

Integrated Sustainable Design Standards

Draft #1: March 16, 2022



Instructions

Tier 1 performance measures are required (mandatory) by the City and must be included as part of your approved development application.
Tier 2 performance is encouraged, but voluntary.

Note: Draft Plans of Subdivision are subject to performance criteria associated with development features marked with an asterisk (*).

Performance criteria apply to all building types except where specified.

Project Information

Performance Level Pursued:

☐ Tier 1

☐ Tier 2

Application Information:

Application Number:

Date Received (yyyy-mm-dd):

Development Review Planner (First, Last Name):

Is this checklist revised from an earlier submission?

Gross Floor Area (m²):

Number of Storeys:

Number of Units:

Non Residential Gross Floor Area (m²):

Proposal Description: (Include a narrative of your project highlighting green attributes or performances measures)

Property and Applicant:

Address of Subject Land (Street Number and Name):

Project Name:

Applicant/Agent

Name (First, Last Name):

Telephone Number:

Email:

Registered Owner (First, Last Name):



Health and Happiness

Performance Measures		Performance Criteria		For Submission			
Number	Development Feature	Tier 1 Mandatory	Tier 2 Optional	Submission Requirements	Plans and Drawings	Applicant Comments	For Staff Use Only
HH1	Heat Island Reduction*	ROOF: For high-rise residential buildings require: • 50% of the available roof area of all new buildings within the project have a minimum solar reflectance index value of 82 (for low-sloped roofs <2.12) or 39 (for steep-sloped roofs >2.12). OR Install a vegetated (“green”) roof for at least 50% of the available roof area of all new buildings. NON-ROOF: For mid to high-rise residential development require: • 25% of the non-roof hardscapes (including roads, sidewalks, courtyards, parking lots, parking structures, and driveways) to include the use of: High albedo surface materials. OR Permeable materials. AND Shade trees around the perimeter of the site.	ROOF: For high-rise residential and non-residential buildings require: • 100% of the available roof area to include heat island reduction measures OR • Install a vegetated (“green”) roof for at least 75% of the available roof area of all new buildings. NON-ROOF: For mid to high-rise residential development require: • 50% of the non-roof hardscapes (including roads, sidewalks, courtyards, parking lots, parking structures, and driveways) to include the use of: High albedo surface materials. OR Permeable materials. AND Shade trees around the perimeter of the site.				
HH2	Privately-Owned Outdoor Amenity Space*	For multi-residential development, provide on-site privately owned outdoor amenity space of a suitable size proportional to the number of units for active or passive recreational uses such as leisure, children's play areas, seating areas, sports facilities and fitness areas for the shared or communal use of the residents.					



Equity and Local Economy

Performance Measures		Performance Criteria		For Submission			
Number	Development Feature	Tier 1 Mandatory	Tier 2 Optional	Submission Requirements	Plans and Drawings	Applicant Comments	For Staff Use Only
ELE1	Affordable Housing*	For residential and mixed-use proposals, provide an evaluation of how the proposal supports the City's housing affordability goals and objectives.	Development contributes to the supply of rental, assisted and/or special needs housing, that would be affordable to households of low or moderate income in accordance with the City's Housing Strategy.				
ELE2	Housing Types and Size*	Not applicable for Tier 1	Development provides a housing type or size that is underrepresented in a neighbourhood area or on a city-wide basis (e.g. studio or one-bedroom apartment units, 3-bedroom apartment units, and purpose built rental units).				
ELE3	Accessible Public Walkways*	For all development, design on-site walkways to be continuous, universally accessible and clearly delineated in accordance with the Accessibility for Ontarians with Disabilities Act (AODA). AND Include accessibility features in designing play areas and structures.					
ELE4	On-site Connections	For all development, provide on-site pedestrian connections from buildings to public sidewalks, multi-use trails, transit stops and adjacent buildings outside of the development site, where appropriate.					
ELE5	Accessible Site	For high-rise development public entrances to the site's building projects, provide the same means of entrance for all users, or provide equivalent access when access by the same means is not possible, and identify on the site plan accessible building entrance(s). AND Minimize interruptions along paths of travel through site planning. Grate openings along a path of travel must not allow passage of an object that has a diameter greater than 13 mm, and elongated openings must be oriented perpendicular to the pedestrian path of travel.					



Equity and Local Economy

Performance Measures		Performance Criteria		For Submission			
ELE6	Accessible Building Design	For low-rise development, design 5% of the units to provide barrier free paths of travel from street to dwelling unit entrance, and to at least one bedroom, one bathroom, kitchen and living room. For mid to high-rise residential development, design 15% of the units to provide barrier free path of travel from street to dwelling unit entrance, and to at least one bedroom, one bathroom, kitchen and living room. AND Include AODA compliant wayfinding signage.	For low-rise development, design 10% of the units to provide barrier free path of travel from street to dwelling unit entrance, and to at least one bedroom, one bathroom, kitchen and living room. For mid to high-rise residential development, design 30% of the dwelling units within the building to accommodate accessible features such as one no-step entrance; wider doorways, foyers and hallways; and a main floor barrier free bathroom or powder room.				
ELE7	Community Safety	Development incorporates the principles of Crime Prevention Through Environmental Design (CPTED). For high-rise residential development, implement CPTED principles that provide surveillance opportunities to reduce crime and increase public safety.					



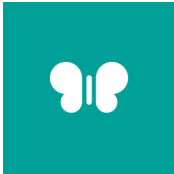
Culture and Community

Performance Measures		Performance Criteria		For Submission			
Number	Development Feature	Tier 1 Mandatory	Tier 2 Optional	Submission Requirements	Plans and Drawings	Applicant Comments	For Staff Use Only
CC1	Homeowner Education	For residential buildings, provide a Homeowners Package that explains the use and maintenance of all of the dwelling's green building features, and information that promotes green lifestyle practices such as water conservation, stormwater management, recycling and renewable energy management, and environmental stewardship. OR Builders provide videos linked to their website on the dwelling's green features.	Tier 1 AND Post signage and other education materials onsite to educate building visitors of sustainability features.				



Land Use and Nature

Performance Measures		Performance Criteria		For Submission			
Number	Development Feature	Tier 1 Mandatory	Tier 2 Optional	Submission Requirements	Plans and Drawings	Applicant Comments	For Staff Use Only
LUN1	Topsoil	Maintain: a minimum depth of 30 cm of high quality topsoil for all turf areas, and minimum depth of 45 cm of high quality topsoil for all planting beds. AND Scarify hard packed subsoil in all soft landscape areas prior to placement of topsoil.	Maintain a minimum depth of 30 cm of high quality topsoil for all turf areas, and minimum depth of 60 cm of high quality topsoil for all planting beds. AND Scarify hard packed subsoil in all soft landscape areas prior to placement of topsoil. AND Engage in a landscape maintenance program that further enhances the soil fertility.				
LUN2	Bird and Bat Friendly Design	For residential and non-residential buildings, use a combination of bird friendly design treatments for a minimum of 85% of all exterior glazing within the first 12 m of the building above grade or the height of the mature tree canopy (including all balcony railings, clear glass corners, parallel glass and glazing surrounding interior courtyards and other glass surfaces). Where a green roof is constructed with adjacent glass surfaces, require the glass to be treated within 12 m above the green roof surface. For development containing 5 or more units abutting a ravine or natural area, use a combination of bird friendly design treatments to at least 85% of the exterior glazing located within the first 12m of the building above grade.	For residential and non-residential buildings, use a combination of bird friendly design treatments for a minimum of 95% of all exterior glazing within the first 12 m of the building above grade or the height of the mature tree canopy (including all balcony railings, clear glass corners, parallel glass and glazing surrounding interior courtyards and other glass surfaces). Where a green roof is constructed with adjacent glass surfaces, require the glass to be treated within 12 m above green roof surface.				
LUN3	Light Pollution Reduction	Require exterior lighting to be: • low wattage, energy efficient Light Emitting Diode (LED) 3000K or less, • shielded or oriented downward, and • directed away from natural areas and neighbouring spaces.	Tier 1 And Use motion sensors or timers for outdoor lights to maintain security without excessively lighting the building's exterior.				



Land Use and Nature

Performance Measures		Performance Criteria		For Submission			
Number	Development Feature	Tier 1 Mandatory	Tier 2 Optional	Submission Requirements	Plans and Drawings	Applicant Comments	For Staff Use Only
LUN4	Planting of Native or Non-Invasive Species*	For all development, plant 50% native plant species. Drought tolerant and pollinator-friendly plant species preferred. Remaining non-native species must be non-invasive. AND Vegetated buffers to be 100% native vegetation	For all development, plant 75% or greater as native plant species. Drought tolerant and pollinator-friendly plant species preferred. Remaining non-native species must be non-invasive. AND Vegetated buffers to be 100% native vegetation.				
LUN5	Tree Preservation and Removal Compensation	Plant replacement trees to compensate for tree removals required for site development, to ensure minimal loss of canopy cover. This applies to the removal of any existing trees that are 15cm or more in diameter at breast height in accordance with the City's Tree Inventory, Preservation, and Removal Compensation Requirements.	Provide a site design solution that includes the preservation and protection of all existing mature trees. AND Provide a net gain of tree canopy through additional tree plantings.				
LUN6	Healthy Street Trees*	Plant 60mm caliper deciduous trees and 1.8m high coniferous trees on both sides of private streets and in public boulevards to provide shade. AND Provide a tree planting plan for all development and/or redevelopment designs. AND Design, implement, and pay for a watering program for at least the first 2 years of planting. AND Select a variety of plant species to provide visual variety, enhance biodiversity and satisfy functional requirements, such as providing shade and screening in all seasons. For low-rise residential development: plant at a rate of 1 tree per unit. For mid to high-rise residential and non-residential development: plant at a rate of 1 tree per 8 metres of street frontage.	Tier 1 AND Provide 30 m3 high quality soil for street trees and having a minimum top soil depth of 75 cm.				



Land Use and Nature

Performance Measures		Performance Criteria		For Submission			
LUN 7	Natural Heritage Features and Open Space Enhancement	Protect significant natural heritage and hydrologic features on site. OR Where all alternatives to protect and enhance natural heritage features and open spaces on site have been evaluated and determined to not be feasible, provide compensation for the loss of ecosystem functions due to development impacts, in accordance with the Pickering Official Plan and the relevant conservation authority's guideline for ecosystem compensation.	Maintain and enhance natural heritage features and open spaces on site. OR Create new natural heritage features and open spaces on site. OR Restore and enhance connectivity among natural heritage features and open spaces.				



Sustainable Water

Performance Measures		Performance Criteria		For Submission			
Number	Development Feature	Tier 1 Mandatory	Tier 2 Optional	Submission Requirements	Plans and Drawings	Applicant Comments	For Staff Use Only
SW1	Stormwater Management (Quality and Quantity)*	All development must achieve a level one/enhanced stormwater treatment for all stormwater in accordance with the City of Pickering Stormwater Management Design Guidelines. AND Achieve runoff reduction of a minimum 5mm of rainfall depth.	In a manner best replicating natural site hydrology processes, manage on-site runoff from the developed site for the 70th percentile of regional or local rainfall events using low-impact development (LID) and green infrastructure. Examples of Low Impact Development (LID) techniques include: • permeable pavers • bioswales • soakaways • filtered strips • infiltration trenches OR Retain runoff generated from a minimum of 10 mm depth of rainfall from all site surfaces through infiltration, evapotranspiration, water harvesting and reuse.				
SW2	Building Water Efficiency	For low-rise residential buildings all water consuming fixtures are high-efficiency labeled. For mid to high-rise residential buildings and non-residential buildings, reduce indoor aggregate potable water consumption (not including irrigation) by 15% over the maximum flow rates for water supply fittings and maximum water consumption per flush cycle for sanitary. Refer to the Ontario Building Code for current baseline flush and flow rates OR Third party verification of water reductions with systems like HERS H ² O or WaterSense labeling. Hand calculations could be done according to LEED version 4.1 approach.	For low-rise residential development, all water consuming fixtures are high-efficiency labeled. AND Design dwelling units/buildings to be "greywater ready". AND Install a hot water recirculation pump for the fixtures that require hot water or use Energy Recovery Ventilation in lieu of conventional humidifier. OR Third party verification of water reductions with systems like HERS H ² O or WaterSense labeling. For mid to high-residential development, reduce indoor aggregate potable water consumption (not including irrigation) by 30% over the maximum flow rates for water supply fittings and maximum water consumption per flush cycle for sanitary. Refer to the Ontario Building Code for current baseline flush and flow rates.				
SW3	Rainwater Harvesting	Not applicable for Tier 1	For mid to high-rise residential development, each building includes a separate, non-potable subsurface watering system for irrigation and outdoor-reuse purposes.				



Zero Waste

Performance Measures		Performance Criteria		For Submission			
Number	Development Feature	Tier 1 Mandatory	Tier 2 Optional	Submission Requirements	Plans and Drawings	Applicant Comments	For Staff Use Only
ZW1	Construction Waste Reduction	For all development, divert 50% or more of all non-hazardous construction, demolition, and land clearing waste deposited to a landfill.	For all development, reduce 75% or more of all non-hazardous construction, demolition, and land clearing waste deposited to a landfill.				
ZW2	On-Site Recycling	For non-residential development, storage and collection areas for garbage, recycling, and organic waste wholly enclosed and incorporated into the site design. For mid to high-rise residential development: a three chute (tri-sorter) system is incorporated into the design.					



Local and Sustainable Food

Performance Measures		Performance Criteria		For Submission			
Number	Development Feature	Tier 1 Mandatory	Tier 2 Optional	Submission Requirements	Plans and Drawings	Applicant Comments	For Staff Use Only
LSF1	Urban Agriculture*	For mid to high-rise residential development, include private on site space for garden plots to cultivate food, herbs and flowers for residents in a common amenity area. Require the private space outside the building to be AODA compliant.	For mid to high-rise residential development include private space within the building for elements such as: • raised rooftop gardens • balcony planters				



Travel and Transport

Performance Measures		Performance Criteria		For Submission			
Number	Development Feature	Tier 1 Mandatory	Tier 2 Optional	Submission Requirements	Plans and Drawings	Applicant Comments	For Staff Use Only
TT1	Access to Public Transit*	Meet the requirements of the Pickering Official Plan and the Pickering Integrated Transportation Master Plan.					
TT2	Bicycle Parking and Storage Facilities	For mid to high-rise residential and non-residential development, provide outdoor bicycle parking spaces in highly visible, easily accessible, and well-lit locations, ideally in close proximity to primary entrances. AND Provide bicycle parking spaces for 10% or more of the building's units AND Provide bicycle parking and/or storage for residents, employees and/or visitors is available in all commercial, office, institutional, industrial, mixed-use buildings, residential apartments, and in other multi-unit residential with common garage.	For mid to high-rise residential and non-residential development, provide bicycle parking spaces in secure weather protected areas located in close proximity to primary entrances or within the building. AND Provide bicycle parking spaces for 20% or more of the building's units. AND Provide secure bicycle storage facilities for residents and/or visitors in all non-residential and mixed-use buildings, and in other multi-unit residential with common garage. AND For commercial, institutional, industrial developments provide change room facilities and/or shower facilities for employees who bike to work.				
TT3	Electric Vehicles* Including plug in hybrid vehicles	Low-rise residential units should be designed to enable future vehicle charging installation. For mid to high-rise residential and non-residential buildings, if 20 or more vehicle parking spaces are provided, design, and construct 5% of all parking spaces to have EV charging stations or be EV ready. OR If less than 20 parking spaces are provided, design and construct at least 10% of total parking spaces (or a minimum of 1 space, whichever is greater) to have EV charging station(s) or be EV ready. AND Include at least four regular electrical outlets to support electric bicycle charging in bike storage areas.	For mid to high rise and non-residential buildings, design and construct at least 25% of total parking spaces (or a minimum of 1 space, whichever is greater) to have EV charging stations or be EV Ready. AND Include at least four regular electrical outlets to support electric bicycle charging in bike storage areas.				



Travel and Transport

Performance Measures		Performance Criteria		For Submission			
Number	Development Feature	Tier 1 Mandatory	Tier 2 Optional	Submission Requirements	Plans and Drawings	Applicant Comments	For Staff Use Only
TT4	Car Share	For high-rise residential development, encourage car sharing programs for residents of and for employees in the Prestige Employment Areas. OR Ensure dedicated car share parking spaces are provided in close proximity to building entrances and are clearly signed.	For mid to high-rise and non-residential development, provide an on-site car share service available to owners/tenants and the public Provide an on-site car share service available to owners/tenants and the public. AND Ensure dedicated car share parking spaces are provided in close proximity to building entrances and are clearly with clear signed.				
TT5	Preferred Parking Spaces	For mid to high-rise residential and non-residential development with 20 or more parking places, provide dedicated parking spaces for carpooling, hybrid vehicles, and electric vehicles (does not apply to compact cars). Dedicated parking spaces should be located in close proximity to building entries.					



Materials and Products

Performance Measures		Performance Criteria		For Submission			
Number	Development Feature	Tier 1 Mandatory	Tier 2 Optional	Submission Requirements	Plans and Drawings	Applicant Comments	For Staff Use Only
MP1	Low Impact Building Materials	All mid to high-rise residential and non-residential buildings must include the following: • cement replacement in concrete (e.g. pre-consumer recycled content using waste fly ash or slag) and/or minimum 15% GHG reductions in concrete using low-emissions alternatives. AND • 10% post-consumer recycled content in rebar. AND • 10% post-consumer recycled content in structural steel, metal decks. AND • 10% FSC or SFI wood.	All mid to high-rise residential and non-residential buildings must include the following: • cement replacement in concrete (e.g. pre-consumer recycled content using waste fly ash or slag) and/or minimum 25% GHG reductions in concrete using low-emissions alternatives. AND • 20% post-consumer recycled content in rebar. AND • 20% post-consumer recycled content in structural steel, metal decks. OR • 20% FSC or SFI wood.				
MP2	Low Grade Slab Insulation	Not applicable for Tier 1	For all low-rise residential buildings, require the basement floor below slab to be fully-insulated.				
MP3	Air Pollutants in Materials	Require low or no volatile organic compounds (VOC) paints, carpets, adhesives and other building materials, finishes and furnishings within a building.	Tier 1				
MP4	Indoor Air Quality	Install Heating, Ventilation and Air Conditioning (HVAC) systems that reduce exposure to indoor air quality pollutants by ventilating with outdoor air.					



Zero Carbon

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Number	Development Feature	Tier 1 Mandatory	Tier 2 Optional	Submission Requirements	Plans and Drawings	Applicant Comments	For Staff Use Only																																																
ZC1	Building Energy Performance and Emissions	Low-rise residential buildings shall be designed to achieve at least Energy Star® for New Homes, latest version, or demonstrated modeled equivalent (i.e. Better Than Code ® using Home Energy Rating System (HERS)). Builders can create and market their own builder brands. All mid to high-rise residential and all non-residential buildings shall be designed to meet the minimum energy performance level at least 15% or better than the Ontario Building Code requirements in force at the time.	Low-rise residential buildings shall be designed to achieve a minimum energy performance level of a least 25% better than the Ontario Building Code. Design all mid to high-rise residential and all non-residential buildings to meet or exceed one of the following: • 25% energy performance level or better than the Ontario Building Code requirements in force at the time. OR Using whole-building energy modelling demonstrate annual Total Energy Use Intensity (TEUI), Thermal Energy Demand Intensity (TEDI) and GHG Emission Intensity (GHGI) targets provided in the table below. Note that Multi-unit Residential Buildings are referred to as MURB in the table <table><tr><th rowspan="2"></th><th colspan="2">TEUI (kWh/m²/yr)</th><th colspan="2">TEDI (kWh/m²/yr)</th><th colspan="2">GHGI (kg CO₂e/m²/yr)</th></tr><tr><th>Core</th><th>Optional</th><th>Core</th><th>Optional</th><th>Core</th><th>Optional</th></tr><tr><td>MURB (>6 storeys)</td><td>135</td><td>100 to 75</td><td>50</td><td>30 to 15</td><td>15</td><td>10 to 0</td></tr><tr><td>MURB (<6 storeys)</td><td>130</td><td>100 to 70</td><td>40</td><td>25 to 15</td><td>15</td><td>10 to 0</td></tr><tr><td>Commercial Office</td><td>130</td><td>100 to 65</td><td>30</td><td>22 to 15</td><td>15</td><td>8 to 0</td></tr><tr><td>Commercial Retail</td><td>120</td><td>90 to 70</td><td>40</td><td>25 to 15</td><td>10</td><td>5 to 0</td></tr><tr><td>Mixed Use</td><td colspan="6">Calculated using an area weighted average of the performance targets from the other building types above</td></tr></table>		TEUI (kWh/m²/yr)		TEDI (kWh/m²/yr)		GHGI (kg CO₂e/m²/yr)		Core	Optional	Core	Optional	Core	Optional	MURB (>6 storeys)	135	100 to 75	50	30 to 15	15	10 to 0	MURB (<6 storeys)	130	100 to 70	40	25 to 15	15	10 to 0	Commercial Office	130	100 to 65	30	22 to 15	15	8 to 0	Commercial Retail	120	90 to 70	40	25 to 15	10	5 to 0	Mixed Use	Calculated using an area weighted average of the performance targets from the other building types above									
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ZC2	Solar Gain and Passive Solar Design*	Identify opportunities to maximize solar gain through site layout and building orientation while considering efforts to reduce heat gain in the building.	Construct buildings incorporating passive solar design techniques.																																																				
ZC3	Renewable Energy*	Construct each building to be solar ready (i.e. conduit installed from roof to mechanical room and appropriate electrical systems installed). Calculate required roof loads as appropriate. OR Incorporate Home Energy Monitoring Systems (HEMS) that are web-based.	Incorporate on-site renewable sources of power generation to meet 5% or more of the building energy needs. OR Incorporate peak shaving devices like battery storage																																																				



Zero Carbon

Performance Measures		Performance Criteria		For Submission			
Number	Development Feature	Tier 1 Mandatory Criteria	Tier 2 Optional	Submission Requirements	Plans and Drawings	Applicant Comments	For Staff Use Only
ZC4	Building Resilience	Incorporate building measures to prevent flooding (e.g. stormwater back flow preventers) and protect against extreme heat waves (e.g. passive ventilation measures) and extreme high winds (e.g. roof rafter fasteners).	For high-rise residential buildings, provide a refuge area with heating, cooling, lighting, potable water, and power available and provide 72 hours of back-up power and thermal energy to a central refuge area and to essential building systems.				
ZC5	Energy Conservation Measures*	Increase energy efficiency to reduce electricity consumption, electricity costs, and grid related GHG emissions by implementing two or more of the following: • Commission building systems to ensure they function properly. • Provide zonal HVAC heating and cooling controls. • Supply high efficiency water heating equipment with a minimum EF of .90 or greater. • Install motion sensors for all exterior lighting fixtures. • Where the builder is providing appliances, appliances must be Energy Star® compliant. • Use Energy Star® compliant lighting fixtures for 75% of all lighting fixtures installed. • Use windows with low emissive coatings to help reflect heat and sunlight. High performance windows with U-values less than 1.6 and solar heat gain coefficients less than .45.	Use right-sized combination hybrid heating systems				
ZC6	Air Tightness	Not applicable for Tier 1	For mid to high-rise residential and non-residential buildings, a signed letter that an Air Tightness Test Report will be submitted.				
ZC7	Metering	For mid to high-rise residential and non-residential buildings Install electricity and/or thermal sub-meters for all energy end-uses that account for more than 10% of the total energy consumption of the building. Major process loads such as pools to be sub-metered separately.	For low rise residential buildings, install home energy monitoring systems.				