JJI-JOISTS
SITE GUIDE
FLOOR DETAILS

THIRD EDITION | NOVEMBER 2023

PASQUILL

SAINT-GOBAIN

Designed with precision, built with passion

James Jones & SONS LIMITED
TIMBER SYSTEMS DIVISION

WWW.JAMESJONES.CO.UK
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SYSTEM

JJI-Joist

JJI-Joists are available in a comprehensive range of sizes, designed specifically for the UK market. See table below for our standard range.

JJLVL-Beam & JJLVL-Rim

JJLVL (Laminated Veneer Lumber) is an advanced wood product suitable for a wide range of structural applications.

Available in two grades to match the JJI-Joist depth range; JJLVL-Beam and JJLVL-Rim.

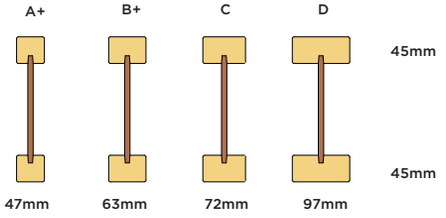
JJI-Joist Range

Joist Depth mm	Flange sizes in mm			
	A+ 47	B+ 63	C 72	D 97
195	✓	-	-	-
220	✓	✓	✓	✓
235	✓	✓	✓	✓
240	✓	✓	✓	✓
245	✓	✓	✓	✓
300	✓	✓	✓	✓
350	-	-	-	✓
400	-	-	-	✓

LVL product range

Section Depth mm	Beam width in mm		
	Rim	Beam	
	30	45	75
220	✓	✓	✓
240	✓	✓	-
245	✓	✓	✓
300	✓	✓	✓
350	-	✓	-
400	-	-	✓

JJI-Joist flange sizes



Glulam

Glued laminated timber (Glulam) is a high strength and stiffness beam product that is an ideal choice for demanding applications and heavily loaded members.

Various grades of Glulam are available to match the JJI-Joist depth range.

Metalwork

James Jones recommend using ITW Cullen and Simpson Strong-Tie metalwork.

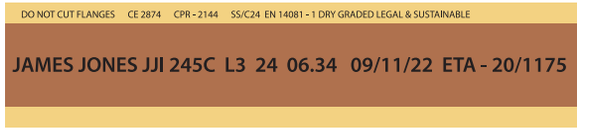
Glulam product range

Section Depth mm	Beam width in mm	
	38	45
220	✓	✓
235	✓	✓
245	✓	✓
300	✓	✓
350	-	✓
400	-	✓

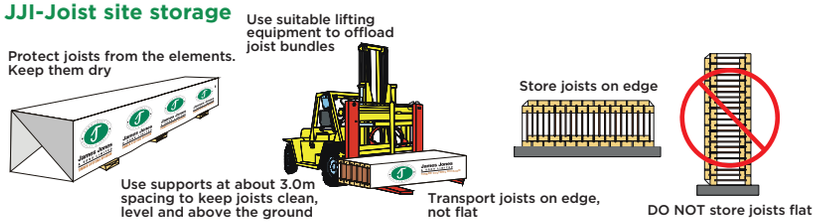
SITE STORAGE AND RESTRICTIONS

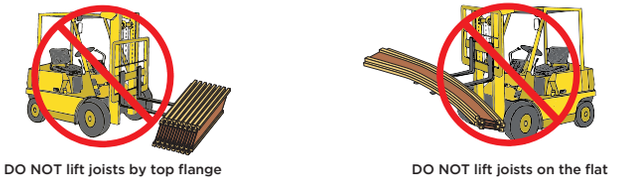
JJI-Joist identification and marking

For onsite identification and traceability, all JJI-Joists are clearly marked with product and manufacturing information. The large markings on the OSB web detail the joist depth, flange size, manufacturing time/date and ETA product approval. Further information printed on the top and bottom timber flanges detail the timber strength class, chain of custody confirmation and a warning. 'DO NOT CUT FLANGES'.

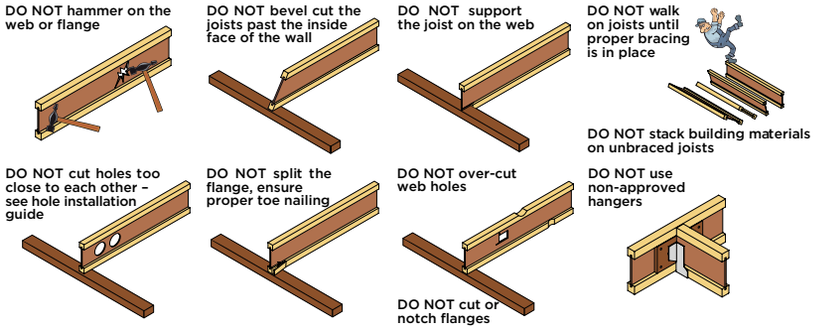


JJI-Joist site storage





ATTENTION! The following conditions are not allowed



INSTALLATION GUIDE

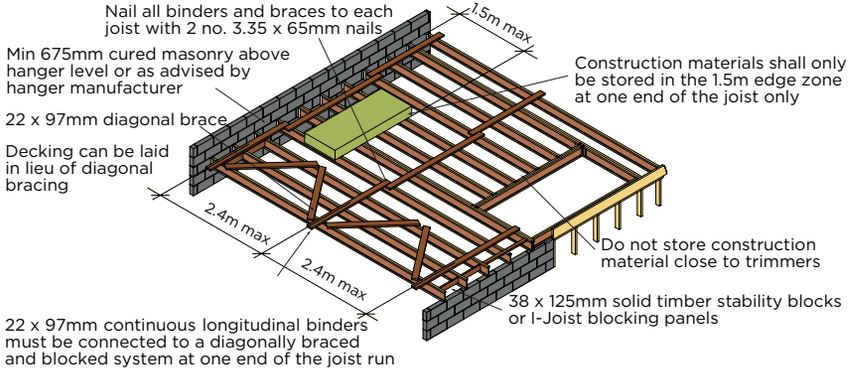
Temporary erection bracing notes

The builder is responsible for identifying and minimising the risks involved in erecting JJI-Joists to ensure that the health and safety of all workers is maintained. Builders should be aware of the health and safety responsibilities imposed on them by the Construction (Design and Management) Regulations 2015. Proper erection procedures and bracing are vital to the safe construction of JJI-Joists floors. The following notes may assist builders in preparing a safety assessment.

1. Do not allow workers to walk on unbraced joists
2. Do not store building materials on unbraced joists
3. JJI-Joists should be erected straight and vertical. The maximum deviation from horizontal should not exceed 10mm and the maximum deviation from the vertical should not exceed 2mm
4. JJI-Joists are unstable until fully braced. Bracing includes: longitudinal binders, diagonal bracing, stability blocking, rim joist/rim boards
5. All longitudinal binders, diagonal braces, stability blocks, and hangers should be completely installed and fully nailed as detailed
6. Lateral strength should be provided by a diagonally braced and blocked system across at least 3 joists as shown in the Erection Bracing Details (diagram below). Additional braced and blocking systems should be provided at 12m spacing in long joist runs
7. Once a JJI-Joist floor has been fully braced, construction materials may be placed on the floor provided that the overall weight of material to be placed on a single joist does not exceed 250kg (200kg for 195mm deep joists). Please refer to Technical Bulletin 47, 'Loading out JJI-Joist Floors'
8. Flooring should be fully fixed to the JJI-Joists before additional loads are placed on the floor
9. The ends of cantilevers should be stabilised with longitudinal binders fixed to the top and bottom flanges

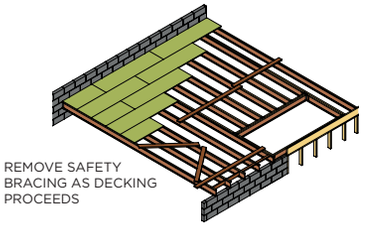
Installation guidelines

This diagram indicates temporary erection bracing only. It is applicable to both timber frame and masonry construction.



Stability blocking notes

- Use timber blocks or JJI-Joist blocking pieces
- Timber blocks to be minimum 38 x 125mm cut squarely and accurately to maintain joist spacing. Fasten with minimum 2 no. 3.35 x 65mm nails
- Stability blocks need to be fixed to 3 joists and cover a minimum distance of 1200mm
- Timber blocks in the diagonally braced systems are required in each run of joists and at cantilever supports
- When joists butt on an interior support, block both sets of joists
- Additional braced and blocked systems should be provided at 12m spacing in long joist runs

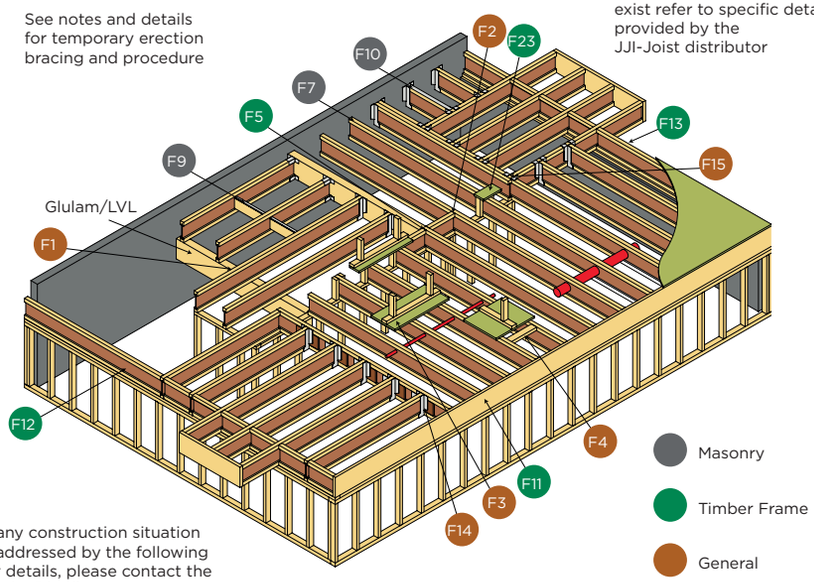


FLOOR DETAILS

Example of JJI-Joist floor system

See notes and details for temporary erection bracing and procedure

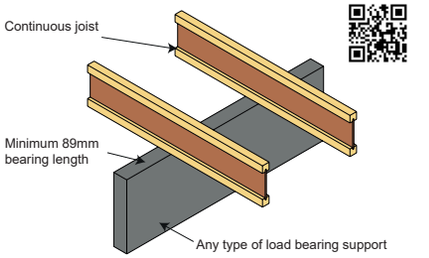
When cantilever situations exist refer to specific details provided by the JJI-Joist distributor



For any construction situation not addressed by the following floor details, please contact the JJI-Joist Distributor

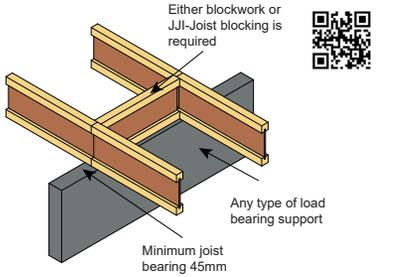
Refer to page 17 for hole installation chart

F1-Continuous JJI-Joist on wall



Web stiffeners may be required

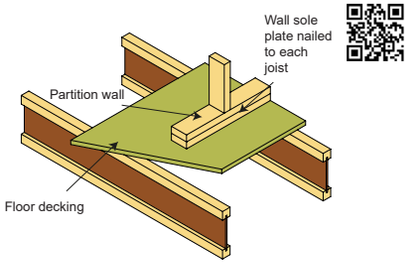
F2-Split JJI-Joist on wall



Where split joist(s) of different widths meet on the wall a double row of blocking is required to suit joist widths

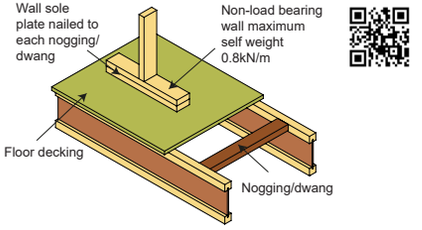
FLOOR DETAILS

F3-Wall at 90º to JJI-Joists



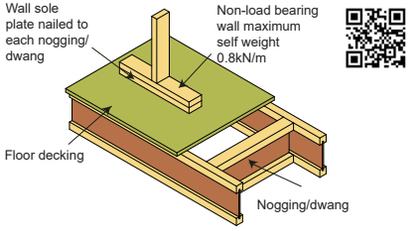
The floor designer is responsible for ensuring the joist design is adequate to support the wall

F4-Non-load bearing wall parallel to JJI-Joist



Minimum 38 x 75mm nogging/dwang or JJI-C flange at maximum 600 c/c attached with 2 no. 3.35 x 65mm nails skew nailed at each end, alternatively use approved clips
The floor designer is responsible for ensuring the joist design is adequate to support the wall

F4a-Non-load bearing wall parallel to JJI-Joist



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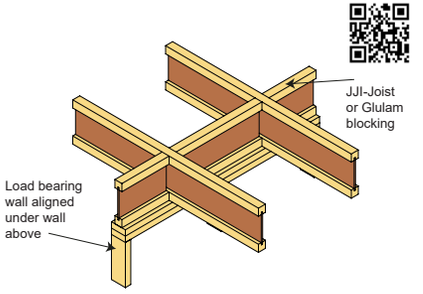
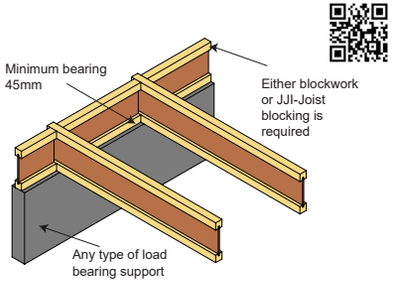
The floor designer is responsible for ensuring the joist design is adequate to support the wall

F5-Intermediate bearing with load bearing wall above

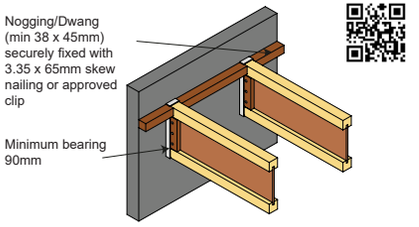


F6-Terminating JJI-Joist on wall



Suitable detailing required if used on an external wall

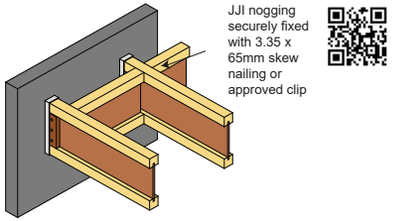
F7-JJI-Joist bearing in block wall



Construct blockwork around joist and fill all voids with web fillers, mortar and point with mastic sealant
Alternative proprietary systems may be used if approved by JJ&S Restraint straps will be required for greater than 2 storey*
*Straps required on all floors

FLOOR DETAILS

F7a-JJI-Joist bearing in block wall



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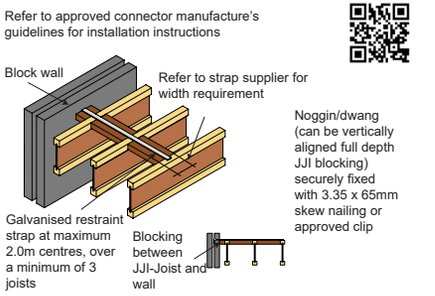
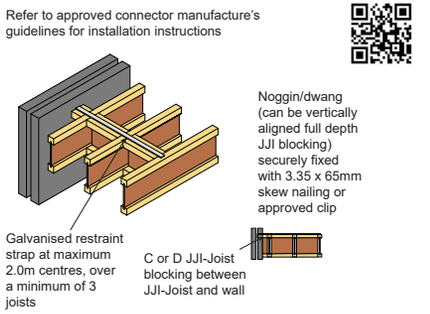
Alternative proprietary systems may be used if approved by JJ&S Restraint straps will be required for greater than 2 storeys*
*Straps required on all floors

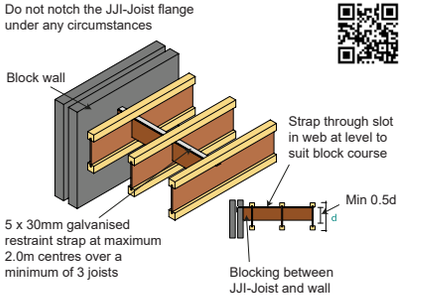
F8-Masonry wall restraint JJI-Joist parallel detail 1



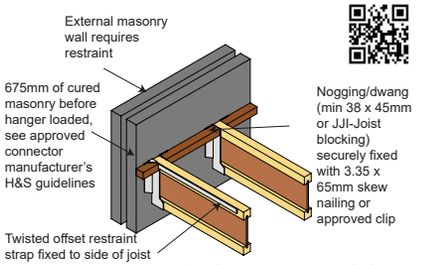
F8a-Masonry wall restraint JJI-Joist parallel detail 1



F9-Masonry wall restraint JJI-Joist parallel detail 2

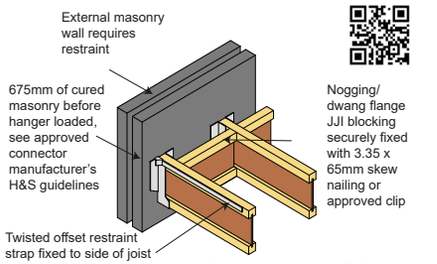


F10-Wall restraint, block wall hanger support



Web fillers may be required. Refer to joist design and/or approved connector manufacturer's guidelines

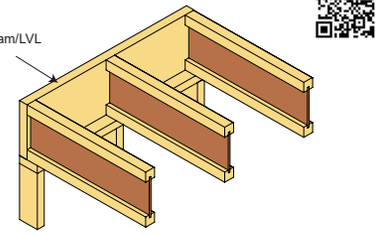
F10a-Wall restraint, block wall hanger support



Web fillers may be required. Refer to joist design and/or approved connector manufacturer's guidelines

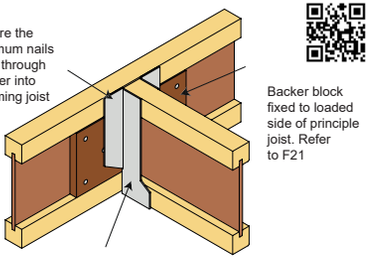
FLOOR DETAILS

F11-JJI-Joist bearing on external wall



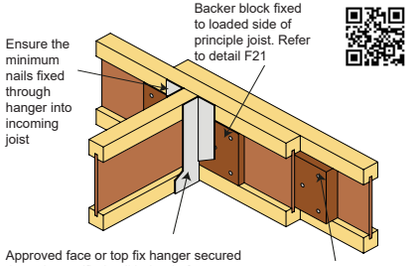
Additional blocking may be required to Engineer's specification, to improve sound, structural performance and fixing

F14-Single JJI-Joist to JJI-Joist

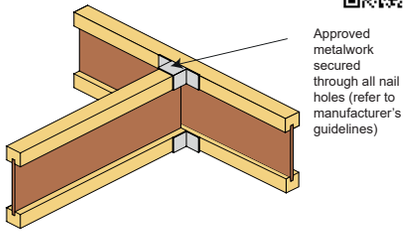


Approved face or top fix hanger secured through specified nail holes (refer to approved connector manufacturer's guidelines

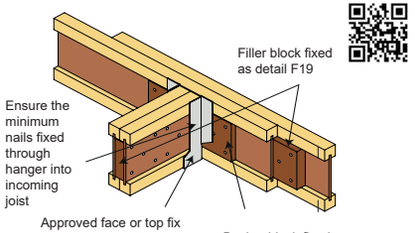
F15-Single JJI-Joist to multiple JJI-Joist



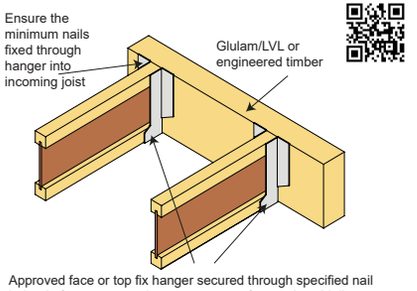
F16-Single JJI-Joist to JJI-Joist (Light load)



F17-Multiple JJI-Joist to multiple JJI-Joist



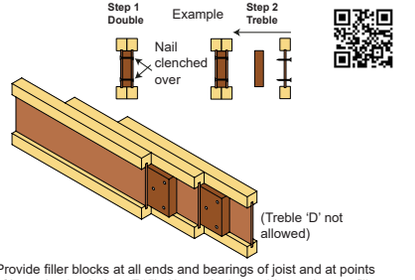
F18-JJI-Joist to engineered timber



Approved face or top fix hanger secured through specified nail holes (refer to approved connector manufacturer's guidelines

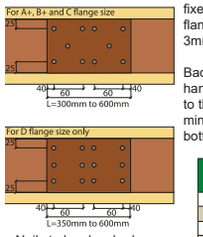
FLOOR DETAILS

F19-Filler block-double or treble JJI-Joist



Provide filler blocks at all ends and bearings of joist and at points of incoming loads (see F15). Alternatively provide continuous filler block when repeated loads are applied (see F40)

F21-Filler and backer block naling detail



All filler and backer blocks for face fix hangers to be fixed tight to the bottom flange with a minimum 3mm gap at the top.

Backer blocks for top fix hangers to be fixed tight to the top flange with a minimum 3mm gap at the bottom.

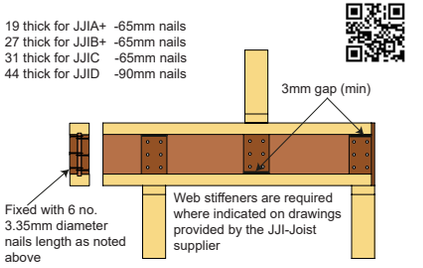
Nail lengths (mm)

Flange Spec	Backer block	Filler block
A+	65	65
B+	65	90
C	90	90
D	90	90

Nails to be clenched over on backer blocks

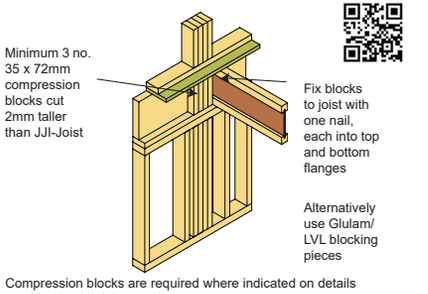
Minimum nail diameter 3.1mm

F22-Web stiffener



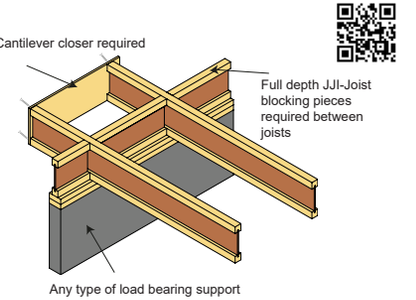
100mm wide plywood, OSB/3 or kiln dried stiffener block fitted to both sides

F23-Compression block

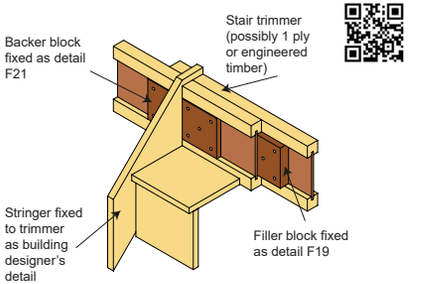


Compression blocks are required where indicated on details provided by JJI-Joist supplier

F24-Cantilever

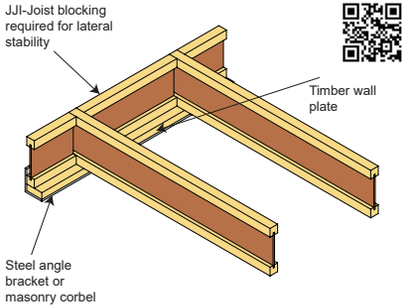


F25-Stair stringer connection

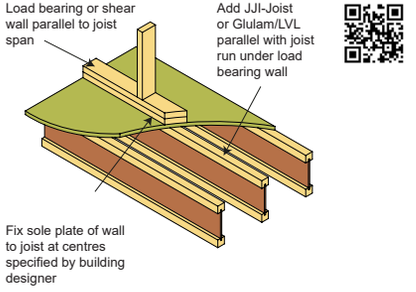


FLOOR DETAILS

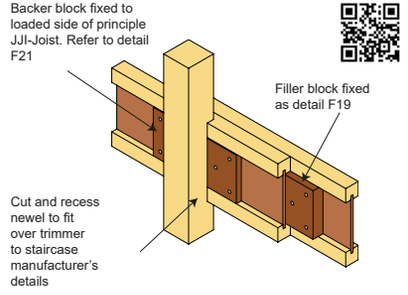
F26-JJI-Joist supported on steel/ corbel wall



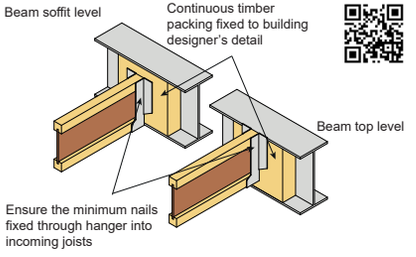
F27-Load bearing wall parallel to JJI-Joist run



F28-Newel post to JJI-Joist trimmer

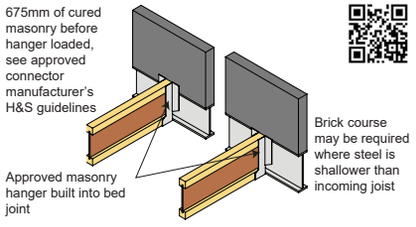


F29-JJI-Joist to steel beam face fixing



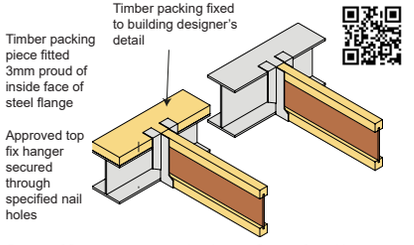
Approved face fixed hangers fixed through all nail holes
Refer to approved metal work supplier's literature for further information

F30-JJI-Joist to steel beam/ masonry



Do not fix joist to steel lintels unless approved by lintel manufacturer
Bottom of hanger must rest against bottom flange of steel beam
Refer to approved metalwork supplier's literature for further information

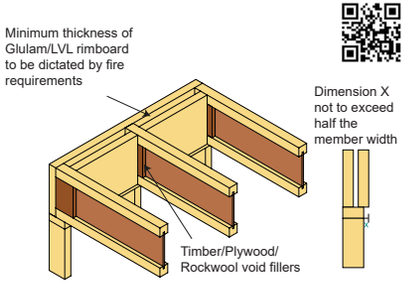
F31-JJI-Joist to steel beam to fixing



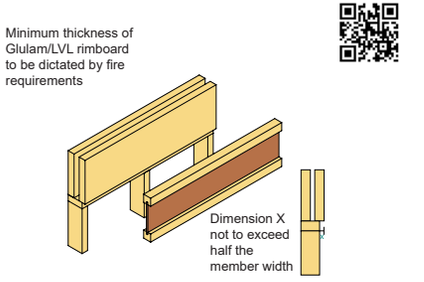
Bottom of flange must rest against bottom flange of steel beam
Do not fix joist to steel lintels unless approved by lintel manufacturer
Refer to approved metalwork supplier's literature for further information

FLOOR DETAILS

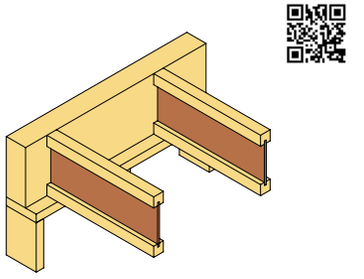
F32-JJI-Joist bearing on external wall



F33-JJI-Joist parallel to party wall

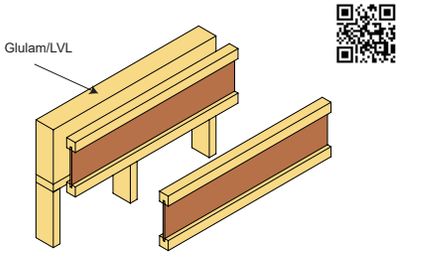


F34-Indicative disproportionate collapse JJI-Joist at 90º to wall



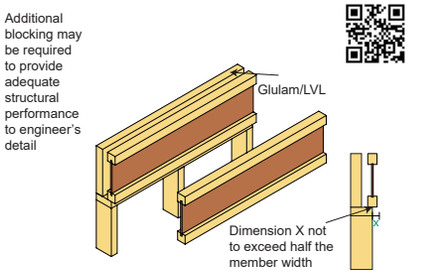
Specification to Engineer's detail

F35-Indicative disproportionate collapse JJI-Joist parallel to wall

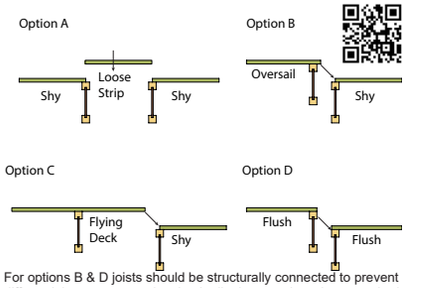


Specification to Engineer's detail

F36-JJI-Joist parallel external wall



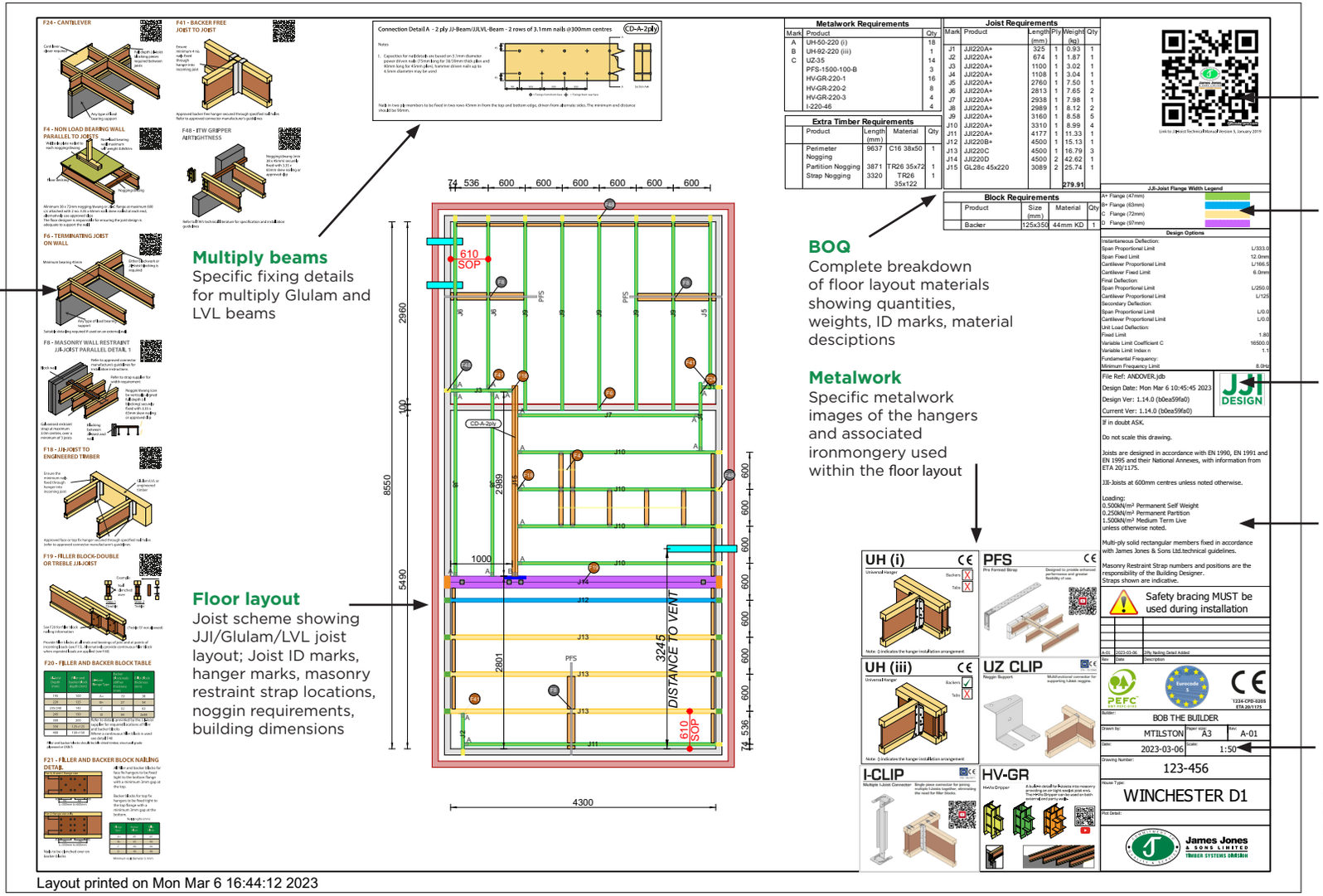
F37-Floor cassette joining detail



For options B & D joists should be structurally connected to prevent differential movement and maintain diaphram action where required

FLOOR LAYOUT

FLOOR LAYOUT



Layout printed on Mon Mar 6 16:44:12 2023

Floor details
Examples of how to connect JJI-Joists, Glulam, LVL, blocking pieces, restraint straps etc

Multiply beams
Specific fixing details for multiply Glulam and LVL beams

Floor layout
Joist scheme showing JJI/Glulam/LVL joist layout; Joist ID marks, hanger marks, masonry restraint strap locations, noggin requirements, building dimensions

BOQ
Complete breakdown of floor layout materials showing quantities, weights, ID marks, material desciptions

Metalwork
Specific metalwork images of the hangers and associated ironmongery used within the floor layout

QR Codes
Electronic link to the most up-to-date technical information

JJI-Joist Legend
Colour legend reflecting the 4 x JJI-Joist widths; A+, B+, C & D

Layout ID Date
Layout date and time ref for cross-reference

Notes
Floor layout design notes including; joist spacing, design code and loadings, restraint strap responsibilities

Job/Layout details
Floor layout details including; house type, design revision, design date, site address, layout scale

Floor layout
James Jones
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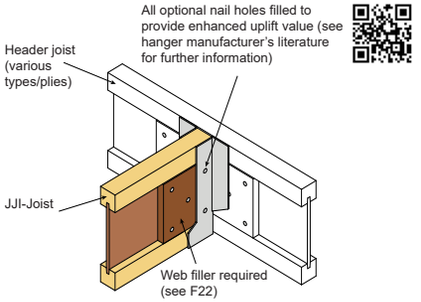
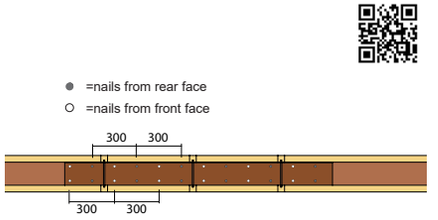
FLOOR DETAILS

F39-Enhanced hanger uplift

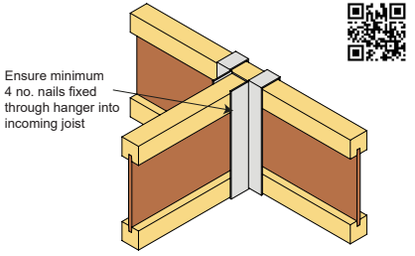


F40-Continuous filler blocks



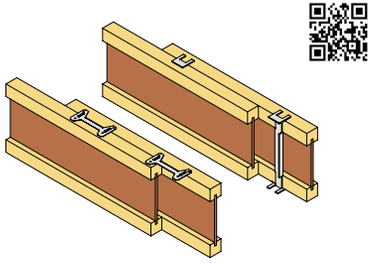
A continuous filler block should be utilised with multiple incoming loads
A continuous backer block could also be provided
Were continuous filler block is used, fix with 2 rows of nails at 300mm centres from both faces

F41-Backer free JJI-Joist to JJI-Joist



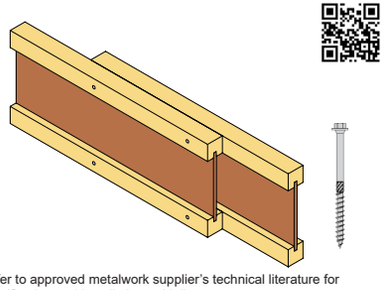
Approved backer free hanger secured through specified nail holes
Refer to approved connector manufacturer's guidelines

F42-Fixing double or treble JJI-Joists



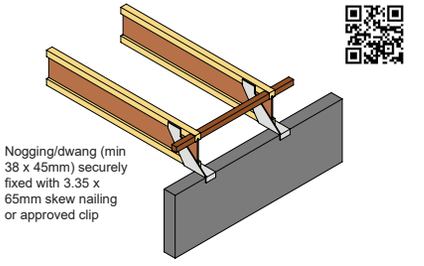
Refer to approved metalwork supplier's technical literature for specification and installation guidelines

F43-Fixing double or triple JJI-Joists



Refer to approved metalwork supplier's technical literature for specification and installation guidelines

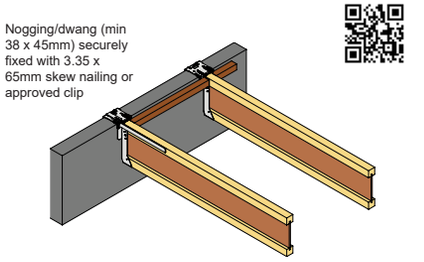
F45-Masonry restraint hanger detail 1



Refer to ITW's technical literature for specification and installation guidelines

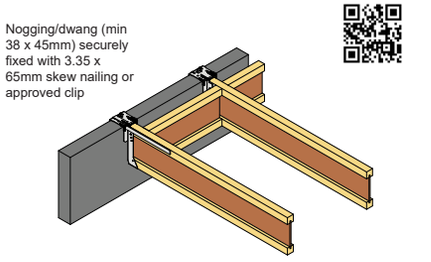
FLOOR DETAILS

F46-Masonry restraint hanger detail 2



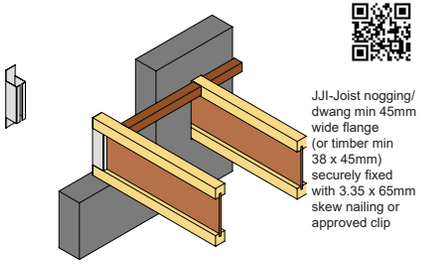
Refer to Simpson Strongtie's technical literature for specification and installation guidelines

F46a-Masonry restraint hanger detail 2



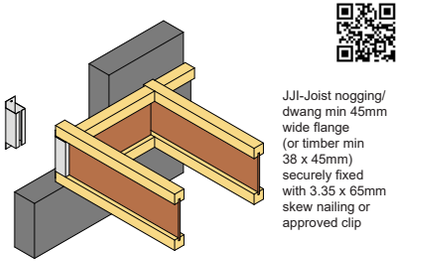
Refer to Simpson Strongtie's technical literature for specification and installation guidelines

F47-SST End Cap airtightness detail



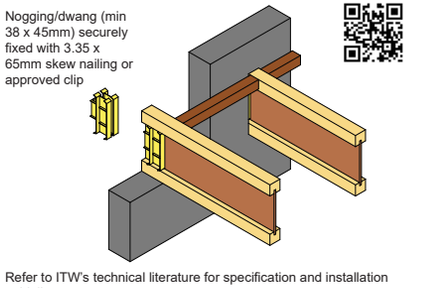
Refer to Simpson Strongtie's technical literature for specification and installation guidelines

F47a-SST End Cap airtightness detail



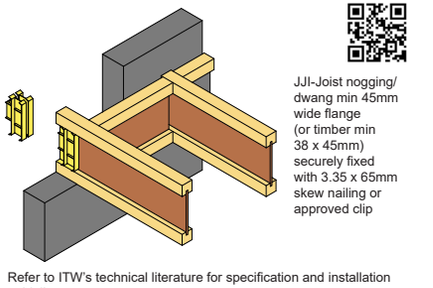
Refer to Simpson Strongtie's technical literature for specification and installation guidelines

F48-ITW Gripper airtightness detail



Refer to ITW's technical literature for specification and installation guidelines

F48a-ITW Gripper airtightness detail

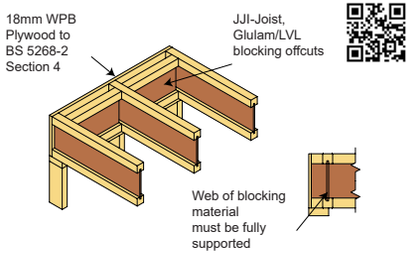


Refer to ITW's technical literature for specification and installation guidelines

Floor details

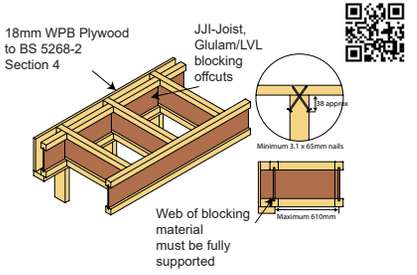
FLOOR DETAILS

F49-JJI-Joist bearing on external wall (low load)



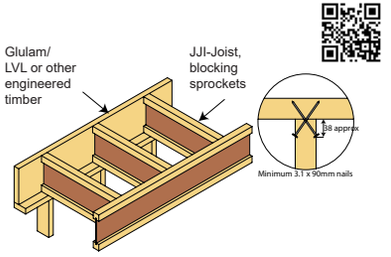
Alternatively use Glulam/LVL blocking in lieu of JJI-Joists
JJI-Joist blocking offcuts can be of any joist width

F50-JJI-Joist bearing on external wall (low load)

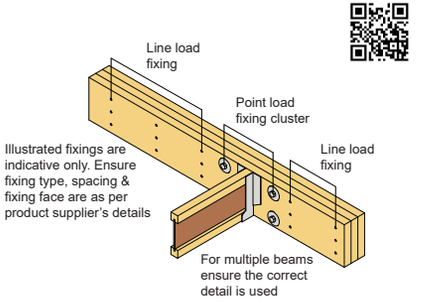


Alternatively use Glulam/LVL blocking in lieu of JJI-Joists
JJI-Joist blocking offcuts can be of any joist width

F51-JJI-Joist parallel detail sprockets



F53-Multiple Beam fixing



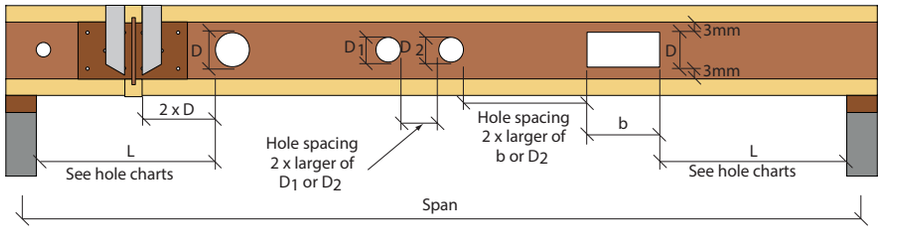
SERVICE HOLES

JJI-Joist hole installation guide

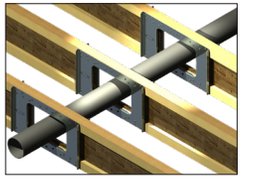
The table below gives the minimum required distance , L (mm), from inside face of support to nearest edge of hole for uniformly loaded, simply supported joists. See table notes.

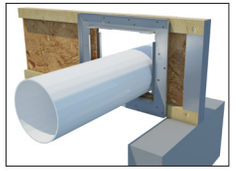
Joist Depth (mm)	Joist Span (mm)	Hole Size (mm)													
		50		75		100		125		150		175		200	
		● + ■	▬	● + ■	▬	● + ■	▬	● + ■	▬	● + ■	▬	● + ■	▬	● + ■	▬
220	3000	300	300	361	656	721	838	838	1159						
	3500	300	300	500	824	895	1024	1024	1375						
	4000	300	310	651	1001	1078	1216	1216	1596						
	4500	300	449	813	1186	1268	1415	1415	1819						
	4890	300	566	945	1334	1420	1574	1574	1996						
235	3000	300	300	300	566	656	873	873	1217						
	3500	300	300	325	725	824	1062	1062	1440						
	4000	300	300	463	894	1000	1258	1258	1665						
	4500	300	300	612	1072	1185	1460	1460	1893						
	5066	300	382	794	1282	1402	1693	1693	2154						
240	3000	300	300	300	526	623	872	872	1235						
	3500	300	300	300	681	788	1061	1061	1459						
	4000	300	300	392	847	962	1257	1257	1686						
	4500	300	300	537	1021	1144	1458	1458	1916						
	4711	300	300	601	1097	1223	1544	1544	2013						
245	3000	300	300	300	482	586	865	865	1252	955	1252				
	3500	300	300	300	632	747	1053	1053	1478	1152	1478				
	4000	300	300	317	794	918	1248	1248	1706	1355	1706				
	4500	300	300	457	965	1097	1449	1449	1937	1563	1937				
	5184	300	320	666	1212	1353	1731	1731	2256	1854	2256				
300	4000	300	300	300	300	300	803	803	1308	1230	1542	1477	1883	1572	1883
	4500	300	300	300	300	306	975	975	1513	1430	1762	1693	2126	1795	2126
	5000	300	300	300	300	449	1154	1154	1722	1635	1985	1912	2369	2019	2369
	5500	300	300	300	535	670	1341	1341	1935	1844	2210	2135	2613	2247	2613
	5803	300	300	300	687	822	1456	1456	2066	1972	2348	2271	2761	2385	2761

1. This table has been calculated for joists in intermediate domestic floors (G_k=0.75kN/m², q_k=1.5kN/m², Q_k=2kN) at 600mm centres
2. Where more than one hole is to be cut, the minimum spacing between holes must be 2 times the width of the largest hole
3. The rectangular hole width b should not exceed 1.5 x D
4. Cut all holes carefully, do not overcut and do not cut flanges
5. Where holes are required in rim and header joists of timber frame construction refer to the building designer
6. Cut hole on the centreline of the web where possible
7. The bearing support length used for this table is 45mm
8. A 35mm hole may be drilled anywhere on the centre line of the web material provided there is a minimum of 35mm from the edge of the hole to the end of the joist and it is not directly over a support



Alternative solutions - reinforcing plates





For Glulam and LVL holes contact your distributor

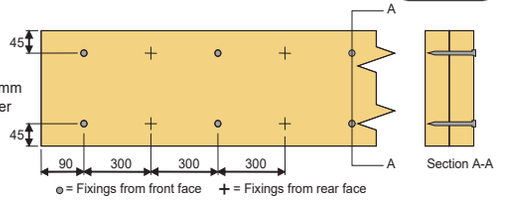
GLULAM/LVL BEAM FIXINGS

Connection Detail A - 2 ply Beam - 2 rows of 3.1mm nails @300mm centres

CD-A-2ply

Notes

1. Capacities for nail details are based on 3.1mm diameter power driven nails (75mm long for 38/39mm thick plies and 90mm long for 45mm plies), hammer driven nails up to 4.5mm diameter may be used



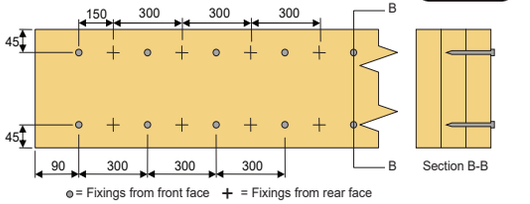
Nails in two ply members to be fixed in two rows 45mm in from the top and bottom edge, driven from alternate sides.
The minimum end distance should be 90mm.

Connection Detail A - 3 ply Beam - 2 rows of 3.1mm nails @300mm centres

CD-A-3ply

Notes

1. Capacities for nail details are based on 3.1mm diameter power driven nails (75mm long for 38/39mm thick plies and 90mm long for 45mm plies), hammer driven nails up to 4.5mm diameter may be used



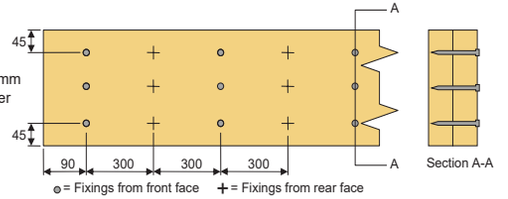
Nails in three ply members to be fixed in two rows 45mm in from the top and bottom edge, driven through each outer ply into the central ply.
Nails from any one face to be 300mm centres with nails from the opposite face offset by 150mm. The minimum end distance should be 90mm.

Connection Detail B - 2 ply Beam - 3 rows of 3.1mm nails @300 centres

CD-B-2ply

Notes

1. Capacities for nail details are based on 3.1mm diameter power driven nails (75mm long for 38/39mm thick plies and 90mm long for 45mm plies), hammer driven nails up to 4.5mm diameter may be used



Nails in two ply members should be fixed in two rows 45mm in from the top and bottom edge and one row along the centre line, driven from alternate sides. The minimum end distance should be 90mm.

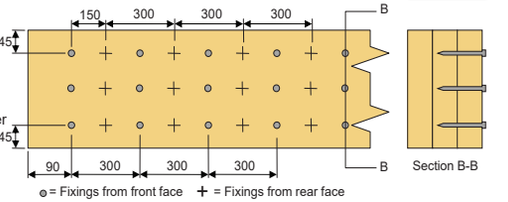
GLULAM/LVL BEAM FIXINGS

Connection Detail B - 3ply Beam - 3 rows of 3.1mm nails @300mm centres

CD-B-3ply

Notes

1. Capacities for nail details are based on 3.1mm diameter power driven nails (75mm long for 38/39mm thick plies and 90mm long for 45mm plies), hammer driven nails up to 4.5mm diameter may be used



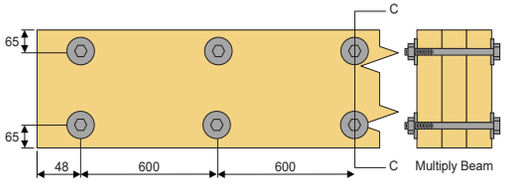
Nails in three ply members to be fixed with the outer rows 45mm in from the top and bottom edge, all nails driven through each outer ply into the central ply.
Nails from any one face to be at 300mm centres with nails from the opposite face offset by 150mm. The minimum end distance should be 90mm.

Connection Detail C - Multiply Beam - 2 rows of M12 bolts @600 centres

CD-C

Notes

1. 38mm diameter x 3mm thick washers are required under each head and nut on M12 bolts. Bolts to be minimum 4.6 grade
2. Bolt length to be no less than the overall width of beam + 18mm, e.g. a 90mm beam and rim would require a 108mm bolt



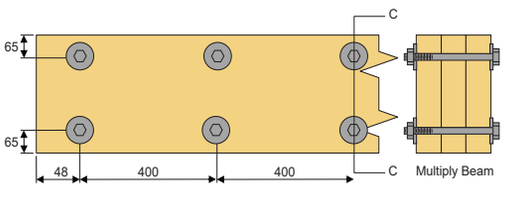
Bolts should be fixed in two rows 65mm in from the top and bottom edge, Bolts should be drilled at Ø12mm and bolts tapped into place.
The minimum end distance should be 48mm.

Connection Detail D - Multiply Beam - 2 rows of M12 bolts @400 centres

CD-D

Notes

1. 38mm diameter x 3mm thick washers are required under each head and nut on M12 bolts. Bolts to be minimum 4.6 grade
2. Bolt length to be no less than the overall width of beam + 18mm, e.g. a 90mm beam and rim would require a 108mm bolt



Bolts should be fixed in two rows 65mm in from the top and bottom edge, Bolts should be drilled at Ø12mm and bolts tapped into place.
The minimum end distance should be 48mm.

Glulam/LVL beam fixings

James Jones

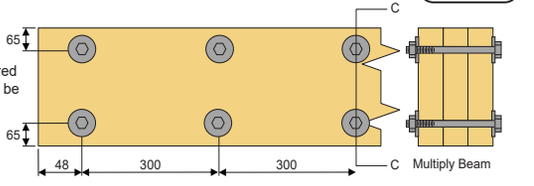
GLULAM/LVL BEAM FIXINGS

Connection Detail E - Multiply Beam - 2 rows of M12 bolts @300mm centres

CD-E

Notes

1. 38mm diameter x 3mm thick washers are required under each head and nut on M12 bolts. Bolts to be minimum 4.6 grade
2. Bolt length to be no less than the overall width of beam + 18mm, e.g. a 90mm beam would require a 108mm bolt



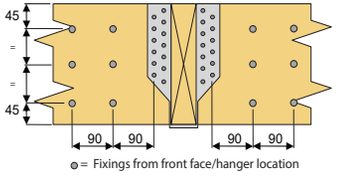
Bolts should be fixed in two rows 65mm in from the top and bottom edge, bolts should be drilled at Ø12mm and bolts tapped into place. The minimum end distance should be 48mm.

Connection Detail F - 2 ply Beam - 3 rows of 3.1 mm nails @90mm spacing

CD-F-2ply

Notes

1. Capacities for nail details are based on 3.1mm diameter power driven nails (75mm long for 38mm thick plies and 90mm long for 45mm plies), hammer driven nails up to 4.5mm diameter may be used

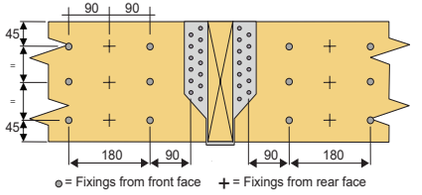


Connection Detail F - 3ply Beam - 3 rows of 3.1mm nails @90mm spacing

CD-F-3ply

Notes

1. Capacities for nail details are based on 3.1mm diameter power driven nails (75mm long for 38/39mm thick plies and 90mm long for 45mm plies), hammer driven nails up to 4.5mm diameter may be used



Nails in three ply members to be fixed with the outer rows 45mm in from the top and bottom edge, all nails driven through each outer ply into the central ply.
Nails from any one face to be at 180mm centres with nails from the opposite face offset by 90mm.

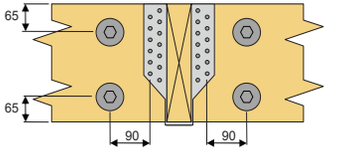
GLULAM/LVL BEAM FIXINGS

Connection Detail G - Multiply Beam - 2 rows of M12 bolts @90mm spacing

CD-G

Notes

1. 38mm diameter x 3mm thick washers are required under each head and nut on M12 bolts. Bolts to be minimum 4.6 grade
2. Bolt length to be no less than the overall width of beam + 18mm, e.g. a 90mm beam would require a 108mm bolt



Bolts should be fixed in two rows 65mm in from the top and bottom edge, bolts should be drilled at Ø12mm and bolts tapped into place.

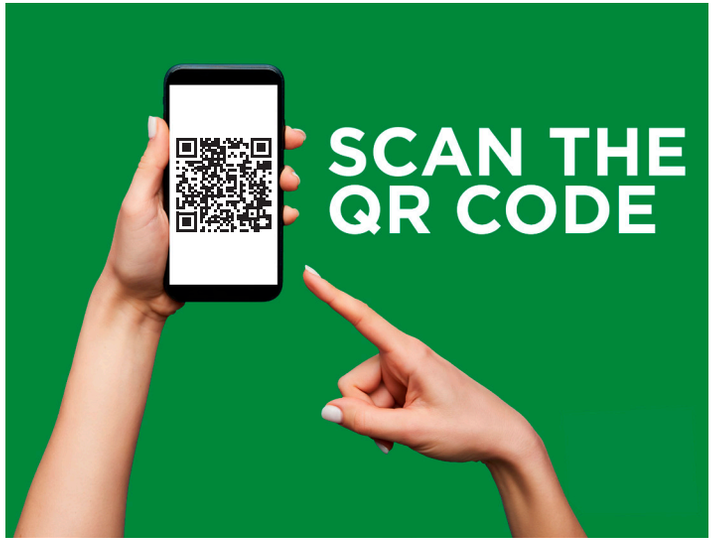
OCKWELLS - STAIRWELL HATCH

Temporary site protection

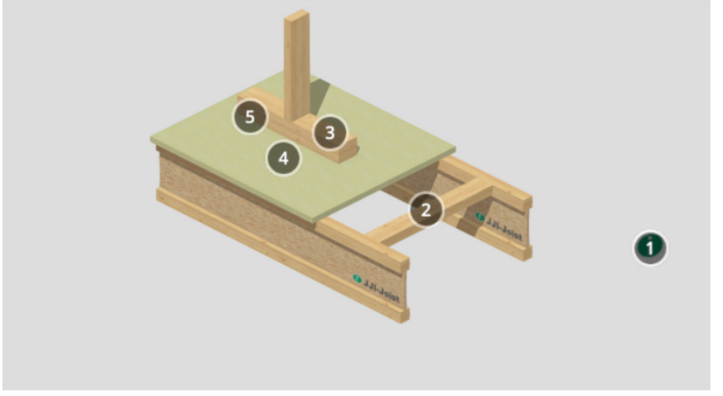
James Jones & Sons Ltd's Timber Systems Division has entered into a joint partnership with specialist building and protection materials manufacturer and distributor Ockwells, which will see it recommending Ockwells' Stairwell Hatch System to their JJI-Joist customers where an alternative to sacrificial joists is required for stairwells.

For more information on the Ockwells Stairwell hatch visit www.ockwells.co.uk

INTERACTIVE FLOOR DETAILS



SCAN OUR QR CODE TO VIEW OUR INTERACTIVE CONSTRUCTION DETAILS IN 3D



F4 | Non-load bearing wall parallel to Joists

3D Model

JamesJonesTSD

FOLLOW

NOTES

PRODUCT SUPPORT

James Jones & SONS LIMITED
TIMBER SYSTEMS DIVISION

WWW.JAMESJONES.CO.UK

CULLEN

www.itwcp-offsite.co.uk
Cullen ITW (Metalwork)
01592 771132

SIMPSON Strong-Tie

www.strongtie.co.uk/en-UK
Simpson StrongTie (Metalwork)
01827 255600

West Fraser

uk.westfraser.com
West Fraser (Chipboard deck)
01463 792424

EGGER

www.egger.com/en
Egger (Chipboard deck)
01434 602191

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