

Building Elements in the flame zone

This Fast Fact clarifies the requirements of the NSW Rural Fire Service (RFS) for the use of building elements within the flame zone

Section A3.4 9 (c) of *Planning for Bush Fire Protection Addendum Appendix 3* contains a definition of flame zone as 'determined by the calculated distance at which the radiant heat received by the proposed building exceeds 40kW/m^2 or calculated by the point of potential flame contact, whichever occurs first'.

In NSW, the Building Code of Australia 2010 (BCA) references *AS3959-2009 Construction of buildings in bushfire-prone areas* as the acceptable solution (deemed to satisfy) for construction requirements for BAL 12.5, BAL 19, BAL 29 and BAL 40 in bush fire prone areas for NSW.

The BCA establishes a NSW variation (Part 3.7.4 Bushfire Areas) that excludes AS3959 Section 9 Construction for BAL-FZ as an acceptable solution. Rather to satisfy the performance requirement the following applies:

- a) AS3959, except for Section 9 Construction for BAL FZ. Buildings subject to BAL FZ must comply with specific conditions of development consent for construction at this level; or

- b) the requirements above as modified by the development consent following consultation with the RFS under section 79BA of the *Environmental Planning and Assessment Act 1979*; or

- c) the requirements of (a) as modified by development consent with a bushfire safety 100B of the Rural Fires Act 1997 for the purposes of integrated development

Further section A3.4 (d) of *Planning for Bush Fire Protection 2006 Addendum Appendix 3* states that 'for building elements subject to radiant heat flux of greater than 29kW/m^2 , the use of exposed timber is generally not suitable without specific testing in accordance with suitable protocols'.

Where there is potential for materials of construction to ignite as a result of bush fire attack, the proposed building solution fails the performance criteria of *Planning for Bush Fire Protection 2006* (PBP).

For developments in the flame zone (as determined above), the RFS will consider systems tested in accordance with AS1530.8.2 except that there is to be no flaming of the specimen.



Materials that allow flaming are problematic and not supported by the RFS for the following reasons:

- Flaming materials increase the exposure of other elements of construction and adjoining structure to flame contact and associated radiant heat and embers after a bush fire front has passed.
- Flaming materials will potentially increase the exposure of occupants of building to radiant heat, direct flame contact, smoke and embers after a bush fire front has passed.

This increase in exposure would contribute to the risk of loss of life and compromise the ability of residents to defend their property and egress from the building once the bush fire front has passed.

In addition it can reduce the capacity of occupants to make safe (and effective) decisions about their safety.

For these reasons the RFS does not support any external elements on a building within the flame zone that would flame and/or combust.

As such exposed timber on a building at within the flame zone is not acceptable.

Developments where the calculated radiant heat is between 29kW/m² – 40kW/m², **and** there is no flame contact, are to comply with the requirements of Section 8 of AS3959.

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