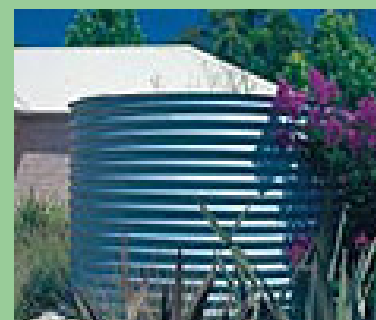


Rainwater Tank Guidelines



1. Some things to Consider Before Buying a Rainwater Tank

1.1 What is an Appropriate Tank Design?

A variety of different tank designs are available. Many new models are being designed in shapes and colours to blend in with your chosen location. Some tank suppliers offer customized systems to suit your needs.



A tank supplier will be able to advise you on an appropriate design solution for your site. An important consideration is the amount of space you have available on your site for the tank. As a general guide, 1,000 litres is equivalent to 1m³.

1.2 The Size of the Tank you will Need

The size of the tank you will need will depend on:

- typical rainfall in the area (refer Section 1.3)
- the roof area available to catch rainwater (refer Section 1.3)
- how often the collected water is likely to be used (refer Section 1.4)
- the space available on-site for installation of the tank.

1.3 What Size Roof Area is needed to Catch Rainwater

The amount of water that can be collected by a tank will be constrained by the area of your roof (calculated from your roof plan). As a guide, 1mm of rain falling on 1m² of roof produces approximately 0.8 litres of water. Average rainfall in Griffith varies from 27mm to 44mm per month.

Example: An average of 30mm of rain a month on a roof of 250m² will provide approximately 6,000 litres of rain water per month.

If your tank is not big enough to meet demand, it will empty during dry spells and you will need to rely on water supplied through Councils reticulated supply. Table One estimates the storage capacity you will need depending on the size of your roof, to ensure adequate supply of rainwater to meet your needs 90% of the time.

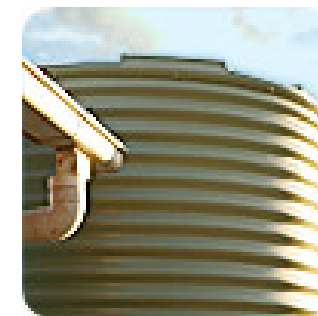
4. Rainwater Tank Standards Cont...

Australian Standards

- AS2845.3:1993 *Water supply — backflow prevention devices — field testing and maintenance.*
- AS3500.2:2003 *Plumbing and drainage — sanitary plumbing and drainage.*
- AS3855:1994 *Suitability of plumbing and water distribution systems products for contact with potable water.*
- AS4020 (Int):1994 *Products for use in contact with water intended for human consumption with regard to their effect on the quality of water.*

Australian and New Zealand Standards

- AS/NZS2179:1994 *Specification for rainwater food, accessories and fasteners.*
- AS/NZS3500.1 *Water supply, section 2: materials and products.*



3. Further Information

For further information, refer to:

- The Committee on Uniformity of Plumbing and Drainage Regulations in NSW (CUPDR) Circular P&D No. 18, *Guidelines for Plumbing Associated with Rainwater Tanks in Urban Areas* (available from Council's Customer Service Unit).
- ENHEALTH brochure "Guidance on Use of Rainwater Tank, available from: enhealth.nphp.gov.au/council/pubs/pdf/watertank_broch.pdf
- DIPNR 2004, BASIX Design Guidelines for Single Dwellings: S02 *Rainwater Tanks*, available from: www.basix.nsw.gov.au



4. Rainwater Tank Standards

The installation of rainwater tanks should comply with the following standards (available to be viewed at the Customer Service Desk/Library at www.standards.com.au):

Australian Standards

- AS1319:1994 *Safety signs for the occupational environment.*
- AS1345:1995 *Identification of the content of pipes conduits and ducts.*
- AS2070 *Plastic materials for food contact use.*
- AS2180:1986 *Metal rainwater goods – selection and installation.*
- AS2648.1:1995 *Underground marking tape – non-detectable tape.*
- AS2845.1:1998 *Water supply–backflow prevention devices: materials design and performance requirements.*
- AS2845.2:1996 *Water supply – backflow prevention devices – air gap and break tanks.*



Demand for tank water

	Roof area feeding into tank (m ²)					
	50m ²	100m ²	150m ²	200m ²	250m ²	300m ²
	Minimum tank size required:					
50 L/day	1,000 L	700 L	500 L	500 L	500 L	500 L
100 L/day	5,000 L	3,000 L	2,500 L	2,000 L	2,000 L	1,500 L
200 L/day	-	14,000 L	8,500 L	6,000 L	5,000 L	4,000 L
300 L/day	-	-	20,000 L	12,000 L	9,000 L	8,000 L
400 L/day	-	-	-	22,500 L	18,000 L	15,000 L

Source: *Leichhardt Municipal Council*

Table One: Storage Capacity Required

1.4 How much Water do Household Activities Use?

<u>Activity</u>	<u>Water Usage (average)</u>
Car washing with hose	180 litres/wash
Garden sprinkler	1,000 litres/hour
Garden dripper	4 litres/hour
Toilet (full flush)	54 litres/person/day
Toilet (AAA-rated)	18 litres/person/day
Bath	100 litres/bath
Shower (10 mins)	200 litres/shower
Dishwasher (standard)	50 litres/load
Washing machine (standard)	150 litres/load
Washing machine (4A/5A-rated)	50 litres/load
Brushing teeth (with tap running)	5 litres/brush
Drinking/Cooking/Cleaning	10 litres/person/day
Hand basin	5 litres/person
Hosing driveway	100 litres

Source: *Waverley Council*

1.5 What Maintenance will your Tank Require?

Frequency of cleaning will depend on the amount of sediment entering the tank. The tank should be checked for sludge approximately every two years. Sediment, leaves and debris should be removed from the first flush device¹ on a regular basis. Roof gutters should be cleaned every three to six months to remove leaves and debris.



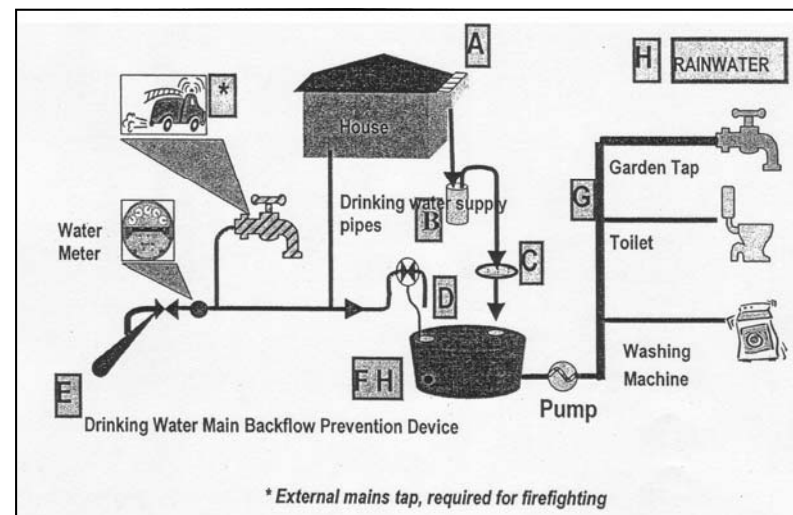
1.6 What Planning Controls and Policies Apply?

Your rainwater tank may require development consent or may be classed as “exempt” development. Refer to Council’s City Development Unit to determine if you need to lodge a development application or for any further guidance on planning controls relating to rainwater tanks. Council’s development control plan (DCP) No. 22 refers to Exempt and Complying Development and determines whether a development application is required. Further information regarding backflow prevention is contained in Council’s policy on backflow prevention devices (Policy No. 715) available from Council’s Customer Service unit.



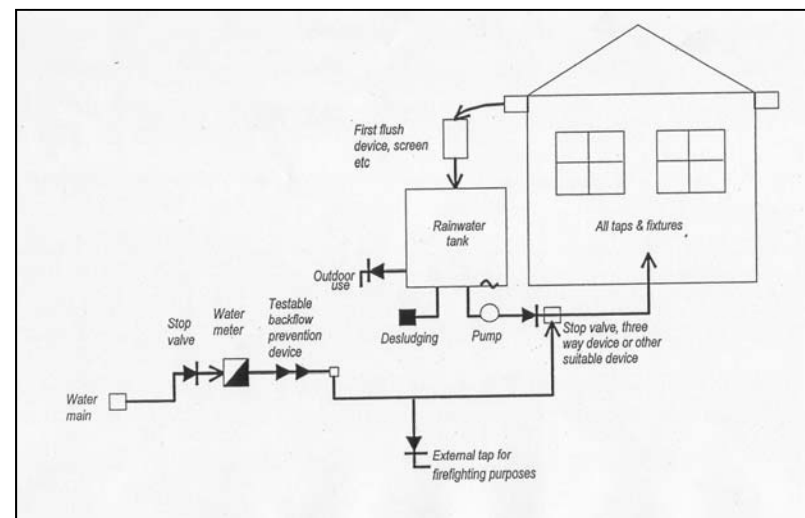
1. First Flush Device– prevents the first portion of run-off from entering the tank, which reduces the amount of dust and leaves etc entering the tank and polluting the water.
2. Exempt Development– is development that is of minimal environmental impact and does not require development consent.
3. Backflow– flow in the direction opposite the normal flow or the unintended direction of flow. It can also be described as the unintended flow of water from a potentially polluted source into a potable water supply.

What will your Tank Need? Cont...



Source: CUPDR Circular P&D No. 18

Figure 1a. Plumbing for above ground tanks with indirect connect to water supply



Source: CUPDR Circular P&D No. 18

Figure 1b. Plumbing for above ground tanks with direct connect to water supply

2.1 What will your Tank Need? Cont....

3. Where a rainwater tank is to be cross-connected (direct connection) with the reticulated water supply, a suitable testable device shall be provided at the meter location to prevent backflow of rainwater. There is no requirement for “topping up” of the rainwater tank where there is a cross connection, however if “topping up” is fitted the requirements of 2. shall apply.
4. **Above ground distribution pipes** must be continuously marked ‘RAINWATER’ in accordance with AS1345. Alternatively, pipes can be clearly labelled ‘RAINWATER’ with adhesive pipe markers made in accordance with AS1345.
5. **Below ground rainwater pipes** shall be continuously marked ‘RAINWATER’ in accordance with AS1345. Alternatively, identification tape/pipe sleeve continuously marked ‘RAINWATER’ made in accordance with AS2648 can be used.
6. Every rainwater tank outlet and all taps, valves and rainwater tank openings shall be identified as ‘RAINWATER’ with a sign complying with AS1319 or a green coloured indicator with the letters ‘RW’. Alternatively, a sign visible from the front of the premises may be displayed advising that rainwater is in use.



1.7 What Council Requirements apply to Rainwater Tanks?

Residential

Rainwater tanks in residential areas are classed as “exempt” development when the following criteria is met:

- The total storage capacity does not exceed 8,000 litres and maximum height above ground level of 2.3m (including stand).
- The tank is installed above ground or does not require excavation exceeding 1m.
- Noise from pumps does not exceed 5dBA at the wall of the dwelling on any adjoining property.
- The tank does not reduce the structural integrity of a building or involve structural alterations.
- Suitable shrubs are planted to screen any adverse visual impacts.
- The structure is located behind the building line and a minimum of 900mm from any side or rear boundary.
- The tanks overflow must be disposed of in a manner so as not to cause nuisance to persons or damage to property.



1.8 What Requirements apply to Rainwater Tanks?

Rural

Rainwater tanks in rural areas are classed as “exempt” development when the following criteria is met:

- The tank is to be only used for storage of water for domestic or fire fighting purposes.
- The tank has a maximum capacity of 60,000 litres and height of 3m above existing ground level.
- The tank does not involve excavation beyond 1m beyond existing ground level.
- There is a minimum setback of 5m to side boundaries.
- The tank may be located below ground, but must not undermine other structures or buildings on site or on adjoining land.
- Overflow does not cause nuisance to adjoining premises.
- The tank is fitted with suitable connections if used for fire fighting purposes.
- Noise from pumps does not exceed 5dBA at the wall of the dwelling on any adjoining property.

2. What Else you will Need to Know?

2.1 What will your Tank Need?

- **Mesh Screens** — The tank must have covered openings to prevent the entry of leaves, debris and mosquitoes into the tank.
- **First-Flush Device** — Must be installed to prevent contaminated water entering the tank.
- **Stand and Pump** — Depending on its construction, your tank may need to be installed on a stand. If your tank is not sufficiently elevated to allow gravity to provide the required water pressure, a pump may be required. If the installation of a pump is required make sure your pump does not cause noise disturbance to your neighbours (for more information on noise control contact the NSW Department of Environment and Conservation (previously the Environment Protection Authority) or Griffith City Council).



2.1 What will your Tank Need? Cont...

- **Plumbing** — Water collected in your tank cannot be fed into your existing reticulated water plumbing system, but must be kept in separate pipes. This will protect the quality of the reticulated water. Where the tank is to be used to supply toilets, washing machines or taps, you will need a plumbing connection between the tank and outlet. All plumbing work will need to be carried out by a qualified plumber.



Figure 1a (pg 8) provides a sample drawing of plumbing for above ground rainwater tanks with a *indirect connection* to the drinking water supply.

Figure 1b (pg 8) provides a sample drawing of plumbing for above ground rainwater tanks with a *direct connection* to the drinking water supply.

- **Materials** — The tank must be constructed of non-reflective materials.
- **Design and Installation** — The tank must be designed and installed in accordance with manufacturer's specifications and in accordance with relevant Australia Standards.
- **Backflow Prevention Device** ⁴— Rainwater tank systems may be installed to allow cross connection with the potable water ⁵ supply. Where a property has both a rainwater tank system and a potable water supply from a reticulated system, the following conditions apply:
 1. An authorised backflow prevention device sized to suit the potable water service shall be fitted at the meter location on the potable supply.
 2. Rainwater tanks that are not directly connected with the potable supply may also have an indirect connection for "topping up" from potable supply. The indirect connection must have a visible "air gap", external to the rainwater tank, in accordance with the provisions of the National Plumbing Code, AS/NZS 3500 — Minimum Air Gap Requirements.

⁴. Backflow Prevention Device—protects the water mains from contamination from backflow .
⁵. Potable Water— water that is safe for human consumption (ie drinking, cooking etc).