



NEWSLETTER

Special points of interest:

- Profiles...see more
- Why join OOWA
- New Technology: Enviro-Septic
- OBC - What is it all about?
- The House "Septic" Re-Design
- The Septic System "Sight Unseen"?

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Gunnell Engineering Ltd.

www.gunnellengineering.com

Volume I, Issue I

Welcome!

We take this opportunity to welcome all of our past, present and future contacts, clients and associated business firms / service providers to our first edition of the SepticDesign.ca Newsletter from Gunnell Engineering.

Through our septic design business we have worked closely with architects, residential design firms, other engineering firms, septic system installers, and advanced sewage treatment manufacturers, to meet the individual septic design requirements of our joint clients. This process requires a dedicated team effort.

As we cautiously look forward to 2009, we reflect on 2008 where we have undertaken many investigations to analyze existing septic systems. The purpose of some of these investigations is to upgrade existing buildings to accommodate building additions / expansions. In addition we have investigated a number of failed septic systems

for clients which have been both interesting and educational – we will provide case histories in upcoming news letters. Our firm also provides

upgrading systems and expansions.

To you, our business colleagues and friends, we wish you a healthy and happy 2009 from all of us at Gunnell Engineering Ltd.!

Your thoughts and comments are important to us. Please send in any project information that would be beneficial to our readers.



Elizabeth Lew, Editor

Eric Gunnell, P. Eng., President

septic design services for commercial and industrial projects under Part 8 of the Ontario Building Code, as well as large septic system design and communal sewage systems, which fall under approval process of the Ministry of the Environment (MOE). Another major area of our business has involvement with seasonal campgrounds – both

Field Investigations of Existing Septic Systems, by Eric Gunnell, P.Eng.

We undertake field investigations of existing systems on a regular basis.



The investigation of failing septic systems is the most common. By digging a

series of test pit excavations into a septic field, we can typically assess the cause of failure, which could include; a heavy 'biomat' buildup (typically old age), hydraulic overload (excessive water use), broken pipes (sometimes damaged during the original installation), plugged distribution piping (from toiletries to sludge buildup), use of poor quality materials (non-specified OBC materials), soils settlement (affecting performance) and a number

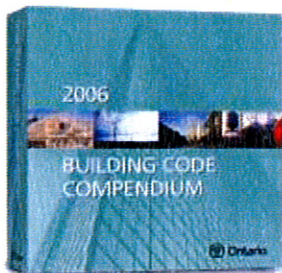
of conditions that may well be responsible for the failure, which could include: a heavy 'biomat' buildup



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NEWSLETTER

OBC - Ontario Building Code



As of April 6, 1998, the rules for on-site septic systems (10,000 litres per day or less sewage design flow) are covered by the Ontario Building Code (OBC). While these code requirements are put in place by the Province of Ontario, local agencies such as municipal building departments, boards of health or conservation authorities are responsible for issuing permits and undertaking site inspections.

The OBC includes regulations related to the operation and maintenance of septic systems - requirements for servicing by qualified people, wastewater monitoring and sampling, septic tank pump outs, etc. If you have ques-

tions about the OBC requirements for a new or existing septic system, you should contact your septic system designer, or the septic enforcement agency in your area.

If you have general questions about how the Ontario Building Code works, you can contact:

Ministry of Municipal Affairs and Housing Development and Buildings Branch,

777 Bay Street, 2nd Floor,

Toronto, ON M5G 2E5

Telephone: (416) 585 - 6666

Fax: (416) 585 - 7531

MMAH's web site :

<http://www.obc.mah.gov.on.ca/>

Profile - Contractor / Installer – Complete Septic Systems



Dan, Michelle, Heather and Tom Keeble

Complete Septic Systems provides a full range of septic system services in York, Durham and parts of the City of Kawartha Lakes.

Fully licensed by the Ministry of the Environment and Ministry of Municipal Affairs and Housing, they provide services for both commercial and residential properties.

The Keebles - Dan, Heather, Tom, Michelle, and their dedicated and professional field staff have been in the business since 1999. Dan has been in

the waste management industry for over 30 years. Not only do they install septic systems, they also will inspect and repair existing systems. Complete Septic Systems is also taking a leadership role in the operations and maintenance of tertiary treatment systems and conventional septic systems. They recently sold their sewage pump out business, along with the name of RC Environmental.

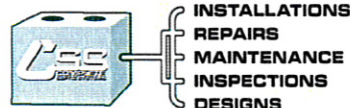
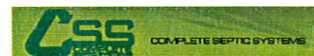
For more information:

www.completesepticsystems.ca

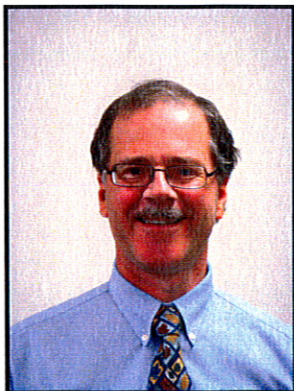
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Profile - Staff Member - Eric Gunnell, P. Eng.



Eric Gunnell, P. Eng

Eric Gunnell is a professional engineer, specializing in the design of on-site wastewater systems. He is the president of Gunnell Engineering Ltd., which provides a variety of rural engineering services. His area of expertise includes the design of new and replacement septic systems, site investigations, trouble shooting new and existing systems, investigation of failed systems, and assessment and upgrading of distressed or undersized systems.

Eric is involved with the design of both Part 8 O.B.C. on-site sewage systems, as well as Ministry of Environment system approvals. His firm is actively involved in the design of conventional septic systems and a variety of tertiary treatment systems, all of which are assessed to meet specific requirements of individual clients and their objectives for the property.

Eric is currently a sitting member of the Ontario Building Code Commission for Part 8 septic systems; a board

member and presently Vice President of the Ontario Onsite Wastewater Association; a member of the Professional Engineers Ontario and a member of the Project Management Institute.

When not at the office or investigating site conditions, Eric can be seen, sometimes without his briefcase, canoeing and hiking in northern Ontario, and skiing in Quebec and Alberta.

Building Code Commission

The Building Code Commission (BCC) is an adjudicative tribunal, authorized under the Building Code Act. Its mandate is to resolve disputes respecting permit applications concerning sufficiency of compliance with the technical requirements of the Building Code, alternative 'Acceptable Solutions', time period disputes for site inspections and time disputes processing permit applications. Parties to the BCC for Part 8 – Sewage Systems, are typically septic contractors, sewage treatment companies, home owners, developers, architects, engineers, etc. as applicants and municipal plan reviewers, building inspectors, registered code agencies (RCAs) and health officials as respon-

dents. The process is relatively quick, and there are no application fees.

Refer to:

<http://www.obc.mah.gov.on.ca/Page51.aspx>, for the latest Policies & Procedures of the BCC, application forms, and hearing date time frames.



Profiling: New Technology: Enviro-Septic Tertiary Treatment System

The Enviro-Septic System is a passive wastewater treatment that prevents suspended solids from clogging the underlying soil, increases system aeration and provides a greater bacterial area than traditional systems.

Effluent from the septic tank flows into a header pipe that leads into the different rows of Enviro-Septic pipes. These pipes are especially designed to increase the effectiveness of the bacterial activity resulting in prolonging the system's lifespan and having a minimal

environmental impact.

BMEC provided authorization in September 2008. It is a proven technology with over 100,000 installations in Quebec and U.S.A. Contact Bert Knip.

Make-Way Environmental Technologies inc.

P.O. Box 1869

Exeter, Ontario

N0M 1S7

Phone: 519-235-1176

Toll Free: 1-866- 625-3929

Fax : 519-235-0570

bert@makeway.ca

www.makeway.ca



Ontario Onsite Wastewater Association

Ontario Onsite Wastewater Association (OOWA) is a group of dedicated professionals that provide network support to the onsite sewage system industry. Members include: installers, engineers, contractors, regulators, septic pumpers, manufacturers, designers and researchers. Established in 1999, OOWA's primary concerns and interests are represented through a voluntary Board of Directors and Committees.

OOWA supports continuing education

with bursary awards to students enrolled in environmental engineering and related studies at Ontario's post-secondary institutions.

The OOWA is associated with the National Onsite Wastewater Recycling Association (NOWRA). NOWRA is the largest organization in North America solely dedicated to educating and representing members in the onsite industry.

The 2009 annual conference and

trade show, being the 'Year of the Installer' will be held March 1-4 at the Sheraton Hotel in Richmond Hill.

For more information please contact:

Ontario Onsite Wastewater Association

P.O. Box 831
Cobourg, ON
K9A 4S3

Denis Orendt

tel: 905-372-2722

email: dorendt@yahoo.ca



The House 'Septic' Re-Design, by Eric Gunnell, P. Eng.

We had two projects this past year which required major house re-designs as a result of not earlier addressing septic system requirements. The 'designated' septic system areas for these two new proposed residences were not adequate to accommodate new septic systems. For one property, there were neighbouring well setback issues, and the second property required a 15 m mantle due to the high water table. Both situations lead to time and cost delays for our mutual clients.

For smaller lots in particular, we always recommend a septic test-pit investigation be undertaken prior to detailed house design. As you are aware, all septic systems with a daily sewage design flow of 10,000 litres or less, are regulated by Part 8 of the OBC.

There are many factors effecting the size and location requirements for a

new septic system. The 'deadly' dug well requires a 30 m (100 ft) setback to septic distribution piping, whereas a drilled well (with minimum 20 ft casing depth) requires a 15 m (50 ft) clearance distance. The opportunities to use in-ground trench systems, whether distribution piping or chamber systems, are few and far between these days due to fewer sandy locations with no water table issues. Conventional raised absorption trench or filter bed septic systems in areas with silty sand or clay, and often associated with a high seasonal water table. These systems also typically require a 15 m mantle (being a 50 ft sand extension beyond the distribution piping for effluent absorption into the native soil), and a required minimum footprint area. Minimum footprint areas are a direct function of the underlying native soils, and are based on OBC Table 8.7.4.1.A. In the alternative, we are designing an increased number of

tertiary treatment systems, which typically can be accommodated in a 50% reduced land area and are lower profile in elevation. Although treatment systems require prescribed regular maintenance, and are usually slightly costlier for smaller scale homes (though less expensive for larger homes on heavy soils) are often an attractive solution, with additional environmental benefits; i.e. fewer trees cleared, and high quality treated effluent.

As you can see, there are many constraints for septic system design as stipulated in the OBC, however there are many solutions available in today's market place. We stress the importance of always reviewing house and septic requirements, in particular for smaller properties, with your septic system designer at an early stage in house design.



The Septic System – No Longer 'Sight Unseen', by Eric Gunnell, P. Eng

Historically, many septic systems have been installed and forgotten. In many situations, the results are e.coli and phosphorous contamination of our groundwater and lakes. Replacing failed septic systems are costly ventures today.

Our industry has received a bad reputation for too many past septic system failures. The root of the problem is lack of maintenance and education of the home owner. For-

tunately, these days are ending. All septic tanks now require the installation of an effluent filter, which is designed to keep solids out of the septic field. Regular inspections of the effluent filter now provide the necessity for ongoing maintenance. Tertiary treatment systems require regular maintenance, as dictated by the OBC. Septic system designers, installers and regulators / health inspectors must take a much more

active role in educating the homeowner. How many home owners are aware that septic tanks should be pumped every three to five years?

We view the requirement for regular maintenance of all septic systems as a desirable situation for our industry, the environment and the homeowner's protection of such a major investment.



OntarioOnsite
WastewaterAssociation

**10TH YEAR ANNIVERSARY
CONFERENCE & EXHIBITION
"YEAR OF THE INSTALLER"**

*Important Information that can improve the revenues for your business.
This is a must attend conference for anyone who is in the Onsite Wastewater Business.*

SESSIONS INCLUDE:

- How to Increase your Revenues by providing Service
- Trouble Shooting Onsite Systems
- Challenges in Large Design
- Soils & Evaluations
- Equipment Maintenance & Service
- Installer & Pumper Liability Issues
- MOT Transportation Rules & Regulations

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REGISTRATION INFORMATION - WWW.OOWA.ORG



GUNNELL ENGINEERING

Gunnell Engineering Ltd.
www.gunnellengineering.com

1110 Stellar Drive
 Unit 106
 Newmarket, Ontario L3Y 7B7

Phone: 905-868-9400
 Fax: 905-853-5734
 E-mail: info@gunnellengineering.com
 Editor: liz@septicdesign.ca

Continued Page 1 – Field Investigations...

(typically old age), hydraulic overload (excessive water use), broken pipes (sometimes damaged during the original installation), plugged distribution piping (from toiletries to sludge buildup), use of poor quality materials (non-specified OBC materials), soils settlement (affecting performance) and a number of other conditions that may well be responsible for the failure. Although often a new septic system may be required,

many septic fields can be rejuvenated, repaired or upgraded at a much lower cost than replacement. The second most common reason for investigating septic systems is to assess the condition and daily sewage flow capacity, for the purpose of accommodating house / building additions, or for a replacement residence. Often septic systems can be updated through the enlargement of septic tanks or the septic field, by providing for a balanced flow design, or the addition of a tertiary treatment unit to work in conjunction

with the existing septic field. These septic system upgrades, where possible or feasible, which must be to current OBC standards, are generally the least expensive alternative in comparison to installing a new septic system. For smaller house additions, there are situations stipulated by the OBC, that require no septic system upgrades.

In future editions of our SepticDesign.ca Newsletter, we will be reviewing specific field investigation case histories and building code requirements.

Our Annual Open House will be held :

Wednesday January 14 from 3 pm to 8 pm

Join us at our office to meet our staff, business associates and many of the tertiary treatment manufacturers.

Refreshments will be served!!

Who we are

For any questions or comments, please contact our friendly and knowledgeable staff:

Eric Gunnell
eric@gunnellengineering.com

Laura Gunnell
laura@gunnellengineering.com

Brian (Jin) Hong
brian@gunnellengineering.com

Elizabeth Lew
liz@gunnellengineering.com

Joe Kim
joe@gunnellengineering.com

Brock Cross
brock@gunnellengineering.com

Matt McCulloch
matt@gunnellengineering.com

Ann Leland
ann@gunnellengineering.com

Imad Aouli
imad@gunnellengineering.com

Lynn L. Drescher
lynn@gunnellengineering.com

Upcoming Events:

Gunnell Engineering Ltd - OPEN HOUSE

Jan 14, 2009 3 to 8 pm

OOWA Conference

March 1-4, 2009

Sheraton Hotel, Richmond Hill

Cottage Life Show

March 27-29 2009

International Centre, Toronto