A Practical Guide to Class 2 Sewage Treatment Systems (Leaching Pit)





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Leaching Pits

Class 2 Sewage Treatment and Dispersal Systems

Leaching pits are used to treat and disperse grey water sewage only. They are not to be used to dispose of toilet water. Grey water sewage comes from plumbing fixtures like sinks, showers or laundry machines.

Because they treat and disperse sewage, they must be inspected an approved under the Ontario Building Code by the Thunder Bay District Health Unit.

This method of waste water treatment and dispersal is only recommended if there is no pressurized water supply and the daily volume of grey water is small.

Under the Ontario Building Code, a leaching pit can only be used if the daily flow of grey water is less than 1000 litres per day.

Location

Minimum distances must be followed

- 15m (50 feet) from any lake, pond, river, stream or any other water course
- 15m (50 feet) from any dug well, sand point well, spring or other source of potable water

These distances are minimums and may have to be increased if the soil conditions are not ideal.

The area should be elevated and well drained. Low laying areas are subject to excessive run off which will overload the pit and saturate the soils. This could result in poor treatment and increases the possibility of ground water contamination.

Soils

The excavation for a pit must not exceed 1.25m (4 feet) in depth. Better treatment, drainage and evaporation are achieved in the soil that is just below the surface.

The bottom of the pit must be a minimum of 0.9m (3 feet) above the high water table or bedrock. Because the grey water sewage is treated by the bacteria in the soil, it is important to have 0.9m of unsaturated soil to provide adequate treatment and to protect against contamination.

The top 2-5 cm of soil will filter all solids in the grey water sewage. The remaining sewage bacteria will be treated by the soil bacteria as the liquid moves down through the soil.

Clay Soils

When installing a leaching pit in clay soils the excavation must have .60m (2 feet) of clean sand between the crushed rock and the clay soil. The sand will filter the suspended solids and treat the grey water to provide a higher quality effluent that will be more easily absorbed by the clay solid. Prior to placing the sand in the excavation the walls and bottom of the pit must be raked to remove smeared clay soils and allow more contact area with the sand, this will greatly improve the drainage abilities of the clay soil.

Leaching Pit Rock

The rock used in the leaching pit must be clean and free of fine material to prevent premature clogging of the natural soils. Caution must be taken when selecting the rock, it must be larger in size than the holes for this purpose. The rock must completely surround the barrel, excluding the top side where there are no holes. The purpose of the rock is to keep the barrel or bucket out of the saturated soils and prevent the sand from plugging the holes.

Backfilling

When the leaching pit is completed and ready to be covered, it is recommended that the fill be crowned slightly to shed rain water and snow melt. A thin layer of topsoil and sodding will prevent erosion, assist with evaporation, and divert surface water away from the leaching pit. It is mandatory that the final grade be grassed.

Leaching Pit Maintenance

Since leaching pits do not have a settlement tank it may be necessary to install a grease interceptor or a screen.

The grease interceptor is recommended if there will be kitchen wastes going into the leaching pit. The interceptor will allow for cooling of the waste water and separation of the greases and oils. It is advised to have a convenient access to the grease interceptor so it may be cleaned as required, the grease can be disposed of in your household garbage.

The installation of a screen before the leaching pit will significantly reduce the amount of solids that enter the leaching pit. (Note: if a grease interceptor is installed, a screen is not required). Access to the screen should be relatively easy but secure to prevent rodents and flies from entering. The contents in the screen should be removed regularly and disposed of in your composter or household garbage.

A leaching pit or a grease interceptor can be pumped out the same as a septic tank. If solid materials build up in the leaching pit container it is a good idea to have them removed, this will prolong the working life of the leaching pit.

Ontario Building Code

Minimum Legal Requirements for Class 2 Sewage Treatment Systems (Leaching Pit)

Section 8.4. Class 2 Sewage Systems

8.4.1. General Requirements

8.4.1.1.Scope

(1) This Section applies to the construction of a Class 2 sewage system.

8.4.1.2. Application

- (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.

8.4.2. Design and Construction Requirements

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.

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.

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

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

| Minimum distance from a drilled well | 10m (30 feet) |
|---|---------------|
| Minimum distance from a dug well | 15m (50 feet) |
| Minimum distance from a lake, river, etc. | 15m (50 feet) |
| Minimum distance from a property line | 3m (10 feet) |

Shallow Leaching Pit – For Sandy Soils with a High Water Table (not to scale)







Leaching Pit – For Clay Soils (not to scale)



Leaching Pit – For Dry, Sandy Soil (not to scale)







Grease Interceptor (not to scale)

