



Roof Drains and Septic Systems

The local sanitarian said I couldn't tie my roof drains into my septic system? Why not? It's just getting rid of rain water, so what would it hurt?

Your septic system is designed to treat the wastewater generated by your residence. Treatment means protecting public health and the environment. The size of your septic system is dictated by the amount of wastewater that needs to be treated and dispersed into the environment on a daily basis.

The most important number here is the soil loading rate, which is a property of the soil in your yard. The loading rate, given in terms of gallons per square foot per day, says how much water can be spread out over your yard and be treated without backing up and creating a mess. Once this is determined by a site evaluation (a percolation test or soil assessment) the design flow is determined by the size of your house.

It is an accepted engineering number that people use a certain amount of water each day. Usually this amount is agreed to be around 70 gallons a day. So if three people live in your house, the design flow would be 210 gallons a day. If seven people live there, it would be 490 gallons a day.

Systems are not designed, however, based on who lives there, but on how many could live there, if you were to sell the house. So a four-bedroom house could support eight people or 560 gallons per day. A three-bedroom home could house six people or 420 gallons a day. The number of bathrooms is not that important. Six people using one bathroom, while crowded, would still generate 420 gallons a day.

One person living in a home with four bathrooms would still probably only use 70 gallons a day.

Now, if you divide the design flow by the soil loading rate, you arrive at the size your drainfield needs to be. Now you want to run additional rainwater into the system. While it may not be contaminated like your sewage, it will still increase the hydraulic load on your drainfield and would cause slower acceptance of the water and thus lead to backups.

The other issue is that the septic tank is designed to hold the sewage for at least a day to allow solids to settle out. Now, a 1,000-gallon tank is plenty big enough to hold 420 gallons a day (if that's your design flow) when it is new. But as solids settle out and sludge accumulates, you have less space in the tank to hold water.

Thus the less water you use, the more time it has to sit in the tank and let the solids settle to the bottom. So taking shorter showers would certainly help, but more to the point, keeping unnecessary water out of the tank, like your roof drains, is an important aspect. Along the lines of water use, it is better for your onsite system to spread your laundry out over the week rather than doing five or six loads all on one day.

Q&A

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Editor's Note:

This column is based on calls received over the National Environmental Services Center (NESC) technical assistance hotline. If you have further questions concerning roof drains, call (800) 624-8301 or (304) 293-4191 and ask to speak with a technical assistant.