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## SP 4.3 – ALTERNATIVE WATER SOURCES – COMMERCIAL BUILDINGS

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## Purpose

To specify alternative water source requirements for *commercial buildings* in areas with a *reticulated town water supply system*.

## Commencement

This version of MP 4.3 commences on 1 January 2008. This is the first published version of MP 4.3.

## Application

- (1) MP 4.3 applies in local government areas listed in Appendix A on or after 1 January 2008 and in local government areas not listed in Appendix A on or after 1 July 2008 where:
  - (a) a building development application is made for the construction of a *commercial building* on or after 1 January 2008; or
  - (b) lawful carrying out of building work starts for a *commercial building* that is self assessable development on or after 1 January 2008.
- (2) MP 4.3 does not apply to alterations and additions to an existing *commercial building*.
- (3) Despite (1), MP 4.3 does not apply if the development application or lawful carrying out of building work that is self assessable development is for a building in a local government area or part thereof for which the *Minister* has granted an exemption.

## Exemption

- (1) A local government may apply to the Minister for an exemption from MP 4.3. A local government's application to the Minister must be in the approved form.
- (2) An exemption granted to a local government by the Minister under MP 4.3:
  - (a) continues until repealed or amended by the Minister; and
  - (b) applies to all building development applications lodged with the local government on or after 1 January 2008.
- (3) An exemption granted under MP 4.2 - Water Savings Targets (whether before or after MP 4.3 comes into force) is an exemption for MP 4.3 unless the Minister specifies otherwise in the exemption.
- (4) A local government may apply the requirements of MP 4.3 in its planning scheme despite any exemption.

## Referral Agency

There is no referral agency for this code.

Where the *acceptable solutions* of this standard are not adopted, the assessment manager may assess the building for compliance with the *performance criteria* of this standard under Chapter 4 Part 3 of the *Building Act 1975*.

## Associated Requirements

- *Plumbing and Drainage Act 2002*
- *Standard Plumbing and Drainage Regulation 2003*
- *Integrated Planning Act 1997*
- *Integrated Planning Regulation 1998*
- *Building Act 1975*
- *Building Regulation 2006*
- *Water Act 2000*
- *Health Regulation 1996*
- Local government planning schemes

## Referenced Standards

**AS/NZS 3500:2003** – Plumbing and Drainage

**AS/NZS4766:2006** – Polyethylene storage tanks for water and chemicals

**AS1397:2001** – Steel sheet and strip - Hot-dipped zinc-coated or aluminium / zinc-coated

**ASTM A240/A240M-05** – Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications

**AS3735:2001** – Concrete structures retaining liquids

**AS/NZS1546.1:1998** – On-site domestic wastewater treatment units – Septic Tanks

**AS/NZS1170.1:2002** – Structural design actions – Permanent, imposed and other actions

**AS/NZS1170.2:2002** – Structural design actions – Wind actions

**HB230-2006** – *Rainwater Tank Design and Installation Handbook*

## Definitions

Note: *Italicised* words within the body of the text, other than legislation titles, are defined below.

***acceptable solution*** means a relevant building solution which is deemed to satisfy the relevant performance criterion for the purposes of section 14 (4) (a)(ii) of the *Building Act 1975*.

**accommodation building** means a *commercial building* where at least 50% of the floor area of that building is classified as a Class 3, 9(a) or 9(c) building under the Building Code of Australia.

**alternative water source** means any source of water except water from the *reticulated town water supply system*.

**available roof area** means the whole of the *roof* area of every building on the *lot* included in a development application.

**available water sources** means any sources of water on the *lot*, other than water from the *reticulated town water supply system* and blackwater, which can be treated to the relevant potential end uses as specified in *Table T1* of the *Queensland Plumbing and Wastewater Code* and includes *rainwater*, *stormwater*, fire test water, *greywater* and cooling tower bleed water.

**commercial building** means a Class 3, 4, 5, 6, 7, 8 or 9 building under the Building Code of Australia (and a Class 10 building associated with or ancillary to those buildings), which is part of a *lot* which contains at least two *pedestals*.

**common property** has the meaning given by section 10 of the *Body Corporate and Community Management Act 1997*.

**common tank** means a *water storage tank* or *rainwater tank* for this code which services more than one building.

**external use** means the use of water for outdoor application, including gardening, irrigation, ponds and outdoor cleaning but excludes filling of swimming pools.

**greywater** means wastewater from a bath, basin, laundry or shower, whether or not the wastewater is contaminated with human waste.

**greywater treatment plant** means a treatment plant approved under the *Queensland Plumbing and Wastewater Code* installed on the *lot* for treating, on the premises, *greywater* generated on the *lot*.

**lot** means an area within a development application which is or will be on *common property* or one title.

**Minister** means the Minister responsible for the *Building Act 1975*.

**other building** means a *commercial building* which is not an *accommodation building*.

**pedestal** means a toilet pan or urinal, other than a waterless urinal.

**rainwater** means natural precipitation collected from any surface of a building that is not:

- (i) intended or adapted for regular occupation, other than incidental maintenance;
- (ii) designed or intended for vehicular access;
- (iii) accessible by persons who smoke;
- (iv) less than 2 meters from the finished ground level; and
- (v) subject to any source of contamination from the building which would make the water unfit to use in an untreated state for the intended uses.

**rainwater tank** means a covered tank or combination of covered tanks used to collect *rainwater* only from a building's *roof* or multiple *roofs*.

**required fire-fighting capacity** means the volume of water required to comply with Part E of the Building Code of Australia .

**required pedestals** means for

*accommodation buildings*, all *total pedestals* in the building;

*other buildings*, at least half the *total pedestals* rounded up to a whole number;

*small buildings*, the *available roof area* divided by 50m<sup>2</sup>, rounded up to a whole number.

**reticulated town water supply system** means a pipe network managed by a water service provider registered under the *Water Act 2000* for delivering drinking water directly to premises.

**roof** means the upper surface of a building.

**small building** means any *commercial building* which –

- (i) is not an *accommodation building*;
- (ii) is not on a *lot* that has a *swimming pool*; and
- (iii) has less than 10 *total pedestals*.

**stormwater** includes water collected from any surface of the building other than *rainwater*.

**suitable uses** includes sanitary flushing, firefighting water supply, air conditioning, refrigeration and irrigation.

**swimming pool** means any structure, excavation or spa which is intended for swimming, wading, paddling or other human aquatic activity, other than a spa located in a sole occupancy unit or a bath in a bathroom.

**tank** means a *rainwater tank* or *water storage tank*.

**water storage tank** means a covered tank or combination of covered tanks used for the storage of treated water.

**total pedestals** means the total number of *pedestals* in the part of the building which is a *commercial building*.

	PERFORMANCE CRITERIA		ACCEPTABLE SOLUTIONS
	<b>Alternative Water Source</b>		
<b>P1</b>	<p><i>Commercial buildings</i> Supplied directly with water from the <i>reticulated town water supply system</i>, by a water service provider registered under the <i>Water Act 2000</i> must have an <i>alternative water source</i> which provides water for <i>suitable uses</i>.</p>	<b>A1</b>	<p><i>Commercial buildings</i> connected to a <i>reticulated town water supply system</i> -</p> <p>(a) use at least one of the following measures –</p> <ul style="list-style-type: none"> <li>(i) a <i>rainwater tank</i>;</li> <li>(ii) a <i>water storage tank</i>;</li> <li>(iii) a <i>common tank</i>; or</li> <li>(iv) a <i>greywater treatment plant</i>; and</li> </ul> <p>(b) supply any <i>swimming pool</i> on the <i>lot</i> with water from a <i>rainwater tank</i> before using any remaining <i>available roof area</i> to service <i>required pedestals</i>; and</p> <p>(c) use the measures adopted in (a) to supply water to <i>required pedestals</i> and other <i>suitable uses</i> specified in this code.</p>
	<b>Rainwater tank - use, capacity, catchment area, water quality protection measures and point of discharge</b>		
<b>P2</b>	<p><i>Rainwater tanks</i> must provide water for <i>suitable uses</i> on the <i>lot</i>.</p>	<b>A2</b>	<p><i>Rainwater tanks</i> are connected to -</p> <ul style="list-style-type: none"> <li>(a) <i>swimming pools</i> on the <i>lot</i></li> <li>(b) each <i>required pedestal</i>;</li> <li>(c) an <i>external use</i>;</li> <li>(d) washing machine cold water taps; and</li> <li>(e) other fixtures as specified by the local government in a local planning instrument.</li> </ul>
<b>P3</b>	<p><i>Rainwater tanks</i> must have sufficient storage capacity to provide an acceptable contribution to water supply having regard to -</p> <ul style="list-style-type: none"> <li>(a) the <i>available roof area</i>;</li> <li>and</li> <li>(b) the uses connected to the <i>rainwater tank</i>.</li> </ul>	<b>A3</b>	<p><i>Rainwater tanks</i> have a minimum storage capacity of -</p> <ul style="list-style-type: none"> <li>(a) 1500L per <i>required pedestal</i>; and</li> <li>(b) any additional capacity specified in Appendix B; and</li> <li>(c) any additional capacity specified by the local government in a local planning instrument.</li> </ul>

	PERFORMANCE CRITERIA		ACCEPTABLE SOLUTIONS
P4	<i>Rainwater tanks</i> must be installed to provide an acceptable contribution to water supply having regard to - (a) <i>available roof area</i> ; and (b) the <i>suitable uses</i> for the water on the <i>lot</i> .	A4	<i>Rainwater tanks</i> - (a) are installed to receive <i>rainwater</i> from the lesser of – (i) the <i>available roof area</i> ; or (ii) 50m <sup>2</sup> of <i>roof area</i> for each connected <i>required pedestal</i> . (b) which supply water to a <i>swimming pool</i> are installed to receive <i>rainwater</i> from an additional <i>roof catchment area</i> being the lesser of – (i) the <i>available roof area</i> ; or (ii) the additional area specified in Appendix B. (c) are installed to receive <i>rainwater</i> from any additional <i>roof area</i> specified by the local government in a local planning instrument.
P5	<i>Rainwater tanks</i> must have suitable measures to prevent contaminants from entering the <i>tank</i> having regard to the nature and level of contaminants within the locality.	A5	<i>Rainwater tanks</i> have a - (a) screened downpipe rainhead, having screen mesh 4 – 6mm and designed to prevent leaves from entering each downpipe; and (b) minimum of 20 litres of the first flush of <i>roof catchment rainwater</i> diverted/discarded before entering the <i>rainwater tank</i> where: (i) connected to showers, wash basins, kitchen or hot water services; or (ii) required by a local government in a local planning instrument.
P6	<i>Rainwater tank</i> placement and overflow is designed to ensure <i>stormwater</i> does not pond under building floors or flood around foundations of buildings.	A6	<i>Rainwater tank overflow</i> - (a) is connected to the existing <i>stormwater</i> system or kerb and channel, or inter-allotment <i>stormwater</i> pit; or (b) is drained to an on-site <i>stormwater</i> dispersion system approved by the local government if no <i>stormwater</i> system exists and the property slopes away from the street; (c) piping complies with AS/NZS 3500:2003 requirements for <i>stormwater</i> ; and (d) is installed with a physical air break or non-return valve on the outlet.



	PERFORMANCE CRITERIA		ACCEPTABLE SOLUTIONS
	<b>Water Storage Tanks - treated water supply, use, capacity and water sources</b>		
<b>P7</b>	<i>Water storage tanks</i> receive only water treated for the connected <i>suitable uses</i> .	<b>A7</b>	<i>Water storage tanks</i> - (a) receive water treated to the standard required for the connected end uses as specified in Table T1 of the <i>Queensland Plumbing and Wastewater Code</i> ; and (b) do not store untreated water for more than 24 hours; and (c) discharge excess to an approved discharge point.
<b>P8</b>	<i>Water storage tanks</i> must provide water to <i>suitable uses</i> on the <i>lot</i> .	<b>A8</b>	<i>Water storage tanks</i> are connected to – (a) each <i>required pedestal</i> ; (b) <i>an external use</i> ; (c) washing machine cold water taps; and (d) other fixtures as specified by the local government in a local planning instrument.
<b>P9</b>	<i>Water storage tanks</i> must have sufficient storage capacity to provide an <i>alternative water source</i> having regard to - (a) <i>available water sources</i> ; and (b) the connected uses.	<b>A9</b>	<i>Water storage tanks</i> have a minimum storage capacity of - (a) 1500L per <i>required pedestal</i> ; and (b) any additional capacity specified by the local government in a local planning instrument; and (c) any <i>required fire-fighting capacity</i> .
<b>P10</b>	<i>Water storage tanks</i> must be installed to provide an acceptable contribution to water supply having regard to (a) volume of water from <i>available water sources</i> ; and the <i>suitable uses</i> for the water on the <i>lot</i> .	<b>A10</b>	<i>Water storage tanks</i> receive treated water from - (a) one or a combination of <i>available water sources</i> ; and (b) any additional <i>available water sources</i> specified by the local government in a local planning instrument.

	PERFORMANCE CRITERIA		ACCEPTABLE SOLUTIONS
	<p><b>Tanks - Water quality protection measures, system materials and openings</b></p>		
<p><b>P11</b></p>	<p>A <i>tank</i> must have suitable measures to prevent mosquitos breeding in the tank and vermin entering the <i>tank</i>.</p>	<p><b>A11</b></p>	<p><i>Tanks</i> have -</p> <ul style="list-style-type: none"> <li>(a) either - <ul style="list-style-type: none"> <li>(i) mosquito-proof screens of brass, copper, aluminum or stainless steel gauze not coarser than 1 mm aperture mesh; or</li> <li>(ii) flap valves at every opening of the <i>tank</i>; and</li> </ul> </li> <li>(b) either - <ul style="list-style-type: none"> <li>(i) a vermin trap; or</li> <li>(ii) mosquito-proofing in accordance with HB230-2006 when a wet system is used to harvest <i>rainwater</i>.</li> </ul> </li> </ul>
<p><b>P12</b></p>	<p>Internal fixtures supplied from a <i>tank</i> must have a continuous supply of water.</p>	<p><b>A12</b></p>	<p><i>Tanks</i> have –</p> <ul style="list-style-type: none"> <li>(a) an automatic switching device providing supplementary water from the <i>reticulated town water supply system</i>; or</li> <li>(b) a top up system, providing supplementary water from the <i>reticulated town water supply system</i> with - <ul style="list-style-type: none"> <li>(i) a minimum flow rate complying with Appendix C; and</li> <li>(i) top up valves installed in an accessible location; and</li> <li>(ii) a minimum storage volume, at which top up is triggered, greater than the total of: <ul style="list-style-type: none"> <li>A. any <i>required fire fighting capacity</i>; and</li> <li>B. (i) either the volume specified in Appendix C; or</li> <li>(ii) any greater volume specified by the local government in a local planning instrument.</li> </ul> </li> </ul> </li> <li>(c) the outlet for the internal fixtures is located above the point at which the <i>tank</i> still contains any <i>required fire-fighting capacity</i>.</li> </ul>

	PERFORMANCE CRITERIA		ACCEPTABLE SOLUTIONS
P13	Water from a <i>tank</i> must not contaminate the <i>reticulated town water supply system</i> .	A13	A backflow prevention device is installed to protect the <i>reticulated town water supply system</i> in accordance with AS/NZS 3500:2003 Plumbing and Drainage.
14	Materials used in a <i>tank</i> must be suitable for the intended use.	A14	(a) Polyethylene tanks comply with AS/NZS4766:2006 polyethylene storage tanks for water and chemicals. (b) Galvanised steel sheet complies with AS1397:201 steel sheet and strip – hot-dipped zinc-coated or aluminium/zinc-coated, and have a minimum coating of 55 g/m <sup>2</sup> (c) Stainless steel sheet complies with ASTM A240/A240M-05 standard specification for chromium and chromium-nickel stainless steel plate, sheet, and strip for pressure vessels and for general applications. (d) Concrete tanks comply with AS3735:2001 concrete structures containing liquids. (e) Collection well/underground water cell (non potable) or bladder tank complies with Vertical Axis Type Section 10 of AS/NZS 1546.1:1998 on-site domestic wastewater treatment units – Septic Tanks.
P15	<i>Tank</i> openings are constructed to prevent ingress of surface <i>stormwater</i> and groundwater.	A15	(a) <i>Tanks</i> are sealed to prevent surface <i>stormwater</i> and groundwater entering the <i>tank</i> . (b) Non water-tight access lids are sealed, or terminate a minimum 150 mm above finished ground level <i>stormwater</i> flows with the ground sloped away from the tank and access lid. (c) Water tight access lids are permitted to finish flush with the finished surface level.

PERFORMANCE CRITERIA		ACCEPTABLE SOLUTIONS	
<b>Greywater Treatment Plants</b>			
<b>P16</b>	<p><i>Greywater treatment plants provide water for suitable uses on the lot and must have sufficient storage and processing capacity to provide an alternative water source having regard to -</i></p> <ul style="list-style-type: none"> <li>(a) the amount of available <i>greywater</i>; and</li> <li>(b) the <i>suitable uses</i> for treated <i>greywater</i>.</li> </ul>	<b>A16</b>	<p><i>Greywater treatment plants –</i></p> <ul style="list-style-type: none"> <li>(a) are installed to receive all <i>greywater</i> from within the building; and</li> <li>(b) have a minimum processing capacity to treat total <i>greywater</i> input vessel volume in 24 hours; and</li> <li>(c) have a minimum storage capacity to hold– <ul style="list-style-type: none"> <li>(i) in an <i>accommodation building</i>, 30 litres of <i>greywater</i> per <i>required pedestal</i>; or</li> <li>(ii) in <i>other buildings</i> and <i>small buildings</i>, 15 litres of <i>greywater</i> per <i>required pedestal</i>; and</li> </ul> </li> <li>(d) are connected to supply treated water to – <ul style="list-style-type: none"> <li>(i) each <i>required pedestals</i>;</li> <li>(ii) an <i>external use</i>;</li> <li>(iii) washing machine cold water taps;</li> <li>(iv) other fixtures as specified by the local government in a local planning instrument; and</li> </ul> </li> <li>(e) comply with <i>Table T1</i> of the <i>Queensland Plumbing and Wastewater Code</i> for the effluent compliance value for end uses with a high level of human contact; and</li> <li>(f) have an automatic switching device providing supplementary water from the <i>reticulated town water supply system</i>; and</li> <li>(g) dispose of untreated <i>greywater</i> to the sewer</li> </ul>

**Appendix A - Local Government Areas**

**From 1 January 2008**

Beaudesert Shire Boonah Shire Brisbane City Caboolture Shire Caloundra City Cooloola Shire Crows Nest Shire Esk Shire Gatton Shire Gold Coast City Ipswich City Jondaryan Shire	Kilcoy Shire Laidley Shire Logan City Maroochy Shire Maryborough City Nanango Shire Noosa Shire Pine Rivers Shire Redcliffe City Redland Shire Rosalie Shire Toowoomba City
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**Appendix B – Tank size and roof catchment area requirements where a swimming pool is installed on the lot**

Gross Pool area (m <sup>2</sup> )	Rainwater tank size requirements (litres)	Roof catchment area (m <sup>2</sup> )
1-50	3,000	50
51-100	5,000	50
101-150	10,000	100
151-200	15,000	150
201-250	20,000	200
251-300	25,000	200
301-500	30,000	200
>500	50,000	300

**Appendix C – Minimum flow rates and top up levels**

Tank Size (litres)	Minimum Flow Rate (litres per minute)	Minimum Top Up Supply (litres)
0-5000	2	1000
5001-10000	8	2000
10001-30000	16	8000
30001 - 999999	32	16000

**MP 4.3 Calculator**

**The Department of Infrastructure and Planning has a published calculator to assist in determining requirements under this Part at [www.dlgpsr.gov.au](http://www.dlgpsr.gov.au)**