



## Gunnell Engineering Ltd. SepticDesign.ca

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## Industry News



In memory of  
Rod Dean 1956-2016

Our colleague and dear friend Rod Dean passed on August 14, 2016. He will be missed and fondly remembered by all.

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mulation and TSS removal, with a reasonable improvement in cBOD removal as well.

The core of the Waterloo Biofilter process is still the absorbent filter medium that is configured as a free-draining, attached growth, biological trickling filter. Beneficial bacteria colonize the interior surfaces of the filter medium where they are protected from predators, desiccation, and freezing. These microbes degrade and oxidize organic pollutants, coliform bacteria, ammonium, and other contaminants as the wastewater is retained in the filter medium by capillarity. Passive air

circulation throughout the filter medium provides an aerobic treatment environment without the need for forced aeration and the associated aerobic sludge.



This attached growth process outperforms activated sludge or suspended growth (suspended sludge) processes while having lower energy requirements, fewer moving parts, simpler operation, less maintenance, and a better

ability to handle shock loads of chemical addition or hydraulic overloads. Compared to other media-based trickling filters, the Waterloo Biofilter does not slough off microbes in the form of aerobic sludge, maintains high treatment levels even in very cold climates, and can accept much higher organic and hydraulic loads without plugging.

Waterloo Biofilter® can be reached through their website at [www.waterloo-biofilter.com](http://www.waterloo-biofilter.com)

## Who we are.....Gunnell Engineering Ltd

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### Upcoming Events:

**National Home Show**  
March 11 - 20th, 2017  
Enercare Centre, Exhibition Place, Toronto

### OOWA's 2017 Convention and Expo

The Scotia Bank Convention Centre  
March 25 - 27, 2017  
Niagara Falls, ON

**2017 WEAO Technical Symposium & OPCEA Exhibition**  
Shaw Convention Centre, Ottawa  
April 2 - 4, 2017

December 2016

## Special points of interest:

- Profiles
- Waterloo Biofilter
- SepticCheck.ca



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## NEWSLETTER

Gunnell Engineering Ltd.

SepticDesign.ca

Volume VIII, Issue I

Now that 2017 is almost here, certification for residential wastewater treatment technologies, based on the new CAN / BNQ 3680 – 600 standards has come into effect. CAN / BNQ 3680 – 600 for 'On-site Residential Wastewater Technologies' is the new national standard for testing residential wastewater treatment technologies. Over the past few months OOWA has hosted workshops to provide updates on this Code change and how it affects the industry. Our main article on Page 3 summarizes this to date. Also, read below all about the new Waterloo Biofilter CAN / BNQ 3680-600 approved and certified system.

We introduce SepticCheck.ca, a database management system that was developed by Bill Robinson for properties with onsite sewage systems. This database includes up to date property information provided by the homeowner. A useful tool that benefits stakeholders in the housing market!

Our attendance at the OOWA Annual conference and Central Ontario Regional meeting always provide us with opportunities to network with colleagues, learn about new products as well as to keep current with ongoing regulation changes.

On a sad note, Rod Dean passed away this past summer after a long battle with cancer. Eric had known Rod for

many years; we will miss his friendly demeanour and long standing professionalism in the septic industry.

We hope that everyone had a busy and prosperous 2016; as economists are predicting positive outlooks for 2017. Thank you for reading, and please share your thoughts and ideas with us!

*Elizabeth Lew*

Editor

## Waterloo Biofilter® CAN/BNQ 3680-600 by Brady Straw, BSc

A long time pioneer in the Ontario onsite wastewater industry, Waterloo Biofilter has completed the CAN/BNQ 3680-600 Onsite Residential Wastewater Technologies certification that is required by the Ontario Building Code starting January 1st 2017. The adoption of this standard ensures that only the most robust onsite wastewater treatment systems with cold-weather performance are installed in Ontario. The proven Waterloo Biofilter process consists of anaerobic pre-treatment, storage for demand or timed dosing, and Biofilter foam filtration in below-ground or above-ground gravity drain configurations.

The Waterloo Biofilter CAN/BNQ 3680-600 systems utilize a new and innovative patent-pending Anaerobic

Digester tank for pre-treatment instead of a septic tank. As blocky shaped tanks without flow-directing baffles, septic tanks are not designed as true anaerobic digesters to breakdown sewage. Additionally, the required air space above the standing water in septic tanks creates a hard scum from the capture of sludge particles rising on fermentation bubbles. Traditional septic tanks provide only minimal pre-treatment and act more as tanks to hold solids which are pumped out on a regular basis.

True anaerobic digestion and breakdown of sewage occurs in environments that promote fermentation and hydrolysis reactions. These reactions are enhanced by minimizing short-circuiting and increasing retention time

of the sewage between the inlet and outlet in an environment void of air.

The Anaerobic Digester is a simple, low-cost modification to traditional septic tanks, consisting of a flexible large diameter InnerTube pipe on the tank inlet. The InnerTube provides a long and narrow flow path that minimizes short-circuiting and provides a healthier anaerobic microbial environment as there is no air space. Within the InnerTube itself a different type of granulated sludge is formed, and flow passes through this sludge to remove waste products and prevent stagnation. Third party test results from the Anaerobic Digester show improvements over standard septic tanks especially with respect to solids accu-

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Ontario’s First Fully Compliant Septic Database System : SepticCheck.ca



SepticCheck.ca is Ontario’s first septic system database management system that is building code compliant. This database system provides current information for installers, pumpers, designers and municipality’s septic system records that are readily available from an online database.

As housing ownership changes, it is a benefit for stakeholders in the housing market to have up to date records available for properties with septic systems. The database not only benefits homeowners but also those who have a vested interest in properties with septic systems.

The database connects property owners with licensed septic system inspectors and contractors looking to grow their customer base. By creating the industry’s first online records management system, SepticCheck.ca has made it easy for businesses to be located.

Easy to read reports provide property information, dwelling Information,

septic system information and a report that summarizes the status of the septic system and identifies any current and future issues that may require attention.

The information from the reporting system will provide realtors, mortgage lenders and insurers the current information they require to protect their financial investment in the housing and commercial lending marketplace.

Installers, pumpers and designers who recommend their clients use SepticCheck.ca, ensure they have their clients’ best interests in mind, as well as knowing that they too have access to current information. Having septic system information available online will improve the services that professionals provide to their clients.

Other benefits include increased public awareness, which will lead to an increase in business revenues. Access to this database system will improve your record keeping process, along with

providing regulators the assurance your customers are receiving regular maintenance when required. The database service will provide an email reminder for your customers who require yearly maintenance on their tertiary treatment systems.

For additional information on how this database system will benefit your business contact:

**SepticCheck.ca at 1-855-737-8420 or [info@septiccheck.ca](mailto:info@septiccheck.ca)**

Profile - Contractor / Installer - Deson Construction Limited

Robert DeAcetis founded Deson Construction Limited 27 years ago based on the core values of integrity and commitment. Today the company’s reach has expanded throughout the GTA, Durham and York Region and part of the Kawarthas. Robert upholds his vision to provide valuable services to homeowners, engineers and developers while maintaining high quality and standards.

Robert’s insistence on quality of service, hard work and responsiveness to clients’ needs remains the company credo and has led to successes in the industry. Robert’s ability to address changing conditions and demands, find

and service diverse markets and expand its services has resulted in the company it is today.

Deson has become well recognized in the Septic and Excavation sector of the construction industry servicing the GTA, Durham, York and Kawartha Regions. Deson Construction Limited and Robert are fully licensed by the Ministry of Municipal Affairs and Housing and are certified to install Waterloo Biofilter Systems, Enviro Septic Systems and now Eljen GSF Systems.

Robert continues to embrace emerging technologies, update and refine processes, and offer a diverse set of

services. By remaining responsive to the needs of its clients, and the communities it serves, Deson Construction Ltd. is recognized for the value the company brings to a project.

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DeAcetis Family

The New CAN/BNQ 3680 - 600 Standard — Jason Ghawali, C. Tech. & Eric Gunnell, P. Eng

As of January 1, 2017, all advanced treatment units must now be certified to the requirements of CAN/BNQ 3680-600. Historically, all approved advanced treatment units that have had MMAH approval, were included in OBC Supplementary Standard SB-5. This standard has now been revoked.

In the past, the minimum requirements for inclusion into Supplementary Standard SB-5, was NSF40 certification, by achieving 10 mg/L CBOD5 and 10 mg/L TSS. Treatment units meeting this requirement were referred to as ‘tertiary’ treatment units, as detailed in OBC Table 8.6.2.2. The reference to ‘tertiary’ treatment has now been renamed in the latest Building Code, as ‘Level IV’ quality effluent.

It has likely been determined that testing at the NSF facility in Waco, Texas, was not very representative of our Canadian climate. CAN/BNQ 3680-600 is a Canadian standard, that requires 12 months of rigorous testing, including 6 months of both hydraulic loading & stress testing, which is then followed by 6 months of seasonal reliability testing. CAN/BNQ 3680-600 testing facilities must be located in a plant hardiness Zone 3 or 4 Climate area of Canada, which does not include Southern Ontario. The MMAH have included the requirement for certification to CAN/BNQ 3680-600, with the exception that the sewage influent must either be unheated, or heated to 11°C (i.e. not heated to 17°C).

In addition to testing for CBOD5 and TSS, the CAN/BNQ 3680-600 standard also provides for disinfection, phosphorous reduction and nitrogen reduction, although the latter have limited application in Ontario at the moment.

The intent is that adoption of this new standard will ensure that under performing advanced treatment units will

no longer be in the market place, and will increase the credibility of our industry. However, the high cost of obtaining CAN/BNQ 3680-600 certification, which is estimated in the range of \$250,000 to \$300,000 +, will undoubtedly sideline a number of smaller, but perhaps qualified manufacturers.

Existing CAN/BNQ 3680-600 testing facilities in Canada, include the Bureau de Normalisation (BNQ) in Quebec, and the recently opened NSF testing facility in Edmonton, Alberta. A previously operating NSF testing facility at Alfred College, has been closed for some time.

The following manufacturers completed their certification to CAN/BNQ 3680-600, for use in Ontario;

- Norweco - new Hydro Kinetic FEU sewage treatment system (BNQ )
- BioMicrobics - BioBarrier MBR membrane treatment system (NSF)
- Waterloo Biofilter - new Anaerobic Digester & Biofilter treatment system (BNQ)
- Premier Tech Aqua - Ecoflo treatment system [PENDING written CERTIFICATION - BNQ]

With the recognition of meeting Level IV (formerly ‘tertiary’) quality effluent, as detailed in OBC Table 8.6.2.2, these advanced treatment units are permitted to be used in conjunction with smaller footprint OBC Leaching Beds, including; Type ‘A’ Dispersal Beds (Area = QT/400), Type ‘B’ Dispersal Beds (Area = QT/400) and Shallow Buried Trenches. It is noted that all former [Building Material Evaluation Commission] Area Bed approvals have been revoked by BMEC, and are now included as Type ‘A’ Dispersal Beds in the OBC.

Two other manufacturers have BMEC approvals; Enviro-Septic and Eljen GSF, that are recognized by MMAH as meeting Level IV quality effluent. They are

recognized as combined treatment (pipe / module) and soil / dispersal systems, and offer similar smaller footprint fields (Area = QT/400). They both are not affected by CAN/BNQ 3680-600 requirements, as there is no advanced treatment unit.

Other manufacturers that are currently undergoing testing, include; Clearstream, WSB Clean, and FAST - BioMicrobics.

There has been some question as to whether CAN/BNQ 3680-600, which is referenced to ‘Onsite Residential Wastewater Treatment Technologies’ applies to just residential sewage systems, and therefore is not required for non-residential sewage systems. The OBC is specific in that Level IV quality effluent must be provided in accordance with Table 8.6.2.2, and that the only acceptable testing standard, for an advanced treatment unit is now the CAN/BNQ 3680-600. In our opinion, all advanced treatment units must have CAN/BNQ 3680-600 certification for OBC use in Ontario. In addition, and since CAN/BNQ 3680-600 certification is a new OBC requirement, the use of non-certified treatment units under an Alternative Solution, in our opinion, is not an appropriate option.

The installation of systems that do not have the CAN/BNQ 3680-600 certification may only be installed after January 1st, 2017, if a building permit application was submitted by December 31, 2016.

To access listings of certified technologies, you can visit the following websites; [www.bnq.qc.ca/en/standardization/environment/onsite-residential-wastewater-treatment-technologies.html](http://www.bnq.qc.ca/en/standardization/environment/onsite-residential-wastewater-treatment-technologies.html) (BNQ), and <http://info.nsf.org/Certified/Wastewater/Listings.asp?Standard=CBNQ3680&> (NSF)