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PRODUCT CERTIFIED
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e-frame E10®

engineered LVL for MGP10 replacement

E-FRAME E10 LVL

Applications

Wesbeam e-frame E10 LVL is manufactured for use in place of traditional MGP10 sawn pine, in stick-build construction. Applications include:

- Wall studs
- Ceiling joists
- Hanging beams
- Common rafters
- Hip/valley rafters
- Ridge beams/boards
- Lintels

Benefits of LVL

Using e-frame E10 LVL in lieu of sawn pine has the benefits of:

- Availability of longer lengths
- Straightness along the sawn edge of the beam
- Higher capacity factor when designing in accordance with AS 1720.1
- Randomisation of timber veneer defects, resulting in a lower product Coefficient of Variation (CoV)
- e-frame E10 LVL comes CodeMark e2S treated as standard – providing protection against termites, where used for inside, above-ground applications South of the Tropic of Capricorn.

There are however applications where sawn timber is preferred, including for use as wall plates, external applications (where suitable preservative treatment is applied) and visual applications.

Characteristic Design Properties

Characteristic properties of e-frame E10 meet or exceed the design properties of MGP10 listed in AS 1720.1 – Timber structures. Wesbeam e-frame E10 can be used in applications where MGP10 is specified*

Notes: * Internal, above-ground use, not subject to wetting. Not recommended for wall plates.

Effects of moisture on LVL

Timber is hygroscopic, meaning it absorbs and releases moisture from its surroundings, which can lead to dimensional changes such as swelling, checking, cupping, and bowing. While LVL can be resistant to short-term exposure during construction, prolonged or excessive moisture absorption may compromise its strength and durability.

To minimise these risks, LVL should be stored off the ground on a dry, stable surface and kept covered with breathable waterproof material to prevent direct water exposure. Adequate ventilation is essential to reduce moisture buildup.

Before enclosing LVL within a structure, it is crucial to ensure its moisture content is below 20% to prevent long-term movement or structural issues. If LVL does become wet, it should be allowed to dry properly before installation.

Controlling of splitting and cracking in LVL

The higher relative beam strength of LVL is in part a product of all the veneers running in the same longitudinal direction. Timber veneers are pressed under significant loads as part of the manufacturing process, resulting in a higher density product with less air voids compared to sawn timber. This can increase the likelihood of splitting occurring when fasteners are installed near the ends/edges, particularly where pre-drilling or pre-boring is not carried out.

AS 1720.1 – Timber structures provides guidance around the minimum recommended edge and end distances for fasteners, as well as minimum spacing between fasteners to minimise the risk of splitting. These distances also ensure fastener capacities designed to AS 1720.1 are achieved.

Where possible, the below spacings for nails and screws should be used.

MINIMUM SPACING, EDGE AND END DISTANCES FOR NAILS	
Spacing Type	**Minimum Distance**
End Distance	20D
Edge Distance	5D
Between Nails	
Along grain	20D
Across grain	10D

D = nail diameter

MINIMUM SPACING, EDGE AND END DISTANCES FOR SCREWS	
Spacing Type	**Minimum Distance**
End Distance	10D
Edge Distance	5D
Between Screws	
Along grain	10D
Across grain	3D

D = shank diameter of screws

* Screws to be pre-drilled as per AS 1720.1

For small section LVL used in certain applications (e.g. 90x35 wall studs to plates), achieving the end distance with nails is not always practical. Where this is the case, fastening methods should be tested prior to continuing.

Where machine-driven nails are used, care should be taken to not over-drive the nails, which will increase the risk of splitting/cracking from occurring.

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