BRANZ Appraised
Appraisal No.646 [2009]

BRANZ Appraisals

Technical Assessments of products for building and construction

BRANZ APPRAISAL No. 646 (2009)

Amended 3 June 2009

J-FRAME LVL FRAMING

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Product

1.1 J-Frame is machine stress-graded Laminated Veneer Lumber (LVL) structural framing timber available as 90 x 45 mm and 140 x 45 mm sections. It is stress-graded as MSG 8, MSG 10 and Boron preservative treated to H1.2 level or CCA preservative treated to H3.2 level.

Scope

2.1 J-Frame LVL Framing has been appraised for use as structural framing timber for specifically designed buildings in accordance with NZS 3603 and for use in non-specifically designed timber frame buildings designed and constructed in accordance with NZS 3604.
2.2 J-Frame LVL Framing is for uses as classified in NZS 3602 for up to H1.2 for H1.2 treated and up to H3.1 *protected from weather* for H3.2 treated.

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 and wind [i.e. B1.3.3 (a), (b), (f), (g), and (h)]. See Paragraphs 8.1 to 8.6.

Clause B2 DURABILITY: Performance B2.3.1 (a) not less than 50 years, B2.3.1(b) 15 years and B2.3.1(c) 5 years 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 and will not present a health hazard to people.

This appraisal is of an **Acceptable Solution** in terms of New Zealand Building Code compliance when J-Frame LVL Framing is used in accordance with NZS 3602 Table 1C and Table 1E. This appraisal is also of an **Alternative Solution** when J-Frame LVL Framing is used with NZS 3602 Table 1D.

Technical Specification

4.1 J-Frame is structural Laminated Veneer Lumber (LVL) framing timber available as 90 x 45 mm and 140 x 45 mm sections. It is stress-graded as MSG 8, MSG 10 and Boron preservative treated to H1.2 level and CCA preservative treated to H3.2 level. J-Frame is kiln dried to a nominal moisture content of 18%.

4.2 The LVL panels are manufactured to AS/NZS 4357 from Radiata pine renewable forest resources using a phenolic formaldehyde resin adhesive. J-Frame framing is cut and gauged from the LVL panels and lengths of 4.8 and 5.4 have one finger joint per length. Finger jointing is in accordance with AS/NZS 1491.

4.3 J-Frame is supplied in varying lengths:

- Cut to length studs at 2.33, 2.63 and 2.93 m
- Random lengths at 2.4, 3.0, 4.8, and 5.4 m with a length tolerance of =/- 0.5 mm.

4.4 J-Frame is machine stress graded. MSG 8 J-Frame is marked with a continuous "black" line on one face and MSG 10 J-Frame is marked with a continuous "green" line on one face.

4.5 The bonding of J-Frame between plies is Type A complying with AS 2754.1.

4.6 The J-Frame formaldehyde emission class in accordance with Table 1 AS/NZS 4357.0 is Eo.

4.7 Juken New Zealand Ltd have Forestry Sustainability Council certified forests and chain of custody certified mills.

J-Frame marking

4.8 J-Frame is marked as follows: JNL J-Frame, Product Certified - tested Structural Laminated Veneer Lumber –Engineer Wood PAA, Mill Number 921, AS/NZS 1748 & AS/NZS 4357, Structural LVL Framing, MSG Graded, Bond: A, Rated: Eo.

4.9 Preservative treatment is carried out at an AgriQuality certified plant and J-Framing is end marked with the plant number and treatment level.

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 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for J-Frame LVL Framing. The Technical Literature must be read in conjunction with this Appraisal. 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 will provide straight and stable framing members. J-Frame can be used for framing members such as studs, plates, joists, rafters etc and as members for pre-nail frames.

7.2 J-Frame LVL Framing is Certified by Engineered Wood Products Association of Australasia (EWPAA). The Certification is for machine stress graded J-Frame LVL meeting AS/NZS 4357.0 verified primarily as MSG 8 and MSG 10 according to NZS 3603.

7.3 J-Frame LVL Framing is preservative treated under an AgriQuality Timber Treatment Program.

7.4 J-Frame LVL Framing is for use as structural framing timber for specifically designed buildings in accordance with NZS 3603 and for use in non-specifically designed timber frame buildings designed and constructed in accordance with NZS 3604.

7.5 J-Frame LVL Framing is for use in accordance with NZS 3602 Table 1C, Table 1D and Table 1E (protected from the weather). J-Frame is available treated to H3.2 level but the scope of this appraisal limits uses to that of treatment level H3.1 protected from the weather.

Structure

Specific Design

8.1 The characteristic stresses for J-Frame shall be taken as MSG 8 or MSG 10 as given in Table 2.3 NZS 3603.
For the purpose of joint design in accordance with NZS 3603 4.1.1 assign the appropriate group as shown in Table 1.

Table 1 Classification for J-Frame LVL for joint design NZS 3603 (Table 4.1)

	Nails in lateral loading		Nail in withdrawal	
	Parallel*	Perpendicular*	Parallel*	Perpendicular*
J-Frame MSG 8 MSG 10	J4	J4	J5	J4

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

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

Non Specific Design

8.3 J-Frame may be used as framing timber in accordance with NZS 3604 where MSG 8 or MSG 10 dry in service 90 x 45 mm and 140 x 45 mm members are specified.

8.4 The loads for nails in withdrawal for J-Frame are less than Radiata pine and equivalent to Douglas fir. NZS 3604 through specification in NZS 3602 includes the use of Douglas fir and therefore connections made with J-Frame will meet the requirements of NZS 3604.

Wall bracing

8.5 Proprietary bracing systems may be used with J-Frame.

Wall cladding

8.6 Cladding systems where the fixings are as described in NZBC Clause E2/AS1 Table 24 are suitable for use with J-Frame.

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.

External and Internal Moisture
11.1 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
12.1 Installation can be carried out by any competent building contractor.

General
13.1 J-Frame LVL Framing must be used and installed in accordance with the information contained in the contract documents.
13.2 For non specific design building applications J-Frame LVL Framing must be installed in accordance with NZS 3604.
13.3 J-Frame LVL Framing must be treated as kiln dried timber and exposure to moisture minimised.
13.4 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.
13.5 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 timber. These tables have not been assessed by BRANZ and are outside the scope of this Appraisal.

Inspections
14.1 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
15.1 Tests on J-Frame for structural properties, nail withdrawal and moisture equivalency, were carried by SCION Rotorua as part of the Engineered Wood Products Association of Australasia (EWPAA) certification procedure.

Other Investigations
16.1 Structural and durability assessments have been provided by BRANZ technical experts.
16.2 Site visits to assess installation methods, the practicability of installation and to examine completed installations, have been made by BRANZ.
16.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality
17.1 The manufacture of J-Frame has been examined by BRANZ, and details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.
17.2 J-Frame end product quality is independently verified by EWPAA by testing and inspection. EWPAA certification is an ISO Type 5 system.
17.3 J-Frame preservative treatment is certified by an AgriQuality Timber Treatment Program.
17.4 The quality of J-Frame supplied to the market is the responsibility of Juken New Zealand Ltd.
17.5 Designers are responsible for the design of framing and buildings. The building contractor is responsible for the quality of the installation and construction.
17.6 Building owners are responsible for the maintenance of the building.

Sources of Information
- NZS 3602:2003 Timber and wood-based products for use in building.
- NZS 3603:1993 Timber Structures Standard.
- NZS 3604:1999 Timber Framed Buildings.
- AS 1604.4 Specification for preservative treatment Part 4 laminated veneer lumber.
- AS/NZS 1748 Timber-Machine stress-grading for structural purposes.
- AS 2754.1:1985 Adhesives for plywood manufacture.
- AS/NZS 4357.0:2005 Structural laminated veneer lumber.
- AS/NZS 1491 Finger jointed structural timber.
- New Zealand Building Code Handbook Department of Building and Housing, Third Edition May 2007.
- The Building Regulations 1992, up to, and including August 2008 Amendment.

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 Ltd, 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 Ltd:
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.
3. 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.
4. 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 workmanship;
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 Ltd.
5. 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.
6. BRANZ provides no certification, guarantee, indemnity or warranty, to Juken New Zealand Ltd or any third party.

For BRANZ

P Burghout
Chief Executive

Date of issue: 5 March 2009

Amendment No. 1, dated 3 June 2009.
This Appraisal has been amended to update the picture on the front page.