

Appendix A:

Water Requirements by Program

LEED

General Certification Criteria

Seven performance categories are addressed with both prerequisites and credits:

- Sustainable Sites
- Water Efficiency
- Energy and Atmosphere
- Materials and Resources
- Indoor Environmental Quality
- Innovation in Design
- Regional Priority

Table A.1. LEED Certification Levels

Level	Points
Certified	40–49 points
Silver	50–59 points
Gold	60–79 points
Platinum	80 points and above

Water-Related Actions

Prerequisite

- **Water-Use Reduction:** Buildings must use 20% less than baseline and have meter installed. WaterSense fixtures are noted in the standard as a way of meeting this prerequisite. Baseline is equivalent to Ontario Building Code (e.g. toilets 6 Lpf) making this requirement equivalent to a WaterSense-rated home.

Water Efficiency Credits—10 possible points

- **Water Efficient Landscaping:** 2–4 points
 - No potable water use for landscaping (e.g. rainwater or xeriscaping), or reduce by 50%
- **Innovative Wastewater Technologies:** 2 points
 - e.g. recycling or treating onsite
- **Indoor Water Use Reduction from baseline:**
 - 20%: mandatory
 - 30%: 2points
 - 35%: 3 points
 - 40%: 4 points

Stormwater Credits—2 possible points

- Stormwater Design: Quantity Control: 1 point
 - Implement stormwater management plan to mitigate the peak discharge rate and quantity (refer to guidelines for specifics). Potential options noted include green roof, pervious pavement, and reuse.
- Stormwater Design: Quality Control: 1 point
 - Minimize pollution of waterways; potential options include rain gardens, vegetated swales, and otherwise promoting infiltration.

Certification Process

Projects must be registered through Canada Green Building Council (CaGBC), satisfy all prerequisites and credits applicable for the desired level of certification, achieve third-party verification (typically a LEED Accredited Professional) that the credit requirements have been met, and submit all documentation including the “LEED Letter Templates” to CaGBC.

Additional Information

LEED Rating System

http://www.cagbc.org/AM/PDF/LEED_Canada_NC_CS_2009_Rating_System-En-Jun2010.pdf

LEED Certification Process

http://www.cagbc.org/AM/PDF/Certification_process_110802.pdf

Guidance for Canadian Projects Using LEED 2009 for Neighbourhood Development

http://www.cagbc.org/AM/PDF/Guidance%20for%20Canadian%20Projects%20using%20LEED%202009%20for%20Neighbourhood%20Development_120422.pdf

BuiltGreen

General Certification Criteria

All certified homes must be EnerGuide rated. There are no mandatory actions, however minimum point thresholds must be met for each point category. Points are awarded in seven categories:

- Envelope and Energy Systems
- Materials and Methods
- Indoor Air Quality
- Ventilation
- Waste Management
- Water Conservation
- Business Practice

Table A.2. Built Green Certification Levels

Level	Points
Bronze Certification	90 points Minimum 25 Points in Envelope & Energy Section of Checklist
Silver Certification	100 points Minimum 30 Points in Envelope & Energy Section of Checklist
Gold Certification	115 points Minimum 35 Points in Envelope & Energy Section of Checklist
Platinum Certification	140 points Minimum 40 Points in Envelope & Energy Section of Checklist

Water-Related Actions

The minimum water efficiency point threshold for each level is 10 points, with a maximum of 61 points available.

Point Allocation

- Install dual-flush or pressure-assisted toilet in one or more bathrooms (3 points for first; 1 point for next)
- Install a 4.8 Lpf toilet in one or more bathrooms (2 points for first; 1 point for next)
- Install manufactured non-electric composting toilet (3 points each, max of 6 points)
- Install hot water recirculation system with all hot water lines insulated (4 points), or point-of-use instant DHW system (1 point each, max. 4)
- Low flow faucets for all kitchens (< 6.8 Lpm) and lavatories (< 5.7 Lpm) (2 points) and for all tubs/showers (1 point)
- Front-loading clothes washer (3 points)
- Water-saving dishwasher (<20L/load) (1 point)
- Install permeable paving materials for all driveways and walkways (3 points)
- Builder supplies a minimum of 8 inches of topsoil or composted yard waste as finish grading throughout site (2 points)
- Provide list of drought-tolerant plants and municipal water usage guide to homeowners (1 point)
- Builder incorporates permeable landscaping which is water efficient or xeriscaped (50% of lawn: 2 points, 100% of lawn: 4 points)
- Install efficient irrigation technology that utilizes automatic soil moisture-based sensor technology at minimum (3 points)
- Builder attaches water barrel with insect screen to downspout. Water barrel should also have a drain spout and overflow spout (1 point).
- Provide a rainwater collection cistern (min 750 L) to offset either indoor (e.g. toilet flushing) or outdoor (e.g. irrigation) domestic water usage. (3 points for above grade; 5 points for below grade)
- Install greywater system collecting waste from sinks, shower, and/or kitchen to capture and treat for use in toilets or irrigation (6 pts); rough-in for future greywater system (3 points)
- Install on-site black water treatment system or engineered wetland for reprocessing local sewage (8 points)

Certification Process

There is no requirement for third-party certification in the BuiltGreen program. Members (builders) complete the checklist and enroll the home through an online database where address information and completed checklists are submitted.

Additional Information

BuiltGreen Program & Guide for Single Family Housing

<http://www.builtgreencanada.ca/uploads/files/BUILT%20GREEN%202012%20Single%20Family%20Checklist%20Guide.pdf>

Living Buildings Challenge

General Certification Criteria

Seven performance areas or “petals”:

- Site
- Water
- Energy
- Health
- Materials
- Equity
- Beauty

There are 20 imperatives or actions, organized into the seven petals. There are four different typologies or scales at which the certification can apply including neighbourhood, building, infrastructure, and renovation. All imperatives (actions) assigned to a given typology are mandatory.

Water-Related Actions

Table A.3: Water Requirements by Typology

Requirements	Typologies			
	Neighbourhood	Building	Landscape and Infrastructure	Renovation
Net Zero Water	✓	✓	✓	✓
Ecological Flow	✓	✓	✓	

Definitions of Water Imperatives

- **Net Zero Water:** 100% of occupants’ water use must come from captured precipitation or closed-loop water systems that account for downstream ecosystem impacts and that are appropriately purified without the use of chemicals.
- **Ecological Flow:** 100% of stormwater and building water discharge must be managed onsite to feed the project’s internal water demands or released onto adjacent sites for management through acceptable natural time-scale surface flow, groundwater recharge, agricultural use, or adjacent building needs.³¹

Certification Process

A project is first registered and then operated for 12 months while compiling documentation and data to verify performance. The certification process is then initiated including submittal of data for auditing, a site visit by the auditor, and finally the International Living Future Institute reviews the auditors final report and issues certification.

Additional Information

Living Building Challenge 2.0

<https://ilbi.org/lbc/LBC%20Documents/LBC2-0.pdf>

Certification Process Diagram

<https://ilbi.org/lbc/certification-process>

Blue Built Home

General Certification Criteria

The home builder must be Tarion-registered and enter into a contract with the City of Guelph. Blue Built Home has only specifications related to water, there are no other sustainability requirements for this certification.

Water-Related Actions

Table A.4. Blue Built Home certification and rebate structure

Bronze	Silver	Gold
<ul style="list-style-type: none">Hot Water Delivery System (\$200)Toilet (\$20/unit)Showerhead (\$10/unit)Kitchen Faucet Aerator (\$10)Bathroom Faucet Aerator (\$10/unit)Washing Machine (\$80)Waterless Floor Drain Trap Device (\$60)	<ul style="list-style-type: none">Bronze Rebates +Greywater Reuse System (\$1,000)	<ul style="list-style-type: none">Bronze Rebates +Rainwater Harvesting System (\$2,000)

Additional Information

Blue Built Home Terms and Conditions

http://guelph.ca/uploads/Blue%20Built%20Home%20Terms%20and%20Conditions_v2.pdf

Certification Process

The home builder enters an agreement with the City of Guelph, identifies the Blue Built Home Water Efficiency Standard (Bronze, Silver, Gold) on the Building Permit Application, and then includes a completed application form for each home constructed at the time of building permit application, and provides any required supporting documentation (e.g. appliance/fixture specifications) for the Water Efficiency Standard being pursued.

WaterSense Home

General Certification Criteria

WaterSense homes have only specifications related to water, there are no other sustainability requirements for this label.

Water-Related Actions

Indoor

WaterSense labelled plumbing fixtures that have been independently certified for efficiency and performance. Required labeled products include:

- toilets;
- bathroom faucets;
- showerheads (pending);
- flushing urinals (if installed);
- an efficient hot water delivery system that stores no more than 0.5 gallons of water between the source of hot water (the water heater or a recirculation loop) and the furthest fixture in the home;
- recirculation systems must be demand initiated (push button or motion sensor activated)
- ENERGY STAR qualified clothes washer and dishwasher (if included);
- a maximum service pressure of 60 psi; and
- no leaks.

Landscape

A WaterSense labelled new home must comply with one of two options when designing the landscape:

- Option 1: Uses the WaterSense Water Budget Tool to design a landscape based on a regionally appropriate amount of water
- Option 2: Limits turfgrass to 40% or less of the landscaped area

If an irrigation system is installed, it must:

- be designed or installed *and* audited by a WaterSense Irrigation Partner;
- use fixed-spray irrigation on turfgrass only and achieve at least a 65% distribution uniformity;
- use drip or micro irrigation on all plants other than turfgrass; and
- include irrigation controllers that meet multiple criteria

Homeowner's Manual

For each home that earns the WaterSense label, the builder must present the homeowner with a manual that details usage and maintenance of the home's indoor and outdoor water-efficient features. At a minimum this should include operations and maintenance manuals for all water-using equipment. If an irrigation system is included, the manual should include:

- a schematic of the irrigation system;
- an itemized list of all components;
- copies of the programmed irrigation schedules with information on reprogramming;
- general information on water-efficient appliances that are not included in the home as built, but could be added at a later date (such as clothes washers or dishwashers).

Certification Process

WaterSense licenses certification providers that oversee third-party inspections and provide quality assurance, as well as issue the WaterSense label for new homes. The certification process is similar to that of ENERGY STAR® qualified homes. “WaterSense certification requires a single inspection that can be done in a one-time visit after the home is completed but before occupancy.”¹

Additional Information

Draft Version 1.1 WaterSense New Home Specification

http://www.epa.gov/watersense/docs/ws_newhomesspecv1.1_draft508.pdf

York’s Sustainable Home Incentive Program (SHIP)

General Certification Criteria

The SHIP program requires specific water-conservation measures including efficient fixtures, a minimum topsoil depth and homeowner education in addition to the LEED Canada for Homes certification.

Water-Related Actions

Table A.5. SHIP Program Criteria for Incentives

Level One: 10% Servicing Allocation Incentive	Level Two: 20% Servicing Allocation Incentive
<ul style="list-style-type: none">• High efficiency (4.8 LPF) single flush toilets installed through out the home• Low flow showerheads, faucets and aerators installed through out the home• Water efficient clothes washers• Water efficient dishwashers• Hot water re-circulating systems• Water efficient whole home furnace humidifiers• Home Owner education• Installation of smart meters• A minimum of 6 inches of topsoil and water-efficient, drought resistant sod throughout the development	<ul style="list-style-type: none">• Level One criteria, plus:• install permeable driveways surfaces (other than sod); and rainwater harvesting and storage systems for indoor and outdoor water use; or• greywater reuse

Certification Process

Prior to acceptance in the program, developers are required to confirm that all homes within the proposed development will be eligible for certification under the LEED® Canada for Homes or equivalent program. Program participants are then required to build a demonstration or model home to ensure program success.

¹ http://www.epa.gov/watersense/new_homes/certification_and_inspection.html

In order to ensure that the anticipated water savings are realized through the Sustainable Home Incentive Program, program participants are required to post of a Letter of Credit in the amount of \$2,500 per home until performance has been demonstrated. Third-party certification in the form of a Post-Development Checklist must be submitted to the Transportation and Community Planning department to have the Letter of Credit released.

Additional Information

Sustainable Home Incentive Program: Implementation Guide

<http://www.york.ca/NR/rdonlyres/yumdfqwwmhiknfrhs6lutjnb3mpxjxtzpio5fdutyngbvp2ztx3l3u3e6k74wvmsxlr5zzm5oggbhfbyrtk3b/Implementation+Report+and+attach+1.pdf>

Toronto Green Standard

General Certification Criteria

Actions are prescribed in five categories:

- Air quality
- Greenhouse gas & energy efficiency
- Water quality, quantity and efficiency
- Ecology
- Solid waste

Tier 1 actions are required; Tier 2 actions are voluntary and elicit a 20% rebate on Development Charges.

Water-Related Actions

Mandatory Requirements for Tier 1	Voluntary Tier 2 (20% rebate on Development Charges)
<ul style="list-style-type: none"> • Follow the Erosion and Sediment Control Guidelines for Urban Construction during construction and demolition activities. • Improve Stormwater retention (see Standard for details) • Manage Stormwater Runoff; remove 80% of total suspended solids load from runoff (see Standard for details) • Use water efficient plant material for at least 50% of landscaped area (including vegetated roofs and walls). • Urban Forest: Encourage Tree Growth; plant at least one tree per lot • Retain and reuse soil onsite 	<ul style="list-style-type: none"> • Stormwater Retention; retain at least the first 5 mm from each rainfall through rainwater reuse, onsite infiltration, and evapotranspiration • Ensure that 75% of water fixtures and appliances installed meet or exceed the following standards: <ul style="list-style-type: none"> ○ toilets less than 6 Lpf or dual-flush toilets; ○ faucets (5.7 LPM); showers (6.6 LPM); ○ dishwashers (ENERGY STAR models only); ○ front-loading washing machines. • Where soft landscaping exists on site, reduce potable water use for irrigation by 50%

Certification Process

The Toronto Green Standard checklist is submitted with development applications along with appropriate plans, drawings, and reports that document the achievement of the TGS performance measures.

Additional Information

Toronto Green Standard

http://www.toronto.ca/planning/environment/pdf/lr_res_tech.pdf