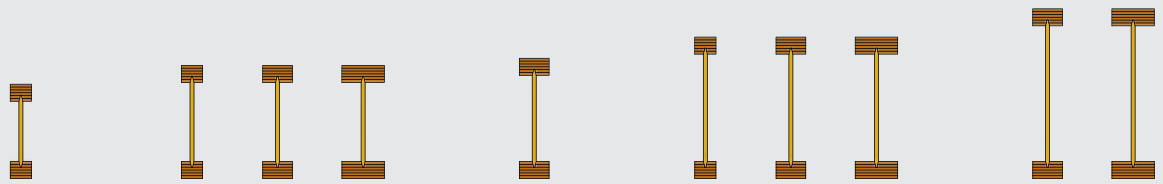
Meyer TIMBER®

NTT

meyJOIST

PRODUCT MANUAL

UPDATED SEPTEMBER 2024



BUILDING BETTER FLOORS

Meyer TIMBER Victoria

Meyer TIMBER New South Wales

Meyer TIMBER Queensland

Meyer TIMBER Tasmania

meyJOIST

Meyer TIMBER®

TABLE OF CONTENTS

meyJOIST - BUILDING BETTER FLOORS

meyJOIST is an engineered timber I-Joist supplied by Meyer Timber® primarily used for floor and roof applications. Available in long lengths, they are lightweight, easy to install and have generous web hole allowances for wiring, plumbing, and air conditioning ducting. This product manual contains all the information needed to specify and install a complete solution using meyJOIST. A separate meyJOIST Installation Reference Sheet is also available and includes common details and installation requirements in a handy double sided flyer.

QUALITY & PERFORMANCE

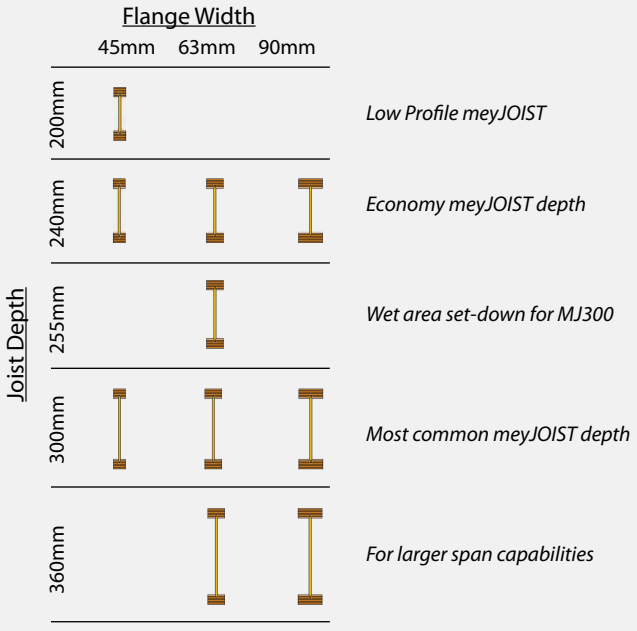
- Technical support – experienced engineering support, simply call your local Meyer Timber® office.
- 'Off the shelf' convenience – readily available, ex stock via a building merchant, simply cut to length and install.
- Termite protected – meyJOIST incorporates H2-S termite protection across the range for areas of Australia south of the Tropic of Capricorn.

meyJOIST RANGE

Table 1: Dimension and Shape

meyJOIST Section Code	Overall Depth (mm)	Flange Width (mm)	Mass (kg/m)
MJ200 45	200	45	2.7
MJ240 45	240	45	2.9
MJ240 63	240	63	3.7
MJ240 90	240	90	4.9
MJ255 63	255	63	3.8
MJ300 45	300	45	3.3
MJ300 63	300	63	4.0
MJ300 90	300	90	5.2
MJ360 63	360	63	4.4
MJ360 90	360	90	5.6
Spring:		**1/1000**	
Moisture content:		**8-15%**	
Depth:		**-0, +2mm**	
Width:		**-0, +3mm**	

Figure 1: meyJOIST Sizes

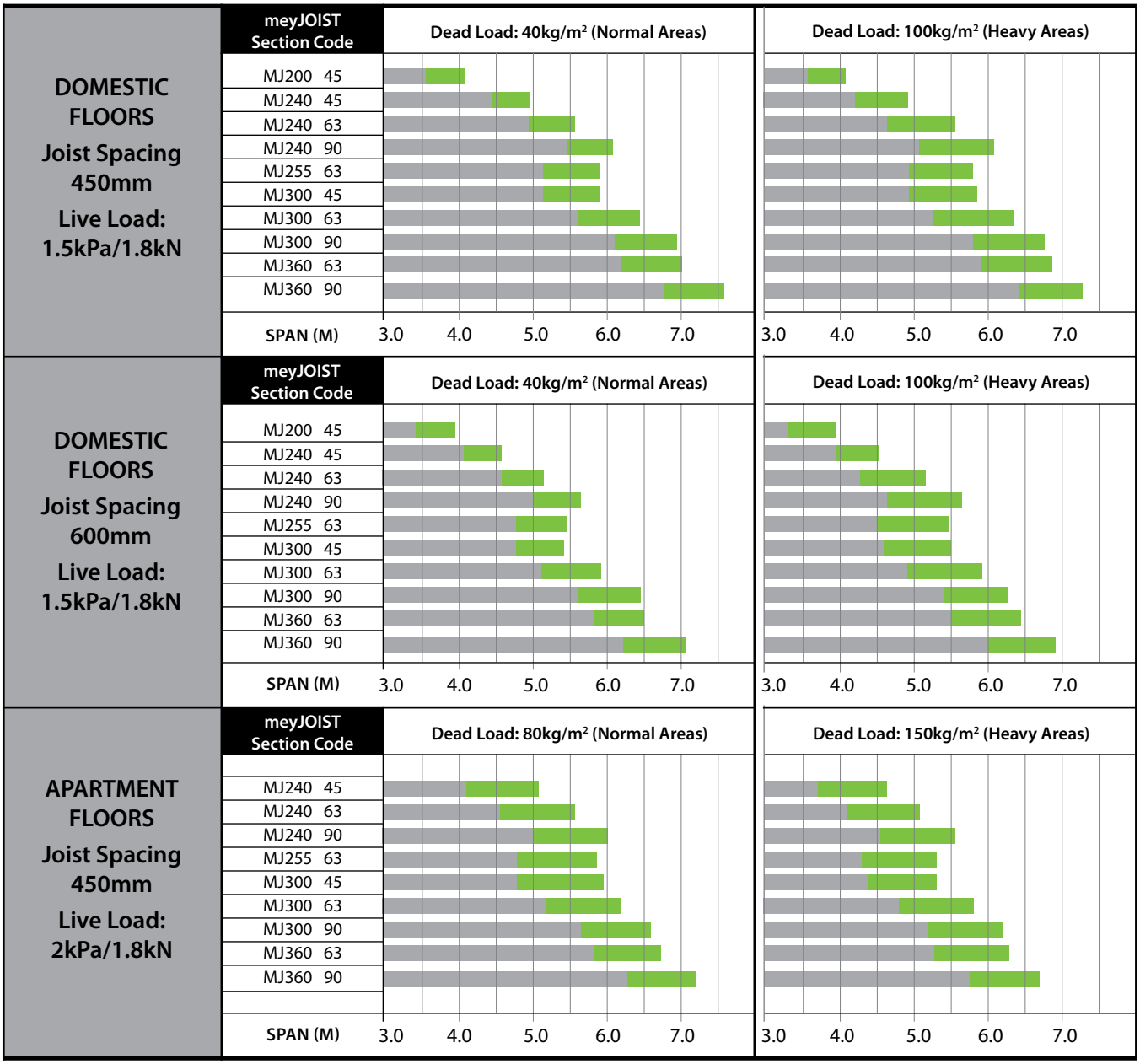


SEE IMPORTANT NOTICE AND WARNING ON PAGE 17

meyJOIST SPANS

Information contained in this publication applies for floor joists used in residential applications. For more information refer to designIT® (or other) software. Use of software will provide a wider range of options and allow more optimum design.

Figure 2: meyJOIST Maximum Span Recommendations



Notes:

1. Spans refer to ceiling attached to underside of meyJOIST, for ceiling not attached refer designIT® (or other) software.
2. Continuous span values above are based on a maximum 15% variation between spans up to values of 6.5m. Above 6.5m the residual span is reduced to suit 12m maximum lengths.
3. Spans based on 35mm end bearing and 70mm intermediate bearing lengths.
4. Spans for apartment floors do not apply to communal areas or corridors. Refer to software or contact Meyer Timber® for more information.

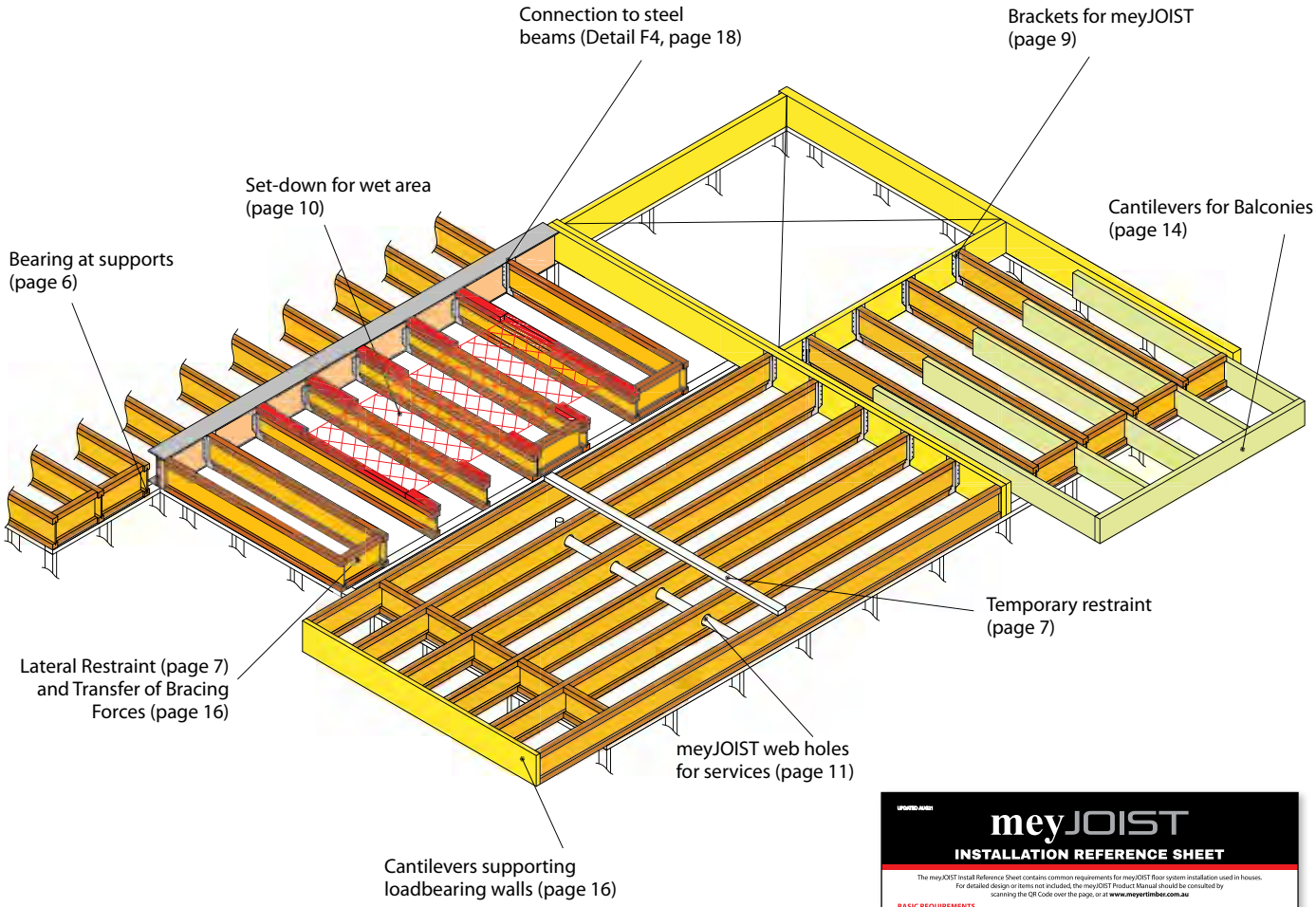
DESIGN CRITERIA & LOADING

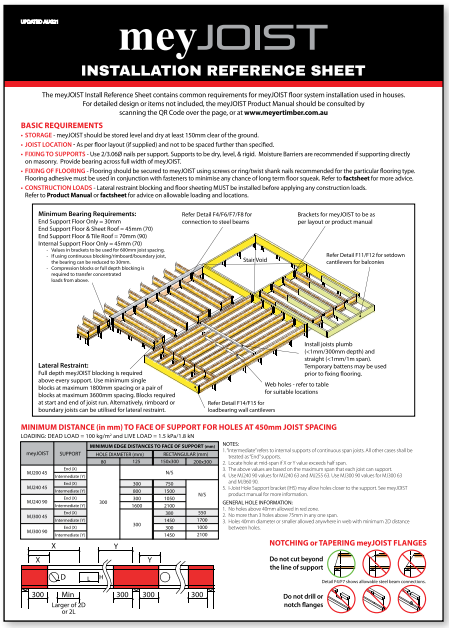
The values given in these figures have been developed by experienced timber design engineers in accordance with AS 1720.3:2016. For other design geometry and loading conditions including allowable cantilevers the free designIT® (or other) software should be used for specification.

FLOOR RIGIDITY

In the selection of floor joist sizes for a given span, specifiers should use the above maximum joist spans for guidance and in addition take into account the intended occupancy or use of the floor. Floors supporting partition walls, those constructed using more rigid flooring or including ceiling battens will have improved dynamic performance. These factors may also be taken into consideration in selection of floor joist size.

TYPICAL FLOOR LAYOUT




meyJOIST
INSTALLATION REFERENCE SHEET

INSTALLATION REFERENCE SHEET

A handy 2-page meyJOIST installation reference sheet is also available and can be supplied as a hard copy to site upon request.

HOW TO MINIMISE THE POTENTIAL SQUEAKS IN FLOOR SYSTEMS

BRACKETS:

DON'T skew nail joists to beams/ packers before installing brackets.

DO keep 1-2mm gap at end.

DON'T have a gap between joist and bottom of bracket. A 6gx30mm long wafer head screw is recommended from underneath to pull joist down.

FIXING:

DO fix internal and external walls above to joists adequately to prevent movement.

DO secure joists to lower frames or sub-floor adequately to prevent movement.

FLOORING:

DON'T use adhesive sparingly or allow it to form a skin prior to flooring sheet installation.

DO
- Apply adhesive in accordance with adhesive manufacturers recommendations.
- Install flooring before adhesive forms a skin.
- Complete mechanical fixing of the sheet within the working time of the adhesive.
- Follow the flooring manufacturers recommendations relating to gluing of sheet grooves.

DO use correct fasteners (consult flooring documentation). Screws or ring shank nails are highly recommended.

DON'T miss joists with fasteners so they rub against the side of the joist.

SQUEAKY FLOORS BROCHURE

meyJOIST SPECIFICATION / INSTALLATION (General Requirements)

There are some aspects of both specification and installation that can be regarded by designers and builders as basic requirements. These should be adopted for installation in the absence of other or additional requirements that may be specified in the design documentation. Requirements that fit into this category are defined and detailed in this section called *'General Requirements'.*

Other aspects are categorised as *'Installation details requiring design and specification'* (pages 14-17) because they need selection and individual specification in the design documentation to ensure the design intent is communicated to the builder.

This product manual provides a variety of details specific to the use of meyJOIST floor systems for houses and similar buildings. Details contained in this publication have been appropriately engineer designed and/or tested to determine their suitability. In addition, many details in AS1684 and other industry publications are equally applicable to meyJOIST as for conventional timber joisted floors. We do however, caution against any assumption that details published for other I-Joist products are suitable or sufficiently complete for use with meyJOIST.

STORAGE

Prior to installation, meyJOIST should be stacked on level bearers, at least 150mm clear of the ground and kept dry.

JOIST LAYOUT

In all cases it is assumed that installation will be carried out in accordance with a joist layout drawing showing the location, size (section code) and maximum spacings of joists, together with reference to any special requirements not included in this guide as *'general requirements'.*

JOIST PLACEMENT

Joists should be accurately placed at not more than the nominated maximum centre to centre spacing so as to provide the support required for flooring and load bearing walls or posts. Joist placement must be so as to clear any obstructions that may occur through the floor such as plumbing, drainage pipes or air conditioning ductwork.

FIXING TO SUPPORTS

Joists are to be fixed accurately in position at supports using nails or screws as per Detail F5. Nail through flanges using a minimum of 2/3.06Ø x 75mm long nails at least 40mm from the end of the joist. Screws up to 14g (6.3mm) x 75mm long can also be used for fixing to supports. When using screws it is strongly recommended to pre-drill the hole with a drill bit equivalent to the size of the screw shank to prevent splitting. See also 'Supports' section in this manual for further information.

FIXING OF SHEET FLOORING

It is recommended that sheet flooring be secured to joists using self-drilling Type 17 screws or ring/twist shank nails. Nails should be minimum 2.8mm diameter nails, hand driven or minimum 2.5mm diameter nails, machine driven. Nail or screw spacing should be at centres recommended for the particular flooring type. Where nail centres are less than 50mm it is good practice to stagger their location so as to avoid the possibility of splitting. Flooring adhesive must used in conjunction with fasteners to minimize any chance of long term floor squeak.

Table 2: Fixing of Sheet Flooring (Particleboard, OS'Floor, Plywood, Lightweight Fibre Cement etc.)

Flooring Thickness:	15 - 22mm	25mm
Recommended Nail/Screw Lengths:	50mm	65mm
Simpson Strong-Tie® Quik Drive Screw Code:	WSV50SA (10gx50)	WSNTL212SA
	Complies to AS1860.2	

Strong Drive™ SUBFLOOR Screw
Ribbed flat head, twin lead thread, sharp point.
Yellow zinc. #3 square drive or T25 Torx drive.

8g x 32mm	(WSC114SA)
10g x 50mm	(WSV50SA)
8g x 65mm	(WSNTL212SA)
8g x 75mm	(WSV3S)

SIMPSON Strong-Tie®

HB Fuller Flooring Adhesives | www.hbfuller.com.au

SUPPORTS

Supports shall be level, dry and have at least the rigidity implied by good framing practice and/or the design criteria specified for supporting components in AS1684. (A moisture barrier is recommended where support is directly fixed to masonry or brickwork). Brackets available for use with meyJOIST are listed in Table 4.

JOIST INSTALLATION TOLERANCES

Figure 3: Install Joists Plumb

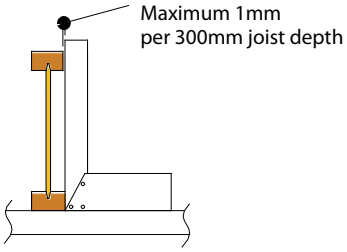
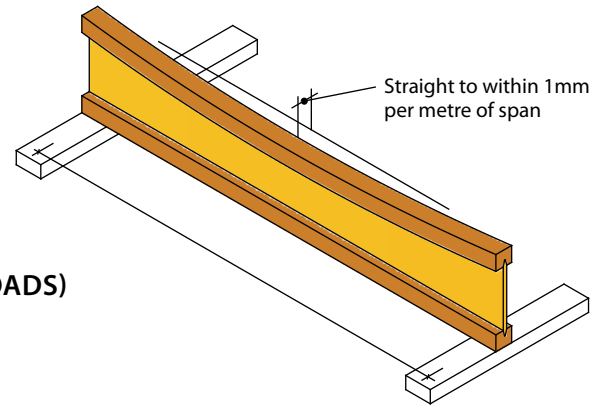
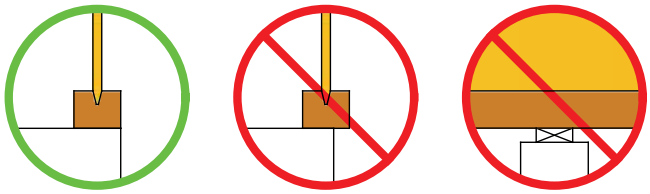


Figure 4: Install Joists Straight



BLOCKING & BEARING AT SUPPORTS (FOR GRAVITY LOADS)

- Bearing should be provided to the full width of the meyJOIST bottom flange.
- It is good practice to bear over the maximum available width of supports.
- Use of web stiffeners can reduce the required bearing however this needs to be specified in the design documentation.
- Continuous blocking provides support for load bearing walls directly aligned above supports. At end supports, 'rimboard' or boundary joists can be used as an alternative to continuous blocking to support a load bearing wall.
- designIT® (or other) software may give reduced bearing requirements for specific cases.



SUPPORT ON FULL meyJOIST FLANGE WIDTH.
USE FULL SUPPORT WIDTH WHERE POSSIBLE.

Figure 5: Blocking and Bearing at Supports

See *Table 3* for bearing requirement based on loading/spacing as well as double storey and concentrated load supports.

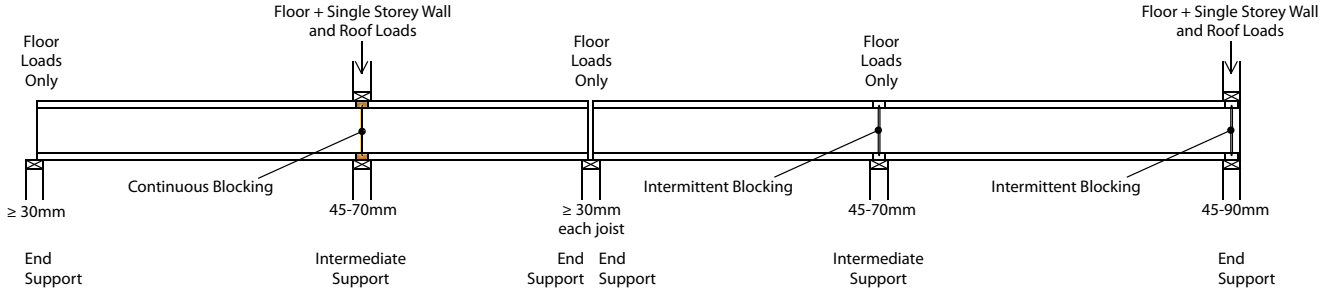


Table 3: Blocking and Bearing at Supports

Load at Supports	Required Bearing (mm)			
	End Supports		Intermediate Supports (continuous spans)	
	≤ 450mm Joist Spacing	600mm Joist Spacing	≤ 450mm Joist Spacing	600mm Joist Spacing
Floor Loads Only	≥ 30mm	≥ 30mm	≥ 45mm	≥ 70mm
	Install intermittent blocking or equivalent - *See Figure 6*			
Floor loads plus compression load from a single storey load bearing wall supporting roof only	**Sheet Roof**		**Sheet or Tile Roof**	
	≥ 45mm*	≥ 70mm*	≥ 45mm	≥ 70mm
	Tile Roof			
	≥ 70mm*	≥ 90mm*		
	Install intermittent blocking or equivalent* - *See Figure 6*		Install continuous meyJOIST blocking	
Floor loads plus compression load from a two storey load bearing wall supporting roof and upper floor	≥ 70mm	≥ 70mm	≥ 70mm	≥ 70mm
	Install continuous meyJOIST blocking			
Concentrated loads from jamb studs or posts	In addition to the above, install compression blocks as per Detail F18			

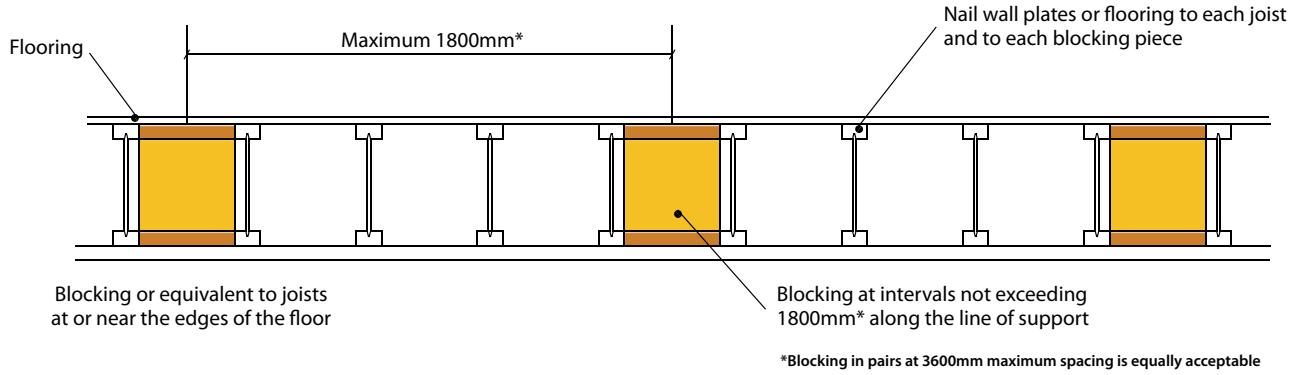
* Or provide bearing as for joists supporting floor loads only and install continuous blocking, 'rimboard' or boundary joist to support roof and wall loads

INTERMITTENT BLOCKING (or equivalent)

The fundamental requirement is to install joists plumb and hold them upright at supports.
The simplest and most effective way of achieving this is to install square cut meyJOIST blocking but alternative methods such as the use of 'rimboard', boundary joists, metal strap/brace or plywood closures are acceptable. Installation of these is shown in Details F1, F2, F3 and F17.

Note: Intermediate blocking (mid span) is not required and can be a source of annoying nail creaks in the finished structure.

Figure 6: Intermittent Blocking (or Equivalent) at Supports



TEMPORARY TOP FLANGE RESTRAINT

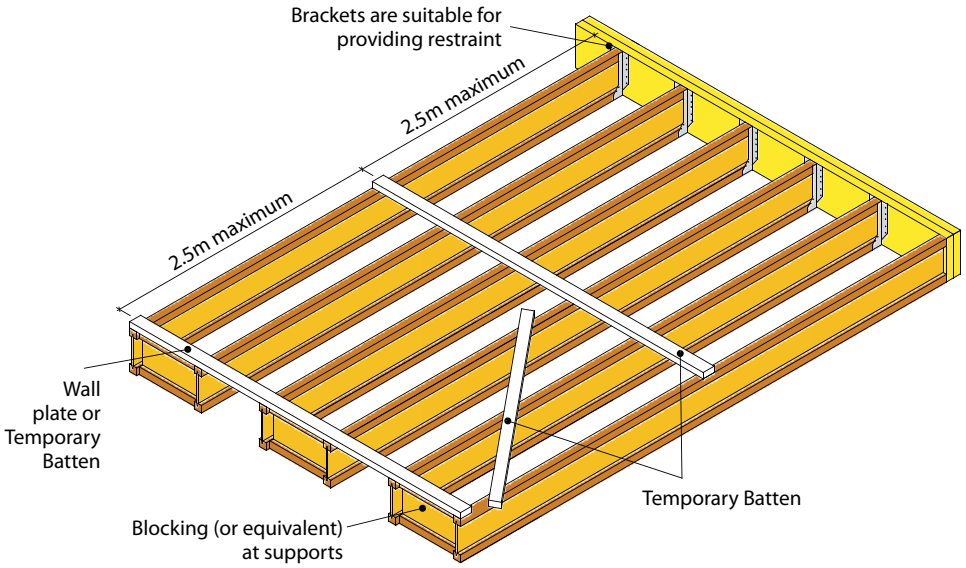
For best performance, the top flange of meyJOIST should be held straight between supports – (no more than 1mm per metre of span deviation from straight).

Before loading joists and attachment of flooring:

- Install blocking (or equivalent) at supports as described above, and between supports, install temporary battens braced back to a point of rigidity (no more than 2.5 metres apart) to hold the top flange of each joist straight between supports.
- For installation of flooring, progressively work across the floor removing battens as required.

If there is no flooring or wall plate to restrain the top flange permanently at support points then either continuous blocking, rimboard or boundary joists are required, or a permanent batten fixed to the top of the joists with 2/3.06Ø framing nails at every joist.

Figure 7: Temporary top flange restraint



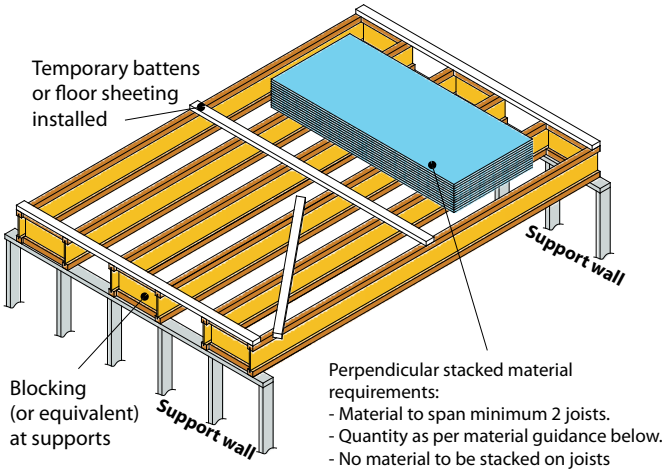
APPLICATION OF CONSTRUCTION LOADS

WARNING: Lateral Restraint blocking and Floor sheeting (or temporary battens) MUST be installed before applying any construction loads.

meyJOIST floor systems will be required to support short term loads during construction for items such as materials (sheet flooring, plasterboard, tiles, etc.) or tools. Once the joists have been erected in accordance with the meyJOIST installation reference sheet or this manual, lateral restraint blocking has been installed, and floor sheeting or temporary battens are in place, short term loads can be applied. The best location to place heavy items of material is directly over internal loadbearing walls underneath. Where this is not possible, construction loads can be located as shown in Figure 8 below.

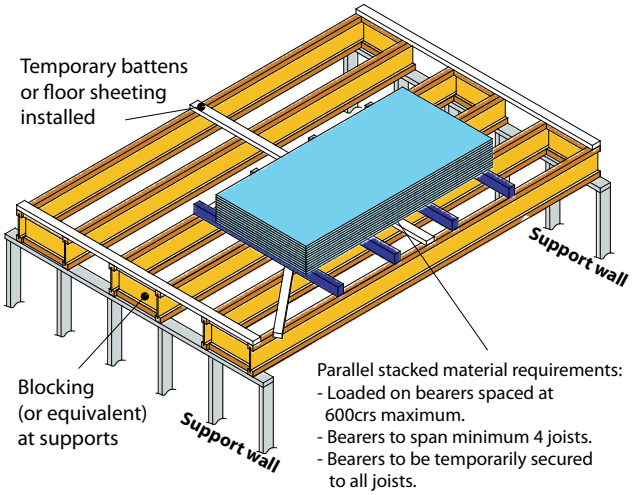
Figure 8: Application of Construction Loads

MATERIAL PERPENDICULAR TO meyJOIST AWAY FROM SUPPORTS



Perpendicular stacked material requirements:
- Material to span minimum 2 joists.
- Quantity as per material guidance below.
- No material to be stacked on joists supported by hangers.

MATERIAL PARALLEL TO meyJOIST AWAY FROM SUPPORTS



Parallel stacked material requirements:
- Loaded on bearers spaced at 600crs maximum.
- Bearers to span minimum 4 joists.
- Bearers to be temporarily secured to all joists.
- Quantity as per material guidance below.
- No material to be stacked on joists supported by hangers.

MATERIAL STACKED OVER LOADBEARING WALLS UNDER:

- Supports to have blocking installed over.
- Loadbearing walls to be perpendicular to joists.
- Material to be perpendicular to joists.
- Material to be located centrally over support wall.
- Quantity as per material guidance x 2.5.

MATERIAL GUIDANCE:

Maximum stacked materials:
- 15 sheets of 19mm particleboard flooring.
- 12 sheets of 22mm particleboard flooring.
- 27 sheets of 10mm plasterboard lining.
- Other materials up to a mass of 200kg/m^2


FactSheet November 2019

Meyer TIMBER

meyJOIST

HOW TO DEAL WITH CONSTRUCTION LOADS

Construction loads can be defined as those loads imposed on a partially completed structure during and as a result of the construction process. These loads may include, but are not limited to, materials, personnel, and equipment placed onto a structure which has not finished being installed.

In the context of a floor structure, it is common to have packs of floor sheets, timber or even bricks being loaded on the floor during construction. If these loads exceed the recommended allowances specified by the respective floor system suppliers or are located in undesirable areas, there is a real danger of floor joists suffering permanent damage or even collapse. There have been a few instances of collapse in the recent past which has prompted Work Safe Victoria to release a specific Safety Alert on preventing floor collapse. For more information, click on this link: https://www.worksafe.vic.gov.au/safety-alerts/preventing-floor-collapse

Let's see how meyJOISTs can be managed on site to ensure the floor structure remains safe and stable during the entire construction process. Strict adherence to the following guidelines will help to provide a safe working environment during floor system construction:

- Before loading an incomplete floor with building materials, floor joists must be braced and fixed adequately to the supports. It must be noted that under no circumstance workers should walk on joists until they are fully braced.
- The maximum weight of materials that can be loaded on the floor system should be determined. As a guidance, no more than a pack of 15 sheets of 19mm particleboard flooring or 18 sheets of 18mm OSB flooring or 27 sheets of 10mm plasterboard should be loaded on meyJOIST floors away from support points. Seek advice from a Meyer Timber* engineer for guidance on loading other building materials on fully braced floor systems.
- It is also important to ensure that building materials are positioned in such a way that they are spread over at least four joists and no more than 1.5m from a support. If these materials are orientated parallel to joists, a series of bearers should be provided to ensure loads are distributed across four joists. Cantilever areas must be avoided at all times.
- Temporary bracing to be installed as per guidelines provided in meyJOIST product manual. This bracing may be progressively removed as the installation of the flooring proceeds, leaving bracing in place on un-sheathed areas.
- Flooring sheets must be fully fixed to the joists in accordance with manufacturers recommendations before additional loads are placed on the floor system.
- Damaged joists must be discarded and no attempt made to repair them on site without appropriate advice.

In addition to the above, care must be taken to follow the instructions provided in the meyJOIST Installation Reference Sheet or the product manual to ensure a safe and stable floor system is achieved. With people or heavy additional loads on unstable joists it is a recipe for disaster as there is usually significant fall from heights safety concerns.

Following the above methods will minimise any incidents and provide the best outcome possible – everyone on the site is safe and goes home at the end of the day to their family.

Meyer TIMBER Grafton | Meyer TIMBER The Gum Kyogle | Meyer TIMBER Casino/Ewood | Meyer TIMBER Tenterfield

www.meyertimber.com.au

CONSTRUCTION LOAD FACTSHEET

PREFAB IT

PREFAB IT CASSETTE FLOOR BROCHURE

meyJOIST SUPPORT USING HANGERS

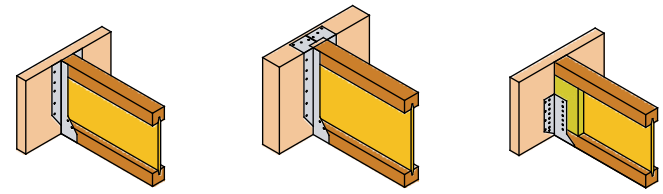
Table 4: Joist Hangers for meyJOIST

meyJOIST Section Code	Face Mount Hangers		Top Mount Hanger Code
	Full Depth Hanger Code	Partial Depth Hanger Code	
MJ200 45	MHIBF200050	MHF140050	MHIBT200050
MJ240 45	MHIBF240050	MHF180050	MHIBT240050
MJ240 63	MHIBF240065	MHF170065	MHIBT240065
MJ240 90	MHIBF240090	FB90200*	MHIBT240090
MJ255 63	MHIBF240065	MHF170065	N/A
MJ300 45	MHIBF300050	MHF220050	MHIBT300050
MJ300 63	MHIBF300065	MHF170065	MHIBT300065
MJ300 90	MHIBF300090	FB90200*	MHIBT300090
MJ360 63	MHIBF360065	MH235065	MHIBT360065
MJ360 90	MHIBF360090	FB90200*	MHIBT360090

Notes:

1. Brackets to be installed strictly in accordance with bracket manufacturers' recommendations.
2. Partial depth face mount hangers to be installed with web packing - install as for web stiffeners refer Detail F6.
3. Top mount hanger span limited to 6.6m (40kg/m^2) or 5.4m (100kg/m^2) at maximum 600cc spacing supporting floor loads only.
4. Brackets marked with * are available from Pryda.

Figure 9: Joist Hangers



Face mount (MHIBF) Joist Hanger

Top mount (MHIBT) Joist Hanger

Partial Height Joist Hanger

Figure 10: Angle Bracket for Oblique Joists

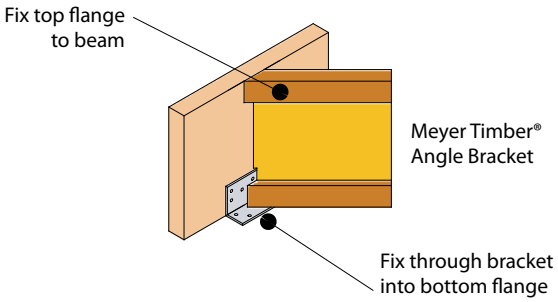


Table 5: Face Mount I-Joist Hanger Capacities

Bracket Code	NAILS	JD4 DESIGN CAPACITY $N_{d,j}$ (kN)
	Fixing to Bearer	Floor live load case
MHIBF200050	8	5.7
MHIBF240050	10	7.1
MHIBF240065		
MHIBF240090		
MHIBF300050	12	8.5
MHIBF300065		
MHIBF300090		
MHIBF360065	16	11.3
MHIBF360090		

Hanger Capacity table notes:

1. Table 4 notes above apply for Table 5, Table 6, and Table 7.
2. Nails for MHF, MHIBF, and MHIBT series hangers to be 3.75Ø x 35mm flat head nails. Gun nails as per technical note MT-Alternative Hanger Fixings are also suitable.
3. 12g x 35mm long Type 17 Hex head screws are suitable to be used for MHIBF series brackets. Use 50% of the required nails (4 minimum) to develop equivalent hanger capacities. See Table 7 for MHF series brackets.
4. Partial depth hangers require a minimum of 2 fixings (1 either side) into the web packer.
5. Nailing specification applies for joists used in houses supporting floor only with floor Dead Load not exceeding 100kg/m^2.
6. Design Capacity Values are for 1.2G+1.5Q load case (k_1=0.69).
7. Refer Meyer Timber® for other load cases and joint groups.

Table 6: Top Mount I-Joist Hanger Capacities

Bracket Code	NAILS	JD4 DESIGN CAPACITY $N_{d,j}$ (kN)
	Fixing to Bearer	Floor live load case
All MHIBT Hangers	6	6.1

Table7: Partial Depth Joist Hanger Capacities

Bracket Code	NAILS	SCREWS	JD4 DESIGN CAPACITY $N_{d,j}$ (kN)	
	Fixing to Bearer		Floor live load case	
			NAILS	SCREWS
MHF090050	8	4	5.7	6.1
MHF120050	14	6	9.9	9.1
MHF140050	16	8	11.3	12.1
MHF180050	22	10	15.0	15.0
MHF220050	26	12	15.0	15.0
MHF170065	22	10	15.0	15.0
MHF235070	28	12	15.0	15.0

meyJOIST SET-DOWNS FOR WET AREAS

meyJOIST section sizes can be used to create set-down areas and allow for fall in the finished surface to prevent ponding within the building envelope. This is most common in regions such as bathrooms.

The MJ255 63 has been specifically designed to compliment the 300mm deep meyJOIST range for this purpose. The set-down area rarely occurs over the full length between supports so those sections utilizing the set-down joist which are outside the wet area need to be raised. The MJ255 63 allows for a standard 45mm packer to be used to achieve this.

meyFC is available as a durable lightweight fibre cement sheet flooring, especially in wet areas. Available in both 19mm for 450mm joist centres and 22mm for 600mm joist centres it has also been tested with major brands of waterproofing solutions. Specifications and more information can be found at the meyFC product page.

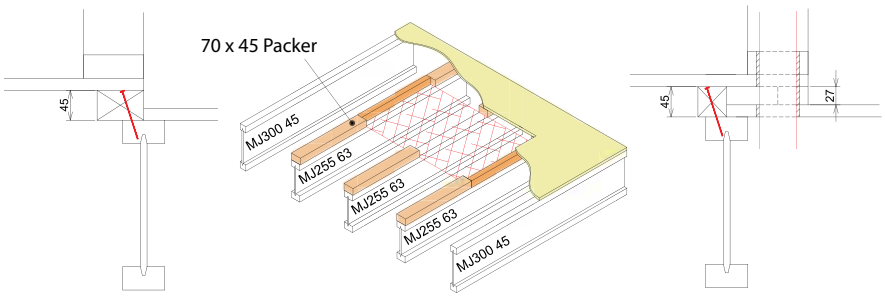
Meyer Timber® has the production capability to detail and manufacture these set-down joists. By chemically bonding the packer as required to the set-down joist in the factory there will be little chance of future squeaks or separation. Alternatively, the packing can be supplied loose and installed on site. Care must be taken to ensure that sufficient adhesive is used between the packer and set-down joist to prevent any chance of squeaks. It is also recommended that longer flooring fasteners are used for site installed packers to ensure penetration through the packer into the set-down joist. Alternatively the packer should be screwed to the set-down joist.

Table 8: Set-down Joists

meyJOIST Floor Depth	meyJOIST Set-down Depth	Packer Thickness (mm)
200mm	N/A	N/A
240mm	200mm	40 (ripped)
300mm	255mm	45 (standard)
360mm	300mm	60 (ripped)
400mm	360mm	40 (ripped)

meyFC PRODUCT PAGE

Figure 11: Typical 45mm set down details



Standard wet area transition

Wall hung vanity transition

NOTCHING AND CUT BACKS WITH meyJOIST

Flanges may not be notched, planed or bored except as noted below:

1. At end supports only, one or both flanges may be notched to a maximum depth of 12mm (per flange) as shown in Detail F7.
2. At end supports flanges may be chamfer cut but not beyond the line of the support.
3. Do not bore holes through flanges. Holes up to 6mm for installation of nails or screws at supports are allowed.

Figure 12: Flange notching

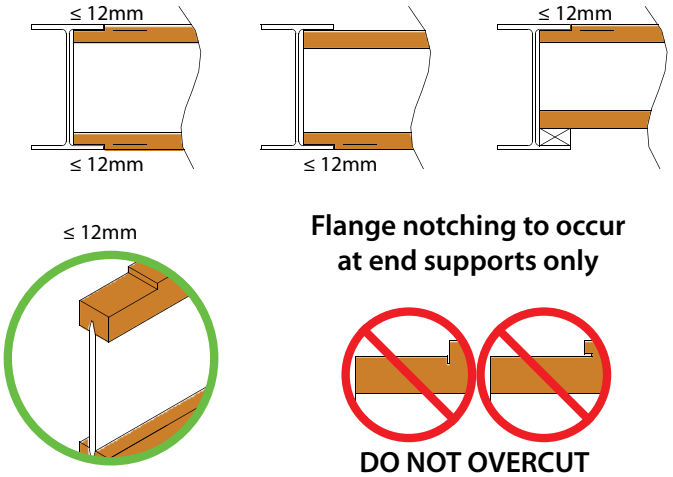
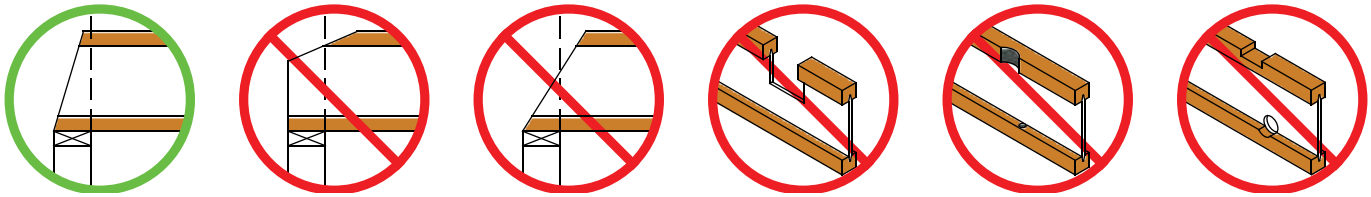


Figure 13: Notching/Cut Backs/Holes with meyJOIST



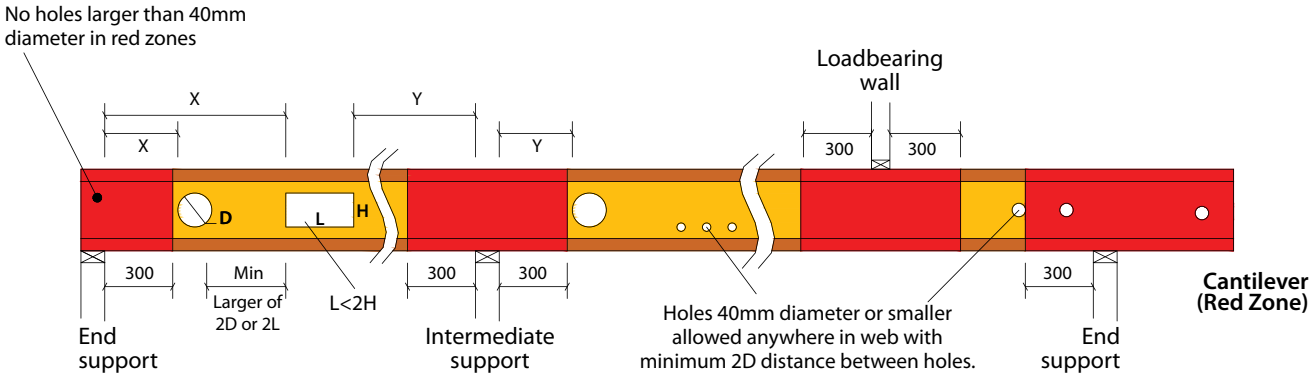
WEB HOLES FOR meyJOIST

Holes may be cut through the web of meyJOIST provided they are located within the central part of the span as specified using Figure 14, in conjunction with Tables 9, 10 and 11. The Tables specify allowable hole locations for some sizes of circular and rectangular holes. These limitations should be assumed to apply in the absence of alternative specification in the design documentation.

For particular load and support conditions or other hole sizes and shapes, alternative allowable hole positions may be specified using the designIT® or other software.

Figure 14: Circular and Rectangular Holes

Holes larger than 40mm diameter are to be centred where possible with the hole edge a minimum of 3mm away from the flange.



NO MORE THAN 3 HOLES ABOVE 75mm IN ANY ONE SPAN

Table 9: Circular Holes at 450mm Joist Spacing

meyJOIST Section Code	Maximum Hole Diameter (mm)	Span (m)	Min. Distance 'X' from End Supports (mm)				Span (m)	Min. Distance 'Y' from Intermediate Supports (mm)			
			Hole Diameter (mm)					Hole Diameter (mm)			
			80	110	125	150		80	110	125	150
MJ200 45	122	3.0	300	500	N/S		3.5	300	1000	N/S	
		3.6		700			4.1		1300		
MJ240 45	162	3.6	300			700	4.0		300	300	1200
		4.0				800	4.5			600	1450
		4.3				900	4.9		400	800	1700
MJ240 63		3.6				700	4.5		300	600	1500
		4.2				900	5.0		500	900	1700
		4.7				1100	5.6		900	1300	2000
MJ240 90		3.5				700	5.0		500	900	1700
		4.0				900	5.5		800	1200	1950
		5.0				1200	6.1		1200	1600	2300
MJ255 63	177	4.0				300	4.5		300	300	850
		4.5				300	5.0			450	1200
		4.9				600	5.8		600	900	1700
MJ300 45	222	4.9	300				5.5	300			300
							5.9				500
MJ300 63		5.3					5.5				300
							6.3				650
MJ300 90		5.8					5.5				300
							6.0				600
							6.7				900
MJ360 63	282	5.9					6.8				300
MJ360 90		6.4					7.3				

Notes:
1. Table applies for floor joists supporting floor loads only not exceeding 100kg/m² dead load and 1.5kPa/1.8kN live load.
2. "Intermediate" refers to internal supports of continuous span joists. All other cases shall be treated as "End" supports.
3. Hole locations closer to supports may be possible for some load and support conditions; refer to designIT® (or other) software.
4. General hole information to be adhered to as detailed in Figure 14 of meyJOIST Product Manual.
5. Values not applicable for joists supporting large concentrated loads - refer designIT® (or other) software.

Table 10: Circular Holes at 600mm Joist Spacing

meyJOIST Section Code	Maximum Hole Diameter (mm)	Span (m)	Min. Distance 'X' from End Supports (mm)				Span (m)	Min. Distance 'Y' from Intermediate Supports (mm)			
			Hole Diameter (mm)					Hole Diameter (mm)			
			80	110	125	150		80	110	125	150
MJ200 45	122	3.0	300	600	N/S		3.0	300	900	N/S	
		3.3		700			3.9	600	1300		
MJ240 45	162	3.3		300	300	700	3.0	300	300	300	900
		3.6				800	4.0		450	800	1400
		3.9				1000	4.6		800	1100	1700
MJ240 63		3.6		300	300	900	3.5	300	300	500	1200
		4.0				1000	4.5		800	1100	1700
		4.3			500	1100	5.2	600	1300	1600	2100
MJ240 90		4.0		300	300	1000	4.0	300	500	800	1400
		4.4			600	1200	5.0	500	1100	1400	1950
		4.7		400	700	1300	5.7	900	1600	1900	2400
MJ255 63	177	3.5	300			300	3.5	300			700
		4.0				600	4.5	300	500	800	1300
		4.5				800	5.4	400	1100	1400	1900
MJ300 45	222	4.6	300				4.5	300			300
							5.0				700
MJ300 63		4.9					4.0	300	300		300
							5.0				650
							5.9		400	700	1250
MJ300 90		5.4					4.0	300	300		300
							5.0				700
							5.5		300	500	1000
							6.3		600	900	1450
MJ360 63	282	5.5					5.4	300			300
							6.5				400
MJ360 90		6.0					6.1				300
							6.9				500

Notes:
1. Table applies for floor joists supporting floor loads only not exceeding 100kg/m² dead load and 1.5kPa/1.8kN live load.
2. "Intermediate" refers to internal supports of continuous span joists. All other cases shall be treated as "End" supports.
3. Hole locations closer to supports may be possible for some load and support conditions; refer to designIT® (or other) software.
4. General hole information to be adhered to as detailed in Figure 14 of meyJOIST Product Manual.
5. Values not applicable for joists supporting large concentrated loads - refer designIT® (or other) software.

Table 11: Rectangular Holes (200mm high x 300mm long or smaller)

meyJOIST Section Code	Joist Spacing 450mm				Joist Spacing 600mm			
	Min. Distance 'X' from End Supports (mm)		Min. Distance 'Y' from Intermediate Supports (mm)		Min. Distance 'X' from End Supports (mm)		Min. Distance 'Y' from Intermediate Supports (mm)	
	Span (m)	Distance X (mm)	Span (m)	Distance Y (mm)	Span (m)	Distance X (mm)	Span (m)	Distance Y (mm)
MJ300 45	3.5	300	4.5	800	3.0	300	3.0	300
	4.0		5.0	1200	3.5		4.0	950
	4.5	400	5.5	1450	4.0	500	4.5	1250
	4.9	550	5.9	1700	4.6	1000	5.0	1600
MJ300 63	4.0	300	5.0	1200	4.0	500	4.0	950
	4.8	500	5.5	1450	4.5	750	5.0	1600
	5.3	700	6.3	2350	4.9	950	5.9	2200
MJ300 90	4.5	450	5.0	1200	4.0	500	4.0	950
	5.0	600	5.5	1450	4.5	750	5.0	1600
	5.5	850	6.0	1800	5.0	1000	5.5	1900
	5.8	1000	6.7	2100	5.4	1200	6.3	2350
MJ360 63	5.0	300	5.5	450	4.5	300	5.0	700
	5.5		6.0	750	5.0	400	5.5	950
	5.9		6.8	900	5.5	700	6.5	1700
MJ360 90	5.0		5.5	300	5.0	300	5.0	300
	6.0		6.5	450	5.5		6.0	950
	6.4		7.3	750	6.0		6.9	1350

Notes:
1. Table applies for floor joists supporting floor loads only not exceeding 100kg/m² dead load and 1.5kPa/1.8kN live load.
2. "Intermediate" refers to internal supports of continuous span joists. All other cases shall be treated as "End" supports.
3. Hole locations closer to supports may be possible for some load and support conditions; refer to designIT®(or other) software.
4. General hole information to be adhered to as detailed in Figure 14 of meyJOIST Product Manual.
5. Length of rectangular holes must not be more than twice the height.
6. Values not applicable for joists supporting large concentrated loads - refer designIT® (or other) software.
7. Drilling 20mm holes in corners prior to cutting out hole is recommended.
8. Maximum hole heights:
   MJ300 = 222mm
   MJ360 = 282mm

IHS - meyJOIST HOLE SUPPORT

Where holes are required to be located in areas not normally permitted using the standard tables, meyJOIST members can potentially be strengthened using IHS hole support brackets:

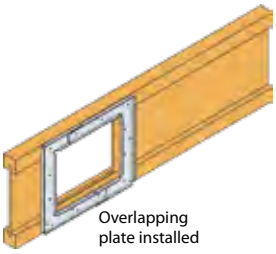
- For use with MJ240 and MJ300 series meyJOIST.
- Suitable where the edge of a hole is only 50mm from the face of the support (or as noted in Table 12).
- Supplied in a set of 2 to be used on both sides of a single joist or a single side of two joists.

Table 12 shows allowable distances from supports for IHS brackets used in domestic houses. Contact Meyer Timber® for any variations to loading, spans or distances not shown.

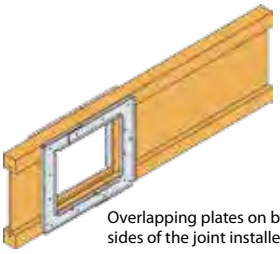
Table 12: Minimum Allowable Distances (mm) for IHS Reinforced Holes (Joist Spacing = 450mm)

meyJOIST	Maximum hole size (mm)	Support	LOADING TYPE	
			Standard	Heavy
MJ240	125 diameter or 125 x 125	End (X)	50 (50)	50 (150)
		Int (Y)	50 (750)	600 (1300)
	150x250	End (X)	50	50
		Int (Y)	50	600
MJ300	150 diameter or 150 x 150	End (X)	50 (50)	50 (50)
		Int (Y)	50 (50)	50 (850)
	200x250	End (X)	50	50
		Int (Y)	50	50

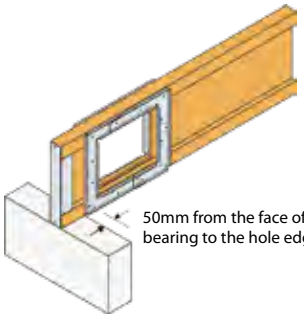
Notes:
1. The rectangular hole size relates to depth x width.
2. "Int" refers to internal supports of continuous span joists. All other cases shall be treated as "End" supports.
3. Loading Type: STANDARD: G = 40 kg/m², Q = 1.5 kPa/1.8kN, HEAVY: G = 100kg/m², Q = 1.5kPa/1.8kN.
4. Values in brakets refer to single IHS bracket, which is recommended for use with smaller holes (eg. max 150 dia for MJ300).
5. Allowable distance is measured from inside of support to edge of hole.
6. The above values are based on the maximum span that each joist can support with max hole size as noted.
7. Values are not applicable for joists supporting large concentrated loads. Contact your meyJOIST distributor for advice.



Overlapping plate installed



Overlapping plates on both sides of the joint installed



50mm from the face of the bearing to the hole edge

INSTALLATION

- Each IHS consists of 2 sets of interlocking plates which can be used on a single side or on both sides of a meyJOIST member.
- The outer edge of the hole must be at least 50mm (or as noted in the Table above) from the inside face of the support.
- Holes can be cut into the meyJOIST web before or after installation of the IHS.
- Holes must fit within the internal aperture of the IHS (maximum hole length 250mm).
- Open or close the IHS to the required width, ensuring that the two sections overlap by at least one row of nails (minimum overlap of 45mm).
- Place the IHS onto the meyJOIST so that the top and bottom sliding flanges are aligned vertically central onto the top and bottom flanges of the meyJOIST.
- IHS tabs should be facing outwards.
- Install 3.75Ø x 35mm long meyJOIST connector nails through all round holes into the top and bottom flanges of the meyJOIST.
- Repeat the above steps on the opposite face if a double IHS is required.

SIMPSON Strong-Tie®

www.strongtie.com.au

CANTILEVERS FOR BALCONIES

Balcony cantilevers, subject to external weather exposure can be provided using H3 preservative treated outriggers as per Details F11 and F12. For weather proofed applications meyJOIST may be cantilevered to provide balcony support as per Detail F13.

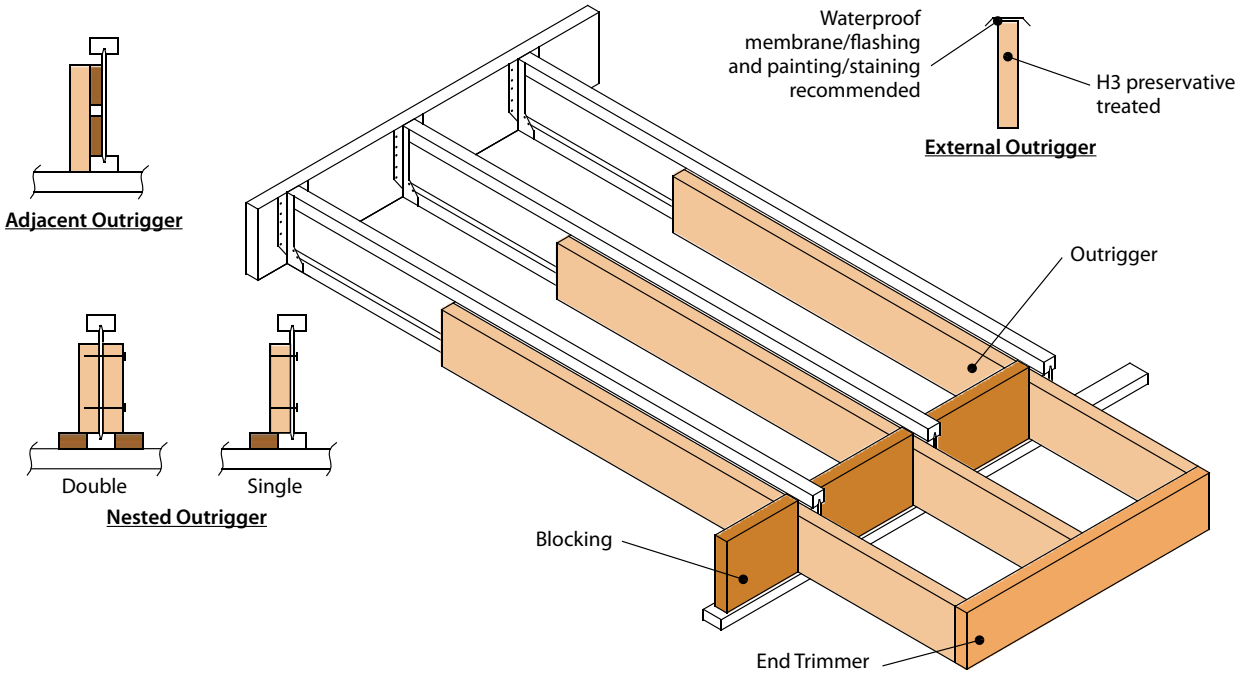
Outriggers can be seasoned stress-graded timber or meySPAN, either nested against the meyJOIST web and bearing on the top of the bottom flange or placed adjacent to the meyJOIST bearing directly on the support. Diagrams illustrating these configurations are shown below. It is strongly recommended that outriggers be H3 preservative treated regardless of whether the balcony is weather protected or not.

Some options for outriggers are included in the following table. These have been determined using maximum meyJOIST spans with a dead load of 100kg/m^2 and live load of 2kPa/1.8kN on the balcony cantilever. For other floor loads or potential outrigger sizes refer to designIT® or other software.

Table 13: Cantilevers for Balconies

meyJOIST section	Joist Spacing (mm)	Maximum Balcony Cantilever (m)	Outrigger Options	
			Nested Outrigger (Detail F12)	Adjacent Outrigger (Detail F11)
200mm deep meyJOIST **MJ200 45**	450	0.8	2/90x45 F7 H3	140x45 F7 H3
	600	0.7		
240mm deep meyJOIST **MJ240**	450	1.1	2/140x45 F7 H3	190x45 F7 H3
	600	1.0		
300mm deep meyJOIST **MJ300**	450	1.4	2/190x45 F7 H3	240x45 F7 H3
	600	1.3		
360mm deep meyJOIST **MJ360**	450	1.7	2/240x45 F7 H3	290x45 F7 H3
	600	1.6		

Figure 15: Cantilevers for Balconies



(Adjacent Outrigger configuration shown)

JOISTS SUPPORTING PARALLEL LOADBEARING WALLS

In some instances meyJOIST members will be located directly under loadbearing walls and are required to support single storey wall and roof loads. Table 14 and Table 15 below provide allowable spans for both sheet and tile roof support. For other circumstances such as using double meyJOIST sections or for support of two storey floor and roof loads refer to designIT® (or other) software. The tables below DO NOT apply where girder trusses or jamb stud loads from large openings are supported on floor joists. Contact the Meyer Timber® design office for advice.

Table 14: Joist Supporting Parallel Load Bearing Walls – Sheet Roof

meyJOIST Section Code	Sheet Roof and Ceiling (40 kg/m²)					
	Roof Load Width					
	1.8m	3.6m	6.0m	1.8m	3.6m	6.0m
	Maximum Single Span (m)			Maximum Continuous Span (m)		
MJ200 45	2.7	2.3	1.9	3.1	2.2	1.6
MJ240 45	3.2	2.7	2.4	4.1#	2.9#	2.1#
MJ240 63	3.5	3.0	2.6	4.1	2.9	2.1
MJ240 90	3.9	3.4	2.9	4.8	3.4	2.4
MJ255 63	3.7	3.2	2.8	4.6	3.2	2.3
MJ300 45	3.8	3.3	2.8^	4.8#	3.5#	2.5#
MJ300 63	4.2	3.6	3.1	5.2#	3.9#	2.8#
MJ300 90	4.6	4.1	3.6	5.7	4.6#	3.3#
MJ360 63	4.7	4.2	3.7^	5.8#	5.0#	3.6#
MJ360 90	5.1	4.6	4.1	6.2#	5.7#	4.2#

Notes:
1. Suitable for floor dead load to 100kg/m² (1.5kPa/1.8kN live load) and maximum joist spacing of 600mm.
2. Minimum 45mm end bearing or 70mm intermediate bearing unless noted ^(90mm bearing) or #(70mm bearing + web stiffeners).
3. Web stiffeners where required are to be installed in accordance with Detail F6.
4. Continuous span bearing for intermediate supports only. For end supports of continuous spans use single span bearing values.
5. Suitable for Wind Classifications up to and including N3.

Table 15: Joist Supporting Parallel Load Bearing Walls – Tile Roof

meyJOIST Section Code	Tile Roof and Ceiling (90 kg/m2)					
	Roof Load Width					
	1.8m	3.6m	6.0m	1.8m	3.6m	6.0m
	Maximum Single Span (m)			Maximum Continuous Span (m)		
MJ200 45	2.2	1.6	N/S	2.0	1.3	N/S
MJ240 45	2.7	2.2^	1.4^	2.7#	1.7#	N/S
MJ240 63	3.0	2.1	1.4	2.7	1.7	N/S
MJ240 90	3.3	2.4	1.6	3.1	1.9	1.3
MJ255 63	3.2	2.3	1.5	3.0	1.8	1.2
MJ300 45	3.1	2.5^	1.9*	3.3#	2.0#	1.3#
MJ300 63	3.5	2.9^	1.9^	3.7#	2.3#	1.5#
MJ300 90	4.0	3.3	2.2	4.2#	2.6#	1.8#
MJ360 63	4.1	3.3*	2.4*	4.6#	2.9#	1.9#
MJ360 90	4.5	3.7*	2.7*	5.3#	3.3#	2.2#

Notes:
1. Suitable for floor dead load to 100kg/m² (1.5kPa/1.8kN live load) and maximum joist spacing of 600mm.
2. N/S indicates maximum span is less than 1.2m.
3. Minimum 45mm end bearing or 70mm intermediate bearing unless noted ^(90mm bearing) or *(45mm bearing + web stiffeners) or #(70mm bearing + web stiffeners).
4. Web stiffeners where required are to be installed in accordance with Detail F6.
5. Continuous span bearing for intermediate supports only. For end supports of continuous spans use single span bearing values.
6. Suitable for Wind Classifications up to and including N3.

PRE-FABRICATED meyJOIST AVAILABLE THROUGH MEYER TIMBER®

Meyer Timber® has the detailing and fabrication ability to provide precision docked to length meyJOIST direct to site. With further builder co-ordination any holes through meyJOIST and LVL beams can be assessed and included. Based on builder location preference, the design of penetrations is done in-house to ensure large hole are in suitable positions. Holes can include vertically slotted holes to allow for drainage fall, round holes for exhaust vents and round/rectangular holes for air conditioning ductwork. Contact Meyer Timber® directly for more information.

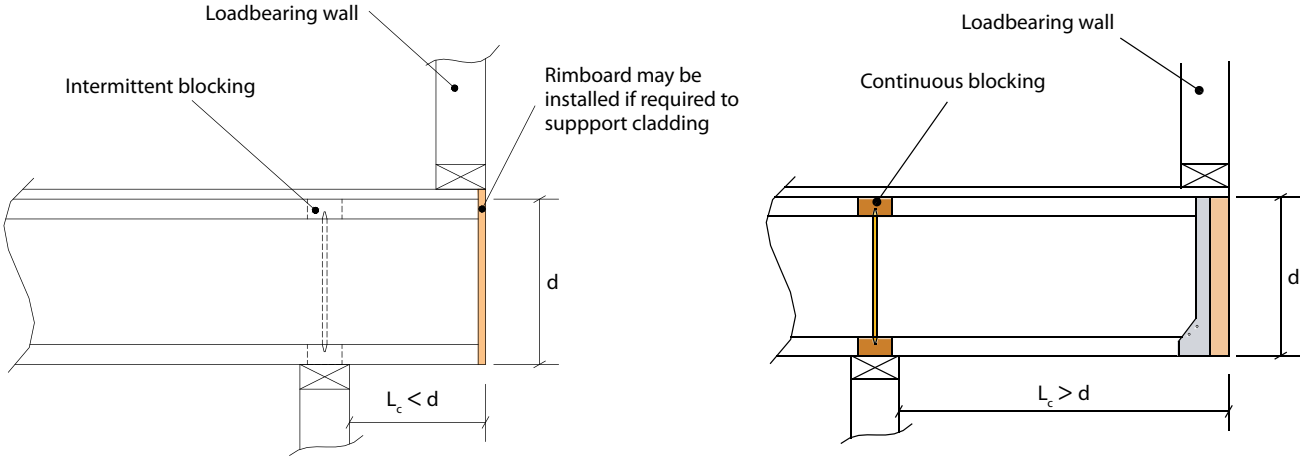
CANTILEVERS SUPPORTING LOAD BEARING WALLS

Some or all of meyJOIST cantilevered to support a load bearing wall may require reinforcement. This requirement needs to be considered in design and specified in the design documentation. Details for reinforcement are given in Details F21 and F22.

Regardless of whether reinforcement is required or not, cantilevers with span greater than the joist depth are to be installed with continuous blocking at the cantilever support and a trimming joist (or equivalent) providing load distribution at the ends of the cantilevered joists. The use of a trimming joist helps to both stiffen the cantilever and limit long term differential deflections. For installation see Detail F15 or Detail F15a.

Short cantilevers (L_c<d) may need reinforcement but intermittent blocking only is needed at the cantilever support and the trimming joist need not be included – see Detail F14.

Figure 16: Method for Framing Cantilevers Supporting Load Bearing Walls



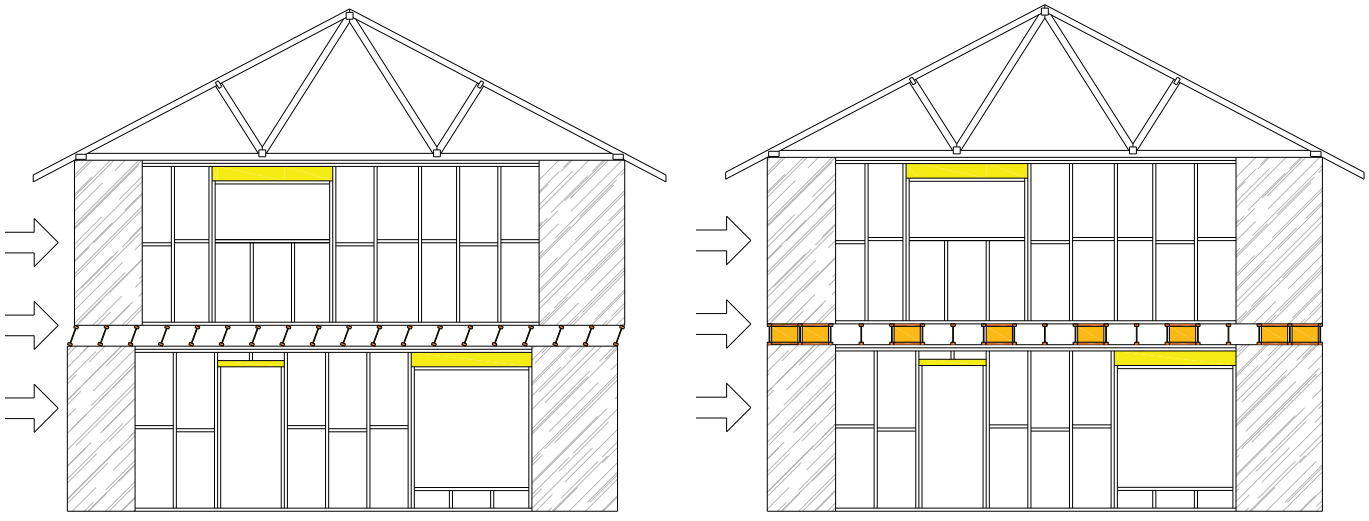
Short Cantilever (See Detail F14)

Long Cantilever (See Detail F15 or F15a)

LATERAL STABILITY

Lateral wind and earthquake forces determined for the upper storey must be transferred through the floor to the top plate (and the bracing system) of the lower storey. Where these forces are perpendicular to the direction of joists, intermittent blocking or the fixings to 'rimboard' or boundary joists may not be adequate to transfer the full extent of the forces. To achieve the transfer of lateral forces it is recommended that sufficient blocking be installed to resist racking forces from the bracing units. For bracing units up to 3.4kN/m adopt Detail F17 (Rimboard) or blocking as per Detail F1 or F3 for each metre length of bracing. Figure 18 shows an example of how to transfer these loads through the floor depth for high capacity bracing systems.

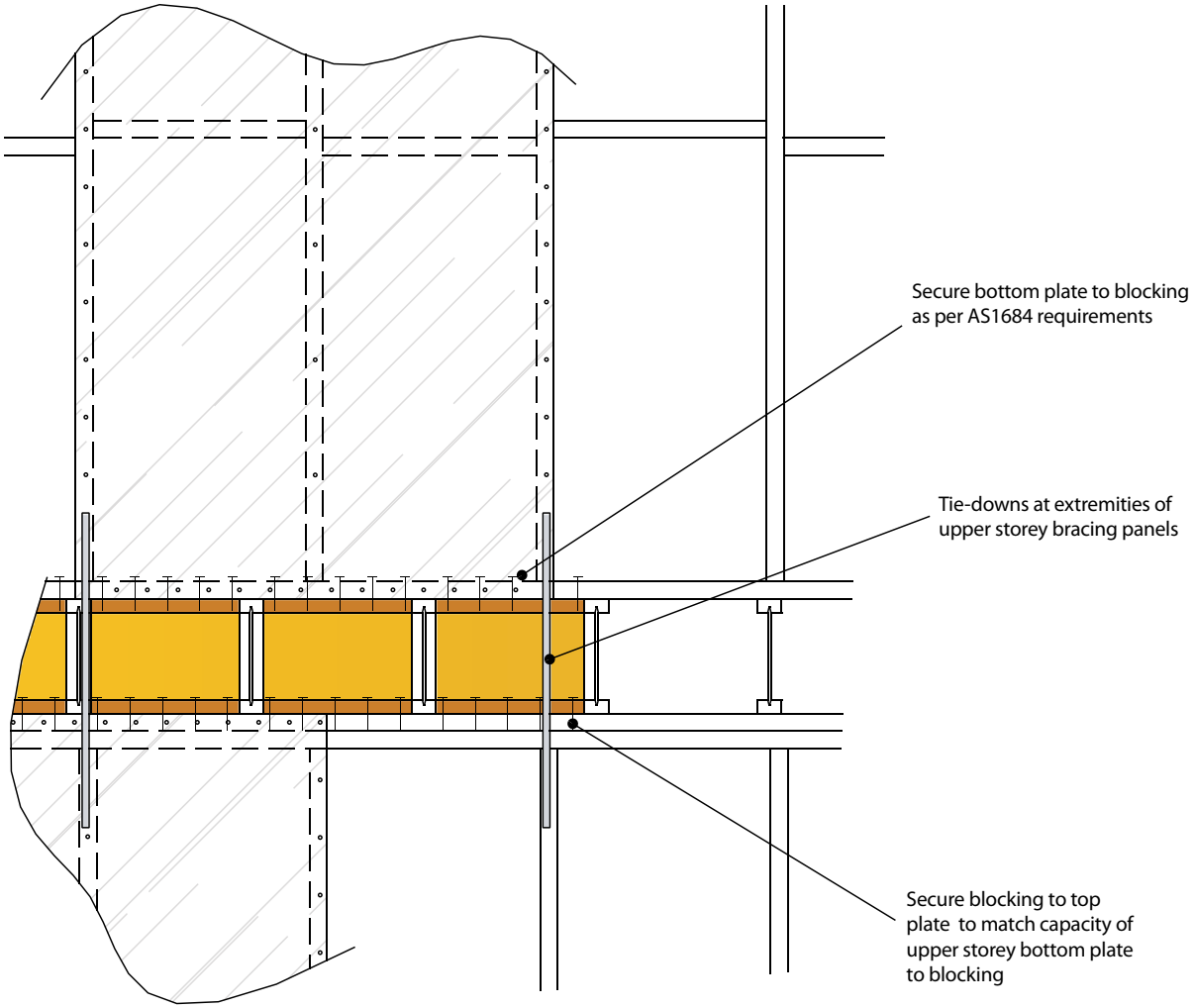
Figure 17: Transfer of Racking Loads - with and without a lateral bracing system



Without a lateral bracing system

With a lateral bracing system

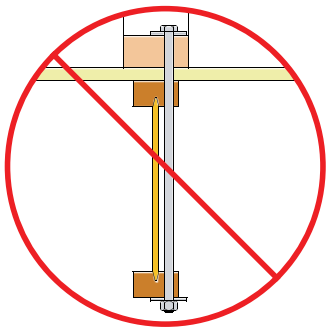
Figure 18: Example of Continuous Blocking and tie-down for high capacity bracing units (eg. > 3.4kN/m)



TIE-DOWN

In general, tie down details applicable for solid timber joists as specified in AS1684 can also be used with meyJOIST except that bolting through the flanges of meyJOIST is not permitted.

Detail F9 shows how internal bracing walls may be tied down to a meyJOIST floor system.

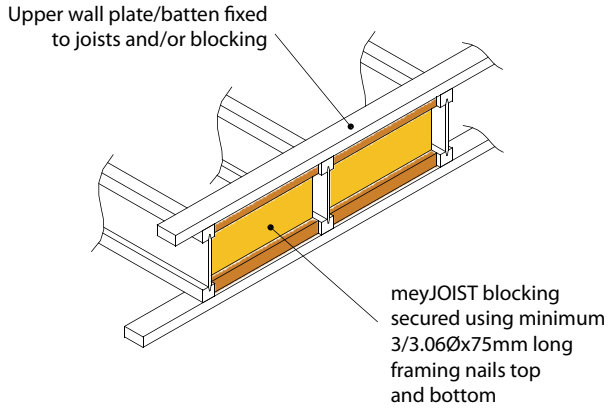


DO NOT bolt through meyJOIST flanges

PRODUCT FAULTS

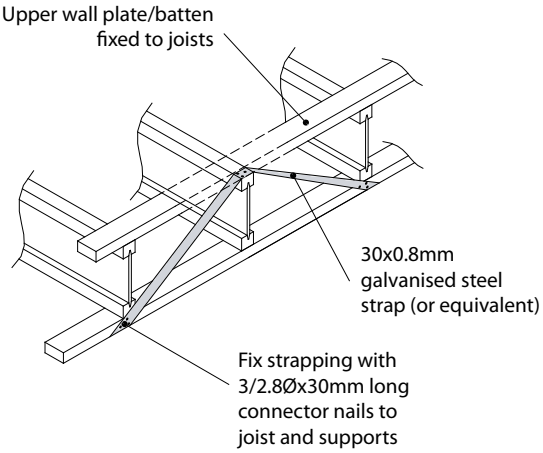
Faults in manufacture do sometimes occur and faulty product may from time to time reach the market despite even the most stringent controls of the manufacturing process and quality. Please let us know if you receive any product that you have concerns with – call your local meyJOIST distributor even if you have solved the problem and a claim *'is not worth the hassle'*. We want to know so that we can do better. Better still, email the support line with any queries at: **supportvic@meyertimber.com.au** (VIC/TAS) or **supportnsw@meyertimber.com.au** (NSW/ACT/QLD).

Detail F1



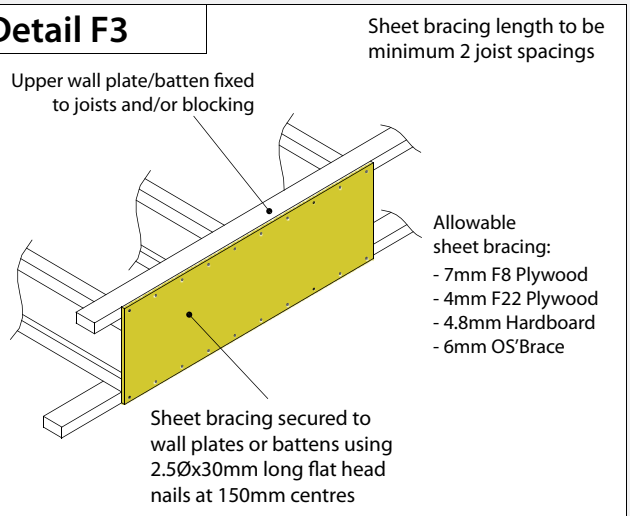
Blocking with meyJOIST

Detail F2



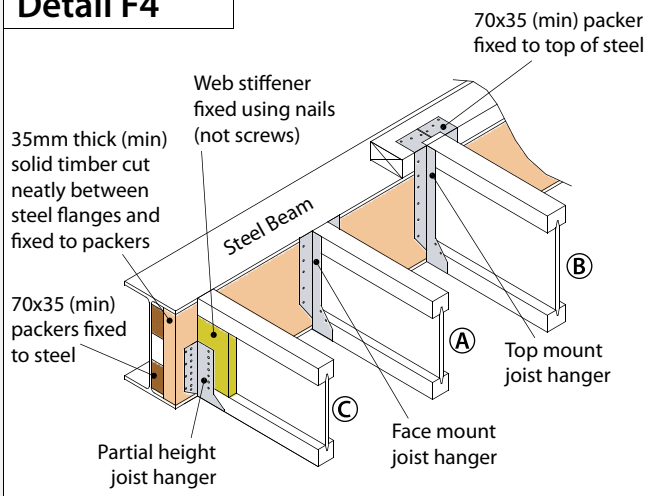
Blocking with steel strapping

Detail F3



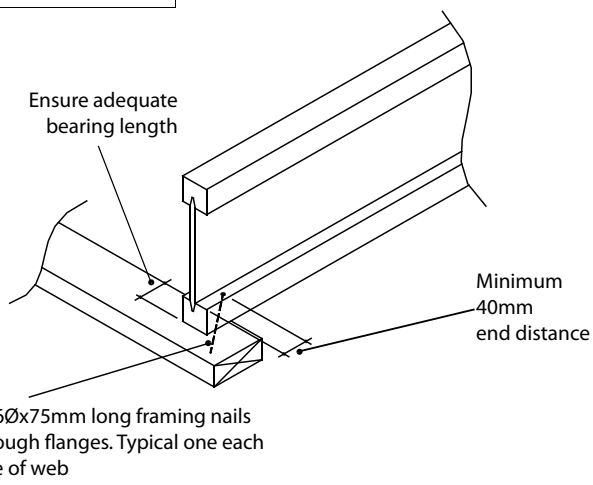
Blocking with sheet bracing

Detail F4



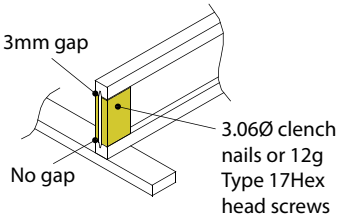
Hanger fixing options for meyJOIST to steel

Detail F5



Fixing at supports

Detail F6



meyJOIST flange width	45	63	90
Stiffener thickness	18	27	39
3.06Ø nail length	50	75	100
12g screw length	45	65	90(14g)

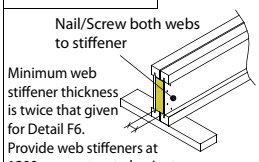
Note: All dimensions in mm.

≤300 deep use 3 nails or 2 screws each side
>300 deep use 4 nails or 3 screws each side

Web stiffener to be structural plywood or OSB, minimum 90mm wide.

Web stiffener installation

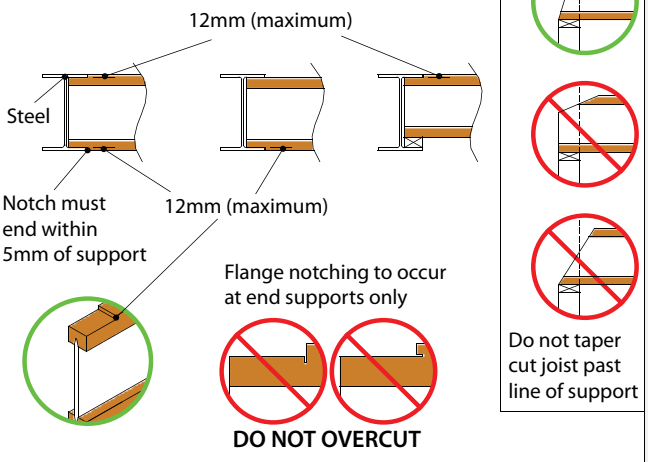
Detail F6a



Double joist web stiffeners

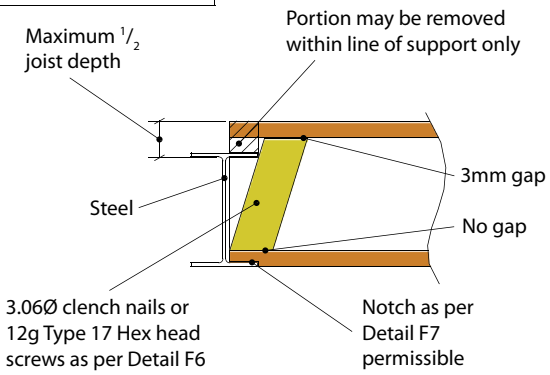
Other notes as per Detail F6

Detail F7



meyJOIST flange notching

Detail F8

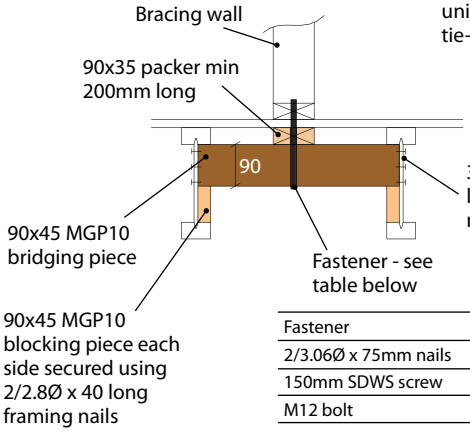


≤300 deep use 4 nails or 2 screws each side
>300 deep use 5 nails or 3 screws each side

meyJOIST web notching for steel

Detail F9

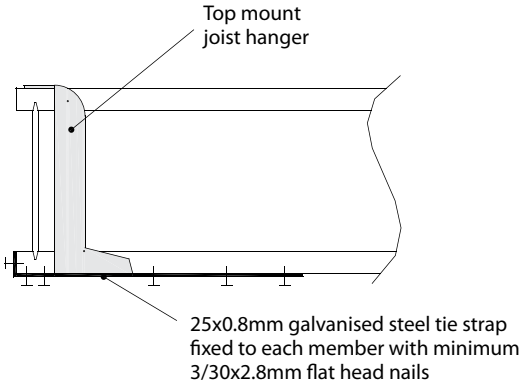
Bridging piece recommended under each end of bracing units where nominal tie-down specified.



Fastener	Design Uplift
2/3.06Ø x 75mm nails	Nominal
150mm SDWS screw	6.5kN
M12 bolt	13kN

Internal bracing wall tie-down

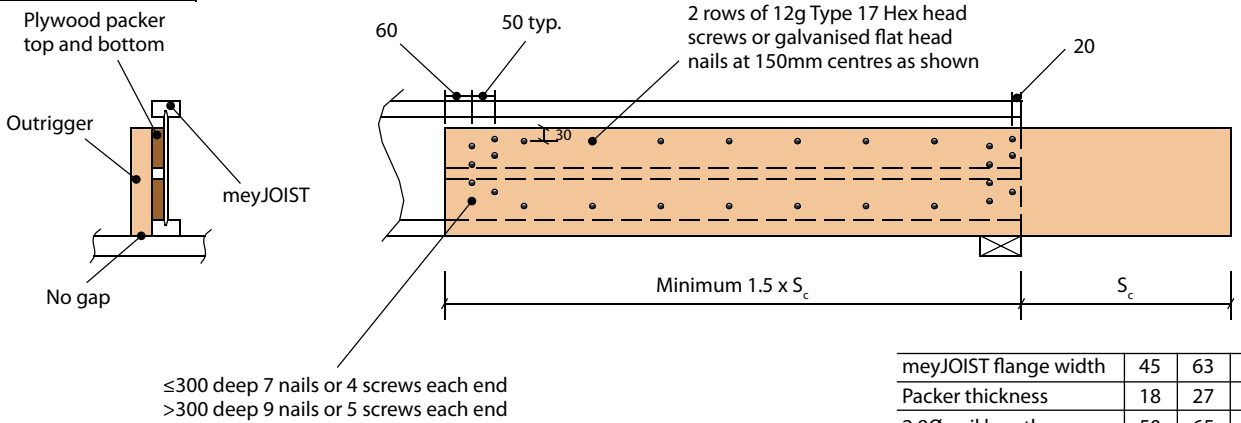
Detail F10



meyJOIST / meyJOIST connection

Detail F11

All fixings through web and packer into outrigger.



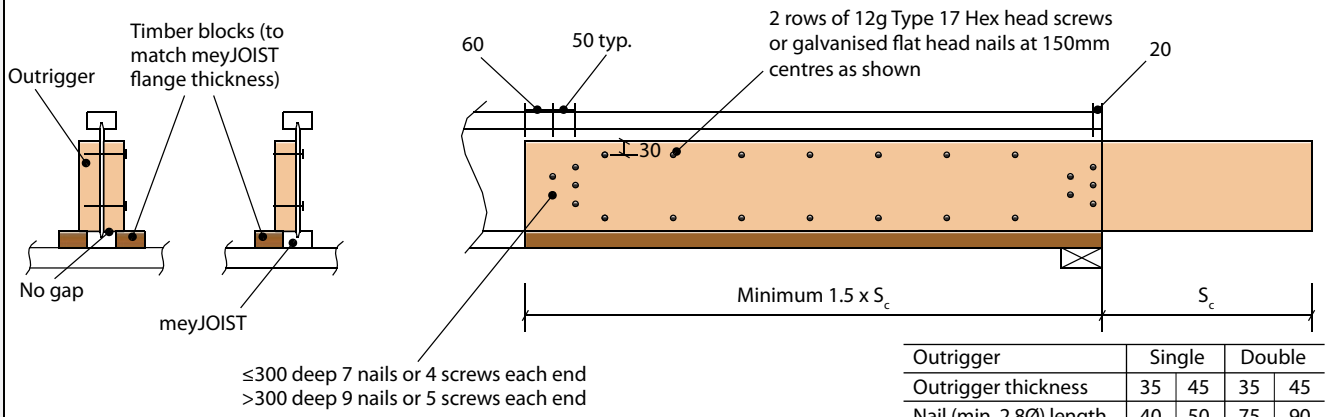
meyJOIST flange width	45	63	90
Packer thickness	18	27	39
2.8Ø nail length	50	65	N/A
12g screw length	50	65	75*

All dimensions in mm
* denotes 14g screw

Adjacent Outrigger

Detail F12

Double outrigger nailing to match as shown for single outrigger.

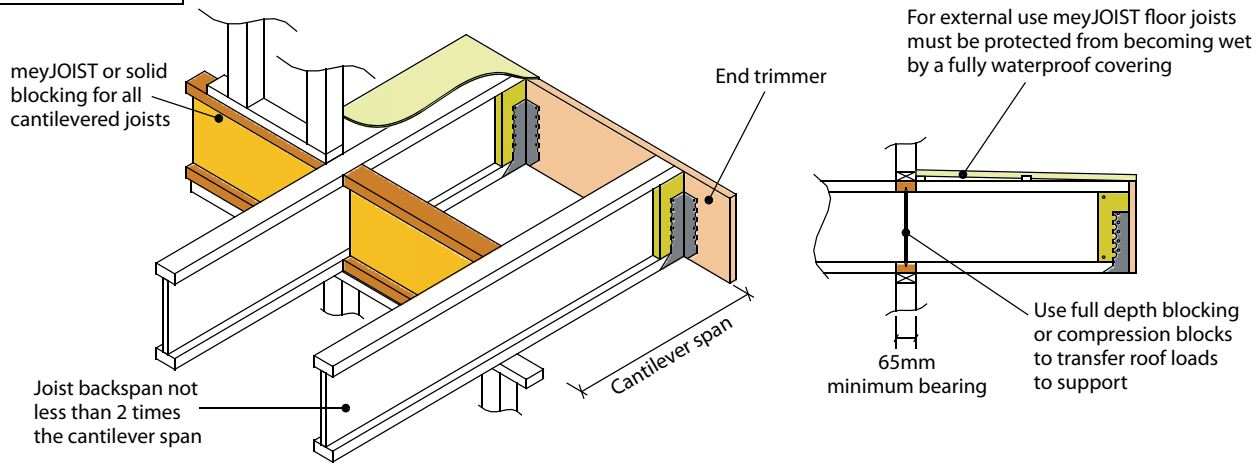


Outrigger	Single		Double	
Outrigger thickness	35	45	35	45
Nail (min. 2.8Ø) length	40	50	75	90
12g screw length	45	50	75*	90*

All dimensions in mm
* denotes 14g screw

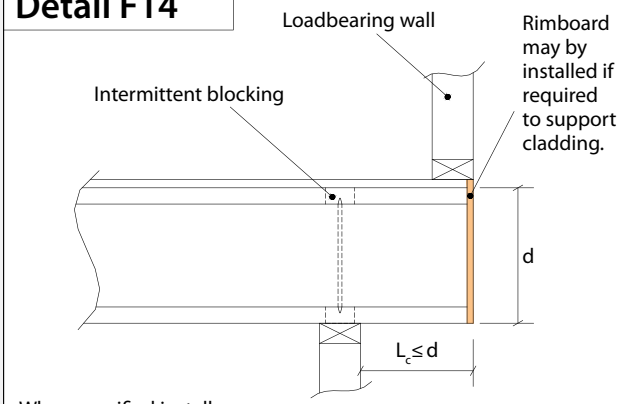
Nested outrigger installation

Detail F13



meyJOIST cantilever for internal or weather proofed balcony application

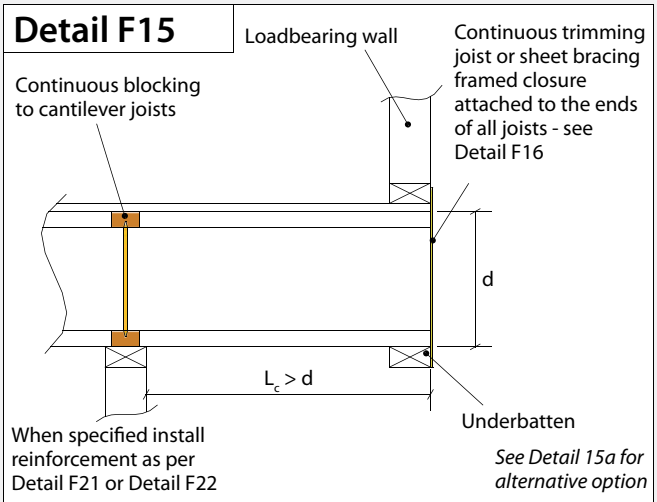
Detail F14



When specified install reinforcement as per Detail F21 or Detail F22

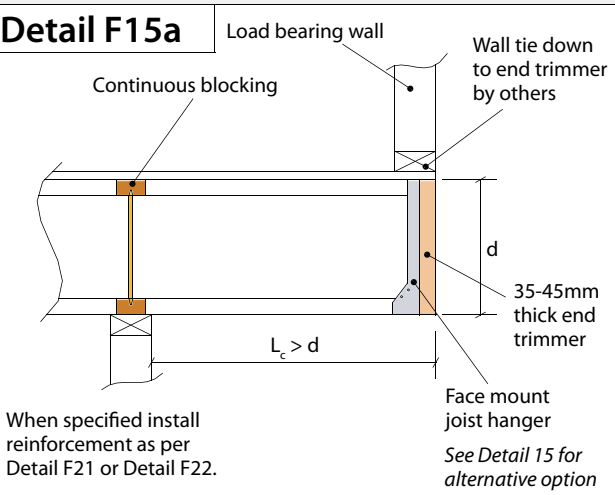
meyJOIST short cantilever support

Detail F15



meyJOIST long cantilever support with underbatten

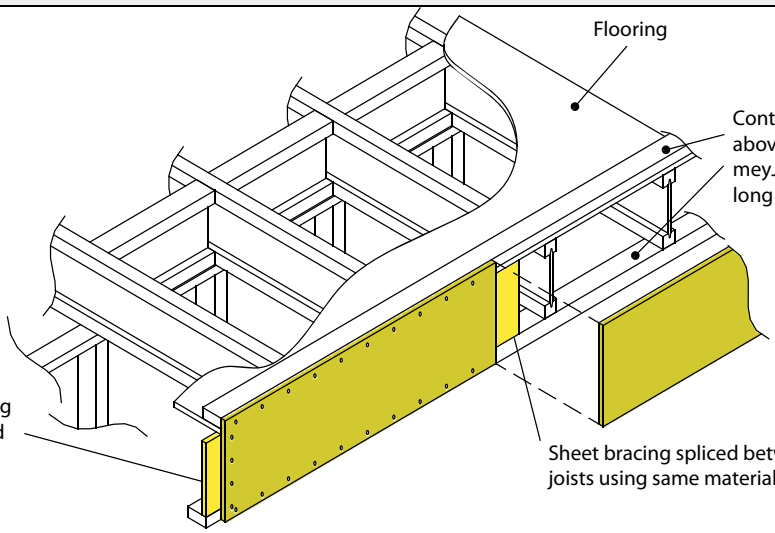
Detail F15a



meyJOIST long cantilever support with end trimmer

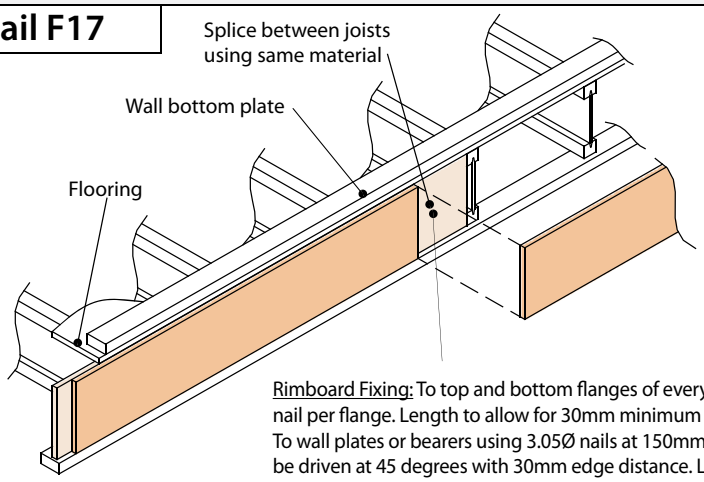
Detail F16

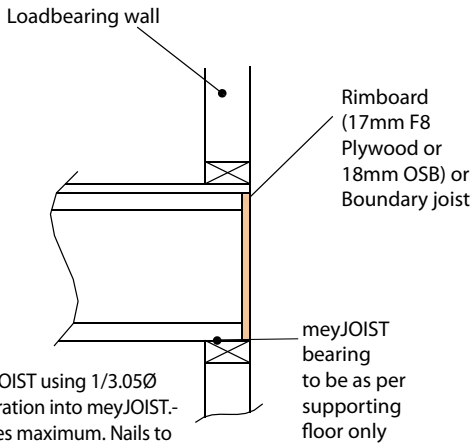
Allowable sheet bracing:
- 7mm F8 Plywood
- 4mm F22 Plywood
- 4.8mm Hardboard
- 6mm OS'Brace



Cantilever sheet bracing end trimmer installation

Detail F17





Rimboard Fixing: To top and bottom flanges of every meyJOIST using 1/3.05Ø nail per flange. Length to allow for 30mm minimum penetration into meyJOIST.- To wall plates or bearers using 3.05Ø nails at 150mm centres maximum. Nails to be driven at 45 degrees with 30mm edge distance. Length to allow for 30mm minimum penetration into plate or bearer.

Rimboard Suitability:

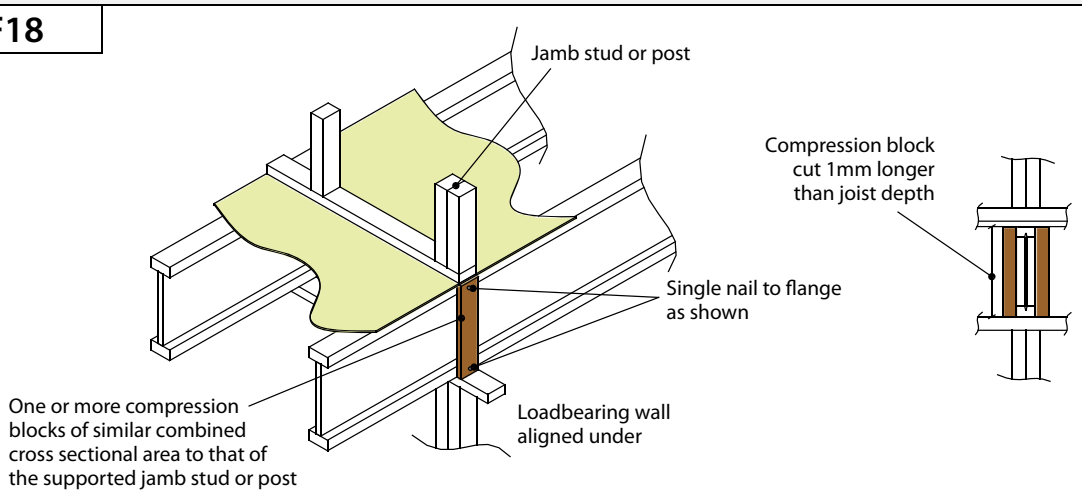
Single Rimboard: 8.5m RLW or 25m^2 concentrated load maximum to support single storey over.

Double Rimboard: 8.5m RLW + 3.5m FLW or 25m^2 concentrated load maximum to support two storeys over.

Note: Concentrated loads assume load distribution through bottom plate or similar.

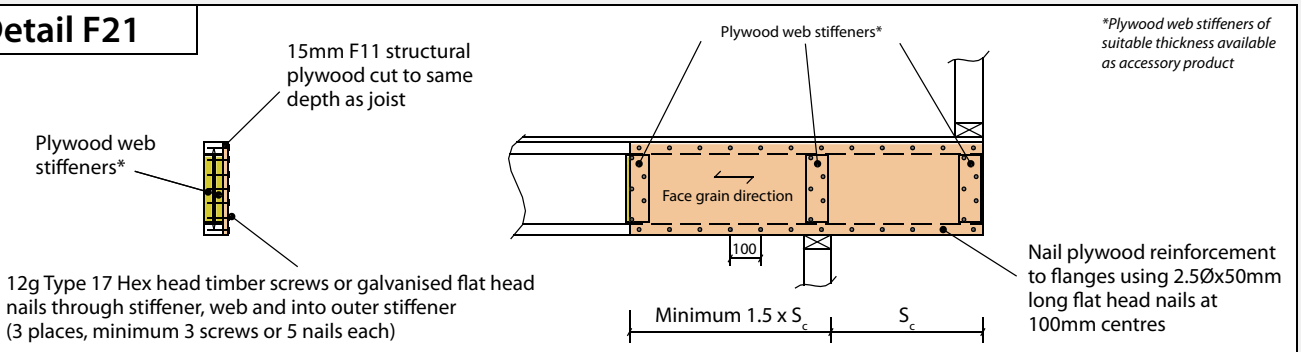
Rimboard or boundary joist with meyJOIST

Detail F18



Installation of compression blocks

Detail F21



**Plywood web stiffeners of suitable thickness available as accessory product*

meyJOIST flange width	45	63	90
Web stiffener thickness	18	27	39
Nail (min. 3.06Ø) length	75	90	90
12g screw length	50	65	75*

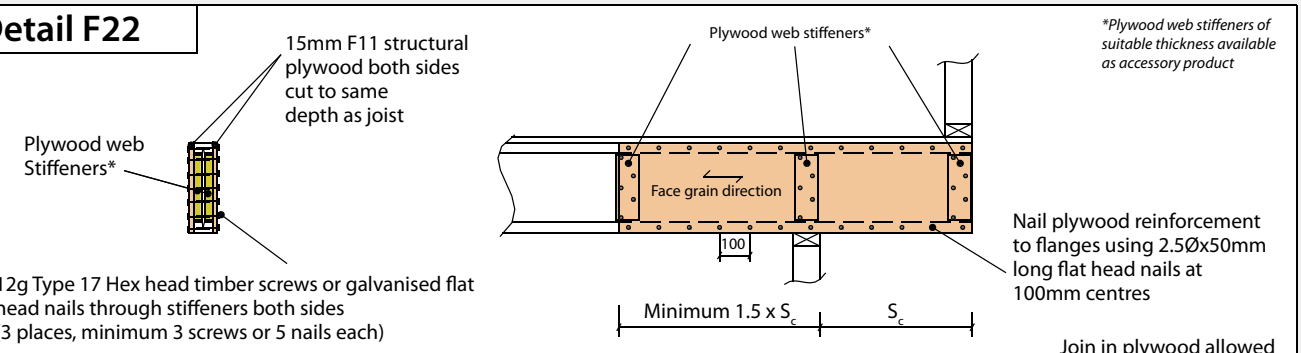
All dimensions in mm
** denotes 14g screw*

Type 1 - 15mm minimum DD F11 Structural Plywood nailed to one side of each joist
- Ply to full depth of joist
- Face grain horizontal
- Nail fixed as detailed

Join in plywood allowed - minimum 300mm away from support and additional web stiffener centred behind join.

Cantilevers supporting loadbearing walls - Type 1 reinforcement

Detail F22



**Plywood web stiffeners of suitable thickness available as accessory product*

meyJOIST flange width	45	63	90
Web stiffener thickness	18	27	39
Nail (min. 3.06Ø) length	75	90	90
12g screw length	50	65	75*

All dimensions in mm
** denotes 14g screw*

Type 2 - 15mm minimum DD F11 Structural Plywood nailed to both sides of each joist
- Ply to full depth of joist
- Face grain horizontal
- Nail fixed as detailed

Join in plywood allowed - minimum 300mm away from support and additional web stiffener centred behind join. Joins on opposing sides to be staggered by minimum 600mm.

Cantilevers supporting loadbearing walls - Type 2 reinforcement

meyJOIST FOR USE AS RAFTERS

meyJOIST may also become part of a very effective and economical roof system, particularly where low pitch roofs with ceiling directly attached to the underside are being designed. meyJOIST rafters allow the flexibility of having provision for the installation of ducting and electrical services through the web, whilst offering ample room to include insulation.

meyJOIST may be used for pitched roofs up to 35 degrees if special attention is paid to connection and tie-down. It is important that the connection of rafters includes for the effects of wind loading as well as dead, live and snow loads where applicable.

Rafter tie-down using looped over straps is recommended whilst bracing requirements do not differ with the use of a meyJOIST roof system.

RAFTER SPAN TABLES

The following span tables have been prepared in accordance with AS 1720.3:2016 and are based on the following design criteria:

- Rafters are for a house.
- The bottom flange is restrained by ceiling or ceiling battens at maximum 600mm centres.
- The top flange is restrained by roof battens at maximum 900mm centres.
- Roof mass does not exceed 40kg/m^2, i.e. sheet roof and ceiling.
- Wind Classifications up to and including N3.
- Permanent load serviceability design limit: span/300 or 20mm for main span and 10mm for overhang value.

Table 16: meyJOIST Single Span Residential Rafters (Sheet roof and ceiling)

meyJOIST Section Code	Rafter spacing (mm)			
	600		900	
	Span (m)	OH (m)	Span (m)	OH (m)
MJ200 45	5.1	1.1	4.5	1.1
MJ240 45	5.8	1.3	5.3	1.4
MJ240 63	6.4	1.4	5.9	1.5
MJ240 90	7.0	1.6	6.4	1.7
MJ300 45	6.8	1.6	6.2	1.7
MJ300 63	7.3	1.7	6.6	1.8
MJ300 90	7.9	2.0	7.2	2.0
MJ360 63	8.1	1.8	7.4	1.8
MJ360 90	8.7	2.3	8.0	2.4

Note:
Span refers to the distance between the centerline of the supports, measured along the roof pitch. Span value designed with zero overhang. Overhang value is designed in conjunction with maximum span.

meyJOIST RAFTERS SHEET

Alternative meyJOIST rafter details for SDWC truss screw fixing including overhangs.

designIT® allows for the design and specification of meyJOIST rafters for other applications including:

- Roof mass from 10kg/m^2 to 90kg/m^2.
- Full range of wind classifications.
- Rafters where continuous restraint is not provided to the bottom flange.
- Overhangs with horizontal soffits.
- Face fixing to ridge beams and details for birdsmouthing over supports.
- Alternate fixing details.
- Continuous Spans

Many of the construction details do not differ whether meyJOIST is used as rafters or floor joists. Where the following rafter details are specified in software outputs the associated floor details can be used:

Detail R1 – Joist hangers for ceiling joists: See Table 4.

Detail R2 – Nailing down to supports: See Detail F5.

Detail R3 – Lateral Restraint – blocking installation: See Detail F1.

Detail R4 – Carport purlins – bracket installation: See Table 4 (Partial depth hangers only).

Detail R5 – Restraint at supports braced with metal strap: See Detail F2. To be installed every 2nd rafter (minimum).

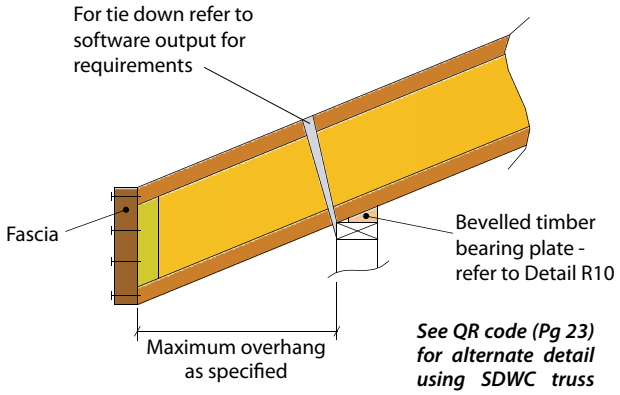
Detail R6 – Restraint at supports using blocking: See Detail F1. Maximum blocking spacing 1.8m or 3 rafter spacings, whichever is greater.

Detail R15 – Rafter tie-down: Using looped steel strap: See Detail R13.

Detail R24 – Rafter overhang: Horizontal soffit with rafters birdsmouthed at support: See Detail R9.

Detail R25 – Web stiffening/packing for rafters: See Detail F6.

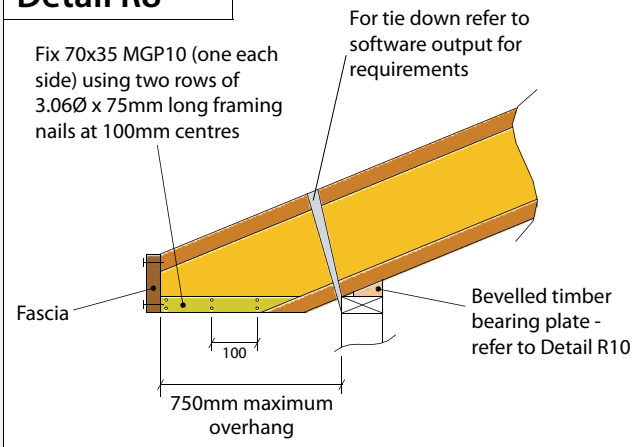
Detail R7



See QR code (Pg 23) for alternate detail using SDWC truss screws.

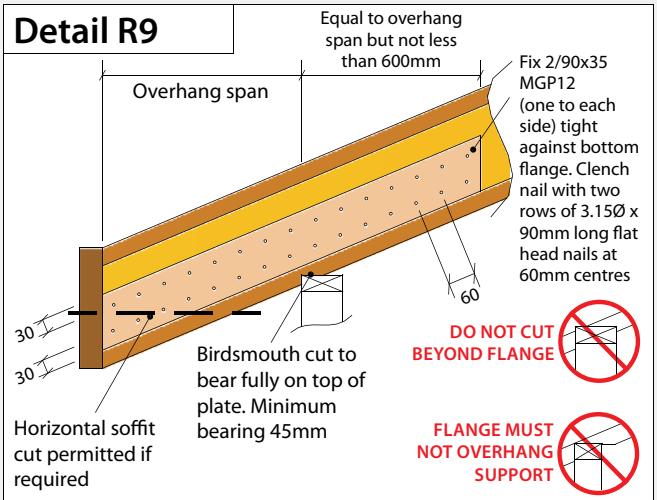
Rafter overhang:
sloping soffit with bevelled plate support

Detail R8



Rafter overhang:
horizontal soffit with bevelled plate support

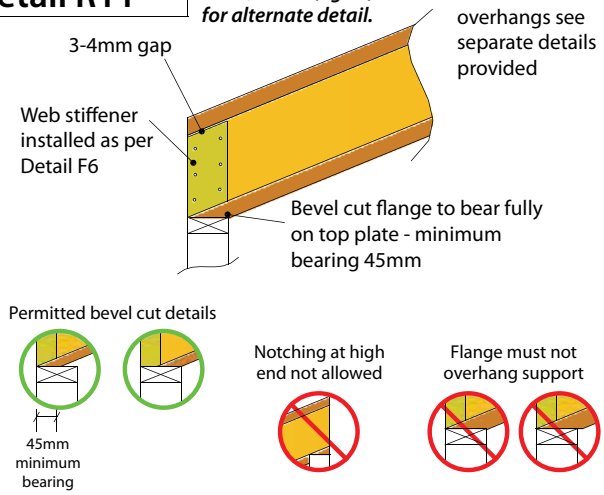
Detail R9



Rafter overhang:
sloping soffit with rafters birdsmouth at support

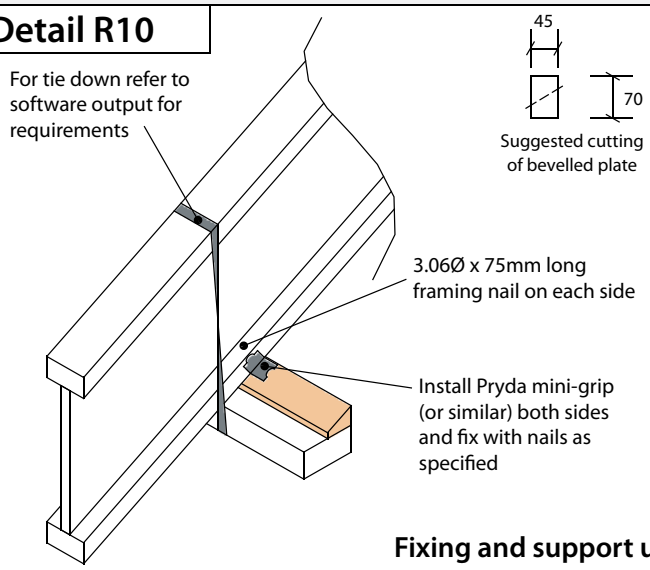
Detail R11

See QR code (Pg 23) for alternate detail.

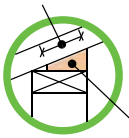


Rafter bevel cut to supports

Detail R10



Suggested cutting of bevelled plate



Minimum bearing length not less than 45mm or as specified by software output

Install bevelled timber bearing plate - ensure tie down continues through to top plate

Roof Pitch	Rafter Spacing (mm)	Installation of mini-grips (or similar)
≤10°	≤1200	Not required
10° to 35°	≤1200	Fixed with 4 nails per tab

For roof pitches greater than 35° seek engineers advice.
Nails as specified by mini-grip manufacturer.

Fixing and support using bevelled plate

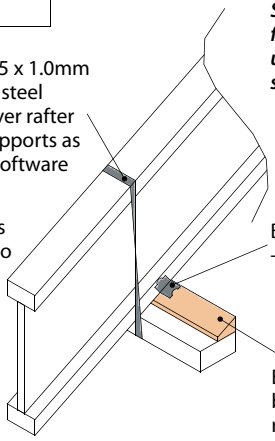
See QR code (Pg 23) for alternate detail using SDWC truss screws.

Detail R13

See QR code (Pg 23) for alternate detail using SDWC truss screws.

30 x 0.8mm or 25 x 1.0mm galvanised mild steel straps looped over rafter and nailed to supports as specifed in the software output.

Framing anchors or screws are also suitable for tie-down. Refer manufacturers specifications.



Brackets required - see Detail R10

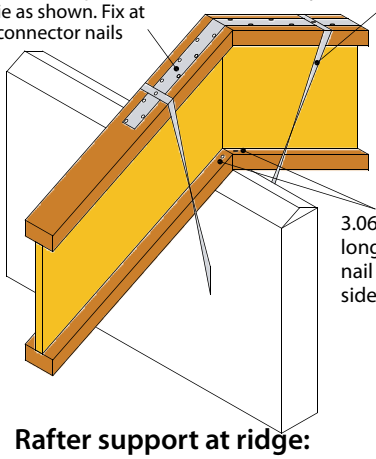
Bevelled timber bearing plate - refer to Detail R10

Rafter tie-down - using looped steel strap

Detail R16

For tie down refer to software output for requirements

30 x 0.8mm or 25 x 1.0mm galvanised mild steel strap tie as shown. Fix at each end with 7 connector nails



3.06Ø x 75mm long framing nail on each side

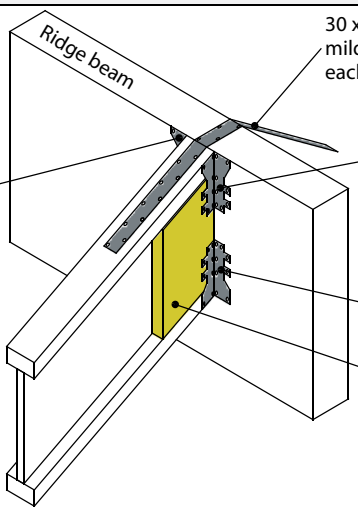
Rafter support at ridge: supported on a bevelled plate

Detail R14

See QR code (Pg 23) for alternate detail.

Installation of Multigrips:

- Install with split toward middle of beam depth
- For MJ200 and MJ240 use 1 Multigrip each side
- For MJ300 and deeper use 2 Multigrips each side
- Nail to each member as specified in the program output - distribute nails uniformly



30 x 0.8mm or 25 x 1.0mm galvanised mild steel strap tie as shown. Fix at each end with 7 connector nails

Pryda Multigrips (or similar) on both sides as specified below

For 2nd Multigrip locate at top as shown

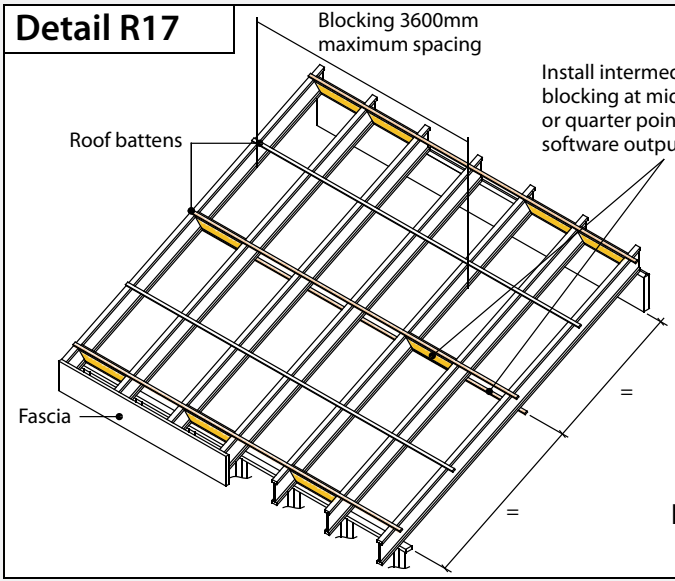
Locate Multigrip as shown

Web packing install as per Detail F6

Variable slope brackets may be used where available - refer to manufacturer's specifications

Rafters support at ridge: face fixed to ridge beam

Detail R17



Blocking 3600mm maximum spacing

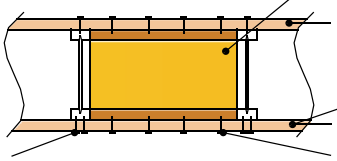
Install intermediate battens and blocking at mid-span, third points or quarter points as specified by software output

Roof battens

Fascia

=

=



meyJOIST blocking

Roof batten

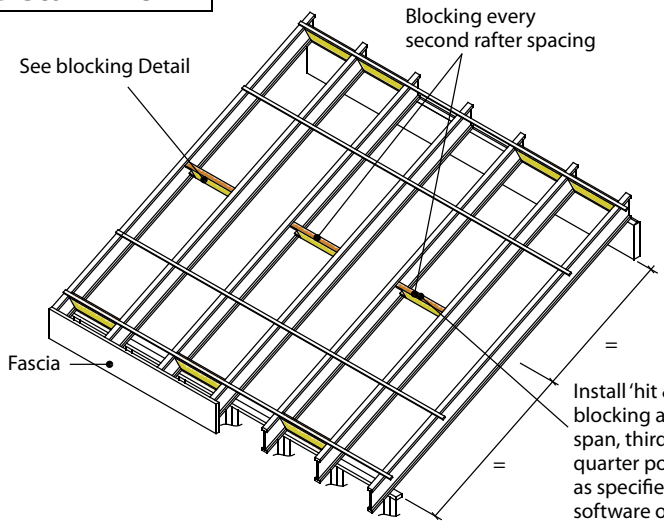
70x35 MGP10 under batten

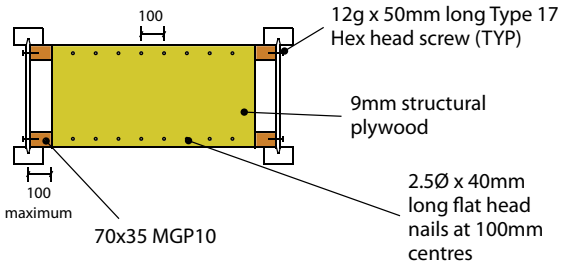
2/3.06Ø x 75mm long framing nails per rafter

4/3.06Ø x 75mm long framing nails per blocking piece (distribute evenly) top and bottom

Intermediate lateral restraint for rafters: using battens and blocking

Detail R18



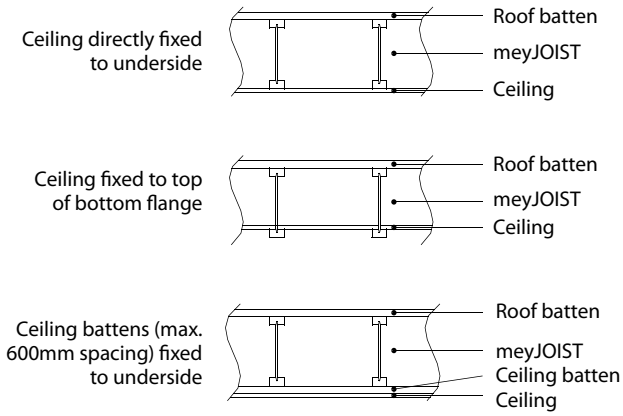


Blocking Detail

Solid timber minimum 35mm thick can also be used as blocking centred in the web. Timber depth to be not less than joist depth minus 110mm.

Intermediate lateral restraint for rafters: using 'hit and miss' blocking

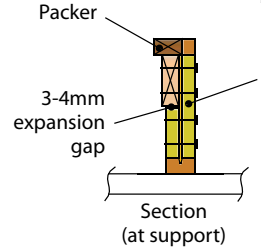
Detail R23

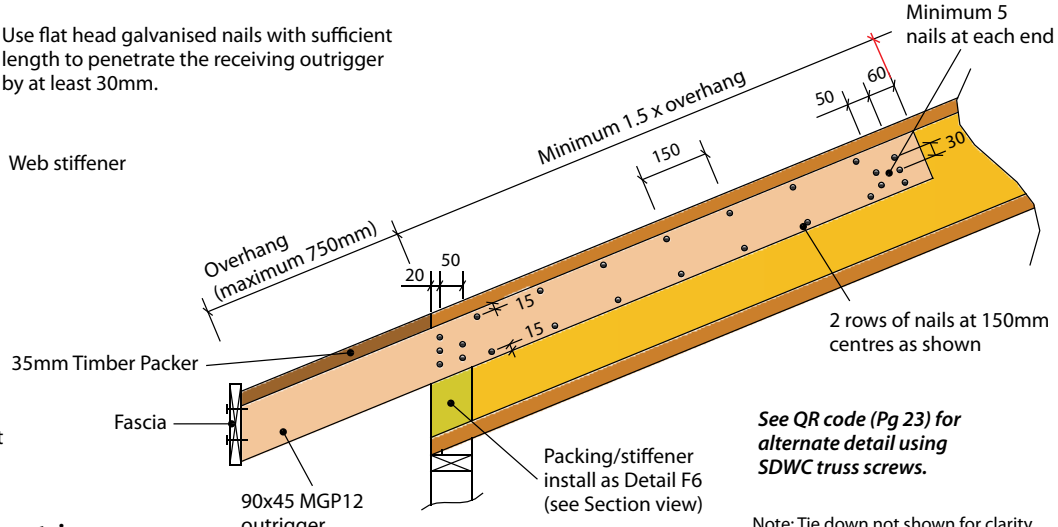


Lateral restraint for rafters: ceiling providing restraint to bottom flange

Detail R26

Use flat head galvanised nails with sufficient length to penetrate the receiving outrigger by at least 30mm.





Outrigger installed in contact with top flange of meyJOIST.

See QR code (Pg 23) for alternate detail using SDWC truss screws.

Note: Tie down not shown for clarity. Refer to software output requirements.

Nested rafter outrigger

FIRE AND ACOUSTICS – CLASS 2 AND 3 (MULTI-RESIDENTIAL) BUILDINGS

The National Construction Code (NCC) is Australia's primary set of technical design and construction provisions for buildings and is available to download free from: www.abcb.gov.au. There are 10 separate classes of buildings in the NCC which relate to their purpose. meyJOIST is commonly used in Class 1 buildings (or houses) where the main consideration is structural suitability. Floor systems using meyJOIST, in combination with specific floor coverings and ceiling systems, can also be used in Class 2 or 3 buildings (multi-residential) where the systems must also meet minimum requirements for both fire and acoustics. It can also be used for all other classes of buildings such as retail, school, residential care or office buildings if it meets the fire-protected timber requirements of the BCA. These requirements are outlined in the Building Code of Australia (BCA) Volume 1 which is part of the NCC.

FIRE

Section C in the BCA Volume 1 outlines the performance requirements for fire resistance and Specifications C1.1 outlines the Deemed-to-Satisfy (DTS) Fire-Resisting construction requirements of building elements, including floors. This is typically described as a Fire Resistance Level (FRL) represented by the time in minutes for three fire test failure criteria - structural adequacy, integrity, and insulation. Table 17 provides requirements for floor systems in Class 2 or 3 buildings.

Table 17: NCC2019 FRL Requirments for Floors

FIRE - BCA (NCC 2019) DTS Requirements for Floors			
No. of Storeys	Type of Construction	Fire Resistance Levels (FRL) Class 2 and 3 Buildings	
		With Sprinklers	Without Sprinklers
4 or more	A	90/90/90 ^1	N/A
3	A	60/60/60 ^2	90/90/90
2	B	30/30/30 or fire protective covering^3	30/30/30 or fire protective covering^3
2	C^4	30/30/30 or fire protective covering^3	30/30/30 or fire protective covering^3

Notes:
1. The use of fire-protected timber is mandatory for 4-storeys and above, in accordance with C1.13 of BCA (NCC 2019). The floor/ceiling system must also have a resistance to the incipient spread of fire (RISF) ≥ 45mins where 2 layers of 13mm thick fire protective grade plasterboard will comply.
2. Clause C1.1 Clause 3.10 (c) provides a concession for buildings fitted with sprinklers.
3. Fire-protective coverings can be 13mm fire-protective grade plasterboard or 12mm fibre cement.
4. Clause C1.5 allows 2-storey Class 2 and 3 buildings to be considered as Type C construction if each sole-occupancy unit has its own direct access to a road or an open space.

The required FRL is usually achieved in a system through use of fire rated linings such as plasterboard, fibre cement board or fire rated fabrics.

ACOUSTICS

As part of DTS Requirements of the BCA Volume 1, floors separating sole-occupancy units or a sole-occupancy unit from a plant room, lift shaft, stairway, public corridor/lobby etc must provide insulation against transmission of airborne and impact (structure-borne) generated sound sufficient to prevent illness or loss of amenity to the occupants. Table 18 summarises the code requirements.

Table 18: NCC2019 Acoustic Requirements for floors

ACOUSTIC - BCA (NCC 2019) DTS Requirements for Floors			
Deemed to Satisfy Provision (Laboratory performance)		**Verification Method** (In-situ performance)	
$R_w + C_{tr}$ (Airborne Sound)	$L_{n,w}$ (Impact Sound)	$D_{nT,w} + C_{tr}$ (Airborne Sound)	$L_{nT,w}$ (Impact Sound)
≥50	≤62	≥45	≤62

The acoustic performance of a floor system is dictated by the type of floor coverings in combination with the ceiling systems, without much reliance on the type of joist system. Carpet with foam underlays are well known for their ability to minimize impact noise. Typically, ceiling systems would comprise of acoustic underlays, furring channels on resilient mounts and fire-rated ceiling.

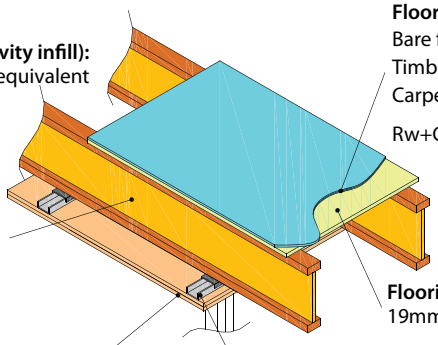
THERMAL INSULATION

As part of the Deemed-to-Satisfy provisions of the energy Efficiency requirements of the BCA, internal floors must achieve a minimum R value of 2.0 for most areas in Australia.

Figure 19 illustrates a typical example. For more information on using meyJOIST in apartments and multi-residential construction, contact your meyJOIST distributor.

Figure 19: A Typical BCA DTS Compliant Floor System for Class 2 or 3 Buildings

Note: Below are examples for reference only. Tested system configurations need to be specified in the documentation and approved by the regulatory authorities.



Insulation (cavity infill):
R2.5 glasswool or equivalent

Floor Covering:
Bare flooring: Ln,w = 60-62 ≤ 62
Timber floor + acoustic underlay: Ln,w = 54-56 ≤ 62
Carpet + acoustic underlay: Ln,w = 40-50 ≤ 62

Rw+Ctr = 51-54 > 50 (for all floor covering types)

meyJOIST: (minimum 240mm deep)

Flooring (minimum):
19mm particleboard or 18mm OS'Floor or equivalent

Ceiling lining:
FRL 90/90/90 - fire rated plasterboard (2/16mm)
FRL 60/60/60 - fire rated plasterboard (1/16mm + 1/13mm)
FRL 30/30/30 - fire rated plasterboard (1/13mm)

Furring channel: on resilient mounts

FOR MORE EFFICIENT FLOOR DESIGN

FREE SOFTWARE FOR SPECIFICATION OF meyJOIST

designIT®

designIT® software is a powerful tool for all building practitioners to quickly and simply design more economical floor, wall and roof members.

Quick and simple to use yet deceptively powerful software. Download designIT® software free at:
www.meyertimber.com.au/software

designIT sITe®

designIT sITe® APP
designIT sITe® is a slim version of designIT® for houses customised for use on site. Available for both Apple and Android devices.

hyne design

The Hyne Design app is the industry standard for structural timber design - delivering innovative design procedures, a powerful graphical interface and the ability to command complex load functions. It also provides reporting and certification for the end user.

A powerful and practical tool for engineers, timber merchants, frame and truss fabricators, builders and even DIY renovators.

The Hyne Design app is an online tool available on PC, MAC or tablet. It includes all Meyer Timber® engineered timber products and can be accessed for free at:
www.hyne.com.au/hyne-design

meyPLAN
FAST · EFFICIENT · ORGANISED

Plan your floor system estimating and delivery with this web based database specifically developed by Meyer Timber®. It has never been easier with meyPLAN:

- The system is live - minimises admin delays to get your quote back faster.
- meyPLAN is accessible via smart phone and tablet.
- Any person in your business can easily access through the login page.
- You can email from meyPLAN direct to your customers.
- meyPLAN is user friendly, informative and a fast and efficient tool for your business.

Don't be in the dark on where your quotes are for floor systems. meyPLAN lets you upload your plans and plan and prioritise your workload.

QUICK ACCESS QR CODES

INSTALLATION REFERENCE SHEET

WEBSITE

PRODUCT MANUAL

EMAIL SUPPORT:

VIC / TAS
supportvic@meyertimber.com.au

NSW / ACT / QLD
supportnsw@meyertimber.com.au

Meyer Timber® New South Wales
2101-2113 Castlereagh Rd, Penrith NSW 2750
P: (02) 4726 5900
F: (02) 4726 5992
E: salesnsw@meyertimber.com.au

Meyer Timber® Queensland
1 Stephens Way, Luscombe QLD 4207
P: (07) 3895 2222
F: (07) 3895 1877
E: salesqld@meyertimber.com.au

Meyer Timber® Victoria
15-45 Dana Ct, Dandenong VIC 3175
P: (03) 8710 6900
F: (03) 8710 6975
E: sales@meyertimber.com.au

Meyer Timber® Tasmania
4 Charbooday Drive, Youngtown TAS 7249
P: (03) 6344 9194
F: (03) 6343 1315
E: salestas@meyertimber.com.au

Newcastle Timber Trading Company Pty Ltd
9 Ranton Street, Cardiff, NSW 2285
P: (02) 4954 2966
E: sales@timbertrading.com.au
W: www.timbertrading.com.au