

OOWA'S Guidance Document Series: **Greywater Systems**

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1.0 Background

Greywater is defined by the Ontario Building Code (OBC) as sanitary sewage of domestic origin that is derived from fixtures other than sanitary units. Common household fixtures that discharge greywater include sinks, showers, tubs, washing machines and dishwashers, and would not include sanitary fixtures such as a water closet (toilet), urinal, bidet, etc. A Class 2 Sewage System, or greywater system provides a method of managing this component of the sewage from a dwelling through separation of wastewater streams, isolating greywater from human body waste. In a typical plumbed household, greywater can account for up to 65% of the total wastewater produced; therefore, separating the waste streams can provide opportunities for varying treatment, discharge and potentially re-use.

Greywater systems are especially beneficial when servicing remote locations such as cottages, hunting camps, and workshops. In these scenarios, human waste is commonly collected and treated using a Class 1 sewage system (outhouse, composting toilet, incinerating toilet, etc.) and a Class 2 is commonly the simplest and most cost-effective solution for the greywater produced. Greywater systems provide a smaller footprint than conventional on-site systems (septic tank and leaching beds) and do not incorporate large quantities of aggregates, allowing them to be constructed for hard to access occupancies.

Greywater, when separated from blackwater (human waste), is expected to contain much lower levels of illness causing bacteria, pathogens, and viruses as compared to domestic wastewater. Greywater is generally comprised of soaps, Fats, Oils, Greases (FOG), and debris (hair, lint, food particles, etc.).

Table 1 below presents typical characteristics of greywater compared to typical domestic wastewater.

TABLE 1: Typical Greywater and Domestic Wastewater Characteristics

Parameter	Greywater	Domestic Wastewater
TSS	50 to 160 mg/L	100 to 400 mg/L
CBOD ₅		100 to 350 mg/L
BOD ₅	130 to 210 mg/L	
pH	6.0 to 8.5	6.5 to 9.0
Turbidity	30 to 100 NTU	
P tot	1.0 to 3.0 mg/L	4 to 15 mg/L
TKN	3.0 to 5.0 mg/L	35 to 70 mg/L
COD	230 to 420 mg/L	
Total coliforms*	10 ³ to 10 ⁶⁷ CFU/100 mL	
Fecal coliforms*		10 ⁶ to 10 ⁸ CFU/100 mL
E.Coli*	10 ² to 10 ⁶ CFU/100 mL	

* 30-day geomean

Note: Greywater characteristics from ANSI/NSF standard 350 and Domestic wastewater characteristics from NSF standard 40

Except for the pathogen content, the main differentiator between these two types of wastewater is the nutrient content essential to the efficiency of a biological treatment process.

While greywater may contain traces of feces or pathogens via effluent from the shower, sink, or washing machine, these concentrations are very low and do not typically pose a significant risk under normal conditions where the greywater is sufficiently treated (for example, a Class 2 system or used correctly in subsurface irrigation).

2.0 Regulatory Framework

In 1982, The Ministry of the Environment (MOE) provided the “Manual of Policy, Procedures and Guidelines for Onsite Sewage Systems”. The Manual provided regulator information for the construction of onsite sewage systems, including greywater systems. In 1997, regulator jurisdiction for onsite sewage systems less than 10,000 L per day was moved to the Ministry of Municipal Affairs and Housing and adopted into the Ontario Building Code (OBC). Greywater construction requirements remained largely the same from 1982 to 1997 with one major difference: the calculation of greywater design flow.

The MOE manual set the standard to which OBC greywater systems are designed. The OBC has four articles, and an Appendix reference included in the 2024 OBC, that outline the design and construction of greywater pits:

- *8.4.1.2 Application (Design Flow)*
- *8.4.2.1. Construction Requirements*
- *8.4.2.2. Maximum Sewage Flow*
- *8.4.2.3. Sizing*
- *2024 OBC – A.8.4.1.2. Horizontal Greywater Systems*

8.4.1.2. Application (Design Flow)

- (1) A Class 2 sewage system shall be designed only for the treatment and disposal of greywater.
- (2) The total daily design flow for a Class 2 sewage system shall be calculated based on the fixtures discharging to the system as follows:
 - (a) 200 L per fixture unit where there is a supply of pressurized water, and
 - (b) 125 L per fixture unit where there is no supply of pressurized water.

This article outlines the design flow calculation for greywater systems. The design flow is based on the total number of pressurized or non-pressurized fixture units and multiplied by the associated volume. A fixture unit defined by the OBC in Division A 1.4.1.2 “means, when applied to a drainage system, the unit of measure based on the rate of discharge, time of operation and frequency of use of a fixture that expresses the hydraulic load that is imposed by that fixture on the drainage system.”

Fixture units are found in Part 7 of the OBC in Table 7.4.9.3 (common fixtures) and 7.4.10.2 (fixture units based on trap size – unlisted fixtures):

Table 7.4.9.3.⁽¹⁾
Minimum Permitted Size of Fixture Outlet Pipe and Hydraulic Loads for Fixtures
 Forming Part of Sentences 7.4.9.3.(1) and 7.4.10.2.(1)

<i>Fixture</i>	<i>Minimum Size of Fixture Outlet Pipe, in.</i>	<i>Hydraulic Load, fixture units</i>
Autopsy table	1½	2
Bathroom group		
(a) with flush tank		6
(b) with direct flush valve		8
Bathtub (with or without shower)	1½	1½
Bath: foot, sitz or slab	1½	1½
Bed pan washer	3	6
Beer cabinet	1½	1½
Bidet	1¼	1
Chinese range	1½	3
Clothes washer		
(a) domestic	N/A	1½ with 2 in. trap
(b) commercial	N/A	2 with 2 in. trap
Cup Sinks	1¼	½
Dental unit or cuspidor	1¼	1
Dishwasher		
(a) domestic	1½	1 (no load if connected to garbage grinder or domestic sink)
(b) commercial type	2	3
Drinking fountain	1¼	½
Fish tank or tray	1½	1½

Table 7.4.9.3.⁽¹⁾ (Cont'd)
Minimum Permitted Size of Fixture Outlet Pipe and Hydraulic Loads for Fixtures
 Forming Part of Sentences 7.4.9.3.(1) and 7.4.10.2.(1)

<i>Fixture</i>	<i>Minimum Size of Fixture Outlet Pipe, in.</i>	<i>Hydraulic Load, fixture units</i>
Shower drain		
(a) from 1 head	1½	1½
(b) from 2 or 3 heads	2	3
(c) from 4 to 6 heads	3	6
Sink		
(a) domestic and other small type with or without garbage grinders, single, double or 2 single with a common trap	1½	1½
(b) other sinks	1½	1½ with 1½ in. trap 2 with 2 in. trap 3 with 3 in. trap
Urinal		
(a) pedestal, siphon jet or blowout type	2	4
(b) stall, washout type	2	2
(c) wall		
(i) washout type	1½	1½
(ii) other types	2	3
Water closet		
(a) with flush tank	3	4
(b) with direct flush	3	6
Column 1	2	3

Table 7.4.10.2.
Permitted Hydraulic Load from a Fixture Based on Size of Trap
 Forming Part of Sentence 7.4.10.2.(2)

Size of Trap, in.	Hydraulic Load, fixture units
1¼	1
1½	2
2	3
2½	4
3	5
4	6
Column 1	2

Once the total number of fixture units are calculated based on the tables, the design flow is determined by multiplying the number of fixture units by the volume for pressurized water supply (200 L) or non-pressurized water supply (125 L). This calculation differs greatly from the MOE regulation, which was based on a flow ranging from 20 L/d to 140 L/d, per person.

8.4.2.1. Construction Requirements

- (1) The bottom of the pit shall be at least 900 mm above the high ground water table.*
- (2) The pit shall be constructed in such a manner as to prevent the collapse of its sidewalls.*
- (3) Any material used to support or form the sidewalls of the pit shall be an open jointed material of a type that will permit leaching from the pit.*
- (4) The pit shall be provided with a tight, strong cover that shall remain over the pit except when it is necessary to remove it for purposes of adding greywater to or removing greywater from the pit or for purposes of maintenance of the pit.*
- (5) The earth around the perimeter of the pit shall be raised or mounded to a height of at least 150 mm above ground level.*
- (6) The surface of the ground in the area of the pit shall be so graded that surface drainage in the area will be diverted away from the pit.*
- (7) The pit shall be surrounded on all sides and on its bottom by at least 600 mm of soil having a percolation time of less than 50 minutes.*

The construction requirements stipulate the vertical clearance distance to high ground water table and how the pit is to be constructed. Although vertical clearance distance is not provided explicitly to bedrock it is implied in Sentence 7 since 600 mm of soil surrounding all sides and its bottom having a T-time less than 50 min/cm.

Another factor affecting the construction are the horizontal clearance distances found in *Table 8.2.1.5*

Table 8.2.1.5.
Clearance Distances for Class 1, 2 and 3 Sewage Systems
Forming Part of Sentence 8.2.1.5.(1)

<i>Sewage System</i>	Minimum horizontal distance in metres from a well with watertight casing to a depth of at least 6 m	Minimum horizontal distance in metres from a spring used as a source of <i>potable</i> water or well other than a well with a watertight casing to a depth of at least 6 m	Minimum horizontal distance in metres from a lake, river, pond, stream, reservoir, or a spring not used as a source of <i>potable</i> water	Minimum horizontal distance in metres from a property line
<i>Earth Pit Privy</i>	15	30	15	3
<i>Privy Vault</i> <i>Pail Privy</i>	10	15	10	3
<i>Greywater System</i>	10	15	15	3
Cesspool	30	60	15	3
Column 1	2	3	4	5

As greywater generally does not contain illness causing bacteria, pathogens, and viruses, the clearance distance to a well with a watertight casing is reduced to 10 m when compared to the required 15 m clearance for a Class 4 system.

8.4.2.2. Maximum Sewage Flow

(1) A Class 2 sewage system shall not be constructed where the daily design greywater flow to the system exceeds 1 000 L/day.

With a maximum flow of 1,000 L/day, multiple systems may be required to service a use. A *greywater system* is defined as a sewage system under the OBC; therefore, the combined total design flow cannot exceed 10,000 L/day for the lot or parcel.

8.4.2.3. Sizing

(1) A Class 2 sewage system shall be designed and constructed so that the loading rate to the side walls shall be not more than the value calculated using the formula:

$$LR = 400/T$$

where,

*LR = loading rate of the sidewalls in litres per day/m², and
T = percolation time.*

Greywater systems are sized based on a loading rate calculation. Loading rate “means the volume of effluent applied per square metre in a single day to soil...” as defined by the OBC in Division A, 1.4.1.2. The percolation time (T-time) of the native soil is used to determine the loading rate.

After the loading rate is calculated, the area of the sidewalls of the pit needs to be determined. The OBC does not explicitly provide a calculation for the sidewall area. A formula can be derived from sentence 8.4.2.3.(1) as

we know the maximum loading on the sidewalls cannot exceed the value calculated. Using the flow, Q (L/day) and the Loading Rate, L_R (L/day/m²) we can calculate the sidewall area:

$$\text{Sidewall } A = Q / L_R$$

where,

Sidewall = area in m² of the sidewalls of the pit

Q = the total daily design flow (L/day)

L_R = loading rate of the sidewalls in litres per day/m²

The MOE Manual used the same calculations as the OBC, but a formula using both the LR calculation and sidewall area was provided:

$$\text{Sidewall area, } A = QT/400$$

where,

Q = total daily design flow (L/day)

T = percolation rate (min/cm)

2024 OBC A-8.4.1.2.

Consideration can be made for Class 2 greywater systems to be constructed using a horizontal or a linear orientation. In these cases, the loading rate should be calculated using Article 8.4.2.3. "Sizing".

The appendix reference allows for the consideration of using horizontal or a linear orientation for the pit.

3.0 Design Considerations

The design of a greywater system should consider:

- Volume of greywater to be treated
 - Number of Fixture Units
 - Pressurized or Non-pressurized
- Quality of greywater
 - Source(s) of greywater (i.e., showers, sinks, laundry, etc.) and how this may impact the nature of the greywater
- Site conditions
 - Soil, groundwater, bedrock, etc.
 - Available space, clearance distances, topography

3.1 Design Steps

To design a greywater system:

- Determine the design flow in accordance with 8.4.1.2.(2). Confirm compliance 8.4.2.2.(1).
- Conduct a site evaluation and assign a T-time to the underlying soil.
- Calculate the Loading Rate (LR) based on 8.4.2.3.(1).

- Determine the minimum sidewall area by dividing the design flow by the Loading Rate ($A = Q/L_R$).
- If designing as a pit, determine the dimensions of the pit that are required to provide the minimum sidewall area.
- If designing as a trench, determine the minimum number of trenches and length of each trench required to provide the minimum sidewall area.

3.2 Use of a Tank with Greywater Systems

There is no OBC requirement to install a pre-treatment tank in conjunction with a greywater system. The purpose of a tank, trash trap or screen would be to retain solids and particulate matter that could create the potential for clogging of the infiltrative surface in the greywater system (such as food particles, hair, soap scum, etc.). With construction of the greywater system historically based on a vertical pit configuration, there is some ability for the pit itself to provide this function. With a horizontal trench construction; however, the long linear flow path may create a higher risk of soil clogging in the system.

The designer may want to consider the use of a trash tank to retain solids to discourage clogging of the system. However, some caution should be used when installing a tank in advance of trenches, which may lead to a greywater system that very closely resembles a Class 4 leaching bed system, and whether this could create a future risk of illegal connections of sanitary fixtures into the Class 2 system based on this resemblance.

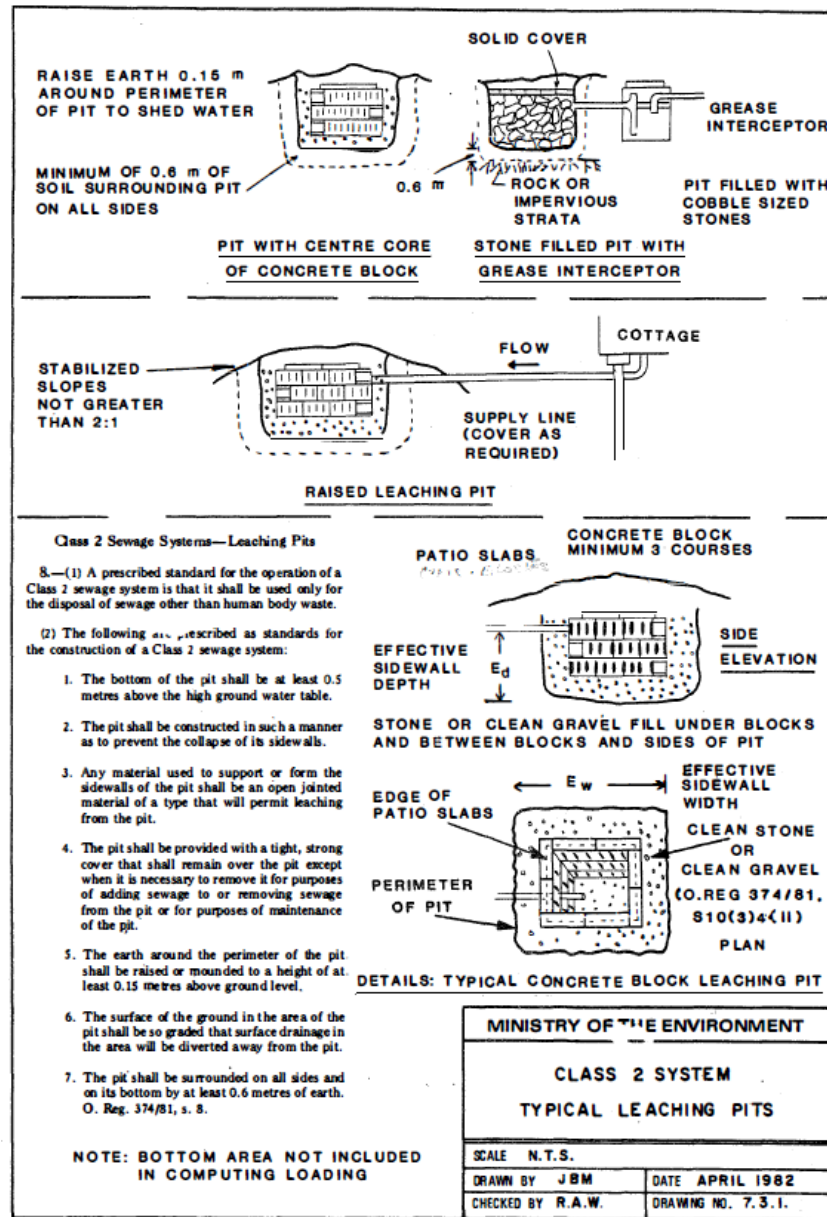
4.0 Vertical vs. horizontal “pits”

When contemplating the design of a greywater pit, the question arises if a pit can be horizontal (shallow and longer, similar to a trench) or if it should be vertical (deeper and shorter). The term pit is not defined in the OBC. Oxford languages defines a pit as a “large hole in the ground” and a hole is defined as a “hollow place in a solid body or surface”. The MOE Manual provides some discussion on the benefits of a deeper pit compared with a shallower pit:

“The effective area of a leaching pit is the area of the sidewalls in contact with the sewage. This is the area below the inlet pipe. Bottom area is not considered in computing a pit's effective leaching area when sewage is fed directly to the pit. To promote maximum use of sidewall area for a given volume of sewage and soil conditions, the pit dimensions should be deep and of limited plan area. However, the soil cover is frequently shallow in many locations where leaching pits are proposed. As sidewall area is restricted because depth is limited, the pit dimensions for all except light sewage flows, would soon become excessive. The larger plan area is in relation to depth, the smaller the portion of the sidewall area that will be in contact with sewage. This results in a portion of the effective leaching area being constantly in contact with sewage, and this portion of the sidewall will be subject to clogging. For residences such as cottages, that are periodically occupied, this may not present a problem, as the sidewall area has a chance to "recover" when the cottage is unoccupied. It helps to explain the frequency of leaching pit failures where the dwelling served is occupied on a continuous basis.”

The MOE policy and guideline provided the following illustrations for typical leaching pit construction:

Figure 1 - Class 2 Typical Leaching Pits (MOE 1982)



The 2024 OBC includes an Appendix reference (A-8.4.1.2) regarding pit dimensions. Site conditions will generally dictate the orientation of the greywater system – deeper or longer or both. Depth of soil, bedrock and high groundwater table elevation, elevation of the building drain, electrical services, and pit maintenance will all be factors in the system's layout.

5.0 Case Study

5.1 Soil pit alternative

Construction:

An example "A" is provided based on 8.4.2.1. of the OBC using the best soil condition and a *T-time* of 7 min/cm for imported sand (t). The system is shown as being raised above grade since many sites have extreme soil conditions or limited depth. In the example provided, using a pressurized water supply, each fixture unit value (FUV) is assessed at 200 L/day. With 4.5 FUV as our value, 900 L/day is the total daily design flow. Loading on the sidewall of the leaching pit is calculated $L_R = 400/t$.

Figure 1 & 2 represent soil with $t = 7$ min/cm; therefore, the loading rate is calculated to be 57.1 L/m².

The loading rate and flow are used to calculate the required sidewall area, $A = (900 \text{ L/d}) / (57.1 \text{ L/m}^2) = 15.8 \text{ m}^2$. In this example chambers that are 0.3 m in height and 1.2 m in length, each providing 0.72 m² sidewall area, are being used as the distribution method. The number of chambers required is calculated from the required sidewall area divided by the area of each chamber and rounded up as follows: $(15.8 \text{ m}^2) / (0.72 \text{ m}^2/\text{chamber}) = 21.9$ chambers, which would be rounded up to 22 chambers. A minimum of 600 mm of soil is needed on all sides and bottom of the leaching pit. In our example "A" shown in Figure 1, the minimum footprint based on the chamber sizing and clearances for the 900 L/day flow is 36 m². Where the native soil percolation rate for the system changes to a higher *T-time*, the corresponding required change in the footprint (total area) is shown in Table 2.

It is obvious that larger volumes of imported soil are required for sites with higher T-times, and the volume of material may approach that of a comparable Class 4 sewage system for the combined greywater and domestic sewage flow volume. In difficult to access locations, such as water access only properties, the use of a greywater system requiring significant quantities of imported soil may be prohibitive.

Table 2 - Chamber figures (Onsite Newsletter Volume 12 Issue 1 page 13)

Chart — "t" and Contact Area for Leaching Pit Class 2

Ex.	"t"	Q	# chambers	LR	Contact Area
A	7 min/cm	900 L	22	57	36 m ²
B	10 min/cm	900 L	32	40	50 m ²
C	20 min/cm	900 L	63	20	80 m ²
D	<40 min/cm	900 L	125	10	170 m ²

Based on 4.5 FUV @ 200 L/day/fixture = 900 L/day

Figure 1

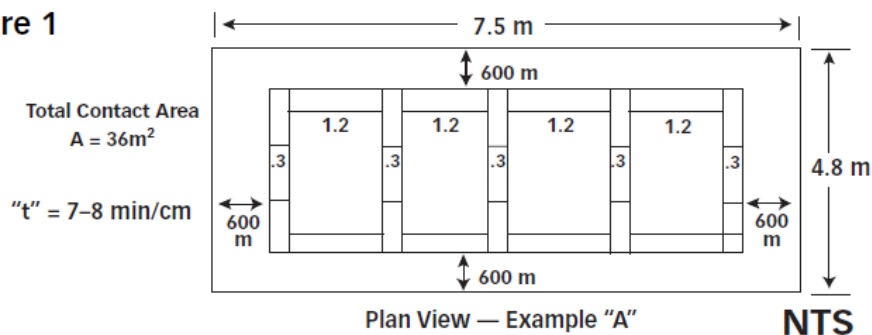
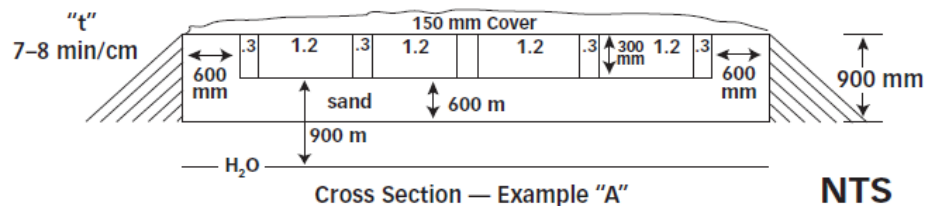


Figure 2



Note: The figures used in this example derive from OOWA Onsite Newsletter Volume 12, Issue 1, page 13

6.0 Emerging Trends

Water reuse is a response to the increasing water scarcity in many areas. Global water resource supplies are shrinking. According to a report from the United Nations, water shortages will affect 2.7 billion people by 2025, which means 1 out of every 3 people in the world will be affected by this problem. Reusing greywater has become a mitigation strategy for this problem, and wastewater reuse referred to as recycled or reclaimed water is becoming increasingly common. The application of greywater reuse provides substantial benefits for both the water supply subsystem, by reducing the demand for fresh clean water, and the wastewater subsystems by reducing the amount of conveyed and treated wastewater.

In times of drought, especially in urban areas, greywater use in irrigation or toilet systems helps to achieve some of the goals of ecologically sustainable development.

The potential ecological benefits of greywater recycling include:

- Reduced freshwater extraction from rivers and aquifers
- Less impact from septic tank and treatment plant infrastructure
- Reduced energy use and chemical pollution from treatment
- Groundwater recharge
- Reclamation of nutrients
- Greater quality of surface and groundwater when preserved by natural purification in the top layers of soil than generated water treatment processes

Before reuse, greywater must undergo treatment to reduce contaminants such as fats, oils and grease, high loads of organic matter, solids, and potentially some pathogenic content. As greywater contains fewer pathogens than blackwater, it is generally safer to handle and easier to treat and reuse onsite for toilet

flushing, landscape or crop irrigation, and other non-potable uses. However, some level of treatment is still required to prevent potential health effects associated with possible pathogenic content.

6.1 Water Reuse – Existing standards and guidelines

Wastewater reuse and non-potable water use are governed by different standards that may or may not apply depending on local jurisdiction requirements and plumbing codes. Some of the key standards and guidelines associated with water reuse are:

- ANSI/NSF Standard 350 – Onsite residential and commercial water reuse treatment systems
- CSA B128.1-06 Design and installation of non-potable water systems / Maintenance and field testing of non-potable water systems
- CSA B128.3-12 Performance of non-potable water reuse systems
- Canadian guidelines for domestic reclaimed water (January 2010)
- CAN/BNQ 3680-600 (2023) includes treatment levels for water reuse

These documents provide guidelines for domestic reclaimed water quality as well as guidance on potential elements of a management framework. The guidelines and management guidance presented are applicable only to water reclamation where the water source is domestic wastewater or greywater and the end use is toilet or urinal flushing, either on site or at a nearby residential or commercial location.

Canadian Guidelines for Domestic Reclaimed Water (January 2010)

Table 1: Guideline values for domestic reclaimed water used in toilet and urinal flushing^a

Parameter	Units	Water quality parameters	
		Median	Maximum
BOD ₅	mg/L	≤ 10	≤ 20
TSS ^b	mg/L	≤ 10	≤ 20
Turbidity ^b	NTU	≤ 2	≤ 5
<i>Escherichia coli</i> ^c	CFU/100 mL	Not detected	≤ 200
Thermotolerant coliforms ^c	CFU/100 mL	Not detected	≤ 200
Total chlorine residual ^d	mg/L	≥ 0.5	

^a Unless otherwise noted, recommended quality limits apply to the reclaimed water at the point of discharge from the treatment facility or treatment unit. BOD₅ = five-day biochemical oxygen demand; TSS = total suspended solids; NTU = nephelometric turbidity unit; CFU = colony-forming unit.

^b Measured prior to disinfection point. Only one of TSS and turbidity needs to be monitored in a given system.

^c Only one of *Escherichia coli* and thermotolerant coliforms needs to be monitored in a given system. Further information is provided in Box 1.

^d Measured at the point where the treated effluent enters the distribution/plumbing system.

A summary of greywater regulations, standards and guidelines for various jurisdictions is included in Appendix A and illustrates the many different approaches that exist for the management of greywater. Government regulations concerning domestic greywater use for landscape irrigation (diversion for reuse) is still a developing area and continues to gain wider support as the actual risks and benefits are considered and evaluated. Where greywater is still considered sewage, it is bound by the same regulatory procedures enacted to ensure properly engineered septic tank and effluent disposal systems are installed for long system life and

to control the spread of disease and pollution. In such regulatory jurisdictions, this has commonly meant domestic greywater diversion for landscape irrigation was either not permitted or was discouraged by expensive and complex sewage system approval requirements.

Many jurisdictions throughout North America allow usage of greywater for irrigation, but it should be applied below the surface where possible (e.g., via drip line on top of the soil, under mulch; or in mulch-filled trenches) and not sprayed, as there is a danger of inhaling pathogen-containing water as an aerosol.

Recycled greywater from showers and bathtubs can be used for flushing toilets in most European and Australian jurisdictions and in United States jurisdictions that have adopted the International Plumbing Code. The Uniform Plumbing Code (UPC), adopted in some U.S. jurisdictions, prohibits greywater use indoors. However, the California Plumbing Code, derived from the UPC, permits it. Indoor greywater reuse requires an efficient cleaning tank for insoluble waste, as well as a well-regulated control mechanism.

In Canada, at present, the standards for greywater reuse are not strict compared with other countries. The 2020 National Plumbing Code, which is adopted in whole or in part by the provinces, indicates that non-potable water systems should only be used to supply toilets, laundry machines and subsurface irrigation systems. Collecting rainwater through roof gutters is included as a form of greywater. Health Canada has published a guideline to use greywater for toilet flushing and British Columbia's building code includes subsurface irrigation with greywater. In Alberta "Reclaimed wastewater from any source cannot be used domestically unless it is approved and meets water quality testing and monitoring by the local municipality." Saskatchewan and Quebec treat greywater as sewage.

7.0 Summary

This document presents a summary of existing requirements for greywater systems, with examples of different methods of application to accommodate varying site conditions. Greywater systems may not be appropriate or feasible for all sites but can offer an effective management strategy where appropriate conditions exist. As with any situation, the designer is encouraged to explore options and use their professional judgement to determine the most appropriate solution for any given site/situation.

Appendix A

The following table provides an overview of several different jurisdictional areas across North America regarding greywater design standards and system requirements:

Jurisdictions	Design	System
Alabama	Grey water disposal calculated as normal sewage flow for residential systems. For Commercial, Communal, and Institutional (CCI) systems a 25% could be applied allowing for a reduced size of dispersal field.	Holding tank or composting toilet. Requirements for disposal same as for onsite wastewater systems.
Colorado	The Colorado Onsite Wastewater Treatment System (OWTS) regulations do not allow for the reduction in the size of an OWTS when low flow fixtures, the separation of toilet waste, or the removal of other sources of wastewater are proposed.	The OWTS must be sized per the stated requirements. The regulation is very specific to quality of effluent and how the treated effluent must be used (for beneficial purposes).
Idaho	No sizing reduction for residential application. It is required that on-site septic systems to be able to handle all flows from the dwelling, including grey water.	Grey water systems have to be connected to the septic system, i.e., full-sized subsurface sewage disposal system or collection system for a private or public municipal wastewater treatment plant. Grey water system is intended for irrigation and not year-round disposal.
Manitoba	A 25% reduction is allowed when treating greywater only.	Holding tank or composting/incinerating toilet. Requirements for disposal same as for onsite wastewater systems.
Minnesota	Reductions are granted based on the wastewater characteristics without toilet waste.	Holding tank or composting toilet.
Missouri	Sewage flow may be reduced up to 40% for grey water systems where the toilet wastes are discharged to a holding tank.	Holding tanks. Requirements for disposal same as for onsite wastewater systems.
New York	Greywater systems shall be designed upon a flow of 75 gpd/bedroom	Holding tank or composting toilet. Requirements for disposal same as for onsite wastewater systems.

Jurisdictions	Design	System
Oregon	Up to 2/3 size reduction.	Called a 'split waste system' for when the black waste goes to a recirculating mineral oil flush toilets or compost toilets. The drainfield may be sized at two-thirds for the graywater system. Septic tank has no reduction.
Quebec		Holding tank or composting toilet. Full-sized septic tank. Infiltration surface reduced by 50% app. Vary according to naturally occurring soil depth.
West Virginia	30% reduced drainfield.	Holding tank or composting toilet. Full-sized septic tank. The regulations require that the main waste drain be reduced to a two inch pipe so that this cannot be done casually without enlarging the drainfield.
New Mexico	The size of the treatment and disposal system is not reduced by composting toilets or graywater systems.	Holding tank or composting/incinerating toilet. Disposal could be subsurface disposal, irrigation as well as mulching with all dispersal within 24 h to avoid treatment requirements. Many advanced wastewater treatment systems with irrigation re-use.