

General - Presented in the load tables are maximum uniformly distributed specified loads.

Steel - Conforms to ASTM A653/A653M or A792/A792M. Grade 33/230; Yield stress 33 ksi/230 MPa and tensile stress 45 ksi/310 MPa. Grade 50 /345; Yield stress 50 ksi/345 MPa and tensile stress 65 ksi/450 MPa; Grade 80 /550; Yield stress 80 ksi/550 MPa and tensile stress 82 ksi/565 MPa.

Finishes - A25/ZF75, G90/Z275 or AZ50/AZM150. For heavier metallic coatings, refer to ASTM A653/A653M or A792/A792M.

Load Tables - The following information regarding the determination of the specified wind and snow loads is contained in the 2010 Edition of the National Building Code of Canada (NBCC). Importance factors are applied to both strength (ULS) and serviceability/deflection (SLS) limit state design considerations. A lower load factor for wind of 1.4, instead of 1.5 for live and snow loads, is now being used. This lower load factor for wind somewhat offsets the higher wind loads (1 in 50 year return) that are now listed in the NBCC by geographic location. The importance category of the end use of the building/structure must also be recognized, such as Normal or Low.

All of this will impact how the load tables are to be used. In an effort to help the design professional with the load tables, the information below was taken directly from Division B, Part 4 (Structural Design) of the NBCC.

Specified Wind Load

$$W = I_w q C_e C_g C_p \quad [1]$$

Importance Category	Importance Factor, I_w	
	ULS	SLS
Low	0.8	0.75
Normal	1.0	0.75
High	1.15	0.75
Post-Disaster	1.25	0.75

Specified Snow Load

$$S = I_s [S_s (C_b C_w C_s C_a) + S_r] \quad [2]$$

Importance Category	Importance Factor, I_w	
	ULS	SLS
Low	0.8	0.9
Normal	1.0	0.9
High	1.15	0.9
Post-Disaster	1.25	0.9

The importance factors, I_w and I_s , have been incorporated in the load tables, as well as the importance category. The parameters in the boxed-in portion of Equations [1] and [2] must be determined by the design professional in accordance with the NBCC.

Strength - The maximum uniformly distributed specified load based on strength in the load table must be equal to or greater than (**Specified live load + 0.833 times the specified dead load**). Where 0.833 = 1.25/1.5. The specified live load can be either due to use and occupancy or snow load. In cases where live load and snow load act together, the load combination factors in the NBCC must be followed.

Serviceability (Deflection) - The maximum uniformly distributed specified load based on deflection in the load table must be equal to or greater than the specified live load. The effective moment of inertia for deflection determination was calculated at an assumed specified live load stress of $0.6F_y$.

EXAMPLE (Use of Load Table)

Deckmate Roof (Normal Importance Category)

Given: (Imperial units)

(LLF = 1.5 and $I_s = 0.9$)

- ~ Deck thickness, $t = 0.024$ in
- ~ Triple span continuous, $L = 6.0$ ft each span
- ~ Bearing length, $N = 3$ in
- ~ L/240 deflection limit
- ~ Specified Loads

- 1) Dead load (DL)
 - a) Deck 1.36 psf
 - b) Superimposed 9.50 psf; DL = 10.86 psf
- 2) Snow Live load (LL) LL = 40 psf

The live load is the value of the boxed-in portion of the specified snow load expression [2].

Solution:

Strength "S"

- 1) Specified load $[LL + 0.833DL] = 49.0$ psf
- 2) Maximum specified load (from Load Table)

Is **59 psf**

Since **59 > 49.0** ∴ OK

- 3) Check web crippling ($N = 3$ in)

a) End reaction = $0.400(49.0)6 =$ **118 lb/ft**

(from section property table)

$$P_e = P_{e1} + P_{e2} [N/t]^{1/2}$$

$$= 102 + 25.5[3/0.024]^{1/2} =$$
 387 lb/ft

Since **387 > 118** ∴ OK

- b) Interior reaction = $1.10(49.0)6 =$ **323 lb/ft**

(from section property table)

$$P_i = P_{i1} + P_{i2} [N/t]^{1/2}$$

$$= 197 + 33.4[3/0.024]^{1/2} =$$
 570 lb/ft

Since **570 > 323** ∴ OK

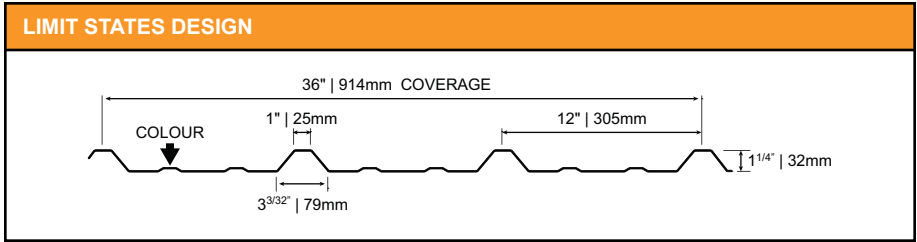
Deflection "D"

From table L/180 = **113 psf**

For L/240, multiply 113 by 180/240 = **84.8 psf**

Since **84.8 > 40** ∴ OK

1. Based on ASTM A 653 structural steel.
2. Values in row "S" are based on strength.
3. Values in row "D" are based on deflection of 1/180th span.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-12.



SECTION PROPERTIES | Per Foot of Width

Base Steel Thickness (inches)	Weight [G90] (psf)	Yield Stress (ksi)	Section Modulus		Deflection Moment of Inertia (in ⁴)	Specified Web Crippling Data			
			Midspan (in ³)	Support (in ³)		Pe1 End (lb)	Pe2 End (lb)	Pi1 Interior (lb)	Pi1 Interior (lb)
0.0135	0.72	50	0.0268	0.0219	0.0309	19.3	4.82	37.5	6.38
0.0180	0.94	33	0.0406	0.0343	0.0435	24.2	6.04	46.8	7.96
0.0180	0.94	50	0.0385	0.0326	0.0430	36.6	9.15	70.9	12.1
0.0180	0.94	80	0.0376	0.0315	0.0426	43.5	10.9	84.4	14.3
0.0240	1.23	33	0.0571	0.0476	0.0579	45.4	11.3	87.6	14.9
0.0300	1.53	33	0.0710	0.0613	0.0722	73.5	18.4	142	24.1

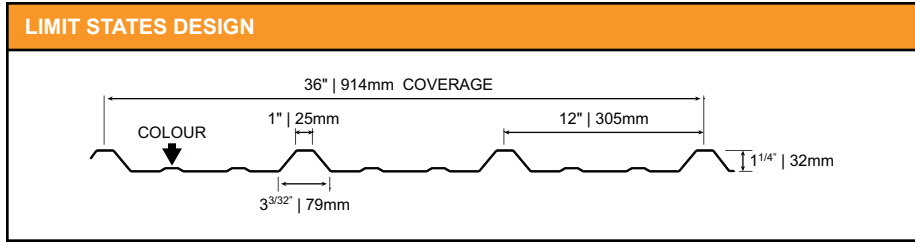
LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

LOAD TABLE | Maximum Uniformly Distributed Specified Loads (psf).

Span Length (ft)		1-Span Base Steel Thickness (inches)					2-Span Base Steel Thickness (inches)					3-Span Base Steel Thickness (inches)							
		0.0135	0.0180	0.0180	0.0240	0.0300	0.0135	0.0180	0.0180	0.0240	0.0300	0.0135	0.0180	0.0180	0.0240	0.0300			
	Y.S.* (ksi)	50	33	50	80	33	50	33	50	80	33	50	33	50	33	50	33	50	33
2.0	S	134	134	192	223	188	234	110	113	163	187	157	202	137	142	204	234	196	253
2.0	D	375	527	522	516	701	875	900	1264	1252	1239	1683	2101	709	996	986	976	1325	1654
2.5	S	86	86	123	143	121	150	70	73	104	120	101	129	88	91	131	150	126	162
2.5	D	192	270	267	264	359	448	461	647	641	634	862	1076	363	510	505	500	679	847
3.0	S	60	60	85	99	84	104	49	50	73	83	70	90	61	63	91	104	87	112
3.0	D	111	156	155	153	208	259	267	375	371	367	499	622	210	295	292	289	393	490
3.5	S	44	44	63	73	61	77	36	37	53	61	51	66	45	46	67	76	64	83
3.5	D	70	98	97	96	131	163	168	236	234	231	314	392	132	186	184	182	247	309
4.0	S	33	34	48	56	47	59	27	28	41	47	39	51	34	35	51	59	49	63
4.0	D	47	66	65	65	88	109	112	158	156	155	210	263	89	124	123	122	166	207
4.5	S	26	26	38	44	37	46	22	22	32	37	31	40	27	28	40	46	39	50
4.5	D	33	46	46	45	62	77	79	111	110	109	148	184	62	87	87	86	116	145
5.0	S	21	21	31	36	30	37	18	18	26	30	25	32	22	23	33	37	31	40
5.0	D	24	34	33	33	45	56	58	81	80	79	108	134	45	64	63	62	85	106
5.5	S	18	18	25	30	25	31	14	15	22	25	21	27	18	19	27	31	26	33
5.5	D	18	25	25	25	34	42	43	61	60	60	81	101	34	48	47	47	64	80
6.0	S	15	15	21	25	21	26	12	13	18	21	17	22	15	16	23	26	22	28
6.0	D	14	20	19	19	26	32	33	47	46	46	62	78	26	37	37	36	49	61
6.5	S	13	13	18	21	18	22	10	11	15	18	15	19	13	13	19	22	19	24
6.5	D	11	15	15	15	20	26	26	37	36	36	49	61	21	29	29	28	39	48
7.0	S	11	11	16	18	15	19	9	9	13	15	13	17	11	12	17	19	16	21
7.0	D	9	12	12	12	16	20	21	29	29	29	39	49	17	23	23	23	31	39
7.5	S	10	10	14	16	13	17	8	8	12	13	11	14	10	10	15	17	14	18
7.5	D	7	10	10	10	13	17	17	24	24	23	32	40	13	19	19	19	25	31
8.0	S	8	8	12	14	12	15	7	7	10	12	10	13	9	9	13	15	12	16
8.0	D	6	8	8	8	11	14	14	20	20	19	26	33	11	16	15	15	21	26

* Y.S. = Yield Strength

1. Based on ASTM A 653 structural steel.
2. Values in row "S" are based on strength.
3. Values in row "D" are based on deflection of 1/180th span.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-12.



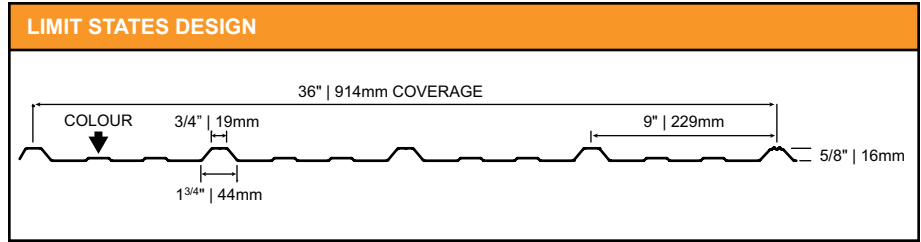
SECTION PROPERTIES Per Metre of Width									
Base Steel Thickness (mm)	Mass [Z275] (kg/m ²)	Yield Stress (MPa)	Section Modulus		Deflection Moment of Inertia (x10 ⁶ mm ⁴)	Specified Web Crippling Data			
			Midspan (x10 ³ mm ³)	Support (x10 ³ mm ³)		Pe1 End (kN)	Pe2 End (kN)	Pi1 Interior (kN)	Pi1 Interior (kN)
0.343	3.51	345	1.44	1.18	0.0423	0.282	0.070	0.548	0.093
0.457	4.59	230	2.18	1.85	0.0594	0.356	0.089	0.691	0.117
0.457	4.59	345	2.07	1.76	0.0588	0.535	0.134	1.04	0.176
0.457	4.59	550	2.02	1.69	0.0582	0.639	0.160	1.24	0.211
0.610	6.02	230	3.07	2.56	0.0790	0.669	0.167	1.29	0.220
0.762	7.46	230	3.82	3.29	0.0987	1.08	0.271	2.09	0.355

LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

LOAD TABLE Maximum Uniformly Distributed Specified Loads (kPa).																			
Span Length (m)		1-Span Base Steel Thickness (mm)					2-Span Base Steel Thickness (mm)					3-Span Base Steel Thickness (mm)							
		0.343	0.457	0.457	0.610	0.762	0.343	0.457	0.457	0.610	0.762	0.343	0.457	0.457	0.610	0.762			
YS* (MPa)		345	230	345	550	230	345	230	345	550	230	345	230	345	230	345	550	230	230
1.0	S	2.39	2.41	3.42	4.00	3.39	4.21	1.95	2.04	2.91	3.35	2.82	3.63	2.44	2.55	3.63	4.19	3.53	4.54
1.0	D	4.07	5.71	5.66	5.60	7.61	9.49	9.76	13.7	13.6	13.4	18.3	22.8	7.69	10.8	10.7	10.6	14.4	18.0
1.2	S	1.66	1.67	2.38	2.78	2.35	2.93	1.36	1.41	2.02	2.33	1.96	2.52	1.69	1.77	2.52	2.91	2.45	3.15
1.2	D	2.35	3.31	3.27	3.24	4.40	5.49	5.65	7.94	7.86	7.77	10.6	13.2	4.45	6.25	6.19	6.12	8.32	10.4
1.4	S	1.22	1.23	1.75	2.04	1.73	2.15	1.00	1.04	1.48	1.71	1.44	1.85	1.24	1.30	1.85	2.14	1.80	2.32
1.4	D	1.48	2.08	2.06	2.04	2.77	3.46	3.56	5.00	4.95	4.90	6.65	8.30	2.80	3.94	3.90	3.86	5.24	6.54
1.6	S	0.93	0.94	1.34	1.56	1.32	1.65	0.76	0.80	1.14	1.31	1.10	1.42	0.95	0.99	1.42	1.63	1.38	1.77
1.6	D	0.99	1.39	1.38	1.37	1.86	2.32	2.38	3.35	3.31	3.28	4.46	5.56	1.88	2.64	2.61	2.58	3.51	4.38
1.8	S	0.74	0.74	1.06	1.23	1.05	1.30	0.60	0.63	0.90	1.03	0.87	1.12	0.75	0.79	1.12	1.29	1.09	1.40
1.8	D	0.70	0.98	0.97	0.96	1.30	1.63	1.67	2.35	2.33	2.30	3.13	3.91	1.32	1.85	1.83	1.81	2.47	3.08
2.0	S	0.60	0.60	0.86	1.00	0.85	1.05	0.49	0.51	0.73	0.84	0.71	0.91	0.61	0.64	0.91	1.05	0.88	1.14
2.0	D	0.51	0.71	0.71	0.70	0.95	1.19	1.22	1.71	1.70	1.68	2.28	2.85	0.96	1.35	1.34	1.32	1.80	2.24
2.2	S	0.49	0.50	0.71	0.83	0.70	0.87	0.40	0.42	0.60	0.69	0.58	0.75	0.50	0.53	0.75	0.86	0.73	0.94
2.2	D	0.38	0.54	0.53	0.53	0.71	0.89	0.92	1.29	1.28	1.26	1.71	2.14	0.72	1.01	1.00	0.99	1.35	1.69
2.4	S	0.41	0.42	0.59	0.69	0.59	0.73	0.34	0.35	0.50	0.58	0.49	0.63	0.42	0.44	0.63	0.73	0.61	0.79
2.4	D	0.29	0.41	0.41	0.40	0.55	0.69	0.71	0.99	0.98	0.97	1.32	1.65	0.56	0.78	0.77	0.77	1.04	1.30
2.6	S	0.35	0.36	0.51	0.59	0.50	0.62	0.29	0.30	0.43	0.50	0.42	0.54	0.36	0.38	0.54	0.62	0.52	0.67
2.6	D	0.23	0.33	0.32	0.32	0.43	0.54	0.56	0.78	0.77	0.76	1.04	1.30	0.44	0.61	0.61	0.60	0.82	1.02
2.8	S	0.30	0.31	0.44	0.51	0.43	0.54	0.25	0.26	0.37	0.43	0.36	0.46	0.31	0.32	0.46	0.53	0.45	0.58
2.8	D	0.19	0.26	0.26	0.25	0.35	0.43	0.44	0.62	0.62	0.61	0.83	1.04	0.35	0.49	0.49	0.48	0.65	0.82
3.0	S	0.27	0.27	0.38	0.44	0.38	0.47	0.22	0.23	0.32	0.37	0.31	0.40	0.27	0.28	0.40	0.47	0.39	0.50
3.0	D	0.15	0.21	0.21	0.21	0.28	0.35	0.36	0.51	0.50	0.50	0.68	0.84	0.28	0.40	0.40	0.39	0.53	0.66

* Y.S. = Yield Strength

1. Based on ASTM A 653 structural steel.
2. Values in row "S" are based on strength.
3. Values in row "D" are based on deflection of 1/180th span.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-12.



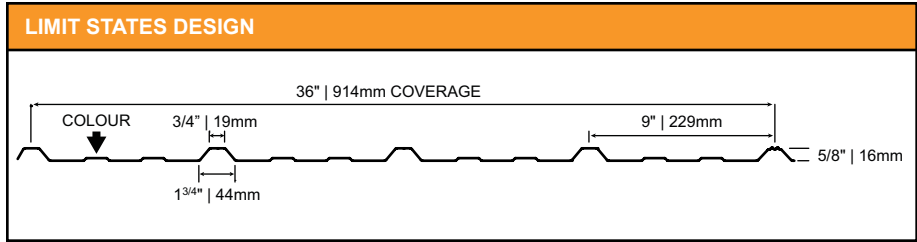
SECTION PROPERTIES Per Foot of Width									
Base Steel Thickness (inches)	Weight [G90] (psf)	Yield Stress (ksi)	Section Modulus		Deflection Moment of Inertia (in ⁴)	Specified Web Crippling Data			
			Midspan (in ³)	Support (in ³)		Pe1 End (lb)	Pe2 End (lb)	Pi1 Interior (lb)	Pi1 Interior (lb)
0.0135	0.68	80	0.0108	0.0097	0.0064	35.0	8.76	64.0	10.9
0.0180	0.88	50	0.0163	0.0143	0.0087	54.3	13.6	100	17.0

LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

LOAD TABLE Maximum Uniformly Distributed Specified Loads (psf).													
Span Length (ft)		1-Span Base Steel Thickness (inches)				2-Span Base Steel Thickness (inches)				3-Span Base Steel Thickness (inches)			
		0.0135	0.0180			0.0135	0.0180			0.0135	0.0180		
Y.S.* (ksi)		80	50			80	50			80	50		
1.5	S	116	145			103	127			129	159		
1.5	D	184	250			440	601			347	473		
2.0	S	65	81			58	71			72	89		
2.0	D	77	106			186	254			146	200		
2.5	S	42	52			37	46			46	57		
2.5	D	40	54			95	130			75	102		
3.0	S	29	36			26	32			32	40		
3.0	D	23	31			55	75			43	59		
3.5	S	21	27			19	23			24	29		
3.5	D	14	20			35	47			27	37		
4.0	S	16	20			14	18			18	22		
4.0	D	10	13			23	32			18	25		
4.5	S	13	16			11	14			14	18		
4.5	D	7	9			16	22			13	18		
5.0	S	10	13			9	11			12	14		
5.0	D	5	7			12	16			9	13		

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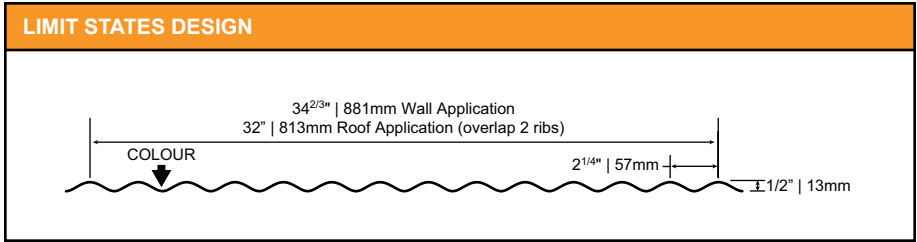
SECTION PROPERTIES Per Metre of Width									
Base Steel Thickness (mm)	Mass [Z275] (kg/m ²)	Yield Stress (MPa)	Section Modulus		Deflection Moment of Inertia (x10 ⁶ mm ⁴)	Specified Web Crippling Data			
			Midspan (x10 ³ mm ³)	Support (x10 ³ mm ³)		Pe1 End (kN)	Pe2 End (kN)	Pi1 Interior (kN)	Pi1 Interior (kN)
0.343	3.30	550	0.583	0.519	0.0087	0.510	0.127	0.932	0.158
0.457	4.31	345	0.876	0.768	0.0119	0.792	0.198	1.46	0.248

LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

LOAD TABLE Maximum Uniformly Distributed Specified Loads (kPa).													
Span Length (m)		1-Span Base Steel Thickness (mm)				2-Span Base Steel Thickness (mm)				3-Span Base Steel Thickness (mm)			
		0.343	0.457			0.343	0.457			0.343	0.457		
Y.S.* (MPa)		550	345			550	345			550	345		
0.5	S	4.62	5.80			4.11	5.09			5.14	6.36		
0.5	D	6.72	9.17			16.1	22.0			12.7	17.3		
0.6	S	3.21	4.03			2.86	3.53			3.57	4.42		
0.6	D	3.89	5.31			9.33	12.7			7.35	10.0		
0.8	S	1.80	2.27			1.61	1.99			2.01	2.48		
0.8	D	1.64	2.24			3.94	5.37			3.10	4.23		
1.0	S	1.16	1.45			1.03	1.27			1.29	1.59		
1.0	D	0.84	1.15			2.02	2.75			1.59	2.17		
1.2	S	0.80	1.01			0.71	0.88			0.89	1.10		
1.2	D	0.49	0.66			1.17	1.59			0.92	1.25		
1.4	S	0.59	0.74			0.52	0.65			0.66	0.81		
1.4	D	0.31	0.42			0.73	1.00			0.58	0.79		
1.6	S	0.45	0.57			0.40	0.50			0.50	0.62		
1.6	D	0.21	0.28			0.49	0.67			0.39	0.53		

*Y.S. = Yield Strength

1. Based on ASTM A 653 structural steel.
2. Values in row "S" are based on strength.
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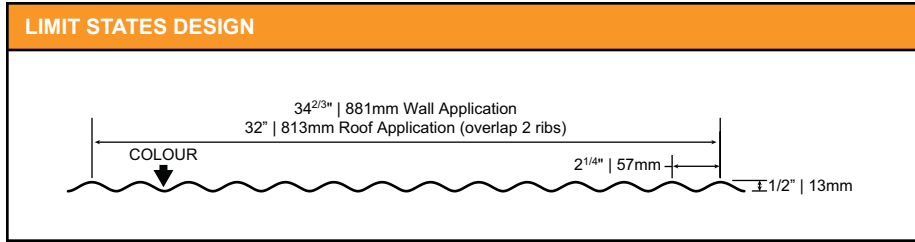
SECTION PROPERTIES Per Foot of Width									
Base Steel Thickness (inches)	Weight [G90] (psf)	Yield Stress (ksi)	Section Modulus		Deflection Moment of Inertia (in ⁴)	Specified Web Crippling Data			
			Midspan (in ³)	Support (in ³)		Pe1 End (lb)	Pe2 End (lb)	Pi1 Interior (lb)	Pi1 Interior (lb)
0.0135	0.65	80	0.0180	0.0180	0.0045				
0.0180	0.85	33	0.0235	0.0235	0.0059				
0.0180	0.85	50	0.0235	0.0235	0.0059				
0.0240	1.11	33	0.0304	0.0304	0.0076				

LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

LOAD TABLE Maximum Uniformly Distributed Specified Loads (psf).															
Span Length (ft)		1-Span Base Steel Thickness (inches)				2-Span Base Steel Thickness (inches)				3-Span Base Steel Thickness (inches)					
		0.0135	0.0180	0.0180	0.0240	0.0135	0.0180	0.0180	0.0240	0.0135	0.0180	0.0180	0.0240		
Y.S.* (ksi)		80	33	50	33	80	33	50	33	80	33	50	33		
1.5	S	192	138	209	178	192	138	209	178	240	172	261	223		
1.5	D	130	169	169	218	311	405	405	523	245	319	319	412		
2.0	S	108	77	117	100	108	78	117	100	135	97	147	125		
2.0	D	55	71	71	92	131	171	171	221	103	135	135	174		
2.5	S	69	50	75	64	69	50	75	64	87	62	94	80		
2.5	D	28	36	36	47	67	87	87	113	53	69	69	89		
3.0	S	48	34	52	45	48	34	52	45	60	43	65	56		
3.0	D	16	21	21	27	39	51	51	65	31	40	40	51		
3.5	S	35	25	38	33	35	25	38	33	44	32	48	41		
3.5	D	10	13	13	17	24	32	32	41	19	25	25	32		
4.0	S				25	27	19	29	25	34	24	37	31		
4.0	D				11	16	21	21	28	13	17	17	22		
4.5	S					21	15	23	20		19	29	25		
4.5	D					12	15	15	19		12	12	15		
5.0	S						12	19	16				20		
5.0	D						11	11	14				11		
5.5	S								13						
5.5	D								11						

*Y.S. = Yield Strength

1. Based on ASTM A 653 structural steel.
2. Values in row "S" are based on strength.
3. Values in row "D" are based on deflection of 1/180th span.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-12.



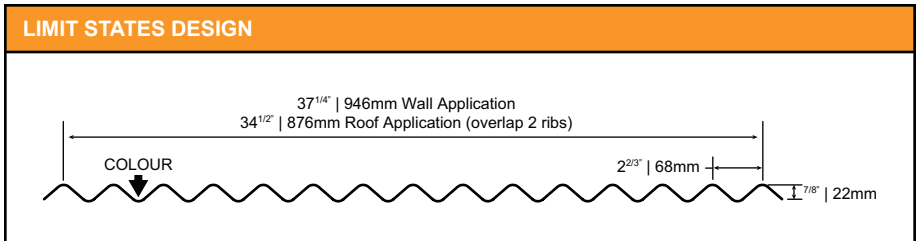
SECTION PROPERTIES Per Metre of Width									
Base Steel Thickness (mm)	Mass [Z275] (kg/m ²)	Yield Stress (MPa)	Section Modulus		Deflection Moment of Inertia (x10 ⁶ mm ⁴)	Specified Web Crippling Data			
			Midspan (x10 ³ mm ³)	Support (x10 ³ mm ³)		Pe1 End (kN)	Pe2 End (kN)	Pi1 Interior (kN)	Pi1 Interior (kN)
0.343	3.17	550	0.970	0.970	0.0062				
0.457	4.13	230	1.26	1.26	0.0080				
0.457	4.13	345	1.26	1.26	0.0080				
0.610	5.42	230	1.63	1.63	0.0104				

LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

LOAD TABLE Maximum Uniformly Distributed Specified Loads (kPa).														
Span Length (m)		1-Span Base Steel Thickness (mm)				2-Span Base Steel Thickness (mm)				3-Span Base Steel Thickness (mm)				
		0.343	0.457	0.457	0.610	0.343	0.457	0.457	0.610	0.343	0.457	0.457	0.610	
YS* (MPa)		550	230	345	230	550	230	345	230	550	230	345	230	
0.5	S	7.68	5.58	8.37	7.21	7.68	5.58	8.37	7.21	9.60	6.97	10.5	9.01	
0.5	D	4.74	6.18	6.18	7.98	11.4	14.8	14.8	19.2	8.96	11.7	11.7	15.1	
0.6	S	5.33	3.87	5.81	5.01	5.33	3.87	5.81	5.01	6.67	4.84	7.26	6.26	
0.6	D	2.74	3.57	3.57	4.62	6.58	8.58	8.58	11.1	5.19	6.75	6.75	8.73	
0.8	S	3.00	2.18	3.27	2.82	3.00	2.18	3.27	2.82	3.75	2.72	4.09	3.52	
0.8	D	1.16	1.51	1.51	1.95	2.78	3.62	3.62	4.68	2.19	2.85	2.85	3.68	
1.0	S	1.92	1.39	2.09	1.80	1.92	1.39	2.09	1.80	2.40	1.74	2.61	2.25	
1.0	D	0.59	0.77	0.77	1.00	1.42	1.85	1.85	2.39	1.12	1.46	1.46	1.89	
1.2	S				1.25	1.33	0.97	1.45	1.25	1.67	1.21	1.82	1.56	
1.2	D				0.58	0.82	1.07	1.07	1.39	0.65	0.84	0.84	1.09	
1.4	S					0.98	0.71	1.07	0.92		0.89	1.33	1.15	
1.4	D					0.52	0.68	0.68	0.87		0.53	0.53	0.69	
1.6	S								0.70					
1.6	D								0.58					

*Y.S. = Yield Strength

1. Based on ASTM A 653 structural steel.
2. Values in row "S" are based on strength.
3. Values in row "D" are based on deflection of 1/180th span.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-12.



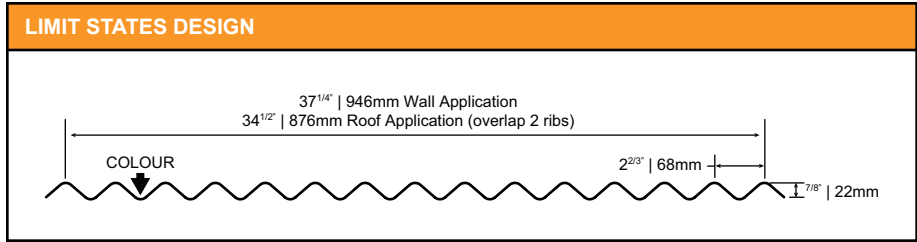
SECTION PROPERTIES Per Foot of Width									
Base Steel Thickness (inches)	Weight [G90] (psf)	Yield Stress (ksi)	Section Modulus		Deflection Moment of Inertia (in ⁴)	Specified Web Crippling Data			
			Midspan (in ³)	Support (in ³)		Pe1 End (lb)	Pe2 End (lb)	Pi1 Interior (lb)	Pi1 Interior (lb)
0.0135	0.74	80	0.0404	0.0404	0.0177				
0.0180	0.97	33	0.0531	0.0531	0.0233				
0.0180	0.97	50	0.0531	0.0531	0.0233				
0.0240	1.27	33	0.0697	0.0697	0.0305				
0.0300	1.58	33	0.0856	0.0856	0.0375				

LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

LOAD TABLE Maximum Uniformly Distributed Specified Loads (psf).																
Span Length (ft)		1-Span Base Steel Thickness (inches)					2-Span Base Steel Thickness (inches)					3-Span Base Steel Thickness (inches)				
		0.0135	0.0180	0.0180	0.0240	0.0300	0.0135	0.0180	0.0180	0.0240	0.0300	0.0135	0.0180	0.0180	0.0240	0.0300
	Y.S.* (ksi)	80	33	50	33	33	80	33	50	33	33	80	33	50	33	33
2.0	S	242	175	266	230	283	242	175	266	230	283	303	219	332	287	353
2.0	D	214	282	282	369	454	513	676	676	886	1089	404	532	532	698	858
2.5	S	155	112	170	147	181	155	112	170	147	181	194	140	213	184	226
2.5	D	110	144	144	189	232	263	346	346	454	558	207	273	273	357	439
3.0	S	108	78	118	102	126	108	78	118	102	126	135	97	148	128	157
3.0	D	63	83	83	109	134	152	200	200	263	323	120	158	158	207	254
3.5	S	79	57	87	75	92	79	57	87	75	92	99	72	108	94	115
3.5	D	40	53	53	69	85	96	126	126	165	203	75	99	99	130	160
4.0	S	61	44	66	57	71	61	44	66	57	71	76	55	83	72	88
4.0	D	27	35	35	46	57	64	85	85	111	136	51	67	67	87	107
4.5	S	48	35	52	45	56	48	35	52	45	56	60	43	66	57	70
4.5	D	19	25	25	32	40	45	59	59	78	96	35	47	47	61	75
5.0	S	39	28	43	37	45	39	28	43	37	45	48	35	53	46	57
5.0	D	14	18	18	24	29	33	43	43	57	70	26	34	34	45	55
5.5	S	32	23	35	30	37	32	23	35	30	37	40	29	44	38	47
5.5	D	10	14	14	18	22	25	33	33	43	52	19	26	26	34	41
6.0	S		19	30	26	31	27	19	30	26	31	34	24	37	32	39
6.0	D		10	10	14	17	19	25	25	33	40	15	20	20	26	32
6.5	S				22	27	23	17	25	22	27	29	21	31	27	33
6.5	D				11	13	15	20	20	26	32	12	16	16	20	25
7.0	S				23		20	14	22	19	23		18	27	23	29
7.0	D				11		12	16	16	21	25		12	12	16	20
7.5	S							12	19	16	20		16	24	20	25
7.5	D							13	13	17	21		10	10	13	16
8.0	S							11	17	14	18				18	22
8.0	D							11	11	14	17				11	13

*Y.S. = Yield Strength

1. Based on ASTM A 653 structural steel.
2. Values in row "S" are based on strength.
3. Values in row "D" are based on deflection of 1/180th span.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-12.



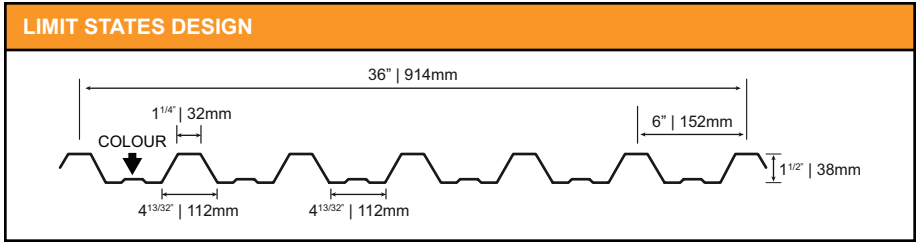
SECTION PROPERTIES Per Metre of Width									
Base Steel Thickness (mm)	Mass [Z275] (kg/m ²)	Yield Stress (MPa)	Section Modulus		Deflection Moment of Inertia (x10 ⁶ mm ⁴)	Specified Web Crippling Data			
			Midspan (x10 ³ mm ³)	Support (x10 ³ mm ³)		Pe1 End (kN)	Pe2 End (kN)	Pi1 Interior (kN)	Pi1 Interior (kN)
0.343	3.61	550	2.17	2.17	0.0241				
0.457	4.72	230	2.86	2.86	0.0317				
0.457	4.72	345	2.86	2.86	0.0317				
0.610	6.21	230	3.75	3.75	0.0416				
0.762	7.69	230	4.60	4.60	0.0512				

LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

LOAD TABLE Maximum Uniformly Distributed Specified Loads (kPa).																
Span Length (m)		1-Span Base Steel Thickness (mm)					2-Span Base Steel Thickness (mm)					3-Span Base Steel Thickness (mm)				
		0.343	0.457	0.457	0.610	0.762	0.343	0.457	0.457	0.610	0.762	0.343	0.457	0.457	0.610	0.762
	YS*(MPa)	550	230	345	230	230	550	230	345	230	230	550	230	345	230	230
1.0	S	4.30	3.15	4.73	4.14	5.08	4.30	3.15	4.73	4.14	5.08	5.37	3.94	5.91	5.17	6.35
1.0	D	2.32	3.06	3.06	4.01	4.92	5.57	7.33	7.33	9.61	11.8	4.39	5.77	5.77	7.57	9.30
1.2	S	2.98	2.19	3.29	2.87	3.53	2.98	2.19	3.29	2.87	3.53	3.73	2.74	4.11	3.59	4.41
1.2	D	1.34	1.77	1.77	2.32	2.85	3.22	4.24	4.24	5.56	6.84	2.54	3.34	3.34	4.38	5.38
1.4	S	2.19	1.61	2.41	2.11	2.59	2.19	1.61	2.41	2.11	2.59	2.74	2.01	3.02	2.64	3.24
1.4	D	0.85	1.11	1.11	1.46	1.79	2.03	2.67	2.67	3.50	4.31	1.60	2.10	2.10	2.76	3.39
1.6	S	1.68	1.23	1.85	1.62	1.99	1.68	1.23	1.85	1.62	1.99	2.10	1.54	2.31	2.02	2.48
1.6	D	0.57	0.75	0.75	0.98	1.20	1.36	1.79	1.79	2.35	2.88	1.07	1.41	1.41	1.85	2.27
1.8	S		0.97	1.46	1.28	1.57	1.33	0.97	1.46	1.28	1.57	1.66	1.22	1.83	1.60	1.96
1.8	D		0.52	0.52	0.69	0.84	0.95	1.26	1.26	1.65	2.03	0.75	0.99	0.99	1.30	1.60
2.0	S				1.03	1.27	1.07	0.79	1.18	1.03	1.27	1.34	0.99	1.48	1.29	1.59
2.0	D				0.50	0.62	0.70	0.92	0.92	1.20	1.48	0.55	0.72	0.72	0.95	1.16
2.2	S						0.89	0.65	0.98	0.85	1.05		0.81	1.22	1.07	1.31
2.2	D						0.52	0.69	0.69	0.90	1.11		0.54	0.54	0.71	0.87
2.4	S							0.55	0.82	0.72	0.88				0.90	1.10
2.4	D							0.53	0.53	0.70	0.85				0.55	0.67
2.6	S									0.61	0.75					0.94
2.6	D									0.55	0.67					0.53
2.8	S										0.65					
2.8	D										0.54					

*Y.S. = Yield Strength

1. Based on ASTM A 653 structural steel.
2. Values in row "S" are based on strength.
3. Values in row "D" are based on deflection of 1/180th span.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-12.



SECTION PROPERTIES | Per Foot of Width

Base Steel Thickness (inches)	Weight [G90] (psf)	Yield Stress (ksi)	Section Modulus		Deflection Moment of Inertia (in ⁴)	Specified Web Crippling Data			
			Midspan (in ³)	Support (in ³)		Pe1 End (lb)	Pe2 End (lb)	Pi1 Interior (lb)	Pi1 Interior (lb)
0.0180	1.04	33	0.0942	0.0892	0.0988	54.1	13.5	105	17.9
0.0180	1.04	50	0.0886	0.0822	0.0961	82.0	20.5	159	27.1
0.0240	1.36	33	0.136	0.129	0.133	102	25.5	197	33.4

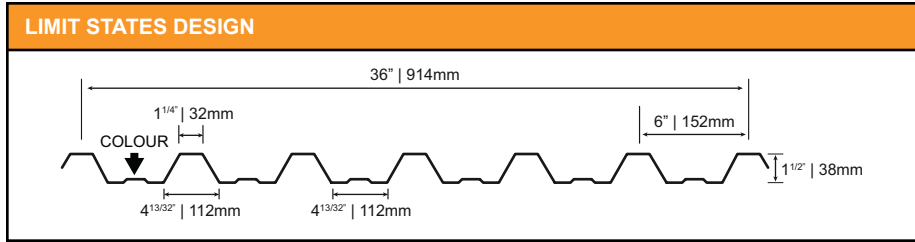
LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

LOAD TABLE | Maximum Uniformly Distributed Specified Loads (psf).

Span Length (ft)		1-Span Base Steel Thickness (inches)			2-Span Base Steel Thickness (inches)			3-Span Base Steel Thickness (inches)						
		0.0180	0.0180	0.0240	0.0180	0.0180	0.0240	0.0180	0.0180	0.0240				
Y.S.* (ksi)		33	50	33										
3.0	S	138	197	200										
3.0	D	355	345	477										
3.5	S	102	145	147										
3.5	D	223	217	301										
4.0	S	78	111	112										
4.0	D	150	146	201										
4.5	S	61	88	89										
4.5	D	105	102	141										
5.0	S	50	71	72										
5.0	D	77	75	103										
5.5	S	41	59	59										
5.5	D	58	56	77										
6.0	S	35	49	50										
6.0	D	44	43	60										
6.5	S	29	42	43										
6.5	D	35	34	47										
7.0	S	25	36	37										
7.0	D	28	27	38										
7.5	S	22	32	32										
7.5	D	23	22	31										
8.0	S	19	28	28										
8.0	D	19	18	25										
8.5	S	17	25	25										
8.5	D	16	15	21										
9.0	S	15	22	22										
9.0	D	13	13	18										
9.5	S	14	20	20										
9.5	D	11	11	15										
10.0	S	12	18	18										
10.0	D	10	9	13										

*Y.S. = Yield Strength

1. Based on ASTM A 653 structural steel.
2. Values in row "S" are based on strength.
3. Values in row "D" are based on deflection of 1/180th span.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-12.



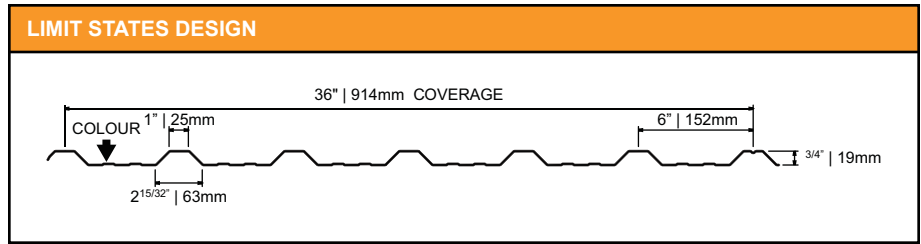
SECTION PROPERTIES Per Metre of Width									
Base Steel Thickness (mm)	Mass [Z275] (kg/m ²)	Yield Stress (MPa)	Section Modulus		Deflection Moment of Inertia (x10 ⁶ mm ⁴)	Specified Web Crippling Data			
			Midspan (x10 ³ mm ³)	Support (x10 ³ mm ³)		Pe1 End (kN)	Pe2 End (kN)	Pi1 Interior (kN)	Pi1 Interior (kN)
0.457	5.06	230	5.06	4.78	0.135	0.799	0.200	1.55	0.263
0.457	5.06	345	4.76	4.42	0.131	1.20	0.300	2.32	0.395
0.610	6.66	230	7.32	6.93	0.182	1.50	0.375	2.90	0.493

LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

LOAD TABLE Maximum Uniformly Distributed Specified Loads (kPa).																			
Span Length (m)		1-Span Base Steel Thickness (mm)						2-Span Base Steel Thickness (mm)						3-Span Base Steel Thickness (mm)					
		0.457	0.457	0.610				0.457	0.457	0.610				0.457	0.457	0.610			
YS* (MPa)		230	345	230			230	345	230				230	345	230				
1.0	S	5.58	7.89	8.08			5.28	7.31	7.65				6.60	9.14	9.56				
1.0	D	13.0	12.6	17.5			31.1	30.3	41.9				24.5	23.9	33.0				
1.2	S	3.88	5.48	5.61			3.67	5.08	5.31				4.59	6.35	6.64				
1.2	D	7.51	7.31	10.1			18.0	17.5	24.3				14.2	13.8	19.1				
1.4	S	2.85	4.02	4.12			2.69	3.73	3.90				3.37	4.66	4.88				
1.4	D	4.73	4.60	6.37			11.4	11.0	15.3				8.94	8.70	12.0				
1.6	S	2.18	3.08	3.15			2.06	2.86	2.99				2.58	3.57	3.74				
1.6	D	3.17	3.08	4.27			7.60	7.40	10.2				5.99	5.83	8.06				
1.8	S	1.72	2.43	2.49			1.63	2.26	2.36				2.04	2.82	2.95				
1.8	D	2.22	2.16	3.00			5.34	5.20	7.19				4.21	4.09	5.66				
2.0	S	1.40	1.97	2.02			1.32	1.83	1.91				1.65	2.29	2.39				
2.0	D	1.62	1.58	2.18			3.89	3.79	5.24				3.07	2.98	4.13				
2.2	S	1.15	1.63	1.67			1.09	1.51	1.58				1.36	1.89	1.98				
2.2	D	1.22	1.19	1.64			2.92	2.85	3.94				2.30	2.24	3.10				
2.4	S	0.97	1.37	1.40			0.92	1.27	1.33				1.15	1.59	1.66				
2.4	D	0.94	0.91	1.26			2.25	2.19	3.03				1.77	1.73	2.39				
2.6	S	0.83	1.17	1.19			0.78	1.08	1.13				0.98	1.35	1.41				
2.6	D	0.74	0.72	0.99			1.77	1.72	2.39				1.40	1.36	1.88				
2.8	S	0.71	1.01	1.03			0.67	0.93	0.98				0.84	1.17	1.22				
2.8	D	0.59	0.58	0.80			1.42	1.38	1.91				1.12	1.09	1.50				
3.0	S	0.62	0.88	0.90			0.59	0.81	0.85				0.73	1.02	1.06				
3.0	D	0.48	0.47	0.65			1.15	1.12	1.55				0.91	0.88	1.22				
3.2	S	0.55	0.77	0.79			0.52	0.71	0.75				0.64	0.89	0.93				
3.2	D	0.40	0.39	0.53			0.95	0.92	1.28				0.75	0.73	1.01				
3.4	S	0.48	0.68	0.70			0.46	0.63	0.66				0.57	0.79	0.83				
3.4	D	0.33	0.32	0.44			0.79	0.77	1.07				0.62	0.61	0.84				

*Y.S. = Yield Strength

1. Based on ASTM A 653 structural steel.
2. Values in row "S" are based on strength.
3. Values in row "D" are based on deflection of 1/180th span.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-12.



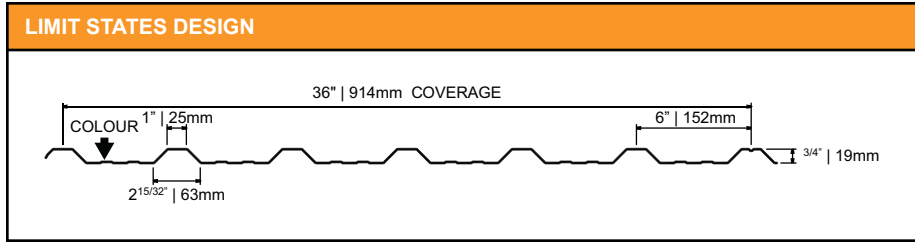
SECTION PROPERTIES Per Foot of Width									
Base Steel Thickness (inches)	Weight [G90] (psf)	Yield Stress (ksi)	Section Modulus		Deflection Moment of Inertia (in ⁴)	Specified Web Crippling Data			
			Midspan (in ³)	Support (in ³)		Pe1 End (lb)	Pe2 End (lb)	Pi1 Interior (lb)	Pi1 Interior (lb)
0.0180	0.93	50	0.0347	0.0325	0.0211	72.6	18.2	138	23.5
0.0180	0.93	80	0.0336	0.0311	0.0208	87.1	21.8	166	28.2

LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

LOAD TABLE Maximum Uniformly Distributed Specified Loads (psf).													
Span Length (ft)		1-Span Base Steel Thickness (inches)				2-Span Base Steel Thickness (inches)				3-Span Base Steel Thickness (inches)			
		0.0180	0.0180			0.0180	0.0180			0.0180	0.0180		
Y.S.* (ksi)		50	80			50	80			50	80		
2.0	S	173	201			163	187			203	234		
2.0	D	256	252			614	606			484	477		
2.5	S	111	129			104	120			130	149		
2.5	D	131	129			314	310			248	244		
3.0	S	77	89			72	83			90	104		
3.0	D	76	75			182	179			143	141		
3.5	S	57	66			53	61			66	76		
3.5	D	48	47			115	113			90	89		
4.0	S	43	50			41	47			51	58		
4.0	D	32	32			77	76			60	60		
4.5	S	34	40			32	37			40	46		
4.5	D	22	22			54	53			42	42		
5.0	S	28	32			26	30			33	37		
5.0	D	16	16			39	39			31	31		
5.5	S	23	27			22	25			27	31		
5.5	D	12	12			30	29			23	23		
6.0	S	19	22			18	21			23	26		
6.0	D	9	9			23	22			18	18		

* Y.S. = Yield Strength

1. Based on ASTM A 653 structural steel.
2. Values in row "S" are based on strength.
3. Values in row "D" are based on deflection of 1/180th span.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-12.



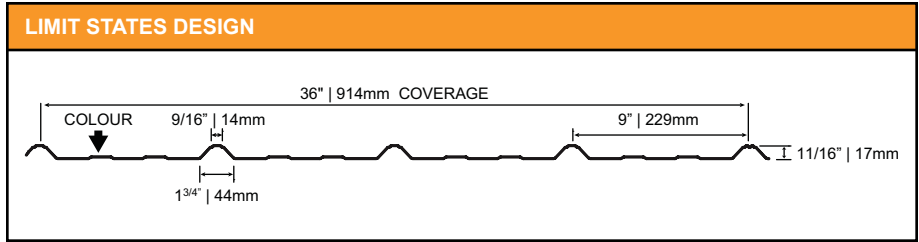
SECTION PROPERTIES Per Metre of Width									
Base Steel Thickness (mm)	Mass [Z275] (kg/m ²)	Yield Stress (MPa)	Section Modulus		Deflection Moment of Inertia (x10 ⁶ mm ⁴)	Specified Web Crippling Data			
			Midspan (x10 ³ mm ³)	Support (x10 ³ mm ³)		Pe1 End (kN)	Pe2 End (kN)	Pi1 Interior (kN)	Pi1 Interior (kN)
0.457	4.56	345	1.86	1.75	0.0288	1.06	0.265	2.02	0.343
0.457	4.56	550	1.81	1.68	0.0284	1.27	0.317	2.41	0.410

LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

LOAD TABLE Maximum Uniformly Distributed Specified Loads (kPa).													
Span Length (m)		1-Span Base Steel Thickness (mm)				2-Span Base Steel Thickness (mm)				3-Span Base Steel Thickness (mm)			
		0.457	0.457			0.457	0.457			0.457	0.457		
YS* (MPa)		345	550			345	550			345	550		
0.6	S	8.57	9.93			8.05	9.21			10.1	11.5		
0.6	D	12.9	12.7			30.8	30.4			24.3	24.0		
0.8	S	4.82	5.59			4.53	5.18			5.66	6.48		
0.8	D	5.42	5.35			13.0	12.8			10.2	10.1		
1.0	S	3.08	3.57			2.90	3.32			3.62	4.15		
1.0	D	2.78	2.74			6.66	6.57			5.25	5.17		
1.2	S	2.14	2.48			2.01	2.30			2.51	2.88		
1.2	D	1.61	1.58			3.85	3.80			3.04	2.99		
1.4	S	1.57	1.82			1.48	1.69			1.85	2.12		
1.4	D	1.01	1.00			2.43	2.39			1.91	1.89		
1.6	S	1.20	1.40			1.13	1.30			1.41	1.62		
1.6	D	0.68	0.67			1.63	1.60			1.28	1.26		
1.8	S	0.95	1.10			0.89	1.02			1.12	1.28		
1.8	D	0.48	0.47			1.14	1.13			0.90	0.89		
2.0	S	0.77	0.89			0.72	0.83			0.91	1.04		
2.0	D	0.35	0.34			0.83	0.82			0.66	0.65		

* Y.S. = Yield Strength

1. Based on ASTM A 653 structural steel.
2. Values in row "S" are based on strength.
3. Values in row "D" are based on deflection of 1/180th span.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-12.



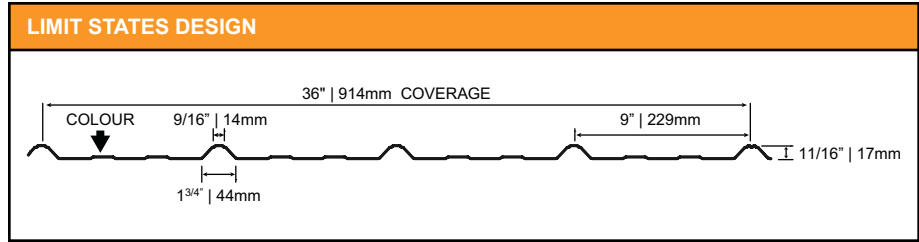
SECTION PROPERTIES Per Foot of Width									
Base Steel Thickness (inches)	Weight [G90] (psf)	Yield Stress (ksi)	Section Modulus		Deflection Moment of Inertia (in ⁴)	Specified Web Crippling Data			
			Midspan (in ³)	Support (in ³)		Pe1 End (lb)	Pe2 End (lb)	Pi1 Interior (lb)	Pi1 Interior (lb)
0.0135	0.68	80	0.0120	0.0096	0.0069	32.6	8.16	60.7	10.3
0.0180	0.88	50	0.0161	0.0134	0.0092	50.7	12.7	94.6	16.1

LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

LOAD TABLE Maximum Uniformly Distributed Specified Loads (psf).													
Span Length (ft)		1-Span Base Steel Thickness (inches)				2-Span Base Steel Thickness (inches)				3-Span Base Steel Thickness (inches)			
		0.0135	0.0180			0.0135	0.0180			0.0135	0.0180		
Y.S.* (ksi)		80	50			80	50			80	50		
1.5	S	128	143			102	119			127	149		
1.5	D	198	264			476	634			375	499		
2.0	S	72	80			57	67			72	84		
2.0	D	84	111			201	267			158	210		
2.5	S	46	52			37	43			46	54		
2.5	D	43	57			103	137			81	108		
3.0	S	32	36			25	30			32	37		
3.0	D	25	33			60	79			47	62		
3.5	S	23	26			19	22			23	27		
3.5	D	16	21			37	50			30	39		
4.0	S	18	20			14	17			18	21		
4.0	D	10	14			25	33			20	26		
4.5	S	14	16			11	13			14	17		
4.5	D	7	10			18	23			14	18		
5.0	S	12	13			9	11			11	13		
5.0	D	5	7			13	17			10	13		

*Y.S. = Yield Strength

1. Based on ASTM A 653 structural steel.
2. Values in row "S" are based on strength.
3. Values in row "D" are based on deflection of 1/180th span.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-12.



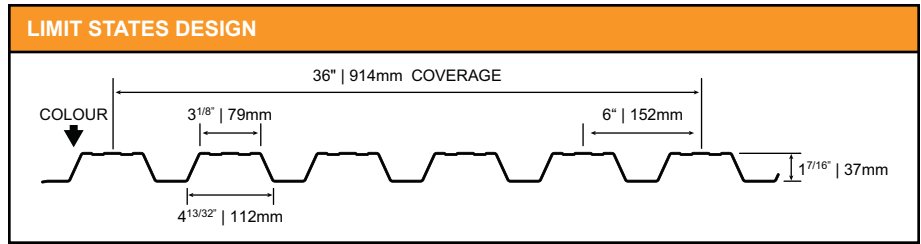
SECTION PROPERTIES Per Metre of Width									
Base Steel Thickness (mm)	Mass [Z275] (kg/m ²)	Yield Stress (MPa)	Section Modulus		Deflection Moment of Inertia (x10 ⁶ mm ⁴)	Specified Web Crippling Data			
			Midspan (x10 ³ mm ³)	Support (x10 ³ mm ³)		Pe1 End (kN)	Pe2 End (kN)	Pi1 Interior (kN)	Pi1 Interior (kN)
0.343	3.30	550	0.645	0.514	0.0094	0.475	0.119	0.883	0.150
0.457	4.31	345	0.866	0.721	0.0126	0.740	0.185	1.38	0.235

LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

LOAD TABLE Maximum Uniformly Distributed Specified Loads (kPa).													
Span Length (m)		1-Span Base Steel Thickness (mm)				2-Span Base Steel Thickness (mm)				3-Span Base Steel Thickness (mm)			
		0.343	0.457			0.343	0.457			0.343	0.457		
YS* (MPa)		550	345			550	345			550	345		
0.5	S	5.11	5.73			4.07	4.78			5.09	5.97		
0.5	D	7.26	9.66			17.4	23.2			13.7	18.3		
0.6	S	3.55	3.98			2.83	3.32			3.53	4.15		
0.6	D	4.20	5.59			10.1	13.4			7.94	10.6		
0.8	S	2.00	2.24			1.59	1.87			1.99	2.33		
0.8	D	1.77	2.36			4.25	5.66			3.35	4.46		
1.0	S	1.28	1.43			1.02	1.19			1.27	1.49		
1.0	D	0.91	1.21			2.18	2.90			1.72	2.28		
1.2	S	0.89	1.00			0.71	0.83			0.88	1.04		
1.2	D	0.53	0.70			1.26	1.68			0.99	1.32		
1.4	S	0.65	0.73			0.52	0.61			0.65	0.76		
1.4	D	0.33	0.44			0.79	1.06			0.63	0.83		
1.6	S	0.50	0.56			0.40	0.47			0.50	0.58		
1.6	D	0.22	0.29			0.53	0.71			0.42	0.56		

*Y.S. = Yield Strength

1. Based on ASTM A 653 structural steel.
2. Values in row "S" are based on strength.
3. Values in row "D" are based on deflection of 1/180th span.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-12.



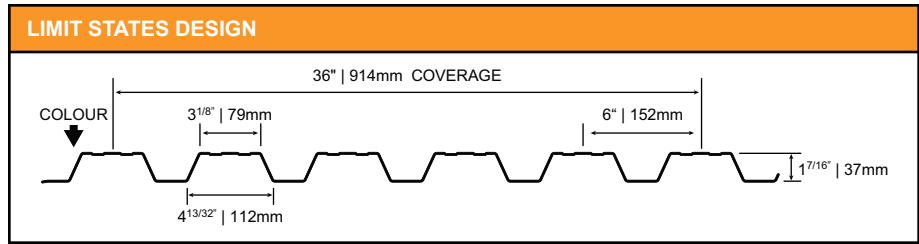
SECTION PROPERTIES Per Foot of Width									
Base Steel Thickness (inches)	Weight [G90] (psf)	Yield Stress (ksi)	Section Modulus		Deflection Moment of Inertia (in ⁴)	Specified Web Crippling Data			
			Midspan (in ³)	Support (in ³)		Pe1 End (lb)	Pe2 End (lb)	Pi1 Interior (lb)	Pi1 Interior (lb)
0.0180	1.04	33	0.0847	0.0884	0.0754	58.0	14.5	111	18.8
0.0180	1.04	50	0.0778	0.0822	0.0707	87.8	22.0	168	28.5
0.0240	1.36	33	0.128	0.130	0.114	109	27.2	207	35.2
0.0300	1.69	33	0.175	0.176	0.152	176	44.0	335	56.9

LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

LOAD TABLE Maximum Uniformly Distributed Specified Loads (psf).														
Span Length (ft)		1-Span Base Steel Thickness (inches)				2-Span Base Steel Thickness (inches)				3-Span Base Steel Thickness (inches)				
		0.0180	0.0180	0.0240	0.0300	0.0180	0.0180	0.0240	0.0300	0.0135	0.0180	0.0240	0.0300	
Y.S.* (ksi)		33	50	33	33	33	50	33	33	33	50	33	33	
4.0	S	70	97	106	144	73	103	108	145	91	128	134	181	
4.0	D	114	107	173	230	274	257	414	552	216	202	326	434	
4.5	S	55	77	84	114	58	81	85	115	72	102	106	143	
4.5	D	80	75	121	161	192	180	291	387	152	142	229	305	
5.0	S	45	62	68	92	47	66	69	93	58	82	86	116	
5.0	D	58	55	88	118	140	132	212	282	110	104	167	222	
5.5	S	37	51	56	76	39	54	57	77	48	68	71	96	
5.5	D	44	41	66	88	105	99	159	212	83	78	125	167	
6.0	S	31	43	47	64	32	46	48	64	41	57	60	81	
6.0	D	34	32	51	68	81	76	123	163	64	60	97	129	
6.5	S	26	37	40	55	28	39	41	55	35	49	51	69	
6.5	D	27	25	40	54	64	60	97	129	50	47	76	101	
7.0	S	23	32	35	47	24	34	35	47	30	42	44	59	
7.0	D	21	20	32	43	51	48	77	103	40	38	61	81	
7.5	S	20	28	30	41	21	29	31	41	26	37	38	52	
7.5	D	17	16	26	35	42	39	63	84	33	31	49	66	
8.0	S	17	24	26	36	18	26	27	36	23	32	34	45	
8.0	D	14	13	22	29	34	32	52	69	27	25	41	54	
8.5	S	15	22	23	32	16	23	24	32	20	28	30	40	
8.5	D	12	11	18	24	29	27	43	57	22	21	34	45	
9.0	S	14	19	21	28	14	20	21	29	18	25	27	36	
9.0	D	10	9	15	20	24	23	36	48	19	18	29	38	
9.5	S	12	17	19	26	13	18	19	26	16	23	24	32	
9.5	D	9	8	13	17	20	19	31	41	16	15	24	32	
10.0	S	11	16	17	23	12	16	17	23	15	21	22	29	
10.0	D	7	7	11	15	18	16	27	35	14	13	21	28	

*Y.S. = Yield Strength

1. Based on ASTM A 653 structural steel.
2. Values in row "S" are based on strength.
3. Values in row "D" are based on deflection of 1/180th span.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-12.



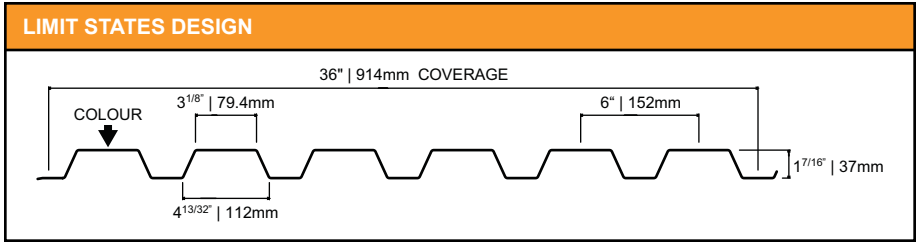
SECTION PROPERTIES Per Metre of Width									
Base Steel Thickness (mm)	Mass [Z275] (kg/m ²)	Yield Stress (MPa)	Section Modulus		Deflection Moment of Inertia (x10 ⁶ mm ⁴)	Specified Web Crippling Data			
			Midspan (x10 ³ mm ³)	Support (x10 ³ mm ³)		Pe1 End (kN)	Pe2 End (kN)	Pi1 Interior (kN)	Pi1 Interior (kN)
0.457	5.06	230	4.54	4.74	0.103	0.855	0.214	1.63	0.277
0.457	5.06	345	4.18	4.42	0.0965	1.28	0.321	2.45	0.416
0.610	6.66	230	6.87	7.00	0.155	1.60	0.401	3.06	0.519
0.762	8.26	230	9.37	9.43	0.207	2.60	0.649	4.94	0.840

LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

LOAD TABLE Maximum Uniformly Distributed Specified Loads (kPa).													
Span Length (m)		1-Span Base Steel Thickness (mm)				2-Span Base Steel Thickness (mm)				3-Span Base Steel Thickness (mm)			
		0.457	0.457	0.610	0.762	0.457	0.457	0.610	0.762	0.457	0.457	0.610	0.762
YS* (MPa)		230	345	230	230	230	345	230	230	230	345	230	230
1.0	S	5.01	6.92	7.59	10.4	5.24	7.32	7.72	10.4	6.55	9.15	9.66	13.0
1.0	D	9.89	9.29	15.0	19.9	23.7	22.3	35.9	47.8	18.7	17.6	28.3	37.6
1.2	S	3.48	4.81	5.27	7.19	3.64	5.08	5.36	7.23	4.55	6.35	6.71	9.04
1.2	D	5.72	5.38	8.65	11.5	13.7	12.9	20.8	27.7	10.8	10.2	16.4	21.8
1.4	S	2.56	3.53	3.87	5.28	2.67	3.73	3.94	5.31	3.34	4.67	4.93	6.64
1.4	D	3.60	3.39	5.45	7.26	8.65	8.12	13.1	17.4	6.81	6.40	10.3	13.7
1.6	S	1.96	2.70	2.96	4.04	2.05	2.86	3.02	4.07	2.56	3.57	3.77	5.08
1.6	D	2.41	2.27	3.65	4.86	5.79	5.44	8.76	11.7	4.56	4.29	6.90	9.19
1.8	S	1.55	2.14	2.34	3.19	1.62	2.26	2.38	3.21	2.02	2.82	2.98	4.02
1.8	D	1.70	1.59	2.56	3.41	4.07	3.82	6.15	8.19	3.20	3.01	4.84	6.45
2.0	S	1.25	1.73	1.90	2.59	1.31	1.83	1.93	2.60	1.64	2.29	2.41	3.25
2.0	D	1.24	1.16	1.87	2.49	2.97	2.79	4.48	5.97	2.34	2.19	3.53	4.70
2.2	S	1.04	1.43	1.57	2.14	1.08	1.51	1.60	2.15	1.35	1.89	1.99	2.69
2.2	D	0.93	0.87	1.40	1.87	2.23	2.09	3.37	4.49	1.76	1.65	2.65	3.53
2.4	S	0.87	1.20	1.32	1.80	0.91	1.27	1.34	1.81	1.14	1.59	1.68	2.26
2.4	D	0.72	0.67	1.08	1.44	1.72	1.61	2.60	3.46	1.35	1.27	2.04	2.72
2.6	S	0.74	1.02	1.12	1.53	0.77	1.08	1.14	1.54	0.97	1.35	1.43	1.93
2.6	D	0.56	0.53	0.85	1.13	1.35	1.27	2.04	2.72	1.06	1.00	1.61	2.14
2.8	S	0.64	0.88	0.97	1.32	0.67	0.93	0.99	1.33	0.83	1.17	1.23	1.66
2.8	D	0.45	0.42	0.68	0.91	1.08	1.02	1.63	2.18	0.85	0.80	1.29	1.71
3.0	S	0.56	0.77	0.84	1.15	0.58	0.81	0.86	1.16	0.73	1.02	1.07	1.45
3.0	D	0.37	0.34	0.55	0.74	0.88	0.83	1.33	1.77	0.69	0.65	1.05	1.39

* Y.S. = Yield Strength

1. Based on ASTM A 653 structural steel.
2. Values in row "S" are based on strength.
3. Values in row "D" are based on deflection of 1/180th span.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-12.



SECTION PROPERTIES | Per Foot of Width

Base Steel Thickness (inches)	Weight [G90] (psf)	Yield Stress (ksi)	Section Modulus		Deflection Moment of Inertia (in ⁴)	Specified Web Crippling Data			
			Midspan (in ³)	Support (in ³)		Pe1 End (lb)	Pe2 End (lb)	Pi1 Interior (lb)	Pi1 Interior (lb)
0.0180	1.04	33	0.0847	0.0884	0.0754	58.0	14.5	111	18.8
0.0180	1.04	50	0.0778	0.0822	0.0707	87.8	22.0	168	28.5
0.0240	1.36	33	0.128	0.130	0.114	109	27.2	207	35.2
0.0300	1.69	33	0.175	0.176	0.152	176	44.0	335	56.9

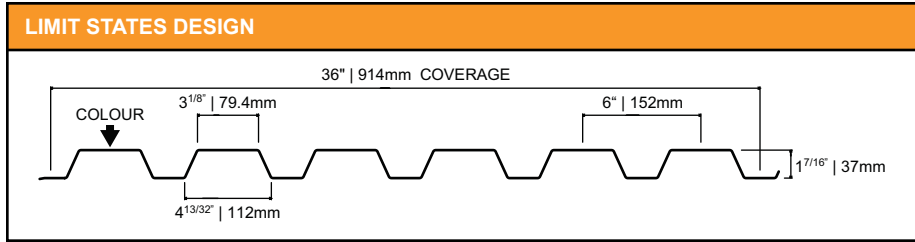
LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

LOAD TABLE | Maximum Uniformly Distributed Specified Loads (psf).

Span Length (ft)		1-Span Base Steel Thickness (inches)				2-Span Base Steel Thickness (inches)				3-Span Base Steel Thickness (inches)			
		0.0180	0.0180	0.0240	0.0300	0.0180	0.0180	0.0240	0.0300	0.0135	0.0180	0.0240	0.0300
Y.S.* (ksi)		33	50	33	33	33	50	33	33	33	50	33	33
4.0	S	70	97	106	144	73	103	108	145	91	128	134	181
4.0	D	114	107	173	230	274	257	414	552	216	202	326	434
4.5	S	55	77	84	114	58	81	85	115	72	102	106	143
4.5	D	80	75	121	161	192	180	291	387	152	142	229	305
5.0	S	45	62	68	92	47	66	69	93	58	82	86	116
5.0	D	58	55	88	118	140	132	212	282	110	104	167	222
5.5	S	37	51	56	76	39	54	57	77	48	68	71	96
5.5	D	44	41	66	88	105	99	159	212	83	78	125	167
6.0	S	31	43	47	64	32	46	48	64	41	57	60	81
6.0	D	34	32	51	68	81	76	123	163	64	60	97	129
6.5	S	26	37	40	55	28	39	41	55	35	49	51	69
6.5	D	27	25	40	54	64	60	97	129	50	47	76	101
7.0	S	23	32	35	47	24	34	35	47	30	42	44	59
7.0	D	21	20	32	43	51	48	77	103	40	38	61	81
7.5	S	20	28	30	41	21	29	31	41	26	37	38	52
7.5	D	17	16	26	35	42	39	63	84	33	31	49	66
8.0	S	17	24	26	36	18	26	27	36	23	32	34	45
8.0	D	14	13	22	29	34	32	52	69	27	25	41	54
8.5	S	15	22	23	32	16	23	24	32	20	28	30	40
8.5	D	12	11	18	24	29	27	43	57	22	21	34	45
9.0	S	14	19	21	28	14	20	21	29	18	25	27	36
9.0	D	10	9	15	20	24	23	36	48	19	18	29	38
9.5	S	12	17	19	26	13	18	19	26	16	23	24	32
9.5	D	9	8	13	17	20	19	31	41	16	15	24	32
10.0	S	11	16	17	23	12	16	17	23	15	21	22	29
10.0	D	7	7	11	15	18	16	27	35	14	13	21	28

*Y.S. = Yield Strength

1. Based on ASTM A 653 structural steel.
2. Values in row "S" are based on strength.
3. Values in row "D" are based on deflection of 1/180th span.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-12.



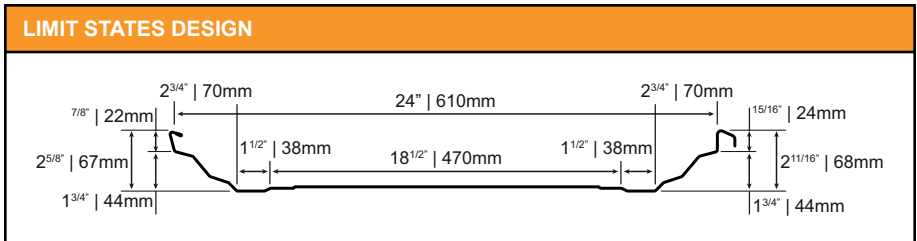
SECTION PROPERTIES Per Metre of Width									
Base Steel Thickness (mm)	Mass [Z275] (kg/m ²)	Yield Stress (MPa)	Section Modulus		Deflection Moment of Inertia (x10 ⁶ mm ⁴)	Specified Web Crippling Data			
			Midspan (x10 ³ mm ³)	Support (x10 ³ mm ³)		Pe1 End (kN)	Pe2 End (kN)	Pi1 Interior (kN)	Pi1 Interior (kN)
0.457	5.06	230	4.54	4.74	0.103	0.855	0.214	1.63	0.277
0.457	5.06	345	4.18	4.42	0.0965	1.28	0.321	2.45	0.416
0.610	6.66	230	6.87	7.00	0.155	1.60	0.401	3.06	0.519
0.762	8.26	230	9.37	9.43	0.207	2.60	0.649	4.94	0.840

LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

LOAD TABLE Maximum Uniformly Distributed Specified Loads (kPa).													
Span Length (m)		1-Span Base Steel Thickness (mm)				2-Span Base Steel Thickness (mm)				3-Span Base Steel Thickness (mm)			
		0.457	0.457	0.610	0.762	0.457	0.457	0.610	0.762	0.457	0.457	0.610	0.762
YS* (MPa)		230	345	230	230	230	345	230	230	230	345	230	230
1.0	S	5.01	6.92	7.59	10.4	5.24	7.32	7.72	10.4	6.55	9.15	9.66	13.0
1.0	D	9.89	9.29	15.0	19.9	23.7	22.3	35.9	47.8	18.7	17.6	28.3	37.6
1.2	S	3.48	4.81	5.27	7.19	3.64	5.08	5.36	7.23	4.55	6.35	6.71	9.04
1.2	D	5.72	5.38	8.65	11.5	13.7	12.9	20.8	27.7	10.8	10.2	16.4	21.8
1.4	S	2.56	3.53	3.87	5.28	2.67	3.73	3.94	5.31	3.34	4.67	4.93	6.64
1.4	D	3.60	3.39	5.45	7.26	8.65	8.12	13.1	17.4	6.81	6.40	10.3	13.7
1.6	S	1.96	2.70	2.96	4.04	2.05	2.86	3.02	4.07	2.56	3.57	3.77	5.08
1.6	D	2.41	2.27	3.65	4.86	5.79	5.44	8.76	11.7	4.56	4.29	6.90	9.19
1.8	S	1.55	2.14	2.34	3.19	1.62	2.26	2.38	3.21	2.02	2.82	2.98	4.02
1.8	D	1.70	1.59	2.56	3.41	4.07	3.82	6.15	8.19	3.20	3.01	4.84	6.45
2.0	S	1.25	1.73	1.90	2.59	1.31	1.83	1.93	2.60	1.64	2.29	2.41	3.25
2.0	D	1.24	1.16	1.87	2.49	2.97	2.79	4.48	5.97	2.34	2.19	3.53	4.70
2.2	S	1.04	1.43	1.57	2.14	1.08	1.51	1.60	2.15	1.35	1.89	1.99	2.69
2.2	D	0.93	0.87	1.40	1.87	2.23	2.09	3.37	4.49	1.76	1.65	2.65	3.53
2.4	S	0.87	1.20	1.32	1.80	0.91	1.27	1.34	1.81	1.14	1.59	1.68	2.26
2.4	D	0.72	0.67	1.08	1.44	1.72	1.61	2.60	3.46	1.35	1.27	2.04	2.72
2.6	S	0.74	1.02	1.12	1.53	0.77	1.08	1.14	1.54	0.97	1.35	1.43	1.93
2.6	D	0.56	0.53	0.85	1.13	1.35	1.27	2.04	2.72	1.06	1.00	1.61	2.14
2.8	S	0.64	0.88	0.97	1.32	0.67	0.93	0.99	1.33	0.83	1.17	1.23	1.66
2.8	D	0.45	0.42	0.68	0.91	1.08	1.02	1.63	2.18	0.85	0.80	1.29	1.71
3.0	S	0.56	0.77	0.84	1.15	0.58	0.81	0.86	1.16	0.73	1.02	1.07	1.45
3.0	D	0.37	0.34	0.55	0.74	0.88	0.83	1.33	1.77	0.69	0.65	1.05	1.39

* Y.S. = Yield Strength

1. Based on ASTM A 653 structural steel.
2. Values in row "S" are based on strength.
3. Values in row "D" are based on deflection of SPAN/240.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-12.



SECTION PROPERTIES | Per Foot of Width

Base Steel Thickness (inches)	Weight [G90] (psf)	Yield Stress (ksi)	Section Modulus		Deflection Moment of Inertia (in ⁴)	Specified Web Crippling Data			
			Midspan (in ³)	Support (in ³)		Pe1 End (lb)	Pe2 End (lb)	Pi1 Interior (lb)	Pi1 Interior (lb)
0.0240	1.26	50	0.0997	0.0864	0.179				
0.0300	1.56	50	0.126	0.109	0.227				

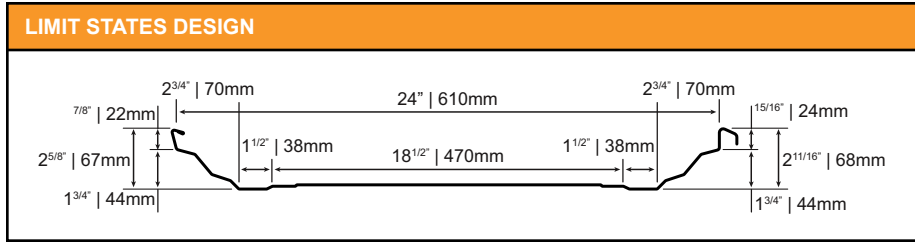
LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

LOAD TABLE | Maximum Uniformly Distributed Specified Loads (psf).

Span Length (ft)		1-Span Base Steel Thickness (inches)				2-Span Base Steel Thickness (inches)				3-Span Base Steel Thickness (inches)			
		0.0240	0.0300			0.0240	0.0300			0.0240	0.0300		
Y.S.* (ksi)		50	50			50	50			50	50		
3.0	S	220	278			191	241			239	302		
3.0	D	482	611			1157	1466			911	1154		
3.5	S	161	204			140	177			175	221		
3.5	D	303	385			728	923			574	727		
4.0	S	123	156			107	135			134	169		
4.0	D	203	258			488	618			384	487		
4.5	S	97	123			84	106			105	133		
4.5	D	143	181			343	434			270	342		
5.0	S	78	99			68	86			85	108		
5.0	D	104	132			250	317			197	249		
5.5	S	65	82			56	71			70	89		
5.5	D	78	99			188	238			148	187		
6.0	S	54	68			47	59			59	74		
6.0	D	60	76			145	183			114	144		
6.5	S	46	58			40	50			50	63		
6.5	D	47	60			114	144			90	114		
7.0	S	39	50			34	43			43	54		
7.0	D	38	48			91	115			72	91		
7.5	S	34	43			29	37			37	47		
7.5	D	31	39			74	94			58	74		

* Y.S. = Yield Strength

1. Based on ASTM A 653 structural steel.
2. Values in row "S" are based on strength.
3. Values in row "D" are based on deflection of SPAN/240.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-12.



SECTION PROPERTIES | Per Metre of Width

Base Steel Thickness (mm)	Mass [Z275] (kg/m ²)	Yield Stress (MPa)	Section Modulus		Deflection Moment of Inertia (x10 ⁶ mm ⁴)	Specified Web Crippling Data			
			Midspan (x10 ³ mm ³)	Support (x10 ³ mm ³)		Pe1 End (kN)	Pe2 End (kN)	Pi1 Interior (kN)	Pi1 Interior (kN)
0.610	5.91	345	5.36	4.65	0.244				
0.762	7.35	345	6.76	5.87	0.310				

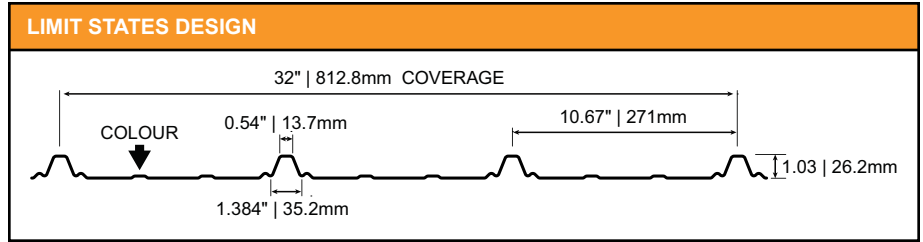
LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

LOAD TABLE | Maximum Uniformly Distributed Specified Loads (kPa).

Span Length (m)		1-Span Base Steel Thickness (mm)				2-Span Base Steel Thickness (mm)				3-Span Base Steel Thickness (mm)			
		0.610	0.762			0.610	0.762			0.610	0.762		
YS* (MPa)		345	345			345	345			345	345		
1.0	S	8.82	11.1			7.64	9.65			9.56	12.1		
1.0	D	17.6	22.4			42.3	53.7			33.3	42.3		
1.2	S	6.10	7.70			5.28	6.68			6.62	8.36		
1.2	D	10.2	12.9			24.5	31.1			19.3	24.5		
1.4	S	4.47	5.64			3.87	4.89			4.85	6.13		
1.4	D	6.43	8.15			15.4	19.6			12.2	15.4		
1.5	S	3.89	4.90			3.36	4.25			4.22	5.33		
1.5	D	5.23	6.63			12.6	15.9			9.88	12.5		
1.6	S	3.41	4.30			2.95	3.72			3.70	4.67		
1.6	D	4.31	5.46			10.3	13.1			8.14	10.3		
1.8	S	2.68	3.38			2.32	2.93			2.91	3.68		
1.8	D	3.03	3.83			7.26	9.20			5.72	7.25		
2.0	S	2.16	2.73			1.87	2.36			2.35	2.97		
2.0	D	2.21	2.80			5.29	6.71			4.17	5.28		

* Y.S. = Yield Strength

1. Based on ASTM A 653 structural steel.
2. Values in row "S" are based on strength.
3. Values in row "D" are based on deflection of 1/180th span.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-12.



SECTION PROPERTIES | Per Foot of Width

Base Steel Thickness (inches)	Weight [G90] (psf)	Yield Stress (ksi)	Section Modulus		Deflection Moment of Inertia (in ⁴)	Specified Web Crippling Data			
			Midspan (in ³)	Support (in ³)		Pe1 End (lb)	Pe2 End (lb)	Pi1 Interior (lb)	Pi1 Interior (lb)
0.0180	1.00	50	0.0240	0.0195	0.0217	52.9	13.2	96.7	16.4

LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

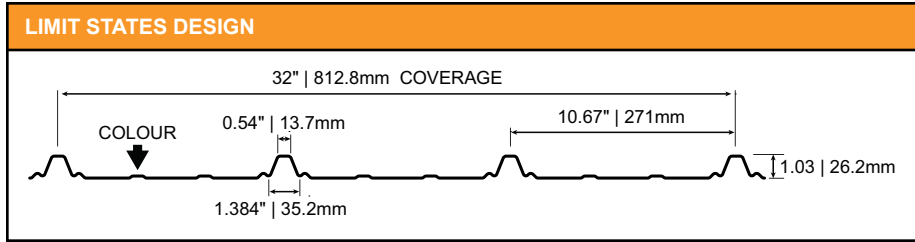
LOAD TABLE | Maximum Uniformly Distributed Specified Loads (psf).

Span Length (ft)	Y.S.* (ksi)	1-Span Base Steel Thickness (inches)				2-Span Base Steel Thickness (inches)				3-Span Base Steel Thickness (inches)			
		0.0180	0.0240	0.0300	0.0360	0.0180	0.0240	0.0300	0.0360	0.0180	0.0240	0.0300	0.0360
1.0	S	480				390				488			
1.0	D	2099				5037				3966			
1.5	S	214				173				217			
1.5	D	622				1492				1175			
2.0	S	120				98				122			
2.0	D	262				630				496			
2.5	S	77				62				78			
2.5	D	134				322				254			
3.0	S	53				43				54			
3.0	D	78				187				147			
3.5	S	39				32				40			
3.5	D	49				117				93			
4.0	S	30				24				30			
4.0	D	33				79				62			

*Y.S. = Yield Strength



1. Based on ASTM A 653 structural steel.
2. Values in row "S" are based on strength.
3. Values in row "D" are based on deflection of 1/180th span.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-12.



SECTION PROPERTIES Per Metre of Width									
Base Steel Thickness (mm)	Mass [Z275] (kg/m ²)	Yield Stress (MPa)	Section Modulus		Deflection Moment of Inertia (x10 ⁶ mm ⁴)	Specified Web Crippling Data			
			Midspan (x10 ³ mm ³)	Support (x10 ³ mm ³)		Pe1 End (kN)	Pe2 End (kN)	Pi1 Interior (kN)	Pi1 Interior (kN)
0.457	4.82	345	1.29	1.05	0.0296	0.772	0.193	1.41	0.240

LLF = 1.50; IMPF = 0.90; NORMAL OCCUPANCY = 1.0

LOAD TABLE Maximum Uniformly Distributed Specified Loads (kPa).													
Span Length (m)		1-Span Base Steel Thickness (mm)				2-Span Base Steel Thickness (mm)				3-Span Base Steel Thickness (mm)			
		0.457				0.457				0.457			
Y.S.* (MPa)		345				345				345			
0.4	S	13.4				10.9				13.6			
0.4	D	44.5				107				84.0			
0.5	S	8.55				6.95				8.68			
0.5	D	22.8				54.6				43.0			
0.6	S	5.94				4.82				6.03			
0.6	D	13.2				31.6				24.9			
0.8	S	3.34				2.71				3.39			
0.8	D	5.56				13.3				10.5			
1.0	S	2.14				1.74				2.17			
1.0	D	2.85				6.83				5.38			
1.2	S	1.49				1.21				1.51			
1.2	D	1.65				3.95				3.11			

*Y.S. = Yield Strength