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## MP 3.5 – Construction of buildings in flood hazard areas

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## Part 1 Introduction

### 1 Purpose

To ensure—

- (a) particular *buildings* located in *flood hazard areas*—
  - (i) resist flotation, collapse or significant permanent movement caused by flood water; and
  - (ii) safeguard occupants and other people against illness or injury caused by flood water affecting *buildings*; and
  - (iii) are protected from *backflow*; and
  - (iv) have *utilities* that are protected from the effects of flood water; and
- (b) that a *customer dedicated substation* is designed or located so its ability to function effectively is not affected by flood water.

### 2 Commencement

This Part of the *Queensland Development Code* (this Part) was published on 12 December 2013 and commences on 20 December 2013.

### 3 Application

- (1) This Part applies to the lawful carrying out of *building work*<sup>1</sup> as indicated by ticks (✓) in the relevant columns in Table 1, to the extent the *building work* is carried out wholly or partly within a *flood hazard area* and a *defined flood level* is declared by a local government for the *flood hazard area*.

**Table 1 – Application of MP 3.5**

Application	Performance Requirements			
	P1	P2	P3	P4
Construction of a new <i>class 1</i> or a <i>class 4</i> part of a <i>building</i>	✓	✓	✓	
Construction of a new <i>class 2, 3, 9a</i> or <i>9c building</i>	✓	✓	✓	✓
Relocation of a <i>class 1 building</i>	✓	✓	✓	
Additions to a <i>class 1 building</i> where the additions constitute 50% or more of the <i>floor area</i> of the existing <i>building</i>	✓	✓	✓	
Additions to a <i>class 2, 3, 9a</i> or <i>9c building</i> , or a <i>class 4</i> part of a <i>building</i>	✓	✓		✓
Construction of a new <i>class 5, 6, 7, 8</i> or <i>9b building</i>		✓	✓	✓

<sup>1</sup>Any plumbing or drainage work mentioned in this Part is plumbing or drainage work under the *Plumbing and Drainage Act 2002* and is subject to the requirements under that Act.

- (2) Despite subsection (1), this Part does not apply to—

- (a) a *building* with an importance level 4 as specified by the *BCA*; or

- (b) alterations that are not additions to the *floor area* of an existing *building*; or
- (c) *building work* that is for, or directly relates to, raising an existing *building*; or
- (d) repairing an existing *building*; or
- (e) adding an extra storey above an existing part of a *building*; or
- (f) a floating *building* anchored to mooring piles that comply with Mandatory Part 3.1 of the *QDC, performance criteria 3*; or
- (g) *utilities* for a new *class 5, 6, 7, 8 or 9b building* where the *building's* certificate of classification states that the *building* is not intended to be occupied during, or in the aftermath of, a *defined flood event (DFE)*, unless a local government has set contrary requirements for these classes of *building* in a local *planning scheme, temporary local planning instrument* or by resolution; or
- (h) a *building* located, or proposed to be located, on a lot that is subject to—
  - (i) significant mudslide or significant landslide caused by rainfall or runoff, where it would be reasonable to expect that the mudslide or landslide would affect the part of the lot where the *building* is, or is proposed to be, located; or
  - (ii) storm surge.

Note—

See the *Building Act*, sections 36 and 37.

#### **4 Limitation**

The *acceptable solution A1(a)* for this Part only applies to *building work* carried out on a lot, or part of a lot, located in—

- (a) an area with a *maximum flow velocity* not greater than 1.5 metres per second; or
- (b) an *inactive flow or backwater area*.

Note—

If *building work* does not comply with A1, an *alternative solution* will be required in order to ensure it complies with P1. To formulate an *alternative solution*, the services of a *competent person* may be required.

#### **5 Referral agency**

*Defined flood level*

- (1) Under section 13 of the *Building Regulation*, a local government may declare a *DFL* for all or part of a *flood hazard area*.
- (2) If the *DFL* stated in a *building development application* is lower than the *DFL* declared by the local government, the local government must, as a concurrence agency, decide whether the *DFL* stated in the application is appropriate.

*Maximum flow velocity of water (MFV)*

- (1) Under section 13 of the *Building Regulation*, a local government may declare an *MFV* for all or part of a *flood hazard area*.

- (2) If the *MFV* stated in a *building development application* is lower than the *MFV* declared by the local government, the local government must, as a concurrence agency, decide whether the *MFV* stated in the application is appropriate.

Note—

For details of the concurrence agency jurisdiction, see the *Sustainable Planning Act 2009*, and the *Sustainable Planning Regulation 2009*, schedule 7, table 1, items 30 and 31.

## **6 Compliance with the QDC**

Under section 14 of the *Building Act*, *building work* complies with the *QDC* only if it complies with all relevant performance requirements under the *QDC*. The building work complies with a relevant performance requirement only if it achieves a relevant building solution under the *QDC* for the performance requirement. This can be achieved by—

- (a) complying with the relevant acceptable solution for the performance requirement; or
- (b) formulating an alternative solution that complies with the performance requirement or is shown to be at least equivalent to the relevant acceptable solution; or
- (c) a combination of paragraphs (a) and (b).

## **7 Associated requirements**

- *Building Act 1975*
- Building Code of Australia (*BCA*)
- *Building Regulation 2006*
- *Electricity Act 1994*
- *Electricity Regulation 2006*
- *Plumbing and Drainage Act 2002*
- *Standard Plumbing and Drainage Regulation 2003*
- *Sustainable Planning Act 2009*
- *Sustainable Planning Regulation 2009*

## **Part 2 Interpretation**

### **8 What is defined flood level**

- (1) **Defined flood level (DFL)** is the level to which it is reasonably expected flood waters may rise.
- (2) The *DFL* for a lot in a *flood hazard area* is—
- (a) the level declared by a local government, under section 13 of the *Building Regulation 2006*, to be the *DFL* for the part of the area where the lot is located; or
  - (b) if the *DFL* stated in a *building development application* for the lot is lower than the *DFL* declared by the local government—the level stated in the application, subject to a *concurrence agency's response*.

Note—

If the *DFL* stated in a *building development application* is lower than the *DFL* declared by the local government, the local government must, as a concurrence agency, decide whether the *DFL* stated in

the application is appropriate. (See the *Sustainable Planning Regulation 2009*, schedule 7, table 1, item 30.)

## **9 What is *freeboard***

- (1) ***Freeboard*** is a height above the *DFL* that takes account of matters that may cause flood waters to rise above the *DFL*.
- (2) The freeboard for a lot in a *flood hazard area*, is—
  - (a) if a local government has declared a freeboard for the part of the area where the lot is located, under section 13 of the *Building Regulation*—the height above the *DFL* declared to be the freeboard; or
  - (b) otherwise— a height of at least 300mm.

## **10 What is *maximum flow velocity***

- (1) ***Maximum flow velocity (MFV)***, for all or part of a *flood hazard area*, is a flow velocity of water that is reasonably expected to be the maximum flow velocity of water for all or part of the area.
- (2) The MFV for a lot in a *flood hazard area* is—
  - (a) if a local government has declared, under section 13 of the *Building Regulation*, an MFV for the part of the area where the lot is located—
    - (i) the flow velocity declared to be the MFV for the part of the area; or
    - (ii) if the *MFV* stated in a *building development application* for the lot is lower than the *MFV* declared by the local government—the *MFV* stated in the application, subject to a *concurrence agency's response*; or
  - (b) otherwise—
    - (i) the flow velocity stated by a *competent person* to be the MFV for the lot; or
    - (ii) a flow velocity determined to be the MFV for the lot, based on historical documents or information about the flow velocity of water for the part of the *flood hazard area* where the lot is located.

Note for section 10(2)(a)(ii)—

If the *MFV* stated in a *building development application* is lower than the *MFV* declared by the local government, the local government must, as a concurrence agency, decide whether the *MFV* stated in the application is appropriate. (See the *Sustainable Planning Regulation 2009*, schedule 7, table 1, item 31.)

## **11 Definitions**

Note—

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

- (1) The following definitions define particular words used in this Part and in sections 2.3–2.8 and 2.10 of the *national flood standard*—

***acceptable solution*** see the *Building Act*, section 14.

***alternative solution*** see the *Building Act*, schedule 2.

**appropriate authority** means a local government that declares, under the *Building Regulation*, section 13, the *finished floor level* for *class 1 buildings*.

**backflow** means the reverse flow of waste from a *sanitary drain* into a *building*.

**BCA** see the *Building Act*, schedule 2.

**building** see the *Building Act*, schedule 2.

Note—

The term includes any part of a *building*.

**Building Act** means the *Building Act 1975*.

**Building Regulation** means the *Building Regulation 2006*.

**building development application** see the *Building Act*, schedule 2.

**building work** see the *Building Act*, section 5.

**class** see the *Building Act*, schedule 2.

**competent person**, means—

- (a) a person who is a registered professional engineer of Queensland specialising in hydrologic and hydraulic models; or
- (b) a person assessed as a *competent person* under the *Building Regulation*, section 17(3).

**concurrency agency's response** see the *Sustainable Planning Act 2009*, schedule 3.

**connection point** see the *Standard Plumbing and Drainage Regulation 2003*, schedule 6.

**customer dedicated substation** means a *substation* installed in a *building* after an entity has acted under section 59(2)(a) of the *Electricity Regulation 2006*.

**defined flood event (DFE)** means a flood event where flood water rises to the *DFL* for the area.

**defined flood level (DFL)** see section 8.

**enclosed**, for a non-*habitable room*, means the room is completely surrounded on all sides by walls that would restrict, but not necessarily totally prevent, flood water from entering the room.

Example—

A room surrounded on all sides with a brick veneer wall (including weep holes) and a garage or pedestrian door would be considered to be *enclosed*. However, a room surrounded by cladding incorporating gaps that allow relatively free movement of water would not be considered *enclosed*.

**essential services** means services related to a *fire safety installation* that is required by the *QDC* or the *BCA*.

**fire safety installation** see the *Building Act*, schedule 2.

**finished floor level** see the *Building Regulation*, section 13.

**flood hazard area** means an area, whether or not mapped, designated by a local government as a flood hazard area under the *Building Regulation*, section 13.

Note—

The *Building Regulation*, section 13 requires a local government to keep a register of the flood hazard areas it designates, and when each designation was made.

**flood hazard level**, for a *flood hazard area*, means the *DFL* plus the *freeboard*.

**floor area** see the *Building Act*, schedule 2.

**freeboard** see section 9.

**habitable room** see the *national flood standard*, section 1.7.

**hydrodynamic action** see the *national flood standard*, section 1.7.

**hydrostatic action** see the *national flood standard*, section 1.7.

**inactive flow or backwater area** see the *Building Regulation*, section 13.

Note—

The *Building Regulation*, section 13 provides that **inactive flow or backwater area** means all or part of a flood hazard area where the maximum flow velocity of water is not likely to be greater than 1.5m/s. That section allows a local government to declare an inactive flow or backwater area for all or part of a flood hazard area.

**maximum flow velocity of water** see section 10.

**national flood standard** means the Standard for Construction of Buildings in Flood Hazard Areas, Version 2012.2, prepared by the Australian Building Codes Board.

**on-site sewerage facility** see the *Plumbing and Drainage Act 2002*, schedule.

**performance requirement** see the *Building Act*, section 14.

**planning scheme** see the *Sustainable Planning Act 2009*, schedule 3.

**Queensland Development Code (QDC)** see the *Building Act*, section 13.

**reflux valve** means a valve that prevents the reverse flow of waste by means of a flap or other mechanism.

**sanitary drain** see the *Plumbing and Drainage Act 2002*, schedule.

**substation** see the *Electricity Act 1994*, schedule 5.

**temporary local planning instrument** see the *Sustainable Planning Act 2009*, schedule 3.

**utilities** means any of the following—

- (a) lift motors and lift motor rooms for emergency lifts;

- (b) electrical switchboards and meters;
- (c) back-up power supplies and generators for *essential services*;
- (d) sprinkler valve rooms and any associated pumps;
- (e) fire indicator panels;
- (f) controls for stairwell pressurisation and air-handling systems used for smoke control;
- (g) hot water systems.

**wet flood proofing** see the *national flood standard*, section 1.7

- (2) To remove any doubt, it is declared that a definition mentioned in this Part applies for the purposes of interpreting sections 2.3–2.8 and 2.10 of the *national flood standard*.

## Part 3 Performance requirements and acceptable solutions

### PERFORMANCE REQUIREMENT

### ACCEPTABLE SOLUTION

#### Design and construction of buildings

- |           |  |           |   |
|-----------|--|-----------|---|
| <b>P1</b> | <p>A <i>building</i> must be designed, constructed, connected and anchored so that, in the event of a flood up to the <i>DFL</i>, it—</p> <ul style="list-style-type: none"><li>(a) resists flotation, collapse or significant permanent movement, resulting from—<ul style="list-style-type: none"><li>(i) <i>hydrostatic action</i>; and</li><li>(ii) <i>hydrodynamic action</i>; and</li><li>(iii) erosion and scouring; and</li><li>(iv) wind; and</li><li>(v) any other action; and</li></ul></li><li>(b) safeguards occupants and other people against illness and injury caused by flood water affecting the <i>building</i>.</li></ul> | <b>A1</b> | <p>The <i>building</i> complies with sections 2.3, 2.5 - 2.8 and section 2.10 of the <i>national flood standard</i>, and—</p> <ul style="list-style-type: none"><li>(a) if the <i>building</i> is a <i>class 1 building</i> and the local government has declared, under section 13 of the <i>Building Regulation 2006</i>, the <i>finished floor level</i> for a <i>class 1 building</i>—the <i>finished floor level</i> of the <i>building</i> complies with the level declared; or</li><li>(b) otherwise—the <i>finished floor level</i> of the <i>building</i> complies with section 2.4 of the <i>national flood standard</i>.</li></ul> |
|-----------|--|-----------|---|

Note—

Where A1 does not apply (refer to the provision in this part with the heading 'Limitations'), an alternative solution will be required in order to ensure it complies with P1. To formulate an alternative solution, the services of a *competent person* may be required.



**PERFORMANCE REQUIREMENT****ACCEPTABLE SOLUTION****Design and location of utilities**

- P2** *Utilities* associated with a *building*, other than an electrical meter for a *class 1 building*, must be designed or located to reduce the effects of flood water on the *utilities* in the event of a flood up to the *DFL*.
- A2** (1) *Utilities* associated with a *class 1 building*, other than an electrical meter for the *building*, are located above—
- (a) if the local government has declared, under section 13 of the *Building Regulation*, the *finished floor level* for a *class 1 building*—the level declared; or
  - (b) otherwise—the *flood hazard level*.
- (2) *Utilities* associated with a *building* other than a *class 1 building* are located above the *flood hazard level*.

Note—

Electrical installations may be installed by a person only if the person is a licensed electrician. Electrical meters must be installed in accordance with electrical entity requirements.

**Protection from backflow from sanitary drains**

- P3** A *building* with a *sanitary drain* must be protected from *backflow* so that in the event of a flood up to the *DFL* the effects of flood water on the *building* are reduced.
- A3** (1) A *building* with a *sanitary drain* is protected from *backflow* by a *reflux valve* fitted between the *building* and—
- (a) if the *building* has an *onsite sewerage facility*—the *on-site sewerage facility*; or
  - (b) otherwise—the *connection point*.
- (2) Also, a *reflux valve* fitted under subsection (1) is accessible for maintenance in accordance with AS3500.2:2003, section 4.5.

Note—

A reflux valve may be fitted by a person only if the person is licensed to fit the valve under the *Plumbing and Drainage Act 2002*.

**PERFORMANCE REQUIREMENT**

**ACCEPTABLE SOLUTION**

**Design and location of customer dedicated substations**

- P4** A *customer dedicated substation* located in a *building* must be designed or located so its ability to function effectively is not affected by a flood event up to the *DFL*.
- A4** A *customer dedicated substation* located in a *building* is located above the *DFL*.

Note—

Under section 59(2)(a) of the *Electricity Regulation 2006*, an entity may require the owner of premises to provide space on the premises for a *substation*.

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Note—

Some planning schemes may not permit development be to be carried out on land prone to flooding. Check with the local government in the area to determine what land use restrictions apply to the relevant lot.

**Version history**

<b>Version</b>	<b>Publication date</b>	<b>Commencement date</b>
<b>1.0</b>	<b>22 October 2012</b>	<b>26 October 2012</b>
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