

# Engineered Light Weight Floor Systems



<sup>TM</sup>  
**MULTINAIL**  
Personalised. Local. Progressive.

# About Multinail

Multinail is an Australian family owned business established for over 40 years with all its products engineered, tested and manufactured at our industry leading facility in Queensland Australia.

The company specialises in the provision of quality metal connectors, software and engineering services to our partner network of licensed timber fabricators. Together we offer an industry wide service supplying prefabricated structural systems designed and engineered for optimising the efficiency and quality of timber construction.

Engineered Light Weight Floor Systems from Multinail licensed fabricators provide a customised, prefabricated time and cost saving solution for residential, commercial and industrial construction projects.



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SteelWood®

EcoJoist®

MultiStrut





# Multinail Open Web Floor Systems

Multinail provides a range of products for the pre-fabrication of open webbed parallel floor trusses. Utilising readily available structural timbers, Multinail Fabricators manufacture to suit the specific requirements for residential, commercial and industrial buildings.

With spans of up to 10m and 5.0kPa - Multinail Open Web Floor Systems are the most economical solution on the market.

## Save Time on Site

Open web floor systems increase construction efficiency and reduce project timelines with delivery of prefabricated units scheduled to match each stage of construction.

Each open web floor system is made to order making it possible for immediate installation upon delivery to site. They will also enable your construction team to continue working above and below the system as installation is completed.

You will require less labour as they eliminate the need for adjustments or rectifications and reduce your scaffolding requirements as they are lowered into place.

Multinail open web floor systems can be installed in a matter of hours not days.

◀ Floor cassettes installation

## Services Management

Utilising an open web format, trades can easily install services in all directions without cutting or notching the joist.

This reduces rough in times for follow on trades and minimises rectification costs.

✓ Installed services



## Longer Spans

Large open floor plans are a common requirement in modern residential homes and commercial buildings. With large span capabilities the need for internal walls is greatly reduced. Typical spans of over 6m are achievable for residential floors, while spans of up to 9m are possible for office and commercial floors.

Longer spans ✓





# Benefits of SteelWood®

Developed by Multinail engineers, the SteelWood® Joist is a structural truss that can be used in a variety of construction scenarios, such as flooring and roofing applications.

The versatile structure, manufactured from solid timber and galvanised steel to minimise corrosion, can achieve floor spans of up to 10 metres and roof spans of up to 20 metres with most sheet roofing materials.

The robust SteelWood® is ideal for loads from 3kPa to 7.5kPa, making it suitable for office spaces, schools and stage floors, for example.

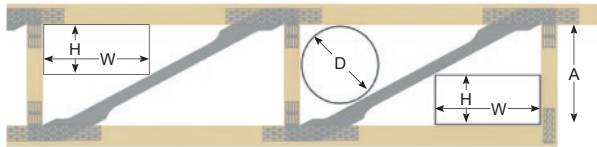
Manufactured off-site and delivered when required, the SteelWood® is simple and efficient to install, and in many cases can reduce traditional concrete slab construction costs by up to 50%.



# SteelWood® Joists

## Services Hole Sizes

Clearance for service penetrations



	SWJ460	SWJ560	SWJ660
A (mm)	350	450	570
D (mm)	250	260	310
H (mm)	W (mm)	W (mm)	W (mm)
50	420	380	450
100	360	340	410
150	290	290	370
200	220	240	320
250	160	190	280
300	90	140	230

## Indicative Span Table for 3.0kPa Live Load

SteelWood Size	Overall Depth	Timber Size	450mm Centres	600mm Centres
			Timber Grades MGP12	Timber Grades MGP12
SWJ460	458	45x90	7000	6100
SWJ560	560	45x90	8000	6600
SWJ660	662	45x90	8800	7100

## Indicative Span Table for 5.0kPa Live Load

SteelWood Size	Overall Depth	Timber Size	450mm Centres	600mm Centres
			Timber Grades MGP12	Timber Grades MGP12
SWJ460	458	45x90	5800	4000
SWJ560	560	45x90	6100	5100
SWJ660	662	45x90	6800	5600

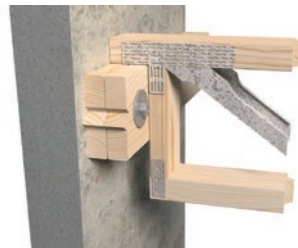
## End Type Details



Top chord support

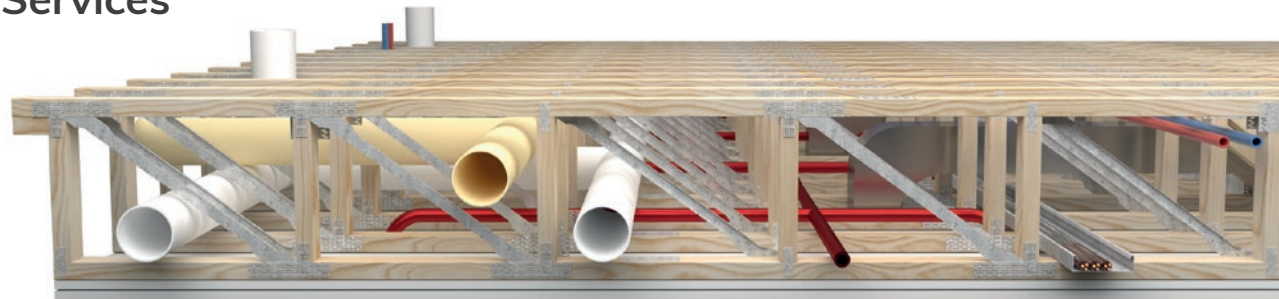


Bottom chord support



Face mounted

## Services





# Benefits of EcoJoist®

Multinail EcoJoist® is a manufactured floor joist, cleverly designed using a combination of 90x35mm structural timber and EcoWebs, that achieve similar performance to other floor joists using 45mm timber.

The web orientation is specifically laid out to ensure that all of the steel webs are in tension and the timber vertical webs are in compression. It is widely known that steel is strong in tension and timber in compression. Orientating the webs in this way is what give EcoJoist® their high capacity.

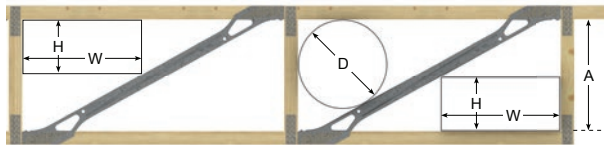
EcoWebs and EcoJoist® are unique to Multinail and their licensed fabricators.



# EcoJoists®

## Services Hole Sizes

Clearance for service penetrations



	EJ300	EJ360	EJ400
A (mm)	230	290	343
D (mm)	194	230	261
H (mm)	W (mm)	W (mm)	W (mm)
50	430	470	490
100	330	380	410
150	210	290	330
200	110	200	250
250	N/A	110	180
300	N/A	N/A	110

## Indicative Span Table for 1.5kPa Live Load

Ecojoist Size	Overall Depth	Timber Size	450mm Centres	600mm Centres
			Timber Grades MGP10	Timber Grades MGP10
EJ300	300	35x90	5200	4000
EJ360	360	35x90	5400	4600
EJ400	400	35x90	5600	4800

## Indicative Span Table for 2.0kPa Live Load

Ecojoist Size	Overall Depth	Timber Size	450mm Centres	600mm Centres
			Timber Grades MGP10	Timber Grades MGP10
EJ300	300	35x90	4500	3500
EJ360	360	35x90	4800	3800
EJ400	400	35x90	5000	4000

## End Type Details

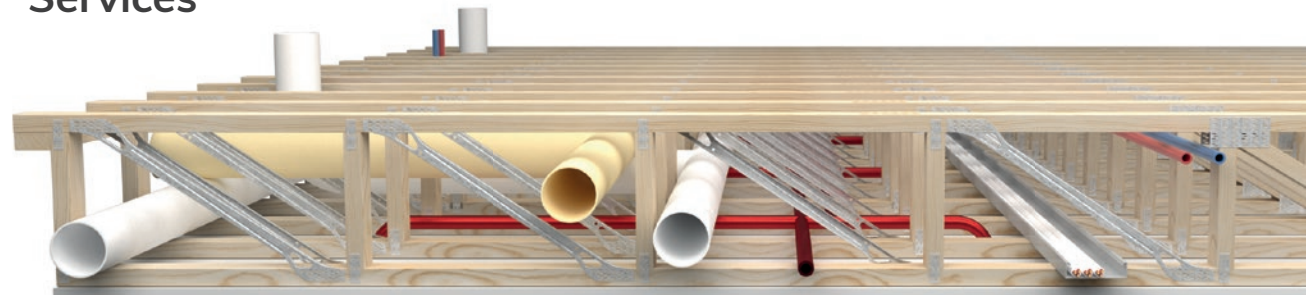


Top chord support

Bottom chord support

Face mounted

## Services



# Benefits of MultiStrut

Multinail MultiStrut Joists are ideal for domestic floor construction and can be used in commercial floors as joists, rafters, purlins and girts. MultiStrut Joists can also be used in roofs, cantilevered balconies and other special applications.

The open web design enables building services such as plumbing, electrical, air conditioning to be run between the chords without the need for drilling, notching or cutting.

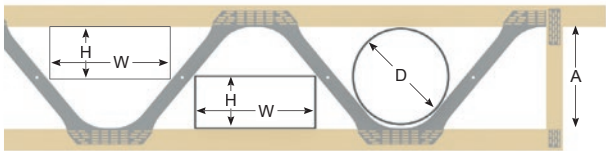




# MultiStrut Joists

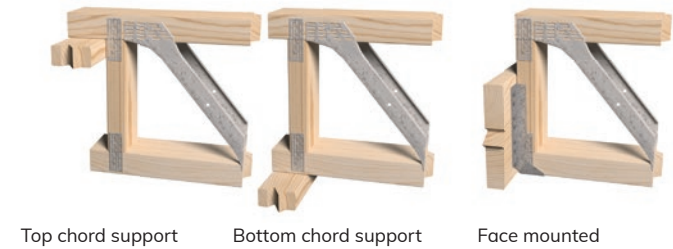
## Services Hole Sizes

Clearance for service penetrations



	MSJ250	MSJ300	MSJ360	MSJ400
A (mm)	160	210	270	323
D (mm)	150	200	253	280
H (mm)	W (mm)	W (mm)	W (mm)	W (mm)
50	300	330	501	500
100	200	250	404	410
150	70	170	308	330
200	N/A	70	211	250
250	N/A	N/A	114	170
300	N/A	N/A	N/A	70

## End Type Details



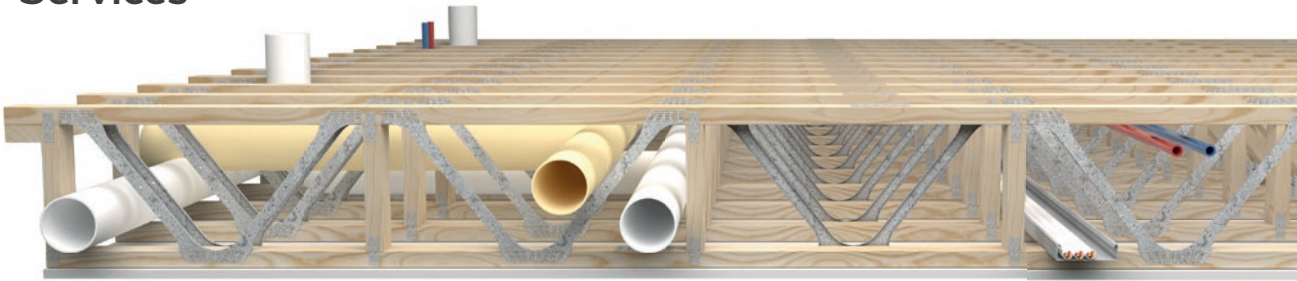
## Indicative Span Table for 1.5kPa Live Load

MultiStrut Size	Overall Depth	Timber Size	450mm Centres	600mm Centres
			Timber Grades MGP10	Timber Grades MGP10
MSJ250	250	45x90	5200	4600
MSJ300	300	45x90	5800	5000
MSJ360	360	45x90	6200	5400
MSJ400	413	45x90	6800	5800

## Indicative Span Table for 2.0kPa Live Load

MultiStrut Size	Overall Depth	Timber Size	450mm Centres	600mm Centres
			Timber Grades MGP10	Timber Grades MGP10
MSJ250	250	45x90	4500	3800
MSJ300	300	45x90	5700	4200
MSJ360	360	45x90	5600	4500
MSJ400	413	45x90	5800	4700

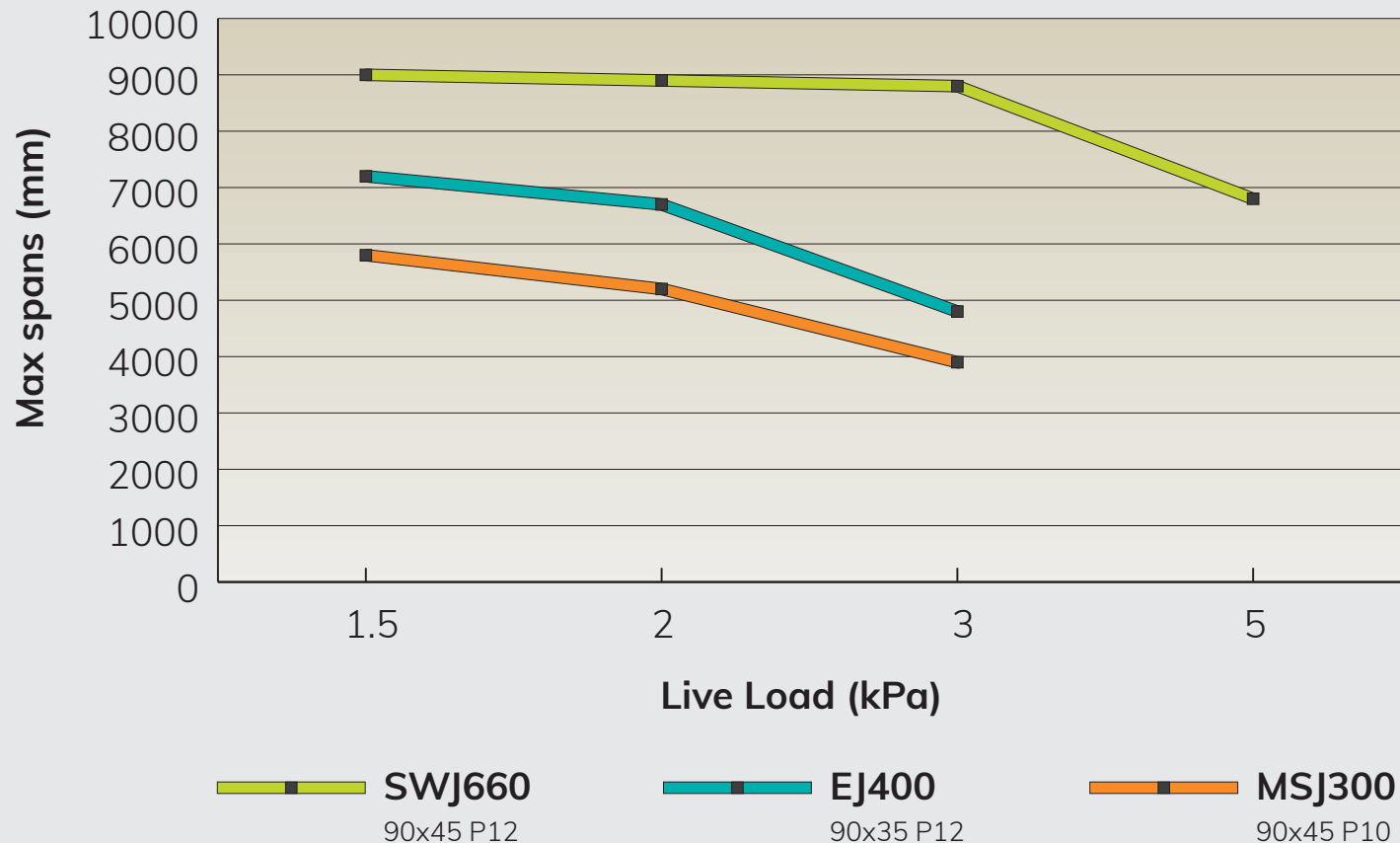
## Services



# Span Comparison Chart

The allowable span of a floor truss is dependent on several different factors including overall depth of joist, size and grade of timber chords, web strength, joist spacing and the amount of loads applied.

The table below compares the allowable span of three different joist types and shows how live load effects the allowable span. A typical joist spacing of 450mm was used to generate this table.





# Features

## Strongbacks

Strongbacks are timber members installed within a floor truss at a right angle. These structural elements are used to dampen the vibrations by increasing the stiffness of the floor system and reducing the deflection via load sharing.

▼ Strongbacks



## Top Chord Support

Floor trusses can be top chord supported onto beams/bearers. This enables the beam to be hidden inside the depth of the floor system and reduces costs and the time associated with the need to install joist hangers on-site.

Top Chord Support ▼





# Benefits of Prefabricated Floor Cassettes

Pre-fabricated floor cassettes are factory manufactured, which offers higher levels of precision and speeds up onsite installation.

This allows for a higher quality assurance through manufacturing occurring in a controlled environment ensuring a consistency of output.

On-site there are fewer workers required as floor cassettes can be lifted into position quickly and without the perimeter bracing or additional fixings to be inserted before the floor level is safe for work to continue.

Additional time savings can be achieved by pre-installing services whilst the cassette is manufactured. Mechanical and plumbing services, for example could be part of the cassettes manufacturing, after being installed onsite follow on trades are only required to connect, not install these systems.

▼ Cassette installation



Installed services ▼







# Ground Floor Systems

## Cost Efficiencies

All lightweight timber cassette systems with lightweight walls are more cost effective than conventional concrete slabs and waffle slabs on ground.

The approximate cost variances are as follows:

**16%** cheaper on flat sites

**25%** cheaper on sloping sites with 300mm fall

**31%** cheaper on sloping sites with 900mm fall

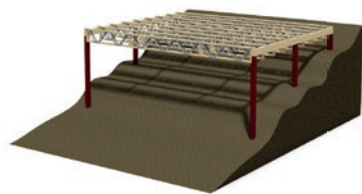
**33%** cheaper on sloping sites with 1500mm fall

### Benefits

- Minimises slab rectification costs
- Minimises site civil works
- Allows for flexible trade sequences
- Quicker construction times
- Same installation and trades as upper floor systems

Source: Stephen J. Pitney & Associates Pty Ltd. (2021, Feb). Cost Study for Residential Ground Floor Systems: Prefabricated Cassette Timber Floors & Concrete Slabs on Ground.





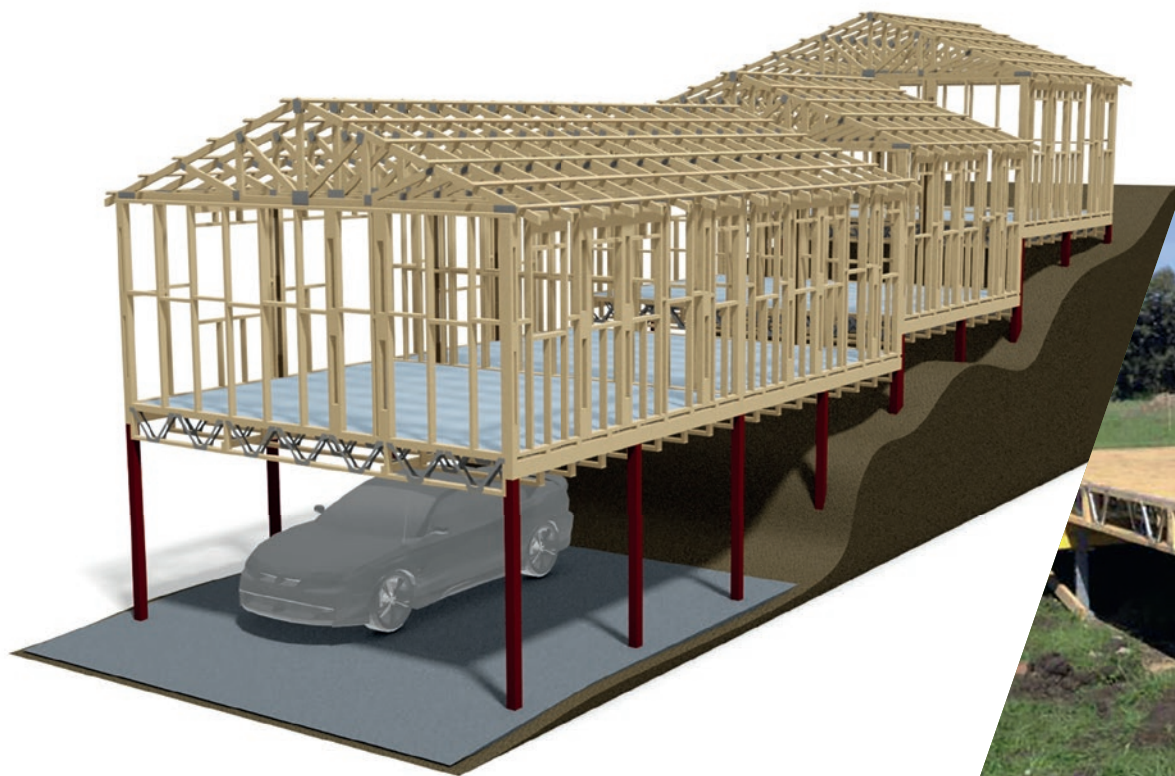
Floor joist installed



Wall frames installed



Roof trusses installed



# Roof Applications

Floor trusses can also be used in roof applications such as rafters and purlins.

Multinail Parallel Roof Trusses are easy to install and can be used to carry metal roofing, achieving spans over 12m.

They can also be designed to accommodate solar panels, roof top access paths and some mechanical services.





▼ Curved roof trusses



▲ Purlins

▼ Industrial roofs

▲ Rafters







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**Multinail Australia Pty. Ltd.**  
155 Burnside Road, Stapylton  
QLD 4207, Australia  
Phone: +61 (0)7 3297 3250  
Email: [enquiry@multinail.com](mailto:enquiry@multinail.com)  
[www.multinail.com.au](http://www.multinail.com.au)