METROLL PURLIN DESIGN GUIDE & CAPACITY TABLES

C & Z STANDARD PURLINS

A Met-TECH™ GUIDE

JULY 2019

Metroll®

BETTER SERVICE • BETTER BUILDING SOLUTIONS

METROLL STANDARD PURLINS & GIRTS DESIGN MANUAL & CAPACITY TABLES

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GENERAL INFORMATION

APPLICATION

Metroll purlins and girts are primarily used in the design of sheds, industrial and commercial buildings. The sections are typically used to support roof and wall sheeting.

MATERIALS

Metroll purlins and girts are manufactured from hi-tensile G450, G500 or G550 galvanised steel, with a minimum Z350 (350 g/m^2) galvanised coating conforming to AS 1397.

INSTALLATION

Purlin and girt installation should be carried out in suitable weather conditions by experienced crews.

SHEET LENGTH & EXPANSION JOINTS

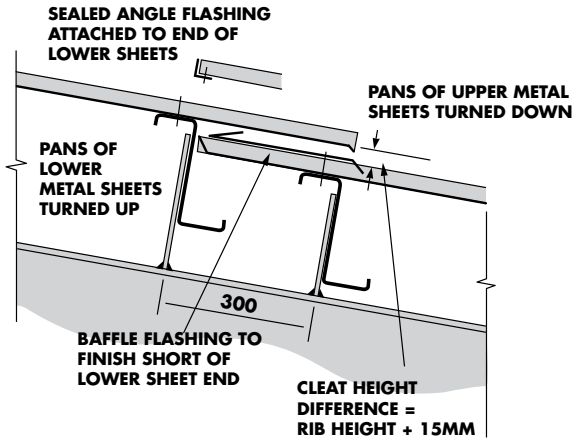
Roof sheeting lengths are limited by several issues - thermal expansion, transport limitations and practical handling are the main items governing maximum sheet lengths. The following table provides recommended maximum sheet lengths. This may vary from state to state. Contact your local Metroll branch for more information.

MAXIMUM ROOF SHEET LENGTH

ROOF COLOUR	THROUGH FIX	CONCEALED FIX
Light	25 m	33 m
Dark	17 m	25 m

Where buildings are designed with roofing runs greater than the table above, expansion joints are necessary.

TYPICAL EXPANSION JOINT



WELDING

Welding of purlins, girts and bridging is not recommended. Welding any cold rolled, high tensile material affects the material properties and removes the galvanised coating. This can cause reduced life of the member.

SAFE WORK PRACTICE

Metroll purlins and girts are not designed for walking on. Residual oil from the manufacturing process may be present and slipping can occur. Appropriate lifting equipment and work platforms must be used.

As a minimum:

- Never walk on purlins or girts during installation. Use appropriate equipment.
- Never walk on bridging.
- Ensure safety mesh is in place.
- Always use approved safety harnesses and/or other suitable safety equipment during installation.

CORROSION PROTECTION & MATERIAL COMPATIBILITY

Some building materials and environmental conditions can be detrimental to coated steel products irrespective of the product thickness. This includes contact with or exposure to runoff from:

- Industrial, agricultural, marine or other aggressive atmospheric conditions
- Incompatible metals such as lead or copper
- Building materials subject to cycles of excessive moisture content such as non-seasoned timber
- Materials which have been treated with preservatives such as CCa or tanalith treated section.

The standard Z350 (350 g/m^2) galvanised coating will provide a long and trouble free life for enclosed buildings and open sided rural applications in non-aggressive environments. For more severe corrosive environments a Z450 (450 g/m^2) will be required. This heavier coated product is available subject to minimum order quantities and lead times.

ON-SITE STORAGE

If not required for immediate use, the Z or C sections or bundles should be neatly stacked clear of the ground. For extended outdoor storage duration, the sections should be stored with a small incline so that no water can pool.

Sections/bundles and accessories should not be left exposed in the open for extended periods of time. If unavoidable then protect the sections/bundles from moisture and rain with waterproof covers.

PRODUCT RANGE & PROPERTIES

C & Z SECTIONS

The following diagrams and tables illustrate the sizes and thicknesses readily available for purlins and girts. Shapes other than standard C and Z sections may be subject to minimum order requirements and extended lead times. Contact your local Metroll branch for more detail.

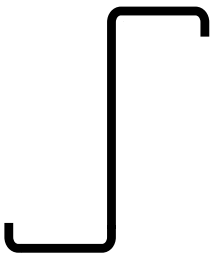
C SECTIONS

STANDARD C

NESTABLE C
Box Configuration

Z SECTIONS

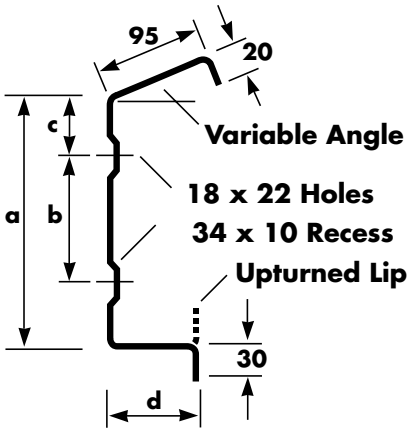
STANDARD Z



FASCIA PURLINS
Not available at all branches

Fascia Purlin design varies significantly across Australia. Different applications require different section size and configuration.

Metroll manufacture a range of fascia purlins including the popular Fluted Series. These purlins feature a fluted web which adds strength and provides a flush external face when used with flat headed fascia bolts. The added advantages of this section include a down turned lip for wall fixing and a variable upturned top flange for roof pitches from 5° to 30°.

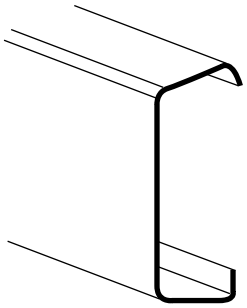


FASCIA PURLIN DIMENSIONS

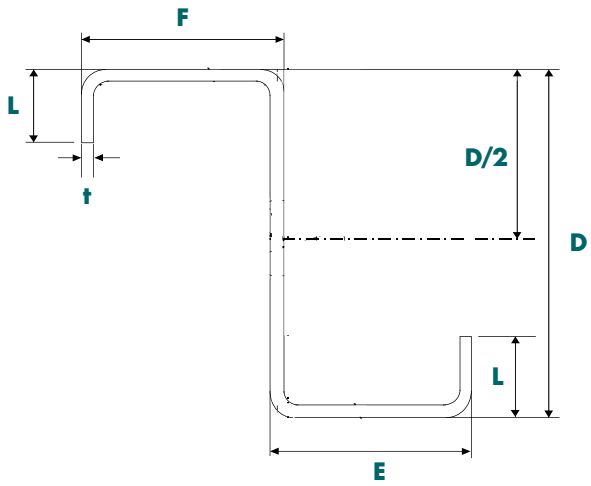
	A mm	B mm	C mm	D mm
230 Plain	230	110	65	50
230 Fluted	230	110	65	50
260 Plain	260	160	50	60
260 Fluted	260	160	50	60

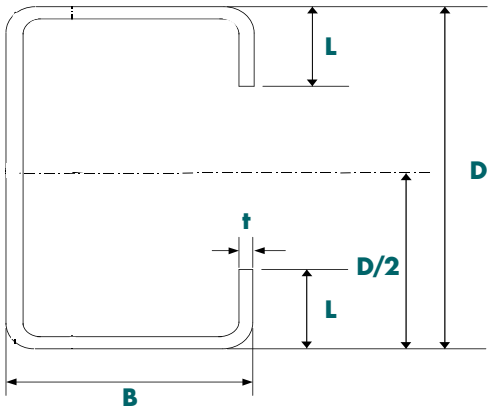
FASCIA PURLIN - ALTERNATIVE OPTION

It is common practice to use a standard C section in place of a fascia purlin in fascia applications. The C section can be supplied as a standard configuration or with the top flange bent to suit the roof slope.



DIMENSIONS & PROPERTIES





C & Z PURLIN SIZE & MASS TABLE

Section	Thickness (t) mm	Height (D) mm	Z PURLINS			C PURLINS		Mass kg/m
			E	F	L	B	L	
100 10*	1.0	102	53	49	12.5	51	12.5	1.75
100 12	1.2	102	53	49	13	51	12.5	2.09
100 15	1.5	102	53	49	13.5	51	13.5	2.59
100 19	1.9	102	53	48	14.5	51	14.5	3.26
150 12	1.2	152	65	61	15.5	64	14.5	2.86
150 15	1.5	152	65	61	16.5	64	15.5	3.55
150 19	1.9	152	65	61	17.5	64	16.5	4.48
150 24	2.4	152	66	60	19.5	64	18.5	5.81
200 15	1.5	203	79	74	18	76	15.5	4.46
200 19	1.9	203	79	74	18.5	76	19	5.69
200 24	2.4	203	79	73	21.5	76	21	7.39
250 19	1.9	254	79	74	18	76	18.5	6.45
250 24	2.4	254	79	73	21	76	20.5	8.37
300 24	2.4	300	100	93	27	96	27.5	10.11
300 30	3.0	300	100	93	31	96	31.5	12.66
350 24*	2.4	350	129	121	30	125	30	12.23
350 30	3.0	350	129	121	30	125	30	15.15
400 30	3.0	400	96	96	30	96	30	15.15

* Minimum order quantity and lead time may apply

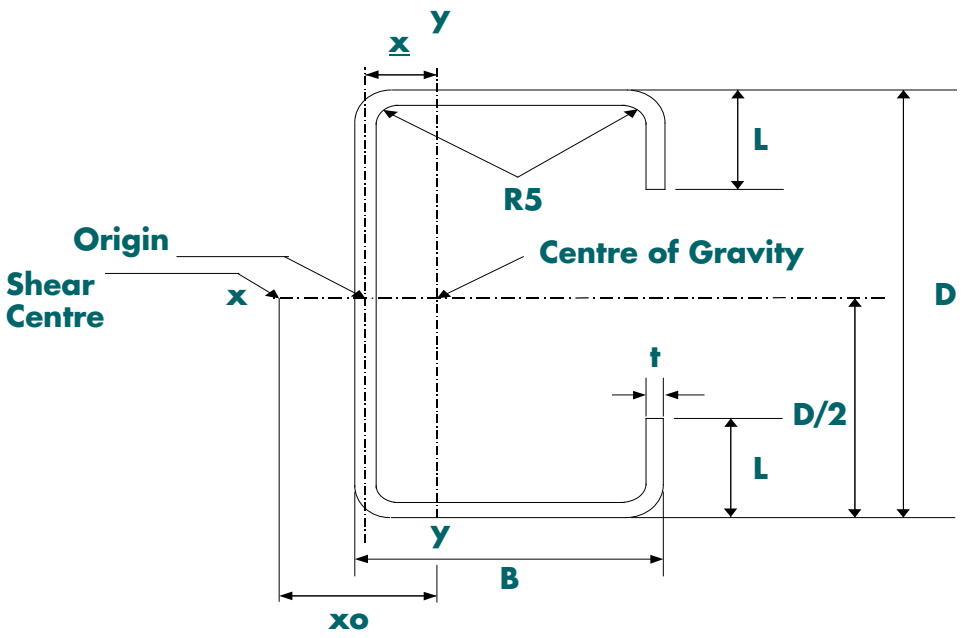
TOLERANCES

All sections will be produced with the following tolerances.
Please contact Metroll if any variation is required.

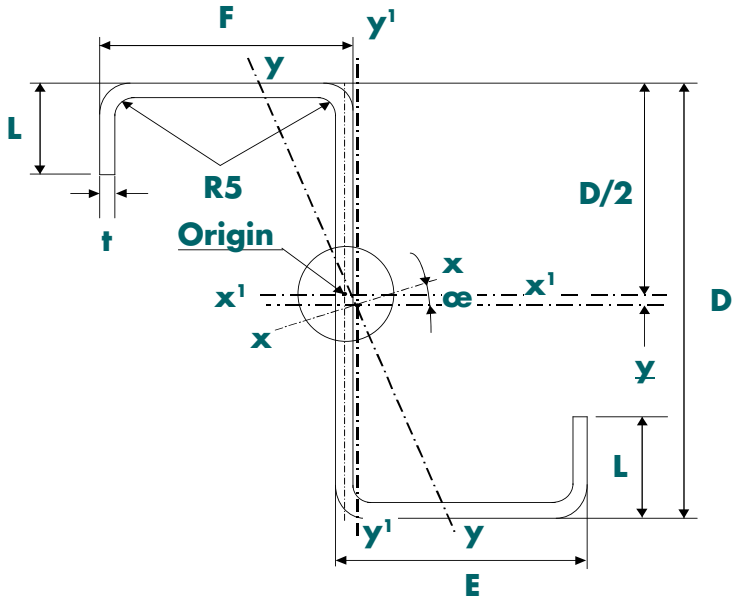
Overall Length	±5mm
Flange Width	±1mm
Depth	±1mm
Hole Centres	±1.5mm

C PURLIN DIMENSIONS & PROPERTIES

NOTE: x and y axes coincide with x^1 and y^1 axes (respectively)



Z PURLIN DIMENSIONS & PROPERTIES



C SECTION PROPERTIES

Section	Area mm²	Second Moment of Area (x10^6 mm4)		Form Factor	Torsion Constant mm4	Warping Constant (x10^9 mm6)	Monosymmetry Constant mm	Shear Centre mm	Centre of Gravity
		Ix	Iy	Q	J	Iw	by	xo	x
C100 10	215	0.361	0.075	0.644	71.7	0.158	123.3	-39.85	16.03
C100 12	258	0.429	0.088	0.731	123.8	0.186	122.8	-39.61	15.93
C100 15	321.7	0.531	0.111	0.824	241.3	0.238	122	-39.9	16
C100 19	408.5	0.667	0.41	0.879	491.6	0.307	121.7	-40.28	16.18
C150 12	354	1.28	0.186	0.573	169.9	0.835	170.7	-46.38	18.22
C150 15	441.4	1.593	0.234	0.671	331	1.059	170.1	-46.7	18.3
C150 19	560.5	2.009	0.297	0.76	674.5	1.358	169.8	-47.07	18.49
C150 24	708	2.527	0.382	0.813	1359.4	1.79	168.5	-47.93	18.82
C200 15	555	3.509	0.393	0.557	416.3	3.042	223.2	-51.54	19.89
C200 19	710.7	4.472	0.522	0.647	855.2	4.157	220.8	-53.4	20.7
C200 24	901.5	5.642	0.673	0.726	1722.8	5.483	218.8	-54.2	21
C250 19	807.5	7.585	0.557	0.574	971.7	6.82	276.4	-48.46	18.1
C250 24	1020	9.577	0.716	0.645	1958.4	8.859	273.9	-49.21	18.39
C300 24	1260	16.919	1.504	0.592	2419.2	26.671	319.8	-65.97	24.99
C300 30	1590	21.253	1.948	0.672	4770	35.487	315.8	-67.88	25.74
C350 24	1545	29.12	3.18	0.52	3015	77.379	386.9	-91.11	34.07
C350 30	1905	35.708	3.799	0.596	5715	89.651	378.4	-86.24	33.18
C400 24	1665	39.8	3.31	0.54	3246	103.979	439.9	-86.23	31.61
C400 30	2072	49.32	4.07	0.63	6318	127.269	440	-85.69	31.33

Z SECTION PROPERTIES

Section	Area mm²	Second Moment of Area (x10^6 mm4)				Form Factor	Torsion Constant mm4	Warping Constant (x10^9 mm6)	Monosymmetry Constant mm		Shear Centre mm		Centre of Gravity		Angle (Deg)
		Ix¹	Iy¹	Ix	Iy	Q	J	Iw	ßx	ßy	xo	yo	x	y	œ
Z100 10	215	0.361	0.13	1.448	0.043	0.644	71.7	0.213	9.9	11.8	-1.94	-4.73	1.11	-0.94	27.6
Z100 12	258	0.429	0.153	0.532	0.051	0.731	123.8	0.25	9.9	11.8	-1.94	-4.75	1.11	-0.94	27.5
Z100 15	322.5	0.533	0.194	0.663	0.064	0.826	241.9	0.317	9.9	11.8	-1.95	-4.75	1.11	-0.94	27.8
Z100 19	408.5	0.667	0.248	0.833	0.081	0.879	491.6	0.404	9.9	11.7	-1.96	-4.77	1.12	-0.94	28
Z150 12	352.4	1.274	0.3	1.46	0.114	0.576	169.2	1.145	12.4	12.7	-1.9	-5.9	1	-1	21.7
Z150 15	441.4	1.586	0.379	1.822	0.144	0.676	331	1.447	12.4	12.6	-1.9	-5.9	1	-1	21.9
Z150 19	559.2	1.995	0.482	2.294	0.181	0.725	672.9	1.839	12.5	12.6	-1.9	-5.9	1	-1	22
Z150 24	705.9	2.506	0.625	2.897	0.235	0.811	1363.3	2.381	18.6	18.5	-2.9	-8.8	1.5	-1.5	22.4
Z200 15	555	3.512	0.616	3.876	0.253	0.555	416.3	4.235	17.6	17.1	-2.26	-8.3	1.17	-1.36	18.5
Z200 19	712.5	4.496	0.837	4.994	0.339	0.647	857.4	5.795	17.4	16.8	-2.3	-8.24	1.19	-1.34	19.1
Z200 24	900	5.673	1.089	6.324	0.438	0.726	1728	7.58	21	19.8	-2.79	-9.94	1.45	-1.6	19.4
Z250 19	805.4	7.808	0.916	8.318	0.407	0.57	969.2	10.235	25.8	23.4	-2.7	-12.1	1.3	-1.9	14.7
Z250 24	1023.5	9.572	1.074	10.158	0.487	0.643	1952.5	12.261	26.9	23.4	-2.6	-12.8	1.3	-1.8	14.3
Z300 24	1260	17.117	2.381	18.471	1.027	0.59	2419.2	37.465	20.9	17.2	-1.99	-10.19	0.94	-1	16.2
Z300 30	1590	21.513	3.119	23.3	1.332	0.672	4770	49.318	21.3	16.9	-2.02	-10.42	0.94	-0.94	16.6
Z350 24	1545	29.1	4.98	32.02	2.07	0.52	2965	101	21.1	18.6	-2.1	-10.4	1.87	-2.16	18.2
Z350 30	1905	36.03	6.069	39.583	2.516	0.596	5715	126.23	21.6	19.1	-2.38	-10.49	1.16	-1.19	18
Z400 24	1665	39.8	4.98	42.55	2.22	0.54	3196	136	23.3	20.5	-2.4	-11.5	1.74	-2.29	15.2
Z400 30	2072	49.3	6.11	52.69	2.73	0.63	6250	166	23.7	21	-2.5	-11.8	1.73	-2.3	15.1

USING THIS MANUAL

When selecting purlins real applied loads must be considered along with the stated capacities in this manual. All spans are considered loaded concurrently and no allowance has been made for uneven or skip loading. Where this is likely, or where loading conditions vary from those designed for in this manual, a structural engineer should verify compliance independently with AS/NZS 4600:2005.

While real loading may be less than the stated capacity in this manual, this may not necessarily ensure competency of the selected system. Member adequacy is dependent on the maximum moments applied and the moment profile within the member span.

These design actions can vary widely under real, project specific, applied loads and it is the responsibility of the project design engineer to verify their purlin selection is compliant with AS/NZS 4600:2005 and AS/NZS 1170 Assessed Loading.

DESIGN ASSUMPTIONS

The tables in this brochure are for limit state capacity, which means that any load beyond the tabulated loads will prevent the member from fulfilling its intended function. This may mean reaching a limit state for collapse or loss of structural integrity. The limit state capacity tables for various purlin combinations in this publication provide economic design solutions for most projects. In special projects a more optimal design can be obtained by varying combinations, such as:

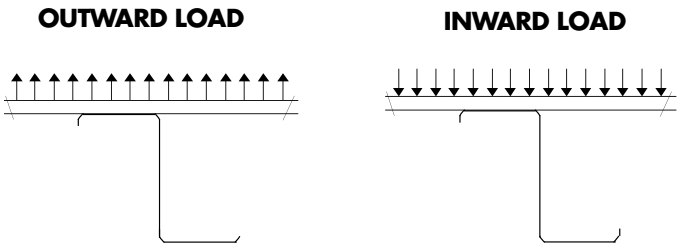
- Material specifications
- Bolt specifications & quantity
- Lap length
- Bridging quantity
- Span range
- Reduced or enlarged end spans
- Cantilevers at one or both ends of the configuration
- Loading

Design calculations are based on AS/NZS 4600:2005 Cold Formed Steel Structures, and follow criteria established by industry best practice.

Assumptions inherent in the code provisions and validated by them include:

- The Z shaped section behaves as an equivalent C shaped channel.
- Consistent with the above the section may be seen as acting with and as physically attached to the sheeting incurring the loads, in regard to its initial displacement.
- For INWARD loading full compressive bending stress is allowable on the flange attached to sheeting as shown in the following diagram. That is the centre span condition.
- For OUTWARD loading full compressive bending stress is allowable on the flange attached to the sheeting as shown in the following diagram. That is the span support condition.
- For sections/lengths under distortional buckling effects, both bending moment magnitude and gradient are taken into account.
- For all systems, loading is assumed as uniformly distributed and acting on all spans simultaneously.
- All section properties have been calculated with the holes deducted from the web.

LOADING CONDITIONS



DESIGN ASSUMPTIONS DISCLAIMER

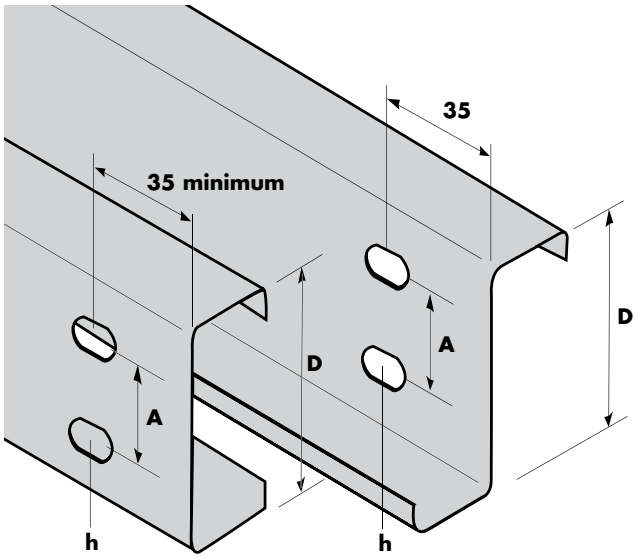
This publication is intended to provide accurate information with regard to Metroll C & Z purlins. It does not constitute a complete description of the goods, nor an explicit statement about suitability for any particular purpose. Data is provided as a guide only. Metroll Pty Ltd do not accept any liability for loss or damage suffered from the use of data in this publication.

DESIGN & SPECIFICATION

HOLE PUNCHING

Metroll C and Z purlin sections are normally supplied with holes punched to the AISC guide except in VIC where 150mm sections are punched to Structural Steel Fabricator Association Victoria recommendations (70mm centres).

Holes are required at cleat supports, laps bridging points or as specified on detail sheets supplied prior to manufacture. The preferred method of dimensioning is hole centre to hole centre rather than referenced from one end. An overall purlin length is required to provide for a data entry dimensional check.



HOLE CENTRES

PURLIN SIZE	AISC CENTRES	
D mm	A mm	h mm
100	40	18 x 22
150	60*	18 x 22
200	110	18 x 22
250	160	18 x 22
300	210	22 round
350	260	22 round
400	310	25 round

* Standard centres in VIC is 70mm
Alternative hole sizes, shapes and centres are available.
Please enquire with your local Metroll branch

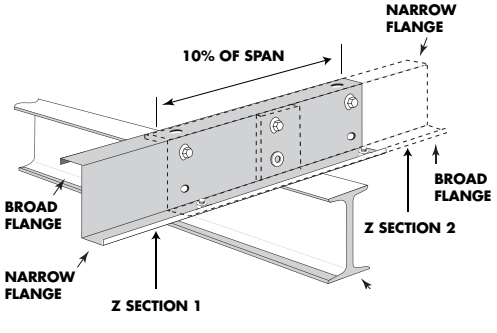
STRUCTURAL LAP LENGTHS

A feature of Metroll Z sections is one broad and one narrow flange proportioned so that two sections of the same size, when one is rotated by 180 degrees, bolt snugly together making them suitable for lapping. Structural continuity results in better economy but lapping provides two thicknesses of material over interior supports, increasing the strength of the sections where bending moments and shears are maximum, improving the load capacity and rigidity of the system. C sections cannot be lapped.

The bending moments, deflection and reaction coefficients vary with the length of the lap. These have been determined by a nominal lap of 10% span in all lapped spans. In the final analysis, where a mixed combination of lighter gauge section in an Internal Span to that in the End Span is made, the difference may be across two section thicknesses maximum. In three or four lapped span configurations with mixed thicknesses the greater thickness is in the end spans. The structural lap at the interior supports of lapped configurations must provide adequate structural continuity. Each end of the lap must be bolted with one bolt through the flanges furthermost from the cladding and one bolt through the webs near the flanges connected to the cladding. The required structural lap length is shown in the table. The size of the bolts depends on the section size. Bolts are standard Metroll Purlin Bolts.

Z sections of the same and different thicknesses can be lapped in any required combination. Z sections may also be used over simple spans and for shorter spans they may be used continuously over two or more spans without laps. Z sections with one lip turned outward may be used in simple or continuous spans with the ends butted. These sections cannot be overlapped.

LAP LENGTHS		Span (mm)	Lap Length (mm)
Nominal Section Size (mm)	100	≤6000	600
		>6000	900
	150, 200, 250	≤ 9000	900
		>9000 ≤12000	1200
		>1200	1800
	300, 350	≤9000	900
		>9000 ≤12000	1200
		>1200 ≤18000	1800
		>18000	2400



BRIDGING

The limit state capacity tables provide design solutions for an equal number of rows of bridging in each span. Provision is made for 0, 1, 2 or 3 rows.

In some combinations of span configuration and loading there is no benefit in increasing the number of bridging rows.

When using the Safebridge® bridging system 3 rows of bridging should be selected.

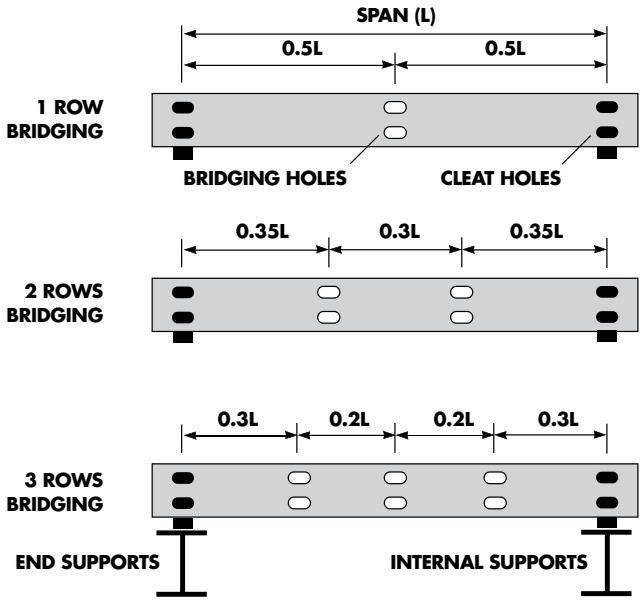
Metroll recommends that bridging is installed such that the maximum un-braced length is 20 x D (D = purlin web height), or 4000mm, whichever is the least. In addition to enhancing purlin performance this requirement assists with the installation of roof sheeting. Location of the bridging must be as shown below (to the nearest 50mm), or as determined by the design engineer.

RECOMMENDED MAX. BRIDGING SPACING

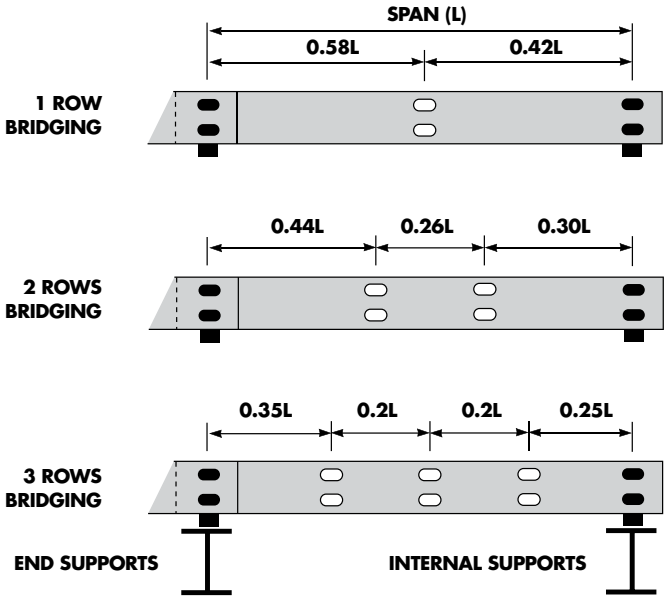
PURLIN SIZE MM	MAX. BRIDGING SPACING MM
100	2000
150	3000
200, 250 , 300, 350, 400	4000

BRIDGING HOLE LOCATIONS

SINGLE OR INTERNAL SPANS



DOUBLE OR END SPANS



MEMBER WEIGHT

All limit state loads are in kN/m. Limit state loads make no allowance for the mass of the member. In some cases, limit state loads are limited by the bolting.

DEFLECTION

There are no specific rules governing acceptable deflections, though structural codes give guidance. One needs to consider the specific requirements of any structure. It may be necessary to design under more than one load combination. Load stated is calculated to produce a deflection of Span/150 for the critical span. Solutions for other deflection ratios may be obtained using linear proportioning. Where a suspended ceiling is to be installed, such as in residential and commercial construction, more stringent deflection limits may be necessary to prevent damage to the ceiling components or joints. Both the end span and the internal span must be considered in the analysis of lapped and continuous spans.

CLEAT CONNECTIONS

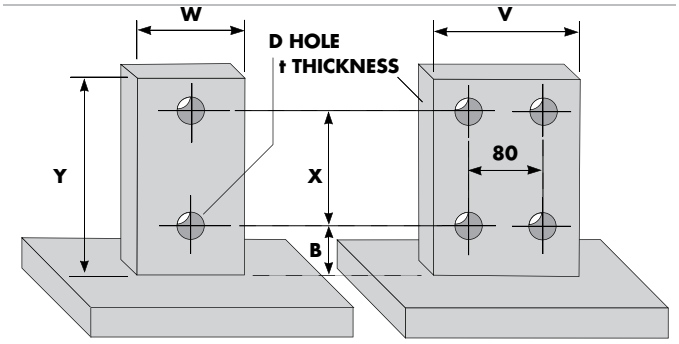
The limit state capacity tables are based on the sections being fastened through the web to the cleats so that the load is via the web of the sections.

The connections may be single section thickness such as in end connections, or the internal support connection of continuous configurations. Connections with double section thickness occur at the internal support of lapped configurations.

Each connection consists of two bolts. The bolt specifications (size and grade) will depend on the section size and design load. In some cases, eliminating cleats and bolting directly through the bottom flange for the Z and C sections could save on the number of bolts required. The number of bolts is halved compared with those in conventional cleated connections.

Single cleats are most commonly used with Z sections and double cleats with C sections. Double cleats can also be used in applications with a high reaction load to reduce bolt stress and sheer. Extra care is required with hole detailing in double cleat application to a single purlin. The following table illustrates industry standard cleat sizes including purlin clearances.

CLEAT NOMINAL DIMENSIONS - MM



SINGLE CLEAT DOUBLE CLEAT

SIZE	X	B+	Y+	t	GAP	hd	W	V
100	40	40	105	8	10	18	50	130
150	60*	55†	145	8	10	18	60	140
200	110	55	195	8	10	18	60	140
250	160	55	245	8	10	18	60	140
300	210	65	305	12	20	22	60	140
350	260	65	355	12	20	22	60	140
400	310	75	405	12	20	22	60	140

* 70mm in VIC

† 50mm in VIC

+ When using down turned lip purlins or girts the lip length must be added to the dimension B and Y. Cleat lengths may be increased in some design situations (e.g. above an expansion joint).

As a guide, increase the cleat thickness by 2mm for each 40mm of additional length.

BOLTS

The fastening of sections to cleats is normally by standard Metroll purlin bolts. In the limit state capacity tables, where high strength bolts govern the capacity the loads are marked accordingly. In these situations the section capacity is not fully utilised and it may be more economical to select another configuration or change the spacing of the section or increase the bolt number of specification.

Purlin laps must be bolted in the top web hole and the lower flange holes at both ends of the lap. Bolting only the web of lapped purlins does not provide full structural integrity and excessive loads can be placed on the roofing screws that penetrate both purlin thickness in the lap region. The correct size and grade of purlin bolts nominated by the design engineer should be used at all times. Bolts should be fully tightened prior to roof installation and before any loads are applied to the purlins, girts or bridging.

Bolts to be snug tightened to a nominal torque of 54Nm.

BOLT SPECIFICATION

NOMINAL SECTION SIZE MM	BOLT SPECIFICATION
100, 150, 200, 250	Standard M12 Purlin Bolt High Strength M12 Purlin Bolt
300, 350, 400	Standard M16 Purlin Bolt High Strength M16 Purlin Bolt

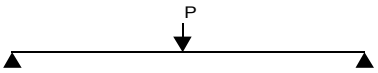
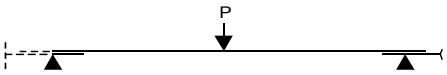
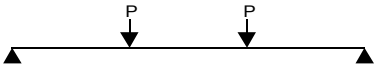
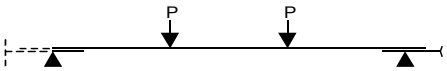
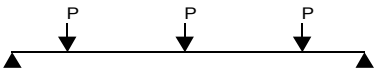
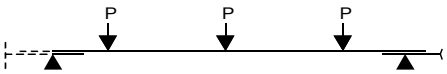
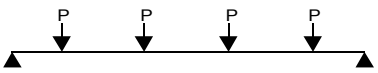
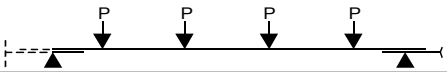
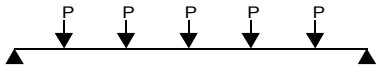
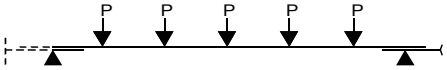
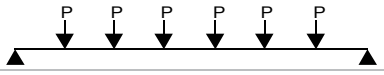
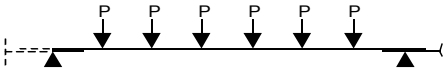
POINT LOADS
(SEE TABLE OVER PAGE)

The limit state loads specified in the tables are essentially uniformly distributed. It is inferred that all design loads will be converted into uniformly distributed values. In some applications the design loads are point loads. All design loads must be converted to uniformly distributed loads. The point-loaded configuration has been equated with uniformly loaded configuration for conversion formulae for single spans and lapped span configurations and are provided as a guide in the table on the following page. For continuous unlapped configurations a separate set of conversion formulae is applicable.

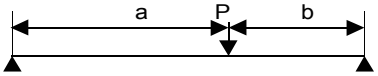
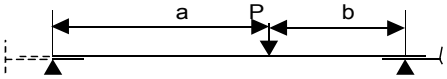
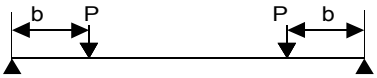
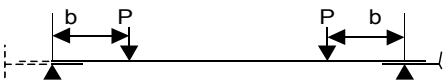
For single spans the formulae given are accurate conversions. For lapped spans, the conversion depends upon the number of spans, the position in the continuity and the lapping ratio. The lapped span formulae tabulated have been given the worst loading condition and can be safely used for interior spans, ends spans and any lapping ratio greater than 0:10. A separate set of conversion formulae would be required for deflection determination.

POINT LOADS

SYMMETRICAL EQUIDISTANT POINT LOADS

LOADING CONDITION		DIAGRAM	CONVERSION FORMULA
SINGLE LOAD	Simple		$w = \frac{2P}{L}$
	Lapped		$w = \frac{2.22P}{L}$
2 LOADS	Simple		$w = \frac{2.67P}{L}$
	Lapped		$w = \frac{3.16P}{L}$
3 LOADS	Simple		$w = \frac{4P}{L}$
	Lapped		$w = \frac{3.78P}{L}$
4 LOADS	Simple		$w = \frac{4.80P}{L}$
	Lapped		$w = \frac{5.12P}{L}$
5 LOADS	Simple		$w = \frac{6P}{L}$
	Lapped		$w = \frac{6.65P}{L}$
6 OR MORE LOADS	Simple		$w = \frac{1.14P}{L}$
	Lapped		$w = \frac{1.22P}{L}$

SINGLE ECCENTRIC & TWO SYMMETRICAL POINT LOADS

SINGLE ECCENTRIC POINT LOAD	Simple		$w = \frac{8abP}{L^3}$
	Lapped		$w = \frac{17.76ab^2P}{L^4}$
TWO SYMMETRICAL POINT LOADS	Simple		$w = \frac{8bP}{L^2}$
	Lapped		$w = \frac{9.45(2L-3b)P}{L^3}$

P = Single Point Load (kN)
L = Span (m)
a = Larger distance from support (m)
b = Smaller distance from support (m)
w = Equivalent uniform load (kN/m)
N = Number of Point Loads over one span

PURLIN DESIGN CAPACITY TABLES

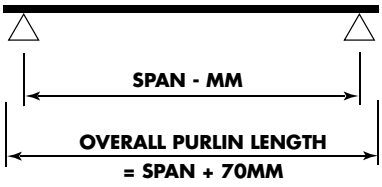
HOW TO USE THE TABLES

The tables indicate the maximum limit state capacity of the sections. Capacities are based on uniformly distributed loads and any point loads need to be converted.

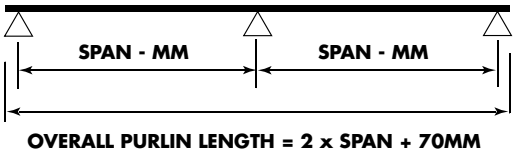
Required loads are established by a project designer using the appropriate building codes and standards. Once the purlin and girt outwards and inwards loads are determined the preferred span configuration can be checked using the tables.

When using the Safebridge® bridging system 3 rows of bridging should be selected.

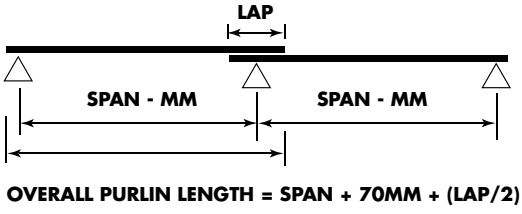
SINGLE SPAN



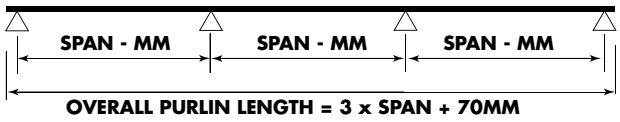
2 SPAN CONTINUOUS UNLAPPED



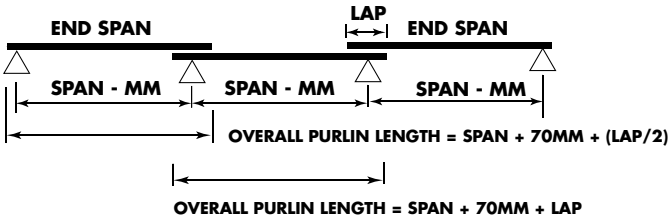
2 SPAN LAPPED



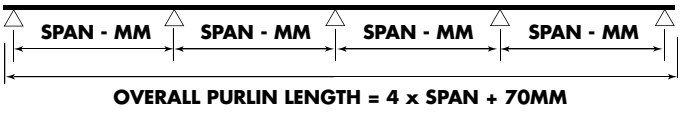
3 SPAN CONTINUOUS UNLAPPED



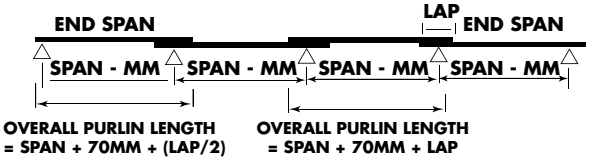
3 SPAN LAPPED



4 SPAN CONTINUOUS UNLAPPED



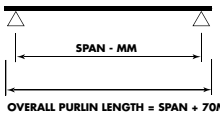
4 SPAN LAPPED



METROLL PURLIN CAPACITY TABLES

The following section contains the below Capacity Tables:

TABLE 1A: C & Z SECTION SINGLE SPAN OUTWARD LOAD (kN/m)



Bolt capacity exceeded. M12 bolts for 100 - 250 series, M16 bolts for 300 series or greater.

BOLD **Grade 8.8 bolts required.**

3/SB **For Safebridge® system use data for 3 rows of bridging.**

C/Z 100 10

0	1	2	3/SB	L/150
4.495	4.495	4.495	4.495	4.268
2.877	2.877	2.877	2.877	2.185
1.998	1.998	1.998	1.998	1.265
1.468	1.468	1.468	1.468	0.796
1.124	1.124	1.124	1.124	0.533
0.888	0.888	0.888	0.888	
0.719	0.719	0.719	0.719	
0.594	0.594	0.594	0.594	
0.499	0.499	0.499	0.499	
0.426	0.426	0.426	0.426	

C/Z 100 12

0	1	2	3/SB	L/150
5.455	5.455	5.455	5.455	5.157
3.491	3.491	3.491	3.491	2.640
2.424	2.424	2.424	2.424	1.528
1.781	1.781	1.781	1.781	0.962
1.364	1.364	1.364	1.364	0.645
1.077	1.078	1.077	1.077	0.453
0.873	0.873	0.873	0.873	
0.718	0.721	0.721	0.721	
0.601	0.606	0.606	0.606	
0.510	0.516	0.516	0.516	
0.439	0.445	0.445	0.445	

C/Z 100 15

0	1	2	3/SB	L/150
6.959	7.103	7.103	7.103	6.566
4.385	4.546	4.546	4.545	3.362
3.011	3.157	3.157	3.157	1.946
2.192	2.319	2.319	2.319	1.225
1.666	1.776	1.776	1.776	0.821
1.308	1.403	1.403	1.403	0.576
1.054	1.136	1.136	1.136	0.420
0.867	0.939	0.939	0.939	
0.726	0.789	0.789	0.789	
0.616	0.672	0.672	0.672	
0.529	0.580	0.580	0.580	
0.460	0.505	0.505	0.505	
0.403	0.444	0.444	0.444	

C/Z 100 19

0	1	2	3/SB	L/150	Span
9.287	9.894	9.894	9.894	8.459	2000
5.801	6.332	6.332	6.332	4.331	2500
3.957	4.397	4.397	4.397	2.506	3000
2.868	3.231	3.231	3.231	1.578	3500
2.171	2.473	2.474	2.474	1.057	4000
1.700	1.954	1.954	1.954	0.743	4500
1.366	1.582	1.583	1.583	0.541	5000
1.122	1.302	1.308	1.308	0.407	5500
0.937	1.09	1.099	1.099		6000
0.794	0.925	0.937	0.937		6500
0.681	0.795	0.808	0.808		7000
0.591	0.691	0.704	0.704		7500
0.518	0.605	0.618	0.618		8000
0.457	0.535	0.548	0.548		8500
0.406	0.476	0.488	0.489		9000
	0.427	0.437	0.439		9500

C/Z 150 12

Span	0	1	2	3/SB	L/150
2000	9.259	9.259	9.259	9.259	14.816
2500	5.925	5.926	5.926	5.926	7.586
3000	4.115	4.115	4.115	4.150	4.390
3500	3.023	3.024	3.023	3.023	2.764
4000	2.315	2.315	2.315	2.315	1.852
4500	1.829	1.829	1.829	1.829	1.301
5000	1.481	1.481	1.481	1.482	0.948
5500	1.224	1.224	1.224	1.224	0.712
6000	1.029	1.029	1.029	1.029	0.549
6500	0.877	0.877	0.877	0.877	0.432
7000	0.756	0.756	0.756	0.756	
7500	0.658	0.658	0.658	0.658	
8000	0.577	0.579	0.579	0.579	
8500	0.509	0.513	0.513	0.513	
9000	0.453	0.457	0.457	0.457	
9500	0.405	0.410	0.410	0.410	
10000					
10500					
11000					
11500					
12000					
12500					
13000					
13500					
14000					
14500					
15000					

C/Z 150 15

0	1	2	3/SB	L/150
12.210	12.210	12.2110	12.210	9.857
7.815	7.815	7.815	7.815	5.704
5.427	5.427	5.427	5.427	3.592
3.929	3.987	3.987	3.987	2.406
2.966	3.052	3.053	3.053	1.690
2.316	2.412	2.412	2.412	1.232
1.857	1.954	1.954	1.954	0.926
1.522	1.615	1.615	1.615	0.713
1.269	1.357	1.357	1.357	0.561
1.073	1.156	1.156	1.156	0.449
0.919	0.997	0.997	0.997	
0.796	0.868	0.868	0.868	
0.696	0.763	0.763	0.763	
0.613	0.676	0.676	0.676	
0.545	0.603	0.603	0.603	
0.487	0.541	0.541	0.541	
0.437	0.488	0.488	0.488	
	0.443	0.443	0.443	
	0.404	0.404	0.404	

C/Z 150 19

0	1	2	3/SB	L/150
16.865	17.278	17.279	17.279	24.647
10.428	11.058	11.058	11.058	12.620
7.050	7.679	7.679	7.679	7.303
5.072	5.642	5.642	5.642	4.599
3.817	4.320	4.320	4.320	3.081
2.973	3.413	3.413	3.413	2.164
2.379	2.765	2.765	2.765	1.577
1.946	2.285	2.285	2.285	1.185
1.620	1.920	1.920	1.920	0.913
1.368	1.636	1.636	1.636	0.718
1.171	1.411	1.410	1.410	0.575
1.013	1.227	1.229	1.229	0.467
0.885	1.074	1.080	1.080	
0.779	0.948	0.957	0.957	
0.691	0.843	0.853	0.853	
0.617	0.754	0.766	0.766	
0.555	0.678	0.691	0.691	
0.501	0.614	0.627	0.627	
0.454	0.558	0.571	0.571	
0.414	0.509	0.523	0.523	
	0.467	0.480	0.480	
	0.429	0.442	0.442	
		0.409	0.409	

C/Z 150 24

0	1	2	3/SB	L/150
22.642	24.511	24.511	24.511	31.921
13.764	15.687	15.687	15.687	16.344
9.177	10.894	10.894	10.894	9.458
6.529	8.004	8.004	8.003	5.956
4.871	6.128	6.128	6.128	3.990
3.767	4.839	4.842	4.842	2.802
2.997	3.867	3.922	3.922	2.043
2.439	3.158	3.241	3.241	1.535
2.022	2.625	2.723	2.723	1.182
1.703	2.216	2.321	2.321	0.930
1.453	1.895	2.001	2.001	0.745
1.254	1.638	1.743	1.743	0.605
1.093	1.430	1.520	1.532	0.499
0.960	1.259	1.336	1.357	0.416
0.850	1.116	1.184	1.210	
0.758	0.997	1.056	1.086	
0.680	0.895	0.947	0.98	
0.612	0.809	0.854	0.887	
0.554	0.734	0.775	0.804	
0.504	0.669	0.705	0.731	
0.460	0.612	0.645	0.668	
0.422	0.563	0.592	0.613	
	0.519	0.545	0.564	
	0.480	0.503	0.521	
	0.445	0.466	0.482	
	0.414	0.433	0.448	
		0.404	0.417	

C/Z 200 15

0	1	2	3/SB	L/150	Span
15.452	15.452	15.452	15.452	40.508	2000
10.916	10.916	10.916	10.916	20.740	2500
7.581	7.581	7.581	7.58	12.002	3000
5.569	5.570	5.570	5.569	7.558	3500
4.264	4.264	4.264	4.264	5.064	4000
3.348	3.369	3.369	3.369	3.556	4500
2.685	2.729	2.729	2.729	2.592	5000
2.200	2.255	2.255	2.255	1.948	5500
1.834	1.895	1.895	1.895	1.500	6000
1.552	1.615	1.615	1.615	1.180	6500
1.330	1.392	1.392	1.392	0.945	7000
1.152	1.213	1.213	1.213	0.768	7500
1.007	1.066	1.066	1.066	0.633	8000
0.888	0.944	0.944	0.944	0.528	8500
0.788	0.842	0.842	0.842	0.445	9000
0.705	0.756	0.756	0.756		9500
0.633	0.682	0.682	0.682		10000
0.571	0.619	0.619	0.619		10500
0.518	0.564	0.564	0.564		11000
0.471	0.516	0.516	0.516		11500
0.431	0.474	0.474	0.474		12000
	0.437	0.437	0.437		12500
	0.404	0.404	0.404		13000
					13500
					14000
					14500
					15000

C/Z 200 19

Span	0	1	2	3/SB	L/150
2000	25.938	25.938	25.938	25.939	54.357
2500	16.558	16.601	16.600	16.601	27.831
3000	11.027	11.528	11.528	11.528	16.106
3500	7.821	8.47	8.469	8.469	10.143
4000	5.813	6.485	6.485	6.484	6.794
4500	4.479	5.124	5.124	5.123	4.772
5000	3.550	4.150	4.150	4.150	3.479
5500	2.878	3.430	3.430	3.430	2.614
6000	2.378	2.882	2.882	2.882	2.013
6500	1.998	2.456	2.456	2.456	1.583
7000	1.701	2.117	2.117	2.117	1.268
7500	1.465	1.845	1.844	1.845	1.031
8000	1.274	1.621	1.621	1.621	0.849
8500	1.118	1.436	1.436	1.436	0.708
9000	0.988	1.281	1.281	1.281	0.596
9500	0.879	1.150	1.150	1.150	0.507
10000	0.787	1.038	1.038	1.038	0.435
10500	0.709	0.941	0.941	0.941	
11000	0.641	0.857	0.857	0.857	
11500	0.583	0.785	0.785	0.785	
12000	0.532	0.72	0.72	0.721	
12500	0.487	0.663	0.664	0.664	
13000	0.448	0.611	0.614	0.614	
13500	0.413	0.565	0.569	0.569	
14000		0.524	0.529	0.529	
14500		0.487	0.493	0.494	
15000		0.454	0.461	0.461	

C/Z 200 24

0	1	2	3/SB	L/150
36.254	**37.089**	**37.089**	**37.090**	69.833
21.986	23.739	23.738	23.737	35.755
14.560	16.484	16.484	16.484	20.691
10.268	12.110	12.111	12.110	13.030
7.561	9.272	9.273	9.272	8.729
5.752	7.326	7.326	7.326	6.131
4.509	5.934	5.934	5.935	4.469
3.622	4.904	4.904	4.905	3.358
2.968	4.101	4.121	4.121	2.586
2.474	3.455	3.511	3.511	2.034
2.091	2.949	3.028	3.028	1.629
1.789	2.545	2.638	2.637	1.324
1.548	2.218	2.318	2.318	1.091
1.351	1.949	2.053	2.053	0.910
1.189	1.726	1.832	1.832	0.766
1.054	1.539	1.644	1.644	0.652
0.941	1.380	1.477	1.484	0.559
0.845	1.245	1.331	1.346	0.483
0.763	1.128	1.206	1.226	0.420
0.692	1.027	1.097	1.122	
0.631	0.939	1.002	1.030	
0.577	0.862	0.919	0.949	
0.530	0.793	0.845	0.878	
0.488	0.733	0.780	0.813	
0.451	0.679	0.722	0.752	
0.417	0.631	0.670	0.698	
	0.588	0.624	0.649	

C/Z 250 19

0	1	2	3/SB	L/150
24.840	24.840	24.840	24.840	90.184
19.872	19.872	19.871	19.872	46.175
14.538	14.538	14.538	14.538	26.720
10.366	10.682	10.681	10.682	16.827
7.666	8.178	8.178	8.178	11.273
5.879	6.461	6.462	6.461	7.917
4.641	5.234	5.234	5.234	5.772
3.756	4.325	4.325	4.326	4.336
3.097	3.635	3.635	3.634	3.340
2.595	3.097	3.097	3.097	2.627
2.203	2.670	2.670	2.670	2.103
1.892	2.326	2.326	2.326	1.710
1.642	2.044	2.044	2.044	1.409
1.437	1.811	1.811	1.811	1.175
1.268	1.615	1.615	1.615	0.990
1.126	1.450	1.450	1.450	0.841
1.006	1.308	1.308	1.308	0.721
0.905	1.187	1.187	1.187	0.623
0.817	1.081	1.081	1.081	0.542
0.742	0.989	0.989	0.989	0.474
0.676	0.909	0.909	0.909	0.418
0.619	0.837	0.837	0.837	
0.568	0.774	0.774	0.774	
0.524	0.718	0.718	0.718	
0.484	0.668	0.668	0.668	
0.449	0.622	0.622	0.622	
0.417	0.582	0.582	0.582	

C/Z 250 24

0	1	2	3/SB	L/150
47.165	**47.166**	**47.166**	**47.166**	118.289
29.225	**30.185**	**30.185**	**30.185**	60.564
19.191	**20.963**	**20.963**	**20.962**	35.049
13.424	15.401	15.401	15.400	22.070
9.752	11.791	11.791	11.792	14.786
7.363	9.317	9.316	9.317	10.385
5.734	7.546	7.546	7.546	7.571
4.578	6.237	6.237	6.237	5.688
3.731	5.240	5.241	5.241	4.381
3.097	4.465	4.465	4.465	3.446
2.609	3.850	3.850	3.850	2.759
2.228	3.354	3.354	3.354	2.243
1.925	2.948	2.948	2.948	1.848
1.679	2.597	2.611	2.611	1.541
1.477	2.297	2.329	2.329	1.298
1.310	2.045	2.090	2.090	1.104
1.169	1.832	1.887	1.887	0.946
1.048	1.651	1.711	1.711	0.817
0.943	1.494	1.559	1.559	0.711
0.854	1.359	1.427	1.427	0.622
0.777	1.242	1.301	1.310	0.548
0.709	1.138	1.207	1.207	0.485
0.650	1.047	1.116	1.116	0.431
0.598	0.967	1.035	1.035	
0.552	0.895	0.963	0.963	
0.510	0.831	0.893	0.897	
0.474	0.774	0.831	0.838	

C/Z 300 24

0	1	2	3/SB	L/150	Span
42.164	42.164	42.164	42.165	203.695	2000
33.732	33.731	33.732	33.732	104.292	2500
28.109	28.110	28.109	28.110	60.354	3000
19.698	21.524	21.522	21.524	38.006	3500
14.178	16.479	16.478	16.478	25.461	4000
10.564	13.002	13.020	13.020	17.883	4500
8.150	10.546	10.546	10.546	13.036	5000
6.450	8.716	8.716	8.716	9.794	5500
5.217	7.324	7.324	7.324	7.544	6000
4.304	6.240	6.240	6.240	5.934	6500
3.594	5.381	5.381	5.381	4.751	7000
3.040	4.687	4.687	4.687	3.863	7500
2.606	4.120	4.120	4.120	3.183	8000
2.258	3.649	3.649	3.649	2.653	8500
1.976	3.255	3.255	3.255	2.235	9000
1.740	2.903	2.921	2.921	1.901	9500
1.541	2.589	2.637	2.637	1.630	10000
1.374	2.322	2.391	2.391	1.408	10500
1.232	2.092	2.179	2.179	1.224	11000
1.111	1.895	1.994	1.994	1.071	11500
1.007	1.723	1.831	1.831	0.943	12000
0.917	1.574	1.687	1.687	0.834	12500
0.838	1.442	1.560	1.560	0.742	13000
0.769	1.326	1.447	1.447	0.662	13500
0.707	1.223	1.345	1.345	0.594	14000
0.653	1.131	1.254	1.254	0.535	14500
0.605	1.050	1.172	1.172	0.483	15000

C/Z 300 30

Span	0	1	2	3/SB	L/150
2000	**82.701**	**82.701**	**82.698**	**82.700**	263.211
2500	**58.933**	**60.200**	**60.199**	**60.198**	134.757
3000	**38.561**	**41.806**	**41.806**	**41.806**	77.989
3500	26.515	30.714	30.713	30.713	49.112
4000	18.851	23.516	23.516	23.516	32.902
4500	13.686	18.580	18.580	18.580	23.108
5000	10.174	15.050	15.050	15.050	16.846
5500	7.788	12.438	12.438	12.438	12.656
6000	6.143	10.452	10.452	10.451	9.748
6500	4.964	8.905	8.905	8.905	7.668
7000	4.092	7.609	7.679	7.678	6.139
7500	3.430	6.527	6.689	6.689	4.991
8000	2.916	5.652	5.879	5.879	4.113
8500	2.508	4.935	5.208	5.208	3.429
9000	2.181	4.342	4.645	4.645	2.889
9500	1.913	3.846	4.169	4.169	2.456
10000	1.691	3.427	3.762	3.762	2.106
10500	1.506	3.071	3.413	3.413	1.819
11000	1.349	2.766	3.109	3.109	1.582
11500	1.216	2.495	2.819	2.845	1.385
12000	1.101	2.261	2.566	2.613	1.219
12500	1.001	2.057	2.344	2.408	1.078
13000	0.915	1.879	2.148	2.226	0.958
13500	0.839	1.723	1.975	2.064	0.856
14000	0.772	1.584	1.822	1.920	0.767
14500	0.712	1.461	1.685	1.790	0.691
15000	0.660	1.352	1.562	1.672	0.624

C/Z 350 24

0	1	2	3/SB	L/150
35.875	35.874	35.874	35.875	330.802
28.700	28.699	28.699	28.700	169.367
23.916	23.917	23.916	23.917	98.017
20.500	20.500	20.501	20.500	61.724
17.937	17.938	17.938	17.938	41.350
14.721	15.944	15.945	15.945	29.041
11.454	13.351	13.351	13.351	21.171
9.080	11.033	11.033	11.033	15.906
7.180	9.271	9.271	9.271	12.252
5.783	7.900	7.900	7.900	9.637
4.751	6.811	6.812	6.812	7.715
3.970	5.934	5.934	5.933	6.273
3.365	5.215	5.215	5.215	5.169
2.887	4.619	4.620	4.620	4.309
2.504	4.121	4.120	4.121	3.630
2.191	3.671	3.698	3.698	3.087
1.934	3.281	3.338	3.338	2.646
1.719	2.948	3.027	3.027	2.286
1.537	2.662	2.758	2.758	1.988
1.383	2.414	2.524	2.524	1.740
1.251	2.198	2.318	2.318	1.531
1.137	2.008	2.136	2.136	1.355
1.037	1.842	1.975	1.975	1.205
0.951	1.695	1.831	1.831	1.076
0.876	1.564	1.703	1.703	0.964
0.810	1.447	1.587	1.588	0.868
0.751	1.343	1.483	1.483	0.784

C/Z 350 30

0	1	2	3/SB	L/150
70.320	**70.322**	**70.320**	**70.319**	425.235
56.255	**56.257**	**56.256**	**56.256**	217.724
46.882	**46.879**	**46.879**	**46.880**	125.998
36.057	**37.286**	**37.287**	**37.288**	79.348
25.719	28.549	28.548	28.548	53.155
18.858	22.557	22.556	22.556	37.334
14.131	18.271	18.271	18.27	27.217
10.788	15.100	15.100	15.100	20.447
8.501	12.688	12.688	12.688	15.749
6.863	10.811	10.811	10.811	12.387
5.654	9.322	9.322	9.322	9.918
4.707	8.120	8.120	8.120	8.064
3.963	7.137	7.137	7.137	6.645
3.382	6.322	6.322	6.322	5.540
2.921	5.639	5.639	5.639	4.667
2.548	5.061	5.061	5.061	3.968
2.243	4.490	4.568	4.568	3.402
1.990	4.002	4.143	4.143	2.939
1.777	3.584	3.775	3.775	2.556
1.595	3.224	3.454	3.454	2.237
1.436	2.912	3.172	3.172	1.969
1.300	2.640	2.923	2.923	1.742
1.182	2.402	2.703	2.703	1.548
1.079	2.193	2.506	2.506	1.383
0.989	2.008	2.331	2.330	1.240
0.910	1.844	2.173	2.173	1.116
0.840	1.698	2.030	2.030	1.008

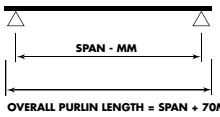
C/Z 400 24

0	1	2	3/SB	L/150
31.219	31.218	31.218	31.218	398.460
24.975	24.974	24.974	24.975	204.003
20.812	20.812	20.812	20.813	118.062
17.839	17.839	17.839	17.839	74.349
15.609	15.609	15.609	15.609	49.806
13.875	13.875	13.875	13.875	34.980
11.928	12.487	12.487	12.487	25.502
9.362	11.352	11.352	11.352	19.160
7.449	10.132	10.131	10.131	14.758
6.033	8.633	8.633	8.633	11.607
4.982	7.443	7.444	7.444	9.293
4.181	6.484	6.484	6.484	7.556
3.558	5.699	5.699	5.699	6.226
3.063	5.001	5.048	5.048	5.191
2.664	4.413	4.503	4.503	4.373
2.337	3.921	4.042	4.041	3.718
2.067	3.504	3.647	3.647	3.188
1.840	3.149	3.308	3.308	2.754
1.649	2.844	3.014	3.014	2.395
1.485	2.580	2.758	2.758	2.096
1.345	2.350	2.533	2.533	1.845
1.223	2.150	2.334	2.334	1.632
1.117	1.973	2.158	2.158	1.451
1.024	1.817	2.000	2.001	1.296
0.941	1.678	1.848	1.861	1.162
0.869	1.554	1.712	1.735	1.046
0.804	1.444	1.590	1.621	0.944

C/Z 400 30

0	1	2	3/SB	L/150	Span
61.164	**61.162**	**61.165**	**61.163**	510.627	2000
48.932	**48.928**	**48.930**	**48.932**	261.436	2500
40.776	**40.776**	**40.776**	**40.777**	151.298	3000
34.951	**34.950**	**34.953**	**34.951**	95.273	3500
25.896	**30.581**	**30.582**	**30.581**	63.827	4000
18.417	24.654	24.654	24.655	44.826	4500
13.535	19.970	19.970	19.970	32.680	5000
10.332	16.504	16.504	16.503	24.552	5500
8.129	13.868	13.868	13.868	18.912	6000
6.555	11.817	11.817	11.817	14.874	6500
5.393	10.189	10.189	10.189	11.909	7000
4.512	8.876	8.875	8.876	9.683	7500
3.830	7.801	7.801	7.801	7.979	8000
3.290	6.910	6.910	6.910	6.652	8500
2.857	6.164	6.164	6.163	5.603	9000
2.503	5.480	5.532	5.532	4.764	9500
2.211	4.866	4.992	4.992	4.085	10000
1.966	4.338	4.529	4.528	3.529	10500
1.760	3.882	4.126	4.126	3.069	11000
1.585	3.490	3.775	3.775	2.686	11500
1.434	3.153	3.467	3.467	2.364	12000
1.303	2.860	3.195	3.195	2.091	12500
1.190	2.604	2.954	2.954	1.859	13000
1.090	2.380	2.739	2.739	1.660	13500
1.003	2.183	2.547	2.547	1.489	14000
0.925	2.008	2.375	2.375	1.340	14500
0.856	1.853	2.219	2.219	1.210	15000

TABLE 1B: C & Z SECTION SINGLE SPAN INWARD LOAD (kN/m)



OVERALL PURLIN LENGTH = SPAN + 70MM

Bolt capacity exceeded. M12 bolts for 100 - 250 series, M16 bolts for 300 series or greater.

BOLD **Grade 8.8 bolts required.**

3/SB **For Safebridge® system use data for 3 rows of bridging.**

C/Z 100 10

0	1	2	3/SB	L/150
4.495	4.495	4.495	4.495	4.268
2.877	2.877	2.877	2.877	2.185
1.998	1.998	1.998	1.998	1.265
1.468	1.468	1.468	1.468	0.796
1.124	1.124	1.124	1.124	0.533
0.888	0.888	0.888	0.888	
0.719	0.719	0.719	0.719	
0.594	0.594	0.594	0.594	
0.499	0.499	0.499	0.499	
0.426	0.426	0.426	0.426	

C/Z 100 12

0	1	2	3/SB	L/150
5.455	5.455	5.455	5.455	5.157
3.491	3.491	3.491	3.491	2.640
2.424	2.424	2.424	2.424	1.528
1.781	1.781	1.781	1.781	0.962
1.364	1.364	1.364	1.364	0.645
1.077	1.078	1.077	1.077	0.453
0.873	0.873	0.873	0.873	
0.718	0.721	0.721	0.721	
0.601	0.606	0.606	0.606	
0.510	0.516	0.516	0.516	
0.439	0.445	0.445	0.445	

C/Z 100 15

0	1	2	3/SB	L/150
6.959	7.103	7.103	7.103	6.566
4.385	4.546	4.546	4.545	3.362
3.011	3.157	3.157	3.157	1.946
2.192	2.319	2.319	2.319	1.225
1.666	1.776	1.776	1.776	0.821
1.308	1.403	1.403	1.403	0.576
1.054	1.136	1.136	1.136	0.420
0.867	0.939	0.939	0.939	
0.726	0.789	0.789	0.789	
0.616	0.672	0.672	0.672	
0.529	0.580	0.580	0.580	
0.460	0.505	0.505	0.505	
0.403	0.444	0.444	0.444	

C/Z 100 19

0	1	2	3/SB	L/150	Span
9.287	9.894	9.894	9.894	8.459	2000
5.801	6.332	6.332	6.332	4.331	2500
3.957	4.397	4.397	4.397	2.506	3000
2.868	3.231	3.231	3.231	1.578	3500
2.171	2.473	2.474	2.474	1.057	4000
1.700	1.954	1.954	1.954	0.743	4500
1.366	1.582	1.583	1.583	0.541	5000
1.122	1.302	1.308	1.308	0.407	5500
0.937	1.090	1.099	1.099		6000
0.794	0.925	0.937	0.937		6500
0.681	0.795	0.808	0.808		7000
0.591	0.691	0.704	0.704		7500
0.518	0.605	0.618	0.618		8000
0.457	0.535	0.548	0.548		8500
0.406	0.476	0.488	0.489		9000
	0.427	0.437	0.439		9500

C/Z 150 12

Span	0	1	2	3/SB	L/150
2000	9.259	9.259	9.259	9.259	14.816
2500	5.925	5.926	5.926	5.926	7.586
3000	4.115	4.115	4.115	4.150	4.390
3500	3.023	3.024	3.023	3.023	2.764
4000	2.315	2.315	2.315	2.315	1.852
4500	1.829	1.829	1.829	1.829	1.301
5000	1.481	1.481	1.481	1.482	0.948
5500	1.224	1.224	1.224	1.224	0.712
6000	1.029	1.029	1.029	1.029	0.549
6500	0.877	0.877	0.877	0.877	0.432
7000	0.756	0.756	0.756	0.756	
7500	0.658	0.658	0.658	0.658	
8000	0.577	0.579	0.579	0.579	
8500	0.509	0.513	0.513	0.513	
9000	0.453	0.457	0.457	0.457	
9500	0.405	0.410	0.410	0.410	
10000					
10500					
11000					
11500					
12000					
12500					
13000					
13500					
14000					
14500					
15000					

C/Z 150 15

0	1	2	3/SB	L/150
12.210	12.210	12.211	12.21	19.251
7.815	7.815	7.815	7.815	9.857
5.427	5.427	5.427	5.427	5.704
3.929	3.987	3.987	3.987	3.592
2.966	3.052	3.053	3.053	2.406
2.316	2.412	2.412	2.412	1.690
1.857	1.954	1.954	1.954	1.232
1.522	1.615	1.615	1.615	0.926
1.269	1.357	1.357	1.357	0.713
1.073	1.156	1.156	1.156	0.561
0.919	0.997	0.997	0.997	0.449
0.796	0.868	0.868	0.868	
0.696	0.763	0.763	0.763	
0.613	0.676	0.676	0.676	
0.545	0.603	0.603	0.603	
0.487	0.541	0.541	0.541	
0.437	0.488	0.488	0.488	
	0.443	0.443	0.443	
	0.404	0.404	0.404	

C/Z 150 19

0	1	2	3/SB	L/150
16.865	17.278	17.279	17.279	24.647
10.428	11.058	11.058	11.058	12.620
7.050	7.679	7.679	7.679	7.303
5.072	5.642	5.642	5.642	4.599
3.817	4.320	4.320	4.320	3.081
2.973	3.413	3.413	3.413	2.164
2.379	2.765	2.765	2.765	1.577
1.946	2.285	2.285	2.285	1.185
1.620	1.920	1.920	1.920	0.913
1.368	1.636	1.636	1.636	0.718
1.171	1.411	1.410	1.410	0.575
1.013	1.227	1.229	1.229	0.467
0.885	1.074	1.080	1.080	
0.779	0.948	0.957	0.957	
0.691	0.843	0.853	0.853	
0.617	0.754	0.766	0.766	
0.555	0.678	0.691	0.691	
0.501	0.614	0.627	0.627	
0.454	0.558	0.571	0.571	
0.414	0.509	0.523	0.523	
	0.467	0.480	0.480	
	0.429	0.442	0.442	
		0.409	0.409	

C/Z 150 24

0	1	2	3/SB	L/150
22.642	24.511	24.511	24.511	31.921
13.764	15.687	15.687	15.687	16.344
9.177	10.894	10.894	10.894	9.458
6.529	8.004	8.004	8.003	5.956
4.871	6.128	6.128	6.128	3.990
3.767	4.839	4.842	4.842	2.802
2.997	3.867	3.922	3.922	2.043
2.439	3.158	3.241	3.241	1.535
2.022	2.625	2.723	2.723	1.182
1.703	2.216	2.321	2.321	0.930
1.453	1.895	2.001	2.001	0.745
1.254	1.638	1.743	1.743	0.605
1.093	1.430	1.520	1.532	0.499
0.960	1.259	1.336	1.357	0.416
0.850	1.116	1.184	1.210	
0.758	0.997	1.056	1.086	
0.680	0.895	0.947	0.98	
0.612	0.809	0.854	0.887	
0.554	0.734	0.775	0.804	
0.504	0.669	0.705	0.731	
0.460	0.612	0.645	0.668	
0.422	0.563	0.592	0.613	
	0.519	0.545	0.564	
	0.480	0.503	0.521	
	0.445	0.466	0.482	
	0.414	0.433	0.448	
		0.404	0.417	

C/Z 200 15

0	1	2	3/SB	L/150	Span
15.452	15.452	15.452	15.452	40.508	2000
10.916	10.916	10.916	10.916	20.740	2500
7.581	7.581	7.581	7.580	12.002	3000
5.569	5.570	5.570	5.569	7.558	3500
4.264	4.264	4.264	4.264	5.064	4000
3.348	3.369	3.369	3.369	3.556	4500
2.685	2.729	2.729	2.729	2.592	5000
2.200	2.255	2.255	2.255	1.948	5500
1.834	1.895	1.895	1.895	1.500	6000
1.552	1.615	1.615	1.615	1.180	6500
1.330	1.392	1.392	1.392	0.945	7000
1.152	1.213	1.213	1.213	0.768	7500
1.007	1.066	1.066	1.066	0.633	8000
0.888	0.944	0.944	0.944	0.528	8500
0.788	0.842	0.842	0.842	0.445	9000
0.705	0.756	0.756	0.756		9500
0.633	0.682	0.682	0.682		10000
0.571	0.619	0.619	0.619		10500
0.518	0.564	0.564	0.564		11000
0.471	0.516	0.516	0.516		11500
0.431	0.474	0.474	0.474		12000
					12500
					13000
					13500
					14000
					14500
					15000

C/Z 200 19

Span	0	1	2	3/SB	L/150
2000	25.938	25.938	25.938	25.938	54.357
2500	16.558	16.601	16.600	16.601	27.831
3000	11.027	11.528	11.528	11.528	16.106
3500	7.821	8.470	8.469	8.469	10.143
4000	5.813	6.485	6.485	6.484	6.794
4500	4.479	5.124	5.124	5.123	4.772
5000	3.550	4.150	4.150	4.150	3.479
5500	2.878	3.430	3.430	3.430	2.614
6000	2.378	2.882	2.882	2.882	2.013
6500	1.998	2.456	2.456	2.456	1.583
7000	1.701	2.117	2.117	2.117	1.268
7500	1.465	1.845	1.844	1.845	1.031
8000	1.274	1.621	1.621	1.621	0.849
8500	1.118	1.436	1.436	1.436	0.708
9000	0.988	1.281	1.281	1.281	0.596
9500	0.879	1.150	1.150	1.150	0.507
10000	0.787	1.038	1.038	1.038	0.435
10500	0.709	0.941	0.941	0.941	
11000	0.641	0.857	0.857	0.857	
11500	0.583	0.785	0.785	0.785	
12000	0.532	0.720	0.720	0.721	
12500	0.487	0.663	0.664	0.664	
13000	0.448	0.611	0.614	0.614	
13500	0.413	0.565	0.569	0.569	
14000		0.524	0.529	0.529	
14500		0.487	0.493	0.494	
15000		0.454	0.461	0.461	

C/Z 200 24

0	1	2	3/SB	L/150
36.254	**37.089**	**37.089**	**37.090**	69.833
21.986	23.739	23.738	23.737	35.755
14.560	16.484	16.484	16.484	20.691
10.268	12.110	12.111	12.110	13.030
7.561	9.272	9.273	9.272	8.729
5.752	7.326	7.326	7.326	6.131
4.509	5.934	5.934	5.935	4.469
3.622	4.904	4.904	4.905	3.358
2.968	4.101	4.121	4.121	2.586
2.474	3.455	3.511	3.511	2.034
2.091	2.949	3.028	3.028	1.629
1.789	2.545	2.638	2.637	1.324
1.548	2.218	2.318	2.318	1.091
1.351	1.949	2.053	2.053	0.910
1.189	1.726	1.832	1.832	0.766
1.054	1.539	1.644	1.644	0.652
0.941	1.380	1.477	1.484	0.559
0.845	1.245	1.331	1.346	0.483
0.763	1.128	1.206	1.226	0.420
0.692	1.027	1.097	1.122	
0.631	0.939	1.002	1.030	
0.577	0.862	0.919	0.949	
0.530	0.793	0.845	0.878	
0.488	0.733	0.780	0.813	
0.451	0.679	0.722	0.752	
0.417	0.631	0.670	0.698	
	0.588	0.624	0.649	

C/Z 250 19

0	1	2	3/SB	L/150
24.840	24.840	24.840	24.840	90.184
19.872	19.872	19.871	19.872	46.175
14.538	14.538	14.538	14.538	26.720
10.366	10.682	10.681	10.682	16.827
7.666	8.178	8.178	8.178	11.273
5.879	6.461	6.462	6.461	7.917
4.641	5.234	5.234	5.234	5.772
3.756	4.325	4.325	4.326	4.336
3.097	3.635	3.635	3.634	3.340
2.595	3.097	3.097	3.097	2.627
2.203	2.670	2.670	2.670	2.103
1.892	2.326	2.326	2.326	1.710
1.642	2.044	2.044	2.044	1.409
1.437	1.811	1.811	1.811	1.175
1.268	1.615	1.615	1.615	0.990
1.126	1.450	1.450	1.450	0.841
1.006	1.308	1.308	1.308	0.721
0.905	1.187	1.187	1.187	0.623
0.817	1.081	1.081	1.081	0.542
0.742	0.989	0.989	0.989	0.474
0.676	0.909	0.909	0.909	0.418
0.619	0.837	0.837	0.837	
0.568	0.774	0.774	0.774	
0.524	0.718	0.718	0.718	
0.484	0.668	0.668	0.668	
0.449	0.622	0.622	0.622	
0.417	0.582	0.582	0.582	

C/Z 250 24

0	1	2	3/SB	L/150
47.165	**47.166**	**47.166**	**47.166**	118.289
29.225	**30.185**	**30.185**	**30.185**	60.564
19.191	**20.963**	**20.963**	**20.962**	35.049
13.424	15.401	15.401	15.400	22.070
9.752	11.791	11.791	11.792	14.786
7.363	9.317	9.316	9.317	10.385
5.734	7.546	7.546	7.546	7.571
4.578	6.237	6.237	6.237	5.688
3.731	5.24	5.241	5.241	4.381
3.097	4.465	4.465	4.465	3.446
2.609	3.85	3.85	3.85	2.759
2.228	3.354	3.354	3.354	2.243
1.925	2.948	2.948	2.948	1.848
1.679	2.597	2.611	2.611	1.541
1.477	2.297	2.329	2.329	1.298
1.310	2.045	2.090	2.090	1.104
1.169	1.832	1.887	1.887	0.946
1.048	1.651	1.711	1.711	0.817
0.943	1.494	1.559	1.559	0.711
0.854	1.359	1.427	1.427	0.622
0.777	1.242	1.310	1.310	0.548
0.709	1.138	1.207	1.207	0.485
0.650	1.047	1.116	1.116	0.431
0.596	0.967	1.035	1.035	
0.552	0.895	0.963	0.963	
0.510	0.831	0.893	0.897	
0.474	0.774	0.831	0.838	

C/Z 300 24

0	1	2	3/SB	L/150	Span
42.164	42.164	42.164	42.165	203.695	2000
33.732	33.731	33.732	33.732	104.292	2500
28.109	28.110	28.109	28.110	60.354	3000
19.698	21.524	21.522	21.524	38.006	3500
14.178	16.479	16.478	16.478	25.461	4000
10.564	13.020	13.020	13.020	17.883	4500
8.150	10.546	10.546	10.546	13.036	5000
6.450	8.716	8.716	8.716	9.794	5500
5.217	7.324	7.324	7.324	7.544	6000
4.304	6.240	6.240	6.240	5.934	6500
3.594	5.381	5.381	5.381	4.751	7000
3.040	4.687	4.687	4.687	3.863	7500
2.606	4.120	4.120	4.120	3.183	8000
2.258	3.649	3.649	3.649	2.653	8500
1.976	3.255	3.255	3.255	2.235	9000
1.740	2.903	2.921	2.921	1.901	9500
1.541	2.589	2.637	2.637	1.630	10000
1.374	2.322	2.391	2.391	1.408	10500
1.232	2.092	2.179	2.179	1.224	11000
1.111	1.895	1.994	1.994	1.071	11500
1.007	1.723	1.831	1.831	0.943	12000
0.917	1.574	1.687	1.687	0.834	12500
0.838	1.442	1.560	1.560	0.742	13000
0.769	1.326	1.447	1.447	0.662	13500
0.707	1.223	1.345	1.345	0.594	14000
0.653	1.131	1.254	1.254	0.535	14500
0.605	1.050	1.172	1.172	0.483	15000

C/Z 300 30

Span	0	1	2	3/SB	L/150
2000	**82.701**	**82.701**	**82.698**	**82.700**	263.211
2500	**58.933**	**60.200**	**60.199**	**60.198**	134.757
3000	**38.561**	**41.806**	**41.806**	**41.806**	77.989
3500	26.515	30.714	30.713	30.713	49.112
4000	18.851	23.516	23.516	23.516	32.902
4500	13.686	18.580	18.580	18.580	23.108
5000	10.174	15.050	15.050	15.050	16.846
5500	7.788	12.438	12.438	12.438	12.656
6000	6.143	10.452	10.452	10.451	9.748
6500	4.964	8.905	8.905	8.905	7.668
7000	4.092	7.609	7.679	7.678	6.139
7500	3.430	6.527	6.689	6.689	4.991
8000	2.916	5.652	5.879	5.879	4.113
8500	2.508	4.935	5.208	5.208	3.429
9000	2.181	4.342	4.645	4.645	2.889
9500	1.913	3.846	4.169	4.169	2.456
10000	1.691	3.427	3.762	3.762	2.106
10500	1.506	3.071	3.413	3.413	1.819
11000	1.349	2.766	3.109	3.109	1.582
11500	1.216	2.495	2.819	2.845	1.385
12000	1.101	2.261	2.566	2.613	1.219
12500	1.001	2.057	2.344	2.408	1.078
13000	0.915	1.879	2.148	2.226	0.958
13500	0.839	1.723	1.975	2.064	0.856
14000	0.772	1.584	1.822	1.920	0.767
14500	0.712	1.461	1.685	1.790	0.691
15000	0.660	1.352	1.562	1.672	0.624

C/Z 350 24

0	1	2	3/SB	L/150
35.875	35.874	35.874	35.875	330.802
28.700	28.699	28.699	28.700	169.367
23.916	23.917	23.916	23.917	98.017
20.500	20.500	20.501	20.500	61.724
17.937	17.938	17.938	17.938	41.350
14.721	15.944	15.945	15.945	29.041
11.454	13.351	13.351	13.351	21.171
9.080	11.033	11.033	11.033	15.906
7.180	9.271	9.271	9.271	12.252
5.783	7.900	7.900	7.900	9.637
4.751	6.811	6.812	6.812	7.715
3.970	5.934	5.934	5.933	6.273
3.365	5.215	5.215	5.215	5.169
2.887	4.619	4.620	4.620	4.309
2.504	4.121	4.120	4.121	3.630
2.191	3.671	3.698	3.698	3.087
1.934	3.281	3.338	3.338	2.646
1.719	2.948	3.027	3.027	2.286
1.537	2.662	2.758	2.758	1.988
1.383	2.414	2.524	2.524	1.740
1.251	2.198	2.318	2.318	1.531
1.137	2.008	2.136	2.136	1.355
1.037	1.842	1.975	1.975	1.205
0.951	1.695	1.831	1.831	1.076
0.876	1.564	1.703	1.703	0.964
0.810	1.447	1.587	1.588	0.868
0.751	1.343	1.483	1.483	0.784

C/Z 350 30

0	1	2	3/SB	L/150
70.320	**70.322**	**70.320**	**70.319**	425.235
56.255	**56.257**	**56.256**	**56.256**	217.724
46.882	**46.879**	**46.879**	**46.880**	125.998
36.057	**37.286**	**37.287**	**37.288**	79.348
25.719	28.549	28.548	28.548	53.155
18.858	22.557	22.556	22.556	37.334
14.131	18.271	18.271	18.27	27.217
10.788	15.100	15.100	15.100	20.447
8.501	12.688	12.688	12.688	15.749
6.863	10.811	10.811	10.811	12.387
5.654	9.322	9.322	9.322	9.918
4.707	8.120	8.120	8.120	8.064
3.963	7.137	7.137	7.137	6.645
3.382	6.322	6.322	6.322	5.540
2.921	5.639	5.639	5.639	4.667
2.548	5.061	5.061	5.061	3.968
2.243	4.490	4.568	4.568	3.402
1.990	4.002	4.143	4.143	2.939
1.777	3.584	3.775	3.775	2.556
1.595	3.224	3.454	3.454	2.237
1.436	2.912	3.172	3.172	1.969
1.300	2.64	2.923	2.923	1.742
1.182	2.402	2.703	2.703	1.548
1.079	2.193	2.506	2.506	1.383
0.989	2.008	2.331	2.330	1.240
0.910	1.844	2.173	2.173	1.116
0.840	1.698	2.030	2.030	1.008

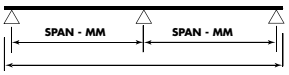
C/Z 400 24

0	1	2	3/SB	L/150
31.219	31.218	31.218	31.218	398.460
24.975	24.974	24.974	24.975	204.003
20.812	20.812	20.812	20.813	118.062
17.839	17.839	17.839	17.839	74.349
15.609	15.609	15.609	15.609	49.806
13.875	13.875	13.875	13.875	34.980
11.928	12.487	12.487	12.487	25.502
9.362	11.352	11.352	11.352	19.160
7.449	10.132	10.131	10.131	14.758
6.033	8.633	8.633	8.633	11.607
4.982	7.443	7.444	7.444	9.293
4.181	6.484	6.484	6.484	7.556
3.558	5.699	5.699	5.699	6.226
3.063	5.001	5.048	5.048	5.191
2.664	4.413	4.503	4.503	4.373
2.337	3.921	4.042	4.041	3.718
2.067	3.504	3.647	3.647	3.188
1.840	3.149	3.308	3.308	2.754
1.649	2.844	3.014	3.014	2.395
1.485	2.58	2.758	2.758	2.096
1.345	2.35	2.533	2.533	1.845
1.223	2.150	2.334	2.334	1.632
1.117	1.973	2.158	2.158	1.451
1.024	1.817	2.000	2.001	1.296
0.941	1.678	1.848	1.861	1.162
0.869	1.554	1.712	1.735	1.046
0.804	1.444	1.590	1.621	0.944

C/Z 400 30

0	1	2	3/SB	L/150	Span
61.164	**61.162**	**61.165**	**61.163**	510.627	2000
48.932	**48.928**	**48.930**	**48.932**	261.436	2500
40.776	**40.776**	**40.776**	**40.777**	151.298	3000
34.951	**34.950**	**34.953**	**34.951**	95.273	3500
30.581	**30.582**	**30.581**	63.827		4000
25.896	24.654	24.654	24.655	44.826	4500
18.417	19.970	19.970	19.970	32.680	5000
13.535	16.504	16.504	16.503	24.552	5500
10.332	13.868	13.868	13.868	18.912	6000
8.129	11.817	11.817	11.817	14.874	6500
6.555	10.189	10.189	10.189	11.909	7000
5.393	8.876	8.875	8.876	9.683	7500
4.512	7.801	7.801	7.801	7.979	8000
3.830	6.910	6.910	6.910	6.652	8500
3.290	6.164	6.164	6.163	5.603	9000
2.857	5.480	5.532	5.532	4.764	9500
2.503	4.866	4.992	4.992	4.085	10000
2.211	4.338	4.529	4.528	3.529	10500
1.966	3.882	4.126	4.126	3.069	11000
1.760	3.490	3.775	3.775	2.686	11500
1.585	3.153	3.467	3.467	2.364	12000
1.434	2.860	3.195	3.195	2.091	12500
1.303	2.604	2.954	2.954	1.859	13000
1.190	2.380	2.739	2.739	1.660	13500
1.090	2.183	2.547	2.547	1.489	14000
1.003	2.008	2.375	2.375	1.340	14500
0.925	1.853	2.219	2.219	1.210	15000

TABLE 2A:
C & Z SECTION
2 SPAN OUTWARD LOAD
(kN/m)



OVERALL PURLIN LENGTH = 2 x SPAN + 70MM

Bolt capacity exceeded. M12 bolts for 100 - 250 series, M16 bolts for 300 series or greater.

BOLD Grade 8.8 bolts required.

3/SB For Safebridge® system use data for 3 rows of bridging.

Span	C/Z 100 10				C/Z 100 12				C/Z 100 15				C/Z 100 19				Span
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	
2000	4.495	4.495	4.495	4.495	5.455	5.455	5.455	5.455	7.103	7.103	7.103	7.103	9.894	9.894	9.894	9.894	2000
2500	2.877	2.877	2.877	2.877	3.491	3.491	3.491	3.491	4.546	4.546	4.546	4.546	6.332	6.332	6.332	6.332	2500
3000	1.998	1.998	1.998	1.998	2.424	2.424	2.424	2.424	3.116	3.157	3.157	3.157	4.285	4.397	4.397	4.397	3000
3500	1.468	1.468	1.468	1.468	1.749	1.781	1.781	1.781	2.195	2.319	2.319	2.319	3.000	3.231	3.231	3.231	3500
4000	1.065	1.124	1.124	1.124	1.256	1.364	1.364	1.364	1.602	1.776	1.776	1.776	2.179	2.473	2.473	2.474	4000
4500	0.769	0.888	0.888	0.888	0.920	1.077	1.077	1.077	1.200	1.383	1.403	1.403	1.627	1.908	1.954	1.954	4500
5000	0.558	0.719	0.719	0.719	0.682	0.866	0.873	0.873	0.916	1.087	1.136	1.136	1.240	1.494	1.583	1.583	5000
5500	0.405	0.582	0.594	0.594	0.510	0.684	0.721	0.721	0.708	0.869	0.939	0.939	0.962	1.191	1.308	1.308	5500
6000		0.460	0.499	0.499		0.547	0.606	0.606	0.544	0.704	0.784	0.789	0.757	0.962	1.083	1.099	6000
6500			0.426	0.426		0.440	0.516	0.516	0.419	0.576	0.654	0.672	0.600	0.786	0.901	0.937	6500
7000							0.437	0.445		0.476	0.551	0.580	0.475	0.648	0.757	0.808	7000
7500											0.468	0.501		0.538	0.641	0.693	7500
8000											0.400	0.433		0.450	0.548	0.597	8000
8500															0.470	0.518	8500
9000															0.406	0.452	9000
9500																	9500

Span	C/Z 150 12				C/Z 150 15				C/Z 150 19				C/Z 150 24				C/Z 200 15				Span
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	
2000	6.820	6.820	6.819	6.821	11.041	11.04	11.041	11.041	16.927	16.927	16.928	16.928	24.374	24.375	24.375	24.375	10.598	10.597	10.598	10.598	2000
2500	4.961	4.961	4.961	4.961	7.681	7.681	7.681	7.681	**11.058**	**11.058**	**11.058**	**11.058**	**15.687**	**15.687**	**15.687**	**15.687**	7.909	7.910	7.908	7.909	2500
3000	3.755	3.755	3.755	3.755	5.427	5.427	5.427	5.427	7.679	7.679	7.679	7.679	**10.894**	**10.894**	**10.894**	**10.894**	6.123	6.124	6.123	6.123	3000
3500	2.930	2.930	2.930	2.930	3.987	3.987	3.987	3.987	5.642	5.642	5.642	5.642	**8.004**	**8.004**	**8.004**	**8.004**	4.869	4.869	4.869	4.870	3500
4000	2.315	2.315	2.315	2.315	3.053	3.053	3.053	3.053	4.282	4.320	4.320	4.320	5.917	**6.128**	**6.128**	**6.128**	3.955	3.955	3.954	3.955	4000
4500	1.829	1.829	1.829	1.829	2.412	2.412	2.412	2.412	3.254	3.413	3.413	3.413	4.475	4.842	4.842	4.842	3.268	3.268	3.268	3.268	4500
5000	1.459	1.481	1.481	1.482	1.865	1.954	1.954	1.954	2.524	2.765	2.765	2.765	3.456	3.922	3.922	3.922	2.729	2.729	2.729	2.729	5000
5500	1.150	1.224	1.224	1.224	1.457	1.615	1.615	1.615	1.987	2.285	2.285	2.285	2.713	3.235	3.241	3.241	2.255	2.255	2.255	2.255	5500
6000	0.893	1.029	1.029	1.029	1.148	1.357	1.357	1.357	1.583	1.906	1.920	1.920	2.158	2.645	2.723	2.723	1.887	1.895	1.895	1.895	6000
6500	0.692	0.877	0.877	0.877	0.909	1.156	1.156	1.156	1.271	1.581	1.636	1.636	1.735	2.189	2.321	2.321	1.550	1.615	1.615	1.615	6500
7000	0.537	0.756	0.756	0.756	0.724	0.977	0.997	0.997	1.017	1.323	1.410	1.411	1.408	1.828	2.001	2.001	1.278	1.392	1.392	1.392	7000
7500	0.423	0.640	0.658	0.658	0.580	0.820	0.868	0.868	0.808	1.117	1.229	1.229	1.136	1.540	1.743	1.743	1.037	1.213	1.213	1.213	7500
8000		0.543	0.579	0.579	0.470	0.692	0.763	0.763	0.649	0.948	1.080	1.080	0.917	1.305	1.505	1.532	0.840	1.066	1.066	1.066	8000
8500		0.455	0.513	0.513		0.585	0.676	0.676	0.531	0.808	0.941	0.957	0.748	1.113	1.306	1.357	0.682	0.944	0.944	0.944	8500
9000			0.457	0.457		0.496	0.603	0.603	0.441	0.692	0.822	0.853	0.618	0.953	1.139	1.210	0.560	0.832	0.842	0.842	9000
9500			0.410	0.410		0.421	0.533	0.541		0.594	0.722	0.766	0.517	0.820	0.999	1.084	0.465	0.727	0.756	0.756	9500
10000							0.468	0.488		0.509	0.637	0.691	0.438	0.708	0.879	0.963		0.638	0.682	0.682	10000
10500							0.413	0.443		0.432	0.563	0.619		0.613	0.777	0.859		0.553	0.619	0.619	10500
11000								0.404			0.500	0.555		0.525	0.689	0.769		0.478	0.564	0.564	11000
11500											0.445	0.499		0.451	0.613	0.691		0.412	0.516	0.516	11500
12000												0.450			0.546	0.622			0.474	0.474	12000
12500												0.407			0.488	0.562			0.429	0.437	12500
13000															0.437	0.509				0.404	13000
13500																0.462					13500
14000																0.420					14000
14500																					14500
15000																					15000

Span	C/Z 200 19				C/Z 200 24				C/Z 250 19				C/Z 250 24				C/Z 300 24				Span
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	
2000	19.630	19.631	19.630	19.633	32.393	32.394	32.394	32.396	17.750	17.751	17.751	17.754	32.871	32.870	32.873	32.867	30.961	30.958	30.958	30.962	2000
2500	14.208	14.208	14.207	14.207	22.414	22.416	22.416	22.416	13.455	13.457	13.456	13.456	24.138	24.137	24.138	24.145	23.739	23.739	23.741	23.738	2500
3000	10.710	10.711	10.710	10.710	16.334	16.334	16.334	16.334	10.573	10.574	10.574	10.573	18.421	18.421	18.421	18.422	18.867	18.866	18.863	18.870	3000
3500	**8.330**	**8.330**	**8.328**	**8.329**	12.111	12.110	12.111	12.111	**8.521**	**8.520**	**8.523**	**8.523**	14.470	14.472	14.470	14.469	15.370	15.369	15.370	15.373	3500
4000	**6.485**	**6.485**	**6.484**	**6.485**	**9.272**	**9.272**	**9.272**	**9.273**	**7.003**	**7.002**	**7.003**	**7.002**	11.633	11.632	11.633	11.632	**12.757**	**12.756**	**12.757**	**12.754**	4000
4500	5.124	5.124	5.124	5.123	**7.326**	**7.326**	**7.327**	**7.327**	**5.846**	**5.847**	**5.846**	**5.846**	9.317	9.317	9.317	9.316	**10.746**	**10.745**	**10.746**	**10.746**	4500
5000	4.150	4.150	4.150	4.150	**5.805**	**5.934**	**5.934**	**5.934**	**4.946**	**4.946**	**4.946**	**4.945**	**7.546**	**7.547**	**7.547**	**7.546**	**9.162**	**9.162**	**9.162**	**9.162**	5000
5500	3.396	3.430	3.430	3.430	**4.634**	**4.904**	**4.904**	**4.904**	4.232	4.232	4.232	4.232	**6.212**	**6.237**	**6.237**	**6.237**	7.895	7.895	7.895	7.895	5500
6000	2.728	2.882	2.882	2.882	3.748	**4.121**	**4.121**	**4.121**	3.635	3.635	3.634	3.635	**5.000**	**5.241**	**5.241**	**5.241**	6.865	6.865	6.865	6.864	6000
6500	2.210	2.456	2.456	2.456	3.063	3.511	3.511	3.511	2.954	3.097	3.097	3.097	**4.061**	**4.465**	**4.465**	**4.465**	6.017	6.018	6.018	6.017	6500
7000	1.802	2.117	2.117	2.117	2.523	3.028	3.028	3.028	2.391	2.670	2.670	2.670	3.311	**3.850**	**3.850**	**3.850**	5.313	5.313	5.313	5.313	7000
7500	1.477	1.844	1.845	1.844	2.064	2.594	2.637	2.638	1.948	2.326	2.326	2.326	2.682	**3.354**	**3.354**	**3.354**	4.567	4.687	4.687	4.687	7500
8000	1.217	1.621	1.621	1.621	1.693	2.228	2.318	2.318	1.588	2.044	2.044	2.044	2.175	2.948	2.948	2.948	3.854	4.120	4.120	4.120	8000
8500	1.004	1.401	1.436	1.436	1.392	1.925	2.053	2.053	1.299	1.811	1.811	1.811	1.769	2.575	2.611	2.611	3.264	3.649	3.649	3.649	8500
9000	0.835	1.209	1.281	1.281	1.152	1.671	1.832	1.832	1.075	1.613	1.615	1.615	1.458	2.228	2.329	2.329	2.772	3.255	3.255	3.255	9000
9500	0.695	1.047	1.150	1.150	0.960	1.457	1.644	1.644	0.885	1.401	1.450	1.450	1.201	1.935	2.090	2.090	2.356	2.921	2.922	2.921	9500
10000	0.582	0.909	1.038	1.038	0.801	1.275	1.476	1.484	0.738	1.211	1.308	1.308	0.997	1.685	1.887	1.887	2.018	2.637	2.637	2.636	10000
10500	0.492	0.790	0.941	0.941	0.675	1.119	1.317	1.346	0.622	1.048	1.187	1.187	0.837	1.465	1.711	1.711	1.732	2.391	2.391	2.392	10500
11000	0.420	0.689	0.857	0.857	0.574	0.975	1.179	1.226	0.530	0.910	1.081	1.081	0.709	1.268	1.559	1.559	1.494	2.169	2.179	2.179	11000
11500		0.602	0.772	0.785	0.492	0.850	1.060	1.122	0.452	0.789	0.989	0.989	0.605	1.097	1.419	1.427	1.282	1.933	1.994	1.994	11500
12000		0.526	0.692	0.720	0.425	0.741	0.955	1.030		0.684	0.909	0.909	0.520	0.949	1.275	1.310	1.109	1.726	1.831	1.831	12000
12500		0.460	0.622	0.664		0.647	0.862	0.944		0.595	0.832	0.837	0.451	0.822	1.148	1.207	0.956	1.543	1.687	1.687	12500
13000		0.404	0.560	0.614		0.566	0.780	0.862		0.521	0.749	0.774		0.716	1.036	1.116	0.827	1.381	1.560	1.560	13000
13500			0.505	0.569		0.498	0.707	0.788		0.454	0.673	0.718		0.626	0.936	1.035	0.721	1.237	1.447	1.447	13500
14000			0.455	0.527		0.437	0.642	0.723			0.605	0.668		0.546	0.847	0.963	0.631	1.108	1.345	1.345	14000
14500			0.411	0.483			0.583	0.664			0.545	0.622		0.479	0.763	0.888	0.556	0.994	1.254	1.254	14500
15000				0.443			0.527	0.611			0.491	0.582		0.422	0.686	0.816	0.491	0.895	1.172	1.172	15000

Span	C/Z 300 30				C/Z 350 24				C/Z 350 30				C/Z 400 24				C/Z 400 30				Span
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	
2000	56.419	56.417	56.412	56.425	27.489	27.489	27.490	27.493	52.012	52.014	52.011	52.010	**24.316**	**24.314**	**24.317**	**24.317**	**46.519**	**46.522**	**46.519**	**46.522**	2000
2500	42.025	42.020	42.026	42.024	21.499	21.498	21.499	21.500	40.004	40.009	40.005	40.005	**19.173**	**19.174**	**19.173**	**19.175**	**36.252**	**36.255**	**36.249**	**36.253**	2500
3000	32.479	32.480	32.480	32.480	**17.449**	**17.448**	**17.447**	**17.449**	31.900	31.901	31.899	31.901	**15.707**	**15.708**	**15.708**	**15.707**	**29.307**	**29.308**	**29.311**	**29.303**	3000
3500	**25.791**	**25.793**	**25.786**	**25.792**	**14.521**	**14.520**	**14.524**	**14.524**	**26.071**	**26.073**	**26.070**	**26.069**	**13.204**	**13.202**	**13.201**	**13.190**	**24.290**	**24.291**	**24.294**	**24.294**	3500
4000	**20.919**	**20.919**	**20.920**	**20.918**	**12.305**	**12.306**	**12.307**	**12.304**	**21.705**	**21.706**	**21.705**	**21.703**	11.306	11.306	11.309	11.306	**20.495**	**20.496**	**20.495**	**20.496**	4000
4500	**17.269**	**17.269**	**17.269**	**17.271**	**10.573**	**10.573**	**10.576**	**10.571**	**18.333**	**18.334**	**18.334**	**18.331**	9.818	9.818	9.820	9.817	**17.537**	**17.537**	**17.539**	**17.535**	4500
5000	**14.470**	**14.470**	**14.470**	**14.470**	**9.185**	**9.185**	**9.185**	**9.184**	**15.672**	**15.672**	**15.671**	**15.670**	8.619	8.619	8.618	8.616	**15.174**	**15.173**	**15.173**	**15.174**	5000
5500	**12.281**	**12.282**	**12.281**	**12.282**	8.052	8.051	8.050	8.053	**13.534**	**13.535**	**13.535**	**13.534**	7.633	7.634	7.633	7.632	**13.251**	**13.251**	**13.250**	**13.254**	5500
6000	**10.451**	**10.451**	**10.451**	**10.451**	7.112	7.112	7.112	7.113	**11.792**	**11.792**	**11.792**	**11.792**	6.810	6.809	6.810	6.810	**11.662**	**11.662**	**11.663**	**11.662**	6000
6500	**8.834**	**8.905**	**8.905**	**8.905**	6.324	6.324	6.324	6.325	**10.355**	**10.355**	**10.355**	**10.354**	6.113	6.112	6.112	6.114	**10.336**	**10.335**	**10.336**	**10.336**	6500
7000	**7.416**	**7.678**	**7.679**	**7.679**	5.656	5.656	5.656	5.656	**9.157**	**9.157**	**9.157**	**9.157**	5.516	5.516	5.516	5.517	**9.216**	**9.216**	**9.216**	**9.217**	7000
7500	**6.275**	**6.689**	**6.689**	**6.689**	5.086	5.085	5.085	5.085	**8.121**	**8.120**	**8.120**	**8.121**	5.002	5.003	5.002	5.002	**8.263**	**8.263**	**8.263**	**8.263**	7500
8000	5.346	**5.879**	**5.879**	**5.879**	4.594	4.594	4.594	4.594	**7.137**	**7.137**	**7.137**	**7.137**	4.555	4.555	4.555	4.554	**7.445**	**7.445**	**7.445**	**7.445**	8000
8500	4.566	5.208	5.208	5.208	4.168	4.168	4.168	4.168	**6.322**	**6.322**	**6.322**	**6.322**	4.163	4.163	4.163	4.163	**6.471**	**6.740**	**6.740**	**6.739**	8500
9000	3.891	4.645	4.645	4.645	3.797	3.797	3.797	3.797	**5.633**	**5.639**	**5.639**	**5.639**	3.818	3.818	3.818	3.818	**5.465**	**6.126**	**6.126**	**6.126**	9000
9500	3.327	4.169	4.169	4.169	3.471	3.471	3.472	3.472	**4.906**	**5.061**	**5.061**	**5.061**	3.433	3.512	3.513	3.514	4.626	**5.532**	**5.532**	**5.532**	9500
10000	2.821	3.739	3.762	3.763	3.135	3.185	3.185	3.185	4.286	4.568	4.568	4.568	3.021	3.242	3.243	3.242	3.883	**4.993**	**4.992**	**4.993**	10000
10500	2.381	3.332	3.413	3.413	2.780	2.930	2.930	2.930	3.753	4.143	4.143	4.143	2.613	2.999	2.998	2.998	3.240	**4.529**	**4.528**	**4.528**	10500
11000	2.011	2.979	3.109	3.110	2.472	2.705	2.705	2.705	3.293	3.775	3.775	3.775	2.219	2.783	2.783	2.783	2.723	4.126	4.126	4.126	11000
11500	1.710	2.673	2.845	2.845	2.204	2.503	2.503	2.503	2.892	3.454	3.454	3.454	1.877	2.587	2.587	2.587	2.308	3.775	3.775	3.775	11500
12000	1.465	2.404	2.613	2.613	1.968	2.318	2.318	2.318	2.541	3.172	3.172	3.172	1.600	2.397	2.412	2.411	1.972	3.444	3.467	3.467	12000
12500	1.264	2.167	2.408	2.408	1.755	2.136	2.136	2.136	2.232	2.923	2.923	2.923	1.373	2.162	2.252	2.252	1.696	3.088	3.195	3.195	12500
13000	1.098	1.952	2.226	2.226	1.540	1.970	1.975	1.975	1.960	2.703	2.703	2.703	1.186	1.954	2.108	2.108	1.468	2.756	2.954	2.954	13000
13500	0.959	1.755	2.064	2.065	1.354	1.805	1.831	1.831	1.730	2.506	2.506	2.506	1.031	1.768	1.976	1.976	1.278	2.462	2.739	2.739	13500
14000	0.842	1.579	1.901	1.920	1.195	1.656	1.703	1.703	1.537	2.314	2.330	2.330	0.900	1.601	1.857	1.857	1.119	2.200	2.547	2.547	14000
14500	0.744	1.422	1.749	1.790	1.059	1.523	1.588	1.587	1.372	2.114	2.173	2.173	0.790	1.463	1.735	1.735	0.985	1.968	2.375	2.375	14500
15000	0.660	1.273	1.612	1.672	0.943	1.403	1.483	1.483	1.231	1.933	2.030	2.030	0.697	1.343	1.603	1.621	0.871	1.748	2.219	2.219	15000

TABLE 2B: C & Z SECTION 2 SPAN INWARD LOAD (kN/m)

Bolt capacity exceeded. M12 bolts for 100 - 250 series, M16 bolts for 300 series or greater.

BOLD Grade 8.8 bolts required.

3/SB For Safebridge® system use data for 3 rows of bridging.

C/Z 100 10

0	1	2	3/SB	L/150
4.495	4.495	4.495	4.495	10.261
2.877	2.877	2.877	2.877	5.254
1.998	1.998	1.998	1.998	3.040
1.468	1.468	1.468	1.468	1.915
1.124	1.124	1.124	1.124	1.283
0.888	0.888	0.888	0.888	0.901
0.719	0.719	0.719	0.719	0.657
0.584	0.594	0.594	0.594	0.493
0.478	0.499	0.499	0.499	
	0.426	0.426	0.426	

C/Z 100 12

0	1	2	3/SB	L/150
5.455	5.455	5.455	5.455	12.399
3.491	3.491	3.491	3.491	6.349
2.424	2.424	2.424	2.424	3.674
1.781	1.781	1.781	1.781	2.314
1.346	1.364	1.364	1.364	1.550
1.044	1.077	1.078	1.077	1.089
0.829	0.873	0.873	0.873	0.794
0.671	0.721	0.721	0.721	0.596
0.551	0.606	0.606	0.606	0.459
0.458	0.516	0.516	0.516	
	0.445	0.445	0.445	

C/Z 100 15

0	1	2	3/SB	L/150
7.035	7.103	7.103	7.102	15.788
4.416	4.546	4.546	4.546	8.084
3.016	3.157	3.157	3.157	4.678
2.182	2.319	2.319	2.319	2.946
1.646	1.776	1.776	1.776	1.974
1.281	1.403	1.403	1.403	1.386
1.021	1.136	1.136	1.136	1.011
0.830	0.939	0.939	0.939	0.759
0.686	0.789	0.789	0.789	0.585
0.574	0.672	0.672	0.672	0.460
0.485	0.575	0.580	0.580	
0.414	0.494	0.505	0.505	
	0.428	0.444	0.444	

C/Z 100 19

0	1	2	3/SB	L/150	Span
9.484	9.894	9.894	9.894	20.338	2000
5.903	6.332	6.332	6.332	10.413	2500
4.007	4.397	4.397	4.397	6.026	3000
2.886	3.231	3.231	3.231	3.795	3500
2.169	2.473	2.474	2.473	2.542	4000
1.683	1.954	1.954	1.954	1.786	4500
1.339	1.583	1.583	1.583	1.302	5000
1.087	1.308	1.308	1.308	0.978	5500
0.897	1.097	1.099	1.099	0.753	6000
0.750	0.924	0.937	0.937	0.592	6500
0.634	0.786	0.808	0.808	0.474	7000
0.541	0.675	0.704	0.704		7500
0.466	0.584	0.614	0.618		8000
0.404	0.509	0.537	0.548		8500
	0.446	0.472	0.489		9000
		0.417	0.437		9500

C/Z 150 12

Span	0	1	2	3/SB	L/150
2000	6.820	6.820	6.820	6.820	35.624
2500	4.961	4.960	4.961	4.960	18.239
3000	3.755	3.755	3.755	3.755	10.555
3500	2.930	2.930	2.930	2.930	6.647
4000	2.315	2.315	2.315	2.315	4.453
4500	1.829	1.829	1.829	1.829	3.127
5000	1.481	1.481	1.481	1.481	2.280
5500	1.216	1.224	1.224	1.224	1.713
6000	1.008	1.029	1.029	1.029	1.319
6500	0.847	0.877	0.877	0.877	1.038
7000	0.719	0.756	0.756	0.756	0.831
7500	0.616	0.658	0.658	0.658	0.676
8000	0.529	0.579	0.579	0.579	0.557
8500	0.456	0.513	0.513	0.513	0.464
9000		0.457	0.457	0.457	
9500		0.410	0.410	0.410	
10000					
10500					
11000					
11500					
12000					
12500					
13000					
13500					
14000					
14500					
15000					

C/Z 150 15

0	1	2	3/SB	L/150
11.041	11.041	11.04	11.041	46.290
7.681	7.681	7.681	7.681	23.700
5.427	5.427	5.427	5.427	13.715
3.969	3.987	3.987	3.987	8.637
2.979	3.053	3.053	3.053	5.786
2.311	2.412	2.412	2.412	4.064
1.838	1.954	1.954	1.954	2.962
1.492	1.615	1.615	1.615	2.226
1.231	1.357	1.357	1.357	1.714
1.030	1.156	1.156	1.156	1.348
0.871	0.997	0.997	0.997	1.080
0.743	0.868	0.868	0.868	0.878
0.639	0.763	0.763	0.763	0.723
0.554	0.676	0.676	0.676	0.603
0.482	0.603	0.603	0.603	0.508
0.422	0.541	0.541	0.541	0.432
	0.488	0.488	0.488	
	0.443	0.443	0.443	
	0.402	0.404	0.404	

C/Z 150 19

0	1	2	3/SB	L/150
16.927	16.926	16.927	16.927	59.263
10.690	**11.058**	**11.058**	**11.058**	30.343
7.212	7.679	7.679	7.679	17.560
5.170	5.642	5.642	5.642	11.058
3.873	4.320	4.320	4.320	7.408
3.001	3.413	3.413	3.413	5.203
2.386	2.765	2.765	2.765	3.793
1.937	2.285	2.285	2.285	2.850
1.599	1.920	1.920	1.920	2.195
1.339	1.636	1.636	1.636	1.726
1.134	1.411	1.410	1.411	1.382
0.970	1.229	1.229	1.229	1.124
0.836	1.080	1.080	1.080	0.926
0.726	0.956	0.957	0.957	0.772
0.634	0.843	0.853	0.853	0.650
0.553	0.748	0.766	0.766	0.553
0.485	0.667	0.691	0.691	0.474
0.427	0.597	0.627	0.627	0.410
	0.537	0.571	0.571	
	0.485	0.517	0.523	
	0.439	0.469	0.48	
		0.427	0.442	
			0.409	

C/Z 150 24

0	1	2	3/SB	L/150
23.549	24.375	24.374	24.374	76.751
14.347	**15.687**	**15.687**	**15.687**	39.297
9.561	**10.894**	**10.894**	**10.894**	22.741
6.787	**8.004**	**8.004**	**8.004**	14.321
5.045	**6.128**	**6.128**	**6.128**	9.594
3.884	4.842	4.842	4.842	6.738
3.074	3.922	3.922	3.922	4.912
2.486	3.241	3.241	3.241	3.690
2.047	2.723	2.724	2.723	2.843
1.710	2.321	2.321	2.321	2.236
1.446	1.994	2.001	2.001	1.790
1.236	1.717	1.743	1.743	1.455
1.066	1.492	1.532	1.532	1.199
0.923	1.306	1.357	1.357	1.000
0.803	1.151	1.210	1.210	0.842
0.703	1.019	1.086	1.086	0.716
0.618	0.908	0.980	0.98	0.614
0.546	0.812	0.879	0.889	0.530
0.484	0.729	0.791	0.8100	0.461
0.431	0.658	0.714	0.741	0.404
	0.595	0.647	0.681	
	0.539	0.589	0.626	
	0.490	0.537	0.573	
	0.447	0.490	0.525	
	0.408	0.449	0.483	
		0.412	0.444	
			0.410	

C/Z 200 15

0	1	2	3/SB	L/150	Span
10.598	10.598	10.597	10.598	97.393	2000
7.909	7.908	7.908	7.909	49.867	2500
6.123	6.123	6.123	6.123	28.859	3000
4.869	4.869	4.869	4.870	18.174	3500
3.955	3.955	3.955	3.955	12.175	4000
3.268	3.268	3.268	3.268	8.551	4500
2.696	2.729	2.729	2.729	6.233	5000
2.199	2.255	2.255	2.255	4.683	5500
1.824	1.895	1.895	1.895	3.607	6000
1.534	1.615	1.615	1.615	2.837	6500
1.306	1.392	1.392	1.392	2.272	7000
1.121	1.213	1.213	1.213	1.847	7500
0.965	1.066	1.066	1.066	1.522	8000
0.837	0.944	0.944	0.944	1.269	8500
0.730	0.842	0.842	0.842	1.069	9000
0.640	0.756	0.756	0.756	0.909	9500
0.564	0.682	0.682	0.682	0.779	10000
0.498	0.619	0.619	0.619	0.673	10500
0.442	0.564	0.564	0.564	0.585	11000
	0.516	0.516	0.516	0.512	11500
	0.474	0.474	0.474	0.451	12000
	0.437	0.437	0.437		12500
	0.404	0.404	0.404		13000
					13500
					14000
					14500
					15000

C/Z 200 19

Span	0	1	2	3/SB	L/150
2000	19.631	19.630	19.631	19.635	130.694
2500	14.207	14.208	14.207	14.208	66.915
3000	10.711	10.711	10.711	10.711	38.725
3500	**8.100**	**8.330**	**8.329**	**8.328**	24.386
4000	6.004	**6.485**	**6.485**	**6.485**	16.336
4500	4.608	5.124	5.124	5.124	11.474
5000	3.634	4.150	4.150	4.150	8.364
5500	2.929	3.430	3.430	3.430	6.284
6000	2.403	2.882	2.882	2.882	4.841
6500	2.003	2.456	2.456	2.456	3.807
7000	1.691	2.117	2.117	2.117	3.048
7500	1.443	1.844	1.844	1.845	2.478
8000	1.242	1.621	1.621	1.621	2.042
8500	1.077	1.436	1.436	1.436	1.702
9000	0.941	1.281	1.281	1.281	1.434
9500	0.826	1.150	1.150	1.150	1.219
10000	0.729	1.038	1.038	1.038	1.046
10500	0.647	0.941	0.941	0.941	0.903
11000	0.577	0.857	0.857	0.857	0.786
11500	0.516	0.785	0.785	0.785	0.687
12000	0.464	0.719	0.721	0.721	0.605
12500	0.419	0.655	0.664	0.664	0.535
13000		0.597	0.614	0.614	0.476
13500		0.546	0.569	0.569	0.425
14000		0.500	0.529	0.529	
14500		0.459	0.493	0.493	
15000		0.422	0.461	0.461	

C/Z 200 24

0	1	2	3/SB	L/150
32.394	32.393	32.393	32.396	167.907
22.415	22.415	22.415	22.416	85.969
15.214	16.334	16.334	16.334	49.749
10.743	12.111	12.110	12.111	31.329
7.939	**9.273**	**9.272**	**9.272**	20.988
6.073	**7.326**	**7.327**	**7.326**	14.741
4.743	**5.934**	**5.934**	**5.934**	10.746
3.791	**4.904**	**4.905**	**4.905**	8.074
3.089	**4.121**	**4.121**	**4.121**	6.219
2.556	3.511	3.511	3.512	4.891
2.143	3.028	3.028	3.028	3.916
1.818	2.637	2.637	2.637	3.184
1.556	2.318	2.318	2.318	2.624
1.344	2.053	2.053	2.054	2.187
1.171	1.824	1.832	1.832	1.843
1.027	1.622	1.644	1.644	1.567
0.907	1.450	1.484	1.484	1.343
0.804	1.302	1.346	1.346	1.160
0.715	1.175	1.226	1.226	1.009
0.638	1.064	1.122	1.122	0.883
0.572	0.966	1.030	1.030	0.777
0.515	0.881	0.95	0.95	0.688
0.466	0.805	0.877	0.878	0.611
0.422	0.738	0.805	0.814	0.546
	0.677	0.741	0.757	0.490
	0.623	0.684	0.706	0.441
	0.575	0.632	0.659	

C/Z 250 19

0	1	2	3/SB	L/150
17.751	17.751	17.750	17.752	216.830
13.456	13.456	13.457	13.456	111.023
10.573	10.574	10.574	10.573	64.250
8.521	**8.521**	**8.523**	**8.523**	40.458
7.003	**7.003**	**7.003**	**7.003**	27.105
5.846	**5.847**	**5.846**	**5.846**	19.036
4.766	**4.946**	**4.946**	**4.946**	13.877
3.826	4.232	4.232	4.232	10.426
3.131	3.635	3.635	3.635	8.031
2.601	3.097	3.097	3.097	6.317
2.187	2.670	2.671	2.670	5.058
1.858	2.326	2.326	2.326	4.112
1.592	2.044	2.044	2.044	3.388
1.376	1.811	1.811	1.811	2.825
1.197	1.615	1.615	1.615	2.379
1.048	1.450	1.450	1.450	2.023
0.924	1.308	1.308	1.308	1.735
0.818	1.187	1.187	1.187	1.499
0.729	1.081	1.081	1.081	1.303
0.651	0.989	0.989	0.989	1.141
0.581	0.909	0.909	0.909	1.004
0.522	0.837	0.837	0.837	0.888
0.470	0.774	0.774	0.774	0.790
0.425	0.718	0.718	0.718	0.705
	0.665	0.668	0.668	0.632
	0.612	0.622	0.622	0.569
	0.562	0.582	0.582	0.514

C/Z 250 24

0	1	2	3/SB	L/150
32.870	32.871	32.870	32.876	284.414
24.138	24.138	24.138	24.136	145.616
18.422	18.420	18.422	18.422	84.272
14.134	14.471	14.470	14.468	53.070
10.368	11.633	11.633	11.632	35.553
7.823	9.317	9.317	9.317	24.969
6.064	**7.546**	**7.546**	**7.547**	18.203
4.813	**6.237**	**6.237**	**6.237**	13.676
3.895	**5.240**	**5.240**	**5.241**	10.534
3.202	**4.465**	**4.465**	**4.465**	8.285
2.671	**3.850**	**3.850**	**3.850**	6.634
2.256	**3.354**	**3.354**	**3.354**	5.394
1.927	2.948	2.948	2.948	4.444
1.663	2.611	2.611	2.611	3.705
1.448	2.329	2.329	2.329	3.121
1.265	2.091	2.090	2.091	2.654
1.111	1.887	1.887	1.887	2.275
0.981	1.711	1.711	1.711	1.965
0.871	1.559	1.559	1.559	1.710
0.777	1.417	1.427	1.427	1.496
0.697	1.285	1.310	1.310	1.317
0.626	1.170	1.207	1.207	1.165
0.566	1.067	1.116	1.116	1.036
0.512	0.976	1.035	1.035	0.925
0.465	0.895	0.963	0.963	0.829
0.424	0.822	0.897	0.897	0.746
	0.756	0.839	0.838	0.674

C/Z 300 24

0	1	2	3/SB	L/150	Span
30.963	30.962	30.957	30.961	489.778	2000
23.740	23.740	23.735	23.740	250.753	2500
18.867	18.867	18.866	18.868	145.119	3000
15.370	15.370	15.370	15.375	91.385	3500
12.757	**12.757**	**12.758**	**12.754**	61.221	4000
10.746	**10.746**	**10.747**	**10.746**	42.996	4500
8.803	**9.162**	**9.162**	**9.162**	31.345	5000
6.935	7.895	7.894	7.895	23.551	5500
5.598	6.864	6.865	6.864	18.139	6000
4.592	6.018	6.018	6.017	14.267	6500
3.826	5.313	5.313	5.313	11.423	7000
3.232	4.687	4.687	4.687	9.287	7500
2.752	4.119	4.120	4.120	7.653	8000
2.365	3.649	3.649	3.649	6.380	8500
2.052	3.255	3.255	3.255	5.374	9000
1.797	2.921	2.922	2.921	4.570	9500
1.585	2.637	2.636	2.637	3.918	10000
1.401	2.391	2.392	2.392	3.385	10500
1.245	2.179	2.179	2.179	2.944	11000
1.113	1.994	1.994	1.994	2.576	11500
0.999	1.831	1.831	1.831	2.267	12000
0.901	1.687	1.687	1.687	2.006	12500
0.816	1.560	1.560	1.560	1.783	13000
0.742	1.447	1.447	1.447	1.592	13500
0.676	1.336	1.345	1.345	1.428	14000
0.619	1.232	1.254	1.254	1.285	14500
0.567	1.138	1.172	1.172	1.161	15000

C/Z 300 30

Span	0	1	2	3/SB	L/150
2000	56.418	56.416	56.422	56.423	632.871
2500	42.025	42.026	42.030	42.023	324.024
3000	32.479	32.480	32.479	32.478	187.505
3500	**25.791**	**25.792**	**25.788**	**25.795**	118.089
4000	**20.677**	**20.919**	**20.920**	**20.916**	79.107
4500	**15.356**	**17.268**	**17.269**	**17.272**	55.562
5000	**11.690**	**14.469**	**14.470**	**14.470**	40.504
5500	**8.984**	**12.282**	**12.281**	**12.282**	30.430
6000	7.039	**10.452**	**10.451**	**10.451**	23.440
6500	5.628	**8.905**	**8.905**	**8.905**	18.435
7000	4.594	**7.678**	**7.678**	**7.678**	14.761
7500	3.816	**6.689**	**6.689**	**6.689**	12.001
8000	3.216	**5.879**	**5.879**	**5.879**	9.889
8500	2.745	5.207	5.208	5.208	8.244
9000	2.368	4.645	4.645	4.645	6.945
9500	2.062	4.169	4.169	4.169	5.905
10000	1.810	3.762	3.763	3.762	5.063
10500	1.600	3.386	3.413	3.413	4.374
11000	1.423	3.057	3.110	3.110	3.804
11500	1.273	2.772	2.845	2.845	3.329
12000	1.145	2.523	2.613	2.613	2.930
12500	1.034	2.304	2.408	2.408	2.592
13000	0.938	2.111	2.226	2.226	2.304
13500	0.854	1.940	2.064	2.064	2.058
14000	0.781	1.788	1.920	1.920	1.845
14500	0.715	1.651	1.789	1.790	1.661
15000	0.658	1.529	1.672	1.672	1.500

C/Z 350 24

0	1	2	3/SB	L/150
27.489	27.486	27.490	27.490	795.362
21.499	21.501	21.499	21.500	407.242
17.449	**17.449**	**17.447**	**17.450**	235.668
14.521	**14.520**	**14.524**	**14.526**	148.408
12.306	**12.305**	**12.306**	**12.305**	99.419
10.573	**10.573**	**10.574**	**10.573**	69.828
9.185	**9.184**	**9.184**	**9.185**	50.904
8.052	8.051	8.051	8.053	38.245
7.112	7.112	7.112	7.111	29.459
6.324	6.324	6.323	6.323	23.169
5.295	5.656	5.656	5.656	18.551
4.389	5.085	5.085	5.085	15.083
3.693	4.594	4.594	4.594	12.428
3.147	4.168	4.168	4.168	10.361
2.711	3.797	3.797	3.797	8.728
2.358	3.471	3.472	3.472	7.422
2.068	3.185	3.185	3.185	6.363
1.828	2.930	2.930	2.929	5.497
1.626	2.705	2.705	2.705	4.781
1.455	2.503	2.503	2.503	4.184
1.309	2.318	2.318	2.318	3.682
1.183	2.136	2.136	2.136	3.258
1.074	1.975	1.975	1.975	2.896
0.979	1.831	1.831	1.831	2.586
0.895	1.696	1.703	1.703	2.319
0.823	1.572	1.588	1.588	2.087
0.759	1.460	1.483	1.483	1.885

C/Z 350 30

0	1	2	3/SB	L/150
52.013	52.013	52.008	52.010	1022.512
40.009	40.007	40.006	40.007	523.491
31.899	31.903	31.897	31.903	302.951
26.070	**26.075**	**26.066**	**26.069**	190.784
21.705	**21.704**	**21.706**	**21.706**	127.807
18.333	**18.334**	**18.335**	**18.332**	89.766
15.672	**15.672**	**15.671**	**15.670**	65.439
12.303	**13.535**	**13.534**	**13.534**	49.164
9.685	**11.792**	**11.792**	**11.790**	37.870
7.727	**10.355**	**10.355**	**10.356**	29.785
6.312	**9.157**	**9.157**	**9.157**	23.848
5.248	**8.120**	**8.121**	**8.121**	19.388
4.429	**7.137**	**7.137**	**7.137**	15.976
3.786	**6.322**	**6.322**	**6.322**	13.319
3.247	**5.639**	**5.639**	**5.639**	11.221
2.812	**5.062**	**5.061**	**5.061**	9.540
2.458	4.568	4.568	4.568	8.180
2.166	4.143	4.143	4.143	7.066
1.923	3.775	3.775	3.775	6.146
1.719	3.454	3.454	3.454	5.378
1.545	3.172	3.172	3.172	4.734
1.396	2.923	2.923	2.923	4.188
1.267	2.703	2.703	2.703	3.723
1.153	2.506	2.506	2.506	3.325
1.051	2.330	2.331	2.330	2.981
0.962	2.163	2.173	2.173	2.683
0.883	2.000	2.030	2.030	2.424

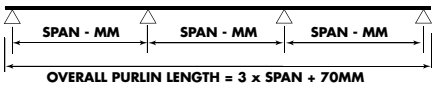
C/Z 400 24

0	1	2	3/SB	L/150
24.315	**24.315**	**24.314**	**24.315**	958.051
19.175	**19.174**	**19.172**	**19.173**	490.515
15.707	**15.707**	**15.710**	**15.707**	283.875
13.204	**13.203**	**13.200**	**13.200**	178.749
11.306	11.307	11.307	11.305	119.753
9.818	9.817	9.819	9.816	84.108
8.619	8.619	8.618	8.617	61.315
7.633	7.633	7.633	7.633	46.066
6.810	6.810	6.810	6.809	35.481
6.113	6.113	6.112	6.113	27.908
5.440	5.517	5.517	5.517	22.345
4.520	5.002	5.002	5.002	18.167
3.808	4.555	4.554	4.555	14.969
3.248	4.163	4.163	4.163	12.480
2.799	3.818	3.818	3.818	10.513
2.434	3.512	3.513	3.513	8.939
2.134	3.242	3.242	3.242	7.665
1.883	2.999	2.999	2.998	6.621
1.672	2.783	2.783	2.783	5.758
1.493	2.587	2.587	2.587	5.040
1.340	2.412	2.412	2.412	4.435
1.208	2.252	2.252	2.252	3.924
1.093	2.108	2.108	2.108	3.488
0.993	1.959	1.976	1.976	3.115
0.905	1.807	1.857	1.857	2.793
0.827	1.671	1.735	1.735	2.514
0.756	1.444	1.590	1.621	0.944

C/Z 400 30

0	1	2	3/SB	L/150	Span
46.521	**46.528**	**46.520**	**46.526**	1227.810	2000
36.254	**36.254**	**36.248**	**36.249**	628.613	2500
29.307	**29.307**	**29.304**	**29.307**	363.770	3000
24.289	**24.291**	**24.291**	**24.293**	229.081	3500
20.496	**20.497**	**20.495**	**20.492**	153.467	4000
17.537	**17.537**	**17.537**	**17.538**	107.786	4500
15.173	**15.173**	**15.173**	**15.170**	78.570	5000
11.919	**13.251**	**13.250**	**13.252**	59.036	5500
9.265	**11.663**	**11.663**	**11.662**	45.472	6000
7.388	**10.336**	**10.336**	**10.336**	35.766	6500
6.017	**9.216**	**9.216**	**9.216**	28.633	7000
4.987	**8.263**	**8.263**	**8.263**	23.281	7500
4.195	**7.445**	**7.446**	**7.445**	19.183	8000
3.574	**6.740**	**6.739**	**6.739**	15.993	8500
3.078	**6.126**	**6.126**	**6.126**	13.473	9000
2.676	**5.532**	**5.532**	**5.532**	11.455	9500
2.345	**4.993**	**4.993**	**4.993**	9.822	10000
2.071	**4.528**	**4.528**	**4.528**	8.484	10500
1.840	4.126	4.126	4.126	7.379	11000
1.645	3.775	3.775	3.775	6.458	11500
1.477	3.467	3.467	3.467	5.684	12000
1.333	3.195	3.195	3.195	5.029	12500
1.208	2.954	2.954	2.954	4.471	13000
1.099	2.739	2.739	2.74	3.992	13500
1.003	2.546	2.547	2.547	3.579	14000
0.919	2.346	2.375	2.375	3.222	14500
0.844	2.167	2.219	2.219	2.910	15000

TABLE 3A:
C & Z SECTION
3 SPAN OUTWARD LOAD
(kN/m)



Bolt capacity exceeded. M12 bolts for 100 - 250 series, M16 bolts for 300 series or greater.

BOLD Grade 8.8 bolts required.

3/SB For Safebridge® system use data for 3 rows of bridging.

Span	C/Z 100 10				C/Z 100 12				C/Z 100 15				C/Z 100 19				Span
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	
2000	5.283	5.283	5.283	5.283	6.818	6.818	6.818	6.818	8.879	8.878	8.878	8.878	12.367	12.367	12.367	12.367	2000
2500	3.596	3.596	3.596	3.596	4.364	4.364	4.364	4.364	5.558	5.682	5.682	5.682	7.631	7.915	7.915	7.915	2500
3000	2.457	2.497	2.497	2.497	2.879	3.031	3.030	3.030	3.640	3.946	3.946	3.946	4.952	5.497	5.497	5.497	3000
3500	1.616	1.835	1.835	1.835	1.924	2.226	2.227	2.226	2.493	2.894	2.899	2.899	3.363	3.995	4.038	4.038	3500
4000	1.072	1.405	1.405	1.405	1.307	1.705	1.705	1.705	1.757	2.136	2.220	2.220	2.357	2.934	3.092		4000
4500	0.714	1.086	1.110	1.110	0.897	1.276	1.347	1.347	1.247	1.619	1.754	1.754	1.689	2.211	2.443		4500
5000	0.496	0.815	0.899	0.899	0.634	0.968	1.091	1.091	0.872	1.250	1.407	1.421	1.216	1.698	1.940		5000
5500		0.615	0.743	0.743	0.462	0.741	0.902	0.902	0.630	0.978	1.132	1.174	0.878	1.324	1.555		5500
6000		0.462	0.623	0.624		0.569	0.730	0.758	0.470	0.773	0.923	0.986	0.655	1.043	1.263		6000
6500			0.504	0.532		0.438	0.595	0.646		0.611	0.761	0.824	0.503	0.829	1.037		6500
7000			0.41	0.459			0.488	0.554		0.475	0.632	0.694		0.664	0.859		7000
7500							0.402	0.467			0.529	0.590		0.525	0.716		7500
8000											0.445	0.505		0.417	0.601		8000
8500												0.435			0.507		8500
9000															0.429		9000
9500																	9500

Span	C/Z 150 12				C/Z 150 15				C/Z 150 19				C/Z 150 24				C/Z 200 15				Span
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	
2000	7.548	7.548	7.548	7.547	12.663	12.663	12.663	12.662	20.122	20.124	20.123	20.122	29.355	29.356	29.356	29.357	11.515	11.515	11.516	11.515	2000
2500	5.596	5.596	5.595	5.595	8.984	8.984	8.984	8.984	**13.671**	**13.671**	**13.670**	**13.672**	19.609	19.609	19.609	19.609	8.733	8.733	8.733	8.734	2500
3000	4.306	4.306	4.306	4.306	6.667	6.667	6.667	6.667	**9.599**	**9.599**	**9.599**	**9.600**	**13.498**	**13.617**	**13.617**	**13.617**	6.865	6.865	6.865	6.866	3000
3500	3.406	3.406	3.406		4.984	4.984	4.984	4.984	6.817	7.053	7.052	7.052	**9.391**	**10.005**	**10.005**	**10.005**	5.535	5.535	5.535	5.534	3500
4000	2.754	2.754	2.754		3.648	3.816	3.816	3.816	4.934	5.399	5.400	5.400	6.753	**7.660**	**7.660**	**7.659**	4.551	4.551	4.551	4.550	4000
4500	2.106	2.268	2.268		2.674	3.015	3.015	3.015	3.651	4.264	4.266	4.266	4.970	6.046	6.052	6.052	3.800	3.800	3.800	3.800	4500
5000	1.526	1.852	1.852		1.980	2.442	2.442	2.442	2.741	3.414	3.456	3.456	3.721	4.731	4.902	4.902	3.216	3.216	3.216	3.216	5000
5500	1.102	1.530	1.530		1.474	2.018	2.018	2.018	2.054	2.725	2.856	2.856	2.821	3.763	4.051	4.051	2.630	2.751	2.750	2.749	5500
6000	0.812	1.265	1.286		1.107	1.623	1.696	1.696	1.517	2.202	2.400	2.400	2.104	3.030	3.404	3.404	2.023	2.369	2.369	2.369	6000
6500	0.614	1.033	1.096		0.850	1.315	1.445	1.445	1.149	1.796	2.045	2.045	1.582	2.464	2.861	2.901	1.547	2.018	2.018	2.018	6500
7000	0.476	0.832	0.945		0.655	1.070	1.246	1.246	0.893	1.475	1.735	1.763	1.219	2.020	2.404	2.501	1.192	1.740	1.740	1.740	7000
7500		0.666	0.823		0.512	0.873	1.085	1.085	0.697	1.217	1.473	1.536	0.959	1.666	2.036	2.179	0.936	1.487	1.516	1.516	7500
8000		0.532	0.723		0.410	0.713	0.93	0.954	0.553	1.004	1.260	1.350	0.768	1.380	1.737	1.898	0.750	1.263	1.333	1.333	8000
8500		0.428	0.622			0.583	0.796	0.845	0.447	0.815	1.083	1.188	0.626	1.141	1.489	1.648	0.612	1.068	1.180	1.180	8500
9000			0.537			0.481	0.684	0.754		0.663	0.935	1.039	0.517	0.934	1.283	1.439	0.505	0.891	1.053	1.053	9000
9500			0.458			0.401	0.588	0.676		0.547	0.810	0.913	0.432	0.766	1.110	1.262	0.418	0.742	0.945	0.945	9500
10000							0.507	0.595		0.457	0.703	0.806		0.635	0.963	1.111		0.618	0.850	0.853	10000
10500							0.437	0.525			0.612	0.714		0.533	0.838	0.982		0.519	0.753	0.774	10500
11000								0.464			0.532	0.634		0.451	0.731	0.871		0.439	0.669	0.705	11000
11500								0.412			0.457	0.564			0.638	0.774			0.594	0.645	11500
12000												0.503			0.551	0.690			0.521	0.592	12000
12500												0.450			0.476	0.616			0.457	0.544	12500
13000												0.402			0.412	0.551			0.400	0.493	13000
13500																0.493				0.449	13500
14000																0.443				0.408	14000
14500																					14500
15000																					15000

Span	C/Z 200 19				C/Z 200 24				C/Z 250 19				C/Z 250 24				C/Z 300 24				Span
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	
2000	21.805	21.807	21.805	21.806	37.327	37.328	37.327	37.330	19.089	19.089	19.089	19.092	36.120	36.124	36.119	36.123	33.056	33.061	33.058	33.053	2000
2500	16.091	16.091	16.092	16.091	26.333	26.333	26.332	26.332	14.667	14.666	14.667	14.667	27.011	27.013	27.013	27.014	25.629	25.628	25.630	25.631	2500
3000	12.333	12.332	12.333	12.332	19.458	19.459	19.457	19.458	**11.681**	**11.681**	**11.681**	**11.681**	20.953	20.952	20.953	20.953	20.608	20.607	20.606	20.610	3000
3500	**9.723**	**9.722**	**9.723**	**9.721**	14.901	14.903	14.902	14.901	**9.536**	**9.537**	**9.535**	**9.536**	16.691	16.690	16.691	16.690	**16.983**	**16.983**	**16.984**	**16.982**	3500
4000	**7.839**	**7.839**	**7.839**	**7.838**	11.420	11.591	11.590	11.590	**7.930**	**7.930**	**7.931**	**7.930**	13.576	13.575	13.577	13.575	**14.254**	**14.253**	**14.254**	**14.252**	4000
4500	**6.317**	**6.405**	**6.405**	**6.405**	**8.630**	**9.158**	**9.158**	**9.158**	**6.691**	**6.691**	**6.692**	**6.692**	11.233	11.233	11.233	11.232	**12.130**	**12.131**	**12.132**	**12.130**	4500
5000	4.819	5.188	5.188	5.188	**6.643**	**7.418**	**7.418**	**7.418**	**5.714**	**5.715**	**5.715**	**5.715**	**8.864**	9.430	9.430	9.431	**10.442**	**10.443**	**10.442**	**10.442**	5000
5500	3.713	4.287	4.287	4.287	**5.180**	**6.131**	**6.131**	**6.131**	4.931	4.928	4.926	4.925	**6.859**	**7.796**	**7.796**	**7.796**	9.076	9.069	9.066	9.062	5500
6000	2.882	3.603	3.603	3.602	4.019	**5.114**	**5.151**	**5.151**	3.819	4.293	4.293	4.293	**5.258**	**6.550**	**6.551**	**6.551**	7.953	7.953	7.953	7.953	6000
6500	2.250	3.070	3.070	3.070	3.114	**4.235**	**4.389**	**4.389**	2.948	3.766	3.765	3.764	4.021	**5.581**	**5.582**	**5.582**	7.021	7.017	7.015	7.013	6500
7000	1.763	2.578	2.647	2.647	2.420	3.539	3.785	3.785	2.292	3.330	3.330	3.330	3.100	**4.741**	**4.813**	**4.813**	5.958	6.237	6.237	6.238	7000
7500	1.391	2.154	2.306	2.306	1.898	2.979	3.297	3.297	1.790	2.886	2.908	2.908	2.413	**3.974**	**4.192**	**4.193**	4.858	5.572	5.571	5.569	7500
8000	1.105	1.808	2.026	2.026	1.498	2.521	2.898	2.898	1.416	2.418	2.556	2.556	1.896	3.347	**3.685**	**3.685**	3.983	5.007	5.007	5.007	8000
8500	0.893	1.520	1.795	1.795	1.201	2.142	2.529	2.567	1.141	2.023	2.264	2.264	1.513	2.823	**3.264**	**3.264**	3.283	4.519	4.518	4.518	8500
9000	0.730	1.283	1.601	1.601	0.976	1.805	2.209	2.289	0.928	1.699	2.019	2.019	1.225	2.360	2.911	2.911	2.713	4.068	4.069	4.069	9000
9500	0.598	1.085	1.413	1.437	0.804	1.521	1.938	2.055	0.758	1.426	1.812	1.812	1.004	1.971	2.599	2.613	2.243	3.535	3.652	3.652	9500
10000	0.496	0.917	1.239	1.297	0.670	1.281	1.708	1.854	0.626	1.196	1.636	1.636	0.833	1.645	2.283	2.358	1.855	3.079	3.296	3.296	10000
10500	0.415	0.778	1.089	1.176	0.564	1.080	1.509	1.664	0.522	1.011	1.462	1.484	0.698	1.381	2.011	2.139	1.543	2.687	2.989	2.989	10500
11000		0.662	0.959	1.072	0.479	0.918	1.338	1.492	0.439	0.853	1.283	1.352	0.590	1.166	1.776	1.949	1.295	2.346	2.724	2.724	11000
11500		0.563	0.846	0.980	0.410	0.776	1.188	1.341		0.723	1.127	1.237	0.503	0.984	1.571	1.783	1.096	2.049	2.492	2.492	11500
12000		0.482	0.746	0.881		0.661	1.053	1.209		0.618	0.992	1.136	0.432	0.836	1.383	1.620	0.935	1.795	2.289	2.289	12000
12500		0.416	0.660	0.793		0.568	0.929	1.093		0.533	0.874	1.047		0.716	1.214	1.461	0.803	1.577	2.106	2.109	12500
13000			0.585	0.715		0.491	0.820	0.990		0.463	0.769	0.958		0.617	1.065	1.320	0.694	1.386	1.902	1.950	13000
13500			0.517	0.645		0.427	0.724	0.898		0.400	0.676	0.865		0.535	0.933	1.194	0.603	1.221	1.72	1.808	13500
14000			0.458	0.583			0.639	0.816			0.596	0.779		0.466	0.819	1.082	0.528	1.071	1.557	1.681	14000
14500			0.406	0.527			0.565	0.742			0.528	0.703		0.409	0.722	0.981	0.464	0.946	1.411	1.567	14500
15000				0.477			0.501	0.674			0.466	0.634			0.639	0.884	0.410	0.830	1.279	1.465	15000

Span	C/Z 300 30				C/Z 350 24				C/Z 350 30				C/Z 400 24				C/Z 400 30				Span
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	
2000	61.382	61.377	61.376	61.380	**29.005**	**29.003**	**29.002**	**29.003**	55.420	55.425	55.418	55.425	25.532	25.534	25.530	25.536	**49.188**	**49.191**	**49.189**	**49.190**	2000
2500	46.478	46.479	46.482	46.479	**22.829**	**22.830**	**22.828**	**22.829**	**43.079**	**43.078**	**43.075**	**43.077**	20.219	20.218	20.220	20.219	**38.611**	**38.615**	**38.611**	**38.612**	2500
3000	36.481	36.479	36.485	36.476	**18.662**	**18.661**	**18.662**	**18.663**	**34.729**	**34.729**	**34.730**	**34.728**	16.644	16.643	16.639	16.645	**31.469**	**31.468**	**31.469**	**31.472**	3000
3500	**29.370**	**29.370**	**29.370**	**29.369**	**15.651**	**15.652**	**15.651**	**15.652**	**28.700**	**28.704**	**28.700**	**28.698**	14.066	14.067	14.065	14.069	**26.305**	**26.306**	**26.309**	**26.301**	3500
4000	**24.113**	**24.113**	**24.114**	**24.112**	**13.370**	**13.370**	**13.371**	**13.369**	**24.152**	**24.151**	**24.149**	**24.147**	12.116	12.115	12.116	12.112	**22.395**	**22.394**	**22.396**	**22.394**	4000
4500	**20.113**	**20.115**	**20.115**	**20.113**	**11.581**	**11.581**	**11.582**	**11.582**	**20.607**	**20.608**	**20.612**	**20.606**	10.585	10.585	10.586	10.584	**19.329**	**19.330**	**19.331**	**19.327***	4500
5000	**17.004**	**17.003**	**17.004**	**17.003**	10.142	10.141	10.141	10.141	**17.784**	**17.784**	**17.783**	**17.787**	9.350	9.351	9.350	9.350	**16.867**	**16.867**	**16.867**	**16.867**	5000
5500	**14.541**	**14.534**	**14.531**	**14.525**	8.959	8.950	8.946	8.939	**15.491**	**15.480**	**15.474**	**15.467**	8.334	8.323	8.319	8.313	**14.850**	**14.835**	**14.829**	**14.820**	5500
6000	**12.404**	**12.560**	**12.561**	**12.560**	7.973	7.973	7.973	7.973	**13.604**	**13.604**	**13.604**	**13.606**	7.482	7.481	7.481	7.481	**13.172**	**13.171**	**13.172**	**13.172**	6000
6500	**10.164**	**10.943**	**10.942**	**10.940**	7.140	7.135	7.132	7.128	**12.031**	**12.024**	**12.022**	**12.016**	6.758	6.752	6.749	6.744	**11.758**	**11.751**	**11.745**	**11.740**	6500
7000	**8.355**	**9.598**	**9.598**	**9.598**	6.429	6.429	6.429	6.429	**10.707**	**10.707**	**10.707**	**10.708**	6.136	6.136	6.136	6.136	**10.555**	**10.555**	**10.555**	**10.555**	7000
7500	6.850	**8.361**	**8.361**	**8.361**	5.817	5.813	5.812	5.809	**9.583**	**9.579**	**9.577**	**9.575**	5.596	5.592	5.590	5.587	**9.522**	**9.518**	**9.515**	**9.512**	7500
8000	5.594	**7.348**	**7.348**	**7.349**	5.285	5.286	5.285	5.286	**8.529**	**8.621**	**8.621**	**8.622**	5.125	5.125	5.125	5.125	**7.785**	**8.629**	**8.630**	**8.631**	8000
8500	4.507	**6.405**	**6.510**	**6.509**	4.822	4.820	4.818	4.817	**7.237**	**7.790**	**7.789**	**7.787**	4.710	4.707	4.706	4.704	**6.190**	**7.849**	**7.849**	**7.846**	8500
9000	3.635	5.581	**5.806**	**5.806**	4.414	4.414	4.414	4.414	**6.154**	**7.049**	**7.049**	**7.049**	4.051	4.342	4.342	4.342	4.973	**7.173**	**7.173**	**7.172**	9000
9500	2.965	4.888	5.211	5.211	4.006	4.053	4.053	4.051	5.238	**6.327**	**6.327**	**6.327**	3.291	4.013	4.012	4.010	4.045	**6.572**	**6.571**	**6.570**	9500
10000	2.446	4.296	4.703	4.703	3.483	3.736	3.736	3.735	4.456	**5.710**	**5.710**	**5.710**	2.703	3.722	3.722	3.722	3.328	**6.045**	**6.045**	**6.045**	10000
10500	2.039	3.787	4.266	4.266	2.974	3.451	3.450	3.449	3.782	**5.179**	**5.179**	**5.179**	2.243	3.458	3.457	3.457	2.765	**5.378**	**5.573**	**5.572**	10500
11000	1.716	3.320	3.887	3.887	2.528	3.198	3.198	3.198	3.233	4.719	4.719	4.719	1.878	3.223	3.223	3.223	2.319	4.682	**5.155**	**5.155**	11000
11500	1.456	2.915	3.529	3.556	2.164	2.969	2.969	2.968	2.789	4.300	4.317	4.317	1.585	2.972	3.007	3.006	1.962	4.079	**4.719**	**4.719**	11500
12000	1.245	2.560	3.900	3.266	1.864	2.764	2.764	2.764	2.425	3.851	3.965	3.965	1.349	2.662	2.814	2.814	1.672	3.555	**4.334**	**4.334**	12000
12500	1.072	2.223	2.891	3.010	1.616	2.515	2.578	2.578	2.106	3.455	3.654	3.654	1.155	2.399	2.636	2.636	1.436	3.058	3.994	3.994	12500
13000	0.929	1.925	2.627	2.783	1.408	2.282	2.411	2.411	1.829	3.103	3.378	3.378	0.996	2.108	2.476	2.477	1.240	2.627	3.693	3.693	13000
13500	0.811	1.667	2.391	2.581	1.234	2.074	2.258	2.258	1.600	2.790	3.133	3.133	0.864	1.832	2.328	2.328	1.078	2.268	3.424	3.424	13500
14000	0.711	1.449	2.180	2.400	1.091	1.887	2.119	2.119	1.409	2.509	2.913	2.913	0.753	1.588	2.178	2.194	0.943	1.969	3.119	3.184	14000
14500	0.627	1.267	1.991	2.214	0.974	1.719	1.984	1.984	1.244	2.257	2.716	2.716	0.660	1.384	1.991	2.069	0.828	1.718	2.827	2.968	14500
15000	0.556	1.113	1.810	2.043	0.867	1.567	1.846	1.854	1.096	2.029	2.538	2.538	0.581	1.212	1.821	1.955	0.731	1.507	2.557	2.774	15000

TABLE 3B: C & Z SECTION 3 SPAN INWARD LOAD (kN/m)

Bolt capacity exceeded. M12 bolts for 100 - 250 series, M16 bolts for 300 series or greater.

BOLD Grade 8.8 bolts required.

3/SB For Safebridge® system use data for 3 rows of bridging.

C/Z 100 10

0	1	2	3/SB	L/150
5.283	5.283	5.283	5.283	8.075
3.596	3.596	3.596	3.596	4.134
2.497	2.497	2.497	2.497	2.393
1.835	1.835	1.835	1.835	1.507
1.378	1.405	1.405	1.405	1.009
1.050	1.110	1.110	1.110	0.709
0.815	0.899	0.899	0.899	0.517
0.641	0.743	0.743	0.743	
0.508	0.624	0.624	0.624	
0.405	0.532	0.532	0.532	
	0.459	0.459	0.459	
	0.400	0.400	0.400	

C/Z 100 12

0	1	2	3/SB	L/150
6.818	6.818	6.819	6.819	9.757
4.361	4.364	4.364	4.364	4.996
2.956	3.030	3.030	3.030	2.891
2.118	2.227	2.226	2.226	1.821
1.577	1.705	1.705	1.705	1.220
1.208	1.347	1.347	1.347	0.857
0.943	1.091	1.091	1.091	0.624
0.748	0.902	0.902	0.902	0.469
0.599	0.758	0.758	0.758	
0.484	0.646	0.646	0.646	
	0.557	0.557	0.557	
	0.485	0.485	0.485	
	0.426	0.426	0.426	

C/Z 100 15

0	1	2	3/SB	L/150
8.508	8.878	8.879	8.878	12.424
5.309	5.682	5.682	5.682	6.362
3.607	3.946	3.946	3.946	3.681
2.596	2.899	2.899	2.899	2.318
1.946	2.220	2.220	2.220	1.553
1.503	1.754	1.754	1.754	1.091
1.186	1.421	1.421	1.420	0.795
0.953	1.174	1.174	1.174	0.597
0.776	0.986	0.986	0.986	0.460
0.638	0.840	0.841	0.841	
0.528	0.715	0.725	0.725	
0.435	0.615	0.631	0.631	
	0.533	0.555	0.555	
	0.465	0.488	0.492	
	0.408	0.430	0.438	

C/Z 100 19

0	1	2	3/SB	L/150	Span
11.327	12.367	12.367	12.367	16.005	**2000**
6.992	7.915	7.915	7.915	8.195	**2500**
4.714	5.497	5.497	5.497	4.742	**3000**
3.375	4.038	4.038	4.038	2.986	**3500**
2.521	3.092	3.092	3.092	2.001	**4000**
1.943	2.443	2.443	2.443	1.405	**4500**
1.534	1.979	1.979	1.979	1.024	**5000**
1.233	1.634	1.635	1.635	0.770	**5500**
1.006	1.362	1.374	1.374	0.593	**6000**
0.830	1.147	1.171	1.171	0.466	**6500**
0.692	0.977	1.010	1.010		**7000**
0.582	0.839	0.879	0.879		**7500**
0.489	0.727	0.769	0.773		**8000**
0.412	0.633	0.673	0.685		**8500**
	0.555	0.591	0.611		**9000**
	0.489	0.523	0.545		**9500**
	0.433	0.464	0.486		
		0.414	0.435		

C/Z 150 12

Span	0	1	2	3/SB	L/150
2000	7.548	7.548	7.548	7.549	28.033
2500	5.595	5.596	5.595	5.596	14.352
3000	4.306	4.306	4.306	4.306	8.306
3500	3.406	3.406	3.406	3.406	5.231
4000	2.754	2.754	2.754	2.754	3.504
4500	2.212	2.268	2.268	2.268	2.461
5000	1.758	1.852	1.852	1.852	1.794
5500	1.418	1.530	1.530	1.530	1.348
6000	1.153	1.286	1.286	1.286	1.038
6500	0.946	1.096	1.096	1.096	0.817
7000	0.782	0.945	0.945	0.945	0.654
7500	0.649	0.823	0.823	0.823	0.532
8000	0.541	0.723	0.723	0.723	0.438
8500	0.454	0.641	0.641	0.641	
9000		0.572	0.572	0.572	
9500		0.513	0.513	0.513	
10000		0.463	0.463	0.463	
10500		0.420	0.420	0.420	
11000					
11500					
12000					
12500					
13000					
13500					
14000					
14500					
15000					

C/Z 150 15

0	1	2	3/SB	L/150
12.662	12.663	12.663	12.662	36.427
8.984	8.984	8.984	8.983	18.650
6.530	6.667	6.667	6.666	10.793
4.660	4.984	4.984	4.984	6.797
3.474	3.816	3.816	3.816	4.553
2.676	3.015	3.015	3.015	3.198
2.112	2.442	2.442	2.442	2.331
1.700	2.018	2.018	2.018	1.751
1.388	1.696	1.696	1.696	1.349
1.146	1.445	1.445	1.445	1.061
0.955	1.246	1.246	1.246	0.850
0.803	1.085	1.085	1.085	0.691
0.679	0.954	0.954	0.954	0.569
0.576	0.845	0.845	0.845	0.475
0.493	0.754	0.754	0.754	0.400
0.424	0.676	0.676	0.676	
	0.6110	0.6110	0.6110	
	0.554	0.554	0.554	
	0.499	0.505	0.505	
	0.449	0.462	0.462	
	0.405	0.424	0.424	

C/Z 150 19

0	1	2	3/SB	L/150
20.123	20.122	20.123	20.122	46.636
12.710	**13.671**	**13.671**	**13.671**	23.877
8.493	**9.599**	**9.600**	**9.599**	13.817
6.038	7.052	7.052	7.053	8.702
4.490	5.400	5.400	5.400	5.830
3.454	4.266	4.266	4.266	4.094
2.727	3.456	3.456	3.456	2.985
2.197	2.856	2.856	2.856	2.242
1.799	2.400	2.400	2.400	1.727
1.481	2.045	2.045	2.045	1.359
1.231	1.763	1.763	1.763	1.088
1.032	1.536	1.536	1.536	0.884
0.870	1.346	1.350	1.35	0.729
0.739	1.182	1.196	1.196	0.608
0.633	1.044	1.067	1.067	0.512
0.546	0.927	0.957	0.957	0.435
0.474	0.827	0.864	0.864	
0.414	0.741	0.784	0.784	
	0.667	0.714	0.714	
	0.601	0.648	0.653	
	0.544	0.588	0.600	
	0.494	0.535	0.553	
	0.449	0.488	0.511	
	0.409	0.447	0.471	
		0.410	0.433	
			0.400	

C/Z 150 24

0	1	2	3/SB	L/150
28.014	29.356	29.355	29.356	60.398
16.808	19.609	19.608	19.609	30.923
11.056	**13.617**	**13.617**	**13.617**	17.896
7.761	**10.005**	**10.005**	**10.005**	11.270
5.716	**7.660**	**7.660**	**7.659**	7.550
4.365	6.052	6.052	6.052	5.302
3.430	4.902	4.902	4.902	3.866
2.741	4.051	4.051	4.051	2.904
2.224	3.374	3.404	3.404	2.237
1.830	2.844	2.901	2.901	1.759
1.525	2.427	2.501	2.501	1.409
1.283	2.093	2.179	2.179	1.145
1.089	1.822	1.915	1.915	0.944
0.933	1.598	1.696	1.696	0.787
0.805	1.410	1.513	1.513	0.663
0.698	1.252	1.358	1.358	0.564
0.610	1.118	1.222	1.226	0.483
0.535	1.002	1.098	1.112	0.417
0.471	0.901	0.989	1.013	
0.417	0.814	0.894	0.927	
	0.737	0.811	0.851	
	0.669	0.738	0.780	
	0.608	0.673	0.713	
	0.555	0.615	0.654	
	0.507	0.563	0.600	
	0.464	0.517	0.553	
	0.425	0.476	0.510	

C/Z 200 15

0	1	2	3/SB	L/150	Span
11.515	11.515	11.515	11.515	76.648	**2000**
8.733	8.733	8.733	8.734	39.243	**2500**
6.865	6.865	6.864	6.865	22.710	**3000**
5.535	5.535	5.536	5.535	14.301	**3500**
4.550	4.551	4.551	4.550	9.581	**4000**
3.800	3.800	3.800	3.800	6.729	**4500**
3.167	3.216	3.216	3.216	4.905	**5000**
2.544	2.751	2.750	2.749	3.686	**5500**
2.078	2.369	2.369	2.369	2.839	**6000**
1.719	2.018	2.019	2.018	2.233	**6500**
1.437	1.740	1.740	1.740	1.788	**7000**
1.212	1.516	1.516	1.516	1.453	**7500**
1.028	1.333	1.333	1.333	1.198	**8000**
0.878	1.180	1.180	1.180	0.998	**8500**
0.754	1.053	1.053	1.053	0.841	**9000**
0.652	0.945	0.945	0.945	0.715	**9500**
0.566	0.853	0.853	0.853	0.613	**10000**
0.495	0.774	0.774	0.774	0.530	**10500**
0.434	0.705	0.705	0.705	0.461	**11000**
	0.645	0.645	0.645	0.403	**11500**
	0.592	0.592	0.592		**12000**
	0.546	0.546	0.546		**12500**
	0.505	0.505	0.505		**13000**
	0.468	0.468	0.468		**13500**
	0.435	0.435	0.435		**14000**
	0.400	0.406	0.406		**14500**
					15000

C/Z 200 19

Span	0	1	2	3/SB	L/150
2000	21.806	21.805	21.804	21.806	102.847
2500	16.091	16.091	16.090	16.092	52.658
3000	12.333	12.332	12.332	12.333	30.474
3500	**9.342**	**9.722**	**9.722**	**9.722**	19.190
4000	6.839	**7.839**	**7.839**	**7.838**	12.856
4500	5.195	**6.404**	**6.404**	**6.404**	9.029
5000	4.065	5.188	5.188	5.188	6.582
5500	3.252	4.287	4.287	4.287	4.945
6000	2.648	3.602	3.603	3.603	3.809
6500	2.190	3.070	3.070	3.070	2.996
7000	1.832	2.647	2.647	2.647	2.399
7500	1.551	2.306	2.306	2.306	1.950
8000	1.326	2.026	2.026	2.026	1.607
8500	1.144	1.795	1.795	1.795	1.340
9000	0.989	1.601	1.601	1.601	1.129
9500	0.859	1.437	1.437	1.437	0.960
10000	0.750	1.297	1.297	1.297	0.823
10500	0.659	1.176	1.176	1.176	0.711
11000	0.581	1.072	1.072	1.072	0.618
11500	0.515	0.977	0.981	0.981	0.541
12000	0.458	0.887	0.901	0.901	0.476
12500	0.409	0.808	0.830	0.830	0.421
13000		0.737	0.767	0.767	
13500		0.674	0.712	0.712	
14000		0.618	0.662	0.662	
14500		0.567	0.617	0.617	
15000		0.521	0.576	0.576	

C/Z 200 24

0	1	2	3/SB	L/150
37.327	37.328	37.327	37.328	132.130
26.332	26.332	26.333	26.334	67.650
17.806	19.456	19.458	19.457	39.150
12.341	14.902	14.902	14.902	24.654
8.879	11.590	11.591	11.591	16.516
6.634	**9.158**	**9.158**	**9.159**	11.601
5.108	**7.418**	**7.418**	**7.418**	8.456
4.034	**6.131**	**6.131**	**6.130**	6.353
3.256	**5.151**	**5.151**	**5.151**	4.894
2.681	**4.389**	**4.389**	**4.389**	3.849
2.232	3.785	3.785	3.785	3.082
1.878	3.277	3.297	3.297	2.506
1.598	2.854	2.898	2.898	2.065
1.372	2.506	2.567	2.567	1.721
1.188	2.216	2.289	2.289	1.450
1.036	1.972	2.055	2.055	1.233
0.909	1.764	1.854	1.854	1.057
0.802	1.587	1.682	1.682	0.913
0.710	1.433	1.533	1.533	0.794
0.632	1.300	1.402	1.402	0.695
0.564	1.183	1.288	1.288	0.612
0.506	1.080	1.187	1.187	0.541
0.455	0.989	1.092	1.097	0.481
0.410	0.907	1.005	1.018	0.430
	0.834	0.926	0.946	
	0.769	0.855	0.882	
	0.709	0.791	0.824	

C/Z 250 19

0	1	2	3/SB	L/150
19.090	19.090	19.089	19.090	170.635
14.667	14.667	14.666	14.666	87.365
11.681	**11.680**	**11.681**	**11.681**	50.558
9.536	**9.536**	**9.536**	**9.536**	31.839
7.930	**7.930**	**7.931**	**7.929**	21.329
6.691	**6.692**	**6.691**	**6.691**	14.980
5.250	**5.715**	**5.714**	**5.715**	10.921
4.171	4.928	4.926	4.925	8.205
3.378	4.293	4.293	4.293	6.320
2.781	3.766	3.765	3.764	4.971
2.324	3.330	3.330	3.330	3.980
1.965	2.908	2.908	2.908	3.236
1.673	2.556	2.556	2.556	2.666
1.432	2.264	2.264	2.264	2.223
1.235	2.019	2.019	2.019	1.873
1.072	1.812	1.812	1.812	1.592
0.936	1.636	1.636	1.636	1.365
0.822	1.483	1.484	1.484	1.179
0.725	1.352	1.352	1.352	1.026
0.642	1.237	1.237	1.237	0.898
0.571	1.136	1.136	1.136	0.790
0.510	1.047	1.047	1.047	0.699
0.456	0.968	0.968	0.968	0.621
0.408	0.895	0.897	0.897	0.555
	0.823	0.834	0.834	0.497
	0.754	0.778	0.778	0.448
	0.692	0.727	0.727	0.404

C/Z 250 24

0	1	2	3/SB	L/150
36.122	36.120	36.121	36.129	223.815
27.013	27.013	27.013	27.014	114.601
20.953	20.954	20.953	20.953	66.317
15.916	16.691	16.690	16.690	41.761
11.315	13.575	13.577	13.574	27.977
8.355	11.233	11.234	11.233	19.649
5.020	**7.796**	**7.796**	**7.796**	10.762
4.050	**6.551**	**6.551**	**6.551**	8.290
3.302	**5.582**	**5.582**	**5.582**	6.520
2.739	**4.813**	**4.813**	**4.813**	5.220
2.302	**4.192**	**4.192**	**4.193**	4.244
1.956	**3.685**	**3.685**	**3.685**	3.497
1.678	**3.264**	**3.264**	**3.264**	2.916
1.451	2.911	2.911	2.911	2.456
1.264	2.613	2.613	2.613	2.089
1.108	2.350	2.358	2.358	1.791
0.976	2.111	2.139	2.139	1.547
0.864	1.904	1.949	1.949	1.345
0.768	1.724	1.783	1.783	1.177
0.685	1.567	1.638	1.638	1.036
0.613	1.428	1.509	1.509	0.917
0.550	1.305	1.395	1.395	0.815
0.496	1.196	1.294	1.294	0.728
0.448	1.098	1.203	1.203	0.653
0.405	1.009	1.122	1.122	0.587
	0.930	1.048	1.048	0.531

C/Z 300 24

0	1	2	3/SB	L/150	Span
33.056	33.055	33.057	33.052	385.402	**2000**
25.629	25.629	25.633	25.635	197.328	**2500**
20.607	20.607	20.607	20.607	114.196	**3000**
16.984	**16.984**	**16.984**	**16.983**	71.914	**3500**
14.253	**14.255**	**14.253**	**14.252**	48.175	**4000**
12.131	**12.130**	**12.131**	**12.130**	33.836	**4500**
9.633	**10.442**	**10.442**	**10.442**	24.667	**5000**
7.523	9.069	9.066	9.061	18.531	**5500**
5.975	7.953	7.953	7.953	14.275	**6000**
4.847	7.017	7.015	7.013	11.227	**6500**
4.001	6.237	6.238	6.237	8.989	**7000**
3.335	5.572	5.570	5.569	7.309	**7500**
2.817	5.007	5.007	5.008	6.022	**8000**
2.409	4.519	4.518	4.518	5.021	**8500**
2.080	4.069	4.069	4.069	4.230	**9000**
1.812	3.652	3.652	3.652	3.596	**9500**
1.591	3.296	3.296	3.296	3.083	**10000**
1.405	2.989	2.989	2.989	2.664	**10500**
1.249	2.724	2.724	2.724	2.316	**11000**
1.116	2.487	2.492	2.492	2.027	**11500**
1.002	2.260	2.289	2.289	1.784	**12000**
0.903	2.061	2.109	2.109	1.579	**12500**
0.817	1.886	1.950	1.950	1.403	**13000**
0.742	1.731	1.808	1.808	1.253	**13500**
0.675	1.594	1.681	1.681	1.124	**14000**
0.617	1.471	1.567	1.568	1.011	**14500**
0.564	1.360	1.465	1.465	0.914	**15000**

C/Z 300 30

Span	0	1	2	3/SB	L/150
2000	61.383	61.382	61.382	61.388	498.020
2500	46.480	46.480	46.481	46.481	254.989
3000	36.480	36.482	36.479	36.474	147.567
3500	**29.370**	**29.368**	**29.370**	**29.366**	92.925
4000	**23.233**	**24.112**	**24.114**	**24.110**	62.254
4500	**16.486**	**20.115**	**20.115**	**20.113**	43.723
5000	**12.010**	**17.004**	**17.003**	**17.003**	31.874
5500	9.069	**14.534**	**14.529**	**14.525**	23.946
6000	7.067	**12.561**	**12.561**	**12.560**	18.445
6500	5.649	**10.944**	**10.942**	**10.939**	14.508
7000	4.611	**9.598**	**9.598**	**9.598**	11.616
7500	3.830	**8.361**	**8.361**	**8.361**	9.444
8000	3.228	**7.349**	**7.349**	**7.348**	7.782
8500	2.755	**6.468**	**6.509**	**6.509**	6.487
9000	2.377	5.701	**5.806**	**5.806**	5.465
9500	2.070	5.057	5.211	5.211	4.647
10000	1.818	4.512	4.703	4.703	3.984
10500	1.607	4.047	4.266	4.266	3.442
11000	1.430	3.648	3.887	3.887	2.993
11500	1.280	3.303	3.556	3.556	2.620
12000	1.151	3.002	3.266	3.266	2.306
12500	1.040	2.739	3.010	3.010	2.040
13000	0.943	2.508	2.783	2.783	1.814
13500	0.859	2.304	2.581	2.581	1.619
14000	0.785	2.119	2.400	2.400	1.452
14500	0.719	1.952	2.230	2.237	1.307
15000	0.661	1.803	2.071	2.090	1.181

C/Z 350 24

0	1	2	3/SB	L/150
29.004	**29.001**	**29.005**	**29.005**	625.896
22.829	**22.826**	**22.827**	**22.831**	320.463
18.663	**18.662**	**18.659**	**18.661**	185.453
15.652	**15.652**	**15.653**	**15.652**	116.787
13.370	**13.371**	**13.372**	**13.368**	78.239
11.582	**11.582**	**11.582**	**11.579**	54.950
10.141	10.142	10.141	10.142	40.057
8.959	8.950	8.946	8.940	30.097
7.973	7.973	7.973	7.973	23.182
6.796	7.135	7.133	7.129	18.234
5.533	6.429	6.429	6.429	14.599
4.584	5.813	5.812	5.809	11.869
3.854	5.286	5.286	5.285	9.780
3.283	4.819	4.819	4.817	8.153
2.827	4.414	4.414	4.414	6.869
2.458	4.053	4.053	4.052	5.840
2.159	3.736	3.736	3.736	5.007
1.917	3.451	3.451	3.450	4.325
1.712	3.198	3.198	3.198	3.762
1.538	2.969	2.969	2.968	3.292
1.385	2.764	2.764	2.765	2.898
1.251	2.578	2.578	2.578	2.564
1.135	2.402	2.411	2.411	2.279
1.034	2.211	2.258	2.258	2.035
0.945	2.041	2.119	2.119	1.825
0.867	1.889	1.984	1.984	1.642
0.796	1.753	1.854	1.854	1.484

C/Z 350 30

0	1	2	3/SB	L/150
55.422	55.424	55.421	55.423	804.637
43.079	**43.076**	**43.073**	**43.079**	411.957
34.729	**34.728**	**34.725**	**34.725**	238.404
28.700	**28.700**	**28.702**	**28.698**	150.133
24.151	**24.150**	**24.151**	**24.151**	100.577
20.608	**20.609**	**20.609**	**20.610**	70.637
17.444	**17.784**	**17.783**	**17.783**	51.495
13.183	**15.479**	**15.474**	**15.464**	38.690
10.299	**13.605**	**13.604**	**13.604**	29.801
8.252	**12.024**	**12.022**	**12.017**	23.439
6.696	**10.707**	**10.707**	**10.707**	18.766
5.505	**9.580**	**9.577**	**9.575**	15.258
4.603	**8.621**	**8.621**	**8.621**	12.572
3.905	**7.790**	**7.789**	**7.788**	10.482
3.354	**7.049**	**7.049**	**7.049**	8.830
2.905	**6.326**	**6.327**	**6.326**	7.508
2.528	**5.710**	**5.710**	**5.710**	6.437
2.219	**5.179**	**5.179**	**5.179**	5.561
1.962	4.719	4.719	4.719	4.836
1.747	4.317	4.317	4.317	4.232
1.564	3.930	3.965	3.965	3.725
1.408	3.573	3.654	3.654	3.296
1.274	3.259	3.379	3.379	2.93
1.157	2.981	3.133	3.133	2.616
1.055	2.736	2.913	2.913	2.346
0.966	2.517	2.716	2.716	2.111
0.887	2.322	2.538	2.538	1.907

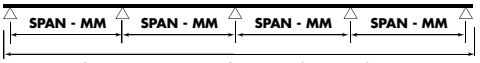
C/Z 400 24

0	1	2	3/SB	L/150
25.532	25.535	25.531	25.532	753.94
20.218	20.217	20.216	20.218	386.011
16.644	16.644	16.645	16.641	223.384
14.066	14.066	14.067	14.067	140.668
12.116	12.116	12.117	12.112	94.236
10.585	10.585	10.586	10.584	66.189
9.351	9.350	9.350	9.351	48.252
8.334	8.325	8.320	8.313	36.253
7.482	7.482	7.482	7.481	27.921
6.677	6.752	6.749	6.745	21.962
5.454	6.136	6.136	6.136	17.584
4.531	5.593	5.591	5.588	14.297
3.819	5.125	5.125	5.125	11.780
3.257	4.707	4.705	4.704	9.821
2.807	4.342	4.343	4.342	8.273
2.442	4.013	4.012	4.011	7.035
2.140	3.722	3.722	3.722	6.032
1.889	3.458	3.458	3.456	5.210
1.677	3.223	3.223	3.223	4.532
1.497	3.007	3.007	3.007	3.966
1.343	2.814	2.814	2.814	3.490
1.210	2.637	2.636	2.636	3.088
1.094	2.476	2.476	2.476	2.745
0.993	2.328	2.328	2.328	2.451
0.904	2.173	2.194	2.194	2.198
0.825	2.010	2.069	2.069	1.978
0.755	1.863	1.956	1.956	1.787

C/Z 400 30

0	1	2	3/SB	L/150	Span
49.189	**49.186**	**49.190**	**49.189**	966.096	**2000**
38.609	**38.610**	**38.613**	**38.613**	494.670	**2500**
31.469	**31.469**	**31.461**	**31.469**	286.272	**3000**
26.306	**26.306**	**26.302**	**26.302**	180.269	**3500**
22.395	**22.394**	**22.396**	**22.388**	120.768	**4000**
19.330	**19.329**	**19.331**	**19.330**	84.820	**4500**
15.898	**16.868**	**16.868**	**16.868**	61.832	**5000**
11.966	**14.835**	**14.829**	**14.820**	46.454	**5500**
9.298	**13.171**	**13.172**	**13.171**	35.784	**6000**
7.412	**11.750**	**11.746**	**11.740**	28.145	**6500**
6.035	**10.556**	**10.555**	**10.556**	22.534	**7000**
5.002	**9.518**	**9.515**	**9.512**	18.321	**7500**
4.208	**8.631**	**8.630**	**8.630**	15.096	**8000**
3.585	**7.850**	**7.848**	**7.846**	12.586	**8500**
3.088	**7.172**	**7.173**	**7.173**	10.602	**9000**
2.685	**6.572**	**6.571**	**6.570**	9.015	**9500**
2.354	**6.045**	**6.045**	**6.045**	7.729	**10000**
2.079	**5.573**	**5.572**	**5.572**	6.677	**10500**
1.847	**5.156**	**5.156**	**5.155**	5.807	**11000**
1.651	**4.706**	**4.719**	**4.719**	5.082	**11500**
1.483	4.266	**4.334**	**4.334**	4.473	**12000**
1.338	3.881	3.994	3.994	3.957	**12500**
1.213	3.537	3.693	3.693	3.518	**13000**
1.103	3.231	3.424	3.424	3.141	**13500**
1.007	2.960	3.184	3.184	2.817	**14000**
0.921	2.719	2.968	2.968	2.535	**14500**
0.846	2.504	2.774	2.774	2.290	**15000**

TABLE 4A:
C & Z SECTION
4 SPAN OUTWARD LOAD
(kN/m)



OVERALL PURLIN LENGTH = 4 x SPAN + 70MM

Bolt capacity exceeded. M12 bolts for 100 - 250 series, M16 bolts for 300 series or greater.

BOLD Grade 8.8 bolts required.

3/SB For Safebridge® system use data for 3 rows of bridging.

Span	C/Z 100 10				C/Z 100 12				C/Z 100 15				C/Z 100 19				Span
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	
2000	5.050	5.050	5.050	5.050	6.364	6.364	6.364	6.364	8.287	8.287	8.286	8.286	11.543	11.543	11.543	11.543	2000
2500	3.356	3.356	3.356	3.356	4.073	4.073	4.073	4.073	5.275	5.303	5.303	5.303	7.264	7.388	7.388	7.387	2500
3000	2.331	2.331	2.331	2.331	2.775	2.828	2.828	2.828	3.482	3.683	3.683	3.683	4.757	5.130	5.130	5.130	3000
3500	1.593	1.712	1.712	1.713	1.882	2.078	2.078	2.078	2.410	2.706	2.706	2.706	3.267	3.769	3.769	3.769	3500
4000	1.086	1.311	1.311	1.311	1.306	1.591	1.591	1.591	1.721	2.030	2.072	2.072	2.319	2.797	2.886	2.886	4000
4500	0.740	1.036	1.036	1.036	0.917	1.228	1.257	1.257	1.253	1.547	1.637	1.637	1.686	2.120	2.280	2.280	4500
5000	0.513	0.797	0.839	0.839	0.650	0.941	1.018	1.018	0.908	1.202	1.326	1.326	1.249	1.640	1.838	1.847	5000
5500		0.611	0.693	0.693	0.476	0.729	0.841	0.842	0.657	0.948	1.074	1.096	0.925	1.289	1.480	1.526	5500
6000		0.469	0.583	0.583		0.568	0.700	0.707	0.491	0.756	0.879	0.921	0.691	1.025	1.207	1.283	6000
6500			0.489	0.497		0.444	0.574	0.603		0.608	0.728	0.780	0.530	0.822	0.996	1.077	6500
7000			0.401	0.428			0.474	0.520		0.488	0.608	0.660	0.416	0.665	0.829	0.908	7000
7500								0.448			0.512	0.563		0.542	0.696	0.772	7500
8000											0.433	0.483		0.436	0.587	0.661	8000
8500												0.417			0.498	0.570	8500
9000															0.425	0.494	9000
9500																0.429	9500

Span	C/Z 150 12				C/Z 150 15				C/Z 150 19				C/Z 150 24				C/Z 200 15				Span
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	
2000	7.330	7.330	7.329	7.329	12.163	12.164	12.164	12.164	19.107	19.107	19.107	19.107	27.753	27.753	27.753	27.753	11.244	11.244	11.245	11.244	2000
2500	5.403	5.403	5.403	5.402	8.576	8.576	8.575	8.576	**12.901**	**12.901**	**12.901**	**12.901**	18.302	18.302	18.302	18.302	8.487	8.487	8.488	8.487	2500
3000	4.136	4.136	4.136	4.136	6.331	6.331	6.331	6.331	**8.959**	**8.959**	**8.959**	**8.959**	**12.709**	**12.709**	**12.710**	**12.709**	6.641	6.641	6.641	6.641	3000
3500	3.258	3.255	3.253	3.251	4.652	4.651	4.652	4.652	6.505	6.583	6.582	6.582	**8.990**	**9.338**	**9.338**	**9.338**	5.332	5.325	5.323	5.317	3500
4000	2.625	2.625	2.625	2.625	3.522	3.561	3.561	3.561	4.746	5.040	5.039	5.040	6.520	**7.149**	**7.149**	**7.149**	4.367	4.367	4.366	4.367	4000
4500	2.053	2.134	2.134	2.134	2.613	2.814	2.814	2.814	3.547	3.982	3.982	3.982	4.847	5.649	5.649	5.649	3.635	3.632	3.631	3.629	4500
5000	1.536	1.728	1.728	1.728	1.965	2.279	2.279	2.279	2.696	3.225	3.225	3.225	3.669	4.510	4.575	4.575	3.067	3.067	3.067	3.066	5000
5500	1.137	1.428	1.428	1.428	1.488	1.884	1.884	1.884	2.071	2.603	2.666	2.665	2.817	3.605	3.781	3.781	2.545	2.617	2.616	2.615	5500
6000	0.841	1.200	1.200	1.200	1.133	1.564	1.583	1.583	1.579	2.115	2.240	2.240	2.182	2.919	3.177	3.177	2.029	2.211	2.211	2.211	6000
6500	0.636	0.997	1.023	1.023	0.870	1.276	1.349	1.349	1.196	1.736	1.908	1.908	1.666	2.389	2.707	2.707	1.585	1.884	1.884	1.884	6500
7000	0.491	0.824	0.882	0.882	0.682	1.048	1.163	1.163	0.926	1.436	1.646	1.646	1.284	1.971	2.291	2.334	1.234	1.624	1.624	1.624	7000
7500		0.670	0.768	0.768	0.536	0.865	1.013	1.013	0.735	1.194	1.405	1.433	1.010	1.638	1.947	2.034	0.969	1.415	1.415	1.415	7500
8000		0.544	0.675	0.675	0.427	0.714	0.890	0.890	0.584	0.998	1.205	1.260	0.810	1.368	1.667	1.787	0.773	1.218	1.244	1.244	8000
8500		0.440	0.597	0.598		0.591	0.768	0.789	0.472	0.835	1.040	1.116	0.659	1.149	1.435	1.568	0.628	1.044	1.102	1.102	8500
9000			0.518	0.533		0.490	0.663	0.703		0.687	0.902	0.989	0.544	0.965	1.242	1.372	0.518	0.892	0.983	0.983	9000
9500			0.451	0.479		0.408	0.574	0.631		0.566	0.785	0.871	0.455	0.801	1.080	1.207	0.433	0.753	0.882	0.882	9500
10000				0.432			0.498	0.570		0.472	0.686	0.771		0.666	0.942	1.066		0.634	0.796	0.796	10000
10500							0.433	0.506			0.601	0.685		0.558	0.824	0.945		0.534	0.722	0.722	10500
11000								0.449			0.527	0.610		0.472	0.723	0.841		0.452	0.644	0.658	11000
11500								0.400			0.462	0.545		0.403	0.636	0.751			0.575	0.602	11500
12000											0.400	0.489			0.560	0.671			0.515	0.553	12000
12500												0.438			0.491	0.602			0.457	0.509	12500
13000															0.428	0.541			0.404	0.471	13000
13500																0.487				0.431	13500
14000																0.438					14000
14500																					14500
15000																					15000

Span	C/Z 200 19				C/Z 200 24				C/Z 250 19				C/Z 250 24				C/Z 300 24				Span
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	
2000	21.154	21.155	21.154	21.154	35.803	35.803	35.804	35.806	18.696	18.697	18.696	18.698	35.153	35.156	35.154	35.157	33.056	33.061	33.058	33.053	2000
2500	15.518	15.517	15.517	15.518	25.100	25.101	25.100	25.101	14.309	14.309	14.309	14.309	26.146	26.145	26.145	26.148	25.629	25.628	25.630	25.631	2500
3000	11.832	11.831	11.831	11.831	18.462	18.462	18.463	18.462	**11.350**	**11.350**	**11.350**	**11.350**	20.179	20.180	20.178	20.179	20.608	20.607	20.606	20.610	3000
3500	**9.287**	**9.278**	**9.275**	**9.267**	14.092	14.084	14.082	14.076	**9.230**	**9.217**	**9.211**	**9.200**	16.004	15.986	15.979	15.966	**16.983**	**16.983**	**16.984**	**16.982**	3500
4000	**7.461**	**7.461**	**7.461**	**7.461**	**10.818**	**10.818**	**10.818**	**10.818**	**7.647**	**7.647**	**7.646**	**7.647**	12.968	12.967	12.968	12.967	**14.254**	**14.253**	**14.254**	**14.252**	4000
4500	**5.978**	**5.978**	**5.978**	**5.978**	**8.266**	**8.548**	**8.547**	**8.548**	**6.432**	**6.426**	**6.423**	**6.420**	10.697	10.690	10.687	10.683	**12.130**	**12.131**	**12.132**	**12.130**	4500
5000	4.678	4.842	4.842	4.842	**6.409**	**6.923**	**6.923**	**6.923**	**5.476**	**5.476**	**5.476**	**5.476**	8.583	8.804	8.804	8.804	**10.442**	**10.443**	**10.442**	**10.442**	5000
5500	3.646	4.002	4.002	4.001	**5.043**	**5.722**	**5.722**	**5.722**	4.713	4.710	4.709	4.707	**6.711**	**7.276**	**7.276**	**7.276**	9.076	9.069	9.066	9.062	5500
6000	2.864	3.362	3.362	3.362	4.009	**4.808**	**4.808**	**4.808**	3.812	4.094	4.094	4.093	**5.284**	**6.114**	**6.114**	**6.114**	7.953	7.953	7.953	7.953	6000
6500	2.266	2.865	2.865	2.865	3.159	4.041	**4.097**	**4.097**	2.994	3.583	3.583	3.582	**4.118**	**5.210**	**5.210**	**5.209**	7.021	7.017	7.015	7.013	6500
7000	1.800	2.470	2.470	2.470	2.494	3.391	3.532	3.532	2.351	3.115	3.115	3.115	3.209	**4.492**	**4.492**	**4.492**	5.958	6.237	6.237	6.238	7000
7500	1.435	2.086	2.152	2.152	1.975	2.868	3.077	3.077	1.862	2.714	2.714	2.714	2.522	**3.839**	**3.913**	**3.913**	4.858	5.572	5.571	5.569	7500
8000	1.153	1.763	1.891	1.891	1.579	2.440	2.704	2.704	1.480	2.363	2.385	2.385	2.000	3.253	**3.439**	**3.439**	3.983	5.007	5.007	5.007	8000
8500	0.929	1.495	1.675	1.675	1.266	2.087	2.396	2.396	1.188	1.999	2.113	2.113	1.597	2.769	3.046	3.046	3.283	4.519	4.518	4.518	8500
9000	0.760	1.271	1.494	1.494	1.030	1.791	2.106	2.137	0.970	1.691	1.885	1.885	1.293	2.362	2.717	2.717	2.713	4.068	4.069	4.069	9000
9500	0.632	1.083	1.341	1.341	0.848	1.527	1.853	1.918	0.801	1.435	1.691	1.691	1.060	1.996	2.439	2.439	2.243	3.535	3.652	3.652	9500
10000	0.524	0.926	1.194	1.210	0.706	1.301	1.638	1.731	0.662	1.217	1.527	1.527	0.879	1.687	2.196	2.201	1.855	3.079	3.296	3.296	10000
10500	0.438	0.791	1.054	1.098	0.595	1.108	1.452	1.570	0.552	1.032	1.385	1.385	0.736	1.424	1.942	1.996	1.543	2.687	2.989	2.989	10500
11000		0.677	0.933	1.000	0.505	0.945	1.292	1.420	0.464	0.879	1.250	1.262	0.623	1.206	1.723	1.819	1.295	2.346	2.724	2.724	11000
11500		0.583	0.827	0.915	0.433	0.809	1.152	1.280		0.751	1.108	1.154	0.531	1.031	1.531	1.664	1.096	2.049	2.492	2.492	11500
12000		0.499	0.735	0.841		0.693	1.030	1.156		0.641	0.980	1.060	0.456	0.877	1.363	1.528	0.935	1.795	2.289	2.289	12000
12500		0.430	0.653	0.764		0.595	0.922	1.048		0.551	0.867	0.977		0.750	1.212	1.405	0.803	1.577	2.106	2.109	12500
13000			0.581	0.691		0.514	0.820	0.952		0.478	0.770	0.903		0.647	1.072	1.273	0.694	1.386	1.902	1.950	13000
13500			0.518	0.626		0.447	0.729	0.866		0.417	0.683	0.836		0.561	0.948	1.156	0.603	1.221	1.720	1.808	13500
14000			0.462	0.569			0.649	0.789			0.605	0.762		0.489	0.838	1.051	0.528	1.071	1.557	1.681	14000
14500			0.412	0.517			0.577	0.721			0.536	0.691		0.428	0.741	0.957	0.464	0.946	1.411	1.567	14500
15000				0.470			0.513	0.659			0.477	0.626			0.656	0.872	0.410	0.830	1.279	1.465	15000

Span	C/Z 300 30				C/Z 350 24				C/Z 350 30				C/Z 400 24				C/Z 400 30				Span
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	
2000	59.916	59.923	59.920	59.912	**28.561**	**28.559**	**28.563**	**28.563**	54.425	54.424	54.427	54.439	**25.176**	**25.179**	**25.179**	**25.179**	**48.409**	**48.409**	**48.412**	**48.409**	2000
2500	45.149	45.152	45.153	45.152	**22.440**	**22.442**	**22.440**	**22.441**	42.175	42.172	42.174	42.179	19.912	19.915	19.914	19.916	**37.921**	**37.921**	**37.919**	**37.918**	2500
3000	35.269	35.269	35.273	35.266	**18.307**	**18.306**	**18.306**	**18.305**	**33.892**	**33.888**	**33.892**	**33.891**	16.37	16.369	16.368	16.370	**30.834**	**30.834**	**30.834**	**30.830**	3000
3500	**28.275**	**28.239**	**28.226**	**28.194**	**15.319**	**15.290**	**15.279**	**15.254**	**27.917**	**27.870**	**27.853**	**27.813**	13.814	13.785	13.772	13.751	**25.711**	**25.662**	**25.644**	**25.604**	3500
4000	**23.126**	**23.125**	**23.125**	**23.124**	**13.056**	**13.056**	**13.055**	**13.053**	**23.416**	**23.417**	**23.417**	**23.417**	11.879	11.878	11.878	11.881	**21.833**	**21.832**	**21.829**	**21.827**	4000
4500	**19.226**	**19.212**	**19.207**	**19.198**	**11.282**	**11.267**	**11.261**	**11.255**	**19.919**	**19.898**	**19.893**	**19.877**	10.360	10.344	10.338	10.325	**18.796**	**18.772**	**18.762**	**18.748**	4500
5000	**16.207**	**16.207**	**16.206**	**16.206**	9.856	9.856	9.856	9.856	**17.140**	**17.140**	**17.138**	**17.139**	9.135	9.135	9.134	9.135	**16.358**	**16.360**	**16.359**	**16.357**	5000
5500	**13.825**	**13.819**	**13.816**	**13.811**	8.687	8.678	8.674	8.666	**14.889**	**14.879**	**14.873**	**14.867**	8.126	8.117	8.112	8.106	**14.367**	**14.354**	**14.346**	**14.338**	5500
6000	**11.885**	**11.917**	**11.918**	**11.918**	7.713	7.713	7.714	7.713	**13.043**	**13.044**	**13.044**	**13.045**	7.282	7.281	7.282	7.283	**12.713**	**12.714**	**12.713**	**12.713**	6000
6500	**9.792**	**10.365**	**10.363**	**10.361**	6.892	6.887	6.884	6.881	**11.510**	**11.503**	**11.501**	**11.495**	6.565	6.56	6.557	6.553	**11.323**	**11.315**	**11.313**	**11.307**	6500
7000	**8.137**	**8.959**	**8.958**	**8.958**	6.193	6.193	6.193	6.192	**10.222**	**10.222**	**10.222**	**10.222**	5.950	5.951	5.950	5.950	**10.143**	**10.144**	**10.144**	**10.143**	7000
7500	**6.771**	**7.803**	**7.804**	**7.804**	5.592	5.589	5.588	5.586	**9.132**	**9.128**	**9.127**	**9.124**	5.417	5.413	5.412	5.409	**9.133**	**9.129**	**9.126**	**9.123**	7500
8000	5.626	**6.859**	**6.859**	**6.859**	5.072	5.072	5.072	5.072	**8.202**	**8.202**	**8.202**	**8.202**	4.952	4.952	4.952	4.952	**7.894**	**8.262**	**8.262**	**8.262**	8000
8500	4.664	**6.076**	**6.076**	**6.076**	4.619	4.617	4.616	4.615	**7.063**	**7.376**	**7.376**	**7.376**	4.543	4.541	4.539	4.538	**6.486**	**7.502**	**7.501**	**7.499**	8500
9000	3.817	5.336	5.419	5.419	4.222	4.222	4.222	4.222	**6.054**	**6.579**	**6.579**	**6.579**	4.182	4.182	4.182	4.182	5.236	**6.845**	**6.845**	**6.845**	9000
9500	3.121	4.689	4.864	4.864	3.872	3.871	3.870	3.869	5.201	**5.905**	**5.905**	**5.905**	3.470	3.859	3.859	3.857	4.260	**6.262**	**6.261**	**6.260**	9500
10000	2.576	4.136	4.390	4.390	3.403	3.563	3.563	3.563	4.473	**5.329**	**5.329**	**5.329**	2.851	3.575	3.574	3.575	3.506	**5.752**	**5.752**	**5.752**	10000
10500	2.147	3.662	3.982	3.981	2.985	3.287	3.286	3.285	3.847	**4.834**	**4.833**	**4.833**	2.366	3.316	3.316	3.314	2.914	**5.253**	**5.283**	**5.283**	10500
11000	1.807	3.251	3.628	3.628	2.596	3.042	3.042	3.042	3.304	4.404	4.404	4.404	1.981	3.086	3.086	3.086	2.444	**4.632**	**4.814**	**4.814**	11000
11500	1.533	2.877	3.319	3.319	2.229	2.821	2.821	2.820	2.841	4.029	4.029	4.029	1.673	2.877	2.876	2.875	2.068	4.065	**4.404**	**4.404**	11500
12000	1.311	2.546	3.041	3.048	1.921	2.624	2.624	2.624	2.467	3.701	3.700	3.701	1.423	2.582	2.688	2.688	1.763	3.571	4.045	4.045	12000
12500	1.129	2.255	2.762	2.809	1.666	2.409	2.445	2.445	2.156	3.353	3.411	3.411	1.219	2.313	2.516	2.515	1.514	3.138	3.728	3.728	12500
13000	0.979	1.986	2.514	2.597	1.453	2.191	2.284	2.284	1.897	3.025	3.153	3.153	1.051	2.095	2.361	2.361	1.308	2.746	3.447	3.447	13000
13500	0.854	1.739	2.294	2.409	1.274	1.997	2.137	2.137	1.660	2.733	2.924	2.924	0.912	1.882	2.217	2.217	1.137	2.379	3.196	3.196	13500
14000	0.749	1.519	2.097	2.240	1.122	1.823	1.987	1.987	1.459	2.471	2.719	2.719	0.795	1.661	2.087	2.087	0.994	2.065	2.972	2.972	14000
14500	0.661	1.328	1.920	2.088	0.993	1.667	1.852	1.852	1.289	2.236	2.535	2.535	0.697	1.452	1.917	1.967	0.874	1.802	2.754	2.770	14500
15000	0.586	1.167	1.761	1.946	0.886	1.526	1.731	1.731	1.146	2.025	2.368	2.369	0.614	1.272	1.759	1.857	0.771	1.580	2.515	2.589	15000

TABLE 4B: C & Z SECTION 4 SPAN INWARD LOAD (kN/m)

Bolt capacity exceeded. M12 bolts for 100 - 250 series, M16 bolts for 300 series or greater.

BOLD Grade 8.8 bolts required.

3/SB For Safebridge® system use data for 3 rows of bridging.

C/Z 100 10

0	1	2	3/SB	L/150
5.050	5.049	5.050	5.050	8.602
3.356	3.356	3.356	3.356	4.404
2.331	2.331	2.331	2.331	2.549
1.712	1.713	1.712	1.712	1.605
1.311	1.311	1.311	1.311	1.075
1.019	1.036	1.036	1.036	0.755
0.801	0.839	0.839	0.839	0.551
0.640	0.693	0.693	0.693	0.414
0.518	0.583	0.583	0.583	
0.424	0.497	0.496	0.497	
	0.428	0.428	0.428	

C/Z 100 12

0	1	2	3/SB	L/150
6.364	6.364	6.364	6.364	10.394
4.073	4.073	4.073	4.073	5.322
2.808	2.828	2.828	2.828	3.080
2.020	2.078	2.078	2.078	1.939
1.512	1.591	1.591	1.591	1.299
1.166	1.257	1.257	1.257	0.913
0.920	1.018	1.018	1.018	0.665
0.739	0.841	0.841	0.841	0.500
0.602	0.707	0.707	0.707	
0.495	0.602	0.602	0.602	
0.411	0.519	0.520	0.519	
	0.453	0.453	0.453	

C/Z 100 15

0	1	2	3/SB	L/150
8.040	8.286	8.287	8.286	13.235
5.028	5.303	5.303	5.303	6.776
3.423	3.683	3.683	3.683	3.921
2.469	2.706	2.706	2.706	2.470
1.856	2.072	2.072	2.072	1.654
1.440	1.637	1.637	1.637	1.162
1.143	1.326	1.326	1.326	0.847
0.925	1.096	1.096	1.096	0.636
0.760	0.921	0.921	0.921	0.490
0.632	0.785	0.784	0.785	
0.531	0.673	0.676	0.676	
0.450	0.579	0.589	0.589	
	0.503	0.518	0.518	
	0.439	0.457	0.459	
		0.403	0.409	

C/Z 100 19

0	1	2	3/SB	L/150	Span
10.760	11.543	11.543	11.543	17.049	**2000**
6.661	7.387	7.387	7.388	8.730	**2500**
4.503	5.130	5.130	5.130	5.051	**3000**
3.231	3.769	3.769	3.769	3.181	**3500**
2.420	2.886	2.886	2.886	2.131	**4000**
1.872	2.280	2.280	2.280	1.497	**4500**
1.484	1.847	1.847	1.847	1.091	**5000**
1.200	1.526	1.526	1.526	0.820	**5500**
0.986	1.279	1.283	1.283	0.631	**6000**
0.820	1.080	1.093	1.093	0.497	**6500**
0.690	0.920	0.942	0.942		**7000**
0.586	0.791	0.821	0.821		**7500**
0.501	0.686	0.720	0.721		**8000**
0.432	0.598	0.630	0.639		**8500**
	0.525	0.554	0.570		**9000**
	0.464	0.490	0.509		**9500**
	0.411	0.436	0.455		
			0.407		

C/Z 150 12

Span	0	1	2	3/SB	L/150
2000	7.331	7.330	7.331	7.331	29.861
2500	5.402	5.403	5.403	5.404	15.289
3000	4.136	4.136	4.136	4.136	8.848
3500	3.258	3.255	3.253	3.251	5.572
4000	2.625	2.625	2.625	2.624	3.733
4500	2.106	2.134	2.134	2.134	2.622
5000	1.679	1.728	1.728	1.728	1.911
5500	1.364	1.428	1.428	1.428	1.436
6000	1.127	1.200	1.200	1.200	1.106
6500	0.935	1.023	1.023	1.023	0.870
7000	0.782	0.882	0.882	0.882	0.696
7500	0.660	0.768	0.768	0.768	0.566
8000	0.560	0.675	0.675	0.675	0.467
8500	0.477	0.598	0.598	0.598	
9000	0.408	0.533	0.533	0.533	
9500		0.479	0.479	0.479	
10000		0.432	0.432	0.432	

C/Z 150 15

0	1	2	3/SB	L/150
12.163	12.163	12.164	12.164	38.802
8.576	8.576	8.576	8.577	19.867
6.222	6.331	6.331	6.331	11.497
4.452	4.652	4.652	4.652	7.240
3.328	3.561	3.561	3.561	4.850
2.571	2.814	2.814	2.814	3.406
2.036	2.279	2.279	2.279	2.483
1.646	1.884	1.884	1.884	1.866
1.351	1.583	1.583	1.583	1.437
1.124	1.349	1.349	1.349	1.130
0.944	1.163	1.163	1.163	0.905
0.800	1.013	1.013	1.013	0.736
0.683	0.890	0.890	0.89	0.606
0.587	0.789	0.789	0.789	0.505
0.508	0.703	0.703	0.703	0.426
0.441	0.631	0.631	0.631	
	0.570	0.570	0.570	
	0.517	0.517	0.517	
	0.471	0.471	0.471	
	0.427	0.431	0.431	

C/Z 150 19

0	1	2	3/SB	L/150
19.107	19.106	19.108	19.106	49.679
12.096	**12.902**	**12.901**	**12.901**	25.435
8.110	**8.959**	**8.959**	**8.959**	14.719
5.783	6.582	6.582	6.583	9.269
4.312	5.040	5.040	5.039	6.210
3.326	3.982	3.982	3.982	4.361
2.634	3.225	3.225	3.225	3.179
2.129	2.666	2.666	2.666	2.389
1.750	2.240	2.240	2.240	1.840
1.459	1.908	1.908	1.909	1.447
1.228	1.646	1.646	1.646	1.159
1.038	1.433	1.433	1.433	0.942
0.883	1.260	1.260	1.260	0.776
0.757	1.115	1.116	1.116	0.647
0.652	0.985	0.995	0.995	0.545
0.565	0.875	0.893	0.893	0.464
0.493	0.782	0.806	0.806	
0.433	0.701	0.731	0.731	
	0.631	0.666	0.666	
	0.570	0.607	0.61	
	0.517	0.551	0.56	
	0.469	0.502	0.516	
	0.428	0.458	0.477	
		0.420	0.441	
			0.406	

C/Z 150 24

0	1	2	3/SB	L/150
26.684	27.754	27.753	27.753	64.337
16.101	18.302	18.302	18.301	32.941
10.640	**12.709**	**12.710**	**12.709**	19.062
7.498	**9.338**	**9.338**	**9.338**	12.005
5.541	**7.149**	**7.149**	**7.149**	8.042
4.244	5.649	5.649	5.649	5.648
3.344	4.575	4.575	4.575	4.118
2.694	3.781	3.781	3.781	3.094
2.210	3.177	3.177	3.177	2.383
1.829	2.694	2.707	2.707	1.874
1.532	2.300	2.334	2.334	1.501
1.295	1.984	2.033	2.034	1.220
1.105	1.727	1.787	1.787	1.005
0.950	1.514	1.583	1.583	0.838
0.822	1.337	1.412	1.412	0.706
0.717	1.187	1.267	1.267	0.600
0.628	1.059	1.144	1.144	0.515
0.554	0.949	1.030	1.038	0.445
0.491	0.854	0.928	0.945	
0.437	0.772	0.839	0.865	
	0.699	0.761	0.794	
	0.635	0.692	0.730	
	0.578	0.631	0.667	
	0.528	0.577	0.612	
	0.483	0.529	0.562	
	0.443	0.486	0.518	
	0.407	0.447	0.478	

C/Z 200 15

0	1	2	3/SB	L/150	Span
11.244	11.243	11.244	11.244	81.646	**2000**
8.487	8.488	8.486	8.488	41.803	**2500**
6.641	6.641	6.641	6.642	24.191	**3000**
5.332	5.325	5.323	5.317	15.234	**3500**
4.367	4.367	4.367	4.366	10.206	**4000**
3.634	3.632	3.631	3.629	7.168	**4500**
3.025	3.067	3.067	3.067	5.225	**5000**
2.459	2.617	2.616	2.615	3.926	**5500**
2.024	2.211	2.211	2.211	3.024	**6000**
1.682	1.884	1.884	1.884	2.378	**6500**
1.414	1.624	1.624	1.624	1.904	**7000**
1.200	1.415	1.415	1.415	1.548	**7500**
1.026	1.244	1.244	1.244	1.276	**8000**
0.883	1.102	1.102	1.102	1.064	**8500**
0.764	0.983	0.983	0.983	0.896	**9000**
0.664	0.882	0.882	0.882	0.762	**9500**
0.581	0.796	0.796	0.796	0.653	**10000**
0.510	0.722	0.722	0.722	0.564	**10500**
0.450	0.658	0.658	0.658	0.491	**11000**
	0.602	0.602	0.602	0.429	**11500**
	0.553	0.553	0.553		**12000**
	0.509	0.509	0.509		**12500**
	0.471	0.471	0.471		**13000**
	0.437	0.437	0.437		**13500**
	0.406	0.406	0.406		**14000**
	0.400	0.406	0.406		**14500**
					15000

C/Z 200 19

Span	0	1	2	3/SB	L/150
2000	21.153	21.153	21.153	21.155	109.559
2500	15.518	15.517	15.517	15.518	56.090
3000	11.832	11.832	11.832	11.831	32.462
3500	**8.996**	**9.278**	**9.275**	**9.268**	20.443
4000	6.616	**7.461**	**7.461**	**7.461**	13.695
4500	5.040	**5.978**	**5.978**	**5.978**	9.618
5000	3.951	4.842	4.842	4.842	7.011
5500	3.172	4.002	4.002	4.001	5.268
6000	2.593	3.363	3.362	3.363	4.058
6500	2.151	2.865	2.865	2.865	3.191
7000	1.806	2.470	2.470	2.470	2.555
7500	1.533	2.152	2.152	2.152	2.078
8000	1.312	1.891	1.891	1.891	1.712
8500	1.133	1.675	1.675	1.675	1.427
9000	0.987	1.494	1.494	1.494	1.202
9500	0.865	1.341	1.341	1.341	1.022
10000	0.762	1.210	1.210	1.211	0.876
10500	0.671	1.098	1.098	1.098	0.757
11000	0.594	1.000	1.000	1.000	0.658
11500	0.529	0.915	0.915	0.915	0.576
12000	0.473	0.841	0.841	0.841	0.507
12500	0.424	0.767	0.775	0.775	0.449
13000		0.701	0.716	0.716	
13500		0.642	0.664	0.664	
14000		0.589	0.618	0.618	
14500		0.541	0.576	0.576	
15000		0.498	0.538	0.538	

C/Z 200 24

0	1	2	3/SB	L/150
35.802	35.804	35.803	35.802	140.75
25.100	25.101	25.101	25.102	72.062
17.067	18.462	18.463	18.463	41.703
11.943	14.085	14.081	14.075	26.262
8.687	**10.818**	**10.818**	**10.817**	17.593
6.527	**8.548**	**8.547**	**8.547**	12.356
5.052	**6.923**	**6.923**	**6.923**	9.008
4.005	**5.722**	**5.722**	**5.722**	6.768
3.238	**4.808**	**4.808**	**4.808**	5.213
2.664	**4.097**	**4.097**	**4.097**	4.100
2.226	3.532	3.532	3.532	3.283
1.885	3.077	3.077	3.077	2.669
1.610	2.704	2.705	2.704	2.199
1.384	2.376	2.396	2.396	1.833
1.200	2.102	2.137	2.137	1.545
1.048	1.871	1.918	1.918	1.313
0.921	1.675	1.731	1.731	1.126
0.814	1.506	1.570	1.570	0.973
0.723	1.361	1.431	1.430	0.846
0.646	1.234	1.309	1.309	0.740
0.579	1.123	1.202	1.202	0.652
0.521	1.026	1.108	1.108	0.577
0.470	0.939	1.024	1.024	0.513
0.426	0.862	0.943	0.950	0.458
	0.793	0.869	0.883	0.410
	0.731	0.803	0.823	
	0.675	0.742	0.769	

C/Z 250 19

0	1	2	3/SB	L/150
18.696	18.697	18.696	18.693	181.761
14.309	14.307	14.309	14.310	93.067
11.351	**11.351**	**11.350**	**11.350**	53.856
9.230	**9.216**	**9.211**	**9.199**	33.915
7.648	**7.647**	**7.647**	**7.647**	22.721
6.432	**6.426**	**6.423**	**6.420**	15.958
5.138	**5.477**	**5.476**	**5.477**	11.633
4.101	4.710	4.709	4.707	8.740
3.332	4.094	4.093	4.094	6.732
2.750	3.583	3.583	3.582	5.295
2.298	3.115	3.115	3.115	4.239
1.944	2.714	2.714	2.714	3.447
1.663	2.385	2.385	2.385	2.840
1.434	2.113	2.113	2.113	2.368
1.246	1.885	1.885	1.885	1.995
1.084	1.691	1.691	1.691	1.696
0.950	1.527	1.527	1.527	1.454
0.836	1.385	1.385	1.385	1.256
0.740	1.262	1.262	1.262	1.093
0.659	1.154	1.154	1.154	0.956
0.588	1.060	1.060	1.060	0.842
0.527	0.977	0.977	0.977	0.744
0.475	0.903	0.903	0.903	0.662
0.429	0.838	0.838	0.838	0.591
	0.779	0.779	0.779	0.530
	0.720	0.726	0.726	0.477
	0.664	0.678	0.678	0.431

C/Z 250 24

0	1	2	3/SB	L/150
35.155	35.153	35.155	35.161	238.419
26.147	26.147	26.146	26.147	122.072
20.179	20.177	20.179	20.179	70.641
15.561	15.986	15.980	15.966	44.486
11.148	12.969	12.968	12.966	29.802
2.317	**3.913**	**3.913**	**3.913**	4.521
1.970	**3.439**	**3.439**	**3.439**	3.725
1.692	3.046	3.046	3.046	3.106
1.465	2.717	2.717	2.717	2.616
1.278	2.439	2.439	2.439	2.225
1.1220	2.201	2.201	2.201	1.907
0.991	1.996	1.996	1.996	1.648
0.879	1.813	1.819	1.819	1.433
0.784	1.642	1.664	1.664	1.254
0.702	1.492	1.528	1.528	1.104
0.631	1.361	1.409	1.409	0.977
0.569	1.244	1.302	1.302	0.868
0.515	1.140	1.208	1.208	0.775
0.467	1.047	1.123	1.123	0.695
0.425	0.964	1.047	1.047	0.626
	0.888	0.978	0.978	0.565

C/Z 300 24

0	1	2	3/SB	L/150	Span
32.442	32.441	32.443	32.447	410.565	**2000**
25.075	25.074	25.070	25.075	210.205	**2500**
20.091	20.091	20.091	20.092	121.646	**3000**
16.502	**16.476**	**16.464**	**16.442**	76.605	**3500**
13.802	**13.802**	**13.802**	**13.801**	51.320	**4000**
11.710	**11.697**	**11.693**	**11.685**	36.043	**4500**
9.462	**10.050**	**10.050**	**10.051**	26.276	**5000**
7.412	8.705	8.702	8.698	19.741	**5500**
5.937	7.616	7.616	7.616	15.206	**6000**
4.828	6.703	6.703	6.700	11.960	**6500**
3.987	5.947	5.947	5.947	9.575	**7000**
3.346	5.303	5.302	5.300	7.785	**7500**
2.837	4.758	4.758	4.758	6.415	**8000**
2.424	4.258	4.257	4.257	5.348	**8500**
2.093	3.797	3.797	3.797	4.505	**9000**
1.823	3.408	3.408	3.408	3.831	**9500**
1.600	3.076	3.076	3.076	3.284	**10000**
1.414	2.790	2.790	2.790	2.837	**10500**
1.257	2.542	2.542	2.542	2.468	**11000**
1.124	2.326	2.326	2.326	2.160	**11500**
1.009	2.136	2.136	2.136	1.901	**12000**
0.910	1.969	1.969	1.969	1.682	**12500**
0.824	1.809	1.820	1.820	1.495	**13000**
0.749	1.662	1.688	1.688	1.335	**13500**
0.683	1.530	1.569	1.569	1.197	**14000**
0.624	1.413	1.463	1.463	1.077	**14500**
0.572	1.307	1.367	1.367	0.973	**15000**

C/Z 300 30

Span	0	1	2	3/SB	L/150
2000	59.916	59.916	59.916	59.915	530.495
2500	45.150	45.148	45.148	45.150	271.630
3000	35.270	35.269	35.276	35.271	157.192
3500	**28.274**	**28.239**	**28.225**	**28.195**	98.986
4000	**22.678**	**23.126**	**23.124**	**23.123**	66.313
4500	**16.499**	**19.211**	**19.207**	**19.198**	46.576
5000	**12.144**	**16.206**	**16.206**	**16.206**	33.953
5500	**9.177**	**13.818**	**13.815**	**13.811**	25.509
6000	7.145	**11.918**	**11.917**	**11.918**	19.649
6500	5.708	**10.364**	**10.363**	**10.361**	15.455
7000	4.656	**8.959**	**8.958**	**8.958**	12.373
7500	3.865	**7.804**	**7.804**	**7.804**	10.060
8000	3.257	**6.859**	**6.859**	**6.859**	8.289
8500	2.779	**6.075**	**6.076**	**6.076**	6.911
9000	2.397	5.419	5.419	5.419	5.822
9500	2.087	4.813	4.864	4.864	4.950
10000	1.832	4.299	4.390	4.390	4.244
10500	1.619	3.861	3.982	3.981	3.666
11000	1.441	3.483	3.628	3.628	3.189
11500	1.290	3.157	3.319	3.319	2.790
12000	1.160	2.872	3.048	3.048	2.456
12500	1.048	2.623	2.809	2.809	2.173
13000	0.951	2.403	2.597	2.597	1.932
13500	0.866	2.209	2.409	2.408	1.725
14000	0.791	2.036	2.240	2.240	1.547
14500	0.726	1.882	2.088	2.088	1.392
15000	0.667	1.743	1.951	1.951	1.258

C/Z 350 24

0	1	2	3/SB	L/150
28.561	**28.559**	**28.564**	**28.564**	666.757
22.440	**22.442**	**22.440**	**22.441**	341.365
18.307	**18.306**	**18.308**	**18.307**	197.549
15.319	**15.289**	**15.275**	**15.254**	124.403
13.056	**13.056**	**13.057**	**13.055**	83.344
11.282	**11.267**	**11.261**	**11.251**	58.533
9.856	9.856	9.855	9.853	42.672
8.686	8.678	8.674	8.669	32.060
7.713	7.712	7.713	7.713	24.695
6.771	6.887	6.885	6.881	19.422
5.510	6.192	6.193	6.193	15.551
4.563	5.589	5.587	5.585	12.643
3.836	5.072	5.072	5.072	10.418
3.266	4.617	4.616	4.615	8.685
2.812	4.222	4.222	4.222	7.317
2.445	3.871	3.871	3.869	6.221
2.143	3.563	3.563	3.563	5.334
1.893	3.287	3.286	3.285	4.608
1.683	3.042	3.042	3.042	4.008
1.511	2.821	2.821	2.82	3.507
1.364	2.624	2.624	2.624	3.087
1.237	2.445	2.445	2.445	2.731
1.127	2.282	2.284	2.284	2.428
1.029	2.102	2.136	2.137	2.168
0.941	1.942	1.987	1.987	1.944
0.863	1.799	1.852	1.852	1.750
0.794	1.670	1.731	1.731	1.580

C/Z 350 30

0	1	2	3/SB	L/150
54.424	54.417	54.427	54.425	857.098
42.176	42.172	42.174	42.179	438.829
33.893	**33.891**	**33.893**	**33.890**	253.951
27.918	**27.871**	**27.853**	**27.815**	159.923
23.416	**23.416**	**23.413**	**23.413**	107.134
19.920	**19.898**	**19.890**	**19.873**	75.247
17.139	**17.140**	**17.139**	**17.140**	54.853
13.112	**14.879**	**14.873**	**14.868**	41.212
10.203	**13.043**	**13.044**	**13.043**	31.745
8.163	**11.503**	**11.501**	**11.496**	24.967
6.670	**10.222**	**10.222**	**10.221**	19.990
5.519	**9.128**	**9.127**	**9.124**	16.253
4.607	**8.201**	**8.202**	**8.202**	13.392
3.902	**7.376**	**7.376**	**7.376**	11.165
3.347	**6.579**	**6.579**	**6.579**	9.406
2.901	**5.905**	**5.905**	**5.905**	7.997
2.539	**5.329**	**5.329**	**5.329**	6.857
2.238	**4.834**	**4.833**	**4.833**	5.923
1.979	4.404	4.404	4.404	5.152
1.761	4.029	4.029	4.029	4.509
1.576	3.701	3.701	3.701	3.968
1.419	3.410	3.411	3.411	3.511
1.283	3.137	3.153	3.153	3.121
1.166	2.874	2.924	2.924	2.787
1.063	2.641	2.719	2.719	2.499
0.973	2.434	2.535	2.535	2.249
0.894	2.248	2.368	2.368	2.032

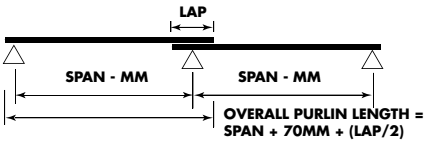
C/Z 400 24

0	1	2	3/SB	L/150
25.177	**25.176**	**25.178**	**25.176**	803.104
19.911	19.912	19.912	19.912	411.171
16.370	16.369	16.367	16.367	237.947
13.814	13.785	13.774	13.752	149.839
11.878	11.878	11.879	11.877	100.386
10.359	10.345	10.338	10.329	70.505
8.126	8.117	8.112	8.106	38.617
7.282	7.282	7.282	7.282	29.745
6.565	6.559	6.557	6.552	23.394
5.496	5.95	5.950	5.950	18.731
4.564	5.413	5.412	5.409	15.229
3.844	4.952	4.952	4.952	12.549
3.278	4.541	4.540	4.538	10.462
2.824	4.182	4.182	4.182	8.813
2.456	3.859	3.859	3.857	7.493
2.153	3.574	3.575	3.574	6.425
1.900	3.316	3.316	3.314	5.550
1.687	3.086	3.086	3.086	4.827
1.507	2.876	2.876	2.876	4.224
1.352	2.688	2.688	2.688	3.718
1.219	2.516	2.516	2.516	3.290
1.103	2.361	2.361	2.361	2.924
1.001	2.217	2.217	2.217	2.611
0.913	2.074	2.087	2.087	2.341
0.834	1.919	1.967	1.967	2.107
0.764	1.780	1.857	1.858	1.904

C/Z 400 30

0	1	2	3/SB	L/150	Span
48.406	**48.414**	**48.412**	**48.411**	1029.114	**2000**
37.921	**37.920**	**37.922**	**37.922**	526.918	**2500**
30.834	**30.833**	**30.835**	**30.835**	304.943	**3000**
25.711	**25.664**	**25.642**	**25.602**	192.027	**3500**
21.832	**21.831**	**21.831**	**21.833**	128.642	**4000**
18.796	**18.771**	**18.763**	**18.748**	90.354	**4500**
16.089	**16.360**	**16.358**	**16.359**	65.867	**5000**
12.101	**14.353**	**14.347**	**14.337**	49.486	**5500**
9.395	**12.714**	**12.714**	**12.713**	38.116	**6000**
	11.315	**11.312**	**11.307**	29.981	**6500**
	10.144	**10.144**	**10.143**	24.005	**7000**
	9.129	**9.126**	**9.123**	19.515	**7500**
	8.261	**8.261**	**8.262**	16.081	**8000**
	7.503	**7.501**	**7.499**	13.407	**8500**
	6.844	**6.845**	**6.844**	11.294	**9000**
	6.263	**6.261**	**6.260**	9.603	**9500**
	5.752	**5.752**	**5.752**	8.233	**10000**
	5.283	**5.283**	**5.283**	7.112	**10500**
	4.814	**4.814**	**4.814**	6.185	**11000**
	4.404	**4.404**	**4.404**	5.413	**11500**
	4.045	4.045	4.045	4.765	**12000**
	3.728	3.728	3.728	4.215	**12500**
	3.419	3.446	3.447	3.748	**13000**
	3.135	3.196	3.196	3.346	**13500**
	2.882	2.972	2.972	3.000	**14000**
	2.652	2.770	2.770	2.701	**14500**
	2.445	2.589	2.589	2.439	**15000**

TABLE 5A: Z SECTION 2 SPAN LAPPED OUTWARD LOAD (kN/m)



Bolt capacity exceeded. M12 bolts for 100 - 250 series, M16 bolts for 300 series or greater.

BOLD Grade 8.8 bolts required.

3/SB For Safebridge® system use data for 3 rows of bridging.

Z 100 10				Z 100 12				Z 100 15				Z 100 19				Span
0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	
7.439	7.439	7.437	7.434	9.472	9.472	9.471	9.471	**12.129**	**12.128**	**12.129**	**12.128**	**16.850**	**16.850**	**16.851**	**16.850**	**2000**
4.711	4.711	4.710	4.710	6.058	6.058	6.058	6.058	7.624	7.757	7.757	7.757	**10.370**	**10.777**	**10.777**	**10.777**	**2500**
3.056	3.056	3.056	3.056	3.692	3.770	3.770	3.770	4.567	4.828	4.828	4.828	6.170	6.708	6.708	6.707	**3000**
2.000	2.089	2.089	2.089	2.381	2.578	2.578	2.578	2.985	3.301	3.300	3.300	4.007	4.585	4.585	4.585	**3500**
1.339	1.520	1.520	1.520	1.616	1.875	1.875	1.875	2.063	2.393	2.401	2.401	2.755	3.275	3.336	3.336	**4000**
0.919	1.156	1.156	1.156	1.132	1.426	1.426	1.426	1.480	1.772	1.826	1.826	1.972	2.415	2.537	2.538	**4500**
0.638	0.909	0.909	0.909	0.809	1.087	1.122	1.122	1.090	1.353	1.436	1.436	1.454	1.836	1.996	1.996	**5000**
0.455	0.703	0.734	0.734	0.589	0.840	0.905	0.905	0.807	1.057	1.155	1.159	1.097	1.429	1.583	1.611	**5500**
	0.546	0.605	0.605	0.440	0.659	0.746	0.746	0.599	0.840	0.933	0.956	0.833	1.132	1.274	1.328	**6000**
	0.454	0.560	0.560		0.559	0.669	0.692	0.475	0.730	0.833	0.886	0.659	0.979	1.132	1.215	**6500**
		0.457	0.473		0.441	0.546	0.583		0.588	0.685	0.736	0.514	0.789	0.928	1.006	**7000**
			0.404			0.450	0.499		0.479	0.570	0.618	0.410	0.643	0.770	0.843	**7500**
							0.422			0.479	0.525		0.529	0.646	0.714	**8000**
										0.405	0.449		0.436	0.546	0.610	**8500**
														0.464	0.525	**9000**
															0.455	**9500**

Z 150 12				Z 150 15				Z 150 19				Z 150 24				Z 200 15				Span
0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	
12.178	**12.179**	**12.175**	**12.173**	**19.429**	**19.428**	**19.428**	**19.428**	29.026	29.027	29.027	29.027	40.922	40.922	40.922	40.922	**17.693**	**17.692**	**17.687**	**17.681**	**2000**
8.255	8.254	8.255	8.255	**13.430**	**13.430**	**13.431**	**13.430**	**18.928**	**18.927**	**18.928**	**18.928**	26.684	26.684	26.684	26.684	**12.273**	**12.271**	**12.273**	**12.272**	**2500**
5.942	5.942	5.942	5.942	**9.492**	**9.491**	**9.491**	**9.491**	**13.377**	**13.377**	**13.377**	**13.376**	18.617	18.860	18.859	18.859	**9.067**	**9.066**	**9.067**	**9.067**	**3000**
4.448	4.449	4.448	4.448	**6.950**	**6.951**	**6.950**	**6.951**	**9.595**	**9.977**	**9.977**	**9.977**	**13.108**	14.066	14.067	14.066	**6.957**	**6.957**	**6.955**	**6.958**	**3500**
3.433	3.433	3.433	3.433	4.923	5.114	5.114	5.114	6.641	**7.208**	**7.207**	**7.208**	**9.030**	**10.161**	**10.161**	**10.161**	5.486	5.486	5.486	5.486	**4000**
2.716	2.716	2.716	2.716	3.467	3.778	3.778	3.778	4.707	**5.325**	**5.325**	**5.325**	**6.381**	**7.507**	**7.507**	**7.507**	4.419	4.419	4.419	4.419	**4500**
1.999	2.195	2.195	2.194	2.525	2.908	2.908	2.908	3.457	4.099	4.099	4.099	4.680	**5.684**	**5.779**	**5.779**	3.623	3.623	3.623	3.623	**5000**
1.466	1.760	1.759	1.759	1.880	2.310	2.310	2.310	2.604	3.202	3.255	3.255	3.527	**4.405**	**4.589**	**4.589**	3.016	3.016	3.016	3.016	**5500**
1.086	1.432	1.432	1.432	1.425	1.879	1.879	1.879	1.972	2.542	2.648	2.648	2.674	3.491	3.734	3.734	2.413	2.527	2.527	2.527	**6000**
0.814	1.188	1.188	1.188	1.095	1.518	1.559	1.559	1.506	2.054	2.198	2.198	2.053	2.815	3.098	3.098	1.913	2.097	2.097	2.097	**6500**
0.623	0.975	1.002	1.002	0.852	1.237	1.315	1.315	1.163	1.683	1.853	1.853	1.590	2.303	2.572	2.613	1.503	1.768	1.768	1.768	**7000**
0.487	0.807	0.856	0.856	0.675	1.018	1.124	1.124	0.917	1.394	1.565	1.584	1.246	1.906	2.158	2.233	1.186	1.511	1.511	1.511	**7500**
	0.663	0.741	0.741	0.534	0.844	0.972	0.972	0.727	1.164	1.329	1.370	0.995	1.593	1.829	1.931	0.941	1.307	1.307	1.307	**8000**
	0.547	0.647	0.647	0.431	0.704	0.841	0.849	0.584	0.980	1.138	1.196	0.807	1.342	1.564	1.680	0.758	1.141	1.141	1.141	**8500**
	0.451	0.567	0.570		0.590	0.723	0.748	0.477	0.829	0.981	1.054	0.664	1.138	1.347	1.458	0.618	0.984	1.006	1.006	**9000**
		0.519	0.541		0.516	0.658	0.710	0.403	0.720	0.898	0.980	0.566	0.996	1.231	1.351	0.530	0.898	0.955	0.955	**9500**
		0.449	0.482		0.434	0.568	0.632		0.603	0.780	0.859	0.476	0.838	1.069	1.183	0.444	0.770	0.850	0.850	**10000**
			0.432			0.493	0.560		0.506	0.680	0.757	0.405	0.707	0.933	1.041		0.657	0.762	0.762	**10500**
						0.429	0.494		0.429	0.596	0.671		0.598	0.818	0.921		0.560	0.686	0.686	**11000**
							0.438			0.524	0.596		0.509	0.720	0.819		0.478	0.617	0.622	**11500**
										0.460	0.532		0.436	0.634	0.730		0.409	0.551	0.566	**12000**
										0.421	0.516			0.584	0.707			0.534	0.574	**12500**
											0.460			0.510	0.631			0.472	0.524	**13000**
											0.412			0.446	0.566			0.417	0.480	**13500**
															0.508					**14000**
															0.457					**14500**
															0.409					**15000**

Z 200 19				Z 200 24				Z 250 19				Z 250 24				Z 300 24				Span
0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	
35.183	35.182	35.181	35.183	56.602	56.603	56.601	56.604	28.637	28.636	28.630	28.637	57.133	57.129	57.120	57.131	48.810	48.812	48.793	48.780	**2000**
23.837	23.834	23.838	23.839	39.209	39.208	39.208	39.208	20.138	20.136	20.139	20.137	39.065	39.058	39.065	39.063	**34.624**	**34.617**	**34.627**	**34.626**	**2500**
16.996	16.994	16.995	16.995	28.394	28.396	28.395	28.395	**15.130**	**15.128**	**15.129**	**15.130**	28.390	28.390	28.391	28.391	**26.298**	**26.296**	**26.297**	**26.297**	**3000**
12.618	**12.619**	**12.617**	**12.618**	20.242	20.243	20.238	20.242	**11.811**	**11.810**	**11.807**	**11.811**	21.444	21.444	21.438	21.444	**20.778**	**20.779**	**20.771**	**20.778**	**3500**
9.671	**9.671**	**9.672**	**9.671**	14.949	14.949	14.948	14.949	**9.465**	**9.465**	**9.464**	**9.464**	16.673	16.673	16.673	16.673	**16.851**	**16.850**	**16.850**	**16.851**	**4000**
7.610	**7.610**	**7.609**	**7.610**	**10.870**	11.303	11.303	11.303	**7.736**	**7.736**	**7.736**	**7.736**	13.272	13.272	13.271	13.271	**13.929**	**13.930**	**13.929**	**13.928**	**4500**
5.855	**5.972**	**5.972**	**5.972**	**8.091**	**8.701**	**8.701**	**8.701**	**6.423**	**6.424**	**6.423**	**6.424**	10.775	10.775	10.775	10.774	**11.686**	**11.687**	**11.686**	**11.687**	**5000**
4.448	**4.743**	**4.742**	**4.742**	**6.189**	**6.909**	**6.909**	**6.909**	**5.406**	**5.406**	**5.406**	**5.405**	**8.252**	**8.788**	**8.789**	**8.788**	**9.926**	**9.925**	**9.926**	**9.926**	**5500**
3.443	3.859	3.859	3.859	**4.833**	**5.622**	**5.622**	**5.622**	**4.603**	**4.603**	**4.602**	**4.603**	**6.407**	**7.151**	**7.151**	**7.151**	**8.521**	**8.521**	**8.520**	**8.521**	**6000**
2.701	3.202	3.202	3.202	**3.812**	**4.665**	**4.665**	**4.665**	3.589	**3.959**	**3.959**	**3.959**	**5.005**	**5.934**	**5.934**	**5.933**	**7.382**	**7.382**	**7.382**	**7.382**	**6500**
2.143	2.700	2.700	2.700	3.019	**3.879**	**3.934**	**3.934**	2.830	**3.405**	**3.405**	**3.405**	**3.929**	**5.003**	**5.004**	**5.004**	**6.448**	**6.448**	**6.448**	**6.448**	**7000**
1.716	2.308	2.308	2.308	2.410	**3.246**	**3.363**	**3.363**	2.243	2.910	2.910	2.910	3.104	**4.277**	**4.277**	**4.277**	5.480	5.674	5.674	5.674	**7500**
1.381	1.979	1.996	1.996	1.938	2.744	2.908	2.908	1.794	2.517	2.517	2.517	2.472	**3.675**	**3.699**	**3.699**	4.532	5.026	5.026	5.026	**8000**
1.126	1.678	1.743	1.743	1.572	2.338	2.540	2.540	1.455	2.198	2.198	2.198	1.988	**3.123**	**3.230**	**3.230**	3.768	4.446	4.446	4.446	**8500**
0.924	1.431	1.536	1.536	1.275	2.007	2.237	2.237	1.181	1.917	1.936	1.936	1.606	**2.670**	**2.846**	**2.846**	3.144	3.917	3.917	3.917	**9000**
0.782	1.286	1.459	1.459	1.073	1.824	2.087	2.125	0.997	1.717	1.839	1.839	1.346	2.413	**2.703**	**2.703**	2.753	3.720	3.720	3.720	**9500**
0.651	1.100	1.298	1.298	0.891	1.571	1.827	1.892	0.827	1.462	1.637	1.637	1.113	2.062	**2.406**	**2.406**	2.319	3.311	3.311	3.311	**10000**
0.548	0.945	1.160	1.163	0.747	1.350	1.609	1.695	0.694	1.251	1.467	1.467	0.929	1.761	2.155	2.155	1.963	2.964	2.966	2.967	**10500**
0.466	0.815	1.022	1.048	0.633	1.163	1.424	1.527	0.586	1.072	1.321	1.321	0.783	1.508	1.904	1.942	1.662	2.605	2.673	2.673	**11000**
	0.704	0.904	0.949	0.540	1.005	1.265	1.377	0.496	0.921	1.197	1.197	0.666	1.293	1.688	1.759	1.421	2.298	2.421	2.421	**11500**
	0.609	0.802	0.864	0.465	0.870	1.128	1.237	0.423	0.792	1.076	1.089	0.571	1.110	1.501	1.601	1.213	2.033	2.203	2.203	**12000**
	0.557	0.765	0.877	0.418	0.788	1.090	1.219		0.720	1.020	1.106	0.511	0.996	1.441	1.625	1.080	1.934	2.236	2.236	**12500**
	0.483	0.677	0.789		0.678	0.970	1.097		0.620	0.900	1.009	0.443	0.856	1.274	1.469	0.931	1.706	2.042	2.042	**13000**
	0.419	0.601	0.710		0.588	0.862	0.991		0.537	0.797	0.925		0.740	1.127	1.324	0.808	1.507	1.871	1.871	**13500**
		0.535	0.641		0.512	0.767	0.897		0.468	0.707	0.851		0.643	0.998	1.197	0.705	1.338	1.711	1.722	**14000**
		0.477	0.579		0.449	0.683	0.815		0.410	0.627	0.777		0.562	0.885	1.085	0.618	1.191	1.551	1.589	**14500**
		0.426	0.525			0.610	0.742			0.557	0.703		0.494	0.785	0.985	0.545	1.062	1.408	1.472	**15000**

Z 300 30				Z 350 24				Z 350 30				Z 400 24				Z 400 30				Span
0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	
94.628	94.629	94.616	94.633	**41.788**	**41.790**	**41.773**	**41.768**	81.505	81.508	81.478	81.480	**36.444**	**36.446**	**36.435**	**36.446**	**36.444**	**36.446**	**36.435**	**36.446**	**2000**
65.561	65.551	65.565	65.552	**30.039**	**30.032**	**30.042**	**30.042**	57.962	57.958	57.964	57.968	**26.325**	**26.321**	**26.327**	**26.327**	**26.325**	**26.321**	**26.327**	**26.327**	**2500**
48.367	48.364	48.367	48.366	**23.228**	**23.228**	**23.228**	**23.226**	44.174	44.167	44.171	44.171	**20.495**	**20.495**	**20.495**	**20.495**	**20.495**	**20.495**	**20.495**	**20.495**	**3000**
37.061	37.061	37.054	37.061	**18.737**	**18.737**	**18.731**	**18.736**	35.029	35.030	35.017	35.025	**16.669**	**16.671**	**16.664**	**16.669**	**16.669**	**16.671**	**16.664**	**16.669**	**3500**
29.184	29.184	29.184	29.186	**15.536**	**15.534**	**15.533**	**15.533**	28.520	28.518	28.520	28.520	**13.954**	**13.953**	**13.953**	**13.953**	**13.954**	**13.953**	**13.953**	**13.953**	**4000**
23.481	23.481	23.482	23.482	**13.132**	**13.132**	**13.133**	**13.132**	23.664	23.663	23.662	23.663	**11.917**	**11.916**	**11.916**	**11.916**	**11.917**	**11.916**	**11.916**	**11.916**	**4500**
19.234	19.234	19.235	19.233	**11.261**	**11.262**	**11.262**	**11.261**	19.923	19.924	19.925	19.922	**10.327**	**10.328**	**10.328**	**10.327**	**10.327**	**10.328**	**10.328**	**10.327**	**5000**
16.000	**16.000**	**16.001**	**16.001**	**9.767**	**9.766**	**9.767**	**9.766**	16.978	16.977	16.979	16.978	**9.054**	**9.054**	**9.055**	**9.053**	**9.054**	**9.054**	**9.055**	**9.053**	**5500**
13.489	**13.489**	**13.489**	**13.489**	**8.548**	**8.548**	**8.547**	**8.549**	**14.617**	**14.618**	**14.616**	**14.617**	**8.010**	**8.010**	**8.009**	**8.010**	**8.010**	**8.010**	**8.009**	**8.010**	**6000**
11.185	**11.507**	**11.507**	**11.507**	**7.539**	**7.539**	**7.540**	**7.539**	**12.697**	**12.697**	**12.697**	**12.696**	**7.139**	**7.139**	**7.138**	**7.139**	**7.139**	**7.139**	**7.138**	**7.139**	**6500**
9.160	**9.846**	**9.846**	**9.846**	**6.694**	**6.694**	**6.694**	**6.694**	**11.116**	**11.116**	**11.117**	**11.116**	6.402	6.402	6.403	6.402	6.402	6.402	6.403	6.402	**7000**
7.587	**8.417**	**8.416**	**8.416**	5.978	5.978	5.978	5.978	**9.802**	**9.802**	**9.802**	**9.802**	5.773	5.773	5.773	5.773	5.773	5.773	5.773	5.773	**7500**
6.330	**7.278**	**7.278**	**7.278**	5.367	5.367	5.367	5.367	**8.699**	**8.699**	**8.699**	**8.699**	5.230	5.230	5.230	5.230	5.230	5.230	5.230	5.230	**8000**
5.277	**6.356**	**6.356**	**6.356**	4.841	4.841	4.841	4.841	**7.710**	**7.752**	**7.752**	**7.752**	4.759	4.758	4.758	4.759	4.759	4.758	4.758	4.759	**8500**
4.424	**5.600**	**5.600**	**5.600**	4.386	4.386	4.386	4.386	**6.590**	**6.829**	**6.829**	**6.829**	4.346	4.346	4.346	4.346	4.346	4.346	4.346	4.346	**9000**
3.822	**5.270**	**5.319**	**5.319**	4.195	4.194	4.193	4.195	**5.957**	**6.487**	**6.487**	**6.487**	4.164	4.163	4.162	4.164	4.164	4.163	4.162	4.164	**9500**
3.158	**4.611**	**4.734**	**4.734**	3.821	3.822	3.822	3.823	**5.114**	**5.774**	**5.773**	**5.773**	3.507	3.823	3.822	3.823	3.507	3.823	3.822	3.823	**10000**
2.627	4.058	4.241	4.241	3.339	3.496	3.496	3.496	**4.406**	**5.172**	**5.172**	**5.172**	2.910	3.520	3.520	3.520	2.910	3.520	3.520	3.520	**10500**
2.206	3.588	3.821	3.821	2.930	3.207	3.208	3.208	3.805	**4.660**	**4.660**	**4.660**	2.433	3.250	3.250	3.250	2.433	3.250	3.250	3.250	**11000**
1.869	3.185	3.461	3.461	2.578	2.952	2.953	2.953	3.292	**4.221**	**4.221**	**4.221**	2.051	3.009	3.010	3.010	2.051	3.009	3.010	3.010	**11500**
1.596	2.838	3.150	3.150	2.247	2.725	2.725	2.725	2.850	**3.841**	**3.841**	**3.841**	1.743	2.793	2.792	2.793	1.743	2.793	2.792	2.793	**12000**
1.423	2.730	3.174	3.197	2.048	2.748	2.747	2.748	2.616	**3.899**	**3.899**	**3.899**	1.549	2.768	2.808	2.809	1.549	2.768	2.808	2.809	**12500**
1.231	2.416	2.862	2.919	1.779	2.538	2.543	2.543	2.287	**3.547**	**3.559**	**3.560**	1.332	2.467	2.612	2.613	1.332	2.467	2.612	2.613	**13000**
1.071	2.144	2.589	2.675	1.555	2.298	2.359	2.359	2.012	3.191	3.263	3.263	1.153	2.212	2.435	2.435	1.153	2.212	2.435	2.435	**13500**
0.937	1.907	2.350	2.461	1.365	2.086	2.193	2.194	1.778	2.877	3.002	3.002	1.004	2.002	2.275	2.275	1.004	2.002	2.275	2.275	**14000**
0.825	1.690	2.139	2.272	1.205	1.899	2.025	2.025	1.564	2.601	2.771	2.771	0.878	1.817	2.129	2.129	0.878	1.817	2.129	2.129	**14500**
0.729	1.492	1.951	2.104	1.068	1.733	1.875	1.875	1.384	2.356	2.566	2.566	0.772	1.618	1.957	1.996	0.772	1.618	1.957	1.996	**15000**

TABLE 5B: Z SECTION 2 SPAN LAPPED INWARD LOAD (kN/m)

Bolt capacity exceeded. M12 bolts for 100 - 250 series, M16 bolts for 300 series or greater.

BOLD Grade 8.8 bolts required.

3/SB For Safebridge® system use data for 3 rows of bridging.

Z 100 10

0	1	2	3/SB	L/150
7.439	7.439	7.436	7.434	12.638
4.711	4.711	4.710	4.709	6.302
3.031	3.056	3.056	3.056	3.569
2.064	2.089	2.089	2.089	2.208
1.489	1.520	1.520	1.520	1.458
1.118	1.156	1.156	1.156	1.012
0.866	0.909	0.909	0.909	0.730
0.685	0.734	0.734	0.734	0.544
0.553	0.605	0.605	0.605	0.416
0.475	0.560	0.560	0.560	
	0.473	0.473	0.473	
	0.404	0.404	0.404	

Z 100 12

0	1	2	3/SB	L/150
9.035	9.471	9.471	9.471	15.357
5.565	6.057	6.058	6.058	7.658
3.477	3.770	3.770	3.770	4.337
2.370	2.578	2.578	2.578	2.683
1.712	1.875	1.875	1.875	1.772
1.289	1.426	1.426	1.426	1.229
1.000	1.122	1.122	1.122	0.887
0.795	0.905	0.905	0.905	0.661
0.643	0.746	0.746	0.746	0.505
0.557	0.692	0.692	0.692	0.409
0.460	0.582	0.583	0.583	
	0.49	0.499	0.499	
	0.417	0.431	0.431	

Z 100 15

0	1	2	3/SB	L/150
10.944	**12.129**	**12.128**	**12.128**	19.445
6.749	7.757	7.757	7.757	9.697
4.216	4.828	4.828	4.828	5.492
2.877	3.301	3.301	3.300	3.397
2.083	2.401	2.401	2.401	2.243
1.573	1.826	1.826	1.826	1.557
1.226	1.436	1.436	1.436	1.123
0.978	1.158	1.159	1.159	0.837
0.796	0.946	0.956	0.956	0.640
0.700	0.853	0.886	0.886	0.518
0.582	0.712	0.747	0.747	0.412
0.490	0.602	0.637	0.638	
0.416	0.514	0.545	0.552	
	0.443	0.471	0.482	
		0.410	0.425	

Z 100 19

0	1	2	3/SB	L/150	Span
14.208	**16.850**	**16.850**	**16.851**	24.915	**2000**
8.630	**10.777**	**10.777**	**10.777**	12.424	**2500**
5.397	6.708	6.708	6.707	7.036	**3000**
3.686	4.585	4.585	4.585	4.353	**3500**
2.670	3.336	3.336	3.336	2.874	**4000**
2.017	2.520	2.537	2.537	1.994	**4500**
1.572	1.963	1.996	1.996	1.439	**5000**
1.255	1.568	1.611	1.611	1.072	**5500**
1.022	1.279	1.328	1.328	0.820	**6000**
0.892	1.147	1.230	1.230	0.664	**6500**
0.743	0.956	1.030	1.038	0.528	**7000**
0.627	0.808	0.870	0.887	0.426	**7500**
0.534	0.689	0.744	0.767		**8000**
0.459	0.593	0.641	0.670		**8500**
	0.515	0.558	0.587		**9000**
	0.450	0.488	0.515		**9500**
		0.430	0.455		
			0.404		

Z 150 12

Span	0	1	2	3/SB	L/150
2000	**12.179**	**12.178**	**12.176**	**12.175**	45.684
2500	8.255	8.254	8.255	8.255	22.977
3000	5.941	5.942	5.942	5.941	13.041
3500	4.449	4.449	4.448	4.449	8.065
4000	3.433	3.433	3.433	3.433	5.318
4500	2.578	2.716	2.716	2.716	3.683
5000	1.979	2.195	2.195	2.194	2.652
5500	1.561	1.760	1.760	1.759	1.971
6000	1.258	1.432	1.432	1.432	1.504
6500	1.031	1.188	1.188	1.188	1.173
7000	0.857	1.002	1.002	1.002	0.933
7500	0.720	0.856	0.856	0.856	0.753
8000	0.610	0.741	0.741	0.741	0.617
8500	0.521	0.647	0.647	0.647	0.512
9000	0.448	0.570	0.570	0.570	0.429
9500		0.541	0.541	0.541	
10000		0.482	0.482	0.482	
10500		0.428	0.432	0.432	
11000					
11500					
12000					
12500					
13000					
13500					
14000					
14500					
15000					

Z 150 15

0	1	2	3/SB	L/150
19.429	**19.428**	**19.428**	**19.429**	59.211
12.179	**13.430**	**13.430**	**13.430**	29.779
8.116	**9.492**	**9.492**	**9.492**	16.902
5.742	**6.951**	**6.950**	**6.951**	10.453
4.113	5.114	5.114	5.114	6.892
3.047	3.779	3.778	3.778	4.773
2.342	2.908	2.908	2.908	3.438
1.850	2.310	2.309	2.310	2.555
1.494	1.879	1.879	1.879	1.950
1.227	1.559	1.559	1.559	1.521
1.023	1.315	1.315	1.315	1.209
0.864	1.124	1.124	1.124	0.977
0.736	0.972	0.972	0.972	0.800
0.632	0.849	0.849	0.849	0.663
0.547	0.747	0.748	0.748	0.556
0.487	0.688	0.710	0.710	0.483
0.260	0.605	0.632	0.632	0.412
	0.535	0.566	0.566	
	0.475	0.510	0.510	
	0.424	0.462	0.462	
		0.420	0.421	
		0.405	0.427	

Z 150 19

0	1	2	3/SB	L/150
26.315	29.028	29.027	29.027	75.779
15.957	**18.928**	**18.928**	**18.927**	38.114
10.565	**13.377**	**13.376**	**13.377**	21.633
7.318	**9.978**	**9.978**	**9.978**	13.379
5.217	**7.208**	**7.207**	**7.208**	8.820
3.869	**5.325**	**5.325**	**5.325**	6.109
2.974	4.099	4.099	4.099	4.400
2.351	3.248	3.255	3.255	3.270
1.898	2.622	2.648	2.648	2.495
1.560	2.159	2.198	2.198	1.947
1.300	1.806	1.853	1.853	1.547
1.096	1.531	1.584	1.584	1.250
0.933	1.312	1.370	1.370	1.024
0.801	1.135	1.196	1.196	0.849
0.693	0.991	1.054	1.054	0.712
0.611	0.915	1.000	1.001	0.618
0.535	0.806	0.882	0.891	0.527
0.471	0.714	0.783	0.798	0.453
0.417	0.636	0.698	0.719	
	0.569	0.626	0.651	
	0.511	0.564	0.593	
	0.489	0.548	0.587	
	0.440	0.494	0.531	
		0.448	0.482	
		0.407	0.439	
			0.402	

Z 150 24

0	1	2	3/SB	L/150
34.976	40.922	40.922	40.921	98.095
20.766	26.684	26.685	26.684	49.337
13.228	18.858	18.858	18.859	28.003
8.941	14.066	14.066	14.067	17.319
6.328	**10.063**	**10.161**	**10.162**	11.418
4.691	**7.352**	**7.507**	**7.507**	7.909
3.607	**5.600**	**5.779**	**5.779**	5.695
2.852	**4.401**	**4.589**	**4.589**	4.233
2.305	3.546	3.734	3.734	3.230
1.895	2.914	3.098	3.098	2.520
1.583	2.433	2.613	2.613	2.003
1.336	2.060	2.233	2.233	1.618
1.139	1.763	1.931	1.931	1.325
0.981	1.524	1.687	1.687	1.099
0.850	1.329	1.477	1.486	0.922
0.747	1.224	1.371	1.411	0.800
0.656	1.078	1.209	1.256	0.683
0.580	0.955	1.072	1.125	0.587
0.515	0.85	0.955	1.014	0.508
0.459	0.761	0.856	0.912	0.443
0.411	0.683	0.770	0.823	
	0.654	0.747	0.808	
	0.587	0.674	0.730	
	0.529	0.610	0.663	
	0.478	0.554	0.603	
	0.433	0.505	0.551	
		0.461	0.505	

Z 200 15

0	1	2	3/SB	L/150	Span
17.692	**17.692**	**17.688**	**17.678**	124.232	**2000**
12.272	**12.271**	**12.273**	**12.273**	62.483	**2500**
9.066	**9.067**	**9.067**	**9.067**	35.462	**3000**
6.957	**6.957**	**6.956**	**6.957**	21.932	**3500**
5.486	5.486	5.486	5.485	14.459	**4000**
4.414	4.419	4.419	4.419	10.015	**4500**
3.384	3.623	3.623	3.623	7.212	**5000**
2.670	3.016	3.016	3.016	5.361	**5500**
2.155	2.527	2.527	2.527	4.091	**6000**
1.771	2.097	2.097	2.097	3.191	**6500**
1.476	1.768	1.768	1.768	2.536	**7000**
1.246	1.511	1.511	1.511	2.049	**7500**
1.062	1.307	1.307	1.307	1.678	**8000**
0.913	1.141	1.141	1.141	1.392	**8500**
0.791	1.006	1.006	1.006	1.167	**9000**
0.699	0.955	0.955	0.955	1.013	**9500**
0.612	0.850	0.850	0.850	0.864	**10000**
0.539	0.762	0.762	0.762	0.743	**10500**
0.478	0.686	0.686	0.686	0.644	**11000**
0.425	0.622	0.622	0.622	0.561	**11500**
	0.566	0.566	0.566	0.492	**12000**
	0.560	0.574	0.574	0.450	**12500**
	0.507	0.524	0.524		**13000**
	0.460	0.480	0.480		**13500**
	0.419	0.442	0.442		**14000**
		0.408	0.408		**14500**
					15000

Z 200 19

Span	0	1	2	3/SB	L/150
2000	35.183	35.182	35.182	35.183	167.002
2500	23.837	23.833	23.838	23.838	83.996
3000	**15.942**	16.995	16.996	16.995	47.672
3500	**10.920**	**12.618**	**12.616**	**12.618**	29.483
4000	**7.676**	**9.671**	**9.670**	**9.671**	19.438
4500	**5.633**	**7.610**	**7.610**	**7.610**	13.464
5000	4.301	**5.972**	**5.972**	**5.972**	9.696
5500	3.387	**4.742**	**4.742**	**4.742**	7.207
6000	2.728	3.859	3.859	3.859	5.499
6500	2.240	3.202	3.202	3.202	4.290
7000	1.868	2.700	2.700	2.700	3.410
7500	1.578	2.308	2.308	2.308	2.754
8000	1.349	1.996	1.996	1.996	2.256
8500	1.163	1.743	1.743	1.743	1.871
9000	1.011	1.536	1.536	1.536	1.569
9500	0.903	1.449	1.459	1.459	1.362
10000	0.793	1.277	1.298	1.298	1.162
10500	0.701	1.132	1.163	1.163	0.999
11000	0.622	1.010	1.048	1.048	0.866
11500	0.555	0.905	0.949	0.949	0.755
12000	0.497	0.814	0.864	0.864	0.662
12500	0.452	0.780	0.877	0.877	0.606
13000	0.408	0.703	0.801	0.801	0.536
13500		0.636	0.734	0.734	0.477
14000		0.578	0.671	0.675	0.426
14500		0.526	0.613	0.623	
15000		0.479	0.561	0.577	

Z 200 24

0	1	2	3/SB	L/150
56.603	56.602	56.607	56.604	215.405
33.903	39.209	39.208	39.209	108.344
21.196	28.396	28.396	28.395	61.487
14.034	20.242	20.240	20.242	38.029
9.726	14.949	14.949	14.949	25.071
7.089	11.303	11.303	11.303	17.366
5.379	**8.701**	**8.701**	**8.701**	12.506
4.207	**6.909**	**6.909**	**6.909**	9.296
3.373	**5.615**	**5.622**	**5.622**	7.093
2.759	**4.614**	**4.665**	**4.665**	5.533
2.294	**3.854**	**3.934**	**3.934**	4.398
1.934	**3.264**	**3.363**	**3.363**	3.553
1.648	2.797	2.908	2.908	2.910
1.419	2.421	2.540	2.540	2.414
1.232	2.114	2.237	2.237	2.024
1.082	1.957	2.125	2.125	1.756
0.953	1.727	1.892	1.892	1.499
0.844	1.533	1.695	1.695	1.289
0.752	1.369	1.527	1.527	1.117
0.672	1.228	1.383	1.383	0.973
0.604	1.107	1.253	1.259	0.854
0.547	1.067	1.232	1.277	0.781
0.496	0.962	1.115	1.166	0.692
0.450	0.870	1.013	1.069	0.615
0.410	0.790	0.924	0.983	0.550
	0.719	0.845	0.908	0.493
	0.656	0.775	0.836	0.444

Z 250 19

0	1	2	3/SB	L/150
28.637	28.637	28.631	28.638	276.896
20.138	20.136	20.141	20.139	139.263
15.130	**15.129**	**15.130**	**15.129**	79.045
11.811	**11.811**	**11.807**	**11.810**	48.883
9.465	**9.465**	**9.465**	**9.464**	32.229
7.185	**7.736**	**7.735**	**7.735**	22.323
5.476	**6.424**	**6.423**	**6.423**	16.076
4.303	**5.405**	**5.406**	**5.405**	11.949
3.463	**4.603**	**4.602**	**4.603**	9.118
2.840	**3.959**	**3.959**	**3.959**	7.113
2.367	**3.405**	**3.405**	**3.405**	5.653
1.998	2.910	2.910	2.911	4.567
1.706	2.517	2.517	2.517	3.741
1.470	2.198	2.198	2.198	3.103
1.277	1.936	1.936	1.936	2.602
1.125	1.839	1.839	1.839	2.258
0.988	1.637	1.637	1.637	1.927
0.872	1.467	1.467	1.467	1.657
0.774	1.321	1.321	1.321	1.435
0.690	1.197	1.197	1.197	1.251
0.618	1.081	1.089	1.089	1.098
0.562	1.031	1.106	1.106	1.004
0.507	0.928	1.009	1.009	0.889
0.459	0.838	0.925	0.925	0.791
0.417	0.760	0.851	0.851	0.707
	0.690	0.786	0.786	0.634
	0.629	0.728	0.728	0.571

Z 250 24

0	1	2	3/SB	L/150
57.134	57.132	57.117	57.133	364.868
39.065	39.058	39.068	39.067	183.515
26.991	28.391	28.391	28.389	104.154
17.582	21.444	21.442	21.444	64.416
12.099	16.673	16.673	16.673	42.470
8.766	13.271	13.271	13.272	29.416
6.624	10.775	10.775	10.775	21.185
5.171	**8.788**	**8.788**	**8.788**	15.745
4.139	**7.151**	**7.151**	**7.151**	12.015
3.381	**5.934**	**5.934**	**5.933**	9.372
2.807	**5.004**	**5.004**	**5.004**	7.450
2.364	**4.277**	**4.277**	**4.277**	6.018
2.013	**3.699**	**3.699**	**3.699**	4.929
1.732	**3.226**	**3.230**	**3.230**	4.089
1.502	**2.812**	**2.846**	**2.846**	3.428
1.317	**2.592**	**2.703**	**2.703**	2.975
1.159	2.284	**2.406**	**2.406**	2.539
1.026	2.024	2.155	2.155	2.183
0.913	1.804	1.942	1.942	1.891
0.816	1.616	1.759	1.759	1.649
0.733	1.454	1.601	1.601	1.446
0.663	1.382	1.625	1.625	1.323
0.600	1.243	1.483	1.483	1.172
0.544	1.122	1.352	1.360	1.042
0.496	1.016	1.231	1.251	0.931
0.452	0.922	1.125	1.155	0.835
0.414	0.839	1.030	1.069	0.752

Z 300 24

0	1	2	3/SB	L/150	Span
48.814	48.808	48.794	48.786	625.391	**2000**
34.623	**34.617**	**34.625**	**34.614**	314.540	**2500**
26.298	**26.296**	**26.298**	**26.298**	178.530	**3000**
20.777	**20.779**	**20.772**	**20.778**	110.404	**3500**
16.851	**16.849**	**16.851**	**16.852**	72.792	**4000**
13.554	**13.929**	**13.928**	**13.929**	50.418	**4500**
10.041	**11.687**	**11.687**	**11.686**	36.308	**5000**
7.688	**9.925**	**9.927**	**9.926**	26.987	**5500**
6.066	**8.521**	**8.520**	**8.521**	20.592	**6000**
4.902	**7.382**	**7.382**	**7.382**	16.064	**6500**
4.040	**6.448**	**6.448**	**6.448**	12.769	**7000**
3.377	5.674	5.674	5.674	10.314	**7500**
2.855	5.026	5.026	5.026	8.450	**8000**
2.443	4.446	4.446	4.446	7.008	**8500**
2.112	3.917	3.917	3.917	5.876	**9000**
1.846	3.720	3.720	3.720	5.100	**9500**
1.622	3.311	3.311	3.311	4.351	**10000**
1.436	2.942	2.966	2.967	3.742	**10500**
1.278	2.621	2.673	2.673	3.242	**11000**
1.144	2.348	2.421	2.421	2.826	**11500**
1.028	2.114	2.203	2.203	2.479	**12000**
0.932	2.035	2.236	2.236	2.268	**12500**
0.845	1.838	2.042	2.042	2.008	**13000**
0.770	1.666	1.871	1.871	1.786	**13500**
0.703	1.516	1.722	1.722	1.596	**14000**
0.644	1.384	1.589	1.589	1.432	**14500**
0.591	1.267	1.472	1.472	1.289	**15000**

Z 300 30

Span	0	1	2	3/SB	L/150
2000	94.633	94.627	94.615	94.634	808.489
2500	65.562	65.548	65.566	65.562	406.632
3000	48.367	48.365	48.365	48.366	230.794
3500	37.061	37.062	37.054	37.059	142.729
4000	24.358	29.184	29.184	29.185	94.104
4500	**16.799**	23.482	23.482	23.482	65.179
5000	**12.187**	19.235	19.235	19.233	46.939
5500	**9.199**	**16.000**	**16.001**	**16.001**	34.890
6000	7.167	**13.489**	**13.489**	**13.489**	26.621
6500	5.728	**11.507**	**11.507**	**11.507**	20.767
7000	4.676	**9.845**	**9.846**	**9.846**	16.507
7500	3.885	**8.416**	**8.416**	**8.416**	13.334
8000	3.276	**7.234**	**7.278**	**7.278**	10.923
8500	2.797	**6.246**	**6.356**	**6.356**	9.059
9000	2.414	**5.441**	**5.600**	**5.600**	7.596
9500	2.111	**5.038**	**5.319**	**5.319**	6.592
10000	1.855	4.437	**4.734**	**4.734**	5.625
10500	1.641	3.933	4.241	4.241	4.838
11000	1.461	3.507	3.821	3.821	4.191
11500	1.308	3.144	3.461	3.461	3.654
12000	1.177	2.833	3.150	3.150	3.205
12500	1.071	2.735	3.197	3.197	2.932
13000	0.972	2.466	2.919	2.919	2.596
13500	0.886	2.233	2.675	2.675	2.309
14000	0.811	2.030	2.461	2.461	2.063
14500	0.744	1.851	2.272	2.272	1.851
15000	0.684	1.693	2.093	2.104	1.667

Z 350 24

0	1	2	3/SB	L/150
41.788	**41.790**	**41.769**	**41.784**	1016.821
30.039	**30.034**	**30.041**	**30.041**	511.376
23.228	**23.227**	**23.229**	**23.222**	290.244
18.736	**18.738**	**18.733**	**18.737**	179.499
15.536	**15.534**	**15.534**	**15.536**	118.348
13.132	**13.132**	**13.132**	**13.132**	81.972
11.262	**11.261**	**11.262**	**11.262**	59.032
9.767	**9.765**	**9.767**	**9.765**	43.878
8.548	**8.548**	**8.547**	**8.548**	33.482
6.896	**7.539**	**7.539**	**7.539**	26.118
5.592	**6.694**	**6.694**	**6.694**	20.759
4.617	5.978	5.978	5.979	16.770
3.873	5.367	5.367	5.367	13.738
3.291	4.841	4.841	4.841	11.393
2.829	4.386	4.386	4.386	9.553
2.489	4.194	4.193	4.195	8.291
2.183	3.822	3.822	3.823	7.074
1.930	3.496	3.496	3.496	6.084
1.719	3.207	3.208	3.208	5.270
1.540	2.952	2.953	2.953	4.595
1.386	2.725	2.725	2.726	4.030
1.280	2.706	2.747	2.748	3.687
1.160	2.453	2.542	2.543	3.265
1.056	2.232	2.359	2.359	2.904
0.965	2.039	2.193	2.193	2.595
0.885	1.870	2.025	2.025	2.328
0.813	1.719	1.875	1.875	2.096

Z 350 30

0	1	2	3/SB	L/150
54.424	54.417	54.427	54.425	857.098
42.176	42.172	42.174	42.179	438.829
33.893	**33.891**	**33.893**	**33.890**	253.951
27.918	**27.871**	**27.853**	**27.815**	159.923
23.416	**23.416**	**23.413**	**23.413**	107.134
19.920	**19.898**	**19.890**	**19.873**	75.247
17.139	**17.140**	**17.139**	**17.140**	54.853
13.112	**14.879**	**14.873**	**14.868**	41.212
10.203	**13.043**	**13.044**	**13.043**	31.745
8.163	**11.503**	**11.501**	**11.496**	24.967
6.670	**10.222**	**10.222**	**10.221**	19.990
5.519	**9.128**	**9.127**	**9.124**	16.253
4.607	**8.201**	**8.202**	**8.202**	13.392
3.902	**7.376**	**7.376**	**7.376**	11.165
3.347	**6.579**	**6.579**	**6.579**	9.406
2.901	**5.905**	**5.905**	**5.905**	7.997
2.539	**5.329**	**5.329**	**5.329**	6.857
2.238	**4.834**	**4.833**	**4.833**	5.923
1.979	4.404	4.404	4.404	5.152
1.761	4.029	4.029	4.029	4.509
1.576	3.701	3.701	3.701	3.968
1.419	3.410	3.411	3.411	3.511
1.283	3.137	3.153	3.153	3.121
1.166	2.874	2.924	2.924	2.787
1.063	2.641	2.719	2.719	2.499
0.973	2.434	2.535	2.535	2.249
0.894	2.248	2.368	2.368	2.032

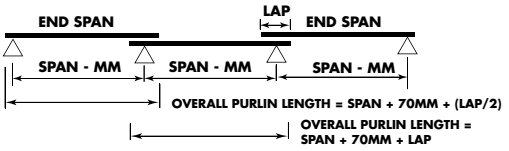
Z 400 24

0	1	2	3/SB	L/150
25.177	**25.176**	**25.178**	**25.176**	803.104
19.911	19.912	19.912	19.912	411.171
16.370	16.369	16.367	16.367	237.947
13.814	13.785	13.774	13.752	149.839
11.878	11.878	11.879	11.877	100.386
10.359	10.345	10.338	10.329	70.505
9.134	9.135	9.134	9.135	51.397
8.126	8.117	8.112	8.106	38.617
7.282	7.282	7.282	7.282	29.745
6.565	6.559	6.557	6.552	23.394
5.496	5.950	5.950	5.950	18.731
4.564	5.413	5.412	5.409	15.229
3.844	4.952	4.952	4.952	12.549
3.278	4.541	4.540	4.538	10.462
2.824	4.182	4.182	4.182	8.813
2.456	3.859	3.859	3.857	7.493
2.153	3.574	3.575	3.574	6.425
1.900	3.316	3.316	3.314	5.550
1.687	3.086	3.086	3.086	4.827
1.507	2.876	2.876	2.876	4.224
1.352	2.688	2.688	2.688	3.718
1.219	2.516	2.516	2.516	3.290
1.103	2.361	2.361	2.361	2.924
1.001	2.217	2.217	2.217	2.611
0.913	2.074	2.087	2.087	2.341
0.834	1.919	1.967	1.967	2.107
0.764	1.780	1.857	1.858	1.904

Z 400 30

0	1	2	3/SB	L/150	Span
71.175	71.178	71.162	71.167	1569.518	**2000**
51.050	51.041	51.053	51.051	789.352	**2500**
39.354	39.352	39.352	39.352	448.026	**3000**
31.626	31.626	31.614	31.624	277.073	**3500**
26.117	26.115	26.117	26.117	182.676	**4000**
21.983	21.983	21.983	21.982	126.529	**4500**
16.068	18.771	18.771	18.768	91.122	**5000**
12.090	**16.208**	**16.211**	**16.208**	67.730	**5500**
9.392	**14.130**	**14.129**	**14.131**	51.682	**6000**
7.489	**12.414**	**12.414**	**12.414**	40.312	**6500**
6.100	**10.981**	**10.982**	**10.981**	32.043	**7000**
5.057	**9.774**	**9.775**	**9.774**	25.884	**7500**
4.256	**8.748**	**8.748**	**8.748**	21.204	**8000**
3.628	**7.868**	**7.868**	**7.869**	17.587	**8500**
3.127	**7.110**	**7.110**	**7.110**	14.746	**9000**
2.728	**6.794**	**6.793**	**6.795**	12.798	**9500**
2.393	**6.178**	**6.177**	**6.178**	10.920	**10000**
2.114	**5.635**	**5.638**	**5.638**	9.391	**10500**
1.881	**5.011**	**5.093**	**5.093**	8.135	**11000**
1.682	**4.480**	**4.614**	**4.614**	7.093	**11500**
1.513	**4.017**	**4.199**	**4.198**	6.221	**12000**
1.372	**3.804**	**4.262**	**4.262**	5.691	**12500**
1.245	3.421	**3.891**	**3.891**	5.039	**13000**
1.134	3.089	**3.566**	**3.566**	4.483	**13500**
1.036	2.799	**3.281**	**3.281**	4.005	**14000**
0.950	2.545	3.029	3.029	3.593	**14500**
0.873	2.321	2.805	2.805	3.236	**15000**

TABLE 6A: Z SECTION 3 SPAN LAPPED OUTWARD LOAD (kN/m)



Bolt capacity exceeded. M12 bolts for 100 - 250 series, M16 bolts for 300 series or greater.

BOLD **Grade 8.8 bolts required.**

3/SB **For Safebridge® system use data for 3 rows of bridging.**

Z 100 10

0	1	2	3/SB	Span
7.513	7.517	7.51	7.513	2000
4.760	4.764	4.760	4.762	2500
3.056	3.283	3.281	3.282	3000
1.929	2.398	2.397	2.397	3500
1.214	1.827	1.826	1.826	4000
0.798	1.340	1.438	1.438	4500
0.555	0.980	1.149	1.149	5000
0.401	0.715	0.927	0.927	5500
	0.524	0.727	0.764	6000
	0.404	0.602	0.690	6500
		0.478	0.577	7000
			0.474	7500

Z 100 12

0	1	2	3/SB	Span
9.270	9.276	9.266	9.270	2000
5.825	5.878	5.874	5.875	2500
3.656	4.051	4.048	4.049	3000
2.364	2.958	2.957	2.957	3500
1.546	2.180	2.253	2.254	4000
1.038	1.606	1.774	1.774	4500
0.719	1.192	1.416	1.418	5000
0.509	0.887	1.101	1.144	5500
	0.667	0.869	0.943	6000
	0.524	0.730	0.830	6500
	0.407	0.588	0.687	7000
		0.473	0.569	7500
			0.473	8000

Z 100 15

0	1	2	3/SB	Span
11.871	11.878	11.866	11.871	2000
7.193	7.527	7.522	7.524	2500
4.608	5.188	5.184	5.185	3000
3.075	3.715	3.787	3.787	3500
2.084	2.711	2.886	2.886	4000
1.381	2.029	2.252	2.271	4500
0.952	1.534	1.750	1.816	5000
0.679	1.168	1.371	1.462	5500
0.497	0.901	1.094	1.180	6000
	0.707	0.936	1.031	6500
	0.539	0.767	0.861	7000
	0.421	0.629	0.720	7500
		0.517	0.604	8000
		0.420	0.510	8500
			0.434	9000

Z 100 19

0	1	2	3/SB	Span
16.492	**16.503**	**16.486**	**16.492**	2000
9.744	10.458	10.45	10.453	2500
6.165	7.207	7.203	7.204	3000
4.070	5.067	5.261	5.262	3500
2.763	3.671	4.009	4.009	4000
1.860	2.726	3.079	3.156	4500
1.276	2.049	2.381	2.523	5000
0.914	1.554	1.857	2.001	5500
0.678	1.197	1.475	1.610	6000
0.529	0.959	1.253	1.398	6500
0.413	0.732	1.023	1.163	7000
	0.569	0.836	0.968	7500
	0.450	0.687	0.809	8000
		0.568	0.682	8500
		0.466	0.578	9000
			0.493	9500
			0.422	10000
				10500
				11000
				11500

Z 150 12

0	1	2	3/SB	Span
13.760	**13.760**	**13.755**	**13.759**	2000
9.679	9.677	9.680	9.600	2500
7.078	7.082	7.075	7.077	3000
5.163	5.167	5.163	5.165	3500
3.686	3.934	3.931	3.932	4000
2.572	3.093	3.091	3.091	4500
1.785	2.495	2.494	2.494	5000
1.267	2.022	2.054	2.054	5500
0.927	1.618	1.720	1.721	6000
0.706	1.273	1.462	1.462	6500
0.547	0.999	1.258	1.258	7000
0.425	0.780	1.058	1.083	7500
	0.616	0.888	0.936	8000
	0.493	0.742	0.817	8500
	0.400	0.619	0.719	9000
		0.531	0.657	9500
		0.441	0.570	10000
			0.491	10500
			0.423	11000

Z 150 15

0	1	2	3/SB	Span
21.445	**21.255**	**21.227**	**21.229**	2000
13.512	**13.492**	**13.476**	**13.483**	2500
9.290	**9.296**	**9.286**	**9.290**	3000
6.587	6.783	6.777	6.779	3500
4.631	5.163	5.159	5.161	4000
3.301	4.060	4.057	4.058	4500
2.376	3.271	3.273	3.274	5000
1.725	2.570	2.695	2.696	5500
1.268	2.039	2.258	2.258	6000
0.950	1.627	1.919	1.919	6500
0.723	1.301	1.615	1.651	7000
0.557	1.043	1.344	1.421	7500
0.438	0.837	1.122	1.229	8000
	0.678	0.942	1.067	8500
	0.553	0.795	0.917	9000
	0.462	0.696	0.832	9500
		0.590	0.720	10000
		0.500	0.624	10500
			0.543	11000
			0.473	11500
			0.413	12000

Z 150 19

0	1	2	3/SB	Span
30.221	29.955	29.915	29.918	2000
19.043	**19.014**	**18.993**	**19.001**	2500
12.913	**13.100**	**13.087**	**13.093**	3000
8.890	**9.559**	**9.551**	**9.554**	3500
6.315	**7.276**	**7.271**	**7.273**	4000
4.571	5.668	5.718	5.719	4500
3.260	4.411	4.613	4.613	5000
2.328	3.486	3.799	3.799	5500
1.696	2.788	3.158	3.183	6000
1.256	2.247	2.614	2.705	6500
0.954	1.817	2.185	2.327	7000
0.740	1.445	1.827	1.983	7500
0.586	1.149	1.532	1.683	8000
0.471	0.923	1.295	1.440	8500
	0.751	1.101	1.242	9000
	0.619	0.973	1.133	9500
	0.510	0.819	0.985	10000
	0.424	0.691	0.859	10500
		0.584	0.752	11000
		0.497	0.660	11500
		0.426	0.578	12000
			0.519	12500
			0.452	13000

Z 150 24

0	1	2	3/SB	Span
42.606	42.232	42.175	42.177	2000
26.848	26.806	26.777	26.788	2500
17.727	**18.469**	**18.452**	**18.458**	3000
12.126	**13.476**	**13.465**	**13.470**	3500
8.568	**10.258**	**10.251**	**10.253**	4000
6.188	**7.803**	**8.061**	**8.062**	4500
4.410	**6.050**	**6.503**	**6.504**	5000
3.136	**4.767**	**5.330**	**5.356**	5500
2.272	3.803	4.350	4.487	6000
1.696	3.064	3.592	3.814	6500
1.298	2.476	2.995	3.237	7000
1.016	1.977	2.499	2.731	7500
0.811	1.580	2.094	2.314	8000
0.657	1.265	1.769	1.977	8500
0.541	1.020	1.504	1.702	9000
0.458	0.846	1.330	1.550	9500
	0.699	1.124	1.346	10000
	0.584	0.951	1.173	10500
	0.493	0.805	1.027	11000
	0.419	0.682	0.902	11500
		0.581	0.790	12000
		0.506	0.712	12500
		0.437	0.622	13000
			0.542	13500
			0.473	14000
			0.414	14500

Z 200 15

0	1	2	3/SB	Span
19.748	**19.748**	**19.742**	**19.747**	2000
14.005	**14.003**	**14.006**	**14.006**	2500
10.597	**10.597**	**10.597**	**10.596**	3000
8.313	**8.314**	**8.311**	**8.313**	3500
6.679	6.679	6.679	6.679	4000
5.433	5.458	5.455	5.456	4500
4.148	4.403	4.401	4.401	5000
3.110	3.626	3.624	3.625	5500
2.301	3.037	3.036	3.036	6000
1.724	2.581	2.580	2.581	6500
1.322	2.184	2.220	2.220	7000
1.037	1.815	1.911	1.911	7500
0.828	1.504	1.652	1.652	8000
0.670	1.233	1.442	1.442	8500
0.546	1.011	1.270	1.270	9000
0.455	0.850	1.178	1.205	9500
	0.704	1.025	1.075	10000
	0.589	0.894	0.963	10500
	0.498	0.772	0.867	11000
	0.425	0.666	0.783	11500
		0.574	0.699	12000
		0.507	0.659	12500
		0.439	0.592	13000
			0.525	13500
			0.466	14000
			0.413	14500

Z 200 19

0	1	2	3/SB	Span
40.296	40.296	40.284	40.297	2000
27.747	27.703	27.673	27.684	2500
19.076	19.088	19.068	19.076	3000
13.915	**13.928**	**13.917**	**13.921**	3500
10.596	**10.602**	**10.594**	**10.597**	4000
7.906	**8.336**	**8.331**	**8.332**	4500
5.903	**6.724**	**6.721**	**6.722**	5000
4.438	**5.538**	**5.535**	**5.536**	5500
3.354	**4.639**	**4.637**	**4.638**	6000
2.554	3.866	3.941	3.941	6500
1.958	3.178	3.390	3.390	7000
1.518	2.609	2.918	2.918	7500
1.201	2.146	2.523	2.523	8000
0.965	1.774	2.203	2.203	8500
0.778	1.475	1.898	1.940	9000
0.646	1.264	1.714	1.840	9500
0.533	1.056	1.478	1.641	10000
0.444	0.886	1.277	1.470	10500
	0.743	1.106	1.297	11000
	0.630	0.962	1.147	11500
	0.538	0.839	1.018	12000
	0.477	0.753	0.948	12500
	0.410	0.658	0.845	13000
		0.578	0.754	13500
		0.506	0.675	14000
		0.443	0.603	14500
			0.538	15000

Z 200 24

0	1	2	3/SB	Span
64.153	63.589	63.503	63.510	2000
40.424	40.362	40.316	40.332	2500
27.792	27.809	27.782	27.791	3000
20.272	20.292	20.274	20.280	3500
14.779	15.446	15.434	15.438	4000
11.003	**12.145**	**12.136**	**12.139**	4500
8.327	**9.797**	**9.792**	**9.793**	5000
6.260	**8.038**	**8.064**	**8.065**	5500
4.700	**6.534**	**6.756**	**6.756**	6000
3.546	**5.369**	**5.741**	**5.742**	6500
2.673	**4.449**	**4.939**	**4.939**	7000
2.059	**3.686**	**4.226**	**4.251**	7500
1.617	3.058	**3.583**	**3.675**	8000
1.291	2.527	3.064	3.209	8500
1.045	2.096	2.639	2.827	9000
0.872	1.788	2.405	2.638	9500
0.723	1.487	2.088	2.315	10000
0.606	1.232	1.818	2.038	10500
0.513	1.030	1.580	1.803	11000
0.438	0.868	1.373	1.602	11500
	0.738	1.195	1.428	12000
	0.646	1.070	1.342	12500
	0.556	0.931	1.206	13000
	0.482	0.812	1.077	13500
	0.420	0.705	0.962	14000
		0.616	0.859	14500
		0.540	0.765	15000

Z 250 19

0	1	2	3/SB	Span
31.749	31.750	31.738	31.748	2000
22.618	22.613	22.618	22.614	2500
17.279	**17.278**	**17.279**	**17.277**	3000
13.728	**13.727**	**13.722**	**13.728**	3500
11.185	**11.183**	**11.183**	**11.184**	4000
9.277	**9.277**	**9.277**	**9.277**	4500
7.798	**7.802**	**7.802**	**7.800**	5000
5.893	**6.633**	**6.636**	**6.636**	5500
4.400	**5.699**	**5.695**	**5.699**	6000
3.328	**4.938**	**4.937**	**4.937**	6500
2.529	**4.257**	**4.275**	**4.275**	7000
1.954	3.495	**3.680**	**3.680**	7500
1.541	2.861	3.181	3.181	8000
1.233	2.355	2.778	2.778	8500
0.990	1.944	2.446	2.446	9000
0.820	1.651	2.300	2.320	9500
0.674	1.375	1.981	2.070	10000
0.560	1.145	1.706	1.854	10500
0.470	0.959	1.472	1.670	11000
	0.810	1.276	1.512	11500
	0.691	1.107	1.365	12000
	0.611	0.985	1.268	12500
	0.524	0.858	1.128	13000
	0.452	0.752	1.004	13500
		0.654	0.894	14000
		0.572	0.796	14500
		0.503	0.707	15000

Z 250 24

0	1	2	3/SB	Span
64.244	64.248	64.230	64.244	2000
45.336	45.328	45.339	45.342	2500
33.954	33.953	33.955	33.953	3000
25.786	25.810	25.788	25.796	3500
19.636	19.647	19.633	19.638	4000
14.714	15.448	15.438	15.441	4500
11.050	12.461	12.455	12.457	5000
8.209	**10.262**	**10.257**	**10.259**	5500
6.087	**8.596**	**8.593**	**8.594**	6000
4.549	**7.194**	**7.303**	**7.303**	6500
3.416	**5.936**	**6.282**	**6.283**	7000
2.622	**4.895**	**5.408**	**5.408**	7500
2.050	**4.030**	**4.675**	**4.675**	8000
1.629	**3.309**	**4.082**	**4.082**	8500
1.314	2.724	**3.535**	**3.595**	9000
1.092	2.298	**3.207**	**3.409**	9500
0.902	1.902	**2.774**	**3.042**	10000
0.752	1.571	2.406	**2.725**	10500
0.634	1.311	2.078	2.416	11000
0.539	1.103	1.796	2.141	11500
0.462	0.935	1.555	1.904	12000
0.408	0.816	1.379	1.781	12500
	0.702	1.196	1.592	13000
	0.607	1.037	1.416	13500
	0.527	0.900	1.259	14000
	0.461	0.784	1.118	14500
	0.405	0.687	0.992	15000

Z 300 24

0	1	2	3/SB	Span
53.894	53.896	53.880	53.892	2000
38.497	**38.492**	**38.500**	**38.497**	2500
29.587	**29.586**	**29.588**	**29.584**	3000
23.696	**23.696**	**23.688**	**23.696**	3500
19.487	**19.486**	**19.486**	**19.487**	4000
16.326	**16.325**	**16.325**	**16.325**	4500
13.858	**13.866**	**13.866**	**13.863**	5000
11.907	**11.900**	**11.907**	**11.907**	5500
10.315	**10.318**	**10.309**	**10.318**	6000
8.800	**9.013**	**9.011**	**9.012**	6500
6.998	**7.924**	**7.927**	**7.927**	7000
5.584	**7.017**	**7.016**	**7.017**	7500
4.484	6.247	6.243	6.247	8000
3.619	5.589	5.589	5.590	8500
2.942	4.809	4.948	4.948	9000
2.444	4.321	4.692	4.692	9500
2.004	3.705	4.186	4.186	10000
1.660	3.181	3.750	3.750	10500
1.389	2.736	3.378	3.378	11000
1.172	2.366	3.059	3.059	11500
0.997	2.052	2.73	2.783	12000
0.877	1.851	2.555	2.721	12500
0.755	1.605	2.288	2.513	13000
0.655	1.399	2.050	2.327	13500
0.571	1.221	1.837	2.162	14000
0.500	1.063	1.645	1.970	14500
0.441	0.931	1.470	1.789	15000

Z 300 30

0	1	2	3/SB	Span
105.692	105.698	105.664	105.695	2000
74.924	74.915	74.928	74.929	2500
56.645	56.640	56.641	56.642	3000
44.386	44.389	44.373	44.388	3500
35.621	35.617	35.617	35.620	4000
29.098	29.098	29.098	29.098	4500
24.107	24.116	24.118	24.114	5000
19.171	20.191	20.182	20.185	5500
15.355	**16.915**	**16.908**	**16.910**	6000
12.339	**14.374**	**14.369**	**14.370**	6500
9.870	**12.366**	**12.362**	**12.362**	7000
7.816	**10.641**	**10.641**	**10.641**	7500
6.120	**9.027**	**9.199**	**9.199**	8000
4.839	**7.708**	**8.032**	**8.032**	8500
3.883	**6.627**	**7.074**	**7.074**	9000
3.214	**6.033**	**6.708**	**6.708**	9500
2.641	**5.221**	**5.986**	**5.986**	10000
2.193	4.498	**5.321**	**5.361**	10500
1.839	3.888	**4.719**	**4.830**	11000
1.556	3.369	4.203	4.374	11500
1.326	2.895	3.758	3.979	12000
1.169	2.537	3.554	3.891	12500
1.010	2.175	3.207	3.550	13000
0.878	1.876	2.894	3.241	13500
0.768	1.628	2.601	2.964	14000
0.675	1.420	2.338	2.713	14500
0.597	1.245	2.097	2.475	15000

Z 350 24

0	1	2	3/SB	Span
45.858	**45.859**	**45.844**	**45.855**	2000
32.892	**32.885**	**32.894**	**32.891**	2500
25.508	**25.505**	**25.508**	**25.508**	3000
20.691	**20.693**	**20.685**	**20.691**	3500
17.282	**17.279**	**17.280**	**17.282**	4000
14.729	**14.729**	**14.729**	**14.730**	4500
12.732	**12.741**	**12.740**	**12.737**	5000
11.144	**11.137**	**11.145**	**11.146**	5500
9.834	**9.837**	**9.827**	**9.837**	6000
8.747	**8.747**	**8.745**	**8.747**	6500
7.825	**7.822**	**7.826**	**7.826**	7000
7.039	**7.039**	**7.039**	**7.039**	7500
6.361	6.361	6.357	6.361	8000
5.773	5.771	5.770	5.772	8500
5.259	5.258	5.258	5.258	9000
4.735	5.105	5.103	5.107	9500
3.934	4.676	4.674	4.676	10000
3.296	4.294	4.294	4.294	10500
2.786	3.954	3.955	3.955	11000
2.373	3.653	3.653	3.653	11500
2.035	3.323	3.381	3.382	12000
1.820	3.150	3.466	3.467	12500
1.597	2.841	3.201	3.201	13000
1.402	2.565	2.959	2.965	13500
1.230	2.319	2.716	2.754	14000
1.078	2.080	2.493	2.560	14500
0.945	1.844	2.282	2.371	15000

Z 350 30

0	1	2	3/SB	Span
89.885	89.883	89.858	89.879	2000
64.256	64.246	64.261	64.259	2500
49.471	49.467	49.469	49.465	3000
39.715	39.716	39.701	39.717	3500
32.756	32.754	32.752	32.757	4000
27.526	27.525	27.526	27.524	4500
23.441	23.453	23.452	23.449	5000
20.202	20.191	20.203	20.205	5500
17.557	**17.561**	**17.546**	**17.561**	6000
15.382	**15.383**	**15.378**	**15.382**	6500
13.564	**13.561**	**13.566**	**13.566**	7000
12.036	**12.037**	**12.037**	**12.036**	7500
10.087	**10.740**	**10.732**	**10.739**	8000
8.382	**9.628**	**9.628**	**9.630**	8500
6.987	**8.627**	**8.627**	**8.627**	9000
6.013	**8.183**	**8.181**	**8.181**	9500
5.019	**7.299**	**7.299**	**7.299**	10000
4.239	**6.538**	**6.538**	**6.538**	10500
3.614	**5.811**	**5.890**	**5.890**	11000
3.086	**5.133**	**5.334**	**5.334**	11500
2.637	**4.548**	**4.853**	**4.853**	12000
2.350	**4.239**	**4.744**	**4.744**	12500
2.042	3.774	**4.381**	**4.381**	13000
1.765	3.361	**4.058**	**4.058**	13500
1.535	2.990	**3.769**	**3.769**	14000
1.342	2.656	3.482	3.504	14500
1.179	2.355	3.167	3.244	15000

Z 400 24

0	1	2	3/SB	Span
39.906	**39.907**	**39.894**	**39.907**	2000
28.664	**28.659**	**28.666**	**28.666**	2500
22.302	**22.301**	**22.301**	**22.299**	3000
18.176	**18.177**	**18.170**	**18.177**	3500
15.273	**15.270**	**15.271**	**15.272**	4000
13.108	**13.107**	**13.108**	**13.108**	4500
11.419	**11.426**	**11.426**	**11.423**	5000
10.080	**10.071**	**10.080**	**10.079**	5500
8.971	**8.974**	**8.964**	**8.974**	6000
8.051	**8.051**	**8.049**	**8.051**	6500
7.267	7.264	7.268	7.268	7000
6.596	6.595	6.596	6.596	7500
6.012	6.012	6.006	6.012	8000
5.400	5.500	5.499	5.502	8500
4.316	5.054	5.053	5.054	9000
3.560	4.902	4.900	4.904	9500
2.913	4.526	4.524	4.526	10000
2.408	4.188	4.188	4.188	10500
2.010	3.884	3.885	3.885	11000
1.692	3.556	3.612	3.612	11500
1.435	3.145	3.364	3.366	12000
1.260	2.802	3.451	3.453	12500
1.083	2.397	3.223	3.223	13000
0.936	2.062	2.925	3.015	13500
0.814	1.785	2.651	2.825	14000
0.711	1.553	2.401	2.651	14500
0.625	1.357	2.186	2.486	15000

Z 400 30

0	1	2	3/SB	Span
78.182	78.184	78.159	78.180	2000
56.036	56.030	56.041	56.042	2500
43.393	43.391	43.394	43.389	3000
35.124	35.125	35.112	35.125	3500
29.258	29.254	29.255	29.257	4000
24.859	24.859	24.860	24.858	4500
21.419	21.432	21.432	21.428	5000
18.682	**18.670**	**18.682**	**18.683**	5500
16.427	**16.432**	**16.417**	**16.432**	6000
14.559	**14.559**	**14.554**	**14.559**	6500
12.978	**12.973**	**12.979**	**12.979**	7000
10.811	**11.635**	**11.636**	**11.634**	7500
8.389	**10.480**	**10.472**	**10.480**	8000
6.617	**9.479**	**9.478**	**9.482**	8500
5.295	**8.612**	**8.612**	**8.612**	9000
4.373	**8.364**	**8.361**	**8.366**	9500
3.584	**7.426**	**7.637**	**7.639**	10000
2.967	**6.358**	**6.997**	**6.998**	10500
2.481	**5.457**	**6.429**	**6.430**	11000
2.092	**4.679**	**5.830**	**5.830**	11500
1.778	3.972	**5.304**	**5.304**	12000
1.564	3.457	**5.129**	**5.186**	12500
1.347	2.959	**4.602**	**4.789**	13000
1.167	2.549	**4.112**	**4.435**	13500
1.017	2.208	3.677	**4.119**	14000
0.891	1.923	3.286	**3.829**	14500
0.785	1.683	2.932	**3.546**	15000

TABLE 6B: Z SECTION 3 SPAN LAPPED INWARD LOAD (kN/m)

Span	Z 100 10					Z 100 12					Z 100 15					Z 100 19				
	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150
2000	7.513	7.518	7.510	7.513	8.894	8.912	9.276	9.267	9.27	10.808	10.790	11.878	11.867	11.871	13.684	**14.054**	**16.502**	**16.486**	**16.492**	17.534
2500	4.760	4.764	4.760	4.762	4.502	5.464	5.878	5.874	5.875	5.470	6.621	7.528	7.522	7.524	6.927	8.507	10.458	10.45	10.452	8.875
3000	3.194	3.283	3.281	3.282	2.581	3.663	4.051	4.048	4.049	3.136	4.449	5.187	5.184	5.185	3.971	5.663	7.207	7.203	7.204	5.088
3500	2.266	2.398	2.396	2.397	1.613	2.604	2.959	2.957	2.957	1.960	3.176	3.788	3.787	3.787	2.481	4.017	5.263	5.261	5.262	3.179
4000	1.670	1.827	1.826	1.826	1.073	1.927	2.254	2.253	2.254	1.304	2.365	2.887	2.886	2.886	1.652	2.980	3.978	4.009	4.009	2.116
4500	1.262	1.438	1.437	1.438	0.750	1.467	1.774	1.774	1.774	0.911	1.816	2.272	2.271	2.271	1.154	2.284	3.091	3.156	3.156	1.478
5000	0.964	1.149	1.149	1.149	0.544	1.130	1.418	1.418	1.418	0.661	1.416	1.816	1.816	1.816	0.837	1.784	2.445	2.523	2.523	1.073
5500	0.742	0.927	0.927	0.927	0.407	0.880	1.144	1.144	1.144	0.495	1.118	1.456	1.465	1.465	0.627	1.415	1.957	2.036	2.036	0.803
6000	0.578	0.764	0.764	0.764		0.695	0.943	0.943	0.943		0.896	1.191	1.207	1.207	0.481	1.142	1.599	1.677	1.677	0.616
6500	0.465	0.690	0.690	0.690		0.573	0.851	0.851	0.851		0.742	1.053	1.090	1.090		0.955	1.411	1.514	1.514	0.491
7000		0.594	0.593	0.593		0.463	0.732	0.732	0.732		0.601	0.895	0.938	0.938		0.782	1.198	1.297	1.303	
7500		0.5110	0.511	0.511			0.620	0.630	0.630		0.490	0.762	0.807	0.807		0.644	1.020	1.103	1.121	
8000		0.442	0.442	0.442			0.527	0.545	0.545		0.403	0.651	0.691	0.698		0.536	0.872	0.943	0.969	
8500							0.451	0.476	0.476			0.561	0.596	0.609		0.449	0.752	0.813	0.846	
9000								0.419	0.419			0.487	0.519	0.537			0.653	0.707	0.739	
9500												0.425	0.455	0.473			0.570	0.618	0.648	
10000													0.401	0.418			0.501	0.544	0.572	
10500																	0.442	0.481	0.507	
11000																		0.427	0.452	
11500																			0.405	

Bolt capacity exceeded. M12 bolts for 100 - 250 series, M16 bolts for 300 series or greater.

BOLD Grade 8.8 bolts required.

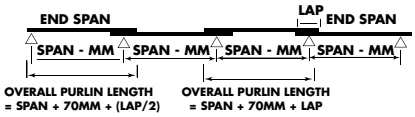
3/SB For Safebridge® system use data for 3 rows of bridging.

Span	Z 150 12					Z 150 15					Z 150 19					Z 150 24					Z 200 15				
	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150
2000	**13.759**	**13.760**	**13.755**	**13.759**	31.563	**20.604**	**21.255**	**21.227**	**21.229**	40.908	27.182	29.955	29.915	29.917	52.354	36.110	42.231	42.175	42.180	67.774	**19.748**	**19.748**	**19.742**	**19.748**	85.830
2500	9.679	9.677	9.680	9.680	15.999	**12.260**	**13.492**	**13.476**	**13.482**	20.736	**16.073**	**19.014**	**18.994**	**19.001**	26.539	**20.950**	26.807	26.776	26.788	34.356	**14.005**	**14.002**	**14.006**	**14.006**	43.505
3000	6.736	7.082	7.075	7.078	9.178	8.046	**9.295**	**9.286**	**9.289**	11.895	**10.484**	**13.100**	**13.088**	**13.092**	15.225	**13.249**	**18.469**	**18.450**	**18.458**	19.706	**10.597**	**10.596**	**10.597**	**10.596**	24.957
3500	4.766	5.167	5.163	5.165	5.734	5.644	6.783	6.777	6.779	7.432	7.261	**9.559**	**9.551**	**9.554**	9.512	**8.970**	**13.476**	**13.465**	**13.469**	12.313	**8.296**	**8.313**	**8.310**	**8.313**	15.593
4000	3.514	3.934	3.931	3.932	3.815	4.152	5.163	5.159	5.161	4.945	5.269	**7.277**	**7.271**	**7.273**	6.328	6.403	**10.229**	**10.251**	**10.253**	8.192	6.023	6.679	6.679	6.679	10.374
4500	2.680	3.093	3.091	3.091	2.663	3.165	4.060	4.057	4.058	3.452	3.972	5.721	5.718	5.719	4.418	4.764	**7.889**	**8.061**	**8.062**	5.718	4.541	5.458	5.455	5.456	7.242
5000	2.094	2.495	2.494	2.494	1.931	2.483	3.275	3.273	3.273	2.503	3.081	4.615	4.613	4.613	3.203	3.666	**6.250**	**6.503**	**6.504**	4.146	3.523	4.403	4.401	4.401	5.251
5500	1.667	2.055	2.054	2.054	1.444	1.988	2.697	2.695	2.696	1.872	2.447	3.763	3.799	3.799	2.395	2.900	**5.063**	**5.356**	**5.356**	3.101	2.798	3.626	3.624	3.625	3.927
6000	1.344	1.721	1.720	1.721	1.108	1.616	2.259	2.258	2.258	1.436	1.981	3.116	3.183	3.183	1.837	2.345	4.176	4.487	4.487	2.378	2.264	3.037	3.036	3.037	3.012
6500	1.093	1.463	1.462	1.462	0.868	1.330	1.920	1.919	1.919	1.125	1.630	2.620	2.705	2.705	1.440	1.929	3.498	3.813	3.813	1.864	1.863	2.581	2.58	2.581	2.360
7000	0.896	1.258	1.258	1.258	0.693	1.105	1.652	1.651	1.651	0.898	1.358	2.231	2.327	2.327	1.149	1.609	2.969	3.280	3.280	1.487	1.553	2.221	2.220	2.220	1.884
7500	0.740	1.083	1.083	1.083	0.562	0.923	1.421	1.421	1.421	0.728	1.140	1.904	2.003	2.003	0.931	1.358	2.529	2.817	2.824	1.206	1.306	1.911	1.911	1.911	1.527
8000	0.615	0.936	0.936	0.936	0.461	0.778	1.229	1.229	1.229	0.598	0.962	1.635	1.732	1.732	0.765	1.157	2.168	2.42	2.441	0.991	1.108	1.652	1.652	1.652	1.255
8500	0.515	0.817	0.817	0.817		0.660	1.073	1.073	1.073	0.497	0.817	1.417	1.512	1.512	0.637	0.994	1.877	2.101	2.131	0.824	0.947	1.442	1.442	1.442	1.044
9000	0.434	0.720	0.720	0.720		0.561	0.940	0.945	0.945	0.418	0.699	1.239	1.332	1.332	0.535	0.860	1.640	1.840	1.877	0.693	0.815	1.270	1.270	1.270	0.877
9500		0.683	0.683	0.683		0.487	0.867	0.896	0.896		0.607	1.146	1.262	1.263	0.459	0.756	1.512	1.716	1.780	0.595	0.718	1.205	1.205	1.205	0.753
10000		0.609	0.609	0.609		0.418	0.765	0.799	0.799		0.524	1.014	1.117	1.127		0.661	1.338	1.521	1.583	0.509	0.626	1.075	1.075	1.075	0.644
10500		0.541	0.546	0.545			0.677	0.716	0.716		0.455	0.900	0.992	1.009		0.581	1.188	1.352	1.412	0.439	0.548	0.963	0.963	0.963	0.555
11000		0.481	0.491	0.491			0.602	0.645	0.645			0.803	0.885	0.909		0.513	1.061	1.208	1.267			0.867	0.867	0.867	
11500		0.430	0.445	0.445			0.537	0.584	0.584			0.72	0.794	0.823		0.455	0.953	1.084	1.143			0.785	0.785	0.785	
12000			0.405	0.405			0.481	0.531	0.531			0.647	0.714	0.749		0.404	0.858	0.976	1.034			0.715	0.715	0.715	
12500							0.447	0.501	0.520			0.607	0.677	0.717			0.808	0.924	0.987			0.688	0.699	0.699	
13000							0.403	0.455	0.480			0.551	0.616	0.655			0.735	0.841	0.901			0.628	0.645	0.645	
13500								0.414	0.444			0.501	0.563	0.600			0.668	0.768	0.824			0.575	0.598	0.597	
14000									0.408			0.455	0.514	0.550			0.607	0.702	0.755			0.528	0.555	0.555	
14500												0.412	0.471	0.505			0.553	0.643	0.693			0.485	0.516	0.516	
15000													0.430	0.463			0.503	0.587	0.635			0.444	0.478	0.478	

Span	Z 200 19					Z 200 24					Z 250 19					Z 250 24					Z 300 24				
	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150
2000	40.297	40.295	40.284	40.295	115.374	59.210	63.589	63.504	63.508	148.819	31.749	31.748	31.739	31.747	191.300	64.247	64.244	64.229	64.244	252.086	53.892	53.892	53.879	53.893	432.067
2500	25.007	27.705	27.672	27.685	58.487	34.174	40.363	40.316	40.332	75.433	22.617	22.613	22.619	22.617	96.969	44.549	45.327	45.338	45.338	127.771	**38.497**	**38.490**	**38.500**	**38.499**	219.013
3000	15.843	19.087	19.068	19.076	33.550	21.162	27.809	27.781	27.792	43.273	**17.279**	**17.277**	**17.279**	**17.277**	55.624	27.008	33.953	33.956	33.946	73.298	**29.587**	**29.584**	**29.587**	**29.585**	125.634
3500	**10.784**	**13.928**	**13.917**	**13.920**	20.962	**13.999**	20.291	20.274	20.280	27.037	**13.727**	**13.728**	**13.723**	**13.727**	34.755	17.555	25.809	25.788	25.796	45.797	**23.696**	**23.697**	**23.688**	**23.694**	78.495
4000	**7.729**	**10.602**	**10.594**	**10.596**	13.946	**9.804**	15.446	15.434	15.439	17.988	**9.872**	**11.183**	**11.183**	**11.184**	23.122	**12.177**	19.647	19.633	19.638	30.469	**19.236**	**19.486**	**19.485**	**19.487**	52.224
4500	5.770	**8.336**	**8.331**	**8.332**	9.736	**7.157**	**12.145**	**12.137**	**12.139**	12.557	**7.334**	**9.277**	**9.277**	**9.277**	16.141	**8.821**	15.448	15.438	15.440	21.269	**13.814**	**16.325**	**16.325**	**16.325**	36.456
5000	4.460	**6.724**	**6.721**	**6.722**	7.059	5.422	**9.797**	**9.792**	**9.793**	9.105	**5.654**	**7.802**	**7.802**	**7.799**	11.704	**6.668**	12.461	12.454	12.456	15.423	10.268	**13.865**	**13.866**	**13.864**	26.435
5500	3.544	**5.538**	**5.535**	**5.536**	5.279	4.242	**8.021**	**8.064**	**8.065**	6.809	4.468	**6.632**	**6.636**	**6.636**	8.752	**5.206**	**10.262**	**10.257**	**10.259**	11.533	7.864	**11.900**	**11.907**	**11.907**	19.769
6000	2.879	**4.639**	**4.637**	**4.637**	4.049	3.403	**6.613**	**6.756**	**6.756**	5.223	3.595	**5.699**	**5.695**	**5.699**	6.714	4.169	**8.596**	**8.593**	**8.593**	8.847	6.169	**10.318**	**10.310**	**10.318**	15.164
6500	2.363	3.942	3.941	3.941	3.173	2.786	**5.535**	**5.741**	**5.742**	4.093	2.948	**4.938**	**4.937**	**4.937**	5.261	3.407	**7.305**	**7.303**	**7.303**	6.932	4.960	**9.012**	**9.011**	**9.012**	11.883
7000	1.969	3.391	3.390	3.390	2.532	2.318	**4.693**	**4.939**	**4.939**	3.266	2.455	**4.276**	**4.275**	**4.275**	4.198	2.831	**6.255**	**6.283**	**6.283**	5.532	4.068	**7.924**	**7.927**	**7.927**	9.482
7500	1.659	2.918	2.918	2.918	2.053	1.954	**3.993**	**4.252**	**4.252**	2.648	2.068	**3.680**	**3.680**	**3.680**	3.404	2.385	**5.311**	**5.408**	**5.408**	4.485	3.393	**7.016**	**7.017**	**7.016**	7.687
8000	1.412	2.523	2.523	2.523	1.687	1.667	**3.420**	**3.676**	**3.676**	2.176	1.760	3.181	3.181	3.181	2.797	2.032	**4.541**	**4.675**	**4.675**	3.686	2.870	6.246	6.243	6.246	6.317
8500	1.213	2.203	2.203	2.203	1.403	1.435	2.959	3.209	3.209	1.810	1.511	2.778	2.778	2.778	2.326	1.748	**3.922**	**4.082**	**4.082**	3.065	2.457	5.589	5.589	5.590	5.254
9000	1.050	1.930	1.940	1.940	1.179	1.246	2.583	2.826	2.826	1.521	1.307	2.446	2.446	2.446	1.955	1.516	**3.419**	**3.595**	**3.595**	2.577	2.124	4.932	4.948	4.948	4.416
9500	0.926	1.782	1.840	1.840	1.012	1.096	2.387	2.680	2.680	1.306	1.152	2.320	2.320	2.320	1.678	1.331	**3.144**	**3.409**	**3.409**	2.212	1.859	4.526	4.692	4.692	3.791
10000	0.811	1.576	1.642	1.642	0.866	0.965	2.111	2.392	2.392	1.117	1.010	2.070	2.070	2.070	1.436	1.170	**2.777**	**3.042**	**3.042**	1.892	1.635	3.982	4.187	4.187	3.243
10500	0.714	1.400	1.470	1.470	0.747	0.853	1.876	2.135	2.142	0.963	0.889	1.852	1.854	1.854	1.238	1.034	2.464	**2.725**	**2.725**	1.631	1.447	3.522	3.750	3.750	2.796
11000	0.632	1.251	1.325	1.325	0.648	0.758	1.677	1.914	1.930	0.836	0.786	1.659	1.670	1.670	1.075	0.918	2.200	2.454	2.454	1.416	1.288	3.135	3.378	3.378	2.427
11500	0.561	1.123	1.199	1.199	0.566	0.677	1.507	1.724	1.747	0.730	0.698	1.492	1.512	1.512	0.939	0.819	1.973	2.223	2.223	1.237	1.153	2.805	3.059	3.059	2.120
12000	0.500	1.013	1.091	1.091	0.498	0.606	1.361	1.561	1.590	0.642	0.621	1.344	1.376	1.376	0.825	0.733	1.779	2.022	2.022	1.087	1.037	2.523	2.783	2.783	1.863
12500	0.453	0.953	1.067	1.067	0.447	0.551	1.283	1.500	1.554	0.577	0.559	1.258	1.345	1.345	0.741	0.665	1.656	1.977	1.977	0.977	0.942	2.370	2.721	2.721	1.674
13000	0.405	0.868	0.985	0.985		0.497	1.167	1.374	1.435	0.512	0.500	1.143	1.242	1.242	0.658	0.599	1.502	1.826	1.826	0.867	0.854	2.153	2.513	2.513	1.485
13500		0.792	0.913	0.913		0.450	1.065	1.262	1.327	0.456	0.448	1.042	1.151	1.151	0.586	0.541	1.367	1.682	1.691	0.773	0.777	1.963	2.327	2.327	1.324
14000		0.724	0.847	0.848		0.408	0.974	1.161	1.227	0.408	0.402	0.951	1.069	1.069	0.525	0.490	1.247	1.547	1.571	0.692	0.710	1.795	2.161	2.162	1.185
14500		0.663	0.779	0.788			0.892	1.070	1.135			0.869	0.994	0.994	0.472	0.445	1.139	1.422	1.460	0.622	0.649	1.644	2.010	2.010	1.065
15000		0.606	0.713	0.730			0.817	0.982	1.047			0.793	0.920	0.920	0.425	0.404	1.040	1.305	1.352	0.561	0.596	1.507	1.861	1.861	0.961

Span	Z 300 30					Z 350 24					Z 350 30					Z 400 24					Z 400 30				
	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150
2000	105.691	105.695	105.666	105.697	558.573	**45.857**	**45.859**	**45.844**	**45.857**	702.479	89.886	89.884	89.857	89.880	903.017	**39.908**	**39.905**	**39.894**	**39.904**	846.123	78.186	78.186	78.162	78.181	1084.299
2500	74.924	74.916	74.929	74.931	283.142	**32.891**	**32.885**	**32.894**	**32.891**	356.092	64.257	64.246	64.261	64.257	457.763	**28.664**	**28.660**	**28.665**	**28.665**	428.927	56.039	56.030	56.044	56.042	549.647
3000	56.643	56.643	56.648	56.643	162.417	**25.509**	**25.505**	**25.508**	**25.502**	204.259	49.467	49.469	49.472	49.450	262.584	**22.302**	**22.300**	**22.302**	**22.298**	246.031	43.394	43.391	43.396	43.389	315.284
3500	37.789	44.389	44.374	44.386	101.477	**20.691**	**20.691**	**20.685**	**20.686**	127.621	39.713	39.716	39.700	39.715	164.055	**18.176**	**18.177**	**18.169**	**18.177**	153.726	35.124	35.125	35.112	35.125	196.988
4000	**24.593**	35.616	35.617	35.621	67.513	**17.282**	**17.279**	**17.280**	**17.282**	84.904	32.757	32.755	32.753	32.755	109.146	**15.273**	**15.271**	**15.269**	**15.272**	102.274	29.259	29.255	29.255	29.259	131.059
4500	**16.943**	29.097	29.098	29.098	47.128	**14.729**	**14.729**	**14.729**	**14.729**	59.272	25.987	27.525	27.524	27.526	76.194	**13.108**	**13.108**	**13.107**	**13.108**	71.391	**22.389**	24.860	24.860	24.860	91.490
5000	**12.282**	24.117	24.118	24.113	34.175	**12.732**	**12.741**	**12.740**	**12.738**	42.979	**18.976**	23.454	23.454	23.448	55.249	**11.419**	**11.426**	**11.427**	**11.423**	51.769	**16.172**	21.431	21.432	21.427	66.341
5500	9.265	20.192	20.182	20.184	25.554	**11.145**	**11.137**	**11.145**	**11.146**	32.139	**14.312**	20.191	20.204	20.202	41.314	**10.079**	**10.071**	**10.079**	**10.079**	38.713	**12.161**	**18.669**	**18.682**	**18.682**	49.609
6000	7.215	**16.915**	**16.908**	**16.909**	19.602	**9.029**	**9.837**	**9.828**	**9.837**	24.652	**10.985**	**17.561**	**17.546**	**17.560**	31.690	8.443	**8.974**	**8.964**	**8.974**	29.693	**9.443**	**16.431**	**16.415**	**16.432**	38.053
6500	5.765	**14.374**	**14.369**	**14.370**	15.361	7.189	**8.747**	**8.745**	**8.747**	19.319	**8.681**	**15.382**	**15.378**	**15.382**	24.835	6.758	**8.051**	**8.049**	**8.052**	23.270	7.527	**14.558**	**14.554**	**14.559**	29.821
7000	4.706	**12.197**	**12.361**	**12.362**	12.259	5.845	**7.823**	**7.826**	**7.826**	15.417	7.024	**13.561**	**13.566**	**13.566**	19.819	5.523	7.264	7.267	7.268	18.570	6.129	**12.973**	**12.980**	**12.979**	23.795
7500	3.910	**10.330**	**10.641**	**10.641**	9.937	4.848	**7.039**	**7.039**	**7.039**	12.498	5.732	**12.037**	**12.037**	**12.037**	16.066	4.592	6.595	6.596	6.596	15.053	5.082	**11.635**	**11.635**	**11.634**	19.291
8000	3.297	**8.802**	**9.199**	**9.199**	8.166	4.086	6.361	6.356	6.361	10.270	4.758	**10.739**	**10.733**	**10.739**	13.203	3.874	6.013	6.007	6.012	12.371	4.277	**10.481**	**10.472**	**10.480**	15.853
8500	2.816	**7.579**	**8.032**	**8.032**	6.792	3.489	5.771	5.771	5.772	8.542	4.007	**9.628**	**9.627**	**9.630**	10.981	3.308	5.501	5.501	5.503	10.289	3.647	**9.479**	**9.478**	**9.481**	13.185
9000	2.431	**6.584**	**7.074**	**7.074**	5.709	3.001	5.259	5.259	5.258	7.180	3.417	**8.627**	**8.627**	**8.627**	9.230	2.855	5.054	5.054	5.053	8.649	3.143	**8.613**	**8.612**	**8.612**	11.083
9500	2.129	**6.058**	**6.708**	**6.708**	4.900	2.635	5.105	5.103	5.106	6.163	2.958	**8.139**	**8.180**	**8.181**	7.923	2.492	4.902	4.901	4.904	7.423	2.745	**8.363**	**8.361**	**8.366**	9.513
10000	1.870	**5.330**	**5.985**	**5.985**	4.192	2.303	4.676	4.675	4.676	5.272	2.575	**7.135**	**7.299**	**7.299**	6.778	2.188	4.526	4.525	4.526	6.351	2.409	**7.545**	**7.637**	**7.639**	8.138
10500	1.656	4.715	**5.361**	**5.361**	3.614	2.025	4.294	4.294	4.294	4.545	2.261	**6.285**	**6.538**	**6.538**	5.843	1.934	4.188	4.187	4.188	5.475	2.130	**6.628**	**6.997**	**6.998**	7.016
11000	1.475	4.185	**4.830**	**4.830**	3.138	1.794	3.954	3.955	3.955	3.946	2.000	**5.569**	**5.890**	**5.890**	5.072	1.720	3.884	3.885	3.885	4.753	1.895	**5.858**	**6.429**	**6.430**	6.091
11500	1.321	3.734	4.374	4.374	2.741	1.599	3.653	3.652	3.653	3.447	1.781	**4.961**	**5.334**	**5.334**	4.431	1.538	3.612	3.612	3.612	4.152	1.695	**5.208**	**5.830**	**5.830**	5.321
12000	1.189	3.348	3.979	3.979	2.409	1.433	3.338	3.381	3.382	3.029	1.595	**4.441**	**4.853**	**4.853**	3.894	1.382	3.366	3.364	3.366	3.649	1.525	**4.654**	**5.304**	**5.304**	4.676
12500	1.085	3.130	3.838	3.891	2.164	1.296	3.188	3.467	3.467	2.721	1.446	**4.166**	**4.745**	**4.745**	3.498	1.253	3.315	3.451	3.453	3.278	1.386	**4.308**	**5.186**	**5.186**	4.200
13000	0.985	2.836	3.513	3.593	1.920	1.174	2.911	3.201	3.201	2.415	1.309	3.767	**4.381**	**4.381**	3.104	1.136	3.022	3.223	3.223	2.909	1.258	3.882	**4.789**	**4.789**	3.727
13500	0.898	2.578	3.226	3.327	1.712	1.067	2.666	2.965	2.965	2.153	1.190	3.416	**4.058**	**4.058**	2.767	1.033	2.766	3.015	3.015	2.593	1.146	3.493	**4.435**	**4.435**	3.323
14000	0.822	2.350	2.971	3.091	1.532	0.974	2.449	2.754	2.754	1.927	1.086	3.107	**3.769**	**3.769**	2.477	0.943	2.549	2.825	2.825	2.321	1.047	3.152	**4.119**	**4.119**	2.975
14500	0.754	2.139	2.741	2.873	1.377	0.892	2.253	2.560	2.560	1.732	0.995	2.831	3.504	3.504	2.226	0.863	2.353	2.651	2.651	2.086	0.960	2.856	**3.830**	**3.830**	2.673
15000	0.694	1.950	2.522	2.660	1.242	0.819	2.070	2.370	2.371	1.562	0.914	2.581	3.244	3.244	2.008	0.791	2.168	2.492	2.492	1.882	0.883	2.595	**3.546**	**3.546**	2.411

TABLE 7A:
Z SECTION
4 SPAN LAPPED
OUTWARD LOAD (kN/m)



Bolt capacity exceeded. M12 bolts for 100 - 250 series, M16 bolts for 300 series or greater.

BOLD **Grade 8.8 bolts required.**

3/SB **For Safebridge® system use data for 3 rows of bridging.**

Z 100 10

0	1	2	3/SB	Span
7.985	7.997	7.989	7.984	2000
5.045	5.050	5.044	5.039	2500
3.262	3.472	3.466	3.463	3000
2.030	2.429	2.429	2.430	3500
1.285	1.770	1.770	1.770	4000
0.839	1.317	1.348	1.348	4500
0.575	0.969	1.061	1.061	5000
0.414	0.723	0.856	0.856	5500
	0.542	0.701	0.706	6000
	0.423	0.599	0.653	6500
		0.477	0.551	7000
			0.459	7500

Z 100 12

0	1	2	3/SB	Span
9.852	9.868	9.858	9.852	2000
6.204	6.231	6.224	6.218	2500
3.895	4.284	4.276	4.273	3000
2.471	2.998	2.998	2.998	3500
1.609	2.162	2.184	2.184	4000
1.078	1.568	1.663	1.663	4500
0.752	1.166	1.309	1.309	5000
0.539	0.882	1.048	1.057	5500
	0.674	0.833	0.871	6000
	0.544	0.721	0.805	6500
	0.419	0.580	0.660	7000
		0.470	0.547	7500
			0.458	8000

Z 100 15

0	1	2	3/SB	Span
12.617	12.636	12.624	12.616	2000
7.652	7.980	7.970	7.963	2500
4.900	5.486	5.476	5.472	3000
3.187	3.795	3.839	3.839	3500
2.143	2.676	2.797	2.797	4000
1.460	1.962	2.130	2.130	4500
1.004	1.480	1.648	1.676	5000
0.719	1.139	1.297	1.353	5500
0.532	0.890	1.040	1.110	6000
0.411	0.740	0.914	0.995	6500
	0.569	0.745	0.821	7000
	0.442	0.613	0.686	7500
		0.508	0.578	8000
		0.424	0.491	8500
			0.420	9000

Z 100 19

0	1	2	3/SB	Span
17.528	**17.555**	**17.538**	**17.527**	2000
10.368	**11.087**	**11.072**	**11.063**	2500
6.558	7.621	7.608	7.602	3000
4.227	5.183	5.333	5.333	3500
2.831	3.635	3.886	3.886	4000
1.964	2.651	2.937	2.959	4500
1.366	1.989	2.250	2.328	5000
0.977	1.524	1.764	1.880	5500
0.724	1.187	1.409	1.520	6000
0.567	0.992	1.229	1.354	6500
0.443	0.776	0.998	1.114	7000
	0.606	0.819	0.927	7500
	0.479	0.678	0.779	8000
		0.565	0.660	8500
		0.474	0.563	9000
			0.483	9500
			0.416	10000
				10500
				11000
				11500

Z 150 12

0	1	2	3/SB	Span
13.224	**13.225**	**13.220**	**13.222**	2000
9.176	9.174	9.177	9.174	2500
6.745	6.745	6.745	6.745	3000
5.133	5.134	5.120	5.134	3500
3.936	4.007	4.006	4.010	4000
2.760	3.199	3.199	3.199	4500
1.914	2.575	2.575	2.575	5000
1.349	2.048	2.048	2.048	5500
0.982	1.613	1.668	1.668	6000
0.734	1.282	1.385	1.385	6500
0.568	1.015	1.168	1.168	7000
0.449	0.806	0.999	0.999	7500
	0.641	0.848	0.864	8000
	0.513	0.721	0.755	8500
	0.416	0.612	0.665	9000
		0.536	0.627	9500
		0.451	0.547	10000
			0.479	10500
			0.418	11000

Z 150 15

0	1	2	3/SB	Span
21.737	**21.737**	**21.737**	**21.737**	2000
14.387	**14.396**	**14.384**	**14.379**	2500
9.873	**9.889**	**9.878**	**9.873**	3000
7.027	7.198	7.189	7.183	3500
4.943	5.469	5.461	5.455	4000
3.530	4.293	4.286	4.282	4500
2.523	3.380	3.380	3.380	5000
1.821	2.613	2.688	2.688	5500
1.348	2.044	2.189	2.189	6000
1.006	1.621	1.818	1.818	6500
0.768	1.299	1.534	1.534	7000
0.599	1.048	1.285	1.311	7500
0.470	0.852	1.079	1.134	8000
	0.695	0.912	0.991	8500
	0.571	0.776	0.873	9000
	0.486	0.690	0.799	9500
	0.401	0.587	0.694	10000
		0.503	0.605	10500
		0.431	0.530	11000
			0.465	11500
			0.409	12000

Z 150 19

0	1	2	3/SB	Span
32.208	32.071	32.050	32.049	2000
20.276	**20.290**	**20.272**	**20.266**	2500
13.769	**13.936**	**13.922**	**13.914**	3000
9.475	**10.144**	**10.132**	**10.124**	3500
6.731	**7.707**	**7.697**	**7.688**	4000
4.876	**6.010**	**6.040**	**6.034**	4500
3.472	4.588	4.764	4.764	5000
2.478	3.536	3.788	3.788	5500
1.813	2.781	3.085	3.085	6000
1.349	2.222	2.522	2.562	6500
1.024	1.796	2.082	2.161	7000
0.794	1.465	1.739	1.848	7500
0.627	1.186	1.466	1.587	8000
0.504	0.962	1.246	1.363	8500
0.411	0.784	1.065	1.179	9000
	0.662	0.958	1.084	9500
	0.544	0.823	0.944	10000
	0.452	0.702	0.827	10500
		0.599	0.727	11000
		0.512	0.642	11500
		0.439	0.568	12000
			0.532	12500
			0.466	13000
			0.408	13500

Z 150 24

0	1	2	3/SB	Span
45.407	45.216	45.184	45.183	2000
28.585	28.604	28.578	28.570	2500
18.905	19.647	19.627	19.615	3000
12.923	**14.301**	**14.284**	**14.273**	3500
9.130	**10.865**	**10.851**	**10.839**	4000
6.600	**8.277**	**8.515**	**8.507**	4500
4.691	**6.298**	**6.716**	**6.716**	5000
3.356	**4.842**	**5.340**	**5.340**	5500
2.435	3.801	4.276	**4.350**	6000
1.816	3.033	3.473	3.611	6500
1.389	2.451	2.862	3.047	7000
1.086	2.002	2.386	2.575	7500
0.866	1.626	2.008	2.188	8000
0.702	1.326	1.704	1.876	8500
0.577	1.083	1.457	1.620	9000
0.490	0.903	1.310	1.486	9500
0.412	0.746	1.127	1.293	10000
	0.623	0.964	1.131	10500
	0.525	0.826	0.995	11000
	0.446	0.709	0.878	11500
		0.609	0.777	12000
		0.533	0.729	12500
		0.460	0.640	13000
		0.400	0.562	13500
			0.495	14000
			0.435	14500
				15000

Z 200 15

0	1	2	3/SB	Span
19.025	**19.026**	**19.019**	**19.025**	2000
13.392	**13.389**	**13.389**	**13.388**	2500
10.050	**10.051**	**10.050**	**10.050**	3000
7.824	**7.825**	**7.801**	**7.823**	3500
6.246	6.241	6.240	6.246	4000
5.081	5.081	5.081	5.081	4500
4.198	4.199	4.199	4.199	5000
3.248	3.516	3.517	3.517	5500
2.420	2.943	2.943	2.943	6000
1.814	2.444	2.444	2.444	6500
1.385	2.062	2.062	2.062	7000
1.078	1.743	1.763	1.763	7500
0.858	1.463	1.525	1.525	8000
0.694	1.237	1.332	1.332	8500
0.569	1.031	1.174	1.174	9000
0.485	0.886	1.114	1.114	9500
0.400	0.734	0.98	0.992	10000
	0.613	0.859	0.889	10500
	0.517	0.756	0.801	11000
	0.439	0.665	0.726	11500
		0.579	0.660	12000
		0.526	0.650	12500
		0.455	0.582	13000
			0.523	13500
			0.468	14000
			0.417	14500
				15000

Z 200 19

0	1	2	3/SB	Span
38.526	38.525	38.525	38.525	2000
26.689	26.686	26.692	26.691	2500
19.460	19.460	19.460	19.459	3000
14.687	**14.690**	**14.652**	**14.690**	3500
11.222	**11.229**	**11.214**	**11.203**	4000
8.411	**8.815**	**8.800**	**8.792**	4500
6.200	**6.940**	**6.941**	**6.940**	5000
4.602	**5.519**	**5.519**	**5.519**	5500
3.477	**4.495**	**4.495**	**4.495**	6000
2.653	3.732	3.732	3.732	6500
2.051	3.085	3.149	3.149	7000
1.605	2.543	2.693	2.693	7500
1.264	2.112	2.329	2.329	8000
1.014	1.764	2.035	2.035	8500
0.827	1.479	1.793	1.793	9000
0.693	1.294	1.654	1.701	9500
0.572	1.086	1.432	1.515	10000
0.477	0.916	1.245	1.357	10500
0.401	0.779	1.087	1.223	11000
	0.663	0.951	1.101	11500
	0.565	0.833	0.981	12000
	0.503	0.772	0.943	12500
	0.435	0.674	0.840	13000
		0.591	0.750	13500
		0.520	0.670	14000
		0.460	0.600	14500
		0.406	0.539	15000

Z 200 24

0	1	2	3/SB	Span
63.545	63.547	63.547	63.544	2000
43.039	43.069	43.031	43.017	2500
29.536	29.583	29.553	29.535	3000
21.506	21.533	21.508	21.490	3500
15.706	16.359	16.338	16.320	4000
11.689	12.843	12.821	12.810	4500
8.713	**10.112**	**10.112**	**10.112**	5000
6.503	**8.041**	**8.041**	**8.041**	5500
4.891	**6.449**	**6.549**	**6.549**	6000
3.716	**5.222**	**5.438**	**5.438**	6500
2.859	**4.286**	**4.588**	**4.588**	7000
2.202	**3.557**	**3.923**	**3.923**	7500
1.728	2.977	**3.384**	**3.394**	8000
1.378	2.510	2.903	2.964	8500
1.116	2.111	2.509	2.612	9000
0.934	1.840	2.303	2.479	9500
0.774	1.544	2.005	2.188	10000
0.649	1.298	1.753	1.932	10500
0.549	1.098	1.540	1.714	11000
0.468	0.925	1.357	1.527	11500
0.403	0.786	1.191	1.366	12000
	0.691	1.100	1.326	12500
	0.595	0.961	1.187	13000
	0.515	0.840	1.065	13500
	0.449	0.737	0.958	14000
		0.648	0.858	14500
		0.569	0.770	15000

Z 250 19

0	1	2	3/SB	Span
30.628	30.626	30.620	30.629	2000
21.734	21.730	21.735	21.733	2500
16.515	**16.516**	**16.516**	**16.514**	3000
13.045	**13.048**	**13.005**	**13.045**	3500
10.573	**10.563**	**10.560**	**10.573**	4000
8.727	**8.727**	**8.727**	**8.727**	4500
7.305	**7.309**	**7.308**	**7.307**	5000
6.128	**6.191**	**6.194**	**6.194**	5500
4.593	**5.305**	**5.301**	**5.305**	6000
3.469	**4.585**	**4.585**	**4.585**	6500
2.669	**3.971**	**3.971**	**3.971**	7000
2.069	3.396	3.396	3.395	7500
1.624	2.831	2.937	2.937	8000
1.299	2.354	2.566	2.566	8500
1.056	1.965	2.261	2.261	9000
0.881	1.704	2.145	2.145	9500
0.724	1.421	1.910	1.910	10000
0.601	1.193	1.671	1.711	10500
0.504	1.011	1.453	1.542	11000
0.426	0.854	1.267	1.397	11500
	0.726	1.107	1.272	12000
	0.645	1.016	1.266	12500
	0.557	0.883	1.125	13000
	0.484	0.771	1.001	13500
	0.420	0.677	0.893	14000
		0.597	0.798	14500
		0.524	0.714	15000

Z 250 24

0	1	2	3/SB	Span
61.800	61.802	61.789	61.790	2000
43.121	43.113	43.128	43.125	2500
31.947	31.946	31.947	31.947	3000
24.516	24.520	24.448	24.521	3500
19.301	19.286	19.285	19.301	4000
15.504	15.504	15.503	15.503	4500
11.582	12.670	12.662	12.658	5000
8.563	10.227	10.227	10.227	5500
6.378	**8.330**	**8.330**	**8.330**	6000
4.792	**6.917**	**6.917**	**6.916**	6500
3.657	**5.741**	**5.836**	**5.836**	7000
2.805	**4.747**	**4.990**	**4.990**	7500
2.192	**3.957**	**4.316**	**4.316**	8000
1.741	**3.319**	**3.771**	**3.771**	8500
1.404	2.768	**3.322**	**3.322**	9000
1.170	2.390	**3.082**	**3.153**	9500
0.966	1.989	**2.676**	**2.807**	10000
0.806	1.663	2.333	**2.515**	10500
0.678	1.398	2.042	2.267	11000
0.576	1.175	1.79	2.048	11500
0.494	0.996	1.563	1.828	12000
0.439	0.874	1.427	1.766	12500
	0.750	1.239	1.577	13000
	0.649	1.079	1.411	13500
	0.564	0.945	1.261	14000
	0.493	0.826	1.126	14500
	0.433	0.723	1.006	15000

Z 300 24

0	1	2	3/SB	Span
52.034	52.035	52.022	52.031	2000
37.106	**37.099**	**37.109**	**37.110**	2500
28.420	**28.419**	**28.421**	**28.419**	3000
22.664	**22.670**	**22.591**	**22.669**	3500
18.562	**18.541**	**18.539**	**18.561**	4000
15.483	**15.483**	**15.483**	**15.482**	4500
13.093	**13.099**	**13.099**	**13.097**	5000
11.209	**11.202**	**11.209**	**11.207**	5500
9.681	**9.683**	**9.675**	**9.683**	6000
8.435	**8.436**	**8.434**	**8.434**	6500
7.013	**7.401**	**7.403**	**7.403**	7000
5.634	6.540	6.540	6.540	7500
4.565	5.814	5.811	5.813	8000
3.728	5.189	5.189	5.189	8500
3.071	4.573	4.572	4.572	9000
2.598	4.214	4.339	4.339	9500
2.143	3.635	3.863	3.863	10000
1.775	3.148	3.462	3.462	10500
1.484	2.734	3.120	3.120	11000
1.252	2.379	2.826	2.826	11500
1.065	2.073	2.572	2.572	12000
0.941	1.915	2.533	2.606	12500
0.811	1.672	2.261	2.380	13000
0.702	1.467	2.023	2.182	13500
0.612	1.281	1.814	2.008	14000
0.536	1.125	1.629	1.854	14500
0.472	0.994	1.465	1.717	15000

Z 300 30

0	1	2	3/SB	Span
101.813	101.813	101.785	101.812	2000
71.613	71.597	71.619	71.617	2500
53.683	53.686	53.684	53.682	3000
41.740	41.748	41.620	41.748	3500
33.281	33.251	33.243	33.281	4000
27.044	27.044	27.043	27.040	4500
22.317	22.324	22.324	22.323	5000
18.681	18.673	18.682	18.680	5500
15.268	**15.819**	**15.811**	**15.819**	6000
12.208	**13.501**	**13.501**	**13.501**	6500
9.831	**11.483**	**11.483**	**11.483**	7000
7.933	**9.819**	**9.819**	**9.819**	7500
6.435	**8.493**	**8.493**	**8.493**	8000
5.147	**7.333**	**7.419**	**7.419**	8500
4.133	**6.331**	**6.537**	**6.537**	9000
3.433	**5.809**	**6.204**	**6.204**	9500
2.819	**5.050**	**5.523**	**5.523**	10000
2.340	4.412	**4.949**	**4.949**	10500
1.961	3.859	4.460	4.460	11000
1.659	3.369	3.988	4.040	11500
1.414	2.950	3.576	3.677	12000
1.253	2.701	3.494	3.726	12500
1.082	2.326	3.136	3.402	13000
0.940	2.005	2.824	3.108	13500
0.822	1.739	2.549	2.827	14000
0.722	1.516	2.302	2.579	14500
0.638	1.328	2.076	2.359	15000

Z 350 24

0	1	2	3/SB	Span
44.329	**44.329**	**44.317**	**44.329**	2000
31.848	**31.843**	**31.849**	**31.849**	2500
24.692	**24.692**	**24.692**	**24.691**	3000
20.001	**20.007**	**19.934**	**20.007**	3500
16.678	**16.657**	**16.653**	**16.677**	4000
14.181	**14.180**	**14.180**	**14.177**	4500
12.229	**12.236**	**12.236**	**12.234**	5000
10.676	**10.669**	**10.676**	**10.675**	5500
9.396	**9.399**	**9.390**	**9.400**	6000
8.336	**8.337**	**8.334**	**8.336**	6500
7.440	**7.438**	**7.441**	**7.441**	7000
6.678	**6.678**	**6.678**	**6.678**	7500
6.022	6.022	6.018	6.022	8000
5.455	5.453	5.453	5.455	8500
4.960	4.960	4.960	4.960	9000
4.731	4.785	4.784	4.787	9500
4.061	4.376	4.375	4.376	10000
3.424	4.014	4.013	4.014	10500
2.894	3.691	3.692	3.692	11000
2.465	3.406	3.406	3.406	11500
2.115	3.151	3.149	3.151	12000
1.912	3.107	3.221	3.222	12500
1.657	2.789	2.984	2.984	13000
1.446	2.510	2.767	2.767	13500
1.278	2.266	2.558	2.558	14000
1.134	2.049	2.355	2.362	14500
1.002	1.857	2.159	2.187	15000

Z 350 30

0	1	2	3/SB	Span
86.803	86.798	86.779	86.772	2000
61.988	61.977	61.993	61.995	2500
47.589	47.587	47.588	47.580	3000
38.060	38.072	37.937	38.072	3500
31.274	31.240	31.236	31.272	4000
26.176	26.175	26.175	26.172	4500
22.210	22.220	22.219	22.215	5000
19.074	19.062	19.074	19.072	5500
16.524	**16.528**	**16.514**	**16.527**	6000
14.439	**14.439**	**14.436**	**14.438**	6500
12.702	**12.699**	**12.703**	**12.704**	7000
11.249	**11.249**	**11.249**	**11.249**	7500
9.848	**10.019**	**10.014**	**10.019**	8000
8.263	**8.970**	**8.970**	**8.972**	8500
6.966	**7.973**	**7.973**	**7.973**	9000
6.135	**7.566**	**7.566**	**7.566**	9500
5.163	**6.736**	**6.736**	**6.736**	10000
4.347	**6.036**	**6.036**	**6.035**	10500
3.698	**5.439**	**5.439**	**5.439**	11000
3.174	**4.927**	**4.927**	**4.927**	11500
2.746	**4.410**	**4.484**	**4.485**	12000
2.477	**4.249**	**4.544**	**4.543**	12500
2.143	3.779	**4.149**	**4.149**	13000
1.868	3.370	**3.804**	**3.804**	13500
1.639	3.009	3.501	3.501	14000
1.434	2.691	3.232	3.232	14500
1.259	2.409	2.994	2.994	15000

Z 400 24

0	1	2	3/SB	Span
38.593	**38.591**	**38.581**	**38.591**	2000
27.799	**27.795**	**27.802**	**27.797**	2500
21.651	**21.651**	**21.650**	**21.646**	3000
17.643	**17.647**	**17.580**	**17.646**	3500
14.816	**14.798**	**14.794**	**14.816**	4000
12.701	**12.700**	**12.700**	**12.698**	4500
11.048	**11.055**	**11.055**	**11.053**	5000
9.735	**9.726**	**9.735**	**9.735**	5500
8.649	**8.652**	**8.642**	**8.652**	6000
7.747	**7.747**	**7.744**	**7.746**	6500
6.979	6.976	6.980	6.980	7000
6.322	6.321	6.322	6.322	7500
5.752	5.752	5.746	5.752	8000
5.255	5.253	5.253	5.255	8500
4.602	4.818	4.818	4.817	9000
3.809	4.650	4.648	4.651	9500
3.116	4.285	4.285	4.285	10000
2.575	3.959	3.960	3.959	10500
2.148	3.667	3.667	3.668	11000
1.808	3.405	3.406	3.405	11500
1.533	3.046	3.168	3.169	12000
1.353	2.934	3.222	3.223	12500
1.162	2.554	3.005	3.006	13000
1.005	2.206	2.808	2.808	13500
0.873	1.908	2.568	2.629	14000
0.763	1.659	2.326	2.465	14500
0.670	1.450	2.111	2.315	15000

Z 400 30

0	1	2	3/SB	Span
75.562	75.561	75.539	75.555	2000
54.220	54.208	54.223	54.197	2500
41.950	41.950	41.951	41.935	3000
33.889	33.898	33.776	33.895	3500
28.169	28.137	28.131	28.169	4000
23.870	23.868	23.868	23.866	4500
20.508	20.520	20.520	20.516	5000
17.836	**17.824**	**17.837**	**17.833**	5500
15.639	**15.642**	**15.628**	**15.643**	6000
13.824	**13.823**	**13.820**	**13.824**	6500
12.292	**12.290**	**12.294**	**12.294**	7000
10.996	**10.996**	**10.996**	**10.996**	7500
8.918	**9.885**	**9.877**	**9.884**	8000
7.050	**8.923**	**8.923**	**8.925**	8500
5.640	**8.094**	**8.094**	**8.094**	9000
4.673	**7.807**	**7.805**	**7.809**	9500
3.828	**7.121**	**7.120**	**7.120**	10000
3.168	**6.324**	**6.515**	**6.515**	10500
2.648	**5.475**	**5.945**	**5.945**	11000
2.232	**4.752**	**5.385**	**5.385**	11500
1.897	**4.131**	**4.902**	**4.902**	12000
1.677	3.700	**4.966**	**4.966**	12500
1.443	3.166	**4.532**	**4.535**	13000
1.250	2.725	**4.066**	**4.158**	13500
1.089	2.360	**3.646**	**3.827**	14000
0.954	2.054	3.268	**3.533**	14500
0.840	1.797	2.933	3.272	15000

TABLE 7B: Z SECTION 4 SPAN LAPPED INWARD LOAD (kN/m)

Z 100 10					Z 100 12					Z 100 15					Z 100 19					
0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	Span
7.985	7.997	7.989	7.984	9.951	9.341	9.868	9.858	9.851	12.092	11.326	12.637	12.624	12.616	15.311	**14.707**	**17.555**	**17.537**	**17.527**	19.617	2000
4.972	5.05	5.044	5.039	4.999	5.701	6.232	6.224	6.218	6.075	6.919	7.980	7.970	7.963	7.692	8.857	**11.087**	**11.073**	**11.062**	9.855	2500
3.324	3.472	3.466	3.463	2.849	3.810	4.284	4.276	4.273	3.462	4.634	5.485	5.476	5.472	4.383	5.873	7.621	7.608	7.602	5.616	3000
2.297	2.429	2.429	2.430	1.772	2.636	2.998	2.998	2.998	2.153	3.212	3.839	3.839	3.839	2.726	4.064	5.333	5.333	5.333	3.493	3500
1.655	1.770	1.770	1.770	1.175	1.904	2.184	2.184	2.184	1.428	2.327	2.797	2.797	2.797	1.808	2.946	3.881	3.886	3.886	2.317	4000
1.240	1.348	1.348	1.348	0.819	1.431	1.663	1.663	1.663	0.995	1.756	2.130	2.130	2.130	1.259	2.225	2.930	2.959	2.959	1.614	4500
0.955	1.061	1.061	1.061	0.593	1.107	1.309	1.309	1.309	0.720	1.366	1.676	1.676	1.676	0.912	1.733	2.286	2.328	2.328	1.168	5000
0.751	0.856	0.856	0.856	0.443	0.875	1.057	1.057	1.057	0.538	1.088	1.353	1.353	1.353	0.681	1.382	1.831	1.880	1.880	0.873	5500
0.600	0.706	0.706	0.706		0.703	0.871	0.871	0.871	0.412	0.882	1.110	1.116	1.116	0.522	1.123	1.496	1.550	1.550	0.669	6000
0.506	0.653	0.653	0.653		0.601	0.806	0.806	0.806		0.768	1.003	1.032	1.032	0.419	0.973	1.346	1.434	1.434	0.537	6500
0.410	0.551	0.551	0.551		0.492	0.680	0.680	0.680		0.633	0.839	0.871	0.871		0.809	1.125	1.208	1.210	0.428	7000
	0.471	0.471	0.471		0.407	0.581	0.582	0.582		0.526	0.711	0.745	0.745		0.678	0.953	1.022	1.035		7500
	0.408	0.408	0.408			0.496	0.503	0.503		0.441	0.609	0.640	0.644		0.572	0.815	0.874	0.895		8000
						0.426	0.439	0.439			0.526	0.554	0.563		0.486	0.704	0.755	0.782		8500
											0.457	0.482	0.496		0.416	0.613	0.657	0.685		9000
											0.401	0.423	0.439			0.536	0.575	0.601		9500
																0.472	0.507	0.531		10000
																0.418	0.449	0.471		10500
																		0.421		11000
																				11500

Bolt capacity exceeded. M12 bolts for 100 - 250 series, M16 bolts for 300 series or greater.

BOLD Grade 8.8 bolts required.

3/SB For Safebridge® system use data for 3 rows of bridging.

	Z 150 12					Z 150 15					Z 150 19					Z 150 24					Z 200 15					
Span	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	Span
2000	**13.224**	**13.224**	**13.220**	**13.223**	35.672	**21.653**	**21.737**	**21.737**	**21.737**	46.232	28.592	32.072	32.051	32.050	59.169	37.939	45.216	45.186	45.183	76.592	**19.025**	**19.025**	**19.020**	**19.026**	97.001	2000
2500	9.176	9.174	9.177	9.175	18.000	**12.806**	**14.397**	**14.384**	**14.380**	23.328	**16.801**	**20.290**	**20.272**	**20.265**	29.857	21.831	28.605	28.579	28.570	38.650	**13.391**	**13.389**	**13.393**	**13.392**	48.947	2500
3000	6.744	6.745	6.745	6.745	10.269	8.356	**9.889**	**9.878**	**9.873**	13.309	**10.870**	**13.936**	**13.922**	**13.914**	17.034	**13.639**	19.648	19.628	19.615	22.048	**10.050**	**10.050**	**10.051**	**10.049**	27.922	3000
3500	4.929	5.134	5.120	5.133	6.382	5.834	7.198	7.189	7.183	8.272	**7.453**	**10.144**	**10.132**	**10.124**	10.587	**9.163**	**14.301**	**14.284**	**14.273**	13.705	**7.824**	**7.825**	**7.802**	**7.825**	17.355	3500
4000	3.623	4.007	4.006	4.010	4.227	4.276	5.468	5.461	5.455	5.479	5.383	**7.707**	**7.697**	**7.689**	7.012	**6.503**	**10.811**	**10.851**	**10.839**	9.077	6.172	6.240	6.240	6.246	11.495	4000
4500	2.756	3.199	3.199	3.199	2.940	3.258	4.293	4.286	4.282	3.810	4.042	**6.050**	**6.040**	**6.034**	4.876	4.823	**8.318**	**8.515**	**8.507**	6.312	4.630	5.081	5.081	5.081	7.994	4500
5000	2.134	2.575	2.575	2.575	2.125	2.528	3.380	3.380	3.380	2.754	3.121	4.764	4.764	4.764	3.524	3.709	**6.454**	**6.716**	**6.716**	4.562	3.567	4.199	4.199	4.199	5.778	5000
5500	1.683	2.048	2.048	2.048	1.585	1.998	2.688	2.688	2.688	2.054	2.467	3.765	3.788	3.788	2.628	2.934	**5.078**	**5.340**	**5.340**	3.403	2.812	3.516	3.517	3.517	4.309	5500
6000	1.353	1.668	1.668	1.668	1.213	1.613	2.189	2.189	2.189	1.572	1.991	3.044	3.085	3.085	2.011	2.372	4.095	**4.349**	**4.349**	2.604	2.266	2.943	2.943	2.943	3.298	6000
6500	1.105	1.385	1.385	1.385	0.948	1.324	1.818	1.818	1.818	1.229	1.635	2.510	2.562	2.562	1.573	1.952	3.369	3.612	3.612	2.036	1.859	2.444	2.444	2.444	2.579	6500
7000	0.914	1.168	1.168	1.168	0.756	1.101	1.534	1.534	1.534	0.979	1.361	2.103	2.161	2.161	1.253	1.630	2.817	3.047	3.047	1.622	1.548	2.062	2.062	2.062	2.055	7000
7500	0.763	0.999	0.999	0.999	0.612	0.926	1.311	1.311	1.311	0.793	1.147	1.786	1.848	1.848	1.014	1.377	2.388	2.606	2.606	1.313	1.304	1.763	1.763	1.763	1.663	7500
8000	0.642	0.864	0.864	0.864	0.502	0.786	1.134	1.134	1.134	0.650	0.975	1.533	1.599	1.599	0.832	1.176	2.047	2.254	2.254	1.078	1.110	1.525	1.525	1.525	1.365	8000
8500	0.544	0.755	0.755	0.755	0.417	0.672	0.991	0.991	0.991	0.540	0.837	1.330	1.397	1.397	0.692	1.013	1.773	1.969	1.969	0.895	0.952	1.332	1.332	1.332	1.134	8500
9000	0.464	0.665	0.665	0.665		0.579	0.873	0.873	0.873	0.454	0.723	1.162	1.231	1.231	0.581	0.879	1.549	1.723	1.735	0.752	0.824	1.174	1.174	1.174	0.952	9000
9500	0.406	0.631	0.631	0.631		0.514	0.814	0.829	0.829		0.636	1.077	1.168	1.168	0.501	0.775	1.430	1.605	1.646	0.648	0.728	1.114	1.114	1.114	0.821	9500
10000		0.562	0.562	0.562		0.448	0.718	0.738	0.738		0.555	0.951	1.036	1.040	0.428	0.681	1.262	1.417	1.466	0.554	0.638	0.992	0.992	0.992	0.702	10000
10500		0.504	0.504	0.504			0.636	0.661	0.661		0.486	0.845	0.920	0.932		0.602	1.121	1.259	1.313	0.477	0.561	0.889	0.889	0.889	0.604	10500
11000		0.453	0.454	0.454			0.567	0.596	0.596		0.428	0.754	0.822	0.840		0.534	1.001	1.124	1.184	0.414	0.496	0.801	0.801	0.801	0.524	11000
11500		0.406	0.411	0.411			0.507	0.540	0.540			0.676	0.737	0.761		0.476	0.898	1.008	1.064		0.440	0.726	0.726	0.726	0.457	11500
12000							0.455	0.491	0.491			0.609	0.664	0.692		0.426	0.809	0.908	0.960			0.660	0.660	0.660	0.402	12000
12500							0.434	0.479	0.498			0.586	0.647	0.685			0.778	0.882	0.942			0.662	0.669	0.669		12500
13000								0.432	0.454			0.529	0.584	0.619			0.703	0.796	0.851			0.601	0.611	0.611		13000
13500									0.417			0.479	0.529	0.562			0.638	0.722	0.772			0.547	0.560	0.560		13500
14000												0.435	0.481	0.512			0.579	0.656	0.703			0.499	0.516	0.516		14000
14500													0.439	0.468			0.526	0.598	0.642			0.457	0.476	0.476		14500
15000													0.401	0.429			0.480	0.547	0.588			0.419	0.441	0.441		15000

	Z 200 19					Z 200 24					Z 250 19					Z 250 24					Z 300 24					
Span	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	Span
2000	38.525	38.525	38.527	38.527	130.394	62.413	63.545	63.545	63.545	168.189	30.628	30.627	30.620	30.621	216.202	61.803	61.801	61.789	61.800	284.886	52.032	52.037	52.020	52.031	488.302	2000
2500	26.096	26.686	26.691	26.691	65.800	35.673	43.071	43.032	43.019	84.873	21.734	21.730	21.735	21.736	109.095	43.121	43.114	43.125	43.121	143.756	**37.106**	**37.099**	**37.109**	**37.109**	246.400	2500
3000	**16.407**	19.461	19.460	19.460	37.537	21.834	29.583	29.552	29.535	48.415	**16.516**	**16.516**	**16.516**	**16.516**	62.235	27.712	31.948	31.947	31.947	82.011	**28.420**	**28.420**	**28.420**	**28.420**	140.561	3000
3500	**11.099**	**14.690**	**14.652**	**14.689**	23.331	**14.332**	21.533	21.507	21.490	30.094	**13.046**	**13.048**	**13.004**	**13.049**	38.684	17.919	24.522	24.448	24.519	50.975	**22.664**	**22.670**	**22.592**	**22.670**	87.372	3500
4000	**7.909**	**11.229**	**11.214**	**11.202**	15.453	**9.976**	16.359	16.338	16.321	19.931	**10.070**	**10.563**	**10.559**	**10.573**	25.620	**12.317**	19.286	19.281	19.302	33.761	**18.562**	**18.541**	**18.538**	**18.563**	57.867	4000
4500	**5.890**	**8.815**	**8.800**	**8.792**	10.746	**7.241**	12.843	12.820	12.810	13.861	**7.476**	**8.727**	**8.727**	**8.725**	17.818	**8.915**	15.504	15.504	15.505	23.480	**14.083**	**15.482**	**15.482**	**15.482**	40.241	4500
5000	4.523	**6.941**	**6.941**	**6.940**	7.767	**5.482**	**10.112**	**10.112**	**10.111**	10.019	**5.728**	**7.309**	**7.308**	**7.308**	12.878	**6.734**	12.671	12.664	12.656	16.969	**10.427**	**13.099**	**13.099**	**13.098**	29.086	5000
5500	3.561	**5.520**	**5.519**	**5.519**	5.793	4.287	**8.041**	**8.041**	**8.041**	7.471	4.497	**6.191**	**6.195**	**6.194**	9.604	**5.254**	10.228	10.227	10.228	12.655	7.953	**11.202**	**11.209**	**11.208**	21.693	5500
6000	2.871	**4.495**	**4.495**	**4.495**	4.433	3.437	**6.484**	**6.549**	**6.549**	5.718	3.612	**5.305**	**5.302**	**5.304**	7.350	4.207	**8.330**	**8.330**	**8.330**	9.685	6.234	**9.683**	**9.676**	**9.684**	16.601	6000
6500	2.359	3.732	3.733	3.732	3.467	2.813	**5.329**	**5.438**	**5.438**	4.472	2.957	**4.585**	**4.584**	**4.585**	5.748	3.437	**6.917**	**6.917**	**6.917**	7.574	5.009	**8.435**	**8.434**	**8.435**	12.983	6500
7000	1.969	3.149	3.149	3.149	2.762	2.34	**4.452**	**4.588**	**4.588**	3.562	2.460	**3.971**	**3.971**	**3.971**	4.579	2.856	**5.836**	**5.836**	**5.836**	6.034	4.107	**7.401**	**7.403**	**7.403**	10.343	7000
7500	1.664	2.693	2.693	2.693	2.236	1.974	**3.772**	**3.923**	**3.923**	2.883	2.072	3.396	3.396	3.396	3.706	2.406	**4.990**	**4.990**	**4.990**	4.884	3.424	6.540	6.540	6.540	8.371	7500
8000	1.418	2.329	2.329	2.329	1.835	1.684	3.233	**3.394**	**3.393**	2.366	1.765	2.937	2.937	2.937	3.042	2.050	**4.309**	**4.316**	**4.317**	4.008	2.895	5.814	5.811	5.814	6.870	8000
8500	1.220	2.035	2.035	2.035	1.524	1.450	2.800	2.964	2.965	1.966	1.518	2.566	2.566	2.566	2.527	1.765	**3.726**	**3.771**	**3.771**	3.330	2.477	5.189	5.189	5.189	5.707	8500
9000	1.057	1.793	1.793	1.793	1.280	1.260	2.446	2.612	2.612	1.651	1.315	2.261	2.261	2.261	2.122	1.532	**3.251**	**3.322**	**3.322**	2.796	2.142	4.573	4.572	4.572	4.792	9000
9500	0.933	1.688	1.701	1.701	1.104	1.110	2.266	2.479	2.479	1.423	1.160	2.145	2.145	2.145	1.830	1.347	**2.999**	**3.153**	**3.153**	2.411	1.875	4.336	4.339	4.339	4.133	9500
10000	0.820	1.490	1.515	1.515	0.943	0.978	2.002	2.207	2.207	1.216	1.019	1.910	1.910	1.910	1.564	1.186	**2.646**	**2.807**	**2.807**	2.060	1.648	3.815	3.863	3.863	3.532	10000
10500	0.725	1.324	1.357	1.357	0.812	0.867	1.780	1.977	1.977	1.048	0.900	1.711	1.711	1.711	1.347	1.050	2.349	**2.515**	**2.515**	1.774	1.459	3.379	3.462	3.462	3.041	10500
11000	0.643	1.183	1.223	1.223	0.704	0.772	1.591	1.782	1.782	0.909	0.799	1.542	1.542	1.542	1.168	0.935	2.097	2.267	2.267	1.539	1.299	3.011	3.120	3.120	2.638	11000
11500	0.574	1.063	1.108	1.108	0.615	0.691	1.430	1.614	1.614	0.793	0.712	1.397	1.397	1.397	1.019	0.836	1.882	2.053	2.053	1.343	1.163	2.698	2.826	2.826	2.303	11500
12000	0.514	0.958	1.008	1.009	0.540	0.621	1.291	1.463	1.469	0.696	0.638	1.269	1.272	1.272	0.895	0.750	1.696	1.869	1.869	1.180	1.047	2.429	2.572	2.572	2.022	12000
12500	0.472	0.923	1.022	1.022	0.489	0.566	1.251	1.443	1.489	0.630	0.585	1.222	1.288	1.288	0.810	0.682	1.582	1.893	1.893	1.068	0.951	2.340	2.606	2.606	1.830	12500
13000	0.426	0.835	0.933	0.933	0.433	0.513	1.132	1.309	1.359	0.559	0.527	1.104	1.177	1.177	0.718	0.617	1.464	1.729	1.729	0.947	0.863	2.115	2.380	2.380	1.623	13000
13500		0.758	0.856	0.856		0.465	1.027	1.191	1.246	0.498	0.475	1.000	1.079	1.079	0.640	0.560	1.326	1.585	1.585	0.843	0.786	1.920	2.182	2.182	1.445	13500
14000		0.690	0.787	0.787		0.424	0.935	1.087	1.147	0.445	0.430	0.909	0.993	0.993	0.572	0.510	1.205	1.450	1.459	0.754	0.718	1.748	2.008	2.008	1.293	14000
14500		0.630	0.724	0.727			0.853	0.995	1.059	0.400		0.829	0.917	0.917	0.514	0.465	1.098	1.326	1.347	0.677	0.658	1.598	1.854	1.854	1.161	14500
15000		0.576	0.664	0.673			0.781	0.914	0.975			0.757	0.849	0.849	0.463	0.425	1.003	1.216	1.248	0.611	0.605	1.465	1.717	1.717	1.046	15000

	Z 300 30					Z 350 24					Z 350 30					Z 400 24					Z 400 30					
Span	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	Span
2000	101.815	101.813	101.788	101.811	631.258	**44.329**	**44.327**	**44.317**	**44.329**	793.901	55.422	55.424	55.421	55.423	804.637	**38.592**	**38.592**	**38.582**	**38.592**	956.262	75.564	75.561	75.539	75.557	1225.408	2000
2500	71.612	71.598	71.616	71.618	318.539	**31.848**	**31.843**	**31.850**	**31.841**	400.605	**43.079**	**43.076**	**43.073**	**43.079**	411.957	**27.799**	**27.793**	**27.802**	**27.802**	482.526	54.217	54.207	54.224	54.202	618.379	2500
3000	53.685	53.685	53.685	53.685	181.722	**24.691**	**24.692**	**24.692**	**24.687**	228.532	**34.729**	**34.728**	**34.725**	**34.725**	238.404	**21.651**	**21.650**	**21.651**	**21.651**	275.28	41.954	41.951	41.949	41.943	352.759	3000
3500	38.691	41.748	41.621	41.747	112.950	**20.001**	**20.007**	**19.933**	**20.006**	142.052	**28.700**	**28.700**	**28.702**	**28.698**	150.133	**17.642**	**17.648**	**17.580**	**17.646**	171.101	33.890	33.900	33.776	33.899	219.272	3500
4000	**25.012**	33.252	33.245	33.280	74.807	**16.677**	**16.656**	**16.653**	**16.677**	94.080	**24.151**	**24.15**	**24.151**	**24.151**	100.577	**14.816**	**14.797**	**14.795**	**14.817**	113.318	28.170	28.136	28.130	28.170	145.225	4000
4500	**17.214**	27.044	27.043	27.042	52.022	**14.181**	**14.180**	**14.180**	**14.179**	65.424	**20.608**	**20.609**	**20.609**	**20.61**	70.637	**12.701**	**12.701**	**12.700**	**12.699**	78.809	22.721	23.869	23.868	23.867	100.990	4500
5000	**12.467**	22.324	22.325	22.322	37.602	**12.228**	**12.236**	**12.235**	**12.234**	47.290	**17.444**	**17.784**	**17.783**	**17.783**	51.495	**11.048**	**11.054**	**11.054**	**11.054**	56.961	16.397	20.520	20.519	20.516	72.992	5000
5500	**9.397**	18.672	18.681	18.681	28.042	**10.676**	**10.668**	**10.676**	**10.675**	35.267	**13.183**	**15.479**	**15.474**	**15.464**	38.690	**9.735**	**9.727**	**9.735**	**9.735**	42.480	**12.319**	**17.824**	**17.836**	**17.834**	54.438	5500
6000	7.313	**15.819**	**15.811**	**15.818**	21.461	**9.071**	**9.399**	**9.389**	**9.400**	26.990	**10.299**	**13.605**	**13.604**	**13.604**	29.801	**8.529**	**8.652**	**8.641**	**8.652**	32.508	**9.558**	**15.643**	**15.628**	**15.644**	41.660	6000
6500	5.840	**13.501**	**13.501**	**13.502**	16.784	7.189	**8.337**	**8.334**	**8.337**	21.108	**8.252**	**12.024**	**12.022**	**12.017**	23.439	6.823	**7.747**	**7.745**	**7.746**	25.424	**7.614**	**13.824**	**13.820**	**13.823**	32.579	6500
7000	4.764	**11.483**	**11.483**	**11.483**	13.370	5.823	**7.437**	**7.441**	**7.441**	16.815	6.696	**10.707**	**10.707**	**10.707**	18.766	5.573	6.975	6.979	6.979	20.254	6.197	**12.289**	**12.294**	**12.295**	25.955	7000
7500	3.956	**9.764**	**9.819**	**9.819**	10.822	4.804	**6.678**	**6.678**	**6.678**	13.610	5.505	**9.580**	**9.5770**	**9.575**	15.258	4.632	6.322	6.322	6.322	16.393	5.135	**10.997**	**10.996**	**10.996**	21.008	7500
8000	3.335	**8.338**	**8.493**	**8.493**	8.882	4.026	6.022	6.018	6.022	11.170	4.603	**8.621**	**8.621**	**8.621**	12.572	3.905	5.752	5.746	5.752	13.454	4.320	**9.885**	**9.878**	**9.884**	17.241	8000
8500	2.847	**7.193**	**7.419**	**7.419**	7.378	3.425	5.453	5.453	5.454	9.279	3.905	**7.790**	**7.789**	**7.788**	10.482	3.334	5.253	5.253	5.255	11.176	3.682	**8.924**	**8.924**	**8.926**	14.322	8500
9000	2.457	**6.260**	**6.537**	**6.537**	6.195	2.955	4.960	4.960	4.960	7.791	3.354	**7.049**	**7.049**	**7.049**	8.830	2.876	4.818	4.818	4.817	9.385	3.172	**8.094**	**8.094**	**8.094**	12.027	9000
9500	2.152	**5.786**	**6.204**	**6.204**	5.343	2.625	4.785	4.784	4.786	6.719	2.905	**6.326**	**6.327**	**6.326**	7.508	2.511	4.650	4.647	4.651	8.093	2.771	**7.808**	**7.805**	**7.809**	10.371	9500
10000	1.890	**5.092**	**5.523**	**5.523**	4.566	2.295	4.375	4.375	4.376	5.742	2.528	**5.710**	**5.710**	**5.710**	6.437	2.204	4.285	4.284	4.285	6.916	2.431	**7.121**	**7.119**	**7.121**	8.863	10000
10500	1.673	4.511	**4.949**	**4.949**	3.932	2.023	4.013	4.013	4.013	4.945	2.219	**5.179**	**5.179**	**5.179**	5.561	1.949	3.959	3.959	3.960	5.956	2.149	**6.445**	**6.515**	**6.515**	7.633	10500
11000	1.490	4.021	4.460	4.460	3.410	1.796	3.691	3.692	3.692	4.289	1.962	4.719	4.719	4.719	4.836	1.733	3.667	3.667	3.667	5.166	1.912	**5.722**	**5.945**	**5.945**	6.620	11000
11500	1.335	3.603	4.040	4.040	2.977	1.605	3.406	3.406	3.406	3.744	1.747	4.317	4.317	4.317	4.232	1.550	3.405	3.406	3.406	4.509	1.710	**5.097**	**5.385**	**5.386**	5.778	11500
12000	1.202	3.245	3.677	3.677	2.614	1.442	3.151	3.150	3.151	3.287	1.564	3.930	3.965	3.965	3.725	1.393	3.169	3.167	3.169	3.959	1.538	**4.563**	**4.901**	**4.902**	5.074	12000
12500	1.096	3.113	3.725	3.725	2.366	1.307	3.116	3.221	3.222	2.976	1.408	3.573	3.654	3.654	3.296	1.264	3.223	3.222	3.223	3.585	1.399	**4.319**	**4.966**	**4.966**	4.594	12500
13000	0.996	2.808	3.387	3.402	2.098	1.183	2.824	2.984	2.984	2.638	1.274	3.259	3.379	3.379	2.930	1.146	2.945	3.005	3.006	3.178	1.270	**3.884**	**4.535**	**4.535**	4.072	13000
13500	0.908	2.543	3.087	3.120	1.869	1.076	2.570	2.767	2.767	2.350	1.157	2.981	3.133	3.133	2.616	1.043	2.679	2.808	2.808	2.830	1.157	3.507	**4.158**	**4.158**	3.627	13500
14000	0.831	2.313	2.825	2.871	1.671	0.982	2.347	2.558	2.558	2.102	1.055	2.736	2.913	2.913	2.346	0.952	2.445	2.629	2.628	2.532	1.058	3.180	**3.827**	**3.826**	3.244	14000
14500	0.763	2.110	2.593	2.650	1.501	0.899	2.152	2.362	2.362	1.888	0.966	2.517	2.716	2.716	2.111	0.872	2.239	2.465	2.465	2.274	0.970	2.893	**3.533**	**3.533**	2.914	14500
15000	0.702	1.932	2.388	2.455	1.353	0.826	1.979	2.188	2.188	1.701	0.887	2.322	2.538	2.538	1.907	0.801	2.057	2.315	2.315	2.049	0.892	2.636	3.272	3.272	2.626	15000

C & Z SECTION CANTILEVER 1000 OUTWARDS LOADING

Data is available for spans 2,000 to 20,000, please contact your local Metroll branch.

Bolt capacity exceeded. M12 bolts for 100 - 250 series, M16 bolts for 300 series or greater.

BOLD **Grade 8.8 bolts required.**

3/SB **For Safebridge® system use data for 3 rows of bridging.**

TABLE 8A: C SECTION OUTWARDS

Span	C 100 10				C 100 12				C 100 15				C 100 19			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
3000	2.205	2.529	2.529	2.529	2.631	3.069	3.068	3.069	3.425	3.995	3.995	3.996	4.608	5.514	5.566	5.567
4500	0.471	0.846	0.983	0.983	0.598	1.011	1.192	1.193	0.811	1.321	1.520	1.553	1.110	1.784	2.092	2.163
6000	0.163	0.300	0.474	0.529	0.298	0.381	0.563	0.640	0.275	0.524	0.729	0.802	0.389	0.725	0.987	1.099

Span	C 150 12				C 150 15				C 150 19				C 150 24				C 200 15			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
3000	5.261	5.209	5.208	5.209	6.938	6.869	6.868	6.870	9.464	9.721	9.720	9.722	**13.042**	**13.790**	**13.788**	**13.791**	8.453	8.453	8.453	8.455
4500	1.476	2.030	2.024	2.024	2.973	2.677	2.669	2.669	2.750	3.666	3.777	3.777	3.768	5.066	5.358	5.358	3.526	3.739	3.729	3.729
6000	0.509	0.945	1.089	1.089	0.689	1.218	1.436	1.436	0.930	1.680	2.002	2.031	1.269	2.294	2.772	2.882	1.289	2.008	2.006	2.005
																	0.455	0.869	1.100	1.101

Span	C 200 19				C 200 24				C 250 19				C 250 24				C 300 24			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
3000	**14.738**	**14.593**	**14.591**	**14.593**	21.074	20.866	20.864	20.867	**13.944**	**13.944**	**13.945**	**13.943**	26.666	26.535	26.531	26.536	**24.065**	**24.066**	**24.065**	**24.065**
4500	5.018	5.686	5.671	5.670	6.988	8.130	8.108	8.108	6.719	7.171	7.151	7.151	**9.288**	**10.339**	**10.311**	**10.311**	14.447	14.449	14.410	14.409
6000	1.931	2.957	3.051	3.049	2.643	4.062	4.363	4.361	2.502	3.851	3.848	3.846	3.393	5.442	5.548	5.545	6.772	7.760	7.753	7.750
8000	0.650	1.268	1.664	1.674	0.873	1.771	2.276	2.394	0.830	1.671	2.110	2.111	1.101	2.306	3.043	3.044	2.568	4.145	4.252	4.254
10000																	1.073	2.152	2.690	2.691
12000																	0.531	1.159	1.725	1.857
15000																	0.230	0.487	0.872	1.100

Span	C 300 30				C 350 24				C 350 30				C 400 24				C 400 30			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
2000	45.090	45.091	45.091	45.088	21.000	21.000	21.000	21.002	**40.310**	**40.308**	**40.309**	**40.317**	18.448	18.448	18.447	18.449	**35.650**	**35.648**	**35.648**	**35.653**
4500	**20.589**	**20.619**	**20.564**	**20.562**	15.006	15.006	15.006	15.006	**25.029**	**25.032**	**24.965**	**24.964**	13.121	13.121	13.122	13.121	**25.527**	**25.527**	**25.528**	**25.528**
6000	9.535	11.074	11.064	11.059	9.778	9.824	9.815	9.810	13.434	13.443	13.432	13.426	9.653	10.079	10.080	10.080	13.525	**14.694**	**14.681**	**14.674**
8000	3.405	5.722	6.068	6.071	4.676	5.386	5.383	5.385	6.135	7.371	7.367	7.370	3.783	5.712	5.882	5.885	4.665	8.056	8.051	8.055
10000	1.435	3.069	3.796	3.840	2.210	3.298	3.405	3.407	2.877	4.591	4.660	4.662	1.565	3.163	3.721	3.723	1.944	4.284	5.094	5.096
12000	0.720	1.558	2.411	2.650	1.160	2.075	2.350	2.351	1.487	2.751	3.217	3.217	0.768	1.721	2.412	2.569	0.962	2.128	3.454	3.517
15000	0.317	0.656	1.223	1.537	0.501	1.007	1.406	1.497	0.632	1.307	1.928	2.049	0.326	0.712	1.332	1.538	0.414	0.887	1.685	2.203

TABLE 9A: Z SECTION OUTWARDS

Span	Z 100 10				Z 100 12				Z 100 15				Z 100 19			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
3000	2.205	2.529	2.529	2.529	2.673	3.120	3.120	3.121	3.425	3.995	3.995	3.996	4.561	5.468	5.551	5.552
4500	0.471	0.846	0.983	0.983	0.611	1.028	1.213	1.212	0.811	1.321	1.520	1.553	1.088	1.765	2.074	2.157
6000	0.163	0.300	0.474	0.529	0.205	0.390	0.572	0.648	0.275	0.524	0.729	0.802	0.382	0.710	0.977	1.090

Span	Z 150 12				Z 150 15				Z 150 19				Z 150 24				Z 200 15			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
3000	5.414	5.360	5.360	5.360	7.106	7.036	7.035	7.036	9.568	9.916	9.914	9.916	**13.100**	**13.979**	**13.977**	**13.979**	8.438	8.438	8.438	8.438
4500	1.495	2.089	2.083	2.083	1.997	2.742	2.734	2.734	2.755	3.708	3.853	3.853	3.750	5.090	5.432	5.432	3.491	3.686	3.676	3.676
6000	0.519	0.958	1.121	1.120	0.698	1.230	1.471	1.470	0.923	1.704	2.024	2.072	1.259	2.325	2.784	2.921	1.281	1.980	1.978	1.977
																	0.455	0.863	1.085	1.085

Span	Z 200 19				Z 200 24				Z 250 19				Z 250 24				Z 300 24			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
3000	**14.591**	**14.447**	**14.446**	**14.448**	21.257	21.048	21.045	21.050	**13.933**	**13.933**	**13.933**	**13.933**	26.694	26.694	26.696	26.694	**24.050**	**24.050**	**24.050**	**24.052**
4500	5.001	5.629	5.614	5.614	7.059	8.201	8.179	8.179	6.702	7.098	7.079	7.079	**9.381**	**10.432**	**10.404**	**10.403**	14.354	14.357	14.318	14.317
6000	1.919	2.945	3.021	3.019	2.675	4.097	4.401	4.399	2.500	3.812	3.809	3.807	3.430	5.488	5.598	5.595	6.752	7.710	7.703	7.700
8000	0.652	1.262	1.657	1.657	0.882	1.794	2.295	2.415	0.833	1.664	2.089	2.090	1.112	2.335	3.070	3.071	2.557	4.130	4.225	4.227
10000																	1.077	2.144	2.673	2.674
12000																	0.534	1.154	1.719	1.845
15000																	0.230	0.489	0.867	1.096

Span	Z 300 30				Z 350 24				Z 350 30				Z 400 24				Z 400 30			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
3000	45.052	45.053	45.053	45.055	21.000	21.000	21.000	21.002	40.310	40.308	40.309	40.317	18.448	18.448	18.447	18.449	**35.650**	**35.648**	**35.648**	**35.653**
4500	**20.486**	**20.527**	**20.471**	**20.470**	15.006	15.006	15.006	15.006	**25.029**	**25.032**	**24.965**	**24.964**	13.121	13.121	13.122	13.121	**25.527**	**25.527**	**25.528**	**25.528**
6000	9.403	11.024	11.014	11.009	9.778	9.824	9.815	9.810	13.434	13.443	13.432	13.426	9.653	10.079	10.080	10.080	13.525	**14.694**	**14.681**	**14.674**
8000	3.418	5.689	6.041	6.043	4.676	5.386	5.383	5.385	6.135	7.371	7.367	7.370	3.783	5.712	5.882	5.885	4.665	8.056	8.051	8.055
10000	1.440	3.054	3.776	3.823	2.210	3.298	3.405	3.407	2.877	4.591	4.660	4.662	1.565	3.163	3.721	3.723	1.944	4.284	5.094	5.096
12000	0.722	1.563	2.396	2.638	1.160	2.075	2.350	2.351	1.487	2.751	3.217	3.217	0.768	1.721	2.412	2.569	0.962	2.128	3.454	3.517
15000	0.318	0.658	1.227	1.527	0.501	1.007	1.406	1.497	0.632	1.307	1.928	2.049	0.326	0.712	1.332	1.538	0.414	0.887	1.685	2.203

C & Z SECTION CANTILEVER 1000 INWARDS LOADING

Data is available for spans 2,000 to 20,000, please contact your local Metroll branch.

Bolt capacity exceeded. M12 bolts for 100 - 250 series, M16 bolts for 300 series or greater.

BOLD **Grade 8.8 bolts required.**

3/SB **For Safebridge® system use data for 3 rows of bridging.**

TABLE 8B: C SECTION INWARDS

C 100 10					C 100 12					C 100 15					C 100 19					
0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	Span
2.554	2.529	2.529	2.529	0.889	3.099	3.069	3.068	3.069	1.074	3.806	3.996	3.995	3.996	1.368	4.999	5.556	5.565	5.567	1.762	**3000**
0.985	0.985	0.983	0.983	0.889	1.196	1.196	1.193	1.192	0.184	1.458	1.557	1.553	1.553	0.234	1.900	2.169	2.163	2.163	0.302	**4500**
0.529	0.529	0.529	0.528	0.056	0.642	0.642	0.642	0.641	0.068	0.776	0.836	0.835	0.835	0.087	1.006	1.155	1.164	1.163	0.112	**6000**

	C 150 12					C 150 15					C 150 19					C 150 24					C 200 15					
	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	
3000	5.261	5.209	5.208	5.209	3.087	6.938	6.869	6.868	6.870	4.011	9.069	9.721	9.719	9.721	5.135	**11.944**	**13.790**	**13.788**	**13.790**	6.650	8.453	8.453	8.453	8.454	8.439	**3000**
4500	2.029	2.030	2.024	2.024	0.528	2.611	2.677	2.669	2.669	0.686	3.370	3.788	3.777	3.777	0.879	4.330	5.373	5.358	5.358	1.138	3.739	3.739	3.729	3.729	1.444	**4500**
6000	1.089	1.090	1.089	1.089	0.196	1.373	1.437	1.436	1.436	0.255	1.761	2.034	2.032	2.031	0.422	2.226	2.805	2.883	2.882	0.422	1.989	2.008	2.006	2.005	0.536	**6000**
																					1.068	1.101	1.100	1.101	0.212	**8000**

	C 200 19					C 200 24					C 250 19					C 250 24					C 300 24					
	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	
3000	**14.493**	**14.593**	**14.591**	**14.594**	11.324	19.323	20.866	20.863	20.867	14.549	**13.944**	**13.944**	**13.944**	**13.943**	18.789	25.664	26.536	26.531	26.536	24.643	**24.065**	**24.066**	**24.063**	**24.064**	42.435	**3000**
4500	5.212	5.686	5.671	5.670	1.938	6.859	8.130	8.108	8.108	2.490	6.906	7.171	7.151	7.151	3.215	8.956	**10.339**	**10.311**	**10.311**	4.217	13.303	14.449	14.410	14.409	7.261	**4500**
6000	2.657	3.054	3.051	3.050	0.719	3.412	4.366	4.363	4.360	0.924	3.488	3.851	3.847	3.846	1.193	4.370	5.553	5.548	5.545	1.565	6.333	7.760	7.753	7.749	2.694	**6000**
8000	1.388	1.674	1.673	1.674	0.285	1.735	2.314	2.393	2.394	0.366	1.810	2.111	2.110	2.111	0.473	2.187	3.044	3.043	3.044	0.620	3.085	4.254	4.252	4.254	1.068	**8000**
10000																					1.792	2.691	2.690	2.691	0.532	**10000**
12000																					1.159	1.785	1.857	1.857	0.304	**12000**
15000																					0.688	1.076	1.182	1.183	0.154	**15000**

	C 300 30					C 350 24					C 350 30					C 400 24					C 400 30					
	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	
2000	45.090	45.092	45.089	45.091	54.837	21.000	21.000	21.001	20.996	68.916	**40.310**	**40.310**	**40.310**	**40.309**	88.594	18.448	18.449	18.447	18.448	83.012	**35.648**	**35.649**	**35.648**	**35.644**	106.374	**2000**
4500	**17.982**	**20.619**	**20.564**	**20.563**	9.384	15.006	15.006	15.006	15.006	11.793	**24.537**	**25.033**	**24.965**	**24.963**	15.160	13.121	13.121	13.121	13.121	14.205	**25.210**	**25.528**	**25.528**	**25.528**	18.203	**4500**
6000	8.258	11.074	11.064	11.059	3.482	8.840	9.824	9.815	9.810	4.376	11.419	13.444	13.431	13.426	5.625	9.054	10.080	10.079	10.079	5.270	11.163	**14.694**	**14.681**	**14.674**	6.754	**6000**
8000	3.676	5.989	6.068	6.071	1.380	4.313	5.386	5.383	5.385	1.734	5.113	7.371	7.366	7.370	2.229	4.454	5.885	5.882	5.885	2.088	4.878	8.056	8.051	8.055	2.676	**8000**
10000	2.036	3.592	3.839	3.841	0.688	2.371	3.407	3.405	3.407	0.864	2.820	4.663	4.661	4.662	1.111	2.486	3.648	3.721	3.723	1.041	2.687	5.096	5.094	5.096	1.334	**10000**
12000	1.287	2.365	2.637	2.650	0.392	1.487	2.281	2.350	2.351	0.493	1.743	3.092	3.217	3.218	0.634	1.577	2.428	2.568	2.569	0.594	1.692	3.328	3.516	3.517	0.761	**12000**
15000	0.751	1.399	1.598	1.688	0.199	0.860	1.385	1.497	1.497	0.250	0.995	1.797	2.048	2.049	0.321	0.923	1.478	1.621	1.636	0.301	0.984	1.933	2.239	2.239	0.385	**15000**

TABLE 9B: Z SECTION INWARDS

Z 100 10					Z 100 12					Z 100 15					Z 100 19					
0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	Span
2.554	2.529	2.529	2.529	0.889	3.151	3.120	3.120	3.121	1.080	3.806	3.996	3.995	3.996	1.368	4.972	5.552	5.551	5.552	1.753	**3000**
0.985	0.985	0.983	0.983	0.152	1.216	1.216	1.213	1.213	0.185	1.458	1.557	1.553	1.553	0.234	1.891	2.163	2.157	2.157	0.300	**4500**
0.529	0.529	0.529	0.528	0.056	0.649	0.653	0.652	0.652	0.069	0.776	0.836	0.835	0.835	0.087	1.002	1.149	1.161	1.160	0.111	**6000**

	Z 150 12					Z 150 15					Z 150 19					Z 150 24					Z 200 15					
	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	
3000	5.413	5.360	5.360	5.361	3.097	7.036	7.036	7.035	7.036	4.013	9.195	9.916	9.914	9.916	5.136	**12.079**	**13.979**	**13.978**	**13.980**	6.649	8.438	8.438	8.438	8.439	8.420	**3000**
4500	2.088	2.089	2.083	2.083	0.530	2.642	2.742	2.734	2.734	0.687	3.420	3.864	3.853	3.853	0.879	4.396	5.441	5.432	5.432	1.138	3.685	3.686	3.676	3.676	1.441	**4500**
6000	1.121	1.122	1.121	1.120	0.197	1.390	1.472	1.471	1.470	0.255	1.789	2.075	2.073	2.072	0.326	2.267	2.817	2.923	2.921	0.422	1.967	1.980	1.978	1.977	0.535	**6000**
																					1.056	1.085	1.085	1.085	0.212	**8000**

	Z 200 19					Z 200 24					Z 250 19					Z 250 24					Z 300 24					
	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	
3000	**14.426**	**14.447**	**14.446**	**14.448**	11.319	19.479	21.049	21.046	21.049	14.600	**13.934**	**13.934**	**13.932**	**13.935**	18.767	25.864	26.694	26.693	26.692	24.732	**24.051**	**24.050**	**24.049**	**24.050**	42.388	**3000**
4500	5.188	5.629	5.614	5.614	1.937	6.918	8.202	8.179	8.179	2.498	6.878	7.098	7.079	7.079	3.212	**9.011**	**10.432**	**10.404**	**10.403**	4.232	13.247	14.357	14.318	14.318	7.254	**4500**
6000	2.644	3.023	3.021	3.019	0.719	3.434	4.405	4.401	4.399	0.927	3.473	3.812	3.809	3.807	1.192	4.399	5.603	5.597	5.595	1.570	6.305	7.710	7.703	7.700	2.691	**6000**
8000	1.381	1.658	1.657	1.657	0.285	1.747	2.329	2.413	2.415	0.367	1.800	2.090	2.089	2.090	0.472	2.203	3.071	3.070	3.071	0.622	3.063	4.227	4.225	4.227	1.066	**8000**
10000																					1.783	2.674	2.673	2.674	0.532	**10000**
12000																					1.151	1.777	1.845	1.845	0.303	**12000**
15000																					0.687	1.072	1.175	1.175	0.154	**15000**

	Z 300 30					Z 350 24					Z 350 30					Z 400 24					Z 400 30					
	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	
3000	45.054	45.056	45.054	45.055	54.801	21.000	21.000	21.001	20.996	68.916	**40.310**	**40.310**	**40.310**	**40.309**	88.594	18.448	18.449	18.447	18.448	83.012	**35.648**	**35.649**	**35.648**	**35.644**	106.374	**3000**
4500	**17.903**	**20.527**	**20.471**	**20.470**	9.377	15.006	15.006	15.006	15.006	11.793	**24.537**	**25.033**	**24.965**	**24.963**	15.160	13.121	13.121	13.121	13.121	14.205	**25.210**	**25.528**	**25.528**	**25.528**	18.203	**4500**
6000	8.267	11.024	11.014	11.009	3.479	8.840	9.824	9.815	9.810	4.376	11.419	13.444	13.431	13.426	5.625	9.054	10.080	10.079	10.079	5.270	11.163	**14.694**	**14.681**	**14.674**	6.754	**6000**
8000	3.678	5.955	6.041	6.043	1.379	4.313	5.386	5.383	5.385	1.734	5.113	7.371	7.366	7.370	2.229	4.454	5.885	5.882	5.885	2.088	4.878	8.056	8.051	8.055	2.676	**8000**
10000	2.037	3.569	3.821	3.823	0.687	2.371	3.407	3.405	3.407	0.864	2.820	4.663	4.661	4.662	1.111	2.486	3.648	3.721	3.723	1.041	2.687	5.096	5.094	5.096	1.334	**10000**
12000	1.287	2.348	2.623	2.638	0.392	1.487	2.281	2.350	2.351	0.493	1.743	3.092	3.217	3.218	0.634	1.577	2.428	2.568	2.569	0.594	1.692	3.328	3.516	3.517	0.761	**12000**
15000	0.751	1.392	1.588	1.680	0.199	0.860	1.385	1.497	1.497	0.250	0.995	1.797	2.048	2.049	0.321	0.923	1.478	1.621	1.636	0.301	0.984	1.933	2.239	2.239	0.385	**15000**

C & Z SECTION CANTILEVER 2000 OUTWARDS LOADING

Data is available for spans 2,000 to 20,000, please contact your local Metroll branch.

Bolt capacity exceeded. M12 bolts for 100 - 250 series, M16 bolts for 300 series or greater.

BOLD **Grade 8.8 bolts required.**

3/SB **For Safebridge® system use data for 3 rows of bridging.**

TABLE 10A: C SECTION OUTWARDS

Span	C 100 10				C 100 12				C 100 15				C 100 19			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
3000	1.124	1.124	1.124	1.124	1.364	3.364	1.364	1.364	1.776	1.776	1.776	1.776	2.474	2.473	2.473	2.473
4500	0.711	1.092	1.124	1.124	0.894	1.285	1.364	1.364	1.243	1.632	1.776	1.776	1.690	2.473	2.474	2.473
6000	0.206	0.371	0.575	0.632	0.255	0.469	0.682	0.767	0.347	0.648	0.879	0.964	0.489	0.896	1.192	1.323

Span	C 150 12				C 150 15				C 150 19				C 150 24				C 200 15			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
3000	2.315	2.315	2.315	2.315	3.053	3.053	3.053	3.053	4.320	4.320	4.320	4.320	6.128	6.128	6.128	6.128	4.173	4.173	4.173	4.173
4500	2.112	2.288	2.288	2.289	2.686	3.053	3.052	3.053	3.672	4.320	4.320	4.320	4.997	6.103	6.128	6.128	3.830	3.830	3.830	3.830
6000	0.636	1.154	1.302	1.302	0.619	1.481	1.717	1.717	1.167	2.036	2.406	2.430	2.311	2.782	3.335	3.448	1.608	2.399	2.399	2.399
8000																	0.513	0.968	1.213	1.213

Span	C 200 19				C 200 24				C 250 19				C 250 24				C 300 24			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
3000	6.485	6.484	6.485	6.485	**9.272**	**9.272**	**9.272**	**9.273**	**7.480**	**7.480**	**7.480**	**7.480**	**11.791**	**11.791**	**11.791**	**11.791**	**13.775**	**13.775**	**13.773**	**13.778**
4500	6.367	**6.485**	**6.485**	**6.485**	**8.703**	**9.272**	**9.272**	**9.272**	**6.738**	**6.738**	**6.738**	**6.737**	11.330	11.331	11.331	11.330	**12.205**	**12.206**	**12.204**	**12.206**
6000	2.391	3.568	3.648	3.648	3.270	4.893	5.216	5.217	3.115	4.601	4.600	4.601	**4.209**	**6.561**	**6.633**	**6.634**	8.270	9.270	9.269	9.271
8000	0.731	1.409	1.840	1.845	0.979	1.969	2.517	2.639	0.933	1.858	2.326	2.327	1.235	2.565	3.354	3.355	2.864	4.585	4.687	4.689
10000																	1.148	2.293	2.862	2.861
12000																	0.557	1.208	1.801	1.937
15000																	0.236	0.499	0.895	1.131

Span	C 300 30				C 350 24				C 350 30				C 400 24				C 400 30			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
2000	**22.045**	**22.044**	**22.044**	**22.043**	13.614	13.615	13.612	13.616	**23.516**	**23.515**	**23.515**	**23.521**	12.673	12.673	12.670	12.676	**22.561**	**22.560**	**22.558**	**22.563**
4500	**20.275**	**20.275**	**20.274**	**20.274**	11.634	11.634	11.633	11.636	**20.731**	**20.731**	**20.730**	**20.728**	10.625	10.625	10.625	10.624	**19.424**	**19.425**	**19.423**	**19.425**
6000	**11.617**	**13.230**	**13.228**	**13.231**	9.815	9.815	9.816	9.814	**16.220**	**16.061**	**16.059**	**16.062**	8.835	8.835	8.835	8.836	**16.485**	**16.485**	**16.484**	**16.486**
8000	3.795	6.325	6.689	6.692	5.188	5.943	5.934	9.936	6.812	8.134	8.120	8.124	4.223	6.314	6.484	6.487	5.203	8.890	8.876	8.880
10000	1.533	3.269	4.042	4.083	2.358	3.513	3.623	3.622	3.068	4.890	4.959	4.956	1.673	3.371	3.959	3.957	2.077	4.563	5.419	5.417
12000	0.753	1.623	2.517	2.765	1.211	2.165	2.454	2.452	1.553	2.868	3.358	3.356	0.803	1.793	2.518	2.680	1.006	2.216	2.606	3.669
15000	0.326	0.672	1.255	1.580	0.514	1.031	1.445	1.538	0.648	1.369	1.980	2.105	0.335	0.730	1.367	1.581	0.426	0.909	1.729	2.264

TABLE 11A: Z SECTION OUTWARDS

Span	Z 100 10				Z 100 12				Z 100 15				Z 100 19			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
3000	1.124	1.124	1.124	1.124	1.387	1.387	1.387	1.387	1.776	1.776	1.776	1.776	2.467	2.467	2.467	2.467
4500	0.711	1.092	1.124	1.124	0.914	1.302	1.387	1.387	1.243	1.632	1.776	1.776	1.673	2.206	2.467	2.467
6000	0.206	0.371	0.575	0.632	0.260	0.480	0.692	0.780	0.347	0.648	0.879	0.964	0.480	0.879	1.180	1.311

Span	Z 150 12				Z 150 15				Z 150 19				Z 150 24				Z 200 15			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
3000	2.382	2.382	2.382	2.382	3.126	3.126	3.126	3.127	4.406	4.406	4.406	4.406	6.212	6.212	6.212	6.212	4.144	4.144	4.144	4.144
4500	2.140	2.319	2.319	2.319	2.711	3.126	3.126	3.127	3.721	4.407	4.406	4.406	5.053	6.119	6.212	6.212	3.808	3.808	3.808	3.808
6000	0.648	1.170	1.340	1.340	0.874	1.495	1.759	1.759	1.159	2.065	2.432	2.479	1.571	2.816	3.347	3.495	1.598	2.365	2.365	2.365
8000																	0.512	0.962	1.196	1.196

Span	Z 200 19				Z 200 24				Z 250 19				Z 250 24				Z 300 24			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
3000	6.420	6.420	6.420	6.420	**9.353**	**9.354**	**9.353**	**9.354**	**7.455**	**7.455**	**7.454**	**7.455**	**11.897**	**11.897**	**11.897**	**11.897**	**13.733**	**13.733**	**13.731**	**13.731**
4500	6.343	6.420	6.420	6.420	**8.775**	**9.353**	**9.353**	**9.353**	**6.719**	**6.719**	**6.718**	**6.719**	11.365	11.366	11.365	11.366	12.176	12.176	12.176	12.175
6000	2.376	3.554	3.612	3.612	3.322	4.934	5.261	5262	3.100	4.554	4.554	4.555	4.269	**6.615**	**6.692**	**6.694**	8.245	9.212	9.211	9.212
8000	0.733	1.402	1.826	1.827	0.989	1.993	2.537	2.662	0.937	1.851	2.303	2.304	1.248	2.597	3.384	3.386	2.852	4.569	4.657	4.659
10000																	1.152	2.285	2.844	2.843
12000																	0.559	1.204	1.795	1.925
15000																	0.237	0.501	0.890	1.127

Span	Z 300 30				Z 350 24				Z 350 30				Z 400 24				Z 400 30			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
3000	**21.977**	**21.979**	**21.980**	**21.977**	13.614	13.615	13.612	13.616	**23.516**	**23.515**	**23.515**	**23.521**	12.673	12.673	12.670	12.676	**22.561**	**22.560**	**22.558**	**22.563**
4500	**20.222**	**20.223**	**20.221**	**20.222**	11.634	11.634	11.633	11.636	**20.731**	**20.731**	**20.730**	**20.728**	10.625	10.625	10.625	10.624	**19.424**	**19.425**	**19.423**	**19.425**
6000	**11.579**	**13.169**	**13.168**	**13.171**	9.815	9.815	9.816	9.814	**16.220**	**16.061**	**16.059**	**16.062**	8.835	8.835	8.835	8.836	**16.485**	**16.485**	**16.484**	**16.486**
8000	3.810	6.289	6.659	6.661	5.188	5.943	5.934	5.936	6.812	8.134	8.120	8.124	4.223	6.314	6.484	6.487	5.203	8.890	8.876	8.880
10000	1.539	3.254	4.020	4.064	2.358	3.513	3.623	3.622	3.068	4.890	4.959	4.956	1.673	3.371	3.959	3.957	2.077	4.563	5.419	5.417
12000	0.755	1.628	2.501	2.752	1.211	2.165	2.454	2.452	1.553	2.868	3.358	3.356	0.803	1.793	2.518	2.680	1.006	2.216	3.606	3.669
15000	0.327	0.674	1.259	1.570	0.514	1.031	1.445	1.538	0.572	1.196	1.804	1.967	0.335	0.730	1.367	1.581	0.426	0.909	1.729	2.264

C & Z SECTION CANTILEVER 2000 INWARDS LOADING

Data is available for spans 2,000 to 20,000, please contact your local Metroll branch.

Bolt capacity exceeded. M12 bolts for 100 - 250 series, M16 bolts for 300 series or greater.

BOLD **Grade 8.8 bolts required.**

3/SB **For Safebridge® system use data for 3 rows of bridging.**

TABLE 10B: C SECTION INWARDS

C 100 10					C 100 12					C 100 15					C 100 19					
0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	Span
1.124	1.124	1.124	1.124	0.237	1.364	1.364	1.364	1.364	0.287	1.776	1.776	1.776	1.776	0.365	2.456	2.473	2.473	2.474	0.470	3000
1.124	1.124	1.124	1.124	0.701	1.316	1.364	1.364	1.364	0.848	1.605	1.776	1.766	1.776	1.079	2.085	2.474	2.473	2.474	1.390	4500
0.639	0.632	0.632	0.632	0.111	0.740	0.767	0.767	0.767	0.134	0.897	0.999	0.999	0.999	0.171	1.146	1.374	1.391	1.392	0.220	6000

	C 150 12					C 150 15					C 150 19					C 150 24					C 200 15					
	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	
3000	2.315	2.315	2.315	2.315	0.823	3.053	3.053	3.053	3.053	1.070	4.320	4.320	4.320	4.320	1.369	6.128	6.128	6.128	6.128	1.773	4.173	4.173	4.173	4.173	2.250	**3000**
4500	2.288	2.289	2.288	2.288	2.435	2.878	3.053	3.053	3.053	3.164	3.722	4.320	4.320	4.320	4.051	4.768	6.218	6.128	6.128	5.247	3.830	3.830	3.830	3.830	6.658	**4500**
6000	1.297	1.302	1.302	1.302	0.386	1.564	1.717	1.717	1.717	0.501	1.997	2.430	2.430	2.430	0.642	2.481	3.333	3.447	3.448	0.831	2.297	2.399	2.399	2.399	1.055	**6000**
																					1.151	1.215	1.213	1.213	0.281	**8000**

	C 200 19					C 200 24					C 250 19					C 250 24					C 300 24					
	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	
3000	6.485	6.485	6.485	6.485	3.020	**9.272**	**9.272**	**9.272**	**9.273**	3.880	**7.481**	**7.480**	**7.480**	**7.481**	5.010	**11.791**	**11.791**	**11.791**	**11.791**	6.572	**13.775**	**13.774**	**13.775**	**13.775**	11.316	**3000**
4500	5.739	**6.485**	**6.485**	**6.485**	8.934	**7.537**	**9.273**	**9.272**	**9.272**	11.479	**6.738**	**6.738**	**6.738**	**6.737**	14.824	**9.722**	11.331	11.329	11.331	19.443	**12.205**	**12.205**	**12.205**	**12.205**	33.481	**4500**
6000	2.959	3.648	3.648	3.648	1.416	3.696	5.217	5.216	5.217	1.818	3.843	4.601	4.600	4.601	2.349	4.646	**6.634**	**6.633**	**6.634**	3.080	6.905	9.270	9.269	9.271	5.304	**6000**
8000	1.465	1.847	1.845	1.845	0.377	1.794	2.543	2.637	2.639	0.485	1.893	2.330	2.326	2.327	0.626	2.241	3.359	3.354	3.355	0.821	3.191	4.695	4.687	4.689	1.415	**8000**
10000																					1.808	2.867	2.862	2.861	0.624	**10000**
12000																					1.163	1.854	1.938	1.937	0.337	**12000**
15000																					0.684	1.101	1.215	1.215	0.164	**15000**

	C 300 30					C 350 24					C 350 30					C 400 24					C 400 30					
	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	
2000	**22.045**	**22.044**	**22.043**	**22.044**	14.623	13.615	13.613	13.614	16.618	18.378	**23.517**	**23.515**	**23.513**	**23.525**	23..625	12.672	12.672	1.671	12.674	22.136	**22.561**	**22.561**	**22.558**	**22.563**	28.368	**2000**
4500	**19.744**	**20.275**	**20.274**	**20.274**	43.263	11.634	11.635	11.634	11.634	54.374	**20.730**	**20.731**	**20.730**	**20.728**	69.889	10.625	10.625	10.624	10.624	65.493	**19.424**	**19.425**	**19.424**	**19.424**	83.929	**4500**
6000	8.532	**13.230**	**13.228**	**12.230**	6.855	9.815	9.815	9.815	9.815	8.614	**12.366**	**16.061**	**16.060**	**216.062**	11.075	8.835	8.835	8.835	8.835	10.377	**11.371**	**16.485**	**16.486**	**16.483**	13.298	**6000**
8000	3.697	6.573	6.689	6.692	1.828	4.398	5.943	5.943	5.936	2.297	5.249	8.133	8.120	8.124	2.953	4.742	6.494	6.484	6.487	2.767	4.895	8.889	8.875	8.879	3.564	**8000**
10000	2.034	3.807	4.084	4.082	0.806	2.385	3.631	3.623	3.622	1.013	2.832	4.970	4.959	4.956	1.303	2.479	3.870	3.959	3.958	1.221	2.680	5.432	5.420	5.417	1.564	**10000**
12000	1.282	2.456	2.751	2.765	0.435	1.487	2.374	2.454	2.453	0.547	1.739	3.207	3.358	3.357	0.703	1.568	2.525	2.681	2.680	0.659	1.683	3.448	3.670	3.668	0.844	**12000**
15000	0.747	1.430	1.640	1.734	0.212	0.858	1.419	1.538	1.538	0.266	0.991	1.834	2.105	2.105	0.342	0.916	1.514	1.664	1.681	0.320	0.977	1.972	2.300	2.301	0.410	**15000**

TABLE 11B: Z SECTION INWARDS

Z 100 10					Z 100 12					Z 100 15					Z 100 19					
0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	Span
1.124	1.124	1.124	1.124	0.237	1.387	1.387	1.387	1.387	0.288	1.776	1.776	1.776	1.776	0.365	2.441	2.467	2.467	2.467	0.467	3000
1.124	1.124	1.124	1.124	0.701	1.328	1.387	1.387	1.387	0.852	1.605	1.776	1.776	1.776	1.079	2.075	2.467	2.467	2.467	1.383	4500
0.639	0.632	0.632	0.632	0.111	0.746	0.780	0.780	0.780	0.135	0.897	0.999	0.999	0.999	0.171	1.142	1.366	1.388	1.388	0.219	6000

	Z 150 12					Z 150 15					Z 150 19					Z 150 24					Z 200 15					
	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	
3000	2.382	2.382	2.382	2.382	0.826	3.127	3.127	3.126	3.126	1.070	4.406	4.406	4.406	4.406	1.370	6.212	6.212	6212	6.212	1.733	4.144	4.144	4.144	4.145	2.245	**3000**
4500	2.319	2.319	2.318	2.319	2.443	2.913	3.126	3.127	3.126	3.166	3.781	4.406	4.406	4.406	4.053	4.855	6.212	6.212	6.212	5.246	3.808	3.808	3.808	3.808	6.643	**4500**
6000	1.324	1.340	1.340	1.340	0.387	1.583	1.759	1.759	1.759	0.502	2.032	2.479	2.479	2.479	0.642	2.493	3.348	3.495	3.495	0.831	2.272	2.365	2.365	2.365	1.053	**6000**
																					1.139	1.198	1.196	1.196	0.281	**8000**

	Z 200 19					Z 200 24					Z 250 19					Z 250 24					Z 300 24					
	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	
3000	6.420	6.420	6.420	6.420	3.018	**9.353**	**9.353**	**9.354**	**9.353**	3.893	**7.455**	**7.455**	**7.454**	**7.455**	5.005	**11.897**	**11.897**	**11.898**	**11.897**	6.595	**13.733**	**13.732**	**13.732**	**13.734**	11.304	**3000**
4500	5.711	6.420	6.420	6.420	8.931	**7.589**	**9.353**	**9.354**	**9.353**	11.519	**6.719**	**6.719**	**6.719**	**6.718**	14.808	**9.790**	11.366	11.365	11.367	19.513	12.176	12.177	12.176	12.176	33.444	**4500**
6000	2.940	3.612	3.611	3.612	1.415	3.727	5.262	5.262	5.262	1.825	3.821	4.554	4.554	4.554	2.346	4.688	**6.693**	**6.692**	**6.694**	3.091	6.858	9.211	9.211	9.212	5.299	**6000**
8000	1.455	1.829	1.826	1.827	0.377	1.808	2.560	2.661	2.662	0.487	1.882	2.306	2.303	2.304	0.626	2.261	3.389	3.384	3.386	0.824	3.171	4.665	4.657	4.659	1.413	**8000**
10000																					1.797	2.850	2.844	2.843	0.623	**10000**
12000																					1.155	1.846	1.926	1.925	0.336	**12000**
15000																					0.684	1.096	1.207	1.207	0.164	**15000**

	Z 300 30					Z 350 24					Z 350 30					Z 400 24					Z 400 30					
	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	
3000	**21.978**	**21.978**	**21.977**	**21.978**	14.613	13.615	13.613	13.614	13.618	18.378	**23.517**	**23.515**	**23.513**	**23.525**	23.625	12.672	12.672	12.671	12.674	22.136	**22.561**	**22.561**	**22.558**	**22.563**	28.368	**3000**
4500	**19.640**	**20.223**	**20.222**	**20.222**	43.235	11.634	11.635	11.634	11.634	54.374	**20.730**	**20.731**	**20.730**	**20.728**	69.899	10.625	10.625	10.624	10.624	65.493	**19.424**	**19.425**	**19.424**	**19.424**	83.929	**4500**
6000	8.540	13.170	13.168	13.170	6.850	9.815	9.815	9.815	9.815	8.614	**12.366**	**16.061**	**16.060**	**16.062**	11.075	8.836	8.835	8.835	8.835	10.377	**11.371**	**16.485**	**16.486**	**16.483**	13.298	**6000**
8000	3.700	6.536	6.659	6.661	1.827	4.398	5.943	5.934	5.936	2.297	5.249	8.133	8.120	8.124	2.953	4.472	6.494	6.484	6.487	2.767	4.895	8.889	8.875	8.879	3.546	**8000**
10000	2.036	3.782	4.066	4.064	0.806	2.385	3.631	3.623	3.622	1.013	2.832	4.970	4.959	4.956	1.303	2.479	3.870	3.959	3.958	1.221	2.680	5.432	5.420	5.417	1.564	**10000**
12000	1.283	2.439	2.736	2.752	0.435	1.487	2.374	2.454	2.453	0.547	1.739	3.207	3.358	3.357	0.703	1.568	2.525	2.681	2.680	0.659	1.683	3.448	3.670	3.668	0.844	**12000**
15000	0.747	1.422	1.630	1.726	0.211	0.858	1.419	1.538	1.538	0.266	0.991	1.834	2.105	2.105	0.342	0.916	1.514	1.664	1.681	0.320	0.977	1.972	2.300	2.301	0.410	**15000**

C & Z SECTION CANTILEVER 3000 OUTWARDS LOADING

Data is available for spans 2,000 to 20,000, please contact your local Metroll branch.

Bolt capacity exceeded. M12 bolts for 100 - 250 series, M16 bolts for 300 series or greater.

BOLD **Grade 8.8 bolts required.**

3/SB **For Safebridge® system use data for 3 rows of bridging.**

TABLE 12A: C SECTION OUTWARDS

Span	C 100 10				C 100 12				C 100 15				C 100 19			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
3000	0.499	0.499	0.499	0.499	0.606	0.606	0.606	0.606	0.789	0.789	0.789	0.789	1.099	1.099	1.099	1.099
4500	0.499	0.499	0.499	0.499	0.606	0.606	0.606	0.606	0.789	0.789	0.789	0.789	1.099	1.099	1.099	1.099
6000	0.303	0.462	0.499	0.499	0.387	0.549	0.606	0.606	0.548	0.706	0.784	0.789	0.760	0.965	1.083	1.099

Span	C 150 12				C 150 15				C 150 19				C 150 24				C 200 15			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
3000	1.029	1.029	1.029	1.029	1.357	1.357	1.357	1.357	1.920	1.920	1.920	1.920	2.723	2.723	2.723	2.723	1.895	1.895	1.895	1.895
4500	1.029	1.029	1.029	1.029	1.357	1.357	1.357	1.357	1.920	1.920	1.920	1.920	2.724	2.724	2.723	2.723	1.895	1.895	1.895	1.895
6000	0.900	1.029	1.029	1.029	1.357	1.357	1.357	1.357	1.595	1.741	1.920	1.920	2.178	2.655	2.723	2.723	1.895	1.895	1.895	1.895
8000																	0.648	1.190	1.445	1.444

Span	C 200 19				C 200 24				C 250 19				C 250 24				C 300 24			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
3000	2.882	2.882	2.882	2.882	4.121	4.121	4.121	4.121	3.635	3.635	3.635	3.635	**5.241**	**5.241**	**5.241**	**5.241**	7.324	7.324	7.324	7.324
4500	2.882	2.882	2.882	2.882	4.121	4.121	4.121	4.121	3.635	3.635	3.635	3.635	**5.240**	**5.241**	**5.241**	**5.241**	7.207	7.207	7.207	7.207
6000	2.752	2.882	2.882	2.882	3.779	4.121	4.121	4.121	3.635	3.635	3.635	3.635	**5.047**	**5.241**	**5.240**	**5.241**	6.865	6.865	6.865	6.865
8000	0.698	1.720	2.197	2.196	1.228	2.409	3.017	3.140	1.178	2.276	2.771	2.769	1.552	3.146	3.995	3.993	3.545	5.528	5.583	5.580
10000																	1.310	2.579	3.186	3.184
12000																	0.608	1.311	1.944	2.084
15000																	0.249	0.525	0.941	1.187

Span	C 300 30				C 350 24				C 350 30				C 400 24				C 400 30			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
2000	**10.451**	**10.451**	**10.451**	**10.451**	7.945	7.945	7.945	7.942	**12.689**	**12.688**	**12.688**	**12.688**	7.815	7.815	7.813	7.815	**12.910**	**12.909**	**12.908**	**12.908**
4500	**10.452**	**10.451**	**10.452**	**10.451**	7.658	7.658	7.657	7.658	**12.420**	**12.420**	**12.419**	**12.417**	7.459	7.459	7.459	7.457	**12.483**	**12.484**	**12.484**	**12.485**
6000	**10.452**	**10.451**	**10.451**	**10.451**	7.112	7.111	7.112	7.112	**11.792**	**11.792**	**11.792**	**11.791**	6.809	6.810	6.810	6.809	**11.663**	**11.663**	**11.663**	**11.662**
8000	4.713	**7.602**	**7.967**	**7.963**	6.264	6.322	6.322	6.322	**8.283**	**9.685**	**9.672**	**9.668**	5.268	5.924	5.924	5.923	6.471	**10.450**	**10.450**	**10.450**
10000	1.744	3.672	4.541	4.544	2.674	3.916	4.034	4.031	3.471	5.462	5.521	5.517	1.909	3.763	4.408	4.405	2.364	5.135	6.034	6.029
12000	0.820	1.763	2.714	2.974	1.315	2.336	2.637	2.638	1.688	3.099	3.609	3.611	0.877	1.948	2.715	2.883	1.096	2.408	3.891	3.947
15000	0.343	0.707	1.320	1.657	0.541	1.082	1.514	1.610	0.683	1.405	2.076	2.203	0.353	0.767	1.437	1.657	0.449	0.955	1.820	2.375

TABLE 13A: Z SECTION OUTWARDS

Span	Z 100 10				Z 100 12				Z 100 15				Z 100 19			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
3000	0.499	0.499	0.499	0.499	0.616	0.616	0.616	0.616	0.789	0.789	0.789	0.789	1.096	1.096	1.096	1.096
4500	0.499	0.499	0.499	0.499	0.616	0.616	0.616	0.616	0.789	0.789	0.789	0.789	1.096	1.096	1.096	1.096
6000	0.303	0.462	0.499	0.499	0.395	0.557	0.616	0.616	0.548	0.706	0.784	0.789	0.754	0.956	1.074	1.096

Span	Z 150 12				Z 150 15				Z 150 19				Z 150 24				Z 200 15			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
3000	1.059	1.059	1.059	1.059	1.390	1.390	1.390	1.390	1.958	1.958	1.958	1.958	2.761	2.761	2.761	2.761	1.868	1.868	1.868	1.868
4500	1.059	1.059	1.059	1.059	1.390	1.390	1.390	1.390	1.958	1.958	1.958	1.958	2.761	2.761	2.761	2.761	1.868	1.868	1.868	1.868
6000	0.912	1.059	1.059	1.059	1.168	1.390	1.390	1.390	1.617	1.9232	1.958	1.958	2.206	2.664	2.761	2.761	1.868	1.868	1.868	1.868
8000																	0.646	1.182	1.424	1.424

Span	Z 200 19				Z 200 24				Z 250 19				Z 250 24				Z 300 24			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
3000	2.853	2.853	2.853	2.853	4.157	4.157	4.157	4.157	3.598	3.598	3.598	3.598	**5.288**	**5.288**	**5.288**	**5.288**	7.277	7.277	7.277	7.277
4500	2.853	2.853	2.853	2.853	4.157	4.157	4.157	4.157	3.598	3.598	3.598	3.598	**5.288**	**5.288**	**5.288**	**5.288**	7.177	7.177	7.177	7.177
6000	2.742	2.853	2.853	2.853	3.812	4.157	4.157	4.157	3.598	3.598	3.598	3.598	**5.089**	**5.288**	**5.287**	**5.288**	6.838	6.839	6.838	6.838
8000	0.925	1.712	2.175	2.174	1.241	2.436	3.042	3.167	1.183	2.267	2.743	2.741	1.568	3.183	4.031	4.029	3.354	5.509	5.547	5.545
10000																	1.314	2.571	3.166	3.164
12000																	0.610	1.306	1.938	2.071
15000																	0.250	0.527	0.936	1.183

Span	Z 300 30				Z 350 24				Z 350 30				Z 400 24				Z 400 30			
	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB
2000	**10.404**	**10.404**	**10.404**	**10.404**	7.945	7.945	7.945	7.942	**12.689**	**12.688**	**12.688**	**12.688**	7.815	7.815	7.813	7.815	**12.910**	**12.909**	**12.908**	**12.908**
4500	**10.404**	**10.404**	**10.404**	**10.404**	7.658	7.658	7.657	7.658	**12.420**	**12.420**	**12.419**	**12.417**	7.459	7.459	7.459	7.457	**12.483**	**12.484**	**12.484**	**12.485**
6000	**10.405**	**10.404**	**10.404**	**10.404**	7.112	7.111	7.112	7.112	**11.792**	**11.792**	**11.792**	**11.791**	6.809	6.810	6.810	6.809	**11.663**	**11.663**	**11.663**	**11.662**
8000	4.731	7.559	**7.931**	**7.927**	6.264	6.322	6.322	6.322	**8.283**	**9.685**	**9.671**	**9.668**	5.268	5.924	5.924	5.923	6.471	**10.450**	**10.450**	**10.450**
10000	1.750	3.655	4.491	4.524	2.674	3.916	4.034	4.031	3.471	5.462	5.521	5.517	1.909	3.763	4.408	4.405	2.364	5.135	6.034	6.029
12000	0.823	1.769	2.697	2.961	1.315	2.336	2.637	2.638	1.688	3.099	3.609	3.611	0.877	1.948	2.715	2.883	1.096	2.408	3.891	3.947
15000	0.344	0.709	1.324	1.646	0.541	1.082	1.514	1.610	0.683	1.405	2.076	2.203	0.353	0.767	1.437	1.657	0.449	0.955	1.820	2.375

C & Z SECTION CANTILEVER 3000 INWARDS LOADING

Data is available for spans 2,000 to 20,000, please contact your local Metroll branch.

Bolt capacity exceeded. M12 bolts for 100 - 250 series, M16 bolts for 300 series or greater.

BOLD **Grade 8.8 bolts required.**

3/SB **For Safebridge® system use data for 3 rows of bridging.**

TABLE 12B: C SECTION INWARDS

C 100 10						C 100 12						C 100 15						C 100 19						
0	1	2	3/SB	L/150		0	1	2	3/SB	L/150		0	1	2	3/SB	L/150		0	1	2	3/SB	L/150		Span
0.499	0.499	0.499	0.499	0.499		0.606	0.606	0.606	0.606	0.089		0.762	0.775	0.777	0.778	0.101		1.048	1.069	1.072	1.075	0.131		3000
0.499	0.499	0.499	0.499	0.700		0.586	0.606	0.606	0.606	0.085		0.736	0.773	0.775	0.777	0.108		1.002	1.065	1.069	1.072	0.139		4500
0.491	0.499	0.499	0.499	0.132		0.566	0.606	0.606	0.606	0.159		0.704	0.773	0774	0.775	0.203		0.928	1.062	1.067	1.070	0.261		6000

	C 150 12					C 150 15					C 150 19					C 150 24					C 200 15					
	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	
3000	1.029	1.029	1.029	1.029	0.229	1.357	1.357	1.357	1.357	0.297	1.920	1.920	1.920	1.920	0.380	2.724	2.723	2.723	2.723	0.493	1.895	1.895	1.895	1.895	0.625	**3000**
4500	1.029	1.029	1.029	1.029	0.244	1.357	1.357	1.357	1.357	0.317	1.877	1.920	1.920	1.920	0.406	2.564	2.723	2.723	2.723	0.525	1.895	1.895	1.895	1.895	0.667	**4500**
6000	1.029	1.029	1.029	1.029	0.457	1.284	1.357	1.357	1.357	0.594	1.675	1.920	1.920	1.920	0.761	2.175	2.723	2.723	2.723	0.985	1.892	1.895	1.895	1.895	1.250	**6000**
																					1.261	1.447	1.445	1.444	0.708	**8000**

	C 200 19					C 200 24					C 250 19					C 250 24					C 300 24					
	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	
3000	2.882	2.882	2.882	2.882	0.839	4.121	4.121	4.121	4.121	1.078	3.635	3.635	3.635	3.635	1.392	**5.240**	**5.240**	**5.240**	**5.241**	1.825	7.324	7.324	7.324	7.324	3.143	**3000**
4500	2.882	2.882	2.882	2.882	0.895	4.072	4.121	4.121	4.121	1.150	3.635	3.635	3.635	3.635	1.485	**5.241**	**5.241**	**5.241**	**5.240**	1.947	7.207	7.207	7.207	7.208	3.356	**4500**
6000	2.882	2.882	2.882	2.882	1.678	3.407	4.121	4.121	4.121	2.155	3.404	3.635	3.635	3.635	2.783	4.385	**5.241**	**5.241**	**5.241**	3.651	6.361	6.865	6.865	6.864	6.287	**6000**
8000	1.574	2.200	2.197	2.196	0.950	1.883	3.007	3.141	3.140	1.221	2.001	2.774	2.771	2.769	1.577	2.325	4.000	3.995	3.993	2.068	3.357	5.591	5.582	5.580	3.561	**8000**
10000																					1.858	3.167	3.186	3.184	0.911	**10000**
12000																					1.175	1.985	2.083	2.084	0.419	**12000**
15000																					0.636	1.150	1.272	1.271	0.185	**15000**

	C 300 30					C 350 24					C 350 30					C 400 24					C 400 30					
	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	
2000	**10.451**	**10.451**	**10.451**	**10.451**	4.062	7.946	7.946	7.945	7.945	5.105	**12.689**	**12.688**	**12.688**	**12.689**	6.562	7.816	7.815	7.816	7.815	6.149	**12.911**	**12.911**	**12.909**	**12.912**	7.880	**2000**
4500	**10.451**	**10.451**	**10.452**	**10.451**	4.333	7.659	7.658	7.658	7.657	5.445	**12.420**	**12.419**	**12.419**	**12.419**	7.000	7.460	7.460	7.459	7.458	6.559	**12.484**	**12.484**	**12.483**	**12.483**	8.405	**4500**
6000	**8.481**	**10.452**	**10.452**	**10.452**	8.124	7.112	7.112	7.111	7.111	10.210	**11.391**	**11.792**	**11.792**	**11.792**	13.125	6.810	6.810	6.810	6.809	12.298	**11.610**	**11.662**	**11.662**	**11.661**	15.759	**6000**
8000	3.820	**7.774**	**7.967**	**7.963**	4.601	4.641	6.322	6.322	6.322	5.783	5.589	**9.686**	**9.672**	**9.668**	7.435	4.592	5.924	5.924	5.924	6.966	5.040	**10.450**	**10.450**	**10.450**	8.927	**8000**
10000	2.076	4.207	4.547	4.544	1.177	2.465	4.023	4.034	4.031	1.479	2.909	5.517	5.520	5.517	1.902	2.519	4.280	4.408	4.405	1.782	2.729	6.002	6.034	6.030	2.284	**10000**
12000	1.298	2.627	2.958	2.974	0.542	1.517	2.544	2.637	2.638	0.681	1.771	3.428	3.609	3.611	0.875	1.583	2.705	2.882	2.883	0.820	1.701	3.682	3.945	3.947	1.051	**12000**
15000	0.751	1.491	1.718	1.814	0.239	0.866	1.483	1.610	1.610	0.300	0.996	1.910	2.204	2.203	0.386	0.920	1.582	1.743	1.759	0.362	0.981	2.053	2.409	2.408	0.464	**15000**

TABLE 13B: Z SECTION INWARDS

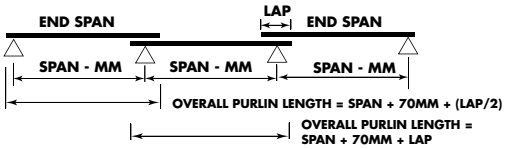
Z 100 10						Z 100 12						Z 100 15						Z 100 19						
0	1	2	3/SB	L/150		0	1	2	3/SB	L/150		0	1	2	3/SB	L/150		0	1	2	3/SB	L/150		Span
0.499	0.499	0.499	0.499	0.066		0.616	0.616	0.616	0.616	0.080		0.762	0.775	0.777	0.778	0.101		1.039	1.060	1.063	1.066	0.130		3000
0.499	0.499	0.499	0.499	0.070		0.593	0.616	0.616	0.616	0.085		0.736	0.773	0.775	0.777	0.108		0.994	1.057	1.060	1.063	0.138		4500
0.491	0.499	0.499	0.499	0.132		0.572	0.616	0.616	0.616	0.160		0.704	0.773	0.774	0.775	0.203		0.922	1.053	1.058	1.061	0.260		6000

	Z 150 12					Z 150 15					Z 150 19					Z 150 24					Z 200 15					
	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	
3000	1.059	1.059	1.059	1.059	0.229	1.390	1.390	1.390	1.390	0.297	1.958	1.958	1.958	1.958	0.380	2.761	2.761	2.761	2.761	0.493	1.868	1.868	1.868	1.868	0.624	**3000**
4500	1.059	1.059	1.059	1.059	0.245	1.390	1.390	1.390	1.390	0.317	1.899	1.958	1.958	1.958	0.406	2.579	2.761	2.761	2.761	0.525	1.868	1.868	1.868	1.868	0.665	**4500**
6000	1.058	1.059	1.059	1.059	0.459	1.299	1.390	1.390	1.390	0.595	1.701	1.958	1.958	1.958	0.761	2.209	2.761	2.761	2.761	0.985	1.868	1.868	1.868	1.868	1.247	**6000**
																					1.250	1.426	1.424	1.424	0.707	**8000**

	Z 200 19					Z 200 24					Z 250 19					Z 250 24					Z 300 24					
	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	
3000	2.853	2.853	2.853	2.853	0.838	4.157	4.157	4.157	4.157	1.082	3.598	3.598	3.598	3.598	1.390	**5.288**	**5.287**	**5.288**	**5.288**	1.832	7.277	7.277	7.277	7.277	3.140	**3000**
4500	2.853	2.853	2.853	2.853	0.894	4.100	4.157	4.157	4.157	1.154	3.598	3.598	3.598	3.598	1.483	**5.288**	**5.288**	**5.288**	**5.288**	1.954	7.177	7.177	7.176	7.177	3.349	**4500**
6000	2.572	2.853	2.853	2.853	1.677	3.428	4.157	4.157	4.157	2.163	3.390	3.598	3.598	3.598	2.781	4.412	**5.288**	**5.287**	**5.288**	3.664	6.333	6.838	6.838	6.839	6.280	**6000**
8000	1.562	2.178	2.175	2.174	0.950	1.890	3.027	3.169	3.167	1.225	1.987	2.746	2.743	2.741	1.575	2.333	4.036	4.031	4.029	2.075	3.336	5.555	5.547	5.545	3.557	**8000**
10000																					1.858	3.153	3.166	3.164	0.910	**10000**
12000																					1.175	1.977	2.070	2071	0.419	**12000**
15000																					0.687	1.145	1.264	1.263	0.185	**15000**

	Z 300 30					Z 350 24					Z 350 30					Z 400 24					Z 400 30					
	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	0	1	2	3/SB	L/150	
2000	**10.404**	**10.404**	**10.404**	**10.404**	4.059	7.946	7.946	7.945	7.945	5.105	**12.689**	**12.688**	**12.688**	**12.689**	6.562	7.816	7.815	7.816	7.815	6.149	**12.911**	**12.911**	**12.909**	**12.912**	7.880	**2000**
4500	**10.404**	**10.404**	**10.404**	**10.404**	4.330	7.659	7.658	7.658	7.657	5.445	**12.420**	**12.419**	**12.419**	**12.419**	7.000	7.460	7.460	7.459	7.458	6.559	**12.484**	**12.484**	**12.483**	**12.483**	8.405	**4500**
6000	8.430	**10.404**	**10.404**	**10.404**	8.118	7.112	7.112	7.111	7.111	10.210	**11.391**	**11.792**	**11.792**	**11.792**	13.125	6.810	6.810	6.810	6.809	12.298	**11.610**	**11.662**	**11.662**	**11.661**	15.759	**6000**
8000	3.822	**7.730**	**7.931**	**7.927**	4.599	4.641	6.322	6.322	6.322	5.783	5.589	**9.686**	**9.672**	**9.668**	7.735	4.592	5.924	5.924	5.924	6.966	5.040	**10.450**	**10.450**	**10.450**	8.927	**8000**
10000	2.077	4.179	4.526	4.524	1.176	2.465	4.023	4.034	4.031	1.479	2.909	5.517	5.520	5.517	1.902	2.519	4.280	4.408	4.405	1.782	2.729	6.002	6.034	6.030	2.284	**10000**
12000	1.299	2.612	2.942	2.961	0.541	1.517	2.544	2.637	2.638	0.681	1.771	3.428	3.609	3.611	0.875	1.583	2.705	2.882	2.883	0.820	1.701	3.682	3.945	3.947	1.051	**12000**
15000	0.752	1.483	1.707	1.806	0.239	0.866	1.483	1.610	1.610	0.300	0.996	1.910	2.204	2.203	0.386	0.920	1.582	1.743	1.759	0.362	0.981	2.053	2.409	2.408	0.464	**15000**

TABLE 14A: Z SECTION MIXED 3 SPANS LAPPED OUTWARDS LOADING



Bold Bolt capacity exceeded. M12 bolts for 100 - 250 series, M16 bolts for 300 series or greater.

BOLD Grade 8.8 bolts required.

3/SB For Safebridge® system use data for 3 rows of bridging.

Z 100 10 / Z 100 15				Z 100 12 / Z 100 19				Z 150 12 / Z 150 19				Z 150 15 / Z 150 24				Span
0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	
10.284	10.282	10.282	10.28	**14.327**	**14.326**	**14.327**	**14.326**	**18.540**	**18.539**	**18.539**	**18.539**	30.876	30.876	30.877	30.877	**2000**
6.394	6.393	6.394	6.394	8.195	8.194	8.194	8.194	**11.854**	**11.853**	**11.850**	**11.848**	**20.479**	**20.477**	**20.476**	**20.466**	**2500**
4.025	4.104	4.104	4.104	4.860	5.093	5.093	5.093	8.290	8.288	8.290	8.290	**13.518**	**13.516**	**13.519**	**13.518**	**3000**
2.537	2.799	2.799	2.799	3.119	3.473	3.472	3.473	6.111	6.111	6.111	6.110	**9.511**	**9.512**	**9.512**	**9.511**	**3500**
1.676	2.031	2.031	2.031	2.113	2.520	2.520	2.520	4.673	4.673	4.673	4.673	**6.577**	**6.944**	**6.944**	**6.944**	**4000**
1.136	1.542	1.542	1.542	1.485	1.908	1.912	1.912	3.617	3.676	3.676	3.676	4.623	5.123	5.123	5.123	**4500**
0.791	1.190	1.210	1.210	1.073	1.443	1.500	1.500	2.586	2.958	2.958	2.958	3.365	3.936	3.936	3.936	**5000**
0.572	0.909	0.975	0.975	0.795	1.116	1.209	1.209	1.885	2.374	2.374	2.374	2.510	3.120	3.119	3.119	**5500**
0.428	0.703	0.802	0.802	0.605	0.878	0.995	0.995	1.392	1.928	1.928	1.928	1.914	2.534	2.533	2.533	**6000**
	0.578	0.743	0.748	0.493	0.747	0.899	0.928	1.052	1.588	1.597	1.597	1.483	2.048	2.099	2.099	**6500**
	0.447	0.602	0.630		0.594	0.735	0.781	0.814	1.300	1.345	1.345	1.167	1.671	1.767	1.767	**7000**
		0.492	0.538		0.478	0.608	0.667	0.642	1.073	1.148	1.148	0.936	1.379	1.508	1.508	**7500**
		0.406	0.464			0.507	0.566	0.517	0.882	0.991	0.991	0.757	1.149	1.302	1.302	**8000**
						0.427	0.482	0.425	0.729	0.865	0.865	0.619	0.964	1.136	1.136	**8500**
							0.414		0.604	0.761	0.761	0.513	0.813	0.985	1.000	**9000**
									0.513	0.701	0.726	0.441	0.717	0.903	0.954	**9500**
									0.428	0.609	0.646		0.609	0.783	0.848	**10000**
										0.527	0.578		0.520	0.683	0.759	**10500**
										0.456	0.520		0.446	0.598	0.673	**11000**
											0.464			0.525	0.598	**11500**
											0.414			0.463	0.534	**12000**
														0.433	0.517	**12500**
															0.461	**13000**
															0.412	**13500**

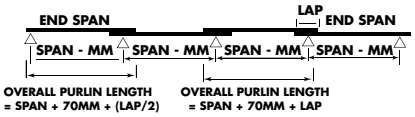
Z 200 15 / Z 2 00 24				Z 250 19 / Z 250 24				Z 300 24 / Z 300 30				Z 350 24 / Z 350 30				Z 400 24 / Z 4003 0				Span
0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	
27.123	**27.123**	**27.124**	**27.122**	41.486	41.485	41.488	41.486	71.727	71.726	71.726	71.727	63.326	63.327	63.326	63.330	55.901	55.899	55.901	55.900	**2000**
17.750	**17.749**	**17.746**	**17.737**	29.043	29.040	29.030	29.022	50.117	50.110	50.097	50.097	43.747	43.743	43.723	43.700	**38.433**	**38.431**	**38.416**	**38.401**	**2500**
12.723	**12.720**	**12.723**	**12.723**	21.094	21.091	21.094	21.093	36.796	36.790	36.796	36.798	**32.706**	**32.700**	**32.706**	**32.706**	**28.936**	**28.930**	**28.935**	**28.936**	**3000**
9.597	**9.596**	**9.597**	**9.596**	**16.128**	**16.128**	**16.126**	**16.126**	**28.460**	**28.461**	**28.458**	**28.458**	**25.814**	**25.812**	**25.814**	**25.808**	**23.031**	**23.031**	**23.028**	**23.026**	**3500**
7.489	**7.489**	**7.489**	**7.488**	**12.750**	**12.751**	**12.750**	**12.750**	**22.754**	**22.754**	**22.754**	**22.756**	**21.085**	**21.085**	**21.086**	**21.085**	**18.986**	**18.986**	**18.987**	**18.987**	**4000**
5.991	5.991	5.991	5.991	**10.324**	**10.325**	**10.324**	**10.324**	**18.623**	**18.623**	**18.622**	**18.622**	**17.629**	**17.628**	**17.629**	**17.627**	**16.035**	**16.035**	**16.034**	**16.034**	**4500**
4.891	4.891	4.890	4.890	**8.517**	**8.516**	**8.515**	**8.515**	**15.513**	**15.513**	**15.510**	**15.509**	**14.996**	**14.996**	**14.996**	**14.988**	**13.780**	**13.780**	**13.778**	**13.778**	**5000**
4.059	4.057	4.059	4.059	**7.075**	**7.129**	**7.133**	**7.133**	**13.107**	**13.098**	**13.107**	**13.107**	**12.925**	**12.911**	**12.924**	**12.925**	**12.003**	**11.988**	**12.003**	**12.003**	**5500**
3.273	3.415	3.415	3.414	**5.335**	**6.052**	**6.048**	**6.047**	**11.206**	**11.206**	**11.198**	**11.193**	**11.257**	**11.258**	**11.246**	**11.240**	**10.563**	**10.563**	**10.550**	**10.544**	**6000**
2.608	2.829	2.829	2.829	4.063	**5.191**	**5.191**	**5.191**	**9.679**	**9.678**	**9.678**	**9.678**	**9.892**	**9.891**	**9.891**	**9.891**	**9.376**	**9.375**	**9.375**	**9.376**	**6500**
2.061	2.382	2.381	2.381	3.135	**4.449**	**4.449**	**4.449**	**8.090**	**8.433**	**8.431**	**8.430**	**8.755**	**8.754**	**8.751**	**8.749**	**8.380**	**8.380**	**8.376**	**8.375**	**7000**
1.639	2.033	2.033	2.033	2.466	**3.800**	**3.800**	**3.800**	6.544	**7.405**	**7.407**	**7.407**	**7.799**	**7.797**	**7.800**	**7.800**	**7.536**	**7.533**	**7.536**	**7.536**	**7500**
1.311	1.755	1.755	1.755	1.941	3.255	3.283	3.283	5.320	**6.550**	**6.550**	**6.551**	**6.988**	**6.989**	**6.987**	**6.987**	**6.812**	**6.812**	**6.810**	**6.810**	**8000**
1.063	1.531	1.531	1.531	1.555	2.727	2.865	2.865	4.373	5.789	5.789	5.790	**6.293**	**6.293**	**6.293**	**6.294**	**6.186**	**6.186**	**6.186**	**6.186**	**8500**
0.873	1.344	1.347	1.347	1.266	2.291	2.522	2.522	3.615	5.096	5.096	5.096	5.693	**5.693**	**5.694**	**5.694**	5.192	5.640	5.640	5.640	**9000**
0.746	1.234	1.286	1.286	1.068	2.006	2.403	2.403	3.087	4.829	4.856	4.856	5.304	**5.478**	**5.478**	**5.477**	4.284	5.443	5.441	5.442	**9500**
0.629	1.070	1.143	1.143	0.882	1.687	2.137	2.137	2.569	4.180	4.319	4.319	4.562	4.985	4.985	4.985	3.512	4.987	4.987	4.988	**10000**
0.536	0.925	1.023	1.023	0.736	1.422	1.913	1.914	2.145	3.634	3.867	3.867	3.860	4.552	4.553	4.553	2.909	4.584	4.586	4.585	**10500**
0.460	0.797	0.921	0.921	0.620	1.207	1.695	1.723	1.799	3.171	3.482	3.482	3.269	4.173	4.171	4.170	2.432	4.229	4.227	4.226	**11000**
	0.688	0.833	0.834	0.527	1.033	1.486	1.560	1.522	2.775	3.152	3.152	2.788	3.837	3.837	3.837	2.051	3.854	3.910	3.910	**11500**
	0.594	0.758	0.758	0.452	0.883	1.306	1.418	1.298	2.433	2.867	2.867	2.395	3.538	3.538	3.537	1.744	3.406	3.625	3.625	**12000**
	0.533	0.747	0.775		0.780	1.215	1.447	1.143	2.261	2.924	2.924	2.158	3.486	3.598	3.597	1.532	3.304	3.682	3.681	**12500**
	0.464	0.669	0.707		0.675	1.065	1.309	0.988	1.982	2.620	2.668	1.874	3.130	3.325	3.325	1.319	2.883	3.420	3.420	**13000**
	0.406	0.602	0.648		0.588	0.934	1.172	0.859	1.743	2.352	2.444	1.636	2.818	3.082	3.082	1.143	2.499	3.185	3.184	**13500**
		0.537	0.595		0.515	0.821	1.049	0.751	1.539	2.117	2.248	1.446	2.544	2.858	2.858	0.997	2.165	2.895	2.970	**14000**
		0.480	0.549		0.452	0.725	0.941	0.661	1.359	1.909	2.074	1.286	2.302	2.637	2.637	0.873	1.886	2.624	2.778	**14500**
		0.429	0.503			0.644	0.846	0.584	1.201	1.725	1.920	1.141	2.088	2.424	2.441	0.769	1.651	2.384	2.602	**15000**

TABLE 14B: Z SECTION MIXED 3 SPANS LAPPED INWARDS LOADING

Z 100 10 / Z 100 15					Z 100 12 / Z 100 19					Z 150 12 / Z 150 19					Z 150 15 / Z 150 24					Span
0	1	2	3	L/150	0	1	2	3	L/150	0	1	2	3	L/150	0	1	2	3	L/150	
10.284	10.282	10.282	10.282	13.044	13.187	**14.325**	**14.326**	**14.326**	16.600	**18.539**	**18.539**	**18.539**	**18.540**	49.671	30.876	30.878	30.877	30.876	64.533	**2000**
6.130	6.393	6.394	6.394	6.594	7.151	8.194	8.194	8.195	8.391	**11.854**	**11.853**	**11.850**	**11.848**	25.112	**18.126**	**20.478**	**20.475**	**20.476**	32.624	**2500**
3.830	4.104	4.104	4.104	3.778	4.465	5.093	5.093	5.093	4.807	8.290	8.289	8.289	8.29	14.379	**11.292**	**13.516**	**13.518**	**13.518**	18.680	**3000**
2.601	2.799	2.799	2.799	2.360	3.036	3.472	3.473	3.473	3.003	6.066	6.111	6.111	6.110	8.974	7.393	**9.512**	**9.512**	**9.511**	11.658	**3500**
1.865	2.031	2.031	2.031	1.571	2.184	2.519	2.519	2.520	1.999	4.284	4.673	4.673	4.673	5.966	5.201	**6.944**	**6.944**	**6.944**	7.751	**4000**
1.387	1.542	1.542	1.542	1.097	1.632	1.912	1.912	1.912	1.396	3.172	3.676	3.676	3.676	4.163	3.847	5.123	5.123	5.123	5.408	**4500**
1.058	1.210	1.210	1.210	0.796	1.253	1.500	1.500	1.500	1.013	2.431	2.958	2.958	2.958	3.018	2.951	3.936	3.936	3.936	3.921	**5000**
0.821	0.975	0.975	0.975	0.596	0.981	1.209	1.209	1.209	0.758	1.911	2.374	2.374	2.374	2.256	2.326	3.119	3.120	3.120	2.931	**5500**
0.646	0.802	0.802	0.802	0.458	0.779	0.995	0.995	0.995	0.582	1.532	1.928	1.928	1.928	1.731	1.873	2.533	2.533	2.533	2.248	**6000**
0.540	0.748	0.748	0.748		0.667	0.928	0.928	0.928	0.464	1.245	1.597	1.597	1.597	1.356	1.532	2.099	2.099	2.099	1.762	**6500**
0.429	0.630	0.630	0.630		0.538	0.781	0.781	0.781		1.022	1.345	1.345	1.345	1.082	1.268	1.767	1.767	1.767	1.406	**7000**
	0.538	0.538	0.538		0.437	0.667	0.667	0.667		0.846	1.148	1.148	1.148	0.877	1.060	1.508	1.508	1.508	1.140	**7500**
	0.464	0.464	0.464			0.576	0.576	0.576		0.705	0.991	0.991	0.991	0.721	0.893	1.302	1.302	1.302	0.937	**8000**
	0.405	0.405	0.405			0.497	0.497	0.497		0.591	0.865	0.865	0.865	0.600	0.757	1.136	1.136	1.136	0.779	**8500**
						0.429	0.429	0.429		0.499	0.761	0.761	0.761	0.504	0.647	1.000	1.000	1.000	0.655	**9000**
										0.440	0.726	0.726	0.726	0.433	0.579	0.954	0.954	0.954	0.562	**9500**
											0.646	0.646	0.646		0.496	0.847	0.848	0.848	0.481	**10000**
											0.578	0.578	0.578		0.428	0.752	0.759	0.759	0.414	**10500**
											0.52	0.52	0.520			0.670	0.683	0.683		**11000**
											0.471	0.471	0.471			0.599	0.618	0.618		**11500**
											0.425	0.425	0.425			0.538	0.562	0.562		**12000**
											0.419	0.438	0.438			0.527	0.575	0.575		**12500**
																0.474	0.521	0.525		**13000**
																0.428	0.472	0.481		**13500**
																	0.428	0.442		**14000**
																		0.407		**14500**

Z 200 15 / Z 200 24					Z 250 19 / Z 250 24					Z 300 24 / Z 300 30					Z 350 24 / Z 350 30					Z 400 24 / Z 400 30					Span
0	1	2	3	L/150	0	1	2	3	L/150	0	1	2	3	L/150	0	1	2	3	L/150	0	1	2	3	L/150	
27.122	**27.123**	**27.122**	**27.124**	140.347	41.487	41.486	41.486	41.488	243.057	71.728	71.725	71.726	71.726	541.659	63.326	63.327	63.325	63.329	873.073	55.900	55.899	55.900	55.901	1049.662	**2000**
17.751	**17.748**	**17.739**	**17.738**	70.939	29.043	29.040	29.029	29.033	123.055	50.115	50.113	50.094	50.083	274.234	43.746	43.742	43.729	43.708	442.049	**38.429**	**38.434**	**38.422**	**38.404**	531.474	**2500**
12.723	**12.720**	**12.723**	**12.723**	40.614	21.093	21.091	21.093	21.093	70.531	36.796	36.793	36.794	36.795	157.185	**32.703**	**32.701**	**32.706**	**32.706**	253.394	**28.935**	**28.932**	**28.937**	**28.936**	304.648	**3000**
9.597	**9.597**	**9.596**	**9.593**	25.344	**16.128**	**16.129**	**16.128**	**16.127**	44.047	**28.459**	**28.460**	**28.459**	**28.459**	98.171	**25.814**	**25.815**	**25.814**	**25.811**	158.258	**23.030**	**23.031**	**23.028**	**23.031**	190.275	**3500**
7.488	**7.489**	**7.489**	**7.488**	16.848	**11.219**	**12.751**	**12.751**	**12.751**	29.298	**22.684**	**22.754**	**22.755**	**22.755**	65.296	**21.085**	**21.086**	**21.084**	**21.086**	105.274	**18.986**	**18.986**	**18.986**	**18.985**	126.563	**4000**
5.481	5.991	5.991	5.991	11.756	**8.154**	**10.324**	**10.324**	**10.324**	20.449	**15.837**	**18.622**	**18.622**	**18.622**	45.575	**17.630**	**17.628**	**17.630**	**17.628**	73.476	**16.035**	**16.034**	**16.034**	**16.035**	88.339	**4500**
4.171	4.891	4.890	4.890	8.522	**6.178**	**8.517**	**8.515**	**8.514**	14.827	**11.624**	**15.512**	**15.509**	**15.509**	33.047	**14.996**	**14.996**	**14.996**	**14.992**	53.277	**13.781**	**13.780**	**13.778**	**13.777**	64.053	**5000**
3.273	4.057	4.059	4.059	6.371	4.831	**7.129**	**7.133**	**7.132**	11.088	8.794	**13.097**	**13.108**	**13.108**	24.713	**12.863**	**12.910**	**12.924**	**12.926**	39.842	**11.714**	**11.988**	**12.002**	**12.002**	47.901	**5500**
2.628	3.415	3.415	3.414	4.887	3.873	**6.051**	**6.048**	**6.046**	8.505	6.861	**11.206**	**11.198**	**11.194**	18.958	**9.898**	**11.258**	**11.245**	**11.240**	30.562	**9.109**	**10.563**	**10.551**	**10.545**	36.746	**6000**
2.149	2.829	2.829	2.829	3.829	3.166	**5.191**	**5.191**	**5.191**	6.666	5.491	**9.678**	**9.679**	**9.678**	14.856	7.822	**9.891**	**9.891**	**9.891**	23.951	7.268	**9.376**	**9.376**	**9.376**	28.794	**6500**
1.784	2.381	2.381	2.381	3.056	2.630	**4.450**	**4.450**	**4.450**	5.319	4.487	**8.433**	**8.432**	**8.430**	11.856	6.319	**8.754**	**8.752**	**8.749**	19.114	5.924	**8.379**	**8.376**	**8.374**	22.980	**7000**
1.499	2.033	2.033	2.033	2.477	2.214	**3.800**	**3.800**	**3.800**	4.312	3.730	**7.405**	**7.406**	**7.407**	9.611	5.201	**7.796**	**7.800**	**7.800**	15.495	4.915	**7.532**	**7.536**	**7.536**	18.631	**7500**
1.272	1.755	1.755	1.755	2.036	1.884	3.283	3.283	3.283	3.544	3.147	**6.551**	**6.550**	**6.550**	7.899	4.359	**6.989**	**6.987**	**6.987**	12.735	4.138	**6.812**	**6.810**	**6.810**	15.311	**8000**
1.087	1.531	1.531	1.531	1.693	1.617	2.865	2.865	2.865	2.948	2.688	5.789	5.789	5.790	6.570	3.715	**6.294**	**6.294**	**6.293**	10.592	3.529	**6.186**	**6.186**	**6.186**	12.735	**8500**
0.936	1.347	1.347	1.347	1.423	1.399	2.522	2.522	2.522	2.478	2.320	5.096	5.096	5.096	5.523	3.202	5.693	5.694	5.694	8.904	3.042	5.641	5.640	5.640	10.705	**9000**
0.833	1.286	1.286	1.286	1.222	1.236	2.403	2.403	2.403	2.126	2.031	4.828	4.856	4.856	4.740	2.824	**5.478**	**5.478**	**5.477**	7.641	2.656	5.443	5.442	5.442	9.187	**9500**
0.725	1.143	1.143	1.143	1.045	1.083	2.137	2.137	2.137	1.819	1.784	4.242	4.319	4.319	4.055	2.467	4.984	4.985	4.985	6.537	2.330	4.987	4.988	4.988	7.860	**10000**
0.635	1.023	1.023	1.023	0.901	0.954	1.914	1.914	1.913	1.568	1.577	3.752	3.867	3.867	3.496	2.173	4.552	4.553	4.553	5.636	2.059	4.584	4.585	4.585	6.776	**10500**
0.557	0.921	0.921	0.921	0.782	0.844	1.723	1.723	1.723	1.362	1.403	3.340	3.482	3.482	3.035	1.928	4.172	4.171	4.170	4.893	1.830	4.229	4.227	4.226	5.883	**11000**
0.492	0.833	0.834	0.834	0.683	0.750	1.560	1.560	1.560	1.190	1.255	2.990	3.152	3.152	2.651	1.717	3.837	3.837	3.837	4.275	1.637	3.910	3.910	3.910	5.139	**11500**
0.436	0.758	0.758	0.758	0.600	0.668	1.415	1.418	1.418	1.045	1.129	2.689	2.867	2.867	2.330	1.538	3.490	3.538	3.537	3.756	1.471	3.626	3.625	3.624	4.516	**12000**
0.410	0.775	0.775	0.775	0.539	0.610	1.373	1.447	1.447	0.939	1.028	2.598	2.924	2.924	2.093	1.393	3.446	3.598	3.597	3.373	1.336	3.571	3.682	3.681	4.056	**12500**
	0.707	0.707	0.707	0.479	0.546	1.242	1.320	1.320	0.833	0.932	2.347	2.668	2.668	1.857	1.260	3.119	3.325	3.325	2.994	1.211	3.232	3.421	3.421	3.599	**13000**
	0.648	0.648	0.648	0.427	0.490	1.127	1.210	1.210	0.743	0.848	2.129	2.444	2.444	1.655	1.146	2.835	3.082	3.082	2.669	1.102	2.937	3.185	3.184	3.209	**13500**
	0.594	0.595	0.595		0.440	1.026	1.112	1.112	0.665	0.774	1.939	2.248	2.248	1.482	1.045	2.587	2.858	2.858	2.389	1.006	2.679	2.971	2.970	2.873	**14000**
	0.544	0.549	0.549			0.937	1.026	1.026	0.598	0.709	1.772	2.074	2.074	1.332	0.957	2.369	2.637	2.637	2.147	0.921	2.456	2.778	2.778	2.582	**14500**
	0.500	0.508	0.508			0.857	0.950	0.950	0.539	0.650	1.625	1.920	1.920	1.201	0.879	2.176	2.441	2.441	1.937	0.845	2.262	2.602	2.602	2.329	**15000**

TABLE 15A:
Z SECTION
MIXED 4 SPANS LAPPED
OUTWARDS LOADING



Bolt capacity exceeded. M12 bolts for 100 - 250 series, M16 bolts for 300 series or greater.

BOLD Grade 8.8 bolts required.

3/SB For Safebridge® system use data for 3 rows of bridging.

Z 100 10 / Z 100 15				Z 100 12 / Z 100 19				Z 150 12 / Z 150 19				Z 150 15 / Z 150 24				Span
0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	
9.200	9.199	9.199	9.198	12.859	12.858	12.858	12.856	**15.872**	**15.872**	**15.873**	**15.873**	28.815	28.815	28.814	28.815	**2000**
5.779	5.778	5.779	5.779	7.417	7.417	7.417	7.417	**10.435**	**10.435**	**10.432**	**10.432**	**18.139**	**18.136**	**18.133**	**18.138**	**2500**
3.731	3.731	3.731	3.731	4.594	4.625	4.625	4.625	7.403	7.401	7.403	7.403	**12.108**	**12.108**	**12.109**	**12.109**	**3000**
2.465	2.552	2.552	2.552	2.989	3.164	3.164	3.164	5.502	5.502	5.502	5.501	**8.574**	**8.574**	**8.574**	**8.574**	**3500**
1.664	1.857	1.857	1.857	2.056	2.302	2.302	2.302	4.230	4.230	4.230	4.230	6.230	6.287	6.287	6.287	**4000**
1.159	1.412	1.412	1.412	1.469	1.750	1.750	1.750	3.340	3.340	3.340	3.340	4.429	4.649	4.650	4.649	**4500**
0.822	1.110	1.110	1.110	1.0800	1.369	1.376	1.376	2.556	2.695	2.693	2.693	3.264	3.581	3.581	3.581	**5000**
0.595	0.880	0.896	0.896	0.811	1.068	1.110	1.110	1.901	2.164	2.164	2.164	2.469	2.844	2.844	2.844	**5500**
0.444	0.689	0.738	0.738	0.621	0.847	0.915	0.915	1.436	1.761	1.761	1.761	1.905	2.314	2.314	2.314	**6000**
	0.581	0.685	0.685	0.507	0.733	0.848	0.849	1.096	1.461	1.461	1.461	1.493	1.919	1.919	1.919	**6500**
	0.458	0.577	0.577	0.404	0.590	0.698	0.716	0.848	1.232	1.232	1.232	1.189	1.594	1.618	1.618	**7000**
		0.476	0.493		0.480	0.580	0.612	0.669	1.028	1.053	1.053	0.957	1.324	1.383	1.383	**7500**
			0.427			0.488	0.529	0.537	0.864	0.910	0.910	0.780	1.111	1.196	1.196	**8000**
						0.413	0.457	0.438	0.725	0.795	0.795	0.646	0.940	1.044	1.044	**8500**
							0.414		0.608	0.700	0.700	0.537	0.800	0.920	0.920	**9000**
									0.530	0.664	0.665	0.461	0.714	0.858	0.874	**9500**
									0.444	0.579	0.592		0.611	0.748	0.778	**10000**
										0.508	0.530		0.526	0.655	0.697	**10500**
										0.447	0.478		0.455	0.577	0.628	**11000**
											0.433			0.510	0.568	**11500**
											0.414			0.452	0.508	**12000**
														0.428	0.495	**12500**
															0.444	**13000**
															0.412	**13500**

Z 200 15 / Z 200 24				Z 250 19 / Z 250 24				Z 300 24 / Z 300 30				Z 350 24 / Z 350 30				Z 400 24 / Z 400 30				Span
0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	0	1	2	3/SB	
23.168	**23.168**	**23.170**	**23.171**	37.132	37.132	37.135	37.134	63.365	63.368	63.366	63.370	54.335	54.338	54.337	54.339	**47.432**	**47.429**	**47.433**	**47.430**	**2000**
15.596	**15.592**	**15.590**	**15.588**	25.334	25.330	25.331	25.323	43.631	43.628	43.615	43.608	**37.953**	**37.955**	**37.939**	**37.931**	**33.304**	**33.303**	**33.293**	**33.274**	**2500**
11.348	**11.346**	**11.348**	**11.348**	18.714	18.711	18.713	18.712	**32.586**	**32.582**	**32.588**	**32.588**	**28.869**	**28.866**	**28.869**	**28.870**	**25.512**	**25.507**	**25.511**	**25.513**	**3000**
8.637	**8.638**	**8.637**	**8.637**	**14.461**	**14.462**	**14.459**	**14.456**	**25.482**	**25.482**	**25.476**	**25.477**	**23.045**	**23.045**	**23.045**	**23.040**	**20.537**	**20.538**	**20.535**	**20.537**	**3500**
6.779	**6.779**	**6.779**	**6.779**	**11.513**	**11.513**	**11.513**	**11.514**	**20.522**	**20.523**	**20.524**	**20.523**	**18.968**	**18.967**	**18.969**	**18.969**	**17.064**	**17.065**	**17.064**	**17.064**	**4000**
5.446	5.446	5.446	5.446	**9.368**	**9.368**	**9.369**	**9.368**	**16.884**	**16.881**	**16.881**	**16.883**	**15.951**	**15.949**	**15.951**	**15.947**	**14.495**	**14.495**	**14.494**	**14.496**	**4500**
4.459	4.457	4.454	4.452	**7.756**	**7.753**	**7.746**	**7.741**	**14.119**	**14.110**	**14.096**	**14.086**	**13.626**	**13.618**	**13.600**	**13.583**	**12.513**	**12.504**	**12.487**	**12.471**	**5000**
3.709	3.707	3.709	3.709	**6.514**	**6.510**	**6.514**	**6.514**	**11.963**	**11.955**	**11.964**	**11.964**	**11.784**	**11.771**	**11.783**	**11.783**	**10.936**	**10.923**	**10.935**	**10.936**	**6500**
3.112	3.118	3.118	3.118	**5.332**	**5.538**	**5.535**	**5.533**	**10.252**	**10.252**	**10.245**	**10.241**	**10.289**	**10.290**	**10.280**	**10.274**	**9.651**	**9.651**	**9.640**	**9.634**	**7000**
2.504	2.587	2.587	2.587	**4.132**	**4.759**	**4.759**	**4.759**	**8.871**	**8.871**	**8.871**	**8.871**	**9.060**	**9.060**	**9.060**	**9.060**	**8.585**	**8.585**	**8.585**	**8.585**	**7500**
2.043	2.181	2.181	2.181	3.232	**4.086**	**4.086**	**4.086**	**7.742**	**7.740**	**7.739**	**7.738**	**8.033**	**8.032**	**8.030**	**8.028**	**7.688**	**7.685**	**7.683**	**7.681**	**8000**
1.661	1.864	1.864	1.864	2.546	3.493	3.493	3.493	6.446	**6.806**	**6.808**	**6.807**	**7.166**	**7.163**	**7.167**	**7.167**	**6.923**	**6.919**	**6.923**	**6.924**	**8500**
1.351	1.611	1.611	1.611	2.037	3.020	3.020	3.020	5.310	6.027	6.026	6.026	**6.429**	**6.429**	**6.428**	**6.428**	**6.266**	**6.266**	**6.265**	**6.263**	**9000**
1.103	1.407	1.407	1.407	1.641	2.637	2.637	2.637	4.395	5.330	5.330	5.330	5.795	5.795	5.795	5.795	5.696	5.696	5.697	5.696	**9500**
0.907	1.239	1.239	1.239	1.331	2.256	2.323	2.323	3.660	4.695	4.695	4.695	5.247	5.248	5.247	5.248	5.198	5.199	5.199	5.199	**10000**
0.775	1.175	1.178	1.178	1.123	2.006	2.207	2.207	3.181	4.461	4.461	4.461	5.029	5.030	5.029	5.028	4.572	4.996	4.995	4.994	**10500**
0.650	1.025	1.048	1.048	0.936	1.704	1.965	1.965	2.678	3.970	3.970	3.970	4.435	4.580	4.581	4.581	3.746	4.582	4.583	4.583	**11000**
0.552	0.898	0.939	0.939	0.787	1.454	1.760	1.760	2.248	3.515	3.557	3.557	3.858	4.187	4.187	4.187	3.101	4.216	4.217	4.217	**11500**
0.474	0.791	0.846	0.846	0.663	1.243	1.586	1.586	1.906	3.086	3.205	3.204	3.364	3.841	3.839	3.838	2.593	3.892	3.890	3.890	**12000**
0.410	0.693	0.766	0.766	0.563	1.064	1.434	1.436	1.621	2.718	2.902	2.902	2.884	3.534	3.534	3.534	2.186	3.602	3.602	3.602	**12500**
	0.606	0.697	0.697	0.483	0.917	1.276	1.307	1.382	2.401	2.641	2.641	2.480	3.261	3.260	3.260	1.858	3.310	3.341	3.341	**13000**
	0.555	0.708	0.708	0.429	0.824	1.205	1.327	1.223	2.270	2.681	2.681	2.244	3.296	3.296	3.296	1.641	3.181	3.372	3.371	**13500**
	0.482	0.636	0.647		0.711	1.063	1.211	1.056	1.999	2.448	2.448	1.948	2.979	3.049	3.049	1.412	2.854	3.135	3.135	**14000**
	0.422	0.574	0.593		0.617	0.940	1.110	0.918	1.765	2.244	2.244	1.702	2.692	2.827	2.828	1.224	2.570	2.921	2.921	**14500**
		0.519	0.545		0.540	0.834	1.016	0.803	1.567	2.037	2.064	1.494	2.439	2.626	2.626	1.066	2.279	2.727	2.726	**15000**
		0.471	0.503		0.474	0.739	0.920	0.706	1.393	1.845	1.906	1.319	2.216	2.424	2.424	0.934	2.010	2.507	2.552	
		0.427	0.466		0.420	0.656	0.832	0.624	1.241	1.674	1.765	1.169	2.018	2.244	2.244	0.822	1.761	2.285	2.391	

TABLE 15B:
Z SECTION
MIXED 4 SPANS
LAPPED
INWARDS
LOADING

Z 100 10 / Z 100 15					Z 100 12 / Z 100 19					Z 150 12 / Z 150 19					Z 150 15 / Z 150 24					Span
0	1	2	3	L/150	0	1	2	3	L/150	0	1	2	3	L/150	0	1	2	3	L/150	
9.200	9.198	9.200	9.199	14.523	12.244	12.858	12.859	12.857	18.479	**15.873**	**15.872**	**15.873**	**15.872**	55.969	28.815	28.815	28.815	28.814	72.719	**2000**
5.718	5.778	5.779	5.779	7.285	6.637	7.417	7.417	7.417	9.266	**10.435**	**10.434**	**10.432**	**10.431**	28.129	**16.906**	**18.135**	**18.133**	**18.132**	36.544	**2500**
3.578	3.731	3.731	3.731	4.149	4.150	4.625	4.625	4.625	5.276	7.403	7.401	7.403	7.403	16.005	**10.587**	**12.108**	**12.109**	**12.108**	20.790	**3000**
2.437	2.552	2.552	2.552	2.580	2.828	3.164	3.164	3.164	3.280	5.502	5.502	5.502	5.501	9.932	6.925	**8.574**	**8.574**	**8.573**	12.902	**3500**
1.755	1.857	1.857	1.857	1.711	2.040	2.302	2.302	2.302	2.175	4.056	4.230	4.230	4.230	6.572	4.873	6.287	6.287	6.287	8.537	**4000**
1.314	1.412	1.412	1.412	1.192	1.532	1.750	1.750	1.750	1.515	3.005	3.340	3.340	3.340	4.568	3.606	4.649	4.649	4.649	5.933	**4500**
1.012	1.110	1.110	1.110	0.863	1.184	1.376	1.376	1.376	1.097	2.306	2.695	2.694	2.692	3.301	2.769	3.581	3.581	3.581	4.287	**5000**
0.796	0.896	0.896	0.896	0.644	0.936	1.110	1.110	1.110	0.819	1.817	2.164	2.164	2.164	2.461	2.185	2.844	2.844	2.844	3.197	**5500**
0.637	0.738	0.738	0.738	0.494	0.752	0.915	0.915	0.915	0.628	1.461	1.761	1.761	1.761	1.883	1.762	2.314	2.314	2.314	2.446	**6000**
0.545	0.685	0.685	0.685		0.651	0.849	0.849	0.849	0.504	1.194	1.461	1.461	1.461	1.473	1.445	1.919	1.919	1.919	1.913	**6500**
0.442	0.577	0.577	0.577		0.533	0.716	0.716	0.716	0.402	0.987	1.232	1.232	1.232	1.173	1.202	1.618	1.618	1.618	1.524	**7000**
	0.493	0.493	0.493		0.441	0.612	0.612	0.612		0.825	1.053	1.053	1.053	0.950	1.010	1.383	1.383	1.383	1.233	**7500**
	0.427	0.427	0.427			0.529	0.529	0.529		0.694	0.910	0.910	0.910	0.779	0.856	1.196	1.196	1.196	1.012	**8000**
	0.405	0.405	0.405			0.462	0.462	0.462		0.588	0.795	0.795	0.795	0.647	0.731	1.044	1.044	1.044	0.841	**8500**
						0.402	0.407	0.407		0.501	0.700	0.700	0.700	0.544	0.629	0.919	0.920	0.920	0.706	**9000**
										0.442	0.665	0.665	0.665	0.469	0.563	0.874	0.874	0.874	0.609	**9500**
											0.592	0.592	0.592	0.401	0.490	0.778	0.778	0.778	0.520	**10000**
											0.530	0.530	0.530		0.429	0.697	0.697	0.697	0.448	**10500**
											0.478	0.478	0.478			0.626	0.628	0.628		**11000**
											0.433	0.433	0.433			0.561	0.568	0.568		**11500**
											0.425	0.425	0.425			0.504	0.517	0.517		**12000**
											0.419	0.438	0.438			0.492	0.526	0.526		**12500**
																0.444	0.479	0.480		**13000**
																0.402	0.434	0.440		**13500**
																		0.405		**14000**
																				14500

Z 200 15 / Z 200 24					Z 250 19 / Z 250 24					Z 300 24 / Z 300 30					Z 350 24 / Z 350 30					Z 400 24 / Z 400 30					Span
0	1	2	3	L/150	0	1	2	3	L/150	0	1	2	3	L/150	0	1	2	3	L/150	0	1	2	3	L/150	
23.168	**23.170**	**23.169**	**23.171**	158.162	37.131	37.133	37.133	37.135	273.985	63.363	63.370	63.367	63.367	610.598	54.336	54.340	54.336	54.339	984.285	**47.430**	**47.430**	**47.429**	**47.430**	1183.383	**2000**
15.596	**15.594**	**15.589**	**15.589**	79.459	25.334	25.332	25.327	25.319	138.018	43.629	43.626	43.619	43.612	307.618	**37.955**	**37.953**	**37.935**	**37.937**	495.962	**33.306**	**33.306**	**33.290**	**33.283**	596.267	**2500**
11.348	**11.346**	**11.348**	**11.348**	45.196	18.712	18.711	18.713	18.712	78.651	**32.588**	**32.581**	**32.587**	**32.588**	175.305	**28.868**	**28.865**	**28.869**	**28.869**	282.655	**25.514**	**25.509**	**25.512**	**25.513**	339.822	**3000**
8.637	**8.638**	**8.636**	**8.637**	28.044	**14.461**	**14.463**	**14.458**	**14.458**	48.864	**25.481**	**25.481**	**25.479**	**25.477**	108.910	**23.045**	**23.045**	**23.044**	**23.045**	175.615	**20.537**	**20.538**	**20.536**	**20.532**	211.150	**3500**
6.779	**6.779**	**6.779**	**6.779**	18.555	**10.891**	**11.513**	**11.514**	**11.513**	32.354	**20.522**	**20.521**	**20.523**	**20.522**	72.119	**18.969**	**18.970**	**18.970**	**18.968**	116.293	**17.064**	**17.065**	**17.064**	**17.065**	139.816	**4000**
5.187	5.446	5.446	5.446	12.894	**7.945**	**9.368**	**9.368**	**9.368**	22.499	**15.407**	**16.881**	**16.882**	**16.882**	50.150	**15.951**	**15.950**	**15.950**	**15.949**	80.869	**14.495**	**14.496**	**14.495**	**14.495**	97.224	**4500**
3.957	4.457	4.454	4.452	9.316	**6.040**	**7.753**	**7.746**	**7.741**	16.262	**11.300**	**14.110**	**14.095**	**14.085**	36.248	**13.626**	**13.618**	**13.601**	**13.586**	58.452	**12.513**	**12.503**	**12.487**	**12.472**	70.277	**5000**
3.109	3.707	3.709	3.709	6.946	**4.738**	**6.510**	**6.514**	**6.514**	12.129	8.617	**11.955**	**11.964**	**11.965**	27.036	**11.783**	**11.771**	**11.783**	**11.784**	43.594	**10.935**	**10.921**	**10.935**	**10.936**	52.413	**5500**
2.500	3.118	3.118	3.118	5.315	**3.809**	**5.539**	**5.535**	**5.533**	9.283	6.759	**10.252**	**10.245**	**10.242**	20.690	**9.675**	**10.290**	**10.280**	**10.275**	33.365	**9.041**	**9.650**	**9.640**	**9.634**	40.115	**6000**
2.047	2.587	2.587	2.587	4.156	**3.116**	**4.759**	**4.759**	**4.759**	7.260	5.411	**8.871**	**8.871**	**8.871**	16.183	**7.648**	**9.060**	**9.060**	**9.061**	26.096	7.214	**8.585**	**8.585**	**8.585**	31.374	**6500**
1.702	2.181	2.181	2.181	3.311	**2.589**	**4.086**	**4.086**	**4.086**	5.784	4.422	**7.741**	**7.739**	**7.738**	12.893	6.182	**8.032**	**8.030**	**8.028**	20.791	5.880	**7.686**	**7.683**	**7.681**	24.995	**7000**
1.431	1.864	1.864	1.864	2.680	2.179	3.493	3.493	3.493	4.682	3.678	**6.806**	**6.807**	**6.808**	10.437	5.090	**7.164**	**7.167**	**7.167**	16.829	4.877	**6.920**	**6.923**	**6.924**	20.234	**7500**
1.216	1.611	1.611	1.611	2.199	1.855	3.020	3.020	3.020	3.843	3.103	6.027	6.027	6.026	8.566	4.258	**6.429**	**6.428**	**6.427**	13.813	4.106	**6.266**	**6.265**	**6.264**	16.607	**8000**
1.042	1.407	1.407	1.407	1.827	1.594	2.637	2.637	2.637	3.192	2.650	5.330	5.330	5.330	7.116	3.611	5.795	5.795	5.796	11.475	3.501	5.697	5.697	5.696	13.797	**8500**
0.900	1.239	1.239	1.239	1.534	1.381	2.323	2.323	2.323	2.681	2.287	4.695	4.695	4.695	5.976	3.101	5.248	5.248	5.247	9.637	3.018	5.199	5.198	5.199	11.586	**9000**
0.800	1.178	1.178	1.178	1.323	1.219	2.207	2.207	2.207	2.311	2.003	4.461	4.461	4.461	5.152	2.765	5.030	5.029	5.028	8.308	2.634	4.996	4.995	4.995	9.988	**9500**
0.699	1.048	1.048	1.048	1.131	1.070	1.965	1.965	1.965	1.975	1.759	3.970	3.971	3.971	4.403	2.420	4.580	4.580	4.581	7.100	2.311	4.582	4.583	4.583	8.536	**10000**
0.615	0.939	0.939	0.939	0.974	0.945	1.760	1.760	1.760	1.701	1.555	3.557	3.557	3.557	3.792	2.130	4.186	4.187	4.187	6.115	2.042	4.216	4.217	4.217	7.352	**10500**
0.543	0.846	0.846	0.846	0.844	0.838	1.586	1.586	1.586	1.476	1.384	3.187	3.204	3.204	3.289	1.889	3.841	3.839	3.839	5.304	1.815	3.892	3.891	3.890	6.377	**11000**
0.481	0.766	0.766	0.766	0.737	0.747	1.436	1.436	1.436	1.288	1.238	2.857	2.902	2.902	2.871	1.686	3.534	3.534	3.534	4.630	1.623	3.602	3.602	3.602	5.567	**11500**
0.428	0.697	0.697	0.697	0.647	0.668	1.307	1.307	1.307	1.131	1.113	2.573	2.641	2.641	2.521	1.514	3.261	3.260	3.260	4.065	1.459	3.341	3.341	3.340	4.888	**12000**
0.400	0.708	0.708	0.708	0.586	0.616	1.302	1.327	1.327	1.024	1.015	2.498	2.681	2.681	2.282	1.380	3.254	3.297	3.296	3.679	1.325	3.372	3.372	3.372	4.424	**12500**
	0.647	0.647	0.647	0.520	0.556	1.178	1.211	1.211	0.908	0.920	2.259	2.448	2.448	2.023	1.249	2.950	3.049	3.049	3.262	1.202	3.083	3.135	3.135	3.922	**13000**
	0.593	0.593	0.593	0.463	0.502	1.070	1.110	1.110	0.808	0.838	2.052	2.244	2.244	1.802	1.135	2.685	2.828	2.827	2.905	1.093	2.804	2.921	2.921	3.493	**13500**
	0.545	0.545	0.545	0.414	0.454	0.975	1.022	1.022	0.723	0.765	1.870	2.064	2.065	1.612	1.035	2.453	2.626	2.626	2.599	0.998	2.561	2.727	2.726	3.124	**14000**
	0.503	0.503	0.503		0.412	0.891	0.943	0.943	0.649	0.701	1.711	1.906	1.906	1.447	0.948	2.249	2.424	2.424	2.334	0.914	2.346	2.552	2.552	2.806	**14500**
	0.466	0.466	0.466			0.816	0.873	0.873	0.585	0.643	1.570	1.765	1.765	1.305	0.870	2.068	2.244	2.244	2.104	0.840	2.157	2.392	2.391	2.529	**15000**

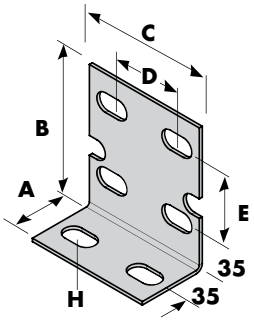
BRIDGING

Metroll Bridging is made up of basic components and as well as proprietary components from the Metroll Met-Lock Bridging System.

BASIC BRIDGING COMPONENTS

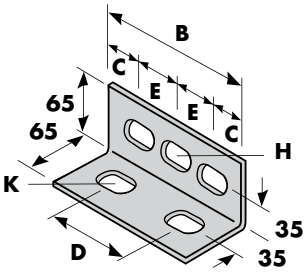
All Metroll components are manufactured from zinc coated steel and form an integral part of the Metroll purlin and girt system.

GENERAL PURPOSE BRACKET - GPB



SIZE	A	B	C	D	E	H
100	60	110	70	40	50	20 x 17
150	60	125	110	60	65	30 x 17
200	60	135	160	110	75	30 x 17
250	65	135	210	160	75	30 x 17

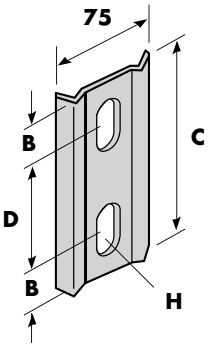
ANGLE CONNECTOR



SIZE	B	C	D	E	H	K
100	90	-	-	-	1 @ 60 x 17	1 @ 60 x 17
150	140	33	74	37	3 @ 30 x 17	2 @ 30 x 17
200	190	40	110	55	3 @ 30 x 17	2 @ 30 x 17
250	240	40	160	57	4 @ 30 x 17	2 @ 30 x 17

CLAMP PLATE

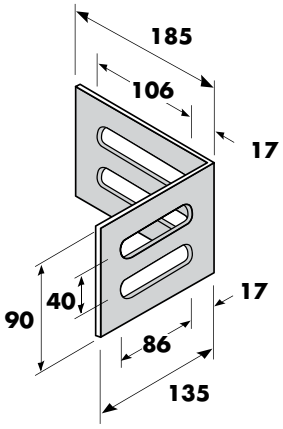
SIZE	B	C	D	E	H
100	25	90	40	-	20 x 17
150	40	140	60	37	30 x 17
200	40	190	110	55	30 x 17
250	40	240	160	57	30 x 17



RAKING GIRT BRACKET

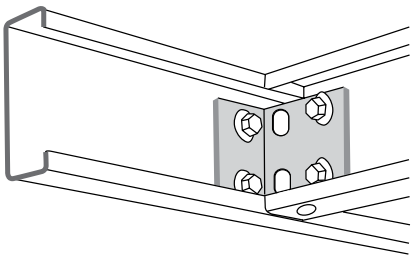
SIZE 100 ONLY

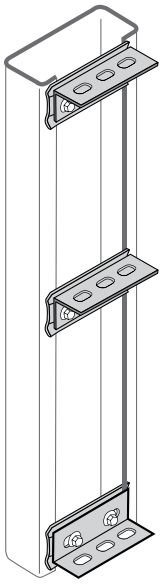
WA - Available on request only



TYPICAL BASIC COMPONENTS ASSEMBLIES

❶

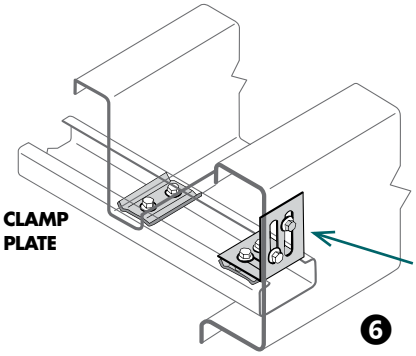




❷ **CLAMP PLATE AND ANGLE CONNECTOR AS A TRIMMER TO DOOR HEAD CONNECTION**

❸ **CLAMP PLATE AND ANGLE CONNECTOR FOR GIRT CONNECTION**

❹ **CLAMP PLATE AND ANGLE CONNECTOR AS A FOOT CONNECTION**



❺ **CLAMP PLATE**

FASCIA PURLIN

RAKING GIRT BRACKET & CLAMP PLATE ❻

MET-LOCK BRIDGING*

Met-Lock Bridging by Metroll is an uncomplicated proprietary system developed for fast installation and optimum compatibility with Metroll purlins and girts. (In WA this system is called Tab-Lok Bridging and components differ).

Met-Lock Bridging can be installed in a number of ways. The usual method is to commence installation at the fascia and proceed up the roof slope to the ridge.

The system consists of solid bridging assemblies between purlins/girts and adjustable bridging assemblies at locations such as ridges, eaves and the bottom of girts (girt foot).

BRACING

Purlins display two types of lateral instability; lateral deflection and twist (rotation and roll). It is necessary to control these instabilities by installing suitable bracing as close as possible to the flanges of a section.

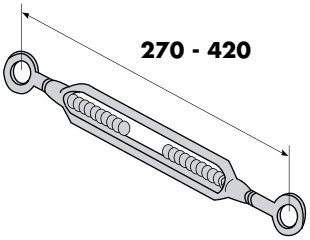
Bracing can be continuous (cladding fastened to the flange), or point braced at the midspan region or at several points on the midspan region. Point bracing is required to stabilise and straighten the purlins and girts prior to the fixing of cladding in order to facilitate the fixing operation.

Common point bracing types are ties, these can be loaded in tension only. Because they are solid members, Met-Lock components secured to the web of purlins and girts can be loaded in tension, compression and bending. For this reason a continuous run of bridging is the most effective stabiliser for both roof and walls. It is also the most widely accepted by design engineers.

Met-Lock components are simple yet robust. Installers do not have to worry about additional clips or ends that distort with slight impact. Locators and Clamps have hook centres to match holes punched in corresponding purlins and girts.

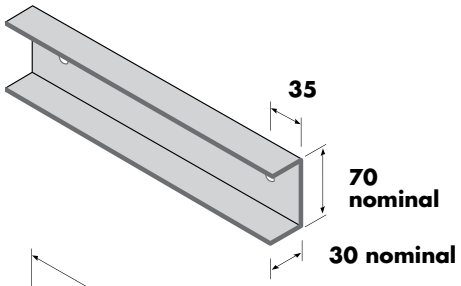
MET-LOCK BRIDGING COMPONENTS

TURNBUCKLE

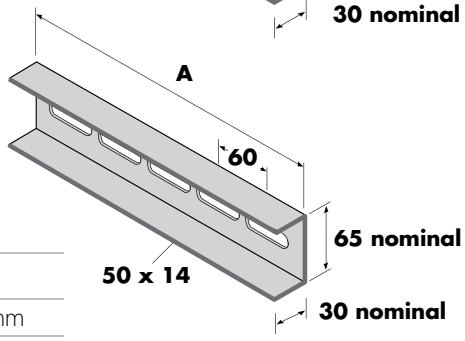


CHANNEL

Cut to length with a hole at each end



SLOTTED CHANNEL

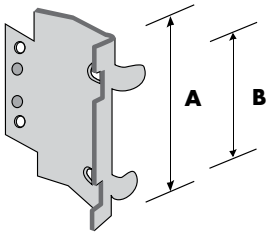


HOLES	A
2	130mm
3	190mm
5	310mm

LOCATOR END

SIZE	A (NOMINAL)	B (NOMINAL)
100	65mm	40mm
150	110mm*	60mm
200	140mm	110mm
250	190mm	160mm

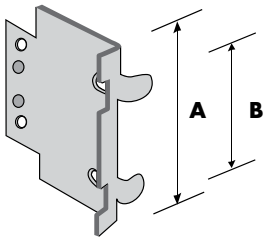
*90mm in VIC



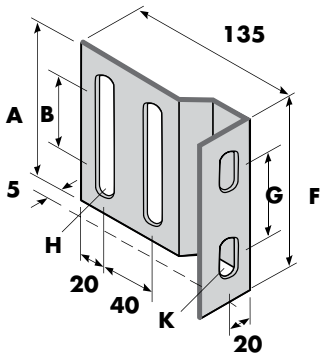
CLAMP END

SIZE	A (NOMINAL)	B (NOMINAL)
100	65mm	40mm
150	110mm*	60mm
200	140mm	110mm
250	190mm	160mm

*85mm in VIC



FASCIA BRACKET



SIZE	A	B	F	G	H	K
150	110	-	110	65	2 @ 80 x 14	2 @ 19 x 14
200/ 260	160	80	190	135	4 @ 65 x 14	2 @ 39 x 14

***NOTE**: In WA the bridging system is called Tab-Lok. Components vary.

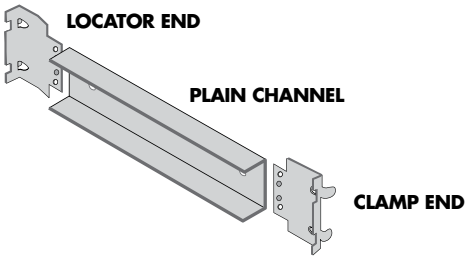
TYPICAL MET-LOCK BRIDGING ASSEMBLIES

INTERMEDIATE BRIDGING

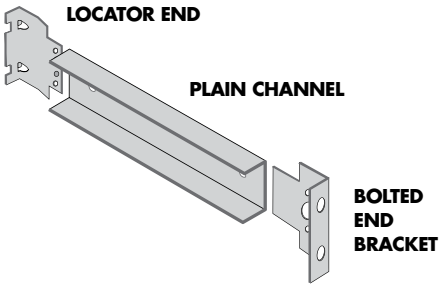
Intermediate Bridging is the basic connecting member between purlins and generally comprises a Locator End and a Clamp End attached to cut-to-length Plain Channel.

All bridging lengths should be centre to centre dimensions. Metroll programming deducts the purlin thickness to ensure the correct spacing is manufacturing.

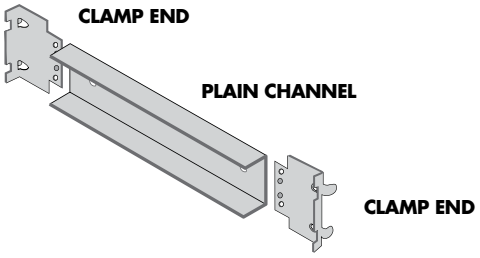
IBLC - INTERMEDIATE BRIDGING LOCATOR/CLAMP



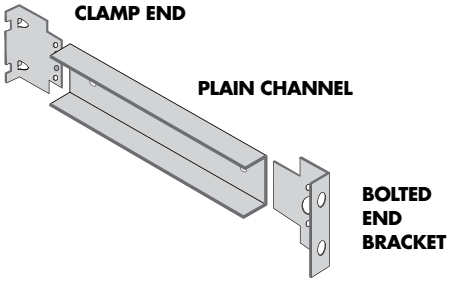
IBLB - INTERMEDIATE BRIDGING LOCATOR/BEB



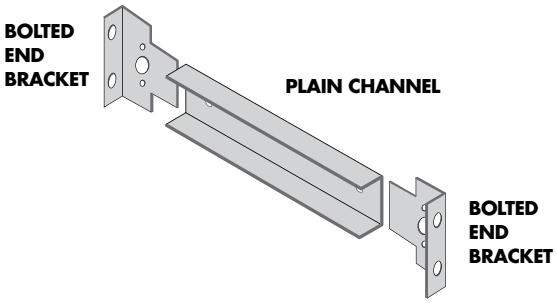
IBCC - INTERMEDIATE BRIDGING CLAMP/CLAMP



IBCB - INTERMEDIATE BRIDGING CLAMP/BEB

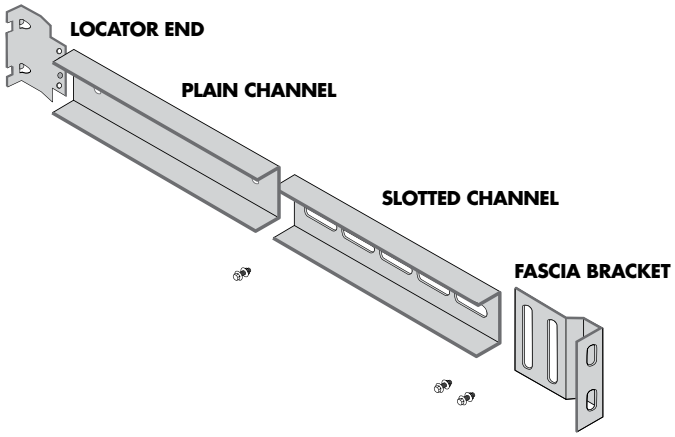


IBBB - INTERMEDIATE BRIDGING BEB/BEB



FASCIA BRIDGING

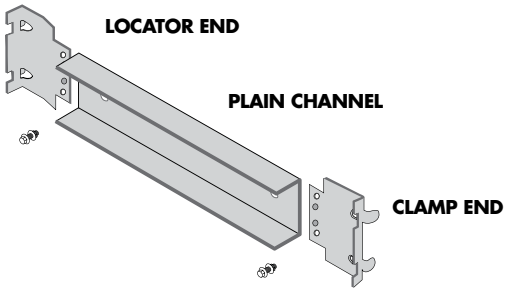
Fascia Bridging is used to provide support to the first internal purlin and for straightening and securing the Fascia Purlin. The standard combination consists of a Fascia Bracket, Slotted Channel, Plain Channel and a Locator End.



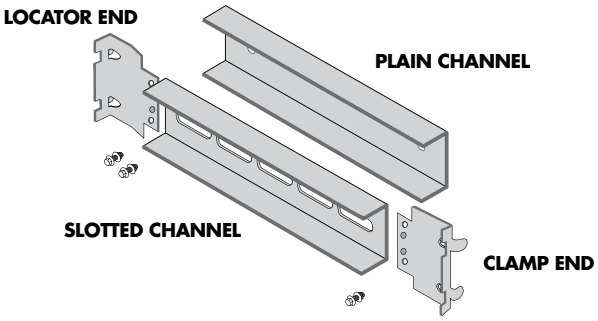
EXPANSION JOINT BRIDGING

Expansion Joint Bridging is used to accommodate a step or joint in the roof plane and is often an adjustable or swivel assembly. Combination variations are outlined below:

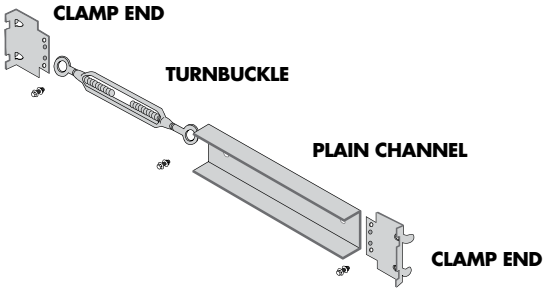
ALTERNATIVE - SWIVEL ENDS



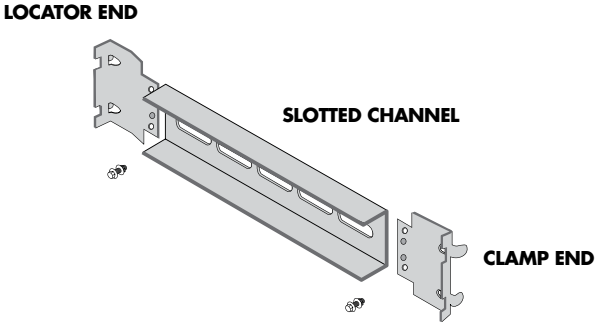
ALTERNATIVE - ADJUSTABLE



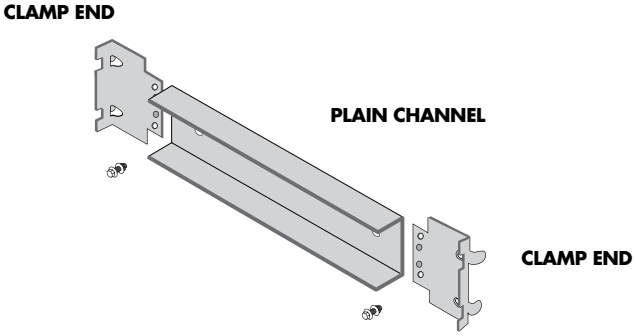
ALTERNATIVE - TURNBUCKLE WITH CHANNEL



ALTERNATIVE - SLOTTED CHANNEL



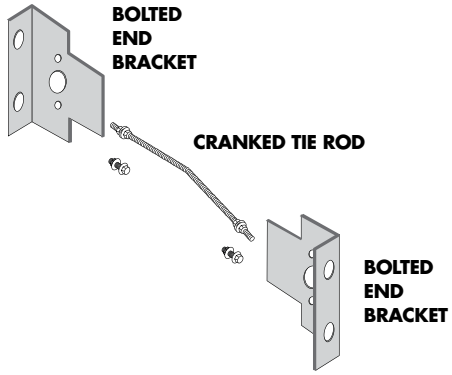
ALTERNATIVE - SWIVELS ENDS WITH CHANNEL



TIE ROD BRIDGING

Tie Rod Bridging is a light duty, versatile application commonly used for alignment and adjustment. This bridging may be used anywhere a bolted end is used, but is not suitable for sustaining compressive loads.

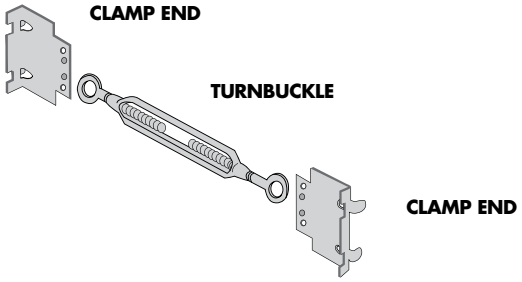
ALTERNATIVE - CRANKED TIE ROD



RIDGE BRIDGING

Like all Met-Lock Bridging the Ridge Tie or Bridging is simple and efficient. As the name implies this bridging is used at the apex of the roof and is usually adjustable. Several alternatives are outlined below:

ALTERNATIVE - TURNBUCKLE



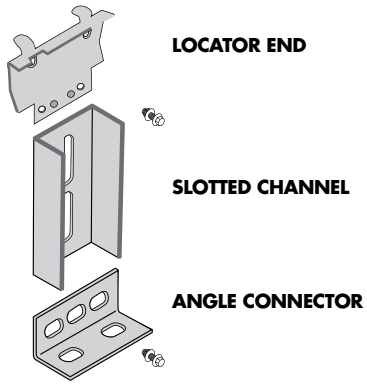
GIRT BRIDGING

Girt Bridging is usually made up of: an Adjustable Girt Foot, Intermediate Bridging and a Girt Hanger. The recommended installation procedure and precautions are required.

1. The roof sheeting should be installed before the Turnbuckle or Girt Hanger is used to level the Girts which would impose loads on the fascia system; and
2. A temporary girt support under the bottom girt is required until installation of the wall cladding is complete.

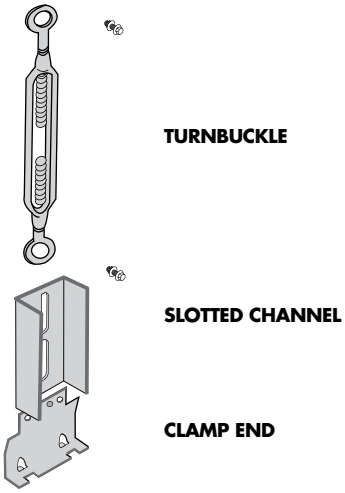
GIRT FOOT

Girt Foot assemblies are used to transfer downward forces in girt bridging to the floor. They also provide some adjustment and alignment to the bottom purlin.



GIRT HANGER

Primarily used to assist in alignment and stabilisation. A Girt Hanger is usually attached to a Slotted Channel by a Turnbuckle in the Fascia Bridging assembly. Girt Hangers should not be used to suspend the wall girts.



GIRT BRIDGING INSTALLATION

The recommended procedure for the installation of Girt Bridging is to start at floor level and work up the walls toward the fascia or eaves. A typical installation is as follows:

STEP 1:

Install the Girt Foot assembly by engaging the Locator into the appropriate holes in the bottom girt. Due to the transference of loads, Girt Feet assemblies must be anchored to the slab.

STEP 2:

Adjust the Girt Foot assembly to level the bottom girt. Where the slab has not been poured or a Girt Foot not specified, the bottom purlin must be temporarily supported to keep it level.

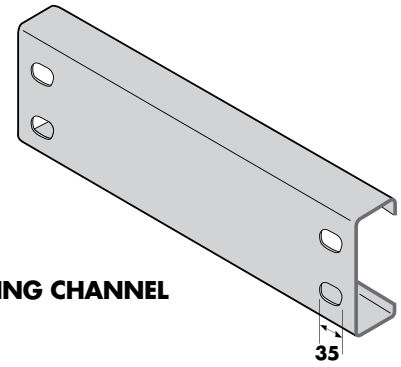
LARGE BRIDGING

Metroll's Large Bridging is for Metroll's large purlin range (C/Z300, C/Z350 and C/Z400 series). Like the Met-Lock range, the heavy duty range is simple and easy to install.

LARGE BRIDGING BASIC COMPONENTS

All Metroll components are manufactured from zinc coated steel and form an integral part of the Metroll purlin and girt system. Components are larger because the sections are more substantial.

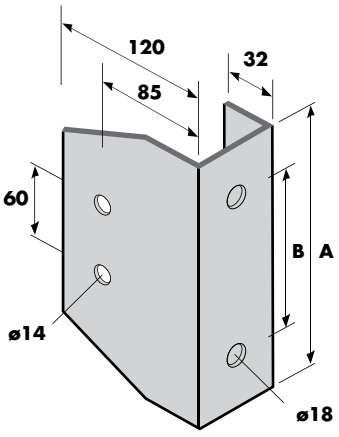
Generally the Bridging Channel is a C150 section firmly bolted to end plates at 90°. If a particular angle is required at the bridging ends it must be specified at the time of order. Additional costs may apply.



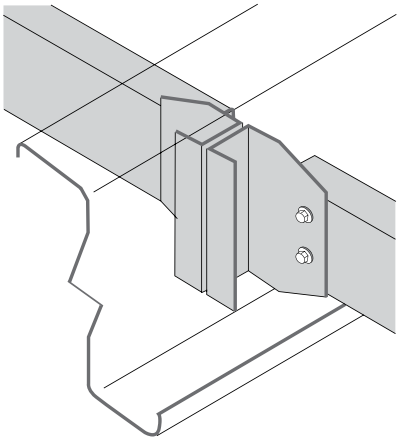
C150 PURLIN
USED AS A BRIDGING CHANNEL

LARGE SERIES END PLATE

SIZE	A	B
250	210	160
300	260	210
350	310	260
400	360	310



TYPICAL LARGE BRIDGING ASSEMBLY

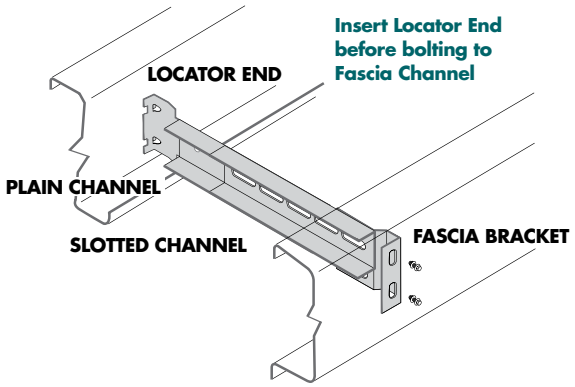


BRIDGING INSTALLATION

Following are the recommended safe and practical steps for the installation of the Met-Lock Bridging System. Procedures will vary from state to state, however standard practice is to commence purlin installation at the fascia and work up the roof slope to the ridge line.

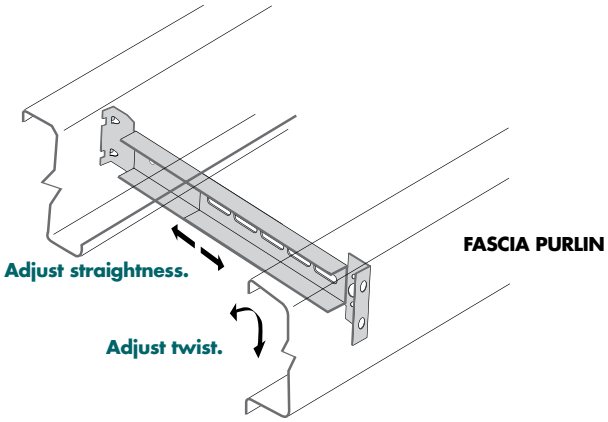
STEP 1: FIX FASCIA BRIDGING

Install the Fascia Bridging by inserting the Locator End into the holes of the first purlin and bolting the Fascia Bracket to the Fascia Purlin. Adjust the Slotted Channel to straighten the fascia and bolt firmly.



STEP 2: ADJUST FASCIA BRIDGING

Adjust the Slotted Channel to straighten the fascia and bolt firmly.

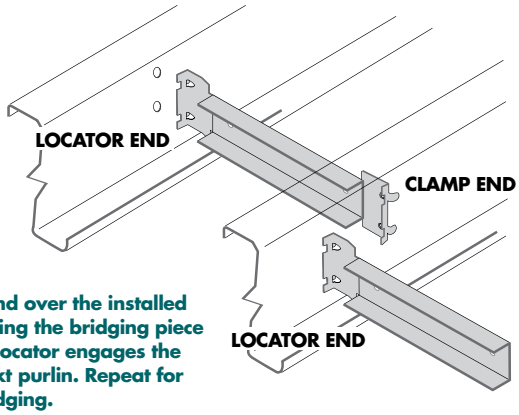


STEP 3: INSERT INTERMEDIATE BRIDGING

Install the Intermediate, Locator/Clamp Bridging up the roof slope and finish at the ridge. Intermediate bridging is installed by fitting the Clamp End (the straight bracket) over the previously installed Locator (the cranked bracket) and swinging the bridging piece around until the Locator engages the holes of the next purlin.

STEP 4: REPEAT WHERE APPLICABLE

Repeat Step 1 and Step 2 where applicable on the opposite side of the roof. Face bridging pieces in the same direction for a neat appearance.

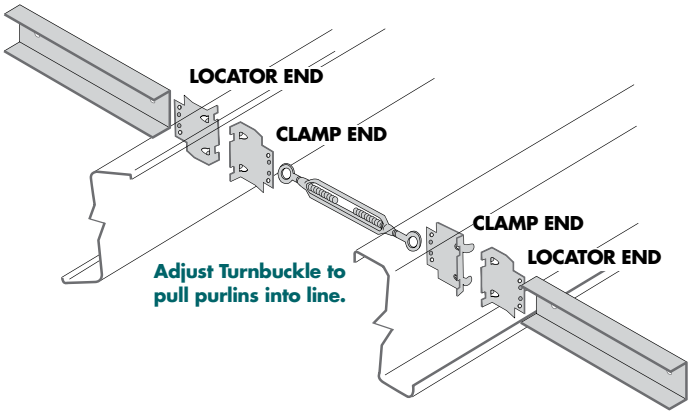


Fit the Clamp end over the installed Locator and swing the bridging piece around so the Locator engages the holes of the next purlin. Repeat for subsequent bridging.

STEP 5: FIX RIDGE BRIDGING

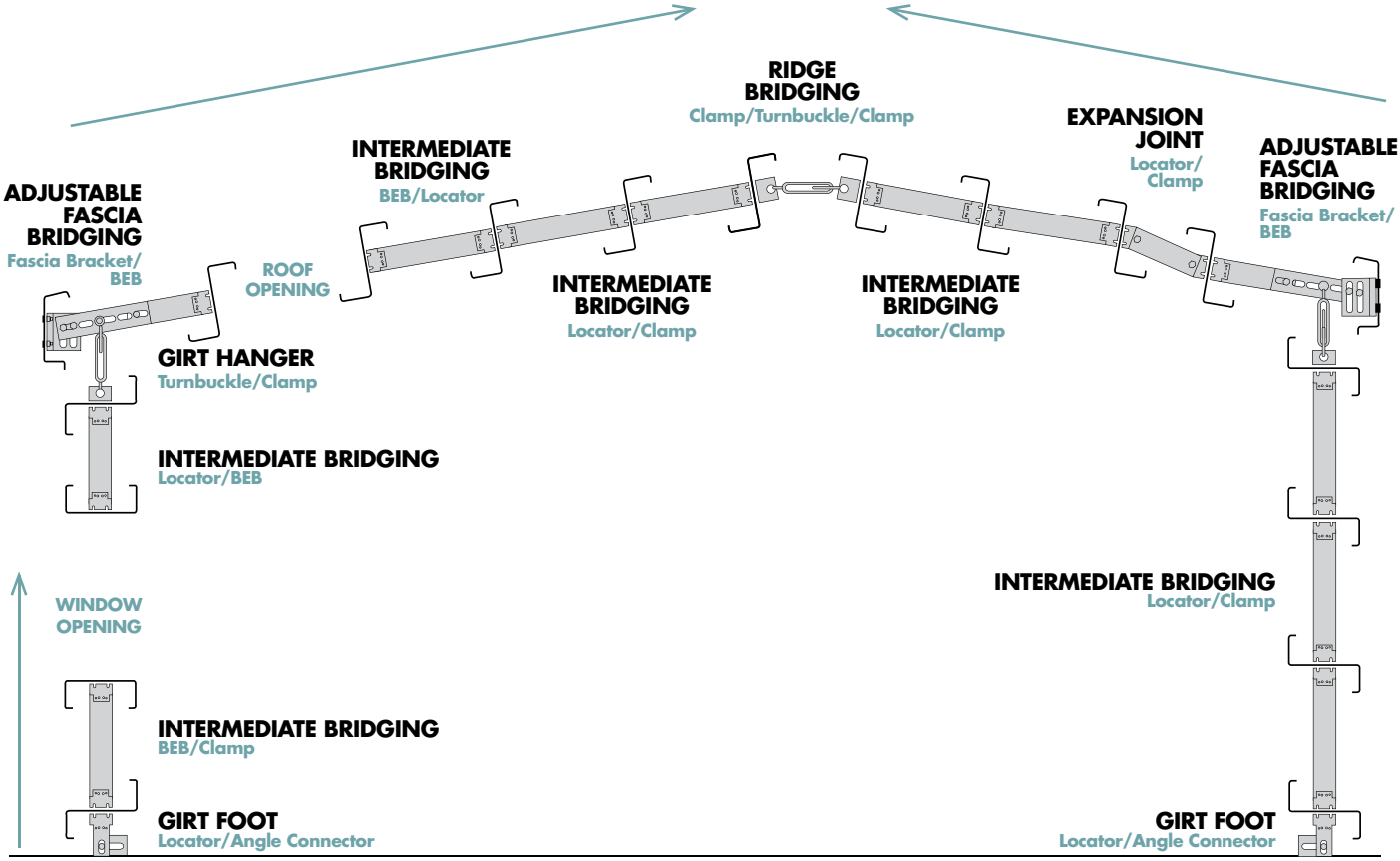
Install the Ridge assembly by fitting the Clamp Ends over the previously installed Locator Ends and tighten the bolts or turnbuckle of the Ridge assembly.

If a Ridge assembly is not used, the last piece of Intermediate Bridging should end in a Bolted End Bracket which can accommodate a Sag Rod if required at a later date. Alternatively the standard bridging can be secured in position by installing a bolt beside the previously installed Locator



BRIDGING SYSTEM - OVERVIEW

DENOTES TYPICAL DIRECTION OF INSTALLATION



SAFEBRIDGE®

PURLIN BRIDGING INSULATION SYSTEM

Metroll purlins are compatible with the SafeBridge® Purlin Bridging Insulation System. SafeBridge® is an innovative, award winning roofing system that can be adapted to almost any commercial or industrial roof structure. Fully compliant with the current requirements of the BCA Section J, SafeBridge® utilises the existing purlin space to provide energy efficient roof insulation without compromising roof height, wind rating or structural integrity.

KEY BENEFITS

- Can achieve high thermal performance in any climate zone (as defined by the BCA/NCC).
- Code compliant with BCA/NCC Section J.
- Utilises the purlin space without elevating the overall roof or fascia height. No roof spacers required.
- Suitable for both cyclonic and non-cyclonic regions.
- Retains the structural integrity and load points of the roof interior.
- Suits most roof pitches and complex roof designs.
- Available in foil, decorative or acoustic finishes on the internal faced insulation material.
- Creates a safer roof environment for workers during construction.

IMPORTANT DESIGN CONSIDERATIONS

The SafeBridge® system relies upon specific purlin spacing outlined below. Please ensure you consult with Bradford and Metroll early in the design phase to understand the relationship of purlin depth and spacing to R-value and the BMT relative to your ultimate roof design loads.

PURLIN & BRIDGE BAR SPACING

Standard Purlin Spacing	Bridge Bar Spacing
610mm	Maximum 1500mm
910mm	
1210mm	
1360mm	

DESIGNING FOR GREEN STAR & BUILDING CODE COMPLIANCE

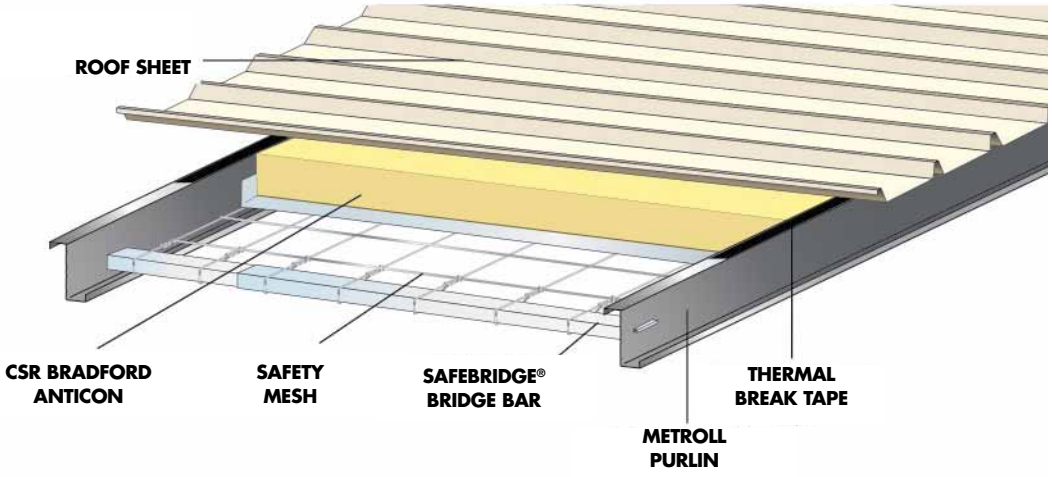
Minimum energy efficiency standards for commercial buildings are mandatory in the BCA and NCC. Thermal insulation plays a key role in meeting these requirements and contributes to reductions in energy use which is a critical factor in Green Star accreditation. Choosing the right insulation also offers additional benefits of condensation control, noise dampening and control of heat flow in and out of the building.

To achieve the BCA/NCC Section J thermal insulation values, the roof system must allow sufficient space under the roof sheeting for insulation to recover its design thickness and achieve its rated insulation value. Failure to provide enough space will result in compression of the insulation and reduce its performance. SafeBridge® use the depth of purlins to provide a cavity for the insulation to recover its thickness, rather than create a space above the purlin using a roof spacer. Safebridge® allows purlin spacing to be set at a predetermined height during the design phase by way of a patented bridging system and key way.

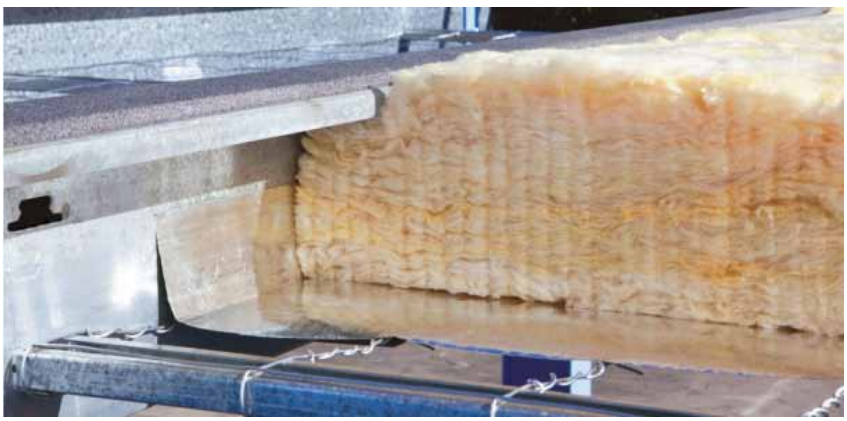
DESIGNING FOR WORKER SAFETY

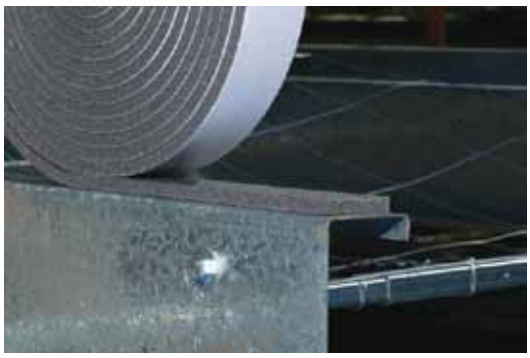
A unique feature of the SafeBridge® system is the application of safety mesh between, rather than over the top of the purlins. This eliminates the need to lap safety mesh and cover the purlins, resulting in immediate material cost savings. This method also facilitates the use of the SafeBridge® Wire Pulley system which saves installation time and also removes workers proximity to the exposed edge of the roof during construction, greatly increasing worker safety.

BRIDGE BAR STABILISER
Prevents purlin roll



PURLIN KEYWAY
Simple roofing screw assembly





R0.2 THERMAL BREAK TAPE
10mm thick

ANTICON SB Features centre bonded foil lap to protect purlins from condensation

Can we assist with any additional Steel Building Products?

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Cairns	07 4054 0888	Lismore	02 6622 6677	Preston	03 9480 3744	Launceston	03 6335 8555
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