

**The Floor System The Others Look Up To**



## **Steel Joist Systems**

The unparalleled Steel Joist System designed for fast, accurate assembly with a unique tab connection system and optional pre-punched service holes.



## The Game Changer

The SPEEDFLOOR® Steel Joist system offers extended spanning capability and unmatched constructional flexibility in almost any type of construction.

## Applications

- The galvanised C sections feature unique fold-out 'tab' connectors in the perimeter channel for fast and accurate joining. There is also the option of pre punched holes for fast, efficient installation of services.
- Assembled on site or delivered as a pre-assembled cassette, SPEEDFLOOR® joists are easily configured for mezzanine floors, portal framed sheds, industrial platforms, residential mid floors and piled sub floors or integrated into timber framed buildings.

## High Tensile Strength

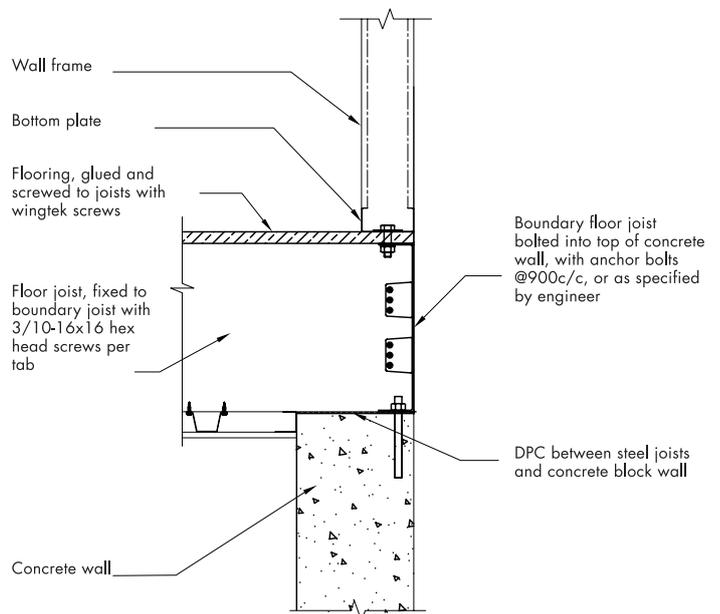
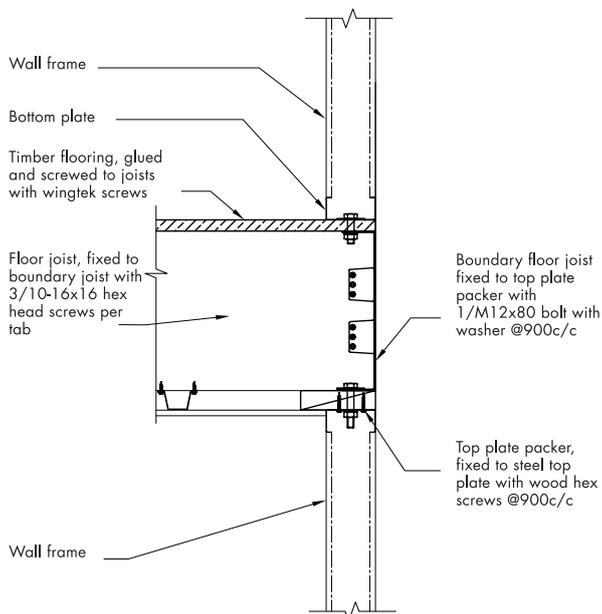
SPEEDFLOOR® cold formed joists are manufactured from high strength, pre-galvanised steel coil con-forming to AS 1397. The minimum mass coating of galvanising is 275g/m<sup>2</sup>. The standard steel used is grade 250 and has a minimum yield stress of 250MPa and a minimum tensile stress of 280MPa.



# System Advantages

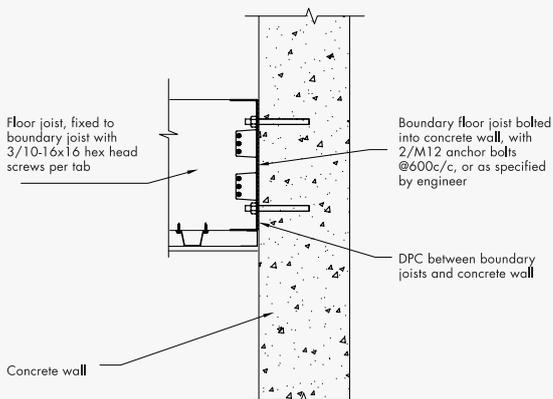
- Strong but lightweight joists allow for easy manoeuvrability.
- Available in the following sections with pre-punched service holes  
- 140, 150, 190, 240, 250 and 290mm
- Pre-galvanised 275g/m<sup>2</sup> steel for long-term corrosion protection.
- Pre-cut to length, for time and cost savings.
- Producer Statements are available on request.

## SPEEDFLOOR® Steel Joist System - Standard Construction Details

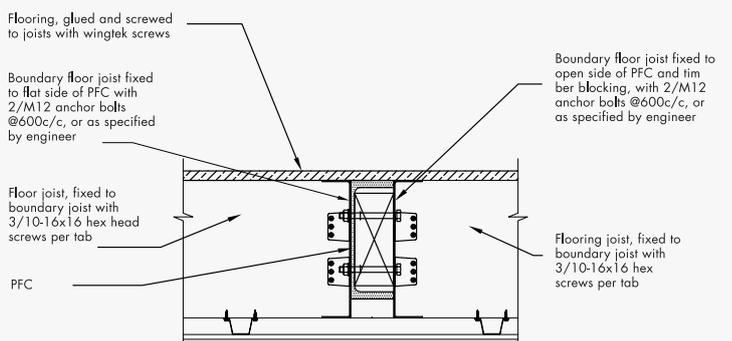


**Joist to concrete or block walls**

### Joist onto concrete or block walls



### Perimeter channels and joist to structural steel



## SPEEDFLOOR® Steel Joist System - Span Tables

Max Span (m) of joists at nominated centers (mm) for 1.5kPa live load – Typical for Residential applications

FLOOR JOIST:

Profile	Web	Flange	Lip	Material	Max Span*		
					400 Centres	450 Centres	600 Centres
FJ140	140	45	15	1.55	3.7	3.4	3.1
FJ190	190	45	15	1.55	4.7	4.5	4.1
FJ240	240	45	15	1.85	5.7	5.5	5.1
FJ290	290	45	15	2.50	6.9	6.7	6.2

Max Span (m) of joists at nominated centers (mm) for 3.0kPa live load – Typical for Commercial applications

Profile	Web	Flange	Lip	Material	400 Centres	450 Centres	600 Centres
FJ140	140	45	15	1.55	3.5	3.4	3.0
FJ190	190	45	15	1.55	4.3	4.0	3.5
FJ240	240	45	15	1.85	5.1	5.0	4.3
FJ290	290	45	15	2.50	6.2	6.0	5.6

Max Span (m) of joists at nominated centers (mm) for 5kPa floor live load typical for Industrial applications.

Profile	Web	Flange	Lip	Material	400 Centres	450 Centres	600 Centres
FJ140	140	45	15	1.55	2.9	2.7	2.4
FJ190	190	45	15	1.55	3.4	3.2	2.8
FJ240	240	45	15	1.85	4.2	4.0	3.4
FJ290	290	45	15	2.50	5.6	5.3	4.6

Max total deadload is 0.5kPa, the span tables are for single span, if joists are used in continuous span the max span should be reduced by 15%. The maximum length of a joist should be no longer than 6.9m. Service holes should be a minimum of 300mm minimum away from any load bearing supports and at a minimum of 1000mm centres apart. Joist spans of over 3.0m are to have at least one row of full depth mid-span blocking installed. Point loads on any joist are to be specifically engineered based on capacity tables.

## Perimeter Channel\*:

Max Span (m) of joists at nominated centers (mm) for 1.5kPalive load – Typical for Residential applications

Joist Span up to:	Size	Max Perimeter Channel Span		
		3kPa	5kPa	
3000*	FJ140x1.55	1800	1300	1100
	FJ190x1.55	2100	1600	1200
	FJ240x1.85	2700	2000	1600
	FJ290x2.5	3700	2700	2200
4000*	FJ140x1.55	1600	1100	–
	FJ190x1.55	1800	1400	1100
	FJ240x1.85	2300	1700	1400
	FJ290x2.5	3200	2400	1900
5000*	FJ140x1.55	1400	1000	–
	FJ190x1.55	1600	1200	1000
	FJ240x1.85	2100	1600	1200
	FJ290x2.5	2800	2100	1700
6000*	FJ140x1.55	1300	–	–
	FJ190x1.55	1500	1100	–
	FJ240x1.85	1900	1400	1100
	FJ290x2.5	2600	1900	1500

\*Perimeter Channel spans are not applicable for support of a loadbearing wall or roof loads. \*Balustrade connecting to the channel need to be independently assessed for suitability. \*No service holes are allowed within the span.

Composite Beam

Joist Span up to:	Composite Section Size	1.5kPa	3kPa	5kPa
3000*	PC140 + C200/18	4.2	3.6	2.8
	PC190 + C200/18	4.3	3.6	2.9
	PC240 + C250/18	5.1	4.4	3.6
	PC290 + C300/18	6.0	5.2	4.1
4000*	PC140 + C200/18	3.9	3.1	2.5
	PC190 + C200/18	4.0	3.1	2.5
	PC240 + C250/18	4.7	3.9	3.1
	PC290 + C300/18	5.6	4.5	3.6
5000*	PC140 + C200/18	3.7	2.8	2.2
	PC190 + C200/18	3.8	2.8	2.2
	PC240 + C250/18	4.5	3.5	2.8
	PC290 + C300/18	5.3	4.0	3.2
6000*	PC140 + C200/18	3.4	2.5	2.0
	PC190 + C200/18	3.4	2.5	2.0
	PC240 + C250/18	4.2	3.2	2.5
	PC290 + C300/18	4.9	3.7	2.9

\* Tables relate to single span floors. Perimeter Channels to be fixed every 600mm with 2 x M12 bolts and washers to C Purlin

Cantilever Joists

Profile	Web	Flange	Lip	Material	Max Span*		
					400 Centres	450 Centres	600 Centres
FJ140x1.55	140	45	15	1.55	0.9	0.9	0.8
FJ190x1.55	190	45	15	1.55	1.2	1.1	1.0
FJ240x1.85	240	45	15	1.85	1.5	1.5	1.3
FJ290x2.5	290	45	15	2.50	2.0	1.9	1.7

**NOTE:** Minimum Back Span required is 2 x Cantilever Span. Maximum live load of 5kPa. Dynamic vibration of cantilevers is based on NZS1170.0:2002 with a 1-2mm deflection under a 1kN point load and assumes a rigid wall below. For cantilever joists supported by beams, specific vibration design should be undertaken. No service penetrations on cantilever span.

## SPEEDFLOOR® offer the SPEEDFLOOR® Steel Floor Joist System in a range of section sizes

I + Z 'C' Section Properties

		Second moment of area ( full )		Section modulus ( full )	Moment Capacity (distortional buckling)	Shear capacity (reduced for web penetrations)	End Connection Capacity
"C"Section	Thickness (mm)	1x ( 10 mm )	1y (10 <sup>6</sup> mm <sup>4</sup> )	Zx ( 10 <sup>3</sup> mm <sup>3</sup> )	ΦM <sub>dbx</sub> ( kNm )	ΦV <sub>v</sub> ( kN )	kN
140x45	1.55	1.110	0.102	15.840	3.56	22.60	6.09
150x45	1.55	1.110	0.102	15.840	3.56	22.60	6.09
190x45	1.55	2.303	0.117	24.240	4.71	13.79	6.09
240x45	1.85	4.818	0.138	40.150	7.21	18.41	15.00
250x45	1.85	5.329	0.139	42.630	7.53	18.80	15.00
290x45	2.5	10.240	0.184	70.630	13.28	36.54	20.28

**NOTES:** For 150 & 250 joist spans use the 140 & 240 tables provided. Joist spans over 3m are to have at least 1 row of full depth mid span blocking. For definition of distortional buckling, refer AS/NZS 4600:2005. End connection capacity based on bearing capacity of 10g tek screws as per AS/NZS 4600:2005. The section modulus Zx in the table is for the full section. The actual section modulus varies depending on design stress. This table should be used in conjunction with the design requirements of AS/NZS 4600:2005.



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