

CONSTRUCTION GUIDE FOR BUSHFIRE AREAS

Houses, garages and sheds in bushfire areas are required to be protected from ignition from a bushfire while its front passes. The Building Code of Australia references AS 3959 as an acceptable construction manual for these areas, and the systems presented here are designed to meet the Standard for each of the defined attack levels. State variations to the BCA may also apply.

The Bushfire Attack Levels (BALs) refer 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

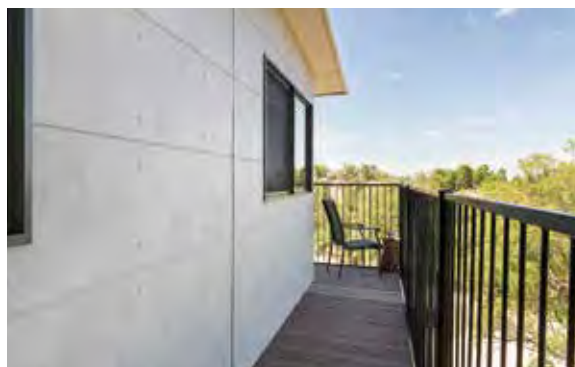
Increasing levels of ember attack and ignition of debris with an increasing heat flux of up to **19kW/m²**

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 and systems may be used to meet the requirements of each BAL.

BAL-12.5

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

EAVES

- Eaves Lining
- SoffitLine
- Cladding Sheet

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

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

VERANDAS, DECKS – See Fig D2

- | | |
|--------------------|-------------------|
| • Compressed Sheet | • Constructafloor |
| 15mm or 18mm | |

BAL-19

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

EAVES

- Eaves Lining
- SoffitLine
- Cladding Sheet

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

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

VERANDAS, DECKS – See Fig D2

- | | |
|--------------------|-------------------|
| • Compressed Sheet | • Constructafloor |
| 15mm or 18mm | |

Source: AS3959 – 2018

FIGURE D2 DECKING WITHIN HORIZONTAL AND VERTICAL LIMITS OF GLAZED ELEMENTS

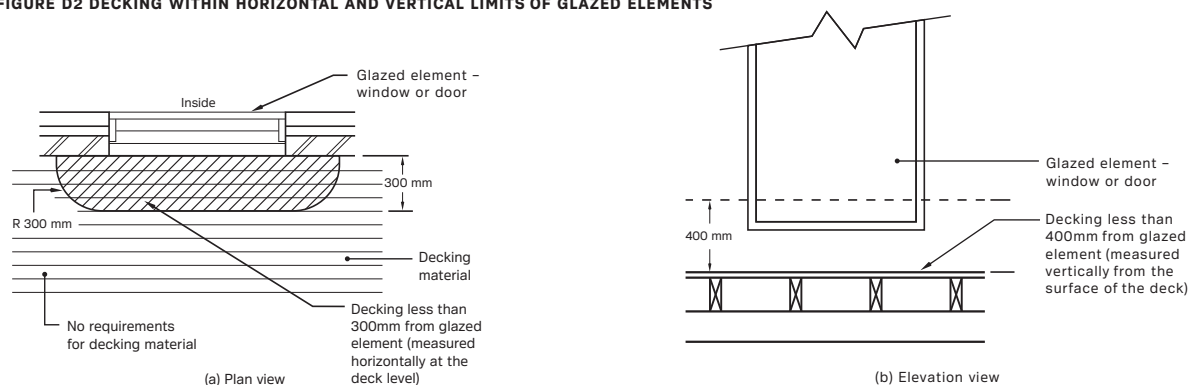
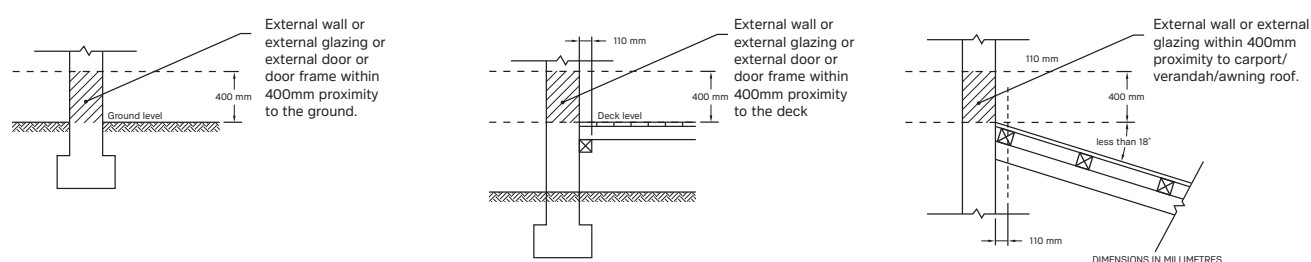


FIGURE D3 EXTERNAL WALLS OR EXTERNAL GLAZING, OR EXTERNAL DOORFRAMES WITHIN LIMITS ABOVE GROUND, DECKS, CARPORT ROOFS



BAL-29

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

EAVES

- Eaves Lining
- SoffitLine
- Cladding Sheet

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

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

VERANDAS, DECKS

- Compressed Sheet 15mm or 18mm
- Constructafloor

BAL-40

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

- Barestone
- ExpressPanel
- Scarborough
- Territory

EAVES

- SoffitLine
- Cladding Sheet 6mm

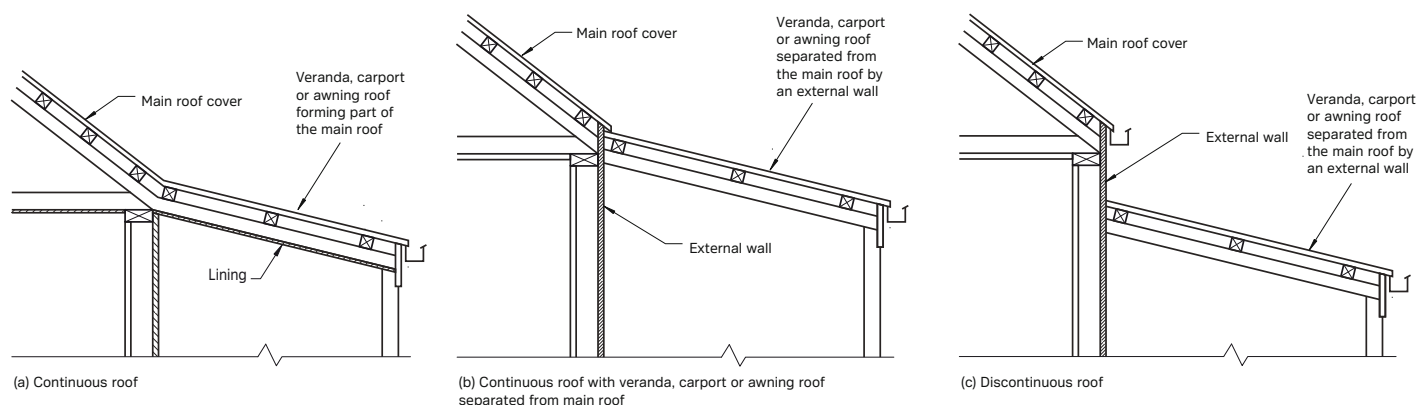
CEILING – Alfresco, veranda, carport and awnings protected from weather

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

VERANDAS, DECKS

- Compressed Sheet 15mm or 18mm
- Constructafloor

FIGURE D1 VERANDA, CARPORT OR AWNING ROOFS SHOWING CONTINUOUS AND DISCONTINUOUS ROOF TYPES



BAL-FZ FLAMEZONE

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 or 18mm
- Constructafloor

Note:

Sarking must have a flammability index ≤ 5 (AS1530.2)

CSR System 5510, 5605, 5711 Supplementary fire protection required where internal linings are interrupted (char blocking or mineral wool)

EXTERNAL WALLS (REQUIRED TO BE -/30/30 FRL)

CSR System 5510 – Weatherboard & Plank

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

CSR System 5605 – Texture Base Sheet 7.5mm

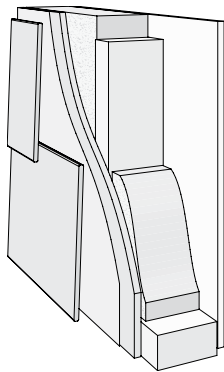
- Direct fix over sarking
- 13mm Fyrchek MR
- 10mm Gyprock plasterboard

CSR System 5706 – Cemintel Cladding

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

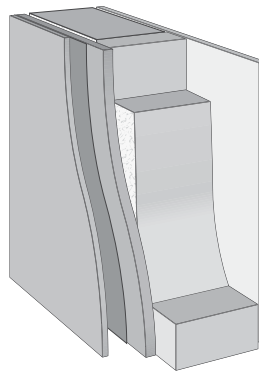
CSR System 5711 – Cemintel Cladding

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



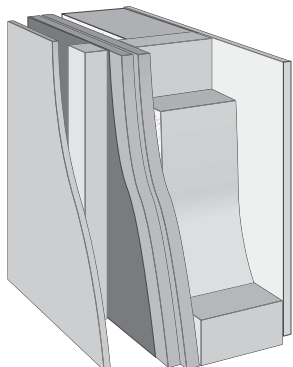
CSR System 5510

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



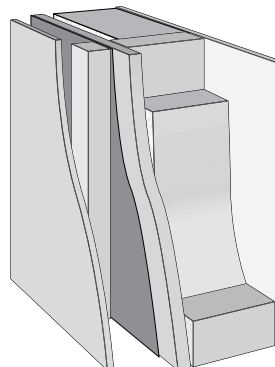
CSR System 5605

Cemintel Texture Base Sheet 7.5mm 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

NOTES

AS3959-2018 - Construction Requirements for BAL

Note: This information is not extensive and reference should be made to the 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 BAL12.5,19,29 <400mm above ground)	5.3.2.2(a)(ii)(A)	6.3.2.2(a)(ii)(A)	7.3.2.2(a)(ii)(A)	8.3.2.2(a) or (b)	9.3.2.2(a) or (b)
		Non-combustible	Non-combustible	Non-combustible	(a) Non-combustible	(a) 30/30/30 & Non-combustible surface
		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 material lined with fibre cement or metal sheeting	(b) Underside of combustible material lined with 30min RISF system
Walls	Thickness fibre cement	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	30/30/30 or -/30/30
	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 requirements of main roof				
	Roof separated from the main roof space 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	5.6.6	6.6.6	7.6.6(c)(i)	8.6.6(c)(i)	9.6.6(c)(i)
		Nil	Nil	4.5mm FC	6mm FC	-/30/30
	Acceptable components	plastic joiner strips or timber moulds	plastic joiner strips or timber moulds	plastic joiner strips or timber moulds	plastic joiner strips or timber moulds	plastic joiner strips or timber moulds
Verandas, Decks, Steps & 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)(b)
		Non-combustible zones	Non-combustible zones	Non-combustible	Non-combustible	(a) Non-combustible (b) Fibre Cement
	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)(b)
		Non-combustible zones	Non-combustible zones	Non-combustible	Non-combustible	(a) Non-combustible (b) Fibre Cement

⁽¹⁾ BAL-FZ walls must have a minimum setback distance of 10m from classified vegetation, otherwise building elements must conform with AS1530.8.2.

* – timber rafters lined on the underside with fibre-cement sheeting a minimum thickness



Our Offices

Brisbane

768 Boundary Road
Coopers Plains QLD 4108

Sydney

376 Victoria Street
Wetherill Park NSW 2164

Melbourne

277 Whitehall Street
Yarraville VIC 3013

Adelaide

Lot 100 Sharp Court
Mawson Lakes SA 5095

Perth

19 Sheffield Road
Welshpool WA 6106

Hobart

11 Farley Street
Derwent Park TAS 7009

Darwin

Cnr Stuart Highway &
Angliss Street
Berrimah NT 0828

cemintel.com.au



cemintel.com.au
1300 236 468

For Design and Technical Support:
DesignLink – 1800 621 117

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