

BAL-12.5 to BAL-29 Construction Requirements

A plain-English guide to the key construction differences under AS 3959

THE SHORT VERSION

You do not choose a Bushfire Attack Level (BAL) because you prefer a particular construction standard. A BAL is determined from a site-specific bushfire assessment. Once the BAL is established, the applicable construction requirements follow. This sheet combines BAL-12.5, BAL-19 and BAL-29 because the requirements overlap significantly, while highlighting the important differences.

WHY COMBINE THESE THREE BALs?

BAL-12.5, BAL-19 and BAL-29 represent increasing bushfire exposure. BAL-12.5 is primarily an ember-attack risk, BAL-19 adds increasing ember attack, burning debris and radiant heat, and BAL-29 represents a higher level of ember/debris attack and radiant heat. AS 3959 sets specific construction requirements for each level.

BAL-12.5	BAL-19	BAL-29
Low bushfire risk $\leq 12.5 \text{ kW/m}^2$	Moderate bushfire risk $\leq 19 \text{ kW/m}^2$	High bushfire risk $\leq 29 \text{ kW/m}^2$

WHAT STANDARD ARE WE TALKING ABOUT?

For Class 1 buildings and associated Class 10a buildings/decks in bushfire-prone areas, the NCC provides AS 3959 - Construction of buildings in bushfire prone areas - as an accepted construction pathway.

AS 3959:2018 contains the detailed construction requirements for BAL-12.5, BAL-19 and BAL-29 in Sections 3, 5, 6 and 7 respectively.

IMPORTANT - THIS IS A GUIDE ONLY, NOT THE COMPLETE STANDARD

The information below is a condensed guide to the principal requirements. It does not reproduce AS 3959 and does not replace the Standard, the NCC, a site-specific BAL assessment, approved plans or project-specific certification. Where there is any conflict, the applicable legislation, NCC and AS 3959 requirements prevail.

The BIG picture

- The higher the BAL, the more protection is required against embers, radiant heat and burning debris.
- Many requirements are common across BAL-12.5 to BAL-29, but glazing, doors, subfloor/floor construction and some external elements become more demanding as the attack level increases.
- All construction elements must comply with the requirements applicable to their location and exposure. Particularly where it is close to the ground, a deck, veranda, carport roof or other potential ember entry point.
- Manufacturer installation instructions and tested systems matter. A product being described as 'bushfire resistant' does not automatically mean it complies with the required AS 3959 construction system.

BAL ASSESSMENT FIRST

The BAL is site-specific and depends on factors including vegetation, distance from vegetation and slope. The assigned BAL determines the level of bushfire-resistant construction required. Do not select construction details before the BAL is established.

BAL-12.5 vs BAL-19 vs BAL-29

Key construction requirements at a glance

The comparison

ELEMENT	BAL-12.5	BAL-19	BAL-29
SUBFLOOR SUPPORTS	Where unenclosed, requirements apply to supports close to the ground; non-combustible or bushfire-resisting timber options are available. Enclosed subfloors are treated through the applicable wall/enclosure provisions.	Requirements for supports less than 400 mm above ground; non-combustible and/or bushfire-resisting timber options apply.	Where unenclosed, supports close to the ground must use the permitted non-combustible or naturally fire-resistant/bushfire-resisting options; over 400 mm may have no specific support requirement.
FLOORS	Components less than 400 mm above ground and relevant deck/floor elements require non-combustible or bushfire-resisting options.	Similar low-level requirements apply, including non-combustible or bushfire-resisting timber options.	More explicit options apply for flooring less than 400 mm above ground, including non-combustible, naturally fire-resistant timber or protected underside construction.
EXTERNAL WALLS	Within 400 mm of ground, decks, carport roofs, awnings or similar: non-combustible, permitted fibre-cement, steel or bushfire-resisting/naturally fire-resistant timber options. Joints/gaps must be treated as required.	Same principal low-level wall protection applies.	Same principal wall construction approach, with non-combustible masonry/concrete and permitted framed/clad systems available.
WINDOWS	Bushfire shutter or permitted screening / glazing arrangement. Metal, reinforced PVC-U or bushfire-resisting timber frames; low-level glazing is subject to additional protection.	Similar protection approach; glazing requirements are more demanding than BAL-12.5 in some elements.	Bushfire shutter or permitted screening/glazing arrangement. Metal, reinforced PVC-U or bushfire-resisting timber frames; low-level glazing requires protection.
SLIDING DOORS	Permitted metal, reinforced PVC-U or bushfire-resisting timber frames; minimum 4 mm Grade A safety glass in the supplied guide.	Permitted frames; minimum 6 mm toughened safety glass.	Permitted frames; minimum 6 mm toughened safety glass; doors tight fitting.
EXTERNAL DOORS	Protected by permitted shutter/screen or protected lower portion; tight-fitting frame and weather sealing. Glazed doors use the specified safety glazing.	Similar protection; 6 mm toughened safety glass for glazed doors in the supplied guide.	Similar protection; solid/non-combustible door construction and 6 mm toughened safety glass where glazed.
GARAGE DOORS	Lower 400 mm protected with permitted non-combustible/bushfire-resisting materials. Gaps generally ≤ 3 mm; seals/brushes/guide tracks as required.	Same principal requirements.	Same principal requirements.
ROOFS	Non-combustible roof covering, sealed roof/wall junctions, non-combustible ember guards and fully sarked roof.	Same principal requirements.	Same principal requirements.
EAVES / FASCIA / BARGE	Eaves lined with 4.5 mm fibre-cement sheet; metal fascia/barge fixed at 450 mm centres or permitted bushfire-resisting timber.	Same principal requirements.	Same principal requirements.
VERANDAHS / DECKS	Subfloor enclosed or supports use permitted materials. Decking protected within 300 mm horizontally and 400 mm vertically of glazed elements.	Same principal requirements.	Same principal requirements; decking near glazing must be non-combustible or bushfire-resisting.
HANDRAILS / BALUSTRADES	No specific BAL-12.5 requirement under AS 3959 in the supplied guide.	Within 125 mm of glazing or combustible material: non-combustible or bushfire-resisting.	Within 125 mm of glazing or combustible material: non-combustible or bushfire-resisting.
EXTERNAL SERVICE PIPES	Exposed water/gas pipes: metal.	Exposed water/gas pipes: metal.	Exposed water/gas pipes: metal.

READ THE TABLE CAREFULLY

The above comparison is heavily condensed and to be used as a simple guide only. Most AS 3959 requirements depend on the exact element, its position, construction type and exposure. The full Standard contains all detailed conditions, exclusions, definitions and installation requirements.

Design & Building Permit checklist

Make sure the BAL construction requirements are actually shown on the plans

Before submitting your Building Permit application

- ☐ Current site-specific BAL assessment identifying the BAL applying to the building.
- ☐ Building plans clearly identifying the construction system used for walls, floors, roofs, windows, doors, decks and other relevant elements.
- ☐ The nominated BAL shown consistently across architectural drawings, specifications, engineering and other documentation.
- ☐ Details of all ember protection - vents, weepholes, gaps, roof/wall junctions, penetrations and openings.
- ☐ Window and door schedules identifying frame materials, glazing, screens/shutters, seals and other required protection.
- ☐ Details of decks, verandahs, carports and other attached or adjacent structures where they affect the building's bushfire construction requirements.
- ☐ Evidence for proprietary systems, products or applications where compliance relies on an AS1530 tested or specifically permitted construction system or product - product certificate of conformity/compliance required.
- ☐ Structural engineering and other certification where required by the proposed construction.

Common things that get missed

EMBER ENTRY	LOW-LEVEL EXPOSURE
• Unscreened vents and weepholes. • Gaps at roof/wall junctions and penetrations. • Openings around pipes, cables and other services. • Door and window gaps or inadequate seals.	• Walls within 400 mm of ground or decks. • Floor/subfloor components close to ground. • Glazing close to decks, roofs or ground. • Decking and balustrades close to glazed or combustible elements.

Don't assume the BAL only applies to the house

Attached or adjacent garages or sheds within 6m of the primary dwelling, carports, decks and verandahs can all be subject to bushfire construction requirements. The exact application depends on the building, its relationship to the Class 1 building and the applicable NCC and AS3959 provisions. Treat associated structures as part of the bushfire design from the beginning.

Need more help?

For Building and Planning Approval and/or application questions, please contact the Shire's Development Services Team.

Shire of Denmark • (08) 9848 0300 • info@denmark.wa.gov.au

Useful information

WA Building and Energy - Building in bushfire-prone areas: [Official Guidance](#)

Planning for Bushfire Guidelines - BAL descriptions and planning context: [WA Planning Guidelines](#)

AS 3959 - Construction of buildings in bushfire-prone areas: [Standards Australia](#)

GUIDE ONLY This information sheet is a condensed guide based on AS 3959:2018. It is not a substitute for the Standard. The applicable NCC edition, WA variations, site-specific BAL assessment and complete AS 3959 requirements must be confirmed for each project.