



HB 326—2008  
**Urban Greywater  
Installation Handbook  
for Single Households**

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# Handbook

## **Urban Greywater Installation Handbook for Single Households**

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## PREFACE

This Handbook has been developed to provide practical information for gaining approval, diversion and for treatment and irrigation of greywater within single households for the uses specified.

The Handbook forms 1 component of a three part package that includes the following:

- (a) *Rainwater Tank Design and Installation Handbook* (this document), which provides practical and technical information for plumbers to gain approval, install and maintain rainwater systems for single households, multi-unit dwelling, community and commercial buildings.
- (b) *Urban Greywater Installation Handbook for Single Households* (this document) which provides practical and technical information for plumbers to gain approval, install and maintain rainwater systems for single households, multi-unit dwelling, community and commercial buildings.
- (c) *The National Water Commission Waterlines Publication*, which provides an initial overview of necessary information for communities to understand before pursuing the installation of greywater or rainwater re-use devices in the domestic settings.

The objective of this three-part series is to progress urban water reform under the commitments outlined in the National Water Initiative (NWI), to encourage innovation in water supply, re-use and recycling, and increase the efficient use of water within domestic settings.

To optimise the full potential of greywater as an alternative water resource it is recommended that greywater be treated to a suitable level and be connected to internal plumbing connections (e.g., toilet, washing machine).

The primary purpose of this Handbook is to provide practical guidance to plumbers and councils. The Handbook will assist them in understanding the benefits and risks associated with greywater use, to enable management of any associated risks, and ensure that greywater is approved (where required), installed, used and maintained at a residential household site without compromising public health and the environment. The secondary purpose is to provide a valuable insight for householders and regulators as to the approval and installation process and responsibilities of the householder when using and maintaining their greywater system. This will ensure the community is informed sufficiently to manage their greywater effectively.

This Handbook has been developed by the Master Plumbers and Mechanical Services Association of Australia (MPMSAA), Standards Australia and RMIT University. Additional editorial and technical services were provided by Arris Pty Ltd (Dr Daryl Stevens). The Handbook provides comprehensive information for the design, approval, installation, use and maintenance of greywater systems for a single household.

This Handbook is not an Australian Standard and has not been developed and approved using the full transparency and consensus processes that underpin Australian Standards. As a Handbook it has, however, been subject to a level of peer review. For further advice on the status of this document see Standards Australia Standardization Guide 13, *Publications of Lower Level of Transparency and Consensus*,

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## INTRODUCTION

Recent widespread drought in Australia, combined with the continued population growth of cities, has resulted in increasing pressure on drinking water supplies in most areas of Australia. Public perception is that household greywater is a valuable resource that should be used, with many State and local governments encouraging the use of greywater as part of a wider water demand management strategy.

Greywater from a single household, if treated appropriately, can be considered a resource and can be used on site for garden and lawn irrigation, toilet flushing, washing machines, and other outdoor uses as defined in States and Territories of Australia. Greywater refers to the wastewater generated from kitchens, laundries and bathrooms, not blackwater, which is waste containing human excrement.

This Handbook covers greywater use for a single household on a single land title in a seweraged area, and identifies the potential risks associated with single household greywater use. It discusses the design and installation of greywater treatment systems (GTSs) and greywater diversion devices (GDDs), and the use of this greywater. The Handbook initially covers treated greywater, which has the least risk to public health and the environment (Chapter 3), followed with untreated greywater (Chapter 5).

This Handbook does not cover greywater use for a site comprising more than one household or dwelling. The definitions and terminology used throughout this Handbook are consistent with AS/NZS 3500, *National plumbing and drainage* and other plumbing regulations. (Refer to the Glossary of terms at the end of this Handbook for terms relating to greywater).

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# STANDARDS AUSTRALIA

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## Handbook

### Urban Greywater Installation Handbook for Single Households

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## CHAPTER 1 GENERAL

### 1.1 WHAT IS GREYWATER?

Greywater is the wastewater from:

- (a) Washing machines.
- (b) Laundry tubs.
- (c) Showers.
- (d) Basins.
- (e) Baths.
- (f) Kitchen (kitchen wastewater is not recommended for use as greywater if untreated). See Figure 1.1 and Chapter 5.

Greywater does not include wastewater from toilets, urinals, or bidets. This is referred to as blackwater (water containing human excrement).

Greywater can be used via a greywater diversion device (GDD) and treatment (Chapter 3) with a greywater treatment system (GTS), or via diversion with a GDD without treatment (Chapter 5).

### 1.2 WHAT ARE THE RISKS OF USING GREYWATER?

The risks associated with greywater potentially impact on the following:

- (a) *Human health*—Greywater can contain large numbers of disease-causing organisms (human pathogens such as bacteria, viruses and protozoa).
- (b) *Environment*—Greywater can also include a number of contaminants including fats and oils, food scraps, nutrients, salts, sodium, phosphorus, detergents, cleaning products, sunscreens and personal care products. Long-term watering with greywater containing these contaminants can affect sensitive plants and soil.

Managing the potential risks posed by greywater use will depend on—

- (i) the sources of greywater;
- (ii) what the house occupants contribute to these sources;
- (iii) the volume of greywater used;
- (iv) how it is used; and
- (v) the level of treatment (if any).



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