

# Sewage System Installation Proposal

This sheet to be submitted with Sewage Permit Application. Provide to the Huntsville Building Department.

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## Dwelling Details

Total # of Bedrooms	Total Floor Area	m <sup>2</sup>
Total Plumbing Fixture Units	Total Daily Design Flow Rate (Expressed in Litres/day)	Q =

Is a Pump Required?    Yes     No     Raw Sewage     Effluent

## Test Hole

Sub-surface conditions encountered:

Rock and G.W.T.	Depth (m)	Soil Type	“T” Time
	0		
	-0.25		
	-0.50		
	-0.75		
	-1.00		
	-1.25		
	-1.50		

## Propose to Construct

**Class 4 Filter Bed**

Proof of Approved Filter Material **must** be provided prior to final inspection.

Provide Calculation Sheet with Permit Application.

Dug into Existing Soil	Raised	If Raised, How Far Above	m	Contact Area	m <sup>2</sup>

**Class 2 Grey-Water Pit or Class 3 Cesspool**

**Wall Structure:**

Concrete Block     Rock     Other: \_\_\_\_\_

**Dimensions of Pit:**

Length: \_\_\_\_\_ Width: \_\_\_\_\_ Height: \_\_\_\_\_ Type of Cover: \_\_\_\_\_

**Type of Class 1 to be Used:**

Privy     Composting     Chemical     Electrical     Other: \_\_\_\_\_

**Class 5 Holding Tank**

Pump out contract must be provided.

**Tank Details:**

Concrete     Polyethylene     Other  \_\_\_\_\_

Size (L)	Alarm is Audio	Alarm is Visual
Location of Visual Alarm		

**Table 8.7.4.1. - Loading Rates for Fill Based Absorption Trenches and Filter Beds**

Forming Part of Sentences 8.7.4.1.(1) and 8.7.5.2.(2)

Percolation Time (T) of Soil (min/cm)	Loading Rates (L/m <sup>2</sup> /day)
1 < T ≤ 20	10
20 < T ≤ 35	8
35 < T ≤ 50	6
T ≤ 50	4
Column 1	2

# Sewage System Calculations

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Q = the Total Daily Design Sewage Flow in Litres

T = the Percolation Time of Soil

## Septic Tank Size

Working Capacity of Septic Tank:

Residential: = Q x 2 = \_\_\_\_\_ Litres

Commercial: = Q x 3 = \_\_\_\_\_ Litres

In no case shall the working capacity of septic tank be less than 3600 litres.

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## Absorption Trenches

Length of Distribution Pipe (for systems with septic tank):

$$L = \frac{Q \times T}{200}$$
$$= \frac{\quad \times \quad}{200} = \text{_____ Metres}$$

The total length of distribution pipe shall not be less than 40 metres.

Loading Rate Area (unsaturated suitable soil in area of bed and mantle)

$$\text{Loading Rate Area Required:} = Q \div 6$$
$$= \text{_____} \div 6 = \text{_____ Sq. Metres}$$

## Filter Bed

Size of filter required.

$$\text{If Q is 3000 litres or less:} = Q \div 75$$
$$= \text{_____} \div 75 = \text{_____ Sq. Metres}$$

$$\text{If Q is more than 3000 litres:} = Q \div 50$$

$$= \underline{\hspace{2cm}} \div 50 = \underline{\hspace{2cm}} \text{ Sq. Metres}$$

Base of Filter Medium shall extend to a thickness of 250mm over the following area:

$$\begin{aligned} \text{Area} &= \frac{Q \times T}{850} \\ &= \frac{\underline{\hspace{2cm}} \times \underline{\hspace{2cm}}}{850} = \underline{\hspace{2cm}} \text{ Sq. Metres} \end{aligned}$$

“T” is the Percolation Time of the Native Soil upon which the filter material is placed.

Loading Rate Area (unsaturated suitable soil in area of bed and mantle)

$$\begin{aligned} \text{Loading Rate Area Required:} &= Q \div \text{Loading Rate (based on "T" Time of native soil)} \\ &\underline{\hspace{2cm}} \div \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ Sq. Metres} \end{aligned}$$

Suitable soil, existing or imported, in the loading rate area must have a “T” of 15 minutes or less, if imported material is used for the leaching bed or filter.

# Total Daily Design Flow Rates for Residential Occupancy “Q” (Litres/Day)

Always Refer to the Ontario Building Code for Current Regulations.

Daily Design Flow Rates for Residential Occupancy “Q”	Litres per day
1 bedroom dwelling	750
2 bedroom dwelling	1100
3 bedroom dwelling	1600
4 bedroom dwelling	2000
5 bedroom dwelling	2500
Additional Flow	Litres per day
Each bedroom over 5	500
each 10m <sup>2</sup> (or part thereof) over 200m <sup>2</sup> up to 400 m <sup>2</sup> <sup>(3)</sup>	100
each 10m <sup>2</sup> (or part thereof) over 400m <sup>2</sup> up to 600 m <sup>2</sup> <sup>(3)</sup> and	75
each 10m <sup>2</sup> (or part of it) over 600m <sup>2</sup> <sup>(3)</sup>	50
or each fixture unit over 20 fixture units	50

<sup>(3)</sup> Total finished area, excluding the area of the finished basement.

## Example of how to determine daily design flow rate

Using a 4 bedroom, 235m<sup>2</sup> home with 22 fixture units. From Chart above:

- 4 bedroom home > 200m<sup>2</sup> or > 20 fixture units = 2000 litres/day
- Additional 35m<sup>2</sup> = 400 litres/day
- Additional 2 fixture units = 100 litres/day

\*Q (total daily design flow rate) = 2400 litres/day

If, as in the example above, there is a choice in arriving at the flow rate (e.g., fixture units vs. floor area) use the **one** calculation that provides the greatest daily flow rate value.

## Approximate Soil Percolation Rates “T”

The following are estimated typical ranges of “T” times. Actual “T” times may vary significantly due to on-site soil conditions.

Soil Type *	Clean Medium to Course Sand			Silty Gravelly Sands		Silty Sands Sandy Silts		Sandy Silty Clays			Silty Clays		Clay
“T” (min/cm)*	1	3	6	8	10	16	20	25	29	33	38	44	50+

## Clearance Distances for Components of Sewage Systems (metres)

If the bed is raised, add 2 metres for every 1 metre of rise.

Class	Wells (with 6m casing)	Wells (not 6m casing)	Springs Potable	Springs not Potable	Surface Water (lake, river, etc.)	Property Lines	Dwellings Structures
Class 4 Distribution Pipe	15	30	30	30	30	3	5
Class 4 Septic Tank	15	15	15	15	15	3	1.5
Class 5 Holding Tank	15	30	30	15	nil	3	1.5
Class 1 Privy	15	30	30	30	30	3	nil
Class 2 Grey-Water Pit	15	30	30	15	30	3	nil

# Residential Plumbing Worksheet

Description	# Units per Fixture	Dwelling #1		Dwelling #2		Sleeping cabin		Other	
		# of Fixtures	Total	# of Fixtures	Total	# of Fixtures	Total	# of Fixtures	Total
Bathroom Group	6								
Toilet	4								
Wash Basin (Lavatory)	1.5								
Bathtub or Shower	1.5								
Bidet	1								
Kitchen Sink (single or double)	1.5								
Bar Sink	1.5								
Washing Machine (Domestic)	1.5								
Other									
<b>TOTAL FIXTURE UNITS</b>									
<b>FINISHED FLOOR AREA</b>									
<b># OF BEDROOMS</b>									