



TIMBER IN BUSHFIRE ZONES

AS 3959-2018 *Construction of buildings in bushfire-prone areas* is referenced by the National Construction Code (NCC) for residential houses (Class 1 & 10) to be an acceptable deemed-to-comply construction manual. The standard is aimed at “improving the ability of buildings... to better withstand attack from bushfire thus giving a measure of protection to the building occupants (until the fire front passes)...”, and not to deliver bushfire proof buildings. The 2018 edition supersedes the 2009 version that you are all aware of. In terms of structural timber, it contains minor changes to floor framing as well as inclusion of veranda posts. There has also been extensive commentary included to help the reader understand the intent of various measures.

The first step is to determine if you are in a bushfire zone. Some councils have mapped out areas of bushfire prone land, whilst others require that AS3959 be used as determination. There are 6 Bushfire Attack Levels (BALs), ranging from BAL-LOW, through BAL-12.5, 19, 29, and 40 to BAL-FZ. AS3959 has two methods of working out the BAL; a simplified (conservative) method and a detailed method. BAL-LOW is not considered here as there are no special requirements, neither is BAL-FZ as when building in a BAL-FZ (Flame Zone) it is suggested you get the assistance of a bushfire expert to assist with not only materials but also building design and layout. In NSW, Rural Fire Service approval is required if building in a BAL-FZ area.

Once the BAL has been determined, AS3959 provides specific requirements for how to construct all elements of the structure. In addition, Victoria and NSW adopt specific bushfire construction standards available through their respective fire authorities and state government websites (see below links). The following table can be used as a basic conservative guide for structural elements and cladding with timber. AS3959 is continually changing so please refer back to the standard to confirm these requirements are still valid.

GENERAL CONSTRUCTION REQUIREMENTS IN TIMBER (NOT INCLUDING BAL-LOW OR BAL-FZ)

ELEMENT	BAL-12.5	BAL-19	BAL-29	BAL-40
All Enclosed Wall, Roof and Floor framing	Any timber	Any timber	Any timber	Any timber
Unenclosed elevated floor framing (bearers, joists and flooring in sub-floor space)	Floor > 400mm from ground : Any timber. Floor ≤ 400mm : Bearers and joists (BRT) and Flooring (BRT or lined with sarking)	As per BAL-12.5	As per BAL-12.5	Underside lined with non-combustible material or AS1530.8.1 approved.
Enclosed Decks and Verandas (without posts)	Decking as per Unenclosed Decks Framing – any timber	As per BAL-12.5	Decking – BRT Framing – any timber	Decking to be AS1530.8.1 approved. Framing – any timber.
Unenclosed Decks	Decking - use BRT or Appendix E1 species for distance < 300mm from glazing that are < 400mm from surface of deck. Otherwise use any timber. Framing - any timber	As per BAL-12.5	BRT	AS1530.8.1 approved
Veranda Posts	Use BRT for <400mm from surface of deck or ground or otherwise any timber if mounted on galvanized stirrups with > 75mm clearance from ground	As per BAL-12.5	BRT	Non-combustible material
Balustrades/Handrails	Any timber	Any timber	BRT when < 125mm from any glazing or combustible wall. Otherwise any timber.	Non-combustible material when < 125mm from any glazing or combustible wall. Otherwise any timber.
Fascia/Barges	Any timber	Any timber	BRT	AS1530.8.1 approved
Eaves Linings	Any timber	Any timber	Min 4.5mm thick fibre-cement sheet or BRT	Min 6mm thick fibre-cement sheet
External Cladding	Within 400mm of ground/deck surface to be BRT or Appendix E1 species. Otherwise any timber.	As per BAL-12.5	Min 6mm thick fibre-cement sheet or BRT	Min 9mm thick fibre-cement sheet or AS1530.8.1 approved

BRT are Bushfire Resisting Timbers as noted in Appendix H of AS3959. There are currently 7 species listed.

The easiest to source is Merbau (Kwila), then Blackbutt, Spotted Gum, and Red Ironbark. The other three are not consistently readily available in large quantities.

If you need more information, below is a list of free resources which can help (*check to see if they deal with the 2018 edition*):

- <https://www.woodsolutions.com.au/articles/building-timber-bushfire-prone-areas-guide-4> (Wood Solutions)
- http://www.rfs.nsw.gov.au/dsp_content.cfm?CAT_ID=900 (NSW Rural Fire Service)
- <https://www.planning.vic.gov.au/policy-and-strategy/bushfire-protection/building-in-bushfire-prone-areas> (VIC State Gov)



Alfred and George