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## SP 4.2 – WATER SAVINGS TARGETS

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## **Purpose**

To specify water savings targets for *Class 1* buildings.

## **Commencement**

This version of MP 4.2 –

- (a) commences on 1 January 2008 and
- (b) replaces the version of Part 25 published on 5 December 2006.

## **Application**

- (1) This Part applies where a building development application is made in a local government area listed in Appendix A for the construction of a Class 1 building on or after 1 January 2008.
- (2) This Part applies where a building development application is made in a local government area not listed in Appendix A for the construction of a Class 1 building on or after 1 January 2008.
- (3) This part does not apply to alterations and additions to an existing Class 1 building.
- (4) Despite paragraphs (1) and (2), this Part does not apply if the building development application is for a building in a local government area for which the *Minister* has given an exemption from this Part.

## **Exemption**

- (1) A local government may apply to the *Minister* for an exemption from MP 4.2. 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 this Part:
  - (a) continues until repealed or amended by the *Minister*; and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 the date on which an exemption is granted.

## 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 Code 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(Int):2002** – 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** – Rainwater tank installation and design

## 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 S14 (4) (a)(ii) of the *Building Act 1975*

**Alternative water substitution measure** means communal *rainwater tanks*, dual reticulation or treated storm water.

**Class 1** – means one or more buildings which in association constitute –

(a) **Class 1a** – a single dwelling being –

(i) a detached house; or

(ii) one of a group of two or more attached dwellings, each being a building, separated by a fire-resisting wall, including a row house, terrace house, town house or villa unit; or

(b) **Class 1b** – a boarding house, guest house, hostel or the like –

(i) with a total area of all floors not exceeding 300m<sup>2</sup> measured over the enclosing walls of the Class 1b; and

(ii) in which not more than 12 persons would ordinarily be resident,

which is not located above or below another dwelling or another Class of building other than a private garage.

**External use** – means the use of collected rainwater for outdoor application, such as gardening, irrigation, ponds, filling swimming pools and outdoor cleaning.

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

**Greywater treatment plant** – means a treatment plant installed on the premises for treating, on the premises, *greywater* generated on the premises.

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

**Rainwater tank** – means a covered tank or combination of covered tanks used to collect rainwater from a building roof.

**Reticulated town water supply system** – means 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.

**Sanitary outlet** – means an outlet from an assembly of pipes, fittings and apparatus, excluding kitchen and water closets outlets, which is used to collect and convey the discharge to the sanitary plumbing system.

**PERFORMANCE  
CRITERIA**

**ACCEPTABLE SOLUTIONS**

**Water savings targets**

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|---|---|
| <p><b>P1</b> <i>Class 1</i> buildings 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 achieve targets listed in Appendix B. To achieve the targets in Appendix B, water must be sourced by means other than the use of the <i>reticulated town water supply system</i>.</p> | <p><b>A1</b> <i>Class 1</i> buildings connected to a <i>reticulated town water supply system</i> provided by a water service provider registered under the <i>Water Act 2000</i> use –</p> <ul style="list-style-type: none"> <li>(a) a <i>rainwater tank</i>; or</li> <li>(b) a <i>greywater treatment plant</i>; or</li> <li>(c) <i>alternative water substitution measure</i>; or</li> <li>(d) a combination of (a) and/or (b) and/or (c) as specified in a local planning instrument, State Code or State Planning Policy.</li> </ul> |
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**Rainwater tank installation, capacity and water quality protection measures**

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|---|---|
| <p><b>P2</b> A <i>rainwater tank</i> must have sufficient storage capacity to provide an acceptable contribution to meet water savings targets listed in Appendix B having regard to –</p> <ul style="list-style-type: none"> <li>(a) local rainfall pattern;</li> <li>(b) roof catchment area; and</li> <li>(c) area available to site the <i>rainwater tank</i>.</li> </ul> | <p><b>A2</b> A <i>rainwater tank</i> –</p> <ul style="list-style-type: none"> <li>(a) has a minimum storage capacity –             <ul style="list-style-type: none"> <li>(i) of at least 5,000 litres for a detached <i>Class 1</i> building</li> <li>(ii) at least 3,000 litres for a <i>Class 1</i> building other than a detached <i>Class 1</i> building; or</li> <li>(iii) greater than (a) (i) or (a) (ii) as specified by the local government in a local planning instrument; and</li> </ul> </li> <li>(b) is installed to receive rainfall from –             <ul style="list-style-type: none"> <li>(i) a minimum roof catchment area that is at least one half of the total roof area or 100m<sup>2</sup>, whichever is the lesser; or</li> <li>(ii) a minimum roof catchment area that is greater than (b) (i), as specified by the local government in a local planning instrument; and</li> </ul> </li> <li>(c) is connected to –             <ul style="list-style-type: none"> <li>(i) toilet cisterns and washing machine cold water taps (other than those connected to a <i>greywater treatment plant</i> or <i>alternative water substitution measure</i>); and</li> <li>(ii) an <i>external use</i>; and</li> </ul> </li> </ul> |
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| PERFORMANCE CRITERIA  | ACCEPTABLE SOLUTIONS  |
|---|---|
| <p><b>P3</b> A <i>rainwater tank</i> must have suitable measures to prevent contaminants from entering the <i>rainwater tank</i> having regard to the nature and level of contaminants within the locality.</p> | <p>(iii) other fixtures as specified by the local government in a local planning instrument.</p> <p><b>A3</b> A <i>rainwater tank</i> has –</p> <ul style="list-style-type: none"> <li>(a) a screened downpipe rainhead, having screen mesh 4 – 6mm and designed to prevent leaves from entering each downpipe; and</li> <li>(b) a minimum of 20 litres of the first flush of roof catchment <i>rainwater</i> diverted/discarded before entering the <i>rainwater tank</i> where: <ul style="list-style-type: none"> <li>(i) connected to showers, wash basins, kitchen or hot water services; or</li> <li>(ii) required by a local government in a local planning instrument.</li> </ul> </li> </ul>           |
| <p><b>P4</b> A <i>rainwater tank</i> must have suitable measures to prevent mosquitos breeding in the tank and vermin entering the tank.</p>  | <p><b>A4</b> A <i>rainwater tank</i> is provided with –</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>rainwater tank</i>; and</li> </ul> </li> <li>(b) a vermin trap; or</li> <li>(c) where a wet system is used to harvest rainwater, mosquito-proofing in accordance with HB230.</li> </ul>  |
| <p><b>P5</b> Internal fixtures supplied from a <i>rainwater tank</i> must have a continuous supply of water.</p>  | <p><b>A5</b> A <i>rainwater tank</i> has –</p> <ul style="list-style-type: none"> <li>(a) an automatic switching device providing supplementary water from the <i>reticulated town water supply</i>, or</li> <li>(b) a trickle top up system, providing supplementary water from the <i>reticulated town water supply</i> with - <ul style="list-style-type: none"> <li>(i) a minimum flow rate of 2 litres per minute and a maximum flow rate of 4 litres per minute; and</li> <li>(ii) top up valves installed in an accessible location; and</li> <li>(iii) a minimum storage volume of the <i>reticulated town water supply</i> top up not exceeding 1,000 litres or as specified by</li> </ul> </li> </ul> |

| PERFORMANCE CRITERIA  | ACCEPTABLE SOLUTIONS  |
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| <p><b>P6</b> Water from a <i>rainwater tank</i> must not contaminate the drinking water within a <i>reticulated town water supply system</i>.</p>   | <p>the local government in a local planning instrument.</p> <p>A backflow prevention device is installed to protect the drinking water within the <i>reticulated town water supply system</i> in accordance with AS/NZS 3500:2003 Plumbing and Drainage.</p>  |
| <p><b>System materials</b></p>  |   |
| <p><b>P7</b> Materials used in a <i>rainwater tank</i> must be suitable for its intended use.</p>   | <p><b>A7</b></p> <ul style="list-style-type: none"> <li>(a) Polyethylene tanks comply with AS/NZS4766:2006 polyethylene storage tanks for water and chemicals.</li> <li>(b) Galvanised steel sheet complies with AS1397:2001 steel sheet and strip – hot-dipped zinc-coated or aluminium/zinc-coated, and have a minimum coating of 550 g/m<sup>2</sup>.</li> <li>(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.</li> <li>(d) Concrete tanks comply with AS3735:2001 concrete structures containing liquids.</li> <li>(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.</li> </ul> |
| <p><b>Rainwater tank stands</b></p>   |   |
| <p><b>P8</b> Where a <i>rainwater tank</i> is supported on a stand or other structure, the supporting structure must be capable of withstanding any loads likely to be imposed on it.</p> | <p><b>A8</b> A <i>rainwater tank</i> stand or other supporting structure complies with AS/NZS1170.1:2002 permanent, imposed and other actions and AS/NZS1170.2:2002 wind actions.</p>   |

**PERFORMANCE  
CRITERIA**

**ACCEPTABLE SOLUTIONS**

***Rainwater tank openings***

**P9** *Rainwater tank* openings are constructed to prevent ingress of surface stormwater and groundwater.

- A9**
- (a) All *rainwater tanks* are sealed to prevent surface stormwater and groundwater entering the *rainwater tank*.
  - (b) Non water-tight access lids are sealed, or terminate a minimum 150 mm above finished ground level stormwater 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.

***Rainwater tank overflow – point of discharge***

**P10** *Rainwater tank* placement and tank overflow is to be designed to ensure stormwater does not pond under building floors or flood around foundations of buildings.

- A10**
- (a) The *rainwater tank* overflow is connected to the existing stormwater system or kerb and channel, or inter-allotment stormwater pit.
  - (b) If no stormwater system exists and the property falls away from the street the *rainwater tank* overflow may have to be drained to an on-site stormwater dispersion system. The local government must approve on-site stormwater dispersion systems before installation.
  - (c) The water from the overflow is considered to be stormwater and the requirements of AS/NZS 3500:2003 apply.
  - (d) A physical air break or non-return valve on the outlet from the *rainwater tank* overflow is provided before connecting to the stormwater drainage system.
  - (e) All plumbing and stormwater connections comply with local government requirements.



**PERFORMANCE  
CRITERIA**

**ACCEPTABLE SOLUTIONS**

***Greywater treatment plant***

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| <p><b>P11</b> A <i>greywater treatment plant</i> must have sufficient storage capacity to provide an acceptable contribution to meet water savings targets listed in Appendix B having regard to –</p> <ul style="list-style-type: none"> <li>(a) the amount of available <i>greywater</i>; and</li> <li>(b) the required demand for <i>greywater</i>.</li> </ul> | <p><b>A11</b> A <i>greywater treatment plant</i> –</p> <ul style="list-style-type: none"> <li>(a) is installed to receive <i>greywater</i> from all bathroom <i>sanitary outlets</i> in the building;</li> <li>(b) has a minimum processing capacity to treat total <i>greywater</i> input vessel volume in 24 hours;</li> <li>(c) has a storage capacity not exceeding 2,000L;</li> <li>(d) is connected to supply treated water to –             <ul style="list-style-type: none"> <li>(i) all toilet cisterns;</li> <li>(ii) washing machine cold water taps;</li> <li>(iii) an <i>external use</i>; and</li> <li>(iv) other fixtures as specified by the local government in a local planning instrument;</li> </ul> </li> <li>(e) supplies the treated water separate to the <i>reticulated town water supply system</i>:             <ul style="list-style-type: none"> <li>(i) to toilet cisterns using a dual float system; and</li> <li>(ii) for cold water to washing machines using a separate tap directly connected from the <i>greywater treatment plant</i>; and</li> </ul> </li> <li>(f) complies 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;</li> <li>(g) disposes of untreated <i>greywater</i> to the sewer.</li> </ul> |
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## Appendix A – Local Government Areas

**From 1 January 2008 water savings targets apply to the following local government areas**

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

Appendix B

Water savings targets for Queensland local government areas

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| <p><b>Group 1: Water savings targets of 16 kL per year for new detached houses and 10 kL per year for other new <i>Class 1</i> dwellings apply in the following local government areas:</b></p>  |
| <p>Barcoo Shire, Boulia Shire, Diamantina Shire, Isisford Shire, Longreach Shire, Quilpie Shire.</p>   |
| <p><b>Group 2: Water savings targets of 24 kL per year for new detached houses and 14 kL per year for other new <i>Class 1</i> dwellings apply in the following local government areas:</b></p>  |
| <p>Aramac Shire, Barcaldine Shire, Belyando Shire, Blackall Shire, Bulloo Shire, Burke Shire, Carpentaria Shire, Cloncurry Shire, Cook Shire, Croydon Shire, Dalrymple Shire, Doomadgee Shire, Etheridge Shire, Flinders Shire, Ilfracombe Shire, Jericho Shire, Kowanyama Shire, Mareeba Shire, McKinlay Shire, Mornington Shire, Mount Isa City, Paroo Shire, Pormpuraaw Shire, Richmond Shire, Winton Shire.</p>  |
| <p><b>Group 3: Water savings targets of 36 kL per year for new detached houses and 22 kL per year for other new <i>Class 1</i> dwellings apply in the following local government areas:</b></p>  |
| <p>Balonne Shire, Booringa Shire, Bowen Shire, Broadsound Shire, Charters Towers City, Duaringa Shire, Fitzroy Shire, Livingstone Shire, Murweh Shire, Nebo Shire, Peak Downs Shire, Tambo Shire, Warroo Shire, Woorabinda Shire.</p>  |
| <p><b>Group 4: Water savings targets of 44 kL per year for new detached houses and 26 kL per year for other new <i>Class 1</i> dwellings apply in the following local government areas:</b></p>  |
| <p>Banana Shire, Bauhinia Shire, Bendemere Shire, Bungil Shire, Cairns City, Cardwell Shire, Chinchilla Shire, Eacham Shire, Eidsvold Shire, Emerald Shire, Herberton Shire, Hinchinbrook Shire, Johnstone Shire, Murilla Shire, Palm Island Aboriginal Shire, Roma Town, Taroom Shire, Thuringowa Shire, Townsville City.</p>   |
| <p><b>Group 5: Water savings targets of 51 kL per year for new detached houses and 31 kL per year for other new <i>Class 1</i> dwellings apply in the following local government areas:</b></p>  |
| <p>Aurukun Shire, Badu Island, Bamaga island, Biggenden Shire, Boigu Island, Bundaberg City, Burnett Shire, Calliope Shire, Cambooya Shire, Clifton Shire, Dalby Town, Dauan Island, Erub Island, Gayndah Shire, Gladstone City, Goondiwindi Town, Hammond Island, Hervey Bay City, Iama Island, Inglewood Shire, Injinoo Shire, Isis Shire, Kingaroy Shire, Kolan Shire, Kubin Island, Lockhart River Shire, Mabuiag Island, Mapoon Shire, Mer Island, Millmerran Shire, Miriam Vale Shire, Monto Shire, Mount Morgan Shire, Mundubbera Shire, Napranum</p> |

Shire, New Mapoon Shire, Perry Shire, Pittsworth Shire, Poruma Island, Rockhampton City, Saibai Island, Seisia Island, St Pauls Island, Stanthorpe Shire, Tara Shire, Torres Shire, Ugar Island, Umagico Shire, Waggamba Shire, Wambo Shire, Warraber Island, Warwick Shire, Weipa Town, Wondai Shire, Yorke Island.

**Group 6: Water savings targets of 59 kL per year for new detached houses and 35 kL per year for other *Class 1* dwellings apply in the following local government areas:**

Atherton Shire, Burdekin Shire, Cherbourg Shire, Douglas Shire, Hope Vale Shire, Kilkivan Shire, Mackay City, Mirani Shire, Murgon Shire, Sarina Shire, Tiaro Shire, Whitsunday Shire, Woocoo Shire, Wujal Wujal Shire, Yarrabah Shire.

**Group 7: Water savings targets of 70 kL per year for new detached houses and 42 kL per year for other new *Class 1* dwellings apply in the following local government areas:**

Councils listed in Appendix A.