

Planning a pit latrine

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BEFORE THE DECISION to build a latrine is made, there are many things to consider. Get some expert advice if you can.

The type of latrine

We will look at three types of hygienic latrine...

- a pour-flush latrine – suitable where people use water or soft toilet tissue for cleaning themselves
- a sealed-lid latrine
- a ventilated improved pit latrine (VIP).



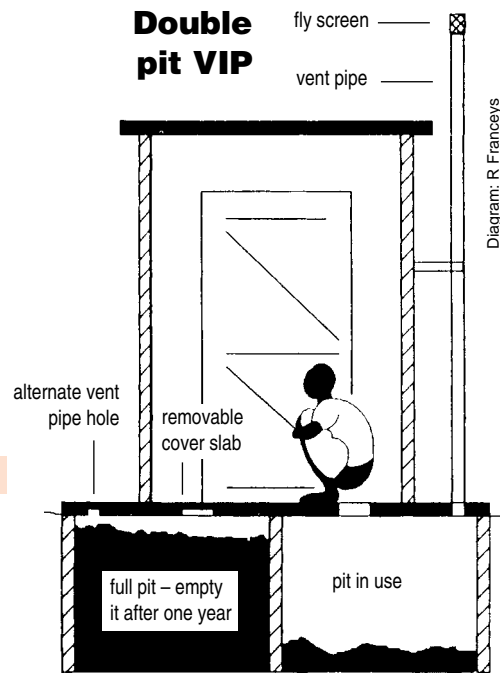
Where to build it

It is convenient to build it near to the home but it should not be within 15m of a well or a spring source or it may pollute the water.

One or two pits?

You can dig a single pit about 3m deep (or deeper if you want it to last longer). If you cannot dig so deeply, then you can dig two shallower pits. With a pour-flush latrine these pits can be outside the shelter, connected to it by pipework. With the sealed-lid latrine or the VIP latrine the shelter has to be partly over both pits.

Digging two pits means that first one pit is used until it is nearly full. Then it is sealed while the second pit is used. After at least a year the material in the first pit can be safely emptied and used to improve the soil in a garden. The emptied pit is then ready for use again.



Digging and lining the pit

At least 0.5m depth of lining is recommended at the top of a pit in all types of soil. This supports the squatting slab and may also support part of the shelter. For the rest of the pit the need for lining will vary depending on the soil strength...

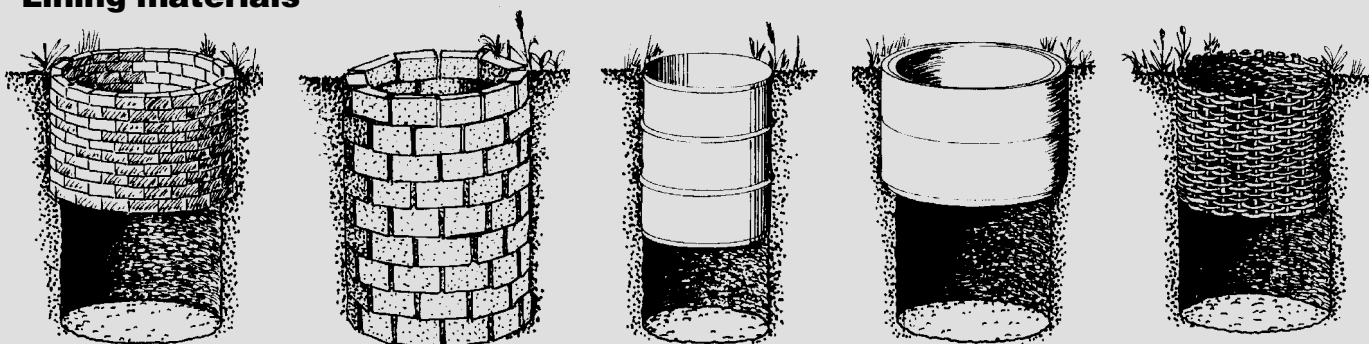
Hard firm soil – may not need lining below the top 0.5m.

Rocky ground You can build some of the pit above ground surrounded with a mound of earth and steps leading up to the latrine.

Soft loose soil You will need to line the pit to prevent the sides falling in.

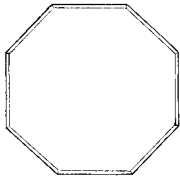
The lower part of a lining should have small holes so that liquid can seep through the holes and out of the pit.

Lining materials



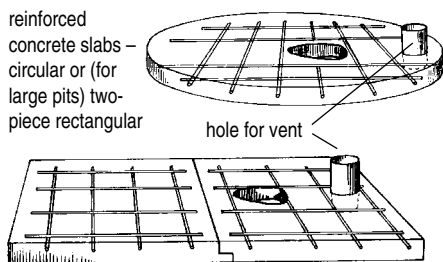
Circular pits are stronger than other shapes.

If you have firm soil and do not need to line the whole pit, first dig only to the depth of the lining and then build up the lining wall. When the lining wall has hardened you can continue to dig a slightly smaller pit inside the wall. A guide frame and a plumb bob (eg: a stone on a piece of string) are useful aids for obtaining the right size of hole with vertical walls. An octagon (8 sides) is a good guide for a round hole.



The covering slab

For sealed-lid and VIP latrines, the best material for the squat slab is concrete, since this is strong, rot-proof and easily cleaned. Flat slabs will need to be at least 80mm thick with 6mm diameter bars every 150mm in both directions. (See page 15 for thinner kinds of slabs.)

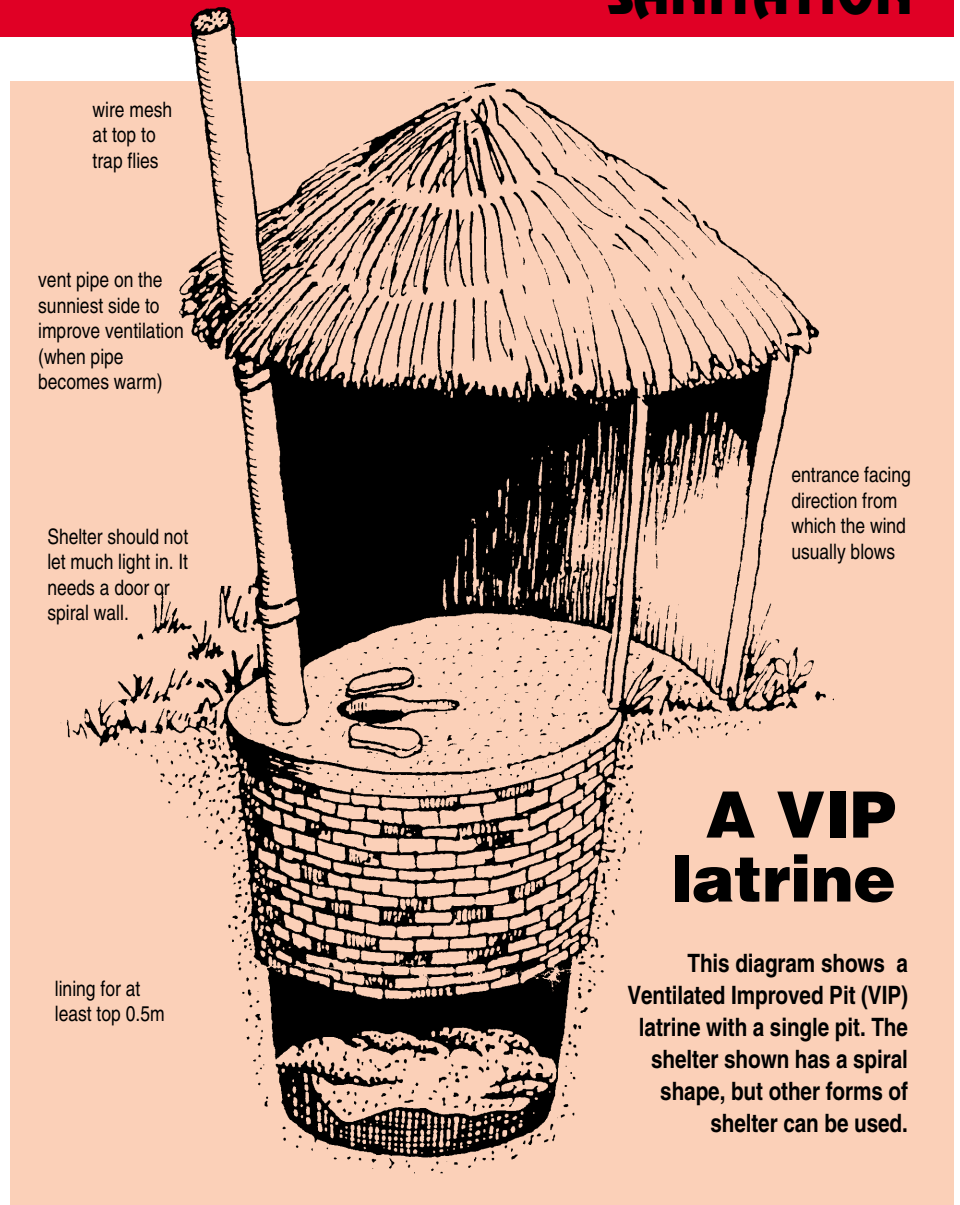


The size of the slab can be the same size as the outer lining if this is built of brick. If the lining is made from an oil drum or basketwork it needs to be slightly larger so that at least 200mm of the slab rests on the ground all round the pit. There should not be any gaps under the slab to let flies or smells leave the pit. You can also build a floor out of traditional materials like wood covered with mud – but add a sanplat (page 15) so that the area around the squat hole can be washed clean.

Pour-flush pans can be placed directly above a pit in which case the floor needs to be strong. If two pits are used the pan and shelter floor do not need to be directly over the pits and can be unreinforced. Concrete slabs will still be needed to cover the pits.

Size of squat hole

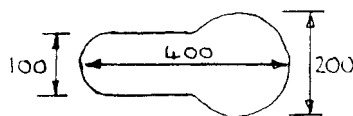
The hole should not be too large, or small children can fall into the pit. A keyhole



A VIP latrine

This diagram shows a Ventilated Improved Pit (VIP) latrine with a single pit. The shelter shown has a spiral shape, but other forms of shelter can be used.

shape 100mm wide and 400mm long with a 200mm diameter circular hole at one end is a good size.



Squat hole cover

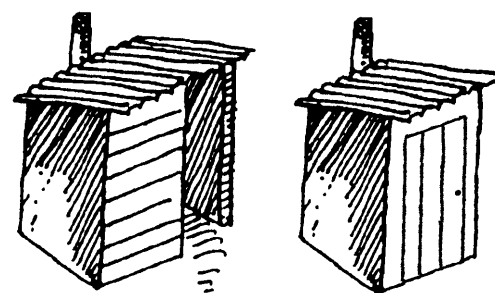
A squat hole cover should only be used with the sealed-lid type of latrine (it would stop proper ventilation of a VIP latrine). This cover (lid) needs to be tightly fitting to control smells and flies.

The shelter

The shelter can be built from any available local material. For a VIP it needs to be fairly dark inside but this is not necessary for the other two types of latrine. If people are unlikely to close a door after using a VIP, a better design is to build a spiral shaped shelter. This does not need a door but still provides privacy.

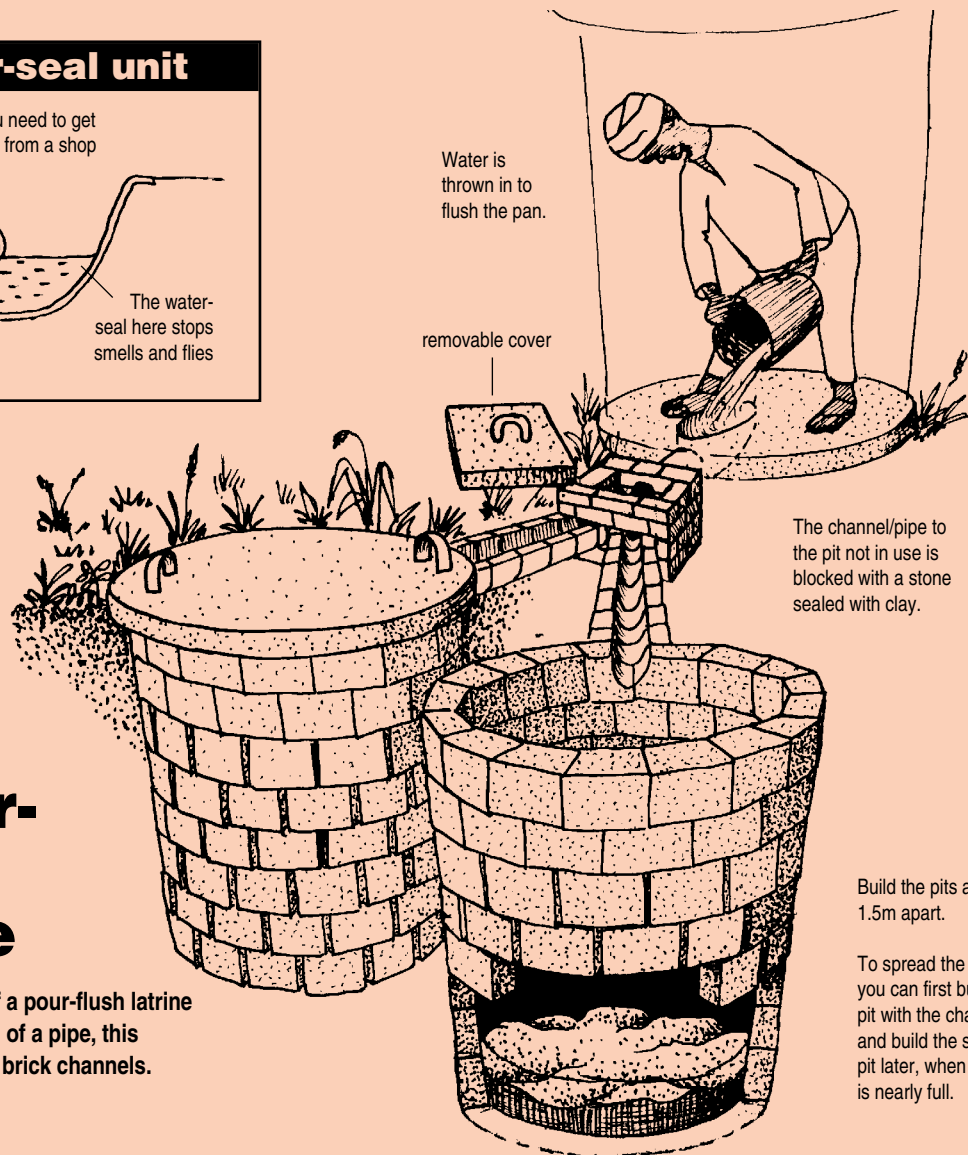
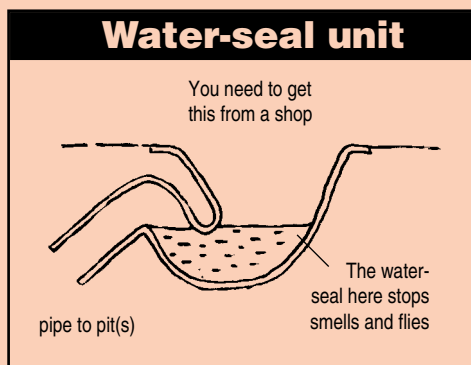
VIP latrines

VIP latrines must have a vertical pipe, ideally at least 150mm diameter, or brick chimney connected to the pit. The top of the pipe should be covered with mesh to stop flies using the vent to enter or leave the pit. To prevent the mesh deteriorating due to the sunlight or corrosive gases from the latrine it should be of glass fibres or stainless steel and not plastic or normal steel mesh. The holes should be about 1.2–1.5mm square.



VIP with a square spiral shelter

VIP with a door



A pour-flush latrine

This is an example of a pour-flush latrine with two pits. Instead of a pipe, this design uses covered brick channels.

Build the pits at least 1.5m apart.

To spread the cost, you can first build one pit with the channels – and build the second pit later, when the first is nearly full.

Wind blowing across the top of the vent pipe sucks air out of the pit while fresh air flows into the pit through the squat hole. This flow of air is helped if the door faces the direction from which the wind normally blows.

The VIP shelter needs to be fairly dark to discourage any flies that enter the pit

from leaving it through the squat hole, carrying disease-causing organisms with them. This works on the principle that flies are attracted to light. To a fly in the pit, the squat hole will not be brightly illuminated so it will try to leave by going up the vent towards the sunlight shining down into the pit. The mesh will stop it escaping and it will eventually die.

Children's latrines

Young children are often afraid to use a latrine, or find it difficult to manage. An alternative idea for very young children is to dig a shallow pit (0.5m deep) with a small slab with a cover (just like the sealed-lid latrine but smaller). No shelter is needed. Encourage children to use this and always to replace the lid. If you find that this shallow latrine becomes smelly, you may find that adding some ashes will help. Move the slab to a new hole when the bottom 200mm is used and fill the used hole with soil.

Keep the latrine clean!

Wash the latrine slab regularly with a brush and soapy water. (Rinsing water left from washing clothes is ideal.) Make sure that hands are washed each time the latrine is used.

Take pride in your latrine. The benefits to your family's health are enormous! Encourage all your neighbours to follow your example.

