

# Cottage Under Construction

## Building your Dream in Muskoka

### Sewage treatment key to a healthy environment

More and more people are concerned with the environment and their impact on it. Where 50 years ago, little thought was given to how we disposed of waste, nowadays, producing as little as possible and containing what we do produce in an ecologically sound manner is of the utmost importance. In Muskoka, an area prized for its natural environment and surrounded by easily infiltrated lakes and rivers, we need to be especially careful.

The rural nature of Muskoka also means many of us cannot rely on municipal treatment plants to effectively treat our sewage before safely depositing it back into the environment. When building outside town boundaries, self-contained septic systems or an acceptable alternative are necessary.

Providing you have enough space and good soil that is able to effectively filter septic effluent, a traditional septic system is probably your best bet.

A septic system usually works by having wastewater from the kitchen, bathroom and laundry flow into a septic tank, which is installed outdoors below ground. The solids remain in the tank and the liquid waste, also known as effluent, drains out into a leachfield. The leachfield is a system of gravel-filled channels and piping that spreads the effluent under the soil. The soil naturally filters germs and bacteria from the effluent before it eventually reaches the groundwater supply.

Problems arise, however, if the surrounding property is mostly bedrock, the soil is clay, there is a high water table or the lot is very small. In these instances, a leachfield may not be possible due to size restraints or because the available substrate cannot properly filter and clean the effluent before it reaches the groundwater supply.

There are a number of septic alternatives that are approved under the Ontario Building Code. Although often more expensive than a traditional system, many

are more effective at cleaning the effluent and can do so in a reduced amount of space.

"We can get our system into areas where you can't get a normal tile bed in," said Craig Jowett, owner of Waterloo Biofilter Systems Inc. "We're treating sewage in the same way, but within a much, much smaller volume."

The Waterloo Biofilter System uses a self-contained trickle filter with absorbent foam in place of the sand commonly used in a tile bed. The advantage of the foam is that it can absorb and hold 10 times the amount of water as sand, thereby reducing the size of the filter required to treat the same volume of effluent. In addition, the open-cell foam provides more area for the necessary bacteria to colonize, and therefore more efficient digestion and cleaning of the sewage effluent occurs.

A septic tank is still necessary, but Waterloo Biofilter Systems is also in the process of developing a new, more efficient septic tank that functions not just as a holding



**SEWAGE TREATMENT IN DISGUISE.** This attractive cedar shed houses the Waterloo Biofilter System's trickle filter for treating sewage effluent before releasing it back into the ground. The above-ground system is perfect for cottages surrounded by rock or for properties with limited space. (Submitted photo)

water and carbon dioxide, which is then vented into the atmosphere.

If you use a composting toilet

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container but as a treatment system in itself. The new tank has no air space and does not develop the thick layer of sludge that builds up in a regular tank. This means the tank needs pumping less often, and is therefore ideal for cottages and remote locations.

Another alternative to septic systems is a composting toilet. Human waste is approximately 90 per cent water. Using little or no added water, a composting toilet evaporates the liquids out of the waste, leaving behind organic material that is broken down by aerobic bacteria into primarily

in place of a septic system, you will also need a greywater disposal system, to deal with wastewater from laundry and kitchen uses. An underground catch basin for liquid waste, known as a leaching pit, is commonly used for low flow water conditions. The sides are lined with brick, concrete or stone and the liquid waste is usually drained into the surrounding soil. However, the soil must allow for a specific rate of percolation, not too slow and not too fast, so bedrock and clay substrates will not be conducive to leaching pits.

If your property does contain

a lot of rock, an above-ground system may be preferable and does have some advantages. The filter portion of the Waterloo Biofilter System can be installed either below ground in a flat bed or above ground in an attractive cedar shed.

"What I like about the shed is that people see it," said Jowett. "They think, oh, that's my sewage treatment system. I won't forget not to put bad stuff down the sink."

Jowett said in their experience one in 20 households kills their septic system by putting too much chemical cleaners, bleach, disinfectant soaps and other hazardous materials down their drains. In many cases, homeowners may not even realize their system is no longer working.

"If you're on bedrock that's fractured, the water will go down those fractures," explained Jowett.

"You'll never see a problem on the surface, but you're polluting the natural environment."

There's been a lot of progress over the last 50 years in environ-

mental cleanup; however, Jowett feels we are still in the dark ages when it comes to sewage treatment.

"Back then there were a septic tank and tile bed and no maintenance," said Jowett. "Fifty years later we still have septic tanks and tile beds and no maintenance."

"We've progressed to not dumping garbage out into the open oceans anymore or putting sewage into the rivers, but we still put septic tank effluent into the natural environment with no maintenance."

The answer, said Jowett, is regular maintenance contracts and proof that the sewage is being treated.

"Have a maintenance contract, it's the right thing to do," said Jowett. "And let's stop putting sewage into the ground because we don't know what happens to it. Start treating sewage and then verifying that it's actually being treated, either by collecting the effluent or having annual maintenance contracts.... Nobody knows what's going on down there."