2012 Building Code
Changes
What does it mean to the installer?
May 8, 2014
Doug Joy & Katherine Rentsch

Changes for 2014
- Most significant changes since 1997
- Main changes are related to alternative leaching bed designs
  - Type A (area beds) – intended to replace area bed approvals in BMEC
  - Type B – new type of pressurized leaching bed
- Many other changes – most minor but some with significant impact on both construction and ongoing costs

Minor changes
- Treatment levels
  - Drop BOD from consideration – only CBOD and TSS
  - Rename treatment levels to match those in the BNQ
  - What was Tertiary is now Level IV
- Treatment Units
  - Anything certified by BNQ now allowed (does not need to be in SB-5) – new technologies will be available
  - BNQ is a better standard than the old NSF standard as it now includes cold weather conditions

Minor changes (continued)
- Need a detection means for distribution pipes and headers
- All treatment systems sampled annually

Detection Means for Leaching Beds
- Ongoing challenge with on-site systems is locating the system components after installation.
- Some municipalities require “as-built” drawings, some do not.
- As-built drawings that are available are not always accurate and may not be available to the property owner or inspector.
- Makes the inspection of a system after installation more challenging than it needs to be.

Detection Means for Leaching Beds
- Detection means for header and distribution lines now required – 8.7.2.2.(1) & (2)
- Wire, magnetic means or other means of locating are acceptable
For tracer wire, procedure similar to gas lines
- 14 gauge, solid copper light coloured plastic coated wire in each trench
- Grounded
- Connector end exposed and accessible – good place might be the septic tank or by the house at the building sewer.
- Cost is probably only a few hundred dollars for time and materials
- Time required is less than an hour

Some installers have been doing this for some time
- Generally only need to do the (interpretation)
  - outside lines
  - Header
  - Pressure line
- Need for solid vs wire strand might be questioned
- Device to detect of the order of $1000

Use proper connectors, which protect from moisture and corrosion e.g. Copperhead SnakeBite connectors and 3M DBR
- Do not twist the wires together and wrap with electrical tape!
- Place tracer wire in the same orientation as the installed pipe.
- Tie wire to pipe
- Good grounding and terminating of the wire are important

Magnetic Utility Markers ~ $2/marker
- Can be buried up to 1.3 m (4 ft) deep
- Can be installed after construction with a soil corer
- Can install one marker at the end of each run and at either end of the header
- Detector ~ $800 (ca 2014)
Detection Means for Leaching Beds

- "Other means of detection" is open to interpretation
- Will vary from one municipality to the next
- Most CBO’s will probably allow tracer wire on just the outside runs and the header instead of every single line.
- Some accepted options currently available:
  - proper to scale as built drawings
  - GPS coordinates
  - Rebar (L-shaped) at the ends of each line or corners
- Depends on jurisdiction – check!

- Challenge:
  - How do I know what system of detection is being used at any one system?
  - Various jurisdictions will need to arrive at a means of documenting and communicating the method used:
    - Records
    - Sticker on the tank
    - Tag on foundation/plumbing
    - Other means
    - May mean a lot of calls to the building office!

Type A Dispersal Bed vs Area Bed

- The type A bed is intended to (eventually) replace all the BMEC area bed authorizations
- They take elements from all authorizations but are more restrictive
  - Sampling
  - Vertical separation
  - Orientation
  - Horizontal separation
- Until these authorizations are revoked, most jurisdictions will accept these as an acceptable design approach.

Type A Dispersal Bed

- The linear loading rate (LLR) is the amount of effluent (flow) that may be applied per unit length along a contour
- Units used are L/day/m
- Limits placed on the LLR force systems to be longer along the contour.
- The LLR spreads effluent across the slope in order to minimize the impact down slope.
Type B Dispersal Beds – can be “stacked”
- Stone bed is place directly on native or fill soils with a T–time between 1 – 50 min/cm
- Maximum Slope 1:7 – less than allowed for conventional!
- The bottom of the stone layer must be at least 600 mm above limiting layer
- If the native soils have a T>15 min/cm, the entire bed may not be more than 1000 mm in depth measured from the ground surface to the bottom of the stone.

Dispersal Bed B – Stone
- Sized based on total area and linear loading rate
- Total area given by: \[ A = \frac{QT}{400} \]
- Minimum length given by: \[ L = \frac{Q}{LLR} \]
  - Where: \( LLR = 40 \) for \( T \geq 24 \) or \( 50 \) L/m < 24 min/cm
- Maximum width of stone is 4 m
SBT – Type B Comparison

<table>
<thead>
<tr>
<th>T-time (min/cm)</th>
<th>SBT Characteristics</th>
<th>Type B Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Length (m)</td>
<td>#Runs</td>
</tr>
<tr>
<td>5</td>
<td>30</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>30</td>
<td>1</td>
</tr>
<tr>
<td>20</td>
<td>30</td>
<td>1</td>
</tr>
<tr>
<td>50</td>
<td>40</td>
<td>2</td>
</tr>
<tr>
<td>125</td>
<td>67</td>
<td>3</td>
</tr>
</tbody>
</table>

Notes:
- Based on Q = 2000 L/d
- * Indicates minimum allowed

SBT vs Type B – Comments

- Type B are generally:
  - Longer lengths of system
  - Require more piping within the system
  - Especially true for larger T-times
  - Greater area required

When would a Type B be justified over SBT?
- When vertical clearances are critical
  - Type B only requires 600 mm of clearance while SBT requires 900 mm of vertical clearance
  - Lower T-times and affordable septic stone
- Note: many designers “upsize” SBT systems and this may increase conditions under which Type B is desirable

Maintenance of Treatment Units

- When a Level II, III or IV treatment unit is used
  - Property owner must have a service and maintenance agreement with an authorized maintenance provider (OBC 8.9.2.3.(2)).
  - The service provider must notify the CBO if the service agreement is terminated or if access for service is denied.
- Basically the same as before
Maintenance of Treatment Units

- Level IV units installed with SBT, Bed Type A and Bed Type B systems need to be sampled for CBOD and TSS
- Can use a grab sample
- **Must** be sampled **annually**
- Results **must** be submitted to the CBO
- Results must be < 2x effluent limits in Table 8.6.2.2.A – i.e. 20 mg/L
- **Must** fix the problem and resample within 6 months if out of compliance

What will this mean over the long term?

- As the designs migrate to those in the code – especially Type A beds – vs BMEC authorizations
  - More sampling will be required due to the annual nature
  - More maintenance will be required due to specified performance criteria
  - More work for those involved in the maintenance of systems
  - More work for the building departments in administering the programs
- **More consistent performance of systems**

Summary

- Lots of changes in the new code
  - New Beds – Type B
  - Changed Beds – Type A (pending)
  - More sampling
  - Specified performance criteria
  - Detection means for systems
  - Other, less important items
- Gives designer/installer additional options
- Provides better guidance for building officials regarding compliance
- Some business opportunities with regard to maintenance and repair
- Generally speaking – an improvement

Questions?