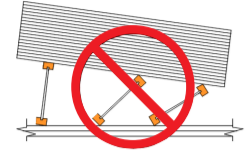


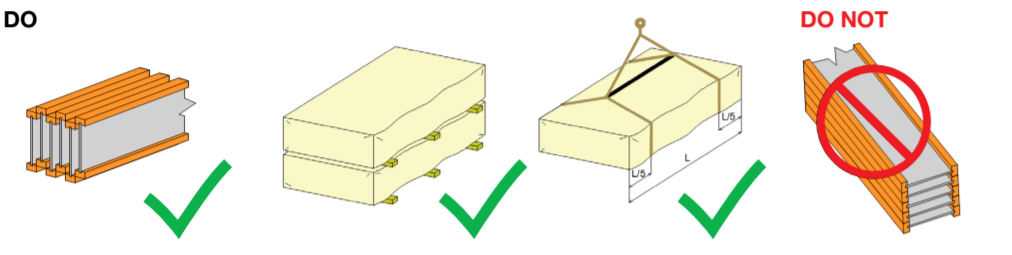
**Warning**  
I-Joists and LVL beams are not stable until completely installed, and will not carry any load until fully braced and sheathed.



- Avoid accidents by following these important guidelines:
- Brace and nail each I-Joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends.
- When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-Joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-Joist rollover or buckling.
  - Temporary bracing or struts must be at least 2.5 m long and spaced no more than 2.5 m on center, and must be secured with a minimum of two  $\phi 3.15 \times 65$  mm nails fastened to the top surface of each I-Joist. Nail bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-Joists.
  - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 2.5 m of I-Joists at the end of the bay.
- For cantilevered I-Joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
- Install and nail permanent sheathing to each I-Joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
- Never install a damaged I-Joist or beam.

Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for I-Joists, failure to use allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines carefully.

**Storage & handling guidelines**

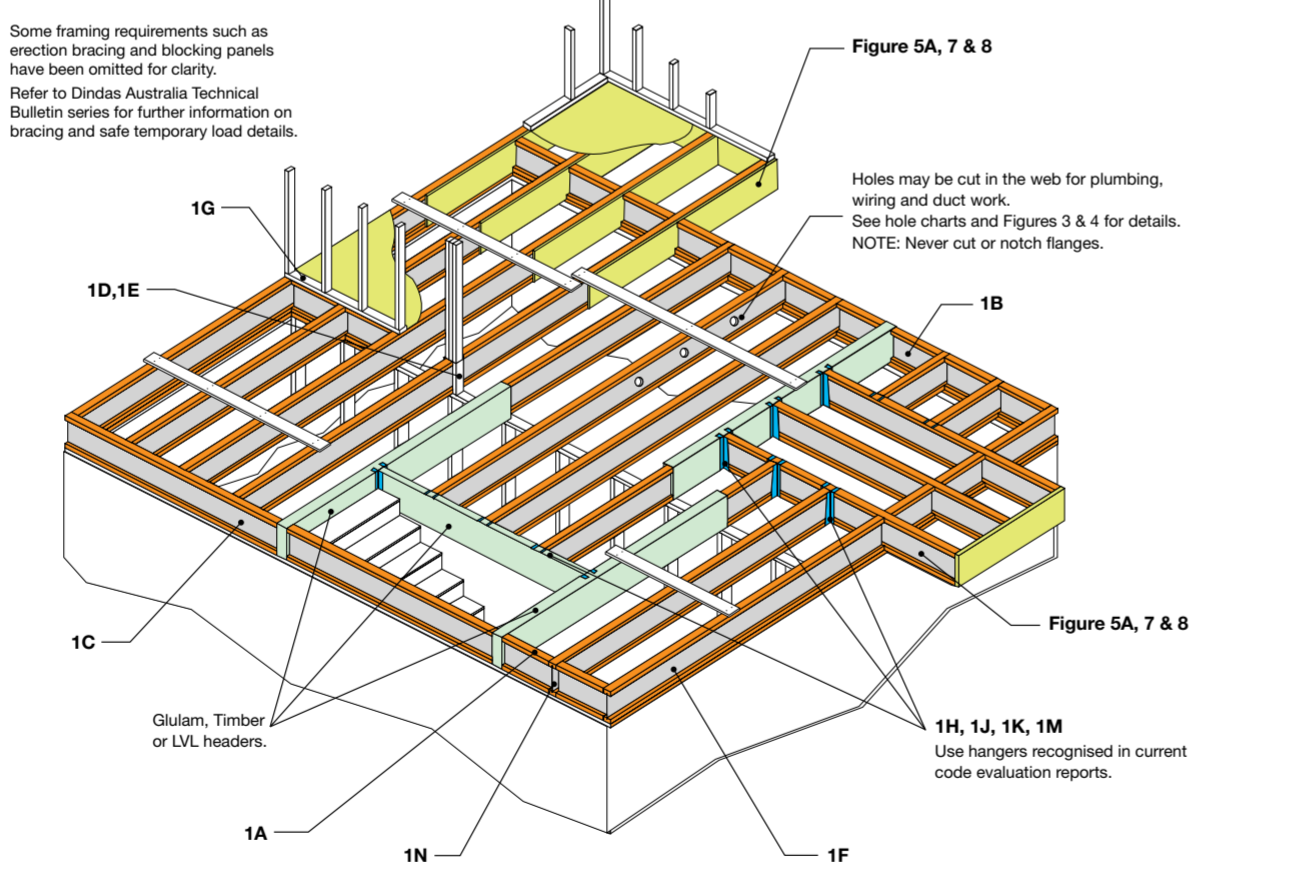


- Do not drop I-Joists off the delivery truck. Best practice is use of a forklift or boom.
- Store bundles upright on a smooth, level, well-drained supportive surface.
- Do not store I-Joists in direct contact with the ground. Bundles should be a minimum of 150 mm off the ground and supported every 3 m or less.
- Always stack and handle I-Joists in their upright position only.
- Place 45 mm spacers (at a maximum of 3 m apart) between bundles stored on top of one another. Spacers above should be lined up with spacers below.
- Bundles should remain wrapped, strapped, and protected from the weather until time of installation.
- Do not lift I-Joist bundles by top flange.
- Avoid excessive bowing or twisting of I-Joists during all phases of handling and installation (i.e. measuring, sawing or placement). Never load I-Joists in the flat-wise orientation.
- Take care to avoid forklift damage. Reduce forklift speed to avoid "bouncing" the load.
- When handling I-Joists with a crane ("picking"), take a few simple precautions to prevent damage to the I-Joists and injury to your work crew:
  - Pick I-Joists in the bundles as shipped by the supplier.
  - Orient the bundles so that the webs of the I-Joists are vertical.
  - Pick the bundles at the 5th points, using a spreader bar if necessary.
  - Do not stack LVL/Timber/Glulam bundles on top of I-Joist bundles.
  - Never use a damaged I-Joist. All field repairs must be approved by Dindas.

**Installing RFPI® I-Joists for floor systems**

- Do not allow workers on I-Joists until all hangers, Rim Joists, Rim Boards, RFPI® Blocking Panels, and temporary strut lines are installed as specified below.
- Failure to install temporary bracing may result in sideways buckling or roll-over under light construction loads.
- Before laying out floor system components, verify that I-Joist flange widths match hanger widths.
- Build a braced end wall at the end of the bay, or permanently install the first 2.5 m of I-Joists and the first course of sheathing. As an alternate, temporary sheathing may be nailed to the first 1.25 m of I-Joists at the end of the bay.
- Install temporary strut lines at no more than 2.5 m on center as additional I-Joists are set. Nail the strut lines to the sheathing area, or brace end wall, to each I-Joist with two  $\phi 3.15 \times 65$  mm nails.
- The end of the cantilevers must be temporarily secured by strut lines on both the top and bottom flanges.
- Remove the temporary strut lines only as required to install the permanent sheathing.
- Except for cutting to length, never cut, drill, or notch I-Joist flanges.
- I-Joists are produced without camber so either flange can be the top or bottom flange; however, orienting the floor I-Joists so the pre-scored knockouts are on the bottom may ease installation of electrical wiring or residential sprinkler systems.
- Install I-Joists so that top and bottom flanges are straight and remain within 2 mm of true vertical alignment.
- I-Joists must be anchored securely to supports before floor sheathing is attached, and supports for multiple-span joists must be level.
- Minimum bearing lengths: 35 mm for end bearings and 45 mm for intermediate bearings.
- When using hangers, seat I-Joists firmly in hanger bottoms to minimise settlement.
- Leave a 2 mm gap between the I-Joist end and a beam.
- Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Never suspend unusual or heavy loads from the I-Joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the I-Joist. Or, attach the load to blocking that has been securely fastened to the I-Joist web.
- Never install I-Joists where they will be permanently exposed to weather or where they will remain in direct contact with concrete or masonry.
- Restrain ends of floor joists to prevent rollover. Use rimboard, rim joists or I-Joist blocking panels.
- For I-Joists installed over and beneath bearing walls, use full depth blocking panels, rimboard, or squash blocks to transfer gravity loads through the floor system to the wall or foundation below.
- Due to shrinkage, common framing timber set on edge cannot be used as blocking or rim boards.
- Provide permanent lateral support of the bottom flange of all I-Joists at interior supports of multiple-span joists. If square-edge panels are used, edges must be supported between I-Joists with 90x35 mm blocking. Glue panels to blocking to minimise squeaks. Blocking is not required under structural finish flooring, such as wood strip flooring, or if a separate underlayment layer is installed.
- See table on page 2 for recommended sheathing attachment with nails. If sheathing is to be attached with screws, the screw size should be equal to or only slightly larger than the recommended nail size. Space the screws the same as the required nail spacing. The unthreaded shank of the screw should extend beyond the thickness of the panel to assure that the panel is pulled securely against the I-Joist flange. Use screws intended for structural assembly of wood structures. It is recommended to use screws from a manufacturer that can provide an approved application specifications and design values. Drywall screws can be brittle and should not be used. Do not use nails larger or spaced closer than shown in the table from page 2. If more than one row of nails is required, rows must be offset by at least 12 mm and staggered. Nails on opposing flange edges must be offset one-half the minimum spacing.

**Figure 1**



**Note:** Dindas I-Joist does not require mid-span blocking or bridging in RFPI floor or roof applications.

**WARNING:** Install temporary bracing per Safety and Construction Precautions.

**Recommended nail sizes and spacing**

Fastener size	Flange face nailing (mm)		Flange edge nailing (mm)	
	End distance	Nail spacing	End distance	Nailed to one flange edge / Nailed to both flange edges
$\phi \leq 3.25$ mm; 65 mm < length $\leq$ 75 mm	75	50	75	75
3.25 mm < $\phi \leq$ 3.75 mm; 65 mm < length $\leq$ 75 mm	75	75	75	75

**Rim board / I-Joist blocking max. factored vertical loads**

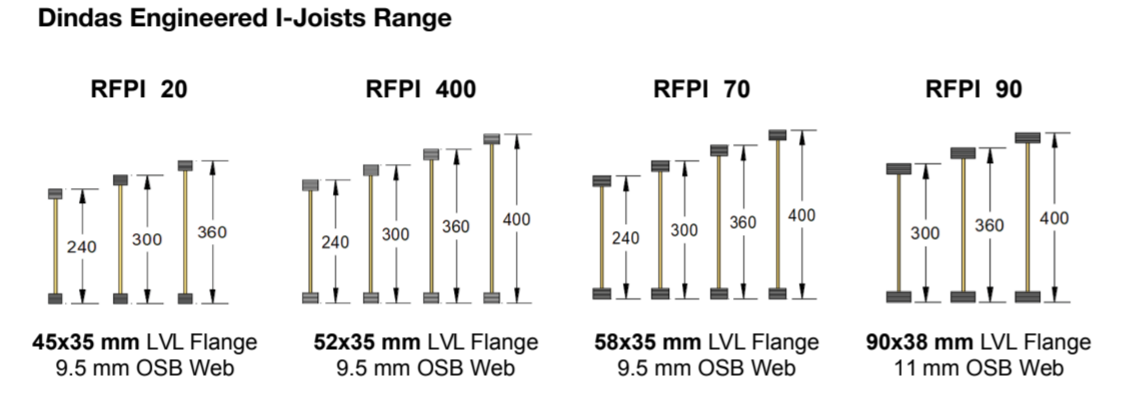
Rim Board / I-Joist Blocking	Thickness (mm)	Max. Factored Uniform Load, V (kN/m)
Plywood – F8	17	4.1
	22	5.1
	25	6.1
RFPI® Joists	flange width	20.0

**RFPI® I-Joist DindasLVL® DindasRim® Dindas Framing System**

## Install Guide

Dindas Engineered Wood Products

Version 2018-01



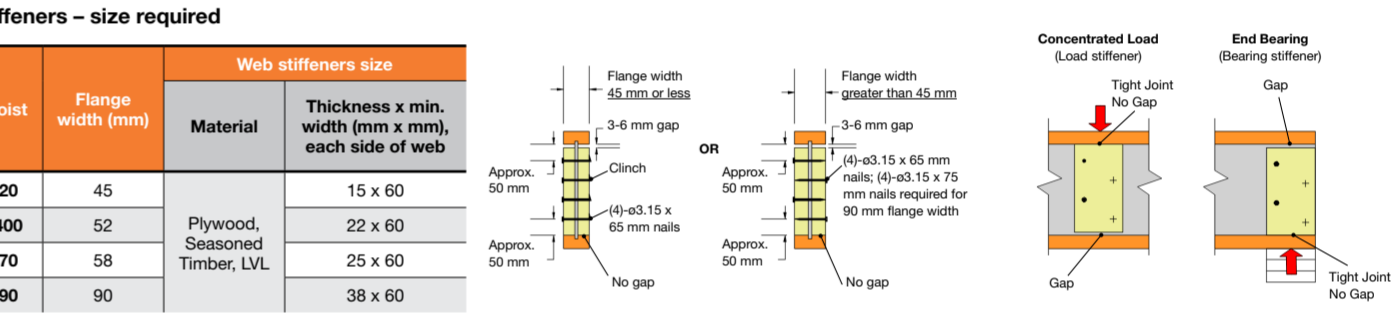
- Spans shown are in accordance with NCC 2016, AS 1170.0, AS 1170.1, AS 1720.1, AS 1684.1 & ASTM D 5055
- Tables are based on the uniform standard loads of **1.5 kPa uniform live load, 1.8 kN concentrated live load, and 40 kg/m² dead load.**
- Maximum spans listed are the design spans (center to center of the bearing supports).
- Minimum end bearing length is 35 mm.**
- Minimum interior bearing length is 70 mm.**
- Max. permanent deflection is limited to the lesser of L/300 and the absolute deflection (mm) as indicated in the floor span tables ( $L_e = 2$ ).
- Max. live load deflection is limited to the lesser of L/360 or 9 mm.
- Max. dynamic load (1kN) deflection is limited to 2 mm.
- Short term factor = 1.0 for serviceability for the uniform live load.
- g41 and g42 factors were used where applicable.
- Lateral support must be provided at the bearings to prevent lateral displacement or rotation.
- Continuous restraint to the top edge is assumed to be provided by the glued and nailed subfloor.
- Bottom edge restraint shall be provided by the ceiling (suspended ceiling does not provide restraint) or by battens (600 mm max. spacing).
- When using continuous spans over an intermediate bearing, the shortest span shall not be less than 75% of the longest adjacent span.
- If the shortest span (including cantilevers) is shorter than 75% of the longest span, each span shall be considered single.
- The end of the shorter span should be anchored to resist the uplift.
- Tabulated values shown are valid for **Category 1, Class 1** applications.
- Tabulated values shown assume a glued and nailed subfloor:**
  - The subfloor panel shall be structurally rated (Plywood – F8 minimum grade).
  - The subfloor panel thickness shall be min. 15 mm for o.c. spacings  $\leq$  400 mm, and min. 18 mm for o.c. spacings > 400 mm.
  - Fasten the subfloor panel to the top flange with  $\phi 3.25 \times 65$  mm nails spaced at 300 mm along the intermediate supports, and 150 mm along the exterior panel edges.
  - Use construction adhesive. Apply adhesive (about 6 mm – diameter bead) to top flange in a continuous line. Complete all nailing on each panel before the glue sets. Check with the adhesive manufacturer's recommendations for allowable time.

Joist series	Joist depth x width (mm)	Floor span table: 1.5 Kpa live load; 40 kg/m² dead load; Total permanent deflection: 1/300 or 11 mm; live load deflection: 1/360 or 9 mm											
		Max. single spans (mm)						Max. continuous spans (mm)					
		Joist spacing (mm)						Joist spacing (mm)					
RFPI® 20	240x45	4850	4550*	4400*	4350*	4100*	5200	4850	4750	4650	4400		
RFPI® 400	240x52	5050	4700*	4550*	4500*	4250*	5400	5050	4900	4850	4550		
RFPI® 70	240x58	5450	5050	4950*	4850	4600*	5800	5450	5300	5200	4950		
RFPI® 90	300x45	5550	5200	5050*	4950	4700*	5950	5550	5400	5300	5050		
RFPI® 400	300x52	5750	5350	5200	5150	4850*	6150	5750	5600	5500	5200		
RFPI® 70	300x58	6200	5800	5600	5550	5250	6650	6200	6050	5950	5600		
RFPI® 90	300x90	6700	6300	6100	6050	5700	7200	6750	6600	6450	6150		
RFPI® 20	360x45	6100	5700	5550	5450	5150	6550	6100	5950	5850	5450		
RFPI® 400	360x52	6300	5900	5750	5650	5350	6750	6350	6150	6050	5750		
RFPI® 70	360x58	6800	6350	6200	6100	5750	7300	6800	6650	6550	6200		
RFPI® 90	360x90	7350	6900	6700	6600	6250	7900	7400	7200	7100	6750		
RFPI® 400	400x52	6800	6350	6200	6100	5750	7300	6850	6650	6550	6200		
RFPI® 70	400x58	7300	6850	6650	6550	6200	7850	7350	7150	7050	6650		
RFPI® 90	400x90	7950	7450	7250	7150	6750	8500	8000	7750	7650	7250		

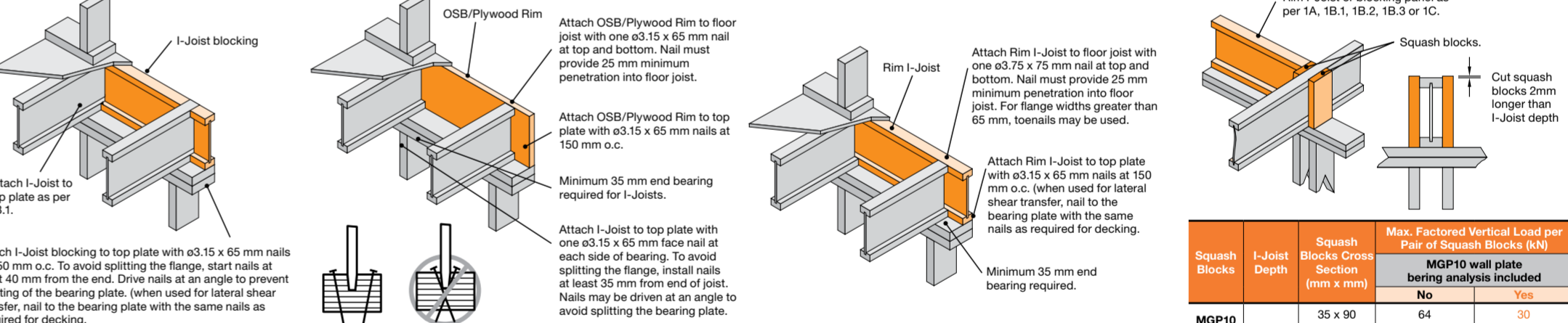
\* Warning: 1.0kN dynamic load deflection is less than 2.0 mm, but exceeds 1.5 mm.

**Web Stiffeners**

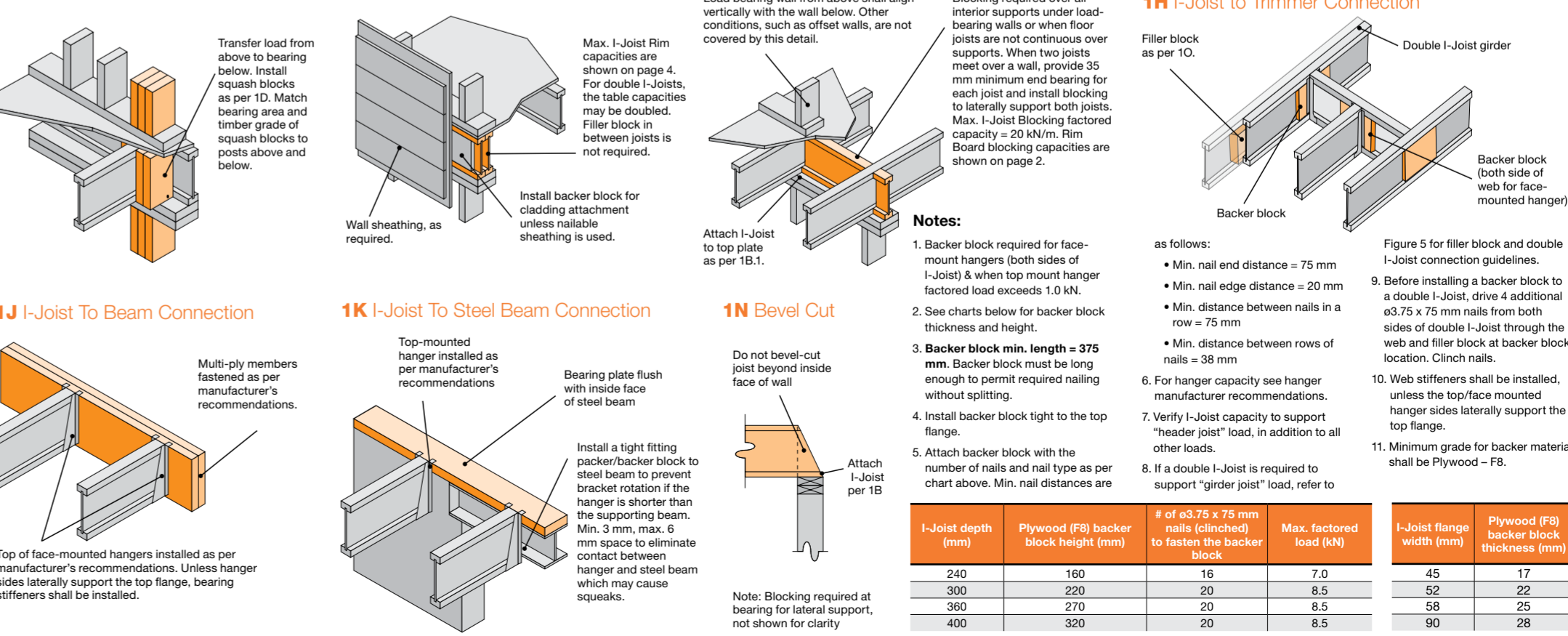
- 1. Web stiffeners are required:**
- When sides of the hangers do not laterally brace the top flange of each I-Joist.
  - When I-Joists are designed to support concentrated factored loads greater than 9.5 kN applied to the I-Joist's top flange between supports. In these applications only, the gap between the web stiffener and the flange shall be at the bottom flange.
  - For Birds-mouth cuts on roof I-Joists.
2. When used at end bearings, install web stiffeners tight against the bottom flange of the I-Joist. Leave a minimum 3-6 mm gap between the top of the stiffener and the bottom of the top flange (see Figure 2).
3. Web stiffeners may be cut in the field as required.



**1A Blocking at Exterior Wall, 1B.1 Rim Board at Exterior Wall (perp. joists), 1C Rim I-Joist at Exterior Wall, 1D Squash Blocks**



**1E Concentrated Loads at Studs or Posts, 1F Double I-Joist Rim, 1G Blocking at Interior Support, 1H I-Joist to Trimmer Connection**



**1J I-Joist To Beam Connection, 1K I-Joist To Steel Beam Connection, 1N Bevel Cut**

1J: Multi-ply members fastened as per manufacturer's recommendations.

1K: Top-mounted hanger installed as per manufacturer's recommendations. Bearing plate flush with inside face of steel beam. Install a tight fitting packer/backer block to steel beam to prevent bracket rotation if the hanger is shorter than the supporting beam. Min. 3 mm, max. 6 mm space to eliminate contact between hanger and steel beam which may cause squeaks.

1N: Do not bevel-cut joist beyond inside face of wall. Attach I-Joist per 1B. Note: Blocking required at bearing for lateral support, not shown for clarity.

I-Joist depth (mm)	Plywood (F8) backer block height (mm)	# of $\phi 3.75 \times 75$ mm nails (clinched) to fasten the backer block	Max. factored load (kN)	I-Joist flange width (mm)	Plywood (F8) backer block thickness (mm)
240	160	16	7.0	45	17
300	220	20	8.5	52	25
360	270	20	8.5	58	25
400	320	20	8.5	90	28



Web holes may be cut in the I-Joist web to accommodate electrical wiring, plumbing lines and other mechanical systems based on the following rules:

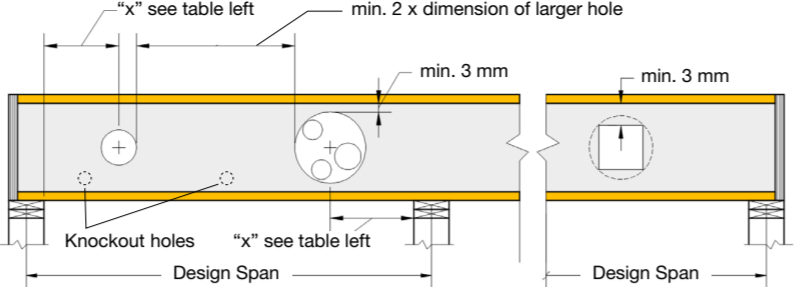
- Holes must be sized and located in compliance with the holes charts. Holes may be located vertically anywhere in the web provided a minimum distance of 3 mm of web remaining between the edge of the hole and the flanges.
- Where more than one hole is necessary, the distance between the adjacent holes edges must be a minimum of twice the diameter of the largest circular hole or twice the size of the largest square/rectangular hole.
- Knockout holes (40 mm circular predrilled holes spaced approximately 400 mm on center spacing) are not considered holes and they can be utilised anywhere they occur. Knockouts can be ignored for the purposes of calculating the minimum distances between the holes and the maximum number of holes allowed for each span.
- A 40-mm circular hole is permitted anywhere in cantilever spans. A 40-mm circular hole can be placed anywhere in the web provided that it meets the requirements of rule 2.
- A group of circular holes at approximately the same location shall be permitted if they meet the requirements for a single circular hole circumscribed around them.
- All holes must be cut in a workman-like manner.
- No more than three holes (any shapes) are permitted per span (excluding knockouts).

**How to use the hole chart:**

- Read across the top of Hole Chart to the desired hole size (or the next bigger size).
- Follow this column down to the row that represents the I-Joist depth and designation.
- This number indicates the minimum distance from the face of the support to the centerline of the hole.

**Example:** Need a 140 mm round hole in a 240 mm RFPI® 400 Joist with a design span of 4.0 m.  
From the Hole Chart for the round and square web holes:  
For a 140 mm round hole, the minimum distance is 1.1 m.  
Therefore the minimum distance for the 140 mm round hole is 1.1 m.

Joist series	Design span (m)	Min. distance from face of nearest support to center of hole, "x" (m)														
		Circular holes: max. diameter (mm)														
		75	100	125	150	175	200	225	250	275	300					
RFPI® 20 240x45	3.0	0.2	0.3	0.3	0.4											
	4.0	0.2	0.3	0.6	1.0											
	5.0	0.3	0.7	1.2	1.8											
RFPI® 30 300x45	3.0	0.2	0.3	0.3	0.3	0.3	0.3	0.3								
	4.0	0.2	0.3	0.3	0.3	0.5	1									
	5.0	0.2	0.3	0.3	0.8	1.2	1.7									
RFPI® 40 360x45	3.0	0.2	0.3	0.3	0.3	0.3	0.3	0.6	1							
	4.0	0.2	0.3	0.3	0.3	0.4	0.8	1.3	1.7							
	5.0	0.2	0.3	0.3	0.6	1.1	1.5	2.0	2.5							
RFPI® 50 420x45	3.0	0.2	0.3	0.5	1.0	1.4	1.8	2.3	2.8							
	4.0	0.2	0.3	0.3	0.3	0.3	0.4									
	5.0	0.2	0.3	0.3	0.3	0.3	0.3	0.6	1.1							
RFPI® 60 480x52	3.0	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.9						
	4.0	0.2	0.3	0.3	0.3	0.3	0.5	0.9								
	5.0	0.2	0.3	0.3	0.7	1.1	1.6									
RFPI® 70 540x52	3.0	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.9						
	4.0	0.2	0.3	0.3	0.3	0.3	0.7	1.1	1.6							
	5.0	0.2	0.3	0.3	0.4	0.9	1.3	1.8	2.3							
RFPI® 80 600x52	3.0	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.9					
	4.0	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.6	1.1	1.6					
	5.0	0.2	0.3	0.3	0.6	1.1	1.6	2.1	2.6							
RFPI® 90 660x52	3.0	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.8						
	4.0	0.2	0.3	0.3	0.3	0.3	0.3	0.6	1.0	1.5						
	5.0	0.2	0.3	0.3	0.3	0.3	0.8	1.2	1.7	2.3						
RFPI® 100 720x52	3.0	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.9				
	4.0	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.6	1.1	1.6			
	5.0	0.2	0.3	0.3	0.6	1.1	1.6	2.1	2.6							
RFPI® 120 840x52	3.0	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.9			
	4.0	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.6	1.1	1.6		
	5.0	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.6	1.1	1.6	2.3



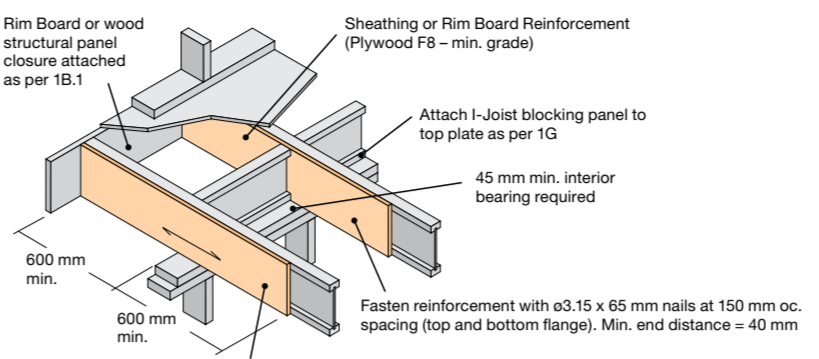
**Knockout holes**  
Knockouts are prescored holes for the contractor's convenience to install electrical or small plumbing lines. They are 40 mm in diameter, and are spaced approximately 400 mm on center along the length of the I-Joist. Where possible, it is preferable to use knockouts instead of field cutting holes. For floor applications, position the I-Joists so the knockouts are all on the bottom of the joist, making it easier to install electrical wiring or residential sprinkler systems.

- Distances "x" in this table apply to single or continuous spans with a maximum oc. spacing of 600 mm and the loading conditions shown below.
- Distances "x" in this table are valid for the maximum design spans indicated in the table. The design spans shown shall be verified for the specific loading conditions before checking the hole location. For shorter design spans, the minimum hole distances from the next available (longer) design span shall be used.
- Hole location distance is measured from inside face of the nearest bearing support to center of hole.
- A minimum distance of 3 mm must be maintained between the top or bottom of the hole and the flange edge.
- Where more than one hole is necessary, the distance between adjacent hole edges shall equal or exceed twice the diameter of the largest circular hole or twice the size of the largest square hole or twice the length of the longest side of the rectangular hole. Each hole must be sized and located in compliance with the requirements of the table specific to the shape of the hole.
- For I-Joists with more than one span, use the longest span to determine the hole size and location in either span.
- A group of circular holes at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.
- Square holes are not permitted for cantilever spans.
- Square holes should be located at mid-height of the web.
- The sizes of square holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.

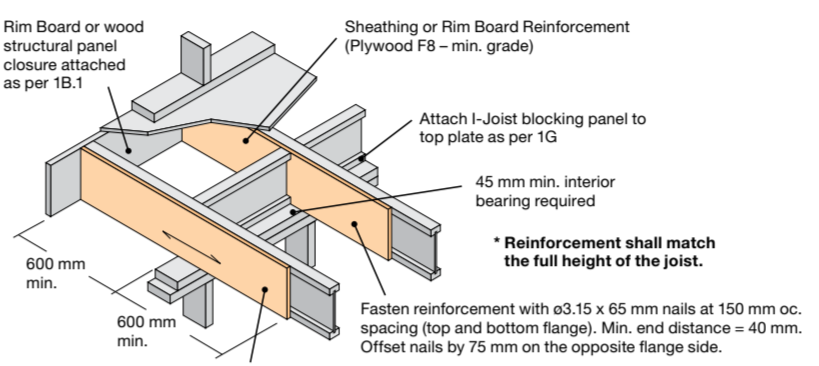
- Loading conditions:**
- Dead load: self-weight + 62 kg/m²
  - Live load: 2.0 kPa or 1.8 kN
  - Structural member: Self-contained dwelling; Category 1
  - Dry use service conditions: Equilibrium moisture content of the joist shall not exceed 18 %

Never drill, cut or notch the flange, or over-cut the web. Holes in webs should be cut with a sharp saw. For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Start the rectangular hole by drilling a 25 mm-diameter hole in each of the four corners and then make the cuts between the holes to minimise damage to the I-Joist.

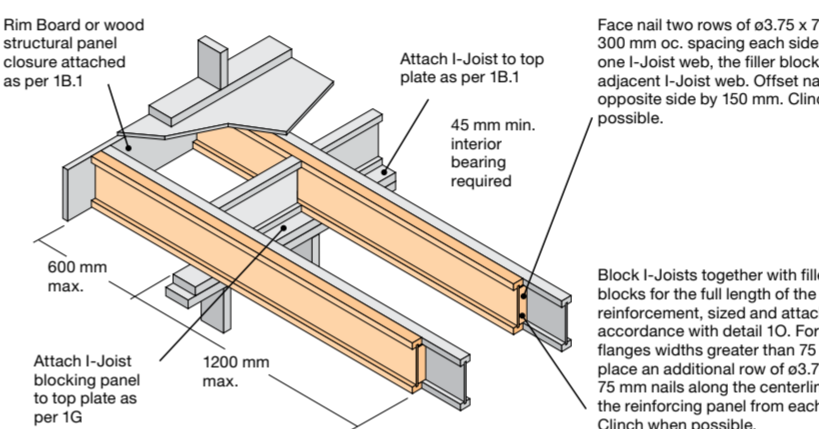
**Method 1 – Sheathing reinforcement one side**



**Method 2 – Sheathing reinforcement two sides**

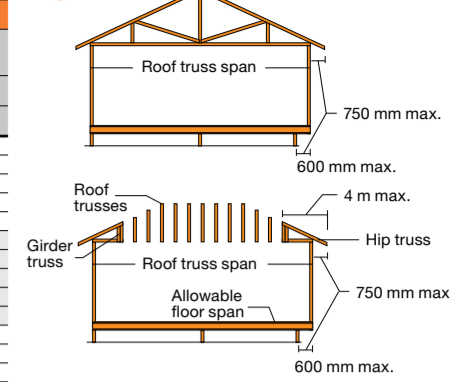


**Method 2 (alternate) – Double I-Joists**



Filler block does not function as a web stiffener. If web stiffeners are required, it is recommended to install continuous filler block and install web stiffener below filler block prior to attaching I-Joist reinforcement. Leave 6 mm gap between the top of filler block and bottom of top I-Joist flange. Web stiffeners must be tight between top of bottom flange and bottom of filler block.

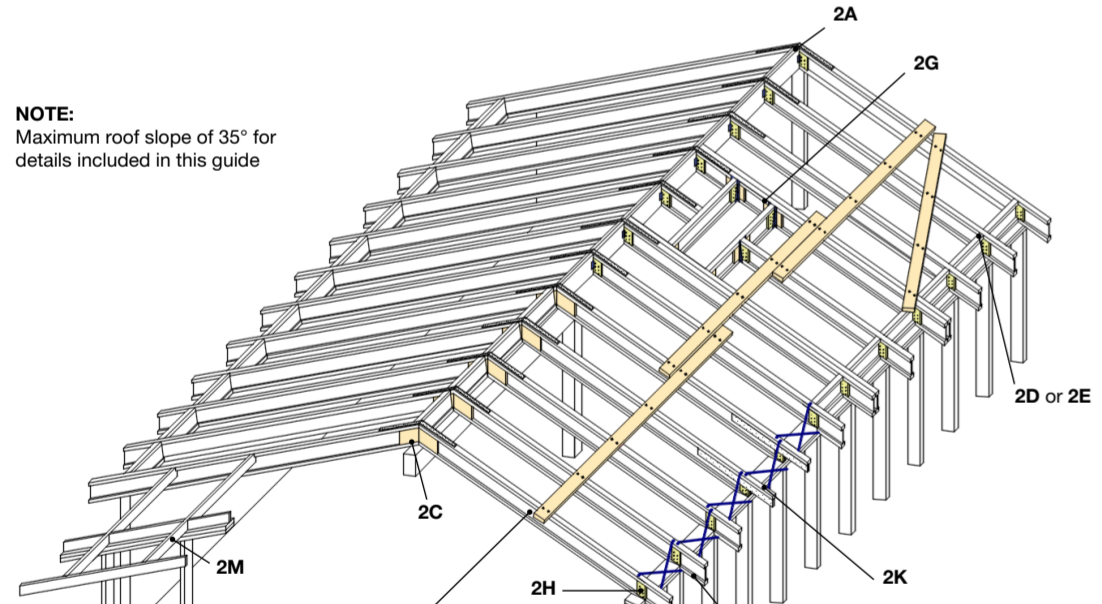
Figure 5B



Joist series	Joist depth (mm)	Roof truss span (m)	Roof loading							
			Roof dead load = 40 kg/m²			Tiled roof dead load = 90 kg/m²				
			Joist spacing (mm)							
RFPI® 20	240	8	300	450	600	300	450	600		
			10	0	0	0	0	0	x	x
			12	0	0	0	0	0	x	x
			14	0	0	0	1	0	x	x
			16	0	0	0	1	0	x	x
			18	0	0	0	1	0	x	x
RFPI® 30	300	8	300	450	600	300	450	600		
			10	0	0	0	0	0	2	2
			12	0	0	0	1	0	x	x
			14	0	0	0	1	0	x	x
			16	0	0	0	2	0	x	x
			18	0	0	0	2	0	x	x
RFPI® 40	360	8	300	450	600	300	450	600		
			10	0	0	0	0	0	2	2
			12	0	0	0	1	0	x	x
			14	0	0	0	1	0	x	x
			16	0	0	0	2	1	x	x
			18	0	0	0	2	1	x	x
RFPI® 50	420	8	300	450	600	300	450	600		
			10	0	0	0	0	0	2	2
			12	0	0	0	0	0	1	2
			14	0	0	0	0	0	1	2
			16	0	0	0	0	0	1	2
			18	0	0	0	0	0	1	2
RFPI® 60	480	8	300	450	600	300	450	600		
			10	0	0	0	0	0	2	2
			12	0	0	0	0	0	2	2
			14	0	0	0	0	0	2	2
			16	0	0	0	0	0	2	2
			18	0	0	0	0	0	2	2
RFPI® 70	540	8	300	450	600	300	450	600		
			10	0	0	0	0	0	2	2
			12	0	0	0	0	0	2	2
			14	0	0	0	0	0	2	2
			16	0	0	0	0	0	2	2
			18	0	0	0	0	0	2	2
RFPI® 80	600	8	300	450	600	300	450	600		
			10	0	0	0	0	0	2	2
			12	0	0	0	0	0	2	2
			14	0	0	0	0	0	2	2
			16	0	0	0	0	0	2	2
			18	0	0	0	0	0	2	2
RFPI® 90	660	8	300	450	600	300	450	600		
			10	0	0	0	0	0	2	2
			12	0	0	0	0	0	2	2
			14	0	0	0	0	0	2	2
			16	0	0	0	0	0	2	2
			18	0	0	0	0	0	2	2

- Notes:**
- Table values are valid for the allowable RFPI® Joists design spans (single or continuous) for Category 1 or 2 applications.
  - The floor live load shall not exceed 1.5 kPa; For other floor load conditions, contact **Dindas Australia**.
  - Maximum cantilever length = 600 mm
  - The truss span is the out-to-out distance over the exterior bearing walls plus a max. 750 mm roof overhang on each side.
  - Table values assume a bearing length adjacent to the cantilever of at least 70 mm and a MGP10 bearing plate.
  - Exterior bearing wall weight = 1.2 kN/m.
  - Minimum 17 mm Plywood – F8 reinforcement.
  - Reinforcement shall match the joist depth.
  - Reinforcement length shall be min. 1220 mm from the end of the cantilever.
  - Table applies to joist with a max. spacing of 600 mm. Use 300 mm spacing requirements for spacings less than 300 mm.
  - Roof slope <= 35°
  - Max. cantilever total load deflection is 6 mm or Cant. Length/150, whichever is lower.
  - Max. cantilever live load deflection is 4.5 mm or Cant. Length/180, whichever is lower.
- \* Designs shown in red must be validated by Dindas Australia's Engineering Team.**
- Key**
- 0 = no web stiffeners or reinforcement required  
 ws = web stiffeners required at the interior bearing support  
 1 = web stiffeners + 1 side reinforcement required  
 2 = web stiffeners + 2 sides reinforcement  
 x = try a deeper joist or closer spacing

Typical roof framing and construction details



**NOTE:** Maximum roof slope of 35° for details included in this guide

**WARNING:** Install temporary bracing per Safety and Construction Precautions

- 2D Birdsmouth Cut with I-Joist Blocking**: I-Joist blocking attached as per 2B. Birdsmouth cut I-Joist to provide full bearing to bottom flange. Cut must not overhang inside face of plate.
- 2E Rafters on Beveled Plate**: Minimum 50 mm continuous bevel plate or variable pitch connector. I-Joist blocking attached as per 2B.
- 2F Birdsmouth Cut with X-Bridging**: X-bridging or I-Joist blocking. Validate the use of X-bridging with local building code. Web stiffeners each side as per 2H.
- 2G Roof Opening Hanger Connections**: Bearing web stiffener may be required. Double I-Joist or LVL. Beveled backer block (both sides of web for face-mounted hanger).
- 2H Birdsmouth Cut Bearing Stiffener**: Bevel cut web stiffeners to match roof slope. Install web stiffeners on each side of web. See web stiffeners notes and Figure 2 for attachment information.
- 2M Overhang Parallel to Rafter**: Stop I-Joist at wall line and extend top flange with 38 x 89 mm timber. Support extension with 89 x 39 mm timber nailed to the web of joist with 2 rows of ø3.15 x 65 mm nails at 200 mm oc. spacing. Fasten flange extension to 89 x 38 mm timber with ø3.15 x 65 mm nails at 200 mm oc. spacing.
- 2K Optional Overhang Extension**: Birdsmouth cut I-Joist to provide full bearing to bottom flange. Cut must not overhang inside face of plate. Web stiffeners each side. X-bridging or I-Joist blocking, 600 mm max. joist oc. spacing.

- 2A Ridge Beam Rafter Connection**: Adjustable sloped hanger as per manufacturer's details. Strap required for members with the slope greater than 14°.
- 2B Upper End, Rafters Bearing on Wall**: I-Joist blocking, X-Bridging, 18 mm min. Structural sheathing, or Rim Board as continuous closure. Connect blocking to top plate with ø3.15 x 65 mm nails at 150 mm oc. spacing unless specified otherwise.
- 2C Rafter Connection with Fitted Plywood Gusset**: 18 mm x 600 mm Plywood gusset (face grain horizontal) each side fastened with ø3.15 x 65 mm nails clinched. Support beam. I-Joist blocking attached as per 2B. Beveled web stiffener each side of web. See web stiffeners notes and Figure 2 for details.
- 2M Overhang Parallel to Rafter**: When L exceeds joist spacing, double joist may be required. Blocking between outriggers. Attach blocking to the top plate with nail size and spacing used for roof sheathing edge nailing. 90 x 45 mm outriggers (MGP 10 – min. grade) notched around top flange. Fasten with ø3.15 x 65 mm toe-nail to plate and top flange.

Double I-Joists

- 10 Double I-Joists Detail**: Double I-Joists may be required for frame openings, support concentrated loads, support partitions parallel to floor joists, or support any other loads which would exceed the capacity of a single I-Joist. Install double I-joists when noted in the building drawings.
- Filler blocks do not function as web stiffeners. If web stiffeners are required, it is recommended to install continuous filler block and install web stiffener below filler block prior to attaching I-Joist reinforcement. Leave 6 mm gap between the top of filler block and bottom of top I-Joist flange. Web stiffeners must be tight between top of bottom flange and bottom of filler block.
- Support back of I-Joist web during nailing to prevent damage to web/flange connection.
- Leave a 3mm gap between top of filler block and bottom of top I-Joist flange.
- For side-loaded conditions or cantilever reinforcement, filler block is required between joists for full length of double member.
- Nail joists together with two rows of 3.15 x 65 mm nails at 150 mm o.c. spacing (staggered) on each side of the double I-Joist. Total of 8 nails per 3 m required.
- Filler block thickness may be achieved by using multiple layers of structural wood panels.
- The maximum factored load that may be applied to one side of the double joists using this detail is 7.15 kN/m.

Joists series	Flange width (mm)	Joist depth (mm)	Net filler block size (mm x mm)
RFPI® 20	45	240	35 x 150
		300	35 x 200
		360	35 x 250
RFPI® 30	52	240	45 x 150
		300	45 x 200
		360	45 x 250
RFPI® 40	58	240	50 x 150
		300	50 x 200
		360	50 x 250
RFPI® 50	65	240	55 x 150
		300	55 x 200
		360	55 x 250
RFPI® 60	72	240	60 x 150
		300	60 x 200
		360	60 x 250
RFPI® 70	78	240	65 x 150
		300	65 x 200
		360	65 x 250
RFPI® 80	85	240	70 x 150
		300	70 x 200
		360	70 x 250
RFPI® 90	92	240	75 x 150
		300	75 x 200
		360	75 x 300

Cantilevers for balconies (no wall load from above)

- Figure 7**: Cantilever extension supporting uniform loads only. Attach I-Joists to top plate at all supports as per