Greywater Reuse System Buyers Guide

All municipal water supplied to Guelph homes is of potable (drinking) water quality. With standard plumbing, the water used to flush toilets is the same quality as the water we drink. Potable water is not required for this function, and can therefore be considered wasted or inefficiently used. Residential greywater reuse systems collect bathing water (showers and baths), treat (filter and disinfect) this "greywater", and resupply it for toilet flushing. Greywater amounts produced from showers and bathing should provide enough water to flush all the toilets in a home. Greywater systems conserve potable water and lower utility bills.

Guelph's Greywater Rebate Program offers residential home owners $1000 if they install and use an approved greywater system. The following Terms of Reference outline specific requirements of any greywater system installed in the City of Guelph to support a well-functioning system and ensure rebate eligibility.

1.0 General Conditions

1. Reclaimed bathing water can only be used for toilet and urinal flushing.
2. All greywater systems must meet the requirements of the most recent versions of applicable codes, regulations, by-laws, etc. including, but not limited to:
    a. Ontario's Building Code,
    b. Ontario Electrical Safety Code,
    c. City of Guelph Backflow Prevention Bylaw, and
    d. CSA Standard B.128.1-06 Design and installation of non-potable water systems/Maintenance and field testing of non-potable water systems.
3. Necessary building permit(s) must be received for the work to be performed.
4. Installation of greywater reuse systems are subject to approval of the City of Guelph Building Services Department.
5. Installation of approved greywater reuse system technologies must be completed by a qualified plumber.
6. Contractors must provide an operation manual and train homeowners on the operation of the system and required maintenance procedures.

2.0 Greywater Storage Requirements

1. Greywater storage must be large enough to provide adequate capacity to capture and store bathing water necessary for daily toilet use (sized to allow daily consumption (flushing volume) of the greywater).

2. A shut-off valve must be installed so that wastewater can bypass the greywater recycling system in case the system malfunctions or requires maintenance.
3. The tank must be fitted with safety devices or locked lids to prevent unauthorized people, including children, from accessing the storage reservoir as a safety precaution.

3.0 Greywater Treatment Guidelines

1. Greywater must be treated so that it meets or exceeds Health Canada's *Canadian Guidelines for Domestic Reclaimed Water for Use in Toilet and Urinal Flushing.*
2. Greywater systems must have a filtration system capable of filtering any solids from the bathing (inlet) stream.
3. Stored greywater must be chlorinated, and there must be a means to re-chlorinate the water if it is stored for any length of time. Greywater will become stagnant if not utilized over a prolonged period of time. This can lead to accelerated bacteria growth, water discolouration and potential odours.

4.0 Greywater Distribution

1. All pipes carrying greywater must be purple (the adopted standard to indicate reclaimed water) and/or labelled: "WARNING: NON-POTABLE WATER – DO NOT DRINK". This message must be repeated at intervals not more than 1.5m[12].

5.0 Backflow Prevention

Backflow prevention devices must be installed in accordance with the current edition of Ontario's Building Code and the City of Guelph's Backflow Prevention Bylaw. Backflow prevention devices stop water or other liquids from flowing in the opposite direction from their normal travel route. This ensures water or liquids unsuitable for drinking travel to wastewater and do not flow into municipal drinking water lines and contaminate the City's drinking water.

1. The following three backflow prevention measures must be taken:
    i. An appropriate backflow prevention device must be installed at a water connection where a potential cross-connection exists.
    ii. A Dual Check Valve must be installed on the main water supply pipe at (or near) the water meter to isolate the premises from the City's potable water supply.
    iii. Pipes distributing greywater must be labelled to ensure that future plumbing work within a household does not accidentally create a cross-connection.
2. An air gap is required for "top up" systems (See section 6.0) and must be installed in accordance with the current edition of Ontario's Building Code.
3. Backflow preventers directly connected to the potable water system for the purpose of "top up" water must be tested annually to ensure proper functioning. These tests must

be performed by a qualified plumber who will submit the results to the City of Guelph, as per the City's Backflow Prevention Bylaw.

6.0 Greywater Provisions

Greywater systems must be designed to account for instances when there is insufficient water in the storage tank to provide water to household toilets for flushing. They must also have the capacity to handle overflow, which occurs when the water collected from bathing and showering (the inlet water) is greater than available storage.

1. Direct connections can be made between the potable water pipe to the pipe servicing toilets to provide an alternative water source if the greywater tank runs dry. These connections require additional backflow prevention checks than a top-up system (see section 5.0 Backflow Prevention).
2. Top-up systems automatically fill or top-up the storage tank when water levels are too low. They may be installed instead of a direct connection. They must be configured to prevent the tank from running on empty, but only fill the storage tank to a level so that significant room remains to capture and store greywater from in the home.
3. Greywater systems must be designed to discharge excess collection water into the sanitary line.

References

City of Guelph (2018). Greywater Reuse System. https://guelph.ca/living/environment/water/water-conservation/greywater-reuse-system/

City of Guelph (2018). Planning and Development. https://guelph.ca/city-hall/planning-and-development/

City of Guelph (2017). Backflow Prevention. https://guelph.ca/living/environment/water/drinking-water/backflow-prevention/