

PRODUCT GUIDE FOR BUSHFIRE-PRONE AREAS

Buildings, houses and garages in bushfire-prone areas are required to be protected from ignition from a bushfire attack while its front passes. The National Construction Code (NCC) references AS 3959:2018 - Construction of buildings in bushfire-prone areas, as an acceptable construction standard for these designated areas. Protection against bushfire attack requires a comprehensive and systematic approach to ensure the construction of the whole of building, including the wall system is considered.

This guide provides information on the range of Cemintel fibre-cement sheet and weatherboard products that can satisfy the non-combustible material, FRL rating and minimum fibre-cement thickness requirements of AS 3959 for various elements of a building in bushfire-prone areas.

It is the responsibility of the project designer to assess the bushfire adequacy of the building incorporating the Cemintel system(s), and determine if any additional details are required to satisfy the project bushfire requirements (refer to the NCC, AS 3959 and any other relevant regulatory requirements).

These additional details for buildings in bushfire-prone areas can include the specification of fire-resistant linings, framing, cavity treatment and other materials (e.g., insulation, external wall cladding), and construction details for the external walls and junctions to neighbouring elements (e.g., eaves, decks and floors). Bushfire zone walls require specific treatments, such as but not limited to, all joints in the external surface material (cladding) of walls shall be covered, sealed, overlapped, backed or butt-jointed, inclusion of a sarking-type material applied over the frame prior to fixing any external cladding, and at all gaps (e.g., vents and weepholes) in external walls shall be screened with a mesh with a maximum aperture of 2mm, made of corrosion-resistant steel or bronze. Also mesh coverings may be required at the wall head, base, all gaps, eaves and junctions with roofs, etc., to ensure appropriate protection from fire and ember attack.

A Bushfire Attack Level (BAL) rating is a means of measuring the severity of a building's potential exposure to ember attack, radiant heat and direct flame contact. The BAL refers to heat flux exposure thresholds, summarised below:

BUSHFIRE ATTACK LEVELS



BAL-FZ

Direct exposure to flames from the fire front in addition to heat flux of greater than **40kW/m²** and ember attack.

BAL-40

Increasing levels of ember attack and ignition of debris with an increasing heat flux of up to **40kW/m²** and increased likelihood of exposure to flames

BAL-29

Increasing levels of ember attack and ignition of debris with an increasing heat flux of up to **29kW/m²**

BAL-19

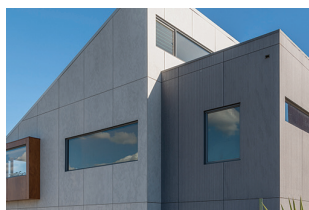
Increasing levels of ember attack and ignition of debris with an increasing heat flux of up to **19kW/m²**

BAL-12.5

Ember attack with heat flux of up to **12.5kW/m²**

BAL-Low

There is insufficient risk to warrant specific construction requirements



GUIDE TO MEETING THE BUSHFIRE CODE – Wall Cladding, Eaves, Ceilings and Floor linings

The following Cemintel® products may be used to meet the requirements of each BAL.

BAL-12.5

FLOORING – ELEVATED FLOORS WITH UNENCLOSED SUBFLOOR (less than 400mm above finish ground level)

- Compressed Sheet with no linings underside
- Constructafloor with no linings underside
- Combustible flooring, particleboard or similar and underside lined with sarking or mineral wool insulation

EXTERNAL WALLS – See Fig D3

- | | |
|----------------------|----------------------|
| • Aspect Cladding | • Mosaic |
| • Balmoral | • Scarborough |
| • Barestone | • SimpleLine |
| • Cladding Sheet 6mm | • Smooth Plank |
| • Edge Cladding | • Surround |
| • Endeavour | • Territory |
| • ExpressPanel | • Texture Base Sheet |
| • Headland | |

EAVES

- Eaves Lining
- SoffitLine
- Cladding Sheet

CEILINGS – Alfresco, veranda, carport and awnings protected from weather – See Fig D1

- | | |
|-------------------|-----------------------------------|
| • 10mm Supaceil | • 13mm ECO8 Complete |
| • 13mm Standard | • Cladding Sheet 6mm with H-Mould |
| • 13mm Aquachek | • SoffitLine |
| • 13mm Fyrchek MR | • Wallboard SE |

VERANDAS, DECKS – See Fig D2

- Compressed Sheet
15mm, 18mm or 24mm
- Constructafloor

BAL-19

FLOORING – ELEVATED FLOORS WITH UNENCLOSED SUBFLOOR (less than 400mm above finish ground level)

- Compressed Sheet with no linings underside
- Constructafloor with no linings underside
- Combustible flooring, particleboard or similar and underside lined with sarking or mineral wool insulation

EXTERNAL WALLS – See Fig D3

- | | |
|----------------------|----------------------|
| • Aspect Cladding | • Mosaic |
| • Balmoral | • Scarborough |
| • Barestone | • SimpleLine |
| • Cladding Sheet 6mm | • Smooth Plank |
| • Edge Cladding | • Surround |
| • Endeavour | • Territory |
| • ExpressPanel | • Texture Base Sheet |
| • Headland | |

EAVES

- Eaves Lining
- SoffitLine
- Cladding Sheet

CEILINGS – Alfresco, veranda, carport and awnings protected from weather – See Fig D1

- | | |
|-------------------|-----------------------------------|
| • 10mm Supaceil | • 13mm ECO8 Complete |
| • 13mm Standard | • Cladding Sheet 6mm with H-Mould |
| • 13mm Aquachek | • SoffitLine |
| • 13mm Fyrchek MR | • Wallboard SE |

VERANDAS, DECKS – See Fig D2

- Compressed Sheet
15mm, 18mm or 24mm
- Constructafloor

FIGURE D2 DECKING WITHIN HORIZONTAL AND VERTICAL LIMITS OF GLAZED ELEMENTS (Source: AS 3959:2018)

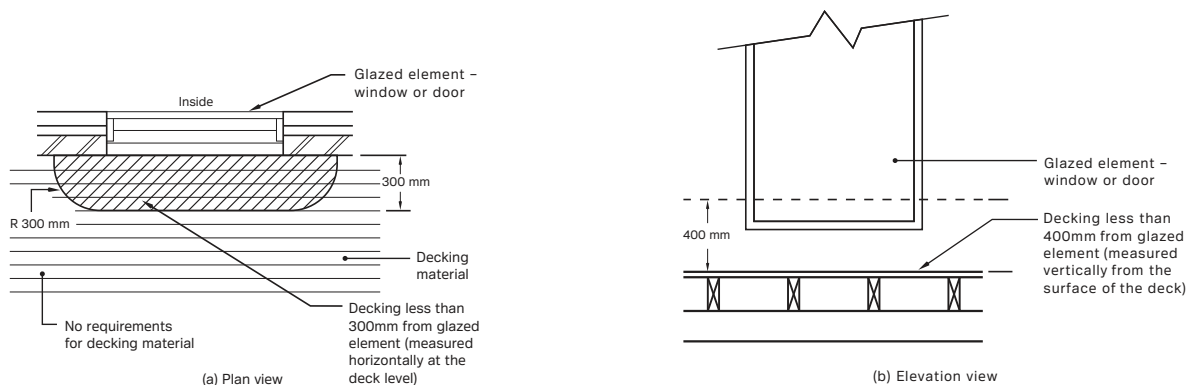
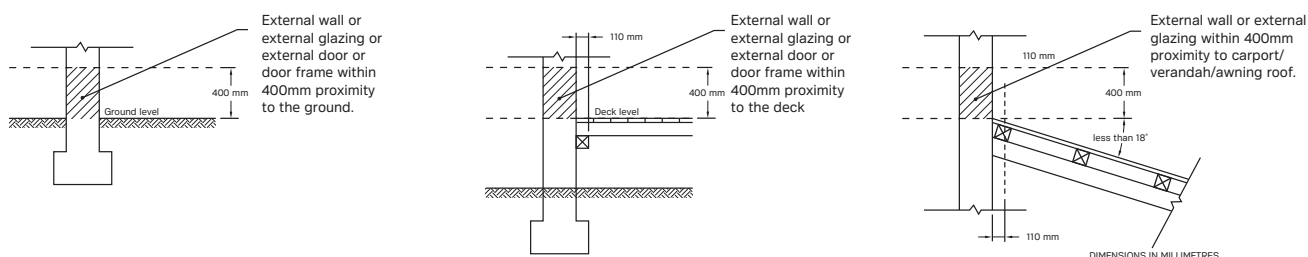


FIGURE D3 EXTERNAL WALLS OR EXTERNAL GLAZING, OR EXTERNAL DOORFRAMES WITHIN LIMITS ABOVE GROUND, DECKS, CARPORT ROOFS (Source: AS 3959:2018)



GUIDE TO MEETING THE BUSHFIRE CODE – Wall Cladding, Eaves, Ceilings and Floor linings

The following Cemintel® products may be used to meet the requirements of each BAL.

BAL-29

FLOORING – ELEVATED FLOORS WITH UNENCLOSED SUBFLOOR (less than 400mm above finish ground level)

- Compressed Sheet with no linings underside
- Constructafloor with no linings underside
- Combustible flooring, particleboard or similar and underside lined with sarking or mineral wool insulation

EXTERNAL WALLS

All external walls must have sarking

- Aspect Cladding
- Balmoral
- Barestone
- Cladding Sheet 6mm
- Edge Cladding
- Endeavour
- ExpressPanel
- Headland
- Mosaic
- Scarborough
- SimpleLine
- Smooth Plank
- Surround
- Territory
- Texture Base Sheet

EAVES

- Eaves Lining
- SoffitLine
- Cladding Sheet

CEILINGS – Alfresco, veranda, carport and awnings protected from weather

- 13mm Fyrchek MR
- 13mm ECO8 Complete
- Cladding Sheet 6mm with H-Mould
- SoffitLine
- Wallboard SE

VERANDAS, DECKS

- Compressed Sheet 15mm, 18mm or 24mm
- Constructafloor

BAL-40

FLOORING – ELEVATED FLOORS WITH UNENCLOSED SUBFLOOR

- Compressed Sheet with no linings underside
- Constructafloor with no linings underside
- Combustible flooring, particleboard or similar and underside lined with 6mm Cladding Sheet or metal sheeting

EXTERNAL WALLS

All external walls must have sarking

- Balmoral
- Barestone
- ExpressPanel
- Scarborough
- Territory

EAVES

- SoffitLine
- Cladding Sheet 6mm

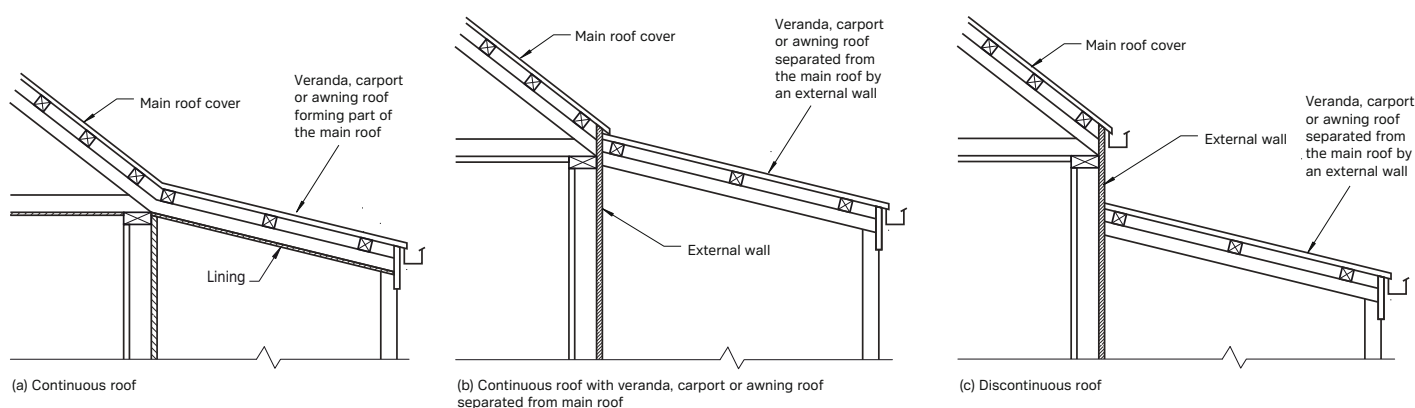
CEILINGS – Alfresco, veranda, carport and awnings protected from weather

- 13mm Fyrchek MR
- 13mm ECO8 Complete
- Cladding Sheet 6mm with H-Mould
- SoffitLine
- Wallboard SE

VERANDAS, DECKS

- Compressed Sheet 15mm, 18mm or 24mm
- Constructafloor

FIGURE D1 VERANDA, CARPORT OR AWNING ROOFS SHOWING CONTINUOUS AND DISCONTINUOUS ROOF TYPES (Source: AS 3959:2018)



GUIDE TO MEETING THE BUSHFIRE CODE – Wall Cladding, Eaves, Ceilings and Floor linings

The following Cemintel® products may be used to meet the requirements of each BAL.

BAL-FZ FLAMEZONE

FLOORING – ELEVATED FLOORS WITH UNENCLOSED SUBFLOOR

- Any flooring and underside lined with 30 minute RISF
- Compressed Sheet and underside lined with 30 minute RISF or 30/30/30 FRL
- Constructafloor and underside lined with 30 minute RISF or 30/30/30 FRL
(RISF = Resistance to Incipient Spread of Fire)

EAVES (REQUIRED TO BE -/30/30 FRL)

- Cladding Sheet 6mm with H-Mould or SoffitLine, fixed over 13mm Fyrchek MR

CEILINGS – Alfresco, veranda, carport and awnings protected from weather (REQUIRED TO BE -/30/30 FRL)

- 13mm Fyrchek MR
- 13mm ECO8 Complete
- Cladding Sheet 6mm with H-Mould or SoffitLine, fixed over 13mm Fyrchek MR

VERANDAS, DECKS

- Compressed Sheet 15mm, 18mm or 24mm
- Constructafloor

EXTERNAL WALLS (REQUIRED TO BE A FRL RATING OF 30/30/30 OR -/30/30 WHEN TESTED FROM THE OUTSIDE)

CSR System 5510 – Weatherboard & Plank

- Direct fix over sarking
- 16mm Fyrchek MR
- 10mm Gyprock Plus plasterboard

CSR System 5605 – Cemintel Cladding

- Direct fix over sarking
- 13mm Fyrchek MR
- 10mm Gyprock Plus plasterboard

CSR System 5706 – Cemintel Cladding

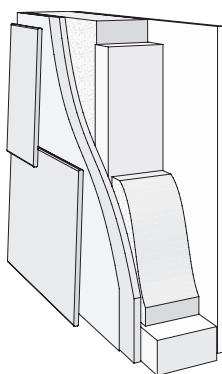
- Cavity fix - 35mm timber battens over sarking
- 2x13mm Fyrchek MR
- 10mm Gyprock Plus plasterboard
- Continuous internal lining not required

CSR System 5711 – Cemintel Cladding

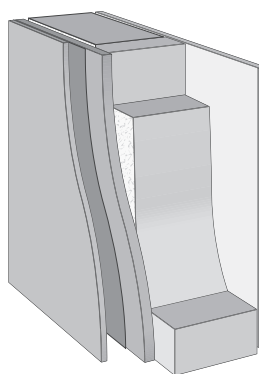
- Cavity fix - 35mm timber battens over sarking
- 16mm Fyrchek MR
- 10mm Gyprock Plus plasterboard

Note:

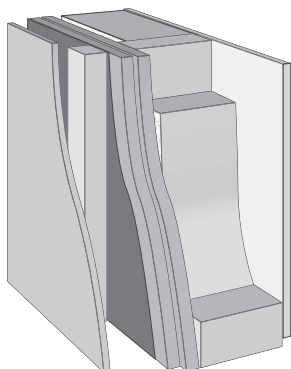
Sarking must have a flammability index ≤ 5 (AS 1530.2:1993)
For some CSR systems supplementary fire protection is required where internal linings are interrupted (char blocking or mineral wool).



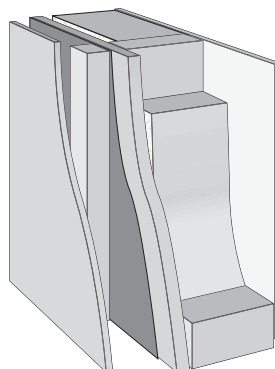
CSR System 5510
Cemintel Weatherboard and Plank Direct Fix over sarking and 16mm Fyrchek MR



CSR System 5605
Cemintel Cladding Direct Fix over sarking and 13mm Fyrchek MR



CSR System 5706
Cemintel Cladding Cavity Fix with sarking over 2x13mm Fyrchek MR



CSR System 5711
Cemintel Cladding Cavity Fix with sarking over 16mm Fyrchek MR

GUIDE TO MEETING THE BUSHFIRE CODE – Wall Cladding, Eaves, Ceilings and Floor linings

The following Cemintel® products may be used to meet the requirements of each BAL.

NOTES

AS 3959:2018 BAL Requirements for Construction in Bushfire Areas

Cemintel external wall systems can achieve a FRL rating of 30/30/30 or -/30/30 when tested from the outside (or higher) with the addition of a suitable Gyprock Fyrchek MR plasterboard lining to the outside of the framing, (refer to Gyprock The Red Book 01 – Design Guide) and installed according to regulations and AS 3959 Section 9 Construction Requirements for Bushfire Attack Level FZ (BAL-FZ) for an external wall. Note that a 10m setback applies from the edge of the classified vegetation to the building.

Note: This information is not extensive and reference should be made to the AS3959 Standard for complete details and requirements. Refer also to State, Territory and local building regulations. Cemintel recommends independent qualified expert advice confirming the suitability of products and information provided in this table for the application proposed and does not accept liability for any loss and/or damage resulting from the use of the information.

		BAL-12.5	BAL-19	BAL-29	BAL-40	BAL-FZ ⁽¹⁾
Floors	Elevated Floors – Unenclosed sub floor space (For BAL-12.5, BAL-19, BAL-29 <400mm above finished ground level)	5.3.2.2(a)(ii)(A) or (B) or (C)	6.3.2.2(a)(ii)(A) or (B) or (C)	7.3.2.2(a)(ii)(A) or (B) or (C)	8.3.2.2(a) or (b)	9.3.2.2(a) or (b)
		(A) Non-combustible	(A) Non-combustible	(A) Non-combustible	(a) Non-combustible	(a) min. FRL of 30/30/30 & Non-combustible surface material
		or (B) Bushfire-resisting timber or (C) Timber, particleboard or plywood with underside lined with sarking or mineral wool	or (B) Bushfire-resisting timber or (C) Timber, particleboard or plywood with underside lined with sarking or mineral wool	or (B) Bushfire-resisting timber or (C) Timber, particleboard or plywood with underside lined with sarking or mineral wool	(b) Underside of combustible floor system element lined with a non-combustible material (fibre cement or metal sheeting)	(b) Underside of combustible floor system elements protected with 30min RISF system
Walls	Minimum fibre-cement thickness	5.4.1(c)(ii)	6.4.1(c)(ii)	7.4.1(c)(i)	8.4.1(b)(i)	9.4.1(c)
		6	6	6	9	FRL of 30/30/30 or -/30/30 when tested from outside
	Sarking			Yes	Yes	
Roof – Veranda, carport and awnings	Roof forming part of the main roof space Appendix D – Figures D1(a) Underside requirement	5.6.4(a)	6.6.4(a)	7.6.4(a)	8.6.4(a)	9.6.4(a)
		Meet all requirements for the main roof				
	Roof separated from the main roof space by an external wall Appendix D – Figures D1(b) & (c) Underside requirement	5.6.4(b)	6.6.4(b)	7.6.4(b)(i) or (iii)*	8.6.4(b)(i) or (ii)*	9.6.4(b)(i) or (ii)*
Eaves linings, fascias and gables	Underside requirement	Nil	Nil	(i) non- combustible material or (iii) 6mm FC	(i) non- combustible material or (ii) 6mm FC	(i) non-combustible material or (ii) 6mm FC
		5.6.6(d)	6.6.6(d)	7.6.6(c)(i)* and (f)	8.6.6(c)(i)* and (f)	9.6.6(c)(i)* and (f)
	Acceptable components	plastic joiner strips or timber storm moulds	plastic joiner strips or timber storm moulds	plastic joiner strips or timber storm moulds	plastic joiner strips or timber storm moulds	plastic joiner strips or timber storm moulds
Verandas, Decks, Steps, Ramps and Landings	Enclosed subfloor	5.7.2.4(a)	6.7.2.4(a)	7.7.2.4(a)	8.7.2.4(a)	9.7.2.4(a) or (b)
		Non-combustible material	Non-combustible material	Non-combustible material	Non-combustible material	(a) Non-combustible material (b) Fibre cement sheet
	Un-Enclosed subfloor	5.7.3.3(a)	6.7.3.3(a)	7.7.3.3(a)	8.7.3.3(a)	9.7.3.3(a) or (b)
		Non-combustible material	Non-combustible material	Non-combustible material	Non-combustible material	(a) Non-combustible material (b) Fibre cement sheet

⁽¹⁾ BAL-FZ walls must have a minimum setback distance of 10m from classified vegetation, otherwise building elements must conform with AS 1530.8.2:2018.

* – timber rafters lined on the underside with fibre-cement (FC) sheeting of a minimum thickness.



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