



**STRAMIT®
PURLINS,
GIRTS &
BRIDGING**

product technical manual



STRAMIT[®] PURLINS, GIRTS & BRIDGING

*Comprehensive guide to selecting
and specifying **Stramit[®] Purlins,
Girts and Bridging.***



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 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.

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Introduction

This revised **Stramit® Purlins, Girts and Bridging product technical manual** incorporates limit state design capacities based on the latest software specifically developed for purlins and girts at Sydney University. This software is based on the limit state AS/NZS4600:1996 'Cold-formed steel'. Use of Sydney University's vacuum test rig and the latest computer software has enabled Stramit Metal Building Products to remain at the forefront of cold-formed purlin technology.

Since the last manual was produced, significant differences in both purlin specifications and the data provided have occurred including:

- Upgraded standard zinc coatings
- Improved design capacity computations
- Comprehensive bridging design capacity data

A complimentary manual **Stramit® Purlins, Girts & Bridging – Detailing & Installation Guide**, is also available.

Testing

Stramit Research and Development has carried out numerous in-house tests at its Rydalmere complex on both purlins and/or girt bridging. In addition a comprehensive purlin test programme at Sydney University has been used in the substantiation of these design capacity tables.

Technical Support

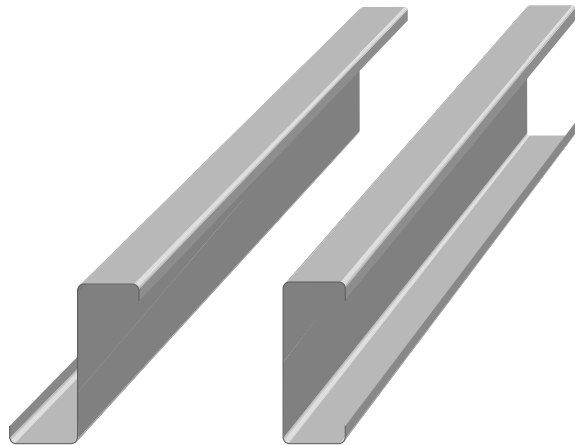
Stramit have a Technical Services Manager in each region to assist with all technical issues. This enables Stramit to provide advice which reflects local conditions and practices.

How To Use

The procedure for using the **Stramit® Purlin, Girts and Bridging product technical manual** is largely self-explanatory. Please ensure that you are familiar with the assumptions and conditions by reading the manual fully. Once these are understood the basic sequence is:

1. Establish the required inward and outward loads using ASI 170.2
2. Turn to the design capacity tables for the preferred span configuration
3. Select a suitable purlin from the outward design capacity page (always the left-hand opening)
4. Check for inward capacity and deflection on the adjacent page

Selection & Specification



Features

- High Tensile Steel – for high strength and low weight.
- Z350 Zinc Coating – for economic protection.
- Quality Product – with Stramit's proven record for manufacturing and supply.
- Integrated Bridging – boltless design specifically for Stramit sections.
- Full Range of Accessories – from brackets to bolts to ensure easy use and installation.
- Full Size Range – for ease of design in both C and Z sections.
- Recognized Design Input – design dependability from the Sydney University computer programme.
- Limit State Design in accordance with AS4600 – suitable for all government projects.
- Downturn Lip available including Lappable Zs – for projects requiring this feature.
- Special Size Capability – non standard range of special shapes and channels available to suit individual requirements.

Applications

Stramit® Purlins and Girts are primarily used to support roof or wall sheeting in industrial, rural and commercial buildings. While commonly attached to fabricated steel frames, the C and Z sections are, on occasion, also used in small and medium sized buildings for the structural frame. Continuously lapped Z purlins generally provide the greatest economy for medium and large buildings. C purlins are often favoured for their stability in single spans, and are also adaptable to doubly symmetric 'I' and 'box' configurations.

Stramit® Purlins, Girts & Bridging are only intended for use in commercial/industrial/residential roof and wall cladding support or structural framing applications. Do not use for any other purpose.

Materials

Stramit® Purlins and Girts are manufactured from hi-tensile steel, with a minimum Z350 galvanised coating (350g/m²) conforming to AS1397. Other coatings, grades and materials may be available, subject to inquiry.

The mass and steel grade for each standard **Stramit® Purlin and Girt** section are shown below:

Section C or Z	Thickness mm	Strength MPa	Mass kg/m
100-10	1.0	G550	1.77
100-12	1.2	G500	2.11
100-15	1.5	G450	2.61
100-19	1.9	G450	3.29
150-10	1.0	G550	2.43
150-12	1.2	G500	2.90
150-15	1.5	G450	3.59
150-19	1.9	G450	4.51
150-24	2.4	G450	5.67
200-15	1.5	G450	4.50
200-19	1.9	G450	5.74
200-24	2.4	G450	7.21
250-19	1.9	G450	6.50
250-24	2.4	G450	8.17
300-24	2.4	G450	10.18
300-30	3.0	G450	12.69
350-30	3.0	G450	15.19

Adverse Conditions

Stramit® Purlins and Girts will give excellent durability in most applications. In exposed conditions, unwashed areas subject to salt-laden air or other corrosive matter may need additional protection. **Stramit® Purlins and Girts** are not recommended for use within 450mm of moist soil.

Compatibility

Contact between galvanised steel and copper (e.g. pipework) must be avoided as premature corrosion will occur.

Specification

Maintaining the correct specification of purlins, girts and bridging is very important. Some manufacturers produce so-called 'equivalent' products that are smaller in size, (and hence capacity) have a lesser coating and even a lower strength grade of steel. Even a small change in specification can lead to substantial reduction in performance.

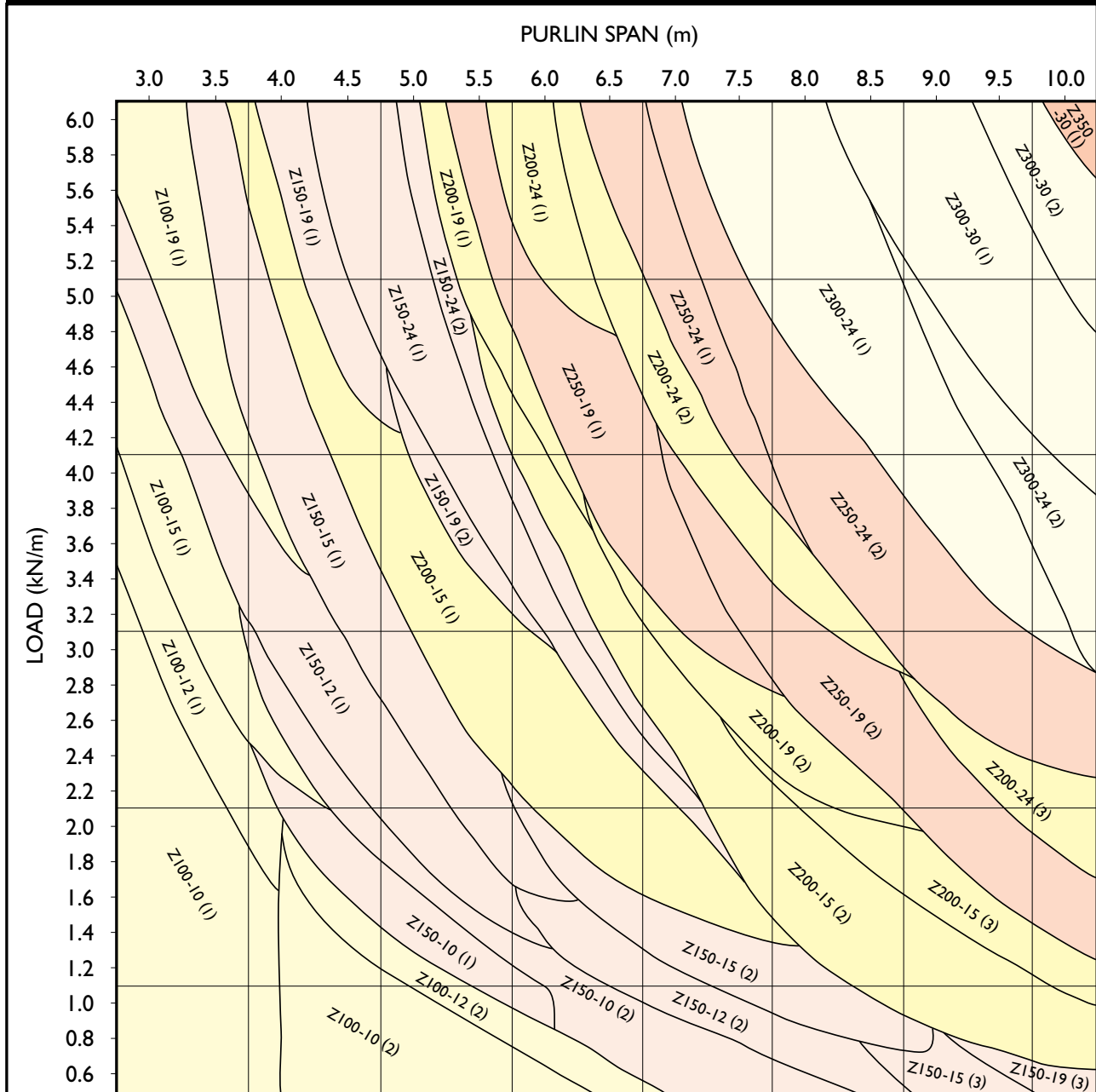
This specification can be found on the Stramit web site and can be easily downloaded on to your documentation.

"All purlins and girts shall be Stramit sections or approved equivalent, supported by submission of section properties, purlin capacity calculations, bridging capacity calculations and a performance warranty, produced and detailed for this project. All sections shall be produced from galvanised steel to AS1397 with a coating mass of at least 350g/m² and designed in accordance with AS4600. All sections should be installed in accordance with the manufacturer's instructions with particular regard to bolt locations and lap sizes".

"Where required for structural or installation purposes, **Stramit® Bridging** shall be installed using pre-made components to manufacturer's instructions. All other accessories shall be supplied by Stramit".

"All structural work shall be completed in a workmanlike manner prior to installation of the cladding material".

STRAMIT® PURLINS & GIRTS QUICK SELECTION CHART – CONTINUOUS PURLINS/OUTWARDS DESIGN CAPACITY



Note - Figures in brackets are the required number of rows of bridging.

Quick Selection

The chart above gives the lowest mass (generally lowest cost) purlin/girt solution for equal continuous lapped Zs – the most popular span configuration. Where applicable an additional row of bridging has been added to allow a lighter section to be used. This chart assumes that outward loads will determine design. For other cases, and for confirmation of selection made, use the full design capacity tables within this manual.

Example:

If the purlin load is 2.5kN/m and equal spans of 6.0m are sought, the chart suggests that Z200-15 purlins with 1 row of bridging are the most economical.

Tolerances

All sections will be produced within the following tolerances:

Section length	+ 0mm / -10mm
Section web (dim. D)	± 1mm
Section flange (dim. B, E, F)	± 1mm
Internal flange angle	± 1°
Internal lip angles	+ 5° / -2°
Hole centres	± 1mm

Tighter tolerances for special projects may be possible and are subject to negotiation

Standard Sizes

Stramit offers a full size range from 100mm to 350mm in web size increments of 50mm. This ensures economical design by using adequate section size in the desired thickness. All sizes are available pre-punched and come complete with a full range of accessories including bridging and brackets.

Special Sizes

For special or large projects, Stramit is able to produce purlins outside the standard size range.

- Any web size between 100mm and 400mm
- Any flange size between 30mm and 130mm
- Any lip size between 9mm and 35mm, or 0 (unlipped)
- Thicknesses between 1.0mm and 3.2mm
- Material strength between 300MPa and 550MPa
- Maximum feed strip width of 640mm

Special purlin load limit state design capacities are calculated with the aid of computer systems and requests for information should be directed to your regional Stramit Technical Services Manager.

Expansion Joints

Roof sheeting is generally limited to the lengths shown in the table below to avoid problems associated with thermal expansion. Roof runs longer than these generally incorporate an expansion joint. This is achieved by reducing the plane of the purlins sufficiently for each sheet run to overlap the next.

STRAMIT® PURLINS & GIRTS – MAXIMUM FLAT SHEET LENGTH (m)		
	Through Fixed	Concealed Fixed
Light	25	35
Dark	17	25

Downturn Lips

All **Stramit® Purlins**, both Z and C profiles, can be supplied with downturn lips for special projects. Purlins of this shape cannot normally be lapped and are usually used in single or short double span construction. However, Stramit can supply “lappable” Zs, subject to inquiry, providing a unique section that offers strength and economy as well as the downturned lip. Please contact your local Stramit office for details on minimum order quantity and delivery lead times.

Remember to allow additional cleat length to allow for clearance between the downturn lips and the support beam.

Economical Span Configurations

Where sufficient building bays are present the most economical span configurations are continuous lapped Zs. In these cases the limiting capacity for both strength and deflection is in the end bays. There are three methods that can be employed to enhance end bay performance and thus overall economy.

Extra end span bridging – where one additional row of bridging is used in only the end bays of equal continuous spans. In most cases this will increase outwards strength, allowing lighter sections to be used throughout the purlin run. There is however no change in section deflection.

Example : 6 bays @ 6000

Required capacities – OUTWARDS 3.0 kN/m
– INWARDS 2.5 kN/m

Use Table 5a to check outwards capacity

Try Z150-19 ; capacity using 1 row bridging = 2.61 kN/m INSUFFICIENT
; capacity using 2 rows bridging = 3.07 kN/m OK

Now check Table 5b for inwards capacity

Z150-19 ; capacity using 1 row bridging = 3.04 kN/m OK
; capacity using 2 rows bridging = 3.07 kN/m OK

We can use 1 row of bridging for the 4 internal bays and 2 rows of bridging for the 2 end bays. The capacity for this purlin run will be 3.07 kN/m outwards and 3.04 kN/m inwards.

Reduced end spans – where the end bays are reduced in length (Stramit provides data for a 20% reduction).

This improves the capacity of the ends and, while slightly longer internal spans are needed to maintain the same building length, lighter sections can again generally be used throughout. The more bays the shorter the internal span hence the greater the benefit. Equivalent reduced end/equal spans are shown in the table below. This method improves both strength and deflection performance.

Example : Check Z200-19 outwards capacity using 1 row of bridging

a) Building length 24m

Using 3 x 8000 continuous lapped spans (Table 4a), capacity = 1.94 kN/m

Using 9000 internal and 2 x 7500 ends (Table 6a), capacity = 2.93 kN/m

b) Building length 88m

Using 11 x 8000 continuous spans (Table 5a), capacity = 1.99 kN/m

Using 9 x 8250 internal and 2 x 6875 ends (Table 6a), capacity = 3.50 kN/m
(by interpolation)

STRAMIT® PURLINS & GIRTS – EQUIVALENT 'REDUCED END' INTERNAL SPAN (m) TO A GIVEN EQUAL SPAN											
equal span (m)	number of bays										
	3	4	5	6	7	8	9	10	11	12	
3.0	3.37	3.27	3.21	3.18	3.15	3.13	3.12	3.10	3.09	3.09	
4.0	4.50	4.36	4.29	4.24	4.20	4.17	4.15	4.14	4.12	4.11	
5.0	5.62	6.45	5.36	5.29	5.25	5.22	5.19	5.17	5.16	5.14	
6.0	6.75	6.54	6.43	6.35	6.30	6.26	6.23	6.21	6.19	6.17	
7.0	7.87	7.64	7.50	7.41	7.35	7.30	7.27	7.24	7.22	7.20	
8.0	9.00	8.73	8.57	8.47	8.40	8.35	8.31	8.28	8.25	8.23	
9.0	10.12	9.82	9.64	9.53	9.45	9.39	9.35	9.31	9.28	9.26	
10.0	11.25	10.91	10.71	10.59	10.50	10.43	10.38	10.34	10.31	10.29	
11.0	12.37	12.00	11.78	11.65	11.55	11.48	11.42	11.38	11.34	11.31	
12.0	13.50	13.09	12.86	12.71	12.60	12.52	12.46	12.41	12.37	12.34	
13.0	14.62	14.18	13.93	13.76	13.65	13.56	13.50	13.45	13.41	13.37	
14.0	15.75	15.27	15.00	14.82	14.70	14.61	14.54	14.48	14.44	14.40	
15.0	16.87	16.36	16.07	15.88	15.75	15.65	15.58	15.52	15.47	15.43	

Increased end thickness – when each end bay has Z purlins of increased thickness. Generally one increase in thickness (e.g. 1.9mm ends with 1.5mm internal bays) provides an efficient design. This method also improves both strength and deflection.

NOTE: Each of these methods usually leads to efficient purlin solutions and therefore there is often little or no benefit in using more than one. The effects should not be considered as cumulative.

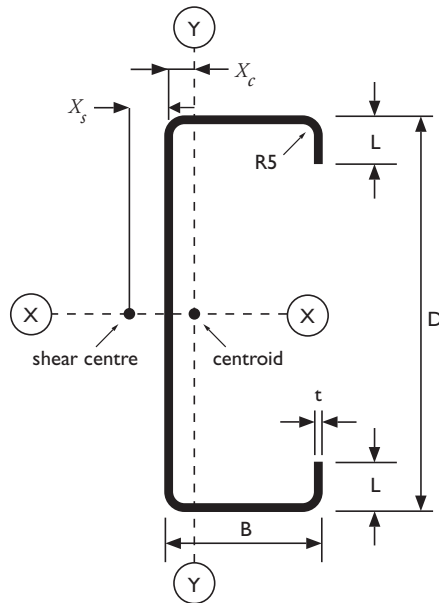
Design Data

Sizes

The table below lists the standard sizes and thicknesses readily available. For sections outside this range please contact your local Stramit office.

C Sections

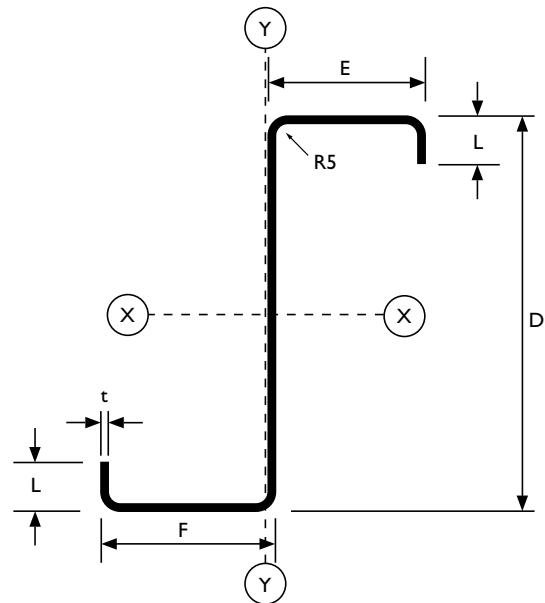
C Sections are mono-symmetric sections. Their freestanding, stable shape allows easy handling and storage and is adaptable to 'I' and 'box' configurations.



STRAMIT® PURLINS & GIRTS – C SECTION SIZE RANGE						
Section	Web D mm	Flange B mm	Lip L mm	Thickness t mm	X_c mm	X_s mm
C100-10	102	51	12.5	1.0	16.1	25.8
C100-12	102	51	13.0	1.2	16.2	26.0
C100-15	102	51	14.0	1.5	16.3	26.2
C100-19	102	51	15.0	1.9	16.4	26.5
C150-10	152	64	14.5	1.0	18.4	30.1
C150-12	152	64	15.0	1.2	18.5	30.3
C150-15	152	64	16.0	1.5	18.6	30.5
C150-19	152	64	17.0	1.9	18.7	30.8
C150-24	152	64	18.5	2.4	18.9	31.1
C200-15	203	76	16.0	1.5	20.1	33.6
C200-19	203	76	19.5	1.9	20.9	34.9
C200-24	203	76	21.0	2.4	21.1	35.2
C250-19	254	76	19.0	1.9	18.3	32.2
C250-24	254	76	20.5	2.4	18.4	32.5
C300-24	300	96	28.0	2.4	25.0	42.7
C300-30	300	96	31.5	3.0	25.8	44.0
C350-30	350	125	30.0	3.0	33.3	55.0

Z Sections

Z Sections are asymmetric sections. The uneven flange widths allow the sections to be lapped to permit structural continuity, a factor that contributes significantly to building economies. Savings achieved by lapping Z sections, resulting from the increase in strength and rigidity, more than compensate for the extra purlin material required in the lap itself.



STRAMIT® PURLINS & GIRTS – Z SECTION SIZE RANGE					
Section	Web D mm	Flange E mm	Flange F mm	Lip L mm	Thickness t mm
Z100-10	102	49	53	12.5	1.0
Z100-12	102	49	53	13.0	1.2
Z100-15	102	49	53	14.0	1.5
Z100-19	102	49	53	15.0	1.9
Z150-10	152	61	65	14.5	1.0
Z150-12	152	61	65	15.0	1.2
Z150-15	152	61	65	16.0	1.5
Z150-19	152	61	65	17.0	1.9
Z150-24	152	61	66	18.5	2.4
Z200-15	203	74	79	16.0	1.5
Z200-19	203	74	79	19.5	1.9
Z200-24	203	74	79	21.0	2.4
Z250-19	254	74	79	19.0	1.9
Z250-24	254	74	79	20.5	2.4
Z300-24	300	93	100	28.0	2.4
Z300-30	300	93	100	31.5	3.0
Z350-30	350	121	129	30.0	3.0

Section Properties

The following section properties are subject to slight variation due to commercial tolerances on dimensions (note, however, that total material used will not vary). Any designs carried out using these properties should be calculated using AS/NZS4600.

The letter notation used is consistent with Table 1.4 in AS/NZS4600:1996. The value of β_x for C sections is 0.

Whilst AS/NZS4600 requires many more section properties, those shown in the tables are the only ones obtainable without reference to the particular application.

STRAMIT® PURLINS & GIRTS – FULL C SECTION PROPERTIES

Section	Area A_g mm ²	A_n # mm ²	I_x 10 ⁶ mm ⁴	I_y 10 ⁶ mm ⁴	Z_x 10 ³ mm ³	Z_y 10 ³ mm ³	r_x mm	r_y mm	β_y mm	J mm ⁴	I_w 10 ⁹ mm ⁶
C100-10	215	143	0.36	0.08	7.14	2.20	41.1	18.7	123	72	0.16
C100-12	258	172	0.44	0.09	8.52	2.66	41.0	18.7	122	124	0.20
C100-15	323	215	0.54	0.11	10.6	3.35	40.8	18.7	122	242	0.25
C100-19	409	272	0.68	0.15	13.2	4.30	40.5	18.8	121	492	0.33
C150-10	295	223	1.08	0.16	14.2	3.53	60.5	23.2	170	98	0.73
C150-12	355	269	1.30	0.19	17.0	4.26	60.4	23.2	170	170	0.88
C150-15	443	335	1.61	0.24	21.2	5.36	60.2	23.2	169	332	1.12
C150-19	561	424	2.03	0.30	26.7	6.86	60.0	23.2	168	674	1.43
C150-24	710	537	2.54	0.39	33.5	8.78	59.7	23.3	167	1359	1.84
C200-15	555	447	3.54	0.40	34.8	7.26	79.7	26.8	221	416	3.19
C200-19	713	576	4.53	0.54	44.6	9.92	79.6	27.4	219	857	4.41
C200-24	903	730	5.69	0.68	56.0	12.7	79.3	27.4	218	1728	5.63
C250-19	808	671	7.64	0.57	60.2	10.0	97.1	26.5	272	972	7.17
C250-24	1022	849	9.62	0.72	75.7	12.8	96.9	26.5	270	1958	9.14
C300-24	1268	1095	17.0	1.51	113	21.7	116	34.6	317	2419	27.2
C300-30	1593	1377	21.3	1.97	142	28.6	116	35.1	313	4770	36.3
C350-30	1905	1689	35.8	3.83	205	42.4	137	44.7	376	5715	91.6

STRAMIT® PURLINS & GIRTS – FULL Z SECTION PROPERTIES

Section	Area A_g mm ²	A_n # mm ²	I_x 10 ⁶ mm ⁴	I_y 10 ⁶ mm ⁴	Z_x 10 ³ mm ³	Z_y 10 ³ mm ³	r_x mm	r_y mm	β_x mm	β_y mm	J mm ⁴	I_w 10 ⁹ mm ⁶
Z100-10	215	143	0.36	0.13	7.27	2.66	41.1	24.7	9.85	11.8	72	0.24
Z100-12	258	172	0.44	0.16	8.68	3.21	41.0	24.8	9.85	11.8	124	0.29
Z100-15	323	215	0.54	0.20	10.8	4.05	40.8	24.8	9.87	11.7	242	0.36
Z100-19	409	272	0.67	0.25	13.5	5.23	40.5	24.8	9.87	11.6	492	0.46
Z150-10	295	223	1.08	0.26	14.4	4.17	60.4	29.5	12.4	12.7	98	1.06
Z150-12	355	269	1.29	0.31	17.2	5.04	60.3	29.5	12.4	12.7	170	1.28
Z150-15	443	335	1.61	0.39	21.4	6.34	60.1	29.6	12.4	12.7	332	1.61
Z150-19	561	424	2.02	0.50	26.9	8.11	59.9	29.7	12.5	12.6	674	2.05
Z150-24	710	537	2.53	0.63	34.0	10.5	59.6	29.8	15.4	15.6	1359	2.62
Z200-15	555	447	3.54	0.63	35.3	8.45	79.7	33.6	17.5	17.0	416	4.64
Z200-19	713	576	4.53	0.86	45.2	11.5	79.6	34.6	17.4	16.6	857	6.34
Z200-24	903	730	5.68	1.08	56.9	14.8	79.3	34.6	17.4	16.5	1728	8.06
Z250-19	808	671	7.65	0.85	60.9	11.4	97.2	32.3	22.3	19.7	972	10.3
Z250-24	1022	849	9.62	1.07	76.8	14.7	96.9	32.3	22.4	19.6	1958	13.1
Z300-24	1268	1095	17.0	2.32	115	24.8	116	42.8	28.7	25.3	2419	38.5
Z300-30	1593	1377	21.4	3.05	144	32.8	116	43.7	28.7	24.9	4770	50.9
Z350-30	1905	1689	35.8	5.95	207	49.0	137	55.8	29.4	27.5	5715	130

Includes area reduction for 4 (2 web and 2 flange) adjacent standard 18mm x 22mm holes.

STRAMIT® PURLINS & GIRTS – EFFECTIVE C SECTION PROPERTIES

Section	$A_e [f_y]$ mm ²	$I_{e_x^+}$ x10 ⁶ mm ⁴	$Z_{e_x^+}$ x10 ³ mm ³	$I_{e_x^-}$ x10 ⁶ mm ⁴	$Z_{e_x^-}$ x10 ³ mm ³	$I_{e_y^+}$ x10 ⁶ mm ⁴	$Z_{e_y^+}$ x10 ³ mm ³	$I_{e_y^-}$ x10 ⁶ mm ⁴	$Z_{e_y^-}$ x10 ³ mm ³
C100-10	113	0.30	5.37	0.30	5.37	0.08	2.19	0.06	1.97
C100-12	154	0.38	6.80	0.38	6.80	0.09	2.64	0.07	2.45
C100-15	219	0.48	8.82	0.48	8.82	0.11	3.36	0.10	3.22
C100-19	333	0.65	12.4	0.65	12.4	0.14	4.29	0.14	4.21
C150-10	122	0.79	8.59	0.79	8.59	0.16	3.42	0.11	2.99
C150-12	167	1.04	11.9	1.04	11.9	0.19	4.24	0.14	3.72
C150-15	246	1.41	17.2	1.41	17.2	0.24	5.37	0.19	4.90
C150-19	343	1.80	22.0	1.80	22.0	0.30	6.85	0.26	6.46
C150-24	527	2.43	31.0	2.43	31.0	0.39	8.79	0.35	8.51
C200-15	253	2.83	24.3	2.93	24.3	0.40	7.27	0.29	6.40
C200-19	383	4.01	36.8	4.01	36.8	0.54	9.90	0.42	9.01
C200-24	541	5.13	47.5	5.13	47.5	0.68	12.7	0.57	11.9
C250-19	383	6.52	46.5	6.52	46.5	0.57	9.99	0.42	8.94
C250-24	542	8.71	64.9	8.71	64.9	0.72	12.8	0.58	11.8
C300-24	637	14.9	91.7	14.9	91.7	1.52	21.9	1.11	19.6
C300-30	897	19.6	124	19.6	124	1.96	28.5	1.54	26.3
C350-30	940	30.7	159	30.7	159	3.82	42.2	2.84	37.9

STRAMIT® PURLINS & GIRTS – EFFECTIVE Z SECTION PROPERTIES

Section	$A_e [f_y]$ mm ²	$I_{e_x^+}$ x10 ⁶ mm ⁴	$Z_{e_x^+}$ x10 ³ mm ³	$I_{e_x^-}$ x10 ⁶ mm ⁴	$Z_{e_x^-}$ x10 ³ mm ³	$I_{e_y^+}$ x10 ⁶ mm ⁴	$Z_{e_y^+}$ x10 ³ mm ³	$I_{e_y^-}$ x10 ⁶ mm ⁴	$Z_{e_y^-}$ x10 ³ mm ³
Z100-10	113	0.35	4.78	0.37	4.96	0.04	1.55	0.04	1.55
Z100-12	154	0.44	6.09	0.45	6.30	0.05	1.87	0.05	1.87
Z100-15	219	0.56	7.88	0.59	8.37	0.06	2.35	0.06	2.35
Z100-19	332	0.78	11.4	0.81	11.9	0.08	2.98	0.09	2.98
Z150-10	122	0.88	8.12	0.90	8.21	0.09	2.53	0.09	2.55
Z150-12	167	1.15	11.2	1.16	11.2	0.11	3.10	0.11	3.10
Z150-15	246	1.54	15.6	1.58	15.9	0.14	3.91	0.14	3.91
Z150-19	344	1.96	19.9	2.03	20.8	0.18	4.96	0.18	4.96
Z150-24	527	2.69	28.4	2.80	29.7	0.24	6.35	0.24	6.35
Z200-15	253	3.06	23.0	3.11	23.1	0.26	5.67	0.26	5.67
Z200-19	384	4.31	33.8	4.40	34.4	0.35	7.61	0.35	7.61
Z200-24	540	5.49	43.3	5.69	45.1	0.44	9.69	0.44	9.69
Z250-19	384	6.88	45.2	6.93	44.9	0.39	8.01	0.39	8.01
Z250-24	542	8.99	60.6	9.26	62.5	0.49	10.2	0.49	10.2
Z300-24	637	16.0	89.0	16.1	88.5	1.03	17.1	1.03	17.1
Z300-30	914	20.9	119	21.3	120	1.33	22.1	1.33	22.1
Z350-30	940	33.0	151	33.3	151	2.49	32.8	2.49	32.8

STRAMIT® PURLINS & GIRTS – C&Z SECTION MATERIAL PROPERTIES

Section	f_u	f_y	f_{ad}
C/Z100-10	550	550	302
C/Z100-12	520	500	382
C/Z100-15	480	450	521
C/Z100-19	480	450	719
C/Z150-10	550	550	202
C/Z150-12	520	500	255
C/Z150-15	480	450	345
C/Z150-19	480	450	473
C/Z150-24	480	450	658
C/Z200-15	480	450	233
C/Z200-19	480	450	355
C/Z200-24	480	450	490
C/Z250-19	480	450	304
C/Z250-24	480	450	422
C/Z300-24	480	450	354
C/Z300-30	480	450	492
C/Z350-30	480	450	314

Value of E is assumed to be $200 \times 10^9 \text{ N/m}^2$.

Suspended Loads

Loads to be suspended from roof purlins must be accounted for in design. No allowance is included in the capacity tables. Any such loadings must be connected to the purlin web by using hangers or other means. Never attach loads to the purlin lips. Attachments to the purlin flange must be within 25mm of the web. Connection design should follow the rules within AS/NZS4600, including a check on bearing of the purlin. Loads should not be suspended from wall girts.

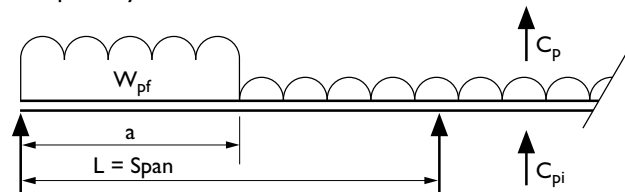
Local Pressure Zones

Buildings must withstand wind loadings equal to the free system dynamic wind pressure multiplied by the combined effect of external and internal coefficients in accordance with AS1170.2. The combinations of wind loadings, in particular where local pressure factors apply, are almost infinite and design capacity tables therefore cannot be presented in tabular format to account for these. It is therefore necessary to calculate an equivalent total system load, which can be applied directly to the design capacity tables for purlin selection.

In order to arrive at the equivalent total system load, multiply the nominal load by the LOCAL PRESSURE ZONE MULTIPLIER obtained from the table below. Intermediate values can be obtained by linear interpolation. Values of K_1 , C_p , C_{pi} and a , must be obtained by reference to AS1170.2 in order to calculate the modified factor (K_{pf}) and the pressure zone (g).

The LPZ multipliers can be applied equally to all purlin sizes, thicknesses and spans, with the results being conservative, generally by around 2% - 5%, but up to 30% for a few short span cases.

Note that, due to moment distribution between spans in a multiple span system, it is possible for an increased load over a portion of the bay to give a lower system capacity than if that increased load had been applied over the complete system.



Pressure Zone $g = a/L$ (for $K_1 = 1.5$)
or $0.5 a/L$ (for $K_1 = 2.0$)

Modified factor $K_{pf} = \frac{(C_{pi} - K_1 C_p)}{(C_{pi} - C_p)}$

STRAMIT® PURLINS & GIRTS – LOCAL PRESSURE ZONE MULTIPLIER

Pressure Zone g	Modified Factor K_{pf}									
	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
0.3	1.06	1.13	1.19	1.26	1.32	1.39	1.45	1.52	1.58	1.65
0.4	1.08	1.16	1.24	1.32	1.40	1.48	1.56	1.64	1.72	1.81
0.5	1.09	1.19	1.28	1.37	1.47	1.56	1.65	1.75	1.84	1.94
0.6	1.10	1.21	1.31	1.41	1.51	1.62	1.72	1.82	1.92	2.03
0.8	1.11	1.23	1.34	1.46	1.57	1.69	1.80	1.91	2.03	2.14
1.0	1.12	1.24	1.36	1.48	1.60	1.72	1.85	1.97	2.09	2.21
1.2	1.12	1.23	1.35	1.46	1.58	1.69	1.81	1.92	2.04	2.16
1.4	1.11	1.22	1.33	1.44	1.55	1.65	1.76	1.87	1.98	2.09
1.6	1.10	1.20	1.30	1.41	1.51	1.61	1.71	1.81	1.91	2.01
1.8	1.11	1.21	1.32	1.43	1.53	1.64	1.75	1.85	1.96	2.07
2.0	1.11	1.22	1.33	1.43	1.54	1.65	1.76	1.87	1.98	2.08

Purlin Spacing

Purlin spacing is influenced by both member and roof sheeting capacity. On large and medium sized buildings it is generally more economical to reduce the purlin or girt spacing at the building edge and ends to account for the higher wind pressures. Additional intermediate runs of purlins can be positioned in the highest loaded areas.

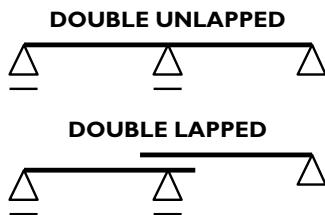
Also remember to close purlin spacing (or add additional purlins) around roof penetrations and in areas of increased loading (eg. air conditioning plant).

Span Configurations

Single Spans - a span that is simply supported by means of bolting the web of the purlin to a cleat or other rigid structure. Under these conditions bridging does not influence inward capacities, but outward capacities vary dependent on the number of rows of bridging.

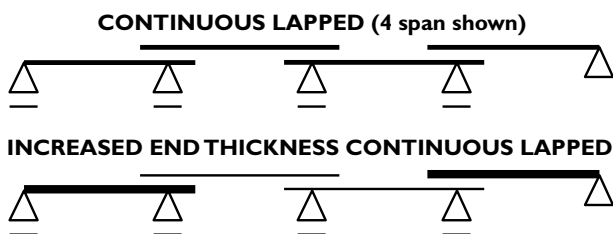


Double Spans - are simply supported at each end and in the centre. They may comprise only one purlin over the full length or two purlins lapped together over the central support to provide continuity. Both inward and outward capacities are influenced by bridging in double spans.

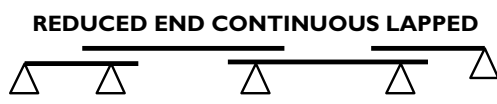


Continuous Spans - are simply supported at each end and at a series of equally spaced intermediate supports. All tables are for spans in which purlins are lapped over each support, where the lap length is 15% of the span.

Tables are given for 3 or 4 spans, for 5 or more spans and for series in which the end bay purlin has an increased thickness.



Reduced End Continuous Spans - are as for equal continuous spans but have the end spans reduced in length by 20%. This has a significant effect on outward capacities and becomes more economically beneficial as the number of spans increases.



Design Capacities

Design Capacity tables, in Limit-State Format, are as follows:

Table 1a

Single Spans - Outwards

Table 1b

Single Spans - Inwards

Table 2a

Double Unlapped Spans - Outwards

Table 2b

Double Unlapped Spans - Inwards

Table 3a

Double Lapped Spans - Outwards

Table 3b

Double Lapped Spans - Inwards

Table 4a

Continuous Lapped 3 or 4 Spans - Outwards

Table 4b

Continuous Lapped 3 or 4 Spans - Inwards

Table 5a

Continuous Lapped 5 or more Spans - Outwards

Table 5b

Continuous Lapped 5 or more Spans - Inwards

Table 6a

Reduced End Lapped Continuous Spans - Outwards

Table 6b

Reduced End Lapped Continuous Spans - Inwards

Table 7a

Increased End Thickness Lapped Continuous Spans - Outwards

Table 7b

Increased End Thickness Lapped Continuous Spans - Inwards

Table 1a

STRAMIT® SINGLE C or Z PURLINS
Outwards Design Capacity (kN/m)

Span	C100-10				C100-12				C100-15				C100-19				C150-10				C150-12						
	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2
2500	1.90	2.80			2.32	3.46			3.25	4.50			4.41	6.27			4.28	4.74			5.71	5.90					
3000	1.01	1.95			1.32	2.41			1.77	3.03	3.13		2.37	4.30	4.35		2.50	3.29			3.16	4.10					
3500	0.62	1.33	1.43		0.79	1.62	1.77		1.05	2.05	2.30		1.41	2.86	3.20		1.52	2.42			1.88	3.01					
4000		0.85	1.10		0.50	1.06	1.35		0.66	1.43	1.76		0.91	1.97	2.45		0.96	1.83	1.85		1.17	2.31					
4500		0.57	0.87			0.71	1.07			0.99	1.33	1.39	0.62	1.35	1.89	1.93	0.64	1.31	1.46		0.81	1.76	1.82				
5000			0.67	0.70		0.51	0.81	0.87		0.69	1.02	1.13		0.94	1.43	1.57		0.96	1.19		0.56	1.24	1.48				
5500				0.58			0.61	0.72		0.50	0.80	0.93		0.67	1.10	1.30		0.72	0.98			0.90	1.22				
6000								0.66			0.62	0.76		0.50	0.85	1.08		0.54	0.80	0.82		0.67	1.03				
6500												0.62				0.66	0.88		0.64	0.70		0.51	0.86	0.87			
7000												0.52				0.51	0.72		0.51	0.60			0.68	0.75			
7500																	0.59			0.53			0.54	0.66			
8000																0.50								0.58			
8500																								0.51			
9000																											
9500																											
10000																											
10500																											
11000																											
11500																											
12000																											
Span	C150-15				C150-19				C150-24				C200-15				C200-19				C200-24						
	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2
2500	7.32	7.77			9.71	11.0			13.4	15.4			10.9	10.9			16.5	16.5			23.0	23.4					
3000	4.01	5.40			5.71	7.63			7.73	10.7			7.45	7.59			10.7	11.5			14.4	16.2					
3500	2.49	3.97			3.40	5.60			4.55	7.86			4.60	5.58			6.43	8.43			9.03	11.9					
4000	1.62	3.04			2.16	4.08	4.29		2.85	5.78	6.02		2.94	4.27			4.26	6.45			5.79	9.12					
4500	1.08	2.26	2.40		1.42	3.00	3.39		1.90	4.18	4.75		1.92	3.37			2.88	5.10			3.82	7.16	7.21				
5000	0.74	1.63	1.94		0.98	2.23	2.75		1.32	3.07	3.85		1.37	2.73			2.01	4.11	4.13		2.62	5.48	5.84				
5500	0.52	1.16	1.61		0.70	1.66	2.23	2.27	0.96	2.26	3.17	3.18	1.01	2.18	2.26		1.42	3.14	3.41		1.86	4.26	4.83				
6000		0.88	1.35		0.52	1.23	1.79	1.91	0.72	1.66	2.53	2.67	0.74	1.66	1.90		1.03	2.31	2.87		1.36	3.31	4.06				
6500		0.69	1.10	1.15		0.94	1.46	1.63	0.55	1.25	2.03	2.28	0.56	1.27	1.62		0.77	1.80	2.44		1.03	2.52	3.46				
7000		0.54	0.89	0.99		0.72	1.19	1.40		0.96	1.65	1.96		0.98	1.39		0.59	1.43	2.11		0.79	1.96	2.87	2.98			
7500			0.71	0.86		0.56	0.97	1.20		0.75	1.33	1.71		0.78	1.22		1.15	1.80	1.84		0.62	1.56	2.41	2.60			
8000			0.55	0.76			0.80	1.02		0.60	1.08	1.45		0.61	1.04	1.07		0.92	1.50	1.61		0.50	1.23	2.03	2.28		
8500				0.66			0.65	0.88			0.88	1.23		0.50	0.87	0.95		0.74	1.24	1.43		0.98	1.71	2.02			
9000				0.57			0.53	0.75			0.72	1.05			0.72	0.84		0.61	1.00	1.28		0.80	1.43	1.80			
9500								0.65			0.59	0.90			0.60	0.76		0.50	0.85	1.14		0.66	1.19	1.57			
10000								0.56				0.78			0.50	0.68			0.72	1.03		0.54	1.00	1.37			
10500												0.66				0.62			0.62	0.90			0.85	1.21			
11000												0.57				0.55			0.54	0.79			0.73	1.07			
11500																			0.69				0.62	0.95			
12000																			0.58				0.53	0.83			
12500																			0.51					0.73			
13000																								0.64			
13500																								0.56			
14000																											
14500																											
15000																											
Span	C250-19				C250-24				C300-24*				C300-30*				C350-30*				KEY						
	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3							
4000	5.58	8.20			7.50	11.7			14.9	16.4			20.8	23.2			28.3	28.3									
4500	3.74	6.48			4.92	9.23			10.1	13.0			14.3	18.3			22.3	22.3									
5000	2.59	5.25			3.35	7.33	7.48		7.30	10.5			9.76	14.8			16.7	18.1									
5500	1.82	4.20	4.34		2.36	5.67	6.18		5.31	8.68			6.91	12.3			12.2	14.9									
6000	1.32	3.07	3.65		1.72	4.33	5.19		3.86	7.29			5.03	10.3			9.16	12.6									
6500	0.98	2.38	3.11		1.29	3.29	4.43		2.87	6.21			3.75	8.47	8.78		6.95	10.7									
7000	0.75	1.88	2.68		0.99	2.55	3.82	3.82	2.18	5.08	5.36		2.86	6.99	7.57		5.52	9.23									
7500	0.58	1.50	2.33		0.77	2.01	3.22	3.32	1.69	4.08	4.67		2.22	5.76	6.59		4.39	8.04									
8000		1.19	2.01	2.05	0.61	1.58	2.70	2.92	1.33	3.25	4.10		1.76	4.68	5.80		3.51	7.06									
8500		0.96	1.65	1.82		1.26	2.25	2.59	1.06	2.70	3.63		1.41	3.77	5.13		2.84	6.15	6.26								
9000		0.78	1.33	1.62		1.02	1.87	2.31	0.86	2.27	3.24		1.15	3.06	4.56	4.58	2.30	5.23	5.58								
9500		0.64	1.12	1.45		0.84	1.55	2.07	0.71	1.90	2.91		0.95	2.51	3.98	4.11	1.88	4.39	5.01								
10000		0.53	0.95	1.31		0.69	1.30	1.84	0.59	1.59	2.55	2.62	0.79	2.08	3.49	3.71	1.56	3.71	4.52								
10500			0.81	1.19		0.58	1.10	1.62		1.32	2.22	2.38	0.66	1.74	3.07	3.36	1.30	3.15	4.10								
11000			0.70	1.06			0.94	1.42		1.11	1.91	2.17	0.56	1.46	2.69	3.07	1.10	2.62	3.74								
11500			0.60	0.91			0.79	1.25		0.94	1.64	1.98		1.24	2.33	2.81	0.93	2.29	3.42								
12000			0.51	0.77			0.68	1.09		0.80	1.41	1.82		1.06	2.02	2.58	0.80	2.00	3.14								
12500				0.68			0.58	0.95		0.69	1.25	1.68		0.91	1.75	2.35	0.69	1.76	2.84	2.89							
13000				0.60			0.50	0.83		0.59	1.11	1.55		0.79	1.51	2.12	0.60	1.56	2.55	2.68							
13500				0.53				0.73		0.51	0.99	1.42		0.68	1.32	1.93		1.37	2.27	2.48							
14000								0.64			0.87	1.28		0.60	1.15	1.76		1.20	2.02	2.31							
14500								0.57			0.77	1.15		0.53	1.01	1.60		1.06	1.80	2.15							
15000								0.51			0.68	1.03			0.90	1.45		0.95	1.60	2.01							

KEY

- Additional bridging does not increase capacity
- Outside of Stramit's recommended bridging requirements

Numbers in **bold italics** require grade 8.8 bolts

* 300 series purlins require M16 bolts

0, 1, 2, 3 are required rows of bridging

Table 1b

STRAMIT® SINGLE C or Z PURLINS
Inwards Design Capacity (kN/m)

Span	C100-10				C100-12				C100-15				C100-19				C150-10				C150-12									
	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150		
2500	2.80	2.80	2.15		3.46	3.46	2.66		4.34	4.50	3.46		5.81	6.27	4.43		4.74	4.74	5.42		5.90	5.90	7.02							
3000	1.95	1.95	1.27		2.41	2.41	1.59		2.96	3.13	2.03		3.91	4.35	2.56		3.29	3.29	3.30		4.10	4.10	4.28							
3500	1.43	1.43	0.82		1.77	1.77	1.02		2.14	2.30	1.29		2.81	3.20	1.61		2.42	2.42	2.17		3.01	3.01	2.74							
4000	1.10	1.10	0.56		1.35	1.35	0.69		1.62	1.76	0.86		2.12	2.45	1.08		1.85	1.85	1.51		2.31	2.31	1.87							
4500	0.87	0.87	0.40		1.07	1.07	0.49		1.27	1.39	0.61		1.65	1.93	0.76		1.46	1.46	1.08		1.82	1.82	1.33							
5000		0.70	0.29		0.87	0.87	0.36		1.02	1.13	0.44		1.32	1.57	0.55		1.19	1.19	0.80		1.48	1.48	0.98							
5500			0.22		0.72	0.72	0.27		0.84	0.93	0.33		1.08	1.30	0.42		0.98	0.98	0.61		1.22	1.22	0.75							
6000					0.60	0.21			0.78	0.78	0.26		0.90	1.09	0.32		0.82	0.82	0.47		1.02	1.03	1.03	0.58						
6500						0.51	0.16				0.67	0.20		0.93	0.93	0.25		0.70	0.70	0.38		0.86	0.87	0.87	0.46					
7000											0.57	0.16		0.80	0.80	0.20		0.60	0.60	0.30		0.75	0.75	0.38						
7500														0.70	0.16			0.53	0.25			0.66	0.66	0.31						
8000														0.61	0.14							0.58	0.58	0.26						
8500																								0.51	0.21					
9000																														
9500																														
10000																														
10500																														
11000																														
11500																														
12000																														
Span	C150-15				C150-19				C150-24				C200-15				C200-19				C200-24									
	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150		
2500	7.77	7.77	9.34		10.0	11.0	12.3		13.3	15.4	16.2		10.9	10.9	18.6		16.3	16.5	26.3		21.0	23.4	34.3							
3000	5.39	5.40	5.52		6.72	7.63	7.31		8.66	10.7	9.49		7.59	7.59	10.7		10.6	11.5	15.2		13.6	16.2	19.8							
3500	3.85	3.97	3.54		4.79	5.60	4.72		6.00	7.86	6.08		5.58	5.58	6.88		7.35	8.43	9.71		9.22	11.9	12.8							
4000	2.88	3.04	2.42		3.56	4.29	3.18		4.40	6.02	6.02		4.19	4.27	4.81		5.18	6.45	6.61		6.60	9.12	8.79							
4500	2.24	2.40	2.40	1.74	2.75	3.39	3.39	2.25	3.37	4.75	4.75	2.86	3.24	3.37	3.50	3.95	5.10	4.70	4.96	7.21	7.21	6.24								
5000	1.79	1.94	1.94	1.29	2.18	2.75	2.75	1.66	2.64	3.85	3.85	2.08	2.57	2.73	2.59	3.11	4.13	4.13	3.49	3.86	5.84	5.84	4.58							
5500	1.46	1.61	1.61	0.97	1.77	2.27	2.27	1.25	2.12	3.18	3.18	1.57	2.08	2.26	1.97	2.51	3.41	3.41	2.67	3.09	4.83	4.83	3.47							
6000	1.21	1.35	1.35	0.76	1.46	1.91	1.91	0.96	1.74	2.64	2.67	1.21	1.71	1.90	1.53	2.07	2.87	2.87	2.09	2.53	4.02	4.06	2.70							
6500	1.01	1.15	1.15	0.60	1.23	1.63	1.63	0.76	1.46	2.22	2.28	0.95	1.43	1.62	1.21	1.73	2.44	2.44	1.65	2.11	3.37	3.46	2.12							
7000	0.86	0.99	0.99	0.48	1.05	1.40	1.40	0.61	1.23	1.89	1.96	0.76	1.21	1.39	1.39	1.98	2.11	2.11	1.33	1.78	2.86	2.98	1.70							
7500		0.86	0.86	0.39	0.91	1.21	1.22	0.49	1.06	1.63	1.71	0.62	1.04	1.22	1.22	1.80	1.27	1.84	1.84	1.09	1.52	2.46	2.60	1.38						
8000		0.76	0.76	0.32		1.05	1.07	0.41	0.92	1.41	1.50	0.51	0.91	1.07	1.07	1.67	1.10	1.61	1.61	0.90	1.31	2.13	2.28	1.14						
8500			0.67	0.27		0.93	0.95	0.34		1.24	1.33	0.42	0.79	0.95	0.95	1.56	0.96	1.43	1.43	0.75	1.14	1.87	2.02	0.95						
9000			0.60	0.23		0.82	0.85	0.29		1.10	1.19	0.36		0.84	0.84	1.48	0.85	1.28	1.28	0.64	1.00	1.65	1.80	0.80						
9500						0.76	0.24			0.98	1.07	0.30		0.76	0.76	1.41	0.76	1.14	1.14	0.54	0.89	1.47	1.62	0.68						
10000						0.69	0.21				0.95	0.26		0.68	0.68	1.36		1.03	1.03	0.46	0.79	1.31	1.45	0.58						
10500											0.86	0.23				0.62	0.31		0.94	0.94	0.40		1.18	1.30	0.50					
11000											0.78	0.20				0.57	0.27		0.85	0.85	0.35		1.07	1.17	0.44					
11500																			0.78	0.31		0.97	1.07	0.38						
12000																			0.72	0.27		0.89	0.97	0.34						
12500																			0.66	0.24			0.89	0.30						
13000																						0.81	0.27							
13500																						0.75	0.24							
14000																														
14500																														
15000																														
Span	C250-19				C250-24				C300-24*				C300-30*				C350-30*				KEY									
	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150										
4000	6.74	8.20	10.4		8.39	11.7	14.3		12.5	16.4	23.9		16.1	23.2	31.7		23.2	28.3	49.0											
4500	5.12	6.48	7.62		6.28	9.23	10.2		9.33	13.0	16.8		11.4	18.3	22.3		16.5	22.3	34.4											
5000	4.02	5.25	5.74		4.88	7.48	7.48	7.60	7.21	10.5	12.5		8.52	14.8	16.6		12.0	18.1	25.1											
5500	3.24	4.34	4.34	4.35	3.91	6.18	6.18	5.77	5.67	8.68	9.63		6.57	12.3	12.7		9.35	14.9	18.9											
6000	2.67	3.65	3.65	3.39	3.18	5.19	5.19	4.46	4.57	7.29	7.49		5.21	10.3	9.97		7.46	12.6	15.0											
6500	2.23	3.11	3.11	2.70	2.64	4.43	4.43	3.53	3.73	6.21	5.95		4.22	8.78	8.78	7.93	6.03	10.7	11.9											
7000	1.89	2.68	2.68	2.19	2.22	3.80	3.82	2.84	3.10	5.36	5.36	4.80	3.49	7.43	7.57	6.37	4.94	9.23	9.64											
7500	1.63	2.33	2.33	1.80	1.89	3.26	3.32	2.33	2.62	4.67	4.67	3.96	2.93	6.33	6.59	5.18	4.11	8.04	7.90											
8000	1.41	2.05	2.05	1.49	1.63	2.83	2.92	1.92	2.24	4.10	4.10	3.31	2.50	5.45	5.80	4.27	3.48	7.06	6.56											
8500	1.24	1.82	1.82	1.25	1.42	2.47	2.59	1.60	1.93	3.63	3.63	2.80	2.15	4.74	5.13	3.56	2.98	6.26	6.26	5.51										
9000	1.09	1.62	1.62	1.06	1.25	2.18	2.31	1.35	1.69	3.17	3.24	2.37	1.88	4.15	4.58	3.00	2.58	5.58	5.58	4.67										
9500	0.97	1.45	1.45	0.90	1.10	1.93	2.07	1.15	1.48	2.79	2.91	2.03	1.65	3.64	4.11	2.55	2.24	4.88	5.01	4.00										
10000	0.87	1.31	1.31	0.78	0.98	1.73	1.87	0.99	1.32	2.48	2.62	1.74	1.46	3.19																

Table 2a

STRAMIT® DOUBLE UNLAPPED C or Z PURLINS
Outwards Design Capacity (kN/m)

Span	C100-10				C100-12				C100-15				C100-19				C150-10				C150-12							
	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3
2500	2.80	2.80			3.46	3.46			4.50	4.50			6.27	6.27			3.27	3.27			4.99	4.99						
3000	1.95	1.95			2.41	2.41			3.13	3.13			4.35	4.35			2.55	2.55			3.78	3.78						
3500	1.43	1.43			1.75	1.77			2.16	2.30			3.04	3.20			2.04	2.04			2.95	2.95						
4000	1.00	1.10			1.22	1.35			1.55	1.76			2.15	2.45			1.67	1.67			2.31	2.31						
4500	0.69	0.87	0.87		0.85	1.07	1.07		1.14	1.39	1.39		1.57	1.93	1.93		1.38	1.38			1.82	1.82						
5000		0.70	0.70		0.60	0.87	0.87		0.84	1.09	1.13		1.16	1.55	1.57		1.07	1.17			1.42	1.48						
5500		0.57	0.58		0.69	0.72			0.63	0.86	0.93		0.87	1.22	1.30		0.81	0.98			1.05	1.22						
6000					0.54	0.60			0.69	0.78			0.66	0.97	1.09		0.63	0.82			0.79	1.03						
6500							0.51	0.51			0.56	0.67	0.67	0.51	0.78	0.93	0.93	0.70	0.70		0.61	0.87	0.87					
7000										0.56	0.57	0.57		0.63	0.80	0.80	0.58	0.60			0.75	0.75						
7500											0.50			0.51	0.67	0.70		0.53			0.63	0.66						
8000														0.57	0.61						0.51	0.58						
8500																0.54							0.51					
9000																												
9500																												
10000																												
10500	DOUBLE UNLAPPED SPANS ARE LIMITED BY TRANSPORT REQUIREMENTS																											
11000																												
11500																												
12000																												
Span	C150-15				C150-19				C150-24				C200-15				C200-19				C200-24							
	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3
2500	7.72	7.72			11.0	11.0			15.4	15.4			7.94	7.94			12.6	12.6			15.9	15.9						
3000	5.40	5.40			7.63	7.63			10.7	10.7			6.15	6.15			10.5	10.5			13.3	13.3						
3500	3.97	3.97			5.60	5.60			7.86	7.86			4.90	4.90			8.36	8.36			11.4	11.4						
4000	3.04	3.04			4.22	4.29			5.97	6.02			3.98	3.98			6.45	6.45			9.12	9.12						
4500	2.40	2.40			3.15	3.39			4.41	4.75			3.29	3.29			5.10	5.10			7.21	7.21						
5000	1.81	1.94			2.41	2.75			3.33	3.85			2.73	2.73			4.13	4.13			5.64	5.84						
5500	1.30	1.61			1.85	2.27			2.54	3.18			2.26	2.26			3.33	3.41			4.44	4.83						
6000	0.96	1.35			1.44	1.90			1.95	2.67			1.84	1.90			2.62	2.87			3.54	4.06						
6500	0.79	1.15	1.15		1.12	1.56	1.63		1.52	2.22	2.28		1.45	1.62			1.98	2.44			2.82	3.46						
7000	0.63	0.98	0.99		0.88	1.30	1.40		1.19	1.83	1.96		1.14	1.39			1.59	2.11			2.22	2.98						
7500	0.52	0.81	0.86		0.71	1.08	1.22		0.95	1.52	1.71		0.91	1.22			1.29	1.84			1.78	2.56						
8000		0.67	0.76		0.58	0.91	1.07		0.77	1.27	1.50		0.74	1.07			1.07	1.61			1.45	2.18						
8500		0.55	0.67		0.76	0.95			0.64	1.06	1.33		0.60	0.95	0.95		0.89	1.39	1.43		1.19	1.87	2.02					
9000																												
9500																												
10000																												
10500																												
11000																												
11500																												
12000																												
12500	DOUBLE UNLAPPED SPANS ARE LIMITED BY TRANSPORT REQUIREMENTS																											
13000																												
13500																												
14000																												
14500																												
15000																												
Span	C250-19				C250-24				C300-24*				C300-30*				C350-30*				KEY							
	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3								
4000	7.03	7.03			9.95	9.95			12.8	12.8			20.7	20.7			21.7	21.7										
4500	5.87	5.87			8.85	8.85			10.8	10.8			17.0	17.0			18.3	18.3										
5000	4.97	4.97			7.48	7.48			9.19	9.19			14.3	14.3			15.7	15.7										
5500	4.25	4.25			5.92	6.18			7.92	7.92			12.1	12.1			13.5	13.5										
6000	3.48	3.65			4.68	5.19			6.88	6.88			10.3	10.3			11.8	11.8										
6500	2.63	3.11			3.67	4.43			6.04	6.04			8.62	8.78			10.3	10.3										
7000	2.09	2.68			2.88	3.82			5.29	5.33			7.16	7.57			9.15	9.15										
7500	1.69	2.33			2.29	3.32			4.37	4.67			5.99	6.59			8.04	8.04										
8000	1.39	2.05			1.86	2.92			3.56	4.10			4.97	5.80			7.06	7.06										
8500	1.14	1.82	1.82		1.52	2.49	2.59		2.89	3.63	3.63		4.11	5.13	5.13		6.26	6.26	6.26									
9000																												
9500																												
10000																												
10500																												
11000																												
11500																												
12000																												
12500	DOUBLE UNLAPPED SPANS ARE LIMITED BY TRANSPORT REQUIREMENTS																											
13000																												
13500																												
14000																												
14500																												
15000																												

KEY

- Additional bridging does not increase capacity
- Outside of Stramit's recommended bridging requirements

Numbers in **bold italics** require grade 8.8 bolts

* 300 series purlins require M16 bolts

0, 1, 2, 3 are required rows of bridging

Table 3a

STRAMIT® DOUBLE LAPPED Z PURLINS
Outwards Design Capacity (kN/m)

Span	Z100-10				Z100-12				Z100-15				Z100-19				Z150-10				Z150-12						
	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2
2500	3.79	3.79			4.69	4.69			6.09	6.09			8.48	8.48			3.84	3.84			6.03	6.03					
3000	2.63	2.63			3.25	3.25			4.07	4.23			5.74	5.89			3.04	3.04			4.65	4.65					
3500	1.84	1.93			2.21	2.39			2.78	3.11			3.85	4.32			2.47	2.47			3.68	3.68					
4000	1.20	1.48			1.49	1.83			1.97	2.38			2.69	3.31			2.04	2.04			2.98	2.98					
4500	0.82	1.17	1.17		1.00	1.45	1.45		1.40	1.82	1.88		1.89	2.58	2.62		1.72	1.72			2.35	2.46					
5000	0.58	0.93	0.95		0.73	1.12	1.17		1.00	1.40	1.52		1.36	1.97	2.12		1.31	1.46			1.68	1.99					
5500		0.69	0.78		0.54	0.86	0.97		0.74	1.10	1.26		1.00	1.52	1.75		0.99	1.25			1.23	1.65					
6000			0.66		0.65	0.81			0.56	0.87	1.05	1.06		0.76	1.20	1.47		0.75	1.09	1.09		0.93	1.38				
6500			0.56	0.56			0.69	0.69		0.69	0.86	0.90		0.59	0.94	1.23	1.25		0.57	0.87	0.95		0.71	1.16	1.18		
7000							0.57	0.57		0.54	0.72	0.78		0.75	1.01	1.08		0.70	0.82			0.54	0.92	1.02			
7500								0.52			0.60	0.68		0.59	0.84	0.94		0.57	0.71			0.74	0.89				
8000										0.51	0.58			0.71	0.82		0.63				0.59	0.78					
8500											0.50				0.60	0.70		0.54	0.55			0.69					
9000														0.50	0.61							0.61	0.62				
9500															0.52							0.53	0.55				
10000																							0.50				
10500																											
11000																											
11500																											
12000																											
Span	Z150-15				Z150-19				Z150-24				Z200-15				Z200-19				Z200-24						
	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2
2500	9.69	9.69			14.4	14.4			20.7	20.7			9.38	9.38			17.3	17.3			20.7	20.7					
3000	7.20	7.20			10.3	10.3			14.4	14.4			7.39	7.39			13.3	13.3			17.3	17.3					
3500	5.35	5.35			7.51	7.55			10.6	10.6			5.97	5.97			10.5	10.5			14.8	14.8					
4000	4.10	4.10			5.40	5.78			7.54	8.12			4.92	4.92			8.48	8.48			12.4	12.4					
4500	3.00	3.24			3.99	4.57			5.49	6.41			4.11	4.11			6.90	6.90			9.46	9.76					
5000	2.18	2.62			2.96	3.70			4.04	5.20			3.48	3.48			5.45	5.59			7.25	7.91					
5500	1.58	2.17			2.21	3.02	3.06		3.01	4.29			2.94	2.98			4.19	4.62			5.65	6.54					
6000	1.21	1.82			1.67	2.43	2.57		2.25	3.43	3.61		2.26	2.57			3.09	3.88			4.38	5.49					
6500	0.95	1.48	1.55		1.29	1.98	2.19		1.73	2.76	3.07		1.75	2.19			2.43	3.31			3.37	4.68					
7000	0.75	1.20	1.34		1.01	1.62	1.89		1.35	2.25	2.65		1.37	1.89			1.95	2.85			2.65	3.91	4.03				
7500	0.60	0.96	1.17		0.80	1.33	1.65		1.08	1.84	2.31		1.09	1.64			1.58	2.46	2.49		2.13	3.28	3.51				
8000		0.76	1.02		0.64	1.09	1.41	1.45	0.87	1.50	2.01	2.03	0.88	1.43	1.44		1.29	2.06	2.18		1.71	2.78	3.09				
8500		0.63	0.91		0.52	0.89	1.21	1.28	0.71	1.23	1.71	1.80	0.71	1.21	1.28		1.05	1.73	1.93		1.39	2.36	2.74				
9000		0.53	0.79	0.81		0.73	1.05	1.14	0.59	1.01	1.47	1.60	0.59	1.01	1.14		0.87	1.44	1.73		1.14	1.99	2.44				
9500			0.68	0.73		0.61	0.91	1.03	0.50	0.84	1.27	1.44	0.50	0.84	1.02		0.73	1.18	1.55		0.95	1.68	2.18	2.19			
10000			0.58	0.66		0.52	0.79	0.91		0.71	1.10	1.30		0.71	0.92		0.61	1.01	1.40		0.79	1.41	1.91	1.98			
10500			0.50	0.59			0.68	0.80		0.60	0.95	1.14		0.60	0.84		0.51	0.87	1.27		0.67	1.20	1.69	1.79			
11000				0.54			0.59	0.71		0.51	0.82	1.01		0.51	0.76		0.75	1.12	1.16		0.57	1.03	1.50	1.63			
11500				0.48			0.51	0.64		0.71	0.89			0.68	0.70		0.66	0.99	1.06		0.89	1.33	1.50				
12000							0.57			0.62	0.79			0.61	0.64		0.57	0.87	0.97		0.76	1.19	1.37				
12500							0.51			0.54	0.71			0.53	0.59			0.76	0.89		0.66	1.06	1.23				
13000											0.63				0.55			0.65	0.83		0.58	0.94	1.12				
13500											0.56				0.51			0.58	0.76		0.50	0.83	1.01				
14000											0.50							0.52	0.69		0.73	0.92					
14500																			0.62			0.65	0.84				
15000																			0.57			0.58	0.77				
Span	Z250-19				Z250-24				Z300-24*				Z300-30*				Z350-30*				KEY						
	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3							
4000	8.54	8.54			13.0	13.0			15.3	15.3			24.3	24.3			24.3	24.3									
4500	7.21	7.21			11.5	11.5			13.0	13.0			21.4	21.4			21.6	21.6									
5000	6.17	6.17			9.69	9.96			11.2	11.2			18.1	18.1			19.1	19.1									
5500	5.33	5.33			7.46	8.37			9.77	9.77			15.4	15.4			16.6	16.6									
6000	4.10	4.64			5.71	7.03			8.57	8.57			13.3	13.3			14.6	14.6									
6500	3.21	4.08			4.38	5.99			7.57	7.57			11.1	11.6			12.9	12.9									
7000	2.55	3.61			3.43	5.17			6.58	6.73			9.10	10.2			11.5	11.5									
7500	2.06	3.16			2.74	4.39	4.50		5.27	6.02			7.35	8.93			10.3	10.3									
8000	1.66	2.76	2.78		2.19	3.69	3.96		4.25	5.41			5.95	7.85			9.28	9.28									
8500	1.35	2.29	2.46		1.77	3.11	3.50		3.55	4.89			4.82	6.95			7.91	8.39									
9000	1.12	1.85	2.19		1.45	2.61	3.13		3.00	4.39			3.95	6.17	6.20		6.60	7.55									
9500	0.93	1.56	1.97		1.20	2.17	2.81		2.52	3.94			3.26	5.39	5.56		5.54	6.78									
10000	0.77	1.33	1.78		1.00	1.83	2.53		2.12	3.48	3.55		2.73	4.73	5.02		4.69	6.11									
10500	0.65	1.14	1.61		0.84	1.55	2.26	2.30	1.78	3.03	3.22		2.30	4.17	4.55		3.90	5.55									
11000	0.55	0.98	1.47		0.72	1.33	2.00	2.09	1.51	2.62	2.94		1.95	3.67	4.15		3.39	5.05									
11500		0.85	1.32	1.34	0.61	1.14	1.77	1.91	1.29	2.26	2.69		1.67	3.19	3.80		2.96	4.62									
12000		0.73	1.15	1.23	0.53	0.98	1.57	1.76	1.11	1.94	2.47		1.44	2.79	3.49		2.60	4.25									
12500		0.63	1.01	1.14		0.84	1.38	1.62	0.96	1.71	2.27	2.27	1.25	2.42	3.21		2.30	3.84	3.91	3.91							
13000		0.55	0.86	1.05		0.73	1.22	1.50	0.83	1.52	2.10	2.10</															

Table 3b

STRAMIT® DOUBLE LAPPED Z PURLINS
Inwards Design Capacity (kN/m)

Span	Z100-10				Z100-12				Z100-15				Z100-19				Z150-10				Z150-12						
	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2
2500	3.79	3.79		5.45	4.64	4.69		6.76	5.51	6.09		8.84	7.27	8.48		11.7	3.84	3.84		14.1	6.03	6.03		18.5			
3000	2.63	2.63		3.15	3.10	3.25		3.91	3.70	4.23		5.12	4.83	5.89		6.79	3.04	3.04		8.18	4.65	4.65		10.7			
3500	1.92	1.93		1.99	2.20	2.39		2.46	2.65	3.11		3.22	3.40	4.32		4.28	2.47	2.47		5.15	3.68	3.68		6.73			
4000	1.42	1.48		1.33	1.63	1.83		1.65	1.97	2.38		2.16	2.49	3.31		2.87	2.04	2.04		3.45	2.85	2.98		4.51			
4500	1.06	1.17	1.17	0.95	1.23	1.45	1.45	1.17	1.51	1.88	1.88	1.52	1.90	2.62	2.62	2.02	1.72	1.72		2.42	2.16	2.46		3.17			
5000	0.82	0.95	0.95	0.70	0.95	1.17	1.17	0.86	1.18	1.52	1.52	1.12	1.49	2.12	2.12	1.48	1.38	1.46		1.77	1.68	1.99		2.31			
5500	0.64	0.78	0.78	0.53	0.75	0.97	0.97	0.65	0.95	1.26	1.26	0.85	1.18	1.75	1.75	1.11	1.11	1.25		1.33	1.34	1.65		1.74			
6000		0.66	0.66	0.41	0.58	0.81	0.81	0.51	0.77	1.04	1.06	0.67	0.96	1.46	1.47	0.86	0.91	1.09	1.09	1.02	1.08	1.38		1.34			
6500		0.56	0.56	0.33		0.69	0.69	0.40	0.63	0.87	0.90	0.53	0.79	1.21	1.25	0.68	0.75	0.95	0.95	0.81	0.89	1.18	1.18	1.05			
7000						0.60	0.60	0.33	0.52	0.73	0.78	0.43	0.65	1.01	1.08	0.55	0.63	0.82	0.82	0.66	0.74	1.02	1.02	0.85			
7500							0.52	0.27		0.62	0.67	0.35	0.55	0.86	0.94	0.45	0.53	0.71	0.71	0.55	0.62	0.89	0.89	0.71			
8000										0.53	0.57	0.29		0.73	0.81	0.37		0.63	0.63	0.46	0.53	0.78	0.78	0.59			
8500											0.49	0.24						0.55	0.55	0.39		0.69	0.69	0.50			
9000														0.63	0.69	0.31						0.62	0.62	0.43			
9500														0.55	0.60	0.26						0.55	0.55	0.37			
10000															0.52	0.22							0.50	0.50	0.32		
10500																											
11000																											
11500																											
12000																											
Span	Z150-15				Z150-19				Z150-24				Z200-15				Z200-19				Z200-24						
	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2
2500	9.69	9.69		25.1	12.8	14.4		32.8	16.8	20.7		43.7	9.38	9.38		50.8	17.3	17.3		72.0	20.7	20.7		93.9			
3000	6.65	7.20		14.6	8.34	10.3		19.0	10.6	14.4		25.3	7.39	7.39		29.4	13.2	13.3		41.6	17.0	17.3		54.3			
3500	4.61	5.35		9.16	5.80	7.55		12.0	7.14	10.6		15.9	5.97	5.97		18.5	8.66	10.5		26.2	11.2	14.8		34.2			
4000	3.36	4.10		6.14	4.20	5.78		8.02	5.11	8.12		10.7	4.92	4.92		12.4	6.26	8.48		17.6	7.94	12.4		22.9			
4500	2.47	3.24		4.31	3.16	4.57		5.63	3.82	6.41		7.50	3.75	4.11		8.71	4.72	6.90		12.3	5.91	9.76		16.1			
5000	1.94	2.62		3.14	2.46	3.70		4.10	2.96	5.20		5.47	2.91	3.48		6.35	3.68	5.59		8.99	4.51	7.91		11.7			
5500	1.55	2.17		2.36	1.96	3.06	3.06	3.08	2.35	4.29		4.11	2.32	2.98		4.77	2.95	4.62		6.76	3.54	6.54		8.82			
6000	1.27	1.82		1.82	1.59	2.57	2.57	2.38	1.91	3.60	3.61	3.16	1.88	2.57		3.68	2.41	3.88		5.21	2.85	5.49		6.79			
6500	1.05	1.55	1.55	1.43	1.32	2.16	2.19	1.87	1.58	2.99	3.07	2.49	1.56	2.19		2.89	1.99	3.31		4.09	2.34	4.65		5.34			
7000	0.88	1.34	1.34	1.15	1.11	1.83	1.89	1.50	1.32	2.51	2.65	2.00	1.30	1.89		2.31	1.66	2.85		3.28	1.95	3.93	4.03	4.28			
7500	0.75	1.17	1.17	0.94	0.94	1.56	1.65	1.23	1.12	2.14	2.31	1.63	1.11	1.64		1.88	1.41	2.49	2.49	2.67	1.65	3.36	3.51	3.48			
8000	0.64	1.02	1.02	0.78	0.80	1.35	1.45	1.03	0.96	1.83	2.03	1.35	0.95	1.44	1.44	1.55	1.21	2.18	2.18	2.20	1.41	2.89	3.09	2.87			
8500	0.56	0.91	0.91	0.65	0.69	1.17	1.28	0.87	0.83	1.58	1.80	1.13	0.82	1.28	1.28	1.29	1.04	1.93	1.93	1.83	1.22	2.52	2.74	2.39			
9000	0.48	0.79	0.81	0.56	0.60	1.02	1.13	0.74	0.72	1.38	1.59	0.96	0.71	1.14	1.14	1.09	0.91	1.70	1.73	1.54	1.06	2.20	2.44	2.01			
9500		0.69	0.73	0.48	0.52	0.90	0.99	0.63	0.63	1.21	1.39	0.82	0.62	1.02	1.02	0.93	0.80	1.50	1.55	1.31	0.93	1.94	2.19	1.72			
10000		0.61	0.66	0.41	0.46	0.79	0.88	0.55	0.56	1.06	1.22	0.71	0.53	0.92	0.92	0.80	0.70	1.32	1.40	1.13	0.82	1.72	1.97	1.49			
10500		0.53	0.59	0.36		0.70	0.78	0.47	0.49	0.93	1.08	0.61	0.47	0.84	0.84	0.70	0.63	1.17	1.27	0.99	0.73	1.53	1.76	1.30			
11000			0.53	0.31		0.62	0.69	0.41	0.44	0.82	0.96	0.53	0.42	0.76	0.76	0.62	0.56	1.04	1.16	0.86	0.65	1.36	1.58	1.14			
11500			0.47	0.28		0.55	0.62	0.36		0.73	0.86	0.47		0.68	0.70	0.55	0.50	0.92	1.06	0.76	0.58	1.21	1.42	1.00			
12000						0.56	0.32			0.65	0.77	0.41		0.61	0.64	0.49	0.45	0.82	0.97	0.67	0.52	1.09	1.28	0.89			
12500							0.50	0.28		0.58	0.69	0.36			0.55	0.44		0.71	0.88	0.60	0.47	0.97	1.16	0.79			
13000											0.62	0.32			0.55	0.39		0.64	0.79	0.53	0.43	0.87	1.05	0.71			
13500											0.55	0.29			0.51	0.36		0.58	0.72	0.48	0.39	0.78	0.96	0.63			
14000											0.50	0.26						0.53	0.65	0.43		0.71	0.87	0.57			
14500																				0.59	0.39		0.64	0.79	0.51		
15000																				0.53	0.35		0.58	0.72	0.47		
Span	Z250-19				Z250-24				Z300-24*				Z300-30*				Z350-30*				KEY						
	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150							
4000	8.08	8.54		28.6	10.0	13.0		38.9	15.3	15.3		65.3	20.2	24.3		86.6	24.3	24.3		134	Additional bridging does not increase capacity						
4500	6.07	7.21		20.1	7.38	11.5		27.3	11.6	13.0		45.9	14.2	21.4		60.8	20.8	21.6		94.1	Outside of Stramit's recommended bridging requirements						
5000	4.72	6.17		14.6	5.61	9.96		19.9	8.77	11.2		33.4	10.4	18.1		44.3	15.5	19.1		68.6	Numbers in bold italics require grade 8.8 bolts						
5500	3.76	5.33		11.0	4.40	8.37		15.0	6.72	9.77		25.1	7.92	15.4		33.3	12.0	16.6		51.5	* 300 series purlins require M16 bolts						
6000	3.04	4.64		8.46	3.54	7.03		11.5	5.30	8.57		19.4	6.21	13.3		25.7	9.33	14.6		39.7	0, 1, 2 are required rows of bridging						
6500	2.50	4.08		6.66	2.90	5.99		9.06	4.28	7.57		15.2	4.99	11.6		20.2	7.42	12.9		31.2	L/150 is a deflection based serviceability limit						
7000	2.09	3.61		5.33	2.41	5.17		7.26	3.52	6.73		12.2	4.08	10.2		16.2	6.04	11.5		25.0	15% LAPS						
7500	1.77	3.16		4.33	2.04	4.46	4.50	5.90	2.94	6.02		9.91	3.40	8.93		13.1	4.98	10.3		20.3							
8000	1.51	2.78	2.78	3.57	1.74	3.83	3.96	4.86	2.49	5.41		8.16	2.88	7.70		10.8	4.15	9.28		16.7							
8500	1.31	2.46	2.46	2.98	1.50	3.33	3.50	4.05	2.14	4.89		6.81	2.46	6.68		9.02	3.51	8.39		14.0							
9000	1.14	2.19	2.19	2.51	1.30	2.91	3.13	3.41	1.85	4.39		5.73	2.13	5.84	6.20	7.60	3.00	7.55		11.8							
9500	1.00	1.97	1.97	2.13	1.14	2.55	2.81	2.90	1.62	3.90		4.88	1.86	5.14													

Table 4a

STRAMIT® 3 or 4 SPAN CONTINUOUS LAPPED Z PURLINS Outwards Design Capacity (kN/m)

Span	Z100-10				Z100-12				Z100-15				Z100-19				Z150-10				Z150-12						
	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2
2500	4.42	4.42			5.46	5.46			6.91	7.09			9.76	9.87			4.14	4.14			6.66	6.66					
3000	2.77	3.07			3.41	3.79			4.37	4.93			6.00	6.86			3.32	3.32			5.22	5.22					
3500	1.67	2.25			2.02	2.78			2.82	3.62			3.79	5.04			2.73	2.73			4.19	4.19					
4000	1.07	1.73			1.34	2.13			1.82	2.65	2.77		2.44	3.74	3.86		2.29	2.29			3.17	3.44					
4500	0.71	1.24	1.36		0.93	1.54	1.68		1.24	1.97	2.19		1.64	2.72	3.05		1.74	1.94			2.15	2.86					
5000	0.51	0.88	1.10		0.65	1.09	1.36		0.86	1.47	1.77		1.15	2.01	2.47		1.22	1.67			1.51	2.32					
5500		0.64	0.91			0.78	1.13		0.62	1.09	1.42	1.47		0.84	1.49	2.02	2.04	0.89	1.42	1.45		1.10	1.90	1.92			
6000			0.75	0.77		0.59	0.91	0.95		0.81	1.14	1.23		0.63	1.10	1.60	1.71	0.66	1.10	1.26		0.81	1.43	1.61			
6500				0.58	0.65			0.72	0.81		0.62	0.93	1.05		0.84	1.29	1.46	0.50	0.87	1.10		0.63	1.09	1.37			
7000					0.56			0.56	0.70			0.76	0.88		0.65	1.04	1.25		0.69	0.95			0.85	1.18			
7500									0.59			0.61	0.74		0.51	0.84	1.04		0.54	0.79	0.83		0.67	1.03			
8000										0.50	0.63				0.68	0.87			0.65	0.73		0.54	0.87	0.91			
8500											0.53					0.55	0.74			0.55	0.65			0.71	0.80		
9000																	0.63				0.58			0.59	0.72		
9500																									0.64		
10000																									0.57		
10500																											
11000																											
11500																											
12000																											
Span	Z150-15				Z150-19				Z150-24				Z200-15				Z200-19				Z200-24						
0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3
2500	11.1	11.1			16.9	16.9			22.7	22.7			10.2	10.2			19.2	19.2			22.7	22.7					
3000	8.40	8.40			12.0	12.0			16.8	16.8			8.12	8.12			15.0	15.0			18.9	18.9					
3500	6.14	6.23			8.14	8.80			11.3	12.4			6.64	6.64			12.0	12.0			16.2	16.2					
4000	4.12	4.77			5.61	6.74			7.67	9.46			5.54	5.54			9.82	9.82			13.8	14.2					
4500	2.76	3.77			3.85	5.32			5.23	7.47			4.68	4.68			7.52	8.04			10.2	11.4					
5000	2.00	3.05			2.71	4.16	4.31		3.63	5.88	6.05		3.78	4.01			5.22	6.51			7.36	9.21					
5500	1.48	2.43	2.52		1.97	3.25	3.56		2.61	4.53	5.00		2.76	3.46			3.90	5.38			5.35	7.61					
6000	1.10	1.87	2.12		1.45	2.55	2.99		1.93	3.54	4.20		2.06	2.99			2.98	4.52			4.03	6.25	6.40				
6500	0.84	1.40	1.81		1.09	2.00	2.55		1.47	2.74	3.58		1.52	2.55			2.29	3.80	3.85		3.03	5.10	5.45				
7000	0.64	1.11	1.56		0.84	1.55	2.14	2.20	1.14	2.13	3.03	3.09	1.20	2.14	2.20		1.78	3.07	3.32		2.33	4.18	4.70				
7500	0.50	0.89	1.35	1.36	0.66	1.23	1.79	1.92	0.90	1.67	2.51	2.69	0.97	1.71	1.91		1.40	2.37	2.89		1.82	3.40	4.09				
8000		0.73	1.13	1.19	0.53	0.99	1.51	1.68	0.73	1.33	2.10	2.36	0.79	1.38	1.68		1.11	1.94	2.54		1.45	2.73	3.60				
8500		0.59	0.93	1.06	0.80	1.27	1.48		0.59	1.07	1.77	2.09	0.64	1.12	1.49		0.89	1.61	2.25		1.17	2.23	3.12	3.19			
9000			0.75	0.94	0.65	1.07	1.28		0.88	1.47	1.83		0.52	0.92	1.33		0.73	1.35	2.01		0.95	1.84	2.70	2.84			
9500			0.63	0.85	0.53	0.89	1.12		0.72	1.23	1.58		0.77	1.19			0.60	1.14	1.74	1.80	0.79	1.53	2.34	2.55			
10000			0.54	0.73	0.60	0.75	0.98		0.60	1.03	1.37		0.63	1.04	1.08		0.50	0.95	1.49	1.63	0.66	1.27	2.04	2.30			
10500				0.64		0.63	0.86		0.51	0.87	1.19		0.54	0.89	0.98			0.80	1.27	1.48		0.55	1.06	1.76	2.07		
11000				0.55		0.54	0.75			0.73	1.04			0.76	0.89			0.68	1.06	1.35		0.90	1.51	1.85			
11500						0.65				0.63	0.90			0.65	0.81			0.58	0.93	1.23		0.76	1.30	1.65			
12000						0.57				0.54	0.78			0.56	0.75			0.50	0.81	1.10		0.65	1.12	1.48			
12500							0.68				0.68				0.68				0.71	0.98		0.56	0.98	1.33			
13000							0.59				0.60				0.60				0.63	0.86			0.86	1.19			
13500							0.52				0.53				0.53				0.56	0.74			0.75	1.06			
14000																				0.66			0.66	0.94			
14500																				0.59				0.58	0.83		
15000																				0.53				0.51	0.74		
Span	Z250-19				Z250-24				Z300-24*				Z300-30*				Z350-30*										
0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3								
4000	9.47	9.47			14.2	14.2			16.8	16.8			26.6	26.6			26.6	26.6									
4500	8.08	8.08			12.6	12.6			14.4	14.4			23.7	23.7			23.7	23.7									
5000	6.93	6.98			9.64	11.4			12.5	12.5			20.9	20.9			21.2	21.2									
5500	5.14	6.08			6.97	9.75			11.0	11.0			18.0	18.0			18.7	18.7									
6000	3.91	5.34			5.22	8.19			9.73	9.73			14.4	15.7			16.5	16.5									
6500	2.98	4.73			3.91	6.81	6.98		7.84	8.66			11.1	13.6			14.7	14.7									
7000	2.30	4.07	4.21		2.99	5.52	6.02		6.27	7.75			8.53	11.9			13.2	13.2									
7500	1.81	3.15	3.68		2.33	4.45	5.24		5.07	6.98			6.66	10.4			11.4	11.9									
8000	1.43	2.57	3.23		1.84	3.56	4.61		4.08	6.31			5.27	9.03	9.14		9.25	10.8									
8500	1.14	2.12	2.86		1.48	2.89	4.08		3.27	5.67	5.73		4.23	7.74	8.10		7.56	9.79	9.79								
9000	0.93	1.77	2.56		1.20	2.38	3.61	3.64	2.65	4.77	5.11		3.44	6.67	7.22		6.15	8.79	8.79								
9500	0.76	1.48	2.29		0.99	1.97	3.12	3.27	2.18	3.99	4.58		2.83	5.63	6.48		5.20	7.89	7.89								
10000	0.63	1.23	1.97	2.07	0.82	1.63	2.69	2.95	1.80	3.33	4.14		2.35	4.78	5.85		4.44	7.12	7.12								
10500	0.53	1.04	1.63	1.88	0.69	1.36	2.31	2.68	1.51	2.87	3.75		1.97	4.01	5.31		3.80	6.46	6.46								
11000		0.88	1.41	1.71	0.59	1.15	1.97	2.44	1.27	2.49	3.42		1.66	3.39	4.83		3.24	5.70	5.89								
11500		0.75	1.22	1.57	0.50	0.97	1.69	2.21	1.08	2.17	3.13		1.42	2.88	4.34	4.42	2.78	4.94	5.39								
12000		0.64	1.07	1.44																							

Table 4b

STRAMIT® 3 or 4 SPAN CONTINUOUS LAPPED Z PURLINS
Inwards Design Capacity (kN/m)

Table with columns for Span and various Z Purlin types (Z100-10 to Z350-30*). Rows list capacity values for spans from 2500 to 15000. Includes a KEY section for additional bridging and requirements.

KEY
Additional bridging does not increase capacity
Outside of Stramit's recommended bridging requirements
Numbers in bold italics require grade 8.8 bolts
* 300 series purlins require M16 bolts
0, 1, 2 are required rows of bridging
L/150 is a deflection based serviceability limit
15% LAPS

Table 6a

STRAMIT® REDUCED END CONTINUOUS LAPPED Z PURLINS Outwards Design Capacity (kN/m)

Span	Z100-10				Z100-12				Z100-15				Z100-19				Z150-10				Z150-12						
	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2
2500	6.08	6.08			7.96	7.96			10.2	10.2			14.4	14.4			5.24	5.24			8.51	8.51					
3000	4.47	4.47			5.53	5.53			7.19	7.19			10.0	10.0			4.23	4.23			6.73	6.73					
3500	3.29	3.29			4.06	4.06			5.19	5.28			7.33	7.35			3.50	3.50			5.45	5.45					
4000	2.52	2.52			3.02	3.11			3.74	4.04			5.22	5.63			2.94	2.94			4.50	4.50					
4500	1.77	1.99	1.99		2.18	2.46	2.46		2.78	3.19	3.19		3.82	4.44	4.44		2.51	2.51			3.77	3.77					
5000	1.26	1.61	1.61		1.57	1.99	1.99		2.09	2.59	2.59		2.85	3.60	3.60		2.17	2.17			3.20	3.20					
5500	0.93	1.33	1.33		1.13	1.64	1.64		1.58	2.07	2.14		2.13	2.93	2.98		1.89	1.89			2.67	2.75					
6000	0.70	1.11	1.12		0.86	1.33	1.38		1.19	1.66	1.80		1.61	2.34	2.50		1.56	1.66			2.02	2.35					
6500	0.52	0.87	0.95	0.95	0.68	1.07	1.18	1.18	0.92	1.36	1.53	1.53	1.24	1.89	2.13	2.13	1.24	1.47	1.47		1.56	2.00	2.00				
7000		0.68	0.82	0.82	0.54	0.85	1.02	1.02	0.73	1.12	1.30	1.32	0.98	1.54	1.84	1.84	0.99	1.31	1.31		1.22	1.73	1.73				
7500		0.54	0.72	0.72		0.65	0.88	0.88	0.58	0.92	1.10	1.15	0.78	1.27	1.56	1.60	0.79	1.17	1.17		0.97	1.50	1.50				
8000			0.62	0.63		0.53	0.75	0.78		0.76	0.94	1.01	0.63	1.03	1.32	1.41	0.63	0.97	1.05		0.78	1.29	1.32				
8500				0.52	0.56			0.63	0.69		0.62	0.80	0.90	0.52	0.85	1.12	1.25	0.52	0.81	0.94		0.62	1.06	1.17			
9000					0.50			0.54	0.61		0.51	0.69	0.79		0.70	0.96	1.11		0.68	0.84		0.52	0.88	1.04			
9500									0.55			0.60	0.70		0.59	0.83	0.99		0.58	0.75	0.75		0.74	0.94	0.94		
10000									0.50			0.52	0.61			0.72	0.87		0.50	0.65	0.68		0.62	0.85	0.85		
10500										0.54				0.61	0.77				0.57	0.62		0.53	0.76	0.77			
11000														0.53	0.68					0.51			0.57	0.64			
11500															0.60								0.53	0.61			
12000															0.53								0.50	0.59			
Span	Z150-15				Z150-19				Z150-24				Z200-15				Z200-19				Z200-24						
	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2
2500	14.5	14.5			22.9	22.9			26.1	26.1			12.9	12.9			24.6	24.6			26.1	26.1					
3000	11.1	11.1			16.7	16.7			21.7	21.7			10.4	10.4			19.4	19.4			21.7	21.7					
3500	8.68	8.68			12.7	12.7			18.0	18.0			8.53	8.53			15.6	15.6			18.6	18.6					
4000	6.96	6.96			9.83	9.83			13.8	13.8			7.15	7.15			12.9	12.9			16.3	16.3					
4500	5.50	5.50			7.57	7.76			10.7	10.9			6.08	6.08			10.8	10.8			14.5	14.5					
5000	4.42	4.45			5.82	6.29			8.12	8.83			5.23	5.23			9.12	9.12			13.1	13.1					
5500	3.41	3.68			4.55	5.20			6.27	7.30			4.55	4.55			7.80	7.80			10.8	11.1					
6000	2.62	3.09			3.56	4.37			4.87	6.13	6.13		3.98	3.98			6.55	6.60			8.68	9.33					
6500	1.98	2.64	2.64		2.80	3.72	3.72		3.81	5.22	5.22		3.51	3.51			5.27	5.62			7.06	7.95					
7000	1.58	2.27	2.27		2.19	3.10	3.21		2.98	4.40	4.50		2.99	3.12			4.22	4.85			5.74	6.85					
7500	1.28	1.97	1.98		1.75	2.60	2.80		2.36	3.66	3.92		2.40	2.78			3.30	4.22			4.65	5.97					
8000	1.05	1.65	1.74		1.42	2.20	2.46		1.90	3.07	3.45		1.94	2.45			2.71	3.71			3.76	5.25					
8500	0.87	1.39	1.54		1.16	1.87	2.18		1.55	2.60	3.05		1.59	2.17	2.17		2.26	3.29	3.29		3.08	4.52	4.65				
9000	0.71	1.15	1.37		0.95	1.59	1.91	1.94	1.28	2.20	2.72		1.32	1.94	1.94		1.90	2.93	2.93		2.57	3.91	4.15				
9500	0.60	0.94	1.23	1.23	0.79	1.35	1.67	1.74	1.07	1.86	2.36	2.45	1.10	1.74	1.74		1.61	2.54	2.63		2.14	3.40	3.72				
10000	0.50	0.80	1.11	1.11	0.66	1.14	1.46	1.57	0.90	1.58	2.06	2.21	0.90	1.53	1.57		1.35	2.20	2.37		1.79	2.97	3.36				
10500		0.69	0.97	1.01	0.56	0.97	1.29	1.43	0.77	1.33	1.81	2.00	0.77	1.32	1.43		1.15	1.89	2.15		1.51	2.59	3.05				
11000		0.60	0.85	0.92		0.83	1.14	1.30	0.66	1.14	1.59	1.82	0.67	1.14	1.30		0.98	1.58	1.96		1.28	2.25	2.74	2.78			
11500		0.52	0.75	0.84		0.71	1.01	1.18	0.57	0.97	1.41	1.67	0.58	0.98	1.19		0.84	1.37	1.80		1.10	1.95	2.45	2.54			
12000			0.65	0.77		0.62	0.89	1.07	0.50	0.84	1.24	1.52	0.51	0.85	1.09		0.73	1.21	1.65		0.95	1.69	2.20	2.33			
12500			0.55	0.71		0.54	0.79	0.96		0.73	1.09	1.37		0.74	1.01	1.01		0.63	1.06	1.48	1.52	0.82	1.48	1.98	2.15		
13000				0.66			0.70	0.87		0.64	0.97	1.23		0.65	0.92	0.93		0.55	0.94	1.33	1.41	0.72	1.30	1.79	1.99		
13500				0.59			0.62	0.79		0.56	0.85	1.11		0.57	0.83	0.86			0.84	1.19	1.30	0.63	1.15	1.62	1.84		
14000				0.54			0.54	0.72			0.75	1.01		0.50	0.74	0.80			0.75	1.06	1.21	0.56	1.01	1.46	1.71		
14500							0.65				0.67	0.91			0.66	0.75			0.66	0.95	1.13	0.50	0.89	1.31	1.57		
15000							0.60				0.59	0.83			0.59	0.70			0.59	0.83	1.06		0.79	1.19	1.45		
Span	Z250-19				Z250-24				Z300-24*				Z300-30*				Z350-30*				KEY						
	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3							
4000	12.1	12.1			16.3	16.3			21.4	21.4			30.6	30.6			30.6	30.6									
4500	10.4	10.4			14.5	14.5			18.5	18.5			27.2	27.2			27.2	27.2									
5000	9.03	9.03			13.1	13.1			16.1	16.1			24.5	24.5			24.5	24.5									
5500	7.91	7.91			11.9	11.9			14.2	14.2			22.2	22.2			22.2	22.2									
6000	6.98	6.98			10.9	10.9			12.6	12.6			20.4	20.4			20.4	20.4									
6500	6.20	6.20			9.40	10.0			11.3	11.3			18.2	18.2			18.8	18.8									
7000	5.54	5.54			7.56	8.78	8.78		10.1	10.1			16.1	16.1			17.2	17.2									
7500	4.37	4.98			6.06	7.65	7.65		9.15	9.15			14.4	14.4			15.6	15.6									
8000	3.58	4.50			4.89	6.72	6.72		8.30	8.30			12.5	12.9			14.1	14.1									
8500	2.97	4.07	4.07		4.00	5.95	5.95		7.56	7.56	7.56		10.6	11.6	11.6		12.9	12.9	12.9								
9000	2.48	3.71	3.71		3.32	5.23	5.31		6.43	6.91	6.91		8.96	10.5	10.5		11.8	11.8	11.8								
9500	2.08	3.34	3.34		2.75	4.53	4.77		5.39	6.34	6.34		7.55	9.45	9.45		10.8	10.8	10.8								
10000	1.75	2.93	3.02		2.29	3.95	4.30		4.55	5.83	5.83		6.33	8.53	8.53		9.98	9.98	9.98								
10500	1.48	2.50	2.74		1.93	3.41	3.90		3.94	5.37	5.37		5.33	7.74	7.74		8.82	9.21	9.21								
11000	1.26	2.09	2.49		1.63	2.95	3.55		3.43	4.97	4.97		4.53	7.01	7.05		7.60	8.53	8.53								
11500	1.08	1.82	2.28		1.39	2.54																					

Table 6b

STRAMIT® REDUCED END CONTINUOUS LAPPED Z PURLINS
Inwards Design Capacity (kN/m)

Span	Z100-10				Z100-12				Z100-15				Z100-19				Z150-10				Z150-12						
	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2
2500	5.82	6.08		10.8	6.67	7.96		13.4	8.18	10.2		17.5	10.3	14.4		23.2	5.24	5.24		28.0	8.51	8.51		36.5			
3000	3.75	4.47		6.24	4.30	5.53		7.74	5.33	7.19		10.1	6.51	10.0		13.4	4.23	4.23		16.2	6.73	6.73		21.1			
3500	2.59	3.29		3.93	2.88	4.06		4.87	3.66	5.28		6.37	4.44	7.35		8.46	3.50	3.50		10.2	5.20	5.45		13.3			
4000	1.87	2.52		2.63	2.10	3.11		3.27	2.65	4.04		4.27	3.20	5.63		5.67	2.94	2.94		6.83	3.76	4.50		8.92			
4500	1.40	1.99	1.99	1.85	1.59	2.46	2.46	2.29	1.99	3.19	3.19	3.00	2.40	4.44	4.44	3.98	2.47	2.51		4.80	2.82	3.77		6.27			
5000	1.07	1.61	1.61	1.35	1.24	1.99	1.99	1.67	1.54	2.59	2.59	2.19	1.86	3.60	3.60	2.90	1.92	2.17		3.50	2.18	3.20		4.57			
5500	0.84	1.33	1.33	1.02	0.98	1.64	1.64	1.26	1.22	2.14	2.14	1.64	1.47	2.98	2.98	2.18	1.52	1.89		2.63	1.73	2.75		3.43			
6000	0.67	1.12	1.12	0.80	0.79	1.38	1.38	0.98	0.98	1.77	1.80	1.27	1.19	2.47	2.50	1.69	1.23	1.66		2.02	1.40	2.35		2.64			
6500	0.54	0.95	0.95	0.63	0.65	1.18	1.18	0.78	0.80	1.48	1.53	1.01	0.97	2.05	2.13	1.33	1.00	1.47	1.47	1.59	1.15	2.00	2.00	2.08			
7000	0.43	0.82	0.82	0.51	0.54	1.02	1.02	0.63	0.66	1.26	1.32	0.82	0.81	1.73	1.84	1.07	0.83	1.31	1.31	1.27	0.95	1.73	1.73	1.66			
7500	0.36	0.72	0.72	0.42	0.45	0.88	0.88	0.51	0.55	1.07	1.15	0.67	0.68	1.47	1.60	0.87	0.70	1.17	1.17	1.04	0.78	1.50	1.50	1.35			
8000		0.63	0.63	0.35	0.38	0.76	0.78	0.43	0.46	0.92	1.01	0.56	0.57	1.26	1.41	0.72	0.59	1.05	1.05	0.85	0.67	1.32	1.32	1.12			
8500		0.55	0.56	0.29		0.65	0.69	0.36	0.39	0.80	0.89	0.47	0.49	1.09	1.25	0.61	0.50	0.94	0.94	0.72	0.58	1.17	1.17	0.93			
9000			0.50	0.25		0.57	0.61	0.31	0.34	0.70	0.77	0.40	0.42	0.95	1.09	0.51	0.43	0.84	0.84	0.61	0.50	1.04	1.04	0.80			
9500							0.55	0.26		0.62	0.68	0.34	0.37	0.83	0.96	0.44	0.37	0.74	0.75	0.53	0.44	0.94	0.94	0.69			
10000							0.49	0.23		0.54	0.60	0.29		0.73	0.84	0.37	0.32	0.66	0.68	0.46	0.38	0.84	0.85	0.60			
10500										0.53	0.25			0.65	0.75	0.32		0.58	0.62	0.40	0.34	0.75	0.77	0.52			
11000														0.57	0.66	0.28		0.51	0.56	0.36		0.67	0.70	0.46			
11500															0.59	0.25			0.51	0.51		0.59	0.64	0.41			
12000															0.53	0.22						0.52	0.59	0.36			
Span	Z150-15				Z150-19				Z150-24				Z200-15				Z200-19				Z200-24						
	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2
2500	14.5	14.5		49.7	18.5	22.9		65.0	23.4	26.1		86.5	12.9	12.9		100	24.6	24.6		142	26.1	26.1		186			
3000	8.90	11.1		28.8	11.4	16.7		37.6	14.0	21.7		50.1	10.4	10.4		58.2	18.4	19.4		82.4	21.7	21.7		107			
3500	6.14	8.68		18.1	7.68	12.7		23.7	9.25	18.0		31.5	8.53	8.53		36.6	12.3	15.6		51.9	15.3	18.6		67.7			
4000	4.47	6.96		12.1	5.51	9.83		15.9	6.52	13.8		21.1	6.66	7.15		24.5	8.68	12.9		34.7	10.5	16.3		45.3			
4500	3.38	5.50		8.53	4.09	7.76		11.1	4.82	10.9		14.8	4.95	6.08		17.2	6.38	10.8		24.4	7.57	14.5		31.8			
5000	2.64	4.45		6.22	3.14	6.29		8.12	3.70	8.83		10.8	3.81	5.23		12.6	4.88	9.12		17.8	5.70	13.1		23.2			
5500	2.10	3.68		4.67	2.47	5.20		6.10	2.92	7.30		8.13	2.93	4.55		9.44	3.85	7.80		13.4	4.44	11.1		17.4			
6000	1.69	3.09		3.60	1.99	4.35		4.70	2.36	6.01	6.13	6.26	2.38	3.98		7.27	3.08	6.60		10.3	3.55	9.33		13.4			
6500	1.39	2.64	2.64	2.83	1.63	3.63	3.72	3.70	1.94	4.99	5.22	4.92	1.97	3.51		5.72	2.51	5.62		8.10	2.89	7.79	7.95	10.6			
7000	1.16	2.27	2.27	2.27	1.36	3.08	3.21	2.96	1.62	4.20	4.50	3.94	1.66	3.12		4.58	2.09	4.85		6.48	2.40	6.57	6.85	8.46			
7500	0.97	1.98	1.98	1.84	1.14	2.63	2.80	2.41	1.37	3.57	3.92	3.21	1.41	2.78		3.72	1.75	4.22		5.27	2.02	5.61	5.97	6.88			
8000	0.83	1.74	1.74	1.52	0.97	2.27	2.46	1.98	1.17	3.07	3.45	2.64	1.21	2.45		3.07	1.49	3.71		4.34	1.72	4.83	5.25	5.67			
8500	0.71	1.54	1.54	1.27	0.83	1.98	2.18	1.65	1.01	2.66	3.05	2.20	1.04	2.17	2.17	2.56	1.28	3.26	3.29	3.62	1.48	4.20	4.65	4.73			
9000	0.61	1.35	1.37	1.07	0.72	1.74	1.94	1.40	0.88	2.32	2.72	1.86	0.91	1.94	1.94	2.15	1.11	2.85	2.93	3.05	1.28	3.68	4.15	3.98			
9500	0.53	1.19	1.23	0.91	0.63	1.53	1.74	1.20	0.77	2.04	2.45	1.59	0.80	1.74	1.74	1.83	0.97	2.50	2.63	2.59	1.12	3.24	3.72	3.39			
10000	0.46	1.05	1.11	0.79	0.55	1.36	1.57	1.04	0.68	1.80	2.21	1.37	0.71	1.57	1.57	1.57	0.85	2.22	2.37	2.22	0.99	2.87	3.36	2.90			
10500	0.41	0.93	1.01	0.68	0.48	1.21	1.40	0.90	0.60	1.59	1.97	1.18	0.62	1.43	1.43	1.36	0.75	1.97	2.15	1.92	0.88	2.54	3.05	2.51			
11000	0.36	0.83	0.92	0.60	0.43	1.07	1.25	0.79	0.53	1.41	1.76	1.03	0.55	1.29	1.30	1.18	0.67	1.75	1.96	1.67	0.78	2.27	2.78	2.18			
11500	0.32	0.73	0.84	0.53	0.38	0.96	1.13	0.70	0.48	1.25	1.57	0.91	0.49	1.16	1.19	1.03	0.60	1.56	1.80	1.46	0.70	2.03	2.53	1.91			
12000		0.65	0.77	0.47	0.34	0.86	1.02	0.62	0.43	1.12	1.42	0.80	0.44	1.05	1.09	0.91	0.53	1.39	1.65	1.29	0.63	1.81	2.29	1.69			
12500		0.58	0.70	0.41	0.31	0.77	0.92	0.55	0.39	1.01	1.28	0.71	0.40	0.95	1.01	0.80	0.48	1.22	1.52	1.15	0.57	1.63	2.08	1.50			
13000			0.63	0.37		0.69	0.84	0.49	0.35	0.91	1.15	0.64	0.36	0.86	0.93	0.72	0.43	1.10	1.41	1.02	0.52	1.46	1.89	1.34			
13500			0.57	0.33		0.62	0.76	0.44	0.32	0.81	1.05	0.57	0.32	0.78	0.86	0.65	0.39	1.00	1.30	0.92	0.47	1.33	1.73	1.21			
14000			0.52	0.30		0.56	0.69	0.40		0.74	0.95	0.51	0.29	0.70	0.80	0.59	0.36	0.91	1.21	0.83	0.43	1.20	1.58	1.09			
14500						0.63	0.36			0.67	0.87	0.46		0.64	0.75	0.54	0.32	0.83	1.10	0.75	0.39	1.10	1.46	0.99			
15000						0.57	0.32			0.60	0.79	0.42		0.58	0.70	0.49	0.30	0.76	1.01	0.68	0.36	1.00	1.34	0.90			
Span	Z250-19				Z250-24				Z300-24*				Z300-30*				Z350-30*				KEY						
	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150							
4000	11.0	12.1		56.5	13.1	16.3		76.9	21.4	21.4		129	28.0	30.6		171	30.6	30.6		265							
4500	8.06	10.4		39.7	9.42	14.5		54.0	15.8	18.5		90.7	19.3	27.2		120	27.2	27.2		186							
5000	6.15	9.03		28.9	7.07	13.1		39.4	11.5	16.1		66.1	13.9	24.5		87.7	22.7	24.5		136							
5500	4.82	7.91		21.7	5.49	11.9		29.6	8.72	14.2		49.7	10.5	22.2		65.9	17.0	22.2		102							
6000	3.85	6.98		16.7	4.37	10.9		22.8	6.79	12.6		38.3	8.10	20.4		50.7	13.0	20.4		78.5							
6500	3.14	6.20		13.2	3.56	10.0		17.9	5.43	11.3		30.1	6.44	18.2		39.9	10.1	18.8		61.7							
7000	2.60	5.54		10.5	2.95	8.74	8.78	14.4	4.42	10.1		24.1	5.22	16.1		32.0	8.05	17.2		49.4</							

Table 7a

STRAMIT® INCREASED END THICKNESS CONTINUOUS LAPPED Z PURLINS Outwards Design Capacity (kN/m)

Span	Z100-12/10				Z100-15/12				Z100-19/15				Z150-12/10				Z150-15/12				Z150-19/15								
	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	
2500	4.52	4.52			5.61	5.61			7.30	7.30			4.62	4.62			7.25	7.25			11.7	11.7							
3000	3.14	3.14			3.85	3.90			4.78	5.07			3.65	3.65			5.59	5.59			8.66	8.66							
3500	1.93	2.30			2.49	2.86			3.25	3.72			2.96	2.96			4.43	4.43			6.41	6.41							
4000	1.25	1.76			1.59	2.19			2.26	2.85			2.45	2.45			3.58	3.58			4.77	4.91							
4500	0.82	1.39	1.39		1.12	1.73	1.73		1.54	2.15	2.25		1.95	2.06			2.56	2.95			3.26	3.88							
5000	0.59	1.02	1.13		0.81	1.30	1.40		1.11	1.65	1.83		1.41	1.75			1.81	2.39			2.37	3.14							
5500		0.74	0.93		0.59	0.93	1.16		0.81	1.29	1.51		1.03	1.50			1.32	1.97			1.78	2.60							
6000		0.55	0.78			0.71	0.97		0.61	1.02	1.24	1.27	0.76	1.23	1.30		0.96	1.66			1.35	2.15	2.18						
6500			0.66	0.67		0.56	0.82	0.83		0.78	1.02	1.08	0.58	0.97	1.13		0.75	1.31	1.41		1.04	1.73	1.86						
7000			0.53	0.58			0.67	0.72		0.61	0.85	0.93		0.78	0.97		0.60	1.02	1.22		0.81	1.32	1.60						
7500				0.50			0.54	0.62			0.71	0.80		0.63	0.85			0.81	1.06		0.64	1.07	1.40						
8000								0.55			0.60	0.69		0.50	0.73	0.75		0.65	0.93		0.51	0.88	1.23						
8500										0.51	0.59			0.61	0.66			0.53	0.83			0.73	1.07	1.09					
9000											0.51			0.52	0.59				0.70	0.74		0.61	0.92	0.97					
9500												0.51			0.53				0.59	0.66		0.50	0.78	0.87					
10000															0.53				0.50	0.60			0.64	0.79					
10500																		0.54				0.55	0.71						
11000																							0.63						
11500																								0.56					
12000																									0.50				
Span	Z150-24/19				Z200-19/15				Z200-24/19				Z250-24/19				Z300-30/24*				KEY								
	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3									
2500	17.3	17.3			11.3	11.3			20.9	20.9			19.0	19.0			33.1	33.1											
3000	12.3	12.3			8.92	8.92			16.0	16.0			15.1	15.1			26.6	26.6											
3500	8.90	9.06			7.20	7.20			12.6	12.6			12.4	12.4			22.0	22.0											
4000	6.37	6.94			5.92	5.92			10.2	10.2			10.3	10.3			18.4	18.4											
4500	4.69	5.48			4.95	4.95			8.28	8.28			8.68	8.68			15.7	15.7											
5000	3.37	4.44			4.20	4.20			6.34	6.70			7.42	7.42			13.5	13.5											
5500	2.47	3.58	3.67		3.42	3.59			4.60	5.54			6.08	6.41			11.8	11.8											
6000	1.87	2.88	3.08		2.57	3.09			3.53	4.66			4.63	5.58			10.3	10.3											
6500	1.42	2.34	2.63		1.97	2.63			2.77	3.97			3.61	4.90			9.11	9.11											
7000	1.10	1.92	2.27		1.54	2.27			2.18	3.42			2.81	4.34			7.40	8.09											
7500	0.87	1.54	1.97		1.19	1.98			1.73	2.88	2.98		2.22	3.79			5.99	7.24											
8000	0.70	1.24	1.67	1.73	0.98	1.70	1.74		1.40	2.39	2.62		1.79	3.06	3.33		4.94	6.50											
8500	0.58	1.02	1.44	1.54	0.81	1.41	1.54		1.13	1.92	2.32		1.44	2.53	2.95		4.06	5.87	5.87										
9000		0.85	1.24	1.37	0.68	1.17	1.37		0.92	1.61	2.07		1.17	2.11	2.63		3.32	5.26	5.26										
9500		0.70	1.08	1.23	0.56	0.97	1.23		0.76	1.36	1.86		0.96	1.78	2.36		2.74	4.72	4.72										
10000		0.59	0.93	1.08		0.82	1.11		0.64	1.16	1.68		0.80	1.51	2.13		2.27	4.09	4.26										
10500			0.80	0.96		0.69	1.01		0.54	0.99	1.49	1.52	0.67	1.28	1.93		1.91	3.49	3.86										
11000			0.69	0.85		0.58	0.92			0.85	1.31	1.39	0.57	1.09	1.74	1.76	1.61	2.96	3.52										
11500			0.59	0.76		0.50	0.82	0.84		0.73	1.11	1.27		0.93	1.46	1.61	1.37	2.59	3.22										
12000			0.51	0.68			0.71	0.77		0.63	0.97	1.16		0.81	1.28	1.48	1.18	2.27	2.96										
12500				0.61			0.62	0.71			0.55	0.85	1.07	0.69	1.12	1.36	1.02	2.01	2.73	2.73									
13000				0.54			0.55	0.66			0.76	0.99		0.60	0.99	1.26	0.89	1.76	2.52	2.52									
13500								0.61			0.67	0.89		0.52	0.88	1.17	0.77	1.55	2.34	2.34									
14000								0.57			0.60	0.81			0.78	1.08	0.68	1.36	2.11	2.17									
14500								0.52			0.54	0.73			0.70	0.93	0.60	1.19	1.90	2.03									
15000											0.64	0.74			0.62	0.84	0.53	1.05	1.70	1.89									

KEY

- Additional bridging does not increase capacity
- Outside of Stramit's recommended bridging requirements

Numbers in **bold italics** require grade 8.8 bolts

* 300 series purlins require M16 bolts

0, 1, 2, 3 are required rows of bridging

15% LAPS

Design Rules/Assumptions

In all cases the span referred to is the length between centres of the cleat bolts. Each span type represents the complete purlin system and recognizes that using separate component parts (e.g. internal span, end span) is not a valid procedure.

Limit-state design capacities have been calculated in accordance with the provisions of AS/NZS4600 and may be limited by yielding, combined bending and web shear, flexural-torsional buckling, distortional buckling, bearing or bolt shear. Flexural-torsional buckling has been calculated by the use of a rational elastic buckling analysis.

Continuous design capacity tables are based on the most conservative of either a 3 or 4 span configuration, and a 5 span configuration which can be used for any greater multiple span system.

Capacities vary with direction of loading, span type and number of bridging rows, and apply equally to **Stramit® Purlins** or **Girts**. Fabrication and erection must be carried out in accordance with the company's recommendations and good trade practice. It is assumed that cladding substantially prevents lateral deflection of the flange to which it is attached and that bridging, where used, prevents both lateral deflection and rotation of the section at that point. Purlins must be bolted to cleats or other rigid structure providing full web support at every support position. The tables do not take account of the ability of particular roof sheeting or wall cladding to carry the loads published; reference should be made to separate load information which is available for all Stramit cladding profiles. Any conditions not strictly in accordance with those laid out in these notes should be referred to your regional Stramit Technical Services Manager.

Table 7b

STRAMIT® INCREASED END THICKNESS CONTINUOUS LAPPED Z PURLINS
Inwards Design Capacity (kN/m)

Span	Z100-12/10				Z100-15/12				Z100-19/15				Z150-12/10				Z150-15/12				Z150-19/15				
	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	
2500	4.52	4.52		4.91	5.32	5.61		6.36	6.39	7.30		8.45	4.62	4.62		13.3	7.25	7.25		18.0	11.6	11.7		23.6	
3000	3.06	3.14		2.90	3.54	3.90		3.78	4.29	5.07		4.92	3.65	3.65		7.68	5.59	5.59		10.4	7.45	8.66		13.7	
3500	2.15	2.30		1.86	2.49	2.86		2.44	3.04	3.72		3.14	2.96	2.96		4.84	4.31	4.43		6.57	4.97	6.41		8.60	
4000	1.56	1.76		1.27	1.82	2.19		1.65	2.25	2.85		2.12	2.45	2.45		3.32	3.14	3.58		4.42	3.64	4.91		5.81	
4500	1.17	1.39	1.39	0.91	1.36	1.73	1.73	1.17	1.72	2.25	2.25	1.49	1.96	2.06		2.41	2.38	2.95		3.15	2.77	3.88		4.16	
5000	0.90	1.13	1.13	0.68	1.02	1.40	1.40	0.86	1.35	1.83	1.83	1.09	1.54	1.75		1.80	1.85	2.39		2.32	2.17	3.14		3.09	
5500	0.70	0.93	0.93	0.52	0.81	1.16	1.16	0.65	1.07	1.51	1.51	0.82	1.24	1.50		1.37	1.47	1.97		1.76	1.75	2.60		2.35	
6000	0.55	0.78	0.78	0.40	0.66	0.97	0.97	0.50	0.86	1.27	1.27	0.63	1.01	1.30		1.07	1.19	1.66		1.38	1.43	2.18		1.82	
6500		0.67	0.67	0.31	0.54	0.83	0.83	0.40	0.70	1.07	1.08	0.50	0.84	1.13	1.13	0.85	0.98	1.41	1.41	1.10	1.19	1.86	1.86	1.44	
7000		0.58	0.58	0.25		0.72	0.72	0.32	0.58	0.91	0.93	0.40	0.70	0.97	0.97	0.69	0.82	1.22	1.22	0.89	1.00	1.60	1.60	1.16	
7500			0.50	0.21		0.62	0.62	0.26		0.78	0.81	0.32	0.58	0.85	0.85	0.56	0.69	1.06	1.06	0.73	0.85	1.40	1.40	0.95	
8000						0.55	0.21			0.67	0.71	0.27	0.49	0.75	0.75	0.47	0.58	0.93	0.93	0.61	0.73	1.23	1.23	0.79	
8500										0.58	0.63	0.22		0.66	0.66	0.39	0.48	0.83	0.83	0.51	0.62	1.09	1.09	0.66	
9000											0.55	0.19		0.59	0.59	0.33		0.74	0.74	0.43	0.54	0.97	0.97	0.55	
9500															0.53	0.29		0.66	0.66	0.37	0.46	0.87	0.87	0.47	
10000																		0.60	0.60	0.32		0.77	0.79	0.40	
10500																			0.54	0.28			0.68	0.71	0.35
11000																							0.65	0.30	
11500																							0.59	0.27	
12000																							0.55	0.23	
Span	Z150-24/19				Z200-19/15				Z200-24/19				Z250-24/19				Z300-30/24*				KEY				
	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150	0	1	2	L/150					
2500	14.9	17.3		31.4	11.3	11.3		51.4	20.9	20.9		67.5	19.0	19.0		114	33.1	33.1		255	■ Additional bridging does not increase capacity				
3000	9.53	12.3		18.2	8.92	8.92		29.7	14.5	16.0		39.1	15.1	15.1		66.0	26.6	26.6		147	■ Outside of Stramit's recommended bridging requirements				
3500	6.51	9.06		11.4	7.20	7.20		18.7	9.84	12.6		24.6	12.4	12.4		41.6	22.0	22.0		92.8	■ Numbers in bold italics require grade 8.8 bolts				
4000	4.69	6.94		7.71	5.57	5.92		12.5	7.08	10.2		16.5	9.08	10.3		27.9	18.4	18.4		62.2	* 300 series purlins require M16 bolts				
4500	3.53	5.48		5.45	4.17	4.95		8.81	5.33	8.28		11.6	6.80	8.68		19.6	13.3	15.7		43.7	0, 1, 2 are required rows of bridging				
5000	2.75	4.44		4.01	3.23	4.20		6.43	4.15	6.70		8.44	5.22	7.42		14.3	9.82	13.5		31.8	L/150 is a deflection based serviceability limit				
5500	2.20	3.67		3.05	2.57	3.59		4.87	3.28	5.54		6.43	4.11	6.41		10.7	7.49	11.8		23.9					
6000	1.79	3.08		2.35	2.08	3.09		3.79	2.65	4.66		5.03	3.32	5.58		8.26	5.88	10.3		18.4					
6500	1.48	2.63	2.63	1.85	1.72	2.63		3.01	2.19	3.97		4.01	2.74	4.90		6.54	4.72	9.11		14.5					
7000	1.24	2.24	2.27	1.48	1.44	2.27		2.43	1.83	3.42		3.24	2.29	4.34		5.29	3.87	8.09		11.6					
7500	1.05	1.92	1.97	1.21	1.22	1.98		1.99	1.56	2.98		2.65	1.94	3.79		4.35	3.23	7.24		9.47					
8000	0.89	1.66	1.73	1.00	1.05	1.74		1.66	1.33	2.62		2.19	1.67	3.33		3.62	2.73	6.50		7.90					
8500	0.77	1.45	1.54	0.83	0.88	1.54	1.40		1.16	2.32	2.32	1.84	1.44	2.95	2.95	3.04	2.34	5.87	5.87	6.67					
9000	0.66	1.27	1.37	0.70	0.77	1.37	1.19		1.01	2.07	2.07	1.56	1.25	2.63	2.63	2.57	2.02	5.26	5.26	5.69					
9500	0.58	1.13	1.23	0.60	0.67	1.23	1.02		0.88	1.84	1.86	1.33	1.09	2.36	2.36	2.20	1.77	4.72	4.72	4.90					
10000	0.50	1.00	1.11	0.51	0.60	1.11	0.89		0.78	1.63	1.68	1.15	0.96	2.13	2.13	1.89	1.55	4.18	4.26	4.22					
10500		0.89	1.00	0.44	0.53	1.01	0.77		0.69	1.45	1.52	0.99	0.85	1.92	1.93	1.64	1.38	3.71	3.86	3.67					
11000		0.80	0.89	0.38	0.47	0.92	0.67		0.61	1.30	1.39	0.86	0.76	1.72	1.76	1.43	1.23	3.31	3.52	3.21					
11500		0.72	0.80	0.34	0.42	0.84	0.59		0.55	1.17	1.27	0.75	0.67	1.53	1.61	1.26	1.10	2.95	3.22	2.82					
12000		0.65	0.72	0.30		0.77	0.52		0.49	1.06	1.16	0.66	0.60	1.37	1.48	1.11	0.99	2.64	2.96	2.48					
12500			0.66	0.26		0.70	0.46		0.44	0.95	1.07	0.59	0.54	1.23	1.36	0.99	0.90	2.37	2.73	2.20					
13000			0.60	0.23		0.64	0.41			0.86	0.99	0.52	0.49	1.08	1.26	0.88	0.81	2.14	2.52	1.95					
13500						0.61	0.37			0.78	0.92	0.47	0.44	0.98	1.17	0.79	0.74	1.94	2.34	1.74					
14000						0.57	0.33			0.68	0.86	0.42		0.89	1.09	0.71	0.68	1.76	2.17	1.57					
14500						0.53	0.30			0.62	0.78	0.38		0.81	1.01	0.64	0.62	1.59	2.03	1.41					
15000										0.72	0.34			0.74	0.95	0.58	0.57	1.46	1.89	1.27					

KEY

- Additional bridging does not increase capacity
- Outside of Stramit's recommended bridging requirements
- Numbers in **bold italics** require grade 8.8 bolts
- * 300 series purlins require M16 bolts
- 0, 1, 2 are required rows of bridging
- L/150 is a deflection based serviceability limit

15% LAPS

Deflections have been based on common practice for unlined industrial buildings, which is to limit maximum deflection to the span divided by 150. This is the figure incorporated in the load tables and is shown as L/150. The deflection is for all practical purposes proportional to the load applied, and so calculation of alternative deflection limits requires only simple arithmetic.

All capacities shown are for uniformly distributed loads only and do not include the self-mass of the purlins, sheeting or other roof components. Capacities are valid only when sheeting and bridging are attached. Great care must therefore be taken to ensure that loads encountered during erection can be accommodated. Direction of loading has been assumed to be parallel with the Y-Y axis of the purlin (parallel to the web.)

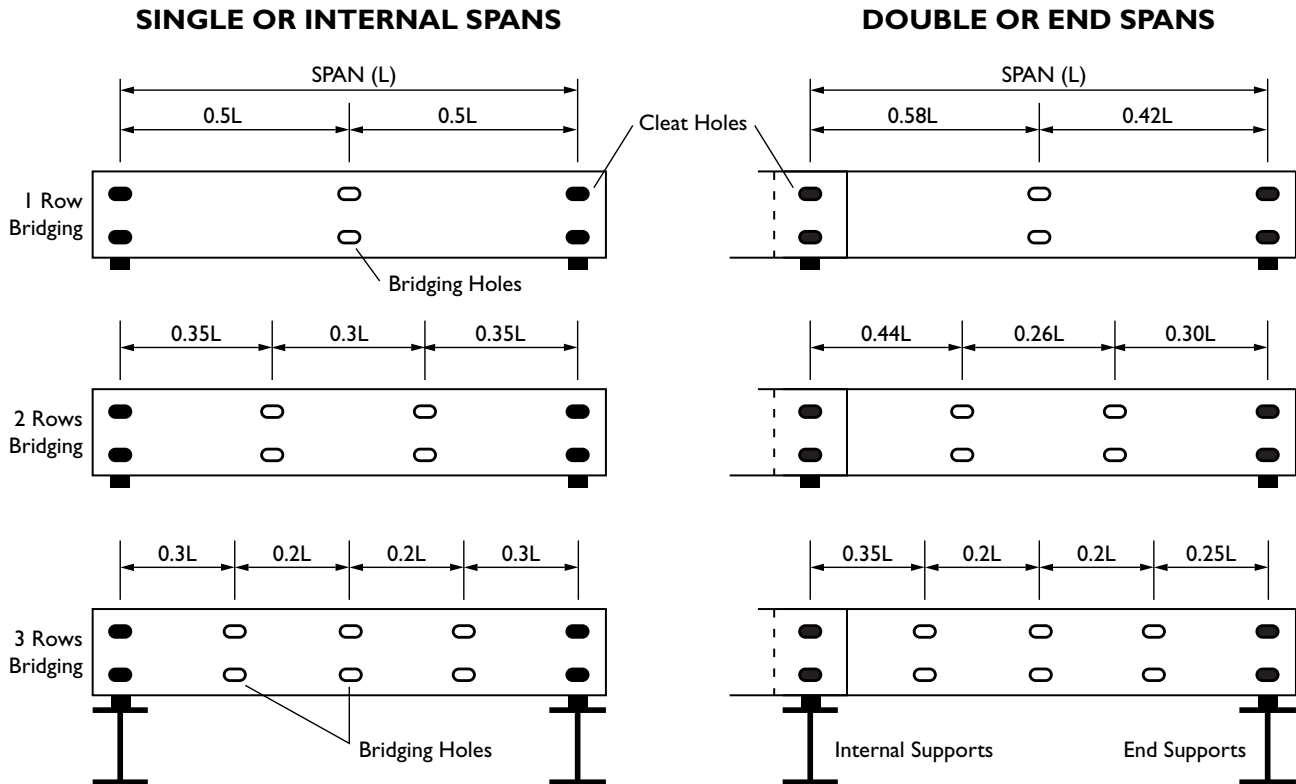
Intermediate values may be obtained from the design capacity tables by linear interpolation, within the span range shown.

Where required, combined axial and bending loading capacity should be calculated using AS/NZS4600. This method allows for the interaction between flexural-torsional buckling under uplift bending and flexural-torsional buckling under axial forces. This capacity is affected by and should be designed with regard to eccentric loadings, amount of bridging in the system and roof sheeting.

Bridging Positions

Stramit recommends that bridging be installed such that the maximum unbraced length is $20 \times D$ (where D is the purlin web height), or 4000mm whichever is the least. In addition to enhancing purlin performance this requirement assists with the erection of roof sheeting. Location of bridging must be as shown below (to the nearest 50mm).

For outwards loads on equal continuous spans (Tables 4a and 5a) the bridging shown is required in the end spans. One less row of bridging can be used for internal spans if inwards capacity, Stramit's recommended minimum and practical spacing requirements allow.



Girt Bridging Capacity

Stramit® Bridging is only designed to allow purlins and girts to resist wind loads once the sheeting has been attached. Purlins, girts and bridging should not be subjected to loading from stacked materials, even when sheeting is attached, or from lifting assemblies of framing.

Bridging used with girts may be subjected to compressive (or tensile) loading due to gravity during installation. These loads become cumulative with increasing wall height, unless a separation joint is included. The capacity of **Stramit® Boltless Bridging**, **Stramit® Bolted Bridging** and **Stramit® Large Series Bridging** to resist these loads is shown in the tables below. These capacities are based on the mass of the girts plus a 1.1kN load to allow for riggers.

Example:

A wall 12m high has been initially designed to have Z200-19 girts at 9000 spans, spaced 1400 apart, using 1 row of bridging. Checking Page 25, this configuration is only acceptable for a wall height of 9m. As an alternative try Z200-15 with 2 rows of bridging. This has a maximum wall height of 15m which is acceptable.

WARNING – girt bridging capacity is usually limited by bridging end component strength rather than channel compression. **Stramit® Bridging** ends have been designed through testing to have a capacity substantially greater than most other bridging types. Accordingly this data must only be used for **Stramit® Bridging**.

MAXIMUM WALL HEIGHT (m)

When used with Stramit® Bridging: Stramit® Boltless Bridging or Stramit® Bolted Bridging

		1 row of girt bridging														2 rows of girt bridging																		
girt span (m) >		3	4	5	6	7	8	9	10	11	12	13	14	3	4	5	6	7	8	9	10	11	12	13	14									
150-10	girt spacing (m)	0.9 - 1.5		40	33	28	25	22	20	18							36	32	28	26	23													
		1.6 - 2.0						37	33	31											38													
		2.1 - 2.5						37	34	32											39	36												
		2.6 - 3.0		35	31	28	25	23	21	20							39	35	32	29	27	25	23											
150-12	girt spacing (m)	0.9 - 1.5		35	29	24	21	19	17	15							36	31	27	24	22	20												
		1.6 - 2.0						35	32	29	26									39	36	33												
		2.1 - 2.5						36	33	30	28									37	34	32												
		2.6 - 3.0	37	32	28	25	22	20	19	17							36	32	29	26	24	22	21											
150-15	girt spacing (m)	0.9 - 1.5	37	29	24	20	18	16	14	13	12						37	30	26	23	20	18	17	15										
		1.6 - 2.0						39	34	30	27	24	22	20					37	33	30	28	25											
		2.1 - 2.5						40	35	31	28	25	23	22					39	35	32	30	27	25										
		2.6 - 3.0	33	28	24	21	19	18	16	15	14						38	32	28	25	23	21	20	18	17									
150-19	girt spacing (m)	0.9 - 1.5	30	24	19	16	14	13	12	10	10	9					38	30	25	21	19	17	15	14	13	12								
		1.6 - 2.0							39	33	28	25	22	20	18	17	15			35	31	27	25	23	21	20								
		2.1 - 2.5							40	33	29	26	23	21	20	18	17			38	34	30	27	25	23	21	20							
		2.6 - 3.0	29	24	21	18	16	15	14	13	12	11								33	28	25	22	20	18	17	16	15	14					
150-24	girt spacing (m)	0.9 - 1.5	25	19	16	13	12	10	9	9	8	7	7				32	25	21	18	15	14	12	11	10	10	9							
		1.6 - 2.0							32	27	23	20	18	16	15	14	13	12			34	29	25	23	21	19	17	16	15					
		2.1 - 2.5							33	28	24	22	19	18	16	15	14	13			38	33	28	25	23	21	19	18	17	16				
		2.6 - 3.0	25	21	18	16	14	13	12	11	10	10	9								29	25	21	19	17	16	14	13	13	12	11			
200-12	girt spacing (m)	0.9 - 1.5	38	29	24	21	18	16	14	13	12	11	10				37	31	27	23	21	19	17	16	15	14								
		1.6 - 2.0							35	30	27	25	22	21	19	18				38	34	31	28	26	24	23								
		2.1 - 2.5							35	31	28	26	24	22	21	19				36	33	30	28	26	24	23								
		2.6 - 3.0	34	28	25	22	20	18	16	15	14	14	13							38	33	29	26	23	22	20	19	17	16	16				
200-15	girt spacing (m)	0.9 - 1.5	30	24	19	17	14	13	12	11	10	9	8				38	30	25	21	19	17	15	14	13	12	11							
		1.6 - 2.0							39	33	28	25	22	20	18	17	16	15			35	31	28	25	23	21	20	18						
		2.1 - 2.5							40	34	29	26	23	21	20	18	17	16			38	34	30	27	25	23	21	20	19					
		2.6 - 3.0	29	24	21	18	16	15	14	13	12	11	11								33	28	25	22	20	18	17	16	15	14	13			
200-19	girt spacing (m)	0.9 - 1.5	25	19	16	13	12	10	9	9	8	7	7	6			31	25	20	17	15	13	12	11	10	9	9	8						
		1.6 - 2.0							32	27	23	20	18	16	15	14	13	12	11			40	33	29	25	22	20	19	17	16	15	14		
		2.1 - 2.5							33	28	24	21	19	18	16	15	14	13	12			38	32	28	25	23	21	19	18	17	16	15		
		2.6 - 3.0	25	20	18	15	14	13	12	11	10	10	9	9							29	24	21	19	17	16	14	13	13	12	11	11		
200-24	girt spacing (m)	0.9 - 1.5	20	16	13	11	10	8	8	7	6	6	6	5			26	20	17	14	12	11	10	9	8	8	7	7						
		1.6 - 2.0							34	27	22	19	16	15	13	12	11	10	10	9			33	28	24	21	19	17	15	14	13	12	12	
		2.1 - 2.5							35	28	23	20	18	16	15	14	13	12	11	11			39	32	27	24	21	19	17	16	15	14	13	12
		2.6 - 3.0	21	18	15	13	12	11	10	9	9	8	8	8							25	21	18	16	15	13	12	11	11	10	10	9		
250-19	girt spacing (m)	0.9 - 1.5	19	15	12	10	9	8	7	7	6	6	5	5			28	22	18	16	14	12	11	10	9	8	8	7						
		1.6 - 2.0							32	25	21	18	16	14	13	12	11	10	9	9			36	30	26	23	20	18	17	16	14	13	13	
		2.1 - 2.5							31	25	21	18	16	15	13	12	12	11	10	10			35	29	26	23	21	19	17	16	15	14	13	
		2.6 - 3.0	20	17	15	13	12	11	10	9	9	8	8	8							27	23	20	17	16	14	13	12	12	11	10	10		
250-24	girt spacing (m)	0.9 - 1.5	16	12	10	9	8	7	6	6	5	5	5	4			23	18	15	13	11	10	9	8	8	7	7	6						
		1.6 - 2.0							26	21	17	15	13	12	10	10	9	8	8	7			38	30	25	21	19	17	15	14	13	12	11	11
		2.1 - 2.5							26	21	18	15	14	12	11	10	10	9	9	8			36	29	25	22	19	17	16	15	14	13	12	11
		2.6 - 3.0	18	14	12	11	10	9	9	8	8	7	7	7							24	20	17	15	13	12	11	11	10	9	9	9		

Note - Girt spacing is equivalent to bridging length.

 allowable wall height exceeds 40m – contact Stramit for applications in this range.

 beyond practical range for this girt size.

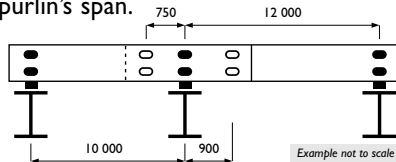
MAXIMUM WALL HEIGHT (m)																															
When used with Stramit® Large Series Bridging																															
		1 row of girt bridging										2 rows of girt bridging																			
girt span (m) >		4	5	6	7	8	9	10	11	12	13	14	15	4	5	6	7	8	9	10	11	12	13	14	15						
250-19 girt spacing (m)	0.9 - 1.5																								39						
	1.6 - 2.0																														
	2.1 - 2.5																														
	2.6 - 3.0																														
250-24 girt spacing (m)	0.9 - 1.5													39	36	34	31														
	1.6 - 2.0																														
	2.1 - 2.5																														
	2.6 - 3.0																														
300-24 girt spacing (m)	0.9 - 1.5												38	34	32	29	27	25							39						
	1.6 - 2.0												44	40	37	35	33														
	2.1 - 2.5												51	47	44	41	38														
	2.6 - 3.0												46	43	40	37	35														
300-30 girt spacing (m)	0.9 - 1.5												38	34	30	28	26	24	22	21					39	36	34	32			
	1.6 - 2.0												39	36	33	31	28	27													
	2.1 - 2.5												42	39	36	34	32														
	2.6 - 3.0												38	35	33	31	29														
350-30 girt spacing (m)	0.9 - 1.5																									39	36	33	31	28	27
	1.6 - 2.0												36	33	30	28	26	24	23										39	37	34
	2.1 - 2.5												39	35	33	31	29	27													
	2.6 - 3.0												39	35	33	30	28	26	25										39	37	

Notes to Tables K and L – Girt spacing is equivalent to bridging length.

allowable wall height exceeds 40m – contact Stramit for applications in this range.

Laps

All lapped configurations require a total lap length of 15% of the span (to the nearest 50mm). Where span lengths are unequal (e.g. reduced end spans) each purlin should have 7.5% of each adjacent span added rather than 7.5% of that purlin's span.



Bolts

Bolting of 100 to 250 purlins or girts to cleats and at lapped joints should be by standard M12 grade 4.6 bolts unless the shear capacity of the bolts is exceeded as indicated in the design capacity tables. In these cases high strength M12 grade 8.8 bolts must be used. For 300 series purlins use M16 grade 4.6 bolts or M16 grade 8.8 bolts where indicated.

Values in the purlin design capacity tables shown in **bold italics** require grade 8.8 bolts to be used. It is however possible to use grade 4.6 bolts provided the reaction values shown in the tables below are not exceeded.

STRAMIT® PURLINS & GIRTS – BOLT/PURLIN REACTION CAPACITIES (kN)					
bolt size /grade	support type	purlin thickness (mm)			
		1.5	1.9	2.4	3.0
M12/4.6	unlapped	31.1	31.8	31.8	31.8
	lapped	31.8	31.8	31.8	31.8
M16/4.6	unlapped	41.5	52.5	59.7	59.7
	lapped	59.7	59.7	59.7	59.7

Holes

Stramit® Purlins and Girts are custom punched to your requirements. Standard hole size is 18mm x 22mm and AISC recommended web hole centres are:

C/Z 100	40mm
C/Z 150	60mm
C/Z 150	70mm (Victoria & Tasmania)
C/Z 200	110mm
C/Z 250	160mm
C/Z 300	210mm
C/Z 350	210mm

Fascia Purlins

Fascia purlins (either specifically designed or standard C-section) are normally subjected to lower loads and usually provide a convenient surface to mount the roof drainage gutters. This is assisted by the use of special low profile head fascia bolts.

Should the fascia purlin support the wall girts, via the fascia bridging system, ensure sufficient allowance is made to carry this extra load.

Cantilevers

The capacity of cantilevers is, in part, dependent on the adjacent internal span length. The number of consequent permutations precludes the inclusion of tabulated data. It is suggested however that cantilevers of up to 20% of the adjacent internal span length will generally be within the capacity of that span, provided the cantilever ends are braced against rotation and lateral movement. For further applications contact your regional Technical Manager.

R-Factors

The Australian Standard AS/NZS4600 offers an alternative method of calculating the lateral buckling capacities of cold-formed members using a 'reduction factor – R'. In some cases the capacities of purlins will be improved by the application of this method. However this method is based on calibration from testing and **can only be used in very specific cases** where numerous conditions are met. Some key conditions are:

- minimum sheet thickness of 0.42mm bmt
- minimum rib height of 27mm
- fasteners located at every rib
- no insulating blanket between the sheet and the purlin
- screw-fastened on the ribs
- minimum lap length 13%
- maximum rib spacing 200mm

Only **Stramit Monoclad**® sheeting (or near identical equivalents) can make use of this method, and still with many conditions applying. Contact your regional Technical Services Manager if you believe your application may benefit from R-factor data.

WARNING – beware of computations claiming to conform to AS/NZS4600 which have made use of the R-factor method without fully conforming to the conditions laid down and other design requirements.

Procurement

Prices

Prices of **Stramit® Purlins and Girts, Stramit® Bridging** and their accessories can be obtained from your nearest Stramit location or distributor of Stramit products.

Lengths

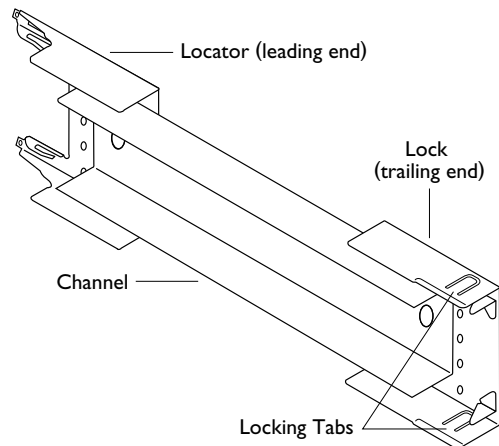
Stramit® Purlins and Girts are supplied cut-to-length. If you are designing or transporting long products ensure that the length is within the limit of the local Transport Authority regulations. All sections are custom-cut to length from 0.6m to 12.6m. For longer lengths, contact your Stramit representative to determine special transport arrangements.

Lengths less than 1.5m will be supplied "sausage" style in a continuous run approximately 5m long with only a small uncut tag connecting the purlin. Simply break off individual purlins on site. Although supplied in a string, each purlin has individual marking labels.

Accessories

Stramit® Bridging for sizes 100 to 250 has a variety of components that are adaptable to all practical applications. Any combination of channel, locator end, lock end and bolted end can be supplied in a pre-assembled form. These are also available in a bolted form for use on curved roofs and at expansion joints. Additional accessories include turnbuckles, clamp plates, extended angle brackets and slotted channel.

Intermediate Bridging Description



Stramit® Bridging is easy to install starting with the locator end and completing with the lock end. A detailed installation leaflet is available upon request.

Stramit® Bridging for sizes 250 and 350 is a heavy duty bolted system which uses a C100 purlin in place of the channel.

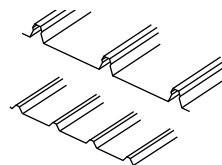
Orders

Stramit® Purlins, Girts, Bridging and accessories can be ordered directly from your nearest Stramit location. Exact details of lengths, hole positions and section sizes are required. Ask at your nearest Stramit location for order pad/detailing sheets.

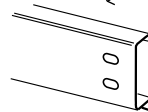
Lead Times

Please talk to your nearest Stramit branch for current lead times on purlin manufacture and delivery.

Related Products



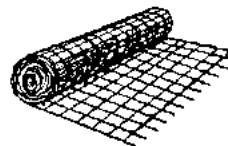
Roof and Wall sheeting – in a comprehensive range to cover all applications.



Fascia purlins – angled to suit the roof slope and with an extended downturn lip for wall sheet attachment. (style varies regionally)



Insulating blanket – in a variety of thicknesses and with or without foil backing.



Roofing mesh – for roof safety and blanket support.

Delivery/Unloading

Delivery is subject to delivery location, quantity and material availability, or can be at a pre-arranged date and time. Please ensure that suitable arrangements have been made for truck unloading, as this is the responsibility of the receiver. Pack mass may be up to one tonne.

Installation

Site Induction

Consideration should be given to handling and installation issues as part of site induction safety procedures. Specific consideration should be given to pack handling, avoidance of cuts, trips, slips and falls, long section handling particularly in windy conditions, section cutting procedures and surface temperature on sunny days. Personal Protection Equipment (PPE) should always be used.

Good Practice

Stramit recommends that good trade practice be followed when using these products, such as found in AISC/Australian Standards HB62 part 1 and HB39.

Section Handling

Cut resistant or leather gloves should be worn when handling product. Foot protection should be worn when handling and transporting product.

Walking

Stramit® Purlins, Girts and **Bridging** are not designed for walking on. Residual oil may be present on these components from manufacturing. The use of appropriate cradles or cherry pickers is recommended. As a minimum follow these rules:

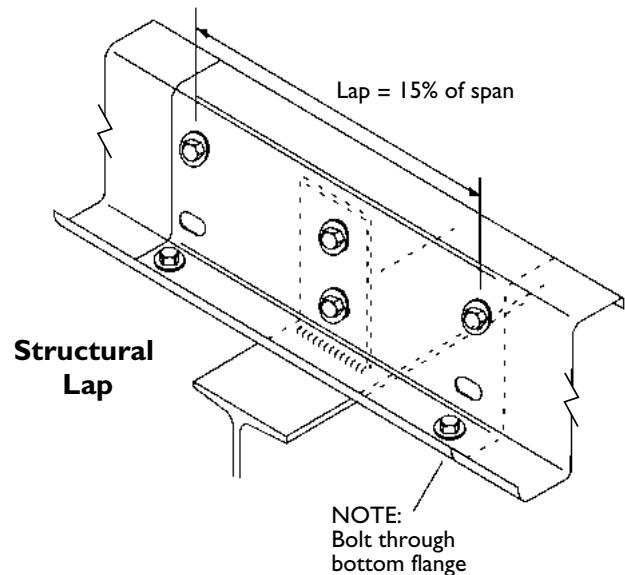
- Never walk on purlins without safety mesh in place
- Always use a safety harness if walking on girts
- Never walk or place body weight on to bridging

Bolts

Always use the correct size and grade of bolts. Ensure that all bolts are tightened.

Laps

Purlin laps must be bolted in the top web hole and the lower flange holes at both ends of the lap as shown below.



Bolting only in the web of lapped purlins does not provide full structural continuity. Excessive loads may be placed on to roofing screws that penetrate both purlins within a lapped region.

Fly Bracing

If the lower web hole in a lap is used for attaching fly bracing ensure that an additional bolt is used.

Bridging

Stramit® Bridging can be installed either up or down the roof slope, but cannot be mixed within a bridging run. However, as the starting and finishing components will be different, the direction of fixing must be established at the design/procurement phase.

Girt bridging must not exceed the capacities shown in this manual. Where more than one row is to be installed always complete the bridging for each girt before commencing on the next (i.e. do not complete one row of bridging before starting the next).

Additional Information

Design Service

With the wide variations possible in building design, the publication of specific capacity data becomes increasingly challenging. As a service to its customers, Stramit may be able to assist with more specific purlin capacities to suit particular applications. This includes calculations for:

- special purlin sizes
- downturn lips
- cantilever purlins
- combined different thickness purlins
- different span dimensions
- different lap lengths
- shorter or longer spans than those shown in the tables
- multiple span continuous systems
- design member capacities
- variable UDL within spans
- concentrated loads
- alternative bridging positions
- mixed bridging numbers
- any combinations of the above

For more information please contact your regional Stramit Technical Services Manager.

Further Information

A complimentary manual **Stramit® Purlins, Girts & Bridging** – Detailing & Installation Guide is also available.

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

Please contact your nearest Stramit location for any of these guides, or other literature.

References

In preparing this document reference has been made to:

- Standards Australia Handbook – HB39 (Installation code for metal roof and wall cladding)
- AISC/Standards Australia Handbook – HB62.1 (Code of practice for safe erection of building steelwork)
- BlueScope Steel – Technical Bulletin TB-17 (Selection guide for galvanized steel purlin products)

Other Products

Stramit offers a wide range of building products, including:

- Formwork decking
- Roof and wall sheeting
- Lightweight structural sections
- Truss components
- Gutters and downpipes
- Fascias
- Custom flashings
- Insulating products
- Fasteners

Patents/Designs

Stramit® Bridging is protected in Australia by both patent and registered design.



The Stramit web page can be found at:

www.stramit.com.au

Details of many **Stramit**® products can also be seen on the AIA site 'Product Selector' at:
www.selector.com.au

Building Products

contact numbers for information

		prices	availability	general	technical
			products coating colours	other	advice product data
SYDNEY 33-83 Quarry Road, Erskine Park NSW 2759	phone fax	(02) 9834 0909 (02) 9834 0988		(02) 9834 0900 (02) 9834 0988	
CANBERRA 4 Bass Street, Queanbeyan NSW 2620	phone fax		(02) 6297 3533 (02) 6297 8089		
COFFS HARBOUR 6 Mansbridge Drive, Coffs Harbour NSW 2450	phone fax		(02) 6652 6333 (02) 6651 3395		(02) 4954 5033 (02) 4954 5856
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ORANGE 51 Leewood Drive, Orange NSW 2800	phone fax		(02) 6361 0444 (02) 6361 9814		
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BENDIGO Ramsay Court, Kangaroo Flat VIC 3555	phone fax		(03) 5448 6400 (03) 5447 9677		
MILDURA 19 - 23 Adams Street, Mildura VIC 3500	phone fax		(03) 5018 4800 (03) 5021 0557		
TASMANIA 57 Crooked Billett Drive, Brighton TAS 7030	phone fax		(03) 6263 5536 (03) 6263 6950		(03) 6263 5536 (03) 6263 6950
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BRISBANE 57-71 Platinum Street, Crestmead QLD 4132	phone fax		(07) 3803 9999 (07) 3803 1499		
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CAIRNS 53 Vickers Street, Edmonton QLD 4869	phone fax		(07) 4045 3069 (07) 4045 4762		
MACKAY 6 Brickworks Court, Glenella QLD 4740	phone fax		(07) 4942 3488 (07) 4942 2343		(07) 3803 9999 (07) 3803 1499
MARYBOROUGH 10 Activity St, Maryborough QLD 4650	phone fax		(07) 4121 2433 (07) 4123 3139		
ROCKHAMPTON 41 Johnson St, Parkhurst QLD 4702	phone fax		(07) 4936 2577 (07) 4936 4603		
SUNSHINE COAST Unit 1, 5 Kerryl St, Kunda Park QLD 4556	phone fax		(07) 5456 4083 (07) 5456 4862		
MURWILLUMBAH 6 Kay Street, Murwillumbah NSW 2484	phone fax		(02) 6672 8542 (02) 6672 6798		
DARWIN 55 Albatross Street, Winnellie NT 0820	phone fax		(08) 8947 0780 (08) 8947 1577		
PERTH 605-615 Bickley Road, Maddington WA 6109	phone fax		(08) 9493 8800 (08) 9493 8899		

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