

Parallel Chord Trusses

MultiStrut, SteelWood and SpanJoist

Australia

On Site installation Guide

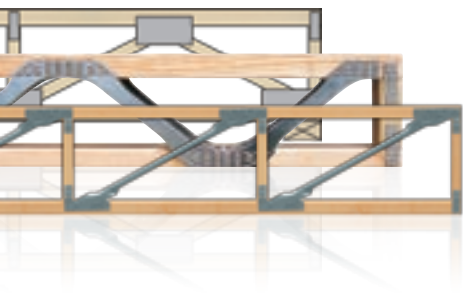


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Introduction

This brochure describes Multinail engineered floor joists, known as MultiStrut Joists (MSJ) and SteelWood Joists (SWJ) SpanJoists (SJ).

MSJ/SWJ/SJ/SJs are designed to be part of a structural system that includes the bracing, flooring, ceiling, supporting structure and the connections between these elements. The floor structure and the building only achieves its final strength when all the elements are fully assembled, fixed and braced.

The information in this brochure (and all supplementary information concerning MSJ/SWJ/SJ/SJs) must be fully understood before attempting installation.

Safety

To prevent injury and/or damage to the engineered components, anyone working with the engineered structural components must exercise common sense and caution during construction.

Do NOT load joists until all after completing all bracing.

Check first

Before erecting MSJ/SWJ/SJ/SJs, they must be checked to ensure they comply with the specific job requirements including span, depth, number off, etc.

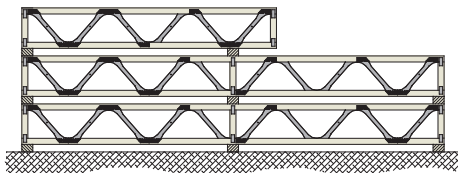
MSJ/SWJ/SJs must be specifically designed to support additional loads (e.g. water beds, spa baths, etc.). Special markings or stickers on the joists indicate extra supports, special loads or other requirements.

Wall frames must be properly constructed and designed according to AS1684 to support the MSJ/SWJ/SJs and the associated roof, ceiling and floor loads.

Transport and storage

MSJ/SWJ/SJs may be transported either vertically or horizontally provided that in either case they are fully supported. No excess stress should be placed on any part of a MSJ/SWJ/SJ by tie-down straps, chains or banding. Where necessary, use “right angle” protectors to avoid damage.

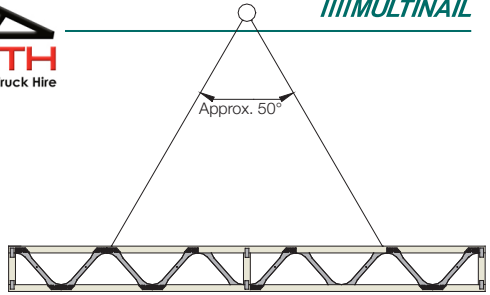
Bundles (or individual joists) should be stored on a dry, solid, flat surface. Where MSJ/SWJ/SJs must be stored on open ground, select a dry area hold the joists flat using supports under every third panel point. They must be kept dry while awaiting erection.



Lifting

MSJ/SWJ/SJs may be lifted in single units or in packs.

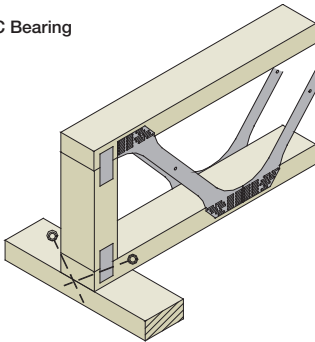
Care should be taken to avoid twisting, bending and dropping, or knocking against the frame. Always attach slings to the timber chords where a panel point occurs.



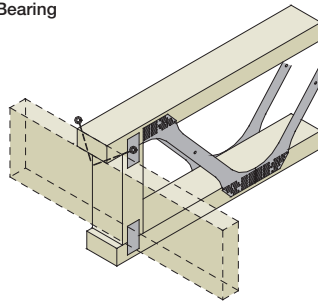
Bearing conditions

MSJ/SWJ/SJs may be designed to bear on their TCs or BCs or at some point in between. Special care should be taken to the intended bearing point when erecting.

BC Bearing



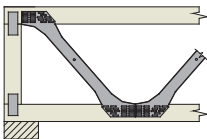
TC Bearing



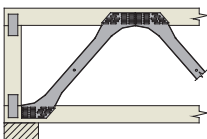
Correct orientation

MSJ/SWJ/SJs are specifically designed with a top and a bottom. The top and bottom must be correctly positioned during installation to ensure structural integrity is maintained.

MultiStrut

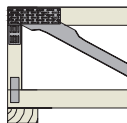


✓ Correct

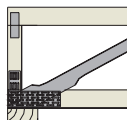


✗ Wrong

SteelWood



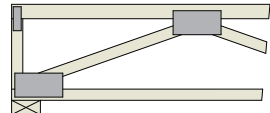
✓ Correct



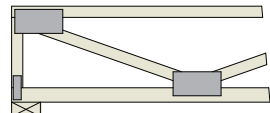
✗ Wrong

SpanJoist

Common orientation



Other possible orientation

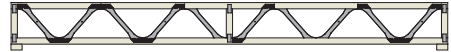


Layout

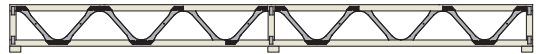
The MSJ/SWJ/SJ layout is determined prior to design and a copy is provided with this guide for you to follow. Please contact your fabricator for further information.

Design notes

MSJ/SWJ/SJs are usually designed to be supported at the ends only; however in some specific cases, MSJ/SWJ/SJs may be designed with three bearing points.



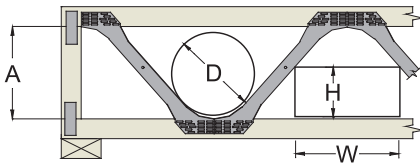
One span simply supported



Two span continuous

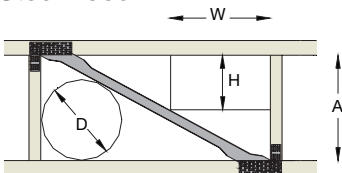
Service clearances

MultiStrut



	MS200	MS250	MS300	MS400
A (mm)	125	160	210	323
D (mm)	120	150	200	280
H (mm)	W (mm)	W (mm)	W (mm)	W (mm)
50	280	300	330	500
100	140	200	250	410
150	N/A	70	170	330
200	N/A	N/A	70	250
250	N/A	N/A	N/A	170
300	N/A	N/A	N/A	70

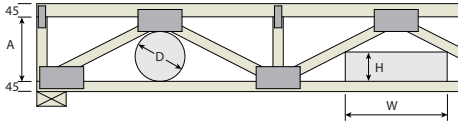
SteelWood



	SW250	SW300	SW350	SW400
A (mm)	160	210	310	323
D (mm)	125	165	200	245
H (mm)	W (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



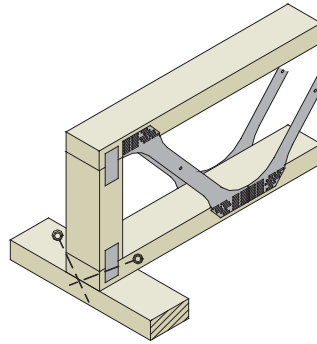
SpanJoist



	SJ300-415	SJ300-565
A (mm)	210	210
D (mm)	170	170
H (mm)	W (mm)	W (mm)
50	500	700
100	340	480
150	150	200

Fixing to top plate

Each MSJ/SWJ/SJ must be fixed onto its supporting plate/bearer with a minimum of 2 nails through the side of the chord into the top plate, beam, lintel or other timber member. Alternately a Multigrip may be used.



Flooring material

All MSJ/SWJ/SJs are designed to have flooring material nailed, glued and/or screwed to the top chord. In general, sheet flooring must be applied to the manufacturer's specification and must generally comply with the following:

- The sheets must run perpendicular to the MSJ/SWJ/SJ.
- The end joints of the sheets must be made on a structural sub floor member, usually a MSJ/SWJ/SJ.
- Each sheet must be continuous over more than 1 span.
- Use tongue and groove edge joining . If this method is not suitable, common nogging must be included.
- Fastener spacings at the ends of the sheets must be at a maximum of 150mm centres.
- Fastener spacings at the intermediate MSJ/SWJ/SJ must be at 200 or 300mm spacings depending on the material.

Strongbacks

Strongbacks are installed within the MSJ/SWJ/SJs at right angles to the direction of the joists and are used to dampen the vibrations by increasing the stiffness of the floor system and reduce deflection by load sharing.

Strongbacks must be fixed to the vertical webs in each MSJ/SWJ/SJ with 2/3.15 x 75 mm nails.

Strongbacks may be field spliced in accordance with Diagram 1.

MultiStrut

MultiStrut Nominal Size	Strongback Size (same grade as chords of MSJ)	Alternate Strongback Size (one grade lower than chords of MSJ)
MS200	90 x 35	90 x 45
MS250	90 x 35	120 x 35
MS300	120 x 35	140 x 35
MS400	140 x 35	170 x 35

SteelWood

SteelWood Nominal Size	Strongback Size (same grade as chords of SWJ)	Alternate Strongback Size (one grade lower than chords of SWJ)
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

SpanJoist

SpanJoist Nominal Size	Strongback Size (same grade as chords of SJ)	Alternate Strongback Size (one grade lower than chords of SJ)
SJ250	90 x 35	120 x 35
SJ300	120 x 35	140 x 35
SJ400	140 x 35	170 x 35

Diagram 1

Timber Splice to Strongback

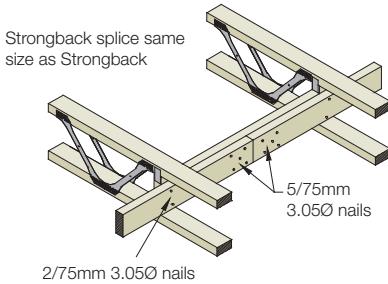


Diagram 2

Strongback Fixing

Fix strongback with 2/75mm 3.05Ø nails as close as possible to top of bottom chord

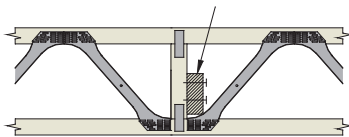
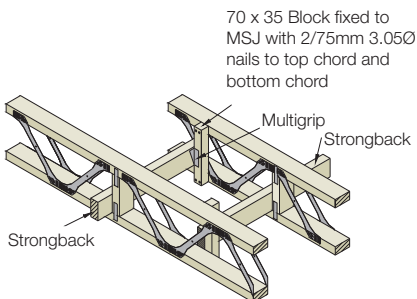


Diagram 3

Strongback Splicing at Change of Span

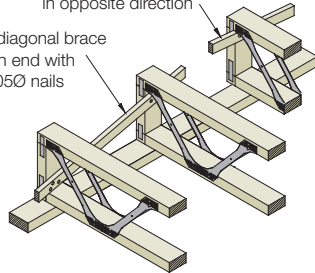


Type 1 Bracing Units

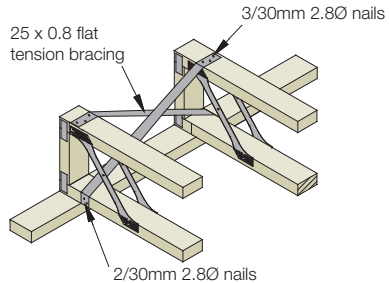
(a) Timber Diagonal Brace:

Every second brace to be in opposite direction

70 x 35 F5 diagonal brace fixed to each end with 3/75mm 3.05Ø nails

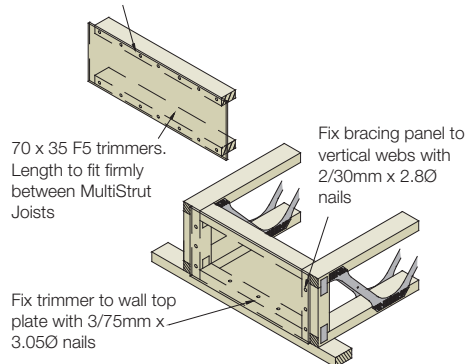


(b) Strap Brace:



Type 2 Bracing Unit

7.0 mm structural plywood (or equivalent masonite) fixed to trimmers with 4/30mm x 2.8Ø nails at 50mm centres



Bracing

For standard houses, with a wind classification N1 or N2, brace at all supports with Type 1 braces at 1800mm centres, Type 2 at 2400mm or as specified. This applies to internal and external bearing points.

For non-standard houses or houses with a wind classification greater than N2, refer to your supplier for further information.

In all situations, bracing must be distributed as evenly as possible throughout the house.

Safety notes

MSJ/SWJ/SJs are engineered structural components designed and manufactured for specific engineering conditions.

Timber must not be removed by sawing, drilling, notching from any part of the MSJ/SWJ/SJ as this may seriously impair its strength and lead to failure of the structure

Steel webs or steel connectors must not be removed, cut, drilled or bent as this may seriously impair the strength of the MSJ/SWJ/SJ and lead to failure of the structure.





Multinail Australia Pty Ltd

ABN 79 003 999 586

Head Office

155 Burnside Rd
Stapylton, QLD 4207, Australia

T: +61 (0)7 3297 3250

F: +61 (0)7 3807 2978

E: enquiry@multinail.com.au

www.multinail.com.au

