

*This updates the previous Practice Note-2016-65 issued January 2016.*

*Reference to the BCA in this Practice Note means Volumes One and Two of the National Construction Code Series.*

**Note** Reference to regulation 802 of the Building Regulations 2006 within the BCA should be read as referring to regulation 153 of the Building Regulations 2018. It is expected that the 2019 edition of the BCA will be updated to refer to the Building Regulations 2018.

## Purpose

The purpose of this Practice Note is to provide practitioners with clarification of the provisions in Building Code of Australia (BCA) Volumes One and Two that relate to the construction of buildings in 'flood hazard areas' (FHA) and their application in Victoria.

## Background

On 1 May 2013 the BCA introduced new Performance Requirements in Part B1 and Part 2.1 relating to the construction of buildings on sites that are in a flood hazard area (the FHA Performance Requirements). These provisions only apply to Class 1, 2, 3, 4, 9a and 9c buildings.

The FHA Performance Requirements BP1.4(a) and P2.1.2(a) provide that:

*'A building in a flood hazard area must be designed and constructed, to the degree necessary, to resist floatation, collapse or significant permanent movement resulting from the action of hydrostatic, hydrodynamic, erosion and scour, wind and other actions during the defined flood event.'*

On 1 May 2014 Victorian variations to the BCA were introduced to amend the definitions of flood hazard area and freeboard to ensure that the BCA provisions only apply to land in an area liable to flooding within the meaning of regulation 802 of the Building Regulation 2006 (the Regulations) and not outside those areas.

## Flood Hazard Areas

Vic A1.1 of BCA Volume One and the Victorian variation to 1.1.1.2 of BCA Volume Two incorporate the following definition:

**Flood hazard area** means the *site* (whether or not mapped) encompassing land in an area liable to flooding within the meaning of regulation 802 of the Building Regulations 2006.

Therefore, where a site is on land liable to flooding the report and consent of the relevant council will be required under regulation 153 and, if the proposed building is a Class 1, 2, 3, 4, 9a or 9c, the FHA Performance Requirements will also apply.

A report and consent of the relevant council under subregulation (3) is not required if:

- a planning permit is required for the construction of the building; and
- the relevant planning scheme regulates the level of the lowest floor of the building in relation to any flood level declared under the Water Act 1989 or otherwise determined by the floodplain management authority or the relevant council.

It should be noted that some planning permits may specify or regulate a finished floor level without the condition specifically relating to a designated flood level. In these circumstances, the RBS may need to consult with the relevant municipality to check if the specified floor level is required for flooding purposes.

### Freeboard

The intention of the FHA Performance Requirements is that they apply not only to sites which are on land liable to flooding but also to sites which are below 'freeboard' levels.

Freeboard is defined in the BCA to be the height above the defined flood level as determined by the appropriate authority, used to compensate for effects such as wave action and localised hydraulic behaviour.

There is no authority in Victoria with statutory responsibility for determining freeboard levels as that term is defined in the BCA. Therefore, the term has been varied in the BCA to only apply to the height of the floor above the defined flood level as regulated by the relevant planning scheme, or specified or otherwise determined by the relevant council under regulation 153 of the Regulations.

Vic A1.1 of Volume One and the Victorian variation to 1.1.1.2 of Volume Two incorporate the following definition:

**Freeboard** means the minimum height of the level of the lowest floor of a building above the *defined flood level*, regulated by the relevant planning scheme, or specified or otherwise determined by the relevant council under regulation 802 of the Building Regulations 2006.

It is noted that typically the minimum floor level above the declared flood level as specified by the relevant council after consultation with the floodplain management authority would be considered as the freeboard (*Refer to Appendix 1*).

### ABCB Flood Standard

Once a site has been determined to be in a flood hazard area the FHA Performance Requirements will apply. The Australian Building Codes Board (ABCB) has developed a Standard for Construction of Buildings in Flood Hazard Areas. This Standard sets out the Deemed-to-Satisfy provisions that satisfy the FHA Performance Requirements. A copy of this Standard is available for free download on the ABCB website ([www.abcb.gov.au](http://www.abcb.gov.au)).

The definitions used in the ABCB Standard are different to those in the BCA. Therefore, Victoria introduced variations Vic B1.6 in Volume One and to 3.10.3.0 in Volume Two to ensure consistency between the BCA and the Standard.

The ABCB Standard applies where the flow rate of flood waters does not exceed a velocity of 1.5 m/s or 5.4 km/h. Areas considered not to exceed 1.5 m/s are the inactive flow or backwater areas within land liable to flooding. These are areas where the flood water gradually rises and are not in the direct flow path of the flood water like a stream or river or floodway.

The inactive or backwater area does not include areas within, or directly adjacent to, a river, stream or floodway, where the maximum flow velocity is likely to exceed 1.5 m/s.

The ABCB have advised that typical construction methods are able to withstand the actions to which they would be subject during a flood where the flow rate of flood waters does not exceed a velocity of 1.5 m/s, and this rate is consistent with other international standards.

Advice on the water velocity in areas outside the inactive or backwater areas may be available from Melbourne Water, the relevant Catchment Management Authority or the municipal council. If this information is not available, the designer could engage the services of a hydraulic engineer to determine the velocity. If the velocity cannot be determined, or exceeds 1.5 m/s, the designer would have to consider the flood actions in Clause 2.3 of the Standard to ensure the footing system and building remain structurally adequate.

The applicant for a building permit must provide evidence to the Relevant Building Surveyor justifying compliance with all aspects of the Standard. If a Performance Solution is used to comply with the FHA Performance Requirements, the RBS may request a certificate of compliance under section 238 of the Act, in accordance with regulations 122 and 124.

Where a velocity cannot be determined, or the FHA Performance Requirements cannot be complied with, an owner may apply to the Building Appeals Board for a modification or determination under section 160 of the Building Act 1993. Alternatively, where the owner or RBS would like assistance in determining whether the design complies with the Performance Requirements, an application may be made for a determination under section 160A of the Building Act 1993.

## Further Information

Water Velocity information:

**Melbourne Water – Land Development Team (03) 9679 7517**

**Water Catchment Authority: 136186.**

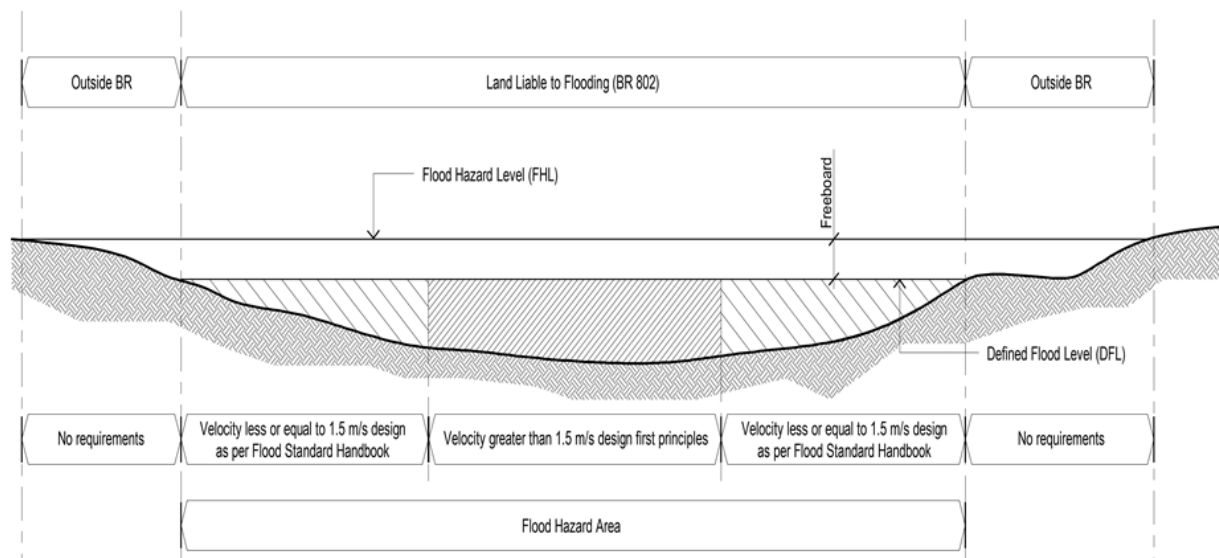
### Want to know more?

If you have a technical enquiry, please email [technicalenquiry@vba.vic.gov.au](mailto:technicalenquiry@vba.vic.gov.au) or call 1300 815 127.

Victorian Building Authority  
733 Bourke Street Docklands VIC 3008

**[www.vba.vic.gov.au](http://www.vba.vic.gov.au)**

## Appendix One



**Appropriate authority** means the relevant authority with statutory responsibility to determine the particular matter

**Defined flood event (DFE)** means the flood event selected for the management of flood hazard for the location of specific development as determined by the *appropriate authority* (BR 802(2) Land Liable to Flooding)

**Defined flood level (DFL)** means the flood level associated with a *defined flood event* relative to a specified datum (BR 802(2) Land Liable to Flooding)

**Flood hazard area** means the site (whether or not mapped) encompassing land in an area of land liable to flooding within the meaning of BR 802

**Flood hazard level (FHL)** means the flood level used to determine the height of floors in a building and represents the *defined flood level* plus the *freeboard*

**Freeboard** means the minimum height of the level of the lowest floor of a building above the *defined flood level*, regulated by the relevant planning scheme, or specified or otherwise determined by the relevant Council under BR 802

**BR** means Building Regulations 2006