

Introduction

This data sheet outlines the requirements for timber construction in bushfire prone areas in Queensland, as required by the State Planning Policy and the Building Code of Australia.

The data sheet provides deemed to satisfy provisions, as well as Timber Queensland's recommendations regarding the application of the relevant provisions of Australian Standard AS 3959-1999, "Construction of Buildings in Bushfire Prone Areas".

Note: It must be emphasised that because of the variable nature of bushfires, there can be no guarantee that any building will withstand bushfire attack on every occasion.

State Planning Policy and the BCA

With the introduction of the State Planning Policy (SPP) in Queensland on the 1st September 2003, there is now a relationship between the Guidelines called up by the SPP and the bushfire provisions given in the BCA, which in turn, calls up AS 3959 - 1999. Under the SPP, local authorities are required to follow a referenced guideline document that prescribes the requirements for natural disasters including bushfires.

The SPP Guideline 01/03 - Mitigating the Adverse Impacts of Flood, Bushfire and Landslip, details the bushfire hazard assessment requirements for Queensland's local authorities. In addition, this publication references Bushfire Risk Analysis maps prepared by the Queensland Fire and Rescue Service (QFRS) and downloadable from: www.emergency.qld.gov.au

The maps give a high level of local detail and provide a bushfire hazard assessment of sites as either high, medium or low. The SPP then relates the hazard as determined from the Guideline or maps to the Levels of Construction given by AS 3959 - 1999 as follows:

SPP Guideline Severity of Bushfire Hazard	Level of Construction to AS 3959 - 1999
High	Level 1
Medium	N/A
Low	N/A

Determination of Severity of Bushfire Hazard

Site assessment and determination of the level of bushfire hazard should be carried out by the local authority, building certifier and/ or the QFRS.

Levels of Construction

AS 3959 sets out the levels of construction required for the various elements of a building in order to reduce the likelihood of ignition in the various bushfire attack risk categories.

For **low** and **medium** bushfire attack categories, there are **no** specific bushfire construction requirements in Queensland.

For **high** bushfire hazard categories, **Level 1** Construction is required as outlined in Table 1.

Fire-Retardant Treated Timber

AS 3959 outlines the parameters for fire-retardant treated timber when tested in accordance with AS/NZS 3837. The standard also acknowledges that some timbers are capable of meeting these parameters without the need for fire-retardant treatment.

As a result of testing carried out at Victoria University, the Warrington Fire Research Group have certified that the following non-fire-retardant treated hardwood species (minimum thickness 18 mm) satisfy the requirements for fire retardant treated timber in AS 3959.

- Blackbutt
- Red Ironbark
- Turpentine
- River Red Gum
- Spotted Gum
- Kwila
- Silver Top Ash

In addition, the Warrington Fire Research Group report concludes that the following species, whilst not satisfying the current AS 3959 definition of fire-retardant treated timber, are considered suitable for building construction in bushfire-prone areas in line with proposed changes to the performance criteria and testing parameters in the standard.

- Balau (Selangan Batu)
- Forest Red Gum
- Jarrah
- Tallowwood
- Yellow Stringybark

These species may therefore be used in locations where fire-retardant treated timber is required.

Note: The Warrington Fire Research Group report (WFRA No. 20550.2 26/11/2001) is included in the timber industry website www.timber.org.au

Table 1: Level 1 Construction (AS3959) - Severity of Bushfire Hazard - High (SPP01/03)

BUILDING ELEMENT	REQUIREMENT	
Suspended timber floor systems	(a) Sub-floor not enclosed and any bearer less than 600 mm above ground	All bearers, joists and flooring shall be fire-retardant-treated timber*.
	(b) Sub-floor enclosed or not enclosed, and all bearers greater than 600 mm above ground	No requirement
	(c) Sub-floor fully enclosed (refer Figure 1)	No requirement
Supporting posts, columns, stumps, piers and poles	(a) Sub-floor fully enclosed (refer Figure 1)	No requirement
	(b) Sub-floor not enclosed	Either:- <ul style="list-style-type: none"> • non-combustible material • fire-retardant-treated timber* for minimum 400 mm above ground, or • timber mounted 75 mm above ground on galvanised brackets (refer Figure 3).
Timber-framed external walls	(a) Masonry veneer walls	<ul style="list-style-type: none"> • No requirement for timber frame
	(b) Non-combustible cladding (e.g. 6 mm f.c.)	<ul style="list-style-type: none"> • Breather type sarking (with flammability index not more than 5) behind cladding. • No requirement for timber frame.
	(c) Combustible cladding (e.g. timber, plywood)	<ul style="list-style-type: none"> • Breather type sarking (with flammability index not more than 5) behind cladding. • Cladding less than 400 mm above finished ground shall be (or be covered by) fire-retardant-treated timber* or non-combustible material (e.g. 6 mm f.c.) (refer Figure 2). • No requirement for timber frame.
Windows	<ul style="list-style-type: none"> • No timber restrictions • All windows shall be screened with corrosion-resistant steel, bronze or aluminium screens with maximum aperture size of 1.8 mm . 	
External Doors	<ul style="list-style-type: none"> • No timber restrictions • Doors shall be fitted with weather strip or draught excluder. • Doors shall have tight fitting corrosion-resistant steel, bronze or aluminium screens with maximum aperture size of 1.8 mm. 	
Roofs	<ul style="list-style-type: none"> • No timber restrictions for roof framing • Roof/wall junctions shall be sealed with fascias, eaves linings and/or non-combustible sheeting between rafters <p>Note: No material restriction for eaves and fascias.</p> <ul style="list-style-type: none"> • Timber shakes and shingles not permitted • Tiled roofs shall be fully sarked • Sheet roofs (metal and fibre cement) shall have corrugations and other gaps at ridges, fascias, walls, etc. adequately sealed. (e.g. sarking, mineral wool, metal mesh etc.). • Restrictions for roof lights, ventilators, cooling units etc., (refer AS 3959). 	
Verandahs and Decks	(a) Sheeted or tongue and grooved verandahs Note: T & G flooring not recommended for uncovered decks.	<ul style="list-style-type: none"> • Shall comply with the requirements for flooring and • Where clearance between ground and underside of lowest bearer/joist is not greater than 400 mm, all joints in flooring shall be covered or sealed. • Posts, columns etc shall comply with requirements for posts below floors.
	(b) Spaced decking	<ul style="list-style-type: none"> • Spacing between decking board shall be not less than 5 mm. • External perimeter beneath deck shall not be enclosed (access required to extinguish fires and remove debris). • Posts, columns etc shall comply with requirements for posts below floors. • Not connected to building or designed to prevent spread of fire into building.

Note: *Some non-fire-retardant-treated hardwood species may be used in locations where fire-retardant treatment is specified (refer page 1)

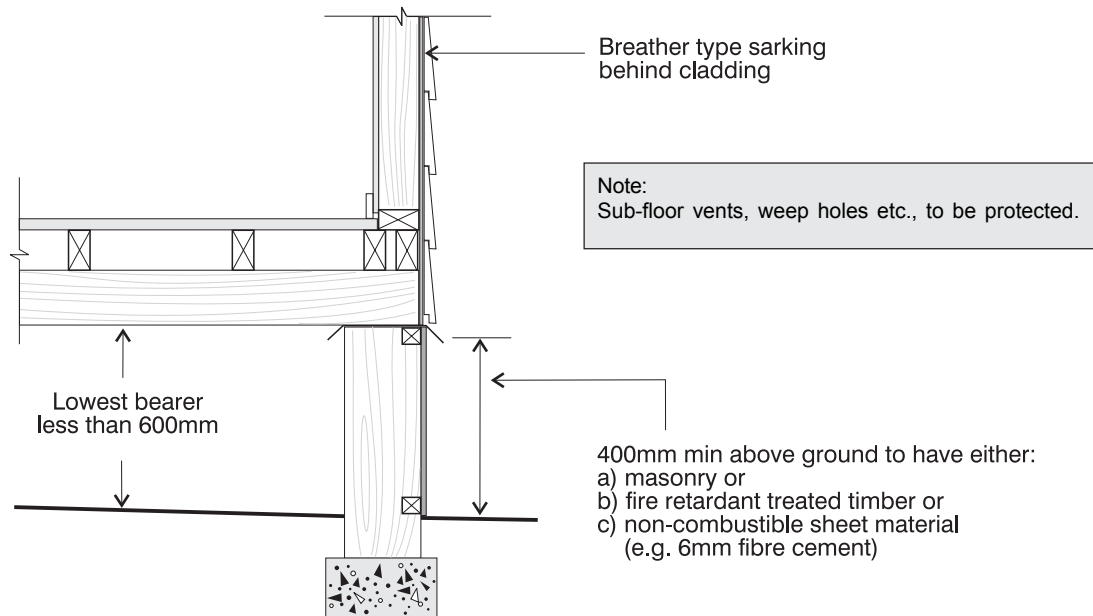


FIGURE 1
Enclosed sub-floor space
 (Bearers less than 600mm above Ground)

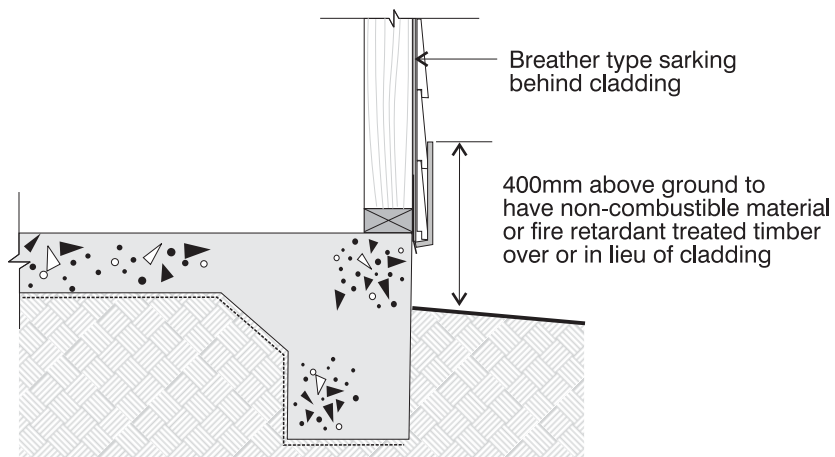


FIGURE 2
Cladding less than 400mm above ground
 (Level 1 Construction Only)

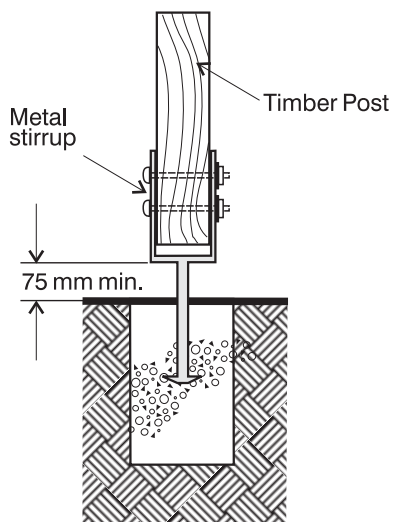


FIGURE 3
Support of timber posts



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