissions for all structural, enclosure and major finishes (cladding, flooring, ceilings, interior wall sheathing) materials. Identify low-carbon sustainable material alternatives to the proposed structure or envelope to use in the building project. The report must demonstrate an emissions intensity of less than 250 $kgCO2e/m^2$.

Note: The City of Toronto is involved in two studies to benchmark embodied carbon in new construction. The results of the studies may lead to a refined target above to ensure these Performance Measures can best be implemented in the Toronto context.

Development Feature

MANAGING STORMWATER

TIER 1

WQ 1.1 Water Balance, Quality Control & Quantity Control

Design the site to achieve all Water Balance, Water Quality and Water Quantity control targets required by the Wet Weather Flow Management Guidelines:

1) Water Balance- Retain a minimum of 50% of the total average annual rainfall volume (or equivalent 5 mm from each rainfall event) generated from all site surfaces through infiltration, evapotranspiration, water harvesting and/or reuse, in accordance with the Wet Weather Flow Management Guidelines.

2) Water Quality- Provide an enhanced level of protection for water quality through the long-term average removal of 80% of Total Suspended Solids (TSS) on an annual loading basis from all runoff leaving the site, in accordance with the Wet Weather Flow Management Guidelines.

Provide E.coli control for direct discharges to Lake Ontario or for discharges generated from waterfront sites, where deemed necessary and in accordance with the Wet Weather Flow Management Guidelines.

3) Water Quantity- Provide peak flow control following applicable Wet Weather Flow Management Guideline requirements for flood flow management, erosion control and discharge to municipal sewers.

WQ 1.2 Green Streets

Where new streets are proposed, capture and control stormwater runoff to the maximum extent possible, from all contributing drainage areas using Green Infrastructure in accordance with the City's green infrastructure standards and specifications for the Right-of-Way.

WQ 1.3 On-site Green Infrastructure

Ensure that the total landscaped site area, located at and above grade, includes at least one of the following features:

- A Green Roof covering at least 80% of Available Roof Space;
- An Intensive Green Roof for 80% of the Green Roof Area provided;
- Biodiverse green roof to support pollinator species covering a minimum of 50% Green Roof Area;
- 25% of the Lot Area at or above-grade, planted with native flowering/pollinator species;
- At-grade Bioretention facilities provided to capture and control 75% of runoff from on-site hardscape surfaces; or,
- Reforestation of a portion of the site (beyond the limit of a stewardship plan).

Development Feature

WATER EFFICIENCY

TIER 2

WQ 2.1 Water-Efficient Fixtures

Install water fixtures or use non-potable water sources that achieve at least a 40% reduction in potable water consumption for the building (not including irrigation) over the baseline water fixtures.

WQ 2.2 Efficient Irrigation

Where soft landscaping exists on the site, reduce potable water use for irrigation by 60%.

Development Feature

TREE CANOPY

TIER 1

EC 1.1 Tree Planting Areas and Soil Volume

EC 1.1 Tree Planting Areas and Soil Volume

1) Provide the total amount of soil required on the site and in the adjacent public boulevard to support tree canopy by using the following formula:

- 40% of the site area ÷ 66 m^2 x 30 m^3 = total soil volume required

2) Each separate new or retained tree planting area must have a minimum volume of 30m^3 of soil.

EC 1.2 Trees Along Street Frontages

Plant large growing shade trees along street frontages that are spaced appropriately having regard to site conditions and have access to a minimum of 30 m^3 of soil per tree. Ensure that space is provided to accommodate mature trunk and root flare growth of each tree.

EC 1.3 Parking Lots

Plant large growing shade trees throughout the parking lot interior at a minimum ratio of 1:5 (one tree planted for every five surface parking spaces supplied).

EC 1.4 Watering Program

Provide a watering and maintenance program for trees for at least the first 4 years after planting.

Development Feature

LANDSCAPE & BIODIVERSITY

TIER 1

EC 2.1 Green & Cool Paving

Use one or a combination of the following strategies to treat at least 75% of the site's non-roof hardscape:

- High-albedo paving materials with an initial solar reflectance of at least 0.33 or SRI of 29;
- Open grid pavement with at least 50% perviousness;
- Shade from existing tree canopy or new tree canopy within 10 years of landscape installation;
- Shade from architectural structures that are vegetated or have an initial solar reflectance of at least 0.33 at installation or and SRI of 29; and
- Shade from structures with energy generation.

EC 2.2 On-site Landscaping

Plant the at-grade landscaped site area using a minimum of 50% native plants (including trees, shrubs and herbaceous plants) comprising at least two native flowering species that provide continuous bloom throughout all periods over the growing season.

- Where potable water is used for irrigation, native and non-native plants must also be drought-tolerant.
- Do not plant any invasive species.

EC 2.3 Green and Cool Roofs

Roof areas must be provided with one or a combination of the following covering 100% of Available Roof Space:

- Green Roof;
- Solar PV; or,
- Cool Roof.

Development Feature

NATURAL HERITAGE PROTECTION

TIER 1

EC 3.1 Ravine and Natural Feature Protected Areas and Natural Heritage System

Plant the landscaped area within the Natural Heritage System and the Ravine Protected Area with 100% native plants, ensuring at least 50% of those come from a regionally appropriate seed source (including trees, shrubs and herbaceous plants).

EC 3.2 Ravine and Protected Area Setbacks and Buffers

Where a setback or a buffer is required within or adjacent to the Natural Heritage System or Ravine and Natural Feature Protection Area, prepare and implement a stewardship plan for the setback, buffer and feature areas located within the property boundary.

Development Feature

CLIMATE POSITIVE LANDSCAPES

TIER 2

EC 4.1 Climate Positive Landscape Design

Enroll the project in the Climate Positive Design Challenge and use the Pathfinder tool calculate the years to carbon positive design. Incorporate low-carbon sustainable material alternatives to the proposed landscape design.

OR

Conduct a lifecycle assessment (LCA) for the landscape design at the Concept Design and Detailed Design stages. Demonstrate a reduction in the carbon impact of the project at Detailed Design milestone. Identify low-carbon sustainable material alternatives to the proposed landscape design.

Development Feature

BIRD COLLISION DETERRENCE

TIER 1

EC 5.1 Bird-Friendly Glazing

Buildings abutting ravines or natural areas:
Use a combination of the following strategies to treat a minimum of 85% all exterior glazing within the greater of first 16 m of the building above grade or the height of the mature tree canopy:

- Visual markers applied to the 1st surface of glass with a maximum spacing of 50 mm x 50 mm;
- Building-integrated structures to mute reflections on glass surfaces; and
- Non-reflective glass.

All buildings:
Treat the following features with visual markers:

- Balcony railings and fly-through conditions; and
- Elevation facing a High Hazard Area.

EC 5.2 Grate Porosity

Ensure ground level ventilation grates have a porosity of less than 20 mm X 20 mm (or 10 mm x 50 mm).

EC 5.3 Exterior Lighting

All exterior fixtures must be Dark Sky compliant.

Development Feature

WASTE COLLECTION & STORAGE

TIER 1

SW 1.1 Waste Collection SW 1.1 Waste Collection and Sorting

Multi-Residential Curbside with 9-30 units: Provide a shared access central waste collection and waste diversion space that is within 100 m of each unit, and located either on the ground floor or one level below grade. It must also be as equally convenient for the disposal of garbage, recycling, and organics.

SW 1.2 Waste Storage Space

Provide a ventilated internal space, external to the living area and on private property, for the storage of separated recycling, organics, and garbage generated between collections. Materials must be consistent with the City of Toronto's waste diversion programs. Minimum floor space requirements are as follows:

- 1.25 m² for each unit, for garbage, recycling, organics, bulky items, and e-waste.

TIER 2

SW 1.3 In-suite Waste Storage Space

Provide separated cabinet space in all kitchen suites for segregated collection of: recyclables, organics, and garbage.

Development Feature

BUILDING MATERIAL REUSE

TIER 2

SW 2.1 Building and Material Reuse

1) Maintain existing structural elements (walls, floors, roofs, and envelopes):
Maintain the existing building structure (including floor and roof decking) and envelope (the exterior skin and framing, excluding window assemblies and non-structural roofing materials) for at least 30% of the project completed floor area.

AND/OR

2) Maintain interior non-structural elements:
Use existing interior non-structural elements (e.g. interior walls, doors, floor coverings and ceiling systems) for at least 30% of the project completed floor area, including additions.

Paths 1 & 2 above can be combined to maintain at least 30% of the project completed floor area.

OR

Whole-Building Life-Cycle Assessment
Conduct a whole building lifecycle assessment (LCA) for the structure and envelope in accordance with GHG 3.1.

Development Feature

SOURCING OF RAW MATERIALS

TIER 2

SW 3.1 Sourcing of Raw Materials

Ensure at least 25% (by cost) of the total value of permanently installed building products meet the requirements for at least two of the responsible extraction criteria identified below.

- Extended producer responsibility.
- Bio-based materials. Bio-based products must meet the Sustainable Agriculture Network's Sustainable Agriculture Standard.
- Wood products. Wood products must be certified by the Forest Stewardship Council or CaGBC-approved equivalen.
- Materials reuse. Reuse includes salvaged, refurbished, or reused products.
- Recycled content. Recycled content is the sum of post-consumer recycled content plus one-half the pre-consumer recycled content, based on weight.
- Products sourced (extracted, manufactured and purchased) within 800 km of the project site.

Development Feature

CONSTRUCTION WASTE MANAGEMENT

TIER 1

SW 4.1 Construction Waste Management

Manage construction and demolition waste in accordance with O. Reg. 103/94, as amended: Industrial, Commercial and Institutional Source Separation Programs.

TIER 2

SW 4.2 Construction Waste Diversion

Waste Management Plan and Report: All projects must develop and implement a construction and demolition waste management plan and divert at least 75% of the total construction and demolition material from landfill: diverted materials must include at least four material streams.
OR
Generate less than 100 kg/m^2 of construction and demolition waste through reuse and source reduction design strategies. Salvage or recycle renovation and demolition debris and utilize waste minimizing design strategies for new construction elements. Track all materials generated by the project from start of construction through project completion to determine the project's total waste generation. Include all waste and diverted materials in the calculation of total project waste. Exclude hazardous materials and land-clearing debris from calculations.