

Using Rainwater

Using rainwater can help reduce the demand on the town supply, especially when the water is used for gardening and outdoor cleaning. Using rainwater could also increase your options in the event of a water supply emergency.

How much water will I collect from my roof?

This will depend on your roof size and the amount of rain that falls. Central Otago has dry summers and therefore it is likely a larger tank would be needed to meet summer demand.

A quick way to calculate how much water you could collect, use the table below by finding your roof size and your typical rainfall from the rainfall plot.

Typical Central Otago rainfall is shown in the red rows.

Maximum volume of rainwater per year (kL)							
Annual rainfall (mm)	Roof Area (m ²)						
	100	150	200	250	300	400	500
150	10	15	20	25	30	40	50
200	13	21	27	35	42	53	70
250	18	27	36	45	54	72	90
300	22	33	44	55	66	88	110
400	30	45	60	75	90	120	150
500	38	57	76	95	114	152	191
600	46	69	92	115	138	184	230
800	62	93	124	155	186	248	310
1000	78	117	156	195	234	312	390
1200	94	141	188	235	282	377	470

Table 1: Maximum volumes of water that can be collected depending on roof size and annual rainfall (“Guidance on use of rainwater tanks”, enHealth, Australian Health Protection Committee)

For example a typical home with a 150m² roof in Alexandra would collect about 40,000 litres of water in a typical year. This is about 12% of annual household water use (indoor and outdoor).

How do I choose the right rainwater system for me?

There are many sizes of rain tanks from 200 litres (a simple rain barrel with a tap or connection to a soak house) to 30,000 litres (connected to internal plumbing for all indoor and outdoor water needs). The size will depend on your water needs, summer rainfall and the space available for installation.



To estimate the likely size of tank for your water needs and roof size, use the tables below.

Table B.3: Tank sizes to provide 90% security of supply

Tank size (kilolitres)*								
Volume required (L/day)	Annual rainfall (mm)	Roof area (m ²)						
		100	150	200	300	400	500	600
60	150				20	14		
	200			15	10			
	300	14	6	4				
	400	6	3	3				
	500	4						
	600	3	2					
100	150						34	27
	200				33	19	17	-
	300			18	10	8		
	400		10	6	6			
	500	11	6	5	4			
	600	8	5	4	3			
200	900	6	4					
	250						26	21
	300						20	17
	350				26	17	13	12
	400				19	14	11	10
	500			20	12	10	8	
400	600		25	15	10	8	7	
	900	26	13	10	7			
	1200	18	10	8	6			
	350						42	44
	500						30	24
	600						22	19
600	700				39	27	21	18
	900				27	19	16	13
	1200			34	21	16	13	12
	500							
600	600							47
	700							40
	800						50	34
	900				50	37	28	24

Table B.3: Maximum volumes of water that can be collected depending on roof size and annual rainfall for a 1 in 10 year security of supply (90%) - "Guidance on use of rainwater tanks", enHealth, Australian Health Protection Committee.

As a guide to how much water you may need to collect, typical water use in the home is:

Water Use	Average volume per day per house (litres)
Tap	70
Shower	150
Washing Machine	140
Toilet	100
Dishwasher	10
Bathtub	10
Garden / Outdoor	120
Total	600

BRANZ Auckland End-Use Study, 2008



How can I best use rain water in my garden?

A rain tank is useful as long as it is topped up with rain. In dry summers a 5,000 litre tank would last 4-8 days if used for 2 hours a day (assuming an average hose flow of 10-20 litres/minute).

Therefore, the water is best used for plants under stress. A low water garden is the most efficient way to manage your garden water needs and reduce the demand on your tank.



How do I make sure I meet legal and health requirements?

Health - Drinking Water Safety - If you are connected to the town supply, it is preferable that you drink town supply water. Rain tanks can become a breeding ground for nasty bugs if treatment and maintenance is not properly undertaken.

More information on how to keep your water safe for drinking is available in the Ministry of Health pamphlet "Water Collection Tanks and Safe Household Use".

Building Consent - A building consent is generally **not needed** for a rainwater tank for garden watering, if it meets the requirements shown below.

Tank Capacity does not Exceed (litres)	Supported not more than this height above the supporting ground (metres)
35,000	Supported directly by the ground
16,000	0.25
8,000	0.5
4,000	1
1,000	3
500	4

Ministry of Business, Innovation and Employment, Publication "Building work that does not require a building consent – Schedule 1", Dec 2010

A building consent **is needed** if you want to connect the tank to the plumbing of a house that has a mains supply. You are required by law to ensure that the mains water is isolated by using a backflow prevention device. A qualified plumber must install this and you may be required to have annual device checks.

Resource Consent

For further information on rain tank building and resource consents please contact Central Otago District Council.

How much will it cost?



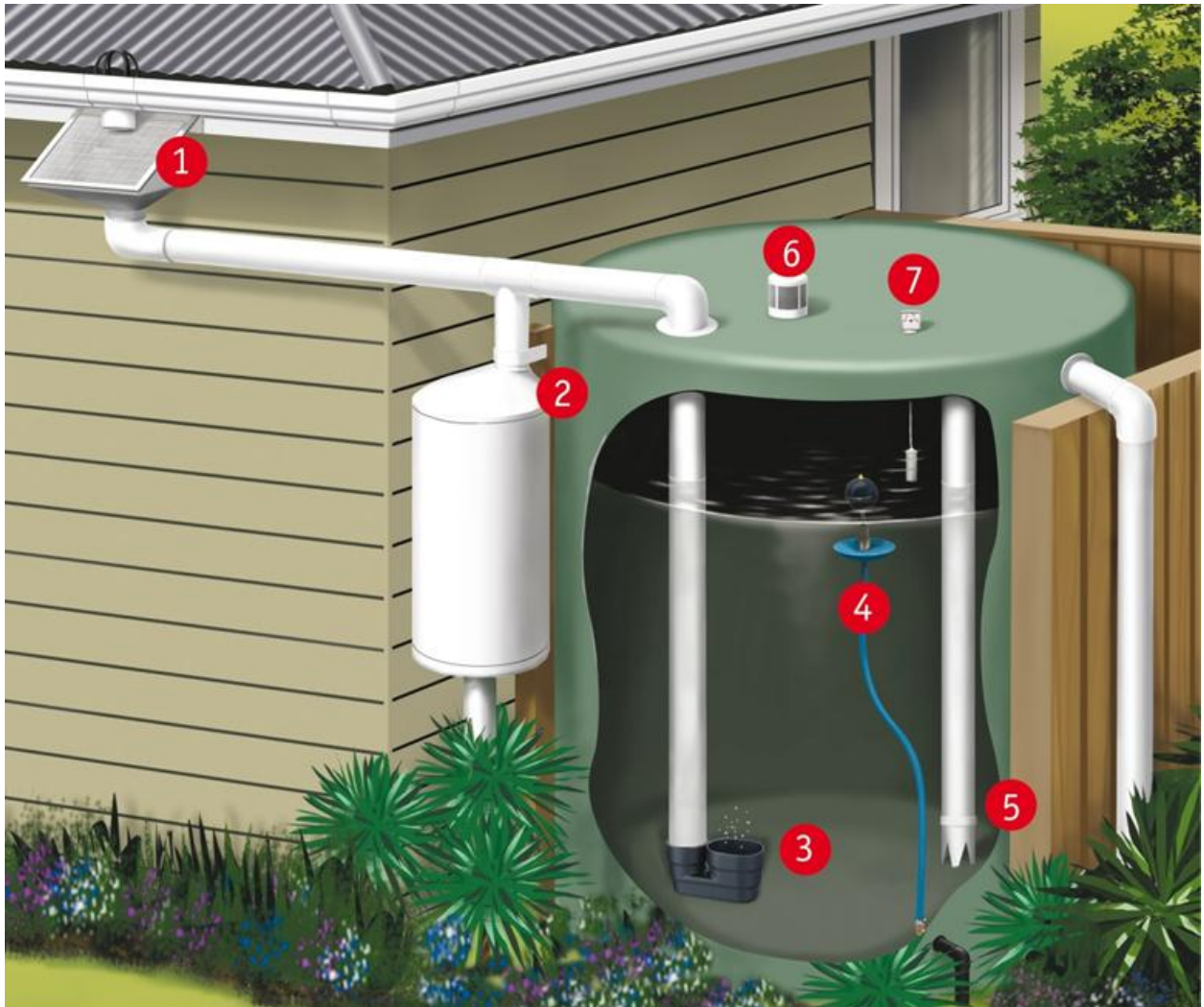
The cost will depend on the tank size, material, installation and delivery requirements.

Other costs may include pipes, filters or treatment, plumbing requirements, building consents and annual inspections fees. There will also be on-going maintenance and replacement costs.

The basic cost for a 5,000 litre tank is around \$1,500, increasing to up to \$4,000 for a 30,000 litre tank. Pumps, fittings and connections will be extra. Local suppliers of tanks and fittings can be found in the yellow pages and by searching the internet.

What else should you know?

- ✓ If you intend to collect rainwater from your roof, make sure the roof-paint is lead free.
- ✓ Regularly check and clean your gutters and tank to ensure they are clear of debris, leaves and dirt
- ✓ Consider installing primary screening and first flush diverters (as the first flush contains most of the contaminants)
- ✓ Remember rainwater collected from your roof is not suitable for drinking without treatment, so you might consider a “Not suitable for drinking” sign near the outlet tap.
- ✓ Remember to install backflow prevention devices to stop possible town supply contamination



1 Debris Diverter
Prevents leaves and debris from entering the downpipe.

2 First Flush Diverter
First Flush Diverter improves water quality, reduces tank maintenance and protects pump by preventing the first amount of rain (contaminated from roof debris) from entering the tank.

3 Calmed Inlet
Discharge oxygenated water from the lower part of the tank without disturbing the settled sediment layer at the bottom.

4 Floating Outtake
Ensure the suction of water just below the surface where the cleanest water is.

5 Tank Vacuum
Automatically vacuums the sediment from the bottom of the tank around the out-take pipe every time the tank overflows.

6 Vent Cowl
Vent Cows provides air circulation through the tank.

7 Tank Gauge
Easily monitor the water level in the tank.