Ask Jon Eakes

Septic systems for problem lands.

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In a previous show we saw the actual installation of a Waterloo Biofilter Septic System at a cottage where there simply was not enough room, nor enough soil (because of bedrock) for a traditional leaching field. In this segment we visited with the geological engineer Craig Jowett who left Waterloo university to bring this highly ecological concept into the real world.A regular septic system has a septic tank that allows the solid matter to settle to the bottom as sludge, and some of it to float to the top as scum. Actually, by the time that bacteria in the septic tank break down most of the stuff you flush down the drain, there is not a lot of solid matter left. So once a year or so this "mass" is pumped out of the tank and taken away for disposal. The vast majority of everything that goes down the drain actually flows out of the septic tank as a liquid effluent. In a regular septic system, this highly contaminated liquid is sent out to a leaching field where natural bacteria in the soil hopefully decontaminates the waste water before it reaches the lake, stream or the water table. But leaching fields do eventually get plugged up, requiring digging it all up, or some soils don't sufficiently decontaminate the effluent before it goes back into the public waterways.The Waterloo Biofilter system, as with several other new technologies coming on the market, simply help nature to do its job in a smaller space and more efficient manner. The Biofilter sprays the effluent over barrels full of specially made sponges. The sponges, because of their porosity and their size, tend to hold water for a long time, slowly letting it drip to the bottom of the tank. At the same time, these sponges are even better than sand for permitting the establishment of bacteria. The last photo above shows a microscopic look at one of these sponges after the bacteria is well established. In soil the bacteria forms on sand granules. In the sponge it surrounds the "tubes" through the water flows slowly. By the time the water works its way through the basket of sponges, it is clear and clean enough that a very minimal dispersal field is required, a fraction of the size of a leaching field. In fact the dispersal field can be just a couple of feet of soil over bedrock. Often the water is re-cycled for irrigation and toilets. For a residential installation the treatment baskets can take up as little as a 4' x 8' area and the disposal field can be as small as 30' x 30'. Most interesting that the septic tank normally needs pumping every 3 to 5 years.With systems like this we are solving problems with techniques that are better than what they are replacing. We are getting smaller more economical systems with better ecological results.Elwood Laidman Plumbing & Heating were putting in this installation.

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