

Comment Form for Potential Changes for the 2011 Building Code

**A. Respondent Information**

Name: Eric Gunnell, P.Eng. Title: President

I am responding on behalf of:  Myself  
 Organization (specify): Gunnell Engineering Ltd.

Function:  Building Official  Builder/Contractor  
 Supplier/Manufacturer  Designer  
 Property Owner/Public  Sewage Hauler/Installer  
 Other (specify): \_\_\_\_\_

Address: 1110 Stellar Drive, Unit 106

City: Newmarket Province: ON Postal Code: L3Y 7B7

Code Change Number: S-A-01-04-01

#1

Mark one of the following with an "x":

- I support the potential requirements.
- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** *(Please attach additional sheets as necessary)*

**CODE REFERENCE SUBJECT:** Div. A 1.4.1.2 Add new definition of "Type A dispersal bed".

I support the inclusion of "Type A dispersal bed" into the Code.

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Comment Form for Potential Changes for the 2011 Building Code each change

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Code Change Number: S-A-01-04-02

#2

Mark one of the following with an "x":

- I support the potential requirements.
- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** (Please attach additional sheets as necessary)

Code Change - Revise Sentence A 1.4.1.2 as follows:

CODE REFERENCE SUBJECT: Add new definition of "Type B dispersal bed".

I support the inclusion of "Type B dispersal bed" into the Code, with the following change;

- The wording "highly treated effluent" being changed to "Level IV effluent from a treatment unit"

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Code Change Number: **S-B-08-01-01**

#3

Mark one of the following with an "x":

- I support the potential requirements.
- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** *(Please attach additional sheets as necessary)*

**Code Change** - Revise Sentence B 8.1.3.1 as follows:

**CODE REFERENCE SUBJECT:** Require grease interceptors to conform to CSA B481.1 or B481.2.

I support this proposed code change with the following modifications;

- That the definition of an "interceptor" in OBC Div. A, 1.4.1.2. also needs to be changed to reflect that an interceptor is required to protect not only a "drainage system", but also to protect a "sewage system" and "treatment units".
- The definition of "interceptor" also be revised to read; ..."means a receptacle that is designed and installed to prevent oil, grease, sand or other materials from passing into a "drainage system", a "sewage system" or a "treatment unit".
- In order to better reflect the existing intentions of the Code it is suggest sentence (4) also be revised to read;
  - (4) Unless it can be proven to be unnecessary, where waste water from a kitchen, other then a kitchen contained within a "suite" of "residential occupancy", discharges to a treatment unit or sewage system,
    - a) the design of the drainage system serving the "treatment unit" and the "sewage system" shall conform to sentence (1) of Div. B, Article 7.4.4.3.,
    - b) the "treatment unit" to which the waste water is discharged shall be designed and manufactured to accommodate such types of waste water, and
    - c) the design of the "sewage system" shall be in accordance with good engineering practice.

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Code Change Number: S-B-08-02-01

#4

Mark one of the following with an "x":

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- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** (Please attach additional sheets as necessary)

**Code Change - Revise Sentence B 8.2.1.2 (2) as follows:**

I would support this proposed change to include the proposed 'soil texture classification'.

Classifying soil according to the Unified Soil Classification as described in supplement Standard SB-6 can very often be dangerous / inaccurate, as this method of soil classification does not take into account the soil texture. For example, glacial till materials will test out in a laboratory analysis with a fast percolation rate, however, due to an often tight soils structure, the actual in-field percolation rate is much slower. I note that in Alberta, soil classification according to the Unified Soil Classification as described in supplement Standard SB-6, is not used.

I recommend that further research among other provincial and US jurisdictions be undertaken to establish the optimum methods for soils classification for use in sewage system design.

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#5

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- I do not support the potential requirements (provide a reason below).

**COMMENTS** (Please attach additional sheets as necessary)

Code Change - Revise Sentence B 8.2.3.1 & 8.2.3.2 as follows:

**CODE REFERENCE SUBJECT:** Require subsurface detection of leaching bed components.

I would support this proposed change to include detection of leaching bed components, as the cost to provide tracer wire would only add ~\$25 per sewage system. Our experience is that the actual sewage system installation is often in minor deviation from the design drawings, and actual sewage component installation would be helpful in support of future garage, deck and swimming pool installations.

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Code Change Number: S-B-08-06-01

#6

Mark one of the following with an "x":

- I support the potential requirements.
- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** *(Please attach additional sheets as necessary)*

**Code Change** - Revise Sentence B 8.6.2.1 as follows:

**CODE REFERENCE SUBJECT:** Specify particle size and area for effluent filters

I would support this proposed change effluent filters, with the following modifications;

That the following additional provisions be included in the proposed modifications;

- (d) Be easily accessible for maintenance and monitoring; and
- (e) Have a handle permanently attached which extends to within 150 mm of the access riser rim.

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Code Change Number: S-B-08-06-02

#7

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- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** *(Please attach additional sheets as necessary)*

Code Change - Revise Sentence B 8.6.2.2 as follows:

**CODE REFERENCE SUBJECT:** Reference the BNQ 3680-600 treatment classifications.

Add new sentence 8.6.2.1. (4)

(4) septic tank effluent shall meet the criteria set out for 'Level I' effluent in the BNQ standard.

It is important from a regulator's standpoint, that if homeowners abuse their sewage system, the regulators will have the power to enforce correction measures.

**Note:** this should be the CAN/BNQ 3680-600 standard.

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Code Change Number: S-B-08-06-03

#8

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- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** (Please attach additional sheets as necessary)

**Code Change - Revise Sentence B 8.6.2.2 (2) as follows:**

- I do not understand the depths of soil, relative to 250mm of native soil
- Based on whether shallow buried trenches or dispersal fields are used, there is a minimum vertical clearance to the high water table. This is what is critical.
- It is my strong opinion that if treatment units produce a higher quality of effluent from a disinfection standpoint, there should be a corresponding decrease in the vertical separation distance (Reference proposed new Table 8.6.2.2.B).
- The vertical separation, for both shallow buried trenches and new Type A & B dispersal beds, be amended based on disinfection provided by the treatment unit. Based on fecals above 50,000, the vertical separation would be 700mm; based on fecals below 50,000 [D-I level of disinfection], the vertical separation would be 600mm, based on fecals below 200 [D-II level of disinfection], the vertical separation would be 400mm, and based on fecals at non-detect [D-III level of disinfection], the vertical separation would be 300mm. This provides incentives to the manufacturers to produce a better treatment unit and be better for the environment.

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Code Change Number: S-B-08-06-04

#9

Mark one of the following with an "x":

- I support the potential requirements.
- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** (Please attach additional sheets as necessary)

**Code Change** - Revise Sentence B 8.6.2.2 (5) as follows

**CODE REFERENCE SUBJECT:** Recognize the classification of treatment units by the BNQ 3680-600 standard.

I would support the proposed changes, subject to the following comments / considerations;

- The proposed code change to incorporate the new CAN/BNQ 3680-600, for treatment units used in the Ontario marketplace, will take into account the cold weather conditions in the Province. Current NSF testing has been undertaken in warm US climates with no northern winter climate testing, and is typically not representative of our climates.
- The proposed standard is a Canadian standard, and it would be ideal if a testing facility could be established in Ontario.
- The proposed sunset date of December 31, 2016 is too long, and given the goal of environment / water resource protection, a sunset date of Dec 31, 2014 would provide sufficient time to allow manufacturers undertake the new testing protocol for their treatment units.

The new CAN/BNQ testing protocol will allow for both testing of treatment units, and / or additional treatment devices for the reduction of nutrients, ie. Total phosphorous, total nitrogen, as well as disinfection.

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Code Change Number: S-B-08-06-05

#10

Mark one of the following with an "x":

- I support the potential requirements.
- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** (Please attach additional sheets as necessary)

Code Change - Revise Sentence B 8.6.2.2 (6) as follows

**CODE REFERENCE SUBJECT:** Recognize the classification of treatment units by the BNQ 3680-600 standard in at-risk areas.

I would support the proposed amendment to the code, subject to the following comments;

- This proposal to provide enhanced treatment of sewage effluent in environmentally sensitive areas in support of the Clean Water Act, 2006 and of the Lake Simcoe Protection Act.
- The new CAN/BNQ standard will allow for testing and certification of both treatment units and supplementary treatment units to conform with these nutrient and disinfection parameters.
- These classifications will provide incentives to manufacturers to allow them to conduct research & development, design and build enhanced treatment units to meet these new parameters and be rewarded with a competitive edge in the market place for doing so.

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Code Change Number: S-B-08-06-06

#11

Mark one of the following with an "x":

- I support the potential requirements.
- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** *(Please attach additional sheets as necessary)*

**Code Change - Revise Sentence B Table 8.6.2.2 A as follows:**

**CODE REFERENCE SUBJECT:** Revise the effluent quality table to make it consistent with the BNQ 3680-600 standard's classifications of treatment units.

In principal, the revision of Table 8.6.2.2.A, to be consistent with the new CAN/BNQ standard, is desirable.

Proposed modifications are as follows;

1. A Level I, level of treatment, requires to be included in the table. Level I would represent effluent from a Septic Tank. In many situations, homeowners abuse their sewage systems with chemicals, FOG, drugs and non-sewage matter. Regulatory authorities would then have the ability to enforce the proper discharge of sewage. Indirectly this will assist in the proper primary treatment of septic tank effluent, and the proper performance of conventional Part 8 sewage disposal fields.

2. A more advanced level of treatment should be established, along with corresponding reductions in proposed Dispersal Type A and Type B fields (both loading rates and vertical separations). This will provide incentives to manufacturers to conduct R & D, design and build enhanced treatment units / systems for the benefit of our environment and Ontarians.

Based on enhanced levels of Disinfection, it would be reasonable that there would be benefits to allow reduced vertical separation distances in dispersal fields (both existing Part 8 fields, and the proposed new dispersal fields). Again, this would provide incentives to manufacturers to build a better treatment unit or device, which again would benefit of our environment and Ontarians.

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Code Change Number: S-B-08-07-01

#12

Mark one of the following with an "x":

- I support the potential requirements.
- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** *(Please attach additional sheets as necessary)*

**Code Change** - Revise Sentence B 8.7.3.1 A as follows:

**CODE REFERENCE SUBJECT:** Clarify the sizing of absorption trenches for revised classification of treatment units.

I would support the proposed code amendment to the length of distribution piping, with the following amendment / addition;

With amended clause 8.7.3.1 (3), add the following, except that with Level IV quality effluent and utilizing pressure distribution over a 24 hour period, , the distribution pipe may be sized according to the formula;

$$L = QT/400$$

Table 8.7.4.1.A needs to be modified to have a column for Loading Rates (Column 3) when designing a leaching bed as per 8.7.3.1.(3). [i.e. for a raised absorption trench, or filter bed leaching bed]

Example:

Percolation Time (T) of Soil , (min/cm)	Loading Rates (L/m <sup>2</sup> /day)	Loading Rates (L/m <sup>2</sup> /day)  (8.7.3.1.(3) OBC)
1 < 20	10	20
20 < 35	8	16
35 < 50	6	12
T > 50	4	8
Column 1	Column 2	Column 3

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#13

Mark one of the following with an "x":

- I support the potential requirements.
- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** *(Please attach additional sheets as necessary)*

**Code Change -** Revise Sentence B 8.7.3.3 A as follows:

**CODE REFERENCE SUBJECT:** Div. B 8.7.3.3.

Clarify the construction of distribution piping within a leaching bed.

I would support the proposed code change, with the following amendment;

In sentence 8.7.3.3 (1) c), The words "when required" are not necessary.

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#14

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- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** (Please attach additional sheets as necessary)  
Code Change - Revise Sentence B 8.7.3.3 as follows:

**CODE REFERENCE SUBJECT:** Modify the gradation parameters for septic stone.

The 75  $\mu\text{m}$  diameter particle size on *gradation* of septic stone should be further reduced to a less than 0.1% passing. Furthermore, the asterisks denoting "Does not have to be washed" should be removed in order to avoid confusion and to ensure conformity with Sentence (5) (a) be comprised of washed septic stone, free of fine material, with gradation conforming to Table 8.7.3.3.A. The rationale for reducing the allowable percentage of fines passing the 0.075 mm diameter sieve size is that the gradation is set out by percentage passing by weight of material.

Septic stone (i.e. crushed limestone) has an effective bulk density of the order of 2.5 to 2.7  $\text{g}/\text{cm}^3$ . Silty/clay has a dry density of the order of 1.2  $\text{g}/\text{cm}^3$ . The typical minimum sample weight required for grain size distribution analysis for 53 mm diameter particle size is 20 kg. As such, the allowable weight of fines material is 1% of 20 kg (200g). As the OBC minimum trench dimensions require approximately 110 kg of washed septic stone (based on 2.5  $\text{g}/\text{cm}^3$ ) per each 0.3m of trench length, this would allow upwards of 1 kg (0.83L) or a bit more than 3 cups of dry silt and clay per each 0.3 m of trench length. This may result in significant migration of the fines into the void spaces in the receiving soil, adversely affecting the natural percolation time and resulting in premature failure of the leaching bed.

The reduction in the particle size from 19 mm diameter to 9.5 mm diameter will ultimately result in a smaller diameter septic stone product. This will reduce the available void space within the stone layer, but will increase the effective surface area available for distribution of effluent and establishment of an active biomat.

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#15

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- I do not support the potential requirements (provide a reason below).

**COMMENTS** (Please attach additional sheets as necessary)

**Code Change** - Revise Sentence B 8.7.3.3 (1) (d) as follows:

**CODE REFERENCE SUBJECT:** Require pressure dosing of certain leaching beds.

Sentence 8.7.3.3.(d), be amended as follows;

- Pressure dosed / distribution, by means of pump or any other means to achieve uniform distribution, for;
  - o All filter beds,
  - o All raised absorption trench leaching fields.
  - o All leaching fields and Type A dispersal fields that are pumped
  - o All Type B dispersal fields,
  - o All leaching fields with a daily design sewage flow of greater than 3,000 Litres / Day

Gravity flow, or demand / timed dosing to 3" dia. distribution piping is not recognized as a satisfactory method of achieving uniform distribution to the leaching field, particularly for filter beds where high point loading rates can be achieved. This results in poor treatment, and certainly poor disinfection through either the native or imported sand soils.

Many provinces and US states require that pressurized distribution be a requirement to ensure uniform distribution, particularly with raised fields. It is estimated that 80% of all new sewage systems in Alberta are pressurized.

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Comment Form for Potential Changes for the 2011 Building Code

**A. Respondent Information**

Name: Eric Gunnell, P.Eng. Title: President

I am responding on behalf of:  Myself  
 Organization (specify): Gunnell Engineering Ltd.

Function:  Building Official  Builder/Contractor  
 Supplier/Manufacturer  Designer  
 Property Owner/Public  Sewage Hauler/Installer  
 Other (specify): \_\_\_\_\_

Address: 1110 Stellar Drive, Unit 106

City: Newmarket Province: ON Postal Code: L3Y 7B7

Code Change Number: **S-B-08-07-05**

#16

Mark one of the following with an "x":

- I support the potential requirements.
- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** (Please attach additional sheets as necessary)

**CODE REFERENCE SUBJECT:** Clarify that shallow buried trench construction is permitted in fill.

I would support the proposed code change, subject to the following modifications / comments;

The following alternate wording for the first portion of Sentence 8.7.4.2.(1):

*Except as provided in Sentence (2), a leaching bed...* (the remainder of the sentence would remain unchanged)

A new Sentence (2), is to be inserted, as follows:

Where a leaching bed comprised of shallow buried trenches is constructed in leaching bed fill, Sentence 8.7.4.2.(1)(b) does not apply, only if the percolation time of the least permeable soil or leaching bed fill within 900 mm from the bottom of the shallow buried trench is used to calculate the length of the distribution pipe under Article 8.7.3.1.

Justification: If shallow buried trenches are constructed in a layer of sand fill strictly to increase the underlying contact area, this is a design enhancement, and should not require justification in the OBC.

Further, this material would not fit the definition of “leaching bed fill”, as it is not used to achieve vertical separation. Shallow buried trenches that are constructed in fill that meets the definition of “leaching bed fill” should not require a 15 m mantle, provided that the percolation time of the less permeable underlying native soil is used to calculate the distribution pipe length.

Using this methodology, it is presumed that sufficient hydraulic contact area exists for vertical effluent travel; however, if the distribution pipe length is calculated using the percolation time of the less permeable leaching bed fill, it follows that a 15 m mantle should be required to ensure sufficient hydraulic contact area with the underlying native soil.

## Comment Form for Potential Changes for the 2011 Building Code

### A. Respondent Information

Name: Eric Gunnell, P.Eng. Title: President

I am responding on behalf of:  Myself  
 Organization (specify): Gunnell Engineering Ltd.

Function:  Building Official  Builder/Contractor  
 Supplier/Manufacturer  Designer  
 Property Owner/Public  Sewage Hauler/Installer  
 Other (specify): \_\_\_\_\_

Address: 1110 Stellar Drive, Unit 106

City: Newmarket Province: ON Postal Code: L3Y 7B7

Code Change Number: S-B-08-07-06

#17

Mark one of the following with an "x":

- I support the potential requirements.
- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** (Please attach additional sheets as necessary)

**CODE REFERENCE SUBJECT:** Adopt the BNQ 3680-600 standard's classes for filter beds.

**I would support the proposed code changes with the following modifications / comments;**

In proposed Sentence 8.7.5.1, following the words 'septic tank' add the words 'providing Level I effluent'.

Level I effluent is detailed in the new CAN/BNQ standard, and should be included in the definition. Identifying the Level I effluent from a septic tank standpoint, is important as it gives the building official / regulators the ability to enforce the quality of effluent being deposited from the building by the owner.

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Comment Form for Potential Changes for the 2011 Building Code

A. Respondent Information

Name: Eric Gunnell, P.Eng. Title: President

I am responding on behalf of:  Myself  
 Organization (specify): Gunnell Engineering Ltd.

Function:  Building Official  Builder/Contractor  
 Supplier/Manufacturer  Designer  
 Property Owner/Public  Sewage Hauler/Installer  
 Other (specify): \_\_\_\_\_

Address: 1110 Stellar Drive, Unit 106

City: Newmarket Province: ON Postal Code: L3Y 7B7

Code Change Number: S-B-08-07-07

#18

Mark one of the following with an "x":

- I support the potential requirements.
- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

COMMENTS (Please attach additional sheets as necessary)

Div. B 8.7.5.3.

CODE REFERENCE SUBJECT: Modify filter bed construction to provide better aeration to ensure better fecal removal.

I would support the proposed code amendment, with the following modifications / comments;

While it is true that finer sand will better retain Fecal Coliform, reducing the grain size needs to be countered by increasing the filter bed size to spread out the organic and hydraulic load over a larger area to prevent conditions that will promote clogging.

Thus Clauses 8.7.5.2(3) and 8.7.5.2(4) have to be revised and adjusted accordingly by reducing loading on the surface of the Filter Bed. For matter of consistency, proposed modification below on loading factors of Filter Beds is aligned with the Chowdry Study. In order to expect the same level of performance obtain in the Chowdry Study, sizing criteria requires to be consistent. Effectively, the Filter Bed design in the OBC differs from the design tested by Chowdry.

Tests conducted by Chowdry in 1974 were performed with 2 different loading rates: 49 L/m<sup>2</sup> per day and 73 L/m<sup>2</sup> per day, and results obtained differ accordingly. The average fecal counts at the bottom of the filter beds were respectively 12 000 CFU/100 mL and 44 000 CFU/100 mL. Those results demonstrate that the Filter bed achieves better performance when a lower loading rate (app. 50 L/m<sup>2</sup> per day) is applied to it.

Thus in order to assure better and more reliable performance, better environmental protection and public health & safety, Filter Bed design loading shall be revisited to be more consistent and better reflect Chowdry's study outcomes.

The additional proposed modification below aims also at bringing some consistency between the Chowdry Study and the OBC design in order to ensure more reliable performance of the Filter Bed for a better protection of environment and public health.

Proposed modification:

- Filter Bed Sizing

Modify Clause 8.7.5.2(3) and 8.7.5.2(4) as follow: ..... 2

### 8.7.5.2. Loading Requirements

(3) Except as provided in Sentence (5), where the total daily design sanitary sewage flow does not exceed 3 000 L, the effective area shall be such that the loading on the surface of the filter medium does not exceed ~~50~~ 75 L/m<sup>2</sup> per day.

(4) Except as provided in Sentence (5), where the total daily design sanitary sewage flow exceeds 3 000 L,

(a) the effective area shall be such that the loading on the surface of the filter medium does not exceed ~~30~~ 50 L/m<sup>2</sup> per day, and

(b) the leaching bed shall be comprised of more than one filter bed, each of similar size and adjacent to each other.

Modify Clause 8.7.5.3 as follow:

### 8.7.5.3. Construction Requirements

(1) Sentences 8.7.4.2.(1), (2) and (4) to (11) Article 8.7.4.2. applies to the construction of a filter bed.

(2) The lines of distribution pipe shall be evenly spaced over the surface of the filter medium to which the sanitary sewage is applied.

(3) The filter medium shall have a minimum depth of 750 mm below the stone layer and shall be clean sand comprised of particles ranging in size between the limits of,

(a) an effective size of 0.25 mm with a uniformity coefficient not less than 3.5,

(b) an effective size of 1.0 mm with a uniformity coefficient not greater than 2.0, and

(c) having a uniformity coefficient not greater than 4.5

(5) Where there is more than one filter bed in a leaching bed, the filter beds shall be separated by at least 5 m between the distribution pipes of the filter beds.

(6) The base of the filter medium shall extend to a thickness of at least 250 mm over an area meeting the requirements of the formula  $A=QT/850$ .

(7) The stone layer required by Clause 8.7.3.3.(1)(c) shall not be less than 900 mm above the high ground water table, rock or soil with a percolation time more than 50 minutes

Comment Form for Potential Changes for the 2011 Building Code

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 Other (specify): \_\_\_\_\_

Address: 1110 Stellar Drive, Unit 106

City: Newmarket Province: ON Postal Code: L3Y 7B7

Code Change Number: S-B-08-07-08

#19

Mark one of the following with an "x":

- I support the potential requirements.
- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** (Please attach additional sheets as necessary)

Div. B 8.7.5.3.(8)

**CODE REFERENCE SUBJECT:** Modify filter bed construction to ensure better fecal removals through uniform distribution of effluent.

I would support the proposed code change with modifications, as follows;

- This change will ensure that effluent is evenly distributed evenly over the surface of a filter, with the exception that the wording "or other means that demonstrate uniform distribution" should be deleted.
- The common installation of 3" distribution piping (with either gravity flow, or demand / timing dosing) does not provide for even distribution both through 3" distribution piping and coarse filter sand, resulting in high point loadings, and corresponding poor treatment and disinfection. Pressure distribution is recommended.
- If an applicant has a proposal that demonstrates uniform distribution in the alternative to pressurization, the proposal can be submitted under the Objective Based Code provisions of the OBC.

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## Comment Form for Potential Changes for the 2011 Building Code

### A. Respondent Information

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 Property Owner/Public  Sewage Hauler/Installer  
 Other (specify): \_\_\_\_\_

Address: 1110 Stellar Drive, Unit 106

City: Newmarket Province: ON Postal Code: L3Y 7B7

Code Change Number: S-B-08-07-09

#20

Mark one of the following with an "x":

- I support the potential requirements.
- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** *(Please attach additional sheets as necessary)*

Div. B 8.7.5.3.(9) & (10)

**CODE REFERENCE SUBJECT:** Provide dosing rates for both pump and siphon applications to filter beds.

I do not support this proposed code change, but rather support proposed Code Change # S-B-08-07-08, to improve effluent distribution to filter beds.

Comment Form for Potential Changes for the 2011 Building Code

**A. Respondent Information**

Name: Eric Gunnell, P.Eng. Title: President

I am responding on behalf of:  Myself  
 Organization (specify): Gunnell Engineering Ltd.

Function:  Building Official  Builder/Contractor  
 Supplier/Manufacturer  Designer  
 Property Owner/Public  Sewage Hauler/Installer  
 Other (specify): \_\_\_\_\_

Address: 1110 Stellar Drive, Unit 106

City: Newmarket Province: ON Postal Code: L3Y 7B7

Code Change Number: S-B-08-07-10

#21

Mark one of the following with an "x":

- I support the potential requirements.
- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** (Please attach additional sheets as necessary)

Div. B 8.7.6.2.

**CODE REFERENCE SUBJECT:** Utilize the BNQ 3680-600 standard's levels of treatment for shallow buried trenches.

I would support this proposed code change.

This should be the CAN/BNQ 3680-600 standard.

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Comment Form for Potential Changes for the 2011 Building Code

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 Property Owner/Public  Sewage Hauler/Installer  
 Other (specify): \_\_\_\_\_

Address: 1110 Stellar Drive, Unit 106

City: Newmarket Province: ON Postal Code: L3Y 7B7

Code Change Number: S-B-08-07-11

#22

Mark one of the following with an "x":

- I support the potential requirements.
- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** *(Please attach additional sheets as necessary)*

Div. B 8.7.7.

**CODE REFERENCE SUBJECT:** Add design and construction requirements related to "Type A dispersal beds".

I would support the proposed code change with the following modifications and noted comments;

The following modifications are proposed;

1. A loading rate of QT/400 is not appropriate for all treatment systems. Higher loading rates would be reasonable based on improved treatment performance and effluent distribution within the dispersal bed. (Note: We are recommending a higher 'Level of Treatment' be incorporated in Table 8.6.2.2.A, which will provide incentives to manufacturers to provide enhanced treatment units (good for environment) and benefit from higher loading rates (i.e. smaller dispersal fields).
2. In addition, the step in loading rates from QT/850 to QT/400, for native soil percolation rates above 15 min/cm is not reasonable or justifiable. It is proposed that loading rates be stepped from QT/850 to a lower loading rate, based on increasing native soil percolation rates. I would also propose that for pressurized distribution systems, over a 24 hour period, the total area covered by the sand area described in Sentence (4) shall be not less than the value calculated from the following formula: QT/600. [Justification: Pressurized distribution of a leaching bed will spread the loading period from approximately 12 hours to 24 hours, thereby reducing peak hourly hydraulic loading. Therefore, the size of the leaching bed should reflect this reduction. The rationale is based somewhat on the relatively small area permitted for shallow buried trenches, which also require time-dosing over a 24-hour period.]

3. The vertical separation, as detailed in clause 6 d), be amended based on disinfection provided by the treatment unit. Based on fecals above 50,000, the vertical separation would be 700mm; based on fecals below 50,000 [D-I level of disinfection], the vertical separation would be 600mm, based on fecals below 200 [D-II level of disinfection], the vertical separation would be 400mm, and based on fecals at non-detect [D-III level of disinfection], the vertical separation would be 300mm. This provides incentives to the manufacturers to produce a better treatment unit and be better for the environment. Note: I recommend that these vertical separations be included for Shallow Buried Trenches.
4. Regarding effluent distribution within the stone layer, as detailed in clause 8), the wording should be amended to include that when; i) distribution piping is used, it should be located to 600mm from the perimeter of the stone layer, and 2) that when an open bottom treatment unit discharges directly to the stone layer, the treatment unit(s) should be centrally located with the stone layer to maximize distribution throughout the stone layer.
5. Regarding clause (9), the separation distances should be calculated to the distribution piping or the edge of an open bottom treatment unit located over the stone layer, i.e. not to the edge of the stone layer. Treatment units provide enhanced treatment, i.e reduced fecals / disinfection. There is no need to reduce the separation distances to the edge of the stone layer, noting that for conventional Part 8 fields, the separation distance is calculated to the distribution pipe and not to the edge of stone.
6. Regarding clause (7), imported sand should be specified with a percolation rate of 6 to 10 min/cm, and less than 5% fines passing the #200 sieve.

Comment Form for Potential Changes for the 2011 Building Code

A. Respondent Information

Name: Eric Gunnell, P.Eng. Title: President

I am responding on behalf of:  Myself  
 Organization (specify): Gunnell Engineering Ltd.

Function:  Building Official  Builder/Contractor  
 Supplier/Manufacturer  Designer  
 Property Owner/Public  Sewage Hauler/Installer  
 Other (specify): \_\_\_\_\_

Address: 1110 Stellar Drive, Unit 106

City: Newmarket Province: ON Postal Code: L3Y 7B7

Code Change Number: S-B-08-07-12 #23

Mark one of the following with an "x":

- I support the potential requirements.
- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** (Please attach additional sheets as necessary)

Div. B 8.7.8.

**CODE REFERENCE SUBJECT:** Add design and construction requirements related to "Type B dispersal beds". 2 options are proposed. See proposed Change Number S-B-08-07-13 for the other option.

I would support the proposed changes to include Type B dispersal beds, with the noted modifications, based on the following comments.

There is an industry movement (now embraced by many provinces and numerous US States) to utilize the 'Tyler Tables', as developed by E. Jerry Tyler, PH.D, and linear loading rates, for dispersal field design. This includes the Province of BC.

The vertical separation 8.7.8.2 (5), being for tertiary quality effluent, should be stated at 700mm for not meeting Level D-I disinfection, 600mm for meeting Level D-I disinfection, 400mm for meeting Level D-II disinfection, and 300mm for meeting Level III disinfection.

Regarding 8.7.8.2 (7), compliance should be with Sentences 8.7.3.3 (2) to (4).

I would see future OBC code changes that would move the design of all dispersal fields in general conformity with the 'Tyler Tables' and linear loading rates, with the proposed pressure distribution.

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## Comment Form for Potential Changes for the 2011 Building Code

### A. Respondent Information

Name: Eric Gunnell, P.Eng. Title: President

I am responding on behalf of:  Myself  
 Organization (specify): Gunnell Engineering Ltd.

Function:  Building Official  Builder/Contractor  
 Supplier/Manufacturer  Designer  
 Property Owner/Public  Sewage Hauler/Installer  
 Other (specify): \_\_\_\_\_

Address: 1110 Stellar Drive, Unit 106

City: Newmarket Province: ON Postal Code: L3Y 7B7

Code Change Number: S-B-08-07-13

#24

Mark one of the following with an "x":

- I support the potential requirements.
- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** (Please attach additional sheets as necessary)

Div. B 8.7.8.

**CODE REFERENCE SUBJECT:** Add design and construction requirements related to "Type B dispersal beds". 2 options are proposed. See proposed Change Number S-B-08-07-12 for the other option.

I would not support this version for a Type B dispersal bed, but rather I would provide general support for the proposed Type B dispersal bed as detailed in proposed code change # S-B-08-07-12 that incorporates the 'Tyler Tables' and linear loading rates.

Comment Form for Potential Changes for the 2011 Building Code

**A. Respondent Information**

Name: Eric Gunnell, P.Eng. Title: President

I am responding on behalf of:  Myself  
 Organization (specify): Gunnell Engineering Ltd.

Function:  Building Official  Builder/Contractor  
 Supplier/Manufacturer  Designer  
 Property Owner/Public  Sewage Hauler/Installer  
 Other (specify): \_\_\_\_\_

Address: 1110 Stellar Drive, Unit 106

City: Newmarket Province: ON Postal Code: L3Y 7B7

Code Change Number: S-B-08-09-01

#25

Mark one of the following with an "x":

- I support the potential requirements.
- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** *(Please attach additional sheets as necessary)*

Div. B 8.9.2.4.

**CODE REFERENCE SUBJECT:** Revise the sampling requirements to allow for variances when a grab sample is taken.

I do not support the proposed code changes, and suggest that a new code requirement be established relating to sampling. Very few regulators enforce the requirement for sampling, with the main problem being what to do if there are high test results.

The primary principle underlying the CAN/BNQ approach is that there is no need for ongoing sampling after the performance of a given system has been established. Once a product is certified and maintained with specified field data, which support the bench test results, the performance of that treatment system is considered a certified unit and will be deemed to comply unless and until something changes, such as a design change or a change in the manufacturing process, which suggests that the existing data is no longer representative. And, once the performance of a system has been certified and is supported by field data, the focus should be placed on effective regular periodic maintenance rather than additional sampling.

- Eliminate the sampling requirements as prescribed by the OBC and specify that all treatment units shall be certified under CAN/BNQ 3680-600, and that implies that the BNQ protocol includes an annual field performance audit program on a certain number of sites randomly selected; and
- Mandate the annual inspection and maintenance of all onsite systems including conventional leaching beds with the obligation of the service provider to keep an up-to-date log of all inspection

and maintenance activities performed (including corrective actions required and/or performed), and provide corrective actions as needed to maintain the system into compliance/normal operating conditions. Service provider shall record into the log all field measurements, sampling, observations made and actions undertaken. The service provider shall make the log available to authorities upon request; and

- Require that its owner's responsibility to maintain at all time a valid contract with a maintenance provider and ensure that its onsite system is duly and adequately maintained by the service provider. Owners shall be able also to provide evidence of contract with service provider to authorities.
- On the basis that the service provider identifies deficiencies with the treated effluent, it will be a requirement that they take corrective action to first review the use of the system by the homeowner, and then assess the installed sewage system for deficient items to recommend any improvements necessary. Field sampling could be a requirement at this time to ensure ongoing compliance as corrective measures are undertaken.

One of the big problems that our industry has is that there are a number of treatment systems that are not producing tertiary quality effluent in our cold weather conditions. By moving to the CAN/BNQ standard, only qualified treatment systems will be in the market. Periodic sampling under the CAN/BNQ standards will ensure ongoing certification.

Comment Form for Potential Changes for the 2011 Building Code

**A. Respondent Information**

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 Organization (specify): Gunnell Engineering Ltd.

Function:  Building Official  Builder/Contractor  
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 Property Owner/Public  Sewage Hauler/Installer  
 Other (specify): \_\_\_\_\_

Address: 1110 Stellar Drive, Unit 106

City: Newmarket Province: ON Postal Code: L3Y 7B7

Code Change Number: S-B-08-09-02

#26

Mark one of the following with an "x":

- I support the potential requirements.
- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** (Please attach additional sheets as necessary)

CHANGE # S-B-08-09-02 Div. B 8.9.2.4.(1)(2)

CODE REFERENCE SUBJECT: Clarify the obligations of manufacturers where a treatment unit is not in compliance.

I would not support the proposed code change.

It should continue to be the user that is responsible for maintenance & servicing. Both installers and manufacturers require doing more 'homeowner' training, and this initiative is something that OOWA (Ontario Onsite Wastewater Association) is promoting. In addition, the 'regulators' must take a stronger role in ensuring that a maintenance contract is both entered into and maintained between the homeowner and service provider.

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## Comment Form for Potential Changes for the 2011 Building Code

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 Property Owner/Public  Sewage Hauler/Installer  
 Other (specify): \_\_\_\_\_

Address: 1110 Stellar Drive, Unit 106

City: Newmarket Province: ON Postal Code: L3Y 7B7

Code Change Number: S-B-08-09-03

#27

Mark one of the following with an "x":

- I support the potential requirements.
- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** *(Please attach additional sheets as necessary)*

Div. B 8.9.3.3.

**CODE REFERENCE SUBJECT:** Require interceptors to be maintained in accordance with the CSA B481.4 "Maintenance of Grease Interceptors" standard.

I would support the proposed code change, which would ensure that maintenance of grease interceptors is brought in line with the new CSA B481.4 standard.

Comment Form for Potential Changes for the 2011 Building Code

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 Organization (specify): Gunnell Engineering Ltd.

Function:  Building Official  Builder/Contractor  
 Supplier/Manufacturer  Designer  
 Property Owner/Public  Sewage Hauler/Installer  
 Other (specify): \_\_\_\_\_

Address: 1110 Stellar Drive, Unit 106

City: Newmarket Province: ON Postal Code: L3Y 7B7

Code Change Number: S-B-11-03-01

#28

Mark one of the following with an "x":

- I support the potential requirements.
- I would support the potential requirements with modifications (describe modifications below).
- I do not support the potential requirements (provide a reason below).

**COMMENTS** *(Please attach additional sheets as necessary)*  
Div. B 11.3.1.1.(2)

**CODE REFERENCE SUBJECT:** Require vertical separation to the water table to be in accordance with Part 8

I would support the proposed code amendment to ensure that where an existing septic system is materially altered or repaired, the vertical separation to the water table is upgraded to the Part 8 vertical separation distance for both conventional dispersal fields, shallow buried trenches and new Type A and B dispersal fields.

This will ensure that existing sewage systems are not allowed to continue to pollute our groundwater.

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