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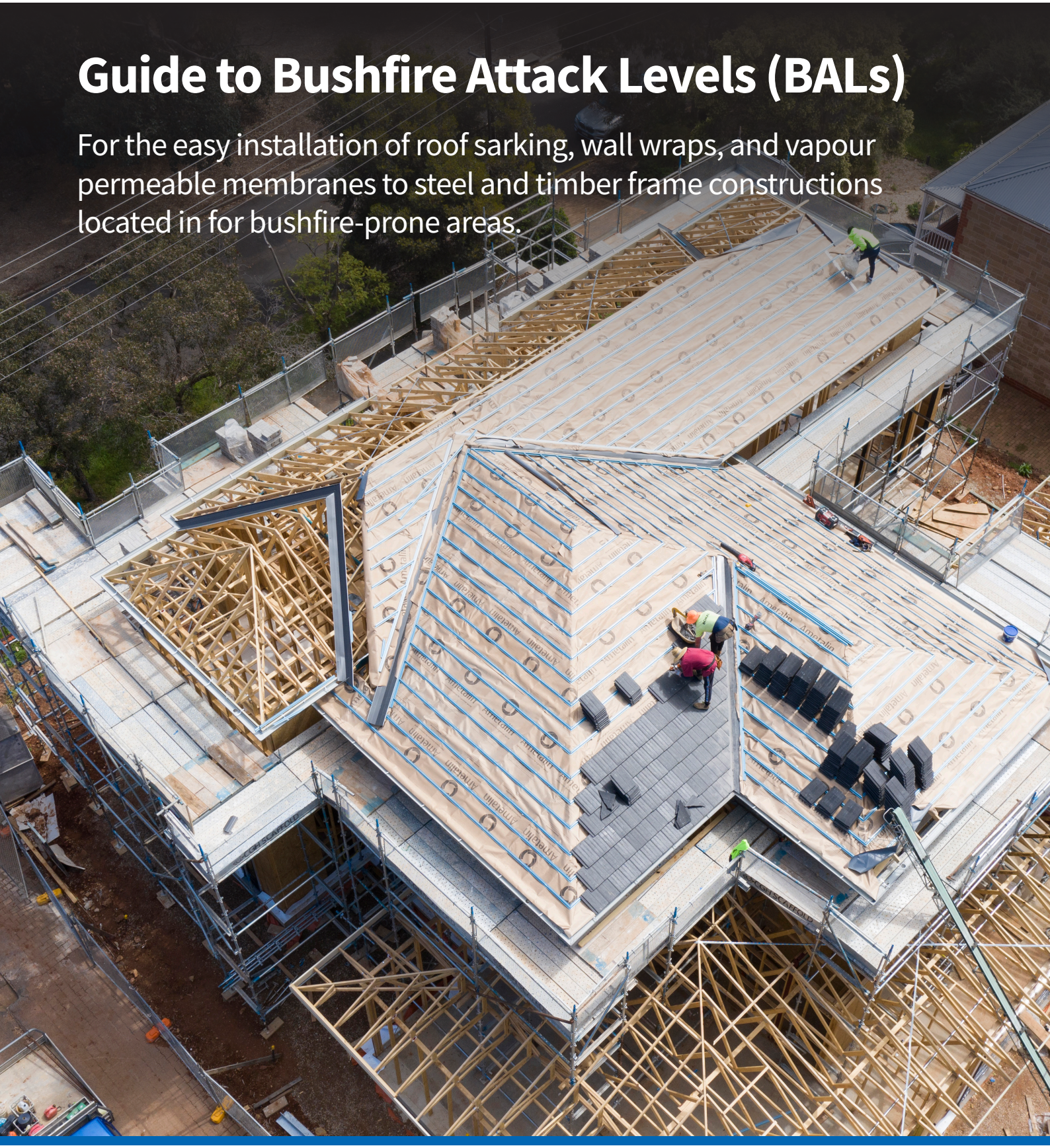
Performance insulation for a greener world

Guide to Bushfire Attack Levels (BALs)

For the easy installation of roof sarking, wall wraps, and vapour permeable membranes to steel and timber frame constructions located in for bushfire-prone areas.



Design and build to suit your climate zone

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Guide for Bushfire Attack Levels (BALs)

The prevalence of devastating bushfires throughout Australia keeps the significance of fire safety of our home at the forefront of Australian minds. The National Construction Code references *AS 3959-2009 Construction of buildings in bushfire-prone areas* for guidance to improve standards of building constructions resistance to wind attack in bushfires from embers, radiant heat and flame contact, and varying levels of these three attacks.

Bushfire Attack Levels (BALs) are divided into two main groups:

Lower to moderate risk: BAL 12.5 to 19

High to extreme risk: BAL 29 to BAL FZ or the direct Flame Zone where stringent controls are enforced on materials, components and construction gaps.

Specification simplified

Ametalin products compliant for use in all Bushfire Attack Levels (BALs).
All Ametalin sarking products are tested by independent accredited laboratories to achieve a Flammability Index value of 5 or less. Our range is engineered to achieve a Flammability Index of 1, the best possible.

Flammability Index: 1 (LOW)

As our full product range achieve a Flammability Index classification of Low, or less than 5, when tested to *AS 1530.2-1993 Methods for fire tests on building materials, components, and structures Part 2: Test for flammability of materials,* they may be used in tiled roof, metal roof and wall systems to comply with *AS 3959—2009 Construction of buildings in bushfire prone areas*.

Tiled Roofs

Up to 85% of homes affected by Bushfires were tiled roofs. To provide optimum performance, tiled roofs must be fully sarked directly below the roof battens and cover the entire roof area including the ridge. Sarking should be installed so that there are no gaps that would allow the entry of embers where the sarking meets fascia's, gutters and valleys.

Metal Roofs

To provide optimum insulation performance, metal roofs should be fully sarked directly below the roof battens and cover the entire roof area including the ridge. Sarking should be installed so that there are no gaps that would allow the entry of embers where the sarking meets facias, gutters, and valleys.

Walls

Sarking-type material may be applied over the outer face of the frame prior to fixing any external cladding.

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To optimise performance in your construction application, refer to the Ametalin Design Guide to selecting Sarking-type materials for roofs, walls, and floors in all BALs in ABCB Climate Zones in Australia.

Ametalin products exceeds the minimum performance standards set out in Australian Standard *AS/NZS 4200.1:2017* and *AS/NZS 4859.1:2018 Pliable building membranes and underlays*. Products can be used in systems complying to *AS 3959-2018 Construction of buildings in bushfire-prone areas* as outlined below:

BAL-LOW	The risk is considered to be **LOW** There is insufficient risk to warrant any specific construction requirements.
BAL-12.5	The risk is considered to be **MODERATE** There is a risk of ember attack and radiant heat. The construction elements are expected to be exposed to a heat flux up to and including 12.5 kW/m^2.
BAL-19	The risk is considered to be **MODERATE to HIGH**
BAL-29	The risk is considered to be **MODERATE** There is a risk of ember attack and burning debris ignited by wind borne embers and a likelihood of exposure to radiant heat. The construction elements are expected to be exposed to a heat flux greater than 12.5 kW/m^2 and up to and including 19 kW/m^2.
BAL-40	The risk is considered to be **VERY HIGH to EXTREME** There is a much-increased risk of ember attack and burning debris ignited by windborne embers, a likelihood of exposure to a high level of radiant heat and some likelihood of direct exposure to flames from the fire front. The construction elements are expected to be exposed to a heat flux greater than 29 kW/m^2 and up to and including 40 kW/m^2.
BAL-FZ	The risk is considered to be **EXTREME** There is an extremely high risk of ember attack and burning debris ignited by windborne embers, and a likelihood of exposure to an extreme level of radiant heat and direct exposure to flames from the fire front. The construction elements are expected to be exposed to a heat flux greater than 40 kW/m^2.

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Selection Guide for Bushfire Attack Levels (BALs) ROOFS

A guide to selecting roof sarking and permeable membranes for roof construction in bushfire-prone areas.

With the wide variety of Bushfire Attack Levels and local climates in the populated regions of Australia, and so many different building membranes available, choosing the best solution for your home can be confusing.

Ametalin manufactures roof, wall and floor membranes for all Australian Bushfire Attack Levels (BALs) and climate zones, with special emphasis on exceeding fire performance and moisture control to protect against bushfire attack, condensation and the weather.

By analysing the *National Construction Code* requirements along with the bushfire zone requirements documented in *Australian Standard AS3959-2009, Construction of buildings in bushfire-prone areas*, Ametalin has designed a product selection matrix for quick and easy reference.

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Pliable building membranes in roofs

- You can use **Class 1** or **2 Vapour Barrier** membranes in **ABCB Climate Zones 1.** For optimal performance, roof membranes should be sealed to wall membranes.
- You can use **Class 2 Vapour Barrier** or **Class 4 Vapour Permeable** membranes in **ABCB Climate Zones 2 and 3.** For optimal performance, roof designs should include a minimum 20 mm ventilation path.
- You can use **Class 2** or **4 Vapour Permeable** membranes in **ABCB Climate Zones 4 and 5** For optimal performance, roof designs should include a minimum 20 mm ventilation path.

NCC2022 Deemed-to-Satisfy requirement, ABCB Climate Zones 6, 7 and 8, all Skillion / Cathedral / Raked Ceiling roofs must include a minimum 20 mm ventilation path.

- You must use **Class 4 Vapour Permeable** membranes + 20 mm Ventitlated Air space for Skillion / Cathedral / Raked ceiling roof designs in **ABCB Climate Zones 6, 7 and 8.**
- You can use **Class 1** or **Class 2 Vapour Barriers** and **Class 4 Vapour Permeable** membranes for typical pitched roofs with attic spaces, located in **ABCB Climate Zones 6, 7 and 8**; designs must include adequate ventilation.

Premium choices for the most aggressive conditions:

- ✔ FireSark® for Vapour Barrier
- ✔ CeaseFire® for Class 4 Vapour Permeable, Air and Water Barrier roof and walls
- ✔ FireSark® Micro-perforated, Class 3 Vapour Permeable for drained cavity walls
- ✔ Ametalin Non-combustible ThermalBreak® Strips for steel-frame constructions
- ✔ ThermalCav™ Drainage Battens for 20 mm ventilated drainage pathway & ThermalBreak

Roof Systems							Guidance for optimal performance in			
							Wet-tropics	Sub-tropics	Temperate	Temp-Cool-Alpine
							ABCB Climate Zones			
Product	**BAL-Low**	**BAL-12.5**	**BAL-19**	**BAL-29**	**BAL-40**	**BAL-FZ**	**CZ1**	**CZ2-CZ3**	**CZ4-CZ5**	**CZ6, CZ7 and CZ8**
CeaseFire®	✓	✓	✓	✓★	✓★	✓★			✓★	✓★
FireSark®	✓	✓	✓	✓★	✓★	✓★	✓★	✓★		
Non-combustible ThermalBreak Strip	✓	✓★	✓★	✓★	✓★	✓	✓★	✓★	✓★	✓★
ThermalBreak®	✓	✓★	✓★	✓★	✓★	✓	✓★			
ThermalLiner™	✓	✓★	✓★	✓★	✓★	✓	✓★			
SilverSark®	✓★	✓★	✓★	✓	✓	✓	✓★			
VapourTech® RWC Roof Wall	✓★	✓★	✓★	✓	✓	✓			✓★	✓★
SilverWrap®	✓★	✓★	✓★	✓	✓	✓	✓			
SilverSark® xR	✓★	✓★	✓★	✓	✓	✓	✓★		✓★	✓★

Legend:	
✓ Suitable for use	✓★ Premium choice

Lightweight Cladding: Please check cladding manufacturer's requirements.

Steel-frame construction: Ensure provisions are made for themal break and thermal bridging mitigation where required by the NCC2022.

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Selection Guide for Bushfire Attack Levels (BALs) EXTERNAL WALLS

A guide to selecting roof sarking, wall wraps, permeable membranes and floor insulation for construction in bushfire-prone areas.

With the wide variety of Bushfire Attack Levels and local climates in the populated regions of Australia, and so many different building membranes available, choosing the best solution for your home can be confusing.

Ametalin manufactures wall and floor membranes for all Australian Bushfire Attack Levels (BALs) and climate zones, with special emphasis on exceeding fire performance and moisture control to protect against bushfire attack, condensation and the weather.

By analysing the *National Construction Code* requirements along with the bushfire zone requirements documented in *Australian Standard AS3959-2009, Construction of buildings in bushfire prone areas*, Ametalin has designed a product selection matrix for quick and easy reference.

NCC 2022 Condensation Management

- You can use **Class 1 or 2 Vapour Barrier** membranes in **ABCB Climate Zones 1 to 3**
- You can use **Class 3 or 4 Vapour Permeable** membranes in **ABCB Climate Zones 4 and 5**
- You can only use **Class 4 Vapour Permeable** membranes in **ABCB Climate Zones 6, 7 & 8**
- You can use sarking type materials in a **drained cavity system eg: Micro-perforated**

Ametalin recommends Class 4 Vapour Permeable wall wraps for construction types in ABCB Climate Zones 4 to 8.

In the northern wet tropics of ABCB Climate Zones 1 to 3, Vapour Barriers are required, with some local regulations mandating Class 1 High Vapour Barrier products only.

Premium choices for the most aggressive conditions:

- ✔ FireSark® for Vapour Barrier
- ✔ CeaseFire® for Class 4 Vapour Permeable, Air and Water Barrier roof and walls
- ✔ FireSark® Micro-perforated, Class 3 Vapour Permeable for drained cavity walls
- ✔ Ametalin Non-combustible ThermalBreak® Strips for steel-frame constructions
- ✔ ThermalCav™ Drainage Battens for 20 mm ventilated drainage pathway & ThermalBreak

External Wall Systems							NCC2022 Condensation Management			
							Wet-tropics	Sub-tropics	Temperate	Temp-Cool-Alpine
							ABCB Climate Zone			
Product	BAL-Low	BAL-12.5	BAL-19	BAL-29	BAL-40	BAL-FZ	CZ1	CZ2-CZ3	CZ4-CZ5	CZ6, CZ7 and CZ8
CeaseFire®	✓	✓	✓	✓★	✓★	✓★			✓★	✓★
FireSark®	✓	✓	✓	✓★	✓★	✓★	✓★	✓★		
FireSark® Micro-perforated	✓	✓	✓	✓★	✓★	✓★			✓★	
Non-combustible ThermalBreak Strip	✓	✓★	✓★	✓★	✓★	✓	✓★	✓★	✓★	✓★
ThermalBreak®	✓	✓★	✓★	✓★	✓★	✓	✓★			
ThermalLiner™	✓	✓★	✓★	✓★	✓★	✓	✓★			
SilverSark®	✓★	✓★	✓★	✓	✓	✓	✓★			
VapourTech® RWC Roof Wall	✓★	✓★	✓★	✓	✓	✓			✓★	✓★
VapourTech® Wall	✓★	✓★	✓★	✓	✓	✓			✓★	✓★
VapourTech® Brane® VHP	✓★	✓★	✓★	✓	✓	✓			✓★	✓★
SilverWrap®	✓★	✓★	✓★	✓	✓	✓	✓★			
SilverWrap® MD Microperforated ❊	✓★	✓★	✓★	✓	✓	✓			✓★	✓★
SilverSark® xR	✓★	✓★	✓★	✓	✓	✓			✓★	✓★
SilverWrap® xR HD Micro-perforated ❊	✓★	✓★	✓★	✓	✓	✓			✓★	✓★

Legend:	
✓ Suitable for use	✓★ Premium choice

Lightweight Cladding: Please check cladding manufacturer's warranty requirements before installation.
Steel-frame construction: Ensure provisions are made for themal break and thermal bridging mitigation where required by the NCC2022.
❊ **Micro-perforated products recommended for Brick Veneer and Drained Cavity Walls only.** Check cladding manufacturers requirements.

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