NatSol the compost toilet specialists

INSTALLATION INSTRUCTIONS FOR ZERO DISCHARGE 2

Job name and contract no: _____

NOTICE TO PURCHASERS AND INSTALLERS:

We advise clients not to pay their contractors until we have received a full set of installation photos, please see photo list below.

These instructions must be passed on in full at least a week in advance to the person who is ***actually doing the installation***. They should inspect the site in advance.

NB: This applies even if a representative of **NATSOL** is going to be on-site to supervise. Our customers will be charged for supervision **even if,** as a result of poor preparation by the installation team, **nothing gets done**. The presence of **NATSOL** staff on site must not be viewed as an excuse for the installation team to turn up ill equipped, ill informed, under-staffed and under skilled.

We do not guarantee our products either in terms of durability of components or correct function unless properly installed.

We advise against installing a wash basin in a NatSol toilet cubicle due to the risk of water getting into the tank from a burst pipe.

Experienced installers of our toilets should check through to see what's new.

Contents: -

1. Choosing a site
2. Copy of our letter to the client
3. Basic requirements list – tools, machinery, personnel
4. List of photos to be returned to us before paying your contractor
5. Risk assessment for installation
6. Full Access Site Layout, Excavations and Soakaway, including drawings
7. Full Access Tank installation
8. Building erection and fitting out
9. Ramped access

NatSol the remote toilet specialists

Choosing a site for your NatSol Full Access Zero Discharge Type 2

It is important to take time choosing a suitable site on which to install a Full Access toilet. Poor siting can result in difficult access for maintenance and may result in the toilet not functioning. It may also make disabled access impossible.

Follow these points to select an appropriate location:

1. The ventilation cowl on the top of the toilet building needs air flow to work and must not be close to branches. It should be able to rotate freely at all times. The ventilation cowl is 4m above the toilet cubicle floor.

2. If the only option for a toilet install is on sloping ground it may be worthwhile levelling the ground prior to starting work. Ensure this doesn't create a risk of land slippage against the toilet building after installation. If it is necessary put in retaining boards or walls on the uphill side of the toilet.

3. A NatSol Full Access toilet should be sited where there is sufficient space and appropriate ground conditions (with regard to slope and subsidence risk) to install a disabled access ramp in accordance with Building Regulations - **even if such a ramp is not immediately required.** The NatSol Full Access toilet is provided as disabled accessible as standard. NatSol does not provide ramps as each installation will depend on individual site topography. In our **Installation Instructions** the page titled **Ramped access** gives some practical guidance to both contractors and clients on the construction of ramps which comply under UK regulations but the contractor must consult the regulations and NatSol cannot be held responsible if the contractor constructs a ramp which is not compliant. Please see below for guidance on what to do if it is deemed that a ramp will never be required, and on how to check and compile quotations for ramps.

4. **Clients and contractors are strongly advised to consult NatSol if there are any doubts as to whether a site is suitable. Free advice is available.**

Agreeing on ramps for Full Access toilets

The NatSol Full Access toilet is provided as disabled accessible as standard. NatSol does not provide ramps as each installation will depend on individual site topography. This document advises NatSol clients and contractors on what to say about ramps in the quotation and on what to do if the client does not require one.

Advice for clients:

If you ask your contractor to quote for a ramp then you should specify whether you want it to be Doc M compliant (wheelchair accessible) in accordance with building regulations. When you receive your quote check the wording carefully in this regard.

If you do not envisage ever requiring compliant disabled access you must say so in writing to both the contractor and NatSol.

Advice for contractors:

If a NatSol client asks you to quote for a ramp for a Full Access toilet then by default the ramp should comply with Doc M standards in accordance with building regulations. Be sure that you are clear in your quotation whether or not it will comply. If your client doesn't want it to comply, or you don't intend your price to cover the cost of a Doc M compliant ramp, make this clear in the wording of the quote. Otherwise the client will have a reasonable expectation that the ramp will comply and the matter could be legally contested.

COPY OF LETTER TO CLIENT:

Dear Client……..

INSTALLATION PROCEDURE FOR FULL ACCESS ZERO DISCHARGE TOILET

NatSol does not usually carry out installation of its products. We can offer ***supervision*** of installation for an agreed fee should this be deemed essential. In most cases we hope to avoid supervision in order to minimise costs.

We are, of course, very concerned that installations are carried out to a high standard. To ensure this happens it is essential that you appoint a **competent builder** to carry out the work.

Installation typically requires a 4 tonne machine, or larger, to off-load the tank from the delivery lorry, to carry out excavation and to lower the tank into the ground. Installation of the tank and building requires general building skills and at least three persons on site not including anyone in a purely supervisory role.

You should choose a contractor who is familiar with all relevant **health and safety procedures** for the work involved and who will read our **installation instructions** and **risk assessment** thoroughly before the installation day**.** The instructions tell the contractor what tools, equipment and materials he/she must supply. **It is essential the contractor turns up, properly equipped, on the day arranged otherwise the delivery lorry will have to return to the depot with the tank and you will have to pay for a second delivery.**

We can also assist in the following ways: -

1. In parts of the country where we know of a contractor experienced in installing our products we can make their contact details known to you on request.
2. We ensure that full installation instructions are sent out in advance to contractors and that we are available to discuss these in advance of installation.
3. We endeavour to be available by phone on the day of installation to answer any questions that may arise.

Whether or not you use a contractor to complete your installation our product guarantee is subject to us receiving a set of specified photographs as a way of assessing the quality of installation. This is not necessary in cases where NatSol has supervised the entire installation process. We recommend that these photographs are checked by us **before you pay your contractor.** The contractor should be informed by you in advance of the intention to use photographs as a way of assessing the quality of their work.

Having said this it must be understood that the contract for the installation is between you, the client, and the contractor and that if the product is badly installed **NatSol cannot accept any responsibility whatsoever** unless it can be proven that components were missing at the time of delivery or were defective.

Please contact us if you have concerns about any issues above.

NATSOL - ZERO DISCHARGE TOILETS

SUMMARY OF MATERIALS, TOOLS AND PERSONNEL REQUIREMENTS –

Black items concern the tank. Blue items concern the building erection and fitting out.

1. **Materials required - NOT supplied by NATSOL:**
   a. 0.5 m^3 of concrete as bedding layer for tank [C20P to BS 5328 (1:2:4 mix)]
   b. 0.5 m^3 of concrete [as above] for haunching around base of tank
   c. additional 1m3 (2 tonnes) of concrete for haunching around base if heavy clay or waterlogged ground
   d. exterior finish for timber clad buildings – *OS* products recommended.
2. **General building tools & equipment including the following:**
   a. safety clothing ☐
   b. tape measure ☐
   c. marker spray ☐
   d. digger to excavate ☐
   e. machinery to unload 850kg from lorry and lower into ground ☐
   f. spades, shovels ☐
   g. concrete mixer ☐
   h. wheelbarrow ☐
   i. 50mm thick screed rails – 2 @ 2.5m long with pegs fixed at each end ☐
   j. 2m long screeding bar ☐
   k. long spirit level ☐
   l. hammer ☐
   m. ladder to assist with building erection ☐
   n. mastic gun ☐
   o. powerful cordless drill or generator and drill ☐
   p. socket drives for cordless or spanners ☐
   q. drill bits for piloting timber or metal and plastic ☐
   r. small assortment of ZP woodscrews ☐
3. **Personnel & skills required for tank installation [approx time 3 hours]:**
   A machine operator, banksman and 1 or 2 others qualified in general building skills particularly wet work. The tank will need to be lifted using machinery and a **"D" shackle**. The slings are supplied by **NatSol but not the shackle**.
4. **Personnel & skills required to erect building [approx time 3 hours]:**
   General qualified building skills - 4 people for erection of frames and roof, then 2 for finishing
5. **Personnel & skills required to fit out [approx time 2 hours]:**
   General DIY or plumbing skills, 1 person is fine, 2 is useful.

   If you have a fan driven vent rather than a passive one you will need a qualified electrician.

NB. The construction times mentioned above [points 3,4,5] are given in good faith but NatSol Ltd cannot be held responsible for the additional cost incurred by installation times in excess of these or for any other circumstances [e.g. delay in completion of the installation] which may arise as a result of extended installation times.

NATSOL CHECKLIST OF INSTALLATION PHOTOS FOR ZD2 TO BE SENT TO NATSOL BEFORE PAYING YOUR CONTRACTOR AND IN ORDER TO OBTAIN OUR GUARANTEE.

SOME OF THESE NEED TO BE TAKEN DURING THE INSTALLATION PROCESS

Please use low resolution images if emailing.

1. The excavation and the concrete screed levelled off.
2. This shows the tank in the ground with concrete around. **NB: The lid is different on the ZD2.**
3. One of each elevation of the building from outside including, on at least one elevation, the full height of vent pipe. Corner and roof flashings should be in place. (The pictures shown are a mix from timber and metal buildings.)
4. Looking inside the cubicle showing fixtures and fittings showing the quality and completion of fitting out.

1

2

3a

3b

3c

3d

4

You may wish to send us additional photographs but please limit the total to 20 unless a specific problem has arisen with the installation which you need to illustrate.

	NatSol	The Remote Toilet Specialists				
	RISK ASSESSMENT FOR SITE INSTALLATION OF FULL ACCESS ZERO DISCHARGE TYPE 2 & BUILDING					
	Original	Date: 01.01.21	Carried out by: NatSol Ltd	Signed:		
	Reviewed	Date:	Carried out by:	Signed:		
	Contractors additions	Date:	Carried out by:	Signed:		
	Potential severity [S]		**Likelihood of occurrence [L]**		**Risk [S x L]**	
	Fatal/Major/Illness	**3**	Certain/More than likely	**3**	**9**	High
	Injury/Lost time disability injury	**2**	Reasonably likely	**2**	**4 or 6**	Medium
	Minor injury or illness	**1**	Seldom/Very unlikely	**1**	**1,2 or 3**	Low
	The risk levels shown below are the residual risk if safety precautions included in our installation instructions and shown below are adhered to.					

	Significant hazards	**Persons at risk**	**Existing controls**	**Residual level of risk**	**FURTHER ACTION REQ'D BY CONTRACTOR:**			
		Name and location of person/place at risk	As desribed in the installation instructions		**Action:**	By whom:	Date:	Done (tick)
1	Manhandling building sections from lorry. Risk of dropping, cuts or pinching.	Clients, volunteers and contractors	High visibility safety clothing and gloves, hard hats and safety boots.	2 [S] x 1[L] = **2**				
2	Off-loading tank from lorry using machinery. Tank weigh approx 850kg. Risk of dropping.	Contractors + bystanders	Rope off area. High visibility safety clothing and gloves, hard hats and safety boots. Use appropriate machine for load to be lifted. Correct use of D shackle [to be supplied by machinery operator] and slings supplied by NatSol **OR** use extended forks on machine.	3 [S] x 1[L] = **3**				
3	Use of machinery to excavate.	Contractors + bystanders	Rope off excavation area. Safety clothing as 2 above.	3 [S] x 1[L] = **3**		**PTO**		

4	Use of cement to make concrete - alkaline dust	Contractors + bystanders	Use dust masks and gloves. If windy use goggles. Keep bystanders clear.	1[S] x 2[L] = **2**				
5	Lowering tank into ground. Risk of dropping.	Contractors + bystanders	Keep operating area roped off. Safety clothing as in 2 above. Use appropriate machine for load to be lifted. Correct use of D shackle [to be supplied by machinery operator] and slings supplied by NatSol.	3 [S] x 1[L] = **3**				
	Building erection							
6	Sharp edges on metal building sections	Contractors	Use gloves and safety boots.	1 [S] x 2[L] = **2**				
7	Wind blowing building over during erection	Contractors + bystanders	Safety clothing as in 2 above. Sufficient operatives to support building sections manually. Use props as necessary. Do not erect building in strong winds.	2 [S] x 1[L] = **2**				
8	Wind blowing off roof before fixing down.	Contractors + bystanders	Hold roof down manually as soon as it is in place and fix immediately. Do not fit roof in strong winds.	3 [S] x 1[L] = **3**				
9	Use of ladder to lower vent pipe into building	Contractors + bystanders	Ladder to meet appropriate BS and rest on level, well compacted ground. Person supports ladder when in use. Not to be done under windy conditions. Keep bystanders clear.	3 [S] x 1[L] = **3**				
10	Fitting roof edge flashings.	Contractors	As above	1 [S] x 1[L] = **1**				
11	Painting of timber building - fumes and splashes to eyes or skin. Depends on type. Paint not supplied by NatSol	Contractors	Use gloves and other protective clothing as seems necessary.	1 [S] x 1[L] = **1**				

FULL ACCESS ZD2 SITE LAYOUT and EXCAVATIONS

The drawing included below shows **Site Dimensions** layout for the Full Access ZD2 toilet

As site conditions will vary considerably these notes are provided as an illustration of typical arrangements to assist in the planning of an installation but do not guarantee compliance with disabled access requirements for a given site.

Rainwater

Although volumes of roof run-off are small, soakaways in heavy soil, or where there is a high water table may fail under conditions of sustained rainfall. **Remember that sites which are dry in summer may be waterlogged in winter.** Rainwater must be directed away from the building foundations. A rain butt could be fitted but will almost certainly overflow in winter. The soakaway required for rain could be a pit 600mm square by about 600mm deep filled with broken bricks, or similar, to a depth of 500mm. This should suffice in free draining soil but may need to be considerably larger in heavy soils. See fig 1.

A layer of geotextile excludes soil and the pipe enters just beneath this.

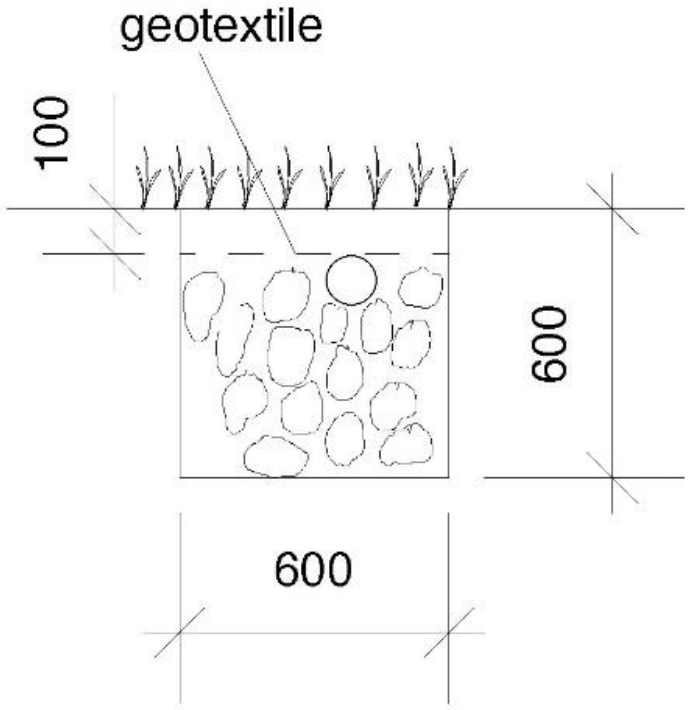


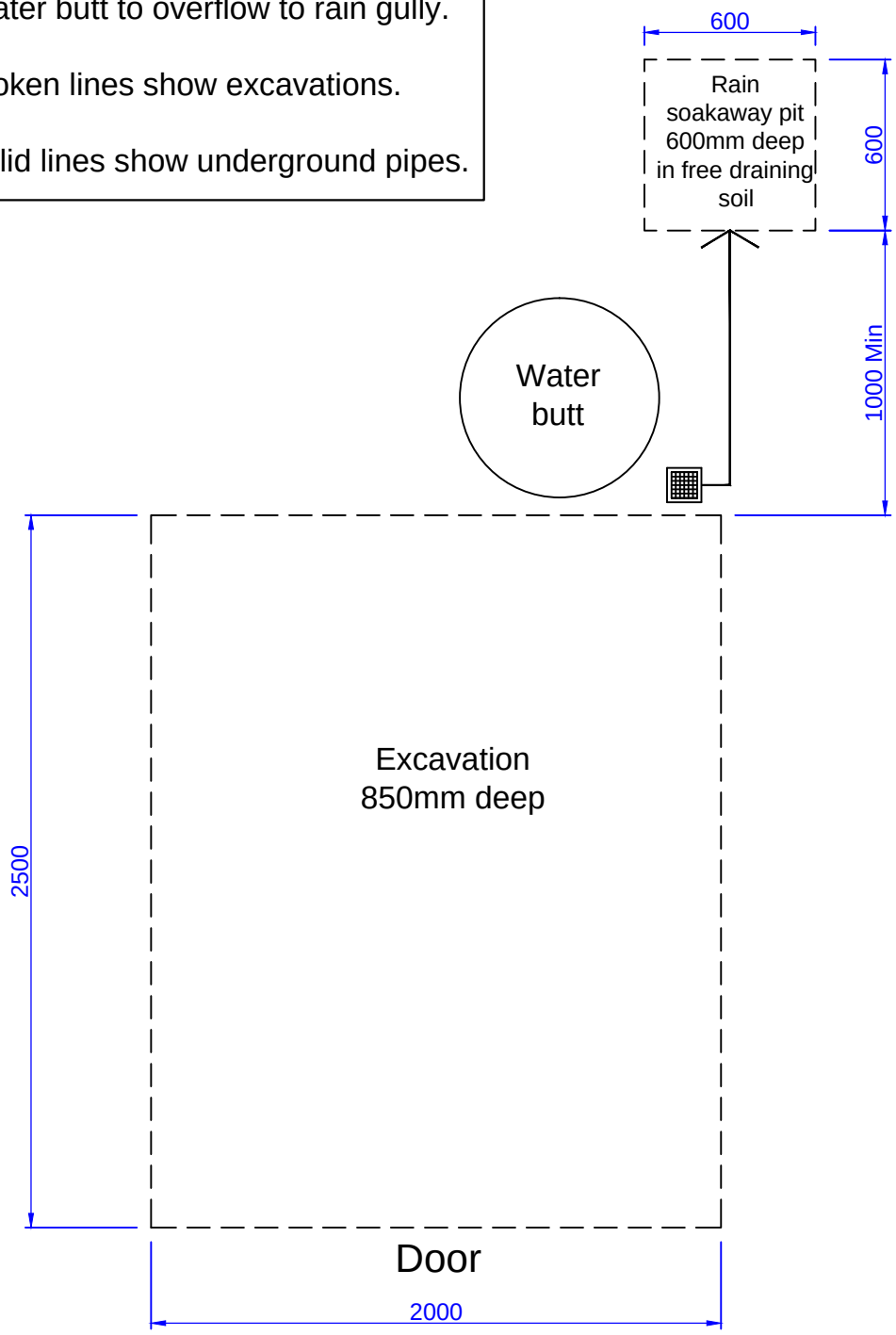
Figure 1. Rainwater soakaway.

Rain gully positioned to left or right.

Water butt to overflow to rain gully.

Broken lines show excavations.

Solid lines show underground pipes.



NatSol

Natsol Ltd
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www.natsol.co.uk

Zero Discharge 2

Excavations

Date 28.01.21

Scale NTS

Drg. Excavation-ZD2

Dm. mbCADservice

NATSOL FULL ACCESS ZERO DISCHARGE 2 TANK INSTALLATION

Checklist of components [& tools] supplied by NATSOL for this stage:

a. tank with central supporting wall and fitted with lid/floor section
b. lifting slings – normally carried in driver's cab

Personnel & skills required for this stage:

c. machine operator, banksman and 1 or 2 others
d. site marking out & excavation
e. concrete preparation and levelling
f. lifting using digger, shackle and slings
g. checking levels

Method – see accompanying SITE LAYOUT drawing:-

1. **To avoid risk of hole filling with rainwater do NOT carry out excavation until tank is on site.**
2. **The tank should be bedded onto wet concrete – do NOT prepare slab in advance.**
3. **If there is likely to be heavy rain before the concrete has set around the tank it may be wise to fill the tank with water to prevent flotation and pump out later.**
4. **The toilet tank weighs around 850kg. Installation may be dangerous if our instructions are not followed or if unqualified personnel are employed to operate and direct machinery. Keep onlookers and children clear of site by roping off. Wear safety clothing. Put digger driver and banksman in charge.**

1. There are two methods by which the tank can be off-loaded from the delivery lorry. You can use the lifting slings supplied [ask delivery driver] and a "D" shackle **[not supplied]** as shown below, **OR** use the forks on the digger or other machinery – providing they are long enough and strong enough to lift 850 kgs. If you use forks you may need to swing the tank around on the lorry so that the forks pass underneath from the side rather than from the end. Lift using machinery and set aside on timber bearers – see below.

2. Carefully plan the excavation and rainwater soakaway. **See previous notes and drawing: SITE LAYOUT, EXCAVATION & SOAKAWAY.** The depth of excavation will usually be around 850mm. This allows for 50mm of concrete screed below the tank and will give a floor level which is 150mm above ground. We do not recommend the floor being less than 150mm above ground**.** On sloping sites the **minimum** height of the floor above ground should be 150mm**.**

3. Carry out excavation finishing this by hand if necessary to achieve the required depth evenly over 1.8m x 2m central area in bottom of hole. Carry out rainwater soakaway excavations too.

4. Check that subsoil is compact and firm. If it appears unstable seek professional advice as to how to proceed.

5. Make 50mm deep screed rails run front to back, 1.8m apart, and level them.

6. Fill area between them 50mm deep with fairly dry mix of approx 6:1 [aggregate: cement] and level off.

NB: On the ZD2 tank the lid is bonded onto the tank at the works and there is no urine gutter.

7. Check again which way round the tank has to go to ensure that the pedestal (large circular aperture) will be on the left hand side towards the back as you look in through the toilet door and then using slings beneath the end flanges lift the tank using the digger or other machinery and lower into position.

8. Check to see that the tank is not out of level by more than 6mm across the width and 10mm along the length. Lift out and re-level the base if necessary or tap down gently on high side using large rubber kerbing mallet.

9. Mix remaining concrete and fill around outside of base of unit to cover bottom retaining flange and to connect to concrete beneath. In heavy clay soils or on waterlogged sites

use 2m3 [4 tonnes] total concrete so as to prevent possible flotation of tank [and building] if ground becomes waterlogged. IF YOU FAIL TO USE SUFFICIENT CONCRETE THIS MAY BE THE RESULT: -

10. Earth may be backfilled at this stage but leave out sufficient to enable access below the flange to insert the bolts or screws which will hold the building in position.

11. The rain hopper can be positioned at either rear corner of the vaults. Take the rain-water to a soakaway. The size should be governed by the porosity of the soil and expected rainfall.

12. If the building is being erected later cover up the tank to prevent rainwater getting in.

NB: This tank has different openings in the top but its size and general appearance are the same as the ZD2

T: 01686 412653