

# Fact Sheet: Rainwater & Greywater

Rainwater and greywater can be valuable water resources during water restriction periods. Unlike mains water, rainwater and greywater can be used at any time to water your garden providing they are used correctly. Understanding the installation and maintenance requirements for your greywater and rainwater systems will ensure a safe and reliable water source.

## Rainwater

### What is rainwater?

Rainwater is water collected from the run-off of roofed areas of a building. The quality of rainwater can vary and depends on the location of the roof catchment area, the roof materials and the quality and condition of pipes and storage systems.

### What can I use rainwater for?

Rainwater can be used for a variety of purposes in and around the home.

#### Outdoors

- Garden irrigation
- Pool, pond & spa top-ups
- Fire fighting
- Car washing

#### Indoors

- Toilet flushing
- Washing machine
- Hot water use\*



### Can I drink rainwater from my tank?

The Health Department (Department of Human Services) does not recommend drinking rainwater if there is a drinking water supply available. This is because rainwater quality can be variable and has generally not been treated to a level which will ensure it is safe for drinking.

If you plan to use rainwater for drinking there are number of issues to be aware of and precautions need to be taken. The Department of Human Services (DHS) has produced information for households wishing to install private drinking water supplies to assist in maintaining a safe and healthy supply.

Visit [www.health.vic.gov.au](http://www.health.vic.gov.au) or call DHS on **1300 761 874**.

Important things to consider when thinking about installing a private drinking water supply include:

- Collect and store water so that contamination from human, chemical or animal sources is minimised
- Do not collect water from recently painted roofs, timber roofs preserved with chemicals, roofs coated with lead-based paints, lead flashings, tar-based coatings, or parts of roofs near flues from solid wood heaters
- Regularly clean your roof and gutter to remove leaves, animal

or bird remains, dust and other debris

- Seal your water tank so that insects, small animals, birds and sunlight cannot enter (sunlight encourages the growth of algae)
- Regularly maintain your water tank and clean out accumulated material from the floor
- If you have a suppressed immune system only use boiled water

### Where can I install a rainwater tank?

Rainwater tanks are now available in a number of different shapes and sizes to fit small and irregular spaces. Rainwater tanks can be installed:

- Next to your home (either underground, at ground level or on a stand)
- On your home
- Under your home

No approval is required to use rainwater in and around your residence. However, you should contact your local council prior to installing your rainwater tank to check if there are any building or planning regulations that need to be satisfied. No charges apply to the collection or use of rainwater.

A licensed plumber should install rainwater tanks, fixtures, pipes and pumps to ensure that rainwater remains separate from the mains drinking water supply, and to make sure that any overflow from a tank is diverted to the stormwater drainage system.

In addition to building and planning regulations, when selecting a location to install your rainwater tank you should consider the following:

- Access to the tank for maintenance
- Potential use of the rainwater (internal / external to the home)
- Roof & gutter conditions
- Collection / catchment area
- Expected rainfall
- Surrounding environment

### How big does my tank need to be?

If you are installing a rainwater tank in a new home, as a requirement to achieve a 5-star rating, the tank must be a minimum capacity of 2,000 litres, have a roof catchment area of at least 50 square meters and be connected to your toilet.

If you are installing a rainwater tank in your existing home, the size of the

\*Some hot water systems may require alteration with rain water. Please contact your hot water service manufacturer for further advice.

tank will depend on how you intend to use the water and the amount of rainfall you are able to capture. It is recommended that you consult tank manufacturers and installation specialists to help you decide the size of the tank you may require.

## How much rainfall will I capture?

It is important to understand the typical rainfall in your area before trying to calculate how much water you will capture in your rainwater tank. Up to date rainfall data is available from the Bureau of Meteorology at their website [www.bom.gov.au](http://www.bom.gov.au)

Although recent drought years have seen lower than average rainfall, long term average rainfall figures in the Western Water region are:

- Melton & Bacchus Marsh: 400 - 500mm per year
- Sunbury, Riddells Creek & Gisborne: 500 - 700mm per year
- Macedon, Woodend, Romsey & Lancefield: 700 - 900mm per year

The following table shows how much rainfall you can capture based on rainfall and the size of your roof.

| Annual rainfall | Roof Area (m <sup>2</sup> )                   |        |        |        |         |         |         |
|-----------------|---|--------|--------|--------|---------|---------|---------|
|                 | 100   | 150    | 200    | 250    | 300     | 400     | 500     |
|                 | Maximum volumes of rainfall per year (litres) |        |        |        |         |         |         |
| 400mm           | 30,000  | 45,000 | 60,000 | 75,000 | 90,000  | 120,000 | 150,000 |
| 500mm           | 38,000  | 57,000 | 76,000 | 95,000 | 114,000 | 152,000 | 190,000 |

Source: enHealth, 2004, *Guidance on use of rainfall tanks*, Australian Government, Canberra.

## Do I need to install a pump?

If you are connecting your rainwater tank to appliances in your home which require mains pressure, such as a washing machine or toilet, you may need to install a pump to provide this pressure.

Gravity pressure may be sufficient if you intend to use the rainwater to water gardens only, however if this is the case you should ensure the tank is placed higher than the area you wish to water.

It is recommended that you consult an installation specialist to help you decide if a pump is necessary, and if acoustic covers may be required to eliminate sound. If a pump is required an electrician may also need to install a power supply for the pump.

## What other issues should I consider?

### Costs

The installation of a rainwater tank can be expensive, so you should consider the following costs:

- The rainwater tank
- Plumbers costs, including fittings, gutter guard and labour
- Construction of a base for the tank to sit on
- Pump and acoustics equipment
- Electricians costs (fittings & labour)
- Filtration and treatment of water

- Ongoing maintenance of tank and associated equipment

## Overflow & Backflow

When your rainwater tank is full, overflow will need to be directed into your stormwater system in a way that will not damage the tank or house footings. The overflow should be a similar size to the pipe leading into your rainwater tank from the roof and include a flap valve to prevent unwanted pests entering the tank.

If you are connecting your rainwater tank to a device that will also use mains water, you must install a dual back flow prevention valve to prevent tank water from entering the mains supply. You should consult your plumber for further advice on backflow devices.

## Overhanging trees

Trees hanging over your rainwater tanks may present water quality issues. Contamination of your rainwater is possible from leaf or bark debris, and/or animal droppings entering your water tank. To combat these issues, you may wish to investigate installing a first flush device, gutter screening or water filters.

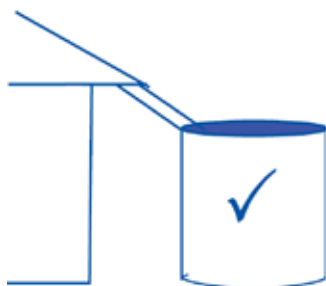
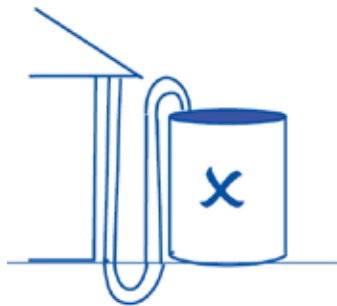
## How do I manage rainwater quality?

The catchment area and management of your rainwater tank affects the quality of the water you store. The Department of Human Services does not recommend drinking rainwater if there is a drinking water supply available. Stormwater (water that falls on your property but not captured off the roof) should not be stored in your rainwater tank.

Minimising contamination is the best method to manage rainwater quality and can be done by:

- Ensuring the roof is clear of overhanging vegetation to discourage birds and small animals from contaminating the roof guttering
- Screening tank inlets and overflows to prevent access into your rainwater tanks by birds, insects and small animals
- Preventing human contact with water stored in the rainwater tank
- If your rainwater tanks are below ground level, ensure surface run-off from areas other than the house roof is prevented
- Avoiding collection of rainwater from an area of your roof with a flue from a heater as well as air-conditioning units, hot water services and solar heaters which discharge water
- Avoid collecting water from uncoated lead flashing and preservative-treated timber
- Ensuring all gutters have continuous fall to avoid pooling of water which could encourage the breeding of insects
- Installing gutter shielding to prevent large debris from sitting in gutters
- Consider installing first flush diverters which divert water at the start of each rainfall event to prevent high levels of pollutants entering your tank
- After installation, take extra precautions during the first rainfall to eliminate the higher than average amounts of pollutants entering the rainwater tank

- Ensure rainwater collection systems and pipes do not allow the water to 'collect' before entry to the tank. A common problem is stormwater pipes that run underground and then rise to enter the tanks. Water can collect in the pipe and become septic imparting an odour to the water.



Depending on the rainwater catchment area and intended use of the rainwater, you may consider filtering rainwater before and after storage. Before storing water in your rainwater tank, consider:

- Rainwater filter systems, which separates debris from water
- Sediment management, which will ensure sediments at the bottom of the rainwater tanks are not disturbed
- Overflow siphons, which skim floating particles off the top of the water
- Floating intake pumps, which take water from the top of the tank where water is the cleanest, or tank delivery points that do not allow materials from the base of the tank to enter the household water supply
- First flush diversion devices

After storing water in your rainwater tank and before use, consider filtering water, especially if the water is going to be used for purposes other than watering gardens and washing cars.

Although it is not recommended, if rainwater is going to be used for drinking purposes you must understand it is your responsibility to ensure the water is fit for drinking. You may wish to consider treatment processes including ultraviolet light treatment processes, chemical disinfection, boiling the water or other treatment processes.

### Are rebates available for rainwater tanks?

The Department of Sustainability and Environment (DSE) offers rebates of \$150 - \$1,000 to people installing rainwater tanks. For more information on rebates for your rainwater tank visit [www.ourwater.vic.gov.au](http://www.ourwater.vic.gov.au) or call DSE on **136 186**.

## Greywater

### What is greywater?

Greywater is any wastewater from washing machines, laundry tubs, showers, basins and baths. Greywater usually contains soaps, shampoos, toothpastes, shaving cream, body fats, detergents, hair, lint and cleaning products. Kitchen wastewater is difficult to be reused as it has a high concentration of contaminants which are not readily broken down by soil organisms (eg. grease) and cooking oils.

There are two types of greywater systems available; treated and untreated. Untreated greywater is most common and can be used via a greywater diversion device without treatment or by using a bucket to collect water in the house and using it for the garden. Treated greywater requires treatment using a greywater treatment system.



### What is blackwater?

Blackwater is water containing human excrement and comes from the toilet, urinals and bidets. Blackwater, commonly known as sewage, should not be reused around your home without extensive treatment.

### Why should I use greywater?

Greywater, when used with care, provides a reliable source of water for activities which don't require drinking water quality. It is estimated that inside a home a family of four people uses approximately 200,000 litres of water per year, with the potential of producing around 147,000 litres of greywater from the shower, handbasin, dishwasher, laundry tap and washing machine. Reusing greywater reduces the amount of wastewater entering the sewerage system which requires treatment.

### What can I use greywater for?

Greywater can be used on gardens following Environment Protection Agency guidelines. If untreated, greywater can be used for direct sub-surface garden irrigation, through dripper systems or surface application (usually done through bucketing or by directly diverting water onto lawns & garden beds). Untreated greywater should not be stored for longer than 24 hours, otherwise it is likely to become odorous.

Greywater can also be used for other purposes such as toilet flushing and in the laundry, however extensive treatment using a greywater treatment system is required in this situation.

## How do I set up a greywater system?

If you only require untreated greywater, you can use buckets to collect water and then use this water on the garden. If you intend to redirect greywater from your bath, shower and washing machine EPA guidelines require you to use a licensed plumber to install greywater diversion devices. You may need to notify your council if you intend to install a greywater diversion device.

If you intend to use greywater on a permanent basis or for more extensive uses it is recommended that you consider installing an approved greywater treatment system. You need to consider the following before the installation of a greywater treatment system:

- Check the treatment unit has been approved by the EPA before purchasing
- Installation must be done by a licensed plumber
- Contact your local council to determine if you require a permit to install the treatment system. Some councils require you to obtain a 'septic tank permit'
- The irrigation system must comply with EPA guidelines
- Ensure you install backflow prevention devices
- Diversion valves are required to direct greywater to the sewer during wet weather, high water use and if the system fails

## What do I need to do to use greywater on the garden?

EPA guidelines are in place for people who wish to use greywater on their gardens. It is important to remember that you should only apply as much water as your soil can absorb. Generally, greywater contains high levels of nitrogen and phosphorous, allowing you to reduce fertiliser use.

Untreated greywater can be directly diverted onto your garden from your laundry trough, washing machine, hand basin, shower and bath using greywater diversion devices, or it can be applied to your garden using a bucket.

Do not divert kitchen wastewater as it contains contaminants which cannot be readily broken down by soil organisms. You may also store the untreated greywater for up to 24 hours and distribute it to your garden via subsurface drippers or trench.

Treated greywater can be stored for a longer period of time and then used on your garden through subsurface irrigation systems. Depending on the degree of treatment your greywater receives, you may also be able to use the water to spray over your garden or by using above ground drip systems.

Specific guidelines on what level of treatment is required for different watering methods are available from EPA Victoria at their website [www.epa.vic.gov.au](http://www.epa.vic.gov.au) or by phoning **03 9695 2722**.

## What products will harm my garden?

Bleaches and disinfectants can kill beneficial soil organisms and damage plants in your garden. When selecting cleaning products and detergents ensure they don't contain contaminants which may harm the environment. Detergents, soaps and cleaners generally contain phosphorus and can have high levels of salt, particularly sodium, which can be harmful to soils and plants. When buying these particular products, check the labels to ensure that they are suitable for the environment and, where possible, use liquid detergents rather than powder detergents which typically have lower levels of salt.

Personal cleaning products are generally well diluted and therefore are less of a concern when used sparingly.

## How long can I store greywater for?

Under EPA guidelines, untreated greywater should not be stored any longer than 24 hours. Any system storing untreated greywater must be emptied every 24 hours. Treated greywater can be stored for longer periods.

## What else should I be aware of when using greywater?

The use of greywater comes with health and environment risks and a number of precautions should be used considered including:

- You should never drink greywater, and ensure pets do not have access to greywater
- Do not use a greywater to irrigate food crops or vegetable gardens which will be eaten raw or uncooked
- If a household member has an infectious disease you should not come in contact with the greywater. If you do, you should thoroughly wash your hands with soapy water.
- Ensure your unused greywater is discharged only to the sewer and kept away from stormwater drains and waterways.

## Are rebates available for my greywater system?

The Department of Sustainability and Environment (DSE) offers rebates of \$500 to people using a plumber to install permanent greywater systems with subsurface irrigation systems. For more information on rebates for your greywater system visit [www.ourwater.vic.gov.au](http://www.ourwater.vic.gov.au) or call DSE on **136 186**

**Information for this fact sheet has been adapted from the Victorian Environmental Protection Authority, the Department of Sustainability & Environment and The Australian Government National Water Commission.**

## Further information

### Western Water

[www.westernwater.com.au](http://www.westernwater.com.au)  
1300 650 425

### EPA Victoria

[www.epa.vic.gov.au](http://www.epa.vic.gov.au)  
03 9695 2722

### The Department of Sustainability & Environment

[www.dse.vic.gov.au](http://www.dse.vic.gov.au)  
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