

handbasin and urinal

At this point you install your handbasins and urinals, because their waste pipes will probably go through the chamber and outside wall to a drain, which will be impossible to do once the platform is on the chamber.



This urinal was rescued from a salvage yard and fixed with car body filler. You can see a Hepworth valve underneath, which allows liquids through, but doesn't allow smells back. the drain from the bottom of the Hepworth valve goes through the wall and into a sewer drain.

We recommend waterless urinals, for obvious water-saving reasons. It's possible to turn any urinal into a waterless one with a Hepworth valve (see below).

You may be able to obtain second-hand washbasins and urinals from salvage yards. We were given a broken urinal for free, and fixed it with car body filler.

Carefully measure the height of basins and urinals, mark holes for bracket screws, drill holes with a masonry drill, insert rawlplugs and screw brackets to the wall. Basins usually just sit on brackets, which fit into slots, and the basin is held in place by the plumbing and silicon sealant around them – as long as you don't jump on them or deliberately try and pull them off the wall, they'll stay in position. Urinals usually sit on brackets, but also have a fixing at the top which slot over screws to keep them in place. If it's new it will come with instructions, and if it's second-hand, you'll have to work it out.

When installing the basins and urinals, its very important to ensure there's enough drop to get the waste water down to the drains. In the case of a waterless urinal, this drop also has to incorporate the Hepworth valve.

A Hepworth valve, sometimes called a HepVO (Hep-vee-oh) valve contains a rubber flap which allows water through, but then closes and doesn't allow smells back. The trap or U-bend under the basin performs this function, but you can't have any kind of trap under a urinal, as the urine in it will start to smell. You can get a Hepworth valve for around £10 from any good plumbers' merchants. They have a thread which attaches to standard waste kits.

There are also waterless urinals that you can buy with a little oil trap – urine passes through the oil, which then forms a seal to stop smells. The oil needs to be topped up once a year. We've never come across one of these urinals, so can't comment – but the HepVO method is cheap and works well.

Plumb in the hot and cold water to the washbasins. Here isn't the place to describe plumbing techniques. Get a plumber to do it if you are unsure.

Don't forget the earth bonding on any exposed pipework. Again, this is not the place to explain plumbing techniques, so read up or ask a plumber to do it. Basically though, it's a requirement of the Wiring Regulations, and a very good idea, to connect all metal pipework to each other, and then to the earth in your main consumer unit; otherwise, if there is a short-circuit / fault anywhere in your house that renders some metal pipework live, then touching that pipe (or a tap etc.) somewhere else in the building could give you a nasty shock and even be fatal.

female / unisex urinal

Although you can buy a new or second-hand male urinal easily enough, it's difficult to come across a female version (but not impossible – search online). If you're not planning to have conventional toilets as well as a compost loo, then you're going to need a female urinal. Ours is simply a washbasin fixed onto a welded metal frame, with a toilet seat on top (see image). Choose a deep washbasin (to avoid splashes), or a bidet would almost definitely be better (we didn't have one), and get someone (female, naturally) to use it to see if it works before fixing it permanently. The urinal is unisex of course, so if you only fit one urinal, this is the type to install.



This unisex urinal consists of a seat and lid attached to a washbasin fixed to a home-made metal frame (although a bidet would be better). It has a normal waste kit with a Hepworth valve attached underneath.

On the female / unisex urinal, you fit a Hepworth valve underneath in the same way as above, but it is even more important to check that there is enough drop to the drain, as it will be lower to begin with.

drains from handbasin and urinal

The waste pipes, bends, tees and other fittings from the basins and urinals will be 32mm plastic, but be careful because nominally 32mm pipes etc. can be different sizes. Take an example to a plumbers' merchants. The waste from the urinal can tee into the waste from the basin. As mentioned above, there needs to be a trap under the basin and a Hepworth valve under the urinal. Cut all pipes and fit together with bends, tees etc. before solvent welding, to make sure that everything fits properly first.

Be sure that there's enough height even after the Hepworth valve for the waste pipes to fall constantly all the way to the drain, so that gravity can remove the liquids. It doesn't have to be a very steep gradient, but it does have to fall a little bit.

Because the chamber is against an outside wall, the waste pipes will probably have to go through it to get outside to the drain (or leachfield etc. – see 'what happens to the urine?'). Make holes in the chamber and outside wall with an SDS drill and masonry bit, fit all the pipes and fittings together, then take apart again, clean and solvent weld them together. Then mortar around the pipes where they go through the chamber and wall (inside and out), and when dry, paint the mortar with bituminous paint, to stop damp from penetrating into the walls.

drain from chamber

You need a permanent drain from the bottom of the chamber, to ensure that liquid doesn't build up, and turn the pile anaerobic.

Make a hole from the inside of the chamber at floor level, through the outside wall, and then insert a length of plastic pipe, with a bend on the outside wall to take the liquids to a drain, leachfield, reed bed etc. (see 'what happens to the urine?').

If you are connecting (the drain from the chamber, and from the urinal) to a sewer drain, then the pipe needs to go underground to the inspection chamber of your sewer drain. This isn't difficult - builders do it all the time, and it keeps Environmental Health happy. Make sure it's not a surface water drain though. You need to do a bit of research to find out where your drains go (see 'what happens to the urine?').

If this is impossible to do, then it will work if the pipes drain into a gully on the surface. You'd need to put some sort of a cage around it to stop kids touching the outlets, and it wouldn't keep Environmental Health anywhere near as happy. But if it's out of the way, it will work.

Mortar around the pipe inside and out, and when dry, apply bituminous paint inside. You can put a grille over the end of the pipe inside the chamber to stop it becoming blocked with sawdust, and to be absolutely sure that no flies can enter the chamber, you can put some sort of mesh over the end of the pipe at the drain – a piece of nylon net curtain fixed with electrical tape will do.

If the chamber replaces a conventional toilet, it might be a good idea for the chamber to drain into the old soil pipe – put some sort of a grille over it to stop it becoming blocked by sawdust.



Here you can see the hatches to each chamber of a two-chamber compost loo. Each chamber is in a separate room next to each other in the house. The hatch on the left looks as though it has a mesh to allow air in, and in fact it did, but it was covered over when we realised how cold it was to use the toilet in winter! You can see four drain pipes coming through the wall. The lower two drain the bottom of the chambers, and the higher two are from the urinals / washbasin. All four empty into a sewer drain, although this system is not ideal (see text).