



**SCHEDULE C to By-Law 91-2021**

**Design Calculations For Class 2, 4, & 5 ON-SITE Sewage Systems.**

<b>Owner/Address:</b>	<b>Designer:</b>	<b>Installer:</b>
	<b>BCIN #:</b>	<b>BCIN #:</b>

**STEP 1 - DAILY SEWAGE FLOW** (Based on Hydraulic Loads for Fixtures, Floor Area, and Bedrooms)

Plumbing Fixture Description	Existing # of Fixtures	Proposed # of Fixtures	Hydraulic Load	Fixture Units	All calculations as per Part 8 of Ontario Building Code	
Bathroom group (toilet, sink, bathtub)			6			
Toilet			4		<b>Proposed(m<sup>2</sup>):</b>	
Washbasin			1.5		<b>Proposed(ft<sup>2</sup>):</b>	
Bathtub or Shower			1.5		<b>Existing(m<sup>2</sup>):</b>	
Kitchen Sink(s)			1.5		<b>Existing(ft<sup>2</sup>):</b>	
Bar Sink			1.5		<b>Total Finished Floor Area Excluding Area of Finished Basement:</b>	
Dishwasher			1.5			
Washing Machine			1.5			
Bidet			1		<b>m<sup>2</sup>:</b>	
Laundry Tub			1.5		<b>ft<sup>2</sup>:</b>	
Other:						
<b>TOTAL FIXTURE UNITS</b>						

**Residential Occupancy**

Number of bedrooms	1	2	3	4	5
<b>Q (L/day)</b>	750	1100	1600	2000	2500

If you have more than 5 bedrooms, put 5 in the existing number of bedrooms and add additional bedrooms under additional flow for each bedroom over 5

Existing Number of Bedrooms	Additional Bedrooms	Hydraulic Load, Q (L)	Calculation

Additional Flow For:	Existing	Proposed	Q (L/day)	Calculation
Each Bedroom over 5 <b>OR*</b>			500	
Floor space for each 10m <sup>2</sup> over 200m <sup>2</sup> up to 400m <sup>2</sup>			100	
Floor space for each 10m <sup>2</sup> over 400m <sup>2</sup> up to 600m <sup>2</sup>			75	
Floor Space for each 10m <sup>2</sup> over 600m <sup>2</sup> <b>OR*</b>			50	
Each fixture unit over 20 fixture units total			50	
<b>TOTAL (L) =</b>				

\*NOTE: where you need to do multiple calculations, signified by the "OR" in the table, do the calculation for daily sewage flow based on bedrooms and floor space first, then fixture units, and use the larger of the two calculations.

**Other Occupancy (Table 8.2.1.3 (B))**

Establishment: (office, store, etc.)	Volume/Unit :	Occupant Load :	Volume (L) :

**EXPECTED DAILY DESIGN SEWAGE FLOW(Q):**

# Application for a Permit to Construct or Demolish

This form is authorized under subsection 8(1.1) of the *Building Code Act, 1992*

<b>For use by Principal Authority</b>				
Application number:		Permit number (if different):		
Date received:		Roll number:		
Application submitted to: _____ (Name of municipality, upper-tier municipality, board of health or conservation authority)				
<b>A. Project information</b>				
Building number, street name			Unit number	Lot/con.
Municipality	Postal code	Plan number/other description		
Project value est. \$		Area of work (m <sup>2</sup> )		
<b>B. Purpose of application</b>				
New construction	Addition to an existing building	Alteration/repair	Demolition	Conditional Permit
Proposed use of building		Current use of building		
Description of proposed work				
<b>C. Applicant</b>				
		Applicant is:	Owner or	Authorized agent of owner
Last name	First name	Corporation or partnership		
Street address			Unit number	Lot/con.
Municipality	Postal code	Province	E-mail	
Telephone number	Fax		Cell number	
<b>D. Owner (if different from applicant)</b>				
Last name	First name	Corporation or partnership		
Street address			Unit number	Lot/con.
Municipality	Postal code	Province	E-mail	
Telephone number	Fax		Cell number	

<b>E. Builder (optional)</b>				
Last name		First name	Corporation or partnership (if applicable)	
Street address			Unit number	Lot/con.
Municipality		Postal code	Province	E-mail
Telephone number		Fax		Cell number
<b>F. Tarion Warranty Corporation (Ontario New Home Warranty Program)</b>				
i. Is proposed construction for a new home as defined in the <i>Ontario New Home Warranties Plan Act</i> ? If no, go to section G.			Yes	No
ii. Is registration required under the <i>Ontario New Home Warranties Plan Act</i> ?			Yes	No
iii. If yes to (ii) provide registration number(s): _____				
<b>G. Required Schedules</b>				
i) Attach Schedule 1 for each individual who reviews and takes responsibility for design activities.				
ii) Attach Schedule 2 where application is to construct on-site, install or repair a sewage system.				
<b>H. Completeness and compliance with applicable law</b>				
i) This application meets all the requirements of clauses 1.3.1.3 (5) (a) to (d) of Division C of the Building Code (the application is made in the correct form and by the owner or authorized agent, all applicable fields have been completed on the application and required schedules, and all required schedules are submitted). Payment has been made of all fees that are required, under the applicable by-law, resolution or regulation made under clause 7(1)(c) of the <i>Building Code Act, 1992</i> , to be paid when the application is made.			Yes	No
ii) This application is accompanied by the plans and specifications prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the <i>Building Code Act, 1992</i> .			Yes	No
iii) This application is accompanied by the information and documents prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the <i>Building Code Act, 1992</i> which enable the chief building official to determine whether the proposed building, construction or demolition will contravene any applicable law.			Yes	No
iv) The proposed building, construction or demolition will not contravene any applicable law.			Yes	No
<b>I. Declaration of applicant</b>				
I _____ declare that:				
(print name)				
1. The information contained in this application, attached schedules, attached plans and specifications, and other attached documentation is true to the best of my knowledge.				
2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.				
_____		_____		
Date		Signature of applicant		

Personal information contained in this form and schedules is collected under the authority of subsection 8(1.1) of the *Building Code Act, 1992*, and will be used in the administration and enforcement of the *Building Code Act, 1992*. Questions about the collection of personal information may be addressed to: a) the Chief Building Official of the municipality or upper-tier municipality to which this application is being made, or, b) the inspector having the powers and duties of a chief building official in relation to sewage systems or plumbing for an upper-tier municipality, board of health or conservation authority to whom this application is made, or, c) Director, Building and Development Branch, Ministry of Municipal Affairs and Housing 777 Bay St., 2nd Floor. Toronto, M5G 2E5 (416) 585-6666.

## Schedule 2: Sewage System Installer Information

<b>A. Project Information</b>			
Building number, street name		Unit number	Lot/con.
Municipality	Postal code	Plan number/ other description	
<b>B. Sewage system installer</b>			
Is the installer of the sewage system engaged in the business of constructing on-site, installing, repairing, servicing, cleaning or emptying sewage systems, in accordance with Building Code Article 3.3.1.1, Division C?			
Yes (Continue to Section C)	No (Continue to Section E)	Installer unknown at time of application (Continue to Section E)	
<b>C. Registered installer information (where answer to B is "Yes")</b>			
Name		BCIN	
Street address		Unit number	Lot/con.
Municipality	Postal code	Province	E-mail
Telephone number	Fax	Cell number	
<b>D. Qualified supervisor information (where answer to section B is "Yes")</b>			
Name of qualified supervisor(s)		Building Code Identification Number (BCIN)	
<b>E. Declaration of Applicant:</b>			
<p>I _____ declare that:</p> <p style="text-align: center;">(print name)</p> <p>I am the applicant for the permit to construct the sewage system. If the installer is unknown at time of application, I shall submit a new Schedule 2 prior to construction when the installer is known;</p> <p><u>OR</u></p> <p>I am the holder of the permit to construct the sewage system, and am submitting a new Schedule 2, now that the installer is known.</p> <p>I certify that:</p> <ol style="list-style-type: none"> <li>1. The information contained in this schedule is true to the best of my knowledge.</li> <li>2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.</li> </ol> <p>_____</p> <p style="text-align: center;">Date <span style="margin-left: 200px;">Signature of applicant</span></p>			

**STEP 2 - PROPERTY SOIL PROFILE AND PERCOLATION RATE (T) DESCRIPTION**

Percolation rate (T) is measured as minutes/centimetre, and measures the rate at which water drains into the soil. Please indicate the T-time of your site below as calculated by a qualified person.

Soil Type	(1) Coarse Gravel, no fines	(2) Gravel, some small rocks	(3) Gravel, sand mix, some fines	(4) Sand, fairly uniform, some fines	(5) Sandy, Loam mix	(6) Silty, Loam, almost clay	(7) Clay, smears well, rolls into ribbon
T-time (min/cm)	0 to 1	1 to 5	5 to 10	10 to 15	15 to 25	25 to 50	> 50

**ON\_SITE PROFILE (SUBTRACT USEABLE DEPTH OF SOIL FROM 1.5m FOR DEPTH OF IMPORTED FILL)**

Select largest percolation rate (T) for appropriate soil type and insert below

Soil Depth (m)	Percolation Rate T	Soil Type
0.2		
0.4		
0.6		
0.8		
1.0		
1.2		
1.4		
1.6		

**Fill in the following:**

Depth of Soil / Impervious Soil / Groundwater Table(m):	
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Fill in the following information on your soil

	Depth (m)	Depth (ft)	Rate (min/cm)
<b>Topsoil to be removed:</b>			
<b>Usable Existing Soil:</b>			
<b>Imported Fill:</b>			
<b>Percolation Rate (T):</b>			
<b>Excavation of existing soil:</b>			

**CONTACT AREA CALCULATION**

If you do not have a minimum of 250mm of useable soil on the property, you will need to import the mantle or contact area. Choose T and, divide Q by Loading Rate for T

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

<b>DAILY SEWAGE FLOW (Q):</b>	÷	<b>Loading Rate (L/m<sup>2</sup>/day)</b>	=	<b>CONTACT AREA (m<sup>2</sup>)</b>
	÷		=	

**STEP 3 - A) SEPTIC TANK SIZE CALCULATION**

To calculate the minimum capacity of your septic tank, use the following formulas. Minimum tank size is 3600L.

<b>Residential:</b>	Q=	2XQ=	Tank Size:	
<b>Other Occupants:</b>	Q=	3XQ=	Tank Size:	

**B) LEACHING BED LENGTH CALCULATION (conventional)**

<b>Length (m)= (Q X T)/200</b>		<b>Length of Pipe (ft )=</b>	
<b>Number of Runs (m):</b>		<b>D-BOX (Y/N):</b>	<b>Header (Y/N):</b>

**C) FILTER BED** - Where you may not have sufficient area on your property to install a leaching bed, you may install a filter bed for your distribution system

**FILTER BED CALCULATION** - If your daily sewage flow is less than 3000L/day, perform calculation 1), or if your daily sewage flow exceeds 3000L/day, perform calculation 2).

**Calculation 1) - Filter Bed Surface Area**

Surface Area (m<sup>2</sup>) = Q ÷ 75

Q = \_\_\_\_\_  
 SA = \_\_\_\_\_

**FILTER BED SURFACE AREA (m<sup>2</sup>)**  
 =  
**FILTER BED SURFACE AREA (ft<sup>2</sup>)**  
 =

**Calculation 2) - Filter Bed Surface Area**

Surface Area (m<sup>2</sup>) = Q ÷ 50

Q = \_\_\_\_\_  
 SA = \_\_\_\_\_

**FILTER BED SURFACE AREA (m<sup>2</sup>)**  
 =  
**FILTER BED SURFACE AREA (ft<sup>2</sup>)**  
 =

Select a desired length for the filter bed

<b>Filter Bed Loading Area (m<sup>2</sup>):</b>		<b>Length (m):</b>		<b>Width (m):</b>	
<b>Filter Bed Loading Area (ft<sup>2</sup>):</b>		<b>Length (ft):</b>		<b>Width (ft):</b>	

**EXTENDED CONTACT AREA - T>11.5**

Contact Area = (QXT)/850

Q = \_\_\_\_\_  
 T = \_\_\_\_\_

**EXTENDED CONTACT AREA (m<sup>2</sup>)**  
 =  
**EXTENDED CONTACT AREA (ft<sup>2</sup>)**  
 =

**DESIGN CALCULATIONS FOR A CLASS 2 SEWAGE SYSTEM**

Refer to Sizing a Grey Water System located at the end of the description for a Class 2 - Leaching Pit system located on the APH website at [www.algomapublichealth.com](http://www.algomapublichealth.com)

**D) GREYWATER SYSTEM -CLASS 2**

**1) How much Grey Water Waste?**

Do you have pressurized(P) or non-pressurized(N) water? (P/N)			
Type of System	Number of Fixture Units	Volume/Unit (L)	Grey Water Waste, Q (L)

**IF Grey Water Waste(Q) is greater than 1000L, a grey water system cannot be used.**

**2) Loading Rate (LR)**

Loading Rate =  $400/T$

T = \_\_\_\_\_

**LOADING RATE (L/m<sup>2</sup>/day)**

=

Loading Rate = \_\_\_\_\_

**3) Size of System**

Size of System =  $Q / LR$

Q = \_\_\_\_\_

**SIZE OF SYSTEM (m<sup>2</sup>)**

=

LR = \_\_\_\_\_

**DESIGN CALCULATIONS FOR A CLASS 5 SEWAGE SYSTEM**

**E) Holding Tank - Class 5**

In order to calculate the capacity of your proposed holding tank, you must perform the following two calculations, and install a holding tank(s) with a capacity of the greater volume

<b>Minimum Holding Tank Capacity (L) =</b>	9000
<b>Seven(7) X Daily Sewage Flow, Q (L) =</b>	
<b>MINIMUM HOLDING TANK CAPACITY (L)=</b>	