

Building a brick VIP toilet with a door



Peter Morgan and Annie Shangwa

The VIP toilet is used in many African countries for use in the school.

A simplified unit which allows for recycling of both the hardware and the pit compost has been designed and this can be made by school children.

The VIP can be made of many materials. This presentation shows how the school children made it with bricks.

The Blair VIP toilet with corbelled brick pit lining

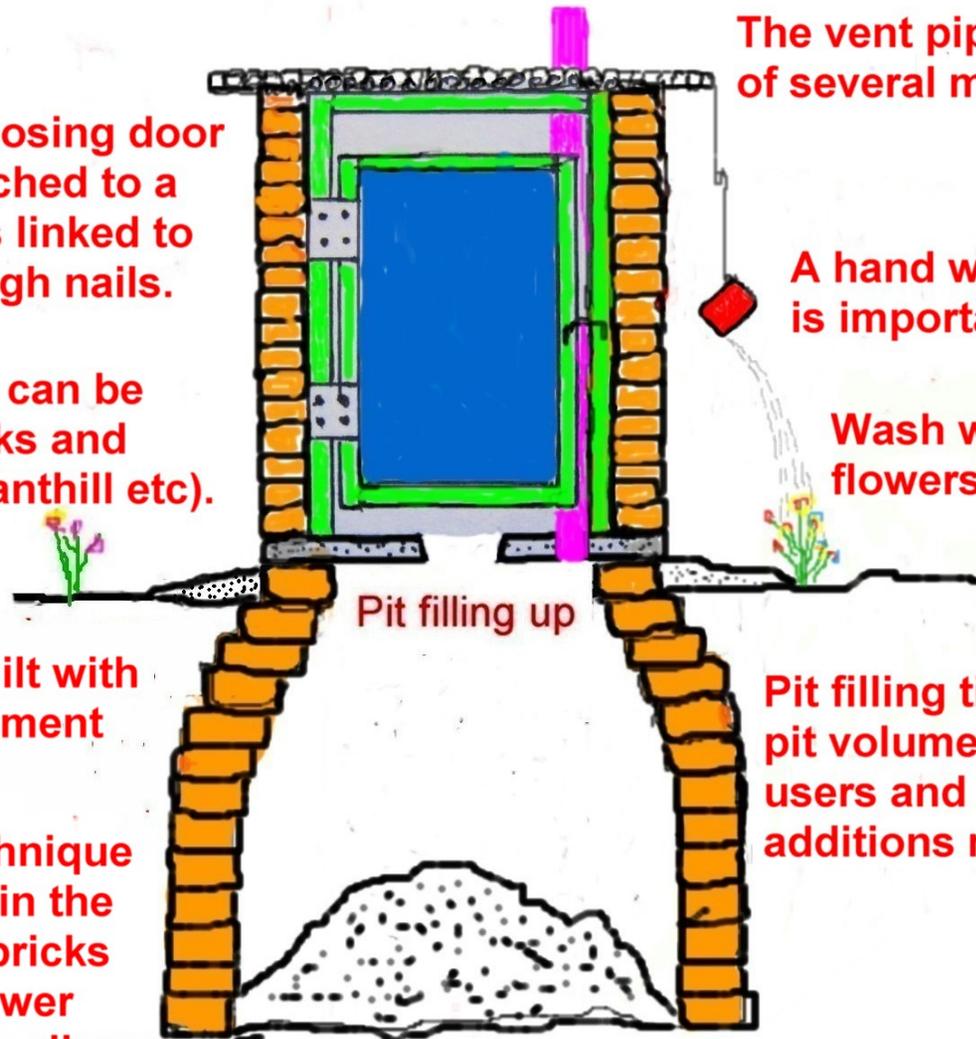
In this case a self closing door has been fitted attached to a door frame which is linked to the brickwork through nails.

The superstructure can be built with fired bricks and traditional mortar (anthill etc).

The vent pipe can be made of several materials.

A hand washing device is important

Wash water can irrigate flowers, herbs etc



The pit lining is built with fired bricks and cement mortar.

The corbelling technique involves stepping in the upper courses of bricks so the top is narrower than the base. This allows for a smaller slab to be placed on a larger pit.

Pit filling time depends on pit volume, number of users and type of additions made to pit.

Stages in making the brick VIP

- 1. Caste the slab*
- 2. Dig the pit*
- 3. Line the pit*
- 4. Fit the slab on brick lined pit*
- 5. Prepare the door and door frame*
- 6. Mount the door frame on slab*
- 7. Brick up round brick structure*
- 8. Fit the door*
- 9. Fit the roof*
- 10. Fit the pipe (previously made)*

Making the concrete slab.

This is 1.1m in diameter and made with a squat hole and vent hole (90mm or 110mm). It is made of cement (10 litres PC15) and river sand (50 litres). The slab can be cast on plastic sheet or on a levelled bed of sand. The mould is made from bricks.



Making the concrete slab.

Half the concrete mix is added first. Then at least 8 lengths of 3mm wire are added in a grid formation. The second half of the concrete mix is added and smoothed down flat with a float. The slab is left to harden overnight, then covered and kept wet for at least a week to cure before moving.



School children making the slab



Stages in making the toilet

Digging the hole and lining the pit with bricks

In this case the hole is dug 1.5m wide and one metre deep. This means that once the pit is lined with bricks it will be about 1.3m in diameter. A family toilet pit will normally be dug down to 2m depth using the corbelling method. Where school children are doing the brickwork for the first time, a one metre deep pit is ideal.



Bricking up and corbelling the top end.

The cement mortar is made up of one part cement and 16 parts pit sand. A full bag of cement is enough to line a 2m deep pit and also made a concrete slab.



Bricking up and corbelling the top end.

The bricks should rise above ground level with the diameter of the brickwork being matched with the diameter of the slab. Where a 1.1m diameter slab is being used the outer diameter of the bricks should be 1.1m. A layer of cement mortar (or traditional mortar) is added to the bricks so the slab can bed down safely on the brickwork without cracking.



Fitting the slab

The slab is carefully lowered down on the brickwork



Preparing the door frame

The door frame is made of two wooden poles (length 2.1m) with spacer timbers at top and bottom. Nails are knocked in along the length so they can enter the cement mortar between bricks. These nails form anchors (sprags) to make the frame firm.



Mounting the door frame

Before the brickwork can support the door frame it is held in position with a long pole.



Bricking up the structure

The arrangement of bricks is shown here. They are laid down in a circle around the edge of the concrete slab. Cement or traditional mortar is laid down between the bricks to bond them together.



Bricking up the structure

The mix of pit sand and cement can be 16:1. A little extra cement is added where the nail enters the mortar. The nails anchor the door frame to the brick structure.



Bricking up the structure

This arrangement of bricks can make a strong and stable structure. It uses far less bricks than the normal Blair VIP toilet.



Bricking up the structure

The brickwork continues until it is about 1.8m high above the slab.



Preparing the roof frame

The roof frame is also made of poles which are wired or nailed together as shown. This roof frame should overlap the brickwork.

Plastic sheets are then attached to the roof frame with wire.



Mounting the roof frame

The frame is then mounted on the structure and attached to the door frame and bricks with wire



Mounting the door

The frame of the door is made to fit inside the outer door frame. It is also made from poles. The door connects to the outer door frame through rubber hinges made from car tyre. It is important thye rubber hinges are strong and durable



Mounting the door

A sheet of light material is fastened to the frame of the door to provide privacy. The door and frame can also be made of timber planks or even with steel frames.



Covering the roof with grass

The roof is covered with grass at first when is held down with reeds and string. This can be made more permanent later with roofing material made of tin sheet or asbestos or thin concrete.



Fitting the vent pipe

A suitable vent pipe is made and fitted to the hole in the slab and also through a hole made in the roof. Several methods are available for making vent pipes suitable for VIP toilets.



Stabilising the roof and fitting door latch

Wire is used to attach the roof to the structure. Several methods are available to secure the door when the toilet is occupied.



Finishing off

The new toilet can be decorated with flowers in its own garden. A hand washing device is important.



Daily use and maintenance

It is important to keep the toilet clean. If the user wishes to make toilet compost and dig it out later, soil and ash should be thrown down the pit regularly and no plastic or other garbage. Nutrients in the pit can also be recycled later by planting a tree near to the pit. Eventually the tree roots will invade the pit and take the nutrients.

Farm bricks are unlikely to resist root invasion.

