



MultiStrut Technical Manual



MultiStrut Joists

were first introduced into Australia
by

Multinail Australia

in **1985**



Since their *introduction* the MultiStrut Joists (MSJs) have revolutionised the building industry creating a more streamlined, economical construction method for builders.

MultiStrut Joists are **parallel chord trusses** using timber chords “on flat” or “on edge” in conjunction with the unique MultiStrut steel web. As the timber is concentrated where it is most effective, MultiStrut Joists are *light weight, strong structural members*.

Prior to the introduction of MultiStrut Joists, floor joists spans were limited to about 4.5 m using solid Douglas Fir, Radiata or Oregon. With the use of MultiStrut Joists spans are able to be increased to up to 8 m eliminating many of the steel beams previously required to augment solid timber floor joist construction.

MultiStrut Joists are normally manufactured to meet the precise specifications of each job. As the joists are sized to meet a specific job theft from site is significantly reduced leading to cost saving for the builder. If required MSJs can be manufactured with double or triple timber end webs to allow joist to be trimmed on site.

An additional benefit with the use of MultiStrut Joists is the ease of running services. Plumbing, electrical, air conditioning and heating ducts can be positioned between the chords and the webs in both directions with no cutting or drilling- leading to time savings on site.

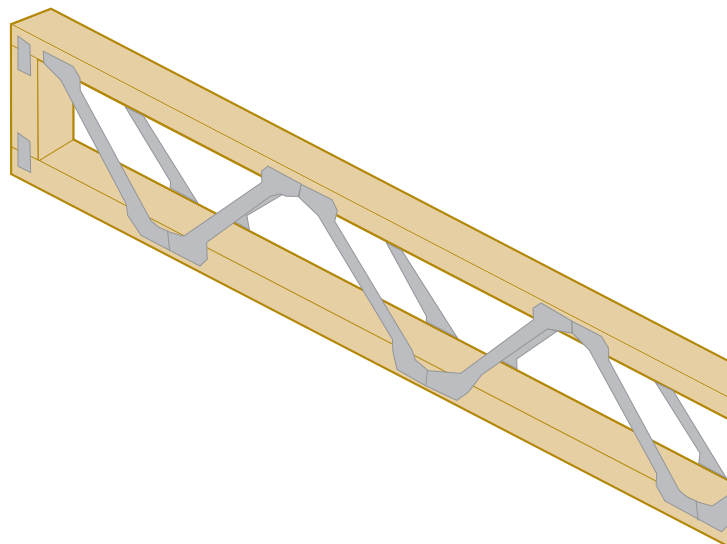
For heavier loads and larger spans the successful Steelwood Joist range of open web floor trusses is available. These open-web floor trusses enable timber floors to clear span over 10 m. For further information regarding this product refer to Multinail Australia.

Multinail MultiStrut Joists

offer the **builder & architect** *the following* **benefits:**

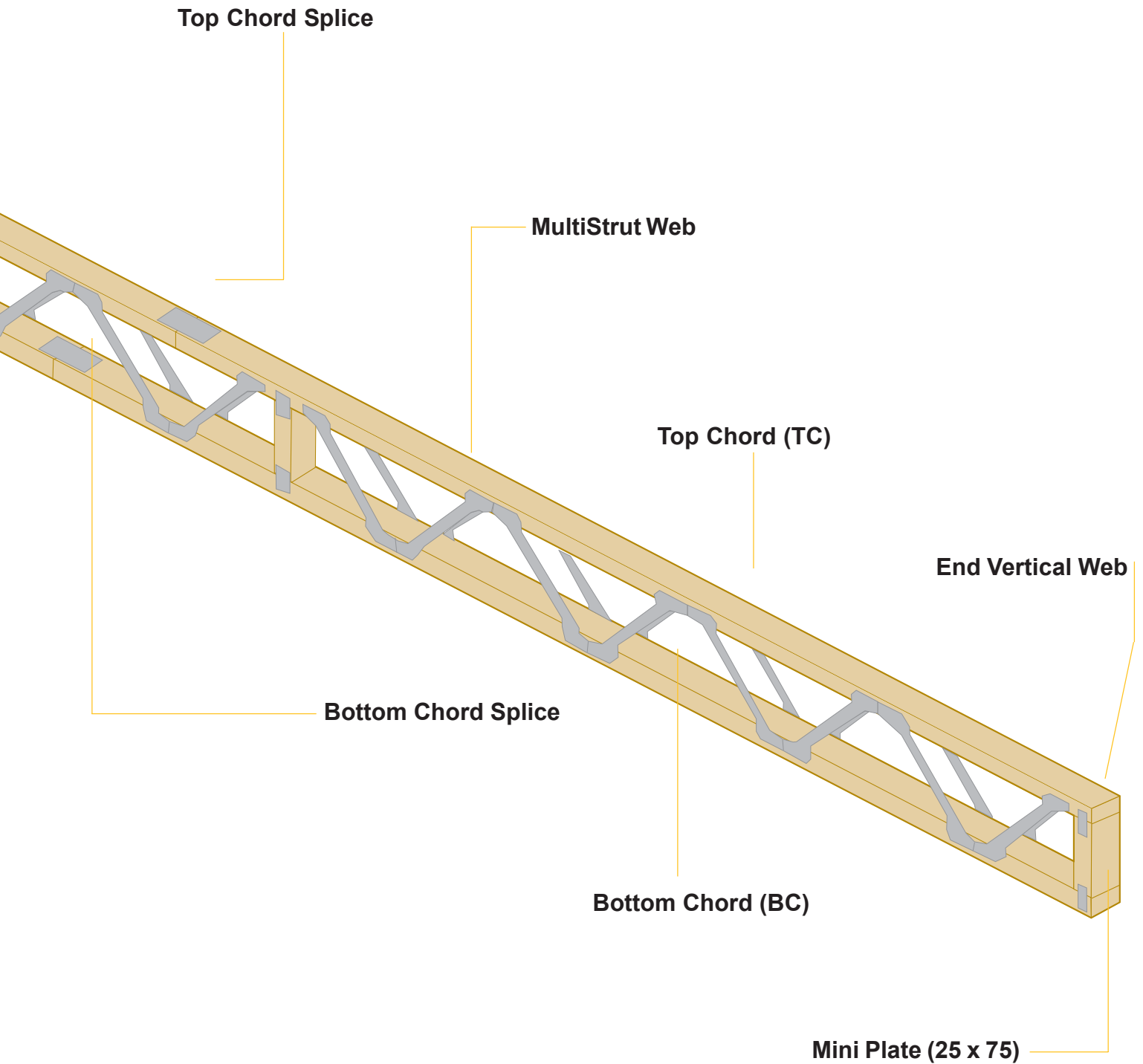
- > Lightweight and easy to handle.
- > Longer spans than solid timber.
- > Faster positioning and installation.
- > Plumbing, electrical, A/C and heating ducts can be positioned between chords and webs in both directions.
- > No notching or drilling of timber members required to accommodate Services.
- > Ceiling material may be fixed directly to underside of bottom chords.
- > Shrinkage problems sometimes experienced with unseasoned timbers are reduced or eliminated.
- > External and internal cantilevers.
- > Wide chords for ease of fixing flooring and ceiling material.

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1.0 MULTISTRUT JOISTS

MEMBER IDENTIFICATION



MultiStrut Joists are specified using a nominal size. The true final depth of the joist depends upon the depth of the timber used for the chords.

Diagram 2.1 MultiStrut Joist with 45mm Chords

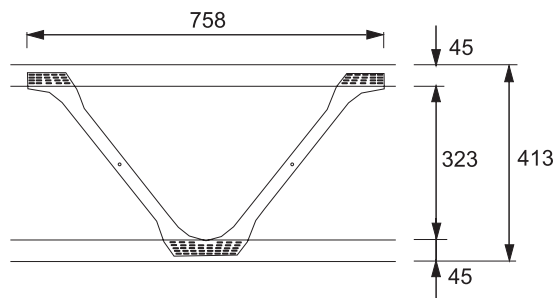
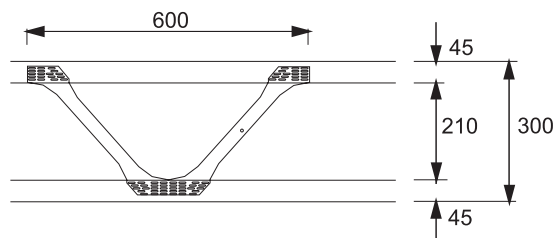
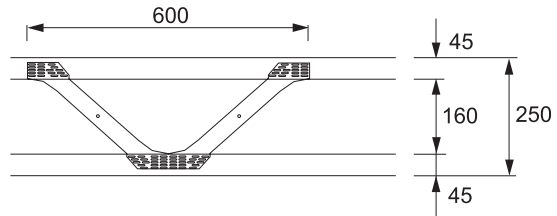
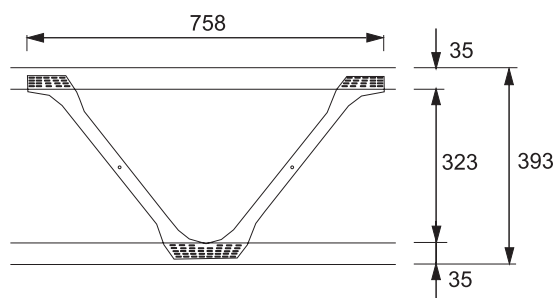
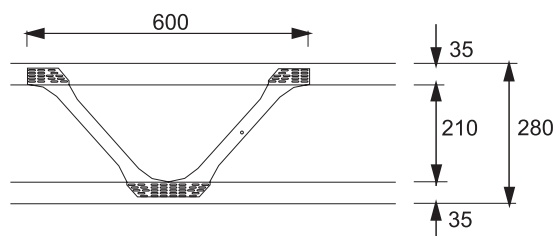
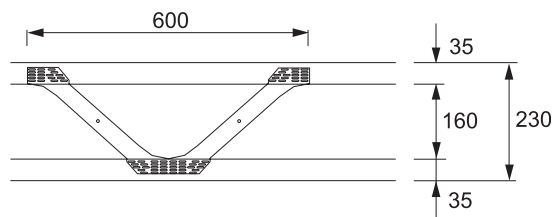


Diagram 2.2 MultiStrut Joist with 35mm Chords



MultiStrut Joists are typically designed and manufactured by Multinail licensed fabricators for a specific job.

The span tables shown are indicative only. They are provided for guidance in specifying the correct depth MultiStrut Joists. The final timber size used will depend on local availability and price factors.

Table 3.1 Indicative Span Table for 1.5kPa Live Load at 450 Cts

MultiStrut Nominal Size	Timber Size	F5	MGP12	F27
MS250	45 x 70	4500	5900	6500
	45 x 90	5100	6300	6800
MS300	45 x 70	5000	6600	7200
	45 x 90	5700	7000	7500
MS400	45 x 70	5700	7700	7800
	45 x 90	6600	7800	7800

MultiStrut Joists are designed to allow the easy accommodation of electrical, plumbing, waste water and air conditioning services with no cutting on site.

Maximum clearance between the webs is as shown in Table 4.1

Diagram 4.1 Clearance for Service Penetrations

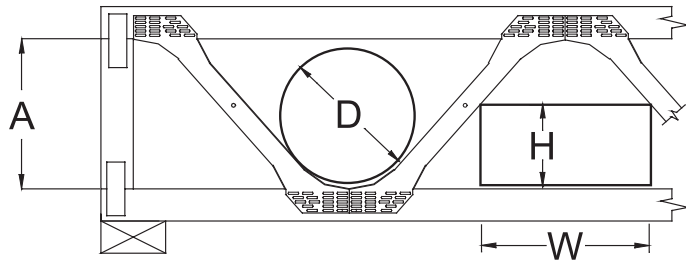


Table 4.1 Clearance for Service Penetrations

	MS250	MS300	MS400
A (mm)	160	210	323
D (mm)	150	200	280
H (mm)	W (mm)	W (mm)	W (mm)
50	300	330	500
100	200	250	410
150	70	170	330
200	N/A	70	250
250	N/A	N/A	170
300	N/A	N/A	70

> WARNING

The chords of the MultiStrut Joist must not be cut, notched or drilled in any way without engineering approval.

The MultiStrut steel webs of the MultiStrut Joist must not be drilled, bent or removed in any way without engineering approval.

Multinail Australia has developed the software package “StrutSource” which fully specifies, details and costs MultiStrut Joists. This software package is available to all licensed Multinail fabricators. MultiStrut Joists designed using StrutSource are based on the following load conditions:

5.1 Dead Loads

Dead Load is the mass of the structure and permanent fixtures. The following permanent fixtures have been considered in designs from StrutSource:

Normal floor loading allows for carpet or vinyl; 22mm particleboard, tongue and groove flooring or ply flooring; and plasterboard ceiling.

Tile floor loading allows for FC sheeting carrying up to 50mm of grout and Ceramic or clay tiles and plasterboard ceiling.

Live Loads are comprised of the temporary loads which are imposed by people and items such as furniture.

5.1 Live Loads

The Australian Standard AS1170.1 specifies distributed live load and point live load requirements to be considered independently for various floor uses. (It is essential that both these values are specified by the building designer so as to ensure that the MSJ meets the strength and serviceability requirements of it's end use)

The StrutSource computer program allows the detailer to specify the live load values applicable for the job.

5.1 Special Loads

It is important to check that there are no unusual loads specified for the floor. Refer to the Multinail Design Group if the floor is to carry any of the loads listed below or any other special loads;

- > Spa Baths
- > Water Beds
- > Wind Loads

> WARNING

MultiStrut Joists are not designed to support load-bearing walls. All roof loads and beams are to be supported by external wall only (or referred to the Multinail Design Group).

The advice of the Multinail Design Group should be sought if the loads imposed on the MultiStrut Joists during construction (e.g. Due to their use for the temporary support of building materials) are likely to be substantially higher than those for which the finished structure is designed.

The dynamic action of any floor system – timber, concrete or steel – is dependent on many factors such as the floor plan, the applied load and the level of expectation of the occupants.

The floor stiffness achieved by the MultiStrut floor system exceeds the expectations of most occupants.

6.1 Damping

Certain components of a house act to reduce the vibration of a floor. This is known as damping.

One of the major contributors of damping (which leads to an improved MultiStrut floor) is the Strongback. It is essential for the integrity and performance of the floor system that the Strongback is sized, located and fixed correctly to the MultiStrut Joists.

Internal walls also assist greatly in providing damping. Where there are large open areas, for example in rumpus rooms, the dynamic action of the floor is likely to be more noticeable.

Other contributors to damping include floor coverings, the ceiling and floor linings, furniture and fittings. The correct nailing and gluing of the flooring material is also of significant assistance.

> TYPE 1: TWO STOREY CONSTRUCTION

MultiStrut Joists may be used to distribute load from an upper-storey load-bearing walls to a load-bearing lower-storey wall provided the following conditions are met:

The lower-storey wall frame provides continuous support to the MultiStrut Joist.

Studs, wall plates and lintels have been sized in accordance with the relevant Tables from AS1684.

The roof load width (RLW) supported must not exceed that given in Table 9.1 (Refer to Section 2.6.4 of AS1684 Residential timber framed construction for definition of roof load width RLW).

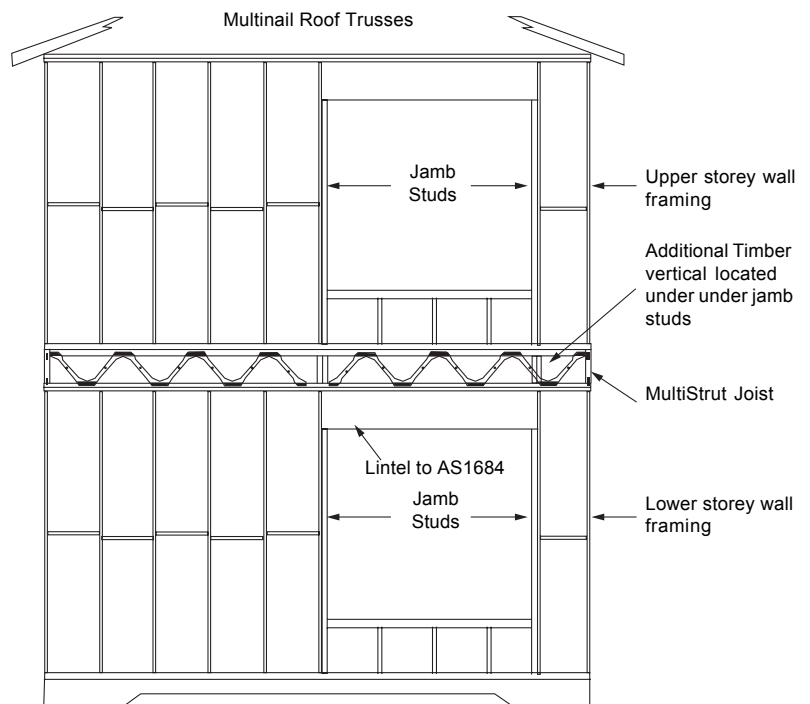
Where there are openings exceeding 1800mm in the upper storey wall, a timber vertical equal in size to the upper floor stud size carrying the concentrated load, to be nailed into the End Frame or MultiStrut Joist directly under the studs. (Refer Diagram 7.1)

Where the roof load width exceeds the spans itemised in Table 9.1 then use one of the following options:

Table 7.1 Maximum Roof Load Width Supported by Standard MultiStrut Joists

MultiStrut Nominal Depth	Sheet Roof	Concrete Tile Roof	
	Roof Truss Spacing (mm)		
	1200	600	900
MS250	2100	3300	1800
MS300	2100	3300	1800
MS400	Not Suitable	Not Suitable	Not Suitable

Diagram 7.1 MultiStrut Joist to Support Roof Load



Where the roof load width exceeds the spans itemised in Table 7.1 then use one of the following options:

> A LADDER TRUSS

A ladder truss is a MSJ nogged out at 300 centres. This forms a dwarf wall with verticals designed as wall studs and chords designed as ribbon plates in AS1684.

If convenient most of the MultiStrut webs can be eliminated and the studs spread to conventional stud spacings. Only the MultiStrut webs required to prevent racking of the dwarf wall need to be included.

Diagram 7.2 Ladder Truss Typical Section

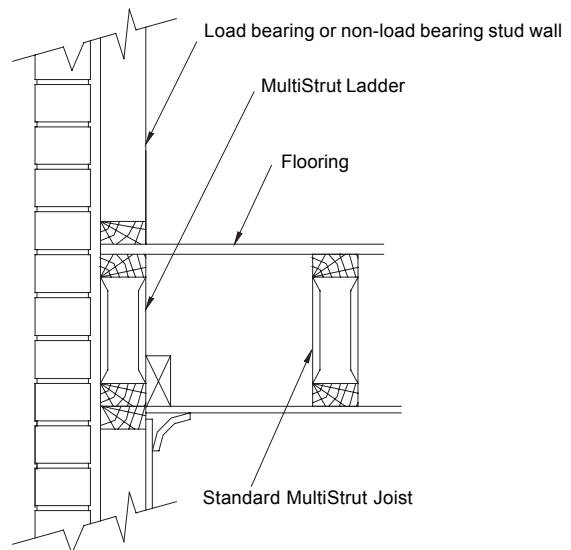


Diagram 7.3 MultiStrut Ladder Truss to Support Roof Load

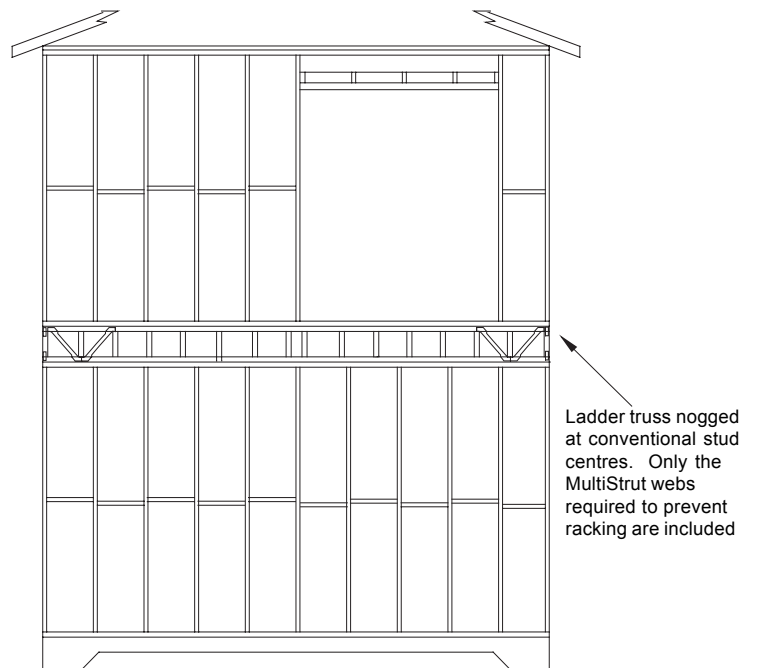
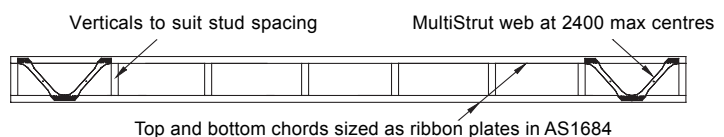


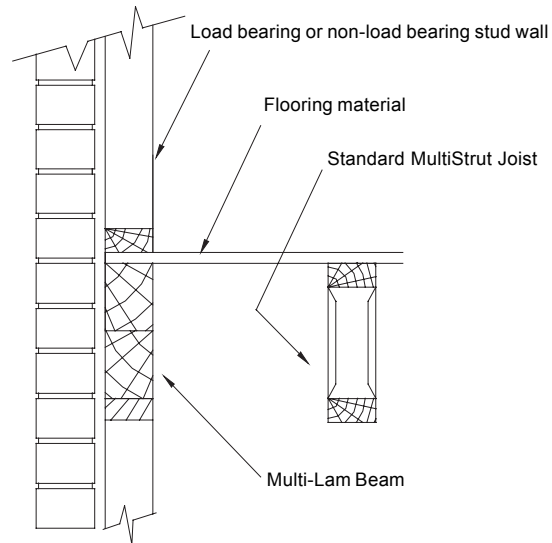
Diagram 7.4 Typical Ladder Truss



> SOLID TIMBER

A solid timber bearer or Multi-Lam Beam to match the MultiStrut Joist depth.

Diagram 7.5 Multi-Lam Beam Typical Section



> SINGLE-STOREY CONSTRUCTION

For the support of external load-bearing walls for Single-Storey Construction there are a number of options available:

Use a 45mm wall plate on continuous internal brickwork, OR

Use a Bearer taken from AS 1684 or use a Multi-Lam Beam.

Diagram 7.6 Multi-Lam Beam or Bearer to Support Roof Load

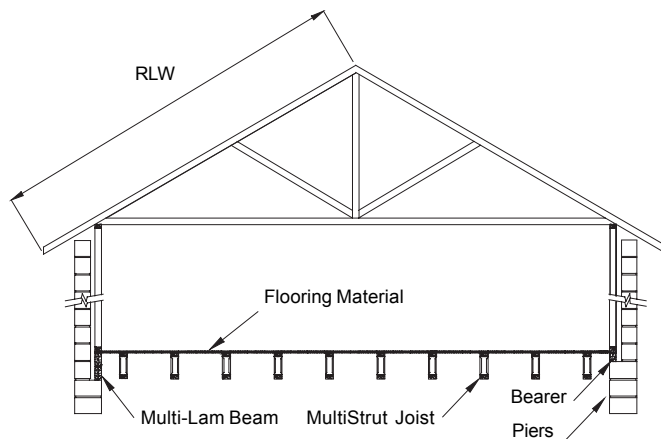
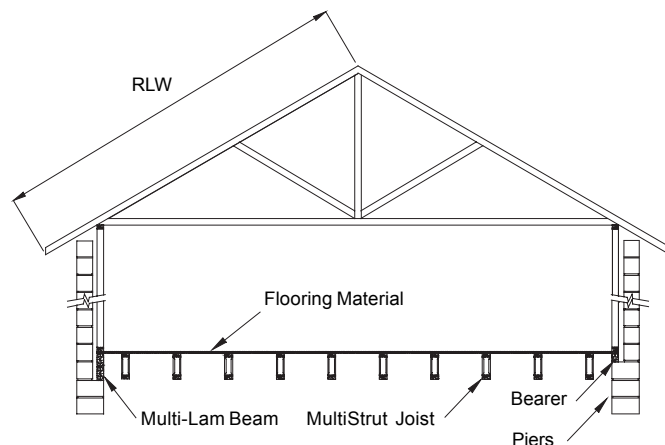


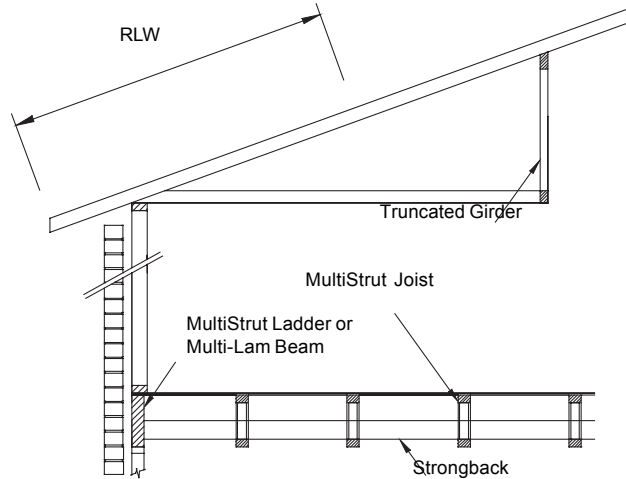
Diagram 7.7 Multi-Lam Beam or Bearer to Support Roof and Floor Load



> TWO-STOREY CONSTRUCTION HIP ENDS

This is the same as Type 1 with RLW defined as shown in Diagram 7.8

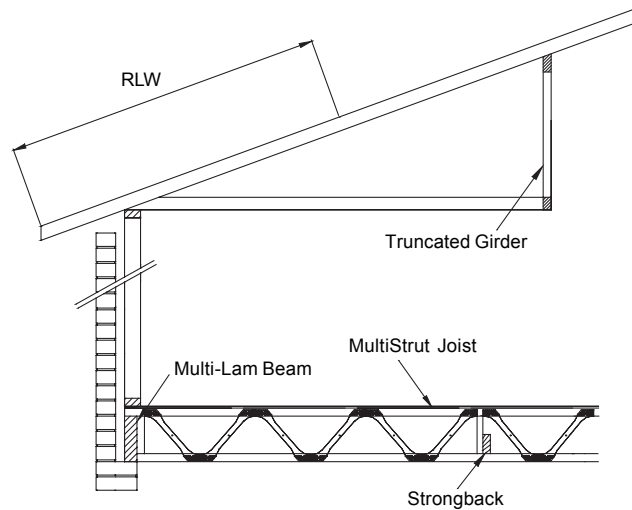
Diagram 7.8 Multi-Lam Beam to Support Jack Loads



> SINGLE-STOREY CONSTRUCTION HIP ENDS

This is the same as Type 2 with RLW as shown in Diagram 7.9

Diagram 7.9 Multi-Lam Beam to Support Jack and Floor Loads



> GABLE ENDS

This is the same as Type 1 or Type 2 with $RLW = \text{Verge Overhang} + \text{Truss Spacing}/2$

> PERIMETER BAND BEAM

The bottom plate of the upper floor wall can be stiffened by the use of a perimeter band beam. This replaces the need for multiple bottom plates.

Diagram 7.10 Multi-Lam Beam to Support Jack and Floor Loads

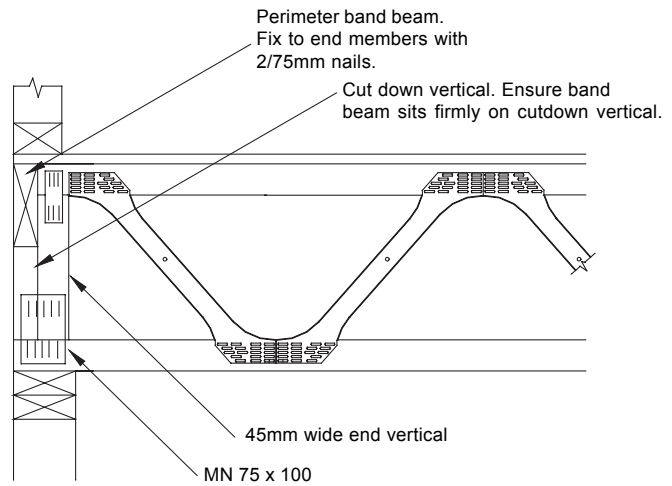


Table 7.1 Maximum Roof Load Width Supported by Standard MultiStrut Joists

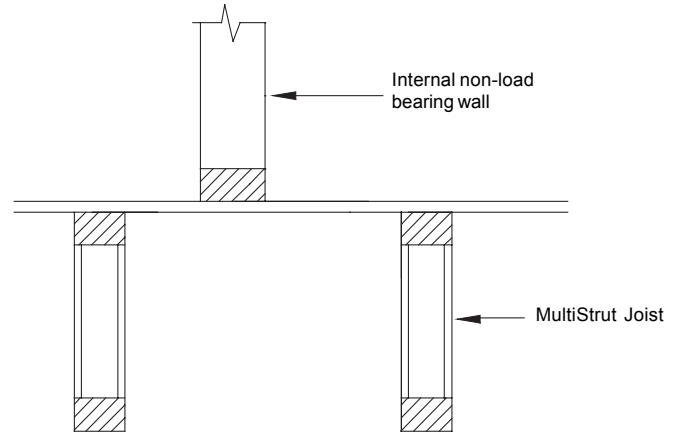
Perimeter Band Beam Size (minimum 70 x 45 F5 bottom plate to frame over)	Sheet Roof	Concrete Tile Roof	
	Roof Truss Spacing (mm)		
	1200	600	900
70 x 35 F5	5600	4200	2800
90 x 35 F5	7500	5700	3800
120 x 35 F5	7500	7500	5900

WALLS PARALLEL TO MULTISTRUT JOISTS

> PLATFORM FLOORING

With Platform Flooring construction, walls placed Parallel to the MultiStrut Joists do not require additional walls support. (If wall over is a bracing wall refer to page 9-05 for special tiedown detail)

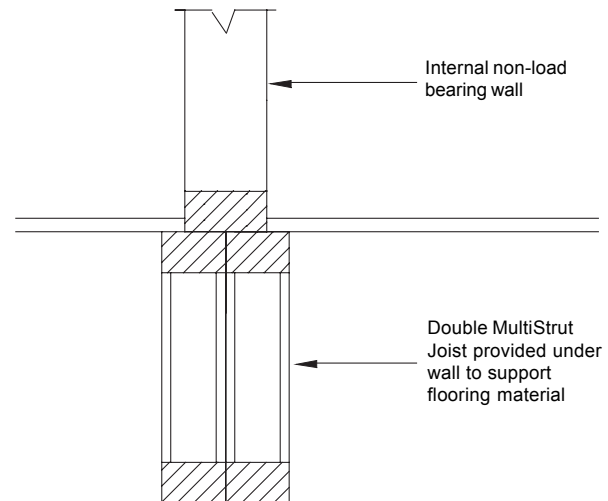
Diagram 8.1 Support of Internal Non-Load Bearing Wall



> FITTED FLOORING

If flooring material is fitted to each room after internal walls have been constructed an additional MultiStrut Joist is required below the wall to provide support to both wall and flooring.

Diagram 8.2 Support of Internal Non-Load Bearing Wall

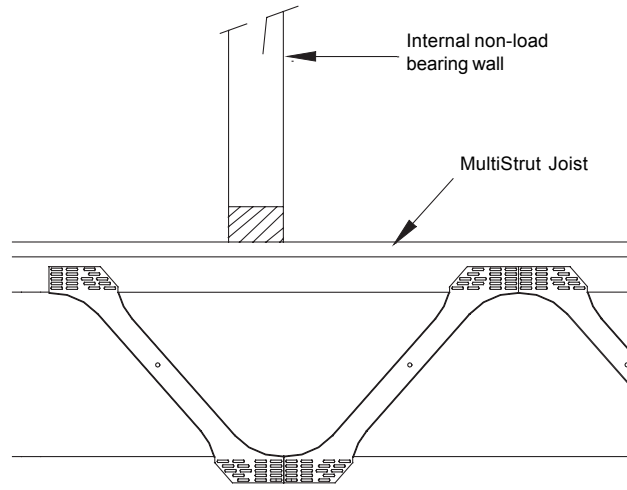


WALLS PERPENDICULAR TO MULTISTRUT JOISTS

> PLATFORM FLOORING

With Platform Flooring construction, walls placed perpendicular to the MultiStrut Joists do not require any additional support.

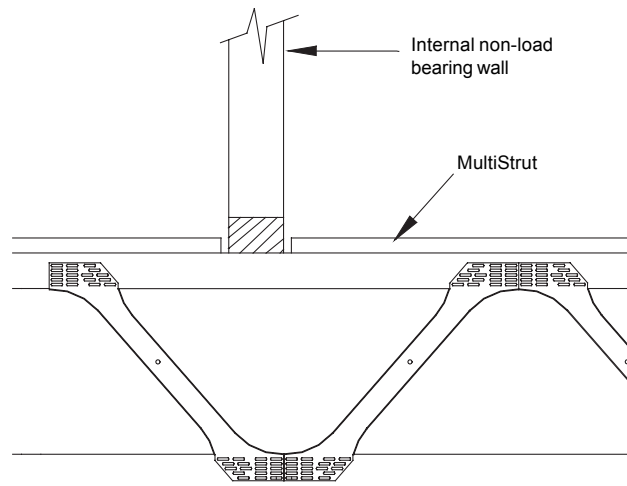
Diagram 8.3 Support of Internal Non-Load Bearing Wall



> FITTED FLOORING

With fitted flooring construction, walls placed perpendicular to the MultiStrut Joists do not require any further additional support. A 10mm gap is required between the floorboard adjacent to the wall bottom plate, and the bottom plate.

Diagram 8.4 Support of Internal Non-Load Bearing Wall



> BOTTOM CHORD SUPPORT

Diagram 9.1 Bottom Chord Support to Load Bearing Wall

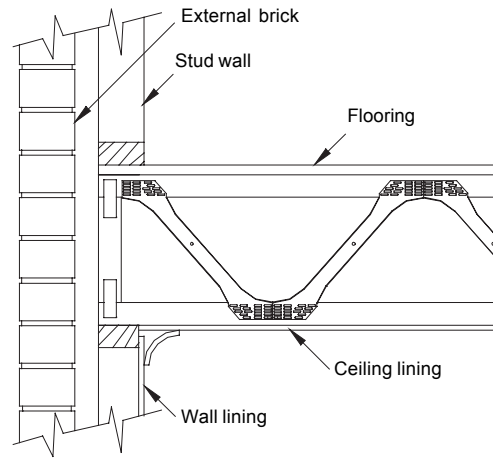
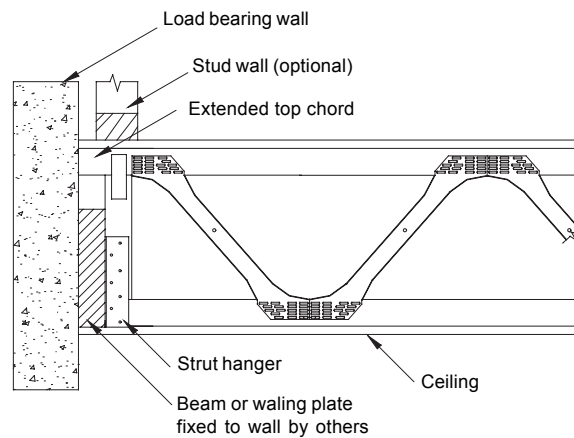
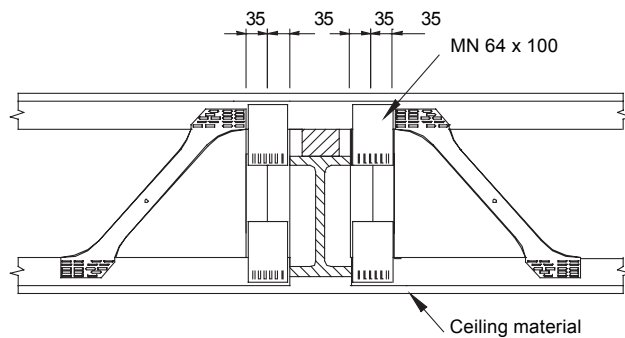


Diagram 9.2 Bottom Chord Support to Strut Hanger



> INTERNAL/CONCEALED BEARING POINT

Diagram 9.3 Hidden Internal Support



NOTE: Make bottom chords continuous so as to ensure stability during delivery. Cut bottom chord on site to form pocket for beam.

> TOP CHORD SUPPORT

Diagram 9.4 Top Chord Support with End Vertical

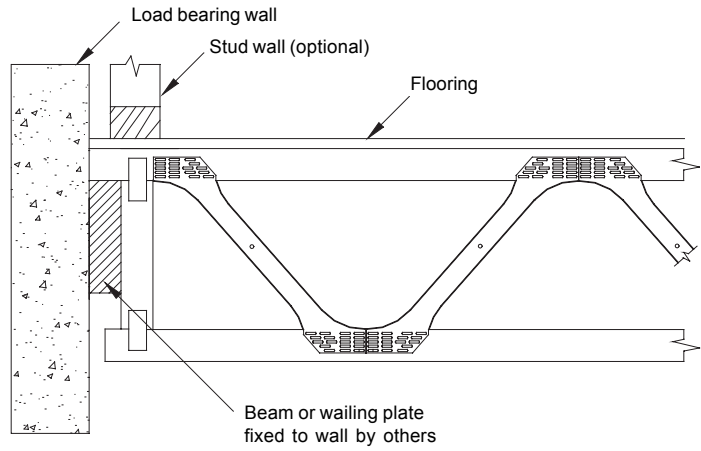


Diagram 9.5 Top Chord Support without End Vertical

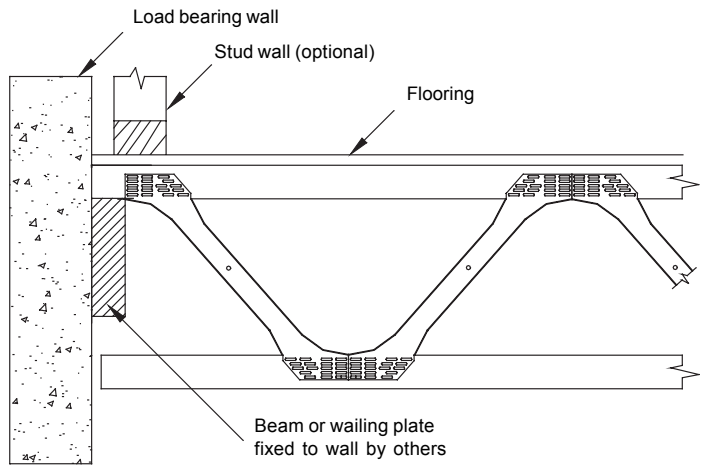
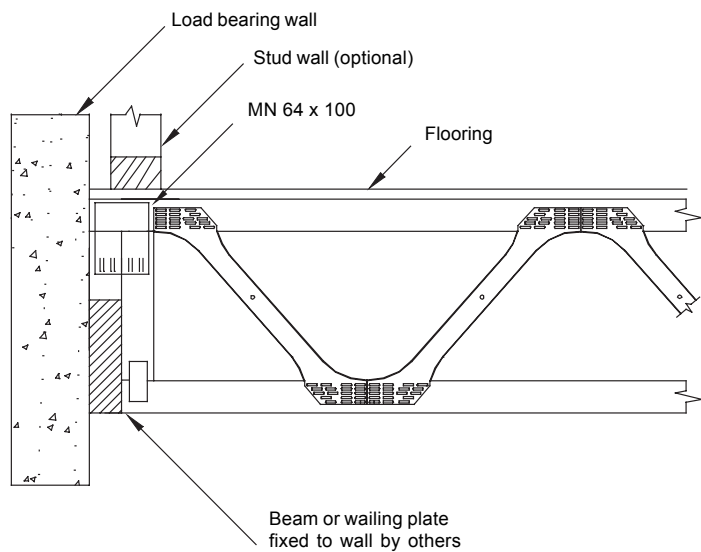


Diagram 9.6 Alternate Top Chord Support



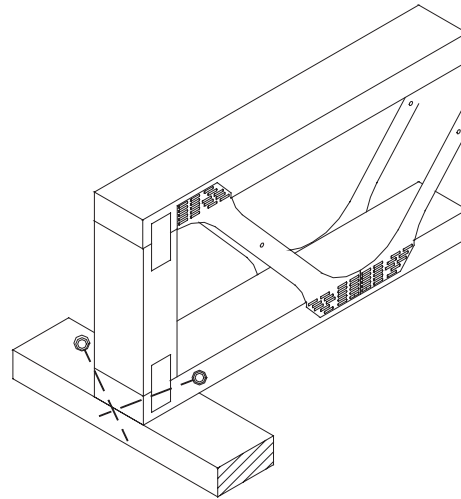
Each MultiStrut Joist is to be fixed onto the bearing point by a minimum of 2 / 3.15mm diameter x 75mm nails.

For Wind Classification greater than N2 (W33) refer to AS1684 Residential Timber Framed Construction or the Multinail Design Group.

> BOTTOM CHORD SUPPORT

NOTE: Minimum bearing required - 35mm or as specified.

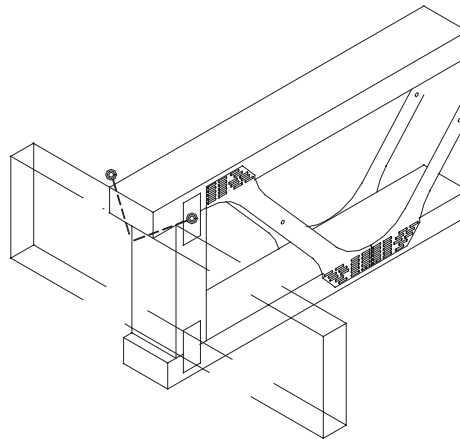
Diagram 10.1 Fixing to Wall Top Plate



> TOP CHORD SUPPORT AT BEAM WITH VERTICAL

NOTE: Minimum bearing required - 35mm or as specified.

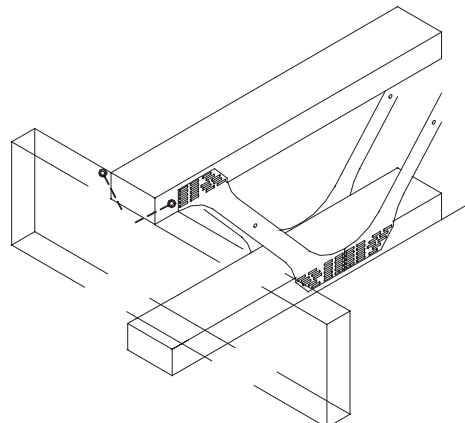
Diagram 10.2 Fixing to Beam



> TOP CHORD SUPPORT WITHOUT VERTICAL END

NOTE: Minimum bearing required - 35mm or as specified.

Diagram 10.3 Fixing to Beam No End Vertical Web

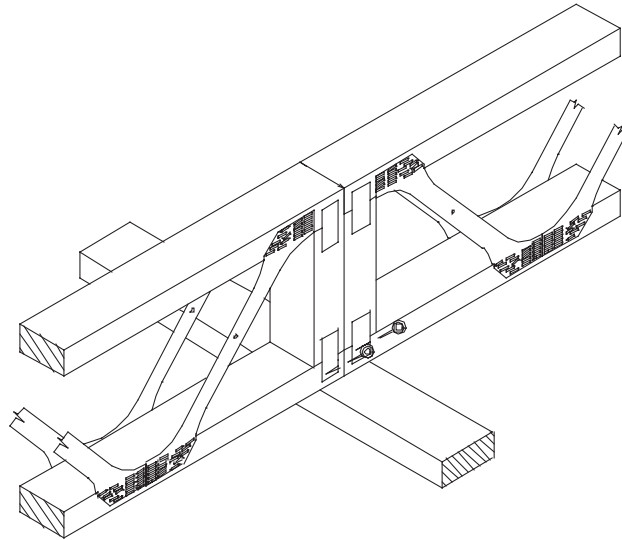


When MultiStrut Joists are to be supported off internal walls, they can be made to either sit side by side or be end butted. In both cases the joists should be fixed with 2/3.15mm x 75mm nails to the bearing point.

> BUTT JOIN

NOTE: Minimum bearing required to each MultiStrut Joist - 35mm or as specified.

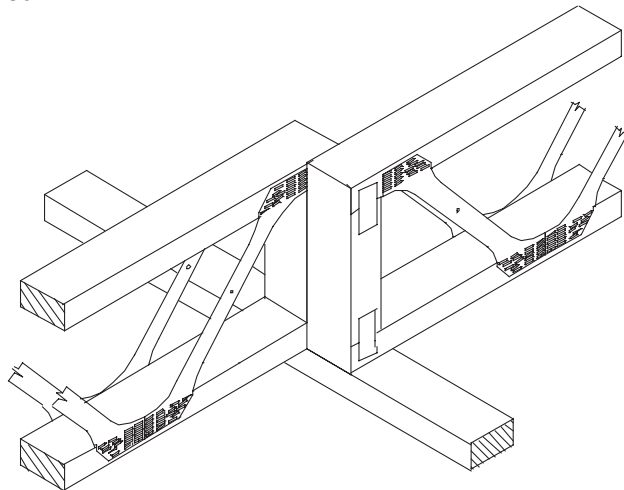
Diagram 11.1 Fixing to Internal Wall



> LAP JOIN

NOTE: Minimum bearing required to each MultiStrut Joist - 35mm or as specified.

Diagram 11.2 Alternate Fixing to Internal Wall



12.0 FIXING DETAILS AT A TIMBER BEAM

The fixing of a MultiStrut Joist to a timber beam can be achieved in a number of ways. The selected option will depend upon the depth of the MultiStrut Joist and the depth of the timber beam.

Diagram 12.1 Fixing to Timber Beam using Strut Hanger

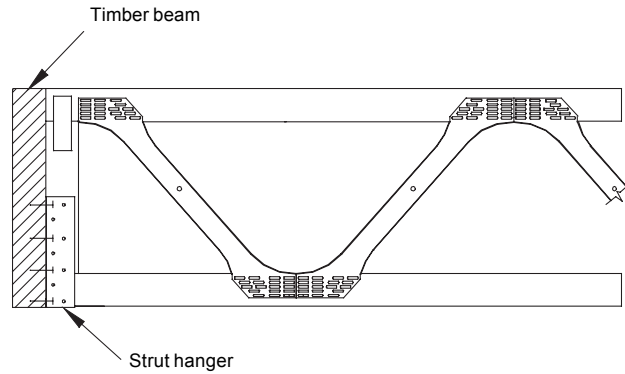
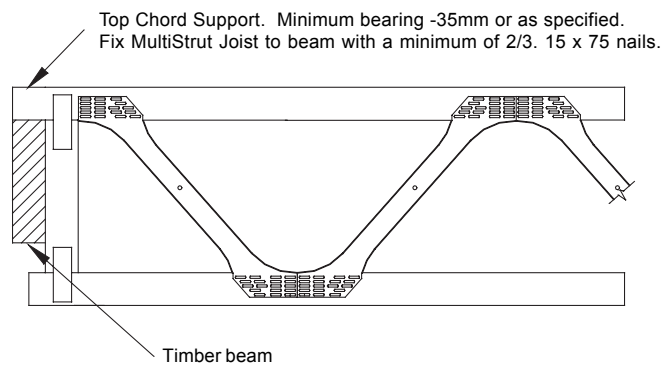


Diagram 12.2 Fixing to Timber Beam



The fixing of the MultiStrut Joist to a steel beam can be achieved in a number of ways. The selected option will depend upon the depth of the MultiStrut Joist and the depth of the steel beam.

Several alternate details are shown, but other methods may be acceptable once approved by your Design Engineer

Diagram 13.1 Block Fixing to Steel Beam (read in conjunction with Table 13.1)

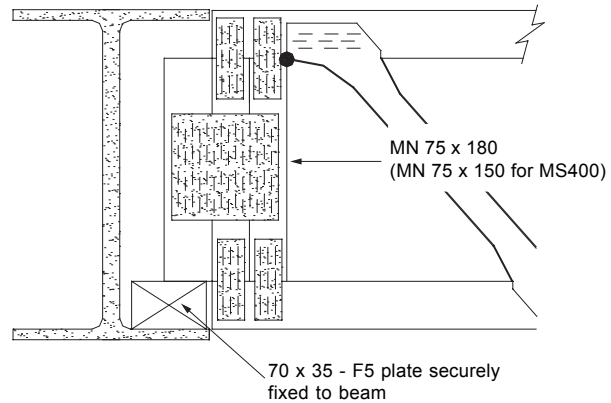
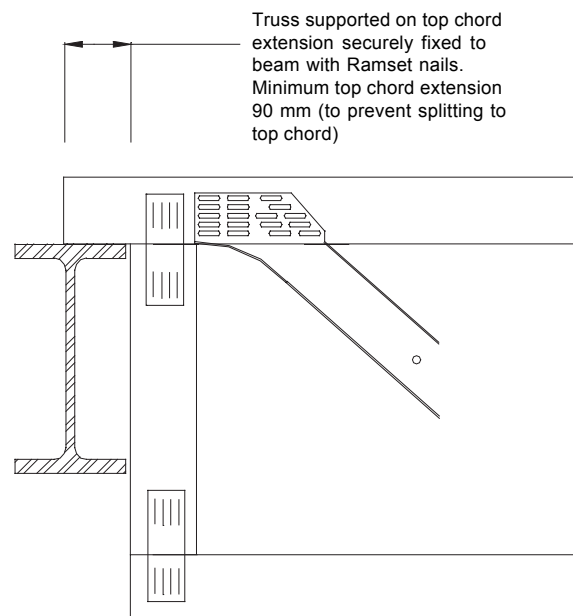


Table 13.1 Maximum Span Carried for Fixing to Steel Beam for 1.5 kPa Live Load

MultiStrut Nominal Size	Joist Centres	
	450mm	600mm
MS250	4100	3300
MS300	4100	3300
MS400	7700	6100

Diagram 13.2 Top Chord Support to UB

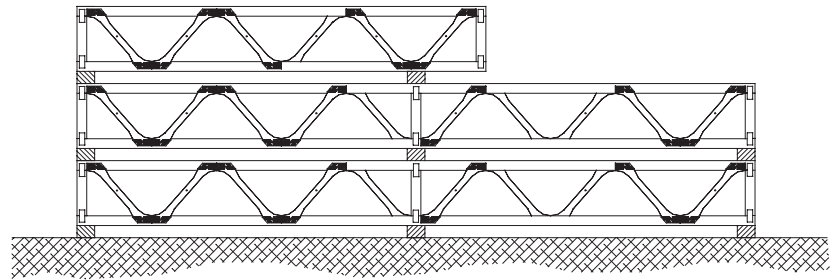


MultiStrut Joists should be strapped with the steel or plastic bands as close to a panel point as possible.

MultiStrut Joists may be stacked vertically or horizontally but in both cases the chords should be clear of the ground and supported on bearers which are to be located directly under the web points.

MultiStrut Joists should not be left exposed to the weather for extended periods without protection. This protection must ensure adequate air circulation.

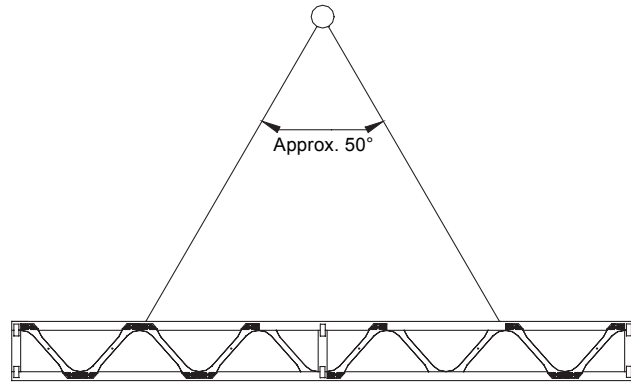
Diagram 14.1 Typical On-Site Storage of MultiStrut Joists



NOTE: Bearers to be directly under vertical web positions and in a straight line

MultiStrut Joists may be lifted in single units or in packs but care should be taken to avoid twisting, bending and dropping or knocking against the frame. Slings should always be attached to the timber chords where a panel point occurs.

Diagram 15.1 Typical Sling Positioning for Lifting



NOTE: Chains or wire rope may be used provided care is taken to ensure no damage to MSJ. Use of Fabric type slings is preferable.

> WARNING

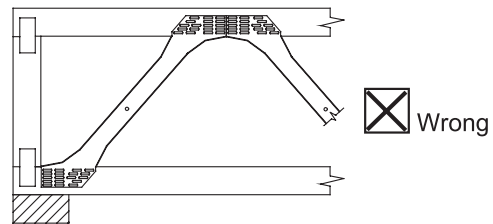
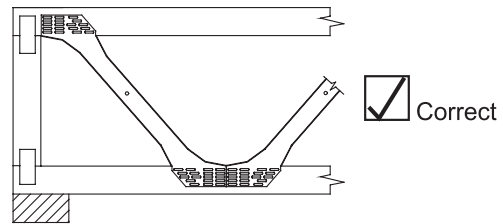
If moving MultiStrut Joists with a fork lift do not place tyres through MultiStrut Joists.

Slings for lifting must not be attached to the MultiStrut Webs.

MultiStrut Joists are typically placed perpendicular to the load bearing walls. Care should be taken to ensure that the distance between the MultiStrut Joists does not exceed the design spacing. Ensure that the required bearing is provided at each support.

Care must always be taken to ensure the MultiStrut Joists are placed the correct way up. MultiStrut Joists are always designed and manufactured so that the metal web starts at the top chord at each bearing point.

Diagram 16.1 Correct Orientation



Strongbacks are installed within the MultiStrut Joists at right angles and are used to dampen the vibrations by increasing the stiffness of the floor system and reduction of deflection by load sharing.

The performance of the floor is very much dependent upon the proper installation of the flooring material and the Strongbacks.

The recommended sizes for Strongbacks are shown in Table 17.1.

Table 17.1 Recommended Strongback Sizes

MultiStrut Nominal Size	Strongback Size (same grade as chords of MSJ)	Alternate Strongback Size (one grade lower than chords of MSJ)
MS250	90 x 35	120 x 35
MS300	120 x 35	140 x 35
MS400	140 x 35	170 x 35

> FIXING & SPLICING

Strongbacks must be fixed to the vertical webs in each MultiStrut Joist with 2/3.15x75 nails.

Strongbacks may be spliced where required in accordance with Diagram 17.1 and Diagram 17.2.

Diagram 17.1 Timber Splice to Strongback

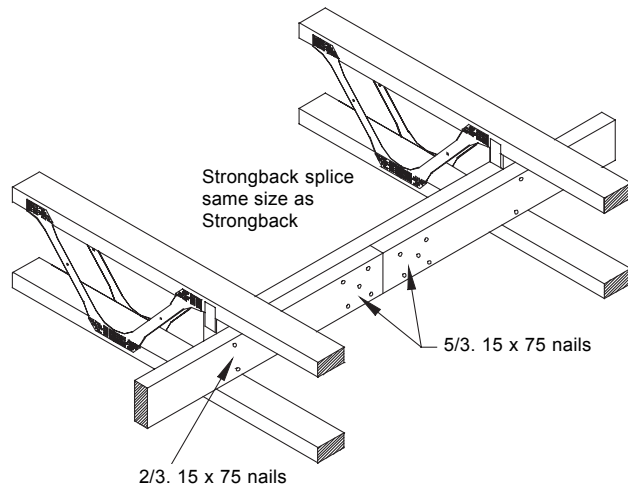
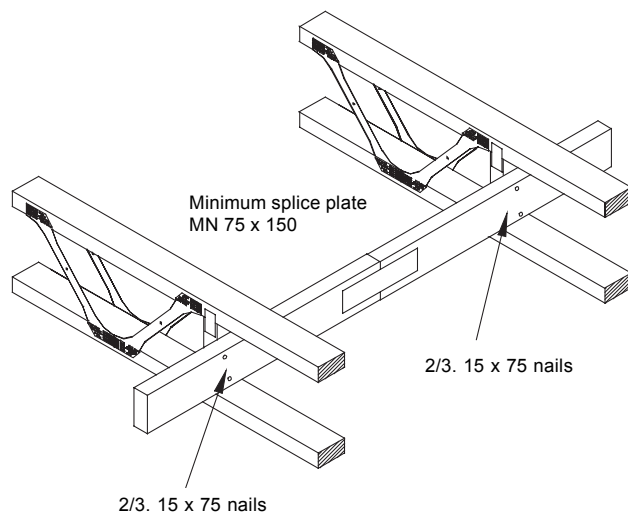
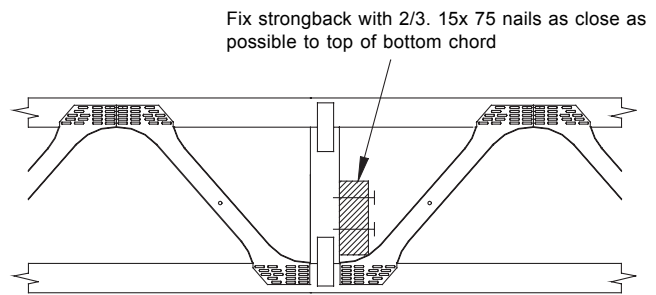


Diagram 17.2 Nailplate Splice to Strongback



> POSITIONING

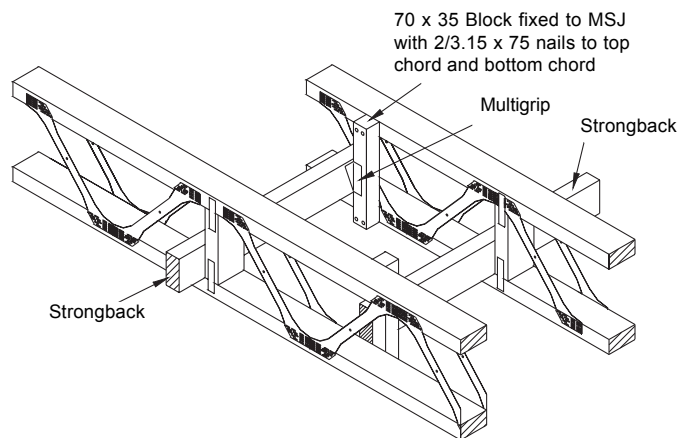
Diagram 17.3 Strongback Positioning



> CHANGE OF SPAN

At a change of span it is common for the verticals in the MultiStrut Joist to not line up. To ensure continuity of the Strongback they should be spliced as per Diagram 17.4.

Diagram 17.4 Strongback Splicing at Change of Span



For standard houses, with a wind classification of N1 or N2, brace at all supports with either a Type 1 brace at 1800mm centres or a Type 2 brace at 2400mm centres.

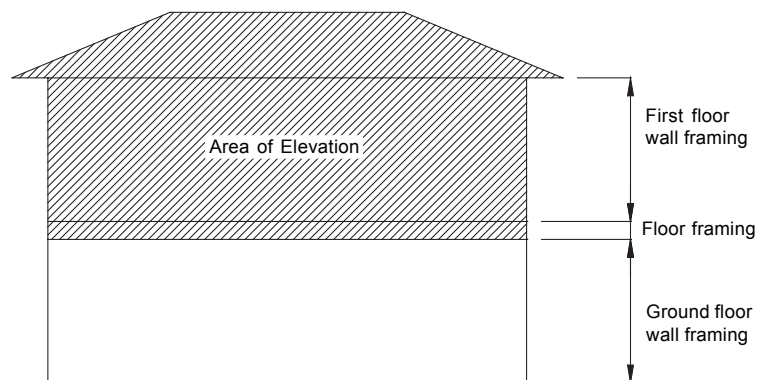
For non-standard houses or houses with a wind classification of greater than N2, as well as complying with the above, the minimum number of braces required can be taken from Table 18.1.

In all cases the bracing is to be distributed as evenly as possible throughout the house.

Table 18.1 Minimum Bracing Requirements

Area of Elevation (m ²)	Number of Bracing Units Required			
	Wind Classification N3/C1		Wind Classification N4/C2	
	Type 1	Type 2	Type 1	Type 2
10	9	4	14	6
20	18	8	27	12
30	27	12	40	18
40	36	16	53	24
50	45	20	66	30
60	54	24	79	36
70	63	28	92	42
80	72	32	105	48
90	81	36	118	54
100	90	40	131	60
200	180	80	262	120

Diagram 18.1 Determination of Area of Elevation - Two Storey Building



TYPE 1 BRACING UNITS > TIMBER DIAGONAL BRACE

Diagram 18.2 Type 1 Timber Diagonal Bracing Unit

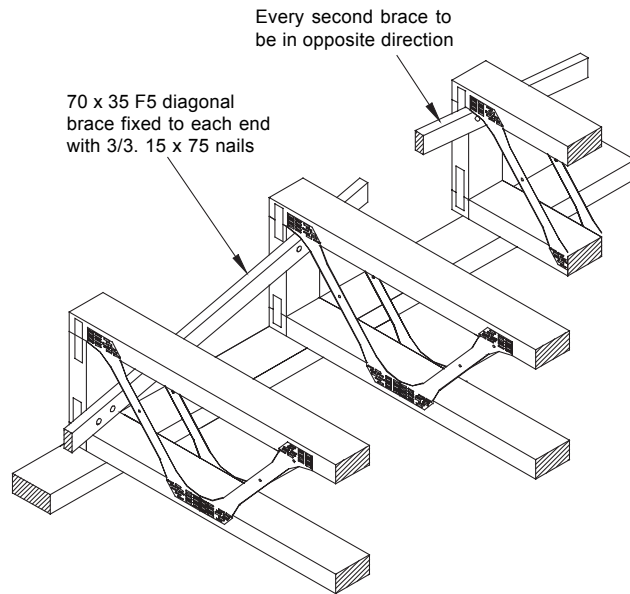
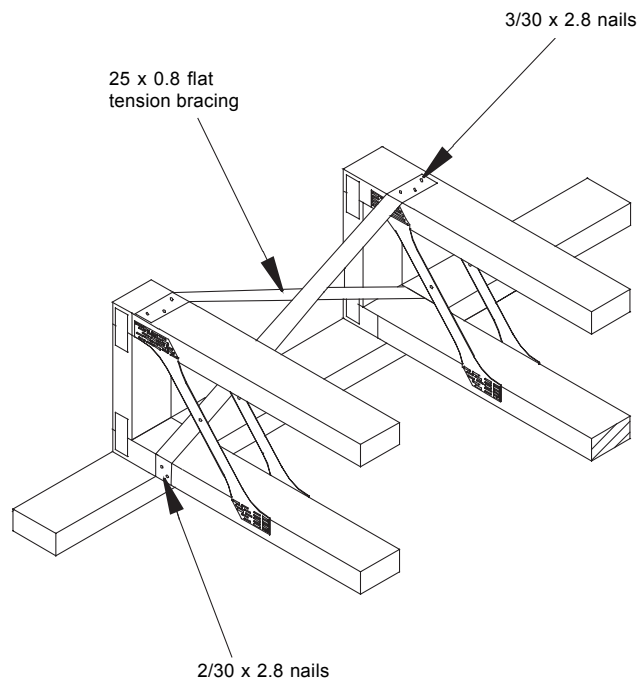


Diagram 18.3 Type 1 Strap Bracing Unit



TYPE 2 BRACING UNITS > BRACING PANEL CONSTRUCTION

Diagram 18.4 Type 2 Ply Bracing Units

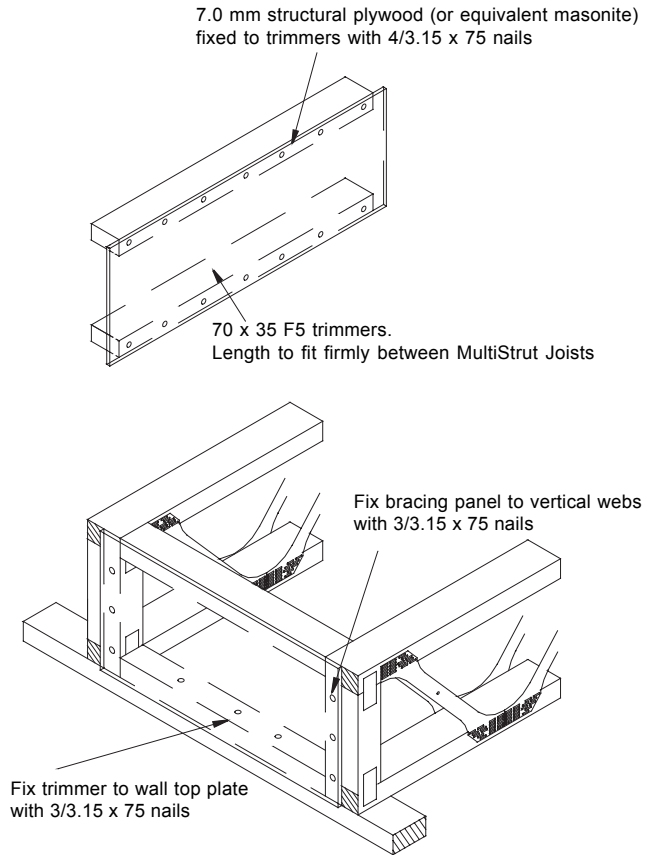
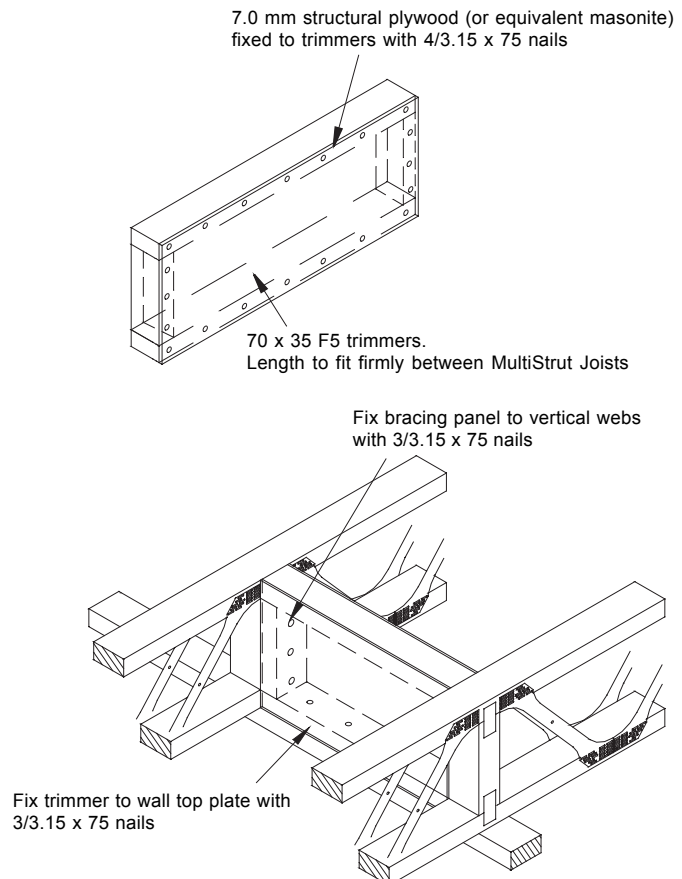


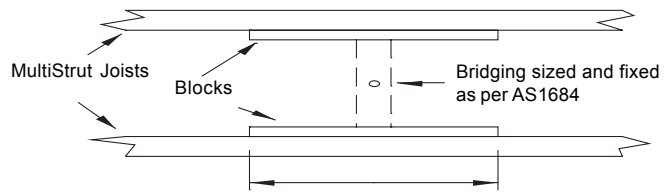
Diagram 18.5 Alternate Type 2 Ply Bracing Unit for Internal Support Wall



FIXING OF UPPER FLOOR BRACING UNITS

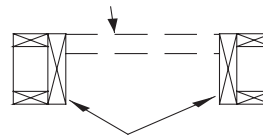
Diagram 18.6 Fixing of MultiStrut Joists to Bracing Walls Over

> PLAN VIEW



> TYPICAL SECTION

Fix bridging in accordance with figure 8.24 of AS1684 Residential Timber Framed Construction



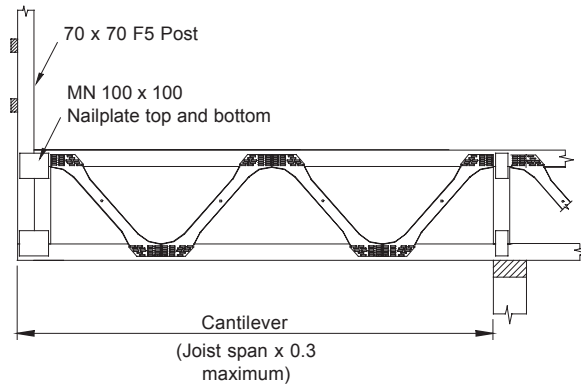
500 mm long timber blocks at (nominal) joist depth.
Fix to top and bottom chords along length with 6/2.8 x 65 nails to each chord

Balconies for Internal or External construction are normally formed with some form of Cantilever. These Cantilevers can be formed in a number of ways:

> FOR INTERNAL USE

The MultiStrut Joist may be extended in its original size and depth and have the hand rail posts built into the MultiStrut Joist. Cantilevers up to 1300mm can be achieved with correct design and depth.

Diagram 19.1 Internal Cantilever Detail



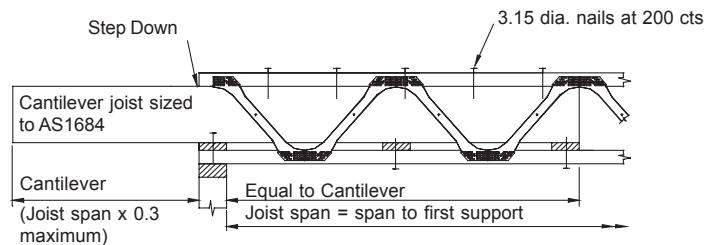
> FOR EXTERNAL USE

The Cantilever is achieved using a solid timber beam which can be applied in two ways:

(a) Built into the MultiStrut Joist:

This method enables a solid timber joist to be designed to fit between the MultiStrut webs, fixed to the chords as shown. Timber packers must be fixed to both the MultiStrut Joist and the cantilever joist in order to ensure full bearing along the top and bottom chords. Fix with 3.15mm nails at 225mm centres.

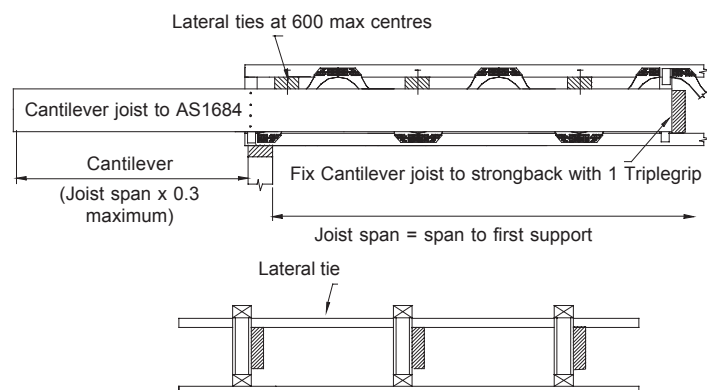
Diagram 19.2 External Cantilever



(b) Side Nailed Cantilever Beam

The cantilever joist is securely fixed to each vertical with 3/3.15 x 75 nails and to the strongback with a Multinail Triplegrip. Lateral ties must be fixed to the top edge of the Cantilever joist at 600 mm centres using 1/3.15 x 75mm nail. Ties are to be a tight fit between the cantilever joist and the top chord of the MultiStrut Joist.

Diagram 19.3 External Cantilever



MultiStrut Joists can be designed to carry Water Beds containing up to 200 mm depth of water.

To structurally support these loads the following rules must be observed and followed:

Design MultiStrut Joists as normal at either 450mm or 600mm centres. (If using MultiStrut Joists at 450mm centres, check MultiStrut Joist size at 600mm centres as the same joist may suffice. This may reduce the number of MultiStrut Joists required.)

Place MultiStrut Joists at $\frac{1}{2}$ design spacing.

Diagram 20.1 MultiStrut Joists at Standard 600 Centres

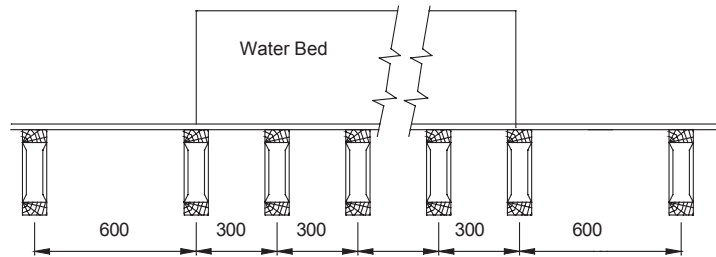
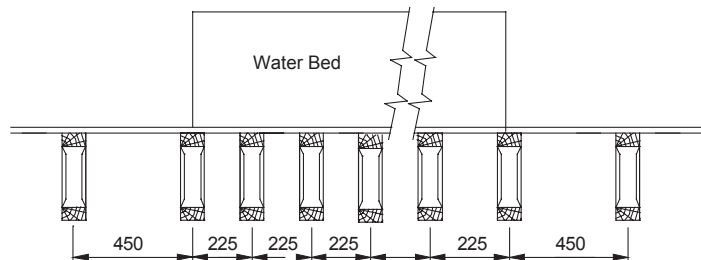


Diagram 20.2 MultiStrut Joists at Standard 450 Centres



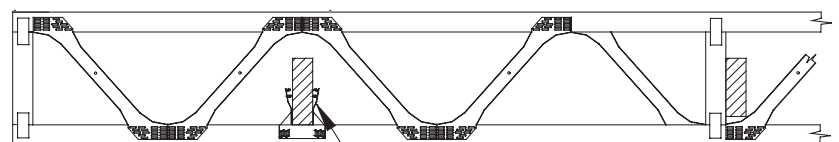
> WARNING

Spa baths can vary significantly from the weight of a standard bath. Should the plans include a Spa bath contact the Multinail Design Group prior to installation for advice.

Provide one additional Strong-back of minimum length 4500mm. Ensure Additional Strong-back extends two MultiStrut Joist spacings either side of the water bed.

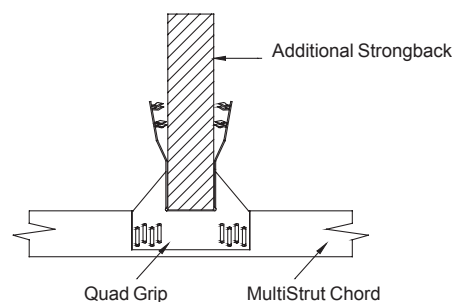
(iv) Fix this additional Strongback with one (1) Triple-Grips or one (1) Quad Grip at each Multi- Strut Joist bottom chord.

Diagram 20.3 Additional Strongback Location



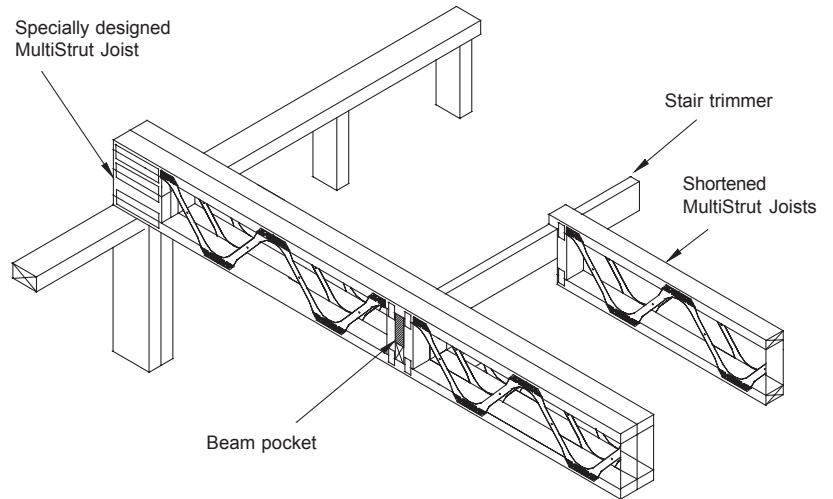
Additional Strongback to extend two MultiStrut joists beyond extent of waterbed

Diagram 20.3 Fixing Detail for Additional Strongback



In upper floor construction, where openings are required for the inclusion of stairs, it will be necessary to include one or more MultiStrut Joists which are shorter in span. These shortened MultiStrut Joists are supported by a Stair trimmer that is in turn supported by specially designed MultiStrut Joists.

Diagram 21.1 Typical Stairwell Framing



Span tables for the special MultiStrut Joist to support the stair head have been prepared for three common stair voids.

Diagram 21.2 Option A

Stair Trimmer Span = 2700mm
Stair Opening = 1200mm

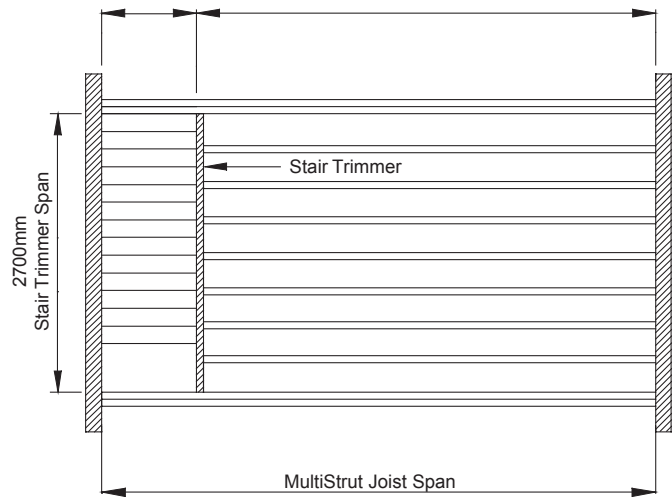


Diagram 21.3 Option B

Stair Trimmer Span = 2400mm
Stair Opening = 2400mm

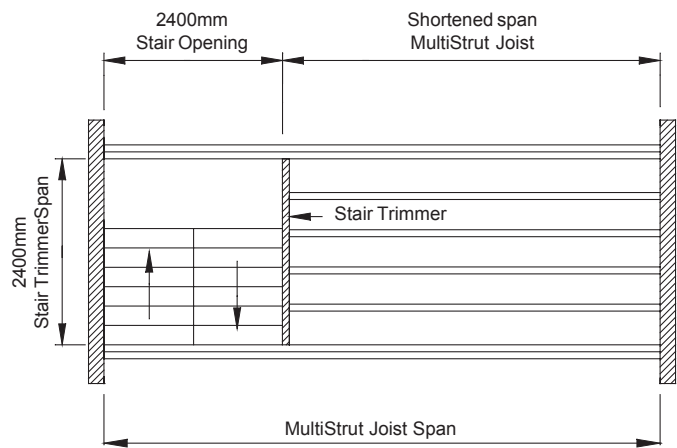
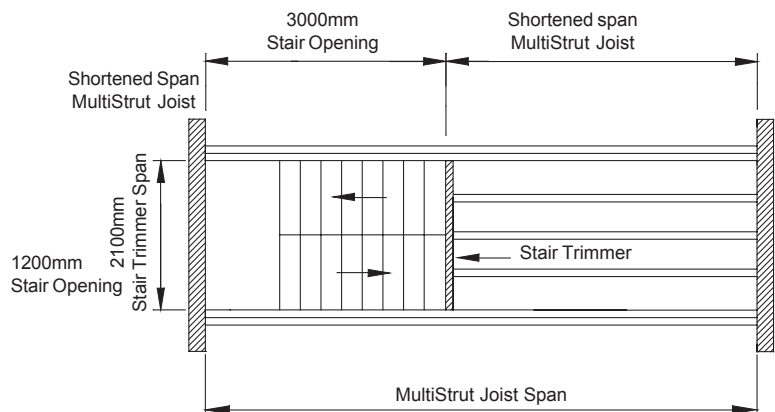


Diagram 21.4 Option C

Stair Trimmer Span = 2100mm
Stair Opening = 3000mm



MultiStrut Nom. Depth	Timber Size	45mm Chords			Timber Size	35mm Chords		
		F5	F8	F17		F5	F8	F17
MS 250	45 x 70	3700	3700	3700	35 x 70	3200	3700	3700
MS 250	45 x 90	3700	3700	3700	35 x 90	3700	3700	3700
MS 300	45 x 70	4000	4000	4000	35 x 70	3600	4000	4000
MS 300	45 x 90	4000	4000	4000	35 x 90	4000	4000	4000
MS 400	45 x 70	4800	4800	4800	35 x 70	4300	4800	4800
MS 400	45 x 90	4800	4800	4800	35 x 90	4800	4800	4800

MultiStrut Nom. Depth	Timber Size	45mm Chords			Timber Size	35mm Chords		
		MGP10	MGP12	MGP15		MGP10	MGP12	MGP15
MS 250	45 x 70	3700	3700	3700	35 x 70	3600	3700	3700
MS 250	45 x 90	3700	3700	3700	35 x 90	3700	3700	3700
MS 300	45 x 70	4000	4000	4000	35 x 70	4000	4000	4000
MS 300	45 x 90	4000	4000	4000	35 x 90	4000	4000	4000
MS 400	45 x 70	4800	4800	4800	35 x 70	4800	4800	4800
MS 400	45 x 90	4800	4800	4800	35 x 90	4800	4800	4800

Table 22.1 Maximum Spans for Double MultiStrut Joist Supporting Stair Trimmer Option A

MultiStrut Nom. Depth	Timber Size	45mm Chords			Timber Size	35mm Chords		
		F5	F8	F17		F5	F8	F17
MS 250	45 x 70	4200	4300	4300	35 x 70	3700	4300	4300
MS 250	45 x 90	4300	4300	4300	35 x 90	4100	4300	4300
MS 300	45 x 70	4500	4700	4700	35 x 70	4100	4700	4700
MS 300	45 x 90	4700	4700	4700	35 x 90	4500	4700	4700
MS 400	45 x 70	5200	6000	6000	35 x 70	4600	5700	6000
MS 400	45 x 90	5800	6000	6000	35 x 90	5200	6000	6000

MultiStrut Nom. Depth	Timber Size	45mm Chords			Timber Size	35mm Chords		
		MGP10	MGP12	MGP15		MGP10	MGP12	MGP15
MS 250	45 x 70	4300	4300	4300	35 x 70	4000	4300	4300
MS 250	45 x 90	4300	4300	4300	35 x 90	4300	4300	4300
MS 300	45 x 70	4700	4700	4700	35 x 70	4400	4700	4700
MS 300	45 x 90	4700	4700	4700	35 x 90	4700	4700	4700
MS 400	45 x 70	5700	6000	6000	35 x 70	5000	6000	6000
MS 400	45 x 90	6000	6000	6000	35 x 90	5600	6000	6000

Table 22.2 Maximum Spans for Double MultiStrut Joist Supporting Stair Trimmer Option B

MultiStrut Nom. Depth	Timber Size	45mm Chords			Timber Size	35mm Chords		
		F5	F8	F17		F5	F8	F17
MS 250	45 x 70	4500	5000	5000	35 x 70	4100	4800	5000
MS 250	45 x 90	5000	5000	5000	35 x 90	4400	5000	5000
MS 300	45 x 70	4900	5500	5500	35 x 70	4400	5500	5500
MS 300	45 x 90	5400	5500	5500	35 x 90	4800	5500	5500
MS 400	45 x 70	6000	6700	6700	35 x 70	5000	6700	6700
MS 400	45 x 90	6700	6700	6700	35 x 90	6000	6700	6700

MultiStrut Nom. Depth	Timber Size	45mm Chords			Timber Size	35mm Chords		
		MGP10	MGP12	MGP15		MGP10	MGP12	MGP15
MS 250	45 x 70	4900	5000	5000	35 x 70	4400	5000	5000
MS 250	45 x 90	5000	5000	5000	35 x 90	4800	5000	5000
MS 300	45 x 70	5300	5500	5500	35 x 70	4700	5500	5500
MS 300	45 x 90	5500	5500	5500	35 x 90	5200	5500	5500
MS 400	45 x 70	6000	6700	6700	35 x 70	5400	6700	6700
MS 400	45 x 90	6700	6700	6700	35 x 90	6000	6700	6700

Table 22.3 Maximum Spans for Double MultiStrut Joist Supporting Stair Trimmer Option C

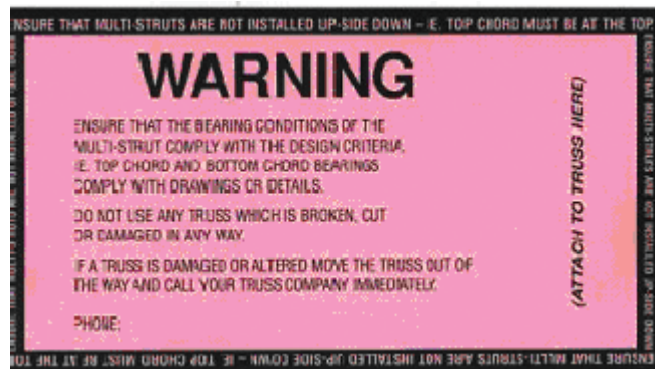
Shortened Truss Span	Stair Trimmer Span (mm)							
	900	1200	1500	1800	2100	2400	2700	3000
2000	90 x 45 (F5)	90 x 45 (F5)	90 x 45 (F17)	120 x 45 (F8)	140 x 35 (F8)	190 x 35 (F8)	190 x 35 (F8)	190 x 45 (F8)
3000	90 x 45 (F5)	90 x 45 (F8)	120 x 35 (F8)	140 x 45 (F17)	140 x 35 (F17)	190 x 35 (F8)	190 x 45 (F8)	190 x 45 (F17)
4000	90 x 45 (F5)	90 x 45 (F17)	120 x 45 (F8)	140 x 45 (F17)	140 x 45 (F17)	190 x 45 (F8)	190 x 45 (F17)	240 x 35 (F17)
5000	90 x 45 (F5)	90 x 45 (F17)	120 x 35 (F17)	140 x 45 (F17)	190 x 45 (F17)	190 x 45 (F17)	240 x 35 (F17)	240 x 35 (F17)
6000	90 x 45 (F5)	120 x 35 (F17)	120 x 45 (F17)	140 x 45 (F17)	190 x 45 (F17)	190 x 45 (F17)	240 x 35 (F17)	240 x 45 (F17)

Table 22.4 Stair Trimmer Span Table

23.0 WARNING MESSAGES

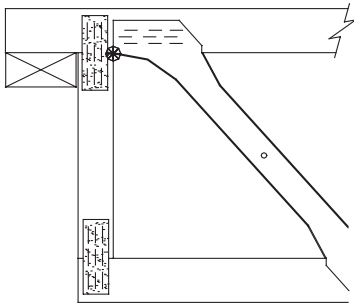
Multinail Australia supply the following warning card at a nominal cost and recommend that the cards are fixed to every 10th MultiStrut Joist.

The card contains a brief warning to help assist following trades avoid damage to the MultiStrut Joist through accident or ignorance.

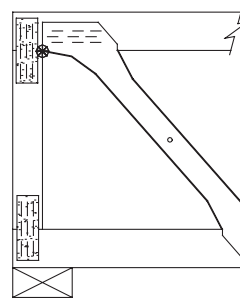


TOP CHORD BEARING

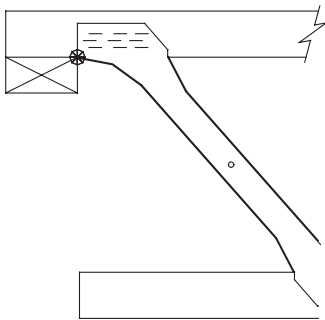
BOTTOM CHORD BEARING



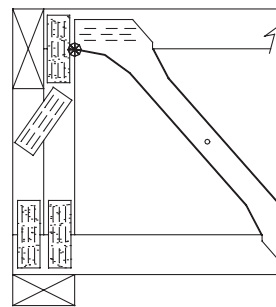
M1.1



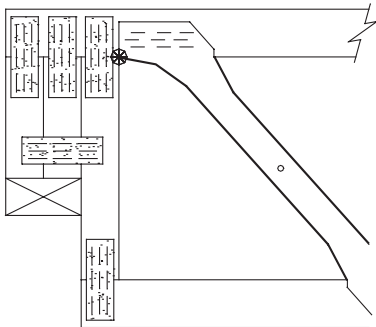
M2.1



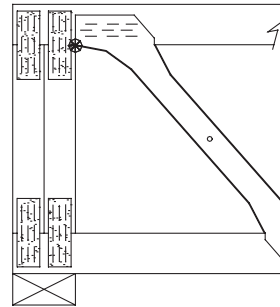
M1.2



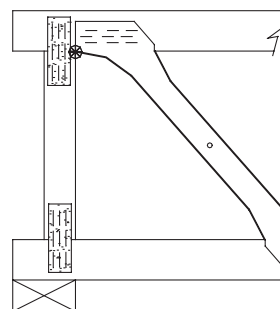
M2.2



M1.3

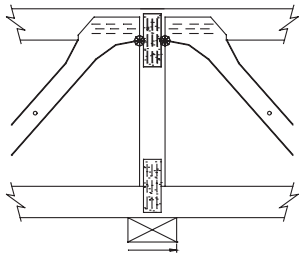


M2.3

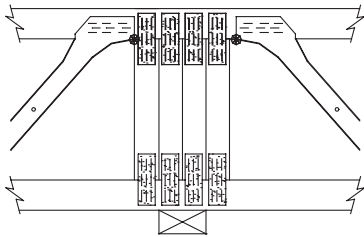


M2.4

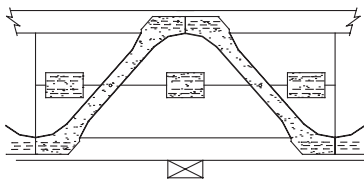
BOTTOM CHORD INTERNAL BEARING POINTS



M3.1



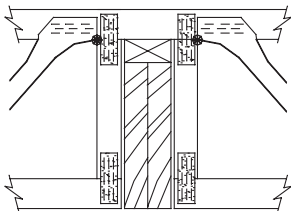
M3.2



M3.3

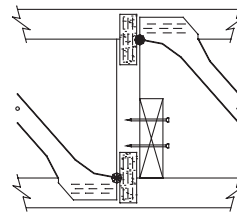


TOP CHORD INTERNAL BEARING POINTS

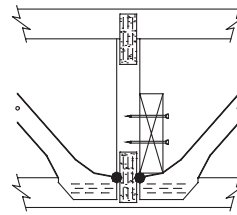


M4.1

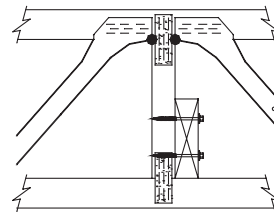
STRONGBACK FIXING



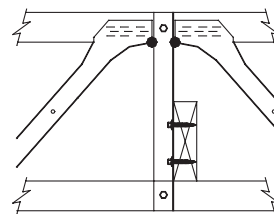
M5.1



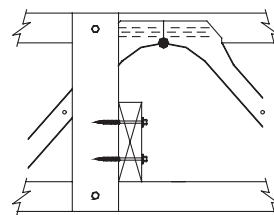
M5.2



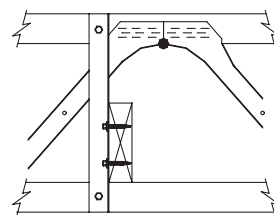
M5.3



M5.4

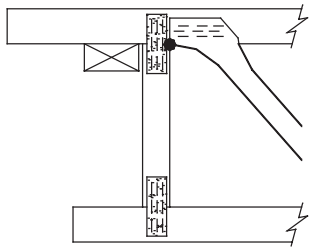


M5.5

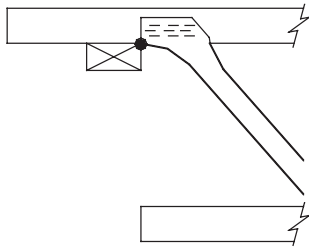


M5.6

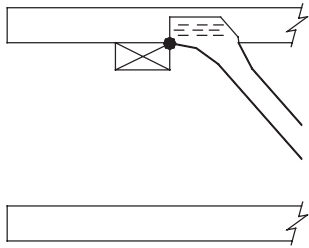
TOP CHORD OVERHANG



M6.1

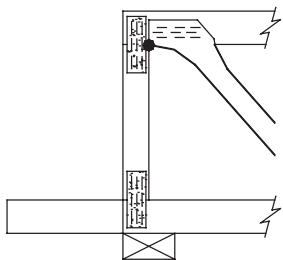


M6.2



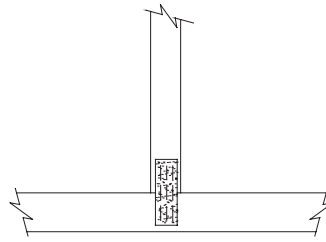
M6.3

BOTTOM CHORD OVERHANG

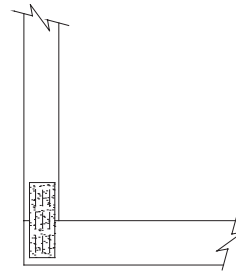


M7.1

TAG PLATES

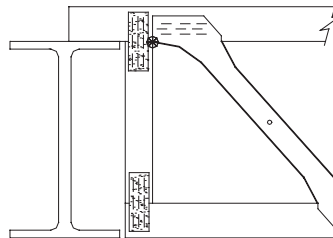


M8.1

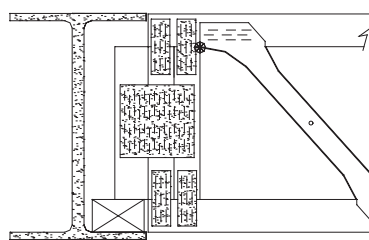


M8.2

STEEL BEAM DETAIL

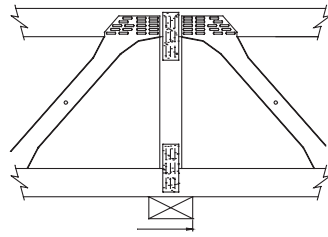


M9.1

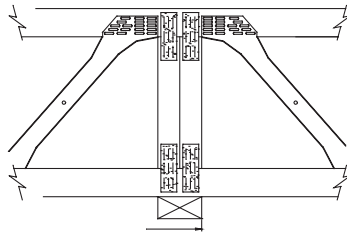


M9.2

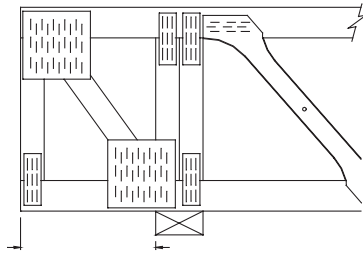
CANTILEVER



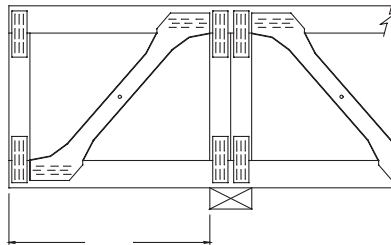
M10.1



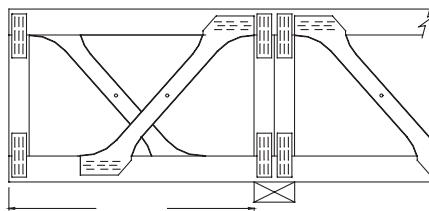
M10.2



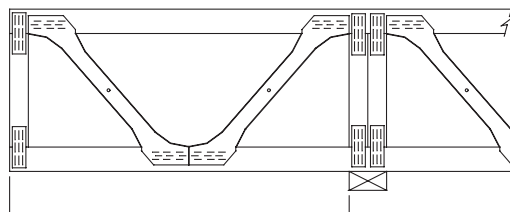
M10.3



M10.4



M10.5



M10.6

