

SDAPP

Sustainable Design Assessment
in the Planning Process
10 Key Sustainable Building Categories

3.0

Water Efficiency

Building design for a sustainable future

What's included in this fact sheet:

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This fact sheet explains what you can do to conserve Victoria's precious water resources by using it more efficiently and in certain circumstances substituting drinking water with other sources of recycled water such as rainwater. Even minor changes and installations can save you money, future proof your property investment and increase the amount of water available on your property.

Why do we need to adjust our water usage?

The average Melbourne household of four people uses approximately 240,000 litres of drinking water each year. That's equivalent to 3000 bathtubs or 10% of an Olympic size swimming pool. In fact, up to 90% of that water consumption is used for toilet flushing, garden irrigation and other uses that don't require water of drinking quality.

Looking at it another way, the average household flushes fresh drinking water equivalent to 80 litres of milk or nine slabs of beer down the toilet every day.

With our population growing and weather patterns shifting, we need to rethink the availability of fresh water and prepare for a more efficient use of available resources.



Some basic guidelines to reduce water consumption

How will improved Water Efficiency benefit me?

There are many benefits to using water more efficiently. By using water wisely, you can:

- reduce the costly demand on infrastructure upgrades (e.g. desalination plants)
- lower your water bills
- future proof your property investment
- secure a water supply that is not subject to water restrictions
- maintain your garden through low periods of rain
- discharge less sewage to rivers and the ocean.

With households becoming more aware of our water security issues, properties that are designed to use water more efficiently are becoming highly regarded by tenants and homebuyers. So when renovating or building new, it is wise to integrate water saving measures, such as water efficient fittings and fixtures (taps, shower heads etc.) and rainwater tanks connected to toilets and irrigation from day one to avoid the increased cost of retrofitting at a later stage.

What can I do to use water more efficiently?

Water can be saved through the combination of three important measures:

Firstly, overall water use can be reduced through the installation of highly efficient fixtures, appliances and systems, throughout your property.

Secondly, rainwater and / or greywater should be used in preference to drinking water for purposes such as toilet flushing, laundry and irrigation where appropriate.

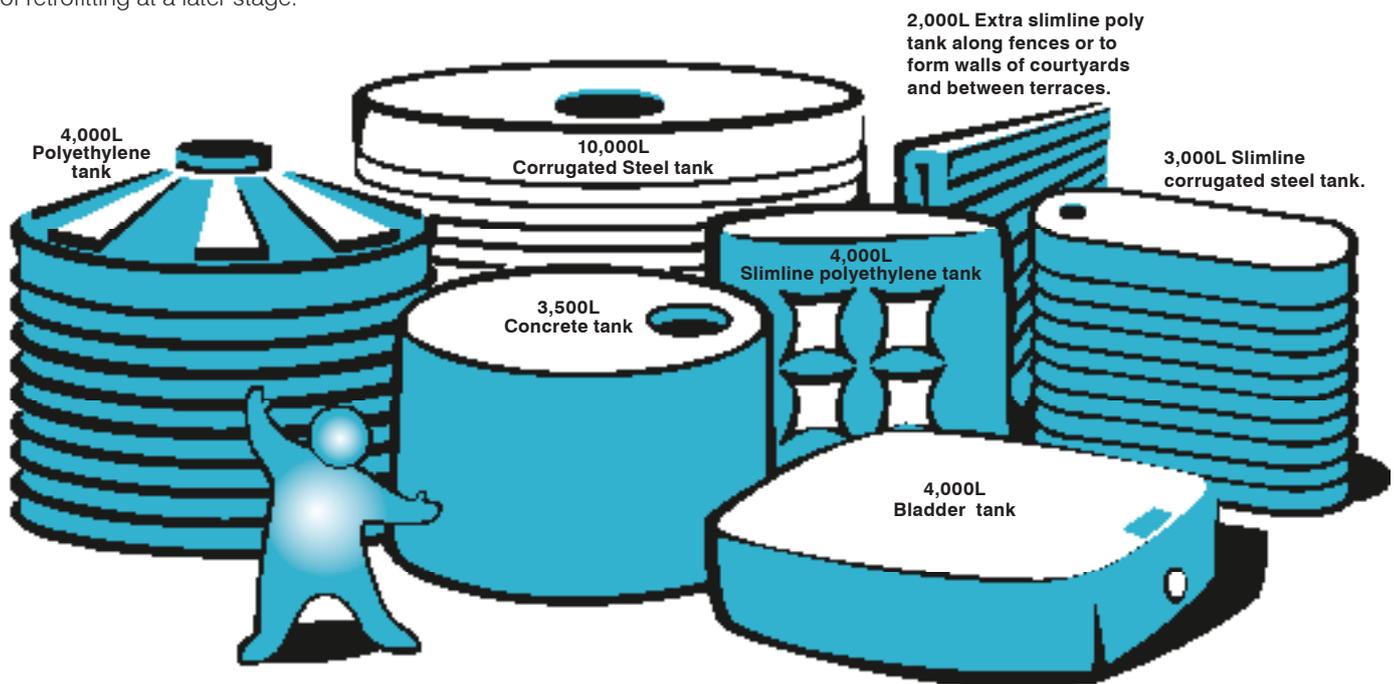
Thirdly, minimise the volume of external water features and pools. Reuse water in water features and utilise pool covers.

Water efficient fixtures and appliances.

Installing water efficient fixtures, appliances and systems in your property is the first, and probably the easiest step in reducing water consumption. The following products are readily available:

- taps and shower roses that use water more efficiently
- dual flush toilets and waterless urinals that use less water than traditional models
- dishwashers and washing machines that use water more efficiently
- garden irrigation systems that use available water with maximum efficiency, eliminating unnecessary waste and evaporation.

“Look out for WELS rated products. Having compared the water efficiency of many taps, showerheads, toilets and also white goods made us realise how easy it is to save water and money at the same time. The WELS website provided us with a great overview of the many rated products available.”



Choosing the right water tank for you

Some basic guidelines to reduce water consumption

Rainwater reuse

Drinking water supplied through the mains system has been treated to a very high standard to ensure that it is safe to drink. This process includes the use of chemicals, disinfectants and a lot of energy. That is why it is so important to conserve and substitute its use in applications where high quality water is not needed and alternatives such as rainwater can be used.

Rainwater tanks help us conserve our precious potable water resources, by allowing us to substitute mains drinking water for uses such as toilet flushing, garden irrigation and hot water throughout homes. Additionally, by keeping rainwater on site, we reduce the volume of stormwater and quantity of pollutants entering our local streams.

Tanks come in many different designs and materials. They can be installed above ground, underground, below outdoor decks or even hidden within planter boxes (graphic previous page).

In Victoria, most new homes and renovations are required to install (as a minimum) a 2,000L rainwater tank, connected to 50 square meters of roof space for toilet flushing. Often these variables (area of roof and tank size) are not enough to ensure rainwater availability throughout the year.

Therefore, we recommend carefully assessing your rainwater availability and demand taking the following factors into account:

- What will the rainwater be used for (toilet flushing, laundry and irrigation)?
- How big is the roof and any other catchment areas that can feed the tank?
- How many people live in the household?
- How big is the garden and how often does it need watering?
- What size tank should I get to match the demand and where can the tank be located?

Various free online tools, including Tankulator from the Alternative Technology Association and STORM calculator from Melbourne Water, will give you an early indication of the best sized rainwater tank. Nevertheless, you should always seek advice from a licensed green plumber or rainwater tank retailer.

“ I was surprised how easy recycling water actually is. Once you understand the different sources, usages and quantities, it just makes common sense. ”

Greywater reuse

Greywater is the waste water discharged from washing machines, showers and laundry sinks. Water discharged from the kitchen and toilets is by law not permitted to enter a greywater system. Greywater is not permitted to be used for drinking purposes however, it can replace mains water for toilet flushing and garden watering. Greywater can only be used on your property. Additionally, if the untreated greywater is not used within 24 hours it should be discharged to the sewer.

There are a number of greywater systems available on the market that range from manual to mechanical systems.

The most common way to use greywater on a single dwelling property is to install a diverter that diverts water directly from your washing machine, shower or bath to the garden or tank via a hose. The mechanical systems on the market do all greywater diversions automatically and do not rely on manual operation although the systems do require some maintenance.

Prior to planning a greywater treatment system, you need to obtain advice from a licensed plumber, the Department of Health and the Environment Protection Authority. A permit from Council is required.



Some basic guidelines to reduce water consumption



Applying rainwater and greywater

Using rainwater and greywater around your property is an effective way to reduce your mains-water use and bills. However, it is important to carefully consider where it is appropriate and safe

to apply rainwater and greywater. To give you an indication for appropriate reuse, we have highlighted common household uses in the table below.

	Water end use	Rainwater	Greywater
Least Sensitive  Most Sensitive	Landscape irrigation	Yes	Yes
	Toilet flushing	Yes	Yes, but treated
	Edible garden irrigation	Yes	Yes, but treated
	Car washing	Yes	Yes, but treated
	Washing machine	Yes	Yes, but treated
	Dishwasher	Yes	No
	Swimming pool	Yes	No
	Showers	Yes	No
	Drinking and cooking	Yes, however only recommended where no reticulated drinking water is available.	No

Where can I find out more?

Sustainable Rebuilding Ideas, Water Fact Sheets

Sustainability Victoria
www.resourcesmart.vic.gov.au

Water Efficient Labelling and Standards Scheme (WELS)

Australian Government
www.waterrating.gov.au

Tankulator

Alternative Technology Association
www.tankulator.ata.org.au

Water Tank Requirement

Victorian Government
www.makeyourhomegreen.vic.gov.au

Living Water Rebate Program

Department of Sustainability and Environment, Victoria
www.water.vic.gov.au

STORM calculator

Melbourne Water
www.storm.melbournewater.com.au

Practical Water Saving Tips

Savewater
www.savewater.com.au

Information on Licensed Green Plumbers

Master Plumber and Mechanical Services Association Australia
www.greenplumbers.com.au

Information on Annual Rainwater Fall

Bureau of Meteorology
www.bom.gov.au

Greywater Use around the Home, and Code of Practice - Onsite Wastewater Management

Environment Protection Authority (EPA Victoria)
www.epa.vic.gov.au

Other Fact Sheets in this series are also available to provide guidance on the 10 Key Sustainable Building Categories. For further information on Water Efficiency, see the Fact Sheets entitled:

- Stormwater Management
- Urban Ecology

Mandatory Requirements and Council's Best Practice Standard

Environmental Sustainable Design (ESD) Principles

There are two levels of compliance when it comes to ESD principles – mandatory and best practice.

Mandatory Requirements

To meet Victoria's 6-Star building standard a single dwelling may need to install a rainwater tank. The tank must:

- have a storage capacity of at least 2,000 litres, drain a roof area of at least 50 square metres and be connected to all internal toilets.

Council's Best Practice Standard

To meet best practice standards, you must ensure:

- the installation of WELS rated fittings

within one Star of best available

- the installation of a rainwater tank that is sized to capture the vast majority of rainwater and plumbed to a consistent year round water use eg. toilet flushing
- the installation of separate water meters in individual dwellings within the same development.
- Specify drought tolerant plants and mulch
- If irrigation is required install a sub-surface system

Developments, which seek to vary from these best practice standards, must demonstrate how water efficiency can be satisfactorily achieved.