



Government of **Western Australia**  
Department of **Health**

# A Compilation of Australian Standards on Water Holding Tanks

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## Introduction

There are different Australia/ New Zealand Standards (AS/NZS) and industry best management practices documents that apply to water holding tanks. The standards are related to design/ manufacturing, installation, maintenance, plumbing, and/or water quality requirements.

This document aims to consolidate the relevant standards that specify requirements for water storage tanks. Standards for different types of water to be stored in tanks from drinking water, non-potable water (rain/ greywater), and sewage are put together in this document.

- Table 1 presents a summary of design/ manufacturing standards for water holding tanks.
- Table 2 summarises installation/ inspection standards for water holding tanks.
- Table 3 provides standards for different types of water to be contained in holding tanks. The Standards relate to materials, markings, plumbing requirements, water quality, and installation requirements.
- Table 4 provides a list of relevant standards and the year of publication used to prepare this document.

Department of Health (DoH) is the regulatory agency for drinking water quality in Australia through a Memorandum of Understanding with Water Corporation. Furthermore, DoH requires sewage holding tanks to be fully certified to the latest relevant Australian Standards. Please ensure that the latest version of the standards is reviewed to ensure compliance.

## Table 1 - Design/ Manufacturing Standards for Various Water Holding Tanks

Attributes	4766:2006 Polyethylene storage tanks for water and chemicals	3735:2001 Concrete structures for retaining liquids	3500.1:2015 Plumbing and drainage – Water services	WSA 129-2011 Industry Standard for Plastics Collection Tanks for Pressure and Vacuum Sewers
Scope	<ul style="list-style-type: none"> <li>This Standard is for the design and manufacture of polyethylene storage tanks that are rotationally moulded in one-piece seamless construction. <u>The tanks are for non-buried, vertical installation and capable of containing water, liquids used in food and beverage manufacture and chemical solutions at atmospheric pressure.</u></li> </ul>	<ul style="list-style-type: none"> <li>This Standard specifies requirements for concrete structures and members that include reinforcing steel or tendons, or both, used for retaining liquids at ambient temperature.</li> </ul>	<ul style="list-style-type: none"> <li>Section 8 specifies requirements for water storage tanks for the following purposes: sanitary flushing, drinking water supply, firefighting, air-conditioning, refrigeration, ablutions, prevention of cross-connections, make-up water, and contingency reserve.</li> </ul>	<ul style="list-style-type: none"> <li>This industry Standard specifies the design, manufacturing and performance requirements for manufacturers of plastics collection tanks for storage of sewage in pressure and vacuum sewerage systems and which are <u>specifically designed for buried installation.</u></li> </ul>
General	<ul style="list-style-type: none"> <li>Polyethylene (PE) tanks must be constructed as one piece (there should be no side seams).</li> </ul>	<ul style="list-style-type: none"> <li>This Standard does not apply to the design of small septic tanks (see AS 1546.1).</li> <li>The principles of concrete design and construction embodied in this Standard apply to structures and members made of concrete:                             <ul style="list-style-type: none"> <li>(a) with a characteristic compressive strength at 28 days (<math>f_c</math>) in the range of 20 MPa to 50 MPa and</li> <li>(b) of saturated, surface-dry density in the range of 1800kg/m<sup>3</sup> to 2800kg/m<sup>3</sup>.</li> </ul> </li> <li>The material and construction requirements of AS 3600 shall apply.</li> </ul>	<ul style="list-style-type: none"> <li>Water storage tanks shall be designed and connected in accordance with Figure 8.4.1. Tanks with dual water supply shall maintain the air gap in accordance with Clause 4.6.3.2(a) of this Standard. Where the capacity exceeds 500L, provision shall be made at the base for removal of sludge.</li> </ul>	<ul style="list-style-type: none"> <li>Performance requirements in this Standard have been drawn from AS/NZS 1546.1, AS/NZS 4766, AS 3571.1 and other published standards wherever practicable.</li> <li>This Standard does not provide design criteria for:                             <ul style="list-style-type: none"> <li>(a) Storage temperatures of sewage above 40°C;</li> <li>(b) Superimposed pressure exceeding 0.25m head of water, or 2.5kPa, above the maximum recommended fill level.</li> </ul> </li> </ul>
Tank Cover	<ul style="list-style-type: none"> <li>Separation of the roof (lid) from the body of the tank, after moulding is permitted for transport purposes provided that: the structural integrity of the tank is not adversely affected, and the prevention of insect and/or vermin ingress is maintained.</li> </ul>	<ul style="list-style-type: none"> <li>The cover for bars and tendons shall be the greatest of the values determined from Clauses 4.4.2 to 4.4.4, as appropriate</li> </ul>	<ul style="list-style-type: none"> <li>Any tank that supplies drinking water shall be provided with a cover that is:                             <ul style="list-style-type: none"> <li>(a) close fitting; and</li> <li>(b) secured in position if the tank is located externally</li> </ul>                             Where the whole cover is not removable, the tank shall be provided with a covered access opening not smaller than 0.5m<sup>2</sup>.                         </li> </ul>	<ul style="list-style-type: none"> <li>Each tank shall be provided with a minimum 400mm clear circular opening to provide access to the tank for the purposes of maintenance and removal and/or replacement of equipment.</li> <li>Access opening shall be:                             <ul style="list-style-type: none"> <li>(a) located to allow lifting equipment access for removal of grinder pumps</li> <li>(b) located to allow machine access for desludging of the chamber(s), and</li> <li>(c) capable of being located at or above finished surface level</li> </ul> </li> <li>Access covers and frames shall comply with WSA PS-290 or WSA PS-291.</li> <li>Access covers shall be provided with a lock-down arrangement designed to prevent unauthorised access and removal by children.</li> <li>Extension or risers between the tank and the access shall provide a watertight seal.</li> </ul>
Light Penetration	<ul style="list-style-type: none"> <li>A light penetration test shall be carried out on a test specimen in accordance with Appendix C of this Standard. The transmitted light shall be no greater than 1500 lux.</li> </ul>			
Thickness	<ul style="list-style-type: none"> <li>Wall thickness shall be not less than 4.5mm at any location.</li> <li>Roof thickness shall be not less than 4.5mm at any location.</li> <li>The minimum floor thickness of a tank designed to be installed on a fully supporting floor (base) shall be not less than 3.5mm within a radial distance of 65% of the radius of the floor (as per section 6.2.4 of this Standard).</li> <li>The radius of the external surface bottom knuckle of a flat-bottom tank shall be not less than 25mm for tanks with diameter less than 1.8m, and 38mm for tanks with diameter greater than 1.8m as per section 6.2.4 of this Standard).</li> </ul>			<ul style="list-style-type: none"> <li>Wall and roof thickness shall be the design thickness -10%, +unlimited. The total amount of surface area with a thickness below the design thickness shall not exceed 10% of the total surface area, and an individual area shall not exceed 0.10m<sup>2</sup>.</li> <li>Where wall and roof thicknesses are measured using ultrasonic equipment, this equipment shall be capable of measuring to an accuracy of 0.1mm.</li> </ul>
Tank Overflow	<ul style="list-style-type: none"> <li>Tanks shall have provision for overflow of contents greater than or equal to the rate of ingress.</li> </ul>		<ul style="list-style-type: none"> <li>Overflow pipes from tanks shall be                             <ul style="list-style-type: none"> <li>(a) not smaller than DN 40; and</li> <li>(b) capable of discharging the inflow rates given in Table 8.4.4.1 in this Standard and the outflow rates specified in Figures 8.4.4.1(A), 8.4.4.1(B) and 8.4.4.1(C).</li> </ul> </li> </ul>	

Dimension	<ul style="list-style-type: none"> <li>All volume and outside dimensions shall be taken at the time of manufacture with the tank in the operating upright position, unfilled. Tank dimensions shall represent the exterior measurements.</li> </ul>			<ul style="list-style-type: none"> <li>All dimensions shall be taken at the time of manufacture with the tank in the operating upright position, unfilled. Tank dimensions shall represent the exterior measurements.</li> <li>The dimensions of tank components, including spigots and sockets for pipe connections, shall not be less than those specified in the relevant Australian Standard for a fitting or component of the same material and nominal diameter.</li> </ul>
Tank Capacity	<ul style="list-style-type: none"> <li>The tank capacity shall be not less than the stated capacity (as per section 8 of this Standard).</li> </ul>		<ul style="list-style-type: none"> <li>The storage capacity of any tank shall be taken to be the volume of water above the invert of the outlet pipe when the water surface is 20mm below overflow level.</li> </ul>	<ul style="list-style-type: none"> <li>The Standard does not specify minimum storage capacity for tanks. Minimum storage capacity shall be as specified by the Water Agency or the Designer in accordance with WSA 06 and WSA 07.</li> </ul>
Workmanship	<ul style="list-style-type: none"> <li>Free from visual defects. The surfaces shall be smooth, have a homogenous appearance, and be free of any loose powder particles. An internal surface with both high gloss and discoloration shall not be acceptable.</li> </ul>			<ul style="list-style-type: none"> <li>At the time of manufacture, the finished tank surface, when viewed without magnification shall be smooth, clean and free from grooving, blistering, visible impurities or pores and any other surface irregularity likely to prevent conformity with this Standard or impair serviceability.</li> </ul>
Marking Requirements	<ul style="list-style-type: none"> <li>The tank shall be legibly and permanently marked on the external surface of the vertical wall, or where it can be seen in its normally installed position, with the following information: <ul style="list-style-type: none"> <li>(a) manufacturer's name or registered trademark</li> <li>(b) tank capacity</li> <li>(c) maximum specific gravity of contents of tank</li> <li>(d) maximum design service temperature</li> <li>(e) date (month and year) of manufacturer</li> <li>(f) serial number, if the tank does not comply with AS/NZS 4020 and/or AS 2070: 'not suitable for drinking water and/or food'</li> <li>(h) number of this Standard, i.e. AS/NZS 4766.</li> </ul> </li> </ul>		<ul style="list-style-type: none"> <li>Except if installed in domestic or residential buildings, all tanks shall have their intended use identified with no less than two permanent notices attached to each tank in visible positions, one on the front of the tank and one on the cover. Notices shall: <ul style="list-style-type: none"> <li>(a) be not less than 450mm x 250mm in size</li> <li>(b) have a red background</li> <li>(c) have the text in white, capital letters of not less than 25mm in height</li> <li>(d) have an identification in accordance with AS 2865 where applicable</li> </ul> </li> <li>Tanks holding drinking water shall carry the following warning: <p>WARNING: DRINKING WATER</p> <ul style="list-style-type: none"> <li>Pipework from a rainwater tank shall be clearly marked with the word 'RAINWATER' at intervals not exceeding 500mm where concealed in walls, or 1m where exposed or buried. Markings shall be in accordance with AS 1345.</li> <li>Water outlets shall be identified as 'RAINWATER' or, in the case of rainwater tap, identified by a green coloured indicator with the letters 'RW'.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Tanks shall be legibly and permanently marked on the tank wall or roof as follows: <ul style="list-style-type: none"> <li>(a) manufacturer's name or registered trademark</li> <li>(b) date (month and year) of manufacture</li> <li>(c) material identification</li> <li>(d) useable volume in litres</li> <li>(e) safe installation depth in metres</li> <li>(f) number of this Standard</li> </ul> </li> </ul>
Access			<ul style="list-style-type: none"> <li>Access to tanks shall be provided in accordance with the following: <ul style="list-style-type: none"> <li>(a) Headroom and side access shall be provided for every tank to enable inspection, cleaning, and maintenance procedures to be carried out to the interior and exterior of the tank.</li> <li>(b) The requirements of AS 2865 shall be taken into account in the design, manufacture and installation of a water tank. Where the interior depth of any storage tank exceeds 2m, access ladders of standard design and dimensions complying with AS 1657 shall be installed.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Each tank shall be provided with a minimum 400mm clear circular opening to provide access to the tank for the purposes of maintenance and removal and/or replacement of equipment.</li> <li>Access opening shall be: <ul style="list-style-type: none"> <li>(a) located to allow lifting equipment access for removal of grinder pumps</li> <li>(b) located to allow machine access for desludging of the chamber(s), and</li> <li>(c) capable of being located at or above finished surface level</li> </ul> </li> <li>Access covers and frames shall comply with WSA PS-290 or WSA PS-291.</li> <li>Access covers shall be provided with a lock-down arrangement designed to prevent unauthorised access and removal by children.</li> <li>Extension or risers between the tank and the access shall provide a watertight seal.</li> </ul>

<p>Drawings and Specifications</p>	<ul style="list-style-type: none"> <li>• The following design data shall be shown in the drawings:</li> <li>(a) Reference number and date of issue of applicable design Standards</li> <li>(b) Live loads used in design</li> <li>(c) Exposure classification for durability</li> <li>(d) Fire resistance level (if applicable)</li> <li>(e) Class and, where appropriate, grade designation of concrete</li> <li>(f) Grade and type of reinforcement and tendons</li> <li>• The drawing or specification for concrete members and structures should include, as appropriate, the following: <ul style="list-style-type: none"> <li>(a) The shape and size of each member</li> <li>(b) The finish and method of control for unformed surfaces</li> <li>(c) Class of formwork for the surface finish specified in accordance with AS 3610</li> <li>(d) The size, quantity and location of all reinforcement, tendons and structural fixings and the minimum cover to each</li> <li>(e) The requirement for concrete (see Clause 4.3)</li> <li>(f) The curing procedure and duration</li> <li>(g) The force required in each tendon, the maximum jacking force to be applied and the order in which tendons are to be stressed</li> <li>(h) The location and details of planned construction or movement joints, connections and splices, and the method to be used for their protection</li> <li>(i) The minimum period of time before stripping of forms and removal of shores</li> <li>(j) Any constraint on construction assumed in the design</li> <li>(k) Any special protective coatings</li> </ul> </li> </ul>		
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## Table 2 - Installation/ Inspection Standards

Attributes	4766:2006 Polyethylene storage tanks for water and chemicals	3735:2001 Concrete structures for retaining liquids	3500.1:2015 Plumbing and drainage – Water services	WSA 129-2011 Industry Standard for Plastics Collection Tanks for Pressure and Vacuum Sewers
Installation/ Inspection	<ul style="list-style-type: none"> <li>The manufacturer shall provide detailed installation instructions with each tank. These instructions shall be based on the design and end use of the tank and shall provide the following minimum information: (a) site selection criteria, (b) site preparation instructions, (c) plumbing connection instructions.</li> </ul>	<ul style="list-style-type: none"> <li>Inspection and testing for safety, serviceability and durability shall be carried out on completion of construction. Inspection should be carried out at regular intervals (maximum 5 years) during the service life of the structure.</li> <li>Structure shall be tested for liquid-tightness, liquid retention, and testing of roofs in accordance to section 7 of this Standard.</li> </ul>	<ul style="list-style-type: none"> <li>Materials used to construct tanks shall comply with Section 2 of this Standard.</li> <li>All tanks shall be installed on bases, plinths or support designed to adequately support the weight of any such tank and its contents when filled to maximum capacity.</li> <li>All metallic tanks, or such other tanks as may be directed, shall be installed with a membrane of non-corrosive insulating material between the support and the underside of the tank.</li> <li>Every tank shall be supported in such a manner that no load is transmitted to any of the attached pipes.</li> <li>All tanks shall be accessible for inspection, repairs, maintenance and replacement.</li> <li>Every tank shall be provided with a cover that is designed to prevent the entry of dust, roof water, surface water, groundwater, and bird or animal life.</li> <li>The water supply system from a rainwater tank shall comply with Section 5 of this Standard.</li> <li>All pipes, valves and fittings within a water supply system from a rainwater tank shall comply with Section 2 of this Standard.</li> </ul>	<ul style="list-style-type: none"> <li>Each tank shall be supplied with detailed installation instructions in English, which shall include warnings that the tank constitutes a confined space for any internal cleaning or repair work and that unless adequately ventilated will pose a serious health risk (including possible death) to anybody entering the tank.</li> </ul>

### Table 3 - Standards for Different Types of Water

Attributes	Rainwater	Drinking Water <sup>(1)</sup>	Greywater	Blackwater
Materials and Products	<ul style="list-style-type: none"> <li>• Methods of acceptable rainwater tank authorisation are as follow:               <ul style="list-style-type: none"> <li>(a) Above-ground polyethylene (PE) rainwater tanks have to be designed and manufactured in accordance with AS/NZS 4766.</li> <li>(b) Rainwater tanks constructed of products/ materials that would not be applicable to be certified under AS/NZS 4766 have to be structurally sound and watertight.</li> <li>(c) In situ and underground rainwater tanks may be certified in accordance with the specified test method, performance requirements, pressure testing and objectives of AS/NZS 1546.1, AS/NZS 4766 and be designed, inspected and signed off by a qualified structural engineer.</li> <li>(d) Rainwater tanks may be lined with approved coating in accordance with AS 5200.000.</li> </ul> </li> <li>• Materials and products used in a rainwater tank installation to connect to the water supply have to comply with the requirements of the National Plumbing Products Certification Scheme and be of an approved type as specified in the appropriate Standard listed in AS 5200.000, in accordance with the Plumbing Code of Australia (PCA).</li> </ul>	<ul style="list-style-type: none"> <li>• Refer to 'Materials and Products' under the Rainwater section of this table.</li> </ul>	<ul style="list-style-type: none"> <li>• Tanks, vessels, associated fittings, partitions, baffle walls and extensions comprising domestic greywater treatment system (DGTS) shall be constructed of durable materials, be structurally sound, corrosion resistant and be fit for purpose so as to achieve the service life. Any in-ground tanks, including access covers and risers, shall be watertight, and capable of withstanding loads likely to be imposed on the roof and walls.</li> <li>• Materials and products are selected in accordance to AS 1546.4.</li> </ul>	<ul style="list-style-type: none"> <li>• AS/NZS 1546.1:2008 (On-site domestic wastewater treatment units - septic tank):               <ul style="list-style-type: none"> <li>(a) Section 5.2 for precast concrete steel-reinforced septic tanks and precast steel-fibre reinforced septic tanks</li> <li>(b) Section 6.2 for cast-in-situ concrete septic tanks</li> <li>(c) Section 7.2 for reinforcement cement mortar septic tanks</li> <li>(d) Section 8.4 for glass fibre-reinforced plastic septic tanks</li> <li>(e) Section 9.4 for plastic septic tanks</li> </ul> </li> <li>• Section 3 of AS/NZS 1546.2:2008 for waterless composting toilets.</li> <li>• Section 2 of AS/NZS 1546.3:2008 for aerated wastewater treatment systems.</li> </ul>



Marking and Labelling	<ul style="list-style-type: none"> <li>The water supply systems (including irrigation) from a rainwater tank have to be clearly marked, in contrasting colour (white text on a green background) with the word 'RAINWATER', as specified in AS/NZS 3500.1.</li> <li>Pipe Markings: <ul style="list-style-type: none"> <li>(a) Pipework &lt;40mm (DN 40) in diameter has to include a continuous green pipe marker band (code tape) around the circumference of the pipe, marked with the word 'RAINWATER' in not less than 4mm upper-case letters, placed longitudinally along the pipe and repeated several times around the circumference, so that the marking is visible from all viewing directions.</li> <li>(b) Pipe markers are to be used to identify all rainwater pipework (accessible and non-accessible).</li> <li>(c) For all above- and below-ground non-accessible rainwater pipework, the pipe markers are to be placed on the pipe at intervals not exceeding 0.5m in length with the word 'RAINWATER' in contrasting colour and will need to comply with AS 1345.</li> <li>(d) For all rainwater pipework installed in accessible locations (e.g. car park basements), the pipe markers are to be placed on the pipe at intervals not exceeding 3m in length and adjacent to branches, valves, wall and floor penetrations. Identification markings have to comply with AS 1345.</li> <li>(e) Green pipe may also be used to indicate rainwater. It has to be marked with the word 'RAINWATER' at intervals not exceeding 0.5m for non-accessible pipe and intervals &lt;3m for accessible pipe.</li> </ul> </li> <li>Irrigation pipe <ul style="list-style-type: none"> <li>(a) Irrigation systems past the point of mains or rainwater water supply are unregulated plumbing and not considered within the AS/NZS 3500.</li> </ul> </li> <li>External tap signage: <ul style="list-style-type: none"> <li>(a) Rainwater outlets have to be identified as 'RAINWATER' with a label or a rainwater tap identified by a green coloured indicator. Rainwater warning signs will need to comply with AS 1319.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Pipe identification colour shall comply with AS/NZS 1345 for drinking water.</li> <li>Services containing materials for human consumption have a supplementary colour (clause 8.1 of AS/NZS 1345).</li> <li>Wherever it is considered that a hazard involving the contamination of materials for human consumption could arise, the pipes carrying materials for human consumption shall in addition to the base colour be identified by a band of dark-blue colour at least 75 mm wide, displayed in conjunction with the base colour band or pipe marker. Service to which this requirement might apply would include: potable water.</li> </ul>	<ul style="list-style-type: none"> <li>Greywater Diversion Devices (GDDs) connected to the greywater sanitary plumbing have to bear the WaterMark certification under ATS 5200:460.</li> <li>The marking, labelling and signage of the treated and untreated greywater plumbing and/or irrigation systems have to be in accordance with AS/NZ 3500 series and other Australian Standards: <ul style="list-style-type: none"> <li>(a) All internal pipework or pipe sleeves and identification tapes have to be purple colour as per AS 2700 and marked with the following in accordance with AS 1345 'WARNING RECYCLED/ RECLAIMED WATER - NOT FIT FOR DRINKING' or similar, at intervals not exceeding 0.5m.</li> <li>(b) Below ground pipes require an identification tape marked in accordance with AS/NZS 3500.1, installed on top of the greywater pipeline, running longitudinally, and fastened to the pipe at not more than 3m intervals.</li> <li>(c) Greywater outlets require signs that are marked 'WARNING DO NOT DRINK' or similar in accordance with AS 1319.</li> <li>(d) Colouring of taps to indicate water is recycled and not suitable for drinking.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Section 4 of AS/NZS 1546.1, minimum requirements: <ul style="list-style-type: none"> <li>(a) The manufacturer's name or trademark</li> <li>(b) The date of manufacture</li> <li>(c) The capacity in litres</li> <li>(d) Identification of the inlet to the tank</li> <li>(e) Top load limitations and maximum depth of cover</li> <li>(f) Weight of tank</li> </ul> </li> <li>Section 5 of AS/NZS 1546.2, minimum requirements: <ul style="list-style-type: none"> <li>(a) The manufacturer's name or trademark</li> <li>(b) The date of manufacture</li> <li>(c) Design capacity</li> <li>(d) Model identification</li> <li>(e) Contact details for service</li> <li>(f) Model and serial number of the chamber tested</li> </ul> </li> <li>Section 3 of AS/NZS 1546.3, minimum requirements: <ul style="list-style-type: none"> <li>(a) The manufacturer's name or registered mark</li> <li>(b) Model number or designation</li> <li>(c) The month and year of manufacture</li> <li>(d) The design hydraulic capacity in litres/ day</li> <li>(e) Top load limitations</li> <li>(f) Weight of tank</li> <li>(g) Lifting instructions</li> </ul> </li> <li>All marking shall be permanent, legible, and clearly visible at time of installation.</li> </ul>
Backflow Prevention	<ul style="list-style-type: none"> <li>Backflow prevention devices shall comply with AS/NZS 3500.1 and 2845.1</li> </ul>	<ul style="list-style-type: none"> <li>Backflow prevention devices shall comply with AS/NZS 3500.1 and 2845.1</li> </ul>	<ul style="list-style-type: none"> <li>Backflow prevention devices shall comply with AS/NZS 3500.1 and 2845.1</li> </ul>	<ul style="list-style-type: none"> <li>Backflow prevention devices shall comply with AS/NZS 3500.1 and 2845.1</li> </ul>
Management of Water Quality	<ul style="list-style-type: none"> <li>Chapter 3 of 'Guidance on use of rainwater tanks' (enHealth) proposes the implementation of a low-key management approach.</li> <li>Chapter 9 of Rainwater Tank Design and Installation Handbook (HB 230-2008) identify strategies to manage the quality of rainwater.</li> <li>NOTE: <ul style="list-style-type: none"> <li>(a) All rainwater products have to be certified to AS/NZS 4020 if they are designed for drinking water applications.</li> <li>(b) If the end use is drinking or food preparation, the water quality has to comply with the <i>Australian Drinking Water Guidelines</i>.</li> </ul> </li> <li>Inlet pipes to rainwater tanks should include leaf litter strainers.</li> <li>First-flush diverters, which prevent the initial roof-cleaning wash of water (20-25L) from entering tanks, are recommended.</li> </ul>	<ul style="list-style-type: none"> <li>Part 1 of the Australian Drinking Water Guidelines 2011 (ADWG) provides a framework for management of drinking water supplies appropriate for local conditions.</li> <li>Materials used in contact for the purpose of drinking water should comply with AS/NZS 4020.</li> </ul>	<ul style="list-style-type: none"> <li>Sections 3.4 and 5.4 of Urban Greywater Installation Handbook for Single Households (HB 326-2008) provide lists of best practice management control measures for treated and untreated greywater respectively.</li> </ul>	<ul style="list-style-type: none"> <li>In accordance to AS/NZS 1547-2012, performance requirements for wastewater treatment units shall: <ul style="list-style-type: none"> <li>(a) be of sufficient capacity to receive and treat all wastewater outputs from premises on the property</li> <li>(b) produce effluent suitable for the land application system</li> <li>(c) avoid the likelihood of creating unpleasant odours, or the accumulation of offensive matter</li> <li>(d) use minimal energy resources</li> </ul> </li> </ul>

Monitoring and Maintenance	<ul style="list-style-type: none"> <li>• Table 11 of HB 230-2008 provides a checklist for maintenance of rainwater systems.</li> <li>• Chapter 6 of 'Guidance on use of rainwater tanks' (enHealth) recommends various components of the roof catchment and tank be inspected at least every 6 months.</li> </ul>	<ul style="list-style-type: none"> <li>• Part 3 of the ADWG outlines the use of monitoring to confirm the effectiveness of the preventive measures and barriers to contamination of drinking water, and to enhance understanding of system performance.</li> <li>For water systems where drinking water temperatures in service tanks/ reservoirs and the distribution system can consistently reach temperature greater than 25°C, the long-term evaluation of microbial performance should include a similar review of <i>Naegleria</i> monitoring data.</li> <li>• Sampling of drinking water follows AS/NZS 5667.5:1998.</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance procedures provided by the manufacturer and any conditions of approval from the local council/ authority have to be carried out as specified for the life of the system. Table 3.7 of HB 326-2008 provides a maintenance checklist for treated greywater systems.</li> <li>• Untreated greywater diversion devices require regular maintenance. Table 5.6 of HB 326-2008 provides a maintenance checklist for untreated greywater systems.</li> </ul>	<ul style="list-style-type: none"> <li>• Appendix G of AS/NZS 1546.2</li> <li>• Appendix D of AS/NZS 1546.3</li> <li>• Section 6.3 of AS/NZS 1547-2012</li> </ul>
Installation	<ul style="list-style-type: none"> <li>• Chapter 15 provides the technical rainwater system installation drawings intended to be in accordance with AS/NZS 3500 series. Where there are differences, the requirements of AS/NZS 3500 series apply.</li> </ul>	<ul style="list-style-type: none"> <li>• Refer to 'Installation' under the Rainwater section of this table.</li> </ul>	<ul style="list-style-type: none"> <li>• All modifications or installations of GDDs and/or GTSSs have to be carried out by licensed plumbers and regulated by the specific State plumbing code or Australian Standards (AS/NZS 3500 series)</li> <li>• Requirements for GTS or wastewater treatment device are in accordance with AS 1547.</li> </ul>	<ul style="list-style-type: none"> <li>• Appendix B of AS/NZS 1546.1</li> <li>• Section 4 of AS/NZS 1546.2</li> <li>• Section 2.5 of AS/NZS 1546.3</li> <li>• The drainage system is required to comply with AS/NZS 3500.2</li> <li>• Section 6 (construction, installation, operation and maintenance) of AS/NZS 1547-2012</li> </ul>

(1) In addition to rainwater standards, information on drinking water column applies to water holding tanks for drinking water applications.

**Table 4 - List of Australian Standards and Other Industry Best Management Practices Documents**

Standard/ Document	Year	Description
Australian Drinking Water Guidelines (ADWG)	2011 (updated Nov 2016)	National Water Quality Management Strategy – Australian Drinking Water Guidelines <a href="https://www.nhmrc.gov.au/guidelines-publications/eh52">https://www.nhmrc.gov.au/guidelines-publications/eh52</a>
AS/NZS 1319	1994	Safety signs for the occupational environment
AS/NZS 1345	1995	Identification of the contents of pipes, conduits and ducts
AS/NZS 1546.1	2008	On-site domestic wastewater treatment units – Septic tanks
AS/NZS 1546.2	2008	On-site domestic wastewater treatment units – Waterless composting toilets
AS/NZS 1546.3	2008	On-site domestic wastewater treatment units – Aerated wastewater treatment systems
AS/NZS 1546.4	2008	On-site domestic wastewater treatment units – Domestic greywater treatment systems
AS/NZS 1547	2012	On-site domestic wastewater management
AS/NZS 1567	2013	Fixed platforms, walkways, stairways and ladders – Design, construction and installation
AS/NZS 2070	1999	Plastic materials for food contact use
AS/NZS 2700	2011	Colour standards for general purposes
AS/NZS 2845.1	2010	Water supply – Backflow prevention devices – Materials, design and performance requirements
AS/NZS 2865	2009	Confined space
AS/NZS 3500.1	2015	Plumbing and drainage – Water services
AS/NZS 3600.1	2009	Concrete structures
AS/NZS 3610	2010	Formwork for concrete
AS/NZS 3735	2001	Concrete structures for retaining liquids
AS/NZS 4020	2005	Testing of products for use in contact with drinking water
AS/NZS 4766	2006	Polyethylene storage tanks for water and chemicals
AS/NZS 5200.000	2006	Technical specification for plumbing and drainage products – Procedures for certification of plumbing and drainage product

AS/NZS 5667.5	1998 (R2016)	Water quality – Sampling – Guidance on sampling of drinking water and water used for food and beverage processing
enHealth	2010	Guidance on use of rainwater tanks <a href="http://www.health.gov.au/internet/main/publishing.nsf/content/0D71DB86E9DA7CF1CA257BF0001CBF2F/\$File/enhealth-raintank.pdf">http://www.health.gov.au/internet/main/publishing.nsf/content/0D71DB86E9DA7CF1CA257BF0001CBF2F/\$File/enhealth-raintank.pdf</a>
HB-230	2008	Rainwater Tank Design and Installation Handbook <a href="https://www.saiglobal.com/PDFTemp/Previews/OSH/as/misc/handbook/HB230-2008.pdf">https://www.saiglobal.com/PDFTemp/Previews/OSH/as/misc/handbook/HB230-2008.pdf</a>
HB-326	2008	Urban Greywater Installation Handbook for Single Households <a href="http://infostore.saiglobal.com/store/PreviewDoc.aspx?saleItemID=1544466">http://infostore.saiglobal.com/store/PreviewDoc.aspx?saleItemID=1544466</a>
WSA 129	2011	Industry Standard for Plastics Collection Tanks for Pressure and Vacuum Sewers <a href="https://www.wsaa.asn.au/shop/product/6021">https://www.wsaa.asn.au/shop/product/6021</a>

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