



**ENGINEERED  
WOOD PRODUCTS**

John Cook & Sons

# SPECIFICATION GUIDE SWELITE I-JOISTS

## FLOOR & ROOF - N3

**SWEDISH.LITEWEIGHT.**



**SWELITE**

# BYGGMA

group

**Focus on innovation and sustainable building products.**

Byggma Group are a multidivisional building products manufacturer based in the Nordic region of Europe with 8 manufacturing sites spread across Norway and Sweden.

## Lightweight Swedish I-Joist. Swelite by Byggma Group.

Greater environmental awareness makes it more important than ever to choose building materials that are sustainable and environmentally friendly. The composite I-profile means less raw material is required and up to 80% of the tree's fibre can be used for production of Swelite I-Joist.

The web material is manufactured using small diameter logs or logs which would otherwise not be suitable for producing larger structural timber sections. The premium grade flange material is created by recovering high quality short lengths of timber from local saw mills which are then finger joined together using a high strength adhesive.

Byggma Group's Swelite I-Joists are available with PEFC chain of custody

Swelite I-Joists have a number of economic and technical advantages over alternative materials.

**Long.** Standard lengths up to 12 m.

**Strong.** Products are made from carefully selected construction timber and special board materials.

**Lightweight.** Lower weight when compared to ordinary structural timber or open web floor trusses makes for an easy-to-handle product speeding up installation time.

**Straight.** Minimal skew and shrinkage when exposed to moisture through glued components.

**Easy drilling for installations.** Easy execution of installations by smooth drilling in the thin 10mm web. Making holes in the web of Swelite I-Joist is quick and easy.

**Consistent.** Products are machine made, not man made, which makes each piece consistent with the next.

**Type-approved and controlled.** Swelite I-Joists are type-approved both in any countries. Manufacturing control takes place through routine production testing and an accredited control body.

**ISO certified.** Design and manufacturing is certified according to ISO 9001 Quality Management and ISO 14001 Environmental Management Systems.



## Humble Beginnings

John Cook & Sons have been supplying Timber Products since 1963. From humble beginnings in a small yard at Roseville, we are now ideally located in St Marys industrial hub which is a transport junction for distribution to all parts of NSW.

Today we are a vibrant business with a reputation for being able to supply a vast range of environmentally sustainable quality products available for immediate distribution from our new facility. JCS staff are our most valuable asset, providing outstanding customer service; loyalty to customers and suppliers and expert product knowledge in our stock range.

JCS have an enhanced vision to continue to expand our range of quality products and exceptional service lead by our experienced Management team, Sales Representatives and well trained staff, who all pride themselves on being easy to do business with. As part of ITI Australia Group we have a large range of innovative new products and brands that you can rely on.

Today the ITI group consists of 9 distribution sites across Australia with over 130,000m<sup>2</sup> of undercover storage, a state of the art re-manufacturing, treating and priming plant in Chile, an office in Indonesia, 3 distribution locations in New Zealand and growing sales in the USA.

True to its name, the success of ITI lies in its commitment to innovation in both service and product development. This commitment has led to premier brands such as Design Pine, EziTrim Plus and Spec Chord along with the distribution of market leading manufacturers such as Hyne, LP Building Products, Metsa Wood, Weathertex and Modwood. ITI has also led the way with service standards winning countless industry awards for its service.

## John Cook & Sons Engineered Wood Products

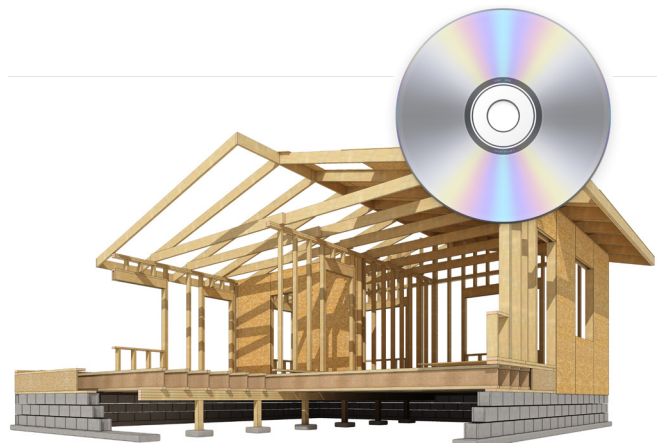
JCS source Engineered Wood Products from leading manufacturers to ensure the needs of building designers through to the end users are met with the best available product.

JCS Engineered Wood Products offering is comprised of 3 major products with each intended on complimenting the next. Laminated Veneer Lumber (LVL), I-Joists and Glue Laminated Timber Beams (GL). These products along with innovated construction details and dedicated support staff form an innovative platform which set JCS Engineered Wood Products apart from the rest.

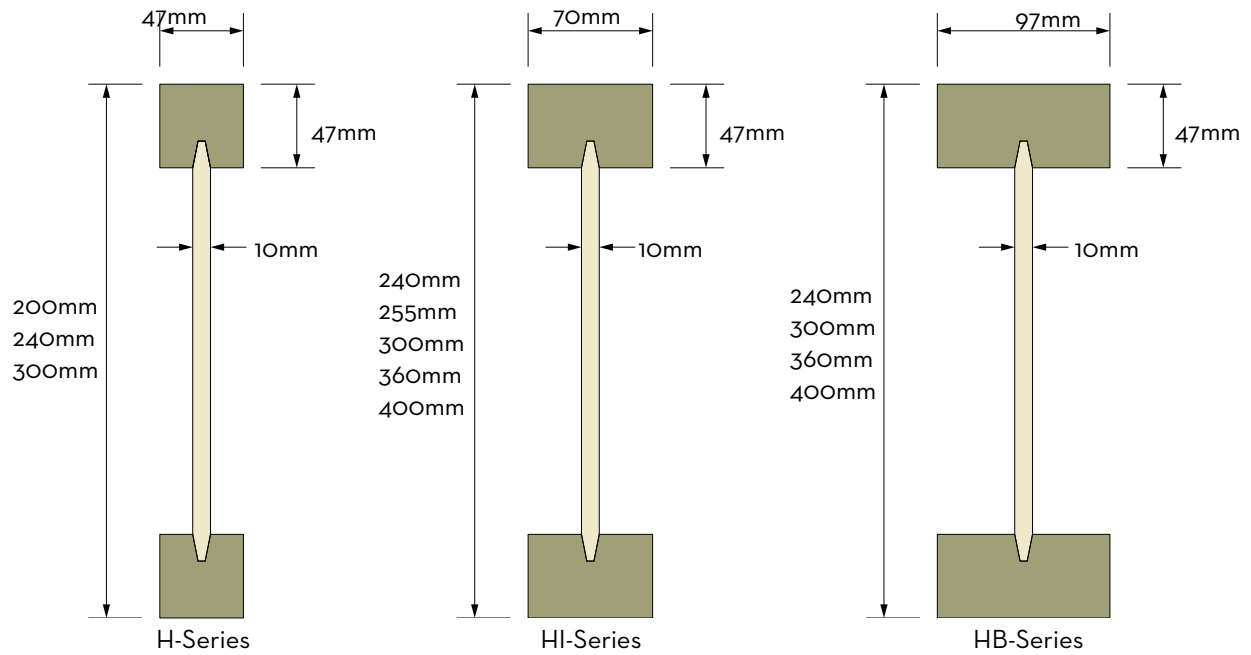


## Single Member Design Software

Available from John Cook & Sons is ITI Design Spec. A single member design software developed to assist industry professional with the specification of JCS's vast range of structural timber products. Free licences are available to suit builders, timber merchants, frame & truss professionals and engineers. Head to [www.itiaustralia.com.au](http://www.itiaustralia.com.au) to download for free.



## SWELITE I-JOIST PRODUCT SPECIFICATION



Swelite I-Joists are comprised of lightweight, 47mm thick, finger jointed pine top and bottom flanges tied together using either a high performance particle board web or an Oriented Standard Board (OSB) web.

Stock Profile by State						
Series	Depth (mm)	Width (mm)	NSW	QLD	SA	VIC
H-Series	200	47	●			
	240		●	●	●	●
	300		●	●	●	●
HI-Series 70mm	240	70	●	●		
	255		●			●
	300		●	●	●	●
	360		●	●	●	●
	400				●	●
HB-Series 97mm	240	97	●	●	●	●
	300		●	●	●	●
	360		●	●	●	●
	400			●	●	●
Treatment			H2-F Treated		Untreated	

### TREATMENT

Swelite I-Joists are available in Queensland and New South Wales with a post manufacture H2 Blue Treatment suitable for below the tropic of Capricorn. Suitable for indoor above ground protection against Termites and Borer.

Bifenthrin is a cost effective water-borne treatment applied by flooding the I-Joists in a treatment tank. It is both a termite deterrent and a digestive insecticide. Bifenthrin treated I-Joists will be identifiable by a blue tint created by a dye which is added into the treatment liquid.

It is recommended that all exposed cuts are resealed, or abut a treated member with an equal or greater level of treatment, however the repellent benefits of Bifenthrin treatment allow cross-cut faces to be left exposed.

Bifenthrin treatment does not affect the adhesion attributes of the timber or the adhesives.

The same precautions apply to Bifenthrin treated I-Joists as other treated timbers; do not burn offcuts; wear gloves when handling treated timber; wear a mask and goggles when cutting; clean up residual dispose of saw dust; and wash exposed clothing separately.

Characteristic values for Swelite I-Joists have been evaluated by an appropriately qualified engineer and converted to Australian Limit State Design using internationally recognized evaluation reports, physical testing data and relevant Australian Standards. Reference documents include:

Referenced Standards & Guides:

- AS 4063.1: Characterisation of structural timber – Test methods
- AS 4063.2: Characterisation of structural timber – Determination of Characteristic Values
- ETAG 011: Guideline for European Technical Approval of Light Composite Wood-Based Beams & Columns
- ETOA TR 002: Test Methods for Light composite Wood-Based Beams & Columns
- EN 12369-1: Characteristic Values – Structural Panel Products
- EN 338: Structural Timber – Strength Classes

Evaluations & Reports:

- ETA 12/0018 European Technical Assessment for Light composite Wood-Based Beams & Columns  
Issued by: RISE Research Institutes of Sweden AB
- Production Control Testing Data of Assembled Product  
Dated between 18th September 2018 and 20th May 2022

Quality Control Governance:

- O402 - CPR - 0933/00 Certificate of Consistency of Performance  
Issued by: SP Technical Research Institute of Sweden
- ISO 9001 Quality Management Systems  
Issued by: RISE Research Institutes of Sweden AB
- ISO 14001 Environmental Management Systems  
Issued by: RISE Research Institutes of Sweden AB

Characteristic Design Values							
Series	Width	Depth	Weight	EI	k	M	V
	(mm)	(mm)	(kg/m)	(kN/m <sup>2</sup> )	(kN)	(kN/m)	(kN)
H-Series	47	200	2.7	340	1247	7.55	13.24
		240	2.9	540	1631	9.86	15.82
		300	3.2	928	2207	13.41	19.71
HI-Series	70	240	4.0	807	1631	14.83	15.82
		255	4.1	936	1775	16.15	16.79
		300	4.3	1383	2207	20.18	19.71
		360	4.6	2121	2783	25.11	23.59
		400	4.8	2706	3167	28.09	26.18
HB-Series	97	240	5.3	1120	1631	20.66	15.82
		300	5.6	1917	2207	28.13	19.71
		360	5.9	2935	2783	34.76	23.59
		400	6.1	3740	3167	38.82	26.18

Notes:

1. Swelite I-Joists shall be designed for dry-use conditions only. Dry-use applies to products installed in dry, covered and well ventilated interior, conditions in which the equivalent moisture content in timber will not exceed 16%.
2. All values may be adjusted for load duration (k<sub>1</sub>) as permitted in AS1720.1 excluding EI, k and verticle load capacity.
3. Deflection calculations shall include both bending and shear deformations.

$$\text{Deflection for a simple span, uniform load: } \Delta = \frac{5wL^4}{384EI} + \frac{wL^2}{k}$$

Where:

$\Delta$  = Deflection (mm)

EI = bending stiffness (from table)

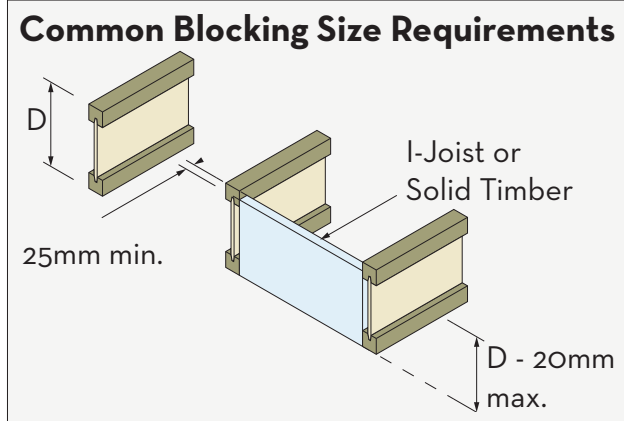
k = Coefficient of Shear Deflection (from Table)

w = uniform load (kN/m)

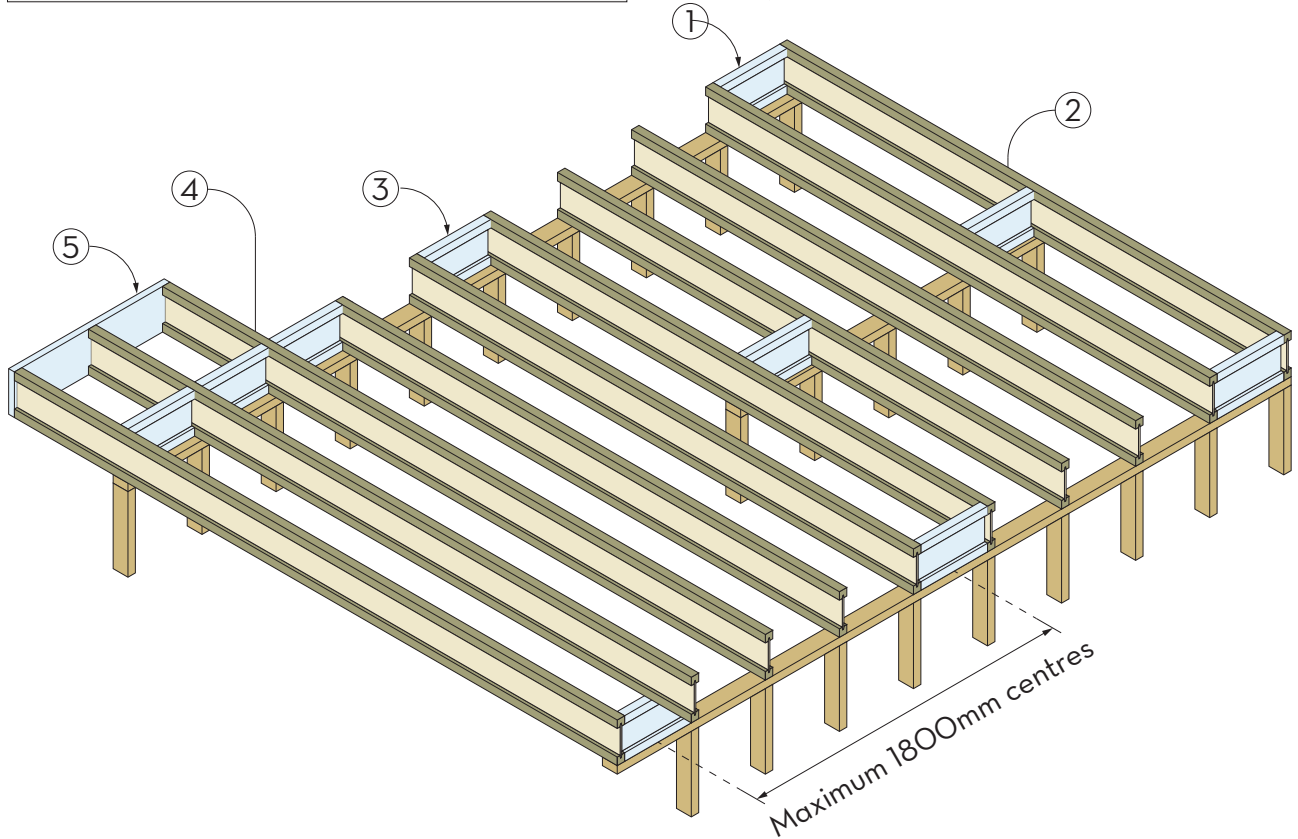
L = design span (mm)

**FLOORS JOISTS & BLOCKING REQUIREMENTS**

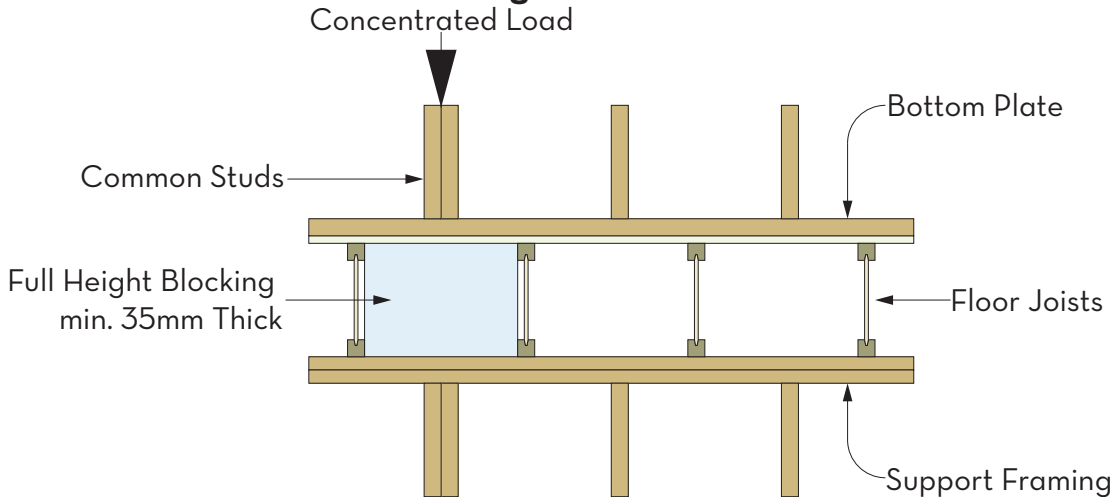
Floor joists are members which run parallel in series designed to support floor loads. The spacing of floor joists shall be such that it meets the requirements of the supported flooring / floor sheet.



Blocking Type	
1	Intermittent blocking over external support at start / end of joist run
2	Intermittent blocking over internal support at start / end of joist run
3	Intermittent blocking over external support at 1800mm centres
4	Continuous Blocking to cantilevered joists
5	Rimboard / Fascia Beam to ends of cantilevered joist



**Blocking to Concentrated Loads**

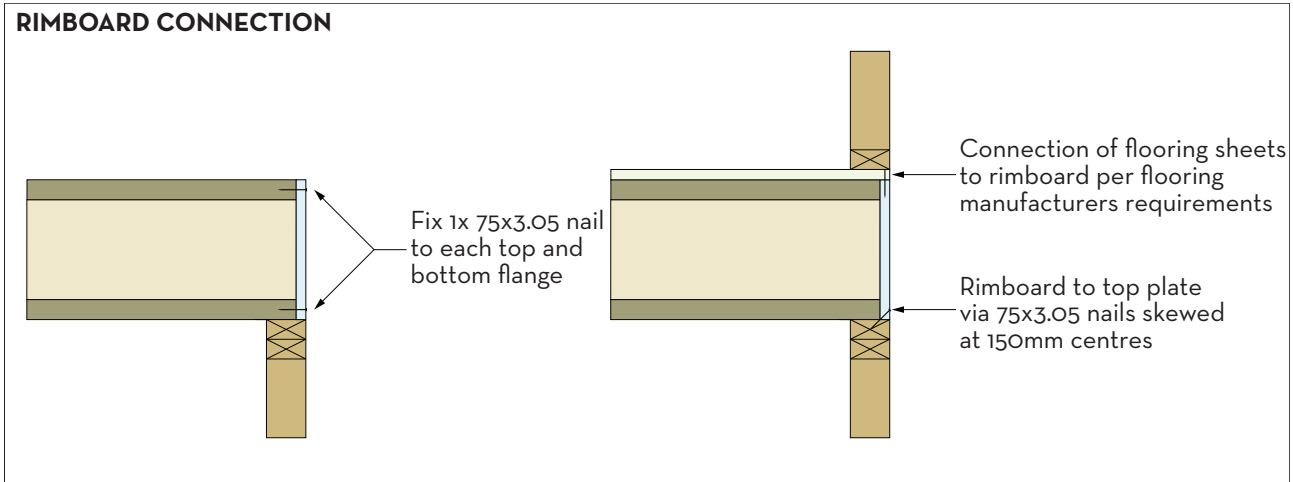


Blocking is required to provide resistance to lateral loads applied to the floor diaphragm, transfer concentrated loads down into the support structure. Unlike Common Blocking; Concentrated Load Blocking needs to be full height and a minimum of 35mm thick.

## Rimboard

Rimboard can be used as a form of blocking and bracing to floor & roof framing systems. Rimboard also has the ability to transfer some horizontal and vertical loads through the floor diaphragm. Refer to Details A1 and C1.

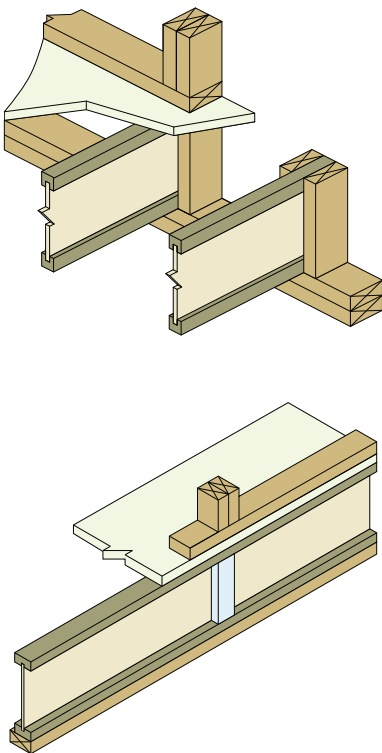
Web Infill is used to re-inforce the I-Joist should augmentation be required, such as shower set downs, or to repair incorrectly cut members, such as misplaced plumbing penetrations.



F11 Plywood Rim Board / Infill Characteristic Properties (MPa)							
Thickness	Elasticity (E)	Rigidity (G)	Bending ( $f'_c$ )	Tension ( $f'_t$ )	Shear ( $f'_v$ )	Comp. ( $f'_c$ )	Bearing ( $f'_p$ )
25mm	10,500	525	31.0	18.0	4.5	22.0	12.0

## Point Load Capacity of I-Joist Blocking or Perimeter Joists

Swelite I-Joist may be used as a perimeter joist under the provision that any imposed loads greater than those nominated in the adjacent table have additional transfer / squeeze blocks installed. Refer to details A10 and B3.



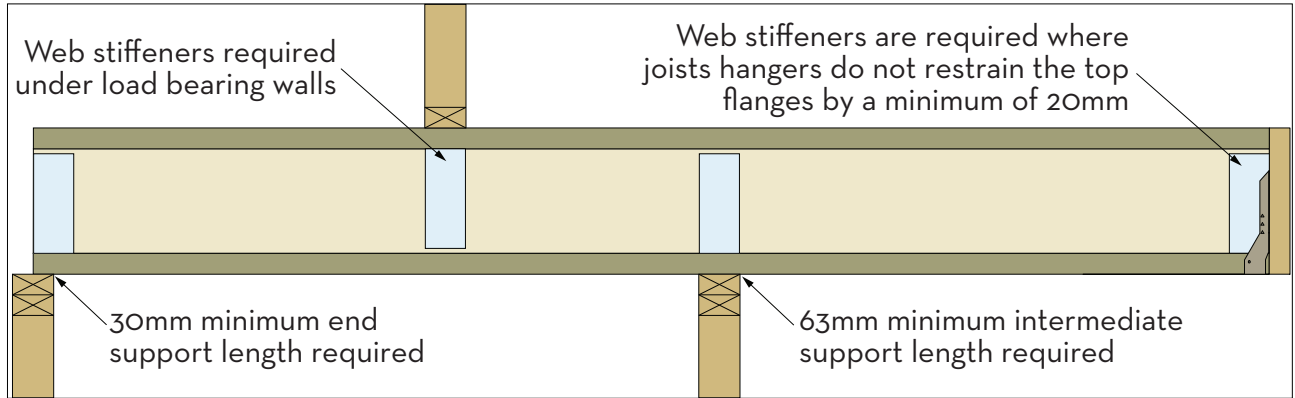
Point Load Capacity of I-Joist Blocking			
Series	Width (mm)	Height (mm)	Permanent Loads kN ( $k_1=0.57$ )
H-Series	47	200	2.6
		240	2.5
		300	2.4
HI-Series	70	240	2.5
		255	2.3
		300	2.2
		360	2.5
		400	2.4
HB-Series	97	240	2.3
		300	2.4
		360	2.3
		400	2.2

K1 Load Duration Factors AS 1170.0		
Type of Load	Load Combination	K1
Permanent action (Dead Load)	1.35 G	0.57
Permanent and short term imposed loads		
Roof live load - Distributed	1.2 G + 1.5 Q	0.94
Roof live load - Concentrated		0.97
Floor live load - Distributed		0.80
Floor live load - Concentrated		0.94

## WEB STIFFENING REQUIREMENTS

Web stiffeners are required to be fitted to both sides of I-Joists where:

- Additional non uniform loads are applied to the top of I-Joists (refer to details A10 & B7);
- The bottom flange of the I-Joists are notched to accommodate steel or LVSlA connections (refer to detail E9);
- Additional support bearing strength is required (Refer to detail B1 & H1); or
- Joist hangers do not restrain the top flange by more than 20mm (Refer to detail E3).



### Web Stiffener Requirements for use with Joist Connectors

Web Stiffener Requirements for use with Joist Hangers PART 1				
Joist Depth	Web Stiffened Depth		Nail Size	Nail Quantity (Each Side)
	Minimum	Maximum		
200	81mm	104mm	65x2.8mm	3
240	121mm	144mm		
255	136mm	259mm		
300	181mm	204mm		
360	241mm	267mm		
400	281mm	304mm		

Web Stiffener Requirements for use with Joist Hangers PART 2			
Series	Joist Width	Min. Stiffener Width	Plywood
H-Series	47mm	50mm	70x18mm
HI-Series	70mm	50mm	70x30mm
HB-Series	97mm	50mm	70x18 + 70x25mm

#### Notes:

1. Where Web Stiffeners are required for use with shallow joist hangers the thickness is required to be that of the distance between the web and the outside of the flange.
2. Web stiffeners shall be cut to fit between the flanges of Swelite I-Joist, leaving a minimum 2mm and a maximum of 10mm gap.
3. Web stiffeners shall be cut from particle board, plywood or OSB Rim Board.
4. Web stiffeners may be comprised of up to 2 sections of timber i.e., 1x 18mm + 1x 25mm thick plywood, however builders adhesive must be applied between the sections.
5. Web stiffeners shall be a minimum width of 50mm or the depth of the joist hanger seat / support.



## Web Stiffener Requirements for Improving Bearing Strength

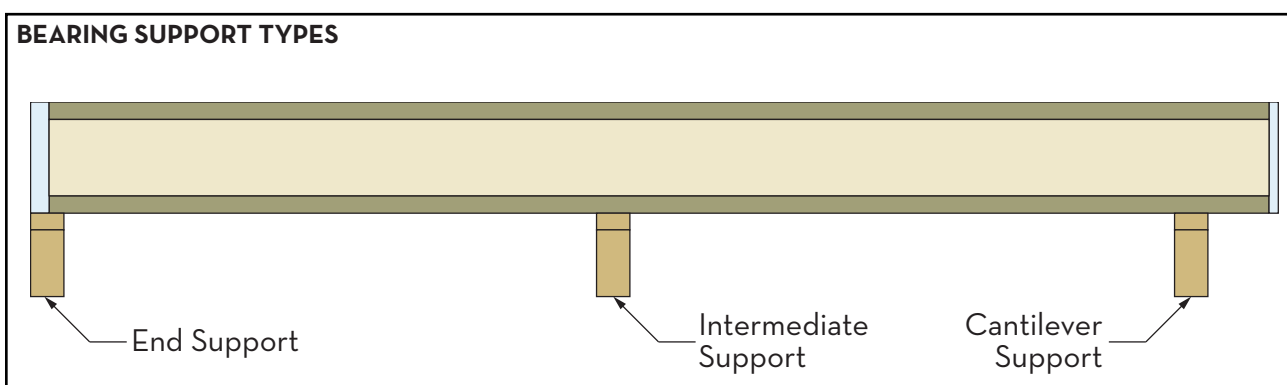
Reaction & Bearing Characteristic Values (kN) Without and With Web Stiffeners ( $k_1=0.57$ )										
Series	Width (mm)	Depth (mm)	End Support				Intermediate / Cantilever Support			
			30mm		45mm		63mm		90mm	
			Without	With	Without	With	Without	With	Without	With
H-Series	47	200	4.3	5.4	5.1	6.7	7.9	12.3	9.4	14.6
		240	4.3	5.5	5.1	6.8	8.0	12.5	9.6	15.0
		300	4.3	5.8	5.1	7.1	8.4	13.1	10.0	15.7
HI-Series	70	240	4.3	5.5	5.1	6.8	8.0	12.5	9.6	15.0
		255	4.3	5.5	5.1	6.8	8.0	12.5	9.6	15.0
		300	4.3	5.8	5.1	7.1	8.4	13.1	10.0	15.7
		360	5.6	8.0	6.8	9.7	11.6	20.2	13.8	24.2
HB-Series	97	400	5.6	8.2	6.8	10.0	12.3	20.8	14.6	24.9
		240	4.3	5.5	5.1	6.8	8.0	12.5	9.6	15.0
		300	4.3	5.8	5.1	7.1	8.4	13.1	10.0	15.7
		360	5.6	8.0	6.8	9.7	11.6	20.2	13.8	24.2

**Notes:**

1. Refer to page 7 for more information on the  $k_1$  load duration factor
2. Web stiffener length to be a minimum length of the Joist Height / 2
3. Web stiffeners shall be installed in pairs - one to each side of the web.
4. Web stiffeners used to improve bearing strength are not required to finish flush with the outside edge of the flanges.
5. Web stiffeners shall be cut to fit between the flanges of Swelite I-Joist, leaving a 2mm gap.
6. Web stiffeners shall be cut from plywood, LVL or OSB Rim Board. 35mm timber is permissible.
7. Reaction Capacity is for instantaneous load duration and shall be adjusted using  $k_1$ .
8. Bearing capacity may be further limited by the bearing strength of the support material. The bearing capacity of a timber support is based on the species of the supporting timber i.e Radiata Pine (12 MPa).

**Additional Considerations:**

9. End Reaction value shall not exceed the V value as indicated on the Design Values Table from page 5 of this document for the corresponding joist size.
10. Intermediate Reaction value shall not exceed 2x the V value as indicated on the Design Values Table from page 5 of this document for the corresponding joist size.



Minimum Bearing Lengths		
End Support	Intermediate Support	Cantilever Support
30mm	63mm	63mm

## FLOOR JOIST SPAN TABLES - ALLOWABLE

Allowable spans per criteria outlined in AS1720.3

Floor Joist Span Table (m) - Particle Board Flooring + 10mm Plaster (42kg/m <sup>2</sup> ) Residential Load (1.5 kPA + 1.8 kN)										
Series	Width (mm)	Size (mm)	300mm		360mm		450mm		600mm	
			Single	Cont.	Single	Cont.	Single	Cont.	Single	Cont.
H-Series	47	200	4.5	4.9	4.3	4.7	3.6	4.4	3.3	4.0
		240	5.1	5.6	4.9	5.3	4.3	4.9	4.0	4.6
		300	5.8	6.4	5.6	6.1	5.2	5.7	4.8	5.3
HI-Series	70	240	5.6	6.1	5.3	5.8	5.0	5.5	4.6	5.0
		255	5.8	6.3	5.5	6.0	5.2	5.7	4.8	5.2
		300	6.4	7.0	6.1	6.6	5.8	6.2	5.3	5.8
		360	7.2	7.8	6.8	7.4	6.7	7.0	5.9	6.4
HB-Series	97	240	6.1	6.6	5.8	6.3	5.4	5.9	5.0	5.4
		300	6.9	7.5	6.6	7.2	6.2	6.7	5.7	6.2
		360	7.7	8.0	7.3	8.0	6.9	7.5	6.4	6.9
		400	8.2	8.0	7.8	8.0	7.3	8.0	6.8	7.3

Floor Joist Span Table (m) - Fully Protected Heavy Flooring + 10mm Plaster (87kg/m <sup>2</sup> ) Balcony Load (2.0 kPA + 1.8 kN)										
Series	Width (mm)	Size (mm)	300mm		360mm		450mm		600mm	
			Single	Cont.	Single	Cont.	Single	Cont.	Single	Cont.
SJ20	47	200	4.1	5.0	3.8	4.8	3.5	4.5	3.1	4.2
		240	4.7	5.7	4.4	5.4	4.2	5.1	3.7	4.6
		300	5.3	6.5	5.1	6.1	4.8	5.8	4.4	5.1
SJ70	70	240	5.1	6.2	4.9	5.9	4.6	5.6	4.2	5.1
		255	5.3	6.5	5.0	6.1	4.7	5.8	4.4	5.3
		300	5.8	7.1	5.6	6.8	5.2	6.4	4.8	5.9
		360	6.5	7.9	6.2	7.5	5.8	7.2	5.4	6.5
SJ90	97	240	5.5	6.7	5.2	6.4	4.9	6.0	4.5	5.5
		300	6.2	7.6	6.0	7.3	5.6	6.8	5.2	6.3
		360	6.9	8.0	6.6	8.0	6.2	7.6	5.8	7.0
		400	7.4	8.0	7.0	8.0	6.6	8.0	6.1	7.4 <sup>(1)</sup>

### Notes:

1. Web Stiffeners required to intermediate support

### Floor Framing Deflection per AS1720.3

Floor Framing Limits on Deflection per AS1720.3		
Load Type	Single or Continuous Spans	Overhang
Dead Load	Span (mm) / 300 or 15mm Max	Cantilever (mm) / 150 or 6mm Max.
Floor Live Load	Span (mm) / 360 or 9mm Max	Cantilever (mm) / 180
Dynamic (1kN) at centre	2mm	-

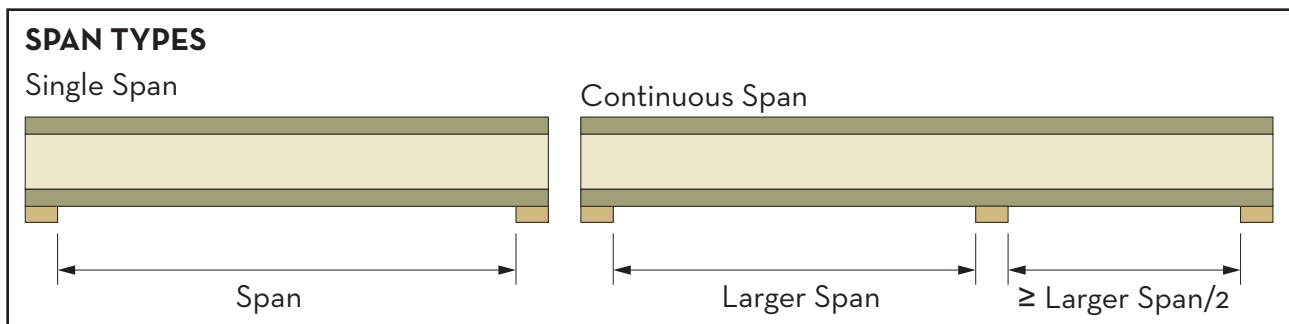
Examples of Allowable Floor Framing Limits on Deflection per AS1720.3 (mm)										
Load Type	Span (m)									
	2.0	2.0	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5
Dead Load	6.7	8.3	10.0	11.7	13.3	15.0	15.0	15.0	15.0	15.0
Floor Live Load	5.6	6.9	8.3	9.0	9.0	9.0	9.0	9.0	9.0	9.0

## FLOOR JOIST SPAN TABLES - RECOMENDED

Suggested spans: Span / 500 or 2mm of DL deflection per 1 m of span up to a maximum of 10mm

Floor Joist Span Table - Particle Board Flooring + 10mm Plaster (42kg/m <sup>2</sup> ) Residential Load (1.5 kPA + 1.8 kN)										
Series	Width (mm)	Size (mm)	300mm		360mm		450mm		600mm	
			Single	Cont.	Single	Cont.	Single	Cont.	Single	Cont.
H-Series	47	200	4.0	4.8	3.7	4.6	3.2	3.8	3.0	3.6
		240	4.7	5.4	4.4	5.1	3.9	4.7	3.6	4.3
		300	5.4	6.2	5.2	5.9	4.9	5.5	4.4	5.1
HI-Series	70	240	5.0	5.9	4.9	5.6	4.5	5.4	4.1	4.9
		255	5.3	6.1	5.1	5.8	4.8	5.5	4.3	5.0
		300	5.9	6.8	5.6	6.4	5.3	6.0	4.9	5.6
		360	6.5	7.5	6.3	7.2	5.9	6.7	5.5	6.2
HB-Series	97	240	5.5	6.4	5.3	6.1	5.0	5.7	4.5	5.2
		300	6.3	7.3	6.0	6.9	5.7	6.5	5.3	6.0
		360	7.0	8.0	6.7	7.7	6.3	7.2	5.9	6.6
		400	7.4	8.0	7.1	8.0	6.7	7.7	6.2	7.1

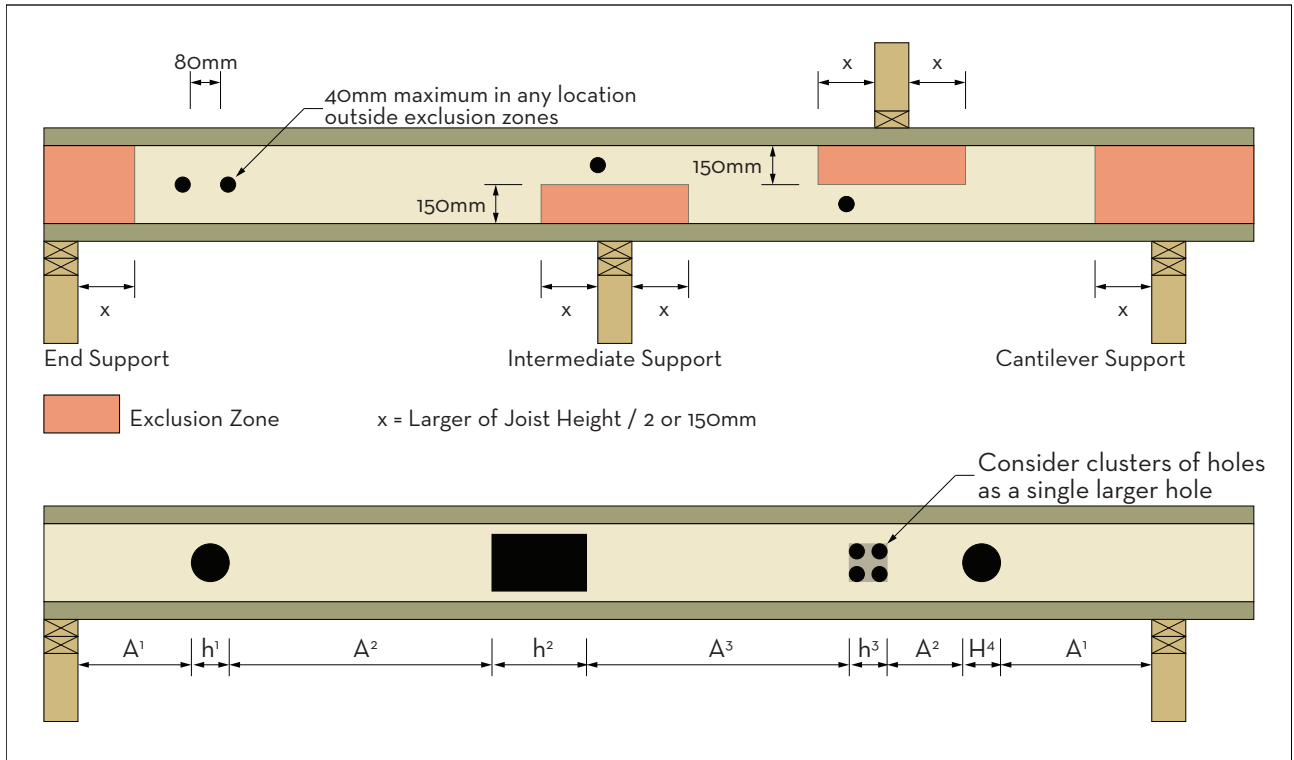
Floor Floor Joist Span Table - Fully Protected Heavy Flooring + 10mm Plaster (87kg/m <sup>2</sup> ) Balcony Load (2.0 kPA + 1.8 kN)										
Series	Width (mm)	Size (mm)	300mm		360mm		450mm		600mm	
			Single	Cont.	Single	Cont.	Single	Cont.	Single	Cont.
SJ20	47	200	3.3	4.5	3.1	4.2	2.9	3.8	2.5	3.4
		240	3.9	5.1	3.7	4.9	3.4	4.5	3.0	4.0
		300	4.7	5.9	4.4	5.6	4.1	5.2	3.6	4.8
SJ70	70	240	4.4	5.6	4.1	5.3	3.8	5.0	3.4	4.4
		255	4.7	5.8	4.4	5.5	4.0	5.2	3.6	4.7
		300	5.2	6.4	4.9	6.0	4.6	5.7	4.1	5.2
		360	5.8	7.1	5.5	6.7	5.2	6.3	4.8	5.8
SJ90	97	240	4.9	5.9	4.5	5.6	4.2	5.3	3.7	4.8
		300	5.6	6.8	5.3	6.4	5.0	6.0	4.5	5.5
		360	6.2	7.5	5.9	7.1	5.5	6.7	5.1	6.1
		400	6.6	8.0	6.2	7.6	5.9	7.1	5.4	6.5



A continuous span only applies when the smaller of the spans is no less than half the larger span. Where this does not apply; both spans are to be treated as single spans or further design analysis is required. Measure spans between internal faces of the supports.

In wind regions up to N3, nominal fixing of joists to support is 2/75x3.05 Nails skewed through bottom flange of the I-Joist. Refer to Detail B1. Where uplift is present, or joists are installed in higher wind regions refer to AS1684 for additional tie-down requirements.

## HOLES IN SWELITE I-JOIST



## Minimum distance to:

$$h^1 = A^1$$

$$h^2 = \text{Larger of } A^2, h^1 \times 2 \text{ or } h^2 \times 2 \text{ measured from } h^1; \text{ and} \\ \text{Larger of } A^3, h^2 \times 2 \text{ or } h^3 \times 2 \text{ measured from } h^3.$$

$$h^3 = \text{Larger of } A^3, h^2 \times 2 \text{ or } h^3 \times 2 \text{ measured from } h^2; \text{ and} \\ \text{Larger of } A^2, h^3 \times 2 \text{ or } h^4 \times 2 \text{ measured from } h^4.$$

$$h^4 = A^1$$

## Where:

$A^1$  = Minimum distance from support per relevant Swelite I-Joist Distance to Hole tables

$A^2$  = Minimum distance from support for relevant Swelite I-Joist Distance to Hole tables

$A^3$  = Minimum distance from support for relevant Swelite I-Joist Distance to Hole tables

$h^1$  = longest side of rectangular hole or diameter of round hole

$h^2$  = longest side of rectangular hole or diameter of round hole

## To use:

1. Minimum allowable span to be  $2x$  the distance from hole location from support per tables
2. Select the depth of I-Joist in which holes will be penetrated
3. Select the row which corresponds to the span. For spans which fall between those listed round up to the larger span
4. Select the column which corresponds to the hole size. Always round the hole size up. Rectangular holes not listed may be assessed as 0.75 the diameter of a round hole for the largest side of the rectangle
5. The intersecting value is the nearest allowable distance from the inside face of the support to the nearest edge of the hole
6. Double check the location by cross referencing the allowable distance of the opposing support
7. When multiple holes are required always consider placing the smallest holes closest to the support

## Notes:

1. CUT HOLES CAREFULLY. DO NOT OVER CUT HOLES
2. DO NOT CUT THE FLANGES OF THE I-JOISTS
3. Check allowable hole locations from both I-Joists supports
4. Holes may be located within the full depth of the web provided there is a minimum of a 2mm gap from the bottom of the hole to the flange
5. No holes are to be cut into a cantilever
6. Multiple holes may be spaced closer than specified however the assessment should be made for a larger hole whereby the smaller holes are enclosed within the larger hole
7. Hole locations are only valid on joists supporting uniformly distributed loads only and where the joists are spanning no greater than the allowable maximum span

## SWELITE I-JOIST DISTANCE TO HOLES - 200MM

Circular Holes - Residential Load (1.5 kPA + 1.8 kN) - Particle Board Flooring + 10mm Plaster (42kg/m <sup>2</sup> )							
Hole Diameter	Joist Span (m)						
	3.0	3.6	4.2	4.8	5.4	6.0	6.6
75mm	300	300	300	300	300	300	300
100mm	300	300	300	300	400	800	1200

Circular Holes - Balcony Load (2.0 kPA + 1.8 kN) - Wet Area Flooring + 10mm Plaster (87kg/m <sup>2</sup> )							
Hole Diameter	Joist Span (m)						
	3.0	3.6	4.2	4.8	5.4	6.0	6.6
50mm	300	300	300	300	300	300	600
75mm	300	300	300	300	600	900	1300
100mm	300	300	600	900	1300	1700	2100

## SWELITE I-JOIST DISTANCE TO HOLES - 240MM

Circular Holes - Residential Load (1.5 kPA + 1.8 kN) - Particle Board Flooring + 10mm Plaster (42kg/m <sup>2</sup> )							
Hole Diameter	Joist Span (m)						
	3.0	3.6	4.2	4.8	5.4	6.0	6.6
110mm	300	300	300	300	300	300	300

Circular Holes - Balcony Load (2.0 kPA + 1.8 kN) - Wet Area Flooring + 10mm Plaster (87kg/m <sup>2</sup> )							
Hole Diameter	Joist Span (m)						
	3.0	3.6	4.2	4.8	5.4	6.0	6.6
75mm	300	300	300	300	300	300	300
110mm	300	300	300	300	400	800	1200

## SWELITE I-JOIST DISTANCE TO HOLES - 255MM

Circular Holes - Residential Load (1.5 kPA + 1.8 kN) - Particle Board Flooring + 10mm Plaster (42kg/m <sup>2</sup> )							
Hole Diameter	Joist Span (m)						
	3.0	3.6	4.2	4.8	5.4	6.0	6.6
110mm	300	300	300	300	300	300	300
150mm	300	300	300	300	300	600	900

Circular Holes - Balcony Load (2.0 kPA + 1.8 kN) - Wet Area Flooring + 10mm Plaster (87kg/m <sup>2</sup> )							
Hole Diameter	Joist Span (m)						
	3.0	3.6	4.2	4.8	5.4	6.0	6.6
110mm	300	300	300	300	300	400	800
150mm	300	300	400	800	1100	1500	1900

Rectangular Holes - Residential Load (1.5 kPA + 1.8 kN) - Particle Board Flooring + 10mm Plaster (42kg/m <sup>2</sup> )							
Hole Size		Joist Span (m)					
Height	Width	3.0	3.6	4.2	4.8	5.4	6.0
100mm	200mm	300	500	900	1200	1600	2000
	250mm	300	600	1000	1400	1800	2100
	320mm	400	800	1200	1500	1900	2300
150mm	200mm	300	400	800	1200	1500	1900
	250mm	300	600	900	1300	1700	2100
	320mm	300	700	1100	1400	1800	2200

Rectangular Holes - Balcony Load (2.0 kPA + 1.8 kN) - Wet Area Flooring + 10mm Plaster (87kg/m <sup>2</sup> )							
Hole Size		Joist Span (m)					
Height	Width	3.0	3.6	4.2	4.8	5.4	6.0
100mm	200mm	700	1000	1400	1800	2200	2500
	250mm	800	1100	1500	1900	2300	-
	320mm	900	1200	1600	2000	2400	-
150mm	200mm	600	1000	1300	1700	2100	2500
	250mm	700	1100	1500	1800	2200	-
	320mm	800	1200	1600	1900	2300	-

## SWELITE I-JOIST DISTANCE TO HOLES - 300MM

Circular Holes - Residential Load (1.5 kPA + 1.8 kN) - Particle Board Flooring + 10mm Plaster (42kg/m <sup>2</sup> )							
Hole Diameter	Joist Span (m)						
	3.0	3.6	4.2	4.8	5.4	6.0	6.6
150mm	300	300	300	300	300	300	300
200mm	300	300	300	300	300	700	1000

Circular Holes - Balcony Load (2.0 kPA + 1.8 kN) - Wet Area Flooring + 10mm Plaster (87kg/m <sup>2</sup> )							
Hole Diameter	Joist Span (m)						
	3.0	3.6	4.2	4.8	5.4	6.0	6.6
110mm	300	300	300	300	300	300	300
150mm	300	300	300	300	300	300	600
200mm	300	300	500	900	1200	1600	2000

Rectangular Holes - Residential Load (1.5 kPA + 1.8 kN) - Particle Board Flooring + 10mm Plaster (42kg/m <sup>2</sup> )							
Hole Size		Joist Span (m)					
Height	Width	3.0	3.6	4.2	4.8	5.4	6.0
150mm	200mm	300	500	900	1300	1600	2000
	250mm	300	600	1000	1400	1800	2100
	320mm	400	800	1200	1500	1900	2300
200mm	200mm	300	500	800	1200	1600	2000
	250mm	300	600	1000	1400	1700	2100
	320mm	400	800	1100	1500	1900	2300

Rectangular Holes - Balcony Load (2.0 kPA + 1.8 kN) - Wet Area Flooring + 10mm Plaster (87kg/m <sup>2</sup> )							
Hole Size		Joist Span (m)					
Height	Width	3.0	3.6	4.2	4.8	5.4	6.0
150mm	200mm	700	1000	1400	1800	2200	2500
	250mm	800	1100	1500	1900	2300	2600
	320mm	900	1200	1600	2000	2400	2700
200mm	200mm	600	1000	1400	1800	2100	2500
	250mm	700	1100	1500	1900	2200	2600
	320mm	800	1200	1600	2000	2300	2700

## SWELITE I-JOIST DISTANCE TO HOLES - 360MM

Circular Holes - Residential Load (1.5 kPA + 1.8 kN) - Particle Board Flooring + 10mm Plaster (42kg/m <sup>2</sup> )							
Hole Diameter	Joist Span (m)						
	3.0	3.6	4.2	4.8	5.4	6.0	6.6
200mm	300	300	300	300	300	300	300

Circular Holes - Balcony Load (2.0 kPA + 1.8 kN) - Wet Area Flooring + 10mm Plaster (87kg/m <sup>2</sup> )							
Hole Diameter	Joist Span (m)						
	3.0	3.6	4.2	4.8	5.4	6.0	6.6
200mm	300	300	300	300	300	300	300

Rectangular Holes - Residential Load (1.5 kPA + 1.8 kN) - Particle Board Flooring + 10mm Plaster (42kg/m <sup>2</sup> )							
Hole Size		Joist Span (m)					
Height	Width	3.0	3.6	4.2	4.8	5.4	6.0
150mm	200mm	300	600	1000	1400	1700	2100
	250mm	400	800	1100	1500	1900	2300
	320mm	500	900	1300	1600	2000	2400
200mm	200mm	300	600	900	1300	1700	2100
	250mm	300	700	1100	1500	1800	2200
	320mm	500	900	1200	1600	2000	2400

## SWELITE I-JOIST DISTANCE TO HOLES - 360MM (CONT.)

Rectangular Holes - Balcony Load (2.0 kPA + 1.8 kN) - Wet Area Flooring + 10mm Plaster (87kg/m <sup>2</sup> )							
Hole Size		Joist Span (m)					
Height	Width	3.0	3.6	4.2	4.8	5.4	6.0
150mm	200mm	900	1100	1500	1900	2200	2600
	250mm	900	1200	1600	2000	2300	2700
	320mm	900	1300	1700	2100	2400	2800
200mm	200mm	900	1100	1500	1800	2200	2600
	250mm	900	1200	1600	1900	2300	2700
	320mm	900	1300	1700	2000	2400	2800

## SWELITE I-JOIST DISTANCE TO HOLES - 400MM

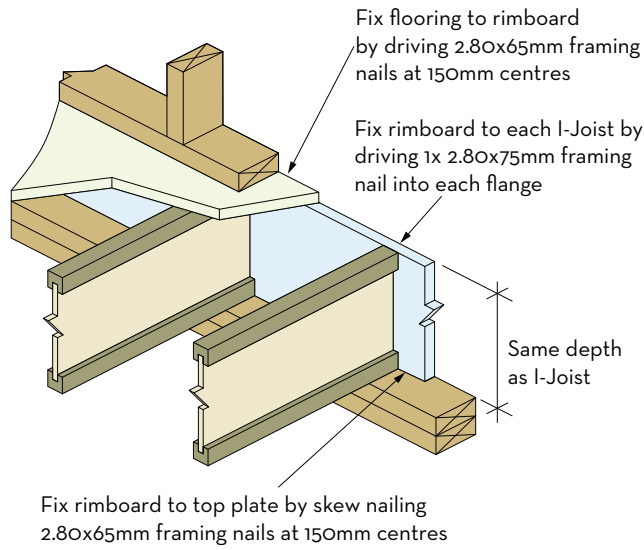
Circular Holes - Residential Load (1.5 kPA + 1.8 kN) - Particle Board Flooring + 10mm Plaster (42kg/m <sup>2</sup> )							
Hole Diameter	Joist Span (m)						
	3.0	3.6	4.2	4.8	5.4	6.0	6.6
200mm	300	300	300	300	300	300	300

Circular Holes - Balcony Load (2.0 kPA + 1.8 kN) - Wet Area Flooring + 10mm Plaster (87kg/m <sup>2</sup> )							
Hole Diameter	Joist Span (m)						
	3.0	3.6	4.2	4.8	5.4	6.0	6.6
200mm	300	300	300	300	300	300	300

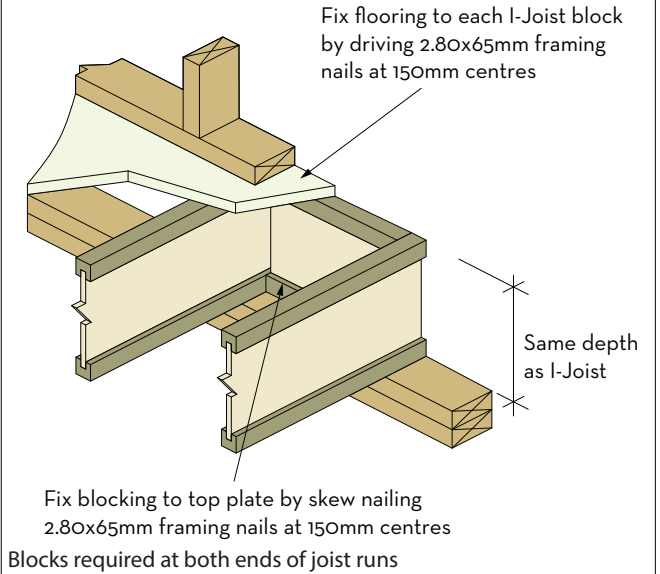
Rectangular Holes - Residential Load (1.5 kPA + 1.8 kN) - Particle Board Flooring + 10mm Plaster (42kg/m <sup>2</sup> )							
Hole Size		Joist Span (m)					
Height	Width	3.0	3.6	4.2	4.8	5.4	6.0
150mm	200mm	300	600	1000	1300	1700	2100
	250mm	400	700	1100	1500	1900	2200
	320mm	500	900	1200	1600	2000	2400
200mm	200mm	300	500	900	1300	1700	2000
	250mm	300	700	1100	1400	1800	2200
	320mm	400	800	1200	1500	1900	2300

Rectangular Holes - Balcony Load (2.0 kPA + 1.8 kN) - Wet Area Flooring + 10mm Plaster (87kg/m <sup>2</sup> )							
Hole Size		Joist Span (m)					
Height	Width	3.0	3.6	4.2	4.8	5.4	6.0
150mm	200mm	700	1100	1500	1900	2200	2600
	250mm	800	1200	1600	1900	2300	2700
	320mm	900	1300	1700	2000	2400	2800
200mm	200mm	700	1100	1400	1800	2200	2600
	250mm	800	1200	1500	1900	2300	2700
	320mm	900	1300	1600	2000	2400	2800

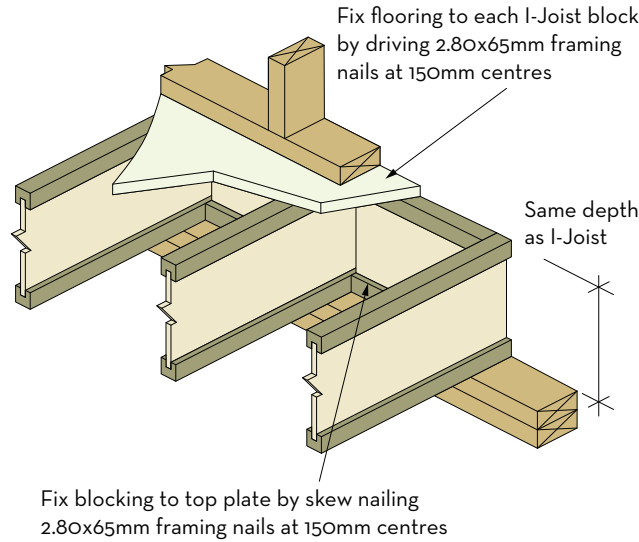
**A1 LVL OR PLYWOOD RIMBOARD (I-JOIST)**



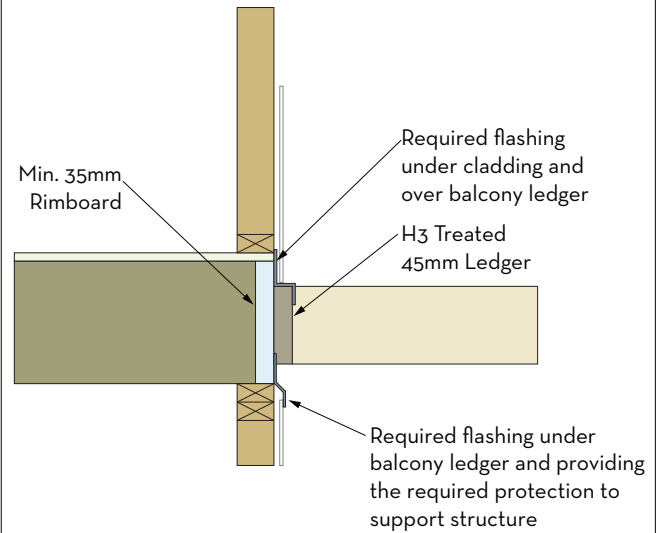
**A3 BLOCKING OVER SUPPORT 1 BLOCK AT 1800MM CENTRES (I-JOISTS)**



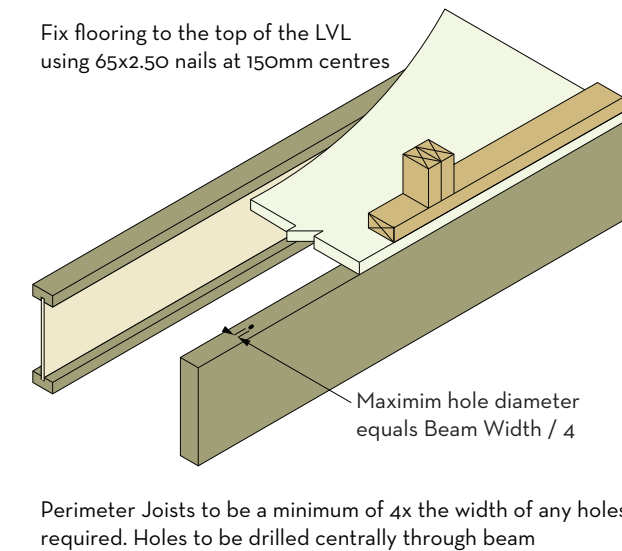
**A5 CONTINUOUS BLOCKING OVER SUPPORTS (I-JOISTS)**



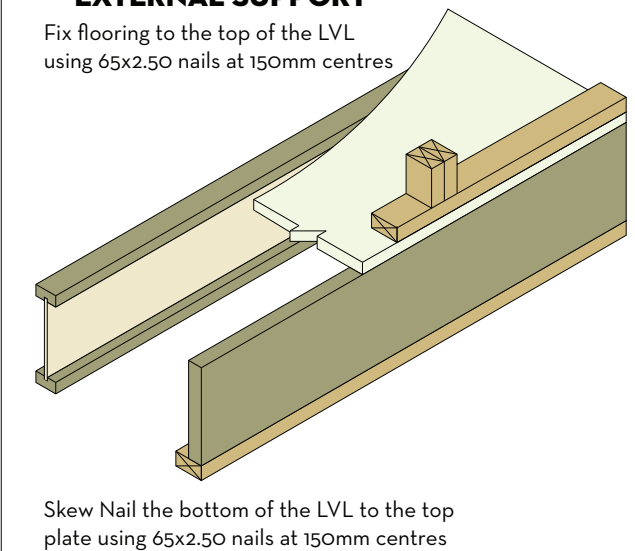
**A7 BALCONY LEDGER CONNECTION**



**A8 UNSUPPORTED LVL PERIMETER JOIST**



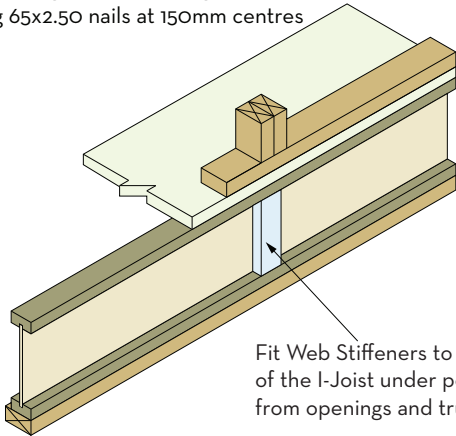
**A9 LVL SUPPORTED OVER EXTERNAL SUPPORT**





**A10 I-JOIST SUPPORTED OVER EXTERNAL SUPPORT**

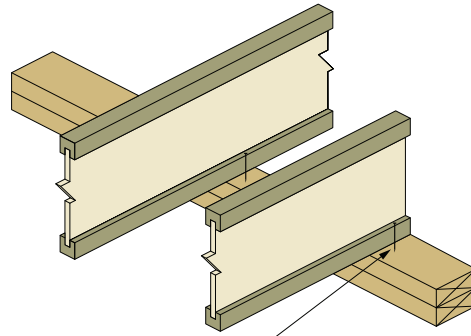
Fix flooring to the top flange of the I-Joist using 65x2.50 nails at 150mm centres



Fit Web Stiffeners to both side of the I-Joist under point loads from openings and trusses

Skew Nail the bottom flange of the I-Joist to the top plate using 65x2.50 nails at 150mm centres

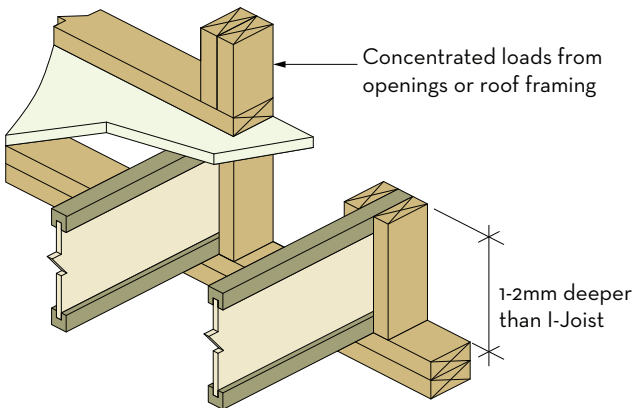
**B1 I-JOIST SUPPORT NAILING**



Minimum of 35mm clearance required from end of I-Joist

Fix to support by nailing 75x3.05 nails through the bottom flange on either side of the I-Joist

**B3 SQUASH BLOCKS TO ENDS OF I-JOIST**

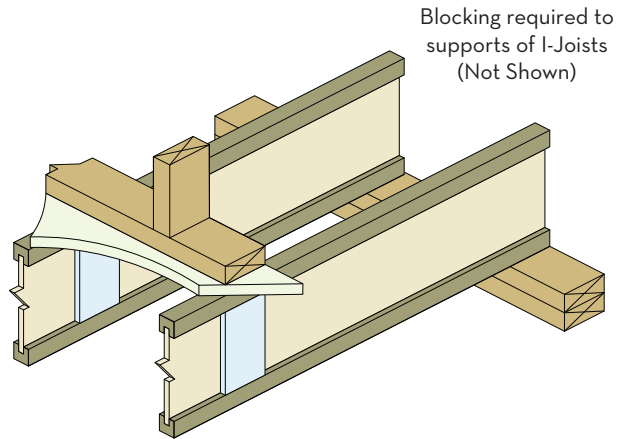


Concentrated loads from openings or roof framing

1-2mm deeper than I-Joist

90x35 Squeeze blocks fitted to both sides of I-Joists  
2.80x65mm framing nail to to each I-Joist flange  
2.80x65mm framing nail skewed to top plate

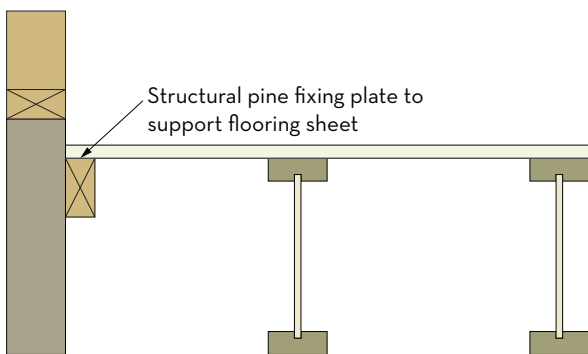
**B4 I-JOISTS SUPPORTING OFFSET LOAD BEARING WALL**



Blocking required to supports of I-Joists (Not Shown)

Install Web Stiffeners to both sides of I-Joist under point loads from load bearing wall over

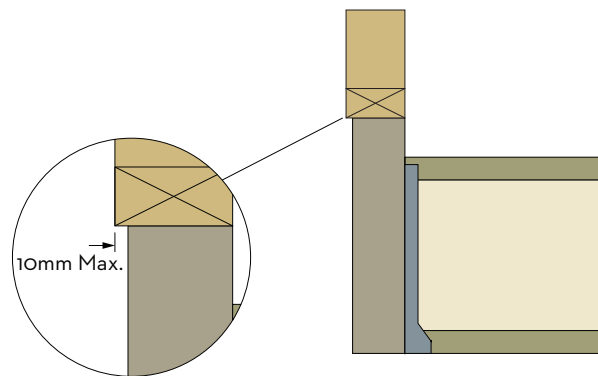
**B5 FLOORING SUPPORTED AGAINST DEEP PERIMETER JOIST**



Structural pine fixing plate to support flooring sheet

75x35mm min. deep structural timber plate fixed to the side of the deep perimeter joists via 75x3.08 framing nails at 150mm centres. Flooring installed per manufacturers requirements.

**B6 FRAME OVERHANG TO FLOOR MEMBERS**



10mm Max.

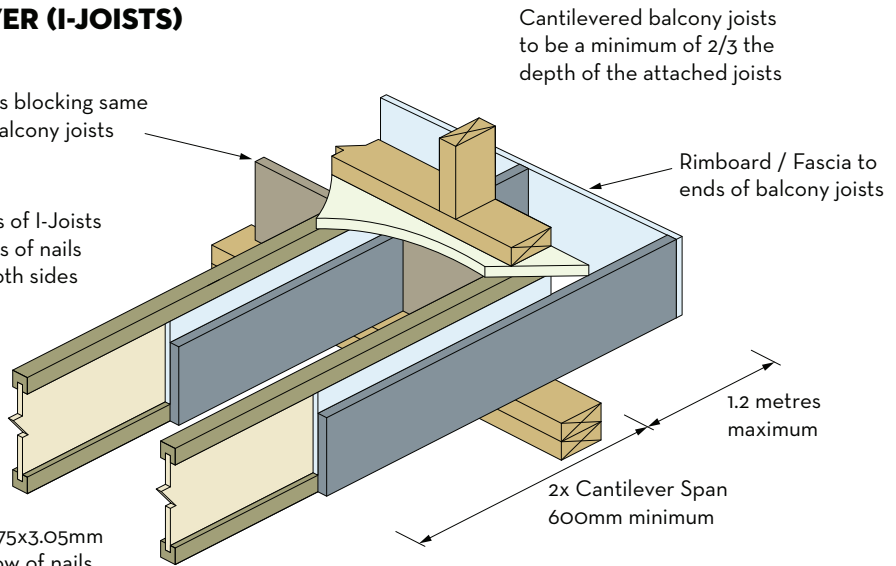
10mm maximum allowable frame overhang to floor member. Position frame overhang to outside of floor to ensure fixing is available for skirting boards.

**C3 BALCONY CANTILEVER (I-JOISTS)**

Continuous blocking same depth as balcony joists

Web stiffening fitted to both sides of I-Joists using building adhesive and 2 rows of nails staggered at 150mm centres to both sides

Fix balcony joists using 2 rows of 75x3.05mm nails at 150mm centres. Bottom row of nails to be fixed into I-Joist bottom flange



Cantilevered balcony joists to be a minimum of 2/3 the depth of the attached joists

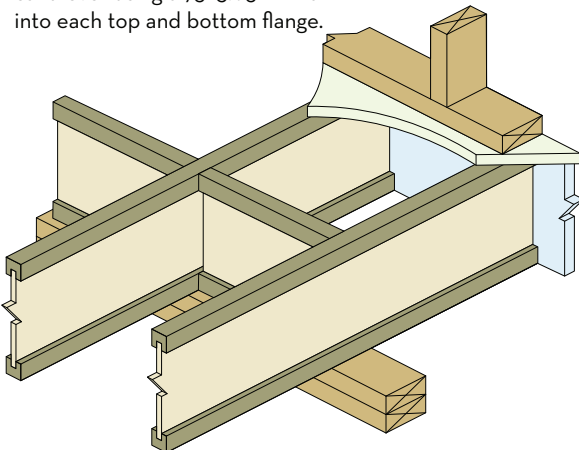
Rimboard / Fascia to ends of balcony joists

1.2 metres maximum

2x Cantilever Span  
600mm minimum

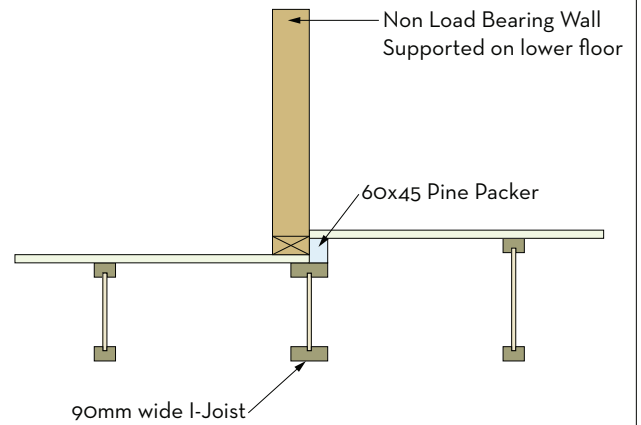
**C1 STANDARD CANTILEVER (I-JOIST)**

Rimboard to be fitted to ends of cantilever using a 75x3.05mm nail into each top and bottom flange.



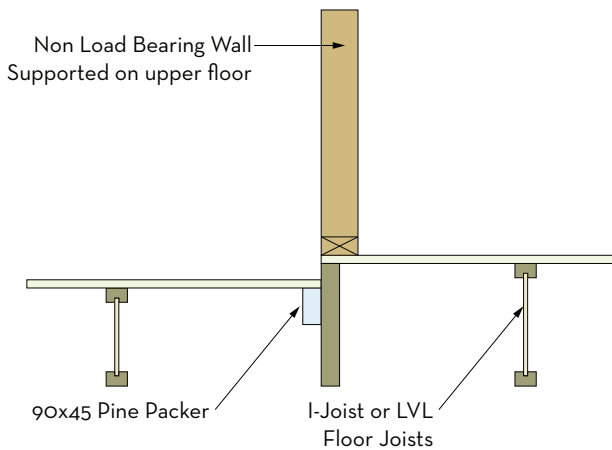
Continuous blocking to be installed to joists over the cantilevers support

**D1 SETDOWN FLOOR  
60MM SET DOWN I-JOIST**



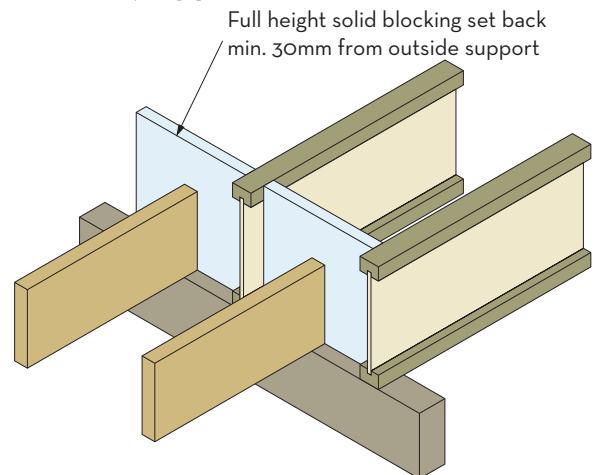
Subject to the structural adequacy of the floor framing members. Suitable for 300/240mm and 360/300mm floor joist depths.

**D2 SETDOWN FLOOR**



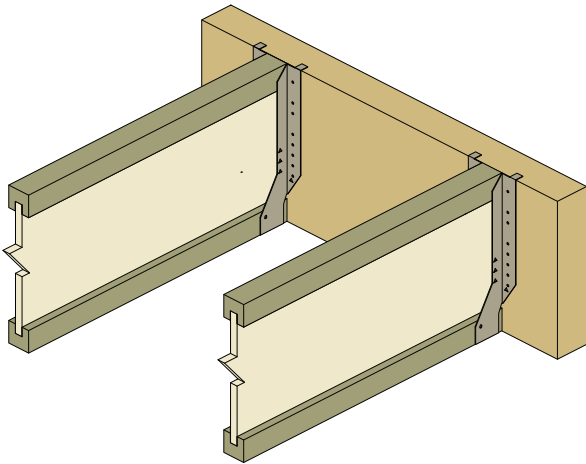
Subject to the structural adequacy of the floor framing members. Attach Fixing Plate to side of LVL with 75x3.08 nails at 150mm ctrs.

**D8 BALCONY TO FLOOR BLOCKING PERPENDICULAR**



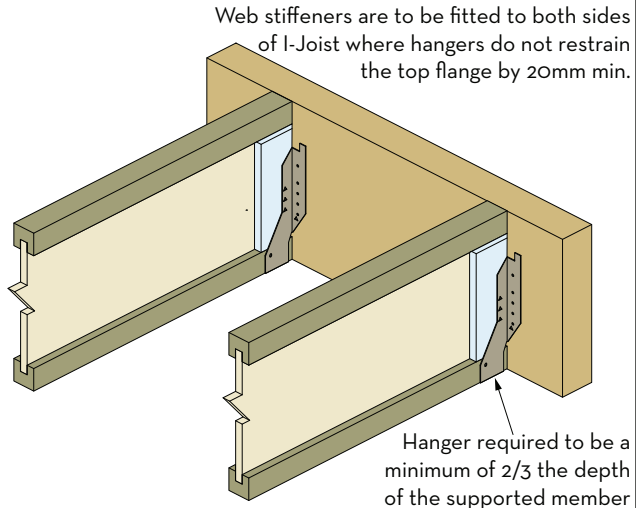
Flashing / water proofing to timber members designed by others 2x 70x3.08 nails fixed through blocking into Balcony Joists. Nominal fixing to floor and balcony joists required.

**E2 FACE MOUNT HANGER  
I-JOIST TO TIMBER CONNECTION**



3.75x38mm nails are to be fitted to every round hole in hanger.

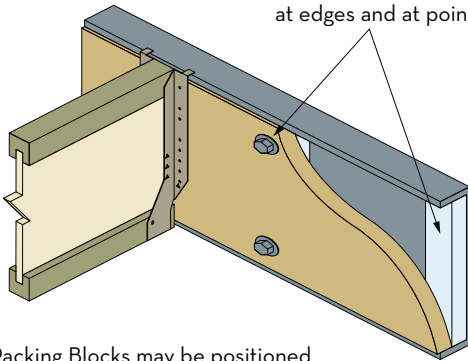
**E3 SHALLOW FACE MOUNT HANGER  
I-JOIST TO TIMBER CONNECTION**



3.75x38mm nails are to be fitted to every round hole in hanger.

**E6 FACE MOUNT HANGER  
I-JOIST TO STEEL FLANGE CONNECTION**

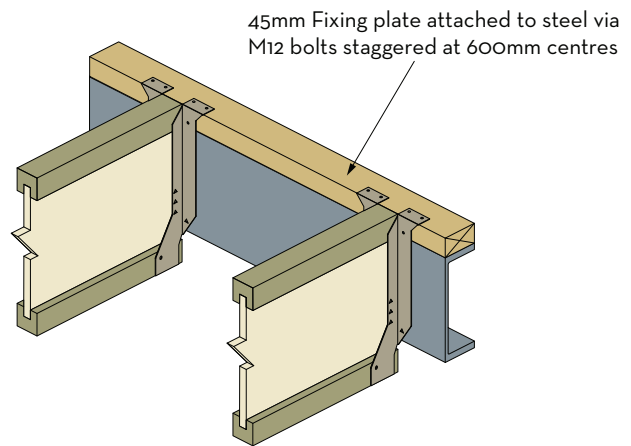
Pair of M12 Bolts to be fitted at location of packing blocks with 60mm minimum edge clearance to fixing / waling plate. Bolts and packing blocks to be located at 900mm centres, at edges and at point load locations.



Packing Blocks may be positioned vertically or horizontally within the steel

3.75x38mm nails are to be fitted to every round hole in hanger  
Packing blocks to be 90mm wide minimum and JD4 or better.

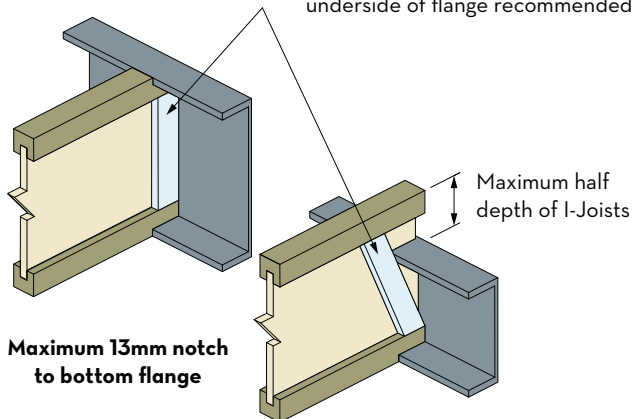
**E7 TOP MOUNT HANGER  
I-JOIST TO STEEL CONNECTION**



3.75x38mm nails are to be fitted to every round hole in hanger  
Leave 3mm gap between I-Joist and steel to prevent squeaks.

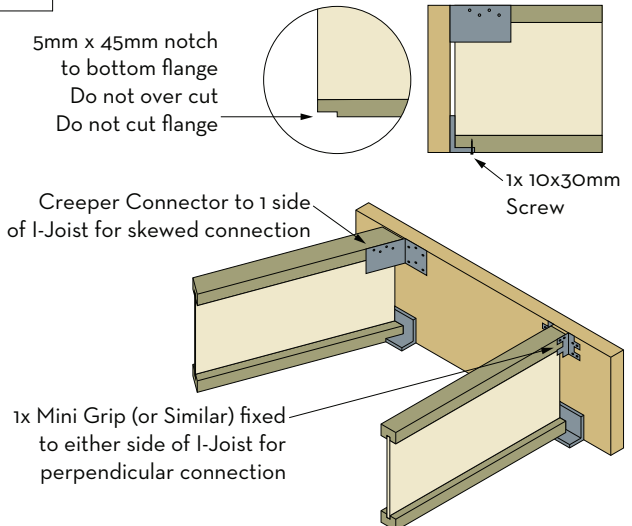
**E8 NOTCHED I-JOIST TO STEEL**

Plywood or Structural Pine Web Stiffeners to be installed either side of I-Joist Web per detail W1  
3mm to 25mm gap to top of Web Stiffener and underside of flange recommended



Blocking required between floor joists per details A3 or A5.

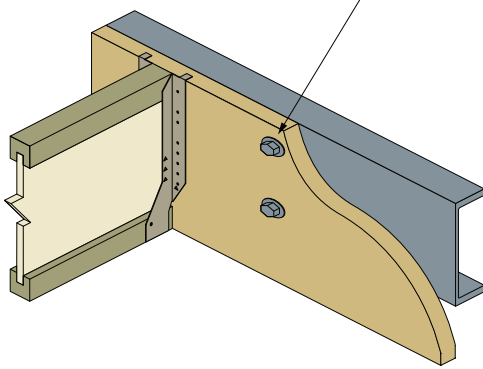
**E9 75X50X5 UA SEAT**



**Not acceptable for use with SJ-20 Series I-Joists.**  
75x50x5UA fixed to supporting beam via 4x 10gx30mm screws.

**E4 FACE MOUNT HANGER  
I-JOIST TO STEEL WEB CONNECTION**

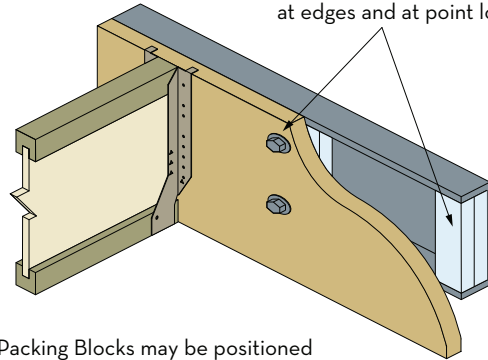
Pair of M12 Bolts to be fitted at 900mm centres.  
60mm minimum edge clearance to fixing / waling plate.



3.75x38mm nails are to be fitted to every round hole in hanger.

**E5 FACE MOUNT HANGER  
I-JOIST TO STEEL FLANGE CONNECTION**

Pair of M12 Bolts to be fitted at location of packing blocks with  
60mm minimum edge clearance to fixing / waling plate.  
Bolts and packing blocks to be located at 900mm centres,  
at edges and at point load locations.



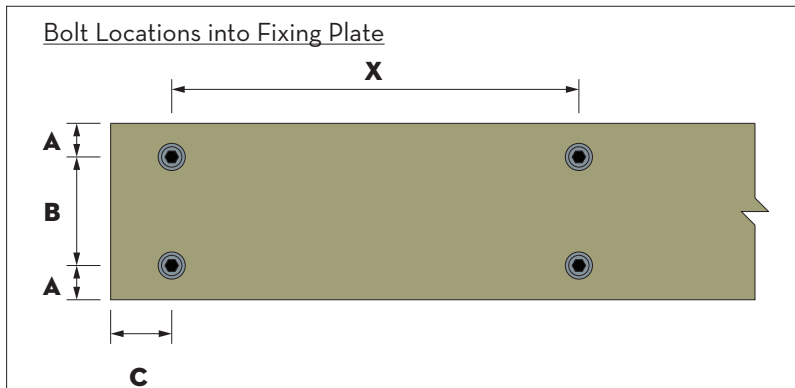
Packing Blocks may be positioned vertically or horizontally within the steel

3.75x38mm nails are to be fitted to every round hole in hanger  
Packing blocks to be 70mm wide minimum and JD4 or better.

Fixing Plate / Bolt Capacities to Steel Connections - Vertical Blocks

Bolt Requirements		Bolt Spacings			Fixing Plate		Packing Blocks		Capacity
Size	Vert. Qty.	A - Edge	B - Vert.	C - End	Joint	Size	Size	Grade	K1 = 0.69
M12	1	48	-	84	JD4	120x45	90x45	F7+	3.3
	2		59			180x45			6.5
	1		-		JD3	120x45			4.4
	2		59			180x45			8.5
M16	1	64	-	112	JD4	160x45	130x45	F7+	4.3
	2		64			240x45			8.7
	1		-		JD3	160x45			5.9
	2		64			240x45			11.8

Bolt Locations into Fixing Plate



X - Spacing of bolts for Floor Loads Only - 1.5 kPa + 1.8 kN with 95 kg/m2 Dead Load

Bolt Requirements		Fixing Plate Joint Group	Floor Load Width				
Size	Vert. Qty.		1.5	2.0	2.5	3.0	3.5
M12	1	JD4	600mm	450mm	-	-	-
	2		900mm	900mm	600mm	600mm	450mm
	1	JD3	600mm	600mm	450mm	-	-
	2		1350mm	900mm	900mm	600mm	600mm
M16	1	JD4	600mm	600mm	450mm	-	-
	2		1350mm	900mm	900mm	600mm	600mm
	1	JD3	900mm	600mm	600mm	450mm	450mm
	2		1800mm	1350mm	1350mm	900mm	900mm



I-Joist Hanger Codes			
Joist Size	Dunning's	Simpson Strong-Tie	
Face Mount Hangers	240x47	BIH234X50	IUSE239/48
	240x70	BIH231X74	IUSE239/73
	240x97	BIH230X99	-
	255x70	-	IUSE239/73
	300x47	BIH295X50	IUSE299/48
	300x70	BIH283X74	IUSE299/73
	300x97	BIH285X99	-
	360x70	BIH351X74	IUSE359/73
	360x97	BIH338X99	-
	400x70	BIH391X74	IUSE399/73
	400x97	BIH385X99	-
	Top Mount Hangers	240x47	BITH240X50
240x70		BITH240X74	ITSE239/73
240x97		BITH240X99	-
300x47		BITH300X50	ITSE299/48
300x70		BITH300X74	-
300x97		BITH300X99	-
360x70		BITH360X74	ITSE359/73
360x97		BITH360X99	-
400x70		BITH400X74	-
400x97		BITH400X99	-

Dunning's I-Joist Hanger Fixing Capacities ( $k_1 = 0.69$ )			
Per Side	Load Combination	JD3	JD4
Face Mount Hangers <sup>(1) (2)</sup>			
4 Nails	Dead Load	7.2	5.2
	Dead + Floor Live Load	8.7	6.2
5 Nails	Dead Load	9.0	6.5
	Dead + Floor Live Load	10.9	7.8
6 Nails	Dead Load	10.8	7.7
	Dead + Floor Live Load	13.1	9.4
8 Nails	Dead Load	14.4	10.3
	Dead + Floor Live Load	17.5	12.5
Top Mount Hangers <sup>(1) (2)</sup>			
3 Nails <sup>(1)</sup>	Dead Load	6.5	3.8
	Dead + Floor Live Load	7.8	4.6

Simpson Strong-Tie I-Joist Hanger Fixing Capacities ( $k_1 = 0.69$ )			
Per Side	Load Combination	JD3	JD4
Face Mount Hangers <sup>(1) (3)</sup>			
7 Nails	Dead Load	9.3	6.7
	Dead + Floor Live Load	11.2	8.0
8 Nails	Dead Load	10.7	7.6
	Dead + Floor Live Load	12.8	9.2
10 Nails	Dead Load	13.4	9.5
	Dead + Floor Live Load	16.1	11.5
11 Nails	Dead Load	14.7	10.5
	Dead + Floor Live Load	17.7	12.5
Top Mount Hangers <sup>(1) (3)</sup>			
3 Nails	Dead Load	7.5	4.4
	Dead + Floor Live Load	9.1	5.2

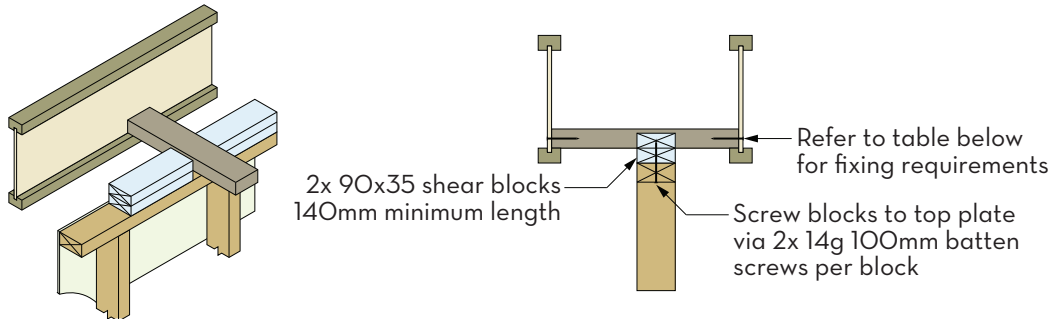
75x50x5mm Variable Skew Angle Seat <sup>(4)</sup> Capacities ( $k_1 = 0.69$ )			
Fixings	Load Combination	JD3	JD4
6 Screws	Dead Load	5.8	4.1
	Dead + Floor Live Load	7.0	5.0
	Dead + Roof Live Load	7.8	5.6
	Dead + Wind	9.0	8.3

**NOTES:**

1. Load duration factor of  $K_1 = 0.69$  applied for Floor Live Loads.
2. Use 38x3.75mm Galvanized Nails to holes provided
3. Recommended to use No.6 Type 17 Bugle Head Screw 30mm through hanger into bottom of I-Joist
4. 0.55 kN uplift capacity when 2/ 38x3.75mm Nails fitted to bottom flange of joists via the holes provided
5. Use No.12 Type 17 Screws 30mm to supporting member & No.12 Type 17 Bugle Head Screws 30mm to supported member
6. Only install fixing to predetermined holes in connectors
7. I-Joist Hangers do not provide any tie-down. Where uplift is present additional tied-own provisions are required. Refer to AS1684 for more details
8. I-Joist hangers are to restrain the top flanges of the I-Joist by a minimum of 20mm
9. If I-Joist hangers do not restrain the top flange then web stiffeners are required to be fitted to both sides of the I-Joist web
10. Hangers to be a minimum of 2/3 the depth of the I-Joists
11. Face & Top Mount hangers must not be modified in any way. Hangers will generally allow a skew up to 50 and a slope up to 20

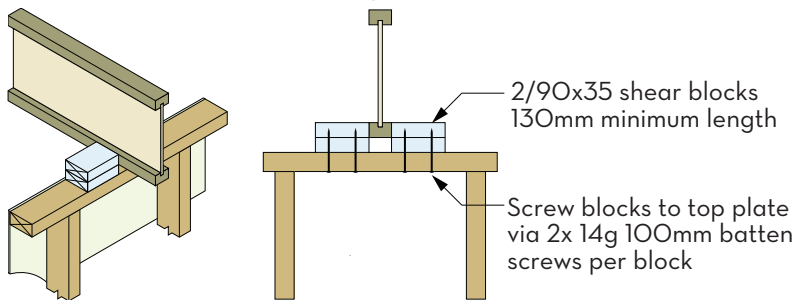
**BRACING WALLS TO FLOOR FRAMING**

**Lower Bracing Wall to Underside of Floor Joists - Parallel**



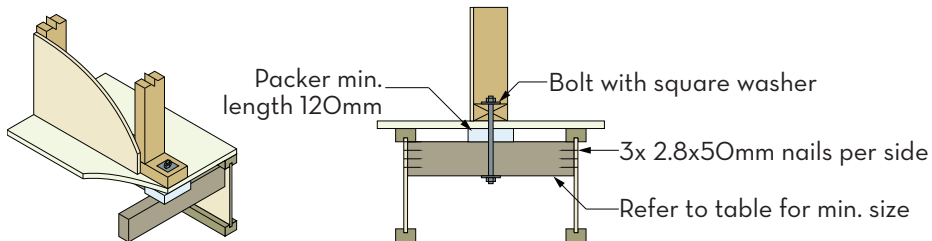
Lower Bracing Wall to Underside of Floor Joists - Parallel								
Max. Block Spacing	0.9m				1.2m			
Bracing Wall Capacity kN/m	Minimum Block Size	Fixings Per Side			Minimum Block Size	Fixings Per Side		
		Size	Type	Qty		Size	Type	Qty
3.0	90x35	2.8x50mm	Nail	3	90x35	2.8x50mm	Nail	3
3.4	90x35	2.5x50mm	Nail	3	90x35	2.8x50mm	Nail	3
6.0	120x35	2.8x50mm	Nail	4	140x35	2.8x50mm	Nail	5
	90x63	14gx75mm	Screw	1	90x63	14gx75mm	Screw	1
6.4	120x35	2.5x50mm	Nail	3	140x35	2.8x50mm	Nail	6
	90x63	14gx75mm	Screw	1	90x63	14gx75mm	Screw	1

**Lower Bracing Wall to Underside of Floor Joists - Perpendicular**



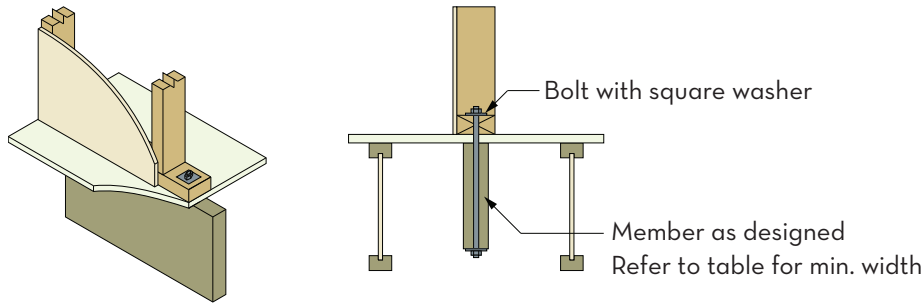
Bracing Wall Capacity kN/m	Max. Distance between Blocks
3.0	1.2m
3.4	1.2m
6.0	1.2m
6.4	1.2m
8.7	0.9m

**Upper Bracing Wall to I-Joists below - Perpendicular & Parallel**



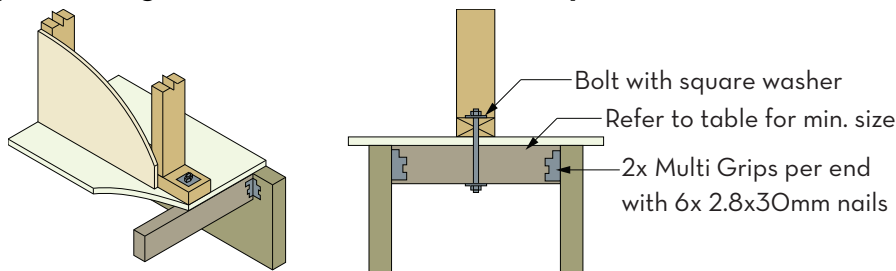
Bolt Size	Block Size	Max. Uplift kN
M10	90x45	10.0
M12	2/90x35	11.0

### Upper Bracing Wall to LVL Joists below - Perpendicular & Parallel - Type (b)



Bolt Size	Min Joist Width	Max. Uplift kN
M10	45mm	12.0
M12	63mm	16.0

### Upper Bracing Wall to LVL Joists below - Perpendicular & Parallel - Type (c)



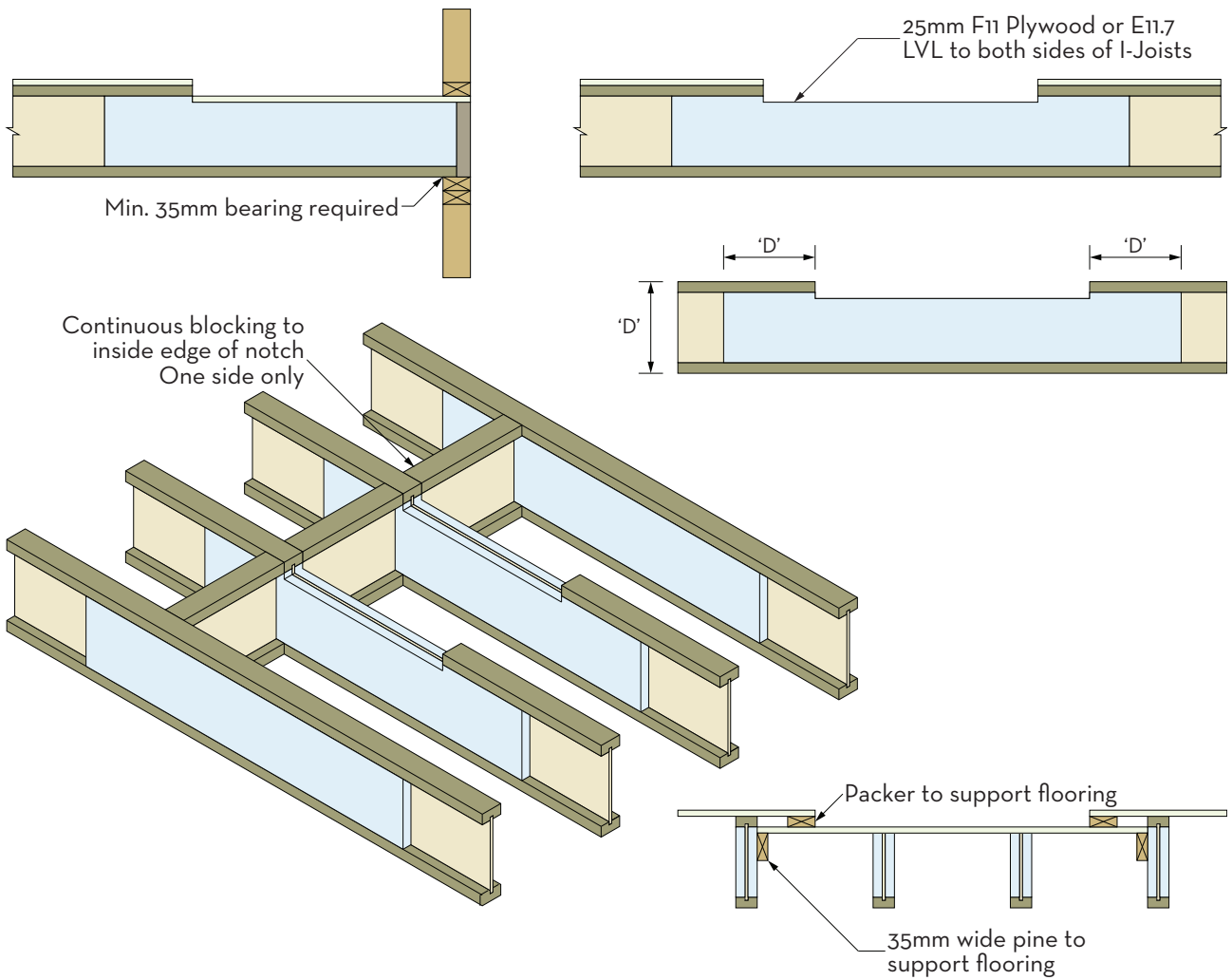
Bolt Size	Block Size	Max. Uplift kN
M10	90x45	12.0
M12	2/90x35	15.0

Uplift Forces at Ends of Bracing Walls (kN)					
Bracing Wall Height	Bracing Wall Capacity (kN/M)				
	1.5	3.0	3.4	6.0	6.4
2400	3.6	7.2	8.2	14.4	15.4
2700	4.1	8.1	9.2	16.2	17.3
3000	4.5	9.0	10.2	18.0	19.2

#### NOTES:

1. Values based on timber framing with a joint group of JD5 or greater
2. Fixing Blocks to fit snug in between Shear Blocks
3. 14g x100mm Batten Screw based on using 2x 35mm shear blocks through a 35mm top plate. Where wider members are used increase the length of the screw by the same length
4. Floor Joists to be installed and fixed in accordance with appropriate installation guide and AS1684
5. Designs derived from information available in AS1720.1 and AS1684.2
6. Refer to AS1684.2 for more information of bracing types and intermediate fixing detail requirements
7. Where intermediate fixings are required in the form of an M10 bolt at 1200mm centres any of the details shown are acceptable

**SHOWER SETDOWN DETAIL**



**NOTES:**

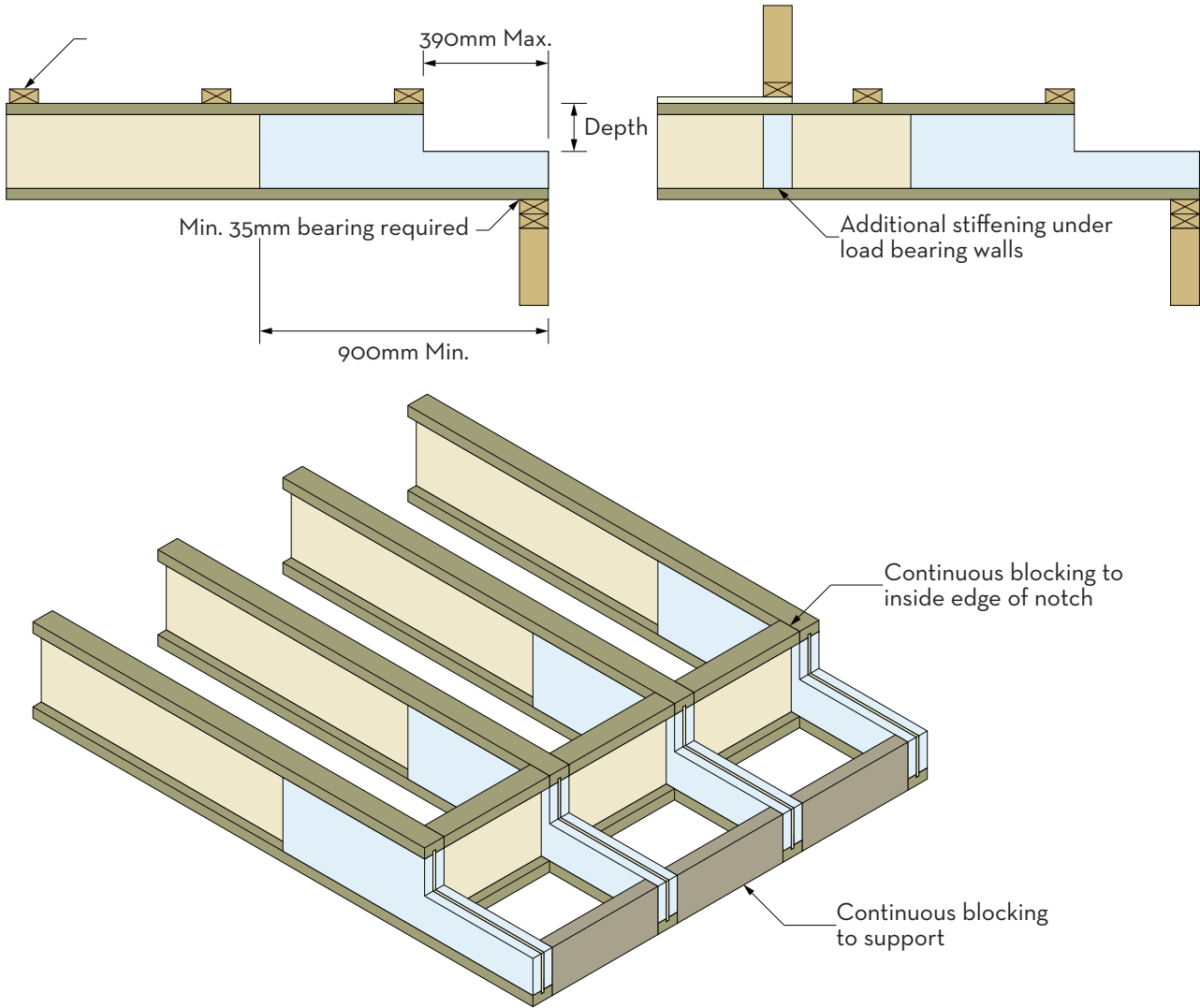
1. 55mm maximum allowed notch depth
2. Stiffening fixed via 3 rows of 75x3.05mm framing nails clinched at 150mm ctrs with Builders Adhesive compliant with AS4364
3. Extend web stiffening the depth of the I-Joist past either end of the rebate
4. Apply stiffening to floor joists adjacent to rebate where flooring has been extended (refer to detail above)
5. Install continuous solid blocking or Rimboard to ends of joists where rebate has been cut over an external or loaded support
6. Special care is to be taken to ensure no over cutting of the I-Joist or the web stiffening

Maximum Joists Capacity (%) (k1=0.57)						
Series	Width (mm)	Depth (mm)	Width of Notch			
			900	1200	1500	1800
H-Series	47	200	58.8	55.0	53.6	52.6
		240	63.3	60.3	58.5	57.6
		300	71.0	66.7	64.7	64.7
HI-Series	70	240	52.0	48.1	46.4	45.6
		255	50.0	46.7	44.7	44.7
		300	57.7	53.6	51.7	51.7
		360	52.5	52.5	58.8	58.8
		400	66.7	66.7	61.5	61.5
HB-Series	97	240	40.9	37.5	36.0	35.5
		300	47.8	44.0	42.3	42.3
		360	50.0	46.7	46.7	46.7
		400	70.0	63.6	63.6	63.6



### BOX GUTTER DETAIL

25mm F11 Plywood or E11.7 LVL to be glued and fixed to both sides with 75x3.15 Nails to be driven staggered from both sides in alternate locations at 150mm centres with Builders Adhesive.

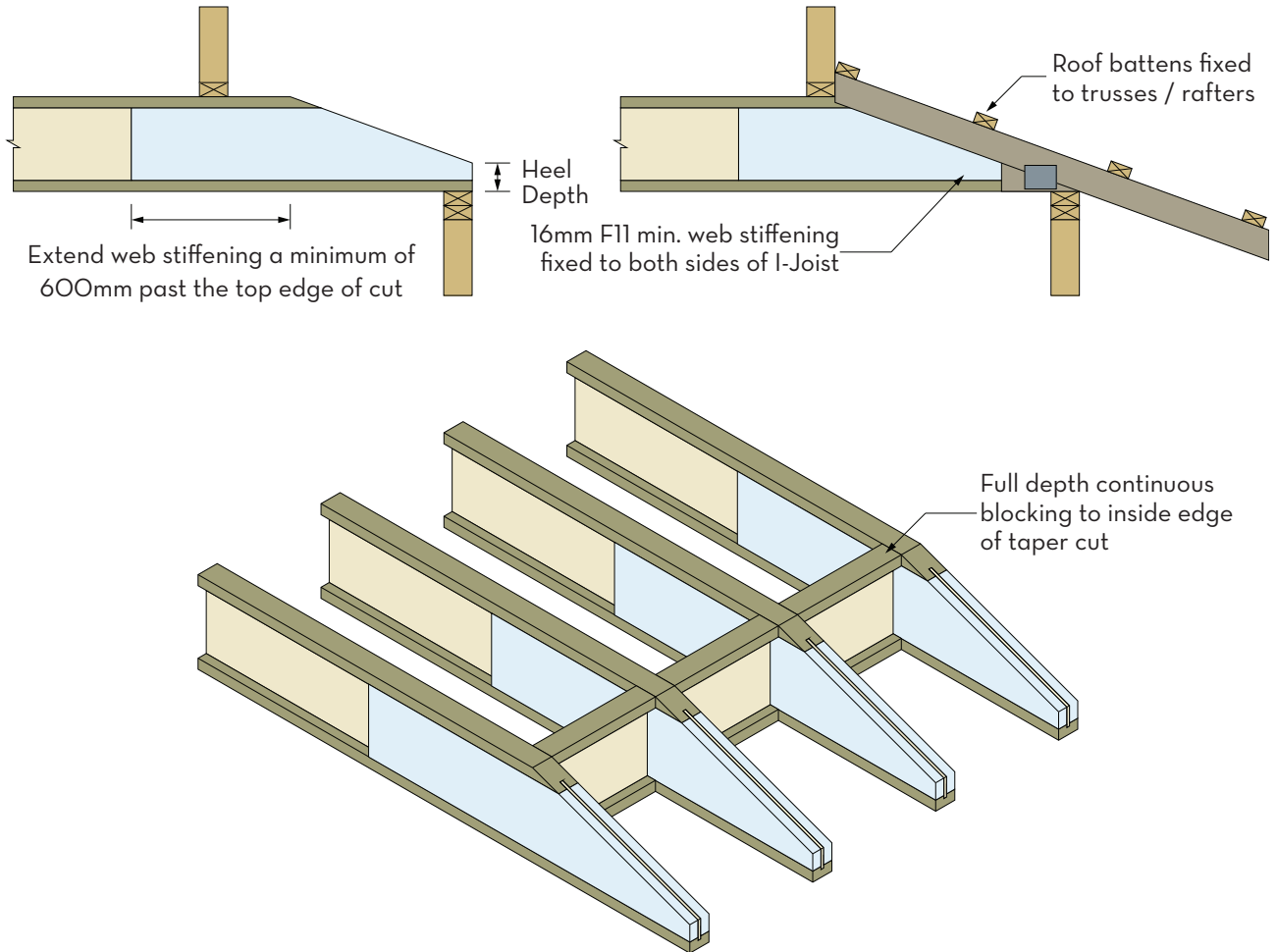


Max Shear Capacity (kN)						
Joist Depth (mm)	Box Gutter Depth (mm)	Permanent Loads (k1=0.57)	Floor Live Loads		Roof Live Loads	
			Distributed (k1=0.69)	Concentrated (k1=0.77)	Distributed (k1=0.77)	Concentrated (k1=0.86)
240	90	2.6	3.1	3.5	3.5	3.8
300	150	2.6	3.1	3.5	3.5	3.8
360	150	4.3	5.2	5.8	5.8	6.5
400	190	4.3	5.2	5.8	5.8	6.5

**NOTES:**

1. Stiffening fixed via 3 rows of 75x3.05mm framing nails clinched at 150mm ctrs with Builders Adhesive compliant with AS4364-2010
2. Special care is to be taken to ensure no over cutting of the I-Joist or the web stiffening
3. Continuous blocking required to be fitted to the inside edge of the box gutter notch and over the support

## TAPER CUT DETAIL



Max Shear Capacity (kN)					
Minimum Heel Depth (mm)	Permanent Loads (k1=0.57)	Floor Live Loads		Roof Live Loads	
		Distributed (k1=0.69)	Concentrated (k1=0.77)	Distributed (k1=0.77)	Concentrated (k1=0.86)
90	6.6	3.4	5.6	3.5	5.3

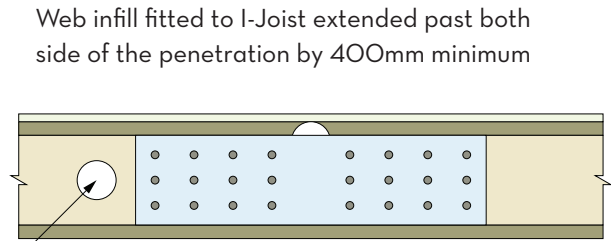
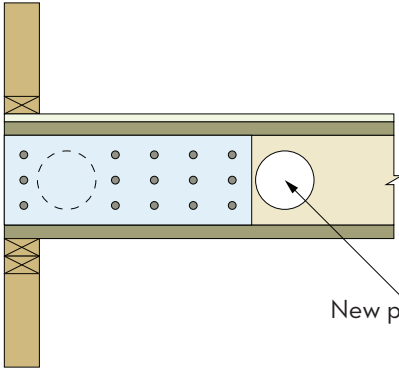
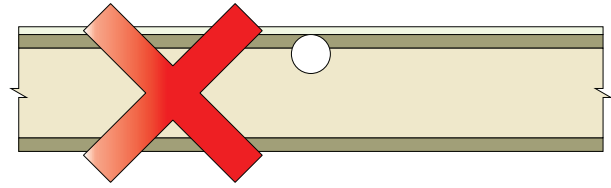
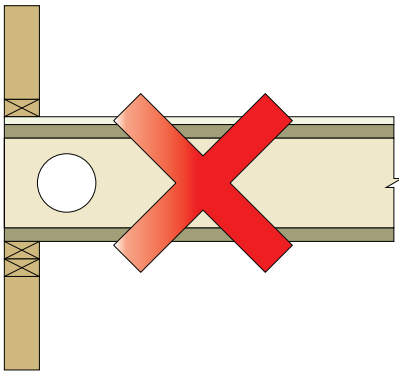
## NOTES:

1. Details listed above are only applicable for roof pitches between 20 and 30 degrees.
2. Heel depth must be no less than 90mm measured as shown in figure above.
3. Structural Plywood, minimum F11 16mm, must extend past the top edge of the taper cut by a minimum of 600mm.
4. Web Stiffening must be fixed using 75x3.05mm Framing Nails staggered and clinched along with Builders Adhesive compliant with AS4364-2010.
5. Additional Web Stiffening required under offset load bearing walls which are not positioned over the Taper Cut reinforcing.
6. Continuous Blocking required to joists along taper cut. Alternatively continuous battens may be installed to the top flange of the I-Joist at 600mm centres maximum or sheet flooring may be extended to taper cut.

### HOLE RECTIFICATION

Penetration too large or too close to support

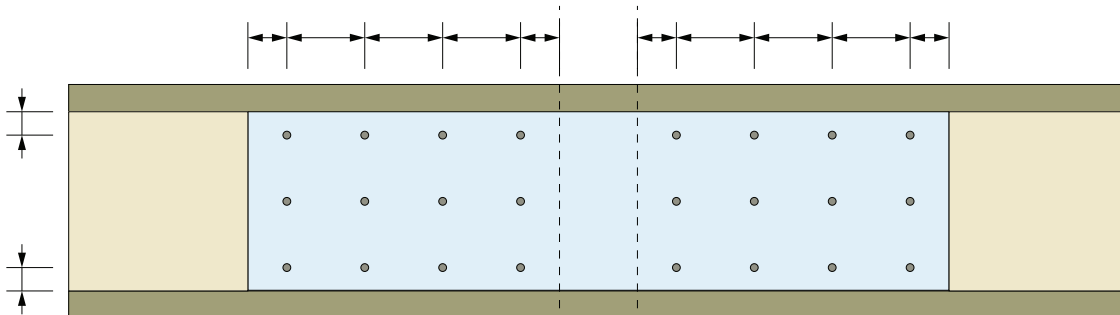
Cutting or damage to top or bottom flange



New penetration cut through web in approved locations

Web infill fitted to I-Joist extended past both side of the penetration by 400mm minimum

100mm 100mm 100mm 100mm  
50mm 100mm 50mm 50mm 100mm 50mm



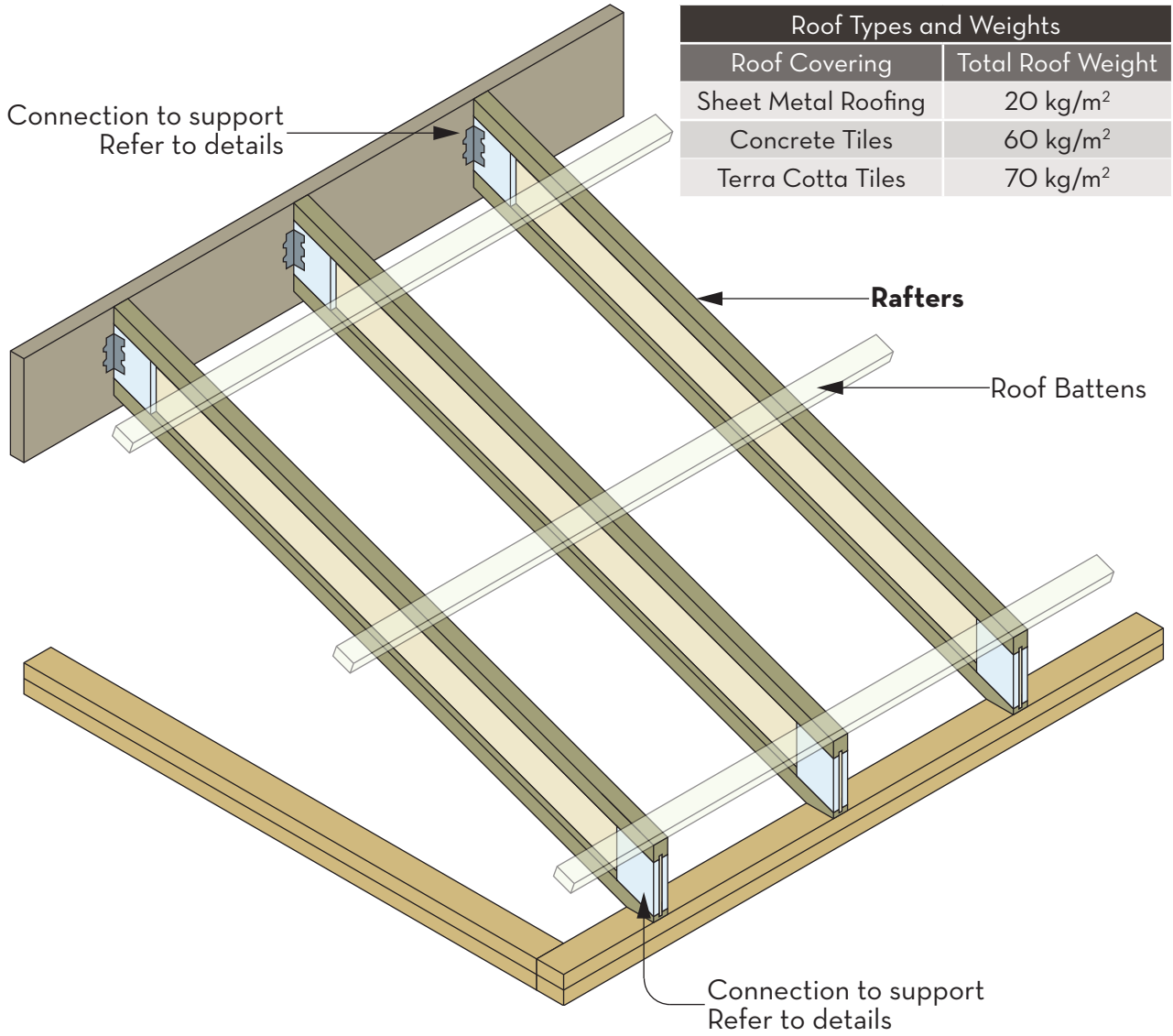
Rectification Zone  
Maximum 300mm

**NOTES:**

1. Details shown above are only suitable for use with Swelite I-Joists
2. All plywood to be 24mm+ thick with a minimum grade of F11 or 25mm E11.7 Laminated Veneer Lumber
3. Stiffening must be fixed to both sides of the I-Joist web
4. Use 8gx50mm screws in the configuration shown above. Screws to be fixed through both sides of the I-Joist i.e. double the number of nails shown above
5. Service holes are not permitted to be cut through web stiffening

Max Capacity (kN) (k1=0.57)										
Series			HI-Series (70mm)				HB-Series (97mm)			
Depth	240	300	240	300	360	400	240	300	360	400
M <sub>max</sub> kN/m	3.3	3.6	3.3	3.6	3.2	3.0	3.0	3.4	3.2	3.0
V <sub>max</sub> kN	13.0	12.5	13.0	12.5	15.5	17.0	16.0	14.5	15.5	17.0

**RAFTERS**

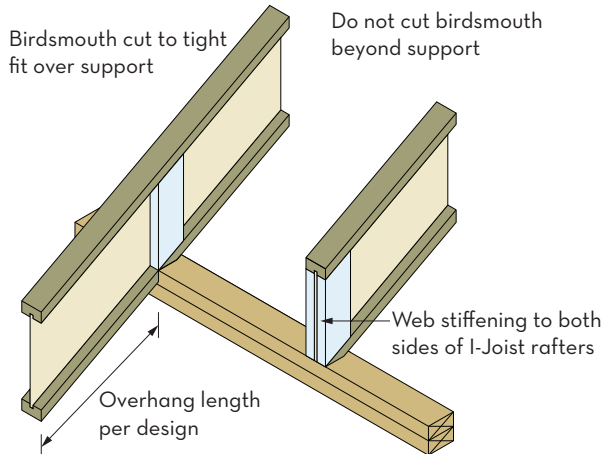


Rafters are members positioned parallel to each other designed to support and fix the roof covering. Rafters may also be designed to support the ceiling for cathedral type roofs.

Considerations for rafter centres should include; performance of the rafter, the span of roof battens and the plasterboard or ceiling joists.

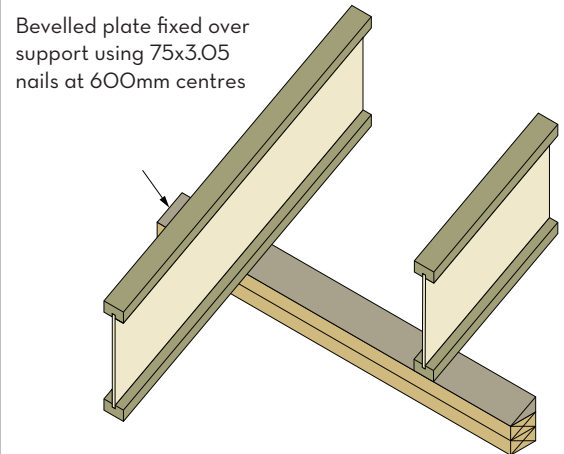
Rafters are to be fixed and tied-down at all supports to accommodate any uplift generated by wind loads. Rafters are to be supplied in a single length or joined over a support.

**J1 RAFTER BIRDSMOUTH**



Lateral restraint required in the form of full depth blocking, Rimboard or 30x0.8 mm GI Strap. Rafters to be tied down to support using an approved method

**J3 BEVELLED PLATE SUPPORT**



Lateral restraint required in the form of full depth blocking, Rimboard or 30x0.8 mm GI Strap. Rafters to be tied down to support using an approved method

RAFTER - Span Table - Sheet Metal Roofing + 10mm Plaster (32kg/m<sup>2</sup>)  
Maximum Roof Pitch <35.0° - N3 Wind Loading

Series	Depth (mm)	450mm		600mm		900mm		Overhang
		Single	Cont.	Single	Cont.	Single	Cont.	
H-Series (47mm)	200	5200	6000	4900	5600	4300	5000	1400
	240	5800	6800	5500	6200	5000	5800	1600
	300	6700	7600	6300	7200	5700	6600	2000
HI-Series (70mm)	240	6400	7400	6000	6800	5400	6200	1900
	300	7300	8000	6800	7800	6200	7200	2300
	360	8000	8000	7600	8000	6900	8000	2600
	400	8500	8000	8000	8000	7400	8000	2800
HB-Series (97mm)	240	6800	7800	6400	7400	5800	6700	2100
	300	7700	8000	7300	8000	6700	7600	2500
	360	8600	8000	8100	8000	7400	8000	2900
	400	9100	8000	8600	8000	7900	8000	3200

RAFTER - Span Table - Concrete Tile Roofing + 10mm Plaster (72kg/m<sup>2</sup>)  
Maximum Roof Pitch <35.0° - N2 + N3 Wind Loading

Series	Depth (mm)	450mm		600mm		Overhang
		Single	Cont.	Single	Cont.	
H-Series (47mm)	200	4200	5000	3800	4600	1400
	240	4800	5600	4400	5200	1700
	300	5500	6400	5200	6000	2000
HI-Series (70mm)	240	5300	6000	4900	5600	1900
	300	6100	7000	5600	6400	2400
	360	6700	7800	6300	7200	2800
	400	7200	8000	6700	7600	3100
HB-Series (97mm)	240	5700	6400	5300	6000	2200
	300	6500	7400	6100	7000	2700
	360	7200	8000	6700	7600	3100
	400	7700	8000	7200	8000	3400

Notes:

1. Continuous span is defined as the smaller of the 2 spans being not less than half that of the larger span. Refer to AS1684 for further clarification
2. Overhang to have a minimum back span of 2x the overhang to a maximum span shown in the tables above
3. Additional overhang analysis can be undertaken using the ITI Design Spec Software

**J5 FLAT SOFFIT TO OVERHANG**

90x45 MGPI0 Stiffener fixed to both sides of web

600mm max. overhang

Beveled top plate or VPA connector to support rafters

90x3.05 Nails at 150mm centres clinched both sides

Lateral restraint required in the form of full depth blocking, Rimboard or 30x0.8 mm GI Strap. Rafters to be tied down to support using an approved method

**J7 STITCHED OVERHANG TO I-JOIST RAFTERS**

Connect outrigger to rafters using 75x3.05mm nail at 150mm centres

70x45 min. prop

Web stiffening to both sides of I-Joist rafters

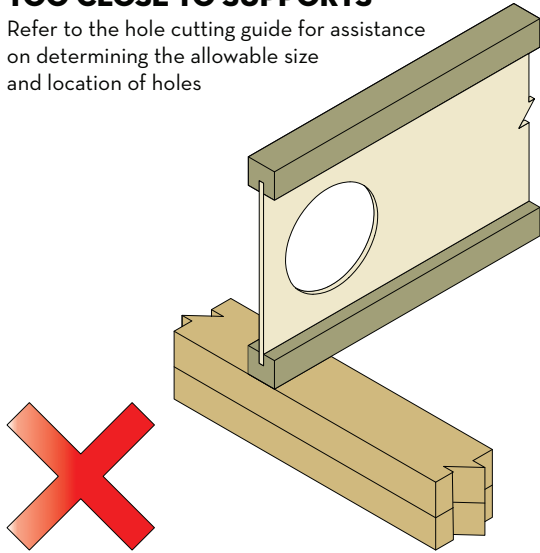
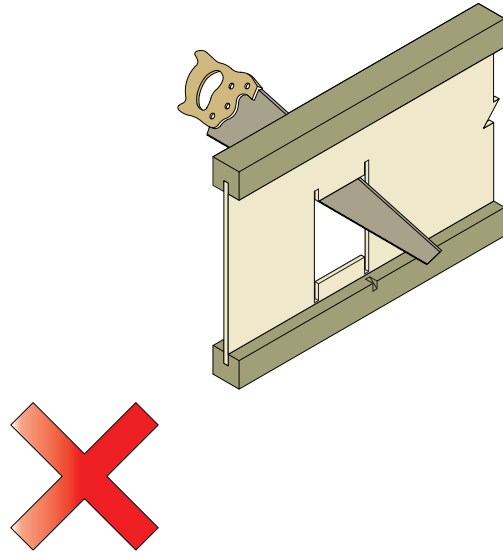
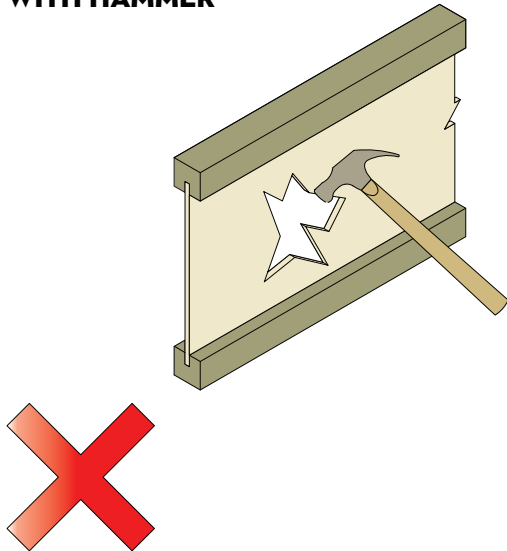
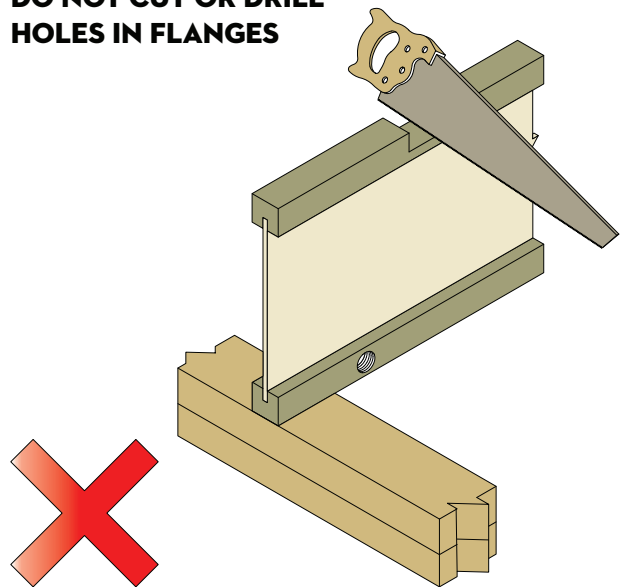
Outrigger as designed

Lateral restraint required in the form of full depth blocking, Rimboard or 30x0.8 mm GI Strap. Rafters to be tied down to support using an approved method

## I-JOIST DO'S &amp; DON'TS

**DO NOT CUT HOLES TOO CLOSE TO SUPPORTS**

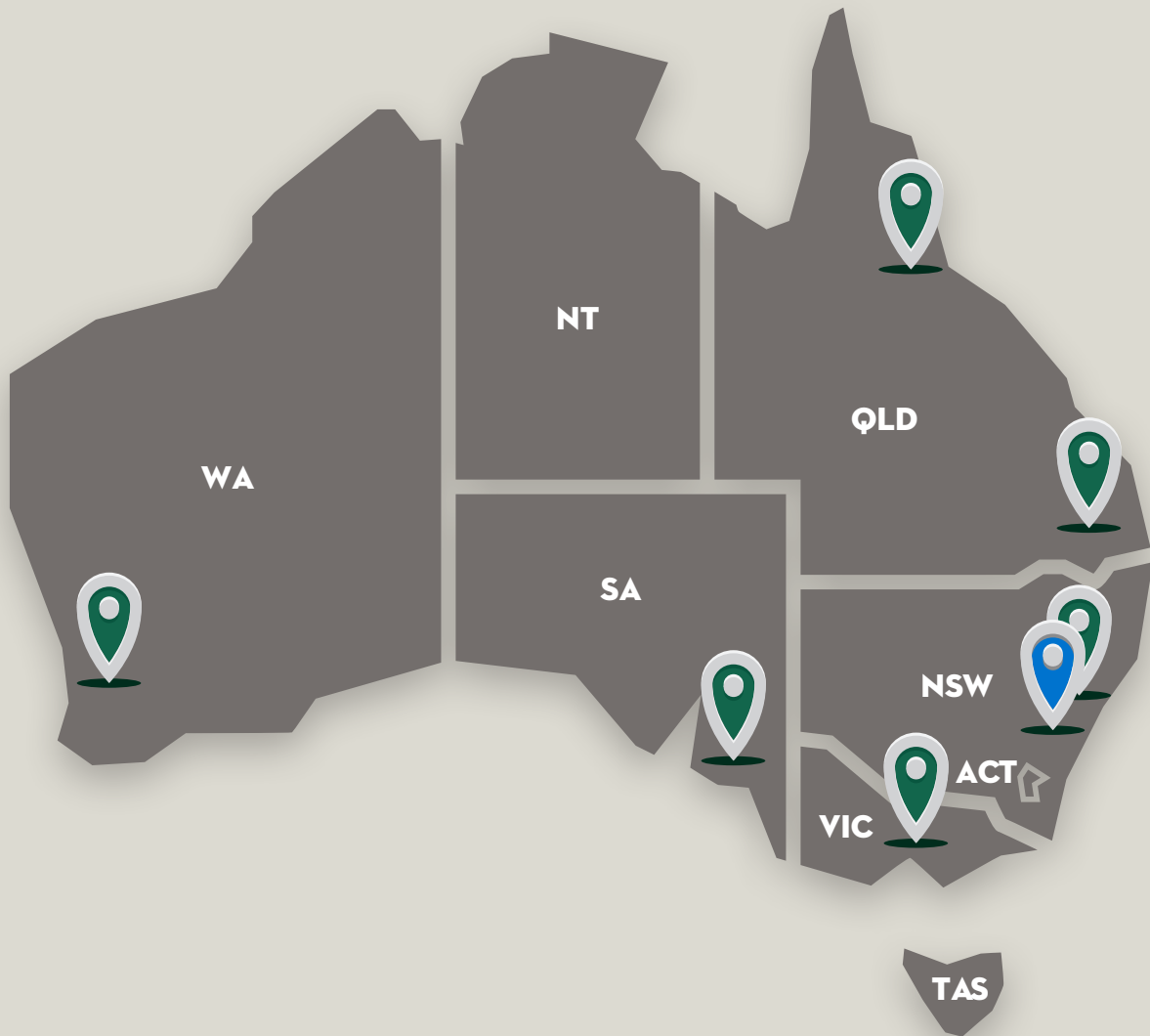
Refer to the hole cutting guide for assistance on determining the allowable size and location of holes

**DO NOT OVER CUT HOLES****DO NOT PUNCH HOLES WITH HAMMER****DO NOT CUT OR DRILL HOLES IN FLANGES****STORAGE & HANDLING GUIDELINES & WARNINGS**

1. Warning: Failure to follow good procedures for handling, storage and installation could result in unsatisfactory performance, unsafe structures and possible collapse
2. Keep Swelite I-Joists Products dry
3. Unload products carefully. When lifting support the bundles to reduce excessive bowing. Individual products shall be handled in a manner which prevents physical damage during measuring, cutting, erection, etc. Swelite I-Joists shall be handled vertically and not flat wise
4. Keep products stored in wrapped and strapped bundles, stacked no more than 3m high. Support and separate bundles with 45mmx90mm (or larger) gluts spaced no more than 3m apart. Keep gluts in line vertically
5. Product shall not be stored in contact with the ground, or have prolonged exposure to the weather
6. Use forklifts and cranes carefully to avoid damaging products
7. Do not use a visually damaged product. Call your local Swelite I-Joists Products distributor for assistance when damaged products are encountered
8. For satisfactory performance, Swelite I-Joists Products shall be used under dry, covered and well-ventilated interior conditions in which the equivalent moisture content in the timber will not exceed 16%

## ITI PRODUCT CODES

ITI Product Codes	
Product Code	Description
Swelite I-Joists Untreated	
SI200X047UT	200X47 Swelite I-Joist H Series Untreated
SJ240X047UT	240x47 Swelite I-Joist H Series Untreated
SI300X047UT	300x47 Swelite I-Joist H Series Untreated
SI240X070UT	240x70 Swelite I-Joist HI Series Untreated
SI255X070UT	255x70 Swelite I-Joist HI Series Untreated
SI300X070UT	300x70 Swelite I-Joist HI Series Untreated
SI360X070UT	360x70 Swelite I-Joist HI Series Untreated
SI400X070UT	400x70 Swelite I-Joist HI Series Untreated
SI240X097UT	240x97 Swelite I-Joist HB Series Untreated
SI300X097UT	300x97 Swelite I-Joist HB Series Untreated
SI360X097UT	360x97 Swelite I-Joist HB Series Untreated
SI400X097UT	400x97 Swelite I-Joist HB Series Untreated
Swelite I-Joists H2-F Treated (South of the Tropic of Capricorn)	
SI200X047H2S	200X47 Swelite I-Joist H Series H2-F Treated
SI240X047H2S	240x47 Swelite I-Joist H Series H2-F Treated
SI300X047H2S	300x47 Swelite I-Joist H Series H2-F Treated
SI240X070H2S	240x70 Swelite I-Joist HI Series H2-F Treated
SI255X070H2S	255x70 Swelite I-Joist HI Series H2-F Treated
SI300X070H2S	300x70 Swelite I-Joist HI Series H2-F Treated
SI360X070H2S	360x70 Swelite I-Joist HI Series H2-F Treated
SI400X070H2S	400x70 Swelite I-Joist HI Series H2-F Treated
SI240X097H2S	240x97 Swelite I-Joist HB Series H2-F Treated
SI300X097H2S	300x97 Swelite I-Joist HB Series H2-F Treated
SI360X097H2S	360x97 Swelite I-Joist HB Series H2-F Treated
SI400X097H2S	400x97 Swelite I-Joist HB Series H2-F Treated
Rim Board	
EA200X025RB24	200x25 F11 Plywood Rimboard 2.4m length
EA240X025RB24	240x25 F11 Plywood Rimboard 2.4m length
EA300X025RB24	300x25 F11 Plywood Rimboard 2.4m length
EA360X025RB24	360x25 F11 Plywood Rimboard 2.4m length
EA400X025RB24	400x25 F11 Plywood Rimboard 2.4m length
Web Infill	
EA240X025WS24	25mm F11 Plywood Web Infill to suit 240mm deep I-Joists 2.4m length
EA300X025WS24	25mm F11 Plywood Web Infill to suit 300mm deep I-Joists 2.4m length
EA360X025WS24	25mm F11 Plywood Web Infill to suit 360mm deep I-Joists 2.4m length
EA400X025WS24	25mm F11 Plywood Web Infill to suit 400mm deep I-Joists 2.4m length
Web Stiffeners	
EA070X018WS24	70x18 Plywood Web Stiffener 2.4m length
EA070x025WS24	70x25 Plywood Web Stiffener 2.4m length
EA070x030WS24	70x30 Plywood Web Stiffener 2.4m length
Setdown Packing	
EA060X040PPUTS	60x40 Pine Packer Untreated
EA060x045PPH2S	60x45 Pine Packer H2-S Treated



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