



wesbeam LVL 
in bushfire-prone areas



WESBEAM LVL

Wesbeam manufactures a wide range of structural engineered wood products for use in residential timber-framed construction. These products include: e-beam, e-maximus, e-splay, e-beam², e-purlin, e-strut, e-batten, e-beam⁺ [F17], e-joist and e-stick.

Construction in Bushfire-prone Areas

Australian Standard AS 3959-2018 Construction of buildings in bushfire-prone areas is a primary referenced document in the National Construction Code (2022); it is a consensus based Standard developed in accordance with the key principles of transparency, and broad-based and balanced expert committee representation.

AS 3959-2018

AS 3959-2018 provides an extensive guide to building homes to minimise risk for different levels of potential bushfire attack. The intention of the provisions of AS 3959 is to:

- Improve the ability of a building to withstand attack from bushfire;
- Provide the building with a level of protection while the fire-front passes; and
- Give occupants that cannot escape the approaching fire a level of protection while the fire-front passes.

LVL FRAMING OPPORTUNITIES IN BUSHFIRE-PRONE AREAS

Internal Structural Timber House Frame

AS 3959-2018 places no limitations on internal timber house framing in any of its six Bushfire Attack Levels (BALs): BAL-LOW, BAL-12.5, BAL-19, BAL-29, BAL-40 and BAL-FZ (Flame Zone) areas.

Wesbeam's wide range of LVL products can be used in any BAL classification as part of the internal supporting timber-framed structure without restriction.

Typical applications:

Floor framing: LVL bearers and joists; e-joists

Wall framing: LVL wall studs, jamb studs, studs carrying concentrated roof loads, lintels

Roof framing: LVL roof beams (all applications), roof struts, underpurlins, battens

External Structural Timber Framing

AS 3959-2018 places some restrictions on the use of timber and LVL products, in some applications and BAL classifications – refer Table 1.

Typical applications:

Floor framing: LVL bearers and joists (untreated-protected and H3-treated)

Roof framing: LVL verandah beams, alfresco beams, rafters

Preservative Treatment

Wesbeam's LVL products are available as untreated for internal use and external-protected use, as well as preservative treated against termites using H2, e2S treatments and against termite and decay using H3 treatments in accordance with AS/NZS 1601.1:2021 – Preservative-treated wood based products; Part 1: Products and treatment.

TABLE 1: WESBEAM LVL – CONSTRUCTION REQUIREMENTS FOR BUSHFIRE ATTACK LEVEL (BAL) AS PER AS 3959-2018 CONSTRUCTION OF BUILDINGS IN BUSHFIRE-PRONE AREAS

[This summary of timber requirements, extracted from AS 3959-2018, does not cover all aspects of AS 3959 (e.g. cladding, roofing, sarking) which should be referred to when designing and specifying to the Standard.]

Building Element		BAL-LOW	BAL-12.5	BAL-19	BAL-29	BAL-40	BAL-FZ
Roof	Framing members	✓	✓	✓	✓	✓	✓
Walls (external and internal)	Framing members	✓	✓	✓	✓	✓	✓
Floors (bearers, joists)	Enclosed ¹	✓	✓	✓	✓	✓	✓
	Unenclosed ²	✓	✓	✓	✓	✓ (With framing members lined on the underside with fibre-cement sheeting)	✓ (With framing members lined on the underside with 1 x 16 mm fire-grade plasterboard)
Veranda, carport and awning roofs	Framing members – Forming part of the main roof space	✓	✓	✓	✓	✓	✓
	Framing members – Separated from the main roof space by a compliant wall	✓	✓	✓	✓ (With rafters lined on the underside with minimum 6 mm fibre-cement sheeting)	✓ (With rafters lined on the underside with minimum 6 mm fibre-cement sheeting)	✓ (With rafters lined on the underside with minimum 6 mm fibre-cement sheeting)
Framing for: decks, steps, ramps and landings	Enclosed ¹	✓	✓	✓	✓	✓	✓
	Unenclosed ²	✓	✓	✓	Bushfire-resisting timber or System complying with AS 1530.8.1	System complying with AS 1530.8.1	System complying with AS 1530.8.2

✓ All Wesbeam LVL products.

¹ Wall enclosing sub-floor space to be of the same construction as for external walls – refer AS 3959.

² Floor bearers and joist minimum 400 mm above finished ground level.

General

AS 3959-2018 provides the specific requirements for building in bushfire-prone areas. A primary emphasis of the Standard is on keeping embers out of the structure/building. This is to prevent the potential for fires starting within roof, wall and floor spaces that may contain combustible products (e.g. thermal insulation, wiring, paper faced plasterboard) and potential entry to living spaces through ceiling exhaust fans, recessed lighting, rangehoods; as well as providing protection against radiant heat and flame contact across the various BALs.

State/Territory Variations

Although AS 3959-2018 is referenced in the National Construction Code (2022), Australian State and Territories may vary some of its requirements. Refer to the National Construction Code (2022) for State/Territory variations and refer to State Planning provisions that may modify the AS 3959 requirements.

Benefits of Using LVL in Timber-framed Construction

- AS 3959 compliant
- Readily available
- Engineered for straightness, consistency and guaranteed performance
- Manufactured in Australia by a wholly owned Australian company
- Made from sustainably sourced timber veneers
- Won't rust
- Won't conduct heat
- Won't conduct electricity
- Won't buckle in high temperatures
- Supports high loads in the event of extreme temperatures
- Quiet construction

SPECIFICATIONS

Manufacture

Manufactured in accordance with AS/NZS 4357

Veneer

Thickness Constant through the product thickness
Species Sustainably sourced timber
Joints Outer 2 plies are scarf jointed
Inner plies – scarf and/or butt jointed

Moisture Content

8% – 15% (at time of dispatch)

Dimensional Tolerances

Available on request

Straightness

Available on request

Density

650 kg/m³ (approximately)

Adhesive

Phenolic – AS2754.1:2016 - Adhesives for timber and timber products; Adhesives for manufacture of plywood and laminated veneer lumber (LVL)

Bond

Type A – AS/NZS2098.2:2012 - Methods of tests for veneer and plywood; Bond quality of plywood (chisel test)

Joint Group

JD3 – for nails, bolts and screws

Finish

Dimensioned and defects such as knot holes filled ready to finish on site

Branding

Each piece of Wesbeam LVL is branded at least once with the product name for identification and evidence of compliance with manufacturing control standards

Storage

Store on level bearers at maximum 1800mm centres well clear of the ground, and cover to keep dry but allow ventilation. Maintain the product in the delivered packaging and replace if torn and/or damaged

Source

Sustainably sourced timber certified to AS4707 - Chain of custody for forest products / PEFC

Treatment Condition

Can be specified to e2S*, H2 and H3 as per AS/NZS 1601.1:2021 – Preservative-treated wood based products; Part 1: Products and treatment

* e2S is a CodeMark® certified glue-line termite treatment.



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WESB0801 July 2026

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