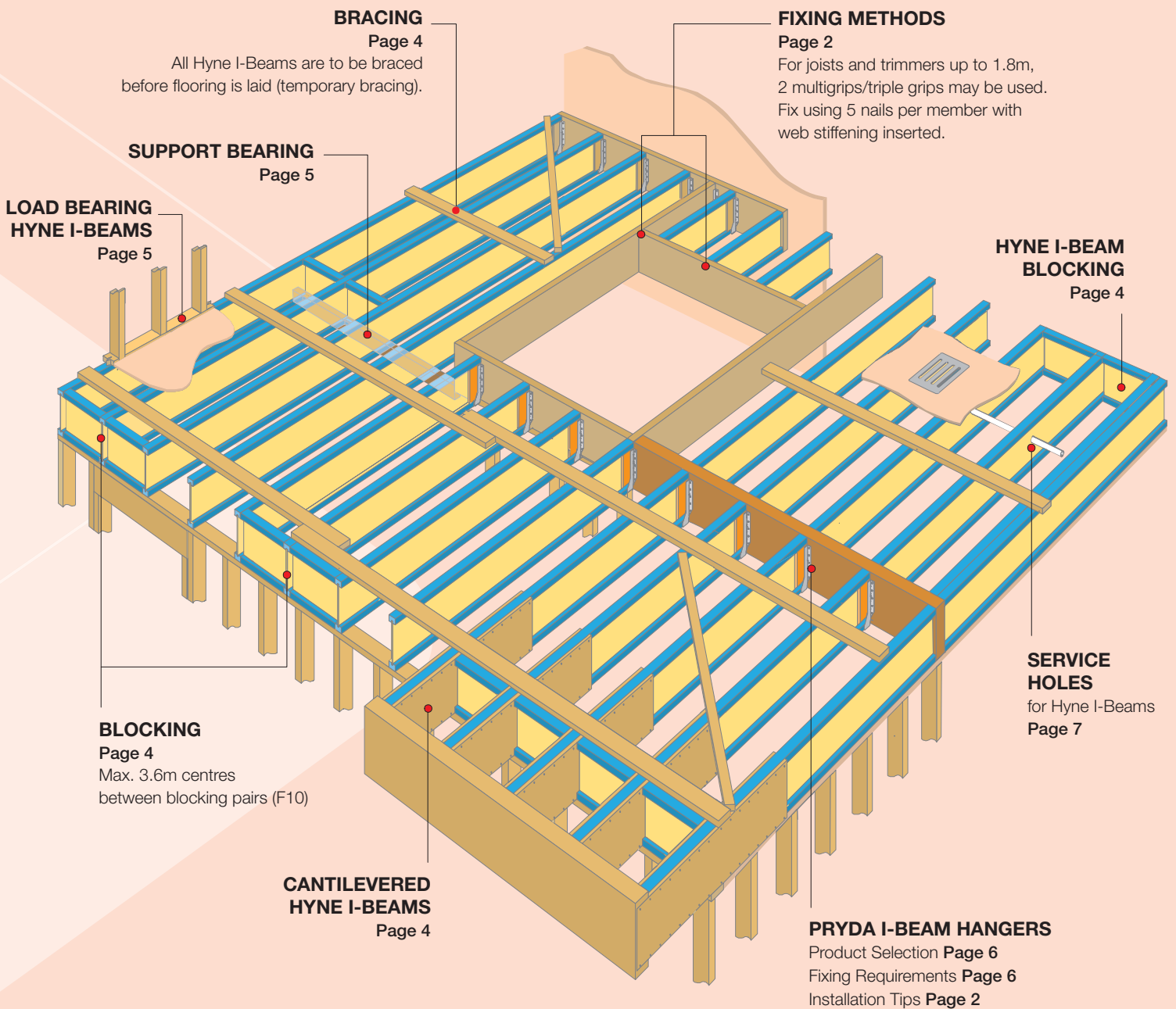




Engineered Timber Products



Installation Guide



FIXING GUIDE WARNINGS

Fixing Guide Warnings are to enable you to construct Hyne I-Beams in an appropriate manner. The details shown follow acceptable construction practices as found on building sites throughout Australia.

Note: Failure to follow these guidelines may result in less than satisfactory product performance.

DO NOT drill any holes over a support.



DO NOT bevel cut the joist past the inside face of the wall.



DO NOT split the flange. **DO** ensure the proper toe nailing.

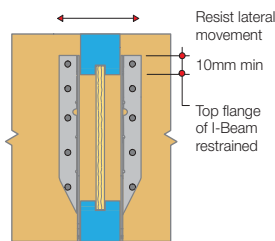
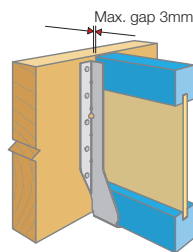


DO NOT cut, notch or drill top or bottom chords.

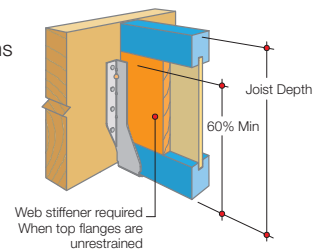


INSTALLATION TIPS

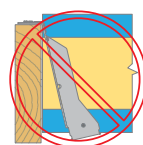
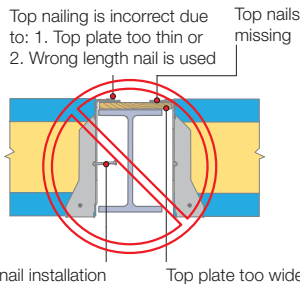
GOOD PRACTICE
Hangers for I-Beams without web stiffeners must support the I-Beam top flange and provide lateral resistance with no more than 3mm horizontal deflection.



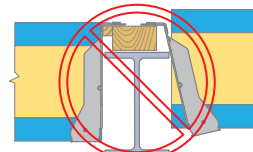
Hangers for I-Beams with web stiffeners must support a minimum of 60% of joist depth.



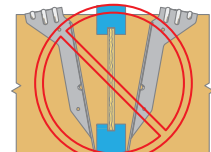
COMMON PROBLEMS
Poor or incorrect installation can lead to serious problems. Avoid these common problems:



Joist is not seated properly into the hanger. This may cause nail pullout or shear under load.



If the top plate is too narrow it may cause:
1. Hanger deformation
2. Nail pull-out or shear
3. Supporting beam deformation

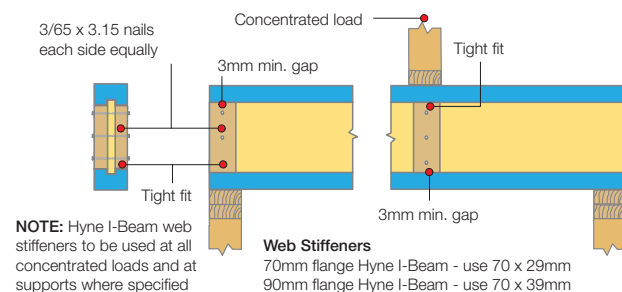


Spreading hanger legs will push the joist up which may cause uneven floors, squeaky floors and joist rotation.

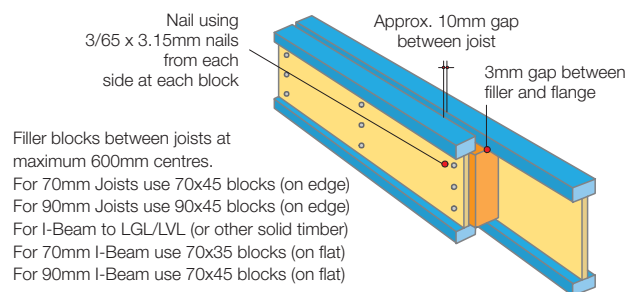
COMMON FIXING METHODS

HYNE I-BEAM

WEB STIFFENER (TREATED) (F9)



DOUBLE JOIST CONNECTION (F16)

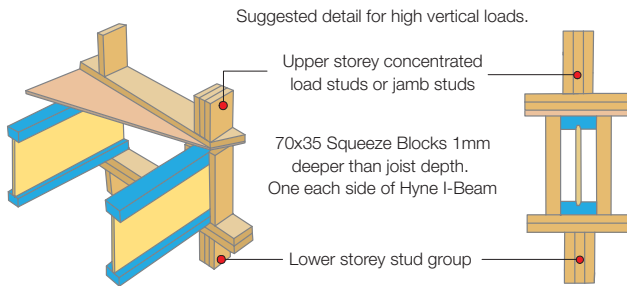


Additional fixing information is available from Hyne Design with Hyne Assist, your Hyne Technical Advisor or by contacting Hyne Product Information Service on **1300 30 4963**

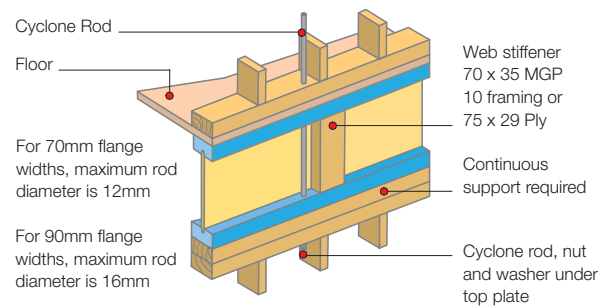


It is also possible to double laminate 63mm Hyne LGL/LVL. For more information refer to Hyne assist, your Hyne Technical Advisor or call the Hyne Product Information Service on **1300 30 4963**

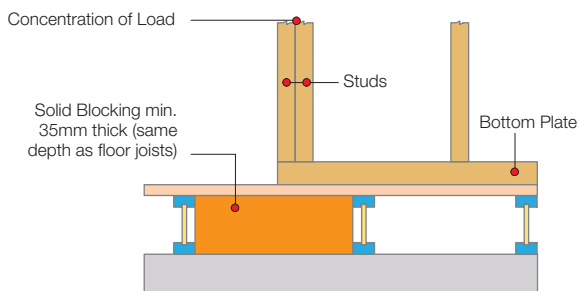
CONCENTRATED LOAD AT JAMB STUDS OR POSTS (F14)



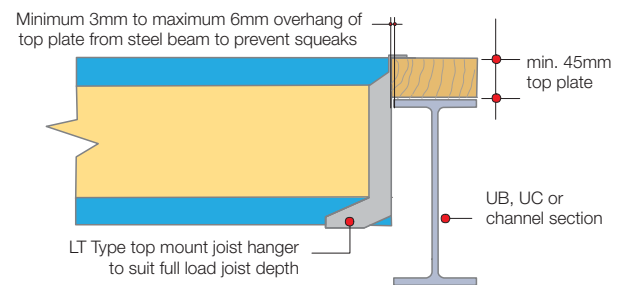
CYCLONE ROD INSTALLATION (F25)



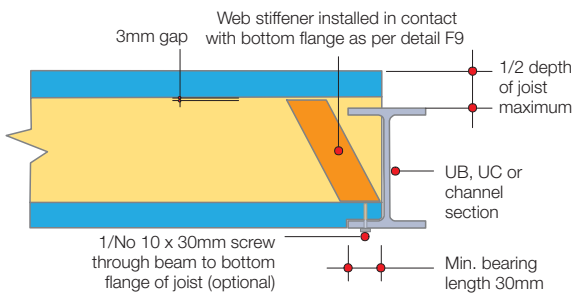
BOTTOM PLATE STIFFENING (F14-1)



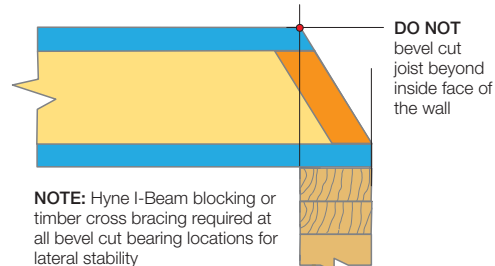
JOIST CONNECTION TO STEEL BEAM - TYPE 1 (F6)



JOIST CONNECTION TO STEEL BEAM - TYPE 2 (F6.5)



BEVEL CUT HYNE I-BEAM (JOIST OR RAFTER) (F15)



HYNE LGL/LVL

DOUBLE LAMINATION CONNECTION FOR LINTEL AND BEARER APPLICATIONS (F7)

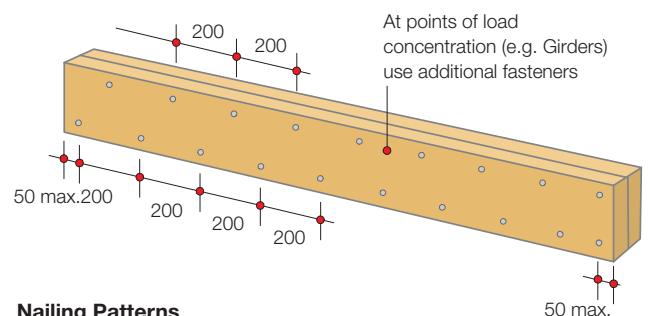
Hyne LVL's that are either 35mm or 45mm thick, may be vertically laminated to obtain 70mm and 90mm thick members.

Nails 2 x 35mm Hyne LGL/LVL 65 x 2.8mm ringshank or twistshank
2 x 45mm Hyne LGL/LVL 70 x 2.8mm ringshank or twistshank

Exposed to Weather Application

- Provide capping
- Adhere to the recommendations in Hyne Technical Data Sheets 5, 6 and 8
- Provide elastomeric adhesive (silicon) bead to top and bottom edges to prevent moisture movement
- For any Hyne Engineered Timber Product used in a Weather Exposed Application please ensure the appropriate treatment level has been specified and used and that reference is made to Hyne Technical Data Sheets:
TDS6 – Hyne Engineered Timber Products in weather exposed applications
TDS8 – Sealing, painting or varnishing of Hyne Engineered Timber Products

Hyne Technical Data Sheets are available from your supplying branch, Hyne Product Information Service or for download at www.hyne.com.au.



Nailing Patterns

- All nails to be alternatively skew nailed (30° to the vertical)
- Nail both faces at below listed centres (staggered)
- 150 up to 200 dp nail 150 crs
- 200-400 dp (inc 200) nail 200 crs
- Nail top and bottom edges on both sides
- Max. end edge distance 50mm (double nail ends)
- Double nail points of load concentrations (ie where Hyne LGL/LVL supports another member)
- Provide nails @ 400 crs along centre line of Hyne LGL/LVL deeper than 200mm

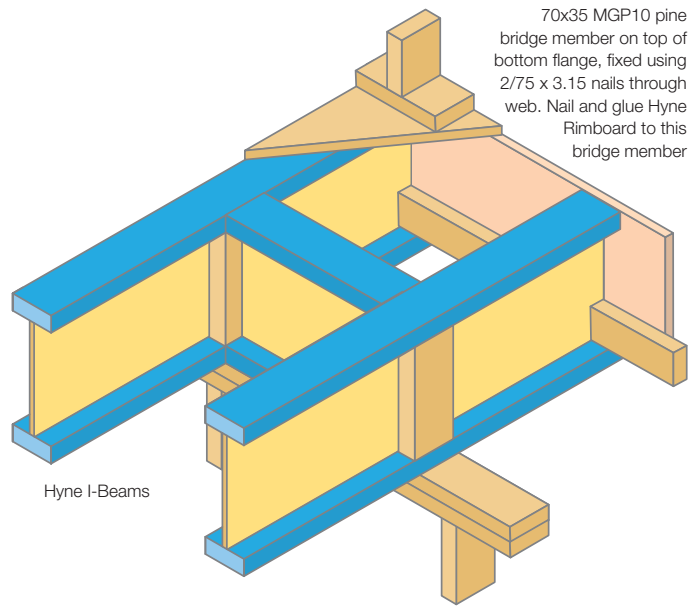
CANTILEVERS

CANTILEVER DETAIL M1 (B)

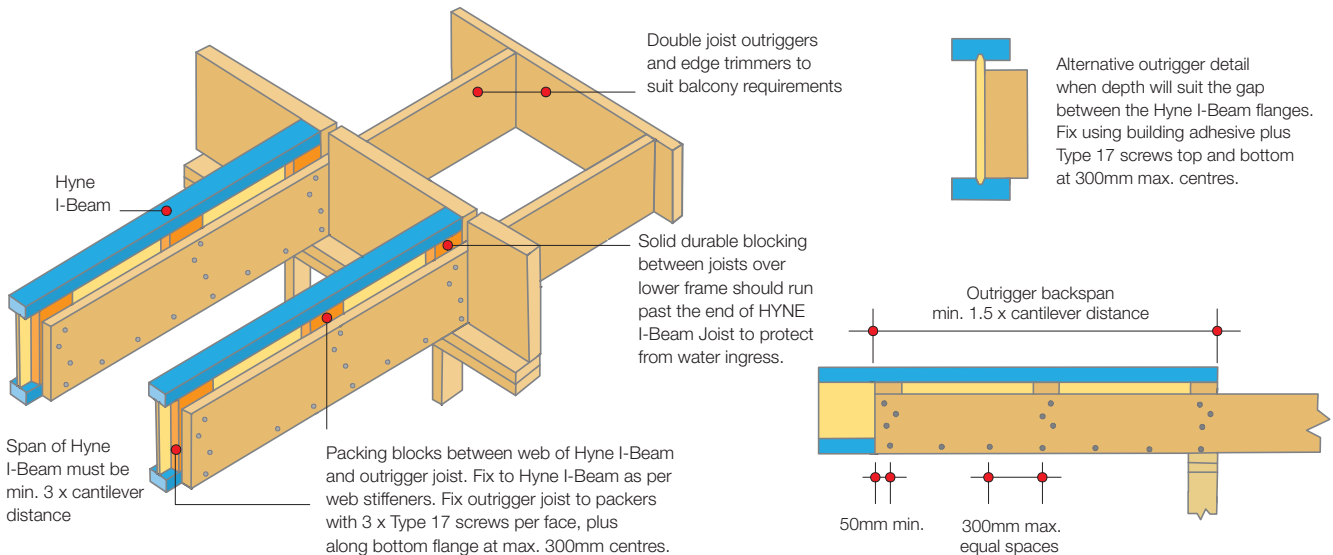
For all cantilever situations, where there is no direct support under the Hyne Rimboard facing, the bottom plate of the supported wall must be sized as for an unsupported bottom plate. To size as a supported bottom plate, refer to the detail at right.

Note:

- Cantilever distance allowable for Hyne I-Beam sizes to be verified by reference to Hyne Assist.
- For tie-down fixing for the upper frame, a 90x45 F5 underbatten or Z-bracket to underside of joists themselves is recommended. Fixing rods or bolts for tie-down direct to rimboard or bridge member is not sufficient.



CANTILEVERS OUTRIGGER BALCONY (F19.1)



BRACING AND BLOCKING

FLOOR SYSTEMS ONLY DURING CONSTRUCTION

All floor systems shall be blocked in accordance with AS1684 by blocking the outer 3 joists (2 spaces) and intermediate joists (2 joist spaces) at not more than 3.6m centres (as shown in Details F10 and F11).

In the finished floor system, interaction between the blocked joists units and unblocked joists shall be achieved either through the floor membrane or the wall plates.

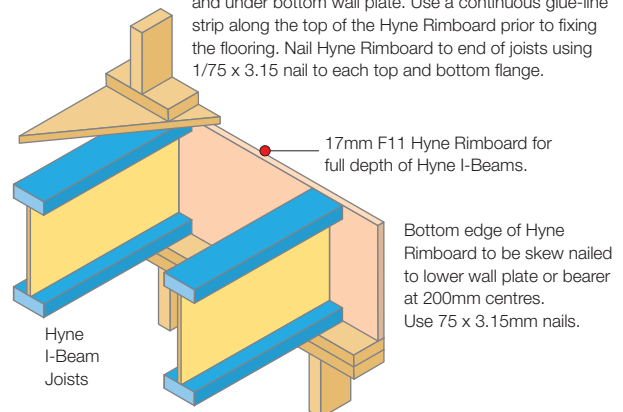
Although the systems recommended by Hyne I-Beam contributes to the total building bracing, more bracing may be required to fully transfer the racking loads from upper to lower walls.

The total building bracing should be designed by a suitably qualified person.

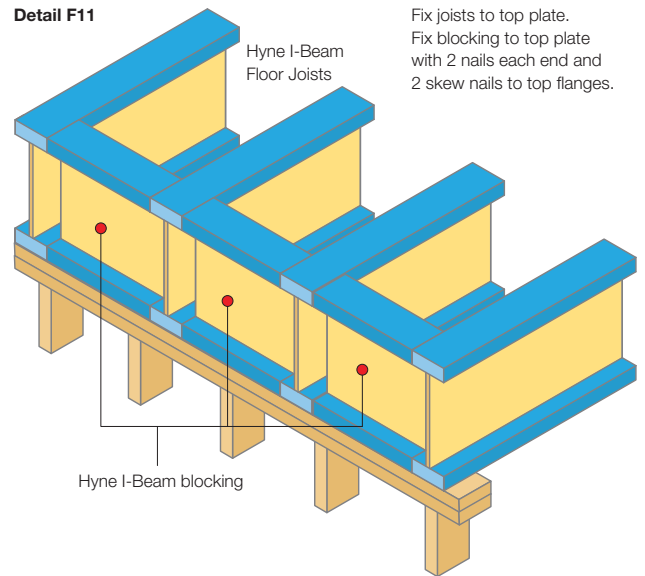
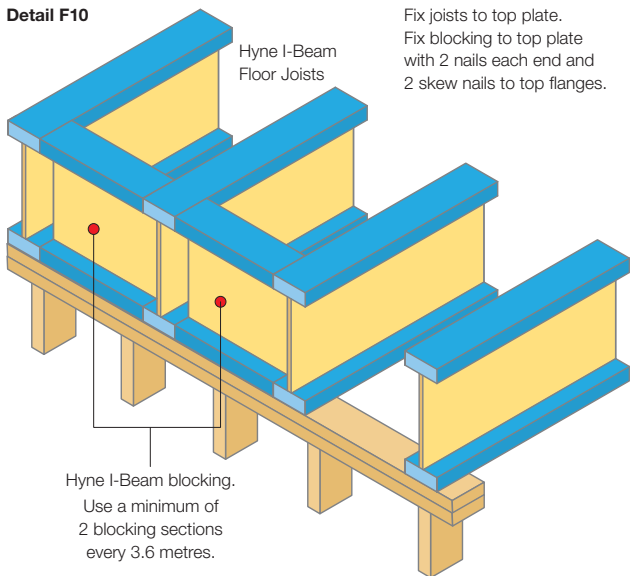
- Fix temporary bracing before attempting to lay the floor.
- Do not walk on or load an unbraced joist system.

Detail F13

Flooring to be continuous over top edge of Hyne Rimboard and under bottom wall plate. Use a continuous glue-line strip along the top of the Hyne Rimboard prior to fixing the flooring. Nail Hyne Rimboard to end of joists using 1/75 x 3.15 nail to each top and bottom flange.



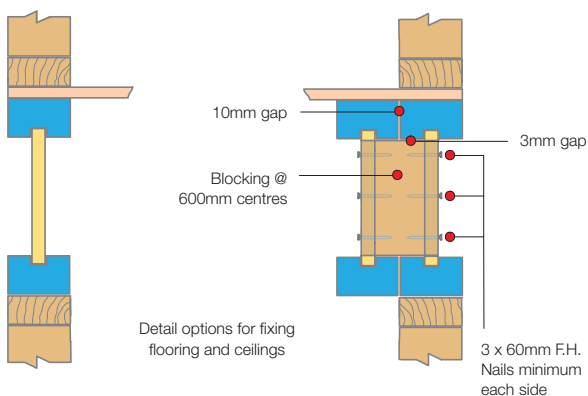
For correctly supported Hyne Rimboard, with fixings as detailed above, the bottom wall plate of the upper storey frame may be sized as fully supported.



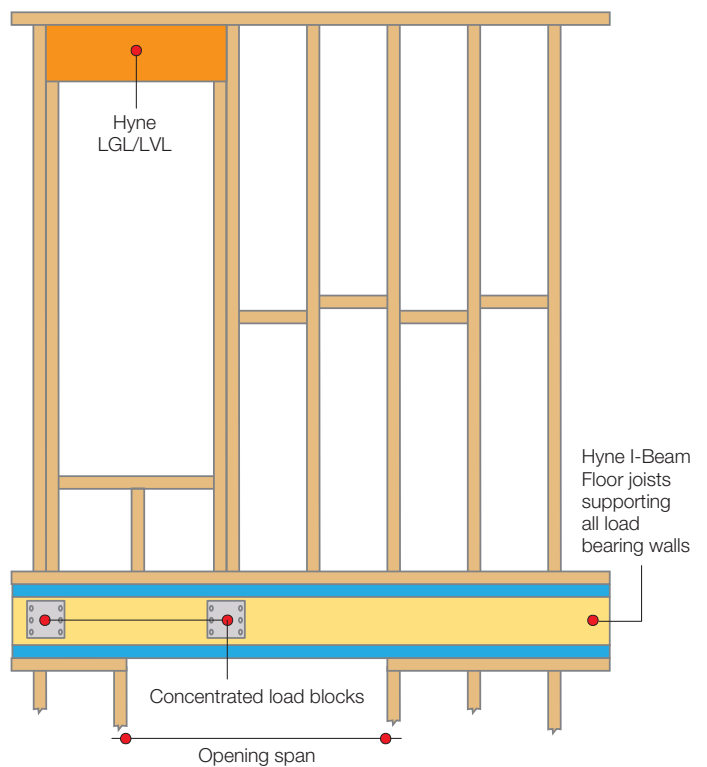
Additional blocking methods and details are available from Hyne Design with Hyne Assist, your Hyne Technical Advisor or by contacting Hyne Product Information Service on **1300 30 4963**

LOAD BEARING HYNE I-BEAMS

FLOOR JOISTS SUPPORTING PARALLEL LOAD BEARING WALLS



NOTE: Blocking of double Hyne I-Beam shall coincide with all supports at sides of openings and all concentrated load points. Alternatively use Hyne LVL or LGL products designed accordingly. Use a size that allows for correct installation of tie down bolts.



While Hyne I-Beam may be treated to an H3 level, Hyne recommends that it NOT be used in any weather exposed applications or in any application where the Hyne I-Beam may become exposed to regular wetting.



hyne.com.au has a comprehensive range of brochures, technical information and material safety data sheets for all Hyne products available for download.

www.hyne.com.au

PRYDA I-BEAM HANGERS

Pryda I-Beam hangers have been engineered to provide rigid support for I-Beams in domestic and commercial applications. They are fully compatible with Hyne I-Beams and are suitable for any support configuration. The product has been developed in accordance with the relevant Australian Standards and the design capacities are verified by a rigorous testing program. Pryda recommends that installation of Hyne I-Beams with the Pryda I-Beam hangers is conducted in accordance with this guide.

All I-Beam hangers must be selected with due regard to the imposed loads and hanger capacities. Appropriate engineering advice must be obtained prior to selection and installation.

PRODUCT SELECTION

STANDARD

I-Beam Code	I-Beam Size	Face Mount Hanger Code	Top Mount Hanger Code	Double I-Beam Face Mount Hanger Code
HI200070	200x70	LF190/70	LT200/70	LF190/140
HI245070	245x70	LF235/70	LT245/70	LF190/140*
HI300070	300x70	LF290/70	LT302/70	LF190/140*
HI245090	245x90	LF235/90	LT245/90	LF235/180
HI300090	300x90	LF290/90	LT300/90	LF235/180*
HI360090	360x90	LF350/90	LT360/90	LF235/180*

* Web stiffener required in accordance with Hyne I-Beam specifications.

VARIABLE SLOPE AND SKEW

I-Beam Code	I-Beam Size	Variable Slope & Skew Face Mount Hanger Code	Variable Skew Face Mount Hanger Code
HI200070	200x70	LF190/70VS*	LF220/70SL* or R*
HI245070	245x70	LF224/70VS*	LF220/70SL* or R*
HI300070	300x70	LF224/70VS*	LF215/90SL* or R*
HI245090	245x90	LF224/90VS*	LF215/90SL* or R*
HI300090	300x90	LF224/90VS*	LF215/90SL* or R*
HI360090	360x90	LF224/90VS*	LF215/90SL* or R*

* Web stiffener required in accordance with Hyne I-Beam specifications. L – skewed 45 deg left. R – skewed 45 deg right. Left or right orientation based on view from the supported I-Beam.

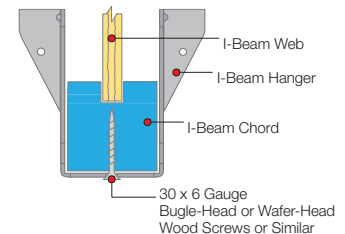
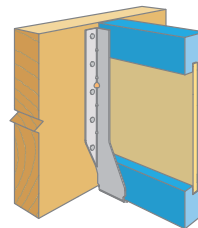
FIXING REQUIREMENTS

FACE MOUNT

Installation: Use 40x3.75mm Pryda Galvanised Nails – OSNIBC/S (500G)

Steps:

1. Fix hanger to header by filling all nail holes using 40x3.75mm nails.
2. Sit joist in bracket and fix joist tight using
 - (1) No.6, 30mm Type 17 bugle head screw.

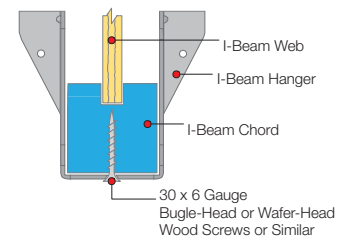
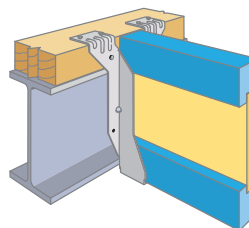


TOP MOUNT

Installation: Use 35x3.75mm Pryda Timber Connector Galvanised Nails – OSNIB35C/S (500g).

Steps:

1. Fix hanger to header with (2) or (3) 35x3.75mm nails through round holes only into header or nailing plate.
2. Sit joist in bracket and fix joist tight using
 - (1) No. 6, 30mm Type 17 bugle head screw.



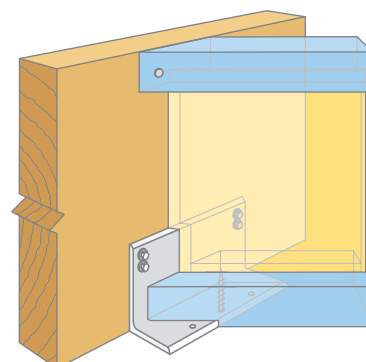
SKEW ANGLE

Product code: LVSIA

Installation: Use No. 12, 35mm long Type 17 hex head screws – WTF12-35 and No. 10, 30mm Type 17 bugle head screws.

Steps:

1. Fix bracket to bearer or waler plate using
 - (4) No. 12, 35mm long Type 17 hex head screws.
2. Mitre end of I-beam to suit angle.
3. Notch underside of Hyne I-Beam (max. 6mm) to achieve flush finish where Hyne I-Beam bears against LVSIA.
4. Screw through underside of bracket into base of I-beam with
 - (1) No. 10, 30mm Type 17 bugle head screw.
5. Skew nail fix top flange of Hyne I-Beam to bearer or waler plate.



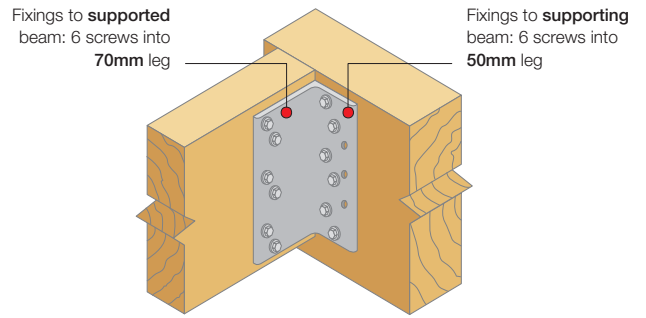
VERTICAL APPLICATION

Product code: LVSIA

Installation: Use 6 x No. 12, 35mm long Type 17 hex head screws on each leg

Note:

1. Provide 2 x No. 14. x 90 screws from the back of supporting beam into end-grain of supported beam to resist twisting of supporting beam. Use longer screw lengths if required to ensure a minimum 35mm penetration.
2. When the supported member used is prone to splitting (like hardwoods-JD3), additional precautions should be taken.



VARIABLE SLOPE AND SKEW

Product Codes: LF190/70VS, LF224/70VS, LF224/90VS.

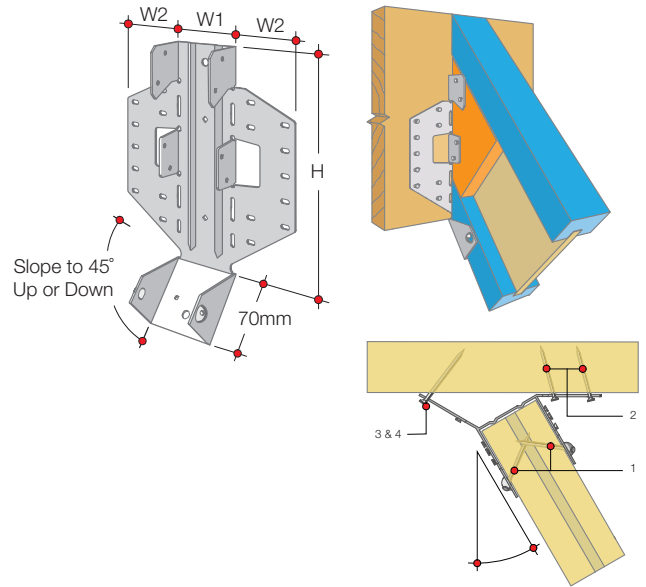
The LF.VS series connects rafters to ridge beams in vaulted roof structures. This series is field adjustable to meet a variety of slope applications. Slopes to any pitch to 45 degrees left or right.

Finish: Z275 galvanised coating

Installation: Use 40x3.75mm Pryda Timber Connector Galvanised Nails – OSNIBC/S (500g).

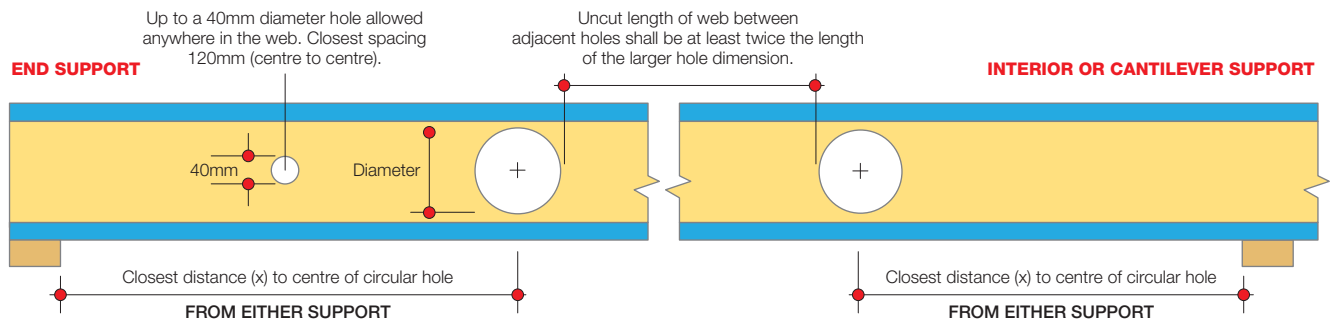
Steps:

1. Position LF.VS connector against plumb-cut end of joist. Fasten joist side flanges on both sides with 40x3.75mm nails. Bend seat up to fit against joist bottom and drive (1) 40x3.75mm nail through bottom seat into rafter bottom. Five (2) 40x3.75mm nails at downward angle through dimpled nailing guides.
2. Lean connector and rafter end against ridge beam at desired position. Install 40x3.75mm nails through nail holes into ridge beam on inside flange.
3. Bend flange to desired angle.
4. Hammer outside flange until the edge touches header. Fasten outside flange to ridge by driving 40x3.75mm nails through nail holes.
5. Web stiffeners are required for all I-Beam installations.

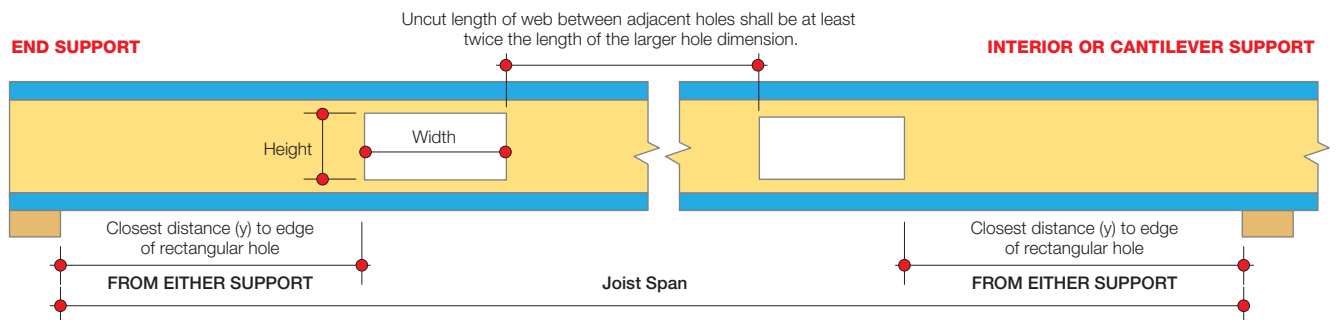


SERVICE HOLES

CIRCULAR HOLES



RECTANGULAR HOLES



FLOOR JOIST HOLE CHART

LOADINGS (Unfactored): Dead load = 0.5 kPa Distributed live load = 1.5 kPa Concentrated live load = 1.8 kN
 For residential floors only. Use in conjunction with 'Service Holes' diagram on previous page.

JOISTS @ 450mm CENTRES

Joist Size	Joist Span (mm)	Minimum distance (x) from face of support to centre of hole (mm)								Minimum distance (y) from face of support to edge of hole (mm).											
		+ Circular Holes - Diameter (mm)								+ Rectangular Holes - Height x Width (mm)											
		100	125	150	175	200	225	250		50x100 75x75	50x125 75x100	50x150 75x125 100x100	75x150 100x125	75x175 100x150 125x125	75x200 100x175 125x150	75x225 100x200 125x175 150x150	100x225 125x200 150x175	100x250 125x225 150x200 175x175	100x275 125x250 150x225 175x200	100x300 125x275 150x250 175x225 200x200	125x300 150x275 175x250 200x225
HI 20070	2000	300	375	-	-	-	-	-	300	375	450	450	525	600	675	675	890	1185	-	-	
	3900	300	375	-	-	-	-	-	300	375	450	590	870	1160	1455	1750	2040	2335	-	-	
HI 24570	2300	370	375	450	-	-	-	-	370	375	450	450	525	600	675	675	750	830	1250	-	
	4500	400	400	450	-	-	-	-	400	400	450	450	650	900	1150	1400	1755	2180	2600	-	
HI 24590	2700	370	375	450	-	-	-	-	370	375	450	450	525	600	675	675	750	950	1390	-	
	5300	400	400	765	-	-	-	-	400	400	495	745	990	1240	1490	1735	2010	2450	2890	-	
HI 30070	2800	450	450	450	525	600	675	-	450	450	450	450	525	600	675	675	750	825	900	1310	
	5600	450	450	450	525	805	1280	-	450	450	450	450	525	600	780	1095	1415	1735	2195	2760	
HI 30090	3000	450	450	450	525	600	675	-	450	450	450	450	525	600	675	675	750	825	965	1570	
	5900	450	450	465	935	1405	1880	-	450	450	450	450	750	1065	1380	1695	2010	2325	2665	3270	
HI 36090	3300	540	540	540	540	600	675	750	540	540	540	540	540	600	675	675	750	825	900	1245	
	6600	550	550	550	650	1235	1815	2400	550	550	550	550	550	815	1205	1590	1980	2370	2755	3145	

JOISTS @ 600mm CENTRES

Joist Size	Joist Span (mm)	Minimum distance (x) from face of support to centre of hole (mm)								Minimum distance (y) from face of support to edge of hole (mm).											
		+ Circular Holes - Diameter (mm)								+ Rectangular Holes - Height x Width (mm)											
		100	125	150	175	200	225	250		50x100 75x75	50x125 75x100	50x150 75x125 100x100	75x150 100x125	75x175 100x150 125x125	75x200 100x175 125x150	75x225 100x200 125x175 150x150	100x225 125x200 150x175	100x250 125x225 150x200	100x275 125x250 150x225 175x200	100x300 125x275 150x250 175x225 200x200	125x300 150x275 175x250 200x225
HI 20070	1800	300	375	-	-	-	-	-	300	375	450	450	525	600	675	675	820	-	-	-	
	3600	380	595	-	-	-	-	-	370	515	660	805	950	1095	1335	1575	1820	-	-	-	
HI 24570	2300	370	375	450	-	-	-	-	370	375	450	450	525	600	675	675	750	825	1105	-	
	4500	400	400	675	-	-	-	-	400	400	470	660	845	1035	1220	1410	1600	1915	2255	-	
HI 24590	2500	370	375	450	-	-	-	-	370	375	450	450	525	600	675	675	750	935	1300	-	
	4900	515	795	1075	-	-	-	-	500	685	875	1060	1245	1430	1615	1800	1985	2235	2600	-	
HI 30070	2600	450	450	450	525	600	675	-	450	450	450	450	525	600	675	675	750	825	900	1180	
	5200	450	450	450	730	1085	1445	-	450	450	450	450	590	830	1070	1305	1545	1785	2025	2480	
HI 30090	2800	450	450	450	525	600	675	-	450	450	450	450	525	600	675	675	750	825	1040	1445	
	5500	450	555	910	1265	1615	1970	-	450	450	655	890	1125	1360	1600	1835	2070	2305	2540	2945	
HI 36090	3100	540	540	540	540	600	675	775	540	540	540	540	540	600	675	675	750	825	1045	1335	
	6100	550	550	680	1115	1550	1990	2425	550	550	550	655	945	1235	1530	1820	2110	2400	2695	2985	

Hyne I-Beam hole selection procedure:

- For residential floor joist applications select joist spacing
- Select joist size
- Select the desired circular or rectangular hole size
- Select the span row which is equal to or greater than your actual span
- Read the distance x or y representing the minimum allowable distance from the face of support to the hole
- Confirm that the selected hole distance complies for both supports.

Hole selection notes:

- These hole charts are prepared specifically for use with Hyne I-Beam and they shall not be used with any other product.
- Hole design is based on proprietary research and modelling conducted by Monash University on behalf of Hyne Timber.
- Customised hole design information for a specific design may be obtained using Hyne Design software.
- The minimum distance to a support is the greater of 1.5 x depth of the joist, or 3 x the length of the hole.

- Holes shall not be located directly over a support or at a point of concentrated load.
- This hole chart is applicable for both simple and continuous support conditions. Holes should not be permitted in the web of a cantilever section of a joist (except 40mm diameter holes).
- Holes shall be installed in accordance with the Hyne Pryda Installation Guide. Overcutting of holes shall not be permitted.
- A minimum 3mm of uncut web shall be maintained between web holes and flanges at all times. Do not cut or damage flanges.
- Hole spacing: Minimum clear distance between holes shall be 2 times the largest hole dimension.
- A maximum of three web holes may be installed in any one span. There is no limit to the number of 40mm diameter (or smaller) holes in any joist.
- Multiple smaller holes may be permitted within the envelope of an allowable larger hole given in the above table.

- It should be noted that the presence of web holes is likely to increase the deflection of the joist due to increased shear deformation. The number and size of web holes should be limited wherever possible.
- Interpolation of tabular values in the above table is permitted. Extrapolation of tabular values is not permitted.
- Where the hole distance values are represented by "-" the particular hole size is not permitted in the span.
- Square or rectangular web holes should be centred at the I-Beam mid-height where possible.
- The above hole chart applies for a maximum 1.8 kN concentrated live load and does not allow for offset load bearing walls supported on the joist.
- These hole charts may be applied to rafters for wind classifications up to and including N4 (Refer AS4055).
- For additional hole sizes, locations and more applications refer to your Hyne Technical Advisor or contact Hyne Info Service on 1300 30 4963



Hyne Product Info Service
 T: 1300 30 4963 (Hyne)
hyne.com.au



Pryda Australia
 T: 1300 657 052
pryda.com.au