for solar power generation, and free air movement above the roof is necessary for ventilation purposes.

❺ Maintaining your composting toilet

Householders should be aware of the stringent maintenance requirements of composting toilets. The factors of water content, temperature, air flow patterns, pH, toilet usage rate, surface area of compost and oxygen penetration depth, all influence the rate and effectiveness of the biological breakdown of the waste materials. Correct operation of composting toilets requires the addition of carbon-rich materials to the compost heap. Vegetable scraps and lawn clippings will assist the decomposition process through the addition of organic matter, and reduction in moisture content. Newspaper, sawdust and other absorbent materials provide bulk and spaces which allow increased aeration and ensures appropriate conditions are maintained. Surface area in which the compost is spread should be large enough to allow composting to be completed before it is buried too deeply. Also, when there are high moisture levels in the compost, a very unpleasant odour is released. The toilet seat should be kept closed when not in use to stop flies and insects entering the composting chamber.

❻ Maintenance tips

The following is a guide on how to achieve the most from your system through good maintenance procedures:

- √ Record the commissioning date of each chamber for multi-chamber systems.
- √ Always close the toilet lid when the toilet is not in use to control fly breeding and ensure proper aeration of the pile.
- √ Ensure that the material is spread evenly over the compost heap.
- √ Always clean the pedestal by hand with minimal use of water and no use of disinfectants.
- √ Consult the service agent if odour and vermin become excessive.
- √ Check moisture and temperature conditions regularly, to maintain optimum conditions for the composting process.
- √ Add organic and bulking material when required.

❼ Help protect your health and the environment

Poorly maintained composting toilets can be a serious source of pollution and may present health risks, cause odours and attract vermin and insects. By looking after your composting toilet you can do your part in helping to protect the environment and the health of you and your family.

If you would like more information please contact:

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Waterless Composting Toilets

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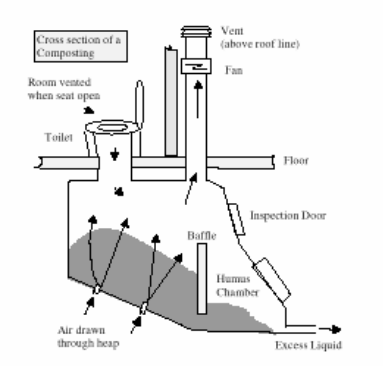
In unsewered areas, the proper on-site treatment and reuse of human wastes and household wastewater is critical in preserving the health of the public and the environment. Waterless composting toilets have been developed as a way of achieving this.

❶ What is a waterless composting toilet?

Waterless composting toilets (also known as humus closets or biological toilets) are waterless systems which rely on the principles of composting by micro-organisms to decompose human waste, paper and other materials into humus. Systems are either continuous or batch. Continuous systems contain one chamber, whilst the batch systems contain several bins, with rotation occurring after each bin is filled. In both systems, chambers or bins are installed below floor level. Waterless composting toilets do not treat wastewater from other sources such as showers, sinks, and washing machines (also known as 'greywater'), so an alternative system is required for this.

❷ How does a waterless composting toilet work?

There are several types of waterless composting toilet available, but the principles they use are basically the same. The description and diagram given here are for a single chamber continuous toilet. Excreta (both urine and faeces) is collected in a sealed chamber beneath the toilet pedestal. Extra organic matter such as wood shavings, paper, or lawn clippings is added to create an ideal composting environment. Micro-organisms decompose the material, with around three quarters of it being converted to carbon dioxide and water vapour. Air drawn through the pile removes these gases and assists the micro-organisms.



The remaining material slowly moves down a sloping floor by gravity as more material is added to the pile. It then moves under a dividing baffle into the humus chamber as friable compost after about a year. Any excess liquids are drained and treated with the greywater. Compost produced is typically buried on-site. The advantage of composting toilets is that they can be used on difficult sites as they do not require any water. National Parks and low usage camping areas with limited water supplies are common sites. They can also be used in single domestic premises and may be installed externally or within the dwelling.

❸ Regulations and recommendations

Before a composting toilet is installed at any unsewered domestic premises or unsewered site the owner/occupier should assess the site. Once satisfied that the site conditions will allow for a composting toilet, an approval can be sought from the Council. Houses may need to be specially designed to accommodate the units. Also facilities for greywater treatment are required such as a septic tank, and land application area. Maintenance is the responsibility of the owner/occupier and is not normally subject to a maintenance contract. **The owner/ occupier needs to be committed to the principles of composting.** Maintenance varies among composting toilets, and the needs of particular units should be specified clearly in a manual. If maintenance is not undertaken properly there is an increased risk of disease and odour generation. It is recommended that units be serviced annually by an approved contractor. Annual servicing should include a check of the operation of the fan and the amount and spread of the compost within the composting chamber(s). The minimum composting period should not be less that 12 months. Compost, including partially composted material must not be removed from the premises unless written consent from the Council is obtained. The Council may specify removal and application requirements. Unless otherwise directed by the Council, the composted humus material is to be buried within the confines of the property. The cover of soil over the deposited humus must be at least 75mm. Compost must not be buried in an area used for the cultivation of crops for human consumption.

❹ Location of composting toilets

Some of the toilet designs are suited to sites with a natural slope to allow access to the chamber(s) for the required maintenance. A northern exposure is desirable