



Management instructions for the Mk 2 FULL ACCESS toilet with GRP pedestal.

www.natsol.co.uk

Health and safety issues are shown in **red**

Dear Manager,

We are sure you would agree that a flush toilet needs some regular maintenance to ensure that users find it pleasant to use. Compost toilets are no different. Please read this guide to find out what you need to do.

Overview

NatSol toilets depend on natural biological processes to break down human waste into composted material. For this to function successfully you must follow two golden rules:-

1. Do not contaminate the composting pile. The contents of your composting vault should only be human waste with little or no urine, toilet paper (preferably non-chlorine bleached) and a recommended soak material – see below.
2. Allow at least one year. The toilet uses natural biological processes to convert potentially harmful waste into useful compost. When your first vault is full it must be left for at least one year for decomposer organisms to do their work.

Using the toilet

Number twos:

After use a handful of 'soak' is added to the vault. A container of soak is fixed behind the pedestal to facilitate this. Alternatively, a manager could add soak at the end of the day.

Pee only:

It is not necessary to add soak material to the vault if the user has only urinated. Men who only wish to pee should use the urinal provided. If no urinal has been fitted then men can use the toilet pedestal **but must sit**. Women should not hover over the seat but sit down.

Sanitary towels and tampons

Must not be placed in the toilet. Please dispose of these to a suitable rubbish bin which should be clearly marked to distinguish it from the soak bin.

Hand cleansing:

Your toilet will usually come supplied with an alcohol gel dispenser.

NB: NatSol does not supply an alarm for disabled users. You should make your own arrangements to ensure that disabled users are not trapped in the toilet cubicle.

Management

Daily or weekly checks depending on levels of use:

-) Check toilet paper and hand gel. Check that the cubicle, including the space beside the pedestal is free from obstructions to wheelchairs.
-) On frequently used toilets clean the urine plate using a multi-surface spray and brush to remove any solid matter or paper that may have adhered. **Wear gloves and store the brush in a safe place away from users – see pics.** Clean external surfaces of the pedestal.

-) Check that the soak bin is full. Coarse, non-tanalised wood shavings make good soak material **but not sawdust or wood chips**. Chopped barley straw is a very good soak material as it assists rapid decomposition but may be more difficult to use.



In the LH picture a hand spray bottle is used. In the RH picture a pump up spray makes life easier

-) Clean the ceramic urinal bowl with a multi surface cleaning solution and flush with approximately a litre of clean water.

All the above checks could be reduced in frequency for low use sites.



[Wear suitable protective clothing for all cleaning operations](#)

Less frequent checks -THESE MUST BE RECORDED IN YOUR LOGBOOK

The frequency of the following checks will again be dependent on the level of use. We advise frequent checks at first e.g. monthly, but on most sites quarterly checks will eventually suffice.

Unscrew and lift off the emptying hatch of the active vault which is situated directly in front of the toilet pedestal. Check the compost pile for “peaking” and if required use the rake **stored in this vault** to bring the pile towards the front (door) end of the vault. This prevents an excessive build up of compost directly below the toilet which could ultimately impede the function of the urine gutter. At no time should the compost be closer to the urine gutter than about 100mm. This operation also helps to bring the pile into the final position for emptying after the vault resting period.

During this operation the progress of composting can be checked and if the compost is very dry it will be beneficial to add sufficient water to dampen the pile. Try to distribute this evenly. If the contents are too wet then rake in additional dry wood shavings. If the depth of liquid is more than 2cms go to the Troubleshooting Guide – Appendix B below.



Raking – wear gloves



Checking urine gutter



Wetting if necessary

Annual checks – RECORD IN LOGBOOK

1. The urine gutter can be inspected by removing the screwed access cap on the LH side of the building outside and looking in using a torch or camera. They very rarely block but the drain rods we supplied could be used if there appears to be a problem.
2. Once a year, **or after clearing a blockage in the urine gutter**, it is advisable to check and clean the back-inlet gully leading to the soakaway. Remove the three screws holding on the lid. Tip a bucket of water down the trap to rinse through. If the water does not disappear quickly then pull out the black plastic inner sleeve by hooking one of the hatch lifting handles under the bottom edge. Clean the gully and refit the black inner making sure the splines locate correctly in the side slots. Then check again with more water. If that doesn't solve the problem contact NatSol but please make sure you know the name of your site or have a contract number.





Wear protective clothing and clean your hands afterwards.

3. Check that all grab rails are securely attached.
4. Check to see that the cowl is still rotating. Occasional greasing of the cowl may be necessary. To do this bend back the retaining clip or loosen and turn and then remove the upper half. Squirt grease into the tube on this section and replace.
5. Vent pipes can occasionally be blocked by cobwebs. These will reduce airflow and may result in odours. If you think this may be the case then remove the top part of the cowl (**see Appendix B, Trouble Shooting**) and lower a small weight on a string down the pipe and draw up and down several times. This should clear obstructions.
6. The **resting vault** should be checked 3 or 4 times during its 12 month resting period. Remove the front access hatch [and the rear one next to the pedestal if necessary] and check to see if the pile is dry. If so we advise distributing water evenly over the pile until damp to promote better composting – see above. If too wet rake in additional dry wood shavings.
7. Check function of door handles and ensure that the **privacy latch can be released from outside.**

Low Use Situations

It does not matter if the toilet is used very infrequently.

Changing over vaults – RECORD IN LOGBOOK

Observe sensible hygiene precautions during this procedure. See Appendix A

We strongly recommend that the vaults are changed over annually unless use has been very low AND the contents seem dry. If the vault is too wet then swap over after a year and mix plenty of soak material into the chamber which has been in use.

First change on new installation

It does not matter which vault is used first. Unless the level of use of the toilet exceeds our design criteria it should not be necessary to change to the second vault before one year.

To change vaults over use the following procedure.

With the toilet seat open and **wearing gloves**, reach inside and swing the urine plate backwards whilst lifting the front of the pedestal. Now slide the pedestal forward to release the rear retaining clip. As you remove the pedestal the urine plate will swing free and hang lower than the base of the pedestal. Make sure it does not swing into feet or legs. Take the assembly outside whilst swapping hatch covers. Use this opportunity to clean the inside of the pedestal. Rest it on a non-scratching surface – see below. Use a brush and **wear eye protection** to clean the surface. If the lower (or upper) part of the urine plate has become heavily soiled it may be useful to use a metal scraper or wire brush.

If there are whitish calcium deposits you will need to use some patio cleaning acid available from builder's merchants to shift these but make sure you **wear appropriate protection**.

NatSol produces a biannual newsletter. Newsletter 2 deals with deep cleaning of the pedestal. If you do not have this we are happy to send it.



Taking care with regard to the open vault aperture, unscrew and remove the rear hatch cover over the other vault and screw down where the toilet pedestal has been removed. Bring the toilet pedestal back into the toilet cubicle and carefully locate the rear clip in the new vault opening. Then push the urine plate back so that it drops through the hole. To check that the lower edge of the urine separating plate is above the collection trough you can look through the emptying hatch in front of the toilet. Move the SOAK bin across to the new side behind the pedestal. Cover the floor of the new vault with a generous layer of dry SOAK. For public toilets this could be 200 to 300mm deep. The toilet is now ready to use. **Now clean your hands.**

Second and subsequent vault change

The vault which has been resting for a year or more will need to be emptied. This is done by removing the hatch closest to the door over the resting vault and using the spade provided lift out the compost into a wheelbarrow or suitable bags. The vault does not need to be cleaned out completely. Leave about 50mm (2") of compost to help seed the next batch with useful organisms. The hatch is then refitted and the pedestal swapped over as described above.



The compost should be used or disposed of in accordance with Environment Agency (EA - England), Natural Resources Wales (NRW – Wales) or Scottish Environmental Protection Agency (SEPA - Scotland) and Local Authority guidelines.

In the absence of any official advice, we recommend burying for e.g. tree planting, or further composting in a dedicated composting facility on site for several years before eventual use or disposal - see Appendix C. Bacteria and viruses dangerous to health should have been eliminated by composting for a one-year period - which is the minimum period we recommend between vault change-overs. However, intestinal parasites may survive longer. **Consequently we do NOT recommend the use of finished compost on food crops** - with the possible exception of burying around fruit trees.

APPENDIX A

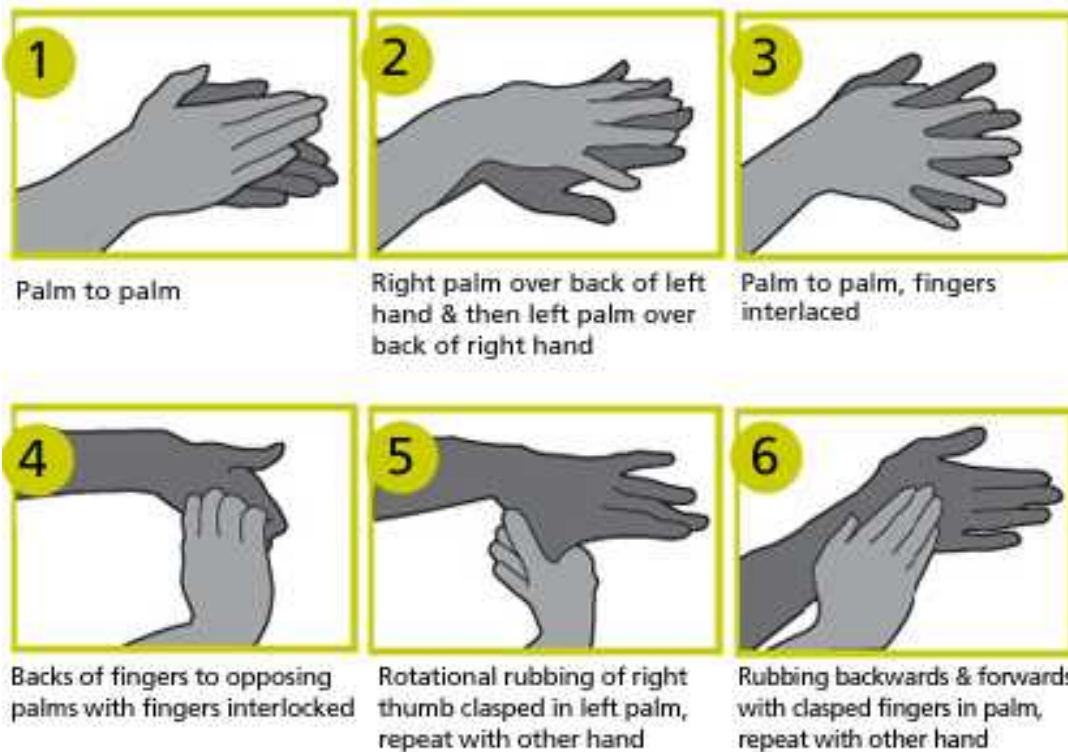
HYGIENE PRECAUTIONS WHEN CLEANING AND MANAGING COMPOST TOILETS



Wear gloves for all cleaning operations



Wear overalls when switching vaults or emptying compost



Clean hands after all toilet cleaning or management procedures.

Appendix B - Trouble Shooting Guide for NatSol Twin Vault Toilets

Our toilets are designed to be very simple and highly reliable. Most problems are due to incorrect use or lack of routine maintenance. This guide should enable you to identify and solve most problems.

Type of problem encountered:

ODOUR

NatSol toilets are known for their lack of odour. If there is an odour problem it is important to identify where it is coming from.

Urine

The usual culprit is urine on the floor. This could be due to a leaking waste connection on the urinal and this can be checked by pouring water into the bowl. However, it is more likely to be due to urine splashes. If the toilet is used a lot by small boys then it is essential to provide a box to stand on or to install an additional urinal to the left of the standard one at a lower height. NatSol can advise on this and supply components. Otherwise the solution is regular cleaning.



Smell coming from the pedestal, or an unidentified source

Normally air is drawn down the pedestal and up the vent pipe so that no smells enter the building. If the vent pipe is blocked (cobwebs, bird's nest etc.) or the cowl is not free to align with the wind direction then the ventilation won't work. If you remove the upper part of the cowl it is possible to see down the vent pipe. Move the retaining catch aside to remove the upper part. **Be careful of the spike sticking up from the lower part.** If the toilet pedestal is in the RH position, lift the lid to let some light into the chamber. If the pedestal is in the LH position remove the rear RH hatch. To clear cobwebs lower a small weight on a string down the pipe and draw up and down several times. If the cowl is stiff then add some fresh general purpose grease. Re-position the retaining catch afterwards.



VERY WET OR FLOODED VAULTS

The compost vaults should be moist but not wet or flooded. If there is water in the vaults then this could be due to a manufacturing or installation fault or a management issue:

Installation or flooding

1. If the site has flooded then surface water will have entered the vaults through the hatches or through the urine outflow pipe from the urine soakaway. Toilets should not have been located where flooding is likely but if this has occurred then the vaults will need to be pumped out by slurry tanker and re-started with a fresh bed of shavings.
2. The urine soakaway has been installed incorrectly, e.g. uphill (!), or the vaults have been installed too low in the ground. These problems would require significant remedial work.

Operational problems – [for these checks observe precautions in Appendix A](#)

1. The urine outlet has blocked. Check and clean the back inlet gully (see page 4) and check that water gets away.
2. The soakaway is not draining away. This could be due to waterlogging, or to roots which have invaded the area around the soakaway since installation. If you pour several buckets of water down the back inlet gully and the water ceases to flow away then please call us to discuss.
3. The urine separator in the pedestal is not working properly. This can be checked by gently squirting water from a washing up liquid bottle or similar onto the urine plate and watching through the hatch. The water should enter the gutter and run away freely.
4. Insufficient soak. The soak is needed to keep the pile aerobic and so promote biological breakdown but it also mops up small amounts of urine that inevitably enter the vault. Lack of soak is often associated with infrequent emptying in situations where the volume of solids is low but urine contributions are quite high. Regular raking of solids and soak towards the emptying hatch helps decomposition and enables one to see if there is significant liquid accumulating on the floor of the vault. In such cases it is best to add a quantity of dry soak material to the liquid and rake in thoroughly. Record these actions in the Log Book. Options to ensure correct use of the toilet must then be considered and implemented.

User issues

1. Women may hover over the toilet rather than sitting down. This can affect urine separation. We can supply signage to encourage them to sit and an additional urine plate which would also be useful on busier sites.
2. Males standing to pee into the pedestal. Occasional misuse may not be a problem but for busy sites the amount of urine introduced this way could be enough to flood the toilet. It may be necessary to add an additional low level urinal for boys and improve signage.

If the above steps do not resolve the problem:

Contact us with the following information:

1. The site name or your contract number and the date of installation or first use.
2. Data from your log book.
3. Whether the use has changed and an estimate of the number and type of users i.e. ratio of adults to children and men to women.

If the vaults are very wet or flooded it will be useful if you can also provide:

1. The date when you became aware that the vaults were too wet.
2. Whether both vaults are wet or flooded. If not, which one? What depth of solids and liquids are present? Use a stick to estimate.
3. Photographs looking into both vaults through the front floor hatches.
4. What type of soak material is used and whether this is added by users or a manager.
5. The amount of soak you are using per vault change-over or per annum.

It will be useful to us if you can confirm your current type of use:

PUBLIC or CLOSED USER GROUP

A closed user group is usually a society or association, such as an allotment association, where it is reasonable to think that users have been made familiar with the toilet function and use it correctly.

A public toilet will be used by people who are not members of an association and they may use the toilet only once or rarely. Such toilets might be in parks, nature reserves, campsites, churches. In a church you may have regular users who are members of the congregation and non-regular users e.g. wedding guests.

DURATION OF STAY

1. Are users resident on site?
2. If visitors, are they there all day or just for an hour or so?
3. Do you get high usage on certain days or at certain times of year?
4. What is the average number of USERS per toilet and, if you have more than one toilet, is use evenly distributed?

AGE AND CAPABILITY OF USERS

1. What proportion of users are young children (<11yrs) and is this equally male and female?
2. What proportion of male users have learning difficulties?

Contact:- tech@natsol.co.uk

SERVICING

NatSol are currently assessing whether it might be possible to offer servicing of these toilets. If you might be interested in servicing please contact us.

NATSOL: 01686 412653 www.natsol.co.uk

Tyre stack composters

One method of making secure composters is to use old car tyres to construct a modular composting bin. This idea has been around for some time and was developed at the Centre for Alternative Technology. It makes good use of a waste product. Another approach is to join up four pallets in a square and place the compost inside. It can be covered with a piece of old carpet which encourages worms to work the whole pile. This is an adequate approach if the compost removed from the toilet is already quite well rotted

Some useful points to consider when making and using a tyre composter:

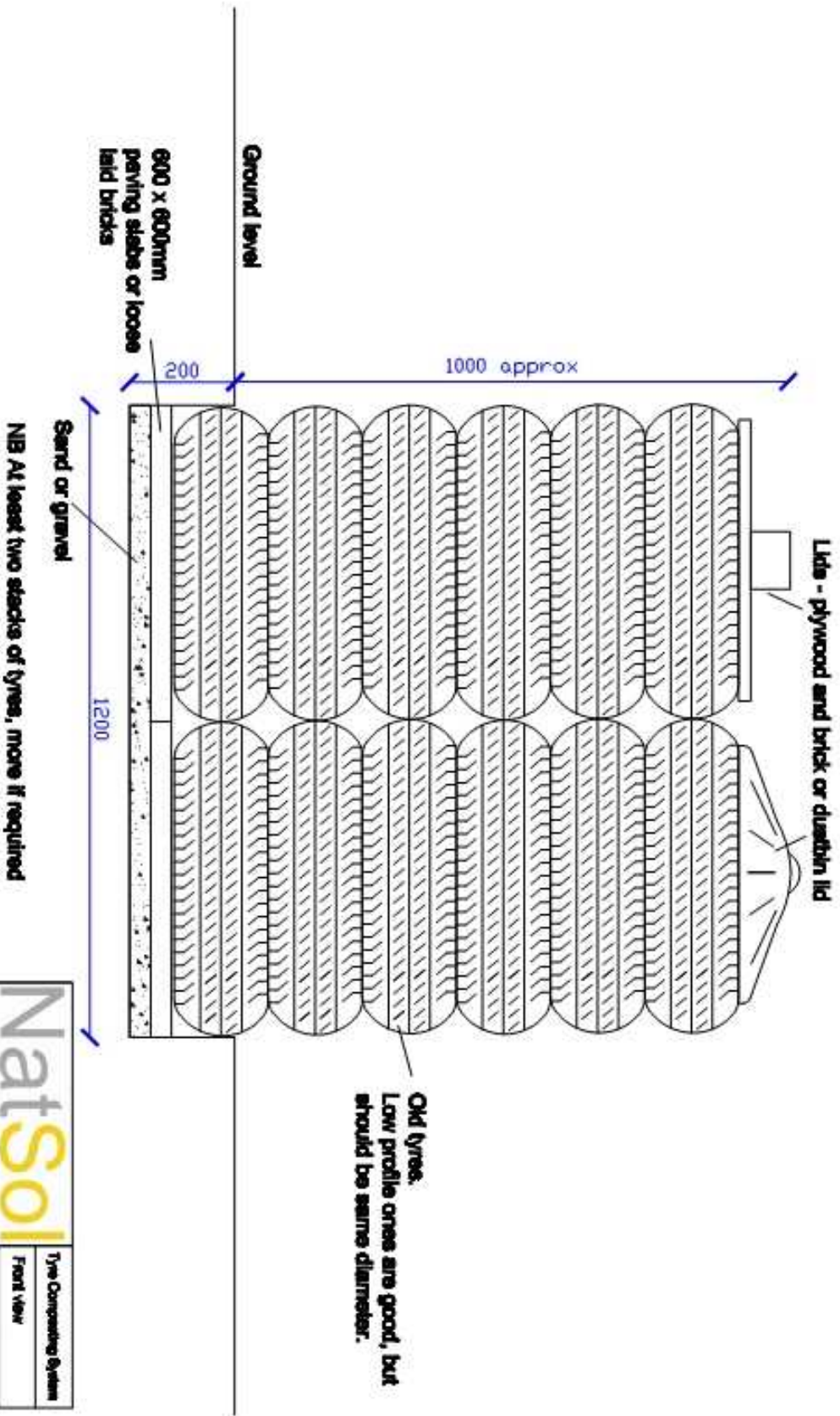
- Radial tyres have steel wire in them making them rat proof.
- The stack should stand on a concrete paving slab or wire mesh (weld mesh) so as to prevent rats finding their way in from underground.
- Using car tyres, the volume of a stack 1.2m high might be around 0.3m³ depending on how much material gets into the rim.
- If you intend to carry out further composting of compost from a COMPUS TWIN FULL ACCESS (or REMOTE) toilet you may need several stacks. Four grouped together in a square would take up an area approximately 1.2m square (4' x 4').
- It is inadvisable to go higher than 1.2m (4') as the stack will become unstable.
- You must keep a record of when stacks were filled. We suggest that they are left for a few years after which the compost should be safe **but we advise against the use of finished compost on food crops where the edible part is contact with the soil or might come into contact with the soil.**
- When the stack is eventually dismantled the tyres will have to be shaken or stood on edge to get the compost out of the rim. Low profile tyres are better since the rim is very shallow.
- In the drawings, notice how the bottom tyre is partly underground. This means that any liquid from the composting process disappears into the ground without risk of human contact.
- If using a concrete paving slab it may be wise to drill some 10mm diameter holes around the tread of the lowest tyre to admit soil organisms e.g. worms. Manure worms can also be added from an existing muck heap and will speed up decomposition.
- Some rain ingress into the stack is useful. The lid need not prevent this.
- The fence keeps children and animals away and prevents the stack from being knocked over. Pallets make good fences or old corrugated sheeting.



Use the following drawings as a guide and extend as necessary:-

TYRE STACK COMPOSTERS

Shown here without protective fence

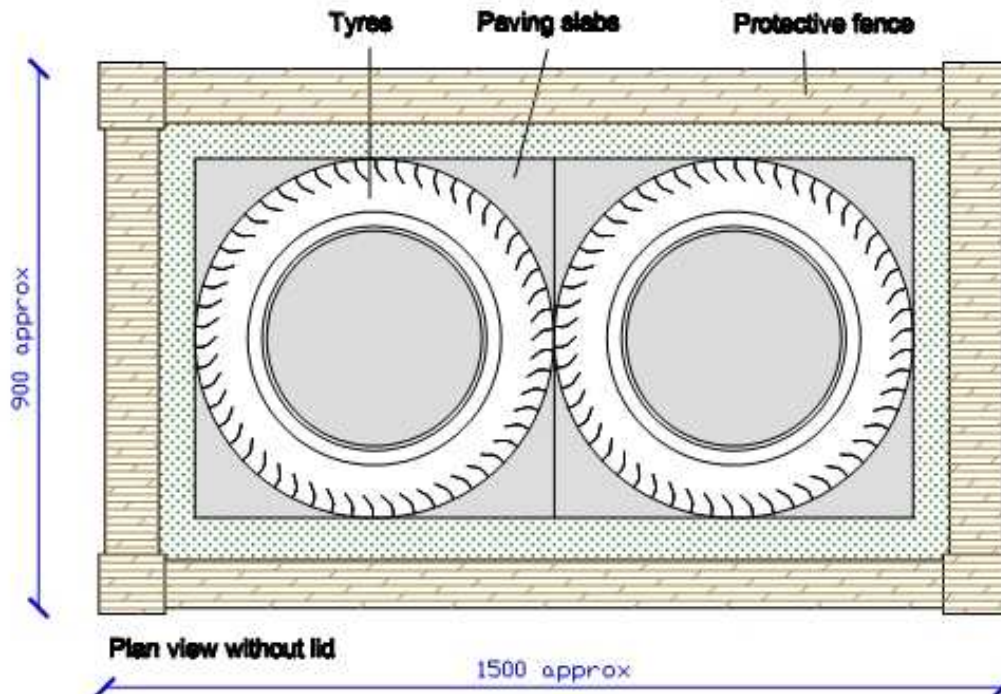


NatSol
THE COMPOST FORGET SPECIALISTS

Natural Ltd
Tel: 01825 412653
www.natsol.co.uk

Tyre Composting System	
Front view	
Date 01/07/18	Scale 1:50
Dwg. No.	
Dn. B. Woods	

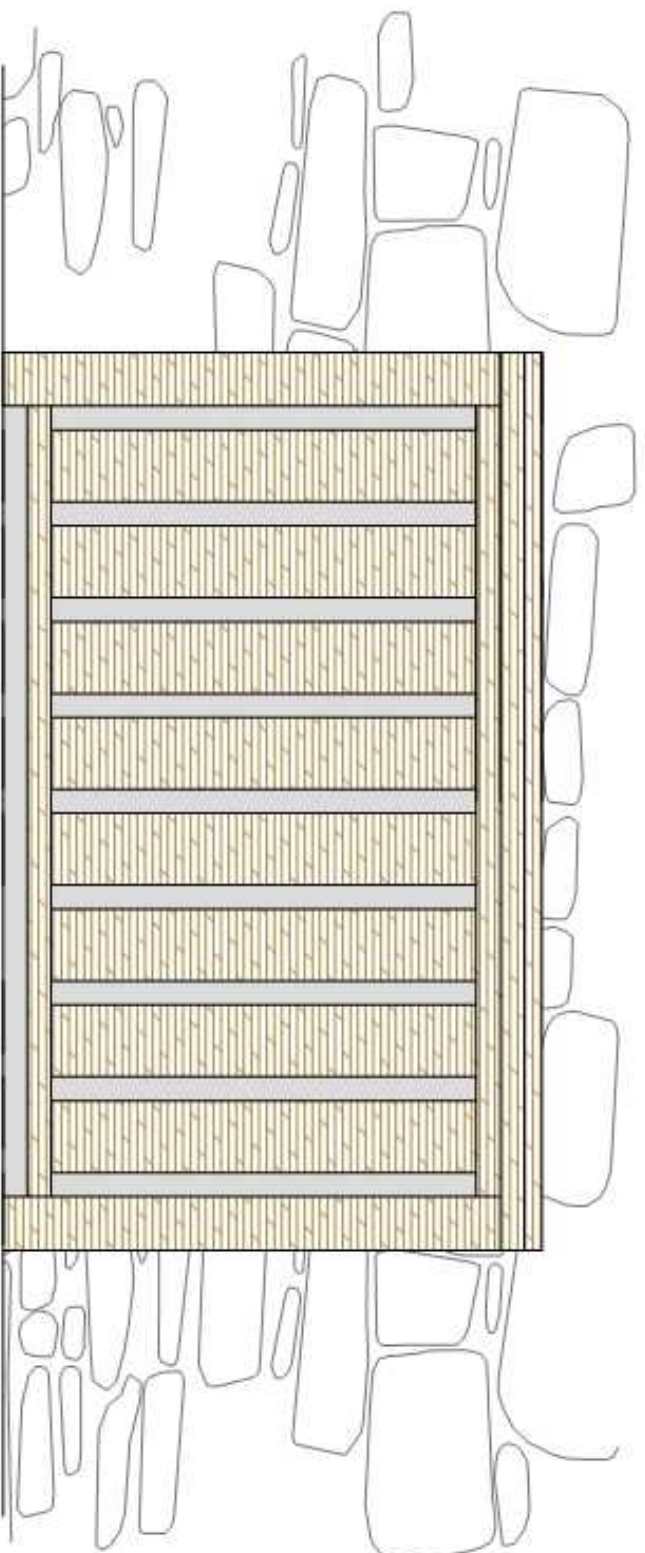
PLAN OF TYRE COMPOSTING SYSTEM



Slatted lid if required

NatSol <small>THE COMPOST TOILET SPECIALISTS</small>	Tyre Composting System	
	Plan views	
NatSol Ltd Tel: 01605 412663 www.natsol.co.uk	Date 01.07.09	Scale 1:10
	Dwg. No.	
	Dwn. B.Wade	

FRONT ELEVATION OF FENCED OFF TYRE COMPOSTING SYSTEM



Notes:-

1. Protective fence around tyre stacks. Approx 3'-4" (900-1200mm) high. Lid is hinged shut. Front section removable.
2. Ideally timber to be larch (European), Douglas or Oak - which are naturally durable. Or make it from recycled pallets!

NatSol THE COMPOST TOILET SPECIALISTS	Tyre Composting System	
	Fence front view	
NatSol Ltd Tel: 071800 412003 www.natsol.co.uk	Dwg. No.	Date 01/07/08 Scale 1:10
	Drn. B. Words	

SUPPLIES, SPARES and OTHER USEFUL ITEMS:-

HAND DISINFECTANT GEL

We use a hand disinfectant gel where no wash basin has been provided and can supply dispensers and gel. The one we use is Gojo PURELL Instant Hand Sanitizer – 4 x 2 litre refills pack. Product code: 2256-04. These are also available through:-

For supplies try:- Excalibur Hygiene Ltd, 40 Baldwin Way, Swindon, Dudley, West Midlands, DY3 4PF

Phone: 01384 400690 Fax: 01384 402223 Email: sales@hand-cleaners.co.uk

TOILET SEAT

Should you need to replace the toilet seat at any time it is a **Celmac Lyric**. This is available in Focus Do It All and is almost certainly available in other DIY stores and general plumbers merchants. It will be cheaper for you to buy this yourself than to get us to send you one.

Company number 5624596 VAT number 869 9277 43
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info@natsol.co.uk www.natsol.co.uk

ACTIONS

Frequent - monthly on most sites

- A. Compost pile in active vault raked
- B. If liquid present state depth in cms
- C. Extra soak added to mop up excess liquid.
State how much e.g. ½ bale

Less frequent - perhaps quarterly

- D. Pedestal removed for deep cleaning
- E. Compost pile in resting vault raked.

Annually – on most installations

- F. Urine gutter checked for blockages.
- G. Back inlet gully checked and cleaned.
- H. Cowl greased
- I. Vaults swapped

- J. Other - please describe