



Allotments management toolkit: Affordable toilet for allotments

Introduction

Social Farms & Gardens have worked with the Welsh Government to produce a range of resources to help ensure local authorities and others involved in the management of allotment sites in Wales maximise the potential of those sites for the local population.

With support from the Welsh Government, SF&G Wales have written a guidance document for local authorities, growers and growing groups in Wales which provides an overview of allotment site management.

This factsheet is one of a series of factsheets which expand on various topics covered in the Guidance.

The toolkit also includes a selection of sample tenancy and other legal document templates to assist in site management.

All of these resources are available to download from:

www.farmgarden.org.uk/allotment-site-management-toolkit



Affordable toilets for allotments

We all need to answer the call of nature: yet the chances are for plotholders working on their allotments, 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 an 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 Trust for Conservation Volunteers (TCV). Some associations have also lowered costs by using reclaimed wood or bathroom fixings.

Different toilet systems

Compost toilets

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

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:

- how to add the bulking agent the fact that no water is needed not to add non-compostable items
- 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. This 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 if you are able to leave this task until the waste has broken down to inoffensive compost. 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 is 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 to be treated 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. 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-£700. 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.

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 portaloos. You should allow £100 -150 to hire a single portaloos unit for the day, including delivery and collection costs. You can find suppliers via the internet or listed in the phone directory. A single portaloos 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.

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 are needed. 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 ploholders 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.

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.

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. Alternatively, consider submerging part of the toilet chamber below ground.

For more information about the requirements for a disabled toilet unit, contact the Centre for Accessible Environments (see Resources).

Below: Note the long ramp required for this platform toilet



Case studies: compost toilets

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 proved to 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 plotholder built the toilet, with help from Probation Service young offenders. The toilet cubicle was an ex-trading hut donated by the parks department. The toilet 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 4ft x 2ft leaching bed.

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 washbasin powered by rain collected from the roof. The water and urine are 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 wheelchair 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.

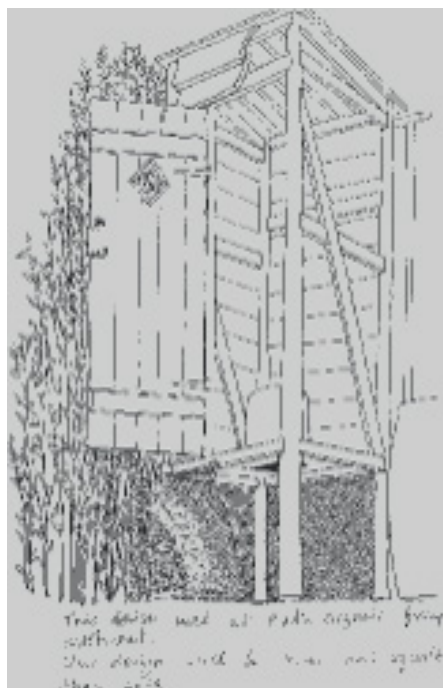
Bath Tree Bog

The toilet is sited away from any plots, in an area of scrub, adjacent to a 30ft 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.

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 Klargester unit and the entire installation cost about £3,000.

The toilet pump-out will be paid for by a subscription system of users.

Resources

Social Farms & Gardens (SF&G)

Tel: 0117 9231800

Email: admin@farmgarden.org.uk

web: www.farmgarden.org.uk

A registered charity which supports, represents and promotes community-managed farms, community gardens, care farms, allotments and other green spaces, creating opportunities for local communities to grow.

National Allotment Society (NAS)

Tel: 01536 266576

Email: natsoc@nsalg.org.uk

web: www.nsalg.org.uk

The national representative body for the allotment movement in the U.K. Membership is made up of allotments associations, societies and federations, schools, councils, landlords and individuals.

Centre for Alternative Energy (CAT)

Tel: (01654) 705 950

Email: info@cat.org.uk

web: www.cat.org.uk

Consultancy service and courses on compost toilets, sustainable sewage treatment and renewable energy. Visitor centre features several examples of compost toilets and renewable energy.

Publications: 'Compost Toilets: A Practical DIY Guide' Price £11.95. <https://store.cat.org.uk/products/compost-toilets?variant=8817993318447>

Factsheet: www.cat.org.uk/info-resources/free-information-service/water-and-sanitation/composting-toilets

Courses: A Beginner's Guide to the Compost Toilet: Understanding the biology behind humanure. Fee: £70
Webinars: www.cat.org.uk/past-webinars/compost-toilets-an-introduction/

Chartered Institute of Plumbing & Heating

Tel: 01708 472791
Email: info@ciphe.org.uk
web: www.ciphe.org.uk

Advice on finding a plumber

Green Building Alliance

<https://www.go-gba.org/resources/green-building-methods/composting-toilets/>

Eco-Loos

Tel: 01269 871774
Email: eco-loos@hotmail.co.uk
web: www.eco-loos.com

Affordable, user friendly, waterless toilets built to order.

Energy Development Co-operative Ltd

Tel: 01502 589407
Email: info@solar-wind.co.uk

Advice on solar panels.

Kingspan Klargester Environmental Ltd

Tel. (01296) 633000
web: www.kingspanenviro.com/wastewater-management

Septic tank and holding tank systems.

Biologic Design

Tel: (01886) 884 721
Email: jay@biologicdesign.co.uk
web: www.biologicdesign.co.uk

Information on tree bogs.

Centre for Accessible Environments

Tel: 0207 7822 8232
Email: info@cae.org.uk
web: www.cae.org.uk

Inclusive design and management, aiming to help secure environments that can be accessed, used and enjoyed by everyone – including disabled and older people. Publications include 'Managing Accessible Toilets': <http://cae.org.uk/our-services/free-publications/>

Solar Energy Alliance

Tel: (01502) 515 532
Email: info@solarenergyalliance.com
web: www.solarenergyalliance.com

Solar panels

Expertise Limited

Tel: (01629) 826 482
Email: enquiries@expertise-limited.co.uk
web: www.expertise-limited.co.uk

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

Cress Water

Tel: (01884) 839 000
Email: info@cresswater.co.uk
web: www.cresswater.co.uk

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

Natural Solutions

Tel: (01686) 412 653
Email: info@natsol.co.uk
web: www.natsol.co.uk

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.

Books

Liquid Gold: The Lore and Logic of Using Urine to Grow Plants.

Author: Carol Steinfeld
ISBN-10: 1903998484
ISBN-13: 978-1903998489
Publisher: Green Books; 2nd Revised edition (1 Jan 2004)

Compost Toilets: A Practical DIY Guide

Author: Dave Darby
ISBN-10: 0956675115
ISBN-13: 978-0956675118
Publisher: Low-impact Living Initiative (LILI); Illustrated Edition (31 May 2012)

Essential Composting Toilets: A Guide to Options, Design, Installation, and Use

Authors: Gord Baird & Ann Baird
ISBN-10: 0865718725
ISBN-13: 978-0865718722
Publisher: New Society Publishers; Illustrated Edition (27 Nov 2018)



Llywodraeth Cymru
Welsh Government

Social Farms
& Gardens
Ffermydd a Gerddi
Cymdeithasol

Tel: 02920 225 942 / **Email:** wales@farmgarden.org.uk
Website: www.farmgarden.org.uk