

SEWERAGE

How to size, and build, a septic tank

As often as not, septic tank problems arise not because of abuse and misuse but simply because the system is too small for the household. This happens when the size of a household grows, for example with the addition of

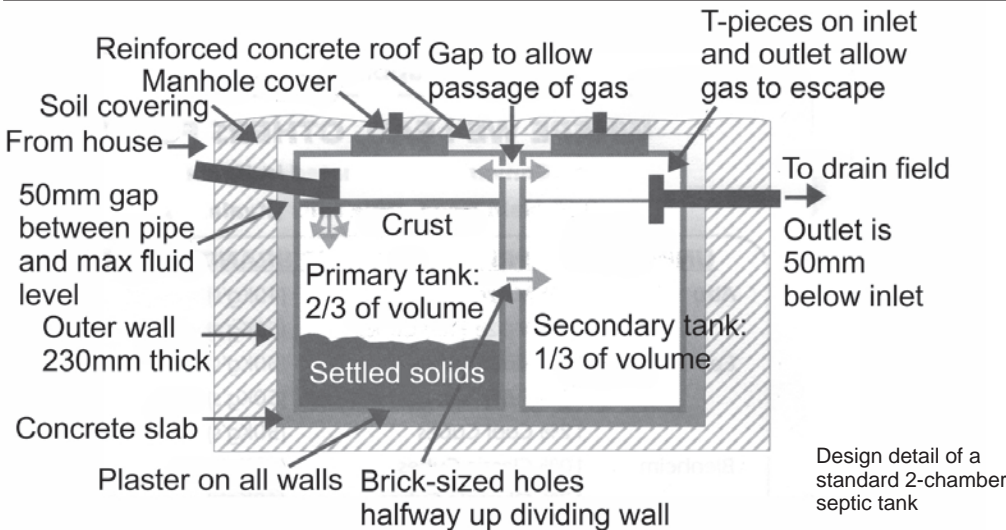
It's common for septic tanks to be built too small, or to become too small as the household expands

children or grandparents, but also because the system was built too small to begin with. Believe it or not, it's a common problem: A newly-

built home may be clad in the most expensive of finishes, but the last component for which any money is left is the septic tank and as a result the

builders scrimp on the size of the hole.

And, believe it or not, very few commercial plumbers know enough about septic tanks and drain fields to advise their clients correctly. The daily volume of effluent emptying into the tank depends, to a large extent, on the size of the household and individual members' habits. Baths use more water than showers, for example, and household members who stay at home during the day use the loo more than those who go to work. Party-animals will also use more than the average by way of loo flushes. The minimum size of a two compartment septic tank system, where the primary and secondary tanks are



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apportioned two-thirds to one-third, should have a volume of 2 520 litres and should be adequate for the daily needs of up to six people.

Such a tank would have internal dimensions of 1,0m x 2,1 m x 1,2m deep.

For eight people the size should be 1,1 m x 2,2m x 1,3m deep (volume 3 146 litres).

For ten people the size should be 1,1 m x 2,5m x 1,3m deep (3 575 litres).

For 12 people the size should be 1,2m x 2,4m x 1,4m deep (4 032 litres).

For 16 to 20 people the size should be 1,2m x 2,6m x 1,4m deep (4 368 litres).

If your kitchen sink is fitted with an automatic waste grinder these volumes should be increased by 30%.

If building one's own tank from brick the walls should be at least 230mm thick, and

Here are the correct sizes for a standard two-chamber septic tank system

plastered on the inside.

The floor, which should be a single-cast concrete slab, should also be plastered.

The dividing wall (between the two tanks) can be a single brick thick, with two holes measuring 230mm x 80mm (equivalent to one brick) sited halfway between the top and the bottom of the tank. There should be a small space between the top of this wall and the roof of the tank to allow gas to flow back and forth between the two tanks.

The primary and secondary tanks need not be adjoining but can be some distance apart and joined by pipe, depending on the topography and soil conditions, as long as the above criteria are fulfilled. The end of the inflow pipe from the house should be 50mm higher than the outflow pipe to the soakaway

or drain field.

Both the inflow and outflow pipes should be fitted with a T-piece. One end of the T should extend into the fluid and the other should stick up in the air as a gas escape.

Another common fault is to fit the roof of the tank with only one manhole over the primary tank. Two manholes should be fitted, one over each tank, to enable them both to be emptied completely by pumping.

The roof of the tank should be of reinforced concrete, not corrugated iron etc, which will rust and become dangerous.

The alternative to building one's own tank is, of course, to buy a ready-made plastic digester system.

In their most basic for these are merely "dig and drop" containers divided into

correctly apportioned tanks fitted with suitable piping. More sophisticated dig-and-drops exist, however, which function as mini-sewage works, cleaning the effluent to a far greater degree than a conventional septic tank and rendering the final fluid suitable for use as irrigation water or for discharge into rivers and streams.

These systems are more complex. They are divided into five or more chambers, including two which function as primary and secondary septic tanks, another which is filled with plastic media and an air pump and functions in much the same way as a municipal sewage aeration system, and yet another tank from which reactivated sewage sludge, containing a concentration of beneficial microbes, is pumped back hydraulically into the septic chamber as a "booster".

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