MULTINAIL

SteelWood

Technical Manual

1. INTRODUCTION

SteelWood Joists were first introduced into Australia by Multinail Australia in 1985. Since then SteelWood Joists (SWJs) have revolutionised the building industry creating a more streamlined, economical construction method for builders.

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

Prior to the introduction of SteelWood Joists, floor joists spans were limited to about 4.5 m using solid Douglas Fir, Radiata or Oregon. With the use of SteelWood 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.

SteelWood 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 SWJs can be manufactured with double or triple timber end webs to allow the joist to be trimmed on site.

An additional benefit with the use of SteelWood 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 lighter loads and smaller spans the successful MultiStrut Joist range of open web floor trusses is available. These open-web floor trusses enable timber floors to clear span under 10 m. For further information regarding this product refer to Multinail Australia.

2. BENEFITS

The use of Multinail SteelWood Joists offer the builder and 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

Able to carry heavier loads over larger spans than the traditional residential MultiStrut joist

Able to carry individual loadings of 3, 4, and 5 kPa over larger spans than the MultiStrut joist whilst maintaining the same depth and joist centres

3. DEFINITIONS

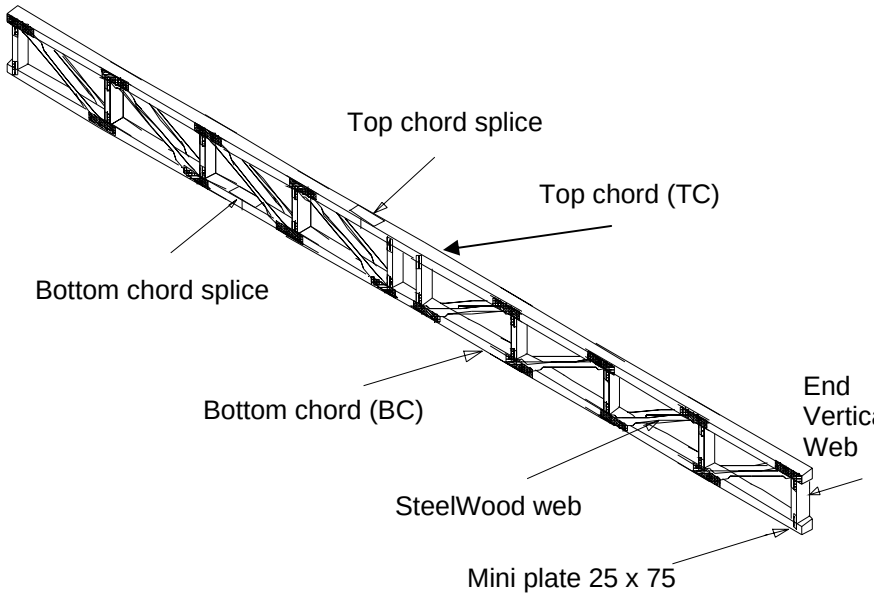


Diagram 3.1 SteelWood Joist Member Identification

4. STEELWOOD WEBS

SteelWood 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.

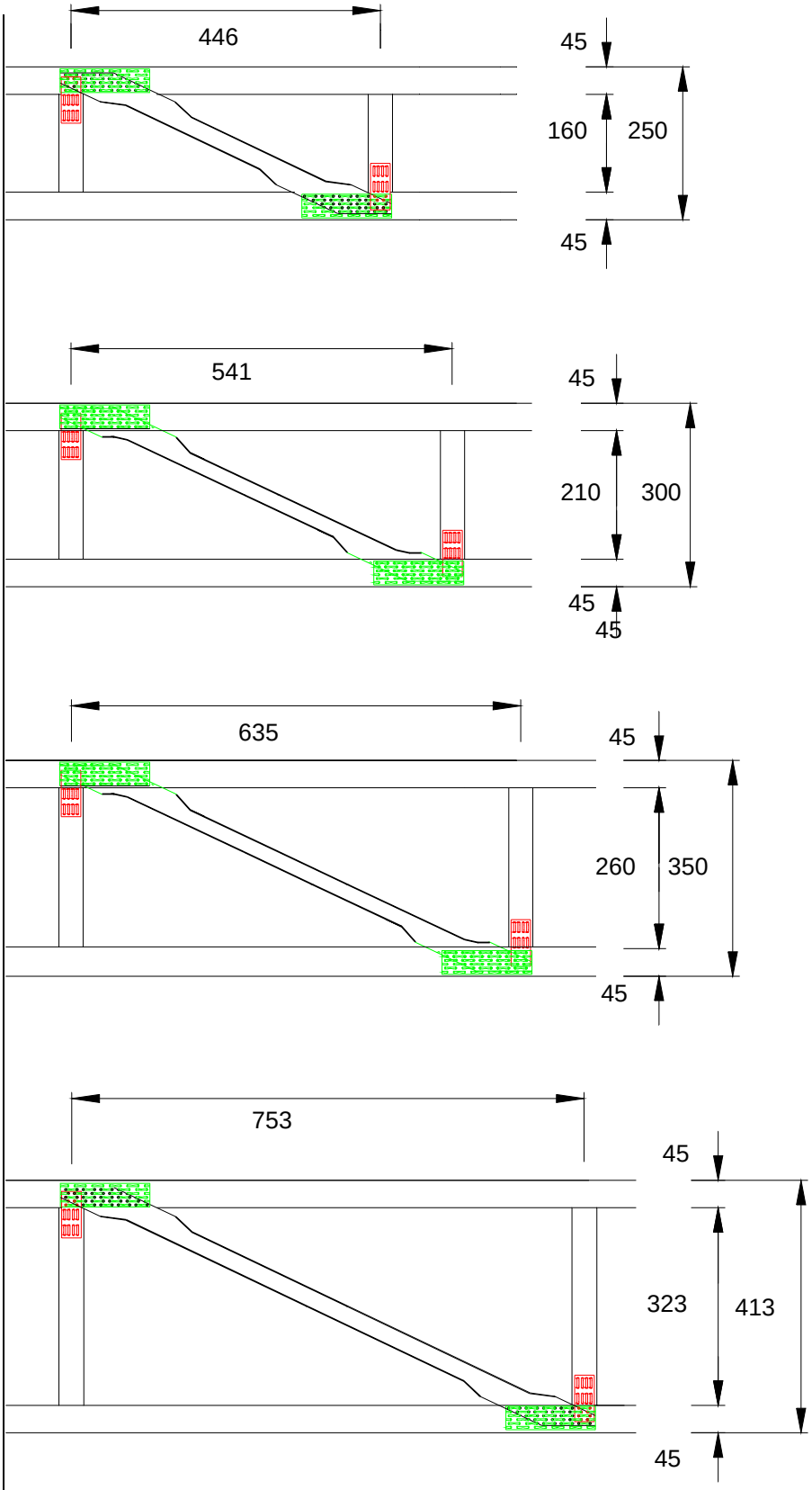


Diagram 4.1 SteelWood Joist with 45mm Chords

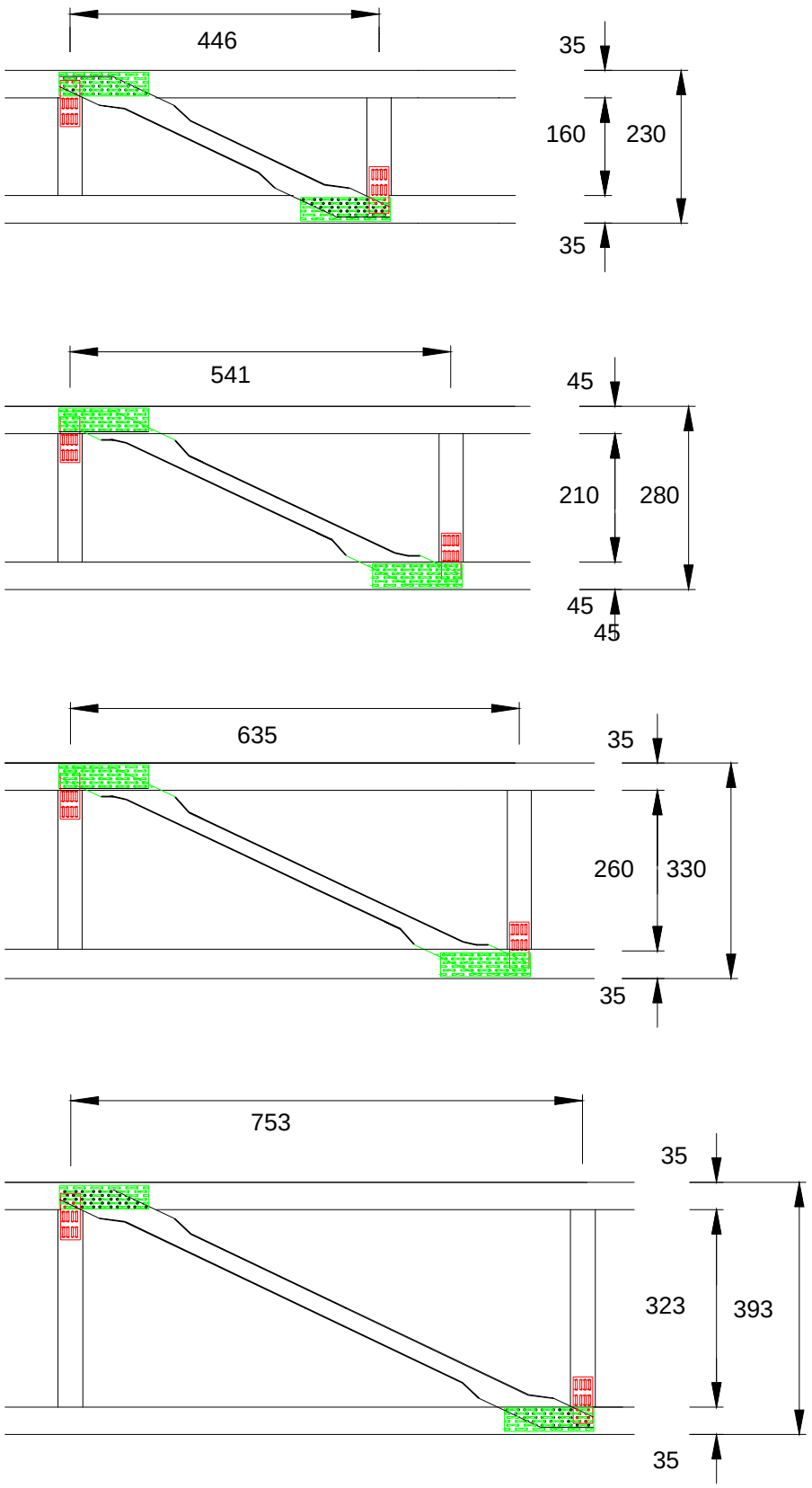


Diagram 4.2 SteelWood Joist with 35mm Chords

5. INDICATIVE SPAN TABLES

SteelWood 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 SteelWood Joists. The final timber size used will depend on local availability and price factors.

Nominal Size	Timber Size	F5	MGP12	F27
SW 250	45x70 45x90	4500 5100	5900 6300	6500 6800
SW 300	45x70 45x90	5000 5700	6600 7000	7200 7700
SW 350	45x70 45x90	5400 6100	7200 7700	7900 8400
SW 400	45x70 45x90	5700 6600	7700 8300	8500 9100

Table 5.1 Indicative Span Table for 1.5 kPa Live Load at 450 Cts

6. MECHANICAL SERVICES

SteelWood 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 6.1

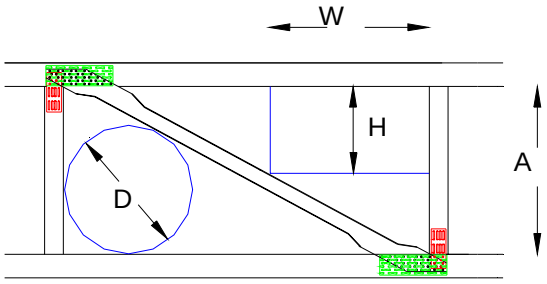


Diagram 6.1 Clearance for Service penetration

	SW 250	SW 300	SW 350	SW 400
A (mm)	160	210	310	323
D (mm)	125	165	200	245
H (mm)	W (mm)	W (mm)		W (mm)
50	225	325	410	525
100	130	240	320	430
150	45	140	230	335
200	N/A	45	130	245
250	N/A	N/A	N/A	155
300	N/A	N/A	N/A	65

Table 6.1 Clearance for Service Penetrations

WARNING:

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

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

7. FLOOR LOADING

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

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:

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

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 SWJ 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.

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:

SteelWood 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 SteelWood 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.

8. FLOOR STIFFNESS

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 SteelWood floor system exceeds the expectations of most occupants.

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

Damping:

One of the major contributors of damping (which leads to an improved SteelWood 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 SteelWood 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.

9. EXTERNAL WALL BEARING

Two Storey Construction

SteelWood 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 SteelWood 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 SteelWood Joist directly under the studs. (Refer Diagram 9.1)

SteelWood Nominal Depth	Sheet Roof	Concrete Tile Roof	
	Roof Truss Spacing (mm)		
	1200	600	900
SW 250	2700	4200	2400
SW 300	2100	3300	1800
SW 350	2100	3300	1800
SW 400	2100	3300	1800

Table 9.1 Maximum Roof Load Width Supported by Standard SteelWood Joists

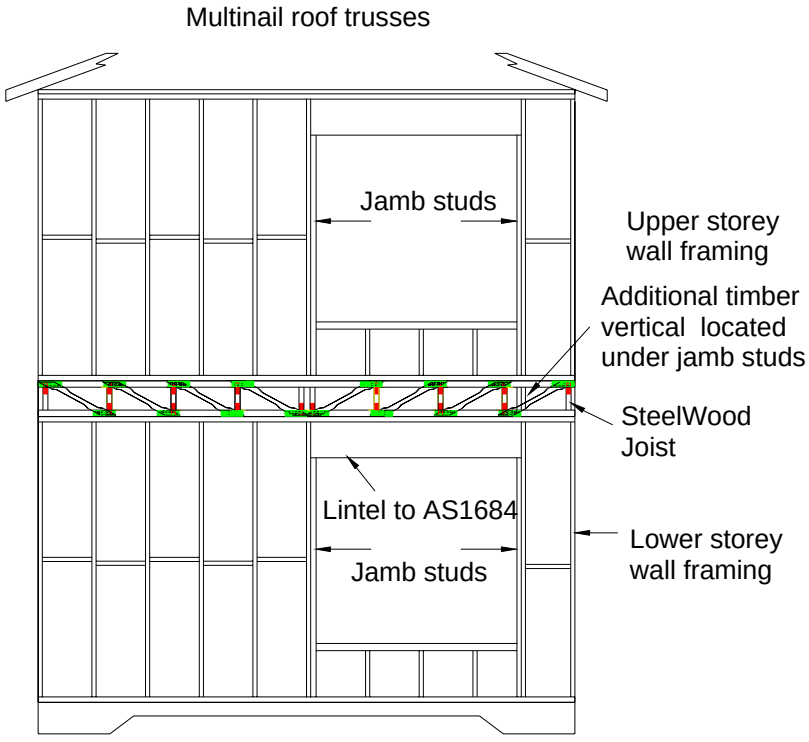


Diagram 9.1 SteelWood Joist to Support Roof Load

Where the roof load width exceeds the spans itemised in Table 3.1 then use one of the following options:

A Ladder Truss.

A ladder truss is a SWJ nogged out at conventional stud 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 SteelWood webs can be eliminated and the studs spread to conventional stud spacings. Only the SteelWood webs required to prevent racking of the dwarf wall need to be included.

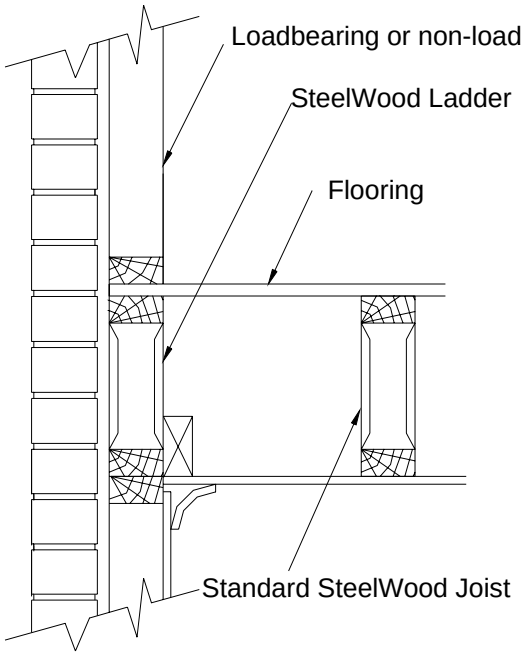
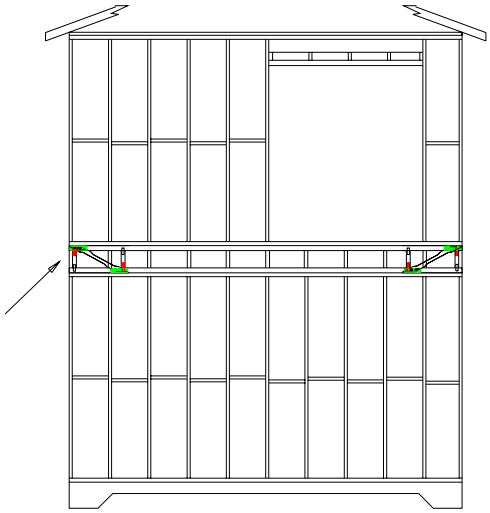


Diagram 9.2 Ladder Truss – Typical Section



Ladder truss nogged at conventional stud centres. Only the SteelWood webs required to prevent racking are included.

Diagram 9.3 SteelWood Ladder Truss to Support Roof Load

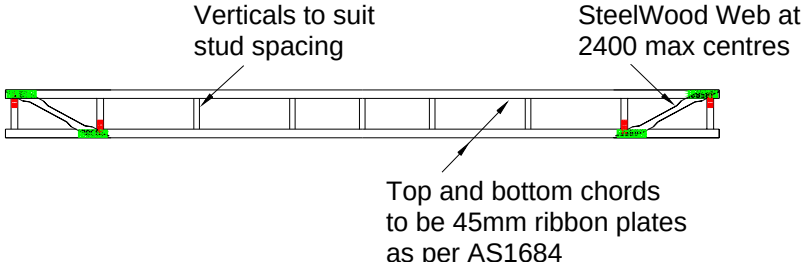


Diagram 9.4 Typical Ladder Truss

EXTERNAL WALL BEARING (cont)

Solid Timber

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

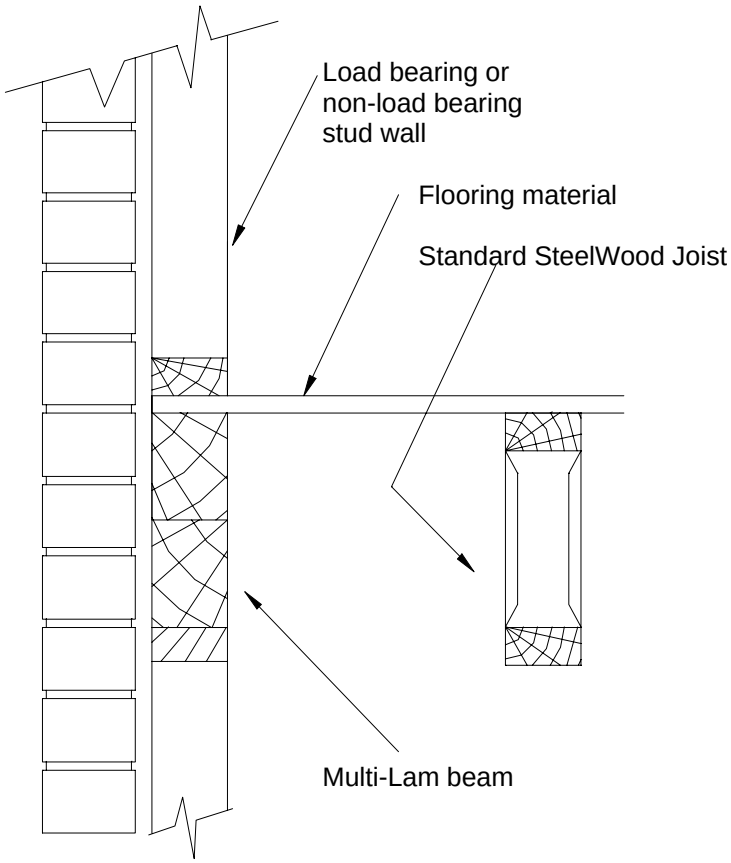


Diagram 9.5 Multi-Lam Beam - Typical Section

EXTERNAL WALL BEARING (cont)

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.

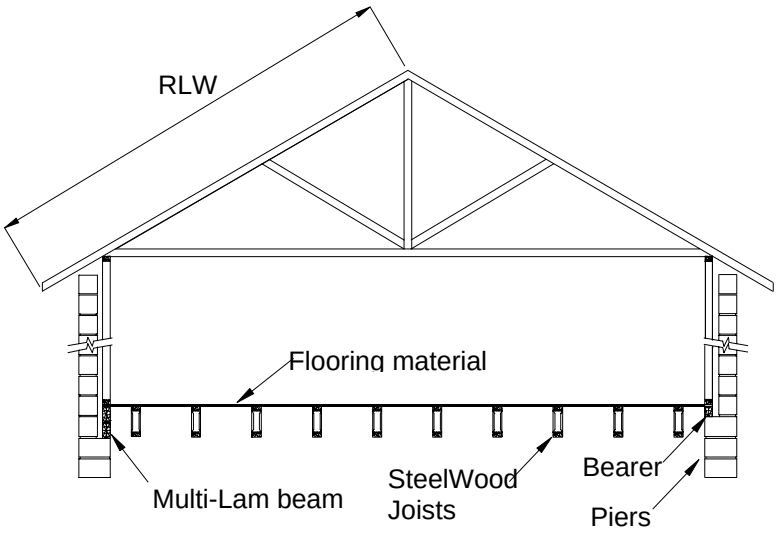


Diagram 9.6 Multi-Lam Beam or Bearer to Support Roof Load

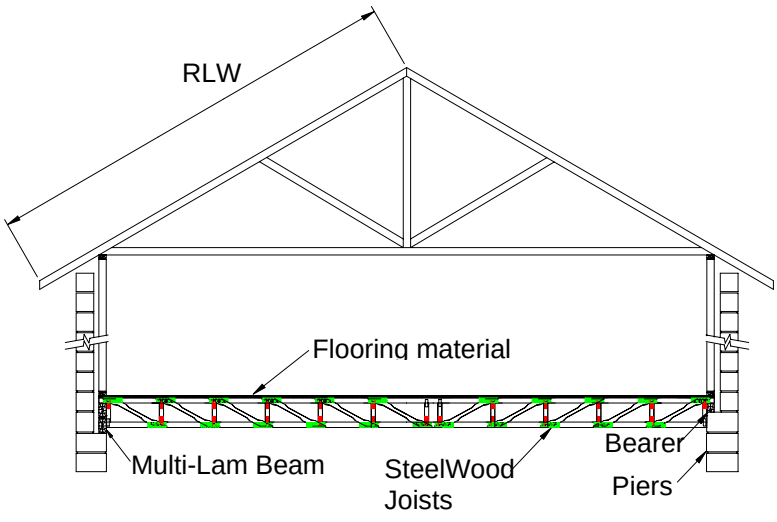


Diagram 9.7 Multi-Lam Beam or Bearer to Support Roof and Floor Load

EXTERNAL WALL BEARING (cont)

Two-Storey Construction Hip Ends.

This is the same as Type 1 with RLW defined as shown in Diagram 3.8

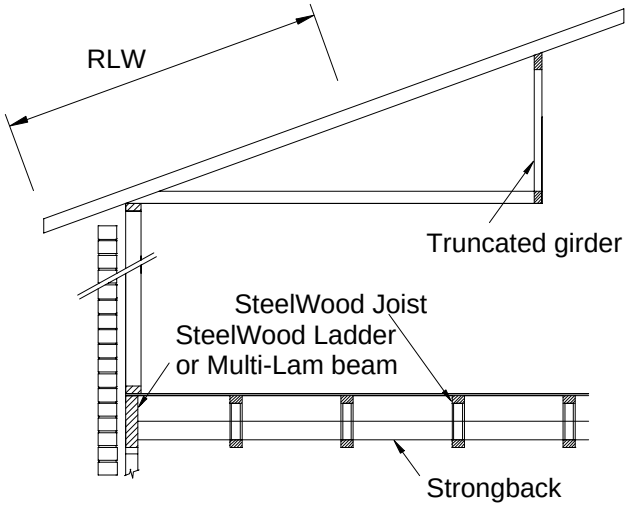


Diagram 9.8 Multi-Lam Beam to Support Jack Loads

Single-Storey Construction Hip Ends.

This is the same as Type 2 with RLW as shown in Diagram 3.9

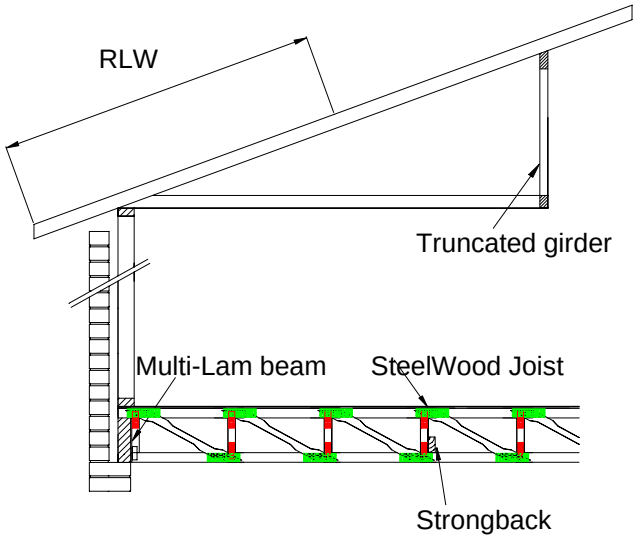


Diagram 9.9 Multi-Lam Beam to Support Jack and Floor Loads

Gable Ends.

This is the same as Type 1 or Type 2 with RLW = Verge Overhang + Truss Spacing/2

EXTERNAL WALL BEARING (cont)

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.

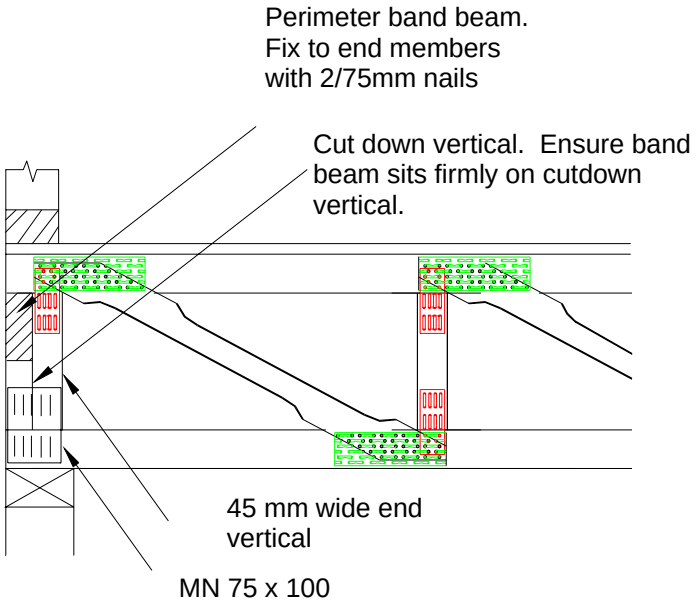


Diagram 9.10 Multi-Lam Beam to Support Jack and Floor Loads

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

Table 9.1 Maximum Roof Load Width Supported by Standard SteelWood Joist

10. INTERNAL NON-LOAD BEARING WALLS

Walls Parallel to SteelWood Joists:

Platform Flooring:

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

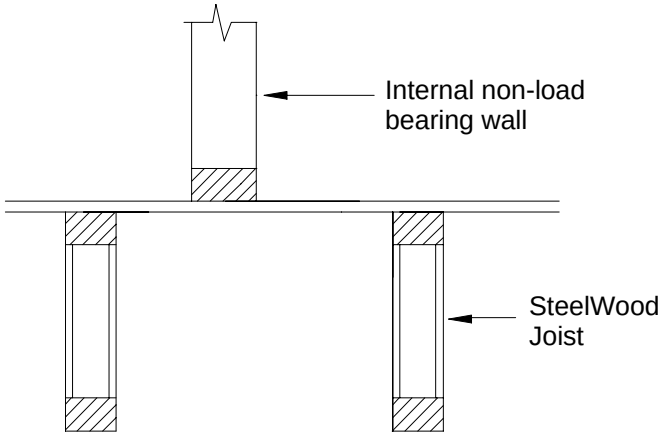


Diagram 10.1 Support of Internal Non-Load Bearing Wall

Fitted Flooring:

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

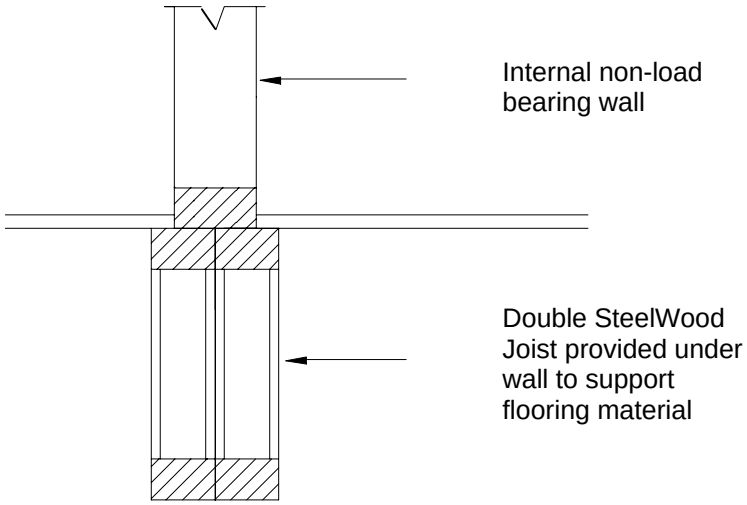


Diagram 10.2 Support of Internal Non-Load Bearing Wall

INTERNAL NON-LOAD BEARING WALLS (cont)

Walls Perpendicular to SteelWood Joists:

Platform Flooring:

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

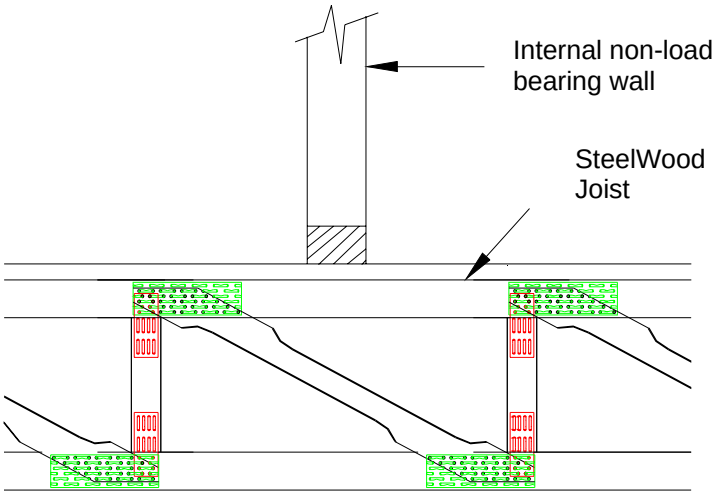


Diagram 10.3 Support of Internal Non-Load Bearing Wall

Fitted Flooring:

With fitted flooring construction, walls placed perpendicular to the ***SteelWood 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.

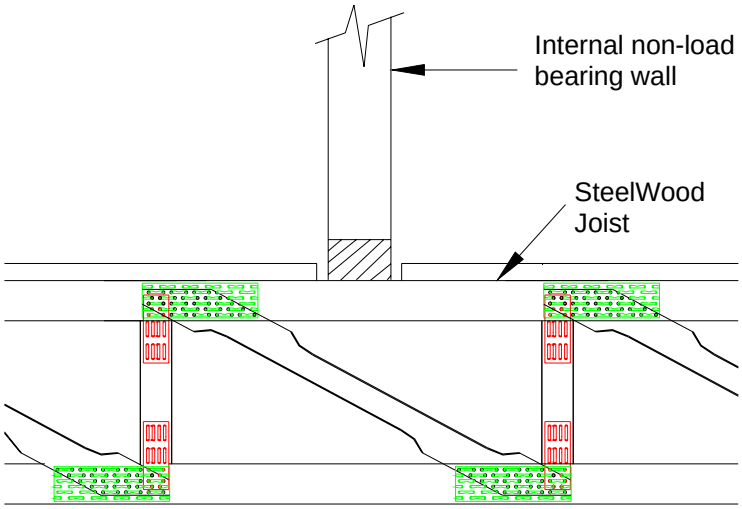


Diagram 10.4 Support of Internal Non-Load Bearing Wall

11. TYPICAL SUPPORT DETAILS

Bottom Chord Support:

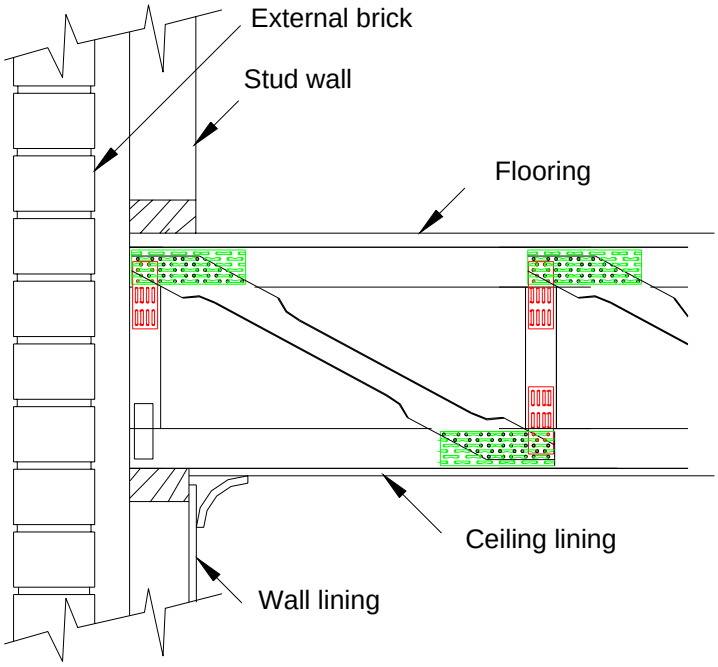


Diagram 11.1 Bottom Chord Support to Loadbearing Wall

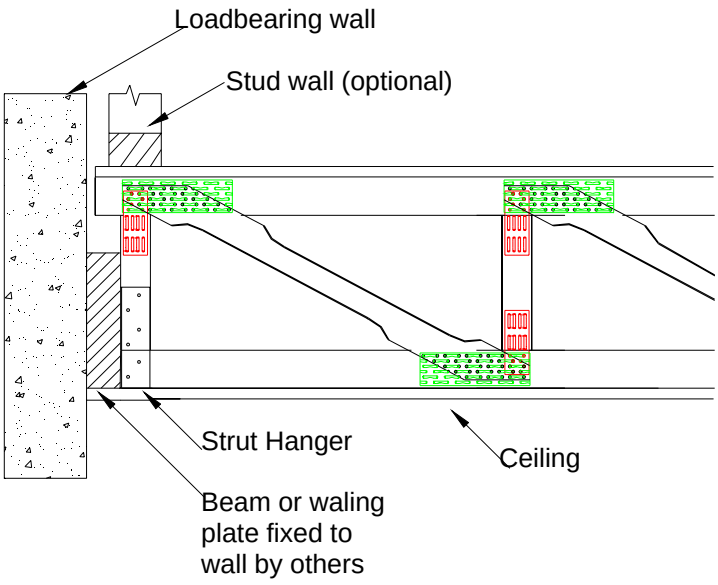


Diagram 11.2 Bottom Chord Support to Strut Hanger

TYPICAL SUPPORT DETAILS (cont)

Top Chord Support:

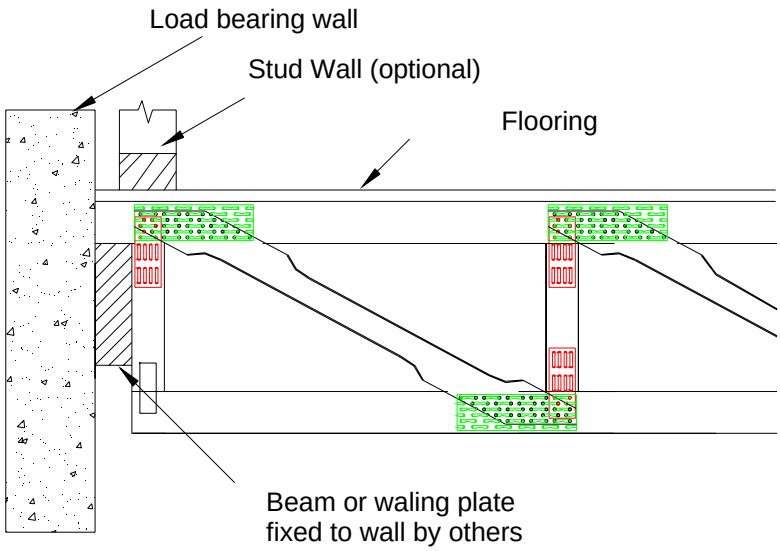


Diagram 11.3 Top Chord Support with End Vertical

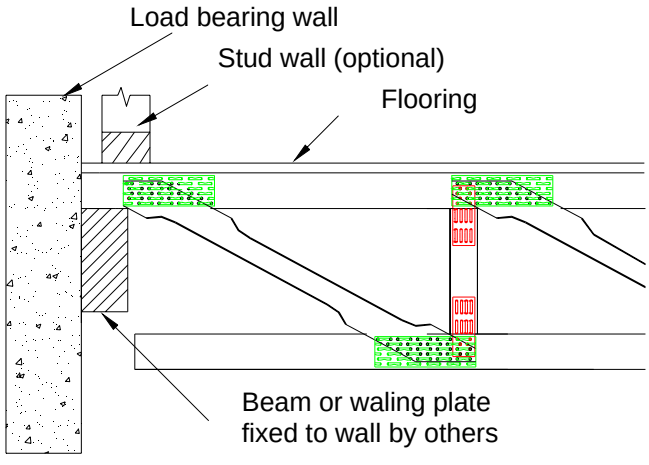


Diagram 11.4 Top Chord Support without end Vertical

TYPICAL SUPPORT DETAILS (cont)

Top Chord Support:

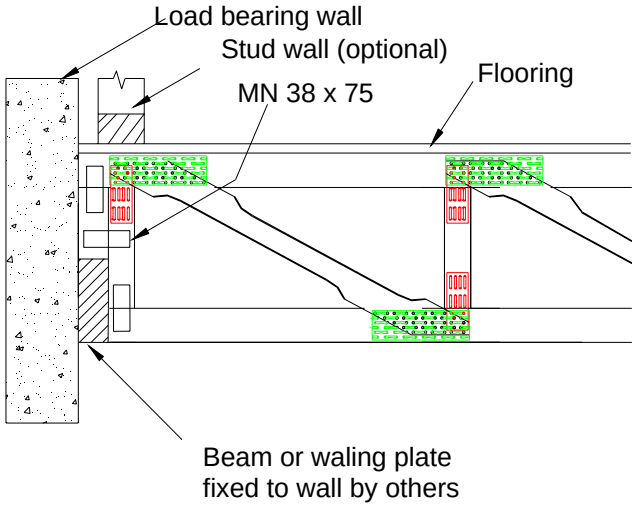
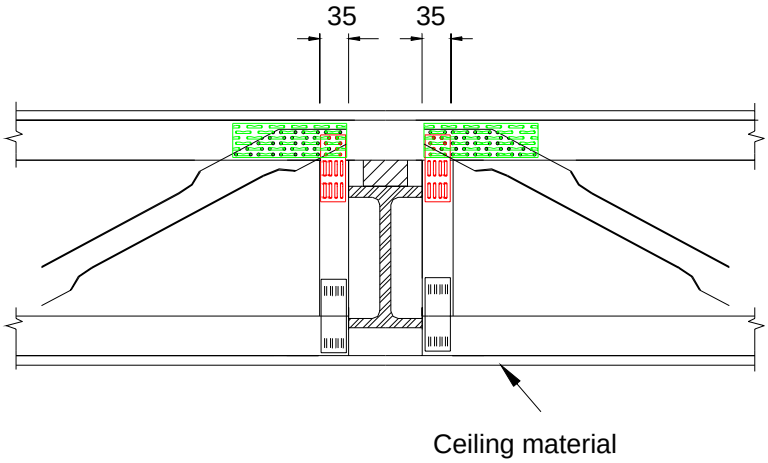


Diagram 11.5 Alternate Top Chord Support

Internal / Concealed Bearing Point:



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

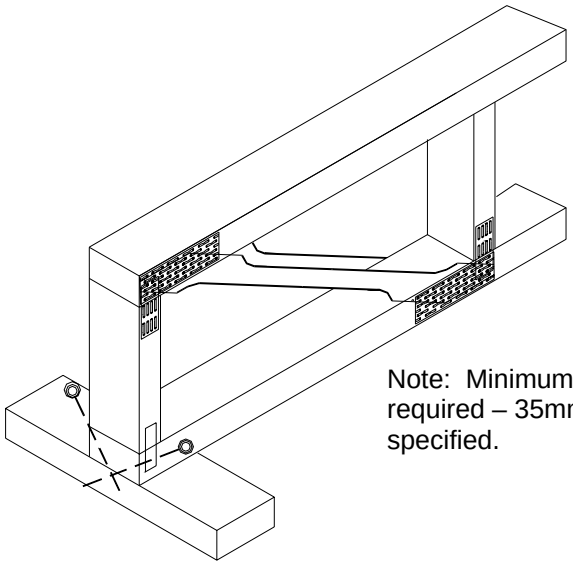
Diagram 11.6 Hidden Internal Support

12. FIXING DETAIL AT EXTERNAL WALLS

Each SteelWood 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.

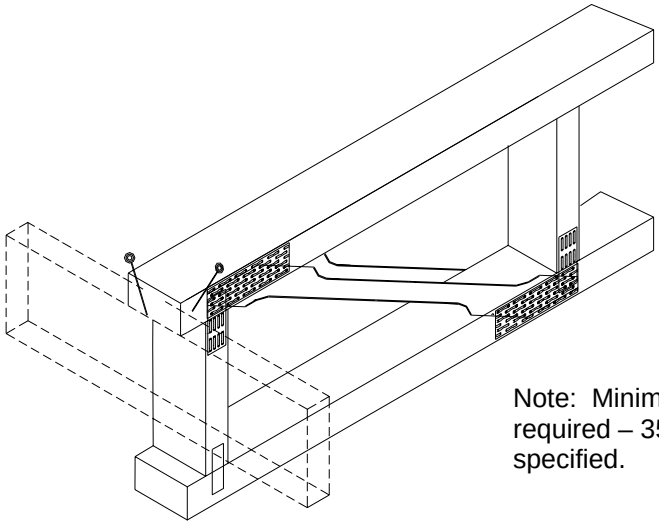
Bottom Chord Support:



Note: Minimum bearing required – 35mm or as specified.

Diagram 12.1 Fixing to Wall Top Plate

Top Chord Support at Beam with Vertical:

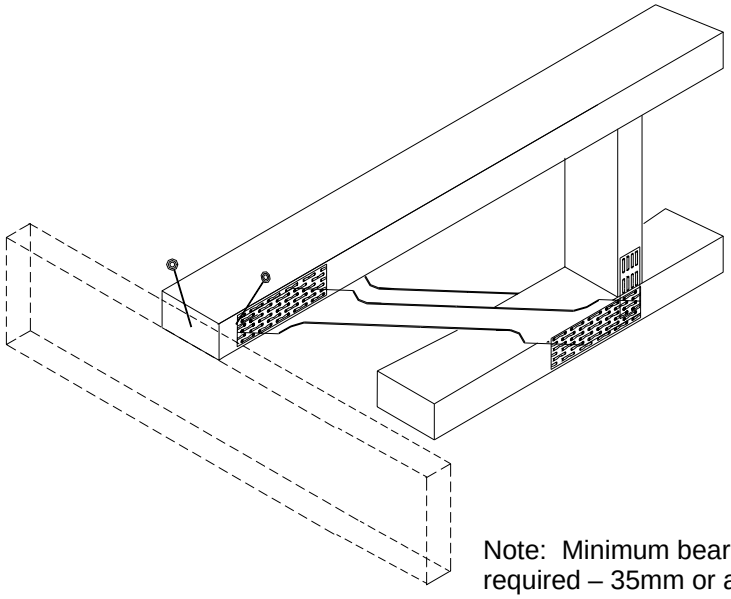


Note: Minimum bearing required – 35mm or as specified.

Diagram 12.2 Fixing to Beam

FIXING DETAIL AT EXTERNAL WALLS (cont)

Top Chord Supported without Vertical end:



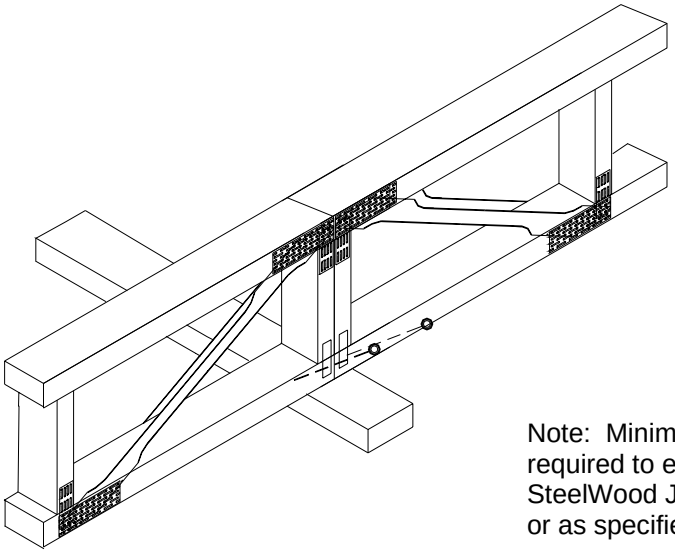
Note: Minimum bearing required – 35mm or as specified.

Diagram 12.3 Fixing to Beam – no End Vertical Web

13. FIXING DETAIL AT INTERNAL WALLS

When SteelWood 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.

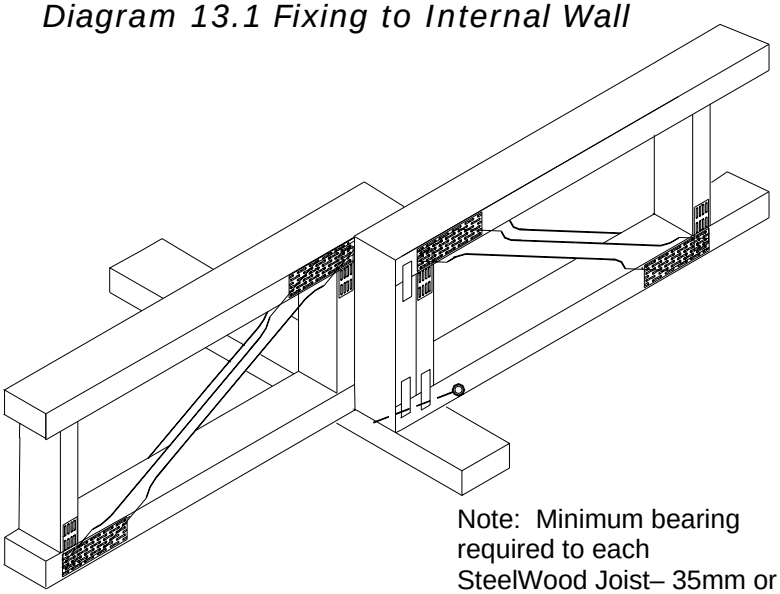
Butt Join



Note: Minimum bearing required to each SteelWood Joist – 35mm or as specified.

Diagram 13.1 Fixing to Internal Wall

Lap Join



Note: Minimum bearing required to each SteelWood Joist– 35mm or as specified.

Diagram 13.2 Alternate Fixing to Internal Wall

14. FIXING DETAILS AT A TIMBER BEAM

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

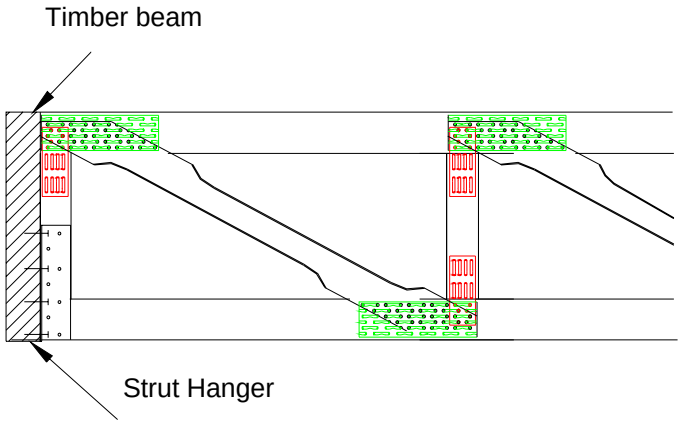


Diagram 14.1 Fixing to Timber Beam using a Strut Hanger

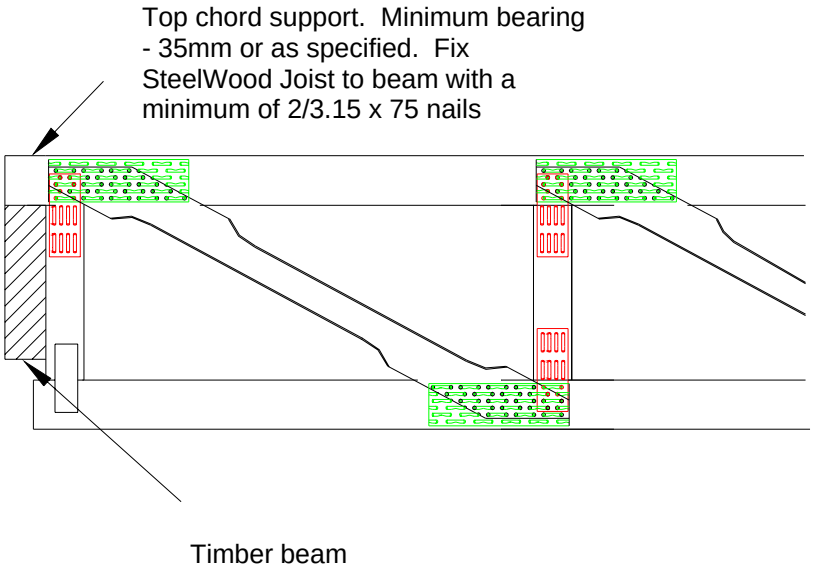


Diagram 14.2 Fixing to Timber Beam

15. FIXING DETAILS AT A STEEL BEAM

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

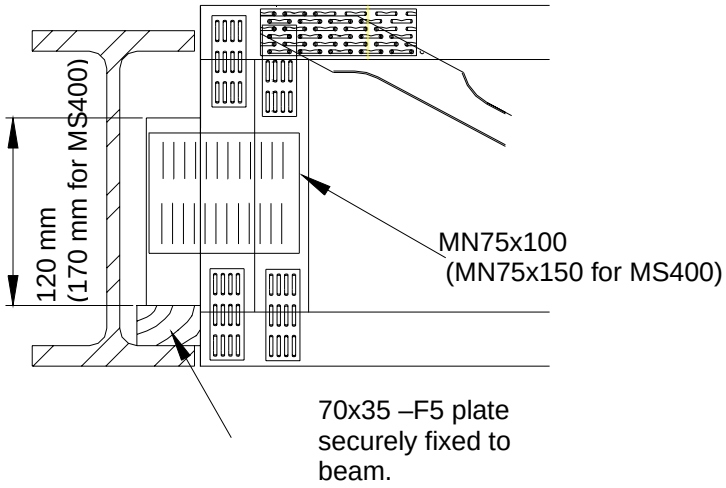


Diagram 15.1 Block Fixing to Steel Beam
(Read in Conjunction with Table 15.1)

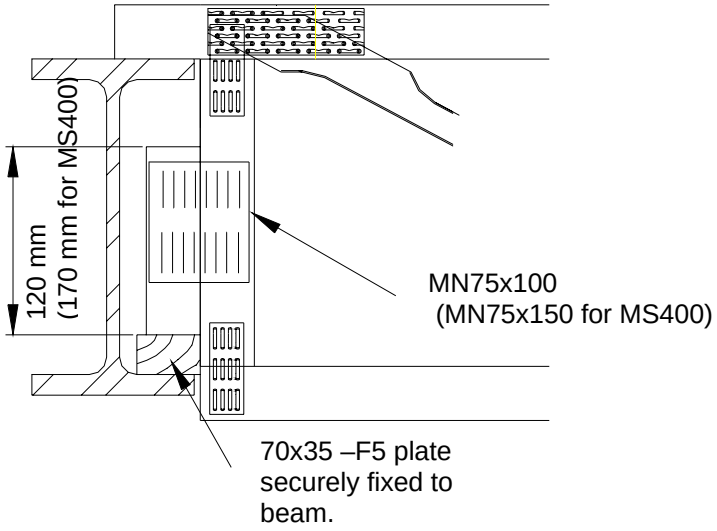


Diagram 15.2 Block Fixing to Steel Beam

SteelWood Nominal Size	Joist Centres	
	450 mm	600 mm
SW 250	9100	8100
SW 300	9100	8100
SW 350	9100	8100
SW 400	9100	8100

Table 15.1 Maximum Span Carried For Fixing To Steel Beam For 1.5 kPa Live Load

FIXING DETAILS AT A STEEL BEAM (cont)

Truss supported on top chord extension securely fixed to beam with Ramset nails. Minimum top chord extension 90 mm (to prevent splitting to top chord)

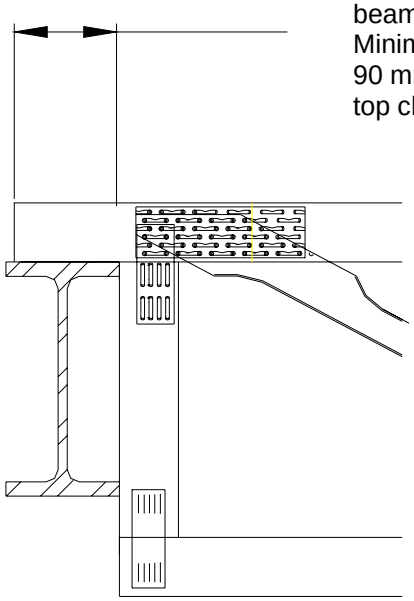


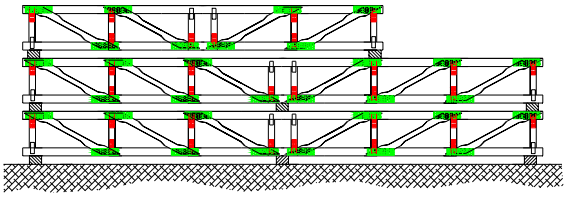
Diagram 15.3 Top Chord Support to UB

16. STORAGE ON-SITE

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

SteelWood 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.

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

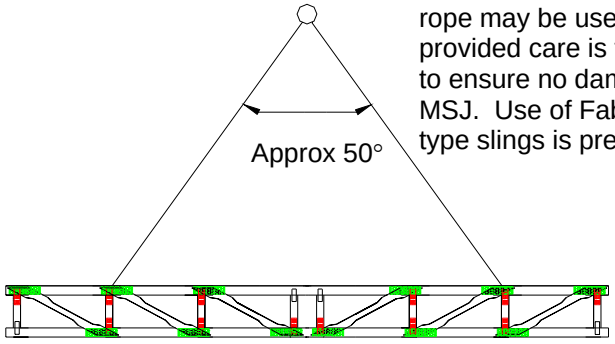


Note: Bearers to be directly under vertical web positions and in a straight line

Diagram 16.1 Typical on-site storage of SteelWood Joists

17. LIFTING

SteelWood 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.



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.

Diagram 17.1 Typical sling positioning for lifting

WARNING:

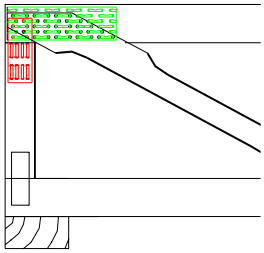
If moving SteelWood Joists with a fork lift do not place tynes through SteelWood Joists

Slings for lifting must not be attached to the SteelWood Webs

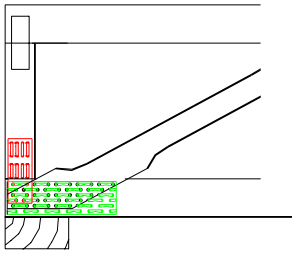
18. LAYOUT AND POSITIONING

SteelWood Joists are typically placed perpendicular to the load bearing walls. Care should be taken to ensure that the distance between the SteelWood 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 SteelWood Joists are placed the correct way up. SteelWood Joists are always designed and manufactured so that the metal web starts at the top chord at each bearing point.



Correct



Wrong

Diagram 18.1 Correct Orientation

19. STRONGBACKS

Strongbacks are installed within the SteelWood 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 8.1

♦ FIXING & SPLICING:

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

Strongbacks may be spliced where required in accordance with Diagram 19.1 and Diagram 19.2

SteelWood Nominal Size	Strongback Size (same grade as chords of MSJ)	ALTERNATE Strongback size (one grade lower than chords of MSJ)
SW 250	90 x 35	120 x 35
SW 300	120 x 35	140 x 35
SW 350	140 x 35	170 x 35
SW 400	140 x 35	170 x 35

Table 19.1 Recommended Strongback Sizes

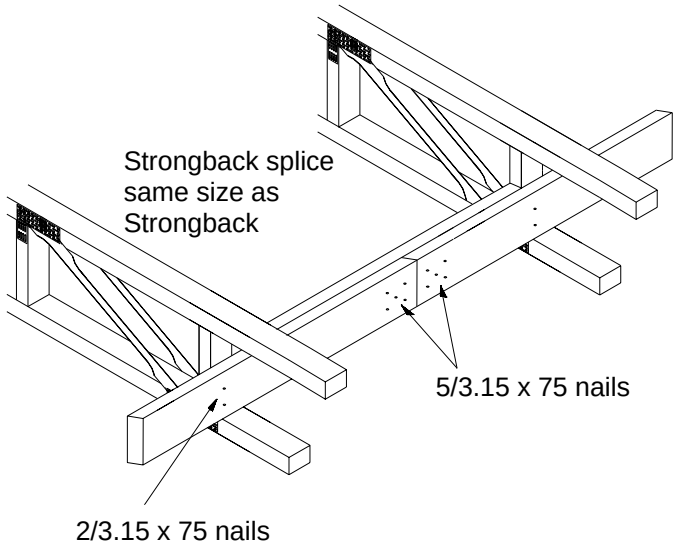


Diagram 19.1 Timber Splice to Strongback.

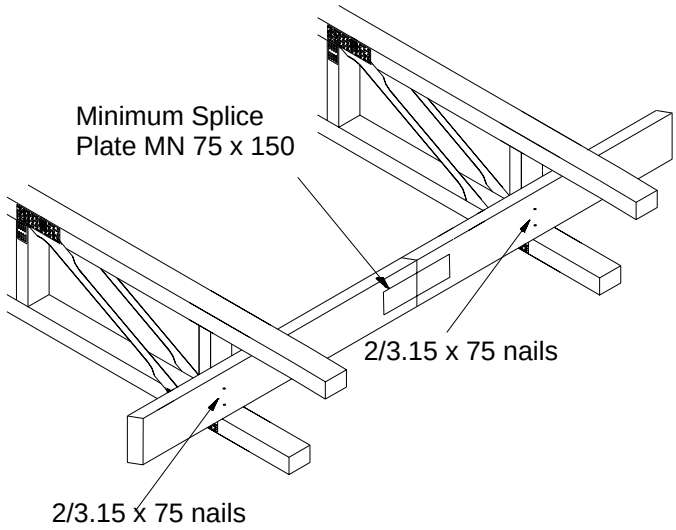


Diagram 19.2 Nailplate splice to Strongback

STRONGBACKS (cont)

♦ POSITIONING:
Strongbacks to be located at a maximum of 2400 centres.

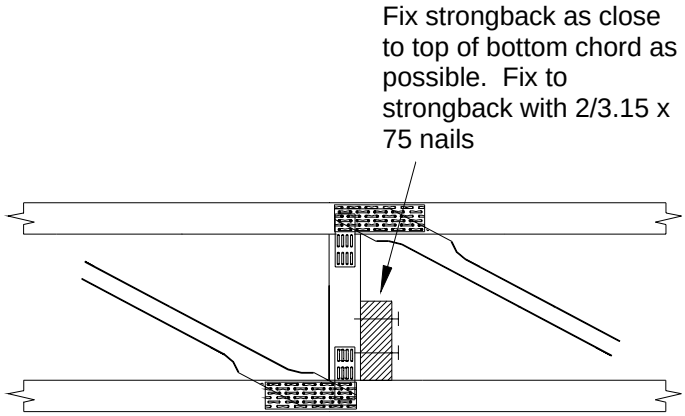


Diagram 19.3 Strongback positioning

♦ CHANGE OF SPAN:

At a change of span it is common for the verticals in the SteelWood Joist to not line up. To ensure continuity of the Strongback they should be spliced as per Diagram 8.4

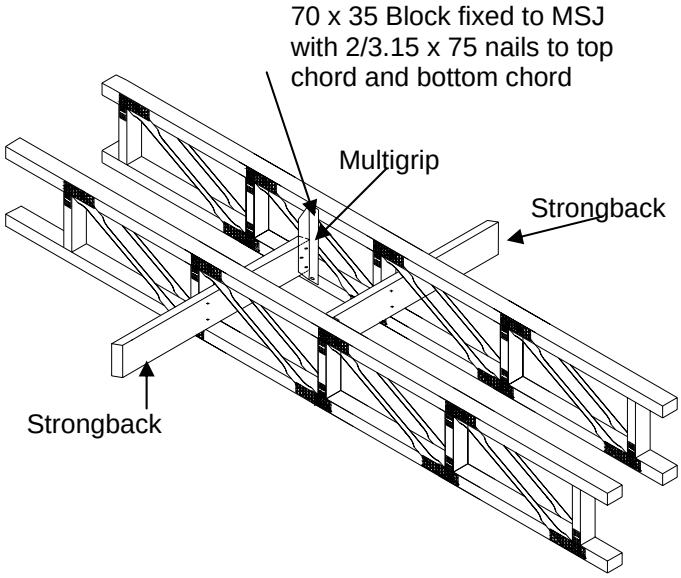


Diagram 19.4 Strongback splicing at Change of Span.

20. STEELWOOD JOIST BRACING

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 20.1

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

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

Table 20.1 Minimum Bracing Requirements

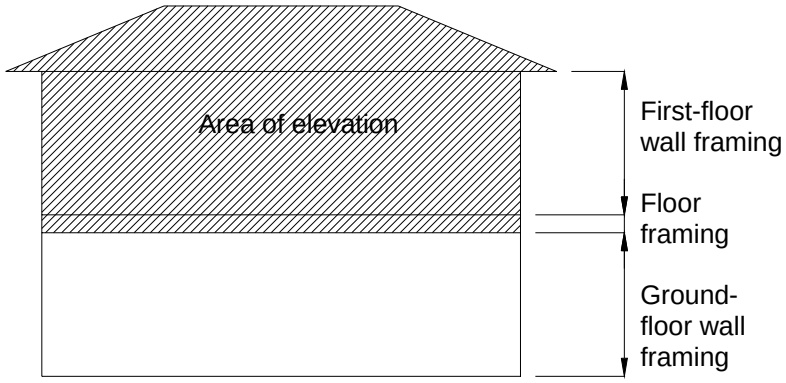


Diagram 20.1 Determination of Area of Elevation – Two Storey Building

STEELWOOD JOIST BRACING (cont)

Type 1 Bracing Units

Timber Diagonal Brace:

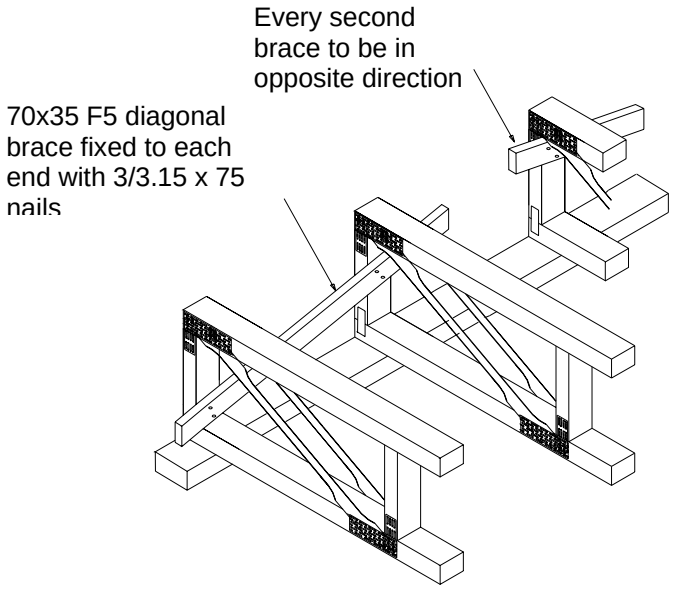


Diagram 20.2 Type 1 Timber Diagonal Bracing Unit

Strap Brace:

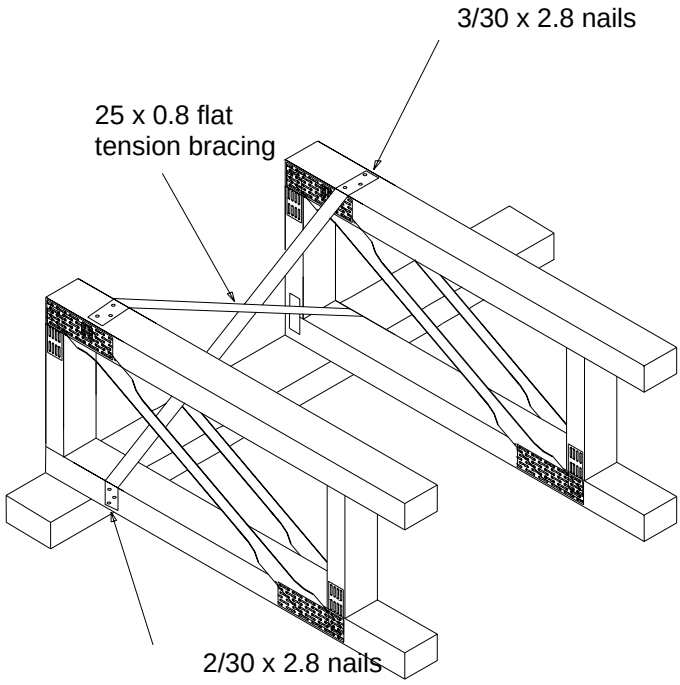


Diagram 20.3 Type 1 Strap Bracing Unit

STEELWOOD JOIST BRACING (cont)

Type 2 Bracing Units

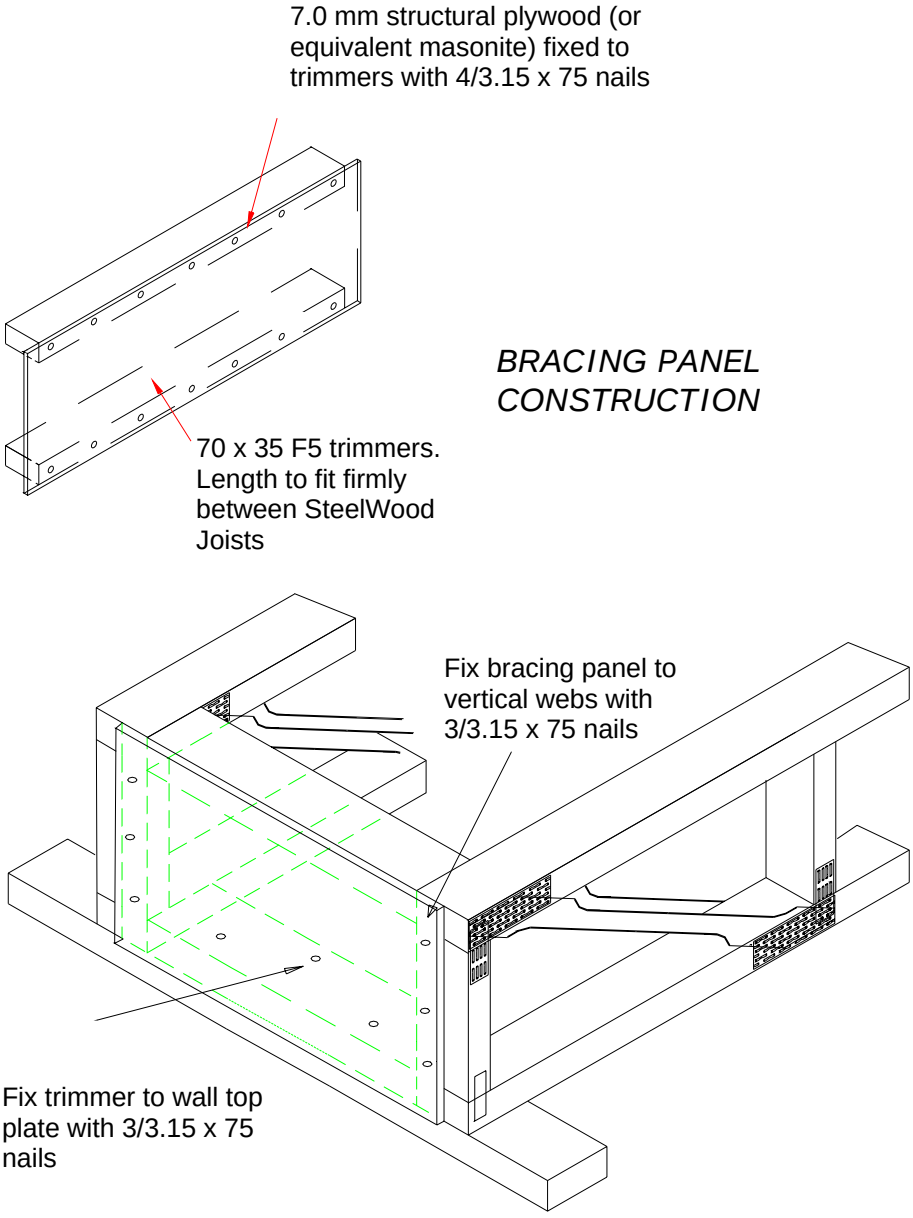


Diagram 20.4 Type 2 Ply Bracing Unit

STEELWOOD JOIST BRACING (cont)

Type 2 Bracing Units

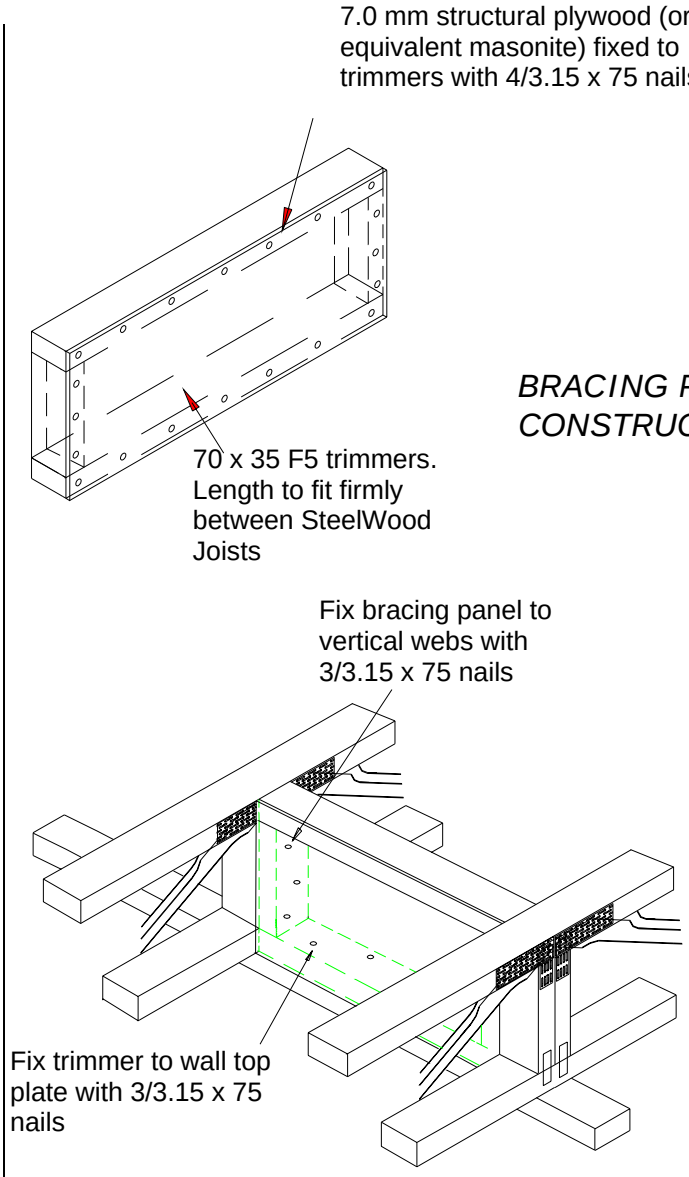
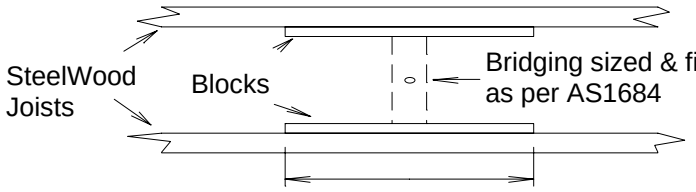


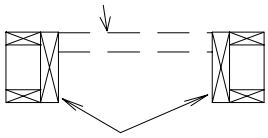
Diagram 20.5 Alternate Type 2 Ply Bracing Unit
For Internal Support Wall

Fixing of Upper Floor Bracing Units



PLAN VIEW

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

TYPICAL SECTION

Diagram 20.6 Fixing of SteelWood Joists to Bracing Walls Over

21. CANTILEVERS

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

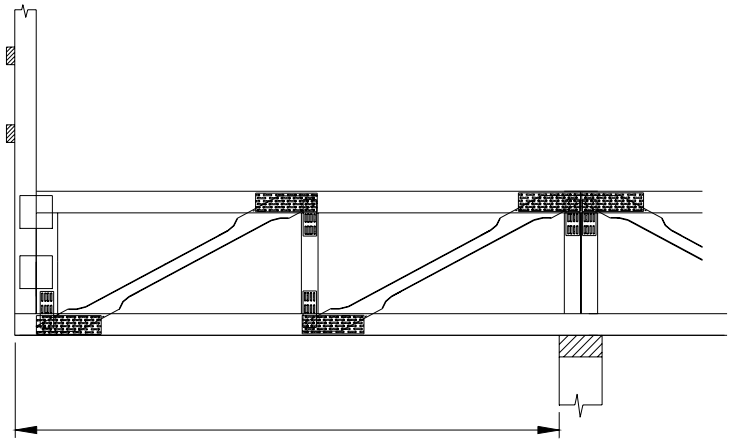


Diagram 21.1 Internal Cantilever Detail

2. For External Use:

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

(a) Built into the SteelWood Joist:

This method enables a solid timber joist to be designed to fit between the SteelWood webs, fixed to the chords as shown.

Timber packers must be fixed to both the SteelWood 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.

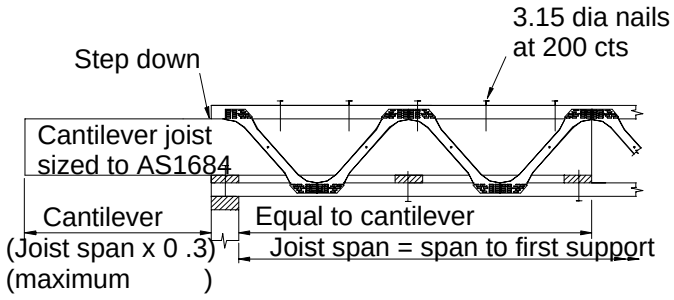


Diagram 21.2 External Cantilever

CANTILEVERS (cont)

(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 SteelWood Joist

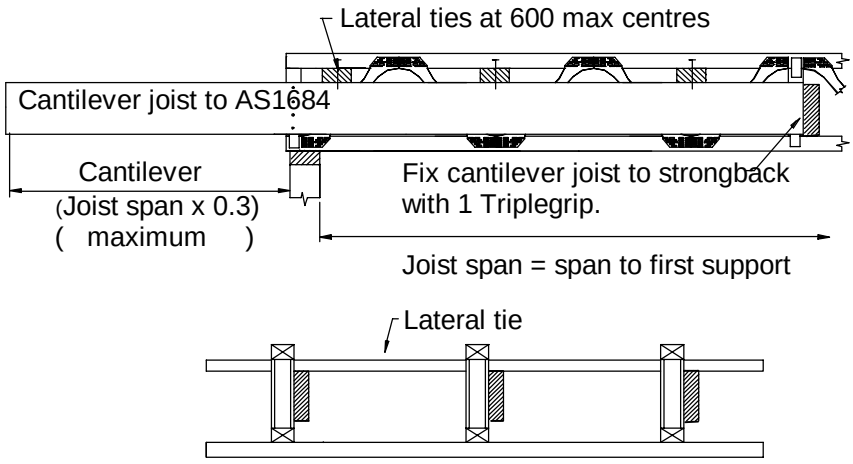


Diagram 21.3 External Cantilever

22. WATER BED SUPPORT

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

Place SteelWood Joists at ½ design spacing

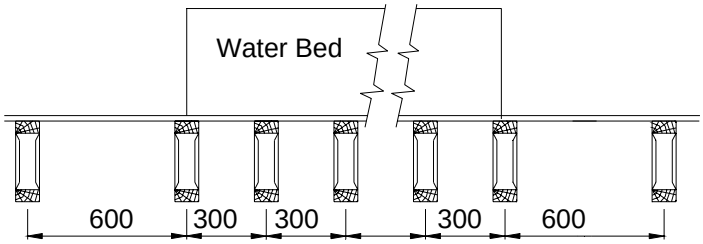


Diagram 22.1 SteelWood Joists at standard 600 centres

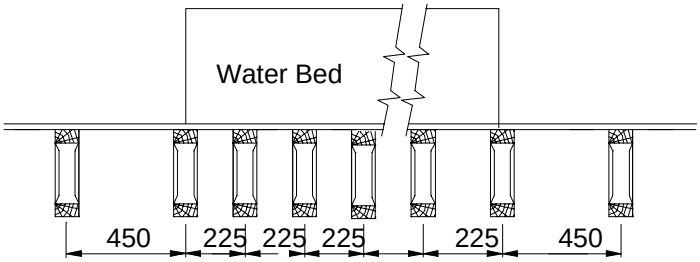


Diagram 22.2 SteelWood Joist at standard 450 centres

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.

WATER BED SUPPORT (cont)

Provide Strongbacks at maximum 1200 centres of minimum length 4500.

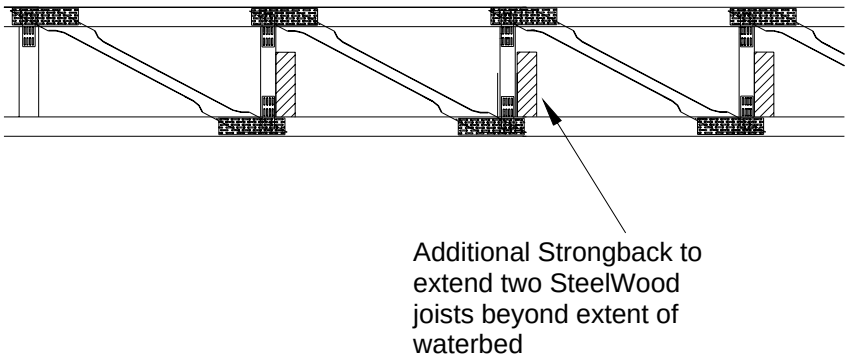


Diagram 22.3 Additional Strongback location.

23. STAIRWELLS

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

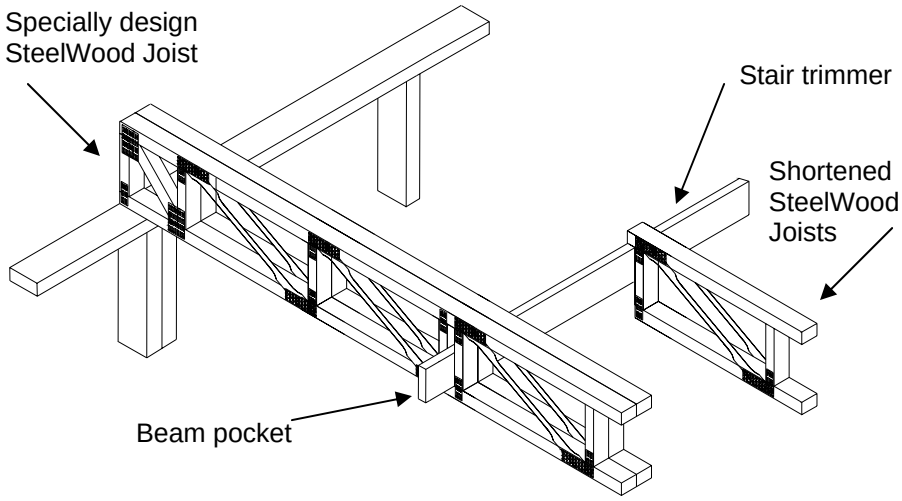


Diagram 23.1 Typical Stairwell Framing

STAIRWELLS (cont)

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

Option A:

Stair trimmer
span = 2700mm

Stair opening = 1200mm

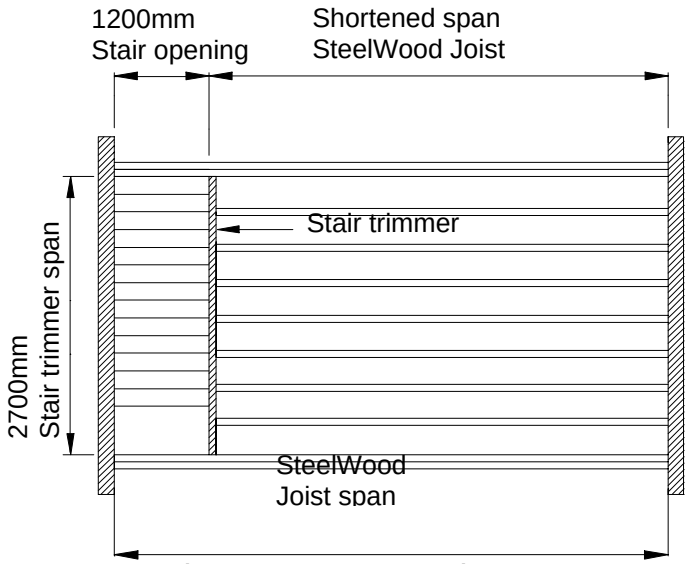


Diagram 23.2 Option A

Option B:

Stair trimmer
span = 2400mm

Stair opening = 2400mm

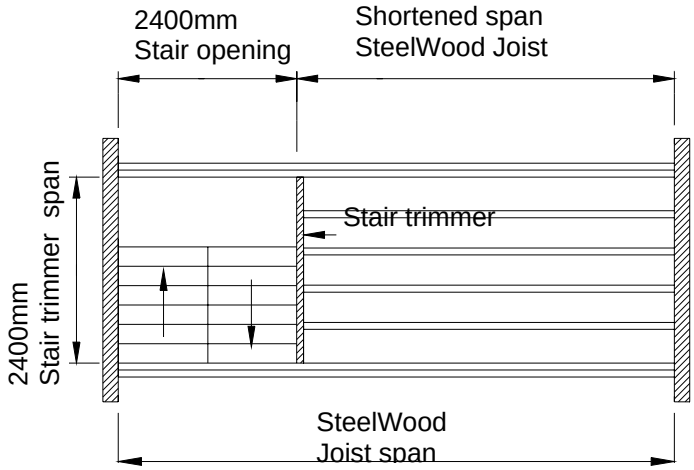


Diagram 23.2 Option B

Option C:

Stair trimmer
span = 2100mm

Stair opening = 3000mm

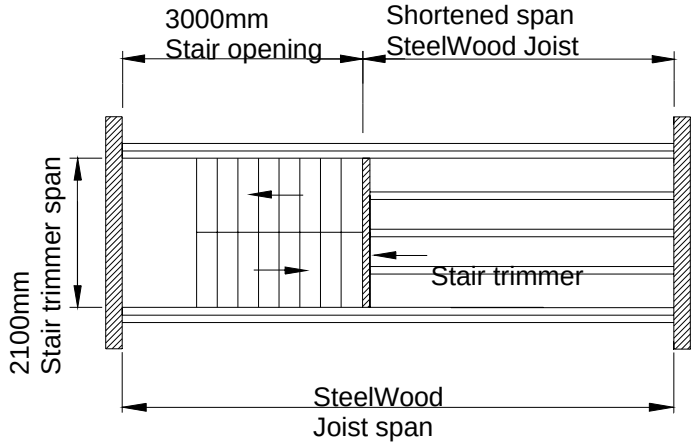


Diagram 23.2 Option C

24. STAIR WELLS (TABLES)

SteelWood Nominal Depth	Timber Size	45 mm Chords F5	F8	F17	Timber Size	35 mm Chords F5	F8	F17
SW 250	45 x 70 45 x 90	3700 3700	3700 3700	3700 3700	35 x 70 35 x 90	3200 3700	3700 3700	3700 3700
SW 300	45 x 70 45 x 90	4000 4000	4000 4000	4000 4000	35 x 70 35 x 90	3600 4000	4000 4000	4000 4000
SW 350	45 x 70 45 x 90				35 x 70 35 x 90			
SW 400	45 x 70 45 x 90	4800 4800	4800 4800	4800 4800	35 x 70 35 x 90	4300 4800	4800 4800	4800 4800
SteelWood Nominal Depth	Timber Size	45 mm Chords MGP10	MGP12	MGP15	Timber Size	35 mm Chords MGP10	MGP12	MGP15
SW 250	45 x 70 45 x 90	3700 3700	3700 3700	3700 3700	35 x 70 35 x 90	3600 3700	3700 3700	3700 3700
SW 300	45 x 70 45 x 90	4000 4000	4000 4000	4000 4000	35 x 70 35 x 90	4000 4000	4000 4000	4000 4000
SW 350	45 x 70 45 x 90				35 x 70 35 x 90			
SW 400	45 x 70 45 x 90	4800 4800	4800 4800	4800 4800	35 x 70 35 x 90	4800 4800	4800 4800	4800 4800

Table 24.1 Maximum Spans for Double SteelWood Joist Supporting Stair Trimmer Option A

SteelWood Nominal Depth	Timber Size	45 mm Chords F5	F8	F17	Timber Size	35 mm Chords F5	F8	F17
SW 250	45 x 70 45 x 90	4200 4300	4300 4300	4300 4300	35 x 70 35 x 90	3700 4100	4300 4300	4300 4300
SW 300	45 x 70 45 x 90	4500 4700	4700 4700	4700 4700	35 x 70 35 x 90	4100 4500	4700 4700	4700 4700
SW 350	45 x 70 45 x 90				35 x 70 35 x 90			
SW 400	45 x 70 45 x 90	5200 5800	6000 6000	6000 6000	35 x 70 35 x 90	4600 5200	5700 6000	6000 6000
SteelWood Nominal Depth	Timber Size	45 mm Chords MGP10	MGP12	MGP15	Timber Size	35 mm Chords MGP10	MGP12	MGP15
SW 250	45 x 70 45 x 90	4300 4300	4300 4300	4300 4300	35 x 70 35 x 90	4000 4300	4300 4300	4300 4300
SW 300	45 x 70 45 x 90	4700 4700	4700 4700	4700 4700	35 x 70 35 x 90	4400 4700	4700 4700	4700 4700
SW 350	45 x 70 45 x 90				35 x 70 35 x 90			
SW 400	45 x 70 45 x 90	5700 6000	6000 6000	6000 6000	35 x 70 35 x 90	5000 5600	6000 6000	6000 6000

Table 24.2 Maximum Spans for Double SteelWood Joist Supporting Stair Trimmer Option B

STAIR WELLS (cont)

SteelWood Nominal Depth	Timber Size	45 mm Chords F5	F8	F17	Timber Size	35 mm Chords F5	F8	F17
SW 250	45 x 70 45 x 90	4500 5000	5000 5000	5000 5000	35 x 70 35 x 90	4100 4400	4800 5000	5000 5000
SW 300	45 x 70 45 x 90	4900 5400	5500 5500	5500 5500	35 x 70 35 x 90	4400 4800	5500 5500	5500 5500
SW 350	45 x 70 45 x 90				35 x 70 35 x 90			
SW 400	45 x 70 45 x 90	6000 6700	6700 6700	6700 6700	35 x 70 35 x 90	5000 6000	6700 6700	6700 6700
SteelWood Nominal Depth	Timber Size	45 mm Chords MGP10	MGP12	MGP15	Timber Size	35 mm Chords MGP10	MGP12	MGP15
SW 250	45 x 70 45 x 90	4900 5000	5000 5000	5000 5000	35 x 70 35 x 90	4400 4800	5000 5000	5000 5000
SW 300	45 x 70 45 x 90	5300 5500	5500 5500	5500 5500	35 x 70 35 x 90	4700 5200	5500 5500	5500 5500
SW 350	45 x 70 45 x 90				35 x 70 35 x 90			
SW 400	45 x 70 45 x 90	6000 6700	6700 6700	6700 6700	35 x 70 35 x 90	5400 6000	6700 6700	6700 6700

Table 24.3 Maximum Spans for Double SteelWood Joist Supporting Stair Trimmer Option C

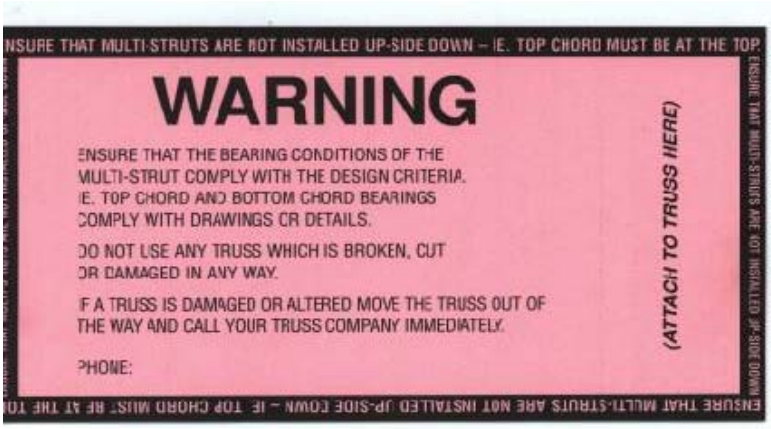
Shortened Truss Span	Stair Trimmer Span (mm)							
	900	1200	1500	1800	2100	2400	2700	3000
2000	90x45 (F5)	90x45 (F5)	90x45 (F17)	120x45 (F8)	140x35 (F8)	190x35 (F8)	190x35 (F8)	190x45 (F8)
3000	90x45 (F5)	90x45 (F8)	120x35 (F8)	140x35 (F17)	140x35 (F17)	190x35 (F8)	190x45 (F8)	190x45 (F17)
4000	90x45 (F5)	90x45 (F17)	120x45 (F8)	140x45 (F17)	140x45 (F17)	190x45 (F8)	190x45 (F17)	240x35 (F17)
5000	90x45 (F5)	90x45 (F17)	120x35 (F17)	140x45 (F17)	190x45 (F17)	190x45 (F17)	240x35 (F17)	240x35 (F17)
6000	90x45 (F5)	120x35 (F17)	120x45 (F17)	140x45 (F17)	190x45 (F17)	190x45 (F17)	240x35 (F17)	240x45 (F17)

Table 24.4 Stair Trimmer Span Table

25. WARNING MESSAGES

Multinail Australia supply the following warning card at a nominal cost and recommend that the cards are fixed to every 10th SteelWood Joist. The card contains a brief warning to help assist following trades avoid damage to the SteelWood Joist through accident or ignorance.

Sample card:

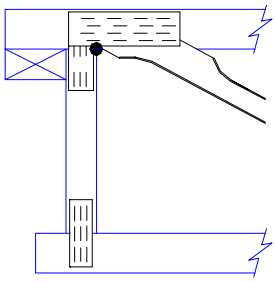


Sample Card:

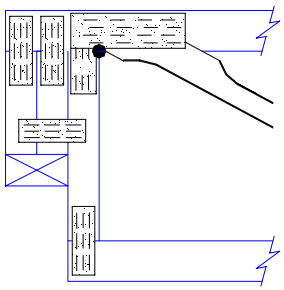
26. APPENDIX I
END DETAILS

SteelWood End Details

Top Chord Bearing



SM1.1

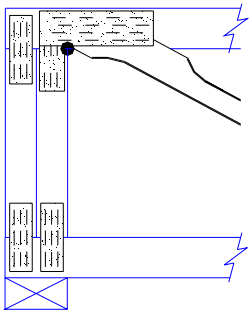


SM1.2

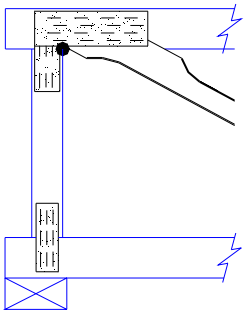
SteelWood End Details

Bottom Chord Bearing

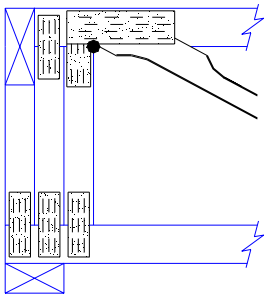
SM2.1



SM2.2



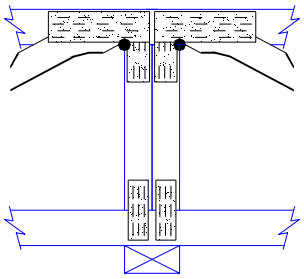
SM2.3



SteelWood End Details

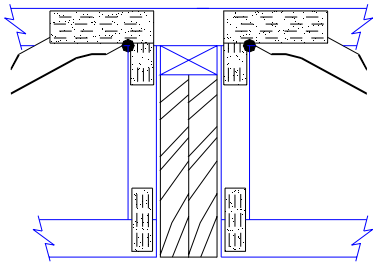
Bottom Chord Internal bearing Points

SM3.1



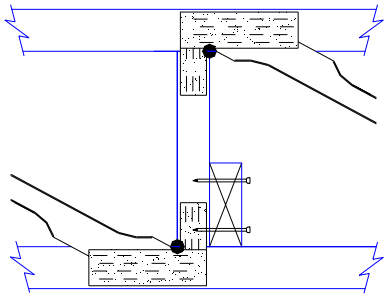
Top Chord Internal Bearing Points

SM4.1

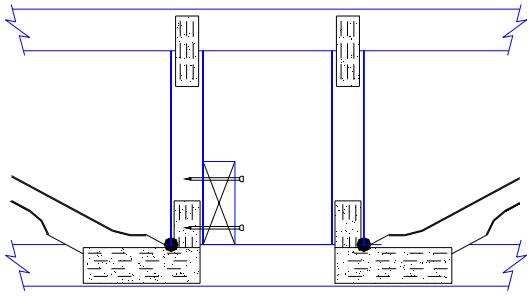


Strongback Fixing

SM5.1



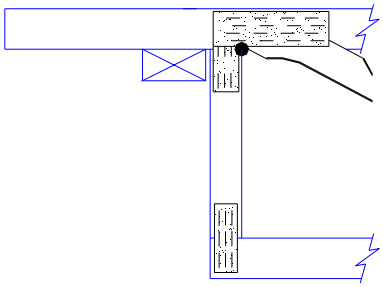
SM5.2



SteelWood End Details

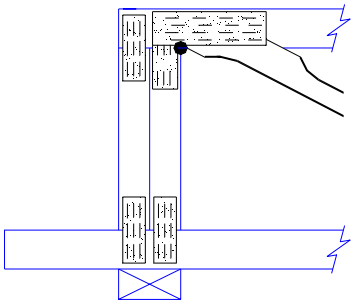
Top Chord Overhang

SM6.1



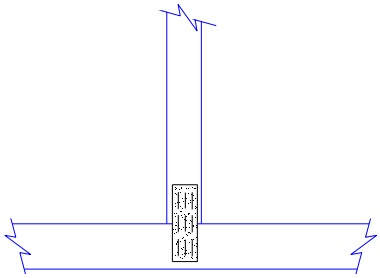
Bottom Chord Overhang

SM7.1

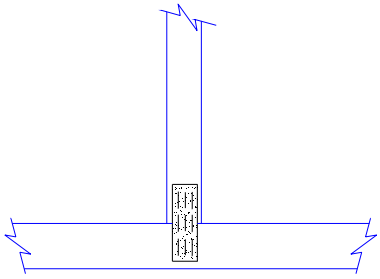


Tag Plates

SM9.1



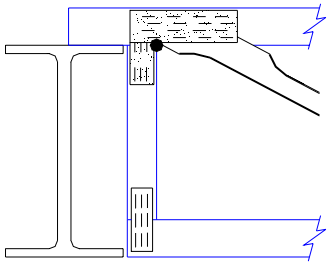
SM9.2



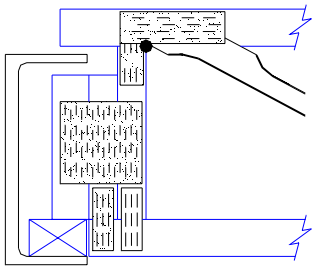
SteelWood End Details

Steel Beam Detail

SM9.1



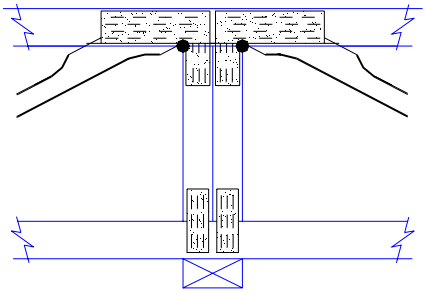
SM9.2



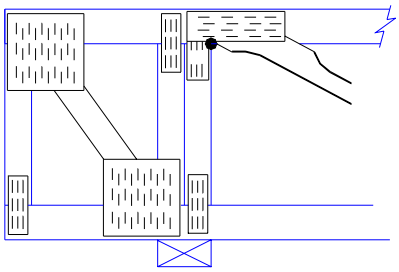
SteelWood End Details

Cantilever

SM10.1



SM10.2



SM10.3