Building Commission 2009-42(Interim)

Practice Notes Issued August 2009

Building Controls for Bushfire Safety-Interim

This Interim Practice Note updates previous Practice Note 2006-42 issued June 2006

1. Summary

Building in bushfire areas requires careful planning, siting and design. Class 1, 2 or 3 and associated Class 10a buildings must be designed and constructed to reduce the risk of ignition from a bushfire while the fire front passes.

The building requirements set out in the *Building Code of Australia* (BCA) have now been amended by the *Building Regulations 2006* (the Regulations).

The amendment was made through the making of the *Building Amendment (Bushfire Construction) Interim Regulations 2009* which came into operation on 11 March 2009. These Regulations lapse on 9 March 2010.

This Practice Note has been issued as an Interim Practice Note. This will enable future updates to be made as a result of the implementation by the Victorian government of recommendations made by the 2009 Bushfire Royal Commission, any changes made to the building regulatory system when new Regulations are made to replace the interim regulations in March 2010, and any future relevant changes to planning schemes in the Victoria Planning Provisions.

2. Background

Following the recent bushfires in Victoria, the Regulations have been amended with effect from 11 March 2009 to refer to the newly published Australian Standard, *AS 3959—2009 Construction of buildings in bushfire-prone areas* (the Standard).

The amendment to the Regulations amends the relevant Performance Requirements in the BCA to remove reference to 'designated bushfire-prone area' and include Class 10a buildings associated with a Class 1, 2 or 3 building.

As a result of the amendment all proposed Class 1, 2 or 3 buildings and associated Class 10a buildings throughout the State are subject to the site assessment provisions required by the Standard, though many sites will be assessed as BAL-LOW and will not be required to comply with additional construction requirements.

The Standard sets out construction requirements for a building determined according to the highest Bushfire Attack Level (BAL) of the site.

The BALs for which specific construction requirements are set out in the Standard are:

- BAL-12.5
- BAL-19
- BAL-29
- BAL-40
- BAL-FZ

There are no additional construction requirements for an assessment of BAL-LOW.

3. Determination of BAL

The applicant must arrange an assessment of the site and provide the Relevant Building Surveyor (RBS) with his or her analysis of the BAL.

The BAL can be determined using either the simplified procedure set out in Clause 2.2 (Method 1) of the Standard, or the detailed procedure set out in Appendix B (Method 2).

Method 1 can be used for sites that have an effective 'downslope' under the classified vegetation between 0º and 20º.

Method 2 can be used for sites where the effective downslope under the classified vegetation is between 21º and 30º and the slope of the land between the site and the classified vegetation is no more than 20º regardless of slope type.

Method 2 should only be used to determine the BAL by a person with appropriate expertise, such as a fire safety engineer.

The Standard does not apply where the slope under the classified vegetation exceeds 30º downslope and the slope of the land between the site and the classified vegetation is more than 20º regardless of slope type. In these instances the site assessment and design of the building's construction requirements will need to be undertaken by a suitably qualified and experienced person such as a fire safety engineer.

When a site is beyond the scope of the Standard, a site analysis will not result in a BAL being determined.

Level 27, Casselden Place, 2 Lonsdale Street, Melbourne, Victoria, Australia 3000. PO Box 536E, Melbourne Victoria, Australia 3001
Telephone +61 3 9285 6400 Facsimile +61 3 9285 6464, DX 210 299 Melbourne, www.buildingcommission.com.au

4. Site assessments and the role of the RBS

The role of the RBS is to independently determine compliance of a design with the ***Building Act 1993*** (the Act) and the Regulations prior to issuing a building permit. As the site assessment is part of the design process, the RBS must not undertake the site assessment for the purposes of an application for the building permit. The RBS may carry out an on site checking process for the purpose of verifying the BAL and adequacy of design.

The site assessment should include the appropriate information to enable the RBS to verify the assessment. The application should include a site plan and other information that clearly identifies all the information regarding predominant vegetation and exclusions, slope location and direction, and relevant distances as set out in Clause 2.2.1 or Appendix B.

A pro-forma site assessment report for Method 1 is available on the Building Commission's website. The pro-forma has been endorsed by the Australian Institute of Building Surveyors.

In some cases where the allotment is clearly in an area that can be easily designated as BAL-LOW, less detailed information may be acceptable to the RBS.

A separate pro-forma is also available on the Building Commission's website for a site analysis required to undertake a BAL assessment under Method 2.

5 Simplified Procedure (Method 1)

The Standard sets out a process using Method 1 in a sequential order for determining the BAL for sites where the effective slope under the classified vegetation does not exceed 20º downslope.

5.1 Clause 2.2.1

Step 1 – Determine the relevant Fire Danger Index (FDI)

In Victoria the FDI is 100 except for Alpine areas where it is FDI 50.

5.2 Clause 2.2.3

Step 2 – Vegetation classification

The classification process is set out in Clause 2.2.3. The intention is to identify the predominant risk vegetation that may impact on the building in the event of a bushfire.

In the majority of cases, the predominant risk vegetation will consist of naturally occurring formations of the groups of vegetation identified in figure 2.3 of the Standard (such as forests or woodlands). There will often be a definitive and identifiable 'line' of the edge of the vegetation.

Isolated trees that are forward of this line can be disregarded when measuring the distance from the building site to the line below the canopy of the predominant risk vegetation.

Following classification of the vegetation, some vegetation groups may be excluded by being classified as BAL-LOW under Clause 2.2.3.2.

5.3 Clause 2.2.3.1

General

Clause 2.2.3.1 requires vegetation to be classified by reference Table 2.3 and Figures 2.4(A) to 2.4(G).

This requires assessment of all vegetation to at least within 100m of the buildings including garages and carports within 6m of the Class 1, 2, or 3 building.

Note: Where predominant risk vegetation extends beyond 100m of the building it should be taken into consideration along with vegetation within 100m of the site.

After the vegetation has been classified, low threat vegetation and non vegetated areas can be classified as BAL-LOW in accordance with Clause 2.2.3.2.

5.4 Clause 2.2.3.2

Exclusions – Low threat vegetation and non-vegetated areas

Clause 2.2.3.2 sets out vegetation that is regarded as low threat and non-vegetated areas that can be 'excluded' from the classification of the predominant risk vegetation. This is achieved by classifying the types or groups of vegetation identified by the Clause as being BAL-LOW.

Sub-clauses 2.2.3.2 (a) to (e) are self explanatory. Sub-clause (f) refers to 'cultivated ornamental gardens'. This exclusion will apply to trees on private allotments where they are part of a garden, whether on a suburban, township or even lager rural allotment.

The heat energy release of a bushfire is generated mostly by ground fuel and the understorey. The canopy of a tree is regarded as low risk where there is not enough fuel in the understorey to promote ignition of the canopy.

Generally, maintained gardens on private properties, where there is little or no understorey under trees to

fuel a fire, are considered to be an exclusion under sub-clause (f).

5.5 Clause 2.2.4

Step 3 – Distance of the site from classified vegetation

The distance is to be taken from the nearest part of the building, excluding the allowable encroachments listed in Note 1 of Figure 2.1, to a vertical line below the canopy of the classified (non-excluded) vegetation determined under step 2.

For each vegetation type classified in Clause 2.2.3, determine the distance of the site (building) from the classified vegetation, measured in the horizontal plane.

As stated in Note 2 of Figure 2.1, the area between the building(s) and the classified vegetation may contain vegetation that can be excluded in accordance with Clause 2.2.3.

5.6 Clause 2.2.5

Step 4 – Effective slope of land under the classified vegetation

The 'slope' refers to the slope under the classified vegetation in relation to the building, e.g. a 'downslope' is sloping downwards as it runs away from the building.

For each vegetation type classified in Clause 2.2.3, the effective slope (in degrees) of the land under the classified vegetation and whether it is an 'upslope' or 'downslope' in relation to the site must be noted.

5.7 Clause 2.2.6

Step 5 – Determination of Bushfire Attack Level

Using the information obtained from steps 1 to 4, the BAL can now be determined for the site by selection from the relevant row and column from Table 2.4.2 for FDI 100 and Table 2.4.4 for FDI 50.

This should be done for all classified vegetation from each part of the site, the highest BAL determining the design and construction requirements of the building.

5.8 Clause 2.2.7

Step 6 – Determination of the appropriate construction requirements

Having determined the appropriate BAL, it is the responsibility of the designer to incorporate the appropriate construction requirements in the design from the relevant Clauses 3 and 5 to 9 of the Standard. These should be clearly indicated in plans and specifications provided to the RBS in the documents lodged for a building permit.

6. Classification of vegetation in fire affected areas

Some concern has been raised about the assessment of areas that have been burnt during the recent bushfires. The Standard requires vegetation to be classified into one of seven groups dependant on vegetation type, not on current fire load.

Foliage cover is an element of the classification system but not the sole determinant of vegetation type. For example, an area of more than 1ha of trees with a height greater than 30m should be classified as Group A Forest, even though the foliage cover may currently be less than 30%.

Having identified the height of trees and density of trunks and allotting the vegetation to a Group in accordance with Figure 2.3, the Standard assigns the appropriate fuel load to that Group when the BAL is determined under Table 2.4.2 or 2.4.4.

7 Role of the Building Appeals Board

The Building Appeals Board (BAB) can deal with applications for modification or determination of compliance in the usual manner (refer to Practice Note 2006-39). An application could be made to the BAB to either reduce or delete certain requirements of the BCA or the Standard, or for confirmation that a design complies with the BCA.

7.1 Modification or variation of a building regulation

Section 160 of the Act provides that the BAB has the statutory jurisdiction to determine that a provision of the Regulations does not apply or applies with the modifications or variations specified in the application to a building or land specified in the application.

It is unlikely that the BAB would consider that all the provisions of AS 3959-2009 do not apply where the site is assessed as being in one of the five Bushfire Attack Levels that require a construction response.

However, there may be circumstances where an application for a modification or variation of the Regulations relating to the construction of buildings in bushfire areas is a valid alternative where it is considered that the building design or a component of

the design need not fully comply with the relevant performance requirement.

As is customary, the BAB will scrutinise applications for modifications or variations of a provision of the Regulations diligently in relation to the particular design and the circumstances applying to the site.

Any application to the BAB to modify the Regulations applying to construction requirements in bushfire prone areas should include a clear and well considered discussion as to the reason the particular regulation should be modified or varied.

The application should also include statistics, data, or other material that supports the discussion seeking the modification or variation and if applicable, it should clearly indicate any additional measure that is proposed that may substitute or mitigate the modified or varied regulation.

7.2 Determination in respect of building design

Section 160A of the Act provides that the BAB has the statutory jurisdiction to determine that a particular design of a building or an element of a building complies with the Act, the Regulations or any document applied, adopted or incorporated in the building regulations.

This provides an opportunity for an applicant to seek confirmation from the BAB that a design of a building or an element of the building that does not necessarily comply with the requirements of AS 3959-2009, still complies with the Regulations by meeting the relevant performance requirement/s of the BCA.

As with an application for a modification or variation of a Regulation, the application provided to the BAB to assess a determination under section 160A must clearly articulate a convincing case supported by statistics, data, or other material that will assist the BAB in making a determination that the design or element of design meets the relevant performance requirement.