Stramit®

STRAMIT®
RESIDENTIAL FLOOR FRAMING SYSTEM

product technical manual

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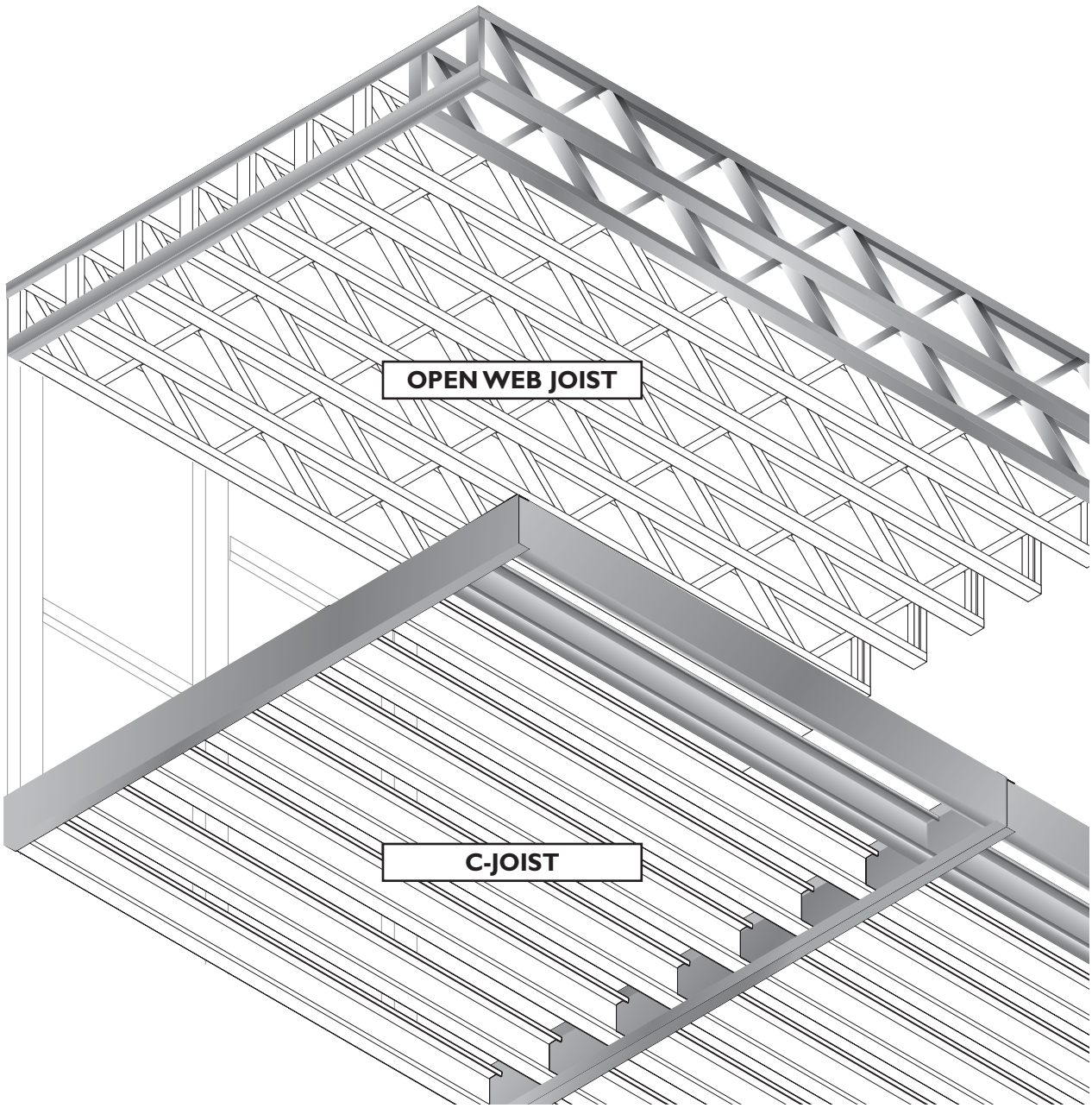
STRAMIT® RESIDENTIAL FLOOR FRAMING SYSTEM

A complete floor design solution for both ground and two storey residential construction.



IMPORTANT NOTE

The information contained within this brochure is as far as possible accurate at the date of publication, however, before application in a particular situation, Stramit Building Products (Stramit) recommends that you obtain qualified expert advice confirming the suitability of product(s) and information in question for the application proposed. While Stramit accepts its legal obligations, be aware however that to the extent permitted by law, Stramit disclaims all liability (including liability for negligence) for all loss and damage resulting from the use of the information provided in this brochure.

INTRODUCTION

The ***Stramit***® Residential Floor Framing system is designed to address the needs of domestic house construction.

The ***Stramit***® Residential Floor Framing system consists of two floor-framing products, C-Joist and Open Web, that can be used separately or in combination in residential construction.

A wide range of section sizes provides freedom in designing floor joists, bearers and locations. The ***Stramit***® Residential Floor Framing System can easily be adapted to a variety of house designs.

In addition, the ***Stramit***® Residential Floor Framing system has extended bearer options to provide larger span design possibilities.

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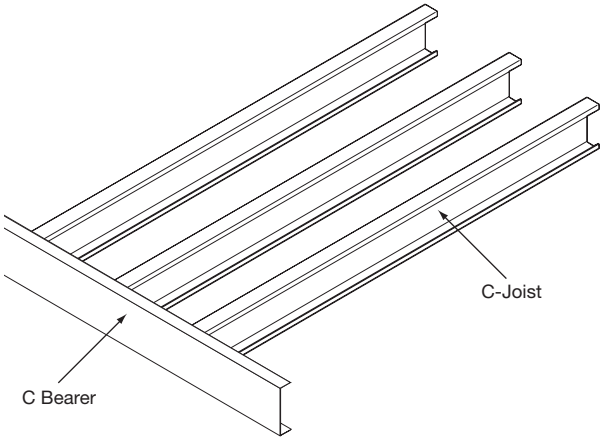
PRODUCT Features

The ***Stramit***® Residential Floor Framing System offers a choice of solutions to best fit your design needs.

C-Joist

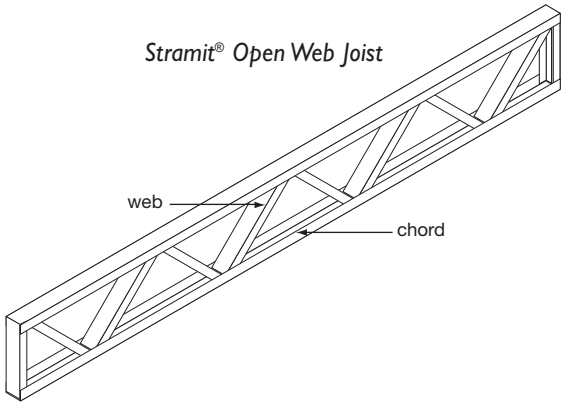
Stramit® C-Joist and Bearer



- offers spans at 450mm centres (3.2 – 6.2metres)
- extended bearer spans available up to 8 metres

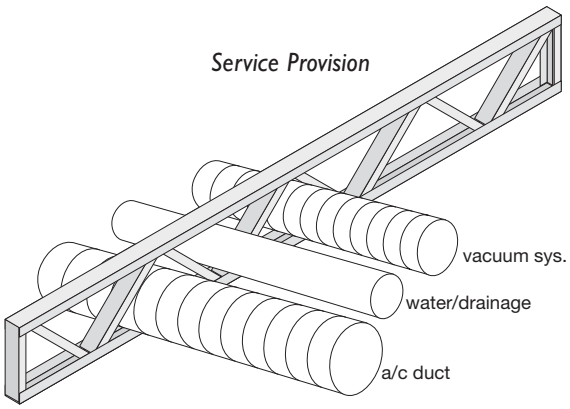
Open Web Joist

Stramit® Open Web Joist

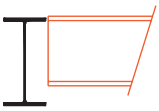


- offers spans at 450mm centres (3.2 – 7.1metres)
- with depths at 250/300/350/400 and 450mm
- extended bearer spans available up to 8 metres
- enables swift and easy service provision
- structure retains strengths at beam

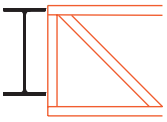
Service Provision



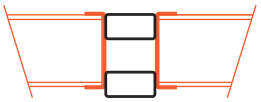
Extended Bearer Options



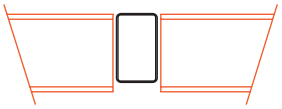
Stramit® C-Joist with U-beam Extended Bearer
Roof Load Area



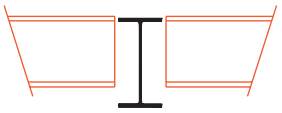
Stramit® Open Web Joist with U-beam Extended Bearer
Roof Load Area



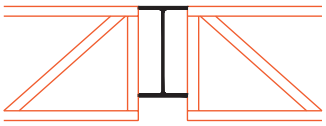
Stramit® C-Joist with paired RHS Extended Bearers - In Plane
Non-Roof Load Area



Stramit® C-Joist with single RHS Extended Bearers
Non-Roof Load Area

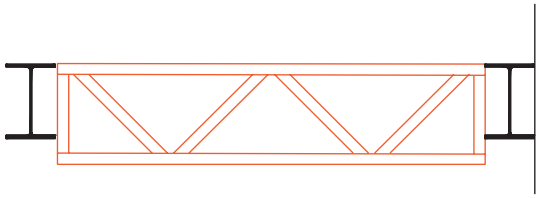


Stramit® C-Joist with U-beam Extended Bearer
Non-Roof Load Area



Stramit® Open Web Joist with U-beam Extended Bearer
Non-Roof Load Area

Stramit® C-Joist with single RHS Extended Bearer
Balcony Load Area



Stramit® Open Web Joist with U-beam Extended Bearer
Balcony Load Area

Benefits

Material

- Termite resistant
- Non combustible components
- Eliminates concerns about material quality and availability
- Lightweight and easy to install
- Ideal for flat or sloping sites

Construction Process

- Fast track construction with engineered components
- Pre-cut and prefabricated components enable speedy construction, even on sloping sites
- Total design flexibility with combination of C-Joist & Open Web Joists
- Open Web Joists ideal for continuous end supported second storey applications
- Suitable for use on standard industry pier systems

Construction Outcome

- Dimensional stability
- Achieve 'true lines' without warping
- Economical in materials and construction
- Delivers a finish without shrinkage cracks
- Swift and easy service provision through Open Web Joists
- Complements the ***Stramit***® wall frame and roof truss systems
- Will not warp or twist and remains stable for the life of the building
- Unlike timber beams, Open Web Joists allow service provision while retaining strength of beam

Specification

Dimensions and Mass

C-Joist and Bearer	- refer to table 1
Open Web Joist	- refer to table 2
Open Web Service provision allowances	- refer to table 3
Extended Bearer	- refer to table 4

Materials

Stramit® C-Joist and Bearers are cold rolled formed sections manufactured from high strength steel in material thickness ranging from 1.0mm (G550 grade, 550 MPa minimum yield stress material) to 2.4mm (G450 grade, 450MPa minimum yield stress material), with Z350 zinc coating (350grams per square metre minimum coating mass) in accordance with Australian Standard AS1397.

Stramit® Open Web Joists are cold rolled formed sections manufactured from high strength steel in material thickness ranging from 0.6mm, 0.8mm, 1.0mm (G550 grade, 550 MPa min. yield stress material) 1.2mm (G500 grade, 500 MPa min. yield stress material) and 1.5mm (G450 grade, 450 MPa minimum yield stress material), with a zinc-aluminium alloy coating of AZ150 (150gms per sqm) as in AS1397. The sections are generally fastened with self-drilling (SD) screws.

Other ***Stramit***® accessories, such as FCB3 brackets, extended bearer brackets, OWJ connection brackets and lateral end restraints, are made from 300 MPa steel with a minimum glavanised coating of 250 grams per square metre.

Tolerances

Stramit® C-Joists and Bearers are supplied with a tolerance of +0-10mm.

Stramit® Open Web Joists are supplied with an overall tolerance of +0/-5mm.

Durability

Ground clearance requirements – ***Stramit***® steel flooring is not intended for use in applications where the clearance above the ground is less than 450mm. A reduction of ground clearance in some areas may be possible subject to advice from your local Stramit Technical Services department.

Application requirements regarding location, product, finish, ventilation – refer to table 5 – Durability Criteria.

Performance

The ***Stramit***® Residential Floor Framing System has been designed to AS3623-1993. This standard includes limits to vibration, strength and deflection. Use of these code provisions reduces the uncomfortable bounce and vibration that may be present in other systems.

The product range can be used for both single and upper storey construction. Internal bearers or joists do not support any load bearing walls. Deflections under service loads are limited to span/250 and the dominant natural frequency is limited to 8 Hertz.

DESIGN SELECTION

Design Options

Consideration of house plans is required when deciding on the floor system.

Stramit's two alternative floor joist systems provide:

- span solutions for different house designs and sites
- selection of the most suitable structural floor framework for construction requirements whether ground floor, upper level or combination, including the need for service provisions

The ***Stramit***® C-Joist and Open Web systems both have the extended bearer option. Extended bearers provide design flexibility and allow for large spans to be achieved in areas such as garages, rumpus, living rooms and balconies.

Select the floor joist system that best meets your design needs.

Design Load Criteria

The Limit State Method has been used throughout this brochure. Minimum design load and load combinations are generally as per AS3623.

Load allowances

Floor live load:
1.5 kPa
3.0 kPa - for ***balcony*** areas.

Concentrated load

1.8kN

Dead load

Self-weight plus ***partition loads***, plus weight of flooring, roof, and walls if applicable.

Static and Dynamic serviceability requirements

- Deflection, $\Delta_1 \leq L/250$
  load combination: dead load + 40% live load.
- Lowest natural frequency, $\Omega \geq 8Hz$
  load combination: dead load + 0.3kPa
- Deflection, $\Delta_2 \leq 2mm$
  load combination: dead load.

Assumptions

Tile roof mass: 92kg/m^2.
Metal roof mass: 40.7kg/m^2.
Ceiling mass: 10.5kg/m^2.
Wall mass: 29.5kg/m^2.

balcony: an external area, one or more metres above ground.

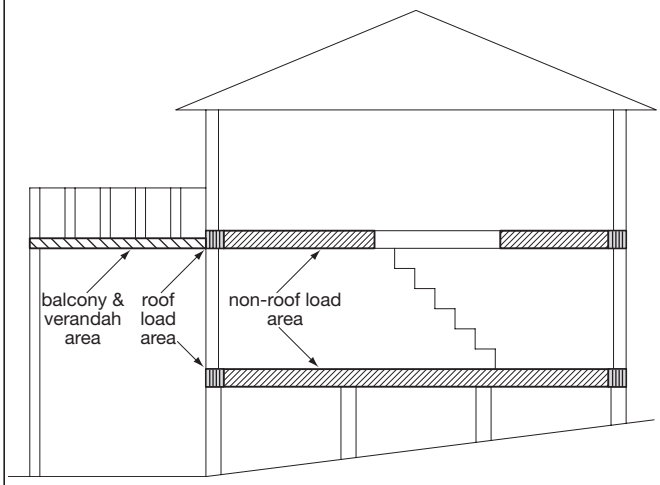
partition loads: weight of non-load bearing walls, floor underlays and floor coverings, ceilings, services through floors, are assumed to be a maximum of 0.5kPa.

Applied Standards

AS 3623-1993 Domestic metal framing.
AS/NZS 4600 Cold-formed steel structures.
AS 2670.2-1990 Evaluation of human exposure to whole-body vibration.

The design tables meet both single and continuous load span criteria

Load Areas



Roof Load Areas

These are defined as areas that support combined roof, wall and floor loads within the domestic building structure. They work as the combined load system of roof and floor areas.

Non Roof Load Areas

These are defined as any floor areas within the internal confines of a domestic building structure that supports 1.5 kPa live load, 0.5 kPa partition loading and are not supporting load bearing walls or large concentrated loads (greater than 1.8kN). Internal areas can include bearers or joists at the sides of openings (eg. stairwell)

Balcony & Verandah Areas

These are defined as floor areas that are external to the habitable building structure, and are located one or more metres above the ground.

ROOF LOAD	NON ROOF LOAD
Stramit® C-Joist & Bearer	**Stramit® C-Joist & Bearer**
Single or Upper Level of Two Storey table 6 Lower Level of Two Storey table 7	Any Floor Level table 8
Stramit® Open Web Joist	**Stramit® Open Web Joist**
*Requires continuous support	Any Floor Level table 9

BALCONY AND VERANDAH NON ROOF LOAD
Stramit® C-Joist & Bearer
All Levels table 10
Stramit® Open Web Joist
All Levels table 11

* ***Stramit***® Open Web Joist is a joist only system, it can only be used in Roof Load applications provided there is continuous support.

Design Limitations

The ***Stramit***® C-Joist and Bearer and Open Web Joist System is suitable for suspended floor framing in single occupancy buildings which come within the scope of a Class 1a dwelling as defined by BCA. The building should conform to all design limitations as set out in Clause 6 of AS 4055.

Floor live load exceeding 1.5kPa (3.0kPa for balconies) requires engineering calculations

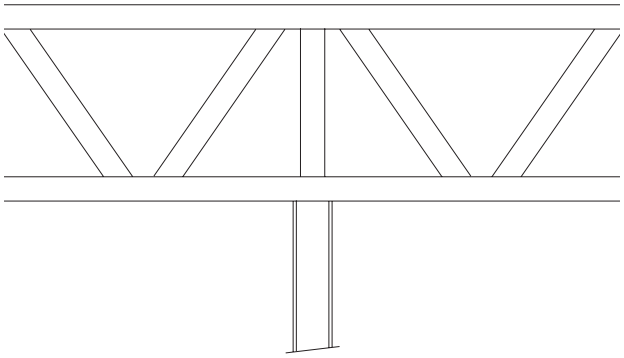
Floor concentrated load of more than 1.8kN requires engineering calculations.

May not be suitable for heavy items such as water beds, large plants or aquariums, heavy gym equipment or pianos etc. Seek engineering advice for such applications.

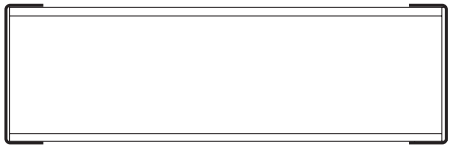
Not suitable for applications closer than 300m to the coast.

Connections between extended bearers and the structural elements of the building are the responsibility of the building designer.

Stramit® Open Web Joists when used as a continuous span require 'W' pattern bracing after each vertical web member as shown. Also when continuous spans are used a vertical member is required over each frame as shown.



Stramit® C-Joists must always be used between bearers. They are not designed for use in a joist-on-bearer configuration and must not be used in this way.



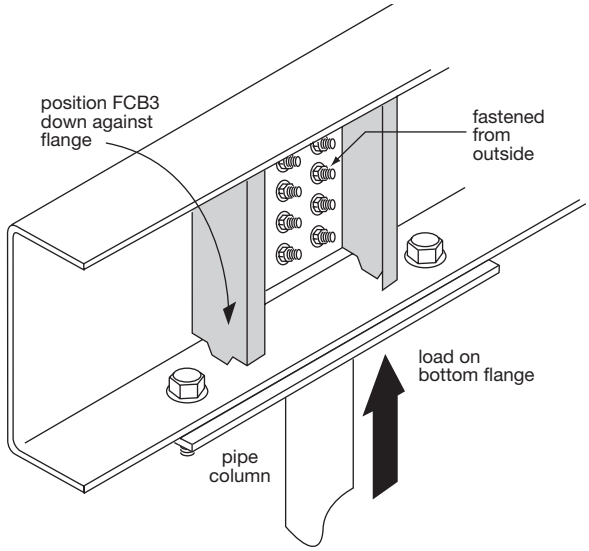
STRUCTURAL SUPPORT SYSTEMS

These are essential structural support details and must be adopted as stated.

C-Joist – *FCB3 Bracket*

Whenever ***Stramit***® C bearers pass over a supporting wall or post, concentrated loads occur. The FCB3 bracket is used to transmit these forces into the web of the section.

Refer to table 12 and 13 for relevant FCB3 selection tables and examples in table section.



If a C-Joist coincides with the post position attach the FCB3 bracket on the closest side of the C-Joist.

C-Joist & Open Web Joists – *Lateral End Restraints*

Roof, wall and floor framework needs to be able to resist horizontal forces and to provide a system to transfer those forces to the foundation.

The floor system is capable of transferring loads to the structural system below, be it a wall or footing.

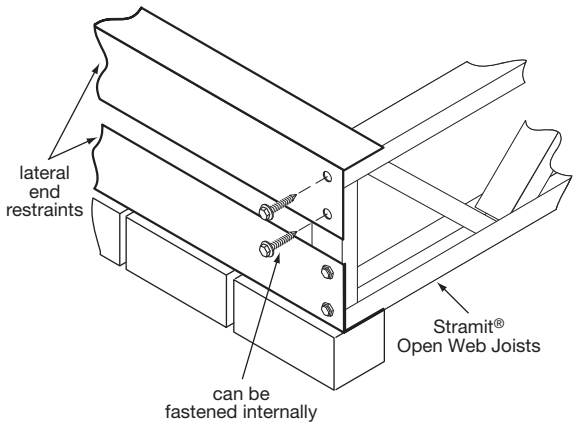
The ***Stramit***® C-Joist and Bearer System has an integrated lateral restraint system. Refer to table 14 for lateral end restraint capacities.

When ***Stramit***® Open Web Joists have been selected, Lateral End Restraints are required to act as a structural support to safely transfer vertical and horizontal loads to the flooring, maintaining the integrity of the building.

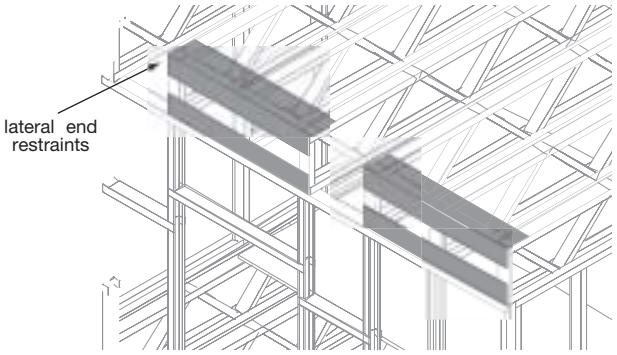
Refer to tables 15 and 16 for Open Web Joist Lateral End Restraint capacities.

Where ***Stramit***® Open Web Joists are attached to extended bearers, as shown on page14, Lateral End Restraints are not required.

Typical Application of Lateral End Restraints



Lateral End Restraint - Typical Installation Method



Lateral End Restraints are required at-

- the ends of each outer set (three or more) of joists in each floor section.
- each intermediate joist in sets of three or more.
- under every opening within the wall frame above.

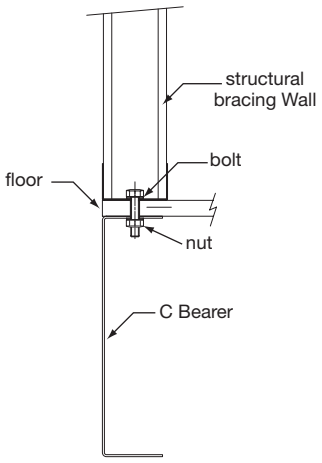
For details of racking and restraint capacity for C-Joists and Open Web systems and selection of suitable Lateral End Restraint components, refer to tables 14, 15, 16 & 17.

C-Joist & Open Web Joists – *Tie Downs*

Structural Tie Down requirements for all domestic buildings should conform to the following connection types with the applicable fastener capacities listed.

C-Joists and Bearer

Standard Tie Down

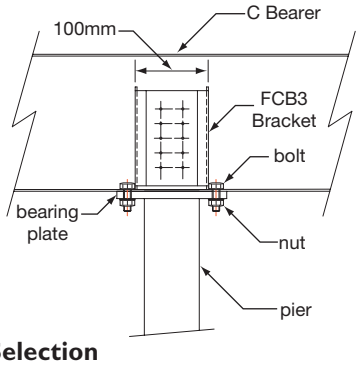


Stramit® bearers	bolts	washers	capacity: kN
1.9mm	M8, M10	standard	2.2
	M8, M10	structural	9.7
	M12	standard	4.9
	M12	structural	10.3
2.4mm	M8, M10	standard	2.8
	M8	structural	11.1
	M10	structural	12.3
	M12	standard	6.2
	M12	structural	13.0

Note: washers: standard: round commercial washers
structural: 50x80x5mm plate

- *Refer to table 18 for tie downs applicable for cyclonic conditions.*

Tie Down at FCB3 Connection

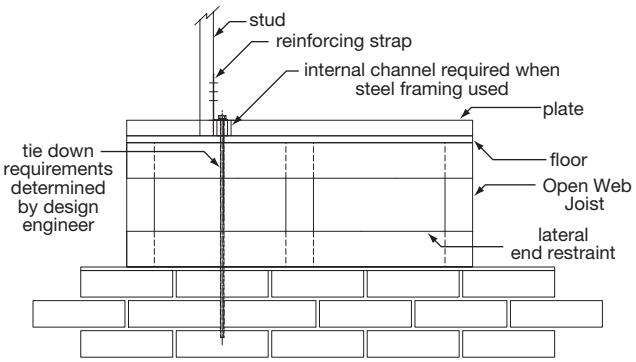


Fastener Selection

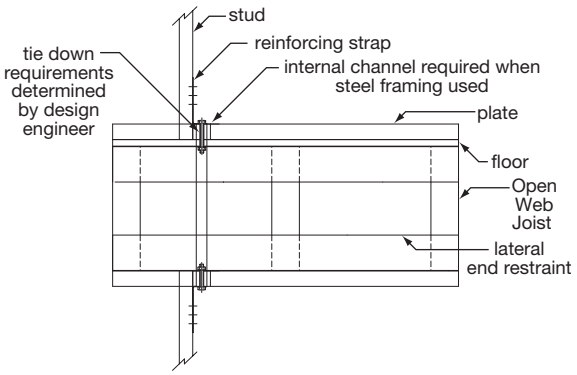
Bolt	Min. Recommended Bearing Plate Thickness	Washer	Min. Number of Screws
M8 & M10	8	Standard	6-8
M12 & M16	10	50 x 50 x 5	10
M20	12	65 x 65 x 8	12

Open Web

Typical Tie Down at lower floor



Typical Tie Down at Upper floor



INSTALLATION
STRAMIT® C-Joist System

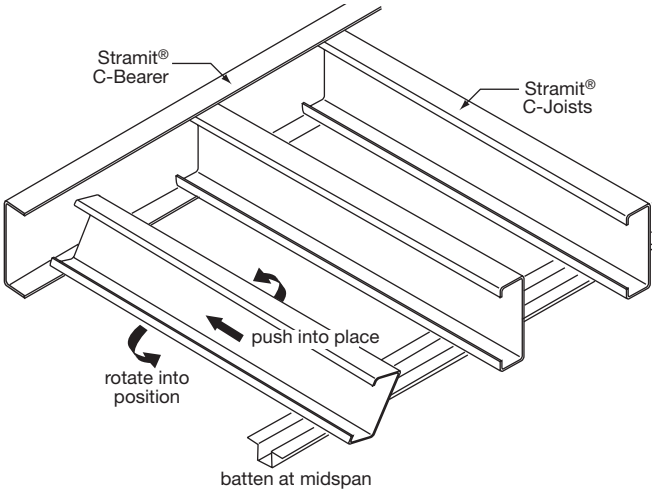
Assembly

The system uses simple installation procedures and basic tools. ***Stramit***® C-Bearers are simply positioned and fixed into place, either through the section web or flange. Joists are pushed into, then rotated into place between bearers and fixed using the techniques given below.

Generally, the floor is divided into rectangular segments each containing two bearers and a series of intermediate joists. Where bearers are back to back, they are simply screwed together using two SD10Gx16mm hex head screws between each joist. If required, floor levels at different heights can be arranged by using different sized joist/bearer systems or by offsetting the height of the different floors.

Screw fix a ***Stramit***® ceiling batten midspan, using two SD10Gx16mm hexagon head screws per joist to the underside of the joist prior to installing the particle board flooring. This batten helps to prevent joist roll caused by installers working above, particularly when used in longer span installations. Once the floor lining is complete, the batten may be replaced by ceiling linings if required. Ceiling linings or midspan battens will enhance the floor performance.

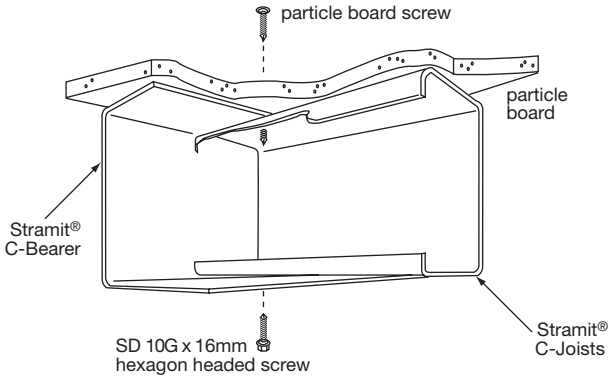
For upper level floors, Stramit recommends that ceiling battens be fixed to the underside of the ***Stramit***® C-Joists. As well as simplifying height adjustment to keep ceiling sight lines even, the battens provide a path for wiring or other services to be easily installed.



Fixing Techniques

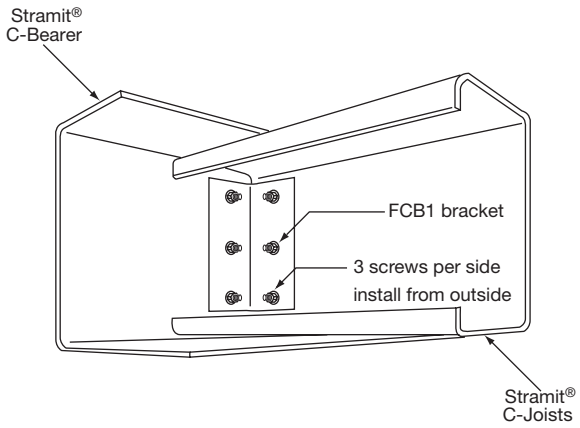
Stramit® C-Bearers are attached to the supporting structure as directed by the building designer, or using conventional methods such as bolts or metal strapping. The supporting structure may be a lower storey frame, brick piers or wall, steel or concrete posts etc, sourced from other suppliers. ***Stramit***® C-Bearers may be fixed through the bottom flange or the web of the section. Standard purlin hole punching is available to reduce on-site work.

Connection Type 1



Stramit® C-Joist to ***Stramit***® C-Bearer connections are usually made with easy to use self drilling screws, placed through top and bottom flanges. This connection does not require any additional brackets or bolts. The floor sheeting screw also holds the bearer and joist in position, and may replace the standard fastener. The minimum standard fastening screw size is a SD10Gx16mm. The top flange may be temporarily held in positions prior to the floor sheet installation by wafer head screw or a 4.5mm pop rivet as required.

Connection Type 2



When the bottom flange is not accessible to enable a fixing screw connection, a simple angle bracket (FCB1) is required to fix the joist to the bearer. The bracket is held by six 10Gx16mm (minimum size) screws which can be screwed from any direction although it is always preferable to fix towards the thicker material being connected. This can be achieved by initially fastening from the inside using the pilot holes, then fasten from the outside by replacing the initial screw. Please note that three screws per side are required and they should be equally spaced on the brackets.

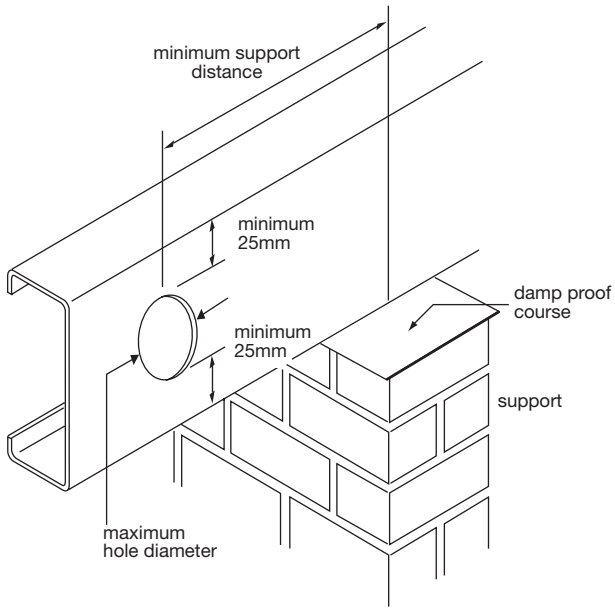
Concentrated Loads

Concentrated loads occur wherever bearers are supported. Where these situations occur the FCB3 bracket is used to transmit these forces into the web of the section. The bracket must touch the bottom flange of the bearer.

Hole Cutting

Holes may be cut into the webs of ***Stramit***® C-Bearer and joists to allow electrical and plumbing service installations. Circular holes cut with hole saws are preferable. Holes should not be closer than 25mm to either flange nor positioned close to any support or concentrated load. Holes in ***Stramit***® C-Bearer should be positioned centrally between ***Stramit***® C-Joist. Minimum hole spacing along the C-Bearer/Joist is equal to 3 times the hole diameter (centre to centre).

Flanges should never be drilled or cut as this leads to loss of performance.



Stramit® C-Joist size	Max Hole diameter	Minimum Support distance
182mm	90mm	370mm
235mm	115mm	470mm
283mm	140mm	570mm

Fasteners

All screw fasteners must comply to Australian Standard AS3566, Class 2 - sheet flooring screws (internal use only), or Class 3 - connection screws. Generally any suitable 10G or 12G sized fasteners will connect the flooring components detailed in this brochure, sizes indicate the minimum fasteners required. The exception is where balconies are supported by main floor ***Stramit***® C-Bearers and 14G screws are required to connect the two frames together.

Fasteners must not be positioned within 15mm of any metal edge. All particle board - or other floor sheeting - fasteners should follow the recommendations of the board manufacturer. ***Stramit***® recommend to glue and screw all sheet floors.

Cantilevers

Cantilevered ***Stramit***® C-Bearers are allowed when the cantilever length is limited to 10% of the adjacent span. The cantilevered ***Stramit***® C-Bearers must be continuous and supported by FCB3 bracket over the last support.

Cantilevered ***Stramit***® C-Joist may be applicable in some applications. Please contact Stramit for further details.

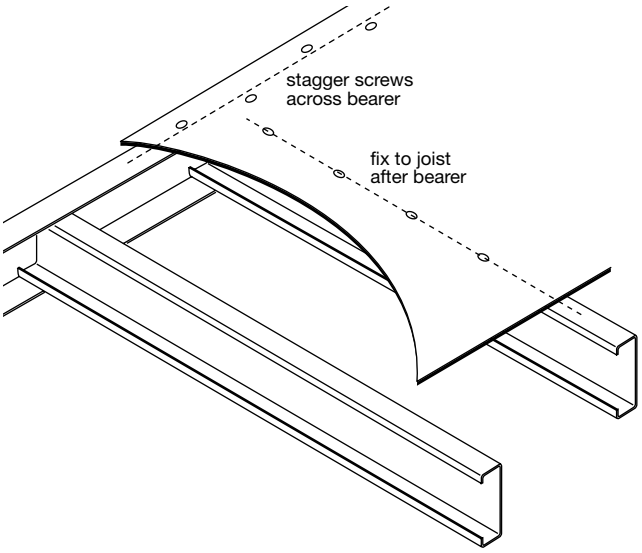
Floor Connection

Particle board or plywood structural sheet flooring in accordance with BCA is used as the floor surface, although other floor materials with similar properties (eg. Min. modulus of elasticity E=3GPa) can be used.

Please consult the floorboard manufacturer for details of sheet flooring, fasteners and adhesives that comply with BCA required for metal floor joist support systems.

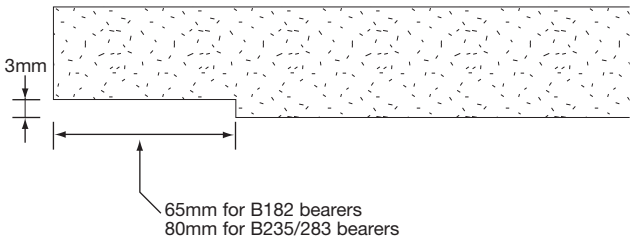
Typical particle board flooring requirements are:

Floor joist centres	Particle board		Fibrous cement	
	Thk.	Mass	Thk.	Mass
450mm	19mm	13.2kg/m²	15mm	28.5kg/m²



When using ***Stramit***® C-Joist and Bearers attach the particle board to the bearers first using suitable adhesive and preferably using a staggered pattern. Fasten with SD10Gx45mm wing tipped screws. This will allow a smooth transition over the thickness step between the C-bearer and C-joist.

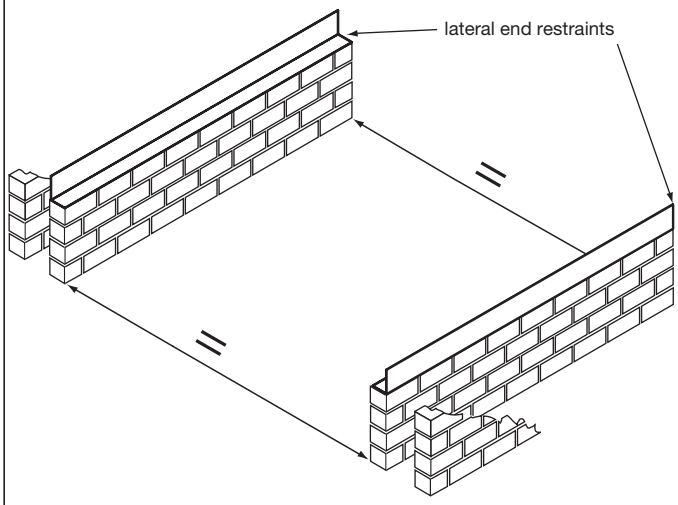
Alternatively, the edge of the board may be rebated as shown below.



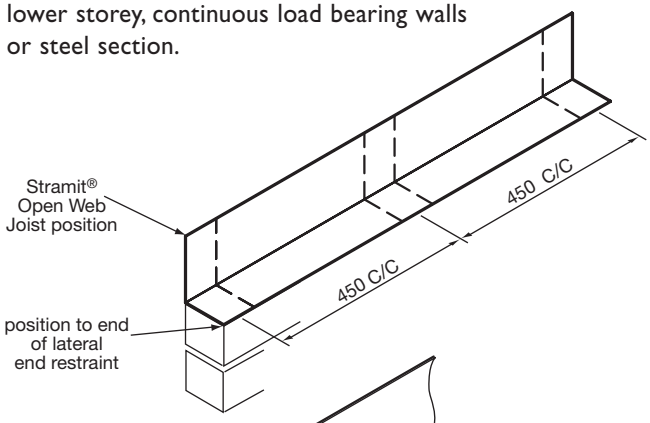
INSTALLATION
STRAMIT® Open Web Joists

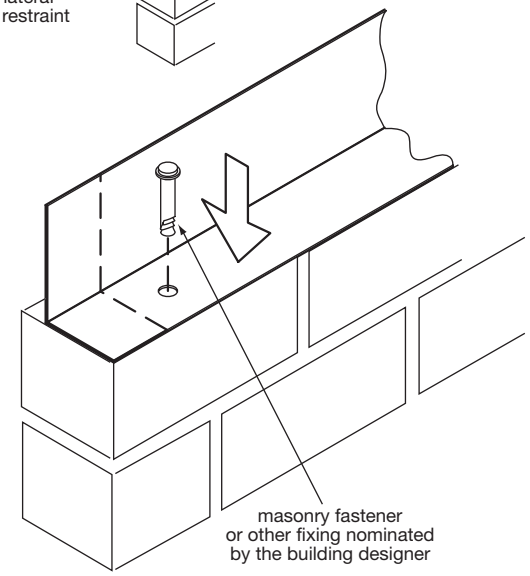
Assembly

Stramit® range of Open Web Joists are installed using simple procedures and tools. ***Stramit***® lateral end restraints are laid across the continuously supported wall ensuring that they are level and square.

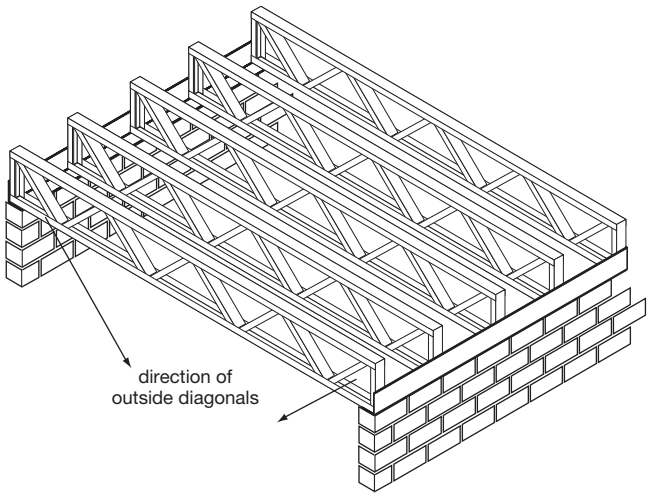


Mark out the position of the ***Stramit***® Open Web Joists centres (450mm) on the inside of the lateral end restraints. Ensure the distances are correct to accommodate the fabricated ***Stramit***® Open Web Joists within the lateral end restraints. Fasten through the lateral end restraints to supporting structure with bolts or metal strapping. The supporting structure may be a lower storey, continuous load bearing walls or steel section.



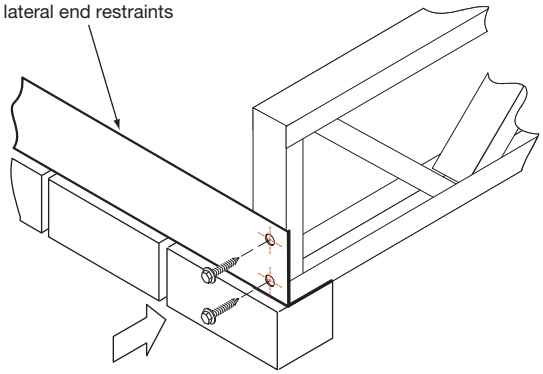


Ensure that the ***Stramit***® Open Web Joists are square and level when positioning in marked areas. ***Stramit***® Open Web Joists should have the outside diagonals positioned in a downward position as shown. Check that all the joists have the same web alignment to enable easy service provision. Also ensure that the vertical web ends are fully contained within the continuous support.

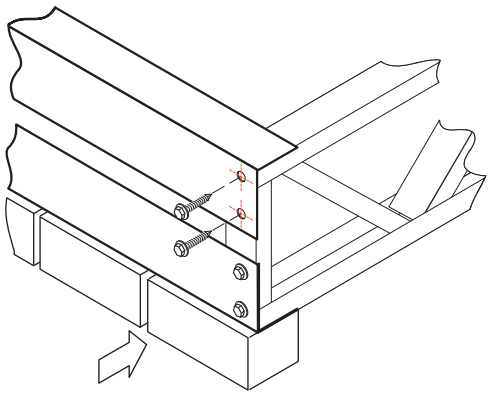


Fixing Techniques

Fasten ***Stramit***® Open Web Joists through lateral end restraints as shown externally (or internally depending on space cavity) with SD 10G x 16mm hexagon headed screws.

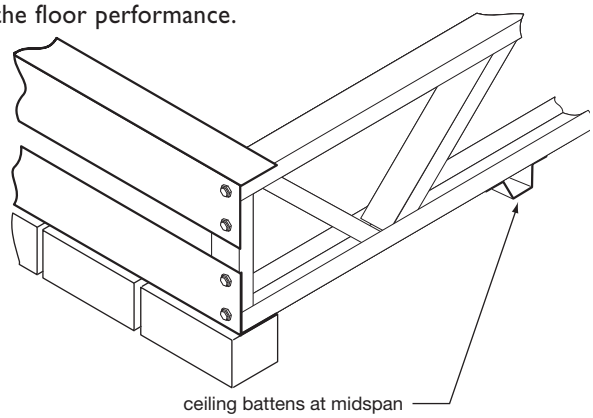


Lay the lateral end restraint on top of the ***Stramit***® Open Web Joists as shown. Fasten as per lower lateral end restraints.



Fastening at midspan

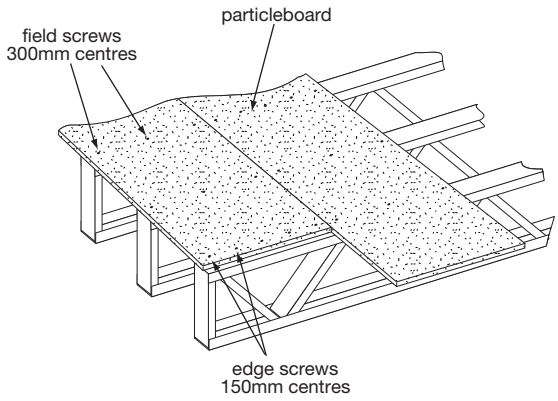
Prior to adhering flooring, screw fix a metal batten midspan, using two SD10Gx16mm hexagon head screws below the joist prior to installing the particle board flooring. Particularly when used in longer span installations, this batten helps to prevent joist roll caused by installers working above. Once the floor lining is complete, the batten may be replaced by ceiling linings if required. Ceiling linings or midspan battens will enhance the floor performance.



When connecting ***Stramit***® Open Web Joists to lateral end restraints use self drilling screws, placed through the end of the lateral end restraints. This connection usually does not require any additional brackets or bolts.

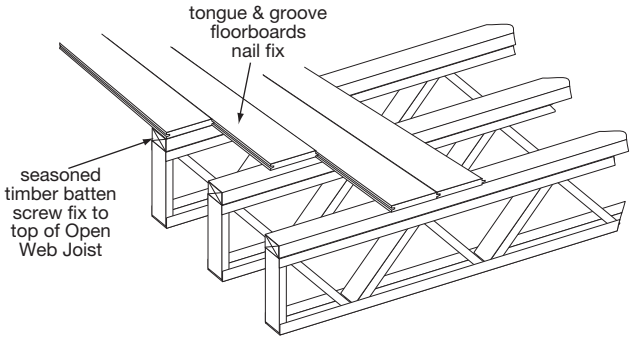
Floor Connection

If **particleboard flooring** is used, the sheeting is run perpendicular to the Open Web truss joists, glued and fixed with No. 10G x 45mm wing tipped screws positioned at 300mm centres in the sheet body and 150mm centres at the edges.

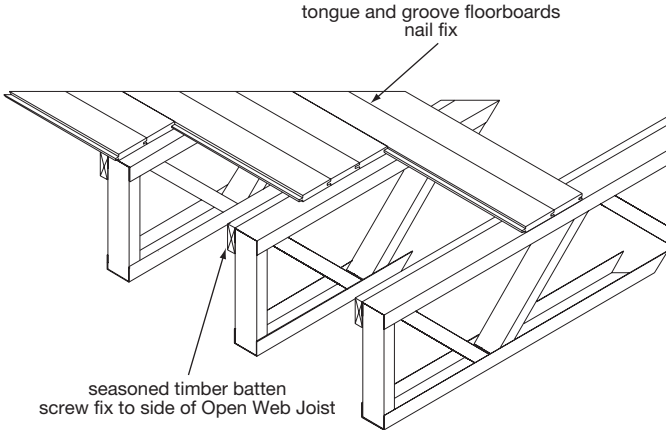


If **tongue and groove** flooring is to be used, affix seasoned (no more than 15% M.C) timber 35mm x 70mm battens to the top or side of Open Web joists as shown with SD 10G x 45mm wing tipped screws positioned at 300mm centres, ensuring that the fastening surface is completely level. Fasten the tongue and groove boards with conventional secret nailing techniques.

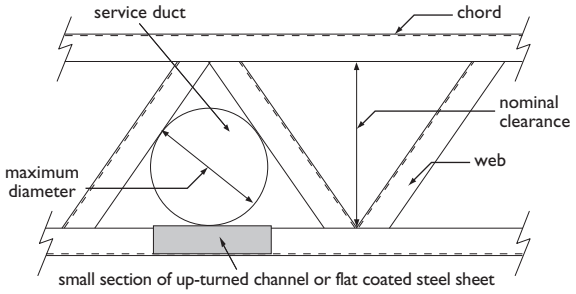
Fixing on top



Fixing on side



Services through joist



It is recommended that service ducts are not placed on upward facing channels. If unavoidable then small sections of up-turned channel or flat coated steel sheet should be placed between service duct and channel.

INSTALLATION
STRAMIT® Extended Bearer

Extended Bearers are used to span large internal openings, they can be designed to support roof load provided the joists are supported at both ends by load bearing walls.

The ***Stramit®*** C-Joist and Open Web Joist both have the Extended Bearer option. Extended Bearers provide design flexibility and allow for large spans to be achieved in house areas such as the garage, rumpus, living and balconies.

Stramit offers a series of extended bearer configurations, the information provided gives the connection details between the extended bearer and either the C-Joist and Bearer system or the Open Web Joist system. Connections between the extended bearer and the structural elements of the building are the responsibility of the building designer.

Simple installation procedures are used for the extended bearer range. The extended bearers consist of standard hot rolled sections, all applicable sizes are given within the Stramit extended bearer range table 4.

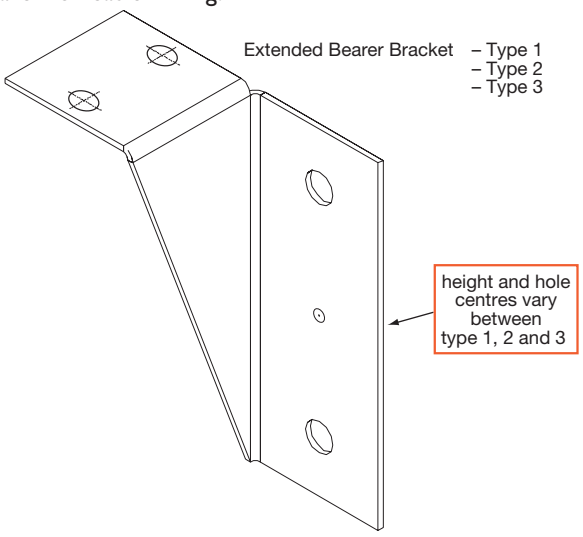
Brackets and Fixing – C-Joist

For ***Stramit®*** **C-Joist** Extended Bearer options there are three types of brackets, each differing in height.

Selection of Bracket and Fasteners – C-Joist

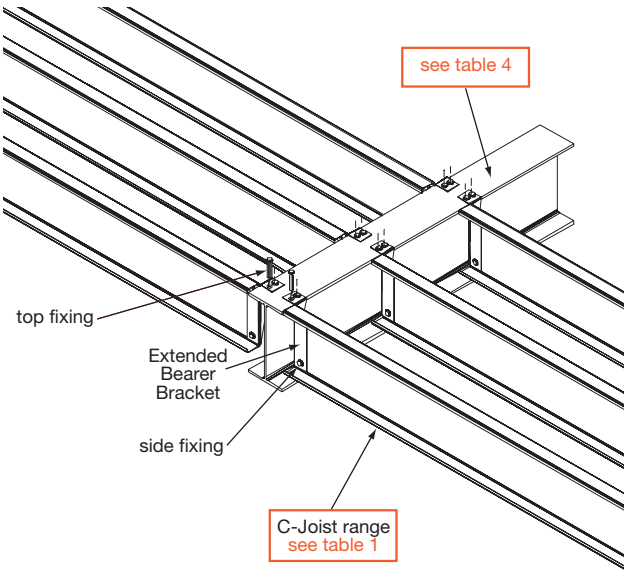
Stramit® C-Joist	Extended Bearer Bracket	Top Fixing 2 (of)	Side Fixing 2 (of)
J182	Type 1	SD12Gx32mm Extended Point Screws	M12x30mm Nut & Bolt GR4.6 plus 1x SD12Gx20 hex head screw
J235	Type 2		
J283	Type 3		

Ensure the Extended Bearer Brackets are fixed to the joist first. This allows the joist to be supported on the bearer for easier fixing.

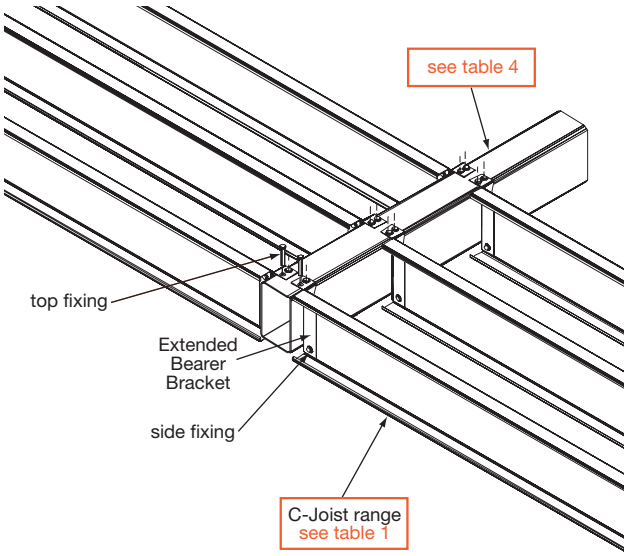


Note that C-Joists used with single RHS Extended Bearers can be connected with Extended Bearer Brackets or with continuous C-Bearers.

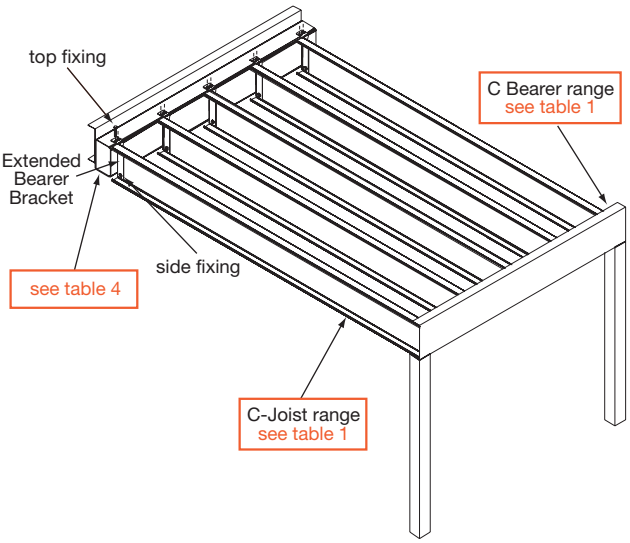
Stramit® C-Joist with U-Beam Extended Bearers (roof and non-roof load areas)



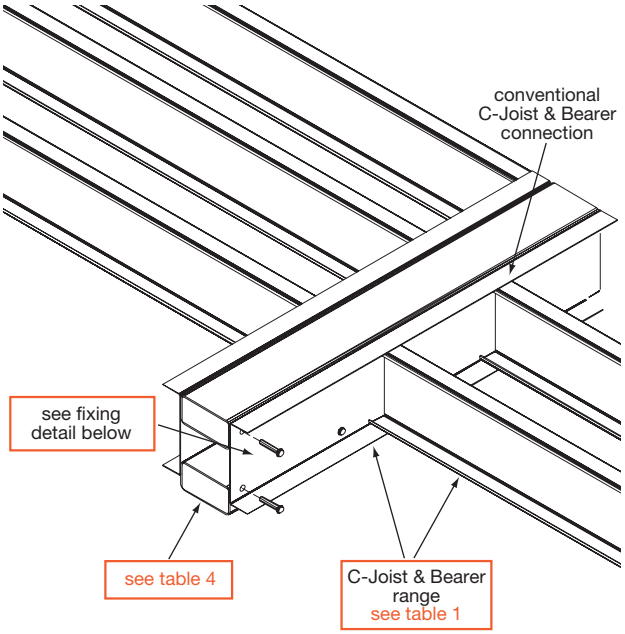
Stramit® C-Joist with single RHS Extended Bearers (non-roof load area)



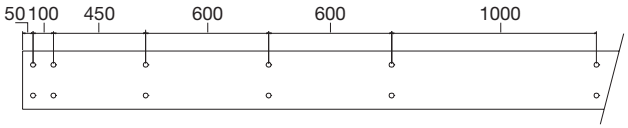
Stramit® C-Joist with single RHS Extended Bearer – (Balcony area)



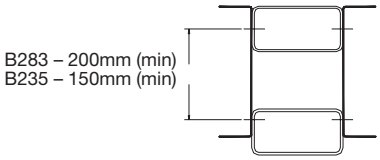
Stramit® C-Joist and Bearer with RHS pair Extended Bearers



Stramit® C-Joist and Bearer with RHS pair Extended Bearer – Fixing Detail

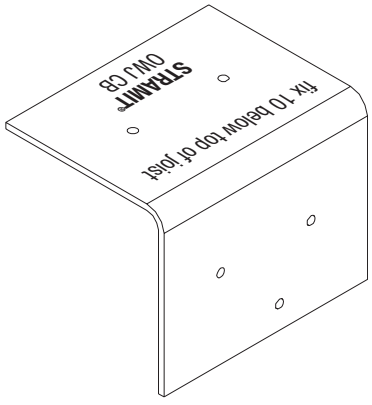


1.9mm & 2.4mm screw pattern
All Self Drilling Screws 12Gx20mm long



Brackets and Fixing – Open Web Joist

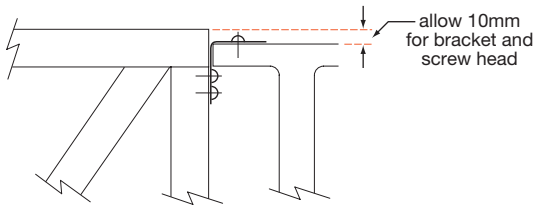
***Stramit®* Open Web Joist** with Extended Bearer options has only one type of bracket for use in all applications. Ensure that Open Web Joists Connection Brackets are fixed to the joist first. This allows the joist to be supported on the bearer for easier fixing.



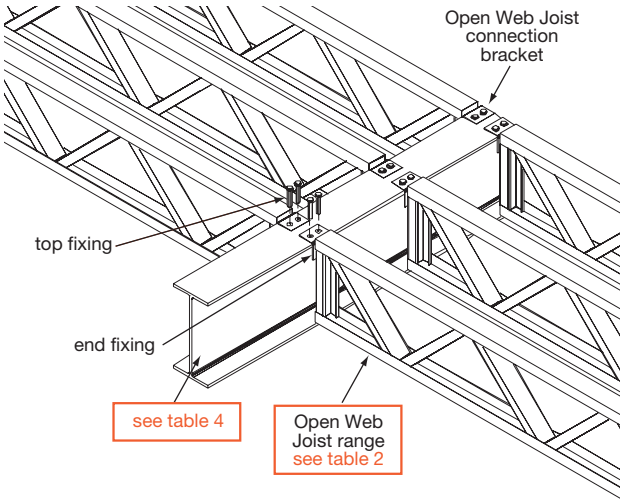
Open Web Joist connection bracket

Selection of Bracket and Fasteners

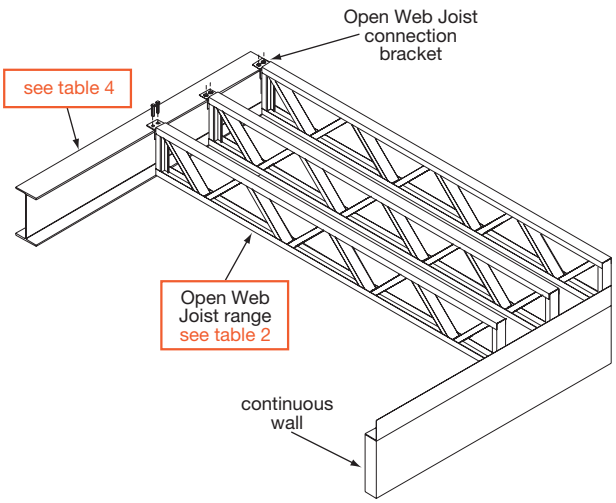
- For all Open Web Joist depths (250 - 450mm), use an open joist connection bracket per joist.
- For top fixing use two SD12G x 32mm Extended Point Screws.
- For end fixing use three SD12G x 20mm Hex HD.



Stramit® Open Web Joist with U-Beam Extended Bearer (roof and non roof)



Stramit® Open Web Joist with U-Beam Extended Bearer (balcony)

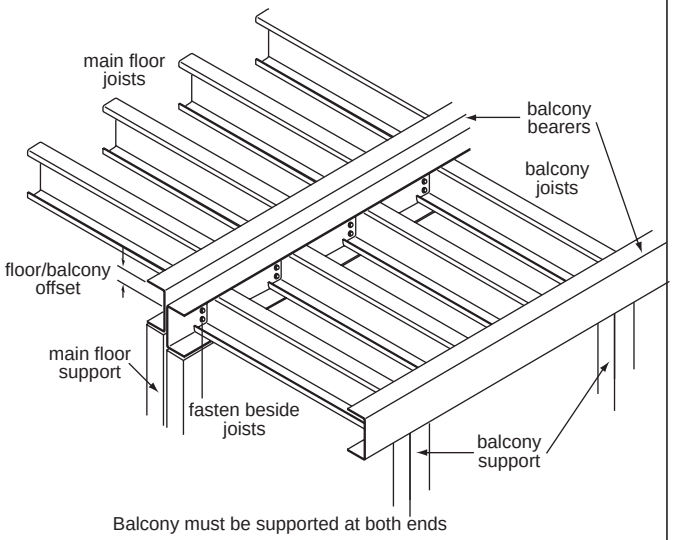


Balconies and Verandahs

Assembly

These are defined as floor areas that are external to the habitable building structure, and are located one or more metres above the ground. Balconies and verandahs usually incorporate a drop in height below the main floor level and must be designed with higher floor loadings. This is easily accomplished by treating the balcony or verandah as a separate floor section.

Balconies must be constructed with joists spanning between two bearers, both supported. In the Open Web Joist option the span must be between two continuously supported walls. Joists must not be cantilevered. Balconies and verandahs must not support any load bearing walls or non-load bearing walls. Roof loads must be supported independently of balconies and verandahs, ie. directly by column support to the ground. Should load bearing walls be present on the balcony or verandah, please contact your local Stramit office for assistance.



Load Considerations

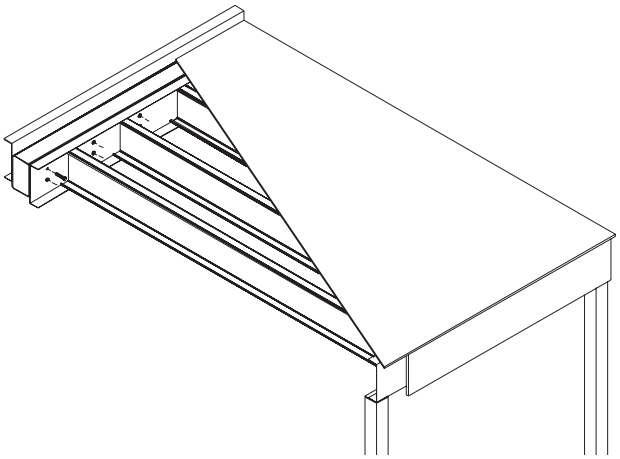
The ***Stramit***® C-Joist and Bearer and Open Web Joist systems are both designed for use in balcony and verandah applications. All load data has been based on using 15mm fibre cement sheeting as the flooring material; this provides substantial cross bracing whilst maintaining the 3.0kPa live loading requirement.

Slope

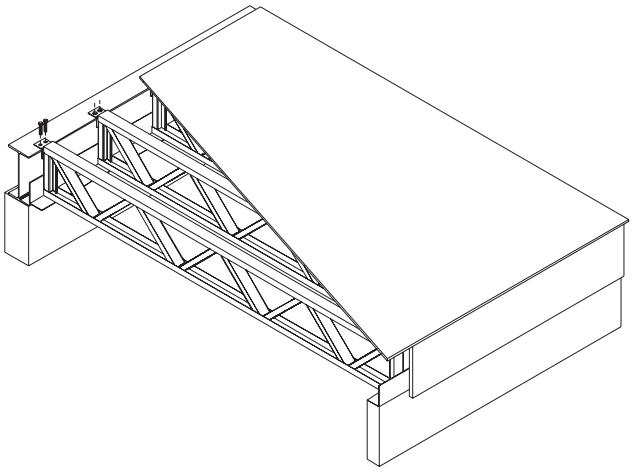
It is recommended that flooring used in balcony and verandah applications be assembled with fall away from the attached structure to enable water to run clear.

Floor Surface Options

Fibre Cement Flooring – Stramit® C-Joist and Bearer



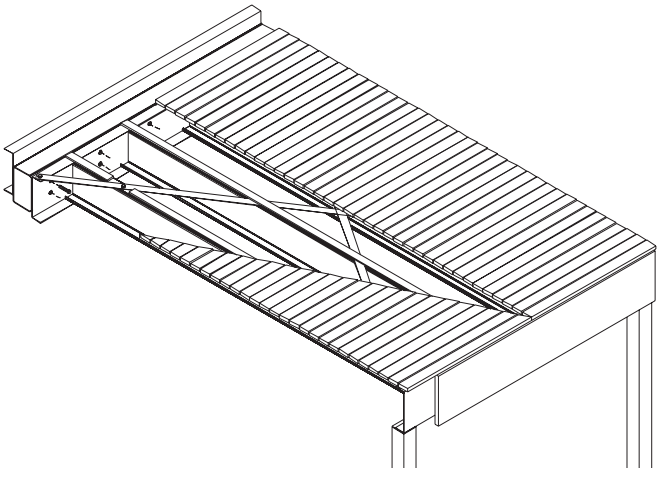
Fibre Cement Flooring – Stramit® Open Web Joist



Shot Edge Strip Flooring

An option for using shot edge strip flooring is provided but all load data and cross bracing will be subject to verification by the design engineer. Durability of ***Stramit***® flooring, when used with shot edge strip flooring, may be reduced through contact with some acidic or treated timbers. All such materials including CCA treated timber should be separated from the ***Stramit***® C-Joists and Bearers by a neutral packing material such as thick rubber strip placed along the joists.

Only ***Stramit***® C-Joist and Bearers may be use for this type of application.

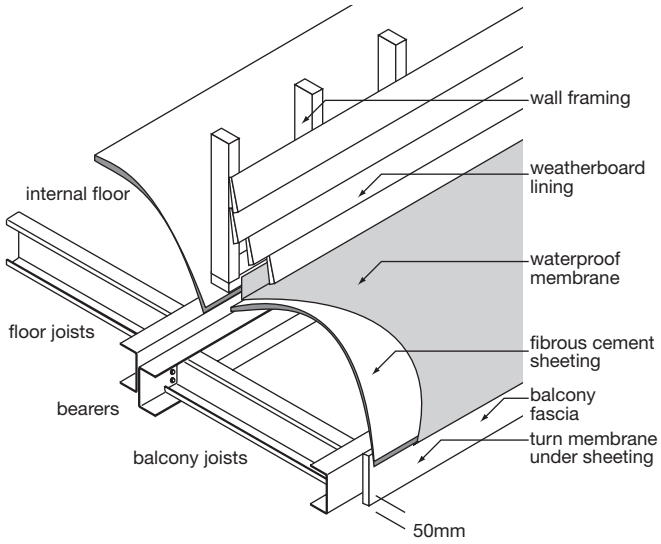


Weather Proofing

Detailed weather proofing alternatives for various locations are given in table 5 on page 21.

For improved durability, external floor areas such as balconies, require that the floor system be protected from rainwater runoff. The floor sheeting must be durable eg. fibrous cement and suitable flashings must be used to protect the structure.

Similar provisions apply to those areas where the floor system is exposed to the elements eg. below a timber weatherboard wall. The use of a waterproof membrane over the exterior floor, with materials meeting the relevant provisions of BCA is recommended.



Post/Piers and Bracing Systems

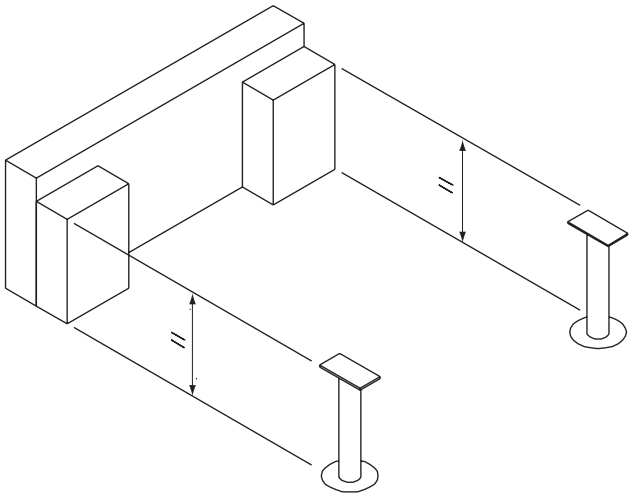
The use of any type of piering or post construction method provides considerable environmental and cost benefits on a sloping site compared to cut and fill for slab on ground construction.

- Minimum site disturbance
- White ant problems solved without the use of hazardous chemicals
- Suitable for difficult sites
- Reduces excavation and landfill requirements
- Reduced site disturbance – site runoff

Selection

There are many systems available including concrete posts, screw piles and the more conventional metal piers. The major metal pier systems are adjustable in height by typically 200mm at each pier, have different load area ratings and range in height from 200mm up to 4000mm. Site soil conditions and applicable wind loading all have to be considered carefully prior to selection of pier type. It is advisable that a suitably qualified engineer be involved in the selection of sub – flooring systems.

It is crucial before ordering piers that the distance from the top of each footing to the underside of each bearer is correctly measured as shown.

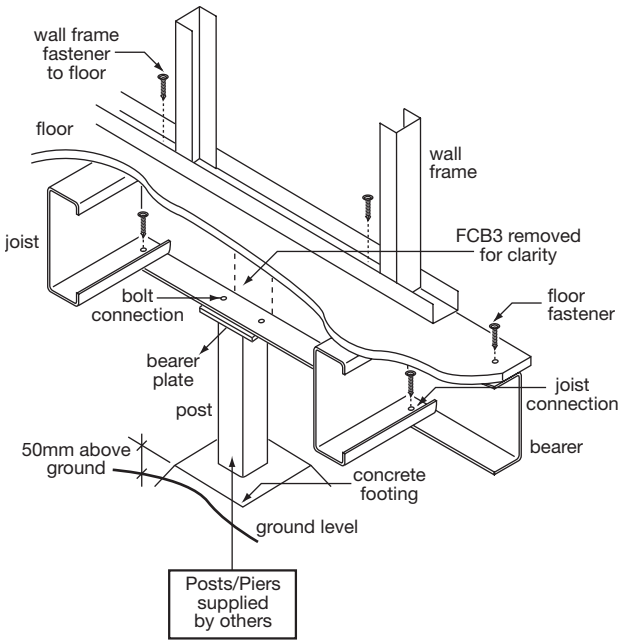


Connection

All connections used to connect the ***Stramit***® Residential Floor Framing System to the rest of the structure should be capable of withstanding the required gravity, lateral and wind loads.

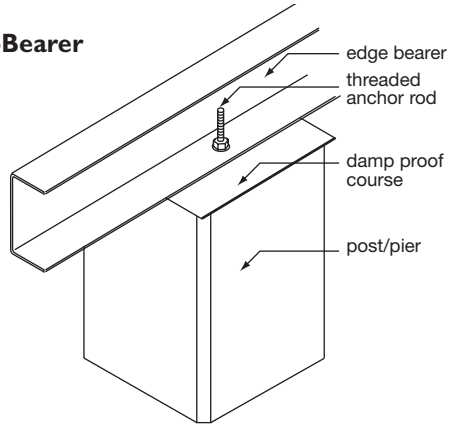
Posts or piers supplied by others should comply with the relevant Standards, and are connected to the floor system using conventional techniques.

Typical System Connection

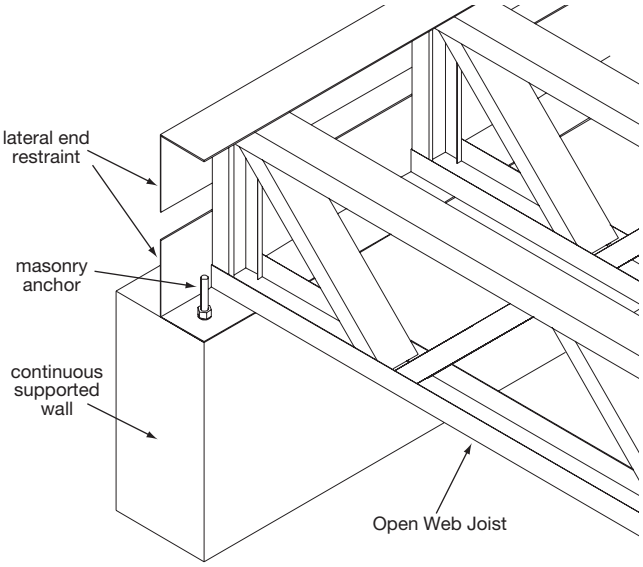


Connections directly into the bottom of the bearer or Open Web Joist offer the quickest and easiest solution.

to C-Bearer



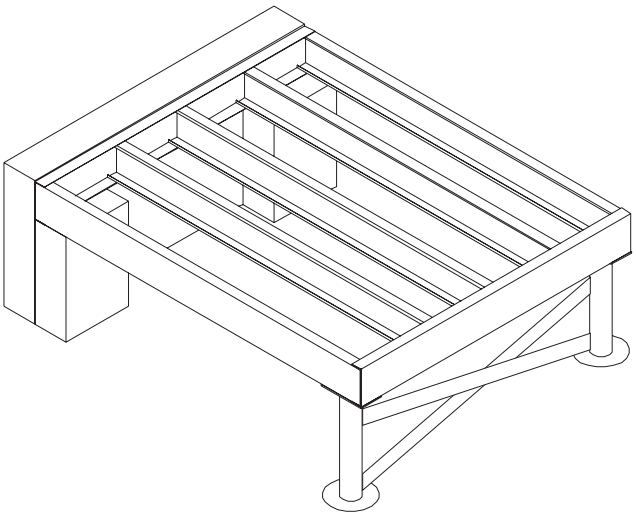
to Open Web Joist



Bracing

Bracing of posts/piers must not be connected to joists or bearers. Bracing designed by others, will be required subject to post design, spacing and relevant loads.

Stramit® ***C Bearer and Joist with Piers***



PROCUREMENT

Components

The ***Stramit***® flooring system comprises:

- The standard range of ***Stramit***® C-Joists & Bearers
- The standard range of ***Stramit***® C-Joist and Bearer connectors
- The standard range of ***Stramit***® Open Web Joists
- The ***Stramit***® Open Web Joist connection system
- The range of Extended Bearer design options
- The ***Stramit***® range of Extended Bearer brackets

Availability

The ***Stramit***® range of C-Joist and Bearers are available nationally. The ***Stramit***® range of Open Web Joists are available nationally. The Extended Bearer components need to be sourced through local steel distributors

Prices

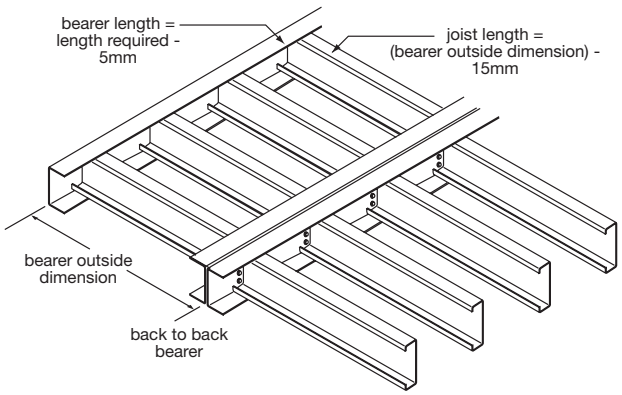
Prices of ***Stramit***® Residential Floor Framing Systems can be obtained from your nearest Stramit location, or distributor of ***Stramit***® products.

Lengths

Flooring lengths can be supplied to any nominated length as long as it falls within the joist and bearer span range. The tolerance on lengths supplied is +/- 10mm for C-Joists and Bearers, and +0/-5mm for Open Web Joists.

Detailing

All ***Stramit***® C-Joist and Bearers are available custom cut to suit the installation requirements. To ensure easy installation, bearers should be ordered 5mm short and joists 15mm shorter than the bearer outside dimension, this will provide adequate clearance for production and installation tolerances.



Stramit® Open Web Joists should be detailed so that all

- web alignment requirements are noted
- vertical web requirements over internal supports are noted
- joists are to be detailed 5mm short

Orders

Stramit® Residential Floor Framing system components can be ordered directly from Stramit, or through distributors. Check with your local ***Stramit***® office for availability of sections and sizes.

All Extended Bearer sections can be ordered through local steel distributors.

Ordering Details

Flooring components need to be broken down into individual floors, particularly in two storey designs. Details of the floor connection should be provided. Stramit Open Web Joists should be clearly specified, if there is any variance in configuration.

tables

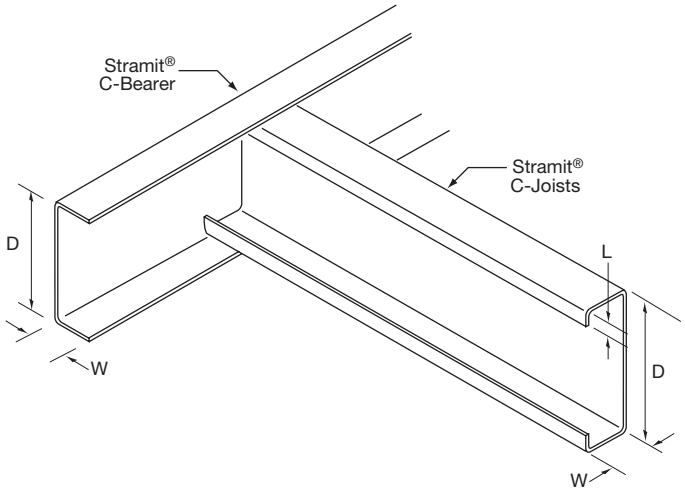
Table 1

STRAMIT® C-Joist & Bearer Dimensions & Mass						
shape	section	depth D mm	width W mm	lip L mm	thickness t mm	mass kg/m
C Joist	J18210	182	51	13	1.0	2.38
	J18212	182	51	13	1.2	2.78
	J18215	182	51	14	1.5	3.48
	J18219	182	51	15	1.9	4.41
	J18224	182	51	16	2.4	5.57
	J23512	235	64	11	1.2	3.60
	J23515	235	64	12	1.5	4.50
	J23519	235	64	16	1.9	5.65
	J23524	235	64	17	2.4	7.09
	J28319	283	64	17	1.9	6.37
	J28324	283	64	18	2.4	8.04
C Bearer	B18219	187	58	0	1.9	4.38
	B18224	187	58	0	2.4	5.52
	B23519	240	72	0	1.9	5.59
	B23524	240	72	0	2.4	7.04
	B28319	288	72	0	1.9	6.31
	B28324	288	72	0	2.4	7.94

Table 2

STRAMIT® Open Web Joist Dimensions & Mass					
designation	depth D mm	width W mm	chord thickness mm	web* thickness mm	mass kg/m
2506	250	78	0.6	0.6	2.61
2508	250	78	0.8	0.6	3.12
2510	250	78	1.0	0.6	3.62
2512	250	78	1.2	0.6	4.14
2515	250	78	1.5	0.6	4.91
3006	300	78	0.6	0.6	2.61
3008	300	78	0.8	0.6	3.12
3010	300	78	1.0	0.6	3.62
3012	300	78	1.2	0.6	4.14
3015	300	78	1.5	0.6	4.91
3506	350	78	0.6	0.6	2.61
3508	350	78	0.8	0.6	3.12
3510	350	78	1.0	0.6	3.62
3512	350	78	1.2	0.6	4.14
3515	350	78	1.5	0.6	4.91
4006	400	78	0.6	0.6	2.61
4008	400	78	0.8	0.6	3.12
4010	400	78	1.0	0.6	3.62
4012	400	78	1.2	0.6	4.14
4015	400	78	1.5	0.6	4.91
4506	450	78	0.6	0.6	2.61
4508	450	78	0.8	0.6	3.12
4510	450	78	1.0	0.6	3.62
4512	450	78	1.2	0.6	4.14
4515	450	78	1.5	0.6	4.91

*Vertical end webs are all 1.0mm.



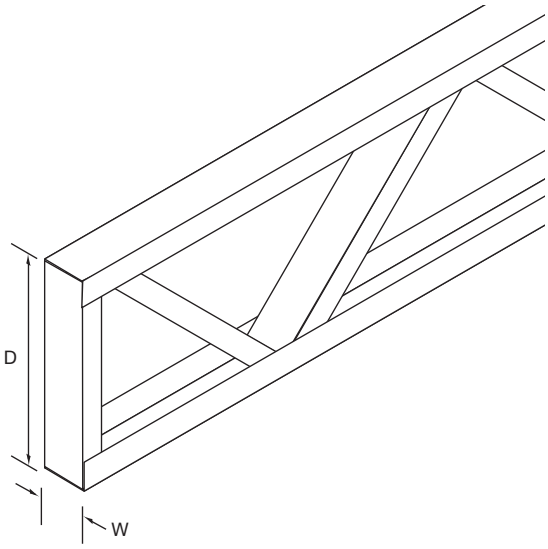
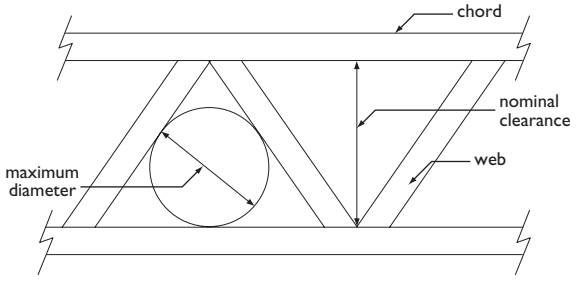


Table 3

STRAMIT® Open Web Joist Service Provision Allowance		
size	nominal clearance	maximum diameter
250	160mm	125mm
300	210mm	160mm
350	260mm	200mm
400	310mm	240mm
450	360mm	280mm



If web alignment is required for services specify at time of ordering

Table 4

STRAMIT® Extended Bearer Range Dimensions & Mass				
Shape	**Section/s**	**Depth D (mm)**	**Width W (mm)**	**Mass (kg/m)**
U-Beam Extended Bearer Range	180UB16.1*	173mm	90mm	16.1
	200UB18.2*	198mm	99mm	18.2
	250UB25.7*	248mm	124mm	25.7
	310UB32.0*	298mm	149mm	32.0
	310UB40.4*	304mm	165mm	40.4
	360UB44.7*	352mm	171mm	44.7
	360UB50.7*	356mm	171mm	50.7
C-Joist with RHS pair Extended Bearer Range	2 x 75x75x3.0 RHS* + 2 x B23519	257mm	219mm	19
	2 x 125x75x3.0 RHS* + 2 x B23519	257mm	269mm	24
	2 x 75x75x3.0 RHS* + 2 x B23524	257mm	219mm	20
	2 x 125x75x3.0 RHS* + 2 x B23524	257mm	269mm	25
	2 x 125x75x4.0 RHS* + 2 x B28319	305mm	269mm	30
	2 x 185x65x4.0 RHS* + 2 x B28319	305mm	329mm	36
	2 x 125x75x4.0 RHS* + 2 x B28324	305mm	269mm	31
	2 x 185x65x4.0 RHS* + 2 x B28324	305mm	329mm	38
Single RHS Extended Bearer Range	150x50x5.0 RHS Grade C350*	150mm	50mm	14.2
	200x50x4.0 RHS Grade C350*	200mm	50mm	14.8
	200x100x5.0 RHS Grade C350*	200mm	100mm	22.1
	250x150x5.0 RHS Grade C350*	250mm	150mm	29.9

*Sections supplied by others.

Table 5 - Durability Selection Criteria

One of the following applicable criteria must be adhered to ensure satisfactory performance of the floor system. The standard system is not suitable for applications closer than 300m to the coast.

Application	**>10km from the coast & not in a heavy industrial area.**	**<10km but > 1km from the coast & not in a heavy industrial area.**	**< 1km but > 300m from the coast & not in a heavy industrial area.**
Ground Floor	• Sub-floor can be completely open	• Sub-floor must be enclosed and incorporate ventilators, or • Sub-floor painted with etch primer plus water-based acrylic top coat.	• Sub-floor must be enclosed & incorporate ventilators, or • Sub-floor painted with high build epoxy mastic based system
Upper Floor of Two Storey Building	• No ceiling lining required	• If fully enclosed building, no ceiling lining required, or • If not fully enclosed, sub-floor painted with etch primer plus water based acrylic top coat	• If fully enclosed building, no ceiling lining required, or • If not fully enclosed, sub-floor painted with high build epoxy mastic system
Balcony	• Provide weather tight top cover protection, or • For open deck or strip flooring sub-floor painted with etch primer plus water-based acrylic top coat	• Provide weather tight top cover protection & complete encapsulation, or • Sub-floor painted with etch primer plus water-based acrylic top coat	• Provide weather tight top cover protection & complete encapsulation, or • Sub-floor painted with high build epoxy mastic system

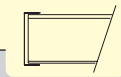
Table 6

Roof Load Area

STRAMIT® RESIDENTIAL FLOOR SYSTEM Single Level or Upper Level of 2 Storey

C-Joists and Bearers alone OR with Extended Bearers **Maximum Bearer Spans (m)**

STRAMIT® C-Bearers



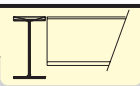
LOADED AREA (RLWxFLW) FOR METAL ROOF

FLW (m)	0.5	1.5	2.0	2.5	3.0	0.5	1.5	2.0	2.5	3.0	0.5	1.5	2.0	2.5	3.0
RLW (m)	B18219					B23519					B28319				
nominal	3.8	3.0	2.7	2.5	2.3	4.6	3.5	3.1	2.9	2.7	5.0	3.8	3.4	3.2	3.0
5.0	3.2	2.6	2.4	2.3	2.1	3.6	3.0	2.8	2.6	2.5	4.0	3.3	3.0	2.8	2.7
6.0	3.0	2.5	2.3	2.2	2.1	3.4	2.9	2.7	2.5	2.4	3.7	3.1	2.9	2.8	2.6
8.0	2.7	2.3	2.2	2.1	2.0	3.1	2.7	2.5	2.4	2.3	3.4	2.9	2.7	2.6	2.5
RLW (m)	B18224					B23524					B28324				
nominal	4.0	3.5	3.2	2.9	2.7	4.8	4.3	3.9	3.6	3.4	5.4	4.8	4.3	4.0	3.7
5.0	3.5	3.0	2.8	2.6	2.5	4.3	3.7	3.4	3.2	3.1	4.8	4.1	3.8	3.6	3.4
6.0	3.4	2.9	2.7	2.5	2.4	4.1	3.6	3.3	3.1	3.0	4.6	3.9	3.7	3.5	3.3
8.0	3.1	2.7	2.5	2.4	2.3	3.8	3.3	3.1	3.0	2.8	4.3	3.7	3.5	3.3	3.1

LOADED AREA (RLWxFLW) FOR TILED ROOF

FLW (m)	0.5	1.5	2.0	2.5	3.0	0.5	1.5	2.0	2.5	3.0	0.5	1.5	2.0	2.5	3.0
RLW (m)	B18219					B23519					B28319				
nominal	3.4	2.8	2.6	2.4	2.2	4.0	3.2	2.9	2.7	2.6	4.4	3.5	3.2	3.0	2.8
5.0	2.6	2.3	2.1	2.0	1.9	3.0	2.6	2.5	2.3	2.2	3.3	2.9	2.7	2.6	2.4
6.0	2.4	2.1	2.0	1.9	1.9	2.8	2.5	2.3	2.2	2.1	3.1	2.7	2.6	2.4	2.3
8.0	2.2	2.0	1.9	1.8	1.7	2.5	2.3	2.2	2.1	2.0	2.7	2.5	2.4	2.3	2.2
RLW (m)	B18224					B23524					B28324				
nominal	3.7	3.2	3.0	2.7	2.6	4.4	4.0	3.7	3.4	3.2	4.9	4.4	4.0	3.8	3.5
5.0	3.0	2.6	2.5	2.3	2.2	3.7	3.2	3.1	2.9	2.8	4.1	3.6	3.4	3.2	3.1
6.0	2.8	2.5	2.4	2.2	2.2	3.5	3.1	2.9	2.8	2.7	3.8	3.4	3.2	3.1	2.9
8.0	2.5	2.3	2.2	2.1	2.0	3.1	2.8	2.7	2.6	2.5	3.4	3.1	3.0	2.8	2.7

STRAMIT® Extended Bearers



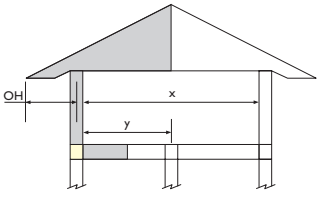
LOADED AREA (RLWxFLW) FOR METAL ROOF

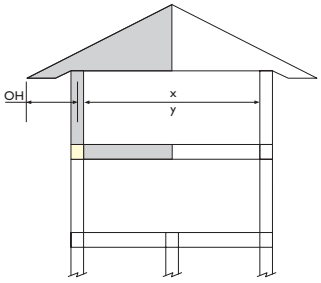
FLW (m)	0.5	2.0	2.5	3.0	3.5	0.5	2.0	2.5	3.0	3.5	0.5	2.0	2.5	3.0	3.5
RLW (m)	200UB18.2					250UB25.7					310UB32.0				
nominal	5.8	5.0	4.8	4.6	4.5	7.0	6.0	5.8	5.7	5.5	8.1	7.0	6.7	6.5	6.4
5.0	5.1	4.6	4.5	4.4	4.3	6.3	5.6	5.5	5.4	5.2	7.2	6.5	6.3	6.2	6.1
6.0	5.0	4.5	4.4	4.3	4.2	6.1	5.5	5.4	5.3	5.2	7.0	6.4	6.2	6.1	6.0
8.0	4.8	4.4	4.3	4.2	4.1	5.8	5.4	5.2	5.1	5.0	6.7	6.2	6.0	5.9	5.8
RLW (m)	310UB40.4					360UBB44.7					360UB50.7				
nominal	8.7	7.5	7.3	7.0	6.9	9.4	8.1	7.9	7.6	7.4	9.7	8.5	8.2	7.9	7.7
5.0	7.8	7.0	6.8	6.7	6.5	8.4	7.6	7.4	7.3	7.1	8.7	7.9	7.7	7.5	7.4
6.0	7.6	6.9	6.7	6.6	6.4	8.2	7.5	7.3	7.1	7.0	8.5	7.8	7.6	7.4	7.3
8.0	7.2	6.7	6.5	6.4	6.3	7.8	7.2	7.1	6.9	6.8	8.1	7.5	7.4	7.2	7.1

LOADED AREA (RLWxFLW) FOR TILED ROOF

FLW (m)	0.5	2.0	2.5	3.0	3.5	0.5	2.0	2.5	3.0	3.5	0.5	2.0	2.5	3.0	3.5
RLW (m)	200UB18.2					250UB25.7					310UB32.0				
nominal	5.2	4.7	4.5	4.4	4.3	6.5	5.8	5.6	5.4	5.3	7.4	6.6	6.4	6.3	6.1
5.0	4.5	4.2	4.1	4.1	4.0	5.5	5.2	5.1	5.0	4.9	6.4	6.0	5.9	5.8	5.7
6.0	4.3	4.1	4.0	4.0	3.9	5.4	5.0	5.0	4.9	4.8	6.2	5.8	5.7	5.6	5.5
8.0	4.1	3.9	3.9	3.8	3.8	5.1	4.8	4.7	4.7	4.6	5.8	5.6	5.5	5.4	5.3
RLW (m)	310UB40.4					360UBB44.7					360UB50.7				
nominal	8.0	7.2	7.0	6.8	6.6	8.7	7.8	7.6	7.4	7.2	9.0	8.1	7.8	7.6	7.5
5.0	6.9	6.4	6.3	6.2	6.1	7.5	7.0	6.9	6.8	6.6	7.8	7.3	7.1	7.0	6.9
6.0	6.7	6.3	6.2	6.1	6.0	7.2	6.8	6.7	6.6	6.5	7.5	7.1	7.0	6.9	6.8
8.0	6.3	6.0	5.9	5.8	5.8	6.8	6.5	6.4	6.3	6.3	7.1	6.8	6.7	6.6	6.5

Notes:
1 only for joists at 450mm centres
2 suitable for 19mm and 22mm thick particleboard floors
3 RLW (m) : Roof load width in metres
4 FLW (m) : Floor load width in metres
5 OH = Eave Overhang in metres
6 x = Roof truss span in metres
7 y = Floor width between supports
8 Combined load system of roof and floor areas
9 For bearers supporting load bearing wall and roof loads
10 Limiting Criteria G+0.4Q D =< L/300 and Dmax = 12mm





RLW = Roof Load Width = $\left(\frac{x}{2} + OH\right)$

FLW = Floor Load Width = $\left(\frac{y}{2}\right)$

Table 7

Roof Load Area

STRAMIT® RESIDENTIAL FLOOR SYSTEM Lower Level of 2 Storey

C-Joists and Bearers alone OR with Extended Bearers **Maximum Bearer Spans (m)**

STRAMIT® C-Bearers

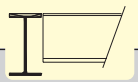
LOADED AREA (RLWxFLW) FOR METAL ROOF

FLW (m)	3.0	3.5	4.0	4.5	5.0	3.0	3.5	4.0	4.5	5.0	3.0	3.5	4.0	4.5	5.0
RLW (m)			B18219					B23519					B28319		
nominal	2.3	2.1	2.0	1.9	1.9	2.6	2.5	2.3	2.2	2.1	2.8	2.7	2.6	2.4	2.3
5.0	2.1	2.0	1.9	1.8	1.7	2.4	2.3	2.2	2.1	2.0	2.6	2.5	2.4	2.3	2.2
6.0	2.0	1.9	1.8	1.8	1.7	2.3	2.2	2.1	2.0	2.0	2.5	2.4	2.3	2.2	2.2
8.0	1.9	1.8	1.8	1.7	1.7	2.2	2.1	2.0	2.0	1.9	2.4	2.3	2.2	2.2	2.1
RLW (m)			B18224					B23524					B28324		
nominal	2.6	2.5	2.3	2.2	2.1	3.2	3.1	2.9	2.8	2.7	3.6	3.4	3.2	3.1	2.9
5.0	2.4	2.3	2.2	2.1	2.0	3.0	2.8	2.7	2.6	2.5	3.3	3.1	3.0	2.9	2.8
6.0	2.3	2.2	2.1	2.0	2.0	2.9	2.8	2.6	2.5	2.4	3.2	3.0	2.9	2.8	2.7
8.0	2.2	2.1	2.0	2.0	1.9	2.7	2.6	2.5	2.4	2.4	3.0	2.9	2.8	2.7	2.6

LOADED AREA (RLWxFLW) FOR TILED ROOF

FLW (m)	3.0	3.5	4.0	4.5	5.0	3.0	3.5	4.0	4.5	5.0	3.0	3.5	4.0	4.5	5.0
RLW (m)			B18219					B23519					B28319		
nominal	2.2	2.1	2.0	1.9	1.8	2.5	2.4	2.2	2.2	2.1	2.7	2.6	2.5	2.4	2.3
5.0	1.9	1.8	1.7	1.7	1.6	2.2	2.1	2.0	1.9	1.9	2.4	2.3	2.2	2.1	2.1
6.0	1.8	1.8	1.7	1.6	1.6	2.1	2.0	1.9	1.9	1.8	2.3	2.2	2.1	2.1	2.0
8.0	1.7	1.6	1.6	1.5	1.5	2.0	1.9	1.8	1.8	1.7	2.1	2.1	2.0	1.9	1.9
RLW (m)			B18224					B23524					B28324		
nominal	2.5	2.4	2.3	2.2	2.1	3.1	2.9	2.8	2.7	2.6	3.4	3.2	3.1	3.0	2.8
5.0	2.2	2.1	2.0	1.9	1.9	2.7	2.6	2.5	2.4	2.3	3.0	2.9	2.8	2.7	2.6
6.0	2.1	2.0	2.0	1.9	1.8	2.6	2.5	2.4	2.3	2.3	2.9	2.8	2.7	2.6	2.5
8.0	2.0	1.9	1.8	1.8	1.7	2.4	2.4	2.3	2.2	2.2	2.7	2.6	2.5	2.4	2.4

STRAMIT® Extended Bearers



LOADED AREA (RLWxFLW) FOR METAL ROOF

FLW (m)	3.0	3.5	4.0	4.5	5.0	3.0	3.5	4.0	4.5	5.0	3.0	3.5	4.0	4.5	5.0
RLW (m)			200UB18.2					250UB25.7					310UB32.0		
nominal	4.5	4.4	4.3	4.2	4.1	5.5	5.4	5.3	5.1	5.0	6.3	6.2	6.1	5.9	5.8
5.0	4.3	4.2	4.1	4.1	4.0	5.2	5.1	5.0	5.0	4.9	6.0	5.9	5.8	5.7	5.6
6.0	4.2	4.1	4.1	4.0	3.9	5.2	5.1	5.0	4.9	4.8	6.0	5.8	5.7	5.7	5.6
8.0	4.1	4.0	4.0	3.9	3.9	5.0	4.9	4.9	4.8	4.7	5.8	5.7	5.6	5.5	5.5
RLW (m)			310UB40.4					360UBB44.7					360UB50.7		
nominal	6.8	6.7	6.5	6.4	6.3	7.4	7.3	7.1	7.0	6.8	7.7	7.5	7.4	7.2	7.1
5.0	6.5	6.4	6.3	6.2	6.1	7.1	6.9	6.8	6.7	6.6	7.4	7.2	7.1	7.0	6.9
6.0	6.4	6.3	6.2	6.1	6.0	7.0	6.9	6.7	6.6	6.5	7.3	7.1	7.0	6.9	6.8
8.0	6.3	6.2	6.1	6.0	5.9	6.8	6.7	6.6	6.5	6.4	7.1	7.0	6.8	6.7	6.7

LOADED AREA (RLWxFLW) FOR TILED ROOF

FLW (m)	3.0	3.5	4.0	4.5	5.0	3.0	3.5	4.0	4.5	5.0	3.0	3.5	4.0	4.5	5.0
RLW (m)			200UB18.2					250UB25.7					310UB32.0		
nominal	4.3	4.2	4.1	4.1	4.0	5.3	5.2	5.1	5.0	4.9	6.1	6.0	5.9	5.8	5.7
5.0	4.0	3.9	3.9	3.8	3.8	4.9	4.8	4.8	4.7	4.6	5.7	5.6	5.5	5.4	5.3
6.0	3.9	3.8	3.8	3.7	3.7	4.8	4.7	4.7	4.6	4.5	5.5	5.5	5.4	5.3	5.3
8.0	3.8	3.7	3.7	3.6	3.6	4.6	4.6	4.5	4.5	4.4	5.3	5.3	5.2	5.1	5.1
RLW (m)			310UB40.4					360UBB44.7					360UB50.7		
nominal	6.6	6.5	6.4	6.2	6.1	7.2	7.0	6.9	6.8	6.7	7.5	7.3	7.2	7.0	6.9
5.0	6.1	6.0	5.9	5.8	5.8	6.6	6.5	6.4	6.4	6.3	6.9	6.8	6.7	6.6	6.5
6.0	6.0	5.9	5.8	5.7	5.7	6.5	6.4	6.3	6.2	6.2	6.8	6.7	6.6	6.5	6.4
8.0	5.7	5.7	5.6	5.6	5.5	6.2	6.2	6.1	6.0	6.0	6.5	6.4	6.3	6.3	6.2

Notes:
1 only for joists at 450mm centres
2 suitable for 19mm and 22mm thick particleboard floors
3 RLW (m) : Roof load width in metres
4 FLW (m) : Floor load width in metres
5 OH = Eave Overhang in metres
6 x = Roof truss span in metres
7 y = Floor width between supports
8 Combined load system of roof and floor areas
9 For bearers supporting load bearing wall and roof loads
10 Limiting Criteria G+0.4Q D =< L/300 and Dmax = 12mm

RLW = Roof Load Width = $\left(\frac{x}{2} + OH\right)$

FLW = Floor Load Width = $\left(\frac{x}{2} + \frac{y}{2}\right)$

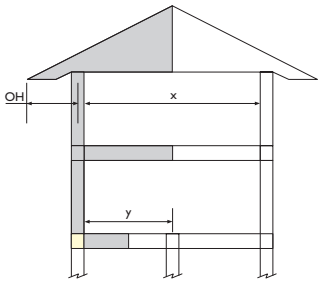


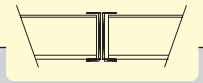
Table 8a

Non-Roof Load Area

STRAMIT® RESIDENTIAL FLOOR SYSTEM Any Floor Level

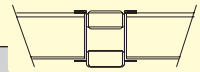
C-Joists and Bearers alone,supported on walls OR with Extended Bearers **Maximum Joist Span (m)**

STRAMIT® C-Bearers



	C-Joists										
	J18210	J18212	J18215	J18219	J18224	J23512	J23515	J23519	J23524	J28319	J28324
wall	3.8	4.1	4.3	4.6	4.8	5.0	5.2	5.5	5.8	6.1	6.4
bearer span (m)	B18219					B23519				B28319	
2.0	3.6	3.8	4.0	4.1	4.3	4.7	5.0	5.2	5.4	5.9	6.1
2.2	3.5	3.6	3.8	3.9	4.1	4.6	4.8	5.0	5.3	5.8	6.0
2.4	3.3	3.4	3.5	3.6	3.7	4.5	4.7	4.8	5.0	5.6	5.8
2.6	3.0	3.1	3.2	3.3	3.3	4.3	4.4	4.6	4.7	5.4	5.6
2.8	2.7	2.7	2.8	2.8	2.8	4.0	4.1	4.3	4.4	5.1	5.3
3.0	2.3	2.3	2.3	2.3	2.3	3.7	3.8	3.9	3.9	4.8	4.9
3.2	1.9	1.9	1.9	1.9	1.8	3.3	3.3	3.4	3.4	4.4	4.5
3.4	1.5	1.5	1.5	1.5	1.4	2.9	2.9	2.9	2.8	3.9	3.9
3.6						2.4	2.4	2.4	2.3	3.4	3.4
3.8						2.0	2.0	1.9	1.9	2.9	2.8
4.0						1.6	1.6	1.6	1.5	2.4	2.3
bearer span (m)	B18224					B23524				B28324	
2.0	3.7	3.8	4.0	4.2	4.4	4.8	5.0	5.2	5.5	5.9	6.2
2.2	3.6	3.7	3.9	4.1	4.2	4.7	4.9	5.1	5.4	5.8	6.1
2.4	3.4	3.5	3.7	3.8	4.0	4.6	4.8	5.0	5.2	5.7	6.0
2.6	3.2	3.3	3.4	3.5	3.6	4.4	4.6	4.8	5.0	5.5	5.8
2.8	2.9	3.0	3.1	3.2	3.2	4.2	4.4	4.5	4.7	5.3	5.5
3.0	2.6	2.7	2.7	2.7	2.7	4.0	4.1	4.2	4.3	5.1	5.2
3.2	2.2	2.2	2.3	2.2	2.2	3.6	3.7	3.8	3.8	4.8	4.9
3.4	1.9	1.8	1.8	1.8	1.8	3.3	3.3	3.3	3.3	4.4	4.4
3.6	1.5	1.5	1.5	1.5	1.4	2.8	2.8	2.8	2.8	3.9	3.9
3.8						2.4	2.4	2.4	2.3	3.4	3.4
4.0						2.0	2.0	1.9	1.9	2.9	2.8

STRAMIT® Shallow Extended Bearers - In Plane



	C-Joists										
	J18210	J18212	J18215	J18219	J18224	J23512	J23515	J23519	J23524	J28319	J28324
bearer span (m)						2 x 75x75x3.0 RHS plus 2 x B23519				2 x 125x75x4.0 RHS plus 2 x B28319	
2.5						4.8	5.0	5.2	5.5	6.0	6.3
3.0						4.6	4.8	5.0	5.2	6.0	6.2
3.5						4.3	4.5	4.6	4.8	5.8	6.1
4.0						3.9	4.0	4.1	4.1	5.6	5.9
4.5			not applicable			3.2	3.3	3.3	3.3	5.3	5.5
5.0						2.5	2.5	2.4	2.4	4.9	5.0
5.5						1.8	1.8	1.7	1.7	4.2	4.3
bearer span (m)						2 x 125x75x3.0 RHS plus 2 x B23519				2 x 185x65x4.0 RHS plus 2 x B28319	
2.5						4.8	5.0	5.3	5.5	6.1	6.3
3.0						4.7	4.9	5.1	5.3	6.0	6.3
3.5						4.4	4.6	4.8	5.0	5.9	6.2
4.0						4.1	4.2	4.3	4.5	5.7	6.0
4.5			not applicable			3.6	3.6	3.7	3.7	5.5	5.7
5.0						2.9	2.9	2.9	2.9	5.1	5.3
5.5						2.2	2.2	2.1	2.1	4.6	4.7
bearer span (m)						2 x 75x75x3.0 RHS plus 2 x B23524				2 x 125x75x4.0 RHS plus 2 x B23524	
2.5						4.8	5.0	5.2	5.5	6.0	6.3
3.0						4.6	4.8	5.0	5.2	6.0	6.3
3.5						4.3	4.5	4.7	4.9	5.8	6.1
4.0						3.9	4.1	4.2	4.3	5.7	5.9
4.5			not applicable			3.4	3.4	3.5	3.5	5.4	5.6
5.0						2.7	2.6	2.6	2.6	4.9	5.1
5.5						1.9	1.9	1.9	1.8	4.4	4.4
bearer span (m)						2 x 125x75x3.0 RHS plus 2 x B23524				2 x 185x65x4.0 RHS plus 2 x B23524	
2.5						4.9	5.1	5.4	5.6	6.1	6.4
3.0						4.8	5.0	5.3	5.5	6.0	6.3
3.5						4.7	4.9	5.1	5.3	5.9	6.2
4.0						4.5	4.7	4.8	5.0	5.7	6.0
4.5			not applicable			4.1	4.3	4.4	4.6	5.5	5.7
5.0						3.7	3.8	3.8	3.9	5.2	5.3
5.5						3.0	3.0	3.1	3.0	4.7	4.8

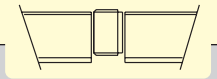
Table 8b

Non-Roof Load Area

STRAMIT® RESIDENTIAL FLOOR SYSTEM Any Floor Level

C-Joists and Bearers with alternative Extended Bearers **Maximum Joist Span (m)**

STRAMIT® Single RHS Extended Bearers



bearer span (m)	C-Joists										
	J18210	J18212	J18215	J18219	J18224	J23512	J23515	J23519	J23524	J28319	J28324
	150x50x5.0 RHS - Grade C350										
2.5	3.5	3.6	3.7	3.9	4.0	4.2	4.3	4.5	4.6	4.8	4.9
3.0	2.9	2.9	3.0	3.1	3.1	3.2	3.3	3.3	3.3	3.4	3.3
3.5	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	1.9	1.9	1.9
4.0	1.2	1.2	1.2	1.1	1.1	1.2	1.1	1.1	1.1	1.1	1.1
	200x50x4.0 RHS - Grade C350										
2.5	3.7	3.8	4.0	4.2	4.4	4.5	4.7	4.9	5.1	5.4	5.6
3.0	3.4	3.5	3.6	3.8	3.9	4.0	4.2	4.3	4.4	4.6	4.7
3.5	2.9	2.9	3.0	3.0	3.1	3.2	3.2	3.2	3.2	3.3	3.3
4.0	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.0	2.1	2.0
4.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2
	200x100x5.0 RHS - Grade C350										
2.5	3.8	4.0	4.1	4.4	4.6	4.7	4.9	5.2	5.4	5.7	6.0
3.0	3.6	3.8	3.9	4.1	4.3	4.5	4.6	4.8	5.0	5.3	5.5
3.5	3.3	3.5	3.6	3.7	3.8	4.0	4.1	4.2	4.3	4.5	4.6
4.0	2.9	2.9	3.0	3.1	3.1	3.2	3.3	3.3	3.3	3.4	3.4
4.5	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2
5.0	1.5	1.5	1.5	1.5	1.4	1.5	1.5	1.4	1.4	1.4	1.4
	250x150x5.0 RHS - Grade C350										
2.5	3.9	4.0	4.2	4.5	4.7	4.9	5.1	5.4	5.6	5.9	6.2
3.0	3.8	4.0	4.2	4.4	4.6	4.7	5.0	5.2	5.4	5.8	6.0
3.5	3.7	3.8	4.0	4.2	4.4	4.5	4.7	5.0	5.2	5.4	5.7
4.0	3.5	3.6	3.8	3.9	4.1	4.2	4.4	4.5	4.7	4.9	5.1
4.5	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.2	4.2
5.0	2.8	2.8	2.9	2.9	2.9	3.1	3.1	3.1	3.1	3.2	3.1
5.5	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2

STRAMIT® U-Beam Extended Bearers

bearer span (m)	C-Joists										
	J18210	J18212	J18215	J18219	J18224	J23512	J23515	J23519	J23524	J28319	J28324
	180UB16.1										
3.0	3.5	3.6	3.8	4.0	4.1	4.3	4.4	4.6	4.7	5.0	5.1
3.5	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.8	4.0	4.0
4.0	2.5	2.5	2.6	2.6	2.6	2.7	2.7	2.7	2.6	2.7	2.6
4.5	1.8	1.8	1.7	1.7	1.7	1.8	1.7	1.7	1.6	1.7	1.6
5.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.1	1.0
	200UB18.2										
3.0	3.7	3.8	4.0	4.2	4.4	4.5	4.7	4.9	5.1	5.4	5.6
3.5	3.4	3.5	3.7	3.8	3.9	4.1	4.2	4.4	4.5	4.7	4.8
4.0	3.0	3.1	3.2	3.2	3.3	3.4	3.5	3.5	3.5	3.6	3.6
4.5	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.5	2.4
5.0	1.7	1.7	1.7	1.7	1.6	1.7	1.7	1.6	1.6	1.6	1.6
5.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.1	1.0
	250UB25.7										
3.0	3.8	4.0	4.2	4.4	4.6	4.8	5.0	5.2	5.5	5.8	6.0
3.5	3.7	3.9	4.0	4.2	4.4	4.6	4.8	5.0	5.2	5.5	5.7
4.0	3.5	3.7	3.8	4.0	4.1	4.3	4.5	4.6	4.8	5.0	5.2
4.5	3.3	3.4	3.5	3.6	3.7	3.9	4.0	4.1	4.2	4.3	4.4
5.0	2.9	2.9	3.0	3.1	3.1	3.2	3.3	3.3	3.3	3.4	3.4
5.5	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.4	2.4	2.4	2.4
6.0	1.8	1.8	1.7	1.7	1.7	1.8	1.7	1.7	1.7	1.7	1.6
	310UB32.0										
3.0	3.9	4.0	4.2	4.5	4.7	4.9	5.1	5.3	5.6	5.9	6.2
3.5	3.8	4.0	4.2	4.4	4.6	4.8	5.0	5.2	5.4	5.8	6.0
4.0	3.7	3.9	4.0	4.2	4.4	4.6	4.8	5.0	5.2	5.5	5.7
4.5	3.6	3.7	3.9	4.0	4.2	4.4	4.5	4.7	4.9	5.1	5.3
5.0	3.4	3.5	3.6	3.8	3.9	4.0	4.2	4.3	4.4	4.6	4.7
5.5	3.1	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.7	3.8	3.8
6.0	2.7	2.7	2.8	2.8	2.8	2.9	2.9	2.9	2.9	3.0	2.9

Tables 8a and 8b

Notes: 1 only for joists at 450mm centres
2 suitable for 19mm and 22mm thick particleboard floors
3 suitable for large openings that require large spans
4 not suitable to support load bearing walls or large concentrated loads
* wall only for joists when supported at both ends by load bearing walls

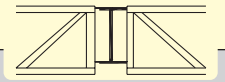
Table 9

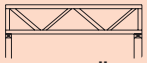
Non-Roof Load Area

STRAMIT® RESIDENTIAL FLOOR SYSTEM Any Floor Level

Open Web Joists supported on walls OR Extended Bearers **Maximum Joist Span (m)**

STRAMIT® U-Beam Extended Bearers





Open Web Joist

wall	2506	2508	2510	2512	2515	3006	3008	3010	3012	3015	3506	3508	3510	3512	3515
	3.3	**4.7**	**4.9**	**5.0**	**5.3**	**3.6**	**5.1**	**5.3**	**5.5**	**5.8**	**3.9**	**5.6**	**5.8**	**6.0**	**6.3**
	200UB18.2					**250UB25.7**					**310UB32.0**				
bearer span (m)															
3.0	3.3	4.3	4.4	4.5	4.7	3.6	4.9	5.1	5.3	5.5	3.9	5.4	5.6	5.8	6.1
3.5	3.3	3.9	4.0	4.1	4.2	3.6	4.7	4.9	5.0	5.2	3.9	5.3	5.5	5.7	5.9
4.0	3.2	3.3	3.4	3.4	3.5	3.6	4.4	4.6	4.7	4.8	3.9	5.1	5.3	5.4	5.7
4.5	2.5	2.5	2.5	2.5	2.5	3.6	4.0	4.1	4.1	4.2	3.9	4.8	5.0	5.1	5.3
5.0	1.7	1.7	1.7	1.7	1.7	3.2	3.3	3.3	3.4	3.4	3.9	4.4	4.5	4.6	4.7
5.5	1.1	1.1	1.1	1.1	1.1	2.5	2.5	2.5	2.5	2.5	3.7	3.8	3.8	3.9	3.9
6.0	0.7	0.7	0.7	0.7	0.7	1.8	1.8	1.8	1.8	1.7	3.0	3.0	3.1	3.1	3.1

Open Web Joist

wall	3506	3508	3510	3512	3515	4006	4008	4010	4012	4015	4506	4508	4510	4512	4515
	3.9	**5.6**	**5.8**	**6.0**	**6.3**	**4.2**	**5.9**	**6.2**	**6.4**	**6.7**	**4.5**	**6.3**	**6.6**	**6.8**	**7.1**
	310UB40.4					**360UB44.7**					**360UB50.7**				
bearer span (m)															
3.0	3.9	5.4	5.7	5.9	6.1	4.2	5.9	6.1	6.3	6.6	4.5	6.2	6.5	6.7	7.0
3.5	3.9	5.4	5.6	5.7	6.0	4.2	5.8	6.0	6.2	6.5	4.5	6.2	6.4	6.6	6.9
4.0	3.9	5.2	5.4	5.6	5.8	4.2	5.7	5.9	6.1	6.3	4.5	6.0	6.3	6.5	6.8
4.5	3.9	5.0	5.2	5.3	5.5	4.2	5.5	5.7	5.9	6.1	4.5	5.9	6.1	6.3	6.6
5.0	3.9	4.7	4.8	5.0	5.1	4.2	5.3	5.4	5.6	5.8	4.5	5.6	5.8	6.0	6.3
5.5	3.9	4.3	4.4	4.5	4.6	4.2	4.9	5.0	5.2	5.3	4.5	5.3	5.5	5.6	5.8
6.0	3.6	3.7	3.7	3.8	3.8	4.2	4.4	4.5	4.6	4.7	4.5	4.9	5.0	5.1	5.2
6.5	3.0	3.0	3.0	3.0	3.0	3.8	3.8	3.9	3.9	3.9	4.2	4.3	4.3	4.4	4.4
7.0	2.3	2.3	2.2	2.2	2.2	3.1	3.1	3.1	3.1	3.1	3.5	3.5	3.6	3.6	3.6
7.5	1.7	1.7	1.6	1.6	1.6	2.4	2.4	2.4	2.4	2.3	2.8	2.8	2.8	2.8	2.7
8.0	1.2	1.2	1.2	1.2	1.2	1.8	1.8	1.8	1.7	1.7	2.1	2.1	2.1	2.1	2.0
8.5	0.9	0.9	0.8	0.8	0.8	1.3	1.3	1.3	1.3	1.3	1.6	1.6	1.5	1.5	1.5

Notes: 1 only for joists at 450mm centres
2 suitable for 19mm and 22mm thick particleboard floors
3 suitable for large openings that require large spans
4 not suitable to support load bearing walls or large concentrated loads
* wall only for joists when supported at both ends by continuous load bearing walls

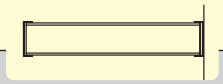
Table 10

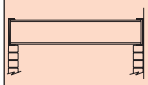
Balcony Non-Roof Load Area

STRAMIT® RESIDENTIAL FLOOR SYSTEM Balconies and Verandahs

C-Joists and Bearers alone, supported on walls OR with Extended Bearers **Maximum Joist Span (m)**

STRAMIT® C-Bearers

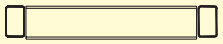




C-Joists

	J18210	J18212	J18215	J18219	J18224	J23512	J23515	J23519	J23524	J28319	J28324
wall	3.9	4.0	4.2	4.4	4.7	4.8	5.1	5.3	5.6	5.9	6.2
bearer span (m)	B18219					B23519				B28319	
2.0	3.2	3.3	3.5	3.7	3.8	4.2	4.4	4.7	4.9	5.3	5.6
2.2	3.0	3.1	3.3	3.4	3.5	4.1	4.3	4.5	4.7	5.2	5.4
2.4	2.8	2.9	3.0	3.0	3.1	3.9	4.1	4.3	4.4	5.0	5.2
2.6	2.5	2.5	2.6	2.6	2.6	3.7	3.8	3.9	4.1	4.7	4.9
2.8	2.1	2.1	2.1	2.1	2.1	3.4	3.5	3.6	3.6	4.4	4.6
3.0	1.7	1.7	1.7	1.7	1.7	3.0	3.0	3.1	3.1	4.0	4.1
3.2	1.3	1.3	1.3	1.3	1.3	2.6	2.6	2.6	2.6	3.6	3.6
3.4	1.1	1.1	1.0	1.0	1.0	2.1	2.1	2.1	2.1	3.0	3.0
3.6	0.8	0.8	0.8	0.8	0.8	1.7	1.7	1.7	1.7	2.5	2.5
3.8	0.7	0.7	0.7	0.7	0.6	1.4	1.4	1.4	1.3	2.1	2.0
4.0	0.5	0.5	0.5	0.5	0.5	1.1	1.1	1.1	1.1	1.7	1.7
bearer span (m)	B18224					B23524				B28324	
2.0	3.3	3.4	3.6	3.8	3.9	4.3	4.5	4.7	5.0	5.4	5.6
2.2	3.2	3.3	3.4	3.6	3.7	4.2	4.4	4.6	4.8	5.3	5.5
2.4	3.0	3.1	3.2	3.3	3.4	4.1	4.2	4.4	4.6	5.1	5.3
2.6	2.7	2.8	2.8	2.9	3.0	3.9	4.0	4.2	4.3	4.9	5.1
2.8	2.4	2.4	2.5	2.5	2.5	3.6	3.7	3.9	4.0	4.7	4.8
3.0	2.0	2.0	2.0	2.0	2.0	3.3	3.4	3.5	3.5	4.4	4.5
3.2	1.6	1.6	1.6	1.6	1.6	2.9	3.0	3.0	3.0	4.0	4.0
3.4	1.3	1.3	1.3	1.3	1.3	2.5	2.5	2.5	2.5	3.5	3.5
3.6	1.1	1.0	1.0	1.0	1.0	2.1	2.1	2.1	2.1	3.0	3.0
3.8	0.8	0.8	0.8	0.8	0.8	1.7	1.7	1.7	1.7	2.5	2.5
4.0	0.7	0.7	0.7	0.7	0.6	1.4	1.4	1.4	1.4	2.1	2.1

RHS Extended Bearers



C-Joists

	J18210	J18212	J18215	J18219	J18224	J23512	J23515	J23519	J23524	J28319	J28324
bearer span (m)	150x50x5.0 RHS - Grade C350										
2.5	3.0	3.1	3.2	3.3	3.5	3.6	3.7	3.8	3.9	4.0	4.1
3.0	2.3	2.3	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5
3.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
4.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
bearer span (m)	200x50x4.0 RHS - Grade C350										
2.5	3.3	3.4	3.6	3.7	3.9	4.0	4.2	4.4	4.5	4.8	4.9
3.0	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9
3.5	2.3	2.3	2.3	2.4	2.4	2.4	2.5	2.4	2.4	2.5	2.4
4.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.5	1.4
4.5	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
bearer span (m)	200x100x5.0 RHS - Grade C350										
2.5	3.4	3.6	3.7	3.9	4.1	4.2	4.4	4.7	4.9	5.1	5.4
3.0	3.2	3.3	3.5	3.6	3.8	3.9	4.1	4.2	4.4	4.6	4.8
3.5	2.9	3.0	3.1	3.2	3.3	3.4	3.4	3.5	3.6	3.7	3.8
4.0	2.3	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5
4.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
5.0	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
bearer span (m)	250x150x5.0 RHS - Grade C350										
2.5	3.5	3.7	3.9	4.1	4.3	4.4	4.6	4.9	5.1	5.4	5.7
3.0	3.4	3.6	3.7	3.9	4.1	4.3	4.5	4.7	4.9	5.2	5.4
3.5	3.3	3.4	3.6	3.7	3.9	4.0	4.2	4.4	4.6	4.8	5.0
4.0	3.1	3.2	3.3	3.4	3.5	3.6	3.8	3.9	4.0	4.2	4.3
4.5	2.7	2.8	2.8	2.9	3.0	3.1	3.1	3.2	3.2	3.3	3.3
5.0	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
5.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5

Notes: 1 only for joists at 450mm centres
2 suitable for 15mm thick fibre-cement floors
3 not suitable to support load bearing walls, large concentrated loads or roof loads
4 suitable for large openings that require large spans
* wall only for joists when supported at both ends by load bearing walls

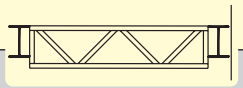
Table 11

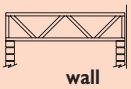
Balcony Non-Roof Load Area

STRAMIT® RESIDENTIAL FLOOR SYSTEM Balconies and Verandahs

Open Web Joists supported on walls OR with Extended Bearers — **Maximum Joist Span (m)**

STRAMIT® U-Beam Extended Bearers





		Open Web Joist														
	wall	2506	2508	2510	2512	2515	3006	3008	3010	3012	3015	3506	3508	3510	3512	3515
		2.4	3.6	4.3	4.9	5.1	2.7	3.9	4.8	5.4	5.6	2.9	4.3	5.2	5.8	6.1
		200UB18.2					250UB25.7					310UB32.0				
bearer span (m)	3.0	2.4	3.6	4.2	4.3	4.4	2.7	3.9	4.8	5.1	5.3	2.9	4.3	5.2	5.6	5.9
	3.5	2.4	3.5	3.6	3.7	3.7	2.7	3.9	4.6	4.7	4.9	2.9	4.3	5.2	5.4	5.6
	4.0	2.4	2.7	2.7	2.8	2.8	2.7	3.9	4.2	4.2	4.4	2.9	4.3	5.0	5.1	5.3
	4.5	1.8	1.8	1.8	1.8	1.8	2.7	3.4	3.5	3.5	3.5	2.9	4.3	4.5	4.6	4.8
	5.0	1.2	1.2	1.2	1.2	1.2	2.6	2.6	2.6	2.6	2.6	2.9	3.8	3.9	3.9	4.0
	5.5	0.8	0.8	0.8	0.8	0.8	1.8	1.8	1.8	1.8	1.8	2.9	3.0	3.1	3.1	3.1
	6.0						1.3	1.3	1.2	1.2	1.2	2.3	2.3	2.3	2.2	2.2

		Open Web Joist														
	wall	3506	3508	3510	3512	3515	4006	4008	4010	4012	4015	4506	4508	4510	4512	4515
		2.9	4.3	5.2	5.8	6.1	3.1	4.6	5.6	6.3	6.5	3.3	4.9	6.0	6.6	6.9
		310UB30.4					360UB44.7					360UB50.7				
bearer span (m)	3.0	2.9	4.3	5.2	5.7	5.9	3.1	4.6	5.6	6.1	6.4	3.3	4.9	6.0	6.5	6.8
	3.5	2.9	4.3	5.2	5.5	5.8	3.1	4.6	5.6	6.0	6.3	3.3	4.9	6.0	6.4	6.7
	4.0	2.9	4.3	5.2	5.3	5.5	3.1	4.6	5.6	5.8	6.0	3.3	4.9	6.0	6.2	6.5
	4.5	2.9	4.3	4.8	5.0	5.1	3.1	4.6	5.4	5.5	5.7	3.3	4.9	5.8	6.0	6.2
	5.0	2.9	4.2	4.4	4.5	4.6	3.1	4.6	5.0	5.1	5.3	3.3	4.9	5.4	5.6	5.8
	5.5	2.9	3.7	3.7	3.8	3.8	3.1	4.4	4.5	4.6	4.7	3.3	4.8	4.9	5.0	5.2
	6.0	2.9	2.9	2.9	2.9	2.9	3.1	3.7	3.8	3.8	3.9	3.3	4.2	4.3	4.3	4.4

Notes:
1 only for joists at 450mm centres
2 suitable for 15mm thick fibre-cement floors
3 not suitable to support load bearing walls, large concentrated loads or roof loads
4 suitable for large openings that require large spans
* wall only for joists when supported at both ends by load bearing walls

Structural Support Systems - FCB3 Brackets

Table 12

STRAMIT® FCB3 Brackets
Bearer Loading (kN/m)

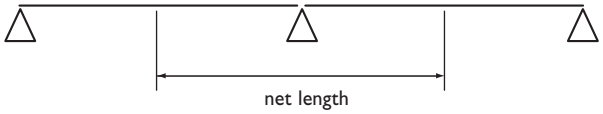
	SINGLE STOREY OR UPPER LEVEL OF TWO STOREY							LOWER LEVEL OF DOUBLE STOREY						
NON-ROOF LOAD AREA	FLW floor load width: (m)							FLW floor load width: (m)						
	0.5	1.0	1.5	2.0	2.5	3.0	3.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
	2.5	4.1	5.7	7.4	9.0	10.6	12.2	11.5	13.1	14.7	16.3	18.0	19.6	21.2
RLW roof load width (m)	Loaded Area (FLW x RLW) for Metal Roof													
2.0	3.5	5.1	6.8	8.4	10.0	11.6	13.3	12.5	14.1	15.7	17.4	19.0	20.6	22.2
4.0	4.6	6.2	7.8	9.4	11.0	12.7	14.3	13.5	15.1	16.8	18.4	20.0	21.6	23.3
6.0	5.6	7.2	8.8	10.4	12.1	13.7	15.3	14.6	16.2	17.8	19.4	21.0	22.7	24.3
8.0	6.6	8.2	9.9	11.5	13.1	14.7	16.3	15.6	17.2	18.8	20.5	22.1	23.7	25.3
	Loaded Area (FLW x RLW) for Tiled Roof													
2.0	4.7	6.4	8.0	9.6	11.2	12.9	14.5	13.7	15.3	17.0	18.6	20.2	21.8	23.5
4.0	7.0	8.6	10.2	11.9	13.5	15.1	16.7	16.0	17.6	19.2	20.8	22.5	24.1	25.7
6.0	9.3	10.9	12.5	14.1	15.7	17.4	19.0	18.2	19.9	21.5	23.1	24.7	26.3	28.0
8.0	11.5	13.1	14.8	16.4	18.0	19.6	21.3	20.5	22.1	23.7	25.4	27.0	28.6	30.2

See pages 22 and 23 for explanation of RLW and FLW

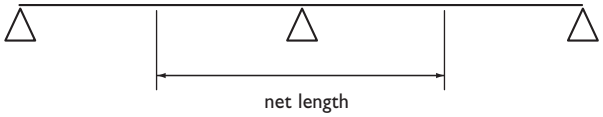
Table 13

STRAMIT® FCB3 Brackets Bearers Maximum Concentrated Load capacity (kN)					
Bearer	without FCB3	number of screws with FCB3 4	6	8	10
B18219	4.57	25.0	34.4	34.4	34.4
B18224	8.19	28.6	38.8	49.0	59.2
B23519	4.19	24.6	26.3	26.3	26.3
B23524	7.68	28.1	38.3	48.5	53.4
B28319	3.85	21.7	21.7	21.7	21.7
B28324	7.22	27.6	37.8	44.0	44.0

single spans



continuous spans



Example 1

data:

single storey (footings: piers), with metal roof.
single span bearer(B23519), 1.8mspan
RLW = 5m + 0.5mOH = 5.5m
FLW = 1.5m (joist span perpendicular to wall:3m)

bearer net length:

1.8m

from Table 12:

8.55kN/m

total concentrated load:

8.55kN/m x 1.8m = 15.4kN

from Table 13,

we need a **FCB3 bracket** with **4 screws**
= 24.6kN > 15.4 ✓OK

Example 2

data:

double storey(footings: piers), with roof tiles.
continuous double span bearer(B28324), 1.8m span.
RLW = 6.5m +0.5mOH = 7.0m
FLW = 1.5m lower level + 3m upper level = 4.5m

bearer net length:

1.8m

from Table 12:

24.25kN/m

total concentrated load:

24.25kN/m x 1.8m = 43.7kN

from Table 13,

we need a **FCB3 bracket** with **8 screws** =44.0kN
44.0kN > 43.7kN ✓ OK

Table 14 - Stramit® C-Bearer, Lateral End Racking Capacity (kN/m)

Stramit® C-Joist and Bearer System	Racking Resistance Capacity (kN/m)
Stramit® Bearer	
B182 -19	21
B235 -19	21
B283 -19	21
B182 -24	44
B235 -24	44
B283 -24	44

Table 15 - Stramit® Open Web Joist, Lateral End Restraint Size

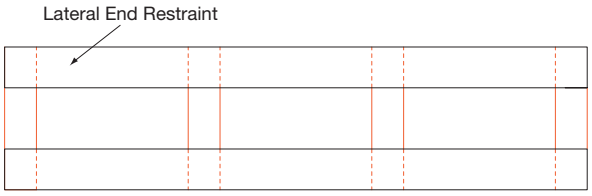
Stramit® Open Web Joist	Lateral End Restraint
250	50 x 75 x 1.0
300	50 x 75 x 1.0
350	50 x 100 x 1.0
400	50 x 100 x 1.0
450	50 x 100 x 1.0

Where **Stramit® C-Joists are used with **Stramit®** C-Bearers they need no additional lateral restraint.*

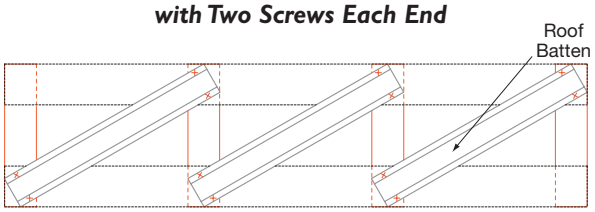
Below are three levels of racking capacity for the ***Stramit®*** Open Web Joist System.

Table 16 - Stramit® Open Web Joist, Lateral End Restraint Racking Capacity (kN/m)

Stramit® Open Web Joist Depth (mm)	Lateral End Restraints only	Diagonal Batten Bracing use 2 screws	Diagonal Batten Bracing use 4 screws
250	0.84	4.3	8.5
300	0.69	4.1	8.1
350	0.88	3.9	7.7
400	0.78	3.6	7.2
450	0.68	3.5	6.9



Diagonal Roof Batten Bracing with Two Screws Each End



Diagonal Roof Batten Bracing with Four Screws Each End

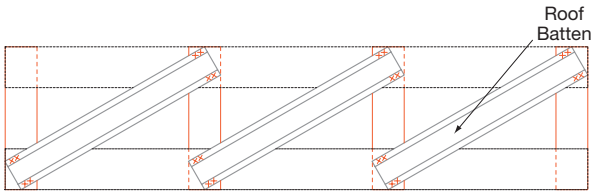
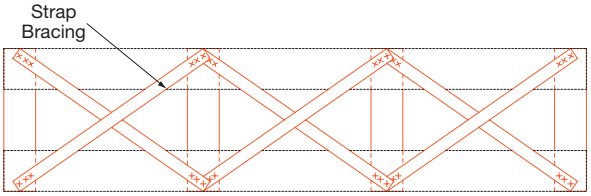


Table 17 - Stramit® Open Web Joist, Roof Batten Brace Lengths (mm)

Stramit® Open Web Joist Size	Roof Batten Length for Bracing
250	529
300	534
350	564
400	584
450	614

Alternative Bracing Method

Diagonal Strap Bracing 30mm x 0.8mm Requires Three Screws Each End



Tie Downs for Cyclonic Conditions

All designs in cyclonic areas must be verified by a qualified engineer or building designer.

Stramit® C-Joist and Bearer System Cyclonic Tie Down

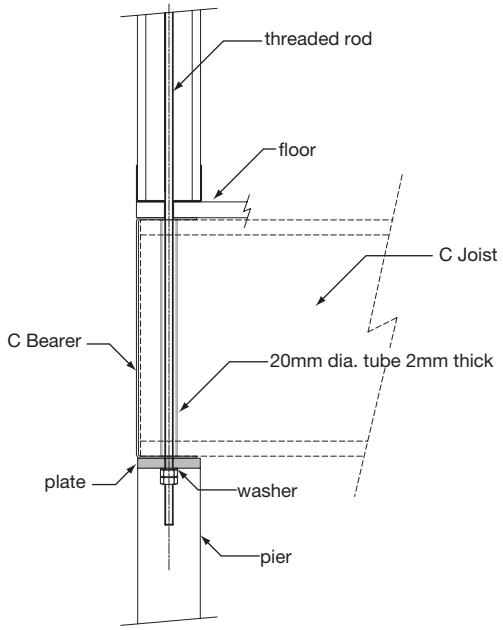


Table 18 - Stramit® C-Joist & Bearer, Cyclonic Tie Down

Bolt*	Plate	Tube
M16	50 x 80 x 10	20mm dia. x 2mm thick
M20	50 x 80 x 12	25mm dia. x 2mm thick

Additional Information

As well as our standard range of Technical Manuals, Installation Leaflets, Case Studies and other promotional literature Stramit has a series of Guides to aid design. These include:

- Concealed Fixed Decking
- Roof Slope Guide
- Foot Traffic Guide
- Roof System Selection Guide
- Bullnosing, Curving and Crimping
- Acoustic Panels
- Cyclonic Areas
- Spring Curving Guide

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Stramit®

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