

Introduction

Ealing Allotment Partnership (EAP), with support from Ealing Council and product suppliers, has implemented an initiative raise funds to provision composting toilets on allotment garden sites in Ealing Borough.

This guide seeks to provide hints and tips for planning, installation and maintenance of toilet units and is based on experience installing Composting Toilet MK1 supplied by Dunster House Limited. Ealing Allotments Partnership acknowledge their support and guidance. See [Dunster House Limited website](#) for product information and other services.

This guide assumes installation for one unisex facility. Installing two units side by side will require additional ground base construction and additional planning for plumbing and electrics if they are to be connected.

The toilet units are self-contained. Electrics are provided by battery charged via solar panel. Water waste product is directed to a compost heap or soak-away. Solid waste is contained in bins and allowed to decompose with some assistance from added sawdust and compost. Connections to main water, sewage or electric services are not necessary. Planning permission is not normally required.

Construction instructions for the composting toilet unit are provided by Dunster House Limited with the supplied product, and not included in this guide.

All measures shown are approximate metric. Imperial measures are converted from metric and rounded up.

Author

Content is provided by members of allotment gardens in Ealing Borough and [Ealing Allotments Partnership](#).

Revision History

Draft 30th September 2017

Content contributions

Corrections and additional content are welcome. Contact [Ealing Allotments Partnership](#) via website or [email](#).

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Estimate time required

1. Read build instructions, decide options and location (1 day)
2. Construct base (2 days, plus time waiting to dry, if required)
3. Build external and internal structure (1 day, at least 2 people)
4. Plumbing and electrics (1 day, 2 people)
5. Commissioning (1 day, lots of people)

Help required?

if you are seeking assistance or a guide try a site that has already installed a similar toilet. Contact EAP if necessary.

Delivery

The 'flat pack' is delivered direct from supplier, Dunsters. The drivers are not familiar with the delivery area and may require guidance. If possible provide a mobile phone contact, and look out near delivery entrance. The large truck may require stopping space, and will not drive off the main road.

If possible, store delivered items in dry, secure place or cover from weather. If no storage available try to arrange delivery after the standing base has been prepared, and you are ready to start installation.

Deliveries are usually to several allotment sites, which will require co-operation with others.

Check the delivery against schedule of parts. Many small items are packed inside other parts like waste bins and battery case.

Find and remove the instructions from one of the boxes or bins. Take time to read it through.

Location of unit

The built unit footprint, without entrance step and plumbing, is 148cm x 180cm (approx. 58.2in x 70.9in), the built height is 245cm (96.5in) at roof peak, the solar panel will add between 28cm (11in) and 40cm (15.7in), depending how and where fitted.

For ongoing service and maintenance allow 1m (one metre) for easy access to all external walls, especially to the back wall.

Avoid locations which are prone to flood or excess water retention. This may affect the base over time, but also be a danger to the user when stepping up, or out of the facility.

The toilet waste process separates water and urine from solids, draining the liquid out via 25mm diameter drainage pipes through the external wall. Consider how the liquid can be drained into soakaway, like a compost heap or small garden patch, and allow for space and preparation of the area. For example, the 25mm drainage pipes are flexible, which allows redirection into 100mm drain pipe (not supplied), and onto compost.

The solar panel needs an open aspect facing south to benefit from any available sunlight. Facing west, east may be insufficient to maintain the battery charge. Nearby trees create shade which will reduce effectiveness of panel, especially when in full leaf.

Decking and/or Landscaping

The simplest arrangement needs no extra work. If you require extra steps, a ramp, handrails or decorative features such as a flower bed, decide before-hand. It may influence the plumbing, position of the battery box and ease of maintenance. Worth looking at a couple of recently erected toilets before making your decision.

Standing base construction

A practical measure for the base is the unit external measures, plus 15cm to 20cm all round. However, this may mean the entrance step is too high, and the door, which swings open externally, becomes awkward to negotiate. If possible create a base measuring about 180cm x 270cm (approx. 70.9in x 106.3in), which provides for adequate space to step on and open the door, with need for an intermediate step.

An option to consider is a minimal base about 180cm x 220cm (approx. 58.2in x 86.6in), and afterwards decide if an additional front step made from decking or paving is necessary.

A wood, decking or plank base needs to be a solid area of closely fitted boards. A series of spaced beams will not support the unit internal fittings. Be sure the centre is fully and evenly supported. A wooden base allows the unit to be anchored with brackets to limit movement in storm conditions.

An alternate base is concrete. A depth of 75mm to 80mm (3in) should be adequate. Consider sinking 4 blocks of hard wood (50mm x 50mm x 250mm) approximately 1.25m apart at long side of final toilet position. These can be used to anchor the unit with wall brackets.

For either wood or concrete, ensure the surface is level and smooth, otherwise the structural integrity of the unit will be compromised, and installing the internal fittings, doors and roof will present difficulties.

Installing external and internal structure

Find the instructions in the delivered flat pack. The guidance for erecting the walls, doors, furniture and internals is good. All provided panels are cut to size, but no marks are provided for screw positions, or location of parts. Read the guide carefully. It is easy to make mistake by selecting similar part or position incorrectly. Measure and mark, and measure again before drilling holes or driving screws.

Fit the roof panels before fitting the door. The box structure can become out of square during fitting internal surfaces.

The supplied door latch may need to be manually shut when exiting the toilet as does not easily drop and lock when closing the door, leaving it swing open. Take time to adjust the latch action and position to facilitate easy closure.

It should be possible for two (minimum) or three able bodies to raise the structure and internal support surfaces in one day.

Tools required include: power drill and pozi-drive bits, 1mm and 6mm wood or metal drill bits, 32mm tank drill, screw driver, small flat head screw driver for electrics, wire stripper or wire cutter, 2 small adjustable spanners or small sockets set, hack saw or tenon saw, 1m metal ruler, 2m tape measure, masking tape, adjustable set square, bradawl, pencil, paper, drinks, large work table, ladder or steps to access and fit roof.

Installing plumbing

For most installations only one toilet seat needs to be in use and fitted. The second might not be plumbed in at all. Two waste bins are provided which can be switched when necessary to allow one to fill and the other decompose, or disposed. Deciding whether left or right toilet seat is installed will determine waste exit point and other waste connections.

While location of internal wash basin and urinal are described, the measurement of position needs care, and there are options to be decided. For example, instead of directing washing water directly outside, the water from sink can be directed into urinal and thereby provide a manual flush.

The urinal position above floor level is important. A step may be made, or purchased, which raises the standing position about 150mm for use by men and boys less than average height.

Once the wash basin and urinal are fitted, an outlet through the external wall has to be drilled to allow 25mm waste pipe exit. Before drilling the exit hole, decide what the final destination is and experiment with different lengths of the supplied flexible pipe and supporting wall brackets, ensuring a 'U' bend is allowed for.

The urine capture from toilet seat is simple push fit, but in a cramped space. Drainage pipes must slope down and away from point of capture and not restrict flow by being horizontal.

Take care to avoid tight bends which stretch and split pipe. Softening the flexible pipe in warm water will help gentle manipulation.

Installing electrics

Follow electric safely and do not connect battery until ready to go live. The power is 12v DC, which may give the unfamiliar user a surprise but not usually any serious injury.

Inside the toilet unit, position the electric fittings and mark location before fitting and wiring. Adequate wire is provided, but can be quickly used up if not measured first. Masking tape is useful to tack wire temporarily into position.

The wash basin tap water pump sits in water bucket with power lead connected to junction box near sink unit. Locate the pump in the water bucket and drill a hole to thread the power cable before connecting to mains supply. Use a grommet to provide a better fit if necessary.

The electrical parts provide a USB power supply for smart devices, which is optional to install.

The solar panel connection junction box can be fitted inside the battery housing, instead of inside the toilet, near or under sink. It will depend on location of solar panel and battery to ensure there is adequate cable to reach the junction box and to cover the external connection lead with supplied box ducting.

Parts to fit the solar panel to roof are supplied. If fitting to an external wall or other location, an alternate method to secure the panel will be required. The method of fitting panel to roof using supplied box tube might not appear strong enough and an alternate support bracket may be required.

Additional required items

Signs

Initially people will be unfamiliar with usage. Some simple, descriptive signs may be helpful, stuck on walls with tape.

Lighting

The supplied bulb is low energy fluorescent type, with 12v converter, that may require a few seconds to warm up. One installation replaced this with a 12v LED bulb, which is instant light. 12v strip light LED are an option. Either is an extra expense, ensure they are suitable for 12v supply.

The light switch is simple On or Off. As people will forget to turn the light off, consider a timer switch instead which runs for 5 minutes or more, and has adjustable delay. An infra-red movement detector switch is an alternate approach.

Compost and Sawdust

Both are added to the toilet after use. A bag of each will be required, plus a trowel.

Battery

A good 60ah car battery seems to work just as well as a leisure caravan battery, which is recommended, and is cheaper. However, a car battery may require recharging from mains supply more often than a leisure battery. Performance may well depend on recharging capacity from solar panel and weather conditions, especially extended cold weather. It important to regularly check the battery condition does not fall below 50%.

Bucket or tub

Hand basin requires a water supply located under the sink. A container of 10 to 20 litres, preferably with lid or narrow entrance that allows water pump into water, but reduces or removes mosquitos.

Cleaning materials

Toilet paper, newspaper and pencil

Maintenance

The surface areas, except toilet seat cover, are all plastic which can be cleaned with regular household disinfectant. Some household cleaners are not suitable for use on plastic, read the label as a strong bleach concentrate will progressively destroy the plastic surface.

Leave disinfectant and cleaning cloth or wipes for people to use around urinal and toilet after use.

- Weekly disinfectant wipe wall surfaces, door, sink and toilet seat area.
- Weekly sweep and wipe floor;
- Weekly refill water supply to sink;
- Weekly check for, and treat, insect infestation, including around waste bins at back of structure;
- Monthly check for leaks from roof
- Monthly check material in waste capture bin under toilet. If more than half full, swap bins;
- Monthly check state of battery, and recharge if at 50% charge level;
- Monthly check supply of saw dust, compost and cleaning materials;