

## **the campsite washblock toilet**



We moved the campsite to one area and I built a wash block with easier to maintain toilets. An important improvement was using a different kind of separator, which couldn't be blocked. I roughly based this on the Natsol toilet design and experimented with it in our first house toilet before using it in the campsite. Our first house toilet is described below, after the campsite washblock section.



A little about Natsol toilets: they are high end off-the-peg ones that have a very sanitary feel to them, which is very good for use by the general public. One of the local allotments has one which I went to look at and learn from. Three things struck me:

1. The poo chambers are generous, which seems unnecessary for an allotment site, as most people defecate in the morning or evening so the toilet doesn't have to deal with a large volume of poo. The toilet was installed several years ago and currently one chamber has a tiny heap in it and the other has never been used
2. The poo chambers are anchored into the ground using tonnes of concrete. This is so that they can have level access - essential for wheelchair users - without the risk of the chambers floating when the water table rises. In terms of concrete use that's quite an environmental cost to putting them in - worth doing in some situations, but perhaps a smaller poo chamber with less need for anchoring would be more appropriate for allotments.
3. The urine runs away into the ground through a soakaway rather than being used on crops, which seems like a shame to me in a place where people are growing food. The NPK in urine occurs in similar proportions to NPK fertilizer so an allotment site would be a great place to take

advantage of that. Most of the nutrients we excrete are in urine, not faeces. They both have reasonably similar proportions of nutrients good for plant growth in them, but an adult produces approx. 300g of faeces a day and approx. 1500ml of urine.

However, Natsol toilets also have an interesting separating system based on the fact that liquids tend to adhere to stainless steel sheets. It solves the problem of the general public using it and poo going into the wrong hole. I got our local metal worker to make up something with the same angles etc and put one in our home toilet. Basically, if you're sitting when you pee, the urine hits a metal sheet, which curves round underneath and has a lip where the urine drips into a pipe which carries the urine away.





## Key features:

- Two IBC containers - filled one at a time but with two cubicles over each.
- An IBC for urine - no more carrying and hand emptying of 20 litre containers
- Stainless steel separating sheets which can't be blocked
- Stink pipe with solar fan on top - not necessarily better than a good chimney
- Fly catcher behind with water in it.
- Separate urinal for men to reduce urine going into the poo containers



## Problems:

The separating system:

This has not worked so well for this one - it became apparent that one of the separators - the one in the larger, and therefore most used, cubicle, was not

aligned properly over the pipe, so too much urine was going into the tank. This is because I cut one long hole in the 68mm plastic pipe for both the separators to drain into. The pipe gradually warped (perhaps partly because there wasn't so much support along the whole length of the hole and perhaps also partly because of temperature rises in the summer heat and from the composting process).

Too much urine in the tank has slowed the composting process (I think it is too salty/acidic? for worms to survive) and led to too many flies – hence the fly catcher. Usually the heap reduces much faster than it has been here – I think it needs a better habitat for worms!

Another problem with the pipe being so low is that it means I need to start knocking the top off earlier and it also limits how big the pile can get in the chamber so it significantly reduces the available volume of the container

Smells:

In addition, in an attempt to create a good drop for the urine to drain away fast, I sloped the pipe down more than in our household toilet and over the width of the two cubicles this means that there is a gap between the bottom of the separator and the pipe the urine drains into and also, because of only cutting the one hole, there is a gap in the pipe between the separators. Sawdust gets into the pipe, holds old urine and smells bad. It's also pretty inaccessible for cleaning. Hence the solar fan!

Overuse:

This isn't a problem as such, but there are three people using this as their main toilet year round as well as the campers through the summer months. One person will be getting their own toilet soon and the market garden toilet will be relocated into one of the camping fields to deal with some of the campsite waste, so this is a temporary issue.

### **Solutions:**

Temporary troubleshooting solutions have been:

- The solar fan for smells – only partially successful as it only runs when there is enough sunlight and an open pipe would draw some air out even

when the sun isn't shining, but way better than before for the hot summer days, when there are a lot of campers.

- The fly catcher – amazing!
- Raking the top back and adding more sawdust often!
- Draining excess liquid off the bottom using the tap in the IBC.
- I took some of the contents out of the container and put loads of very fine, dry sawdust in. I needed a quiet time in terms of camping to do that. I put it into the 40 litre containers as I can leave it in them long term without worrying about hygiene as I no longer need these containers for anything else. I also added vegetable waste and more worms, as these have been so good at reducing the volume of the compost in the other toilets.
- The urine may well have come into contact with poo because of the open space above the urine pipe. I will transfer the urine into a secondary tank and leave it sealed so that the ammonia kills any pathogens that may be in it. Fortunately I have a tank in place for just this purpose!

Permanent solutions: None of the above are permanent solutions, they were just ways to mitigate the problem this year until I set up the new poo chamber for the coming year. I plan to do this by:

- Installing shallower steel separators in the fresh chamber.
- Raising the height of the urine drainage pipe relative to the separators so there's no space for sawdust/toilet paper/etc to fall into it.
- Cutting separate holes for each separator just the right size for them, instead of one big hole along the length of the pipe – also so no sawdust or toilet paper can get into the urine drainage pipe.
- Provide more toilets elsewhere to reduce the amount of waste going into these ones!
- I have already blocked the light sources other than the fly catcher so the flies only go there.