

Technical Solution Sheet 4.05

4: Drainage (Below Ground Stormwater)

Duplicate solution of 0.01: Roof Plumbing (Stormwater Drainage)

Charged Systems to Rainwater Tanks

AIM

The aim of this technical solution is to provide guidance for connecting roof drainage to a rainwater tank, where the tank is either located remotely from the building or where it is not possible to provide a graded downpipe to the tank (see Figure 1).

PLUMBING REGULATIONS 2008

The *Plumbing Code of Australia* (PCA) is adopted by and forms part of the *Plumbing Regulations 2008*. Part D1 of the PCA specifies the objectives and performance requirements related to the installation of roof drainage systems. *AS/NZS 3500.3: Plumbing and drainage Part 3: Stormwater drainage* is a “deemed to satisfy” document listed in Part D1 of the PCA and contains sections on “Materials and products” and “Roof drainage systems - installations”.

BACKGROUND

This technical solution refers to “charged systems for rainwater tanks”. This is basically a “U” in the stormwater pipe where rainwater falls from the gutter, fills the pipe, and then rises to fill the tank via gravity and head pressure.

In areas where reticulated water is available to be connected to the property from a water authority main, it is generally expected that water collected in a rainwater tank will not to be used for drinking or any other form of human consumption.

This is because water authorities regularly monitor the quality and safety of water to ensure that it is free from contaminants and micro-organisms that can cause disease. The same controls are not in place for domestic rainwater.

Note:

- It is not the intention of this technical solution to determine whether water from a rainwater tank is of drinking water standard. It may be necessary to have the water tested by a laboratory to determine if the rainwater is fit for human consumption. For more information refer to: www.health.vic.gov.au
- This technical solution should be read in conjunction with *AS/NZS 3500.1: Plumbing and drainage Part 1: Water Services* and Technical Solutions 5.08 Rainwater Supply for Water Closet Cisterns and 5.09 Rainwater Tanks relevant to the sizing of, and connection to rainwater tanks.

MATERIALS

General

- The pipe between the gutter and tank must be of an equivalent size to the gutter outlet.
- The pipe materials and fittings must be approved in accordance with *AS/NZS 3500.1 and AS/NZS 3500.3* and be fit for purpose (either drinking or non-drinking).
- The following types of materials are commonly used, however any materials used must comply with the requirements of the relevant standard.

Drinking water

- Polyethylene pressure pipe to *AS/NZS 4130* Polyethylene (PE) pipes for pressure applications.
- PVC-U pressure pipe to *AS/NZS 1477* PVC pipes and fittings for pressure applications.

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- **AS/NZS 2032** Installation of PVC pipe systems specifies that PVC-U pressure pipes installed in direct sunlight must be either painted with light coloured water-based paints, or otherwise protected.

For drinking water, the above listed downpipe material requirements apply whether the system is charged or not charged.

Where rainwater is to be used for drinking or human consumption, the connecting pipe material/s must comply with **AS/NZS 4020** Testing of products for use in contact with drinking water. Drinking water is water that is intended and suitable for human consumption, food preparation, utensil washing or oral hygiene.

Non-drinking water

- PVC-U at least DWV quality to **AS/NZS 1260** PVC-U pipes and fittings for drain, waste and vent application.

DOWNPIPE AND OVERFLOW SIZE

Both the downpipe and overflow must be sized to comply with **AS/NZS 3500.3**.

STATIC HEAD

The **minimum** distance between the sole of the strainer and rain-head, and the invert of the tank entry is 300mm to provide a sufficient static head on the system.

CLEANING AND MAINTENANCE

A rain-head and strainer is required at the eaves gutter connection to prevent debris entering and blocking the charged downpipe. If the rainwater tank is to be used for drinking water, then a first flush diverter should also be installed. Inspection openings must be provided to enable regular cleaning of the below ground section (see Figure 1).

