

# Suitable Applications For Duracrete Underground Water Tanks 25,000 Litre (5500 Gallons)

Duracrete Underground Tanks are suitable for buried applications with 300mm of cover. N.B. Load carrying capacity will reduce if depth of cover is increased.

The roof is designed for light vehicle loading less than 2500kg.

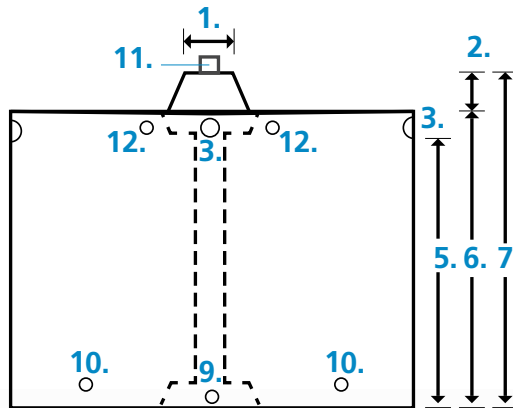
\*Please note the manhole riser and lid are not designed for vehicles.



Examples of completed installations

## 25,000L TANK DIMENSIONS

- ~ 9.25 Tonne Weight
- ~ 65mm Wall Thickness
- ~ 100mm Floor Thickness
- ~ 70 MPA Concrete Strength



- |   |           |
|---|-----------|
| 1. Hatch Opening  | 600mm     |
| 2. Typical Ground Cover<br>Load carrying capacity will reduce if depth of cover is increased. | 300mm     |
| 3. Inlet / Outlet Knock Outs  | 100mm x 4 |
| 4. Support Column (Diameter)  | 150mm     |
| 5. Water Level Height   | 2.40m     |
| 6. Total Wall Height  | 2.65m     |
| 7. Overall Height   | 2.95m     |
| 8. Outside Diameter   | 3.74m     |
| 9. Drain BSP  | 50mm x 1  |
| 10. Outlet BSP  | 50mm x 2  |
| 11. SS Air Vent   | 100mm x 1 |
| 12. Pump Outlets  | 40mm x 2  |

Light Vehicle Loading Roof Only (<2500kg gross weight \*Please note the manhole riser and lid are not designed for vehicles)



Weight of soil 1800 kg/m<sup>3</sup>

300mm typical topsoil cover



Backfill with rock free material



**Bowers & Son Ltd**  
Concrete Manufacturers

1852 Alexandra Street, Te Awamutu 3800  
PHONE: 07 871 5209 • FAX: 07 871 5249  
EMAIL: sales@bowersconcrete.co.nz

All dimensions are nominal & subject to manufacturing tolerances.



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## INSTALLATION STEPS:



**1** Level the ground which will form the base for your tank.

The base needs to be level in all directions.



**2** The excavated hole should be square. The final size should be 4m x 4m x 3.125m deep. This allows for placement of 100mm compacted hard fill and 75mm granular fines on base of excavation, plus the overall height of tank which is 2950mm



**3** Add hard fill and compact with a compactor.

Compact to a depth of 100mm thick.



**4** Add 7mm Granular Fines as bedding material - this should be 75mm thick and be levelled in all directions with a straight edge and level.


The base fines (cushion course) and base course, should be back-filled and contained around the base of the tank, (or higher where appropriate), to ensure all site preparation material stays firmly in place.

## SITE PREPARATION:

The site loading of a full 25,000 litre water tank is in excess of 30 tonnes.

This extreme loading requires particular care to distribute the load evenly across the site. Foundations must be 'good ground' in accordance with NZS 3604.

The site for your tank must be free of all solid objects (rocks, tree stumps, roots, etc) and be flat, level and firmly compacted and consistent across the tank base to allow the tank to sit evenly. A tolerance of 15mm is permitted over the entire site. This can be achieved by using a level and straight edge, laser level or similar method.



75mm layer of 7mm granular fines "PAP 7", Scoria Fines or similar is suitable.



100mm layer of hard fill - compacted "Blue Brown 40" or similar is suitable.

4m square base, levelled in all directions "Good Ground" in accordance with NZS 3604.

Aggregates are available from quarries throughout NZ



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## IMPORTANT NOTES:

1. Duracrete underground tanks with Central Support are designed to exceed Load Class A as specified in AS3996 Standard for Access Covers and Grates. "Note: Loaded contractors vans will probably exceed this weight.
2. It is important to pipe the overflow away from the tank base to prevent undermining of the site.
3. The size of the site needed will depend on the width of the water tank. Contact us for these details.
4. Suitable site access is the responsibility of the purchaser. Check that there are no overhead wires, branches, buildings, gate posts or other obstacles blocking access to the loaded delivery truck. Our truck driver will take every care not to damage property but will not be responsible for damage caused due to restricted access.
5. Make sure the ground is firm enough to take the weight of a loaded truck. If you have any doubts raise them with us before delivery.
6. Make sure there are no holes, drains or septic tanks etc that the truck could fall into when delivering your tank.
7. Buried Applications - Any tanks installed 800mm below ground may require a specific design to avoid potential hydraulic uplift of the tank. Please refer to your drainage engineer for specific design criteria.
8. On the day of installation of all inground tanks - it is critical that the tanks are filled with water to avoid hydraulic uplift from occurring. Retain water in tanks until fully connected to your water catchment / supply.
9. To access site, loaded truck requires clearance of 4.25m (height) x 4m (width) and is 10.5m in length. Hiab Crane requires a minimum height clearance of 8.5m during the unloading process, subject to the site conditions.
10. Truck must reverse to tank site and must be able to unload from the rear of the truck. Truck is required to be within 1.5m of excavation with truck being aligned on the diagonal of the hole. Hydraulic stabilisation legs require a minimum span of 7.5m during the unloading process.

## WARRANTY:

All Duracrete Products are warranted to be free of defects caused by poor workmanship or non-compliance with industry standards, for a period of 10 years from the date of purchase. This warranty is offered only to the original purchaser.

### Conditions of Warranty:

1. Duracrete Products accepts no liability for damage caused due to improper site preparation and incorrect site situations that are outside our requirements and recommendations.
2. Liability of Duracrete Products is limited to the repair, or if necessary, replacement of the concrete tank concerned. The decision to repair or replace the tank lies exclusively with Duracrete Products.
3. Preparation of the tank site is the responsibility of the purchaser or their agent, unless Duracrete agrees to undertake the work in writing.
4. This warranty does not cover:
  - Damage caused after delivery resulting from poor or inadequate site preparations.
  - Moving the tank from its original location.
  - Undermining of the ground supporting the tank in any way.
  - Normal wear and tear.
  - Negligent and accidental damage.
  - Failure resulting from natural causes (earthquakes, flooding etc.)
  - Repairs carried out by unauthorised persons.
  - Use of a tank for purposes other than for which it was originally intended.

If you have any further queries regarding your site, delivery of your tank, or require further information on concrete water storage tanks, please feel free to contact us.



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## PRODUCT RANGE

### WATER TANKS:

6,500, 10,000, 15,000, 18,000 & 25,000 Litre

Standard conical roof tank for semi buried or above ground use.  
Flat Roof tanks for fully buried applications. Other uses include retention & detention tanks.

**EFFLUENT TANKS / SUMPS:** 10,000L, 15,000L, 18,000L & 25,000L

**ECOSTREAM CONES:** Concentrate solids & maximize pump efficiency.

**STONE TRAPS:** STANDARD – 3500L, 2.2m max. bucket width.  
MEGA - 6500L, 2.7m max. bucket width.

**FLOOD WASH TANKS:** 25,000L NEW Admix Design for improved durability

## WATER TREATMENT

**SEPTIC TANKS:** 3300L, 4500L - and up to 25,000L

**PUMP CHAMBER:** 1100 & 1700L

Both Septic tanks & Pump chambers can be fitted with pumps.

**DURACRETE CLEAN STREAM:** Advanced Water Treatment system. Single tank, small foot print, low power consumption, 1500L /Day.

## TANK ACCESSORIES FACTORY FITTED

**HANSEN :** Ball float water level indicator – visual only.

**WIRELESS :** Wireless water level indicator with in-home monitor screen.

**RAIN-CATCHER:** Basket filter – filters water entering the tank.

**SUBMERSIBLE:** Water pump - quiet & efficient ready to run.

## HELPFUL FACTS & FIGURES

Average Waikato region rainfall = 1250mm/year (1.25m/year)

For every 10mm of rain falling on a 100m<sup>2</sup> roof catchment potential rainwater harvest = 1000Litres of water.

Typical 4 bedroom home - 2 adults & 2 children.

House floor area = 200m<sup>2</sup>, indicative roof catchment approximately = 250m<sup>2</sup>

Potential rainwater harvest / year = 250m<sup>2</sup> x 1.25m = 300m<sup>3</sup> or 300,000L.

Water usage 1 Person = 160-200L/Day, 4 People = 19,200–24,000L/Month.

We recommend two 25,000L tanks (50,000L) to harvest rain water in wetter months & to store water for drier months this being about 2 months storage.

**DURACRETE** Concrete water tanks are excellent water storage vessels being both cool and dark helping to prevent algae growth whilst maintaining water quality.

Rainwater is naturally acidic with pH=5.5 / 6.5. Town supply water is neutral to slightly alkaline pH=7.0 / 7.5. New Concrete water tanks are alkaline pH=7.5 / 8.5. These are guidelines only and do vary.

New concrete water tanks have alkaline tendencies (pH >7.5) due to cement content of concrete. Alkalinity will reduce over time as acidic rainwater comes into contact with the tank. Therefore it is very important to connect new tanks to your water catchment as soon as possible to allow rain water to flush the water tanks and produce the best quality water for your conditions.

Water filtration and use of an overflow pipe that takes water from tank bottom is recommended.



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