

# Technical supplement

## Construction of buildings in bushfire prone areas in accordance to AS 3959 2009

### Overview

AS 3959-2009 specifies requirements for the construction of buildings in bushfire prone areas in order to improve their resistance to bushfire attack from:

- Burning embers
- Radiant heat
- Flame contact
- Combinations of the three attack forms

There are six bushfire attack levels, AS3959-2009 contains construction solutions for all Bushfire Attack Level (BAL). Construction requirements increase as BAL levels increase.

#### BAL levels:

BAL - LOW, BAL - 12.5, BAL - 19, BAL - 29, BAL - 40, BAL - FZ

#### NOTE

The number after the BAL is based on heat flux exposure thresholds in kW/m<sup>2</sup>.

Where sarking is required, it shall have a flammability index of not more than 5 when tested to AS1530.2

The following table outlines Prima external cladding product suitability and additional requirements to adhere to BAL construction requirements.

### BAL Table

External cladding	BAL Rating			
	12.5	19	29	40
PRIMAflex™ 6mm	✓	✓	✓	
PRIMAflex™ 9mm	✓	✓	✓	✓
PRIMAplank™	✓	✓	✓	
PRIMAbase™	✓	✓	✓	
PRIMAalpha <sup>®</sup> WeatherClad	✓	✓	✓	✓

The following table outlines solutions to external walls using PRIMA™ products. However, the following table must be read in conjunction with the current code.

## BUILDING IN BUSHFIRE-PRONE AREAS IN ACCORDANCE WITH AS 3959: 2009 – RELATED TO FIBRE CEMENT IN EXTERNAL WALLS ONLY

### CONSTRUCTION FOR BUSHFIRE ATTACK LEVEL BAL's 12.5 AND 19

Building Element	Australian Standard 3959: 2009 Requirement	PRIMA™ Recommendations
<b>EXTERNAL WALLS</b>	<p><b>EXTERNAL WALLS Walls</b></p> <p>That part of an external wall surface that is less than 400 mm from the ground or less than 400 mm above decks, carport roofs, awnings and similar elements or ttings having an angle less than 18 degrees to the horizontal and extending more than 110 mm in width from the wall (see Figure D3, Appendix D) shall be of:</p> <p>(a) non-combustible material; or            (b) fibre-cement external cladding, a minimum of 6 mm in thickness; or            (c) bush re-resisting timber (see Appendix F); or (d) a timber species as speci ed in Paragraph E1 and listed in Table E1, Appendix E; or            (e) a combination of any of Items (a), (b), (c) or (d) above.</p> <p><b>For BAL 12.5</b></p> <p>There are no requirements for external wall surfaces 400 mm or more from the ground or for external wall surfaces 400 mm or more above decks, carport roofs, awnings and similar elements or ttings having an angle less than 18 degrees to the horizontal and extending more than 110 mm in width from the wall.</p> <p><b>For BAL 19</b></p> <p>This Standard does not provide construction requirements for external wall surfaces 400 mm or more from the ground or for external wall surfaces 400 mm or more above decks, carport roofs, awnings and similar elements or ttings having an angle less than 18 degrees to the horizontal and extending more than 110 mm in width from the wall.</p> <p><b>Joints</b></p> <p>All joints in the external surface material of walls shall be covered, sealed, overlapped, backed or butt-jointed to prevent gaps greater than 3 mm.</p> <p>Alternatively, sarking-type material may be applied over the outer face of the frame prior to xing any external cladding.</p>	<p>All Prima external cladding products 6mm or greater in thickness, are suitable for external walls.</p> <p>Please refer to table 1 for product suitability.</p> <p>They are deemed as a non combustible material in accordance with C1.12 and part 3.7.1.2 of the Building Code of Australia.</p> <p>They are also deemed a bre cement external cladding material as they are manufactured in accordance with AS/ NZS 2908.2.</p>

	<p><b>Vents and Weepholes</b></p> <p>Vents and weepholes in external walls shall be screened with a mesh with a maximum aperture of 2 mm, made of corrosion-resistant steel, bronze or aluminium, except where the vents and weepholes are less than 3 mm, or are located in an external wall of a subfloor space.</p>	
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## CONSTRUCTION FOR BUSHFIRE ATTACK LEVEL BAL 29

Building Element	Australian Standard 3959: 2009 Requirement	PRIMA <sup>®</sup> Recommendations
<b>EXTERNAL WALLS</b>	<p><b>EXTERNAL WALLS Walls</b></p> <p>Walls shall be one of the following:</p> <p>(a) Made of non-combustible material (e.g., full masonry, brick veneer, mud brick, concrete, aerated concrete), or</p> <p>(b) Made of timber-framed or steel-framed walls that are sarked on the outside of the frame and clad with:</p> <p style="margin-left: 20px;">(i) fibre-cement external cladding, a minimum of 6 mm in thickness; or</p> <p style="margin-left: 20px;">(ii) steel sheet; or</p> <p style="margin-left: 20px;">(iii) bush re-resisting timber; or</p> <p style="margin-left: 20px;">(iv) a combination of any of Items (i), (ii) or (iii) above; or</p> <p>(c) A combination of Items (a) and (b) above.</p> <p><b>Joints</b></p> <p>All joints in the external surface material of walls shall be covered, sealed, overlapped, backed or butt-jointed to prevent gaps greater than 3 mm.</p> <p>Alternatively, sarking-type material can be applied over the frame prior to fixing any external cladding.</p> <p><b>Vents and weepholes</b></p> <p>Vents and weepholes in external walls shall be screened with a mesh with a maximum aperture of 2 mm, made of corrosion-resistant steel, bronze or aluminium, except where they are less than 3 mm.</p>	<p>All Prima external cladding products 6mm or greater in thickness, are suitable for external walls when installed with Compatible weather barrier.</p> <p>Please refer to table 1 for product suitability.</p> <p>They are deemed as a non combustible material in accordance with C1.12 and part 3.7.1.2 of the Building Code of Australia.</p> <p>They are also deemed a bre cement external cladding material as they are manufactured in accordance with AS/NZS 2908.2.</p>

## CONSTRUCTION FOR BUSHFIRE ATTACK LEVEL BAL 40

Building Element	Australian Standard 3959: 2009 Requirement	PRIMA <sup>®</sup> Recommendations
<b>EXTERNAL WALLS</b>	<p><b>EXTERNAL WALLS Walls</b></p> <p>Walls shall be one of the following:</p> <p>(a) Walls made from non-combustible material (e.g., full masonry, brick veneer, mud brick, concrete, aerated concrete), or</p> <p>(b) Timber-framed or steel-framed walls that are sarked on the outside of the frame and clad with:</p> <p style="margin-left: 20px;">(i) bre-cement external cladding, a minimum of 9 mm in thickness; or</p> <p style="margin-left: 20px;">(ii) steel sheeting; or</p> <p style="margin-left: 20px;">(iii) a combination of Items (i) and (ii) above; or</p> <p>(c) A system complying with AS 1530.8.1. or</p> <p>(d) A combination of any of Items (a), (b) or (c) above.</p> <p><b>Joints</b></p> <p>All joints in the external surface material of walls shall be covered, sealed, overlapped, backed or butt-jointed to prevent gaps greater than 3 mm.</p> <p>Alternatively, sarking-type material may be applied over the frame prior to fixing any external cladding.</p> <p><b>Vents and weepholes</b></p> <p>Vents and weepholes in external walls shall be screened with a mesh with a maximum aperture of 2 mm, made of corrosion-resistant steel or bronze except where they are less than 3 mm.</p> <p>For Prima external cladding 9mm and above no additional requirements are needed. Refer to the respective product install guide for installation.</p>	<p>For Prima external cladding 9mm and above no additional requirements are needed. Refer to the respective product install guide for installation.</p>

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