



BRANZ Appraised

Appraisal No. 646 [2024]

J-FRAME LVL FRAMING

Appraisal No. 646 [2024]

This Appraisal replaces BRANZ
Appraisal No. 646 [2019]



BRANZ Appraisals

Technical Assessments of products
for building and construction.



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Product

- 1.1 J-Frame LVL Framing is a laminated veneer lumber (LVL) structural framing timber available as 90 x 45 mm, 140 x 45 mm, 190 x 45 mm and 240 x 45 mm sections. It is boron preservative treated.

Scope

- 2.1 J-Frame LVL Framing has been appraised for use as structural framing timber for non-specifically designed timber frame buildings designed and constructed in accordance with NZS 3604 and specifically designed buildings in accordance with NZS 3603.
- 2.2 J-Frame LVL Framing has been appraised as an alternative to radiata pine solid timber, preservative treated such that it is suitable for use where Hazard Class H1.2 applies.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, J-Frame LVL Framing, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:

Clause B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4. J-Frame LVL Framing meets the requirements for loads arising from self-weight, imposed gravity loads arising from use, earthquake, snow, wind and time dependant effects [i.e. B1.3.3 (a), (b), (f), (g), (h) and (q)]. See Paragraphs 8.1-8.6.

Clause B2 DURABILITY: Performance B2.3.1 (a) not less than 50 years, B2.3.1 (b) 15 years, B2.3.1 (c) 5 years, and B2.3.2 (a) and (b). J-Frame LVL Framing meets these requirements. See Paragraph 9.1.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. J-Frame LVL Framing meets this requirement.

Technical Specification

- 4.1 J-Frame LVL Framing is a structural LVL framing timber available as 90 x 45 mm, 140 x 45 mm, 190 x 45 mm and 240 x 45 mm sections. It is boron preservative treated, in accordance with the requirements of the JNL LVL GL Preservation Treatment Standard, for use in applications specifying Hazard Class H1.2 or less. The timber treatment is subject to an independent Timber Treatment Programme as part of the CodeMark certification. J-Frame has a moisture content of 18% or less.
- 4.2 The LVL is certified complaint with AS/NZS 4357, manufactured from radiata pine renewable forest resources using a phenolic formaldehyde resin adhesive. J-Frame LVL Framing is cut and gauged from LVL panels. Lengths of 4.8 and 6 m of end section 90, 140, 190 and 240 x 45 mm have one finger joint per length. Finger jointing is certified complaint with AS/NZS 1491.
- 4.3 J-Frame LVL Framing is supplied in varying lengths:
- Standard lengths 2.4, 3, 4.8 and 6 m.
 - Cut to length studs 2.33 and 2.48 m. The cut to length studs are "ready to use" with final length tolerance of +/- 1 mm.
- 4.4 J-FRAME is certified under the Engineered Wood Products Association of Australasia (EWPAA), a JAS-ANZ accredited product certification scheme to AS/NZS 4357.0 and AS/NZS 1491. The characteristic properties [values] are taken as MSG8 in respect of J-Frame 8 and MSG10 for J-Frame 11 as documented in NZS 3603, Table 2.3. Actual design characteristics properties for specific design can be found in the JNL Design and Installation Guide.
- 4.5 The bonding of J-Frame veneer plies utilises a Bond Type A adhesive complying with AS/NZS 2754.1.
- 4.6 The J-Frame formaldehyde emission class is certified compliant with AS/NZS 4357.0, Table 1 as Super Eo.
- 4.7 Juken New Zealand Limited have forests that are sustainably and responsibly managed, and chain of custody mills.

J-Frame Marking

- 4.8 J-Frame is branded every metre as follows: JNL logo, "EWPAA Certified Structural LVL", Mill number, "A-Bond", "Formaldehyde Emission Class Super Eo", "Preservative Treatment", "921 Boron Where Hazard Class H1.2 or less applies", CodeMark logo, "J-Frame 11" or "J-Frame 8".

Handling and Storage

- 5.1 J-Frame LVL Framing must be handled and stored as other kiln-dried framing timber and exposure to moisture minimised.

Technical Literature

- 6.1 This Appraisal must be read in conjunction with:
- J-Frame Design and Installation Guide, Version 4.1, 2023.
- 6.2 All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

Design Information

General

- 7.1 J-Frame LVL Framing is an alternative to conventional sawn timber framing and being a manufactured engineered wood product, J-Frame LVL Framing will provide straight and stable framing members. J-Frame LVL Framing can be used for framing members such as studs, plates, joists, rafters etc. and as members for pre-nail frames.
- 7.2 J-FRAME is certified under the EWPAA, a JAS-ANZ Accredited product certification scheme, to AS/NZS 4357.0 and AS/NZS 1491 as J-Frame 8 and J-Frame 11.

- 7.3 J-Frame LVL Framing is used as structural framing timber for non-specifically designed timber frame buildings designed and constructed in accordance with NZS 3604 and specifically designed buildings in accordance with NZS 3603.
- 7.4 J-Frame LVL Framing is boron preservative treated in accordance with the JNL LVL GL Preservation Treatment Standard. It is used as a substitute for radiata pine solid timber preservative treated for Hazard Class H1.2 as specified in NZS 3602, with amendments set out in NZBC Acceptable Solution B2/AS1, Paragraph 3.2, Timber.

Structure

Specific Design

- 8.1 When designing to NZS 3603, the characteristic properties of J-Frame 8 shall be taken as MSG8 and J-Frame 11 may be taken as MSG10, as given by Table 2.3.
- 8.2 The J-Frame Technical Literature provides detailed characteristic properties that may be considered for specific design, including values greater than MSG10 for J-Frame 11.
- 8.3 For the purpose of joint design in accordance with NZS 3603, Paragraph 4.1.1, assign the appropriate group as shown in Table 1.

Table 1: Classification for J-Frame LVL Framing for joint design NZS 3603 [Table 4.1]

	Nails in lateral loading		Nails in withdrawal	
	Parallel*	Perpendicular*	Parallel*	Perpendicular*
J-Frame 8 J-Frame 11	J4	J4	J5	J4

* Parallel and perpendicular refer to the direction that nails are inserted with respect to the LVL laminations.

- 8.4 Where J-Frame LVL Framing is intended for use in specific design applications with nail plates i.e. trusses, connection design properties must be verified by a test. As a generalisation, the nail plate tooth loads will be less than radiata pine. Juken New Zealand Limited must be referred to for further technical information.

Non-Specific Design

- 8.5 J-Frame LVL Framing may be used as framing timber in accordance with NZS 3604 where SG8 or SG10 dry in service 90 x 45 mm, 140 x 45 mm, 190 x 45 mm and 240 x 45 mm members are specified.
- 8.6 J-Frame LVL Framing is certified compliant with AS/NZS 4357 and is an acceptable construction material as specified by NZS 3604, Paragraph 2.3.9.2. It is suitable for substitution with solid timber as specified by NZS 3604, Paragraph 2.3.9.5.

Wall bracing

- 8.7 Proprietary bracing systems may be used with J-Frame LVL Framing.

Wall cladding

- 8.8 Cladding systems where the fixings are as described in NZBC Acceptable Solution E2/AS1, Table 24 are suitable for use with J-Frame LVL Framing.

Durability

Serviceable Life

- 9.1 J-Frame LVL Framing is expected to have a serviceable life similar to conventional timber framing.

Maintenance

- 10.1 J-Frame LVL Framing will not normally require maintenance. However, if damage occurs, then repairs or replacement must be carried out to ensure the integrity of the building.

Prevention of Fire Occurring

- 11.1 Separation or protection must be provided to J-Frame LVL Framing from heat sources such as fireplaces, heating appliances and chimneys. Part 7 of NZBC Acceptable Solution C/AS1 and NZBC Acceptable Solution C/AS2 provide methods for separation and protection of combustible materials from heat sources.

External and Internal Moisture

- 12.1 J-Frame LVL Framing must be protected from moisture by exterior cladding and internal lining and flooring which must meet the provisions of NZBC Clause E2 and Clause E3.

Installation Information

Installation Skill Level Requirement

- 13.1 Installation must always be carried out in accordance with the J-Frame LVL Framing Technical Literature and this Appraisal by, or under the supervision of, a Licensed Building Practitioner (LBP) with the relevant License Class.

General

- 14.1 J-Frame LVL Framing must be used and installed in accordance with the information contained in the contract documents.
- 14.2 For non-specific design building applications, J-Frame LVL Framing must be installed in accordance with NZS 3604.
- 14.3 J-Frame LVL Framing must be treated as kiln-dried timber and exposure to moisture minimised.
- 14.4 Prior to the application of lining materials, the moisture content of J-Frame LVL Framing must be 20% or less, as required by the lining manufacturer.
- 14.5 Care should be taken when using moisture meters with LVL timbers as different readings will be given compared with solid timber. Equivalence tables have been published by SCION for moisture meter use with J-Frame LVL Framing timber. These tables have not been assessed by BRANZ and are outside the scope of this Appraisal.

Inspections

- 15.1 J-Frame LVL Framing requires the same inspection as conventional timber framing.

Basis of Appraisal

The following is a summary of the technical investigations carried out:

Tests

- 16.1 Tests on J-Frame LVL Framing for structural properties, nail withdrawal and moisture equivalency were carried by SCION Rotorua as part of the EWPA Certification procedure.

Other Investigations

- 17.1 Structural and durability assessments have been provided by BRANZ technical experts.
- 17.2 Site inspections to assess installation methods, the practicability of installation and to examine completed installations, have been made by BRANZ.
- 17.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

- 18.1 The manufacture of J-Frame LVL Framing has not been examined by BRANZ, but details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory. BRANZ has taken note of certifications covering quality aspects associated with the product.
- 18.2 J-Frame LVL Framing end product quality is independently verified by EWPA by testing and inspection. EWPA Certification is an ISO Type 5 system, accredited by JAS-ANZ.
- 18.3 J-Frame LVL Framing preservative treatment is certified by an independent third party timber treatment program as part of the CodeMark Certification.
- 18.4 JNL hold ISO 9001, Quality Management, and ISO 14001, Environmental Management certifications issued by SGS, under a JAS-ANZ accredited certification scheme.
- 18.5 The quality of J-Frame LVL Framing supplied to the market is the responsibility of Juken New Zealand Limited.
- 18.6 Designers are responsible for the design of framing and buildings. The building contractor is responsible for the quality of the installation and construction.
- 18.7 Building owners are responsible for the maintenance of the building.

Sources of Information

- AS/NZS 2754.1:2008 Adhesives for timber and timber products. Part 1: Adhesives for manufacture of plywood and laminated veneer lumber (LVL).
- AS/NZS 1491:1996 Finger jointed structural timber.
- AS/NZS 4357.0:2022 Structural laminated veneer lumber.
- CodeMark Certificate CM70031.
- JNL LVL GL Preservation Treatment Standard, Version 3, June 2023.
- NZS 3602:2003 Timber and wood-based products for use in building.
- NZS 3603:1993 Timber structures standard.
- NZS 3604:2011 Timber-framed buildings.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.



In the opinion of BRANZ, **J-Frame LVL Framing** is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **Juken New Zealand Limited**, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
 - a) relates only to the product as described herein;
 - b) must be read, considered and used in full together with the Technical Literature;
 - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
 - d) is copyright of BRANZ.
2. **Juken New Zealand Limited:**
 - a) continues to have the product reviewed by BRANZ;
 - b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
 - c) abides by the BRANZ Appraisals Services Terms and Conditions;
 - d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
 - a) the nature of individual examples of, batches of, or individual installations of the product, including methods and quality of work;
 - b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
 - c) any guarantee or warranty offered by **Juken New Zealand Limited**.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to **Juken New Zealand Limited** or any third party.

For BRANZ



Claire Falck

Chief Executive

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06 August 2024