Resilient & Safe

Intrinsic use of design and materials to mitigate risk in bushfire prone areas

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National Product and Segment Manger

BUSHFIRE BUILDING CONFERENCE EXPO'15 BLUE MOUNTAINS

JamesHardie

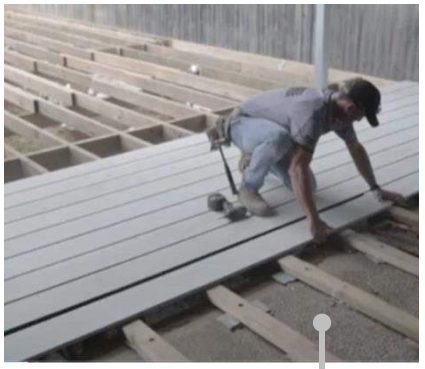
AGENDA

James Hardie - Australian context

Our approach to developing solutions

The HardieDeck™ system case study

James Hardie operates in the Australian building and construction market, with focus on buildings where people live and work



Renovation

Mixed Commercial

Detached

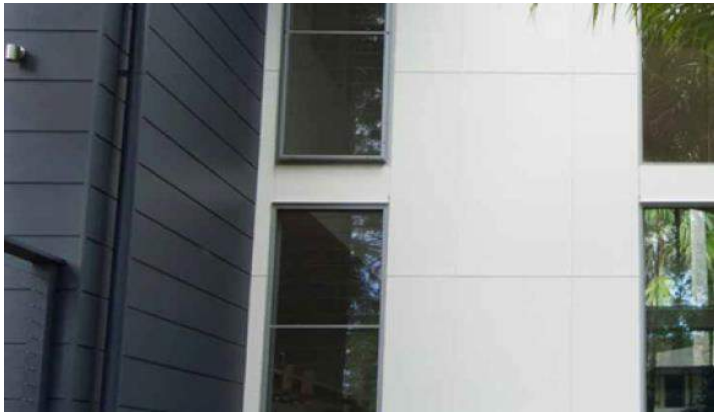
Medium density

Attached

Our products reflect consideration of what they need to do

James Hardie products and solutions are developed with the three questions in mind

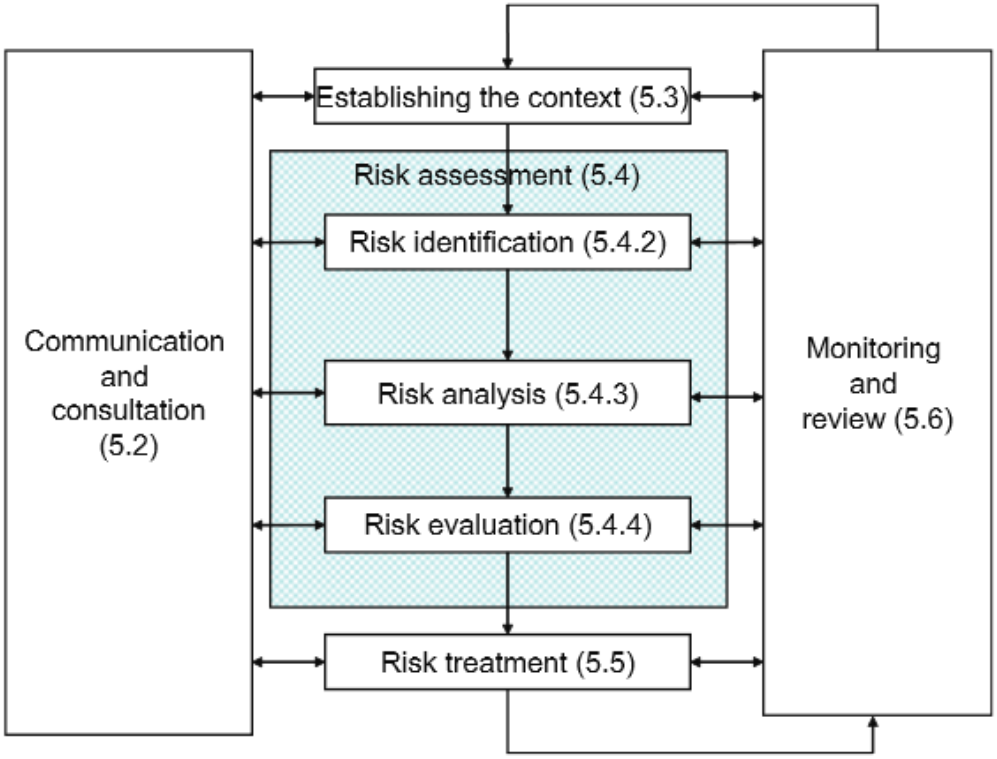
- What is the form and function?
- What is normal exposure?
- What is abnormal exposure?



Resilience is core to the abnormal exposure

- Fire, water, hail, wind…

Our approach to developing solutions for all exposures are based on minimising and mitigating risk

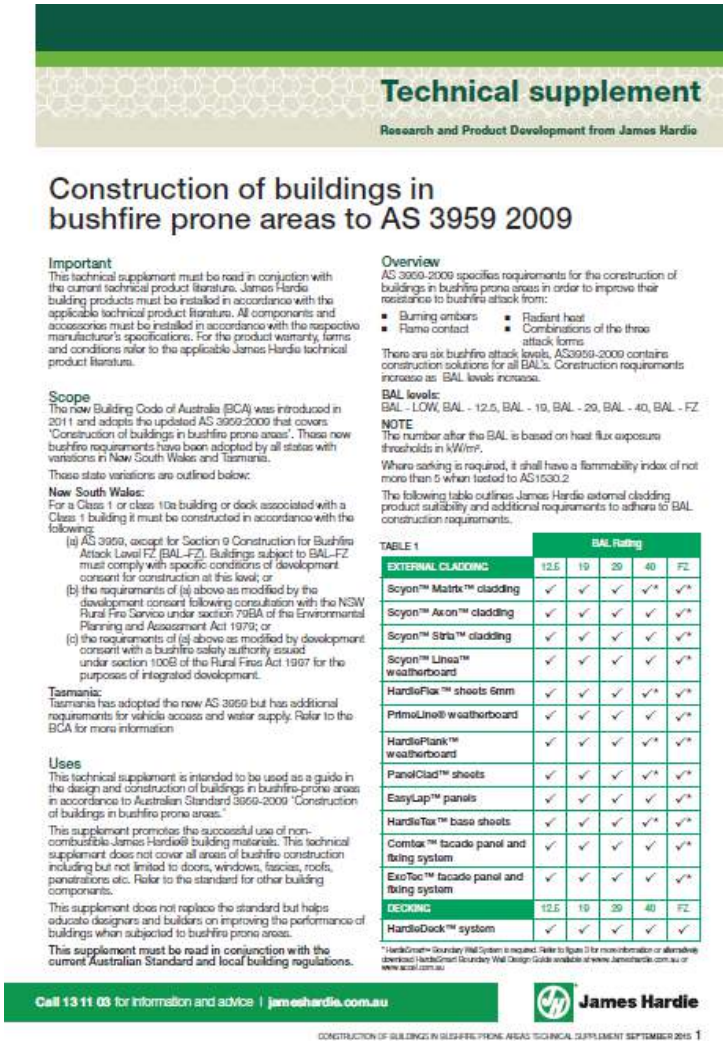


AS31000:2009 model for risk provides a clear framework for all risk, including bushfire

- Reduce likelihood
- Reduce consequence
- Reduce opportunity cost

In developing bushfire solutions, we look to respond to the regulatory need and the human requirements

The portfolio of flooring, cladding, lining, eaves and fencing products has been developed to ensure clear solutions for robust and resilient detailing for bushfire conditions.



Technical supplement

Research and Product Development from James Hardie

Construction of buildings in bushfire prone areas to AS 3959 2009

Important

This technical supplement must be read in conjuction with the current technical product literature. James Hardie building products must be installed in accordance with the applicable technical product literature. All components and accessories must be installed in accordance with the respective manufacturer's specifications. For the product warranty, terms and conditions refer to the applicable James Hardie technical product literature.

Scope

The new Building Code of Australia (BCA) was introduced in 2011 and adopts the updated AS 3959-2009 that covers 'Construction of buildings in bushfire prone areas'. These new bushfire requirements have been adopted by all states with variations in New South Wales and Tasmania.

These state variations are outlined below:

New South Wales:

For a Class 1 or class 10a building or deck associated with a Class 1 building it must be constructed in accordance with the following:

(a) AS 3959, except for Section 9 Construction for Bushfire Attack Level FZ (BAL–FZ). Buildings subject to BAL–FZ must comply with specific conditions of development consent for construction at this level; or

(b) the requirements of (a) above as modified by the development consent following consultation with the NSW Rural Fire Service under section 79BA of the Environmental Planning and Assessment Act 1979; or

(c) the requirements of (a) above as modified by development consent with a bushfire safety authority issued under section 100B of the Rural Fires Act 1997 for the purposes of integrated development.

Tasmania:

Tasmania has adopted the new AS 3959 but has additional requirements for vehicle access and water supply. Refer to the BCA for more information

Uses

This technical supplement is intended to be used as a guide in the design and construction of buildings in bushfire-prone areas in accordance to Australian Standard 3959-2009 "Construction of buildings in bushfire prone areas."

This supplement promotes the successful use of non-combustible James Hardie® building materials. This technical supplement does not cover all areas of bushfire construction including but not limited to doors, windows, fascias, roofs, penetrations etc. Refer to the standard for other building components.

This supplement does not replace the standard but helps educate designers and builders on improving the performance of buildings when subjected to bushfire prone areas.

This supplement must be read in conjunction with the current Australian Standard and local building regulations.

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

There are six bushfire attack levels, AS3959-2009 contains construction solutions for all BAL's. 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/m².

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

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

TABLE 1

EXTERNAL CLADDING	BAL Rating 12.5	19	29	40	FZ
Scyon™ Matrix™ cladding	✓	✓	✓	✓*	✓*
Scyon™ Axon™ cladding	✓	✓	✓	✓	✓*
Scyon™ Stria™ cladding	✓	✓	✓	✓	✓*
Scyon™ Linea™ weatherboard	✓	✓	✓	✓	✓*
HardieFlex™ sheets 6mm	✓	✓	✓	✓*	✓*
PrimaLine® weatherboard	✓	✓	✓	✓	✓*
HardiePlank™ weatherboard	✓	✓	✓	✓*	✓*
PanelClad™ sheets	✓	✓	✓	✓*	✓*
EasyLap™ panels	✓	✓	✓	✓	✓*
HardieTex™ base sheets	✓	✓	✓	✓*	✓*
Comtex™ facade panel and fixing system	✓	✓	✓	✓	✓*
ExoTec™ facade panel and fixing system	✓	✓	✓	✓	✓*
DECKING	12.5	19	29	40	FZ
HardieDeck™ system	✓	✓	✓	✓	✓

* HardiGrate™ Boundary Wall System is required. Refer to figure 3 for more information or alternatively download HardiGrate Boundary Wall Design Guide available at www.jameshardie.com.au or www.accel.com.au

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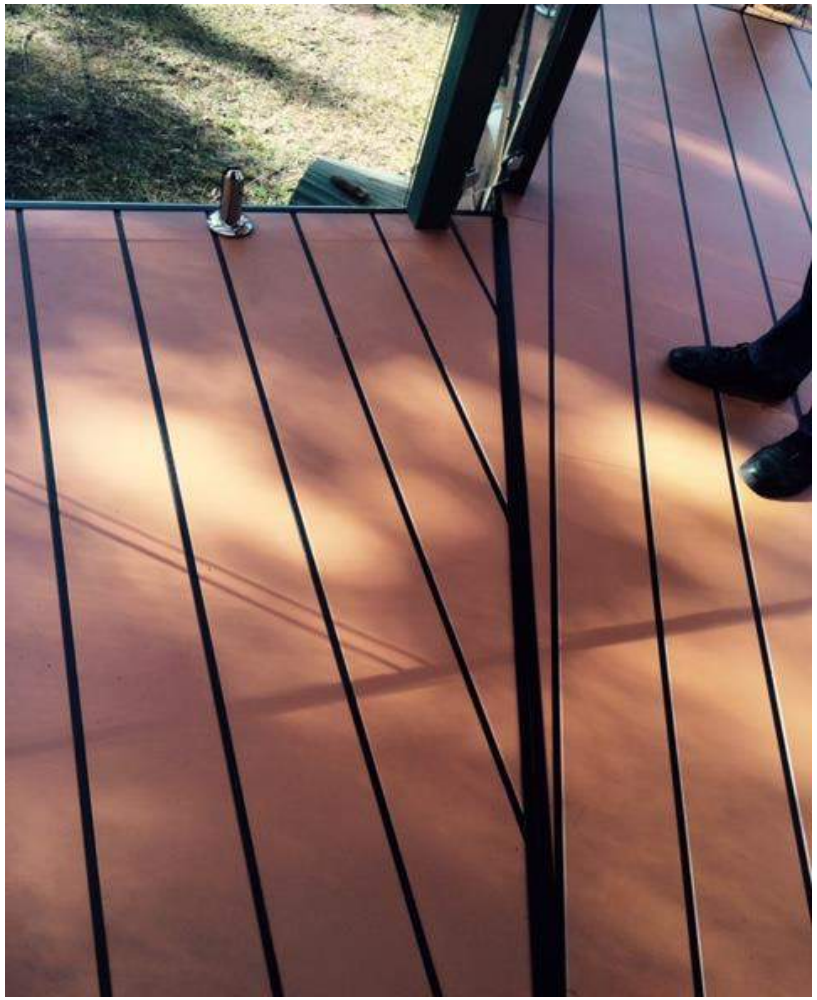
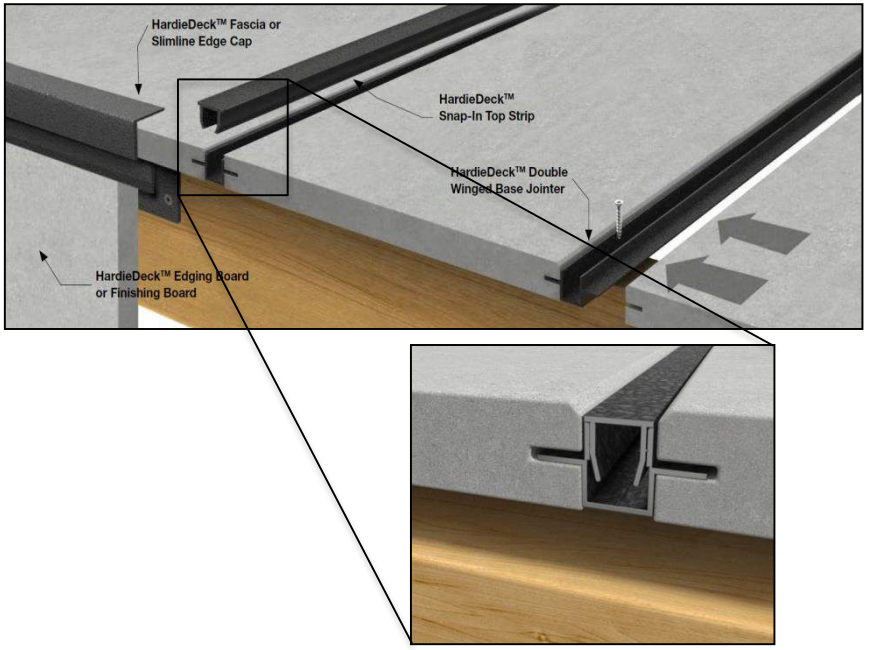
James Hardie

CONSTRUCTION OF BUILDINGS IN BUSHFIRE PRONE AREAS TECHNICAL SUPPLEMENT SEPTEMBER 2015 1

Our most recent addition is the HardieDeck™ system, a unique aesthetic solution that meets all BAL



The contiguous decking, made of fire resistant products, has been designed to meet fire and ember attack, and avoid bushfire fuel load.




HardieDeck™
THE NEW BREED IN DECKING

The detailing is clear and provides options all the way to BAL-FZ

The details meet the need to use fire resistant products, and provide full optionality of sub-frame solutions.

- Steel, brick or concrete
- Ant and termite barriers
- Fibre cement deck and fascia
- Aluminium components

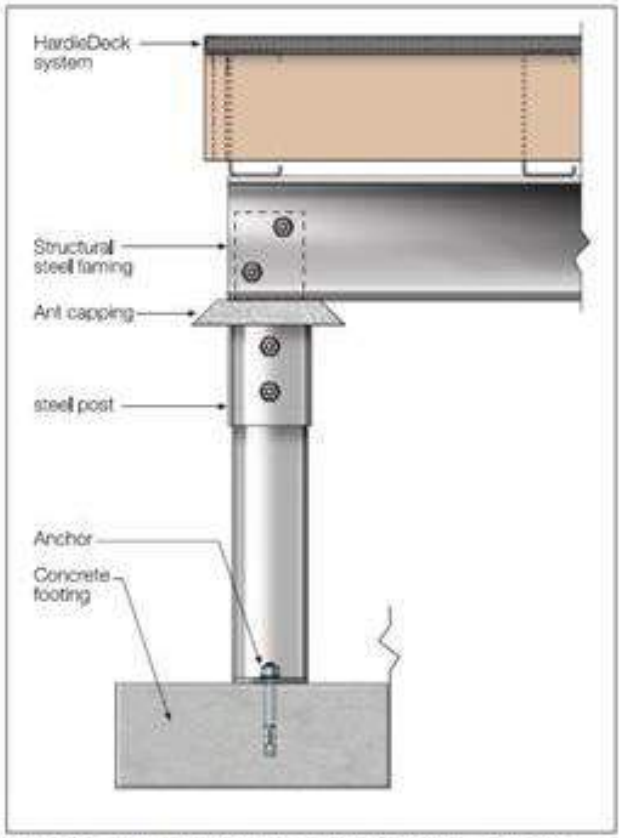


FIGURE 6: STEEL PIER AND STEEL SUB FRAMING - OPTION 1

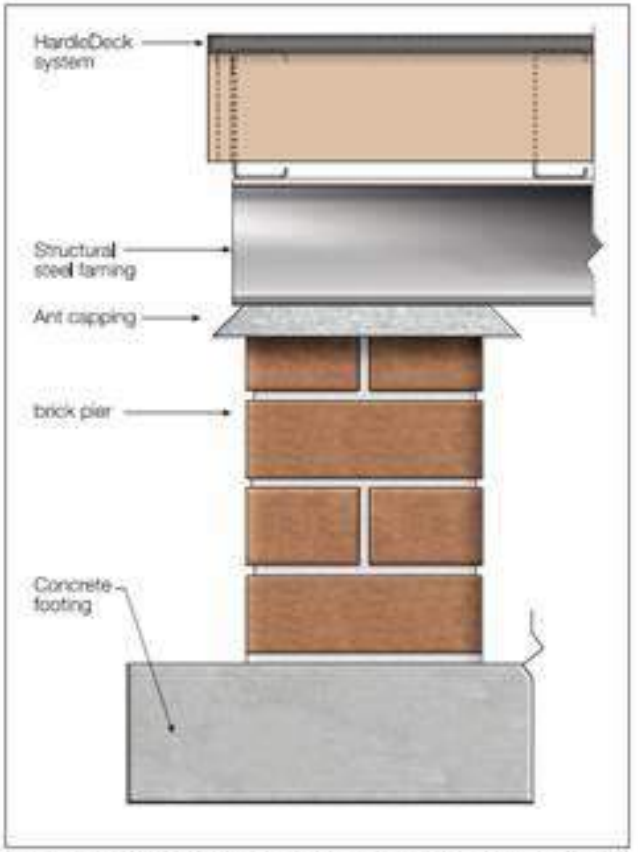


FIGURE 7: MASONRY PIER AND STEEL SUB FRAMING - OPTION 2

We have worked with CSIRO to ensure certification of these options

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Certificate of Assessment

No. 2056

We have examined the information submitted to us and appraised the likely performance of "James Hardie Strip Decking" acrylic paint finished high density fibre cement board decking system when used in Bushfire Attack Level (BAL) FZ as defined by Australian Standard 3959, Construction of buildings in bushfire-prone areas, 2009, on behalf of

James Hardie Research Pty Ltd
Gate 1, 10 Colquhoun Street
Rosehill NSW

CSIRO Materials Science and Engineering's Report FCO-3056 describes an assessment conducted to evaluate "James Hardie Strip Decking" acrylic paint finished high density fibre cement board decking system in terms of the non-combustible materials requirements specified by Clause C1.12 of the Building Code of Australia.

PRODUCT NAME & DESCRIPTION: "James Hardie Strip Decking" was described as high density fibre cement strips jointed with an aluminium extrusion system and coated with two coats of acrylic paint. The aluminium extrusion system is powder coated.

Figure 1: schematic drawing of decking system

Figure 2: schematic with metal joist

CONCLUSION: Based on the AS/NZS 1530.3 test results in CSIRO Certificate of Test FNE11103 and the requirements specified in Clause C1.12 of the Building Code of Australia, it is the opinion of this Division that "James Hardie Strip Decking" satisfies the intent for non-combustible materials presented in Clause C1.12 and may be used where non-combustible materials are required, including decking, stair treads and the trafficable surfaces of ramps and landings in BAL-FZ zones.

Assessment Engineer: Russell Collins Date of Assessment: 16 June 2014

Issued on the 16th day of June 2014 without alterations or additions.
This Certificate will expire on 30 April 2019.

Brett Roddy
Manager, Fire Testing and Assessments

The certification process was undertaken at an early stage to ensure confidence, and drive the ability to deliver a solution to early adopters.

CONCLUSION: Based on the AS/NZS 1530.3 test results in CSIRO Certificate of Test FNE11103 and the requirements specified in Clause C1.12 of the Building Code of Australia, it is the opinion of this Division that "James Hardie Strip Decking" satisfies the intent for non-combustible materials presented in Clause C1.12 and may be used where non-combustible materials are required, including decking, stair treads and the trafficable surfaces of ramps and landings in BAL-FZ zones.

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