

Guidelines for the Installation and Use of Rainwater Tanks

Introduction

Council supports and encourages the use of rainwater tanks by residents because:




- They can help in the preservation of our environment by conserving the water resource. The need for development of new water supply sources can thus be deferred.
- They can help in the preservation of our environment by reducing the impact and severity of stormwater runoff flows from built-up areas.
- They provide some additional security to consumers during periods when the reticulated supply may need to be interrupted for maintenance or repair.
- There can be cost savings to both the consumer and Council resulting from a reduced demand by consumers for treated water.

Purpose of the Guidelines

These guidelines are provided for the information and guidance of property owners who are considering installing a rainwater tank. They apply to both new and existing residences and cover installation, use and the necessary ongoing monitoring and maintenance requirements for rainwater tanks.

Suggested Uses for Water from Rainwater Tanks

The suggested uses for rainwater include:

-  Toilet flushing
-  Cold water service to washing machine
-  Garden watering, car washing and all other external outdoor uses

In town water service areas, Council does not recommend the use of water supplied from a rainwater tank for drinking or other potable purposes. The decision to use rainwater for drinking or other potable purposes is entirely at the residents' and owners' risk.

It should be noted that after a tank is installed it is vital that consumers continue to minimise water usage (particularly garden watering and other external uses).

If consumers fail to exercise the same vigilance and restraint and the tank simply becomes an extra source of supply, the potential environmental benefits are lost.

No Interconnection with Reticulated Water Supply

Council have a public health responsibility to protect the integrity of the existing water supply system. As such, there must be no possibility that water from a rainwater tank can “back-flow” or be siphoned into the treated town water supply. This means that there must be no physical interconnection (cross-connections) between the treated town water supply system and the rainwater tank water supply system. An air gap (100mm is recommended) and suitable backflow device must be provided at the inlet point of the back-up supply to the tank. The existence of this air gap needs to be readily verifiable by inspection.

For an existing dwelling, all services and outlets connected to the rainwater tank supply must be disconnected from the reticulated town supply before being connected to the rainwater tank supply. This work requires Plumbing Approval from Council and must be performed by a Licensed Plumber.

General Tank Selection, Design and Installation

It is important that you select the right size and type of rainwater tank to suit your needs. As a general guide, a minimum size of 3,000 to 5,000 litres is suggested. There are many factors that you may need to take into account determining the size that is suitable for you. Links to websites that provide further information regarding the selection and installation of rainwater tanks can be found at the bottom of page 4 of this document.

Location of the Tank

- The rainwater tank shall be installed and located so that the amenity of the neighbourhood is not adversely affected.
- Property owners are encouraged to locate rainwater tanks at a distance of 1.5 metres or more from a side or rear boundary and 6 metres from a road boundary.
- All rainwater tank pumps shall be installed so as noise levels from any pump do not create a noise nuisance to occupants of any neighbouring properties. Acoustic pump covers are recommended.

Tank Overflow

- The tank overflow shall be connected to the existing stormwater system or kerb and channel, or Council inter-allotment stormwater pit.

First Flush Diverter

- A minimum of 20 litres of the first flush of roof catchments must be diverted/discarded before entering the rainwater tank when connected to showers, basins, kitchens or hot water as per QDC requirements.

Screening

- The rainwater tank must have suitable measures to prevent contaminants from entering the rainwater tank having regard to the nature and level of contaminants within the locality. As a minimum the following measures shall be implemented:
 - Screening downpipe rainheads, or other suitable leaf and debris device, shall be installed on each downpipe. The screen mesh shall have openings no smaller than 4mm and no larger than 6mm and designed to shed leaves.

Mosquito/Vermin Control

A rainwater tank must have suitable measures to prevent mosquitoes breeding in the tank and vermin entering the tank. As a minimum, the following measures shall be implemented:

- Mosquito-proof screens of brass, copper, aluminium or stainless steel gauze not coarser than 1 mm aperture mesh of substantial construction; or
- Flap valves at every opening of the rainwater tank; or
- Other approved means for preventing the ingress or egress of mosquitoes.

Council Approvals

Building and plumbing approvals may be required for certain rainwater tank installations as detailed below. In all cases you should first check with Council to ascertain what approvals are necessary before you purchase or install a rainwater tank.

Building Approval

In general, no building approval is necessary for a ground level rainwater tank with a plan area of no more than 10 square metres, has a maximum height of no higher than 2.4 metres, a mean height of no more than 2.1 metres and any side no longer than 5 metres. This is provided the tank is installed within the boundary setback distances that apply to buildings.

Tanks that will require building approval before works can proceed are those that:

- Are to be installed on an elevated stand or below ground,
- Do not conform with the above plan, height and location limits.
- Involve the construction of other works which may require building approval (i.e. retaining walls, etc).

Obtaining a building approval entails you (or your agent) making an application to a Building Certifier. The Certifier will assess whether the following aspects of the rainwater tank conform to the building regulations:

- Structural stability
- Overflow discharges to the stormwater system
- Design of roof gutters and downpipes
- Siting of tank on the property

Larger sized tanks and/or load-bearing underground tanks may require the services of a structural or geotechnical engineer.

If you decide to install a prefabricated underground tank, it will need to be certified to Australian Standard AS/NZS 1546.1 (collection well only) to ensure its watertightness.

The Building Services Authority maintains a register of accredited certifiers, or you can look under "Building Surveyors" in the Yellow Pages or contact Sunshine Coast Regional Council.

Plumbing Approval

No plumbing approval is necessary if the rainwater tank is for outdoor use only (garden watering, car washing, etc from an external hose tap that is the only outlet supplied from the tank).

Plumbing approval is required where the tank is to supply water to any internal plumbing fixtures within a building. In these instances all plumbing work must be performed by a licensed plumber.

Tanks Supplying Water to Plumbing Fixtures Within a Building (located in a town water area) The following plumbing requirements apply to rainwater tanks that are to supply water internal to any building that is located in a town water area:

- The tank supply pipe and pump system (where applicable) shall be capable of delivering the minimum flow rates and pressure requirements as specified in Section 3 of AS/NZS 3500.1:2003.
- Pipes carrying tank water shall be clearly marked in accordance with Section 14 AS/NZS 3500.1:2003.
- It is recommended at least one external hose tap is supplied by Council's metered supply so that water is available in the event of a power failure or mechanical failure of the pressure pump.
- In instances where there are some plumbing fixtures and outlets supplied by the tanks and the balance of Council's metered supply, there shall be no cross connections either fixed or temporary between the plumbing connected to the tank and that connected directly from Council's metered supply.

Council's Metered Supply to Back-Up Tank Supply

All tanks supplying water to plumbing fixtures within a building in a town water area will need to be connected to Council's metered supply to ensure continuity of supply during dry weather periods. The purpose of the back-up connection to your tank is **not to** keep your tank full, but to ensure that it does not completely empty during dry periods. This back-up feature is important as it allows rainwater tanks to continuously serve vital internal fixtures (i.e. toilet flushing, cold water tap to washing machine) while leaving space in the tank to collect rainwater.

In almost all cases, it will be necessary for a pressure pump to be installed in conjunction with the rainwater tank. This will ensure that water from the tank is available at a suitable rate and pressure. The installation of this pump will require the services of a licensed electrician.

The back-up connection to your tank will need to be equipped with a special valve which will operate somewhat like a toilet cistern valve. This valve would be fully open at say 10% of storage, topping up the tank from the reticulated supply until it reaches, say 20% full at which time the valve would shut. The available storage for harvesting rainwater would then be the remaining 80% of the tank volume. The valve must comply with Australian Standards AS/NZS 1910.

Typically there are two types of valves for this back-up supply:

1. Electric Rainwater Control Valve
2. Mechanical Trickle Fed Top-Up (IMPORTANT: all valves must be an approved item in accordance with AS 5200.000-2005)

Council's Metered Supply to be Protected from Backflow Incidents

- Where the tank is located above ground a dual check valve (non-testable device) must be fitted at the switching device or float valve to protect the reticulated supply from cross connection.
- In instances where the tank is buried or partly buried, a double check valve (testable device) must be fitted at the switching device or float valve to protect the reticulated supply from cross connection.
- Overflow from the tank to the stormwater system must include a physical air-break or non-return valve.

Maintenance

The main aim of maintenance procedures should be to keep all components of the system clean and operational and to minimise the risk of contamination of the stored water and reduce the quantity of dust and other foreign matter that is washed into the tank. The procedures should also ensure that your statutory obligations for mosquito prevention are met.

It is the responsibility of the homeowner to regularly inspect and maintain their rainwater tank. Rainwater quality will be dependent on implementing an appropriate inspection and maintenance program.

Attachments

A homeowner's inspection and maintenance checklist is attached.

Links to Further Information - Installation and Use of Rainwater Tanks

[QDC Building Act 1975, Building Regulation 2006 and - Part 4.0 Building Sustainability WaterWise and Rainwater Tanks](#)

[A Guide to Keeping Your Tank Safe](#)

Please note that stormwater installation is regulated under the Building Code (private certifier) and will not be regulated by the Council Plumbing Inspector. The Plumbing Inspector will only be regulating the reticulation to and from the tank and appropriate backflow prevention devices.

Council encourages installation of rainwater tanks to supplement the reticulated water supply for non-drinking purposes. To ensure the quality of the reticulated water supply is maintained, reticulated and rainwater tank systems are to be independent of each other.

Rainwater Tank – Homeowner Inspection and Maintenance Checklist

STORMWATER INSPECTION	Intervals	Pass (☑)	Fail (☒)
Roof catchment – roof and flashings checked for defects and repairs, overhanging branches removed. It is recommended that gutter guards be fitted to those parts of the roof catchment that supply rainwater to the tank.	2-3 months		
Gutter and Downpipes – clean gutters, removing leaves and debris	2-3 months		
Clean leaf guards on rainheads.	2-3 months		
First flush device – remove rubbish collected in device, check where first flush drain is discharging. Is drain causing nuisance, erosion?	3 months		
Rainwater tank overflow – where is the overflow discharging. Is it causing a nuisance, erosion? If tank overflow is leaking in dry weather check trickle top up valve for failure.	Oct-March monthly Apr-Sept quarterly		
If stormwater drainage is wet system, drain stagnate water from access relief point.	6 months		
Ensure paints or coatings applied to the roof catchment area are appropriate.	As required		
TANK INSPECTION			
Rainwater tank inspection – check for defects, cracks, mosquito proof screens adequate, openings have close fitting lids.	6 months		
Rainwater tank support – if on stand or concrete slab, check structural integrity of support.	1 year		
If a “First Flush Diverter” or Float Operated Cistern Valve is fitted, they should be checked and cleaned.	As per manufacturers requirements / 2 years		
Check level of sediment in the tank – Use battery torch, shine through tank access hole for inspection. Regular monitoring of the water quality – colour, signs of sediments. (Commercial contractors – tank vacuum cleaners available). **	2 years		
MOSQUITO INSPECTION			
Check mosquito screens on rainheads and points of entry to the tank are intact.	Oct-March monthly Apr-Sept quarterly		
Check for signs of mosquitoes and larvae.	6 months		
Check mosquito screen on tank overflow outlet.	Oct-March monthly Apr-Sept quarterly		
WATER SUPPLY INSPECTION			
Check tank water quality – must be clear, no taste or smell.	6 months		
If water filters installed – regular cleaning and replacement is required.	As per manufacturers requirements		
PUMP INSPECTION			
Pump noise check – if excessive, this may indicate bearing failure or rubbing of internal components, contact pump manufacturer, or service person, to service.	6 months		
Pump acoustic enclosure is adequate.	6 months		
Pump pressure cell – air pressure is checked (refer to pump manufacturers specifications).	6 months		
Pump leaks – check for water around pump, if leaking this will cause pump cycling, and wastage of water. Contact pump manufacturer, or service person, to service	6 months		