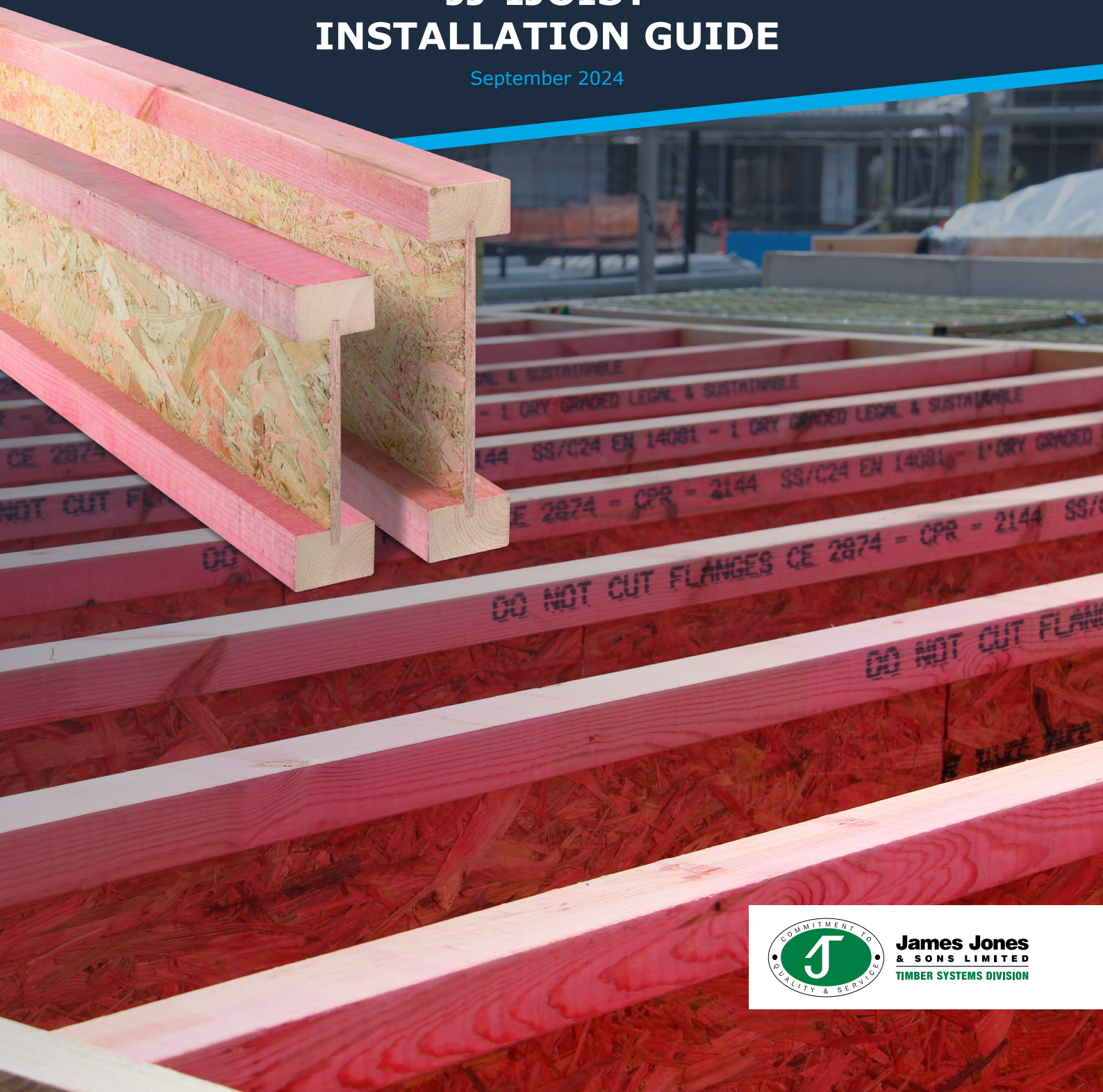
IBUILT™

Engineered Wood Products

JJ-IJOIST INSTALLATION GUIDE

September 2024



James Jones & SONS LIMITED

TIMBER SYSTEMS DIVISION

Contents

Scope of this Document

All technical information and span tables in this guide are in accordance with the product specific design properties. This data may be used for specific engineering design in applications outside the scope of this document. Please refer to New Zealand Wood Products Ltd for the 'Engineering Data'.

The information in this design guide has been checked and verified, however, it should only be used by designers who are suitably qualified.

NZWOOD accepts no liability or responsibility if the information contained in this document is incorrectly interpreted, inappropriately applied, or used in a manner other than explicitly set out in this design guide.

Note: Other manufacturers' products may have different properties and therefore cannot be substituted or designed using information contained in this document.

General

Design

This design guide offers infomation for designing and installing IBuilt JJ-IJoists as floor and roof framing systems in both residential and light commercial buildings.

For spans with floor and roof loads other than those noted in this guide please refer to 'Hyne Design' free online design software which can be accessed from IBuilt's website, www.ibuilt.co.nz

Alternatively contact the technical team on 0800 022 352

The use of this guide is intended for suitably qualified designers to be able to select sizes and to provide installation details for floor and roof construction in the NZ building industry.

Compliance with New Zealand Building Code

B1 Structure:

The span tables and construction details contained in this document have been developed primarily for domestic/residential applications.

This guide has been prepared and designed within the requirements of the following standards:

1. NZS3604:2011 'Timber Framed Buildings'
2. NZS3603:1993 'Timber Structures Standard'
3. AS/NZS1720.1:2022 'Timber Structures - Design Methods'

Loading data is taken from AS/NZS1170:2002 'Structural Design Actions' to satisfy the requirements of Section B1 of the New Zealand Building Code.

The requirements set out in the New Zealand Building Code will be achieved when floor joists and rafter framing components are installed in accordance with this design guide.

B2 Durability:

IBuilt JJ-IJoists are pressure treated with Koppers FramePro™ preservative (Boron) treatment.

Boron treated joists are limited to internal, dry protected areas where moisture levels are maintained below the requirements specified in NZS 3602:2003, i.e. in hazard class H1.2 applications only.

Buildings must remain weather tight and structural framing members must be protected from internal and external moisture exposure.

JJ-IJoists, Glue Laminated Timber (GLT) and Laminated Veneer Lumber (LVL) framing are not suitable in weather exposed applications. Light wetting during construction periods will not affect the performance of framing members, components must be left to dry before applying framing loads. Note: Damaged, warped or delaminating engineered timber products should not be installed into a building.

Please contact IBuilt if there are any product quality concerns prior to installation.

Chain of Custody

James Jones I-Joists are manufactured from sustainable sources and are Forest Stewardship Council (FSC) certified. All product claims are independently verified by a certification body on an on-going basis.

Midfloor Products

I-JOISTS:

JJ-IJoists are an engineered composite 'I-Joist' supplied by James Jones and Sons Ltd. The top and bottom flanges are high grade finger-jointed softwood timber. The web is made with an oriented strand board (OSB). JJ-IJoists are intended to be used as floor or roof framing members.

GLUE LAMINATED TIMBER (GLT):

Hyne Timber produce a range of glue-laminated timber products (GLT). GLT is produced by finger jointing and gluing shorter and small cross section timber together to make a larger cross section final product.

All Hyne glue-laminated products are produced at the Maryborough Glulam plant in Brisbane and are manufactured in accordance with AS/NZS 1328.1:1998. The site has ISO9001:2006 accreditation for its manufacturing systems.

STRUCTURAL LVL:

IBuilt Laminated Veneer Lumber (LVL) is an engineered wood composite made from 3-4mm thick rotary peeled veneers that have been laid up with parallel grain orientation. LVL is engineered, highly predictable, dimensionally stable and resists warping and twisting. Veneer sheets are graded ultrasonically and are orientated within the product to maximise the potential of the stiffer and stronger veneer grades.

All IBuilt LVL is manufactured by Nelson Pine Ltd and tested in accordance with the requirements of AS/NZS4537.0:2005 Structural Laminated Veneer Lumber.

James Jones and Sons Ltd

James Jones & Sons Ltd is a 5th generation family business and one of the UK's largest and most progressive timber processing companies with core activities across the whole timber industry. They operate from 25 sites across the UK, and 13 sites in Australasia and employ over 2,100 people. Their Timber Systems Division was launched over 20 years ago and has grown to become the UK's largest manufacturer of certified I-Joists.

JJ-IJoists offer several advantages over traditional structural timber beams, these include longer lengths, a composition that resists shrinking and warping, an excellent strength to weight ratio, and dimensionally stable.

pass™

Scope and limitations of use

For scope and limitations refer to IBuilt JJ-IJoists

https://nzwoodproducts.co.nz/products/details/ijoist/10/

LIGNUM STRUCTURAL LTD

11 Obelisk Street, Wanaka 9305, NZ
M: 6421 259 1903
www.lignumstructural.co.nz

5 June 2024

NZ Wood Products Ltd

PO Box 13647

Onehunga, Auckland 1643

Ref 3265: Report on structural review of timber I-Joists for the New Zealand market.

I have structurally reviewed the data and methodology for deriving the structural properties for James Jones and Sons timber JJI-Joists 240 and 300. The derivation of the strength properties has been carried out by Lignum Structural Ltd based on testing by Scion TE23-037 and has been done in accordance with the following standards:

- AS/NZS 4063:2010 – Characterization of Structural Timber

Table 1 – Characteristic structural properties of timber JJI-Joists

I beam	Depth x width	M_{char} kNm	V_{char} kN	EI $x10^9$ Nmm^2	G_wA_w $x10^6$ N
JJI 240	240 x 72	9.8	10.8	807	1.04
JJI 300	300 x 72	11.9	11.1	1320	1.45

The structural properties shown in Table 1 are consistent with the requirements of the NZ Building Code, B1 Structure and may be used for the specific design of timber components utilising NZS 3603:1993 or NZS-AS 1720.1:2022 Timber Structures Standard. Connections may be designed using NZS3603:1993 J5 or NZS-AS 1720.1:2022 JD4 joint group properties.

Yours sincerely,

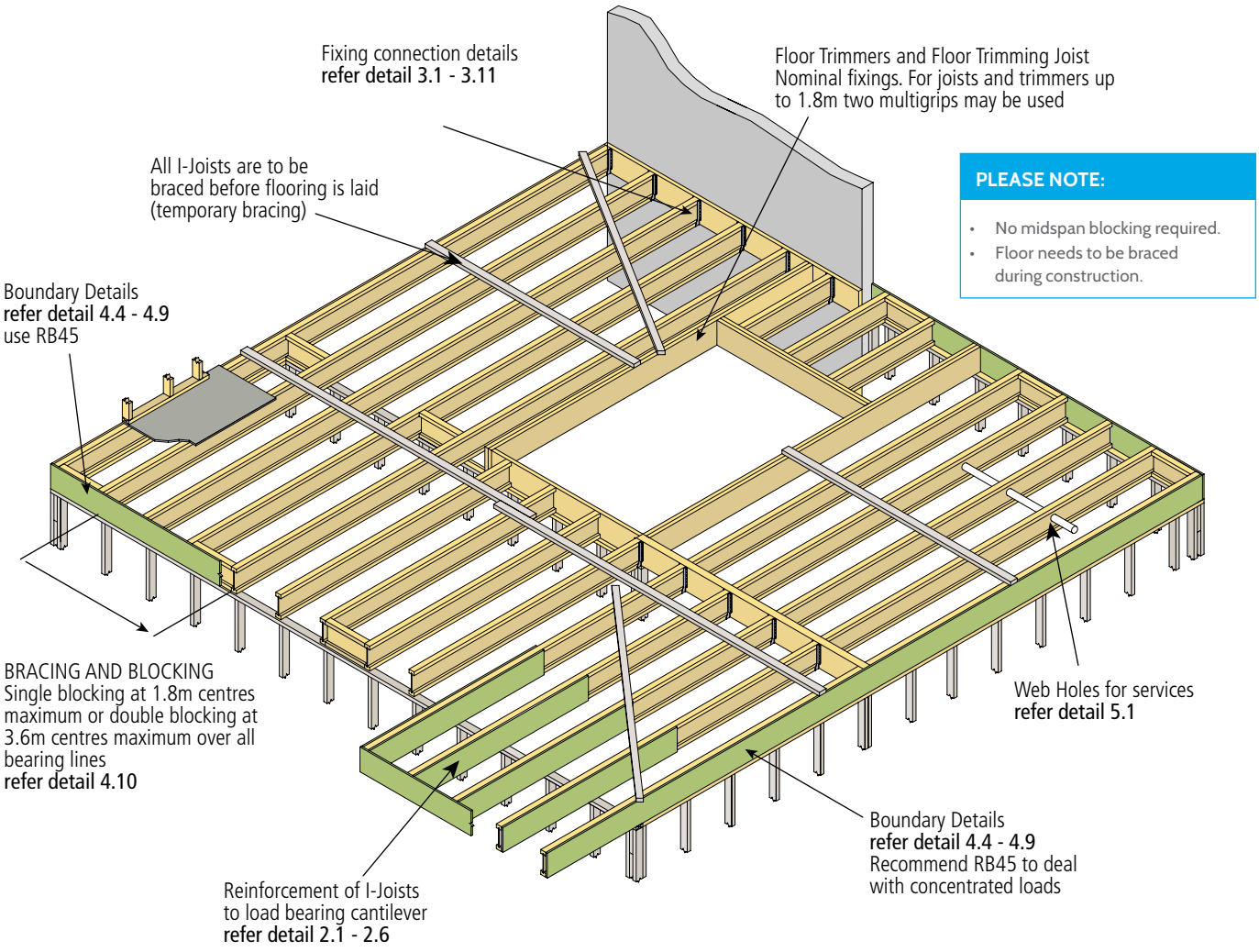
David Reid

STRUCTURAL ENGINEER, Engineering NZ Member ID 121639.

Typical Floor Construction Plan

1.1 Typical floor construction plan

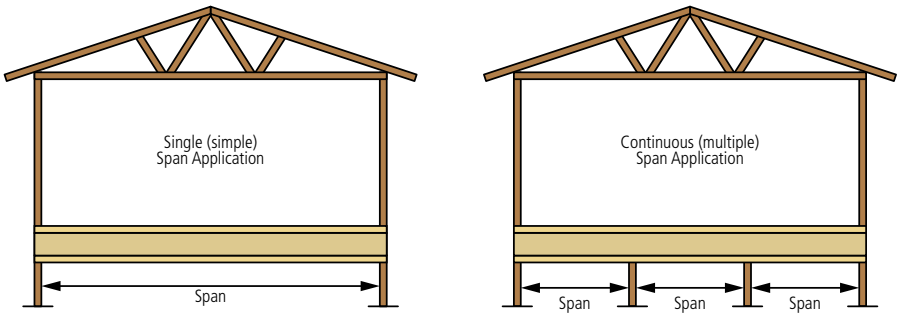
This is a typical floor construction plan. Please see detail numbers on the plan to locate specifics.



PLEASE NOTE:

- No midspan blocking required.
- Floor needs to be braced during construction.

1.2 Span definitions floor joists



For an Engineered Timber Product member to be considered 'continuous' it shall span at least 2 adjacent spans such that span 1 is greater than or equal to 0.75 x Span 2.

The major span is taken from the continuous span table e.g. If span 2= 6.0 then span 1 is greater or equal to 4.5m. Otherwise each span is to be considered 'single'.

PLEASE NOTE:

- 40% of the live load has been considered to be permanent load for assessing the long-term deflection limits for floors in general office, residential and institutional space.
- Where heavy permanent dead loads are present (such as storage areas, tiled floors or marble kitchen islands etc) allowance should be made during joist size and spacing selection. These may require specific design or alternatively refer to Hyne Design software.

Floor Joist Span - JJ-IJoist

Single span

MAX JOIST SPAN (M)						
		DEPTH	300	400	450	600
LIVE LOADS: 1.5KPA DISTRIBUTED 1.8KN CONCENTRATED	DEAD LOAD TIMBER FLOOR 40 KG/M²	240x72	5.5	5.1	4.7	4.3
		300x72	6.2	5.8	5.6	5.2
	DEAD LOAD TILED FLOOR 90 KG/M²	240x72	5.2	4.8	4.6	4.2
		300x72	5.9	5.4	5.3	5.0

		DEPTH	300	400	450	600
LIVE LOADS: 2.0KPA DISTRIBUTED 1.8KN CONCENTRATED	DEAD LOAD TIMBER FLOOR 40 KG/M²	240x72	5.4	5.0	4.7	4.3
		300x72	6.1	5.7	5.5	5.1
	DEAD LOAD TILED FLOOR 90 KG/M²	240x72	5.0	4.6	4.5	4.0
		300x72	5.7	5.2	5.1	4.7

		DEPTH	300	400	450	600
LIVE LOADS: 3.0KPA DISTRIBUTED 2.7KN CONCENTRATED	DEAD LOAD TIMBER FLOOR 40 KG/M²	240x72	5.0	4.6	4.4	4.0
		300x72	5.7	5.3	5.1	4.7
	DEAD LOAD TILED FLOOR 90 KG/M²	240x72	4.7	4.3	4.1	3.6
		300x72	5.4	4.9	4.8	4.4

PLEASE NOTE:

Flooring loads:

40kg/m2 floor mass is assumed to consist of 19mm ply or 20mm Strandfloor, with 10mm plasterboard ceiling lining below.

90kg/m2 floor mass is assumed to consist of 19mm ply or 20mm Strandfloor + flooring tiles, with 10mm plasterboard ceiling lining below.

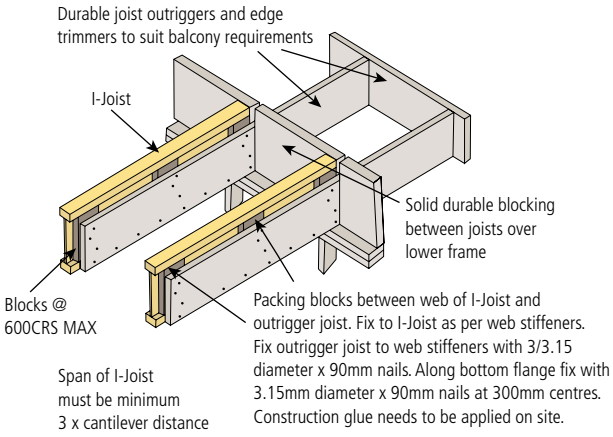
For floor loadings such as light weight concrete (AAC) panels or other materials please refer to the Hyne Design online software or contact IBuilt for design assistance.

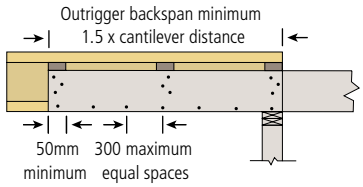
These span tables provide the maximum span that can be achieved for the flooring load listed. To ensure a floor will perform as expected, it is recommended that the above spans are restricted to 85% to help limit floor vibration.

hyne design

Cantilever Floor Joist Details

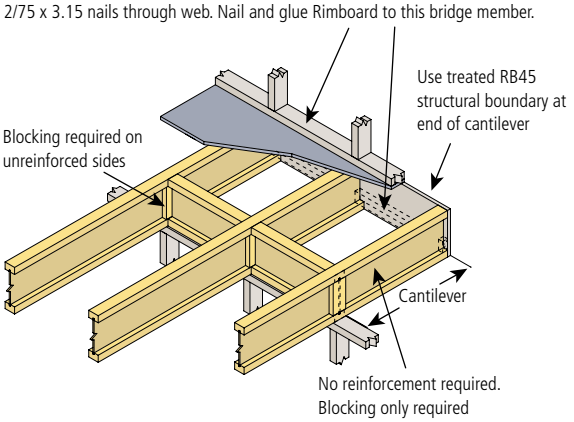
2.1 Cantilever outrigger deck/balcony detail





2.2 Cantilever method (m1)

If bottom plate is outside the requirements of NZS 3604 Table 8.17 and requires support use min 70 x 35 MSG8 bridge member on top of the bottom flange, fixed using 2/75 x 3.15 nails through web. Nail and glue Rimboard to this bridge member.

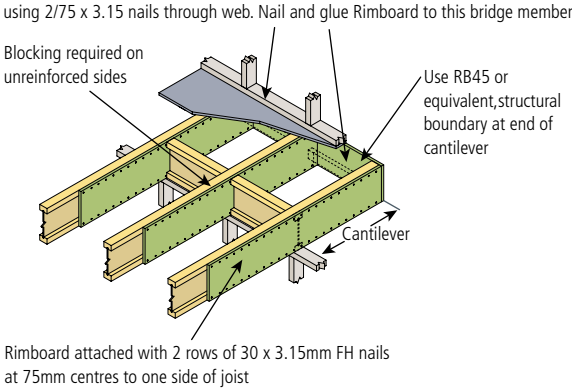


PLEASE NOTE:

M1 - no reinforcement required.
M2 - load-bearing cantilever reinforced one side.
M3 - load-bearing cantilever reinforced both sides.
Cantilever distance allowable for I-Joist sizes to be verified by reference to the I-Joist span tables or HD software.

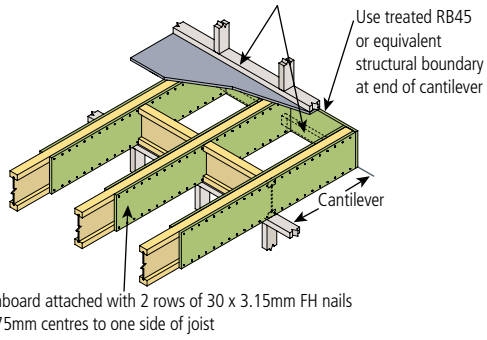
2.3 Cantilever method 2 (m2) detail

If bottom plate is outside the requirements of NZS 3604 Table 8.17 and requires support use min 70 x 35 MSG8 bridge member on top of the bottom flange, fixed using 2/75 x 3.15 nails through web. Nail and glue Rimboard to this bridge member

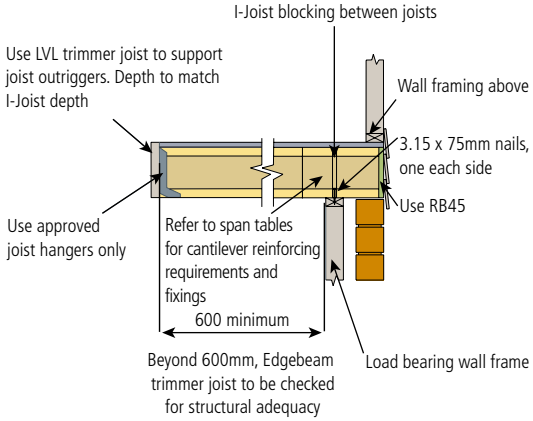


2.4 Cantilever method 3 (m3)

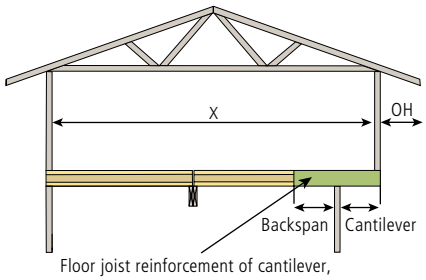
If bottom plate is outside the requirements of NZS 3604 Table 8.17 and requires support use min 70 x 35 MSG8 bridge member on top of the bottom flange, fixed using 2/75 x 3.15 nails through web. Nail and glue Rimboard to this bridge member.



2.5 Brick edge cantilever



2.6 Load bearing cantilever example



Minimum backspan of reinforcement equals cantilever length

$$\text{Roof load width (RLW)} = \left(\frac{X}{2} + OH\right)$$

Cantilever Floor Joist Details / Fixing Details

Span table – load bearing cantilever - 1.5 Kpa floor

MAXIMUM CANTILEVER	I-JOIST SOLUTION	LIGHT WEIGHT ROOFING - (UP TO 20KG/M²)									HEAVY WEIGHT ROOFING - (UP TO 60KG/M²)								
		ROOF LOAD WIDTH, RLW (M)									ROOF LOAD WIDTH, RLW (M)								
		4.0			6.0			8.0			2.0			4.0			6.0		
FLOOR JOIST SPACINGS (MM)		300	450	600	300	450	600	300	450	600	300	450	600	300	450	600	300	450	600
450MM	240	M1	M1	M1	M1	M1	M2	M1	M1	M3	M1	M1	M1	M1	M1	M2	M1	M2	-
	300	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M2
750MM	240	M1	M1	M1	M1	M1	M2	M1	M1	M3	M1	M1	M1	M1	M1	M2	M1	M2	-
	300	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M2
900MM	240	M1	M1	M1	M1	M1	M2	M1	M1	M3	M1	M1	M1	M1	M1	M3	M1	M2	-
	300	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M2
1200MM	240	M1	M1	M3	M1	M2	-	M1	M3	-	M1	M1	M3	M1	M3	-	M2	-	-
	300	M1	M1	M1	M1	M1	M2	M1	M1	M2	M1	M1	M1	M1	M1	M2	M1	M2	M3

Span table – load bearing cantilever 0.5 Kpa snow load

MAXIMUM CANTILEVER	I-JOIST SOLUTION	LIGHT WEIGHT ROOFING - (UP TO 20KG/M²)									HEAVY WEIGHT ROOFING - (UP TO 60KG/M²)								
		ROOF LOAD WIDTH, RLW (M)									ROOF LOAD WIDTH, RLW (M)								
		4.0			6.0			8.0			2.0			4.0			6.0		
FLOOR JOIST SPACINGS (MM)		300	450	600	300	450	600	300	450	600	300	450	600	300	450	600	300	450	600
450MM	240	M1	M1	M1	M1	M1	M2	M1	M1	M3	M1	M1	M1	M1	M1	M2	M1	M2	-
	300	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M2
750MM	240	M1	M1	M1	M1	M1	M2	M1	M1	M3	M1	M1	M1	M1	M1	M2	M1	M2	-
	300	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M2
900MM	240	M1	M1	M1	M1	M1	M2	M1	M2	M3	M1	M1	M1	M1	M1	M3	M1	M2	-
	300	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M1	M2
1200MM	240	M1	M1	M3	M1	M2	-	M1	M3	-	M1	M1	M3	M1	M3	-	M2	-	-
	300	M1	M1	M1	M1	M1	M2	M1	M1	M3	M1	M1	M1	M1	M1	M2	M1	M2	M3

PLEASE NOTE:

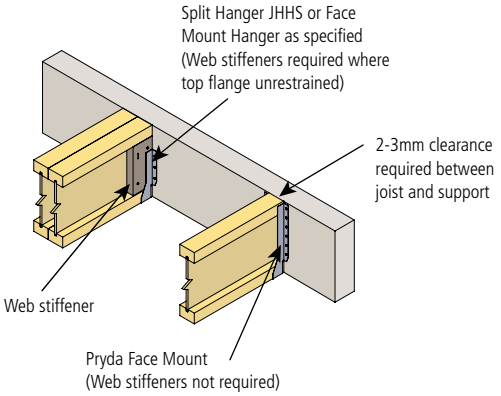
These span tables provide maximum member spans up to 100% of the recommended capacity. It is recommended that spans should be restricted to 85% of the maximum allowed.

Hanger Fixings

PLEASE NOTE:

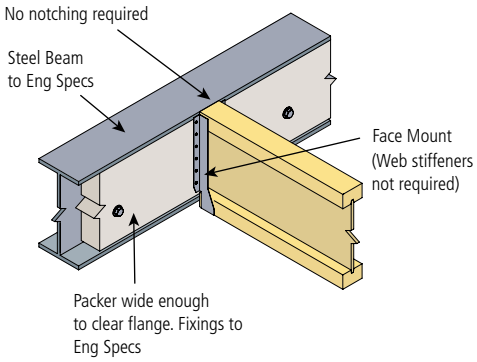
- You must check the capacity of all hangers and connections for your particular application.
- Minimum 3mm/maximum 6mm clearance between beams. Contact between beams may cause squeaks.
- Ensure fasteners are selected to meet the durability requirements of NZS 3604:2011.
- Use the correct nails, screws and nail plates, following installation instructions.

3.1 Joist hanger connection types



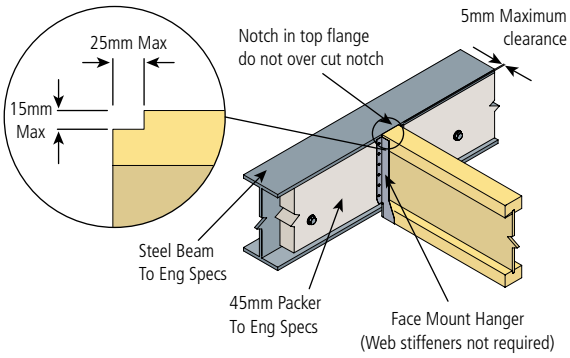
3.2 I-Joist fixed to steel beam with face mount hanger

Option 1



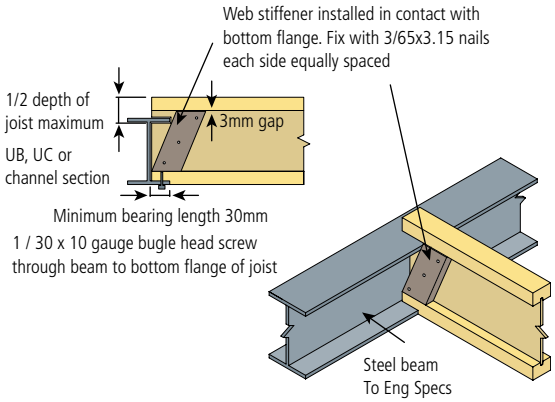
3.3 I-Joist fixed to steel beam with face mount hanger

Option 2

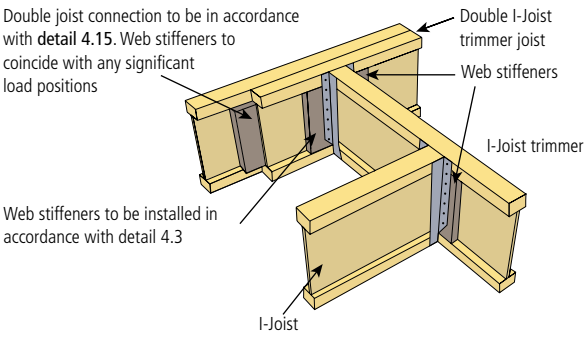


3.4 Joist connection to steel beam

Option 3

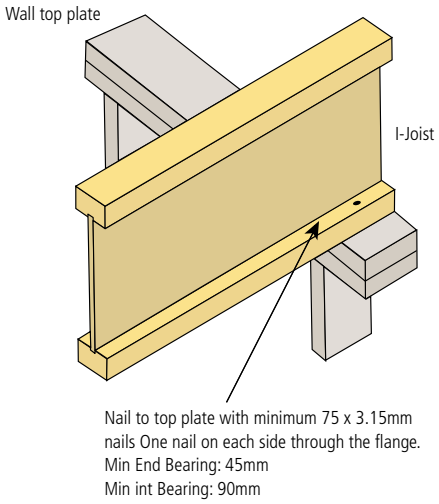


3.5 Joist to trimmer connection



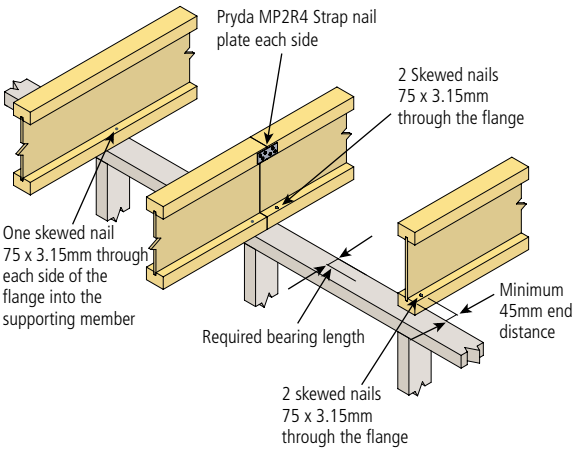
3.6 End bearing

A



Detail over the top plate at mid support

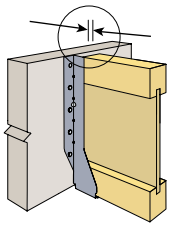
B



3.7 Fixing requirements for face mount hangers

A

IMPORTANT
Minimum gap 3mm between beam and I-Joist



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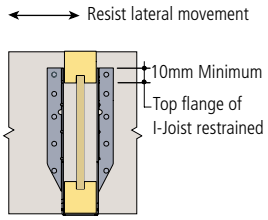

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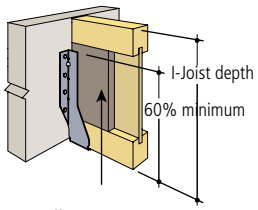


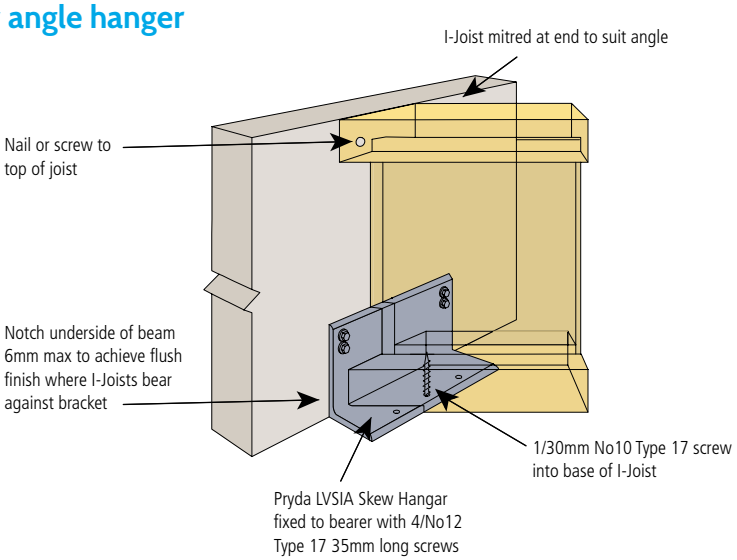
Web stiffener required when top flanges are unrestrained

The hanger must support a minimum of 60% of joist depth

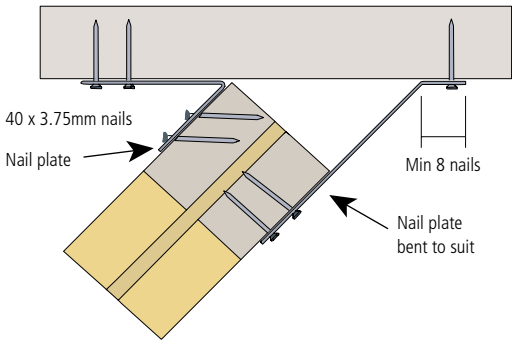
PLEASE NOTE:

Minimum 3mm/maximum 6mm clearance between beams. Contact between beams may cause squeaks. Avoid skew nailing I-Joists to support.

3.8 Skew angle hanger

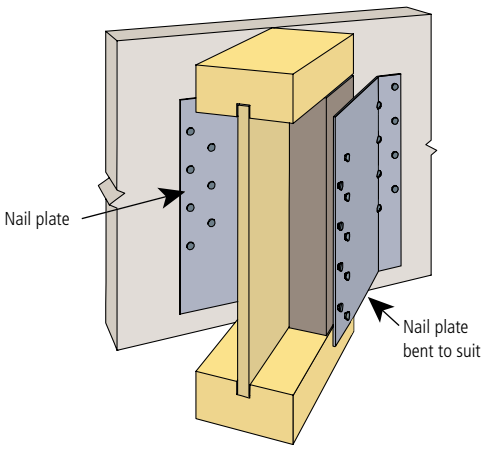


3.9 45° Skew angle hanger fixing

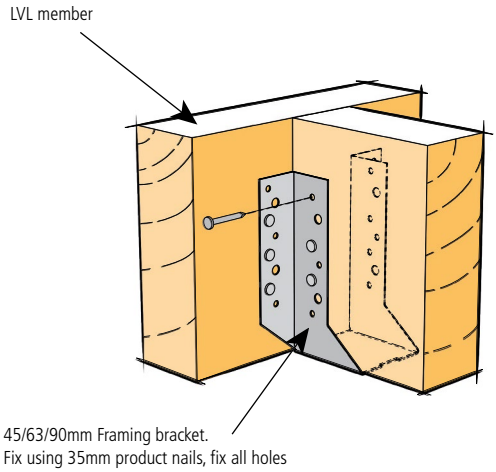


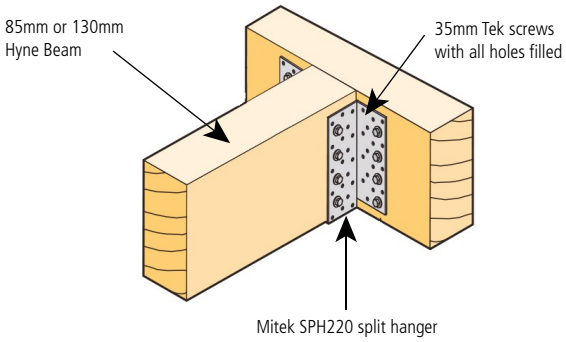
Left or right orientation based on view from the supported I-Joist

3.10 45° Skew angle hanger fixing



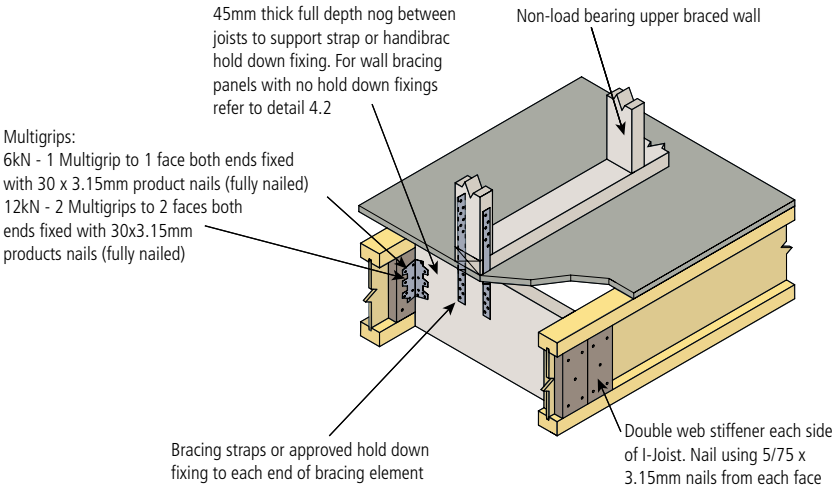
3.11 LVL & Hyne Beam fixing



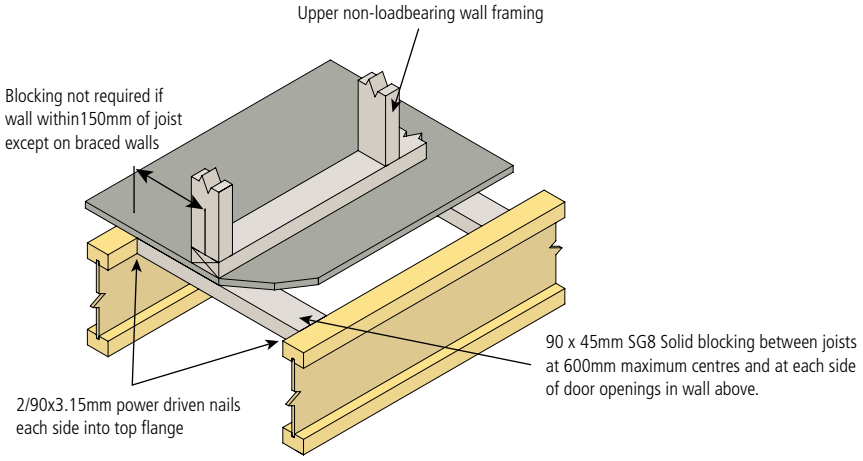


Upper wall and braced wall support

4.1 Bracing wall tie down



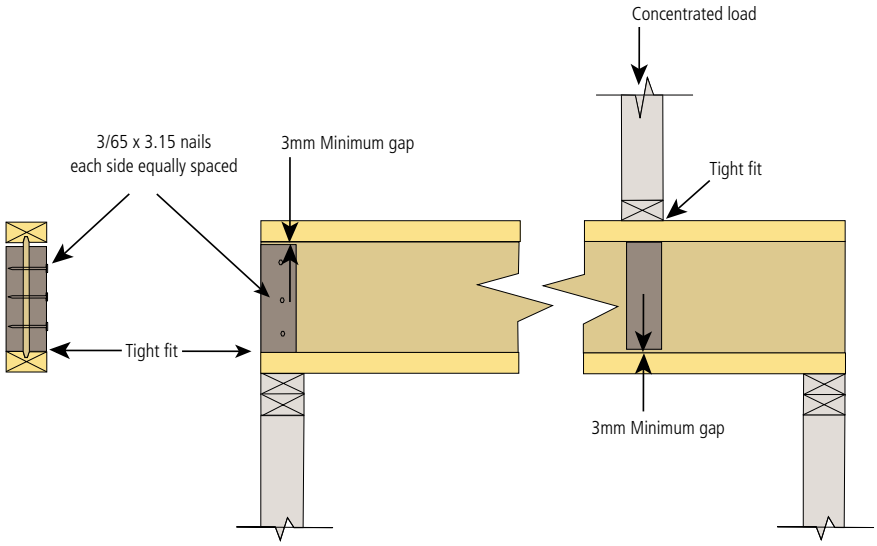
4.2 Parallel non-load bearing wall support



4.3 Web stiffener detail

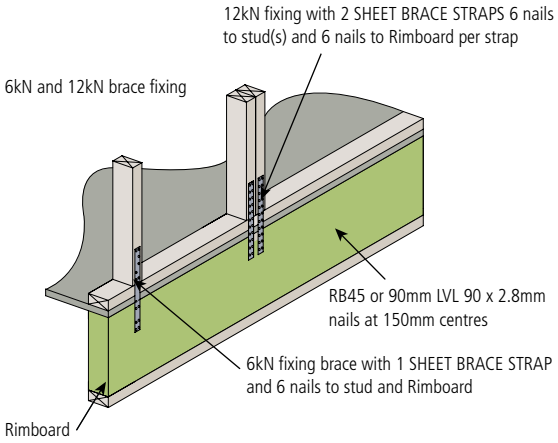
PLEASE NOTE:

- Web blocks to be used at all concentrated loads and at supports where specified.
- Web block size 90 x 30mm.
- Web blocks are required to prevent buckling of I-Joist web. This occurs when loads are being transferred to the end of the beam.

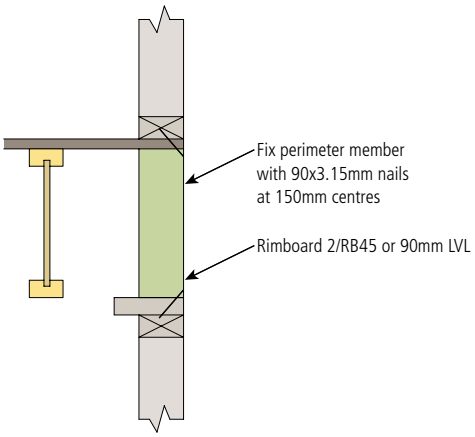


Boundary Details

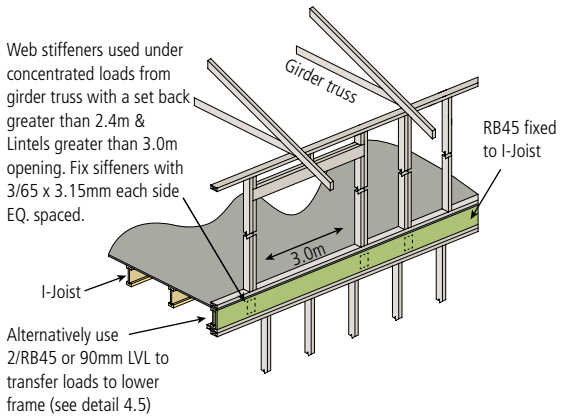
4.4 Rimboard external wall bracing fixing



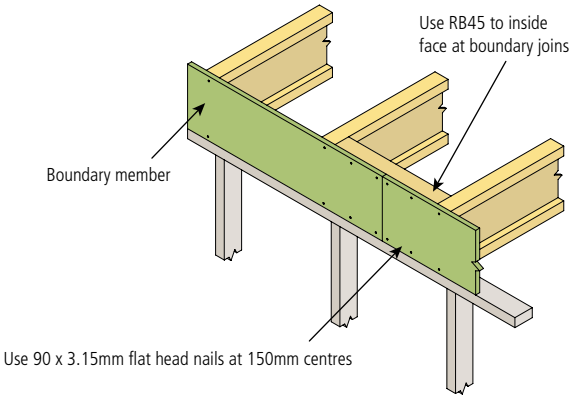
4.5 Rimboard parallel to joist span



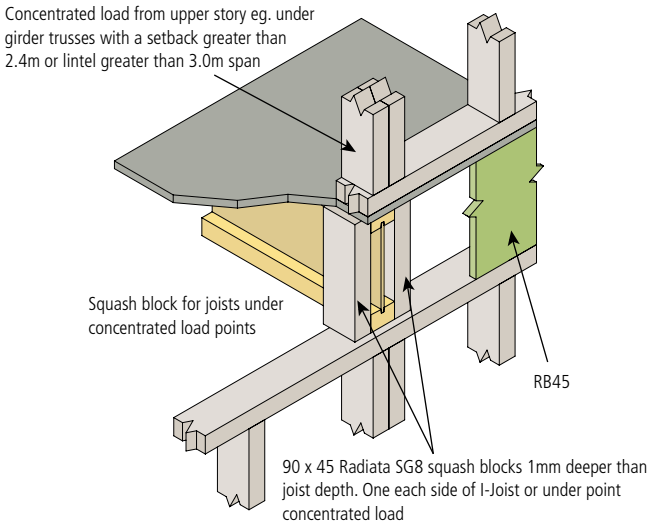
4.6 Load bearing I-Joist & rimboard/boundary



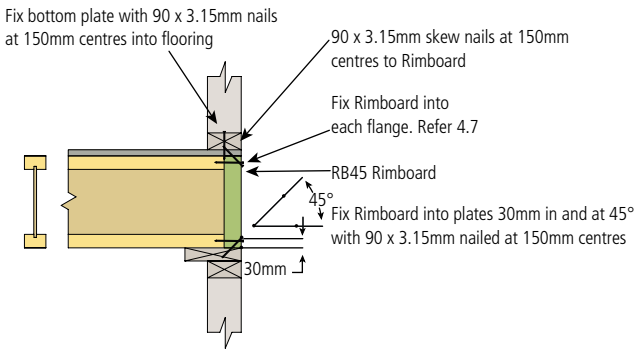
4.7 Rimboard joining



4.8 Concentrated load at jam studs or posts



4.9 Rimboard fixing to I-Joist - transferring bracing load from wall above

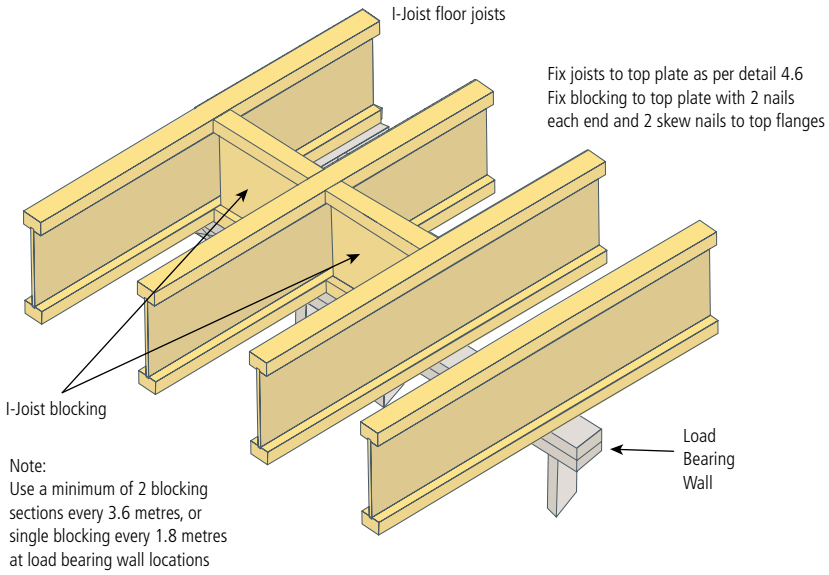


PLEASE NOTE:

- Where 6kN and 12kN tie down bracing straps are required - these are to be fixed to manufactures specifications in addition to the fixing shown above.
- Other wall fixings to NZS3604 requirements.

Bracing and Blocking & Apron Roof Detail

4.10 Bracing and blocking



Note:
Use a minimum of 2 blocking sections every 3.6 metres, or single blocking every 1.8 metres at load bearing wall locations

PLEASE NOTE:

BRACE BLOCKING FOR WIND AND EARTHQUAKE

Bracing of the floor is required to transfer bracing forces from the upper level to the lower level.

This is achieved by providing lateral restraint to the floor. Where the forces are parallel with the joist this is adequate with the longitudinal shear capacity of the joists.

For forces perpendicular to the joist, brace blocking is required. This can be achieved by two blocking panels at 3.6m centres or one blocking panel at 1.8m centres along bearing and bracing walls.

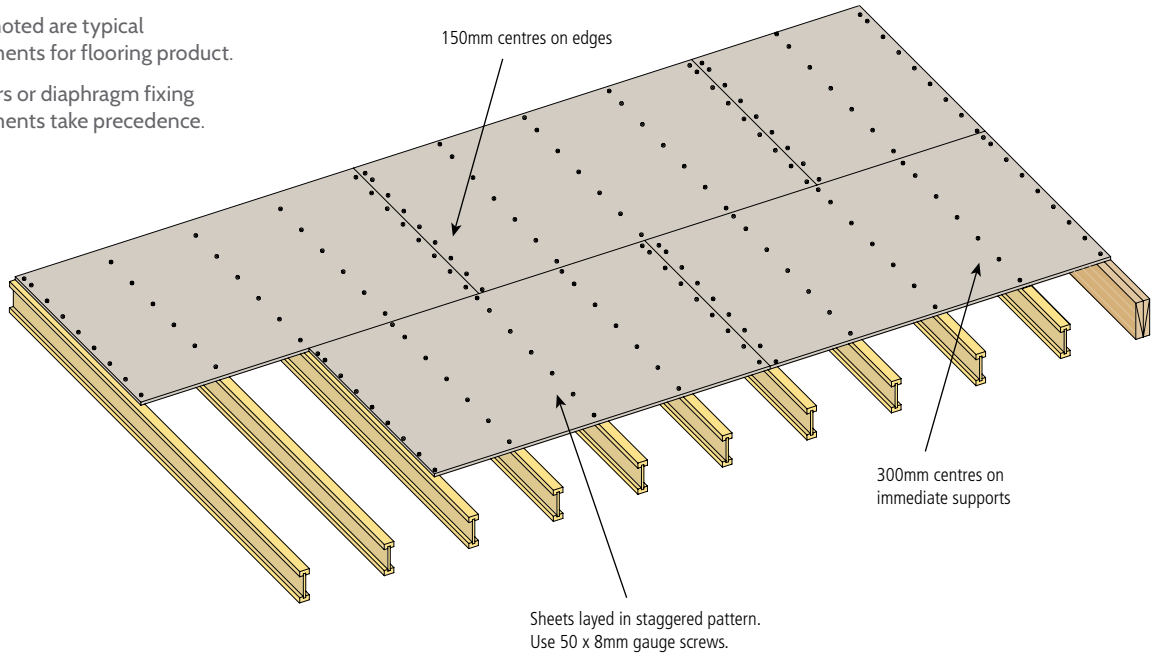
Along the external wall use the Rimboard.

Floor Fixing – Details

4.11 Fixing flooring panels

Fixings noted are typical requirements for flooring product.

Engineers or diaphragm fixing requirements take precedence.

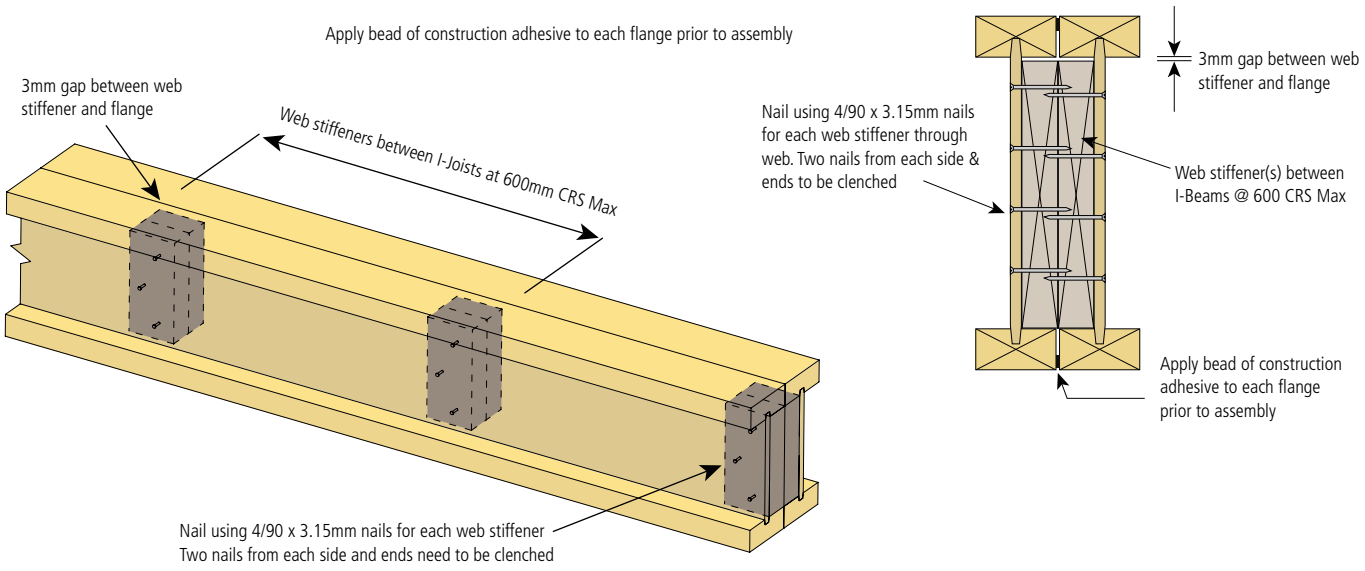


PLEASE NOTE:

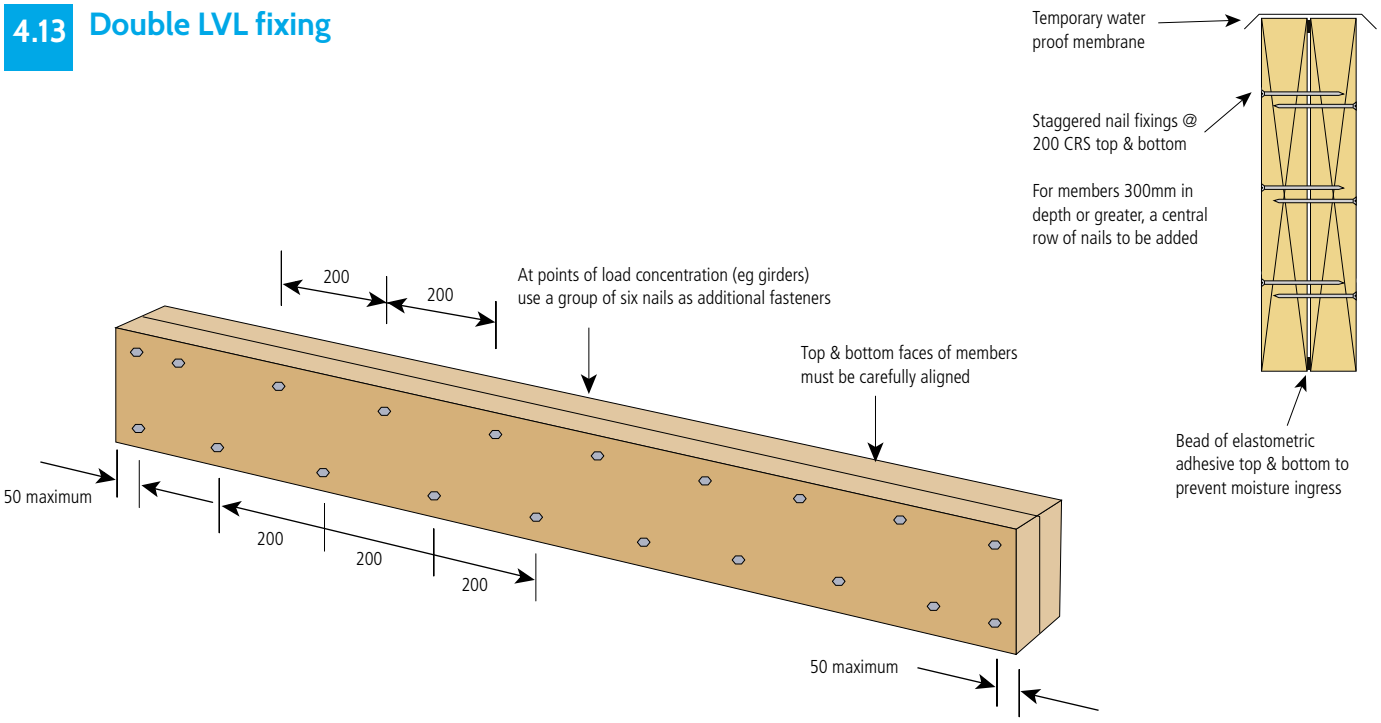
- Timber nogs or tongue and groove joint is required at sheet edges.
- Lay sheets in staggered pattern.

Double Beam Connections

4.12 Double I-Joist connection



4.13 Double LVL fixing



PLEASE NOTE:

- Where the double member supports another member fixed to its face, additional nailing is required from the reverse side of the beam.
- Additional fasteners will also be required at points of concentrated load.
- Skew nailing is required to avoid prying.
- All nails to be alternatively skewed (30° to vertical)
- An additional centre row of nails is required to both sides for beams 300mm in depth.
- Where a double component has a concentrated load from one side only, use 6x3.15mm diameter nails in the vicinity of the load. Fixing needs to be specifically designed when the load from one side is greater than 4.8kN.

NAILING SCHEDULE	2 X 45 LVL	90 x 3.15mm
	2 X 63 LVL	120 x 3.15mm

or 14g x 90mm bugle type screws

Note: Minimum nail lengths to penetrate more than 90% of the combined member thickness

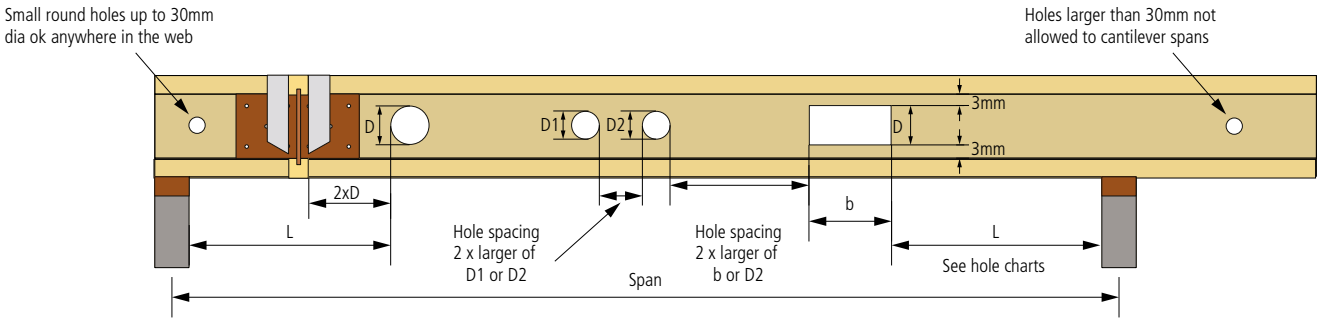
Holes in I-Joists

To use:

1. Select the required depth of I-Joist.
2. Select the row corresponding to the required span. For spans between those listed, use the next largest value.
3. Select the column corresponding to the required hole diameter. For diameters between those listed, use the next largest value.
4. The intersection of the Span row and Hole Diameter column gives the minimum distance from the inside face of bearing to the edge of a circular hole.
5. Double check the distance to the other support, using the appropriate support condition.

Notes:

1. **Cut holes carefully! Do not overcut holes! Do not cut or notch joist top and bottom flanges.**
2. Holes may be placed anywhere within the depth of the joist. A minimum 2mm clear distance is required between the hole and the flanges.
3. Round holes up to 30mm diameter may be placed anywhere in the web
4. Holes larger than 30mm are not permitted in cantilevers without special engineering.
5. Multiple holes shall have a clear separation along the length of the joist of at least twice the length of the larger adjacent hole, or a minimum of 305mm centre-to-centre, whichever is greater.
6. Multiple holes may be spaced closer than specified, but the assessment of the hole must be made for a hole diameter that would enclose both smaller holes together.



JOIST DEPTH (MM)	CLEAR SPAN (M)	HOLE DIAMETER (MM)						
		50M	75	100	125	150	175	200
240x72	3.5	300	300	300	300	-	-	-
	4.0	300	300	300	300	-	-	-
	4.5	300	300	300	400	-	-	-
	5.0	300	300	300	500	-	-	-
	5.285	300	300	300	600	-	-	-
300x72	4.0	300	300	300	300	350	700	800
	4.5	300	300	300	300	450	800	950
	5.0	300	300	300	300	600	950	1100
	5.5	300	300	300	350	700	1100	1300
	5.995	300	300	300	600	950	1250	1500

Design assumptions:

1. The hole locations listed above are valid for floor joists supporting only uniform loads that do not exceed those set out in the standard flooring span tables.
2. Hole location is measured from the inside face of bearing to the edge of a circular hole, from the closest support.
3. Clear Span has not been verified for these joists and is shown for informational purposes only. Verify that the joist selected will work for the span and loading conditions needed before checking hole location.
4. The maximum circular hole diameters for I-Joists are: 140mm Dia for 240mm deep, 200mm Dia for 300mm deep.
5. For rectangular holes, width 'b' should not exceed x1.5 'D'

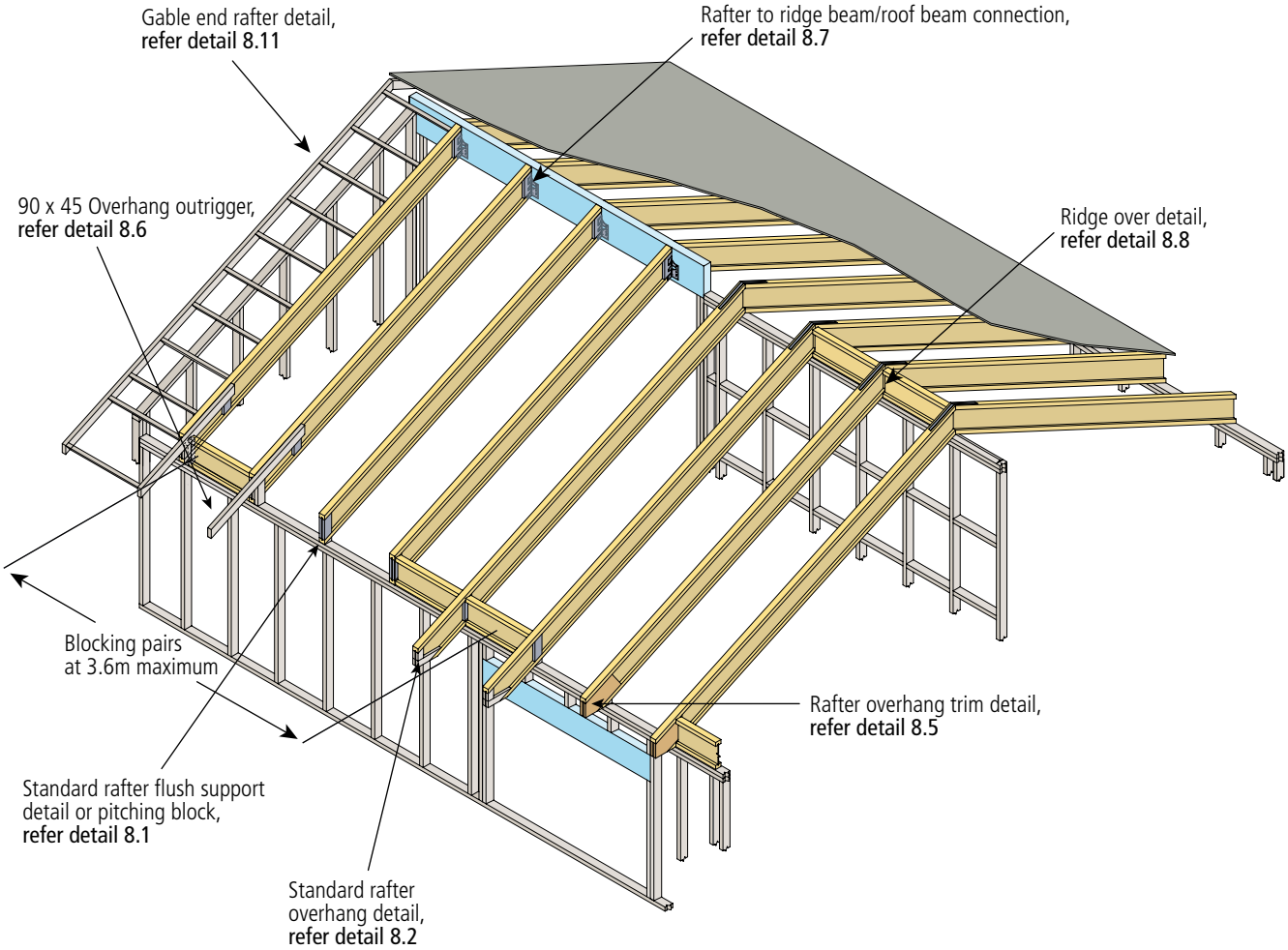
Rafter Span - JJ-IJoist

Single span - supporting roof and ceiling

		I-JOIST DEPTH	MAX RAFTER SPAN (M)								
			RAFTERS 600CRS			RAFTERS 900CRS			RAFTERS 1200CRS		
			0-15°	15-25°	25-35°	0-15°	15-25°	25-35°	0-15°	15-25°	25-35°
WIND ZONE: UP TO EXTRA HIGH (55M/S)	METAL ROOF AND CEILING (40KG/M²)	240 x 72	6.6	6.2	5.6	6.0	5.7	5.0	5.6	5.1	4.3
		300 x 72	7.5	7.0	6.1	6.6	5.1	5.8	5.8	5.3	4.5
	TILED ROOF AND CEILING (90KG/M²)	240 x 72	5.4	5.0	4.6	4.6	4.3	3.9	4.1	3.9	3.5
		300 x 72	6.2	5.8	5.2	5.5	5.2	4.7	5.0	4.7	4.2

5.1 Typical roof construction plan

This is a typical roof construction plan. Please see detail numbers on the plan to locate specifics.



PLEASE NOTE:

ROOFING LOADS:

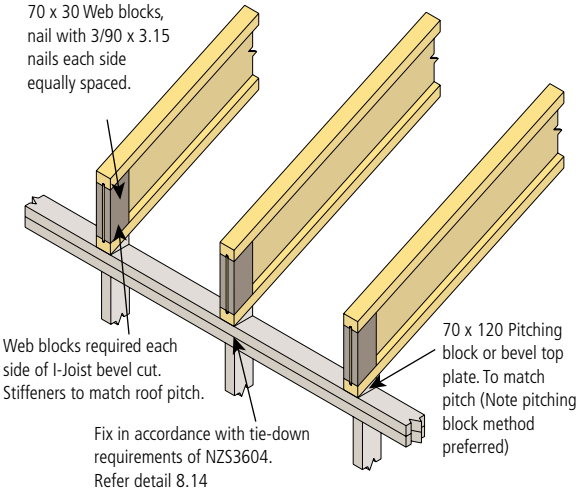
- 40kg/m2 Roof mass is assumed to consist of light roofing (i.e. longrun iron), with 10mm plasterboard ceiling lining below.
- 90kg/m2 Roof mass is assumed to consist of heavy roofing (i.e. concrete tiles), with 10mm plasterboard ceiling lining below.
- For other loadings such as membranes with built up deck framing systems please refer to the Hyne Design online software or contact IBuilt for design assistance.

These span tables provide the maximum span that can be achieved for the roofing load listed. To ensure a roof will perform as expected and to limit the possibility of plasterboard joins from cracking, the above spans can be restricted to 85%.

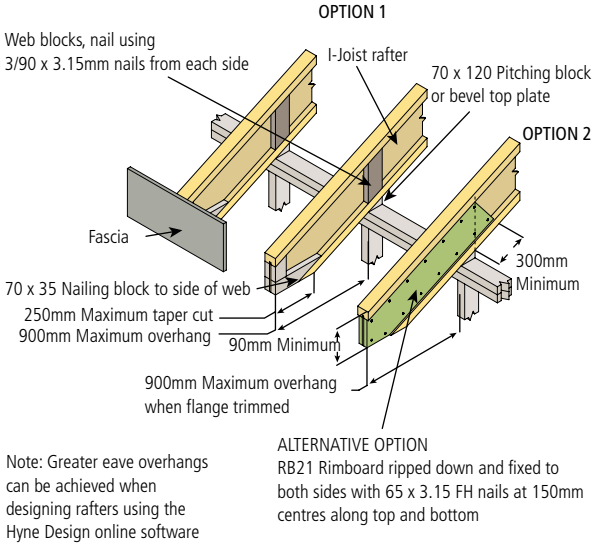
Snow loads have not been considered in the preparation of these tables. Reference should be made to section 15 of NZS 3604:2011 – Timber framed buildings to determine the required snow loading. Specific engineering design should be applied or refer to Hyne Design online software.

Roof Details

6.1 Pitching block detail

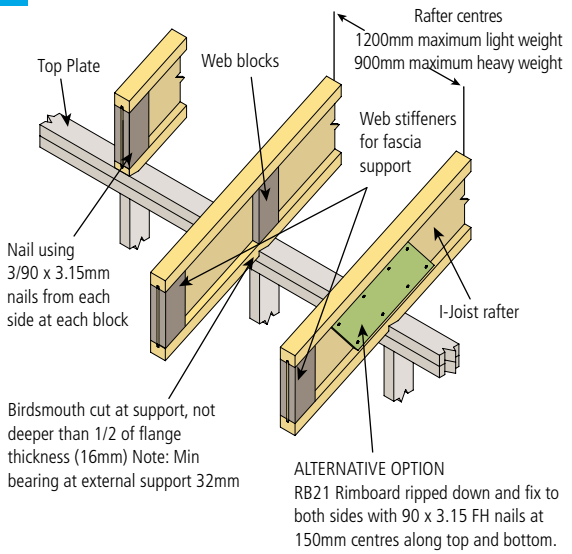


6.2 Standard rafter overhang detail

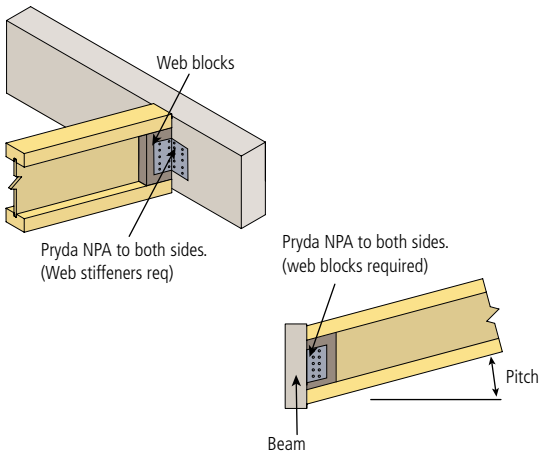


Note: Greater eave overhangs can be achieved when designing rafters using the Hyne Design online software

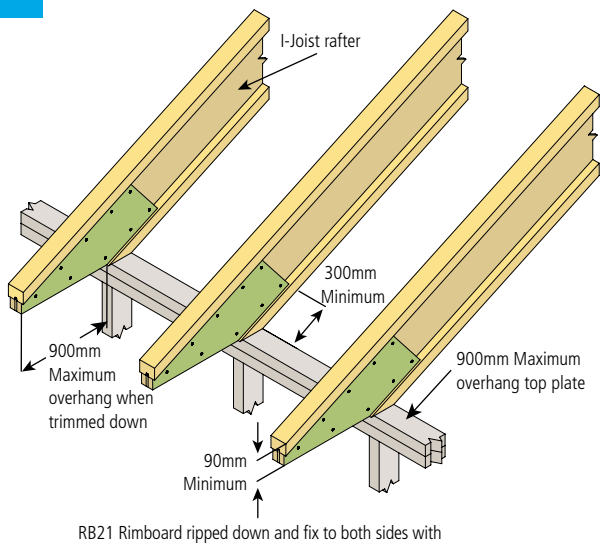
6.3 Rafter birdsmouth detail



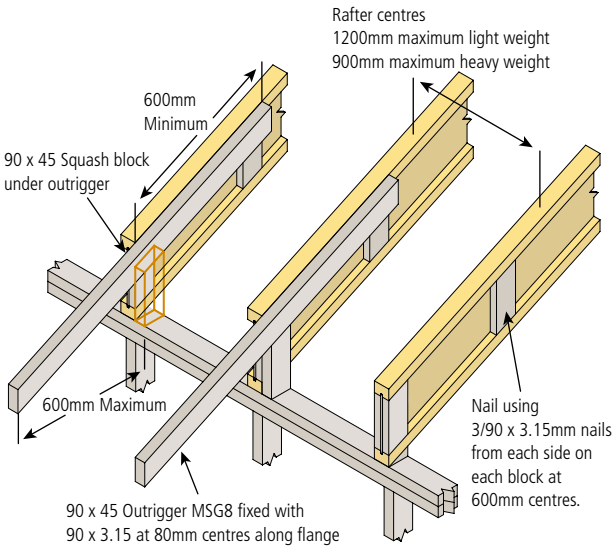
6.4 Rafter to beam connection



6.5 Rafter overhang trim detail

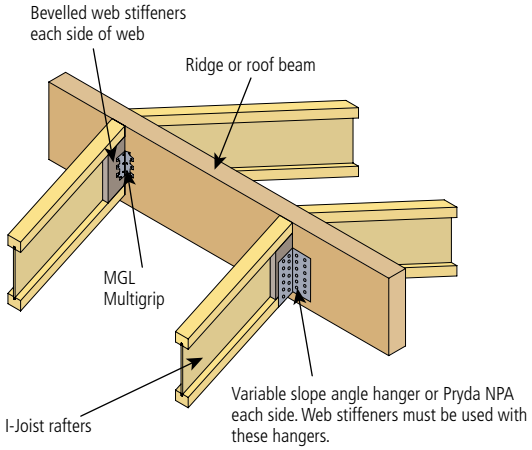


6.6 90 X 45 overhang outrigger

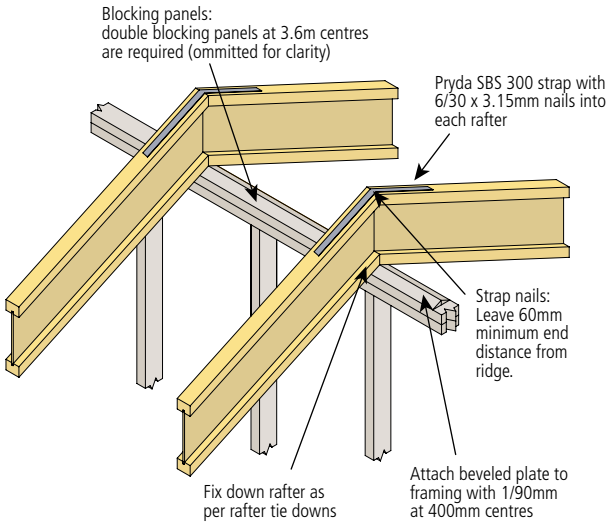


Roof Details

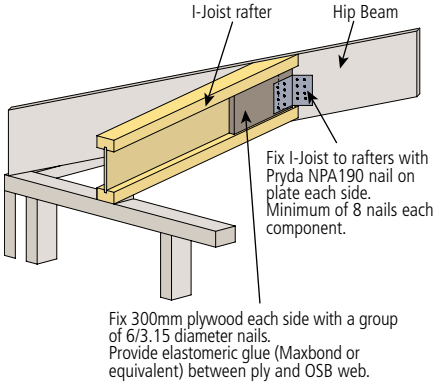
6.7 Rafter to ridge beam / roof beam connection



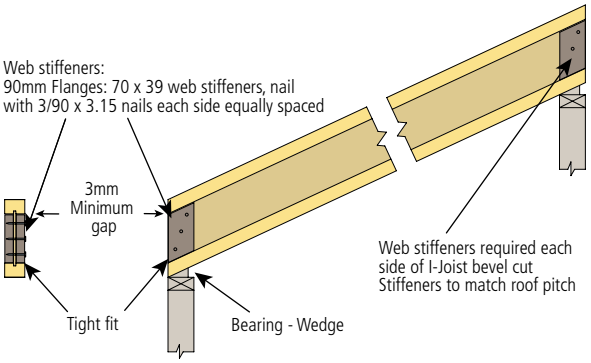
6.8 Ridge over detail



6.9 Hip rafter connection

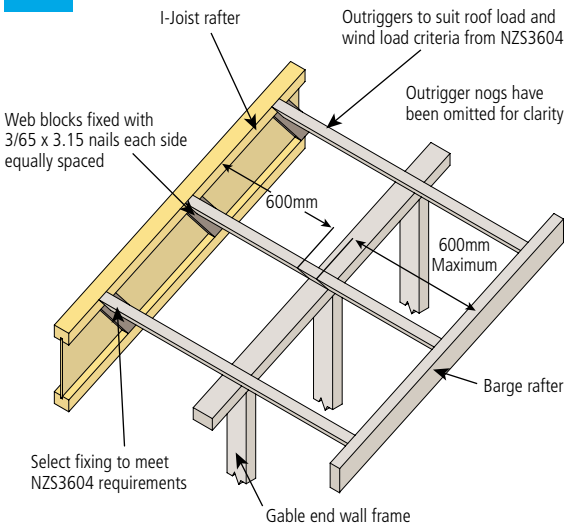


6.10 Web block detail



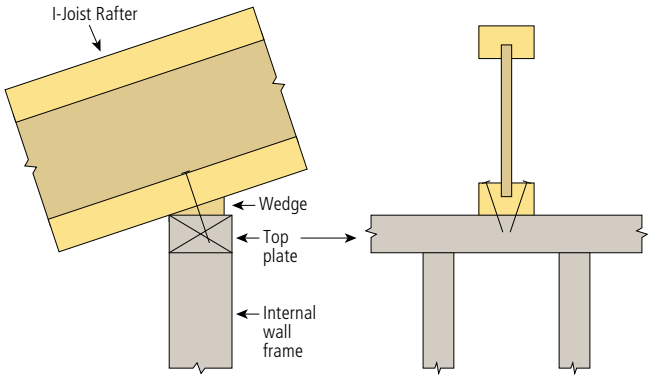
Web stiffeners:
72mm Flange I-Joist – use 70 x 30mm
Note: I-Joist web stiffeners to be used at all concentrated loads and at supports where specified

6.11 Gable end rafter detail



Hanger Fixings

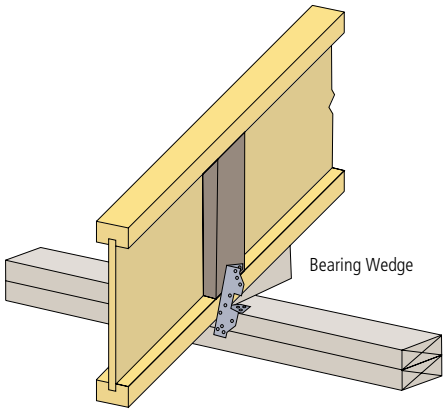
6.12 Intermediate bearing detail



Fixing requirements at intermediate bearing

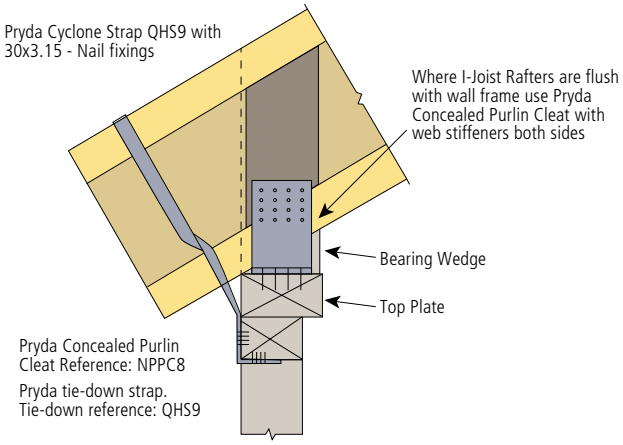
FOR SLOPES < 18°	=1/90 x 3.15mm nail each side
FOR PITCHES 15-22.5°	=2/90 x 3.15mm nails each side
FOR PITCHES > 22.5°	=2/90 x 3.15 nails each side and tie down strap

6.13 Rafter tie down multigrip



Site made wedge with Pryda Multigrip (MGL).
Use one each side. Tie-down reference: MGL.
Note: Refer NZS3604 for hold down requirements

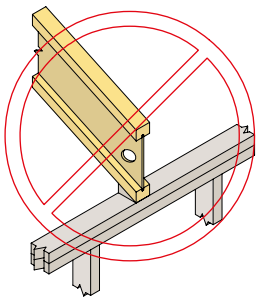
6.14 Rafter tie down cyclone strap or concealed purlin cleat



Note: Where possible bend strap legs under support for increased support

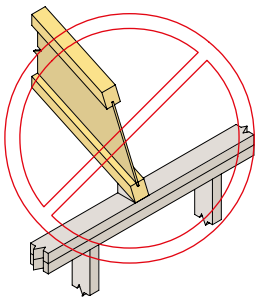
Avoid These Practices

A



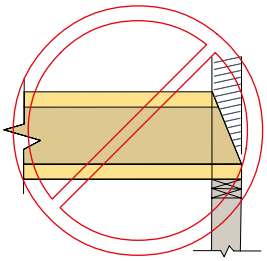
DO NOT cut holes too close to support.

B



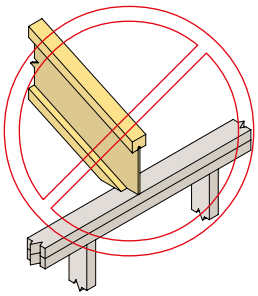
DO NOT bevel cut rafter beyond inside face of wall.

C



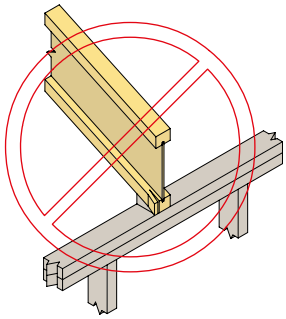
DO NOT bevel cut joist beyond inside face of wall

D



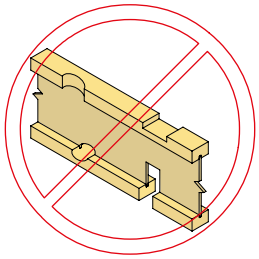
DO NOT overhang birdsmouth cut from inside face of plate.

E



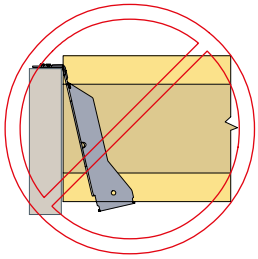
DO NOT split the flange.
Ensure the correct heel fixing is done.

F



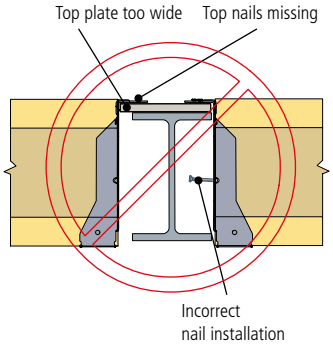
DO NOT cut, notch or drill top or bottom chords.

G



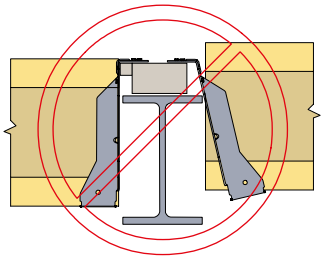
I-Joist is not seated properly into the hanger, this may cause nail pullout or shear under load.

H



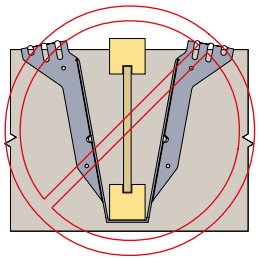
Top nailing is incorrect due to:
1. Top plate too thin or
2. Wrong length nail is used

I



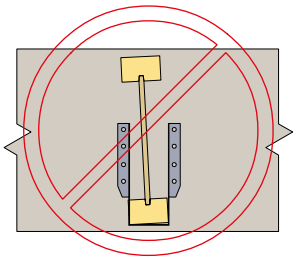
If the top plate is too narrow it may cause:
1. Hanger deformation
2. Nail pull-out or shear
3. Supporting beam deformation

J



Spreading hanger legs will push the I-Joist up which may cause uneven floors, squeaky floors and I-Joist rotation.

K



Hangers not supporting the top flange of the I-Joist will require stiffeners.

Storage, Handling and Safety

As with other high quality products, Engineered Timber Products such as I-Joists, LVL and Hyne Beams require proper storage and handling during distribution and at the job site in order to protect the product from damage. The following information provides techniques for safe and proper handling to minimise physical and moisture damage to our Engineered Timber Products.

Storage:

- Store bundles upright on a level and well drained surface. Joists should not be stored in direct contact with the ground and should always be protected from the weather. Ensure supports of packs do not exceed 3.0m apart.
- Bundles should remain wrapped, strapped and protected from the weather until time of installation.
- Always stack and handle I-Joists in the upright position.
- Twisting of joists or applying loads to the joists when flat can damage the joist.
- Avoid walking on wrapped and unwrapped product.
- Do not stack other materials on top of I-Joists, LVL or Hyne Beams.
- Follow good forklift safety procedures when handling Engineered timber Products in the yard and at building sites:
  - Use wide forks to handle long length material.
  - Storage yard should be maintained to provide flat, well drained and level driving surface.
  - Do not handle or rotate loads over people.
  - Do not bound or jerk loads.
  - Maintain low forklift speeds and brake smoothly to prevent accidental dumping of loads.
  - Stabilise the load if there is a possibility of the load shifting.
  - Maintain load height within safe limits.

Handling:

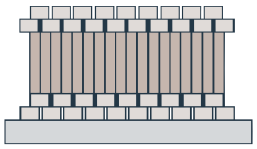
- Use care when handling bundles and individual components to prevent injury to handlers or damage by forklifts or cranes.
- Do not lift or roll I-Joists by the top flange. This activity may cause damage to the I-Joist.
- Avoid excessive bowing during all phases of handling and installation.
- Joists should remain vertical during handling.
- Damaged joists should not be used. Do not try to repair a damaged joist on site.
- Refer table for size/weight when handling. Please take these into account when handling timber.

Safety Warning:

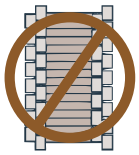
- Never walk on wrapped or unwrapped bundles.
- Do not walk on the joists until they are full installed or correctly braced, joists are unstable until braced laterally.
- During installation, a minimum of 100 x 50 temporary bracing at 2.4m CRS max is required.
- Only remove the bracing as the sheathing is being attached.
- Never overload joists with loads that exceed design limits.
- Stack building materials over walls or main joist only.
- Do not use I-Joists as ramps, planks or walkways.
- Brace each joist as it is erected.
- All hangers, rimboards and blocking at the end supports of the joists must be installed and nail properly.

THE ABOVE ARE GENERAL RECOMMENDATIONS AND IN SOME CASES ADDITIONAL PRECAUTIONS MAY BE REQUIRED

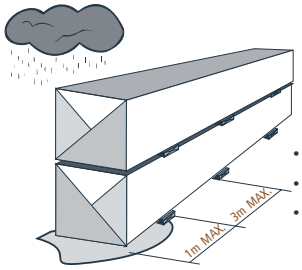
TRANSPORTING I-JOISTS AND LVL BEAMS			
BEAM TYPE	BEAM DEPTH (MM)	BEAM WIDTH (MM)	BEAM MASS (KG/M)
I-JOIST			
240 70-T	240	70	4.07
300 70-T	300	70	4.48
LVL BEAM			
200X45	200	45	4.7
240X45	240	45	5.6
300X45	300	45	7
HYNE BEAM 15			
295X85	295	85	16.3
330X85	330	85	18.2
360X85	360	85	19.9
425X85	425	85	23.5
460X85	460	85	25.4



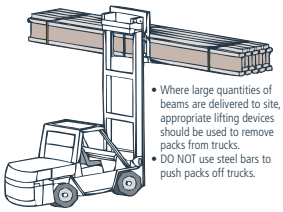
I-Joists in the upright position.



DO NOT stack or handle I-Joists flat.



- Keep I-Joists elevated and place on solid, dry and level surface.
- Ensure supports of packs do not exceed 3.0m apart.
- Ensure wrapping remains on packs to protect I-Joists from the elements.



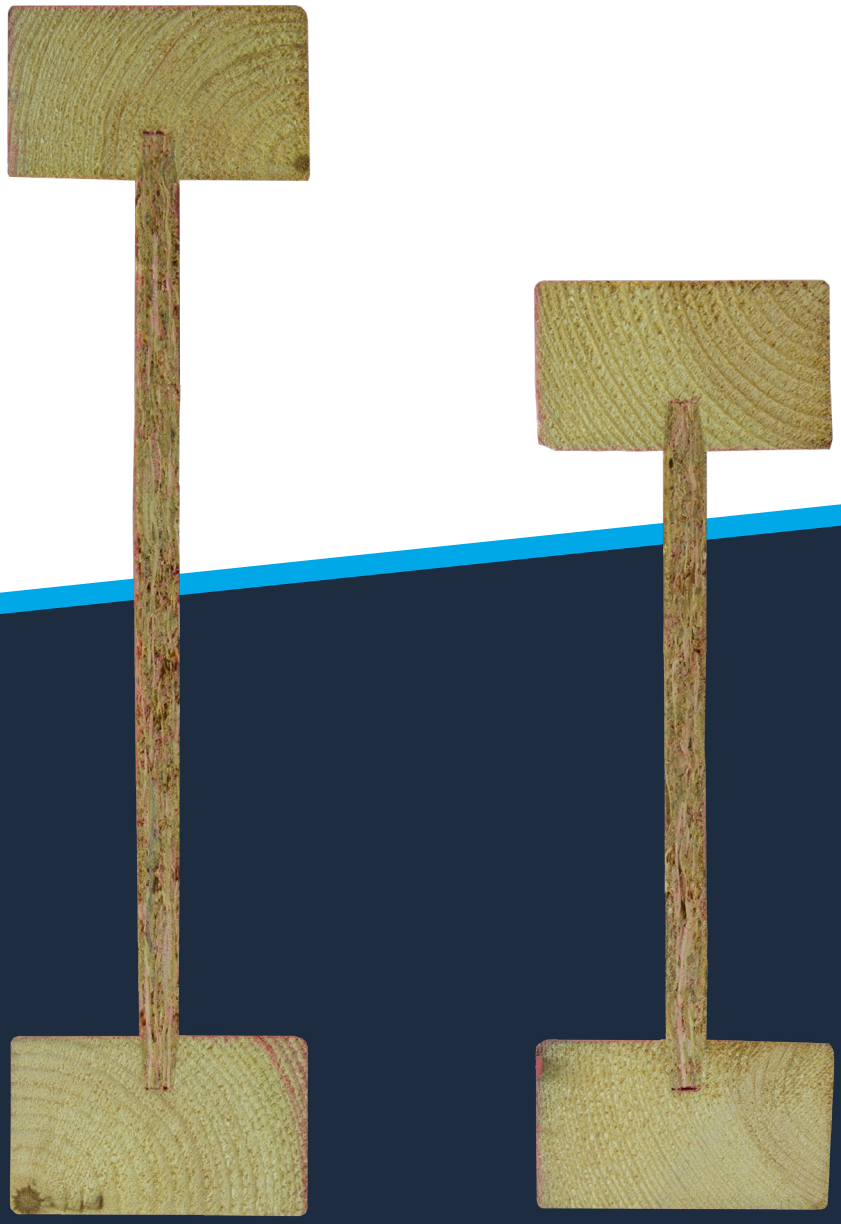
- Where large quantities of beams are delivered to site, appropriate lifting devices should be used to remove packs from trucks.
- DO NOT use steel bars to push packs off trucks.

- Remove packs from truck with forklift or side loader.
- DO NOT use steel bars to lower or push packs off truck.

DO NOT lift or roll I-Joists by the top flange.

DO NOT lift I-Joists whilst they are lying flat. Excessive flapping may cause damage.

Never overload joists with loads that exceed design loads.
DO NOT walk on the joists until they are fully installed or braced.



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