



ACT Health Guidelines for Approval of Waterless Composting Toilets in Domestic Premises

June 2005

1. SCOPE

This guideline sets out the minimum requirements for approval by ACT Health for installation of Waterless Composting Toilets, also known as humus closets and biological toilets, which treat human excreta and domestic organic matter from single domestic dwellings.

2. BACKGROUND

The Waterless Composting Toilet relies on the principles of composting by microorganisms to decompose human waste, paper and other materials into humus.

Treatment Process

Treatment in a properly designed and managed Waterless Composting Toilet occurs on-site via the aerobic breakdown of organic material.

Waterless Composting Toilets do not need a water supply for its operation. The water content of the compost heap is one of the critical components that needs to be maintained to ensure efficient and odourless operation.

Excreta and other organic material (eg kitchen scraps, waste paper etc) are added to the heap through a hole in the top of the chamber. To achieve optimal conditions for the microbiological mediated breakdown processes the C:N (carbon to nitrogen) ratio of the heap should be approximately 30:1 and the moisture content in the range of 12% to 40%. Because the C:N ratio of excreta is less than 10:1 and is extremely wet, it is necessary to add bulking agents such as sawdust in order to maintain the composting process.

The temperature and airflow need to be carefully controlled to optimise conditions favourable for composting. It is important that airflow is sufficient to maintain aerobic conditions in the faeces pile and removes any odours originating from anaerobic micro-sites within the compost pile and the created carbon dioxide and water vapour.

While the composting process generates some heat, rapid losses of heat and low temperatures reduce the effectiveness of the composting process. In Canberra this process may stop in winter unless a heating element is provided.

Health Issues

Compost toilets can become a health hazard if they are not designed or maintained appropriately.

The level of risk to health will depend on the health status of the users, the extent of exposure with the humus or compost produced and the form in which the end-products are re-used.

The final use of the compost is also an issue and should not be used on crops that are consumed raw.

Waterless Composting Toilets should not be used in the urban areas of Canberra due to the cool climate, small block sizes and potential health risks associated with disposal. As, not all pathogens are destroyed in the composting process, appropriate handling and disposal of the compost is essential.

3. GENERAL CRITERIA FOR THE APPROVAL OF WATERLESS COMPOSTING TOILETS

Approval for the use of a Waterless Composting Toilet system can only be granted by ACT Health where there is either a connection to the sewer, or an on-site wastewater system, for the disposal or utilisation of greywater (sullage).

The installation of the waterless composting system must conform to *AS/NZS 1546.2:2001* or have a Certificate of Accreditation from another jurisdiction, eg NSW Health.

Waterless Composting Toilets can only be installed on a single occupancy house block where there is adequate free space available to dispose of the compost without contaminating the site or neighbouring land.

The compost temperature must be maintained at a temperature of greater than 14 °C during the colder months ie. April to October, to allow the decomposition of the product. This may be achieved by installing a heating system or some other appropriate means of maintaining the compost temperature.

Before compost is removed it should be sampled and tested by a NATA registered laboratory and comply with *AS/NZS 1546.2:2001 – Appendix A - END PRODUCT QUALITY*. Table A1 - Requirements for end product quality. Pathogen tests (ie thermotolerant coliforms <200 CFU per gram dry weight and Salmonella spp. not detected).

Maintenance

Maintenance is the responsibility of the owner or occupier and is essential to the proper operation of the system.

The owner or occupier must be committed to the principles of composting.

The manufacturer should supply, to the owner or occupier, a manual that addresses all aspects of maintaining the Waterless Composting Toilet. Not limiting the information provided, the manual should include the following:

- the control of excessive moisture production in the composting vessel;
- procedures to ensure that the deposited material is spread evenly over the base;

- cleaning procedures (eg. minimal use of water and disinfectants on pedestal);
- procedures for removing compost;
- procedures to eliminate the production of odours; and
- procedures to ensure that material does not block the base of the chute.

The operation and maintenance varies between the different types of systems. Therefore the, manufactures recommended operation and maintenance schedule, as detailed in the manual, must be followed.

4. INFORMATION REQUIRED FOR ASSESSMENT BY ACT HEALTH

Approval for the installation of a Waterless Composting Toilet must be made on the form -“Application to Install or Alter a Septic Tank, Chemical Toilet, Composting Toilet or Sewerage Treatment Plant”, which is available from the Health Protection Service, ACT Health.

Along with the completed application form, the following information must also be supplied:-

- Current ‘Certificate of Accreditation’ issued by another jurisdiction eg NSW Health;
- Manufactures design details;
- Manufactures operation instructions;
- Detailed house and site plans;
- Details of method proposed for disposal of compost and proposed dedicated land area; and
- Details on disposal of excess liquid.

A Public Health Officer from the Health Protection Service will need to thoroughly assess your application to ensure that it complies with the Australian Standard and will not pose a public health risk to your household or neighbouring properties.

5. REFERENCES

A/NZS 1546.2:2001 Onsite domestic wastewater treatment units: Part2: Waterless composting toilets.

Davison, L. and Schwizer, B. 2001 Waterless Composting Toilets. Septic Safe. Department of Local Government. www.dlg.nsw.gov.au

NSW Health 1997, Waterless Composting Toilets Approval Guideline.

Peasey, A. 2000, Health Aspects of Dry Sanitation with Waste Reuse. WELL Task No.324, London School of Hygiene and Tropical Medicine, Keppel St, London, WC1E 7HT.

Scott, E. 2002 Dry Sanitation Solutions in Journal of Rural and Remote Health 1(2): 23-25 (2002).

Appendix 1: CONDITIONS OF OPERATION WHEN APPROVED

Once approved, a number of standard conditions will form a part of the conditions to install and operate a Waterless Composting Toilet on your property, these conditions include:-

1. The Waterless Composting Toilet must conform to AS/NZS 1546.2:2001 Part 2: Waterless Composting Toilets.
2. The unit shall be installed, operated and maintained in accordance with the manufacturer's instructions.
3. The maximum number of residents in the premises must not exceed the manufacturers recommended number of persons.
4. Bulking material is to be added through the toilet chute in such amounts and frequency as specified in the manufacturers maintenance manual.
5. Compost must not be removed before the period of 12 months.
6. Partially composted product may only be removed from the WCT with the written consent of the Health Protection Service of ACT Health.
7. End product compost must comply with AS/NZS 1546.2:2001 – Appendix A - END PRODUCT QUALITY. Table A1 - Requirements for end product quality. Pathogen tests. (ie thermotolerant coliforms <200 CFU per gram dry weight and Salmonella spp. not detected).
8. The composted end product may not be removed from the property unless the written approval of the Health Protection Service has been obtained.
9. Unless otherwise directed by the Health Protection Service, the composted end product is to be buried within the confines of the property, in soil that is not intended to be used for food crops for a minimum period of 12 months. The minimum cover of soil must be 300 mm measured from natural surface level and at least 1 metre from the boundary.
10. The fan fitted to the air vent must be installed in such a manner that it operates continuously. Easy access must be provided for repairs or replacement of the fan.
11. The unit should not be located or operated in such a way as to create an insanitary condition.
12. All excess liquid must be disposed to sewer or in a manner approved by the Health Protection Service, so as not to create any nuisance or pollute any watercourse.
13. The deposited material must be maintained at a temperature to ensure that composting continually occurs in the chamber.
14. Detailed records on the maintenance, removal and disposal of compost, must be kept by the owner/operator.