

1.



Management instructions for the Mk 2 COMPACT toilet

www.natsol.co.uk

Dear Customer,

Thank you for purchasing our **COMPACT** toilet. By following the user guide below your compost toilet should operate with the minimum of maintenance for many years.

Overview

The **COMPUS COMPACT** toilet is a ventilated, urine separating box toilet. Due to its small size composting does not proceed inside the toilet but in an **outdoor composting facility** which you can construct in line with our specification. The toilet separates urine from seated users. Solids enter the removeable inner container which should be lined with a biodegradable corn starch bag, as supplied, for ease of emptying. Wood shavings, sawdust or similar carbon based “**soak**” material are added to cover solids in the container. No addition is necessary if only urinating.

Using your composting toilet

Add a handful of **soak** material to the inner container to cover solid wastes. The soak should be kept in a container in the toilet cubicle. Toilet paper should be dropped into the inner container of the toilet.

No other types of waste should enter the toilet. Sanitary towels should be disposed of separately to a rubbish bin. Paper hand towels, if used, can be added to the outdoor composting facility.

Urination only:

For the urine separation to work **males must sit to urinate**. Alternatively, you may wish to supply a standard wall mounted ceramic urinal, especially if there are unfamiliar users, and connect it into the urine waste from the toilet. If you decide to do this please consult us about the details. The best way to do this is **not** how a plumber would normally go about it.

It is not necessary to add soak material if you have only urinated. Simply close the lid.

NB. Another way of dealing with urine from males in an outdoor private toilet is to supply a “pee-can”. This normally consists of a 5 litre liquids container with a funnel. You could use the collected urine on a garden compost heap, particularly one which is high in woody materials. You need to be aware that a pee-can may smell.

Hand cleansing:

You may have been supplied with a waterless hand disinfectant dispenser. Please read the instructions for use if supplied.

Management of the toilet

Apart from normal good hygiene practice of cleaning external surfaces, as you would a conventional WC, your COMPACT toilet needs little day to day maintenance. The pedestal is designed to minimize fouling in normal use. It is essential to have a standard toilet brush to assist with cleaning and it is very useful to have a pump up sprayer. This might be obtained from a garden store.

After every few uses

Check that the inner container has not filled close to its rim with solids, paper and wood shavings. If it is getting close to this point take action as described below - **Emptying**.

Daily or weekly procedures depending on level of use

You must check the removable urine plate hanging on the front internal face of the toilet pedestal. You can clean this in situ by spraying with a non-chlorine cleaning solution and using a standard toilet brush. However, it is good to remove it regularly for cleaning away from the toilet. Wearing gloves grasp the side of the plate, lift to unhook it, and then turn it through 90 degrees and remove it through the pedestal aperture. Clean in water and disinfectant. With the plate out take the opportunity to clean the inside surface of the pedestal further down using the brush and sprayer.

The part of the pedestal that can't be seen could be accessed by lying the pedestal on its side over the base box with the trug missing – see RH picture below - **but don't make the mistake of repositioning it on the base box without the trug installed as somebody might use it like that !** Alternatively, you could take it outside.

When the pedestal is clean refit it to the toilet and then reinstall the short plate through the top. If you would like to have a spare short plate we can supply this at reasonable cost. You could then leave one to soak and clean it off later. The pedestal will separate urine quite well without the short plate installed but there is an increased likelihood of urine entering the trug.

If the plate has deposits that are difficult to remove then take the pedestal outside and rest it on a non-scratching surface. It may be useful to use wire wool or an old pot scourer. Mortar cleaning acid available from builder's merchants will shift calcium deposits but make sure you **wear appropriate protection – goggles, gloves, and protective clothing**. Vinegar would do the same job over a longer timescale.



Check that the soak bin [if situated in the cubicle] is full. Wood shavings OR sawdust make good soak material for a COMPACT toilet. Chopped barley straw is a good soak material as it assists rapid decomposition but it's less convenient to add. Shredded paper and card should also work well. We shred confidential documents and put them down the office toilet! Manure worms could be introduced into the outdoor composting facility and they will speed up decomposition. They can usually be found in animal manure and rich garden compost heaps.

If a ceramic, wall mounted male urinal has been fitted in the toilet cubicle clean this with a non-chlorine cleaning solution and flush with approximately a litre of clean water.



Emptying the toilet and other maintenance

The frequency of emptying solids depends on the amount the toilet is used. In any event solids should be emptied at least once a month even if the container is not full.

It's not an unpleasant job but nicer if the toilet has not been used in the last hour or so. Wearing gloves lift off the pedestal and place to one side or outside.

Use more soak as necessary to cover the solid wastes in the trug and gather together the edges of the biodegradable liner over the contents. You could tie the top with a rubber band or a piece of biodegradable string. Lift out the **entire trug** with liner and contents. After 20 defecations it should weigh under 10kg if free of urine. Carry outside and empty into your composting facility. Do not attempt to lift the contents out of the trug using the neck of the liner. This may tear and deposit the contents over your feet or on the floor or ground! If necessary clean the trug using a small amount of water and a brush kept strictly for this purpose and empty this water into the composting facility. This will keep the compost damp and avoids dumping contaminated water elsewhere.



Fit a new biodegradable liner into the trug and before replacing it in the toilet check to see that the base box of the toilet is clean. If not, use a bucket of water and the same brush to clean out the container. Tip the wastewater into the box. This will simply flow away to the urine soakaway. Rinse with clean water. Make sure the edges of the liner get tucked down between the side of the trug and the wall of the base box **and between the front of the trug and the white plastic board**. This board pushes back the front edge of the trug, squeezes it out sideways and clamps the liner out of the way of the urine plate.

Annually:

Once or twice a year 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 sluice through. If the water does not disappear quickly then pull out the black plastic inner using the metal gully rod we supply. Hook the rod under the bottom edge and pull up firmly. Clean and refit the black inner making sure the splines locate correctly in the side slots. Re-grease the 3 screws and refit.

Wear appropriate protection when cleaning the gully including goggles, gloves and boots.



If you have a fan driven vent check to see if the fan is still running. If the fan runs but there are noticeable odours it may be that the pipe has become blocked with spiders' webs though this would usually take several years. This could happen with a passive vent too. Use a flue brush to clean through after switching off and removing the fan, if fitted.

Management of the composting facility

Your composting facility should have at least two chambers to allow for batch processing of solid wastes. Each stack should be large enough to take the entire solids from at least one year's use of the toilet. This ensures a minimum one year decomposition period before the compost is removed.

The compost should be used or disposed of in accordance with Environment Agency and Local Authority guidelines.

In the absence of any official advice, further composting can be carried out in the same composting facility or another on site before eventual use or disposal. Most pathogens will have been eliminated by composting for a one year period - which is the minimum period we recommend between vault change-overs. However, human parasites may survive longer. A further 2 to 3 year period of composting should deal with most of these. If human roundworm eggs are present an even longer period is necessary and for this reason **we do not recommend the use of finished compost on food crops - with the possible exception of burying around fruit trees. Human roundworms [*Ascaris suum*] are generally only found in tropical or sub-tropical populations where there is poor sanitation but travellers to these regions could conceivably become infected and so with toilets used by the public [e.g. allotment sites where there are many users] it is wise to take precautions against it.**

APPENDIX A

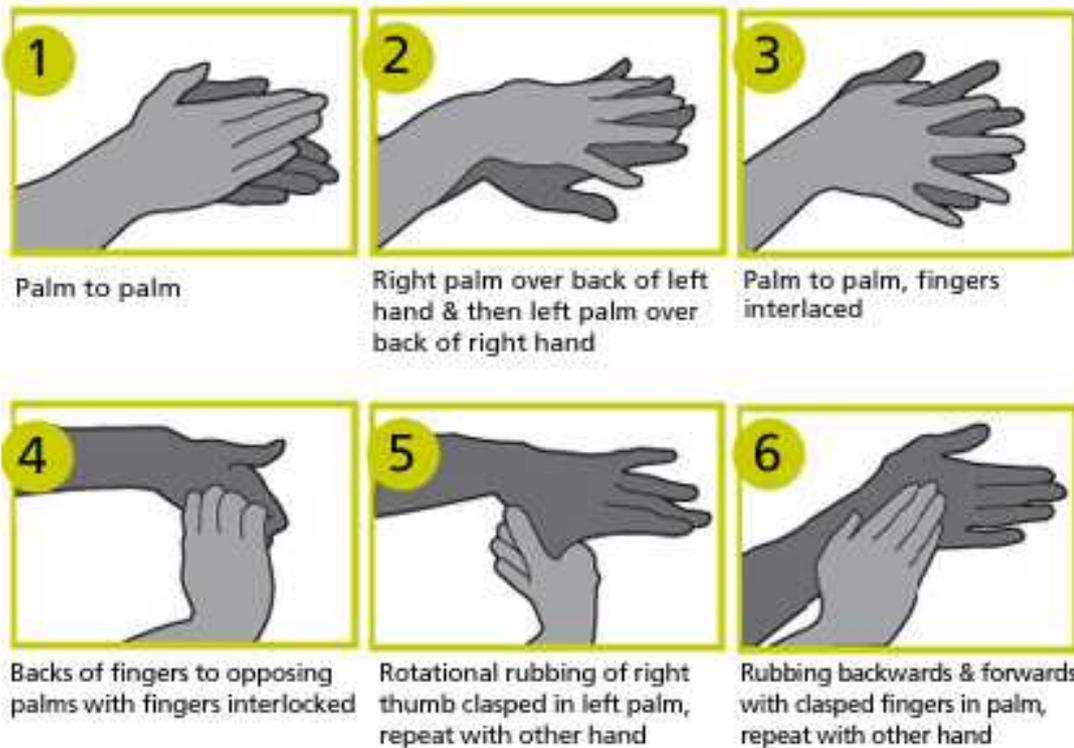
HYGIENE PRECAUTIONS WHEN CLEANING AND MANAGING COMPOST TOILETS



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 Compact Toilet

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

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 most likely culprit is urine on the floor. This could be due to a leaking waste connection on the urinal and 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 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 toilet is passively vented and if the cowl is not free to align with the wind direction then the ventilation won't work. The cowl should be greased every year. Move the retaining catch aside to remove the upper part. **Be careful of the spike sticking up from the lower part.** It is then also possible to see down the vent pipe to check for blocks (cobwebs, bird's nest etc.). 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 apply some fresh general purpose grease. Re-position the retaining catch afterwards. If those checks do not resolve the issue then check the base box to make sure that it is not flooded. This would block the airflow down the toilet to the vent pipe.

If you have a fan driven vent then listen for the sound of the fan. If checking for blockages turn off the fan first. NatSol can supply replacement fans and power supplies.



VERY WET OR FLOODED TRUG

The solids trug should contain very little or no urine. Some stray urine may get in but a good starter layer of soak will deal with this. If there is liquid in the base box this could be due to an installation fault or a blocked back inlet gully:

Flooded site

If the site has flooded then surface water may have entered the base box via the urine pipe which connects to the urine soakaway. Toilets should have been installed sufficiently above ground to prevent this happening but if the flooding is new for the site then the only solution will be to install drainage pipes in the ground around the soakaway leading to lower ground, or to move the soakaway further downhill.

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 5 above) 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 into the base box and the water ceases to flow away then please call us to discuss.
3. The trug contains noticeable liquid. This may have one of several causes:
 - a. the short urine plate has not been refitted
 - b. the brown board which keeps the trug in the correct position has not been fitted. See page 4 above.
 - c. the biodegradable liner in the trug has not been tucked down between the trug and the brown board
 - d. a starter layer of soak was not added after the last emptying
 - e. women may be hovering the toilet rather than sitting down. This can affect urine separation. We can supply signage to encourage them to sit.
 - f. males standing to pee into the pedestal. It may be necessary to add an additional low level urinal for boys and improve signage.

Function can eventually be checked by gently squirting water from a clean washing up liquid bottle, or similar, onto the urine plate and watching through the top. The water should not enter the trug. If the bottle has some soap solution left in it this test will not work.

If the above steps do not resolve the problem:

Contact us with the following information:

1. Your name or contract number
2. 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.
3. Whether ground levels or conditions around the toilet have changed since installation.

Contact: - tech@natsol.co.uk or call us on: 01686 412653

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:

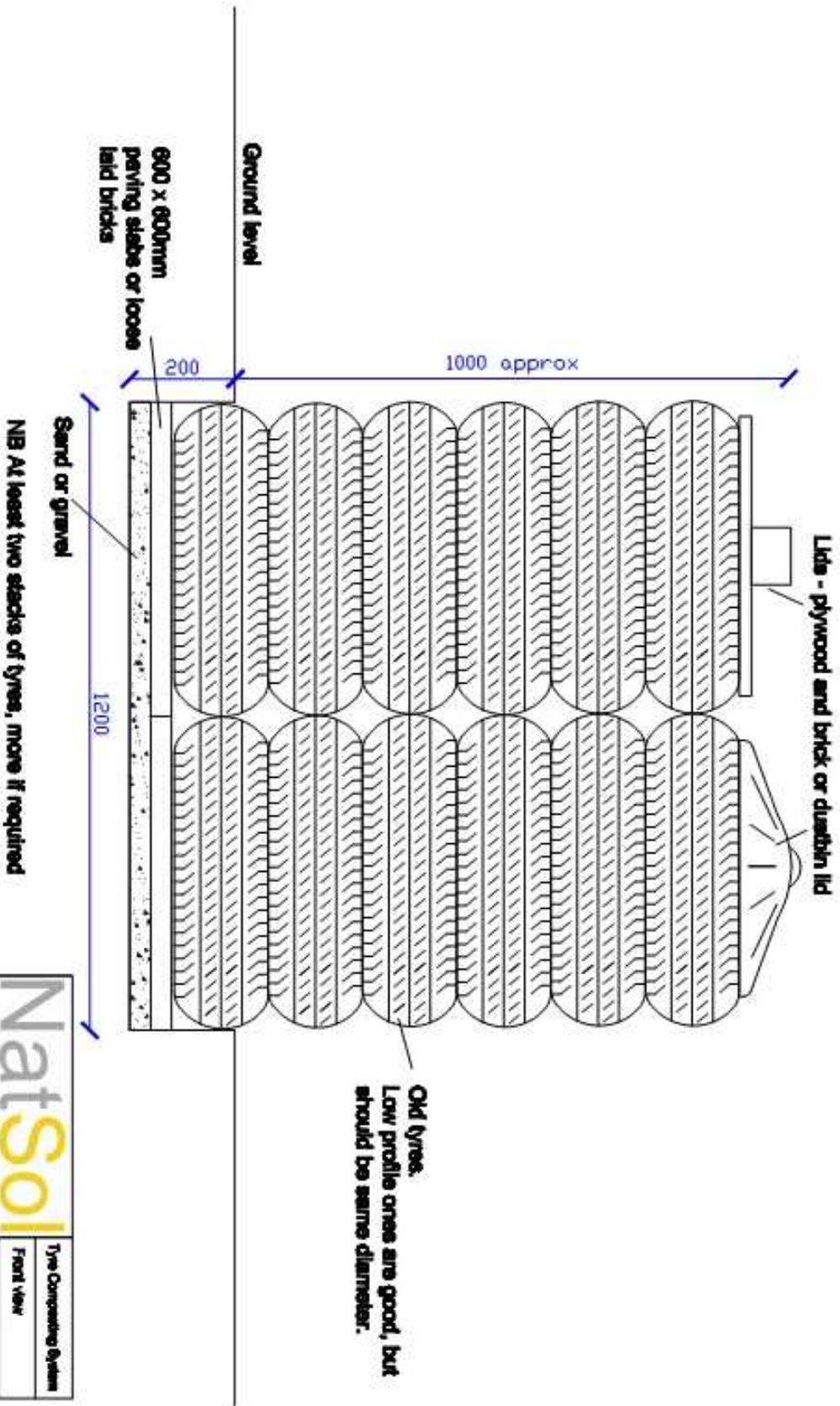
- Radial tyres have steel wire in them making them rat proof.
- The stack should stand on a concrete paving slab or wire mesh (weld mesh) so as to prevent rats finding their way in from underground.
- Using car tyres, the volume of a stack 1.2m high might be around 0.3m³ depending on how much material 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

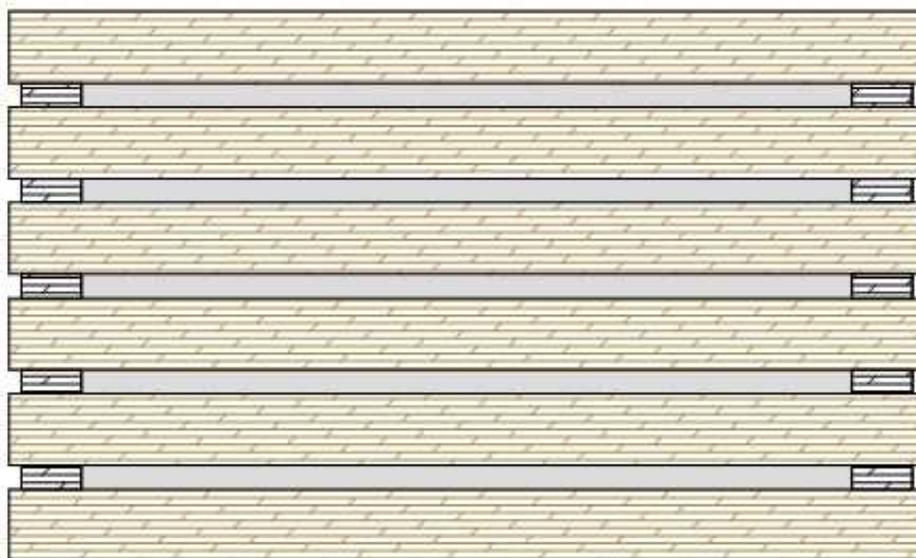
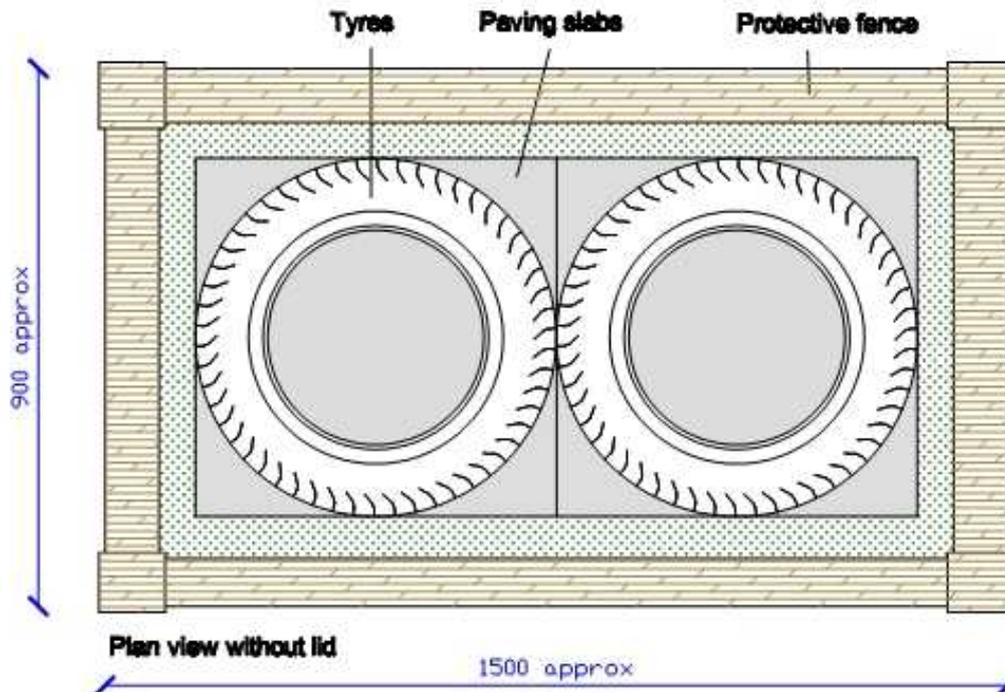
Shown here without protective fence



NatSol
THE COMPOST FORGET SPECIALISTS

<p>Natural Ltd Tel: 01825 412653 www.natsol.co.uk</p>	<p>Tyre Composting System Front view Date 01/07/18 Scale 1:50 Dwg. No. Dra. B. Woods</p>
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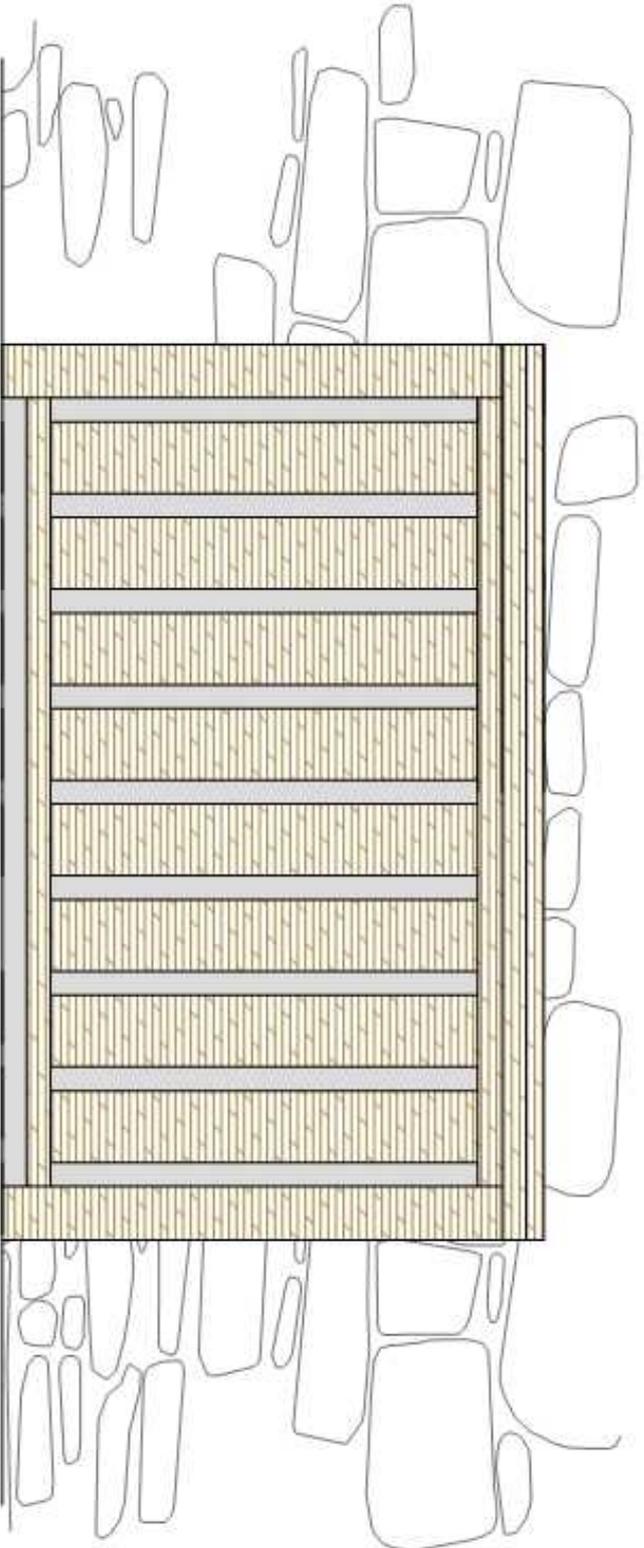
PLAN OF TYRE COMPOSTING SYSTEM



Slatted lid if required

NatSol <small>THE COMPOST TOILET SPECIALISTS</small>	Tyre Composting System	
	Plan views	
NatSol Ltd Tel: 01888 412863 www.natsol.co.uk	Date 01.07.08	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!

 THE COMPOST TOILET SPECIALISTS		Type Composting System	
		Fence front view	
Natural Ltd Tel: 071800 412003 www.natsol.co.uk		Dwg. No.	Date 01/07/08 Scale 1:10
		Dn. B. Woods	

SUPPLIES, SPARES and OTHER USEFUL ITEMS for COMPACT:-

HAND DISINFECTANT GEL

ADX 12 gel refills are available from www.excalibur-hygiene.co.uk

Phone: 01384 671505 Email: sales@excalibur-hygiene.co.uk

NatSol carries a small stock of other gel packs if you have difficulty obtaining what you need.

BIODEGRADABLE LINERS

These are 80 litre bags which can be obtained from: www.all-green.co.uk

WOOD SHAVINGS

Dust extracted wood shavings are widely available nationwide:
<https://www.sca.com/en/wood/Thoroughbred/>

For this toilet you could also use shredded paper.

TOILET SEAT

Should you need to replace the toilet seat then the white seat is a **Celmac Calypso** and the black one is a **Celmac Sonata**. These are available in most DIY stores and plumbers' merchants. It will be cheaper for you to buy this yourself than to get us to send you one.