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e-joint

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e-joint Specification

ENGINEERED TO LOAD
ENGINEERED TO LENGTH
ENGINEERED TO LAST

e-joist®

END OF STORY



01 OVERVIEW

e-joist is the premier I-joist product available in Australia. e-joist has many advantages over traditional building products, including its uniformity of engineering properties, it's high strength to weight ratio and its availability in longer lengths.

e-joist is available in a range of depths and flange widths as presented below:

Flange Width	Depths		
	200	240	300
45	ej20045	ej24045	ej30045
63		ej24063	ej30063
90		ej24090	ej30090

Note e-joist sizes marked with an * are not available in all Australian States. Check with your local Wesbeam office or approved Wesbeam distributor for available stock sizes.

e-joist is manufactured from sustainably sourced timbers, making it an environmentally sustainable resource.

About e-joist

e-joist utilises a Laminated Veneer Lumber (LVL) flange and a structural web. Flanges are manufactured by laminating predominantly Maritime Pine veneer using phenolic adhesive in a continuous assembly in which the grain direction of all veneers runs longitudinally.

Safety Data Sheets (SDS)

MSDS information on the LVL flange and web materials is available at www.wesbeam.com

Use of e-joist Data

The Tables and other technical data provided in this publication are only applicable to e-joist manufactured by Wesbeam. This data should not be used for look-alike or substitute products. Use of the e-joist data for look-alike or substitute products can result in unsafe or unsatisfactory performance.

Design Loads

These tables are designed to be used for residential housing only. For use in other applications, including flats, school buildings, offices, and a range of commercial applications, please refer to either the e-house suite of design software or Wesbeam technical staff.

Terminology, Definitions and Notations Used in these Tables

The terminology, definitions and notations used in this brochure are similar to and consistent with those used and listed in AS1684.2:2021 Residential timber framed construction, Part 2:Non-cyclonic areas.

E-JOIST DESIGN INFORMATION

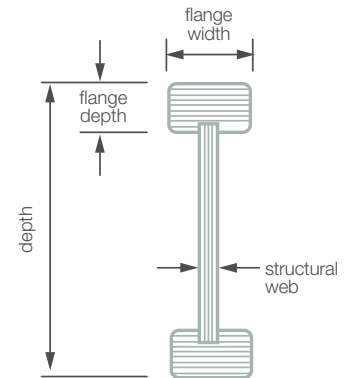
Flooring

Specified floor joist spans are independent of flooring type and are therefore suitable for a range of flooring products including: particleboard flooring, plywood flooring or strip flooring.

Floor joist spans are determined in accordance with AS1684.2:2021 Residential timber framed construction, Part 2:Non-cyclonic areas, with a floor self weight of 40kg/m^2 and a floor live load of 1.5kPa ($\sim 150\text{kg/m}^2$). One third of the floor live load (50kg/m^2) – is considered a permanent live load (PLL).

e-joist Nomenclature

ej30045 – denotes an e-joist 300mm deep with a 45mm wide flange.



Heavier Floor Loadings

Heavier permanent floor loads (PLL) – greater than 40kg/m^2 – requires special consideration, e.g. tiled or slate flooring on a mortar bed, spa baths, island benchtops located in the middle $\frac{1}{3}$ of the joist span, pantries not located over or adjacent to load bearing walls under, or large additional furniture loads in a room. Where such additional floor loadings are to be supported by the floor joists the additional floor loading (kg/m^2) should be determined. The calculated additional floor loading should then be added to the 40kg/m^2 permanent floor loading specified in AS1684. As an example, if the calculated additional permanent floor loading is 50kg/m^2 , the long term permanent floor loading used in the floor design will be $40\text{kg/m}^2 + 50\text{kg/m}^2 = 90\text{kg/m}^2$.

e-house Software

Wesbeam's e-house software can be used to size e-joists for actual member conditions – span, spacing, floor mass, and wind classification.

Recommended Span Range

The tables are designed to present the building designer with a range of options. Selecting a joist span toward the higher end of the span range will provide the most economic floor system. Selecting a joist span nearer the lower extent of the span range will provide a more rigid floor system.

FLOOR JOISTS SUPPORTING FLOOR AND CEILING LOADS ONLY

Recommended Floor Joist Spans (m): Single Spans

Section Code	Recommended Span Range								
	Single Span								
	Joist spacings (mm)								
	300		450		600				
ej20045	4.3	to	4.5	3.2	to	3.8	3.0	to	3.6
ej24045	4.7	to	5.0	3.7	to	4.5	3.5	to	4.2
ej24063	5.1	to	5.4	4.2	to	4.9	3.9	to	4.5
ej24090	5.7	to	6.1	5.0	to	5.4	4.6	to	5.0
ej30045	5.4	to	5.7	4.6	to	5.1	4.3	to	4.7
ej30063	5.8	to	6.1	5.1	to	5.5	4.8	to	5.1
ej30090	6.5	to	6.9	5.8	to	6.2	5.3	to	5.7

Recommended Floor Joist Spans (m): Continuous Spans

Continuous span table values apply to joists that are continuous over three or more supports; if adjacent spans are unequal, the major span is not greater than twice the adjacent minor span.

Section Code	Recommended Span Range								
	Continuous Span								
	Joist spacings (mm)								
	300		450		600				
ej20045	4.9	to	5.2	3.7	to	4.5	3.5	to	4.2
ej24045	5.4	to	5.7	4.5	to	5.1	4.1	to	4.7
ej24063	5.8	to	6.2	5.0	to	5.5	4.6	to	5.1
ej24090	6.5	to	6.9	5.8	to	6.1	5.3	to	5.6
ej30045	6.1	to	6.5	5.5	to	5.8	5.0	to	5.4
ej30063	6.6	to	7.0	5.8	to	6.2	5.4	to	5.7
ej30090	7.3	to	7.8	6.5	to	6.9	5.9	to	6.4

Consider as continuous span if Span 1 (major) is not greater than 2 times Span 2. If it is, use the recommended Floor Joist Spans for Single Span above.



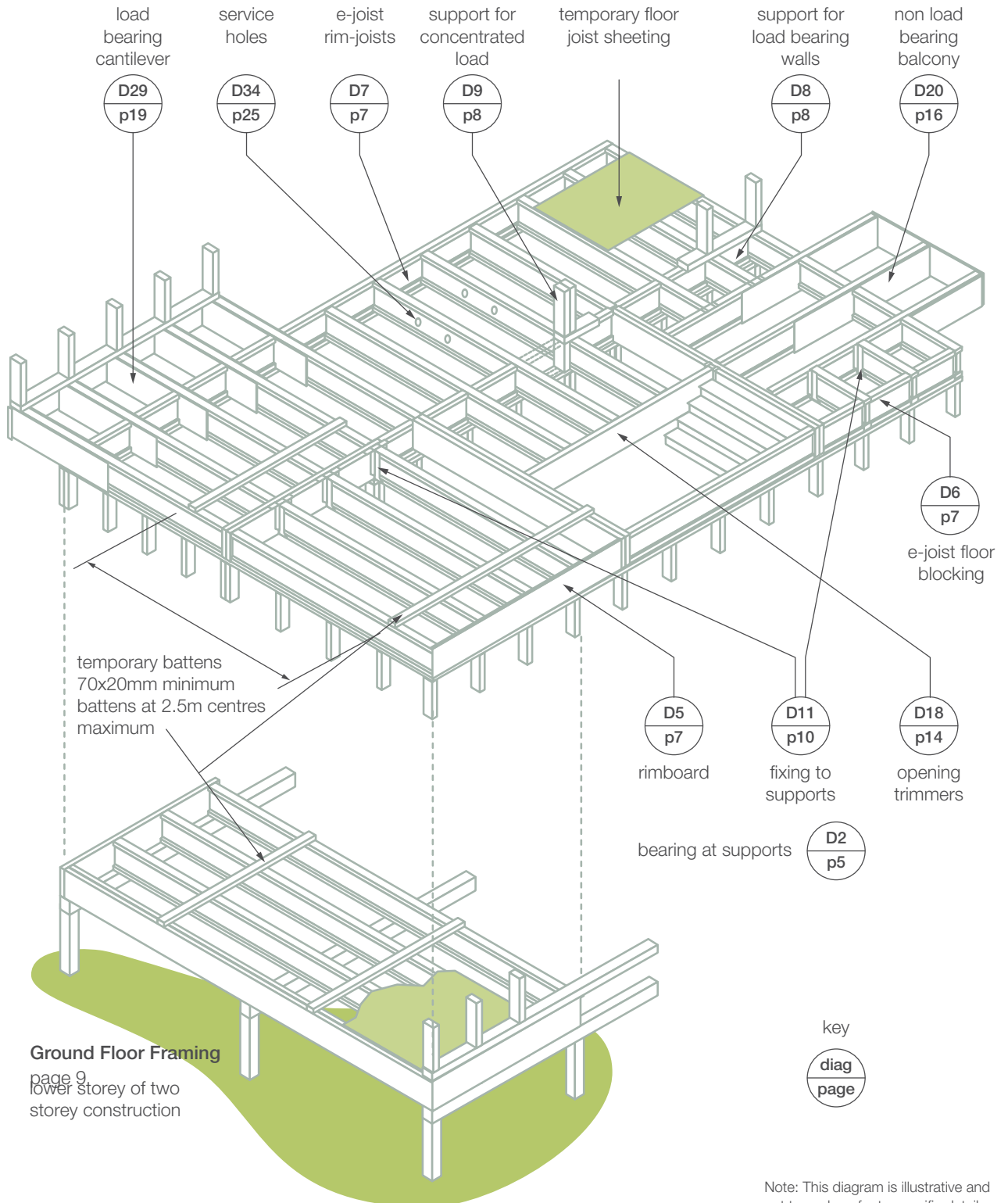
- 1 The tables for single and continuous floor joist spans assume a floor self-weight of 40kg/m² and a floor live load of 1.5kPa (~150kg/m²). One third of the floor live load is considered a permanent live load (PLL).

**E-JOIST
CONSTRUCTION
INFORMATION**

**Diagram D1:
e-joint construction information**

Upper Floor Framing

(for clarity, flooring not shown under walls)

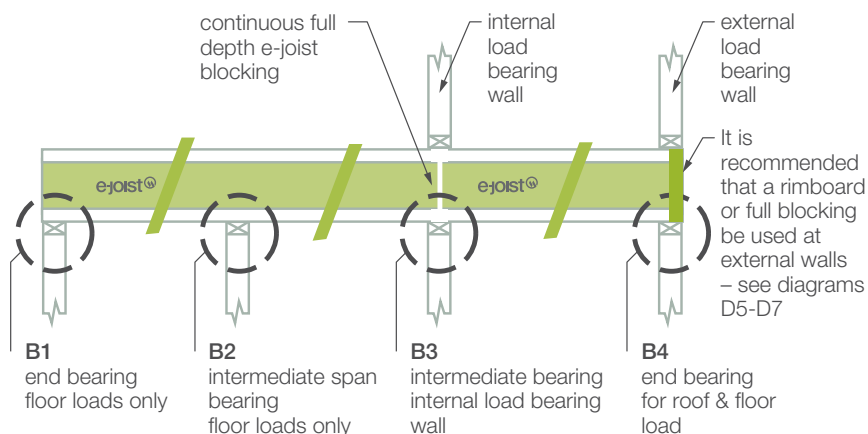


Note: This diagram is illustrative and not to scale, refer to specific details.

E-JOIST INSTALLATION DETAILS

Bearing at Supports

Diagram D2:
bearing at supports



Detail B1	End Supports – single or continuous spans			
Minimum Bearing	35			
Detail B2	Intermediate Supports – continuous spans			
	Joist Spacing			
	300	450	600	
Minimum Bearing	45	45	70	
Detail B3	Intermediate Supports			
Provide minimum bearing as for intermediate supports (B2) and install continuous full depth e-joint blocking to transfer roof and wall loads to supports				
Detail B4	End Supports with Rimboard or full blocking			
Minimum Bearing	35			
Detail B4	End Supports with no Rimboard or full blocking (just minimum blocking)			
	Roof Material	Joist Spacing		
		300	450	600
Minimum Bearing	Sheet Roof	45	45	65 (45s)
	Tile Roof	70	70	90 (65s)

1 “(s)” – the value in the brackets is the minimum required bearing length if web stiffeners are installed, refer detail D4.

E-JOIST INSTALLATION DETAILS

Support Details

Diagram D3:
nailing at supports

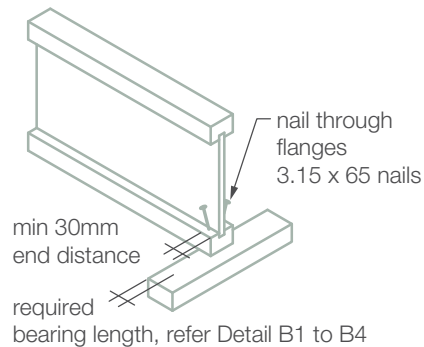
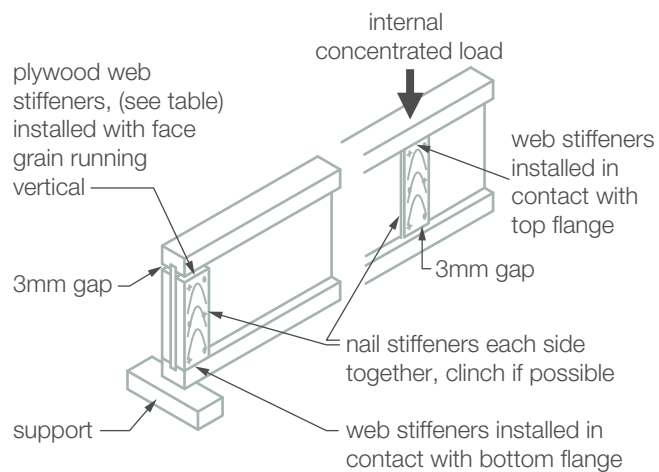


Diagram D4:
web stiffener installation



e-joint Flange Width	Stiffener	Nail Length
45mm	17 x 60mm ply	65mm
63mm	27 x 60mm ply	65mm
90mm	2/19 x 60mm ply 39 x 60mm solid timber	90mm
e-joint Depth	Stiffener Nailing Requirements	
200	3 x ø3.15 nails each side clinched where possible	
240		
300		

E-JOIST INSTALLATION DETAILS

ALL JOISTS TO BE INSTALLED VERTICALLY PLUMB AND KEPT STRAIGHT BETWEEN SUPPORTS.

Temporary and Permanent Bracing and Blocking

Temporary Blocking

Temporary blocking during construction prevents joists rolling over while the sheet floor is being installed.

Minimum Temporary Blocking

Requirements are: the outer three joists (2 spaces) and intermediate joists (2 joist spaces) at no more than 3.6m centres using solid or e-joist floor blocking (see detail D6).

Temporary battens must be also used during construction. Joists must be restrained at a maximum of 2.5m centres with battens (70 x 20mm min) fixed back to points of rigidity (see construction layout diagram D1). Temporary battens must be installed prior to walking on open joists or attempting to lay flooring.

NOTE Do not walk on or load floor joists until all blocking, rimboards, temporary bracing, hangers or nailing are installed.

Permanent Blocking / Bracing

Permanent Blocking / Bracing provides lateral resistance to transfer the "racking" loads, experienced by the house during wind events, through the floor to the lower bracing system.

If full blocking of exterior walls is undertaken, using one of the following methods shown in diagrams D5-D7, with temporary blocking as described above to all internal walls, then no further lateral bracing calculation is required – this is highly recommended.

Fixing of Flooring

Fixings for floors shall be in accordance with AS1684 and manufacturer's recommendations. Nails (and screws) shall be 2.5 times the flooring thickness in length and not less than 2.5mm in diameter. It is recommended that flooring adhesive be used with sheet flooring.

Blocking/Bracing: External Load Bearing and Bracing Walls

Diagram D5: 17mm rimboard

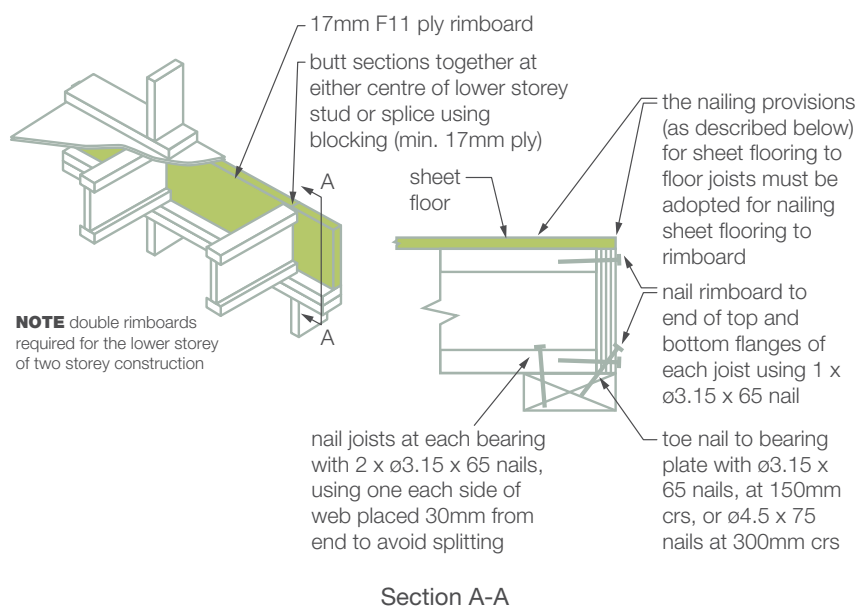


Diagram D6: e-joist floor blocking

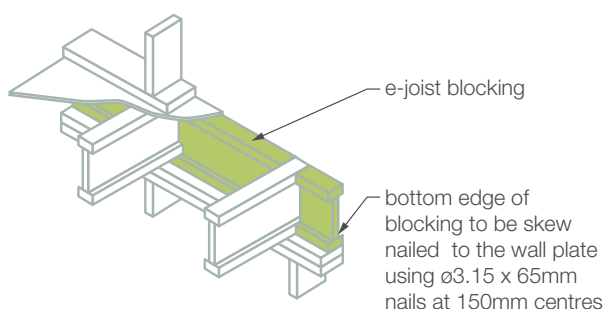
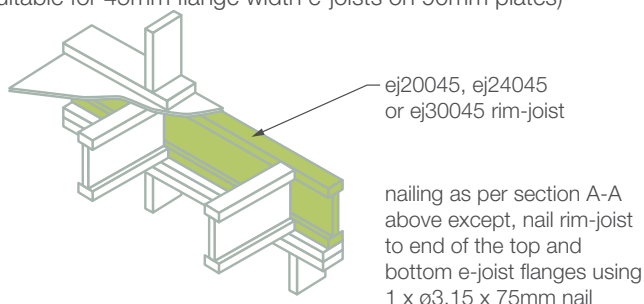


Diagram D7: e-joist rim-joist

(only suitable for 45mm flange width e-joists on 90mm plates)



E-JOIST INSTALLATION DETAILS

Blocking/Bracing: Internal Load Bearing and Bracing Walls

Diagram D8:
e-joint floor blocking

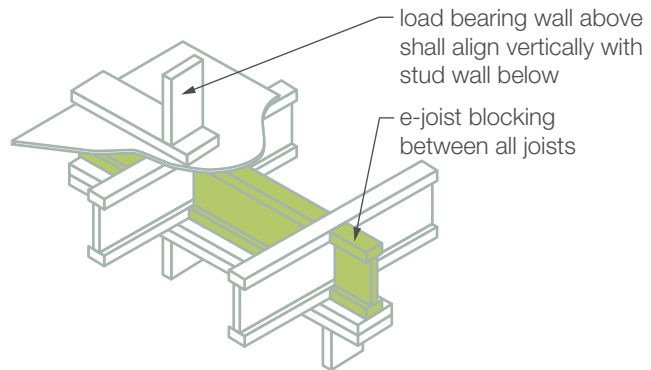
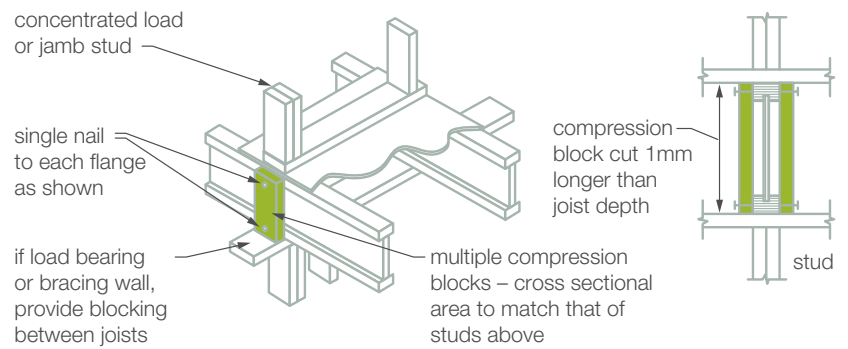


Diagram D9:
support of concentrated loads



E-JOIST INSTALLATION DETAILS

GROUND FLOOR FRAMING

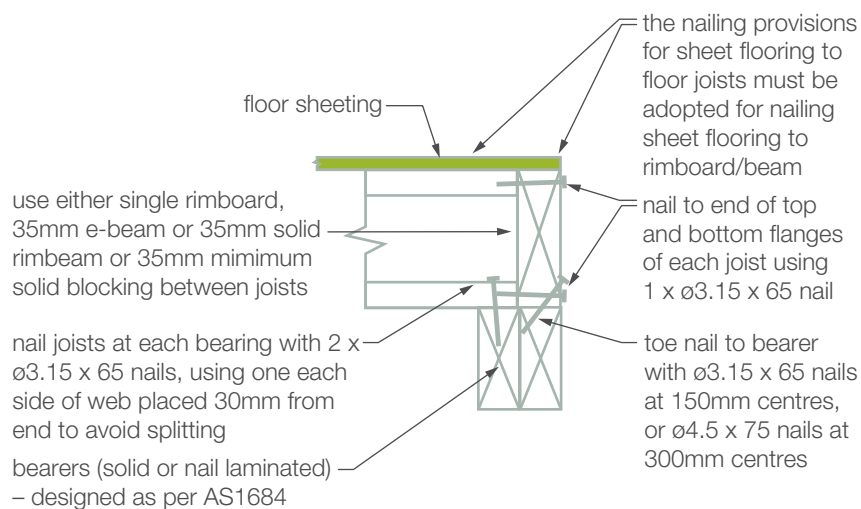
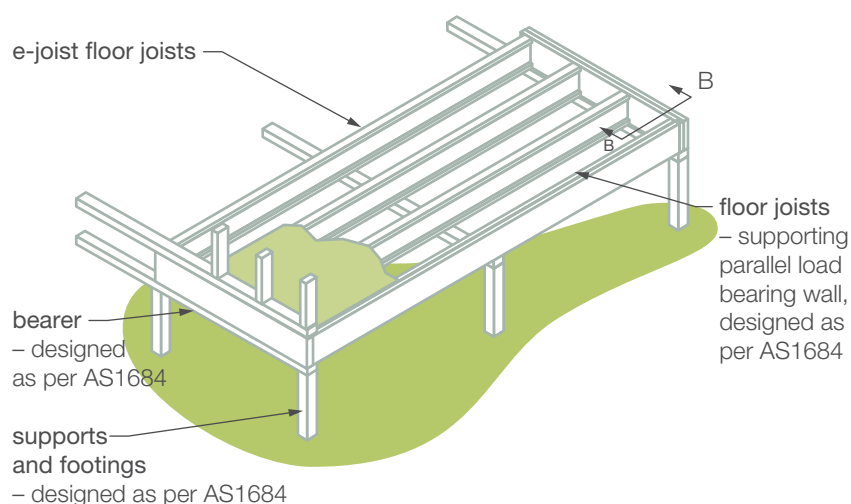
Sub-Floor Design

Ground floor joists can be sized using the Floor Joist Supporting Floor and Ceiling Loads Only tables. Sub-floor supports and footings should be designed in accordance with AS1684.2:2021. Solid LVL sub-floor bearers and floor joist supporting parallel load bearing walls shall be designed using the appropriate Wesbeam e-beam. Tables for e-joist and e-beam Floor Joists Supporting Parallel Load Bearing Walls are included in this brochure.

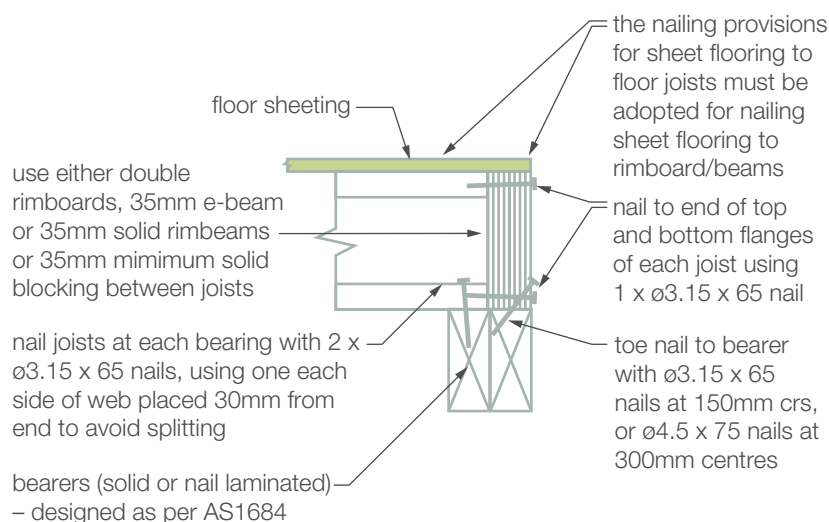
Ventilation

The Building Code of Australia stipulates a minimum ventilation requirement. Wall vents shall be built into all sides of the building, with special attention to corners to prevent 'dead spaces'.

**Diagram D10:
ground floor framing**



Section B-B single storey construction



Section B-B lower storey of two storey construction

E-JOIST INSTALLATION DETAILS

Fixing to Supports

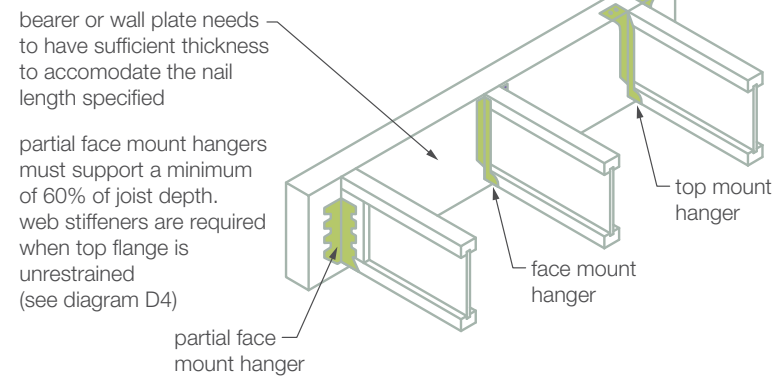
MiTek Installation Notes

- 1 Refer to MiTek's product literature for hanger installation details – incorrect installation can lead to unsafe or unsatisfactory performance.
- 2 Fix hanger to bearer or wall plate by filling all holes using MiTek $\varnothing 3.75 \times 40\text{mm}$ reinforced head galvanized nails.
- 3 Fix bottom e-joint flange using 2 x $\varnothing 3.75 \times 40\text{mm}$ reinforced head nails. Select one dimple each side of the e-joint which will allow the 40mm nail to be driven fully home at a 45° angle.

Pryda Installation Notes

- 1 Refer to Pryda's product literature for hanger installation details – incorrect installation can lead to unsafe or unsatisfactory performance.
- 2 Fix hanger to bearer or wall plate by filling all holes using $\varnothing 3.75 \times 40\text{mm}$ galvanized Pryda Timber Connector nails.
- 3 Sit joist in bracket and fix joist tight using a 30 x 6 gauge bugle-head or wafer-head wood screws.

Diagram D11: joist hanger installation



MiTek I-Joist Hanger Guide

e-joint	Face Mount Hanger		Top Mount Hanger	
	Hanger Code	Face Nails to Bearer	Hanger Code	Top Nails to Bearer
ej20045	IBHF20050	8	IBHT20050	6
ej24045	IBHF24050	10	IBHT24050	6
ej24063	IBHF24065	10	IBHT24065	6
ej24090	IBHF24090	10	IBHT24090	6
ej30045	IBHF30050	12	IBHT30050	6
ej30063	IBHF30065	12	IBHT30065	6
ej30090	IBHF30090	12	IBHT30090	6

Pryda I-Joist Hanger Guide

e-joint	Face Mount Hanger			Top Mount Hanger		
	Hanger Code	Fasteners		Hanger Code	Fasteners	
		Joist Screw	Face Nails to Bearer		Joist Screw	Face Nails to Bearer
ej20045	LF190/50	1	8	LT200/50	1	6
ej24045	LF235/50	1	10	LT240/50	1	6
ej24063	LF235/65	1	10	LT240/65	1	6
ej24090	LF235/90	1	10	LT240/90	1	6
ej30045	LF297/50	1	12	LT300/47	1	6
ej30063	LF290/65	1	12	LT302/65	1	6
ej30090	LF290/90	1	12	LT300/90	1	6

E-JOIST INSTALLATION DETAILS

Joist Fixing to Steel Beams or Masonry

For hanger code and fastener requirements refer to Hanger Guide Tables.

Diagram D12:
joist fixing to steel beams or masonry using top mount hangers

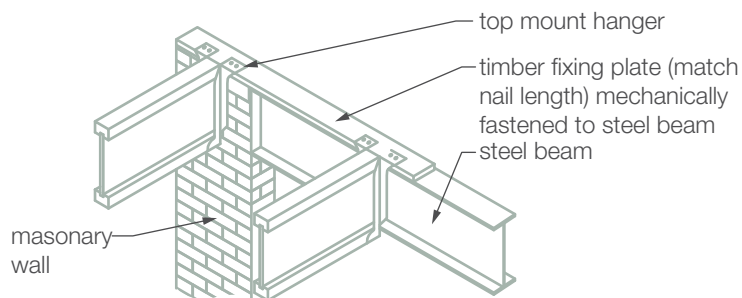
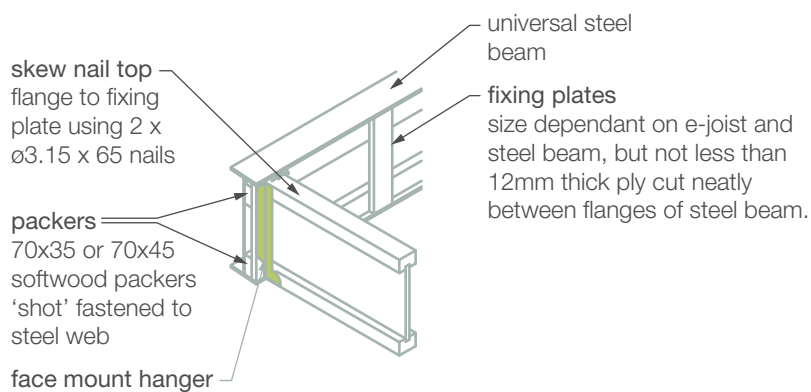


Diagram D13:
joist fixing to steel beams or masonry using face mount hangers



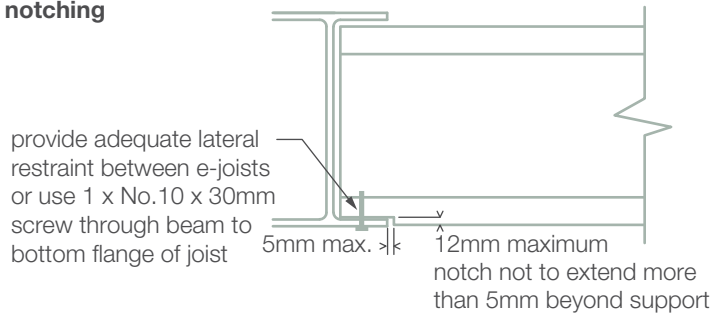
E-JOIST INSTALLATION DETAILS

Flange Notching

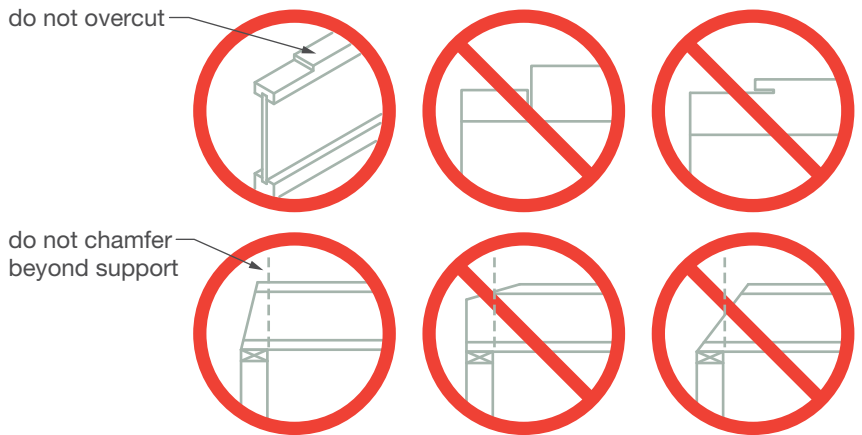
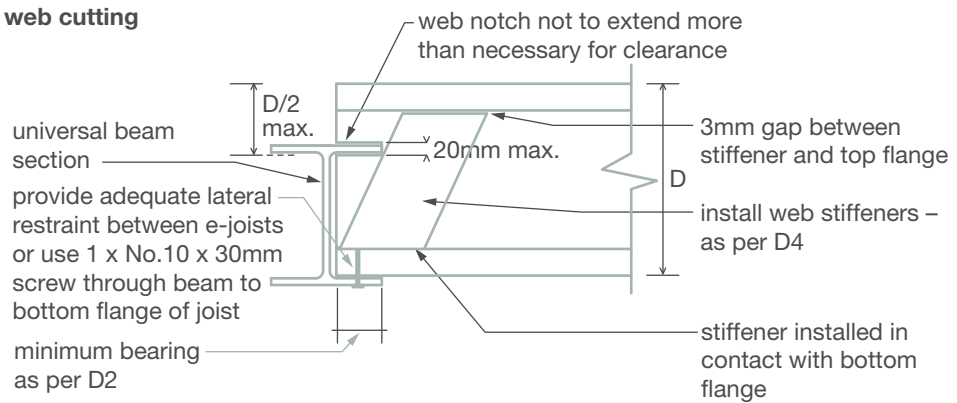
Bottom and/or top flanges can be notched to a max of 12mm.

DO NOT OVERCUT.

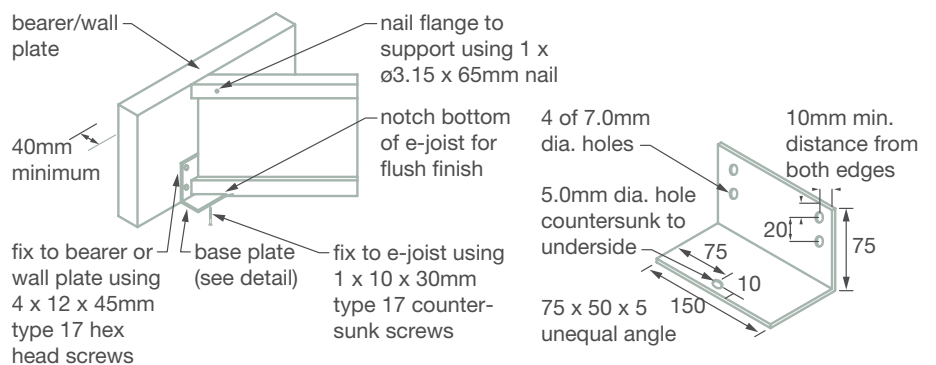
**Diagram D14:
flange notching**



**Diagram D15:
web cutting**



**Diagram D16:
skewed joist support fixing**



Note Proprietary skewed angle support brackets are available from MiTek and Pryda.

E-JOIST INSTALLATION DETAILS

Bracing and Tie Down

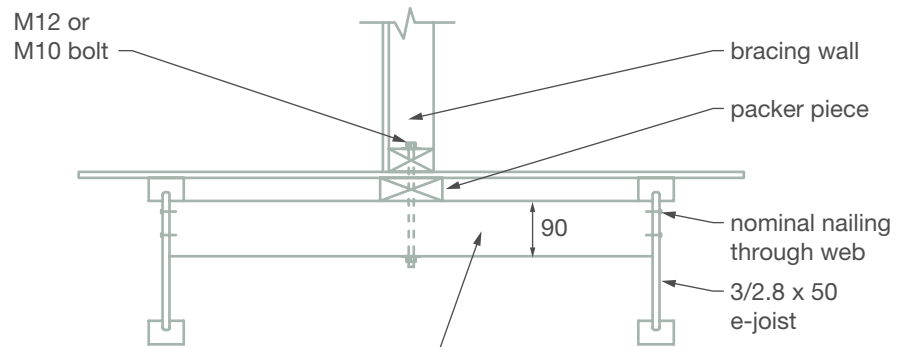
All bracing and tie down to be designed in accordance with AS1684.2:2021 .

Tie Down

Typical tie down connection details used with solid timber joists (refer AS1684) can also be used with e-joists except that **bolting through flanges is not permitted.**

Refer AS1684.2:2021 Residential timber framed construction Part 2:Non-cyclonic areas Appendix J for further details

Diagram D17:
tie down to internal brace walls



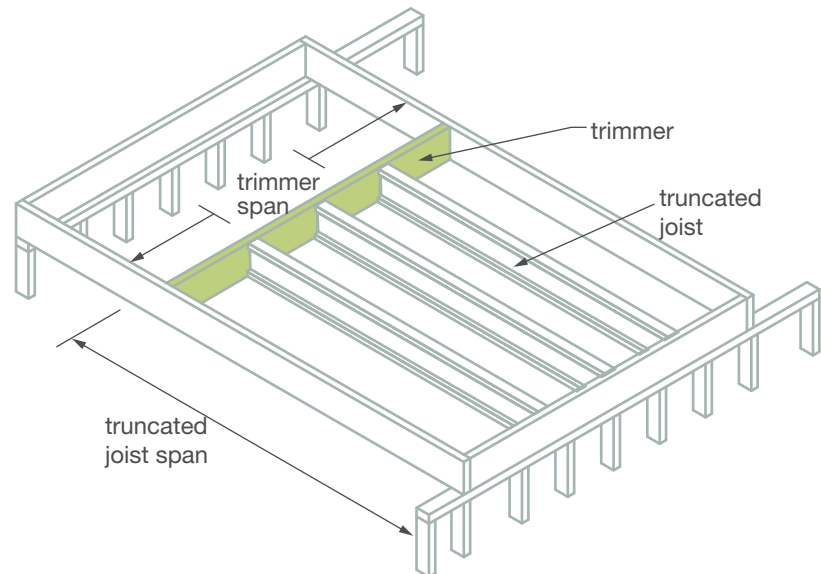
90 x 45mm seasoned timber bridging cleat fixed up against top flange – located at least 200mm min. from end of e-joists.

OPENINGS IN FLOORS

Trimmer

Trimmers provide support to truncated joists (common joists that are truncated to form the opening). They are designed to support typical domestic floor loads and frame one side of an opening.

Diagram D18:
trimmers



Trimmers supporting truncated joists

e-beam Section d x b	Truncated joist span (m)				
	1.8	2.4	3.6	4.8	6.0
	Maximum Trimmer Span (m)				
200 x 35	3.4	3.1	2.7	2.5	2.3
200 x 45	3.7	3.3	2.9	2.6	2.4
200 x 63	4.1	3.7	3.2	2.9	2.7
240 x 45	4.3	4.0	3.5	3.2	2.9
240 x 63	4.7	4.4	3.9	3.5	3.3
300 x 45	5.1	4.8	4.3	3.9	3.7
300 x 63	5.6	5.2	4.7	4.4	4.1

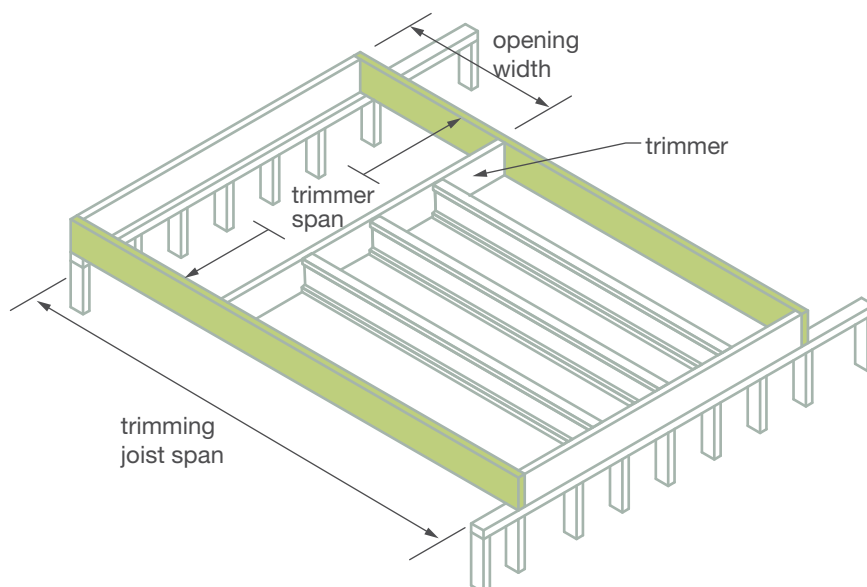
Note The Table assumes permanent floor self-weight of 40kg/m². For higher permanent floor loads use the e-house software package to determine trimmer spans. The floor live load is 1.5kPa (~150kg/m²). One third of the floor live load is considered a permanent live load (PLL).

OPENINGS IN FLOORS

Trimming Joists

Trimming joists provide support to both the staircase (point load applied from a single stair stringer) as well as the trimmer (point load applied from the truncated joists floor load).

**Diagram D19:
trimming joists**



Trimming Joists supporting trimmers

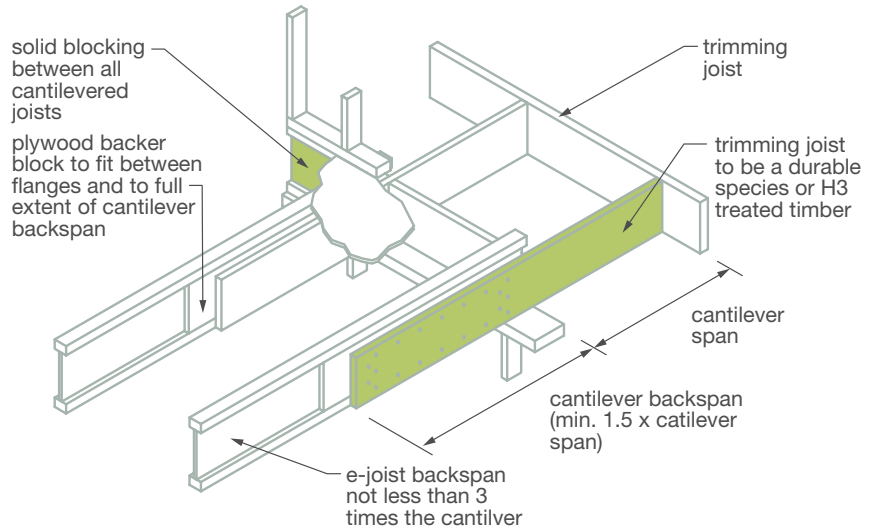
e-beam Section d x b	0.9 metre opening width				1.8 metre opening width				2.7 metre opening width			
	Trimmer Span (m)				Trimmer Span (m)				Trimmer Span (m)			
	2.0	3.0	4.0	5.0	2.0	3.0	4.0	5.0	2.0	3.0	4.0	5.0
Maximum Trimming Joist Spans (m)												
200 x 35	3.1	2.9	2.7	2.5	3.0	2.8	2.7	2.6	3.3	3.2	3.1	3.0
200 x 45	3.4	3.1	2.9	2.7	3.2	3.0	2.8	2.7	3.5	3.3	3.2	3.2
200 x 63	3.8	3.5	3.3	3.1	3.6	3.3	3.1	3.0	3.7	3.6	3.4	3.3
2/200 x 35	4.0	3.7	3.5	3.3	3.7	3.4	3.2	3.1	3.9	3.7	3.5	3.4
2/200 x 45	4.3	4.0	3.8	3.6	4.0	3.7	3.5	3.3	4.1	3.9	3.7	3.6
240 x 45	4.1	3.8	3.6	3.4	3.8	3.5	3.3	3.2	4.0	3.8	3.6	3.5
240 x 63	4.5	4.3	4.1	3.9	4.2	3.9	3.7	3.5	4.3	4.1	3.9	3.7
2/240 x 45	5.0	4.7	4.5	4.3	4.7	4.4	4.1	3.9	4.6	4.4	4.2	4.1
300 x 45	5.0	4.7	4.5	4.3	4.6	4.3	4.1	3.9	4.6	4.4	4.2	4.0
300 x 63	5.4	5.2	5.0	4.8	5.1	4.7	4.5	4.3	5.0	4.7	4.5	4.3
2/300 x 45	6.0	5.7	5.5	5.3	5.6	5.2	5.0	4.7	5.5	5.1	4.9	4.7

- 1 All double members to be nail laminated as per AS1684.
- 2 The Table assumes permanent floor self-weight of 40kg/m². For higher permanent floor loads use the e-house software package to determine trimmer spans. The floor live load is 1.5kPa (~150kg/m²). One third of the floor live load is considered a permanent live load (PLL).

CANTILEVERS FOR BALCONIES (NON-LOAD BEARING)

When installing cantilevered joists to form balconies, attention to detail must be given to ensure that water does not find its way into the structure from water ponding on the surface or wind driven rain. For these reasons, a step down onto the balcony is preferred. This allows the installation of appropriate flashing and a water proofed surface (if desired) to protect joists.

Diagram D20:
cantilevered non-load bearing balcony detail – adjacent joist



Backer Block Thickness

e-joist Flange width	Backer Block
45	17mm
63	27mm
90	40mm

Diagram D21:
cantilevered balcony fixing – adjacent joist

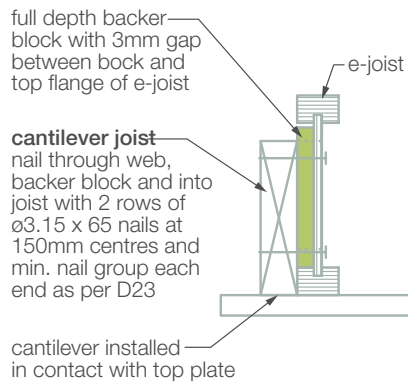


Diagram D22:
cantilevered balcony flashing

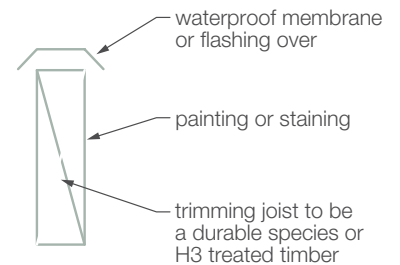
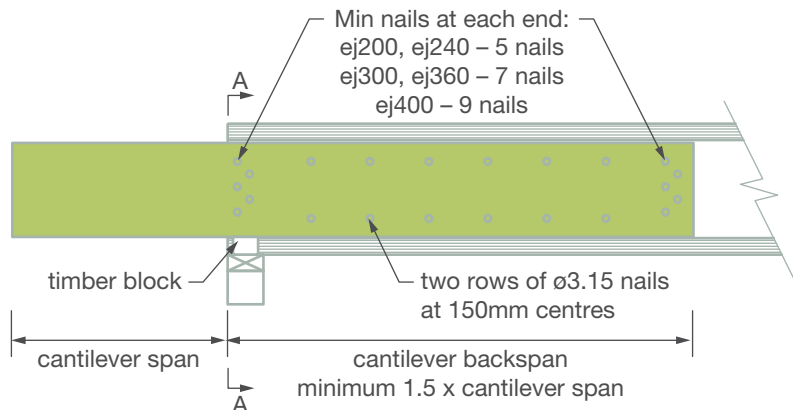
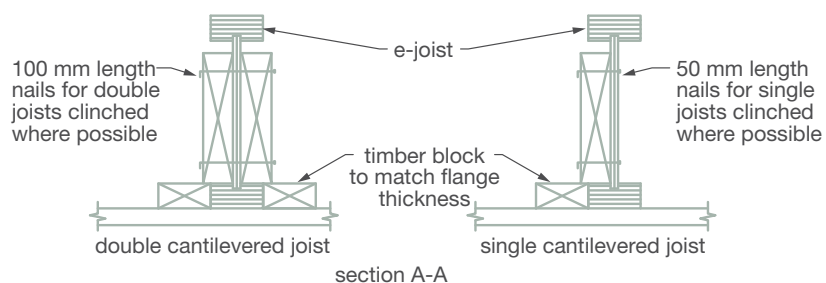


Diagram D23:
cantilevered balcony fixing nested joist – elevation



CANTILEVERS FOR BALCONIES (NON-LOAD BEARING)

Diagram D24:
cantilevered balcony fixing nested joists – sections



e-joist Section Code	e-joist Spacing (mm)	Maximum Balcony Cantilever (m)	Cantilever Joist Options	
			Nested Cantilevered Joist	Adjacent Cantilevered Joist
ej20045	450	1.0	2/120 x 35 MGP12	140 x 45 MGP12
	450	0.9	2/120 x 35 F7	140 x 45 F7
	600	0.9	2/120 x 35 MGP12	140 x 45 MGP12
ej24045	450	1.2	2/140 x 45 MGP12	190 x 35 MGP12
	450	1.1	2/140 x 45 F7	190 x 45 F7
	600	1.0	2/140 x 45 F7	190 x 45 F7
ej24063	450	1.2	2/140 x 45 F7	190 x 45 F7
	600	1.1	2/140 x 35 MGP12	190 x 45 F7
ej24090	450	1.3	2/140 x 35 MGP12	Not recommended
	600	1.2	2/140 x 35 MGP12	
ej30045	450	1.4	2/190 x 35 F7	240 x 35 F7
	600	1.3	2/190 x 45 F7	240 x 45 F7
ej30063	450	1.5	2/190 x 45 F7	240 x 45 F7
	600	1.3	2/190 x 35 F7	240 x 35 F7
ej30090	450	1.6	2/190 x 45 F7	Not recommended
	600	1.5	2/190 x 45 F7	

Note The Table assumes permanent floor self-weight of 40kg/m². For higher permanent floor loads use the e-house software package to determine cantilever spans. The floor live load is 1.5kPa (~150kg/m²). One third of the floor live load is considered a permanent live load (PLL).

DETERMINATION OF ROOF LOAD WIDTH (RLW)

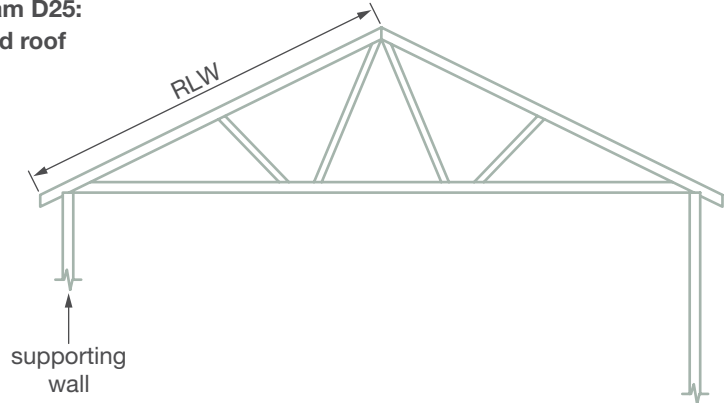
Roof Load Width (RLW) is used as an indicator of the roof loads carried by loadbearing wall members and their supporting sub-structure. The following diagrams illustrate the RLWs for typical roof construction.

Note The RLW also includes the overhang length.

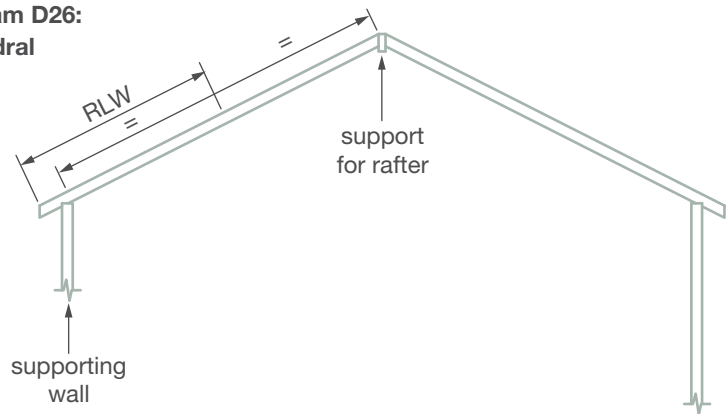
Trussed Roof

Conventional / Pitched Roof

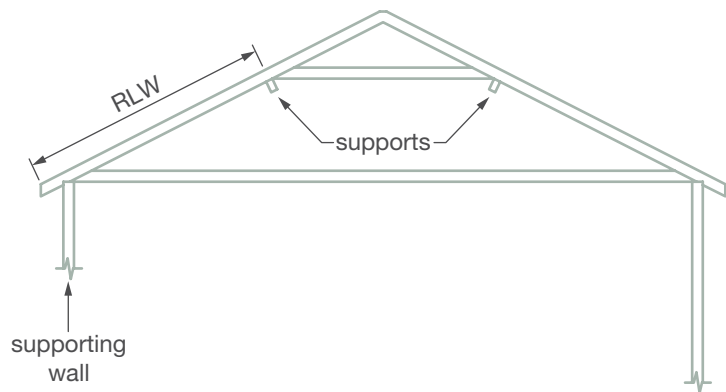
**Diagram D25:
trussed roof**



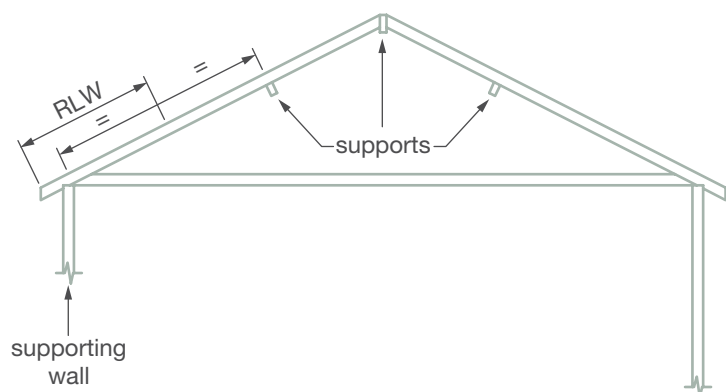
**Diagram D26:
cathedral**



**Diagram D27:
coupled roofs with underpurlins – no ridge struts**



**Diagram D28:
coupled roofs with underpurlins and ridge struts**

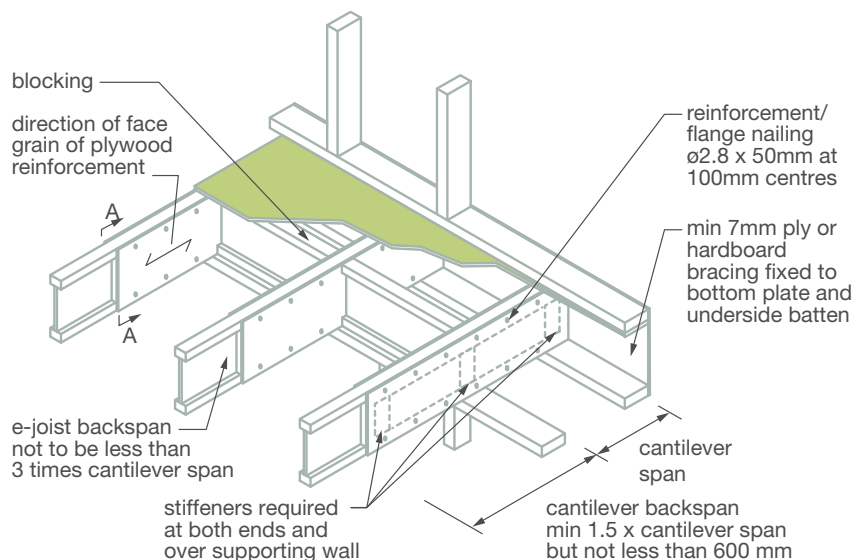


LOAD BEARING CANTILEVERS

(Supporting Roof, Wall and Floor Loads)

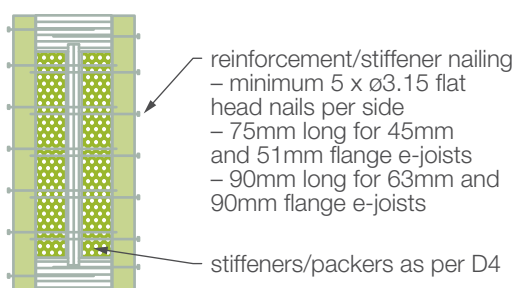
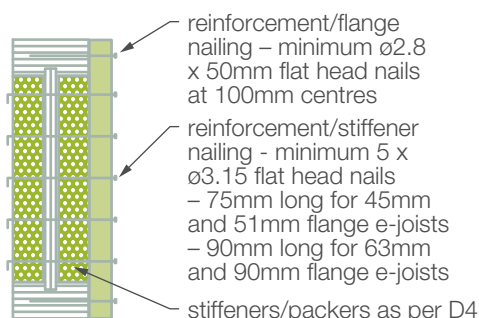
In some instances, e-joists may cantilever to support an external loadbearing wall. It may be necessary to “reinforce” the cantilever to support the applied load. The tables on the following pages indicate the maximum allowable cantilever based on the applied roof mass, RLW and joist spacing. The required reinforcement must be installed to support the loading.

Diagram D29:
load bearing cantilever detail



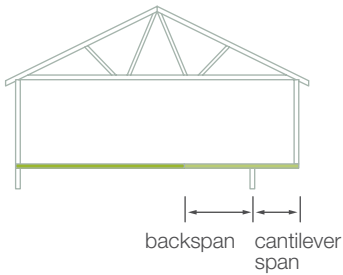
Required Reinforcement:

- R0** Reinforcement not required
- R1** Full depth 15mm F11 structural plywood nailed to one side of each joist. Fix plywood to flange with $\phi 2.8 \times 50\text{mm}$ galv. nails at 100mm centres.
- R2** Full depth 15mm F11 structural plywood nailed to both sides of each joist. Fix plywood to flange with $\phi 2.8 \times 50\text{mm}$ galv. nails at 100mm centres.



section A-A

LOAD BEARING CANTILEVERS SUPPORTING TILE ROOF



R0 Reinforcement not required.

R1 Reinforcement on one side with 15mm F11 structural plywood with face grain running horizontally, nail fixed as specified.

R2 Reinforcement on both sides with 15mm F11 structural plywood with face grain running horizontally, nail fixed as specified.

NS Signifies the joist size is not suitable for the cantilever span and load.

- 1 Tabulated figures assume a uniform roof load width. Joist supporting concentrated loads from window openings and the like will require special engineering consideration.
- 2 Installation requires insertion of stiffeners between the 15mm reinforcing plywood and the web at both ends and the supporting point.
- 3 Ply reinforcement to be nailed to stiffeners and web and clinched if singly reinforced or penetrating the stiffener on the other side if doubly reinforced. A minimum of 5 nails per side.
- 4 Reinforcement plywood to extend along the backspan at least 1.5 x cantilever span but not less than 600mm.
- 5 e-joist backspan to be not less than 3 times the cantilever span.

Maximum Cantilever Span (mm)	e-joist Section Code	Roof Load Width (m)									
		4.0			6.0			8.0			
		Joist Spacing (mm)									
		300	450	600	300	450	600	300	450	600	
Reinforcement requirement											
300	ej20045	R0	R0	R0	R0	R1	R1	R1	R1	R1	R2
	ej24045	R0	R0	R0	R0	R0	R1	R0	R1	R1	
	ej24063	R0	R0	R0	R0	R0	R1	R0	R1	R1	
	ej24090	R0	R0	R0	R0	R0	R1	R0	R1	R1	
	ej30045	R0	R0	R0	R0	R0	R0	R0	R0	R0	R1
	ej30063	R0	R0	R0	R0	R0	R0	R0	R0	R0	R1
	ej30090	R0	R0	R0	R0	R0	R0	R0	R0	R0	R1
600	ej20045	R0	R1	NS	R1	NS	NS	NS	NS	NS	NS
	ej24045	R0	NS	NS	R0	R1	NS	R1	NS	NS	
	ej24063	R0	R0	R0	R0	R0	R1	R0	R2	NS	
	ej24090	R0	R0	R0	R0	R0	R1	R0	R1	R2	
	ej30045	R0	R0	R0	R0	R0	R0	R0	R0	R0	
	ej30063	R0	R0	R0	R0	R0	R0	R0	R0	R0	
	ej30090	R0	R0	R0	R0	R0	R0	R0	R0	R0	
900	ej20045	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	ej24045	R0	NS	NS	NS	NS	NS	NS	NS	NS	NS
	ej24063	R0	R1	NS	R1	NS	NS	NS	NS	NS	NS
	ej24090	R0	R0	R2	R0	R1	NS	R1	NS	NS	
	ej30045	R1	NS	NS	NS	NS	NS	NS	NS	NS	NS
	ej30063	R0	NS	NS	NS	NS	NS	NS	NS	NS	NS
	ej30090	R0	R0	R2	R0	NS	NS	R2	NS	NS	
1200	ej20045	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	ej24045	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	ej24063	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	ej24090	R0	NS	NS	NS	NS	NS	NS	NS	NS	NS
	ej30045	R0	NS	NS	NS	NS	NS	NS	NS	NS	NS
	ej30063	R0	NS	NS	NS	NS	NS	NS	NS	NS	NS
	ej30090	R0	R0	R2	R0	NS	NS	R2	NS	NS	

FLOOR JOISTS SUPPORTING PARALLEL LOAD BEARING WALLS

Continuously Supported

Continuously supported e-joists are capable of transferring uniformly distributed loads arising from parallel loadbearing walls through to the supporting structure below.

Care must be taken to adequately support the web of the joists from concentrated point loads (as per D4).

Diagram D30:
continuously supported

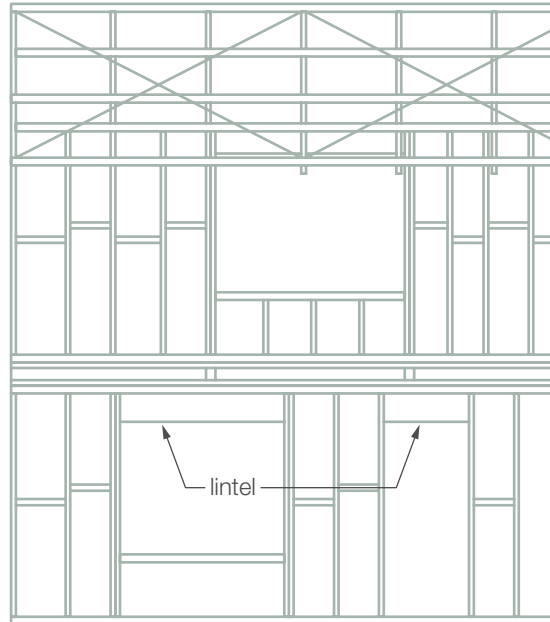


Diagram D31:
platform floor

single e-beam may be used (alternative support for a ceiling may be needed)

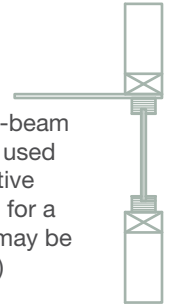
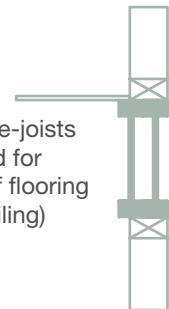


Diagram D32:
fitted floor

double e-joists required for fixing of flooring (and ceiling)

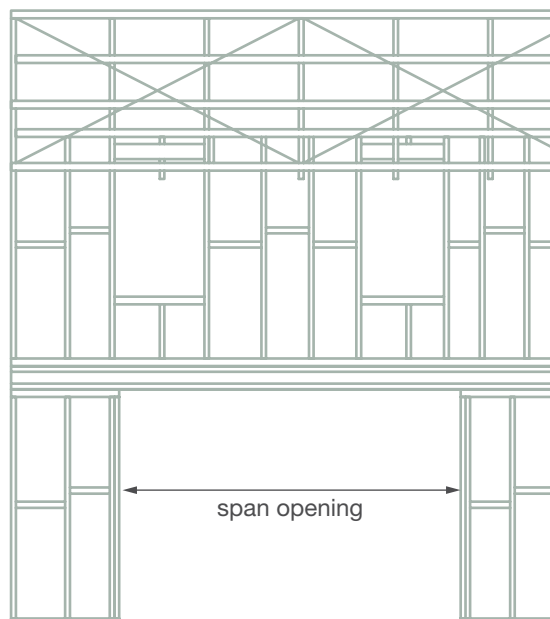


Over Openings

e-joists spanning over openings supporting parallel loadbearing walls shall be designed in accordance with the span tables - e-joist Floor Joists Supporting Parallel Load Bearing Walls.

For larger openings an e-beam may be required, and shall be designed in accordance with the span tables - e-beam Floor Joists Supporting Parallel Load Bearing Walls.

Diagram D33:
over openings



E-JOIST FLOOR JOISTS SUPPORTING PARALLEL LOAD BEARING WALLS

e-joint spanning over openings

e-joint	Wall Supporting Sheet Roof											
	Maximum Single Span ¹						Maximum Continuous Span ²					
	Roof Load Width (m)											
	1.8	2.4	3.6	4.8	6.0	7.2	1.8	2.4	3.6	4.8	6.0	7.2
	Span Opening (m) – see D33											
ej20045	2.7	2.6	2.3	2.0	1.7	1.5	2.9	2.5	2.0	1.6	1.3	1.2
2/ej20045	3.6	3.4	3.1	2.8	2.6	2.5	4.6	4.4	3.9	3.2	2.7	2.3
ej24045	3.2	3.0	2.7	2.5	2.2	1.9	3.9	3.3	2.6	2.1	1.8	1.5
2/ej24045	4.1	3.9	3.5	3.3	3.1	2.9	5.1	4.9	4.5	4.2	3.5	3.1
ej24063	3.5	3.3	2.9	2.6	2.2	1.9	3.9	3.3	2.6	2.1	1.8	1.5
ej30045	3.8	3.5	3.2	2.9	2.7 ₄₅	2.5 ₄₅	4.7	4.4	3.4	2.8	2.4	2.0
2/ej30045	4.8	4.6	4.2	3.9	3.6	3.4	5.1	4.8	4.4	4.2	4.0	3.7
ej30063	4.1	3.9	3.5	3.2 ₄₅	2.9 ₄₅	2.5 ₄₅	5.0	4.4	3.4	2.8	2.3	2.0

e-joint	Wall Supporting Tile Roof											
	Maximum Single Span ¹						Maximum Continuous Span ²					
	Roof Load Width (m)											
	1.8	2.4	3.6	4.8	6.0	7.2	1.8	2.4	3.6	4.8	6.0	7.2
	Span Opening (m) – see D33											
ej20045	2.2	1.8	1.3	NS	NS	NS	1.8	1.5	NS	NS	NS	NS
2/ej20045	3.0	2.7	2.4	2.1	1.7	1.4	3.6	2.9	2.1	1.7	1.4	1.2
ej24045	2.6	2.4	1.7	1.4	NS	NS	2.4	1.9	1.4	NS	NS	NS
2/ej24045	3.4	3.1	2.8	2.5	2.2	1.9	4.4	3.8	2.8	2.2	1.8	1.5
ej24063	2.8	2.4	1.7	1.4	NS	NS	2.4	1.9	1.4	NS	NS	NS
ej30045	3.1	2.8 ₄₅	2.3 ₄₅	1.8 ₄₅	1.5 ₄₅	1.3 ₄₅	3.1	2.5	1.9	1.5	1.2	NS
2/ej30045	4.1	3.7	3.3	3.0	2.7 ₄₅	2.5 ₄₅	4.3	4.1	3.6	2.9	2.4	2.0
ej30063	3.4 ₄₅	3.1 ₄₅	2.3 ₄₅	1.8 ₄₅	1.5 ₄₅	1.3 ₄₅	3.1	2.5	1.8	1.5	1.2	NS

- 1** For single span, end bearing not less than 35mm unless noted otherwise by a subscript. Subscript value 45 and 65 indicates bearing length, except if stiffeners are installed, bearing lengths may be reduced to 35mm and 45mm respectively.
- 2** For continuous span, end bearing shall not be less than 35mm. Bearing at intermediate supports shall not be less than 90mm unless indicated otherwise by a subscript. Where a subscript value indicates bearing at an intermediate support needs to be more than 90mm, an alternative is to install with 90mm bearing and web stiffeners at that support.
- 3** NS – Not Suitable.

E-BEAM FLOOR JOISTS SUPPORTING PARALLEL LOAD BEARING WALLS

e-beam spanning over openings

e-beam	Wall Supporting Sheet Roof											
	Maximum Single Span ¹						Maximum Continuous Span ²					
	Roof Load Width (m)											
	1.8	2.4	3.6	4.8	6.0	7.2	1.8	2.4	3.6	4.8	6.0	7.2
	Span Opening (m) – see D33											
200 x 45	3.3	3.1	2.9	2.7	2.5	2.4	4.4	4.2	3.8	3.6	3.4	3.2
200 x 63	3.6	3.5	3.2	3.0	2.8	2.7	4.8	4.6	4.3	4.0	3.8	3.6
2/200 x 45	4.1	3.9	3.6	3.3	3.2	3.0	5.2	5.0	4.7	4.5	4.2	4.1
2/200 x 63	4.5	4.3	4.0	3.7	3.5	3.4	5.6	5.4	5.1	4.9	4.7	4.5
240 x 45	3.9	3.7	3.4	3.2	3.0	2.9	5.0	4.9	4.6	4.3	4.1	3.9 ₇₅
240 x 63	4.3	4.1	3.8	3.6	3.4	3.2	5.5	5.3	5.0	4.7	4.5	4.3
2/240 x 45	4.8	4.6	4.3	4.0	3.8	3.6	5.9	5.7	5.4	5.1	4.9	4.8
2/240 x 63	5.1	5.0	4.7	4.4	4.2	4.0	6.4	6.2	5.8	5.6	5.3	5.2
300 x 45	4.8	4.6	4.3	4.0	3.8	3.6	6.0	5.7	5.4	5.1	4.9 ₈₅	4.7 ₉₅
300 x 63	5.2	5.0	4.7	4.5	4.2	4.0	6.4	6.2	5.8	5.6	5.3	5.2 ₇₅
2/300 x 45	5.6	5.4	5.1	4.9	4.7	4.5	7.0	6.7	6.3	6.1	5.8	5.6
2/300 x 63	6.0	5.8	5.5	5.2	5.0	4.9	7.5	7.2	6.8	6.5	6.3	6.1

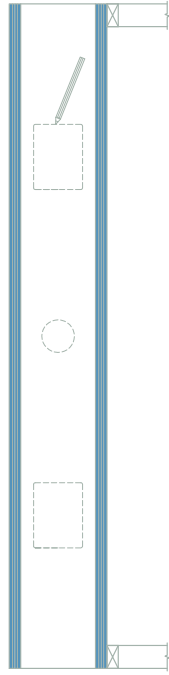
e-beam	Wall Supporting Tile Roof											
	Maximum Single Span ¹						Maximum Continuous Span ²					
	Roof Load Width (m)											
	1.8	2.4	3.6	4.8	6.0	7.2	1.8	2.4	3.6	4.8	6.0	7.2
	Span Opening (m) – see D33											
200 x 45	2.8	2.6	2.3	2.2	2.0	1.9	3.7	3.5	3.1	2.9	2.7 ₁₀₀	2.5 ₁₀₀
200 x 63	3.1	2.9	2.6	2.4	2.3	2.1	4.2	3.9	3.5	3.2	3.0	2.9
2/200 x 45	3.5	3.3	2.9	2.7	2.5	2.4	4.6	4.4	3.9	3.6	3.4	3.2
2/200 x 63	3.9	3.6	3.3	3.0	2.8	2.7	5.0	4.8	4.4	4.0	3.8	3.6
240 x 45	3.3	3.1	2.8	2.6	2.4 ₄₀	2.3 ₄₅	4.5	4.2	3.8	3.5 ₁₀₀	3.2 ₁₁₅	3.0 ₁₂₅
240 x 63	3.7	3.5	3.1	2.9	2.7	2.6	4.9	4.6	4.2	3.9	3.6	3.4 ₁₀₀
2/240 x 45	4.2	3.9	3.5	3.2	3.0	2.9	5.3	5.0	4.7	4.3	4.1	3.9
2/240 x 63	4.6	4.3	3.9	3.6	3.4	3.2	5.7	5.4	5.0	4.8	4.5	4.3
300 x 45	4.2	3.9	3.5	3.2	3.0 ₅₀	2.9 ₅₅	5.3	5.0	4.5 ₁₀₅	4.0 ₁₂₀	3.8 ₁₄₀	3.5 ₁₆₀
300 x 63	4.6	4.3	3.9	3.6	3.4 ₄₀	3.2 ₄₅	5.7	5.4	5.0	4.7 ₁₀₀	4.5 ₁₁₅	4.3 ₁₃₅
2/300 x 45	5.0	4.8	4.4	4.0	3.8	3.6	6.2	5.9	5.5	5.2	4.9	4.6 ₉₅
2/300 x 63	5.4	5.1	4.8	4.5	4.2	4.0	6.7	6.4	5.9	5.6	5.4	5.1

1 For single span, bearing shall not be less than 35mm at end supports except where indicated otherwise by a subscript.

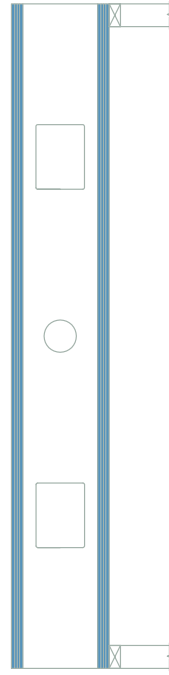
2 For continuous span, bearing shall not be less than 35mm at end supports and 90mm at intermediate supports unless indicated otherwise by a subscript. The subscript value indicates the required bearing at the intermediate support and where this is greater than 100mm, the bearing at the corresponding end supports shall not be less than one third the subscript value.

SERVICES HOLE GUIDE

1 All holes to be considered before cutting

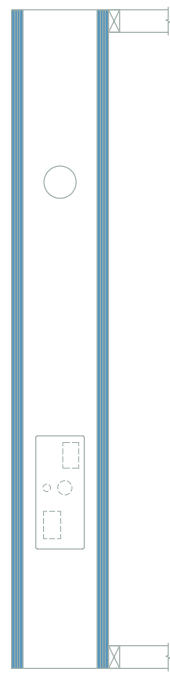


2 Maximum of 3 holes per span



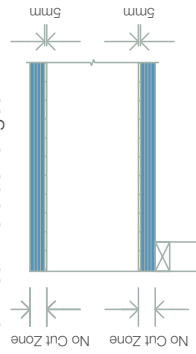
*All holes <75mm are excluded from this total

3 Grouping of holes



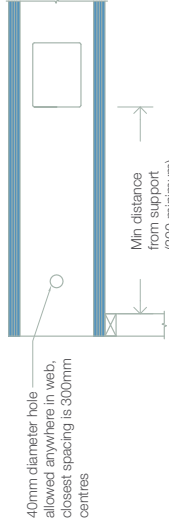
*Smaller holes can be grouped into a larger hole subject to the maximum size being within the service hole guide limits

4 Don't cut the blue flanges



*Flanges can be notched at supports as per installation guide, but no cuts on or within 5mm of the flange are allowed

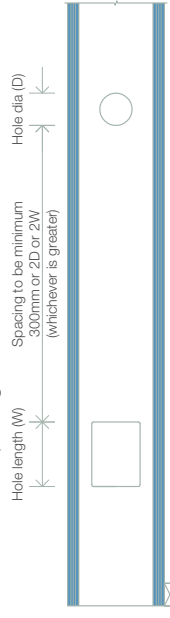
5 Distance from support



40mm diameter hole allowed anywhere in web, closest spacing is 300mm centres

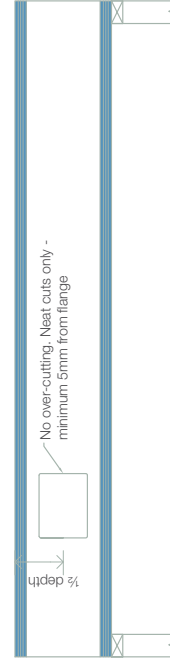
*Refer to service hole guide for minimum distance from supports

6 Minimum hole spacing



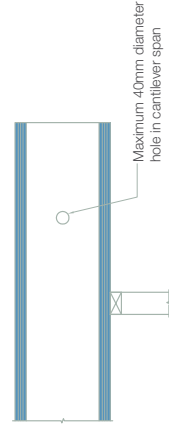
*Minimum spacing between holes must be at least 300mm or twice the diameter or length of the largest opening (whichever is greater)

7 Position and neatness



*Holes recommended to be mid height of joist

8 Cantilever holes



**SERVICES
HOLE
GUIDE**

Floor Joist
Applications in Domestic
Residences Only

e-joist Section Code	Installed Span	Circular or Square Holes						
		ø75	ø100	ø125	ø150	ø175	ø200	ø250
		Minimum distance from support – external or internal						
ej20045	3.0	0.30	0.30	0.51	NS	NS	NS	NS
	4.0	0.30	0.41	1.01	NS	NS	NS	NS
	5.0	0.30	0.91	1.51	NS	NS	NS	NS
ej24045	3.5	0.30	0.30	0.30	0.40	NS	NS	NS
	4.5	0.30	0.30	0.30	0.90	NS	NS	NS
	5.5	0.30	0.30	0.80	1.40	NS	NS	NS
ej24063	4.0	0.30	0.30	0.30	0.66	NS	NS	NS
	5.0	0.30	0.30	0.55	1.16	NS	NS	NS
	6.0	0.30	0.45	1.05	1.66	NS	NS	NS
ej24090	4.5	0.30	0.30	0.32	0.92	NS	NS	NS
	5.5	0.30	0.30	0.82	1.42	NS	NS	NS
	6.5	0.30	0.72	1.32	1.92	NS	NS	NS
ej30045	4.5	0.30	0.30	0.30	0.30	0.30	0.66	NS
	5.5	0.30	0.30	0.30	0.30	0.60	1.16	NS
	6.5	0.30	0.30	0.30	0.45	1.06	1.66	NS
ej30063	4.5	0.30	0.30	0.30	0.30	0.30	0.67	NS
	5.5	0.30	0.30	0.30	0.30	0.56	1.17	NS
	6.5	0.30	0.30	0.30	0.46	1.06	1.67	NS
	7.0	0.30	0.30	0.30	0.71	1.31	1.92	NS
ej30090	5.0	0.30	0.30	0.30	0.30	0.33	0.93	NS
	6.0	0.30	0.30	0.30	0.30	0.83	1.48	NS
	7.0	0.30	0.30	0.30	0.73	1.33	1.93	NS
	7.5	0.30	0.30	0.37	0.98	1.58	2.18	NS

Rectangular Holes				
Height x Width (mm)				
125 x 250	150 x 300	175 x 350	200 x 400	250 x 500
Minimum distance from support – external or internal				
0.51	NS	NS	NS	NS
1.01	NS	NS	NS	NS
1.51	NS	NS	NS	NS
0.30	0.40	NS	NS	NS
0.30	0.90	NS	NS	NS
2.17	2.24	NS	NS	NS
0.30	0.66	NS	NS	NS
0.55	1.16	NS	NS	NS
2.48	2.53	NS	NS	NS
0.32	0.92	NS	NS	NS
0.82	1.42	NS	NS	NS
1.32	1.92	NS	NS	NS
0.30	0.30	0.65	0.91	NS
1.27	1.66	1.82	1.91	NS
2.90	2.90	2.92	2.91	NS
0.30	0.30	0.30	0.67	NS
0.30	0.96	1.39	1.58	NS
2.39	2.53	2.60	2.64	NS
3.16	3.17	3.17	3.17	NS
0.30	0.30	0.33	0.93	NS
0.30	0.30	0.83	1.48	NS
0.30	0.73	1.33	1.93	NS
0.30	0.98	1.58	2.18	NS

- 1 Distance from support is measured from the face of the support to the centre of a circular hole or to the edge of a square or rectangular hole.
- 2 Web hole locations can be interpolated for intermediate spans.
- 3 Web hole depth may be limited by depth of joist and 5mm clearance requirement to flange.
- 4 NS - Not Suitable

E-JOIST SPECIFICATION

e-joist

Dimensional Tolerances	Length	-0mm, + 20mm
	Depth	-1mm, + 2mm
	Width	-1mm, + 1mm

Adhesive (flange/web)	Phenolic Formaldehyde
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Branding	Each e-joist is branded at least once with the product name for identification and evidence of compliance with manufacturing control standards.
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Storage	e-joists must only be stacked in the upright position to avoid any damage during storage or handling. Only stack on level bearers (3.0m spacing max) providing a ground clearance of at least 150mm. e-joists are not to be placed over ponded water and are to be kept as dry as practicable.
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Do not stack e-joists on the flat.

flange

Veneer	Thickness	Constant but can vary between 3.2mm and 4.8mm Sustainably sourced timbers
	Species	Outer 2 plies are scarf jointed
	Joints	Inner plies – scarf and/or butt jointed

Moisture Content	8% – 15% (at time of despatch)
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Density	650 kg/m ³ (approximately)
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Adhesive	Phenolic – AS2754.1:2016 - Adhesives for timber and timber products; Adhesives for manufacture of plywood and laminated veneer lumber (LVL)
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Bond	Type A – AS/NZS2098.2:2012 - Methods of tests for veneer and plywood; Bond quality of plywood (chisel test)
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LVL Manufacturing Standard	AS/NZS4357 Structural Laminated Veneer Lumber
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Joint Group	JD4
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Finish	Unsanded faces, sawn edges and arrised edges
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web

Material	Orientated Strand Board (OSB) or Strandboard
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Moisture Content	8% – 15% (at time of despatch)
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Adhesive	Phenolic – AS2754.1:2016 - Adhesives for timber and timber products; Adhesives for manufacture of plywood and laminated veneer lumber (LVL)
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Bond	Type A – AS/NZS2098.2:2012 - Methods of tests for veneer and plywood; Bond quality of plywood (chisel test)
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Web Manufacturing Standard	EN300:2006
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Safety Data Sheets (SDS)	Please refer to the Wesbeam website at www.wesbeam.com to download the SDS sheets for LVL, OSB or Strandboard.
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GENERAL NOTES

- 1 Specified floor joist spans are independent of flooring type and are therefore suitable for a range of flooring products including: particleboard flooring, plywood flooring or strip flooring.
- 2 Heavier floor loads (floor mass >40kg/m², live loads for floor joists >1.5kPa and live loads for cantilever balconies >2.0kPa) requires special consideration – refer to Wesbeam technical support.
- 3 During construction, no one is to walk on or load joists until all blocking, rimbeams, temporary bracing, hangers or nails are installed.
- 4 Temporary battens must be used during construction. Joists must be restrained at a maximum of 2.5m centres with battens (70 x 20mm min.) fixed back to points of rigidity.
- 5 A minimum of 35mm bearing is required unless noted otherwise – as per D2.
- 6 All joists to be installed vertically plumb and kept straight between supports.
- 7 All joists require lateral support at end bearings – as per D5, D6 and D7.
- 8 Internal load bearing walls are to be supported by continuous e-joist blocking as per D8.
- 9 Joist hanger installation to be as per manufacturer's product literature. Incorrect installation can lead to unsafe or unsatisfactory performance.
- 10 Nailing Specification - all nails to be flat head unless otherwise specified.

Connection	Nailing Requirement	Detail Ref
Joist to bearing plate	2 x ø3.15 x 65	D3
Web stiffeners	See table	D4
Rimboard – skew nail to bearing plate Rimboard to joist top and bottom flanges Flooring to Rimboard	ø3.15 x 65 nails at 150mm crs, or ø4.5 x 75 nails at 300mm crs 1 x ø3.15 x 65 nail to each flange as per flooring requirements of AS1684	D5
e-joist blocking – skew nail to bearing plate	ø3.15 x 65 nails at 150mm crs	D6
Flooring to e-joist blocking	as per flooring requirements of AS1684	D6
Rimjoist – skew nail to bearing plate	ø3.15 x 65 nails at 150mm crs	D7
Rimjoist to joist top and bottom flanges	1 x ø3.15 x 75 nail	D7
Flooring to Rimjoist	as per flooring requirements of AS1684	D7
Joist hangers	See tables	D11
Adjacent non-loadbearing cantilvered joist	2 rows ø3.15 x 65 nails at 50mm crs and min nail group each end	D21
Nested non-loadbearing cantilvered joist	2 rows ø3.15 nails at 150mm crs and min nail group each end Single joist – 50mm long Double joist – 100mm long	D24
Loadbearing cantilever Reinforcement/flange	ø2.8 x 50 nails at 100mm crs	D29
Reinforcement/stiffener	Minimum of 5 x ø3.15 nails – 45 and 51mm flanges – 75mm long 63 and 90mm flanges – 90mm long	D29

NOTES

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NOTES



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