

Blue Built Home Program Terms and Conditions



The City of Guelph is pleased to expand our community's unique Blue Built Home program. Effective May 1, 2018, new and existing single-family homes, and currently existing multi-residential building units, are eligible for Blue Built Home certification. Rebates of up to \$2465 are available for a single-family home and up to \$415 for each multi-residential building unit.

Having a Blue Built Home means long-term financial and water savings to home and building owners, supporting our local community by protecting our resources and environment.

To obtain Blue Built Home certification and/or Blue Built Home rebates, eligible persons must meet all applicable requirements, and must agree to these Terms and Conditions.

Three types of homes may be able to qualify as Blue Built Homes: new single-family homes, retrofitted single-family homes, and retrofitted multi-residential building units.

Participant Eligibility – New Single-family Homes

To be eligible for the certification and associated rebates it is required that:

- The home builder is, on or after January 1, 2018, constructing a new single-family home that is located within the City, will be serviced via the City's municipal water supply, and will be individually metered.
- The home builder agrees to all provisions of these Terms and Conditions and the City's Certification and Rebate Claim form.
- The home builder, when ready to submit the building permit application, also completes and submits a Certification and Rebate Claim form for each home to be constructed.
- The home builder constructs the home to meet the program's certification requirements.
- The home builder provides the home owner's name, address and contact information (e-mail address and/or phone number) as available.
- The home owner submits a Certification and Rebate Claim form within six months after the closing date of the home purchase.
- The home builder makes the home available for inspection through the City's inspection program. The home builder ensures that the plumber employed by the home builder is available for the final plumbing inspection conducted by the City, and, during the inspection, provides the product specification sheets for all fixtures, appliances, or systems to verify their water efficiency.

Participant Eligibility – Retrofitted Single-family Homes

To be eligible for the certification and associated rebates it is required that:

- The home owner resides in a single-family home that is located within the City, is serviced via the City's municipal water supply, and is individually metered.
- The home was constructed prior to January 1, 2018 and was not intentionally constructed to be a Blue Built Home. (A home constructed on or after January 1, 2018 does not qualify as a retrofitted home, but might qualify for Blue Built Home eligibility as a new single-family home.)
- The home owner agrees to all provisions of these Terms and Conditions and the City's Certification and Rebate Claim form.
- The home owner participates in an eMERGE Home Tune-up visit. This visit educates the home owner about water use in the home, how to reduce water use, and what, if anything, the home owner must do to become Blue Built Home certified.
- The home owner updates the home to meet the prescribed water efficiency standards of the Blue Built Home program.
- The home owner submits a Certification and Rebate Claim form.
- The home owner provides receipts, or other proof as required by the City, to demonstrate that the home meets Blue Built Home requirements and eligibility for any associated rebates.
- The home owner makes the home available for inspection by the City at the request of the City.

Participant Eligibility – Retrofitted Multi-residential Building Units

To be eligible for the certification and associated rebates it is required that:

- The superintendent/building owner/manager/condominium board operates a multi-residential building that is located within the City and is serviced via the City's municipal water supply.
- The superintendent/building owner/manager/condominium board agrees to all provisions of these Terms and Conditions and the City's Certification and Rebate Claim form.
- The superintendent/building owner/manager/condominium board of a multi-residential building containing 7 or more units participates in a free, multi-residential water audit of the building provided by the City or a City contractor. This audit provides detailed water demand information and recommendations on how to save money and water by improving the efficiency of the building. The recommendations include details on what updates must be made to have the multi-residential building units Blue Built Home certified.
- The superintendent/building owner/manager/condominium board of a multi-residential building containing fewer than 7 units participates in a site visit by the City or a preferred contractor.
- The superintendent/building owner/manager/condominium board updates the multi-residential building to meet the prescribed water efficiency standards of the Blue Built Home program.
- The superintendent/building owner/manager/condominium board provides receipts to prove the purchase of water efficient products and technologies required to achieve Blue Built Home certification.
- The superintendent/building owner/manager/condominium board makes the multi-residential building and its units available for inspection at the request of the City.

Certification Requirements

For a single-family home or multi-residential building unit to receive the Blue Built Home certification label, a fully-completed Certification and Rebate Claim form must be submitted, the home must meet all applicable criteria, and verification of compliance must be provided.

To obtain Blue Built Home certification, the owner of a single-family home or a multi-residential building unit must complete at least one of the following three types of improvements:

Improvement Type A: Install a grey water reuse system.

Improvement Type B: Install a rainwater harvesting system.

Improvement Type C: Complete a minimum of three qualifying water saving options. At least two options must come from the "Primary Water Saving Options" category.

Blue Built Home certification requirements are summarized in Table 1 (Certification Requirements and Rebates) below and outlined in greater detail in Appendix A (Detailed Certification Requirements). Not all types of improvements, options, fixtures or appliances may be suitable for all homes. The program is designed with flexibility in mind to accommodate a diversity of properties and the preferences of their owners. For example, building efficient plumbing systems may not be feasible in retrofitted single-family homes, and Blue Built Home Healthy Landscape Visits may not apply to multi-residential building units at this time.

The Blue Built Home program is performance-based and requires the use of fixtures that meet specific water use and performance standards. For some fixtures, this means using specifically labelled products (e.g. WaterSense[®], ENERGY STAR[®]). Where performance-based standards are specified, the builder or owner may, unless otherwise required, use any appropriate design or product that meets applicable codes and standards in order to meet the City's requirements (e.g. waterless floor drain trap).

Verification of compliance with the program's water efficiency standards might involve a building inspection by City staff, an eMERGE Home Tune-up, a multi-residential water audit, and/or submission of receipts or product specification sheets. The verification that an Applicant will be required to provide will depend on the type of residential building to be certified, and the associated participation eligibility process. Blue Built Home is a pass/fail program in which criteria must be met for the home to pass assessment and receive the label and any associated rebates.

Once compliance with the Blue Built Home program has been verified, the City will grant certification to the home.

Rebate Requirements

The Blue Built Home rebates are shown in Table 1 (Certification Requirements and Rebates) below.

A rebate will only be issued upon the processing of a submitted, fully completed, Blue Built Home Certification and Rebate Claim form, and after any required verifications have been conducted.

Rebates will only be provided for fixtures or appliances for which rebates are available and for which proof of purchase has been provided. Rebates will also only be provided for fixtures or appliances that have been purchased no more than one year prior to the associated Blue Built Home Certification and Rebate Claim form submission. The owner of a newly constructed Blue Built Home must submit the Certification and Rebate Claim form within six months after the date of closing the owner's purchase of the home.

The verification that an Applicant will be required to provide will depend on the type of residential building to be certified and the associated participant eligibility process. Types of verification may include building inspection by the City, eMERGE Home Tune-up, multi-residential water audit, and/or submission of receipts or product specification sheets. The City reserves the right, in its sole and absolute discretion, to request any form of verification that it determines to be required.

Once the Blue Built Home Certification and Rebate Claim form and supporting documentation have been reviewed and approved by the City, approved rebates will be applied. Rebates may be provided by means of a cheque or by direct application to an active water account, depending on the type of applicant and at the discretion of the City. Typically, a single-family home owner would have a rebate applied directly to the home owner's water account. For a multi-residential building unit, a cheque would typically be issued and mailed to the Applicant (superintendent/building owner/manager/condominium board).

Once a rebate has been provided through the Blue Built Home program, the Applicant is prohibited from applying for any other City rebates that apply for that same technology. The Applicant cannot receive two rebates for one fixture or appliance.

Rebates will be provided only so long as budgeted funding is available to the City. Applications will be processed on a first-come, first-served basis. The City reserves the right, in its sole discretion, to alter or cancel this program at any time.

Table 1 Certification Requirements and Rebates

Improvement types	Certification requirements	Rebates (each)
Type A	Install a Greywater Reuse System*	\$1,000
Type B	Install a Rainwater Harvesting System*	\$2,000
Type C	Complete a minimum of three qualifying water saving options. (At least two options must come from the "Primary Water Saving Options" category.)	
	Primary Water Saving Options:	
	WaterSense® Toilets (all) (≤ 4.0 litres)	\$50
	ENERGY STAR® clothes washing machine (≤19 litres per person per day**)	\$50
	ENERGY STAR® dish washer	NA
	Efficient hot water distribution system (Install an on-demand hot water recirculation system and/or reduce the amount of water stored between the hot water source and the furthest fixture.)	\$100 for an on-demand recirculation system
	WaterSense® Showerheads (all) (≤ 6.6 litres per minute)	\$10
	Secondary Water Saving Options:	
	WaterSense® Bathroom faucets (all) (≤ 5.7 litres per minute)	NA
	Bathroom faucet aerators (all) (≤ 5.7 litres per minute)	NA
	Permanent Sub-meter	\$125
	Removable Sub-meter	\$100
	Waterless Floor Drain Trap Primer	\$20
	Healthy Landscapes Visit for Blue Built Home	NA
	Other water saving product or technology as approved by the City	As approved by the City

* If both systems are installed in a home, only the Rainwater Harvesting System rebate will apply.

**Calculated based on average household occupancy of 3.0 persons.

Subsequent Monitoring and Evaluation

After granting Blue Built Home certification to a home and/or granting rebates to an owner or builder, the City or its agents may access utility billing account information for the purpose of monitoring water consumption. In addition, home builders or home owners may be required to install additional water meter infrastructure in select single-family homes or multi-residential buildings for purposes of ongoing measurement of home water use on a home by home basis. This infrastructure may be removed only with the City's approval.

The City reserves the right to conduct site visits at any time to verify that the water saving fixtures or appliances claimed on a Certification and Rebate Claim form have actually been installed at the home for which the Blue Built Home status was applied.

Brand Compliance Guidelines

Use of the Blue Built Home Logo must be in accordance with the Blue Built Home Brand Compliance Guidelines (Appendix B). Misuse or misrepresentation of the Blue Built Home brand will not be tolerated.

Agreement

In consideration of The Corporation of the City of Guelph (the "City") receiving and considering an application for certification and/or any rebate under the Blue Built Home program, the person submitting the application (the "Applicant") acknowledges and agrees:

- That the City is not responsible for the selection of home water fixtures, appliances, plumbing components or auxiliary water systems, or for the selection of vendors or installers to sell or install them.
- Any possible deficiencies or failures of water fixtures, appliances, plumbing components and auxiliary water systems are the responsibility of the single-family or multi-residential home owner or builder and not the City.
- That the City does not guarantee or warrant home water fixtures, appliances, plumbing components or auxiliary water systems or their installation, performance, freedom from defects, quality of workmanship or suitability for any purpose, or the suitability of the premises for installation.
- That any rebate, if paid, will be paid to the Applicant via the Applicant's water bill or by cheque at the discretion of the City after the submission of necessary program documentation and after satisfactory verification has been performed by the City.
- To assume any and all costs of the installation, maintenance, and any alterations necessary for the proper operation of home water fixtures, appliances, plumbing components and auxiliary water systems.
- To provide the City or its agent with reasonable access to the building where the Applicant proposes to install the home water fixtures, appliances, plumbing components and/or auxiliary water systems, to inspect any residence approved for participation in this program in order to verify the appropriate installation of the water fixtures, appliances, plumbing components and/or auxiliary water systems and eligibility of them, if the City so requests.
- To indemnify, save and hold harmless the City, and its agents, officials, officers, councillors, staff and employees (collectively, the agents) against all liability, loss, costs, damages, and expenses, causes of action, actions, claims, demands, lawsuits and other

proceedings, by whomever made, sustained, brought or prosecuted, including by third parties, involving bodily injury, death, personal injury, and property damage, in any way based upon, occasioned by or attributable to the Applicant's participation in this program.

- To use the Blue Built Home Logos only in accordance with the Blue Built Home Brand Guidelines.
- Not to make any false representations of a single-family home's or multi-residential building's Blue Built Home status.
- To refund the rebate to the City, on request, if the application contains any material misstatement or misrepresentation on the Applicant's behalf, or if the Applicant breaches any of these Terms and Conditions.

APPENDIX A – DETAILED CERTIFICATION REQUIREMENTS

Any person aspiring to achieve Blue Built Home certification for a new or existing single-family home or existing multi-residential building unit must complete at least one of the following three types of improvements and the applicable associated criteria.

Improvement Type A – Install a greywater reuse system

Installing a greywater reuse system that is used to flush all toilets or urinals will qualify a residential building for Blue Built Home certification. To be eligible for the Blue Built Home certification and the associated rebate the residential greywater reuse system must include the following:

- Greywater storage capacity volume of 150 litres or more.
- Removal of particulate matter and debris from the source of greywater collection in accordance with the Ontario Building Code.
- Disinfection of all greywater collected within the home (through Chlorination, Ultra Violet Light, or other standard means) in accordance with the treatment guidelines of the draft water quality standards of Health Canada’s Canadian Guidelines for Domestic Reclaimed Water for Use in Toilet or Urinal Flushing.
- As a minimum, use of the purified greywater inside the home for toilet/urinal flushing.

Note: Individually engineered residential greywater reuse systems are not eligible for rebate unless approved by an engineer and the City.

System Installation Requirements:

- Installation must be completed in accordance with applicable law including specifications of the Ontario Building Code, and CSA Standard B.128.1-06 with system approval subject to premise inspection and final plumbing approval by the City.
- As part of installation, all greywater reuse service lines must be clearly marked with appropriate labelling, in both English and French, indicating that the water service lines contain non-potable water.
- Installation must be completed by a qualified plumber.

Premise Isolation Requirements:

- Installation must include an appropriate premise isolation device in accordance with specifications of the Ontario Building Code and the City’s Backflow Prevention By-law.

Improvement Type B – Install a rainwater harvesting system

Installing a rainwater harvesting system that is used, as a minimum, to flush all toilets or urinals will qualify a residential building for Blue Built Home certification. The rainwater harvesting system may also be used for laundry and outdoor water uses. To be eligible for the rebate, the residential rainwater harvesting system must include the following:

- Rainwater storage capacity volume of 2,500 litres or more.
- Collection of rainwater from no less than 50% of the available household roof area.
- Removal of rough debris from source rainwater as well as particulate filtration removal from purified rainwater in accordance with the Ontario Building Code.
- Disinfection of all rainwater collected (through Chlorination, Ultra Violet Light, or other standard means) in accordance with the treatment guidelines of the draft water quality standards of Health Canada's Canadian Guidelines for Domestic Reclaimed Water for Use in Toilet or Urinal Flushing.
- Provision for the use of a municipal water top-up system in the event of insufficient rainfall collection.
- Provision for management of excess rainfall discharge in accordance with site stormwater management requirements and subject to final approval of the City.
- As a minimum, use of the purified rainwater inside the home for toilet/urinal flushing. In addition, it may be used in the washing machine, as well as outside the home if desired.
- Secondary hot water tank or dual check valve on hot water supply to hold rainwater if hot water is used in the washing machine.

System Installation Requirements:

- Installation must be completed in accordance with applicable law including specifications of the Ontario Building Code, and CSA Standard B.128.1-06 with system approval subject to premise inspection and final plumbing approval by the City.
- As part of installation, all rainwater service lines must be clearly marked with appropriate labelling, in both English and French, indicating that the water service lines contain non-potable water.
- Installation must be completed by a qualified professional rainwater harvesting contractor and/or plumber.

Premise Isolation Requirements:

- Installation must include at least one appropriate premise isolation device in accordance with specifications of the Ontario Building Code and the City's Backflow Prevention By-law.

Improvement Type C – Complete a minimum of three qualifying water saving options

Complete a minimum of three water saving options from the list provided. At least two options must come from the “Primary Water Saving Options” category.

Primary Water Saving Options:

WaterSense® Toilet (Effective flush volume of ≤4 litres or 1.1 US Gallons)

- Fit the home with only WaterSense® labelled tank-type toilets.
- Toilet capacity must be no larger than 4.0 litres, or 1.1 US Gallons, High Efficiency Toilet (HET).
- All toilets in the home must comply.
- Toilet must be marked with its water consumption as required by the ASME/CSA performance standards.
- Make, model number, and proof of purchase must be provided at the time of Certification and Rebate Claim form submission for existing homes and multi-residential building units.
- Product packaging and/or documentation (which will likely bear the WaterSense® label) must be provided at time of final plumbing inspection for new single-family homes.

Listing of qualifying toilets can be found at www.epa.gov/watersense/product_search.html. In addition, qualifying toilets include, but are not limited to, the MaP Premium toilets, at www.map-testing.com.

High Efficiency Clothes Washing Machine

- Install a high efficiency ENERGY STAR® qualified clothes washing machine that uses no more than 19 litres per person per day. This quantity is determined by converting WaterSense®’s annual water use in gallons for each model to litres used per day. This value is then divided by three, the average household occupancy rate.
- Washing machine model number and proof of purchase must be provided at the time of Certification and Rebate Claim form submission for existing homes and multi-residential building units.
- If purchased and installed by the builder, product packaging and/or documentation (which will likely bear the ENERGY STAR® label) must be provided at time of final plumbing inspection for new single-family homes. If the home owner purchased and installed the clothes washer, the make, model and proof of purchase must be provided at the time of Certification and Rebate Claim form submission.

Listing of qualifying ENERGY STAR® approved high efficiency washing machines can be found within the Resources Section at bluebuilthome.ca.

High Efficiency Dish Washer

- Install a high efficiency ENERGY STAR® qualified dish washer.
- Dish washer must have been manufactured on or after January 1, 2011.

- Make, model number, and proof of purchase must be provided at the time of Certification and Rebate Claim form submission for existing multi-residential building units.
- If purchased and installed by the builder, product packaging and/or documentation (which will likely bear the ENERGY STAR® label) must be provided at time of final plumbing inspection for new single-family homes. If the home owner purchased and installed the dish washer, the make, model and proof of purchase must be provided at the time of Certification and Rebate Claim form submission.

Listing of qualifying ENERGY STAR® approved high efficiency dish washers can be found within the Resources Section at bluebuilthome.ca.

Listing of qualifying hot water delivery systems can be found within the Resources Section at bluebuilthome.ca. Other systems may be considered on a case-by-case basis.

Efficient Hot Water Delivery System

- Install a demand-initiated hot water recirculation system and/or design the plumbing system to reduce the amount of water stored between the hot water source and furthest fixture (e.g. core systems and whole house manifold systems). Timer and temperature based recirculation systems will not be considered.
- Plumbing system must be built so that the length of pipe between the hot water source and hot water fixture allow no more than 1.9 litres (0.5 US gallons), to be stored in any piping or manifold.
- Hot water source may be a water heater or an on-demand hot water recirculation loop.
- To account for the additional water that must be removed from the system before hot water can be delivered, not more than 2.3 litres (0.6 gallons) can be collected from the hot water fixture before hot water is delivered.
- Home must be fitted with a hot water recirculation pump if the demand-initiated hot water recirculation system is installed.
- Home must be fitted with appropriate plumbing circuits, mixing valve, check valve, expansion tank (2 to 4 gallon), connection lines and control mechanisms for each full bathroom.
- Piping must be properly insulated.

In existing homes, this requirement will be verified by inspecting the on-demand hot water recirculation system or measuring the temperature rise in water flowing from the furthest fixture from the hot water heater. The temperature must rise by 10°F within the collection of 2.3 litres of water from the hot water fixture, with the hot water completely turned on.

In new build homes, this requirement will be verified by inspecting the on-demand hot water recirculation system or measuring the pipe length during the plumbing inspections conducted by City plumbing inspectors.

See Appendix C (Pipe Length Volume Coefficients) for pipe length volume coefficients and an example of how to determine the maximum length of piping to qualify for this option. Maximum allowable lengths for ½ and ¾ inch Copper M and PEX CTS SDR 9 are provided.

WaterSense® Showerheads (≤ 6.6 litre or 1.75 US Gallon per minute)

- Install WaterSense® labeled showerheads with a maximum flow rate of 6.6 Litres per minute or 1.75 US gallons per minute.
- All showerheads in the home must comply.
- Make, model number, and proof of purchase must be provided at the time of Certification and Rebate Claim form submission for existing homes.
- Product packaging and/or documentation (which will likely bear the WaterSense® label) must be provided at time of final plumbing inspection for new single-family homes.

Secondary Water Saving Options:

WaterSense® Bathroom Faucets

- Install WaterSense® labelled bathroom faucets with a maximum flow rate of 5.7 litres per minute or 1.5 US gallons per minute.
- All bathroom faucets in the home must comply.
- Make, model number, and proof of purchase must be provided at the time of Certification and Rebate Claim form submission for existing homes.
- Product packaging and/or documentation (which will likely bear the WaterSense® label) must be provided at time of final plumbing inspection for new single-family homes.

Bathroom Faucet Aerators

- Install bathroom faucet aerators with a maximum flow rate of 5.7 litres per minute or 1.5 US gallons per minute.
- All bathroom faucets in the home must comply.
- Make, model number, and proof of purchase must be provided for existing homes at the time of Certification and Rebate Claim form submission for existing homes and multi-residential building units.
- Product packaging and/or documentation (which will likely bear the WaterSense® label) must be provided at time of final plumbing inspection for new single-family homes.

Permanent Sub-meter

- Install a permanent sub-meter.
- Sub-meter must be installed by a licensed plumber.
- Sub-meters must meet or exceed American Water Works Association and NSF International standards (NSF/ANSI 61).
- Permanent sub-meters can be installed in a single-family home or each unit of a multi-residential building.
- Make, model number, and proof of purchase must be provided for existing homes at the time of Certification and Rebate Claim form submission for existing homes and multi-residential building units.

- Product packaging and/or documentation must be provided at time of final plumbing inspection for new single-family homes.

Removable Sub-meter

- Install an add-on sub-meter with smart technology.
- Sub-meter must meet or exceed American Water Works Association and NSF International standards (NSF/ANSI 61).
- Removable sub-meter can be installed in a home or residential unit, such as a basement apartment.
- Only one rebate is available per municipal meter per building.
- Make, model number, and proof of purchase must be provided at the time of Certification and Rebate Claim form submission for existing homes and multi-residential building units.
- Product packaging and/or documentation must be provided at time of final plumbing inspection for new single-family homes.

Waterless Floor Drain Trap Primer

If laundry facilities are located on the main, second or third floor of a home, a waterless floor drain must be installed. If laundry facilities are located in the basement, the floor drain must be primed using condensate from the heating, ventilating and air conditioning system and not from a potable water source. A basement floor drain primed using a potable water source does not qualify under these standards and is not eligible for rebate.

- Waterless floor drain trap device must be approved by the Ontario Building Materials Evaluation Commission.
- Make, model number, and proof of purchase must be provided at the time of Certification and Rebate Claim form submission for existing homes and multi-residential building units.
- Product packaging and/or documentation must be provided at time of final plumbing inspection for new single-family homes.

A list of qualifying waterless floor drain trap devices can be found in Appendix D (Approved Waterless Floor Drain Trap Devices).

Healthy Landscapes Visit for Blue Built Home

The City's free Healthy Landscapes Visit program was designed to help Guelph residents find ways to reduce the demands of landscaping – saving time, water and money, without sacrificing beauty.

A Healthy Landscapes Visit specifically aimed at reducing water use outside will count towards Blue Built Home certification. This program has (or will be) specifically designed for homes applying for Blue Built Home status. This means, if a home owner has already had a Healthy Landscapes visit, it will not count towards Blue Built Home certification.

An Applicant must note on the Certification and Rebate Claim form that the owner has participated in a Blue Built Home Healthy Landscapes Visit.

Other water saving product or technology as approved by the City

The installation of innovative water efficient technologies is important to move the industry towards greater water efficiencies and support our efforts to be a water conscious community ("A City that makes a difference.") The City encourages the use of innovative water efficient technologies to conserve water.

If there is a new or unique water efficient product or technology an Applicant would like to install, it might be counted towards Blue Built Home certification. The Applicant should contact the Blue Built Home program to discuss eligibility and possible rebates.

The City reserves the right, in its sole and absolute discretion, to approve or deny any proposed technology or fixture for this option. The City may request information about the product including, but not limited to, specification sheets and subsequent sub-metering water demand analysis.

APPENDIX B -- BLUE BUILT HOME BRAND COMPLIANCE GUIDELINES

- No one may use any Blue Built Home Logo (the “Logo”) except with the prior written permission of the City, and in accordance with such prior written permission.
- The Logos may be used only in circumstances consistent with the Blue Built Home program and its goals and objectives, and where use of the Logos would not be misleading to consumers.
- A City representative must review any marketing material that uses the Logo prior to publication in print or online.
- Anyone who uses the Logo in print or online must immediately afterwards provide the City with a copy of the print material or screen shot of how the Logo was used.
- The City intends to protect the integrity of the Blue Built Home program and it’s Logos by any means available in law.

The complete Blue Built Home Logo use guidelines can be found at bluebuilthome.ca.

APPENDIX C – PIPE LENGTH VOLUME COEFFICIENTS

To determine the maximum length of piping, please consider the tables below which outline the litres of water contained per metre of hot water tubing and provide an example of calculating the allowable length of piping.

Pipe Length-Volume Coefficients¹

Litres of Water Per Metre of Hot Water Tubing								
Nominal Diameter, inches	Copper M	Copper L	Copper K	CPVC CTS SDR 11	CPVC SCH 40	PEX-AI-PEX ASTM F 1281	PE-AL-PE	PEX CTS SDR 9
3/8	0.103	0.094	0.082	N/A	0.114	0.061	0.061	0.062
1/2	0.164	0.151	0.141	0.121	0.184	0.127	0.127	0.115
3/4	0.333	0.313	0.282	0.259	0.328	0.329	0.329	0.228
1	0.564	0.533	0.502	0.430	0.537	0.540	0.540	0.380
1-1/4	0.845	0.812	0.786	0.642	0.938	0.824	0.824	0.564
1-1/2	1.183	1.149	1.112	0.895	1.282	1.348	1.348	0.786
2	2.047	1.999	1.946	1.533	2.125	2.086	2.086	1.346

Example calculations using Copper M piping

Pipe Size, inches	Length, m	Coefficient, L/m	Length x Coefficient, L
3/4	4.5	0.333	1.5
1/2	1.75	0.164	0.29
3/8	0.5	0.103	0.05
Total Volume			1.84

* Maximum allowable volume to qualify for Blue Built Home = 1.89 L, so the above example qualifies.

Based on this data, the maximum length of piping for consistent use of ½ inch and ¾ Copper M or PEX CTS SDR 9 piping is provided below.

Copper M piping

For ¾ inch – maximum length is 5.6 meters, or 18.37 feet (Total volume is 1.86 litres).
 For ½ inch – maximum length is 11.52 meters, or 37.8 feet (Total volume is 1.89 litres).

For PEX CTS SDR 9

For ¾ inch – maximum length is 8.29 meters, or 27.2 feet (Total volume is 1.89 litres).
 For ½ inch – maximum length is 16.43 meters, or 53.9 feet (Total volume is 1.89 litres).

¹ Converted from Table 1: Internal Volume of Various Water Distribution Piping, US EPA WaterSense New Home Specification Guide for Efficient Hot Water Delivery.

APPENDIX D – APPROVED WATERLESS FLOOR DRAIN TRAP DEVICES

Make	Model Name	Model No.	Technology
SureSeal	Inline 2"	SS2009	Inline Floor Drain Trap Sealer – Waterless Floor Drain
SureSeal	Inline 3"	SS3000	Inline Floor Drain Trap Sealer – Waterless Floor Drain
SureSeal	Inline 3-5"	SS3509	Inline Floor Drain Trap Sealer – Waterless Floor Drain
SureSeal	Inline 4"	SS4009	Inline Floor Drain Trap Sealer – Waterless Floor Drain
Pro Set Systems	Trap Guard	--	Waterless Floor Drain

Please note:

- Waterless Floor Drain Trap Devices must receive the authorization of the Ontario Building Materials Evaluation Commission to be eligible for Blue Built Home certification and Blue Built Home rebate.
- This list of approved floor drain models is subject to change.
- The City does not endorse specific brands, products, or dealers; nor does it guarantee materials, workmanship, performance, or durability of qualifying items.