

INSTALLATION INSTRUCTIONS

JOB NAME: _____

If no job name is filled in these instructions are only for estimating and should not be used for installation.

NOTICE TO PURCHASERS AND INSTALLERS:

Some people consider it a matter of course not to read instructions and prefer the heroic approach of assembling something without being told how to do it....! **NATSOL** toilets are not difficult to install but failure to read these instructions could prove very expensive - for you.

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

These instructions **must** be passed on in full to the person who is **actually doing the installation** at least a week in advance and 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 clients 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.

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

Contents: -

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

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Choosing a site for your NatSol Full Access toilet

It is important to take time choosing a suitable site on which to install a Full Access toilet. Poor siting can result in over wieldsy toilet management 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 3m 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. (See diagram on p. of the **Site Layout, Excavations and Soakaways** section of the Installation Instructions).
3. The toilet soakaway must be downhill of the urine exit pipe in the toilet vault. Natsol Full Access vaults have urine exits on the right hand side as standard but can be supplied with a urine exit on the left hand side on request. This would be suitable if the ground on the right hand side of the toilet building, as you face the cubicle door, rises up from the building but the land on the left is either level or slopes away from the building. It would also be appropriate if there is an existing building very close to the right hand side of the toilet building. There is further explanation on soakaway siting to avoid groundwater backing up into the toilet vaults on p.... of the **Site Layout, Excavations and Soakaways** section of the **Installation Instructions**.
4. The best sites have free draining ground but it is possible to install in wetter sites and NaSol will have supplied (or will supply) a **Site Assessment Form (SAF)** to help us understand your ground conditions.
5. 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 i.e. one which complies with the regulations, 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 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 over 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.
6. **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 TWIN VAULT COMPOSTING TOILETS

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 vaults from the delivery lorry, to carry out excavation and to lower the vaults into the ground. Assembly of the vaults 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 vaults 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.

Best wishes,

Andrew Warren, MD

NATSOL - TWIN VAULT COMPOSTING TOILETS

SUMMARY OF MATERIALS, TOOLS AND PERSONNEL REQUIREMENTS –

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

1. Materials required - NOT supplied by NATSOL:

- a. 0.5 m³ of concrete as bedding layer for vaults [C20P to BS 5328 (1:2:4 mix)]
- b. 0.5 m³ of concrete [as above] for haunching around base of vaults
- c. additional 1m³ (2 tonnes) of concrete for haunching around base if heavy clay
- d. additional soil pipe and fittings if required to reach desired soakaway site
- e. silicone grease for pipe jointing
- f. exterior finish for timber clad buildings – OS COLOR 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 650kg into ground
- f. spades, shovels
- g. concrete mixer [could be done by hand]
- 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. mastic gun
- m. hammer
- n. saw [for cutting plastic pipe]
- o. ladder to assist with building erection
- p. large flat bit screwdriver
- q. powerful cordless drill or generator and drill
- r. socket drives for cordless or spanners
- s. drill bits for piloting timber or metal and plastic
- t. small assortment of ZP woodscrews

3. Personnel & skills required for vault installation [approx time 4 hours]:

A machine operator, banksman and 1 or 2 others qualified in general building skills particularly wet work. The vaults 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 4 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.

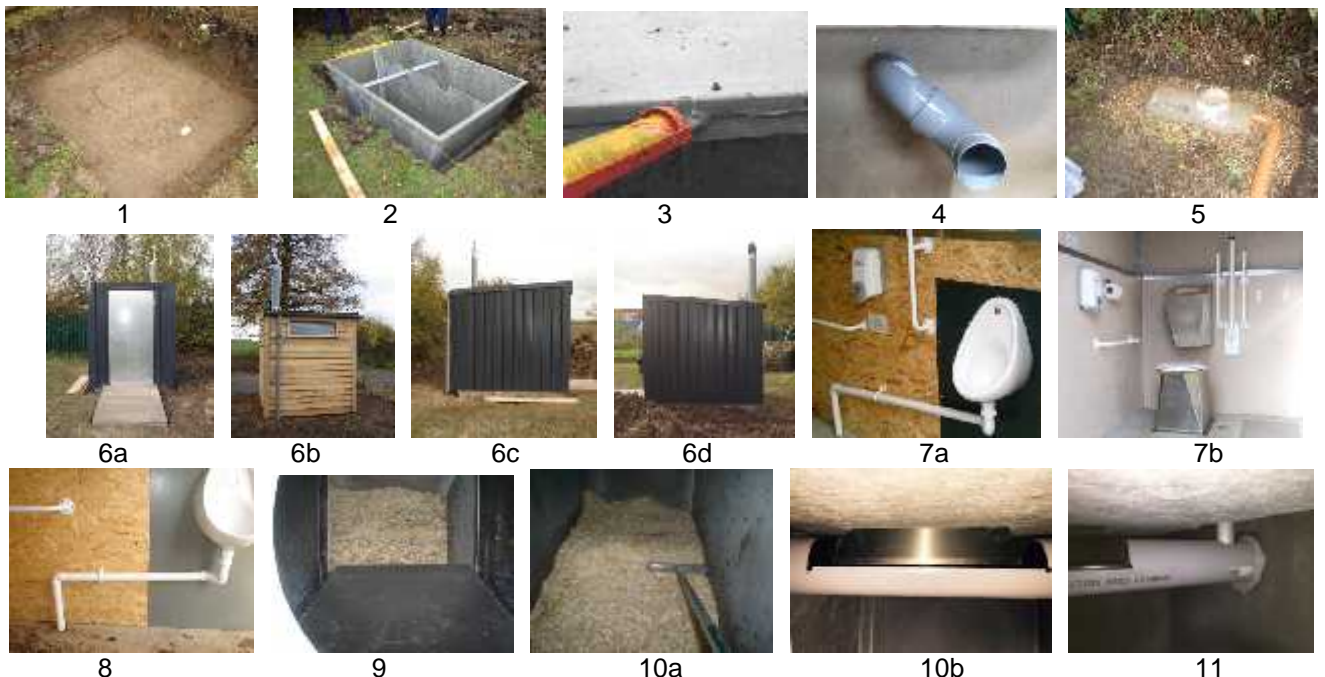
Qualified electrician needed to connect fan on toilets with fan driven [as opposed to passive] ventilation systems.

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 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

1. The excavation and the concrete screed levelled off.
2. The vaults in the ground but before the lid/floor section is fitted. This should show the urine gutter in position and the SIKA mastic around the rim of the vaults.
3. SIKA pointing up the gap between the lid and the base of the vaults *after* the lid has been fitted. It should be possible to take this picture after the building has been erected - if that helps.
4. The grey pre-assembled urine outlet in place.
5. The soakaway in position before back-filling commences. This should include the pipe connection from the vaults which must slope down [at a gradient of 1 in 60 minimum] to the soakaway.
6. 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.
7. Two looking inside the cubicle showing both side walls with fixtures and fittings showing the quality and completion of fitting out.
8. One of the urinal pipework.
9. One looking down the pedestal [with flash on] so that the urine separating plate and the soak in the bottom of the vault are visible.
10. One into the active vault with the front cover removed showing the rake in place. The picture should be taken at a low enough angle that it is possible to see the bottom of the stainless steel urine separating plate over the urine collecting gutter.
11. One to confirm that the end of the urinal pipe does not block the urine gutter under the floor but stops between 60 and 100mm above the bottom of the urine gutter.



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.

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The Compost Toilet Specialists

RISK ASSESSMENT FOR SITE INSTALLATION OF COMPUS TWIN TOILETS - Full Access Models

Original	Date: 1/10/07	Carried out by: NatSol Ltd	Signed:
Reviewed	Date: 1.3.15	Carried out by: AW NatSol Ltd	Signed:
Contractors additions	Date:	Carried out by:	Signed:

<u>Potential severity [S]</u>		<u>Likelihood of occurrence [L]</u>		<u>Risk [S x L]</u>	
Fatal/Major/Illness	3	Certain/More than likely	3	3, 6 or 9	High
Injury/Lost time disability injury	2	Reasonably likely	2	2 or 4	Medium
Minor injury or illness	1 or 0	Seldom/Very unlikely	1 or 0	1 or 0	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. Name and location of person/place at risk	Existing controls As described in the installation instructions	Residual level of risk	FURTHER ACTION REQ'D BY CONTRACTOR:			
					Action:	By whom:	By 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 and safety boots.	2 [S] x 1[L] = 2				
2	Off-loading vaults from lorry using machinery. Vaults weigh approx 600kgs or 850kg if off-loaded complete with lid. 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 forks on machine if long enough.	3 [S] x 1[L] = 3				
3	Use of machinery to excavate.	Ditto + bystanders	Rope off excavation area. Safety clothing as 2 above.	3 [S] x 1[L] = 3				
4	Use of cement to make concrete - alkaline dust	Contractors + bystanders	Use dust masks and gloves. If windy use goggles. Keep bystanders clear.	2 [S] x 1[L] = 2		PTO		

5	Lowering vaults 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				
7	Fitting vault floor section.	Contractors + bystanders	As above + risk of finger pinching.	2 [S] x 1[L] = 2				
6	Drilling of vault flanges. Dust and use of electrical equipment.	Contractors	Use dust masks and eye protection. Use cordless drill OR corded drill with voltage and protection equipment [e.g. trips] to meet all required site standards.	1 [S] x 2[L] = 2				
8	Sharp edges on metal building sections	Contractors	Use gloves and safety boots.	1 [S] x 2[L] = 2				
9	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				
10	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				
11	Use of ladder to lower vent pipe into building	Contractors + bystanders	Ladder to meet appropriate BS and rest only on level well compacted ground. Person appointed to support ladder when in use. Not to be done under windy conditions. Keep bystanders clear.	3 [S] x 1[L] = 3				
12	Fitting roof edge flashings.	Contractors	As above	2 [S] x 1[L] = 2				
13	Painting - 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				