Zero Emissions Development

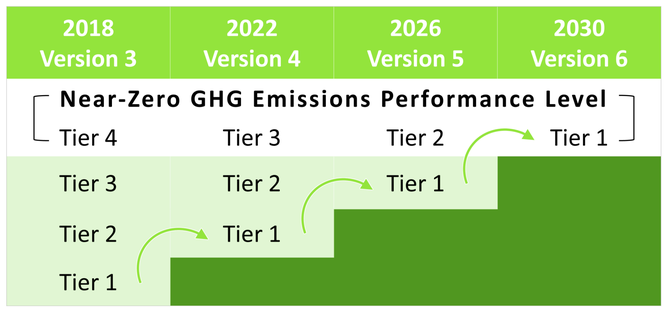
KEY DIRECTIONS

1. Target zero emissions for all new development (TGS Version 3 Tier 4).
2. Design energy systems to access renewable thermal energy from municipal infrastructure.
3. Evaluate options for energy sharing between buildings through a thermal network (district energy system).

TORONTO GREEN STANDARD (TGS)

The TGS specifies sustainability requirements for new development, including energy performance and GHG emissions.

Tier 1 represents the minimum requirements; other Tiers are voluntary, with an incentive for higher performance. By 2030 all new development will be required to achieve near-zero emissions.



WHAT IS ZERO EMISSIONS DEVELOPMENT?

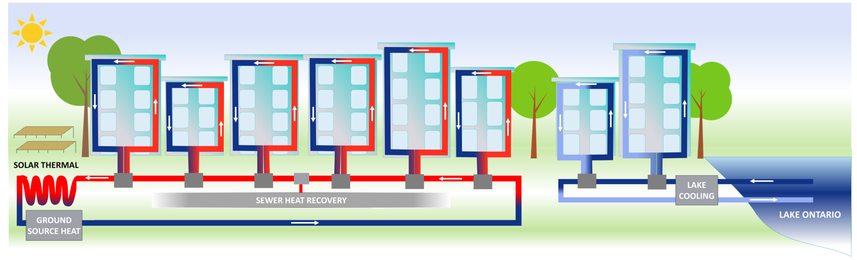
A zero-emissions development is where buildings are designed to use as little energy as possible and any energy that is required comes from low-carbon, renewable sources.

To achieve a low-emissions development energy efficiency must be integrated into all elements of the building design including building orientation, massing, envelope, insulation levels and minimized air leakage.

What sustainability features are most important to you?

RENEWABLE THERMAL ENERGY

The key to achieving zero emissions new development is using renewable thermal energy for heating and cooling. Examples in Toronto include solar thermal heating, geo-exchange (i.e. ground-source), sewer heat recovery, and lake water cooling. Energy Developers are relatively new actors in Toronto that are implementing these systems by partnering with real estate developers on projects.



30 x 40" Cutline to fit foam core panels

Climate Resilience

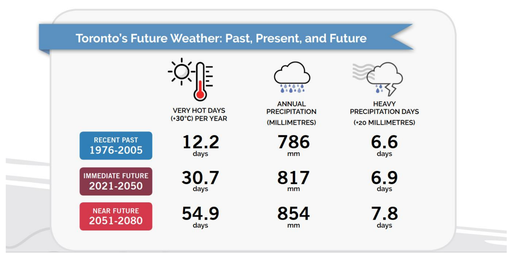
KEY DIRECTIONS

1. Design streets and development sites to absorb, retain and detain 90% of rain and snowmelt
2. Enhance the quality and quantity of biodiversity by providing opportunities for refuge, food, resting areas and by planting a diversity of native species.
3. Provide adequate space and soil for healthy tree growth.
4. Design to prepare for future weather events, for example ensuring minimum back-up power is provided in the event of a power outage.

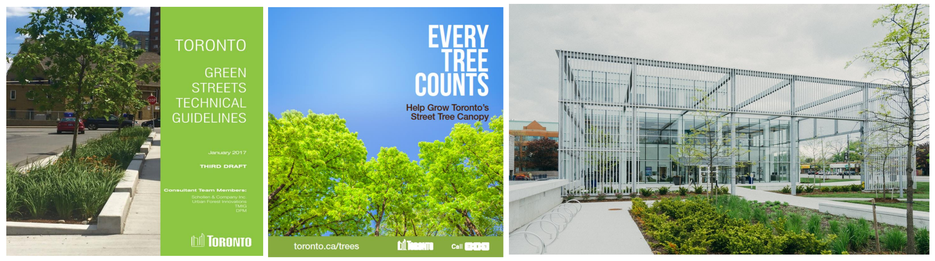
CLIMATE RESILIENCE

The climate is changing and Toronto must adapt. The City expects hotter, drier summers with more heat waves, warner and milder winters, and fewer but much more intense, spring, summer and fall rainfall events.

These new weather patterns will affect how buildings, landscapes, infrastructure and the public realm are designed to be resilient. The Christie's development offers an opportunity to lay a foundation to not just survive future shocks and stress, but to thrive with a resilient community.



TORONTO GREEN STANDARD MINIMUM REQUIREMENTS

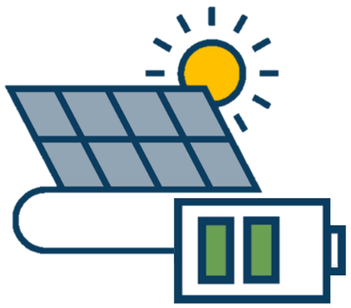


- Improved Energy Efficiency
- Green roofs
- Cycling Infrastructure
- No invasive species
- On-site storm water retention and water re-use
- 'Cool' paving

MINIMUM BACKUP POWER

Backup power for essential services in residential buildings (e.g. water pumps, elevators, common areas) allows residents to remain in their buildings and better cope with power outages.

Solar PV with battery storage can reduce demand on the electricity grid and provide renewable backup power during outages.



Pipes & Wires

KEY DIRECTIONS

1. Ensure the adequate provision of municipal infrastructure to meet the needs of a low-carbon climate resilient community.
2. Linking infrastructure improvements to development through the phasing of the project.

DRINKING WATER

Toronto Water operates and maintains over 6,000 km of watermains which supply drinking water to the City. Linking necessary infrastructure upgrades to development is a priority for Toronto Water.

STORMWATER

The City has implemented many projects to help manage stormwater and improve water quality in local waterways, including Lake Ontario. Investments in green infrastructure and green streets will greatly improve stormwater conditions while providing co-benefits such as reducing the impacts of heat, providing habitat and creating safe walkable environments.

These may include a range of low impact development stormwater management technologies, including bioswales, trees, permeable surfaces and green roofs, to increase the rate of water infiltration and decrease the volume of stormwater diverted to municipal storm drains.

WASTEWATER

Toronto Water operates and maintains 4,000 km of sanitary sewers which convey wastewater. Existing sanitary sewers within the vicinity of the study area divert the wastewater to the Humber Wastewater Treatment Plant, which is the City's second largest wastewater treatment plant. The Study will ensure that sufficient wastewater capacity is available as development occurs.

HYDROELECTRICITY

In 2018, Toronto Hydro invested $511.3 million to renew aging infrastructure, keep up with a growing city, and address reliability, safety and customer service requirements. To keep up with the growth in the city, Toronto Hydro continues to invest in the grid in all areas of the city. Toronto Hydro is also working closely with transit agencies to enable electrification of public transit.