

Fact Sheet

Affordable toilets for allotments

We all have to answer the call of nature: yet the chances are that if you are working on your allotment, the back of a hedge is your only option. Installing a toilet can make it easier to attract new plotholders from a wider range of user groups and gives the site a better image. This factsheet gives information about some of the low-cost models available.

Even the most elaborate toilet is only as good as the person that cleans it! It is crucial that you work out a reliable system for cleaning and maintenance of the toilet before you install it, with a secure agreement that users will adhere to. A number of sites have had to close their toilets because the users were not looking after them.

Mains toilets are rarely a cheap option, especially as few sites will have access to mains sewer systems and there are ongoing costs to be met. Septic tank and compost toilet systems are much cheaper to install and run, and are just as acceptable to users. What matters most is that your toilet is accessible to all the users, hygienic, easy and safe to use with minimal smell.

Many associations have lowered the costs by using volunteer labour, especially plotholders with building or plumbing skills, the probation service and British Trust for Conservation Volunteers (BTCV). Some associations have also lowered costs by using reclaimed wood or bathroom fixings.

Compost toilets

Compost toilets usually have a wooden cubicle raised off the ground, positioned above a chamber to collect the deposit.



Blondin Allotment Association, Ealing

Many hands make light work – and reduced costs – when it comes to installing an affordable toilet!

A raised compost toilet is easier to build and empty and has better ventilation than a 'dug-out' compost toilet. The chamber is built of a wooden frame, with sides made of a double layer of chicken wire, packed with straw or a similar material. The straw keeps the flies out and the chamber is left unboxed to allow good ventilation. It is crucial that the chicken wire is trenched a foot into the ground to prevent rats getting in (rats eat human faeces).

There is no need for a ceramic toilet bowl, just a box and a hole above the drop, with a toilet seat. Air vents can be incorporated in the cubicle and the chamber design.

A bulking agent is added after each toilet use, to soak up the moisture and provide a carbon source, which helps with the composting process. The bulking agent is usually a generous handful of sawdust added with each use. Sawdust is available in most agricultural shops or suppliers of animal bedding. Provide a bucket of sawdust, a scoop and laminated posters that explain:



- 1 how to add the bulking agent
- 2 the fact that no water is needed
- 3 to not add non-compostable items
- 4 hand washing

If paper towels are provided, the user can drop them into the toilet to provide additional bulking agent.

The platform should be a strong design that is not likely to collapse! It should not need to be more than 4 to 5 feet (1.5 m) off the ground and care must be taken to prevent the steps/ramp becoming slippery when wet. Nailing chicken wire to wooden steps/ramps is the usual method (make sure that nails do not stick up).

A compost toilet needs emptying when the composting chamber is full, which initially must be done at the end of the first year's use and is then usually repeated every 3-5 years after that, depending on the level of use (this is just one example of the need to think though who is going to do the ongoing maintenance of your toilet once it is installed).

Emptying this type of toilet is not as unpleasant as you might imagine as the waste will have broken down to inoffensive compost by then. If you have two composting chambers next to each other, then you can close the first chamber off when it is full and move the toilet seat to the second chamber. When the second chamber is full, empty the first chamber and move the toilet seat back over, closing off the second chamber. Wearing gloves, spread the compost around shrubbery or fruit trees (but not vegetables).

The main problem with compost toilets is that they are designed for depositing dry waste (faeces), whereas allotment holders need a daytime toilet, usually to urinate. Excessive urine will hinder the composting process and make the toilet smell. If the toilet is for light use and sufficient bulking agent is added each time, this minimises the problem. Alternatively, there are a range of urine separators and compost urinals available to keep the urine separate, many of which are cheap or easy to make. There are other uses for urine too, e.g. as a high nutrient plant

fertiliser on fruit bushes and shrubs once diluted, or as a compost activator. See *Resources* for a list of books covering this topic. including 'Liquid Gold', published by Green Books.

Some organisations run courses in building compost toilets and related structures, which may be cheaper than paying a consultancy firm to carry out the work.

Leachfields and soakaways

Most compost toilets and septic tanks will produce small amounts of liquid effluent, either out of the base of the chamber or via a urine-separating device. This needs treating so that it does not pollute groundwater. If the ground conditions permit, treatment can occur in the soil via a soakaway or leachfield. The effluent flows into a gravel-filled trench where it is filtered by the gravel before passing out through the walls and base of the trench into the soil. See *Resources* for sources of professional advice on this topic.

Tree bogs are a type of compost toilet that rely on a ring of 'thirsty' vegetation planted around the toilet, usually 2 concentric circles of willow cuttings, to absorb effluent. If the toilet is to be mainly used for urine, you could also plant comfrey beds for nitrate/phosphate absorption. If groundwater levels are high you will not be able to install a tree bog owing to the risk of contaminating ground water.

Toilets with urine separators should not require a leachfield. Natural Solutions (see *Resources*) advise on a system in which urine is collected along with water from the washbasin and rainwater off the roof and used for irrigating fruit bushes or trees.

Reed beds

A reed bed is an artificially created wetland, planted with special species of reed, which can be used as an alternative to a leachfield or soakaway for sewage treatment. The oxygenating reeds stimulate the development of huge numbers of micro-organisms, which turn the sewage effluent into clean, safe groundwater. They can also be planted to

clean smelly, boggy areas resulting from old blocked and overflowing septic tank and soakaway drains systems.

Reed beds are efficient and cheap to run and, like compost toilets, return the nutrients of human waste to the soil. Bacteria, e.g. e-coli, may be present in human effluent, therefore a risk assessment should be carried out before installation. See ARI's *Health and Safety pack* for information about water features on allotment sites and how to carry out a risk assessment. Some organisations run courses in designing and planting your own reed bed, which may be cheaper than paying a consultancy firm.

Septic tank systems

Although not as environmentally friendly as a composting toilet, a septic tank system is the cheapest flush toilet and is easy to install. A septic tank is housed in a concrete chamber, with a conventional flush toilet plumbed in above. A pump-out firm empty the tank every 2 – 10 years, depending on level of use, at a cost of about £150 a time. You will therefore need to site the toilet somewhere that the pump-out vehicles can get into and out of easily.

Finding a reliable plumber may seem daunting. Contact the Institute of Plumbing and Heating Engineering for advice on how to do this (see *Resources*).

For a 2,800 litre (light use) septic tank, expect to pay between £500-£600. Other costs include:

- Costs of constructing a leachfield
- 'Readymix' concrete to line chamber
- Digging the chamber (JCB is best)
- Plumbing
- Toilet bowl and fixings
- Cubicle
- Cost of hiring a plumber where required
- Connection to a water supply. Septic tanks can be connected to an existing "raw water" supply (this is the "not-drinking water" piped from the mains, used by ploholders to water plants and

by domestic users to flush toilets). All sites will need to allow for: cost of connection, additional water usage costs (metered or rates). Sites without a water supply will also need to consider installation and connection to a mains water supply (contact your local water provider for statutory requirements).

By choosing a septic tank with full instructions such as 'Titan', anyone with average DIY/plumbing skills should be able to install the tank and toilet. Prices will vary, depending on the specifics of the site, however the cost of a septic tank and your own installation will be approximately £3,000-£4,000.

Before starting work, it is important to consider how much run-off liquid the toilet will produce, and choose a size of tank according to your site's needs.

The toilet cubicle

Once you have decided what type of toilet system to install, consider carefully where to site the toilet and what type of cubicle to use. Is the location convenient for users? Is the cubicle and toilet suitable for access by disabled users? Are ploholders and outside neighbours nearby happy to have a toilet next to them? Is the cubicle inconspicuous and resistant to vandals?

A reclaimed shed is the obvious basic choice for an allotment toilet, or you could build your own. You may be able to obtain a redundant shipping container or Portacabin from the Council.

An area of scrub unsuitable for plots would be an ideal location. "Tree bogs" should not be sited near drains as willow roots will find and clog drains.

When selecting the flooring material remember that the users will often have muddy, wet boots: linoleum or plastic tiling will soon become slippery and unsightly. A floor of concrete, wood or even just compacted earth is more suitable.

If you hold evening meetings on your site, make sure that your toilet has some kind of lighting. Installing mains electricity is expensive, whereas solar panels are a cheap alternative and can be supplied as a

kit with a panel, battery and fittings. They have a vandal-resistant design and could be used to power ventilation fans as well as lighting. Encourage ploholders to use their own torch or, if all else fails, a hurricane lamp provides basic lighting.

Regulations and health and safety

Whichever toilet option you chose, you should check with your local water provider first that you are not in breach of any byelaws regarding the system you have chosen.

Permission will be needed from the allotment authority (this is usually your council allotments department, or the landowner for private sites). You are likely to require planning permission for a toilet: the amount that this will cost will vary depending on the type of structure that you build and what kind of foundations you will need. Your local authority may say that a structure built on an allotment site by the allotment authority does not need planning consent, but one built by a group or tenant does.

You may also need to get approval from council building control officers and environmental health officers. If your toilet produces an effluent you will need to contact the Environment Agency as you will need a Licence to Discharge (which also incurs a fee).

Check design and health and safety issues with your council's environmental services department as well. Finally, check that either your allotment authority's or your own insurance policy (if you are a self-managed site) covers toilet provision and obtain confirmation in writing.

If you need evidence for your applications of the benefits of a compost toilet flag up their affordability, environmentally friendly design and impact, and how it will attract new ploholders to your site.

Preventing vandalism

Ensure that the toilet cubicle is kept locked to prevent misuse and provide keys to all users. Carriage locks are particularly

good, with a square hole requiring very particular keys. A steel faced door will prove secure. The lock could be installed in the door-frame for extra strength. If there is a toilet unit, as in the case of all septic and some compost systems, the unit should be enclosed under or inside the cubicle in some way, so that it cannot be vandalised. A self-build DIY compost toilet is more likely to blend with other buildings and sheds on site and not stand out as "new" and easy target, and is easier to replace.

If the cabin is constructed from wood, painting the cabin with fire retardant paint helps to reduce vandalism risk. You may want to make it very obvious that the building is a toilet, not just to assist your users but to prevent vandals breaking in looking for tools to steal! You could grow climbing roses or blackberries over the toilet cubicle to prevent attempts to upturn or fiddle with it.

Hand washing facilities

Council environmental services departments will stipulate that hand washing facilities must be provided with any toilet. They may be happy with a holding container with tap attached, or they may state that only mains running water is acceptable. You might want to provide a towel, soap and nail brush.

If your allotment site is linked up to mains water it will not be difficult to plumb in a connection for hand washing facilities. The sink can drain straight out into a sump (area of absorbent ground) or into a container for irrigation use. Use biodegradable soap.

Maintenance

Some sites use an honorarium system, where an individual is given a small sum of money to maintain it; others use a rota. Ensure that ploholders know who to contact in the case of any faults or leaks. You will need a fund for repairs, pump-outs (for some toilets) and supplies of cleaning materials etc. Introducing a subscription scheme for users is one way of generating this fund.

Funding a toilet

Keep costs of toilet installation to a minimum by involving the plotholders in building it: if they want a toilet enough, they should be prepared to help make it happen. This will also enable people to acquire useful skills for repairing and maintaining the toilet in the future.

You can probably obtain second-hand toilet basins and wash basins from bathroom fitters. Reclaimed wood may be available in local wood yards, industrial sites, skips etc. However, if you have obtained a grant for your toilet, the grant criteria may stipulate that you are not allowed to use some second-hand materials.

To be eligible for grants, you will need to prove that your toilet is attracting new users to the allotments, rather than just benefiting existing members. A compost toilet saves water and may contribute to “sustainability and recycling” targets, so try council recycling and sustainability grants. Consult the ARI information pack, *A guide to fundraising for allotment associations*.

If your site is adjacent to playing fields, parks or other public amenities you could see if the managing authority (probably council leisure services) would like to share the cost and use of toilets.

Disability access

Improving disability access is about more than just providing a wheelchair accessible toilet; you need to improve access to the rest of the site and engage prospective users. See ARI factsheet *Allotments for All*.

Building a disabled toilet can be expensive: a ramp with a 1:15 or 1:20 gradient is required and various grab rails etc. Because a platform compost toilet is raised off the ground it will require a longer ramp if disabled access is required, unless the natural slope of the site can be used (see above right). Alternatively, consider submerging part of the toilet chamber below ground.

For more information about the requirements for a disabled toilet unit, contact the Disability Rights Commission (see *Resources*).



St Annes Allotments, Nottingham

This compost toilet makes use of a natural slope in its design: a wheelchair ramp will be built curving up the slope



Blondin Allotment Association, Ealing

Note the long ramp required for this platform toilet

Portaloos

If you require a toilet at short notice, e.g. to accommodate a school group or an open day, your best option is a portalo. You should allow £75 -100 to hire a single portalo unit for the day, including delivery and collection costs. You can find suppliers via the internet or listed in the phone directory. A single portalo unit costs about £500-600 to buy (or about £1200 for a wheelchair accessible unit) and can be expected to last for about 10 years. Portaloos also need to be emptied regularly which will also incur costs.

Case studies: compost toilets

Bath Tree Bog

The toilet is sited away from any plots, in an area of scrub, adjacent to a 30 foot conifer hedge. The hedge is ideal for absorbing any effluent: its roots are very 'hungry' and it flourishes in the shady spot, unlike willow.

The council's environmental services department were happy with the design and location. They did not raise any objections.

The site has found that a whole cross-section of users have been very impressed by the toilet. "Everyone is quite overcome by the toilet – not the fumes, there aren't any – but by the concept of it," said Tim Baines, "the only problem is that squirrels keep eating the toilet rolls!"

The simple design of the toilet meant that the ploholders were able to build the toilet themselves and to use a lot of recycled materials, including reclaimed wood for the toilet chamber, cabin and platform. The toilet cost £100 and was paid for by the ploholders.

Edinburgh allotments

Edinburgh City Council have installed Excel NE compost toilets on nine allotment sites.

Gordon Road Tree Bog, Bristol

The site receives frequent visits from allotment people coming to view the compost toilet. The design is similar to

Bath's, except that the chicken wire surround is packed with bramble clippings. "We used brambles because that's what was available and they actually prove ideal" said Fred Miller.

The building of the frame for the platform and compost chamber was run as a training course led by a local joiner, rather than a workday, with participants gaining joinery skills as well as learning to build a compost toilet.

The toilet shed is built out of builders' pallets and wood from the nearby industrial estate and the steps built using some reclaimed stairs. The toilet cost less than £50.

Roundshaw Allotments, London Borough of Sutton

A retired builder and ploholder is building the toilet, with help from Probation Service young offenders. The toilet cubicle will be an ex-trading hut donated by the parks department. The toilet will cost £500 for materials and £320 for the required planning permission.

Atwood Drive Allotment Site, Bristol

A compost toilet with similar design to those at Gordon Road and Bath. The platform sits on fencing posts sunk into the ground. The group has built silo bays out of railway sleepers: once the compost is emptied from the chamber it is mixed with straw/hay in the silo bays for final composting, then used in the tree nursery. The toilet has a leaching bed 4ft x 2ft in size.



Roundshaw Allotments, London

Gordon Road Allotments, Bristol

Bath Organic Group

Atwood Drive Allotment Site, Bristol

Edinburgh City Council

Blondin Allotments Association, London Borough of Ealing

The compost toilet at Blondin Allotments was designed and constructed by Natural Solutions. The 3m² toilet building is generally of timber construction with block-work composting bins and corrugated tin roof. The toilet has a urine separation system and twin composting bins. Only one bin is live at a time and the other one is spare or rotting down. The toilet has been in use by the 100 plot site since July 2002. The toilet has a separate urinal and small wash-basin powered by rain collected from the roof. The water and urine is discharged into a small land drain locally.

The toilet was financed jointly by a grant from a local environmental initiative, 'Green Corridor', with additional support from London Borough of Ealing.

The allotment holders built the foundations and block-work composting bins and they also helped Andy Warren from Natural Solutions during the main building construction work.

The complete toilet building cost £4,400. £2,000 of this was for the building materials and the labour costs were a further £2,000. The remainder covered the toilet workings, furniture and fittings. The 10m long wheel chair ramp was added later and cost a further £1,700 in materials and labour. The money for the ramp was kindly provided by the local Blondin Residents Association.

Case studies: septic tanks

Narborough & Littlethorpe Allotments Association, Leicester

In 2001 the association bought a Titan septic tank toilet from Travis Perkins, using a Lottery grant. They have been pleased with their toilet.

They hired a farmer with a JCB to dig the hole, laid a concrete bed at the base of the hole and inserted the septic tank. The tank was filled with water to prevent it rising up whilst the hole was infilled with more concrete, shale and gravel, followed by soil membrane, soil and soil vent. There is an inspection chamber a few yards from

the toilet, to check that the effluent is clear (otherwise fouling of groundwater occurs). There was no plumbing for the septic tank: all couplings came with the system, so it was simple to just connect the toilet pipe to the tank. The association built the leachfield, consisting of a gravel bed with a blue polyurethane cover.

"The members did the work themselves during a work-weekend. We needed some professional help with digging out and laying the concrete for the Titan septic tank system, but other than this our members achieved the rest by themselves – and all credit to them for their industry. Some spent a few hours with us, half day, day or weekend supported by hot drinks and ending each night with a BBQ," said association chairman Trevor Matthews.

Bexley Allotment Federation, London

A site under devolved management in Bexley have installed a septic tank toilet, converting a small portacabin into the cubicle. The site uses a Klargestar unit and the entire installation cost about £3,000. The toilet pump-out will be paid for by a subscription system of users.

Resources

Centre for Alternative Technology (CAT)

Consultancy service and courses on compost toilets, sustainable sewage treatment, renewable energy. Visitor centre features several examples of compost toilets and renewable energy. Publications include 'Lifting the Lid' on compost toilets and 'Sewage Solutions' on wet toilet systems. Both priced £12. 'Septic Tanks, An Overview' is good if you are installing a flush toilet system.

Tel: (01654) 705 950
courses@cat.org.uk
www.cat.org.uk

Disability Rights Commission

Advice on requirements for disabled toilets.

Tel: (08457) 622 633
enquiry@drc-gb.org
www.drc-gb.org

Our vision is to
increase allotment
uptake by individuals
and groups

Contact ARI at:

The GreenHouse
Hereford Street
Bristol BS3 4NA

Tel: 0117 963 1551

Fax: 0117 923 1900

ari@farmgarden.org.uk
www.farmgarden.org.uk/ari

This fact
sheet
is also
available
in
large
print,
braille
or on
audio
tape
from the
ARI
office

Please feel
free to
photocopy and
circulate ARI
publications

Eco-logic Books

Various books available on compost
toilets and septic tank systems.

Tel: (01225) 484 472

info@eco-logicbooks.com

www.eco-logicbooks.com

Green Books

Independent UK publisher of a wide
range of environmental books
including 'Liquid Gold' (price £4.95)
and 'The Composting Toilet System
Book' (price £19.95).

Tel. (01803) 863 260

sales@greenbooks.co.uk

www.greenbooks.co.uk

www.iphe.org.uk/consumer/findrp.html

Advice on finding a plumber.

www.compostingtoilet.org

Lots of information, including links to
suppliers of commercial units.

Energy Development Co-operative Ltd

Solar panels.

Tel: (0870) 745 1119

info@solar-wind.co.uk

Klargester Environmental Ltd

Septic tank and holding tank systems

Tel. (01296) 633 000

www.klargester.co.uk

pollutiongb@kingspanenv.com

www.kingspanenv.com

Camphill Water, CVT Ltd

Sewage treatment courses; design,
installation, consultancy.

Tel: (01594) 516 063

Cleanwater

Installs small package sewage
treatment, septic tanks, reed beds.
Consultancy service.

Tel: (01288) 331 561

Biologic Design

Information on treebogs.

Tel: (01886) 884 721

www.biologicdesign.co.uk

Solar Energy Alliance

Solar panels.

Tel: (01502) 515 532

info@solarenergyalliance.com

www.solarenergyalliance.com

Expertise Limited

Environmental and chemical process
engineering consultancy with special
expertise in water and effluent
treatment and other environmental
technology, water and waste
minimisation.

Tel: (01629) 826 482

www.expertise-limited.co.uk

Cress Water

Specialises in the design and
installation of reed beds, ponds and
wetlands in a variety of combinations
for the treatment of effluent.

Tel: (01884) 839 000

info@cresswater.co.uk

Natural Solutions

Design and build dual chamber
compost toilets, and supply urine
separators and DIY components.
Provide planning drawings, building
control and environment agency plans
for their compost toilets.

Tel: (01686) 412 653

info@natsol.co.uk

www.natsol.co.uk

Elemental Solutions

Supplies and installs composting and
low flush toilets, reed beds, and the
'Aquatron' units.

www.elementalsolutions.co.uk

Kingsley Clivus Environmental Products

British and Irish distributors of dry and
low flush toilets and the Clivus
Multrum inclined base composting
units.

Tel: (01837) 83154

www.kingsleyplastics.co.uk