JUKEN NEW ZEALAND LTD

J-FRAME®
Design & Installation Guide

VERSION 5.0 2025

"J-FRAME is straight, true and dimensionally accurate."

j frame engineered timber

www.jnl.co.nz

CodeMark
CMNZ70031

Contents

JUKEN NEW ZEALAND LTD
Level 6, Tower 1,
205 Queen Street, Auckland
09 373 3933
www.jnl.co.nz

J-FRAME Design & Installation Guide. V5.0. 2025
Uncontrolled in printed format

1. General and product information

Purpose

This design and installation guide relates to JNL J-FRAME®.

Important documents

This guide must be read in conjunction with:

- CodeMark CMNZ70031
- NZS 3604:2011[1]
- NZS 3603:1993
- AS/NZS 1170:2002
- NZS AS 1720.1:2022
- Acceptable Solution, B1/AS1.

Skills required

This guide is suitable for use by licensed building practitioners (or deemed practitioners) licensed to the applicable class. Where applicable the person specifying or installing the J-FRAME must be able to meet all Restricted Building Work (RBW) provisions.

For more help

Technical assistance is available at www.jnl.co.nz.

While all reasonable efforts have been made to ensure the accuracy of information provided, this guide is a guide only. It may be subject to change.

Product description

J-FRAME structural LVL members are manufactured from radiata pine. J-FRAME is supplied treated in accordance with the JNL LVL Preservation Treatment Standard to meet the durability requirements where hazard class H1.2 or less applies.

J-FRAME is certified under the EWPAA Product Certification Scheme, to AS/NZS 4357.0:2022 and AS/NZS 1491:1996. Its consistent strength, stiffness and stability make it resistant to warping, twisting and bowing.

It is supplied to a standard thickness of 45 mm with the following options:

- Widths (mm): 90, 140, 190, 240.
- Standard lengths (m): 2.4, 3.0, 4.8, 6.0.
- Cut to length studs (mm): 2320 and 2330.
- Cut to length studs are supplied ready to use with a final length tolerance of +/- 1 mm.

J-FRAME is supplied in grades J-FRAME 8 and J-FRAME 11 and has been tested in accordance with AS/NZS 4063:2010.

J-FRAME 8 and J-FRAME 11 have the following characteristic properties:

Table 1: Characteristic properties of J-FRAME 8 and J-FRAME 11 (moisture content 15% or less)

J-FRAME 8	
Design density kg/m^3	550
Characteristic density kg/m^3	480
Bending (f_b') MPa	20.0
Compression parallel-to-grain (f_c') MPa	30.0
Bearing perpendicular-to-grain (f_p') MPa	8.0
Tension parallel-to-grain (f_t') MPa	10.0
Shear in beams (f_s') MPa	3.5
Short duration average modulus of elasticity ($E_{average}$) MPa	8000
J-FRAME 11	
Design density kg/m^3	590
Characteristic density kg/m^3	480
Bending (f_b') MPa	34.0
Compression parallel-to-grain (f_c') MPa	33.5
Bearing perpendicular-to-grain (f_p') MPa	8.1
Tension parallel-to-grain (f_t') MPa	17.5
Shear in beams (f_s') MPa	2.6
Short duration average modulus of elasticity ($E_{average}$) MPa	11000

Table 1 notes:
For the definition of Design and Characteristic Density refer to Clause ZZC2.2.7 of NZS AS 1720.1:2022. Bending strength and short duration modulus of elasticity values are applied to both on edge and on flat situations. Bearing perpendicular to the grain values are applied to both parallel and perpendicular to the glue line situations.
Shear in beams values are also used for joint shear, planar shear and interlaminar shear. The bearing strength is reported at a deformation of 2 mm into the timber.
In order to determine the connection strength, the joint groups to NZS 3603, NZS AS 1720.1 as per Table 2 below can be used. Note, the joint groups to AS 1720.1 are referenced under the simplified method in NZS AS 1720.1. For the detailed method, the characteristic density as per Table 1 should be used.

Table 2: Joint groups to NZS 3603:1993, NZS AS 1720.1:2022 and AS 1720.1:2010 of J-FRAME 8 and J-FRAME 11 (moisture content 15 % or less)

Design standard	Nails and screws in lateral loading	Nails in withdrawal	Screws in withdrawal	Bolts
AS 1720.1/NZS AS 1720.1	JD4 nails JD4 screws	JD4	JD4 edge JD3 face	JD4 parallel JD3 perpendicular
NZS 3603	J5 nails J4 screws	J4	J4 and J5	J5 parallel J3 perpendicular

1 Where a standard is referenced it should be read "as amended by an acceptable solution or verification method" where applicable.

Scope and limitations

Location

Scope	Limitation
In wind zones up to and including extra high as defined in NZS 3604:2011.	
In all corrosion zones as defined in NZS 3604:2011.	▶ Where microclimatic conditions may exist, the designer should consult with Juken New Zealand.
In all snow zones up to 1 Kpa.	
In all seismic zones as defined in NZS 3604:2011.	

Building

Scope	Limitation
In new buildings that comply with the NZ Building Code or in existing buildings where the designer and installer are satisfied that the building is suitable for the intended building work.	
As frames or structural roof trusses, or in any load bearing and non-load bearing walls.	▶ J-FRAME 8 and J-FRAME 11 can be used as a direct substitute to SG8 and SG10 respectively, as referenced in Section 8 of NZS 3604:2011, or specifically engineered to NZS 3603:1993, NZS AS 1720.1:2022, or AS/NZS 1170:2002. ▶ J-FRAME frames and structural roof trusses must be in accordance with NZS 3604:2011 or specifically designed in accordance with NZS 3603:1993 , NZS AS 1720.1:2022, or AS/NZS 1170:2002.
In applications where the J-FRAME is protected from moisture.	▶ With fixing materials in accordance with NZS 3604:2011, Section 4 Durability. ▶ J-FRAME must not be used in the ground, in close proximity to the ground or less than 225 mm above the ground. ▶ J-FRAME should be enclosed as soon as possible to ensure optimal performance. ▶ Moisture content to be less than or equal to 18 % before installing internal lining. For measuring moisture content refer to Procedure for Testing Moisture Content of J-Frame LVL – December 2018. Refer: J-Frame 11 - Juken New Zealand and look under FAQs.

2. Design

Step 1: Confirm scope

Confirm the proposed use is within the scope and limitations. (Refer section 1 of this guide).

Step 2: Design the structure

J-FRAME can be used in the:

- ▶ construction of load bearing and non-load bearing walls
- ▶ prefabrication of structural roof trusses and frames.

Change to Floors, wall and roof framing

For load bearing and non-load bearing walls, design the wall frame in accordance with NZS 3604:2011.J-FRAME 8 and J-FRAME 11 can be used where SG8 and SG10 respectively is specified in section 8 of NZS 3604:2011. Fixings must be in accordance with section 4 of NZS 3604:2011.

Alternatively design the structural members in accordance with NZS 3603:1993, NZS AS 1720.1:2022, or AS/NZS 1170.1:2002 using J-FRAME Characteristic Properties and Span Tables published by JNL.

Prefabricated roof trusses and frames

The design and manufacture of frames and roof trusses must be carried out by a licensed truss and frame manufacturer.

Step 3: Quality check

Confirm all relevant design requirements are met.

Check that the building consent plans and specifications clearly define and include:

- ▶ J-FRAME dimension, grading, spacings, and all relevant installation details
- ▶ fixing requirements.

J-FRAME Design & Installation Guide. V5.0. 2025
Uncontrolled in printed format

3. Pre-installation

Health and safety

Take all necessary steps to ensure your safety and the safety of others. Consider the following:

- ▶ provision of adequate ventilation or mechanical dust extraction when cutting or drilling
- ▶ that J-FRAME is well supported when cutting and nailing
- ▶ that appropriate safety equipment, clothing and footwear is worn
- ▶ that all tools are used in accordance with relevant instruction manuals
- ▶ planning and monitoring a safe approach for working at height; select and use the right equipment
- ▶ clearing the work area of any obstruction before work starts.

For further information refer to:

- ▶ Construction Sites Health and Safety Information
- ▶ Health and Safety at Work Quick Reference Guide

Handling and storage

Handling

Care must be taken during loading, unloading and transporting the J-FRAME members, trusses or frames to prevent pre-installation damage.

Unload by hand, forklift or Hiab using a spreader bar for long loads.

Storage

To prevent moisture uptake store J-FRAME in its plastic wrapping on packers at least 100 mm off the ground on a flat level surface free from water ponding.

The plastic wrapping should only be removed when in use and J-FRAME should be securely re-wrapped to maintain its dry state.Ensure J-FRAME members are stored above ground on a flat level surface.

Minimise exposure to the weather. Protect members, trusses and frames by closing in the building as soon as possible after installation. Before covering or lining, ensure J-FRAME has a moisture content equivalent to or less than 18 %.

Tools and equipment required

Install J-FRAME members, trusses or frames using standard carpentry tools and equipment. Use tools in accordance with good trade practice and supplier's instructions.

4. Installation

Step 1: Building consent documentation

Where applicable, access and view building consent documentation.

NZS 3604:2011 should also be available for reference www.standards.govt.nz/shop/NZS-36042011.

Step 2: Install J-FRAME

Floors, wall and roof framing

For wall frames designed in accordance with NZS 3604, install the J-FRAME in accordance with the building consent documentation and section 8 of NZS 3604. Fixings must be in accordance with section 4 of NZS 3604.

For specifically designed wall frames, install the J-FRAME in accordance with the building consent documentation.

Ensure all wall frames are supported with temporary propping or permanently fastened to an adjacent structural wall.

Specific connections may also apply to pre-cut and pre-nail applications.

Prefabricated roof trusses and frames

Fix and join trusses and frames in accordance with the truss and frame layout and construction details included in the building consent documentation.

Moisture checks

When undertaking moisture checks, before closing in the J-FRAME, please use the recommended procedure and conversions prepared by Scion for JNL.

Refer: J-Frame 11 - Juken New Zealand and look under FAQs.

Step 3: Completion

Check to ensure all components are installed correctly and in accordance with the building consent documentation.

JUKEN NEW ZEALAND LTD

Level 6, Tower 1,
205 Queen Street, Auckland
09 373 3933
info@jnl.co.nz
www.jnl.co.nz

j frame
engineered timber