City of Hamilton Sustainable Building and Development Guidelines

Phase 1 - Low Density Residential Uses

The City of Hamilton Sustainable Building and Development Guidelines shall apply to proposed low-density residential developments under the following conditions. For the purpose of interpretation, a low-density dwelling shall mean a single detached dwelling, duplex dwelling or semi-detached dwelling as defined in the City of Hamilton Zoning By-law:
1. Where an application is made under the *Planning Act* for a Draft Plan of Subdivision that proposes five (5) or more low density residential dwellings with access from a public street, and where the application is subject to the City of Hamilton Site Plan Control By-law; and
2. Proposed applications that require an amendment to the City's Official Plan or Zoning By-law to satisfy Item 1 above, shall also be required to satisfy these Guidelines.

For clarity, the Low Density Sustainability Building and Development Guidelines shall not apply to developments that are deemed to be medium density or high density.

Requirement	Intent	Description	Yes	No	N/A	Comments: Description of compliance, reference documentation, etc.	Subdivisions	Single Homes
Healthy Trees	Support vegetation in urban areas and ensure maintenance of trees.	Protect existing healthy trees (in-situ or removed) in accordance with an approved Tree Preservation Plan or Arborist Report. These Plans/reports are to be prepared in accordance with the City's Council adopted Tree Protection Guidelines (revised October 2010).					Mandatory	Mandatory
Street Tree Planting	Reduce the urban heat island effect, reduce water runoff, improve air quality, and enhance the streetscape for human activity by providing street trees.	Provide street trees on both sides of new and existing streets within the development adjacent to the vehicle travel lane at a rate of 1 tree per unit.					Mandatory	Mandatory
		Provide additional street trees at least 10% above minimum required.					Mandatory	N/A
Native and Adapted Species	Enhance resilience and biodiversity by restoring native and climate-adapted vegetation found within the City and eliminating invasive species.	Do not use invasive species or artificial grass.					Mandatory	Mandatory
		Use native or adapted species (including trees, shrubs and herbaceous plants) for at least 50% of the new landscaping, if any.					Mandatory	Optional

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Heat Island Effect - Non-Roof	Reduce the heat island effect to minimize the impact on human comfort and health. The urban heat island effect happens when development and human activity (such as paved surfaces, reduced vegetation, heat from vehicles) causes the urban area to become warmer than nearby rural spaces.	Use a combination of heat island reduction measures for at least 50% of site hardscapes. Non-roof measures include: - Hardscape shading (such as tree shading) - Surface materials that reflect instead of absorb heat (Solar Reflectance Index >29; *black asphalt has an SRI of 0, whereas white surfaces can have an SRI up to 100*) - Open grid pavers (perviousness > 50%)					Mandatory	N/A
Drought-Tolerant Landscaping	Clean drinking water is a precious resource globally that is often used for irrigation. Additionally, the increased water demand can put unnecessary strain on potable water systems in the summer. Design landscaping to reduce potable water demand for outdoor use.	Use drought-tolerant plant species and low-maintenance landscaping (e.g. mulch) for at least 50% of the landscaped area, if any.					Mandatory	Optional
Soil Quality and Quality	Increase and support healthy vegetation to ensure diverse and sustainable habitats.	Conform with the soil volumes found within the City of Hamilton Tree Preservation and Sustainability Policy.					Mandatory	N/A
		For all individually planted trees in new residential sidewalks installations, include 21m3 of soil. For a grouping of 2 or more trees in a soil bed, include 16m3 of soil per tree. Note that only depths of up to 1.5m shall be used for the calculation of soil volume.					Mandatory	Optional

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Air								
Electric Vehicle Charging	Promote the use of electric cars by providing electric vehicle (EV) charging stations. This will improve local air quality and reduce greenhouse gas emissions.	Provide a minimum of one (1) vehicle parking space per unit or per parking space (whichever is greater) in a garage, carport, or driveway with electric vehicle supply equipment OR physical provisions for the future installation of electric vehicle supply equipment (i.e. roughed-in).					Optional	Optional
Enhanced Heat Island Effect	Reduce the heat island effect to minimize the impact on human comfort and health. The urban heat island effect happens when development and human activity (such as paved surfaces, reduced vegetation, heat from vehicles) causes the urban area to become warmer than nearby rural spaces.	Use heat island reduction measures for at least 50% of the roof area. Roofs measures include: - Roofing materials that reflect instead of absorb heat (Solar Reflectance Index >82 if low-sloped; Solar Reflectance Index >39 if steep-sloped) - Solar PV					Optional	Optional
		Use a combination of heat island reduction measures for at least 75% of site hardscapes. Non-roof measures include: - Hardscape shading (such as tree shading) - Surface materials that reflect instead of absorb heat (Solar Reflectance Index >29; *black asphalt has an SRI of 0, whereas white surfaces can have an SRI up to 100*) - Open grid pavers (perviousness > 50%)					Optional	N/A
Traffic Calming Strategies	Reduce vehicle speeds and volumes with traffic calming strategies. This will reduce environmental impacts such as traffic congestion, noise, air pollution etc.	Design 50% of new non-residential and/or mixed-use streets with traffic calming strategies					Optional	N/A

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Energy & GHG Emissions								
Onsite Renewable Energy	Encourage and recognize increasing levels of on-site renewable energy self-supply to reduce environmental and economic impacts associated with fossil fuel energy use.	Determine the feasibility of energy generation from renewable resources (e.g. solar PV, solar thermal, wind, geo-exchange).					Optional	Optional
		Design on-site renewable energy systems to supply a minimum of 5% of the building's total energy load consumption from solar PV, solar thermal or wind, or 20% from geo-exchange.					Optional	Optional
Green Grid-Sourced Energy	Encourage use of grid-sourced "green power" (e.g. Bullfrog Power) to reduce environmental and economic impacts associated with fossil fuel energy use.	The development purchases grid-source green energy.					Optional	Optional
District Energy	Encourage district energy to reduce environmental and economic impacts associated with fossil fuel energy use. District energy systems supply heating and/or cooling to individual buildings from a centralized plant. District energy systems are more energy efficient than typical equipment and can reduce greenhouse gas emission.	Where district energy is available for hook-up, provide the necessary infrastructure and a connection to the district energy plant and system.					Optional	N/A
		Where district energy is not yet available for hook-up, provide the necessary infrastructure for future connection to the district energy plant and system.					Optional	N/A
Solar Readiness	Encourage and recognize increasing levels of on-site renewable energy self-supply to reduce environmental and economic impacts associated with fossil fuel energy use.	Design 100% of all new building for solar readiness (i.e. conduit installed from roof to mechanical room/electrical box and appropriate electrical systems installed, identify roof location of suitable size, pitch and orientation).					Optional	N/A

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Passive Solar	Reduce heating and cooling energy consumption by integrating utilizing solar energy. Passive solar design takes advantage of solar thermal energy through strategies such as window orientation, thermal mass, convective cooling, etc.	Include a report describing how passive solar gain has been accommodated in the plan/design considering factors such as street/lot orientation and fenestration on units. Passive strategies should be optimized to reduce total building energy consumption, and designs should not create unwanted solar heat gains.					Optional	N/A
Building Envelope	A high performance building envelope increases the heating and cooling efficiency of buildings, thereby increasing the building's overall energy efficiency and resilience. The performance of the building envelope can be measured by using a high performance standard and/or by measuring air leakage.	Design and construct the building envelope to an alternate high performance standard (Passivhaus or R-2000).					Optional	Optional
		Construct the building envelope to meet a low level of air leakage (1.5 ACH @ 50 Pa), including utilization of qualified insulation contractors.					Optional	Optional

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Land								
Bird Friendly Design	Minimize impact of buildings on migratory birds by employing design strategies to reduce in-flight bird collisions with buildings.	Use Bird Friendly Design strategies to treat at least 85% of the exterior glazing located within the first 12m of the building above-grade (including interior courtyards). Bird Friendly Design strategies include: - visual markers on glass with a spacing no greater than 10cm x 10cm. - low reflectance opaque materials - shade					Optional	Optional
Enhanced Healthy Trees	Support vegetation in urban areas and ensure maintenance of trees.	Retain all healthy trees on site that are not immediately impacted by the proposed building / parking area or removed for solar access AND offset the loss of any existing trees at a 2:1 ratio					Optional	Optional
Enhanced Native and Adapted Species	Enhance resilience and biodiversity by restoring native and climate-adapted vegetation found within the City and eliminating invasive species. Native flowering species support pollinators, which are vital to creating and maintaining habitats and ecosystems that many animals rely on for food or shelter.	Support the City's "Bee City" designation by restoring or protecting a minimum of 30% (including the building footprint) of all portions of the site identified as previously disturbed, with native vegetation that includes at least two native flowering species that bloom at all periods over the growing season.					Optional	N/A

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Waste								
FSC Wood	Encourage the use of Forest Stewardship Council (FSC) certified wood. FSC wood promotes environmentally responsible forest management and the production of sustainable lumber and wood products.	Utilize a minimum of 25% of wood based materials and products that are certified in accordance with the FSC principles and criteria for wood building components.					Optional	N/A
Durable Buildings	Minimize materials use and construction waste over a building's life resulting from inappropriate material selection or premature failure of the building or components.	Incorporate durable and quality building / accent materials which are compatible with the materials found on dwellings within the neighbourhood. Incorporating recycled-content materials, recycled materials and local sustainable renewable resources is also encouraged.					Optional	N/A
Water								
Enhanced Drought-Tolerant Landscaping	Clean drinking water is a precious resource globally that is often used for irrigation. Additionally, the increased water demand can put unnecessary strain on potable water systems in the summer. Drought-tolerant planting and efficient irrigation systems efficiency can reduce the potable water demand for outdoor use.	Use drought-tolerant, low-maintenance landscaping for 75% of the landscaped area.					Optional	Optional
Outdoor Water Use		For all non-grass planted areas, use high efficiency irrigation systems (i.e. drip or trickle) only, or use no irrigation system due to use of only drought tolerant plants.					Optional	N/A

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Community Design								
Street Networks	Design street networks that promote walkability and active transportation thereby reducing GHG emissions, noise, traffic congestion, and other environmental impacts related to car use.	Street and block patterns emphasize interconnection and walkability through a grid or modified grid design.					Optional	N/A
		All arterial and collector roads have sidewalks on both sides of the right-of-way					Optional	N/A
		All local roads are encouraged to have sidewalks on both sides of streets, particularly for connections to schools, recreational facilities, transit stops and trails.					Optional	N/A
Education								
Community Sustainability Outreach	Raise awareness and educate developers and residents. Community sustainability outreach promotes sustainability measures and ensures their effective implementation and maintenance.	Developers shall distribute a City-approved (or building specific) sustainability handout to all new homeowners/tenants, outlining sustainability features, such as green building materials, waste management programs, transit stop locations & encouraging other activities (low-water gardening, green cleaning materials, alternate pest control measures, purchasing green power).					Optional	N/A
		Familiarize homeowners with all of the dwelling's green building features as part of the Pre-Delivery Inspection					Optional	N/A
		Provide a Homeowner's Information Package outlining all of the dwelling's green building features, neighbourhood conveniences and information that promotes green lifestyle choices.					Optional	N/A