

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 2015 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 used. This lower load factor for wind some-what 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 External Wind Load

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

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

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

Importance Category	Importance Factor, I_s	
	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 must be equal to or greater than the **specified live load**.

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)

Ultra Span Wall (Normal Importance Category)

Given: (Metric units)

(LLF = 1.4 and $I_w = 0.75$)

~ Cladding thickness, $t = 0.762$ mm

~ Double span continuous, $L = 2.6$ m each span

~ Bearing length, $N = 50$ mm

~ L/240 deflection limit

~ Wind live load, $LL = 1.5$ kPa

The live load is the value of the boxed-in portion of the specified wind load expression [1].

Solution:

Strength "S"

1) Specified wind live load = 1.5 kPa

2) Maximum specified load (from Load Table) is **1.65 kPa**

Since $1.65 > 1.5$ ∴ OK

3) Check web crippling ($N = 50$ mm)

a) End reaction = $0.375(1.5)2.6 = 1.46$ kN/m

(from section property table)

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

$$= 2.78 + 0.695[50/0.762]^{1/2} = 8.41$$
 kN/m

Since $8.41 > 1.46$ ∴ OK

b) Interior reaction = $1.25(1.5)2.6 = 4.88$ kN/m

(from section property table)

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

$$= 5.29 + 0.900[50/0.762]^{1/2} = 12.6$$
 kN/m

Since $12.6 > 4.88$ ∴ OK

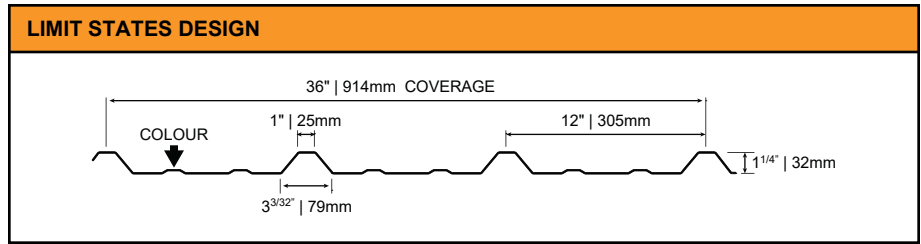
Deflection "D"

From table L/180 = 3.26 kPa

For L/240, multiply 3.26 by 180/240 = 2.45 kPa

Since $2.45 > 1.5$ ∴ 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 S136-16.



SECTION PROPERTIES | Per Foot of Width

Base Steel Thickness (in.)	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)	Pi2 Interior (lb)
0.0180	0.94	33	0.0406	0.0343	0.0435	25.9	6.47	50.2	8.53
0.0180	0.94	50	0.0385	0.0326	0.0430	39.2	9.80	76.0	12.9
0.0180	0.94	80	0.0376	0.0315	0.0426	46.6	11.7	90.4	15.4
0.0240	1.23	33	0.0571	0.0476	0.0579	48.6	12.2	93.8	16.0
0.0300	1.53	33	0.0710	0.0613	0.0722	78.7	19.7	152	25.8

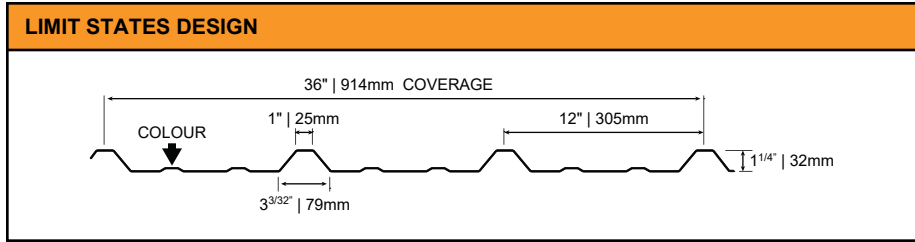
LLF = 1.40; IMPF = 0.75; NORMAL OCCUPANCY = 1.0

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

Span Length (ft)		1-Span Base Steel Thickness (in.)					2-Span Base Steel Thickness (in.)					3-Span Base Steel Thickness (in.)				
		0.0180	0.0180	0.0180	0.0240	0.0300	0.0180	0.0180	0.0180	0.0240	0.0300	0.0180	0.0180	0.0180	0.0240	0.0300
Y.S.* (ksi)		33	50	80	33	33	33	50	80	33	33	33	50	80	33	33
2.0	S	144	206	239	202	251	121	175	201	168	217	152	219	251	210	271
2.0	D	632	626	620	842	1050	1517	1502	1487	2020	2521	1195	1183	1171	1591	1985
2.5	S	92	132	153	129	161	78	112	128	108	139	97	140	161	135	173
2.5	D	324	320	317	431	538	777	769	761	1034	1291	612	606	600	814	1017
3.0	S	64	92	106	90	112	54	78	89	75	96	67	97	111	93	120
3.0	D	187	185	184	249	311	449	445	441	598	747	354	351	347	471	588
3.5	S	47	67	78	66	82	40	57	66	55	71	50	71	82	69	88
3.5	D	118	117	116	157	196	283	280	277	377	470	223	221	218	297	370
4.0	S	36	51	60	50	63	30	44	50	42	54	38	55	63	53	68
4.0	D	79	78	77	105	131	190	188	186	252	315	149	148	146	199	248
4.5	S	28	41	47	40	50	24	35	40	33	43	30	43	50	42	53
4.5	D	55	55	54	74	92	133	132	131	177	221	105	104	103	140	174
5.0	S	23	33	38	32	40	19	28	32	27	35	24	35	40	34	43
5.0	D	40	40	40	54	67	97	96	95	129	161	76	76	75	102	127
5.5	S	19	27	32	27	33	16	23	27	22	29	20	29	33	28	36
5.5	D	30	30	30	40	51	73	72	71	97	121	57	57	56	76	95
6.0	S	16	23	27	22	28	13	19	22	19	24	17	24	28	23	30
6.0	D	23	23	23	31	39	56	56	55	75	93	44	44	43	59	74
6.5	S	14	20	23	19	24	11	17	19	16	21	14	21	24	20	26
6.5	D	18	18	18	25	31	44	44	43	59	73	35	34	34	46	58
7.0	S	12	17	20	16	20	10	14	16	14	18	12	18	20	17	22
7.0	D	15	15	14	20	25	35	35	35	47	59	28	28	27	37	46
7.5	S	10	15	17	14	18	9	12	14	12	15	11	16	18	15	19
7.5	D	12	12	12	16	20	29	28	28	38	48	23	22	22	30	38
8.0	S	9	13	15	13	16	8	11	13	11	14	9	14	16	13	17
8.0	D	10	10	10	13	16	24	23	23	32	39	19	18	18	25	31

* Y.S. = Yield Stress

1. Based on ASTM A 653M 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 S136-16.



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)	Pi2 Interior (kN)
0.457	4.59	230	2.18	1.85	0.0594	0.382	0.095	0.740	0.126
0.457	4.59	345	2.07	1.76	0.0588	0.573	0.143	1.11	0.189
0.457	4.59	550	2.02	1.69	0.0582	0.685	0.171	1.33	0.226
0.610	6.02	230	3.07	2.56	0.0790	0.717	0.179	1.38	0.235
0.762	7.46	230	3.82	3.29	0.0987	1.16	0.290	2.24	0.380

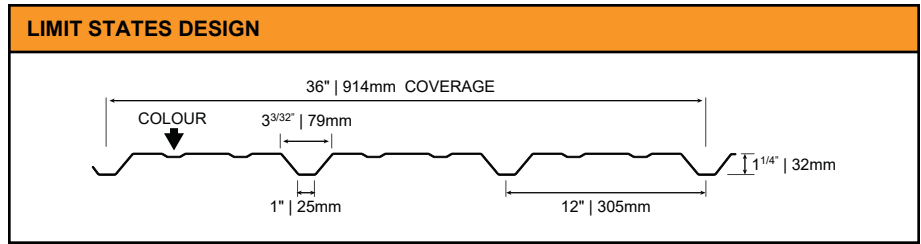
LLF = 1.40; IMPF = 0.75; NORMAL OCCUPANCY = 1.0

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	550	230	230	230	345	550	230	230	230	345	550	230	230
1.0	S	2.58	3.67	4.28	3.63	4.52	2.18	3.11	3.59	3.02	3.89	2.73	3.89	4.48	3.78	4.87
1.0	D	6.86	6.79	6.72	9.13	11.4	16.5	16.3	16.1	21.9	27.4	13.0	12.8	12.7	17.3	21.5
1.2	S	1.79	2.55	2.97	2.52	3.14	1.52	2.16	2.49	2.10	2.70	1.89	2.70	3.11	2.62	3.38
1.2	D	3.97	3.93	3.89	5.28	6.59	9.52	9.43	9.33	12.7	15.8	7.50	7.42	7.35	10.0	12.5
1.4	S	1.32	1.87	2.19	1.85	2.30	1.11	1.59	1.83	1.54	1.99	1.39	1.99	2.29	1.93	2.48
1.4	D	2.50	2.47	2.45	3.33	4.15	6.00	5.94	5.87	7.98	10.0	4.72	4.68	4.63	6.29	7.85
1.6	S	1.01	1.43	1.67	1.42	1.76	0.85	1.22	1.40	1.18	1.52	1.07	1.52	1.75	1.48	1.90
1.6	D	1.67	1.66	1.64	2.23	2.78	4.02	3.98	3.94	5.35	6.68	3.16	3.13	3.10	4.21	5.26
1.8	S	0.80	1.13	1.32	1.12	1.39	0.67	0.96	1.11	0.93	1.20	0.84	1.20	1.38	1.17	1.50
1.8	D	1.18	1.16	1.15	1.57	1.95	2.82	2.79	2.76	3.76	4.69	2.22	2.20	2.18	2.96	3.69
2.0	S	0.64	0.92	1.07	0.91	1.13	0.55	0.78	0.90	0.76	0.97	0.68	0.97	1.12	0.94	1.22
2.0	D	0.86	0.85	0.84	1.14	1.42	2.06	2.04	2.02	2.74	3.42	1.62	1.60	1.59	2.16	2.69
2.2	S	0.53	0.76	0.88	0.75	0.93	0.45	0.64	0.74	0.62	0.80	0.56	0.80	0.93	0.78	1.01
2.2	D	0.64	0.64	0.63	0.86	1.07	1.55	1.53	1.51	2.06	2.57	1.22	1.20	1.19	1.62	2.02
2.4	S	0.45	0.64	0.74	0.63	0.78	0.38	0.54	0.62	0.52	0.68	0.47	0.68	0.78	0.66	0.84
2.4	D	0.50	0.49	0.49	0.66	0.82	1.19	1.18	1.17	1.58	1.98	0.94	0.93	0.92	1.25	1.56
2.6	S	0.38	0.54	0.63	0.54	0.67	0.32	0.46	0.53	0.45	0.58	0.40	0.58	0.66	0.56	0.72
2.6	D	0.39	0.39	0.38	0.52	0.65	0.94	0.93	0.92	1.25	1.56	0.74	0.73	0.72	0.98	1.23
2.8	S	0.33	0.47	0.55	0.46	0.58	0.28	0.40	0.46	0.39	0.50	0.35	0.50	0.57	0.48	0.62
2.8	D	0.31	0.31	0.31	0.42	0.52	0.75	0.74	0.73	1.00	1.25	0.59	0.58	0.58	0.79	0.98
3.0	S	0.29	0.41	0.48	0.40	0.50	0.24	0.35	0.40	0.34	0.43	0.30	0.43	0.50	0.42	0.54
3.0	D	0.25	0.25	0.25	0.34	0.42	0.61	0.60	0.60	0.81	1.01	0.48	0.48	0.47	0.64	0.80

*Y.S. = Yield Stress

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 S136-16.



SECTION PROPERTIES | Per Foot of Width

Base Steel Thickness (in.)	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)	Pi2 Interior (lb)
0.0180	0.94	33	0.0343	0.0406	0.0265	25.9	6.47	50.2	8.53
0.0180	0.94	50	0.0326	0.0385	0.0243	39.2	9.80	76.0	12.9
0.0180	0.94	80	0.0314	0.0375	0.0234	47.1	11.8	91.2	15.5
0.0240	1.23	33	0.0476	0.0571	0.0420	48.6	12.2	93.8	16.0
0.0300	1.53	33	0.0613	0.0710	0.0573	78.7	19.7	152	25.8

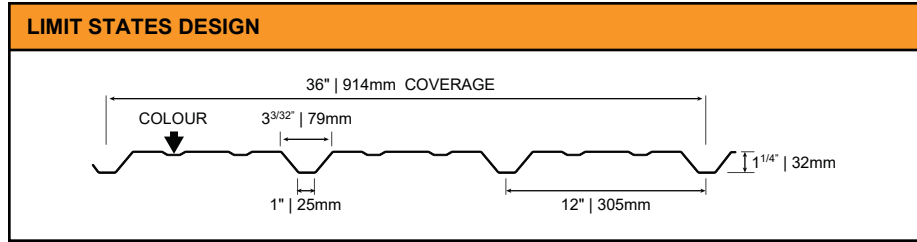
LLF = 1.40; IMPF = 0.75; NORMAL OCCUPANCY = 1.0

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

Span Length (ft)		1-Span Base Steel Thickness (in.)					2-Span Base Steel Thickness (in.)					3-Span Base Steel Thickness (in.)				
		0.0180	0.0180	0.0180	0.0240	0.0300	0.0180	0.0180	0.0180	0.0240	0.0300	0.0180	0.0180	0.0180	0.0240	0.0300
Y.S.* (ksi)		33	50	80	33	33	33	50	80	33	33	33	50	80	33	33
2.0	S	121	175	202	168	217	144	206	241	202	251	179	257	302	252	314
2.0	D	385	353	341	611	834	924	847	818	1466	2001	727	667	644	1154	1576
2.5	S	78	112	129	108	139	92	132	154	129	161	115	165	193	161	201
2.5	D	197	181	174	313	427	473	434	419	751	1025	372	342	330	591	807
3.0	S	54	78	90	75	96	64	92	107	90	112	80	114	134	112	139
3.0	D	114	105	101	181	247	274	251	242	434	593	216	198	191	342	467
3.5	S	40	57	66	55	71	47	67	79	66	82	59	84	98	82	102
3.5	D	72	66	64	114	156	172	158	153	274	373	136	125	120	215	294
4.0	S	30	44	51	42	54	36	51	60	50	63	45	64	75	63	78
4.0	D	48	44	43	76	104	115	106	102	183	250	91	83	80	144	197
4.5	S	24	35	40	33	43	28	41	48	40	50	35	51	60	50	62
4.5	D	34	31	30	54	73	81	74	72	129	176	64	59	57	101	138
5.0	S	19	28	32	27	35	23	33	39	32	40	29	41	48	40	50
5.0	D	25	23	22	39	53	59	54	52	94	128	47	43	41	74	101
5.5	S	16	23	27	22	29	19	27	32	27	33	24	34	40	33	41
5.5	D	19	17	16	29	40	44	41	39	70	96	35	32	31	56	76
6.0	S	13	19	22	19	24	16	23	27	22	28	20	29	34	28	35
6.0	D	14	13	13	23	31	34	31	30	54	74	27	25	24	43	58
6.5	S	11	17	19	16	21	14	20	23	19	24	17	24	29	24	30
6.5	D	11	10	10	18	24	27	25	24	43	58	21	19	19	34	46
7.0	S	10	14	16	14	18	12	17	20	16	20	15	21	25	21	26
7.0	D	9	8	8	14	19	22	20	19	34	47	17	16	15	27	37
7.5	S	9	12	14	12	15	10	15	17	14	18	13	18	21	18	22
7.5	D	7	7	6	12	16	18	16	16	28	38	14	13	12	22	30
8.0	S	8	11	13	11	14	9	13	15	13	16	11	16	19	16	20
8.0	D	6	6	5	10	13	14	13	13	23	31	7	11	10	18	25

*Y.S. = Yield Stress

1. Based on ASTM A 653M 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 S136-16.



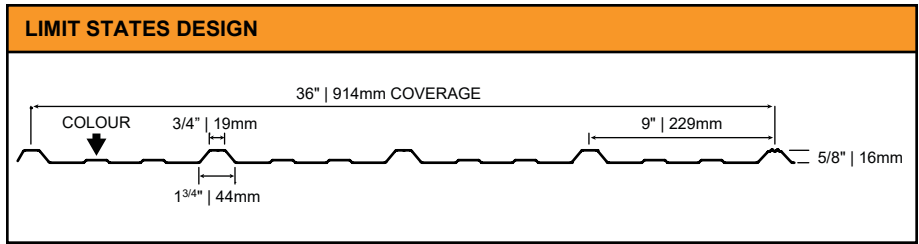
SECTION PROPERTIES Per Metre of Width									
Base Steel Thickness (mm)	Mass [Z275] (kg/m ²)	Yield Stress (MPa)	Section Modulus		Deflection Moment of Inertia (x10 ⁶ mm ⁴)	Specified Web Crippling Data			
			Midspan (x10 ³ mm ³)	Support (x10 ³ mm ³)		Pe1 End (kN)	Pe2 End (kN)	Pi1 Interior (kN)	Pi2 Interior (kN)
0.457	4.59	230	1.85	2.18	0.0361	0.382	0.095	0.740	0.126
0.457	4.59	345	1.76	2.07	0.0332	0.573	0.143	1.11	0.189
0.457	4.59	550	1.69	2.02	0.0320	0.685	0.171	1.33	0.226
0.610	6.02	230	2.56	3.07	0.0572	0.717	0.179	1.38	0.235
0.762	7.46	230	3.29	3.82	0.0782	1.16	0.290	2.24	0.380

LLF = 1.40; IMPF = 0.75; 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	0.610	0.762	0.457	0.457	0.457	0.610	0.762	0.457	0.457	0.457	0.610	0.762
YS* (MPa)		230	345	550	230	230	230	345	550	230	230	230	345	550	230	230
1.0	S	2.18	3.11	3.59	3.02	3.89	2.58	3.67	4.28	3.63	4.52	3.22	4.58	5.35	4.54	5.64
1.0	D	4.16	3.83	3.70	6.61	9.03	9.99	9.19	8.87	15.9	21.7	7.87	7.24	6.99	12.5	17.1
1.2	S	1.52	2.16	2.49	2.10	2.70	1.79	2.55	2.97	2.52	3.14	2.24	3.18	3.72	3.15	3.92
1.2	D	2.41	2.22	2.14	3.83	5.22	5.78	5.32	5.13	9.18	12.5	4.55	4.19	4.04	7.23	9.87
1.4	S	1.11	1.59	1.83	1.54	1.99	1.32	1.87	2.19	1.85	2.30	1.64	2.34	2.73	2.31	2.88
1.4	D	1.52	1.40	1.35	2.41	3.29	3.64	3.35	3.23	5.78	7.89	2.87	2.64	2.55	4.55	6.22
1.6	S	0.85	1.22	1.40	1.18	1.52	1.01	1.43	1.67	1.42	1.76	1.26	1.79	2.09	1.77	2.20
1.6	D	1.02	0.93	0.90	1.61	2.20	2.44	2.24	2.17	3.87	5.29	1.92	1.77	1.71	3.05	4.16
1.8	S	0.67	0.96	1.11	0.93	1.20	0.80	1.13	1.32	1.12	1.39	0.99	1.41	1.65	1.40	1.74
1.8	D	0.71	0.66	0.63	1.13	1.55	1.71	1.58	1.52	2.72	3.71	1.35	1.24	1.20	2.14	2.92
2.0	S	0.55	0.78	0.90	0.76	0.97	0.64	0.92	1.07	0.91	1.13	0.81	1.15	1.34	1.13	1.41
2.0	D	0.52	0.48	0.46	0.83	1.13	1.25	1.15	1.11	1.98	2.71	0.98	0.90	0.87	1.56	2.13
2.2	S	0.45	0.64	0.74	0.62	0.80	0.53	0.76	0.88	0.75	0.93	0.67	0.95	1.11	0.94	1.17
2.2	D	0.39	0.36	0.35	0.62	0.85	0.94	0.86	0.83	1.49	2.03	0.74	0.68	0.66	1.17	1.60
2.4	S	0.38	0.54	0.62	0.52	0.68	0.45	0.64	0.74	0.63	0.78	0.56	0.80	0.93	0.79	0.98
2.4	D	0.30	0.28	0.27	0.48	0.65	0.72	0.66	0.64	1.15	1.57	0.57	0.52	0.51	0.90	1.23
2.6	S	0.32	0.46	0.53	0.45	0.58	0.38	0.54	0.63	0.54	0.67	0.48	0.68	0.79	0.67	0.83
2.6	D	0.24	0.22	0.21	0.38	0.51	0.57	0.52	0.50	0.90	1.23	0.45	0.41	0.40	0.71	0.97
2.8	S	0.28	0.40	0.46	0.39	0.50	0.33	0.47	0.55	0.46	0.58	0.41	0.58	0.68	0.58	0.72
2.8	D	0.19	0.17	0.17	0.30	0.41	0.46	0.42	0.40	0.72	0.99	0.36	0.33	0.32	0.57	0.78
3.0	S	0.24	0.35	0.40	0.34	0.43	0.29	0.41	0.48	0.40	0.50	0.36	0.51	0.59	0.50	0.63
3.0	D	0.15	0.14	0.14	0.24	0.33	0.37	0.34	0.33	0.59	0.80	0.29	0.27	0.26	0.46	0.63

*Y.S. = Yield Stress

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 S136-16.



SECTION PROPERTIES | Per Foot of Width

Base Steel Thickness (in.)	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)	Pi2 Interior (lb)
0.0135	0.68	80	0.0108	0.0097	0.0064	37.5	9.38	68.6	11.7
0.0180	0.88	50	0.0163	0.0143	0.0087	58.1	14.5	107	18.2

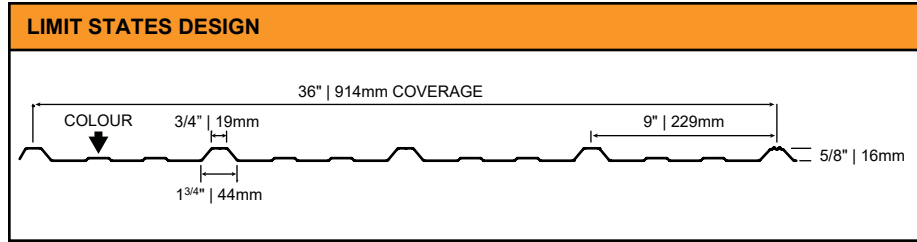
LLF = 1.40; IMPF = 0.75; NORMAL OCCUPANCY = 1.0

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

Span Length (ft)		1-Span Base Steel Thickness (in.)				2-Span Base Steel Thickness (in.)				3-Span Base Steel Thickness (in.)			
		0.0135	0.0180			0.0135	0.0180			0.0135	0.0180		
Y.S.* (ksi)		80	50			80	50			80	50		
1.5	S	124	155			110	136			138	170		
1.5	D	220	301			529	721			416	568		
2.0	S	70	87			62	77			78	96		
2.0	D	93	127			223	304			176	240		
2.5	S	45	56			40	49			50	61		
2.5	D	48	65			114	156			90	123		
3.0	S	31	39			28	34			34	43		
3.0	D	28	38			66	90			52	71		
3.5	S	23	28			20	25			25	31		
3.5	D	17	24			42	57			33	45		
4.0	S	17	22			16	19			19	24		
4.0	D	12	16			28	38			22	30		
4.5	S	14	17			12	15			15	19		
4.5	D	8	11			20	27			15	21		
5.0	S	11	14			10	12			12	15		
5.0	D	6	8			14	19			11	15		

*Y.S. = Yield Stress

1. Based on ASTM A 653M 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 S136-16.

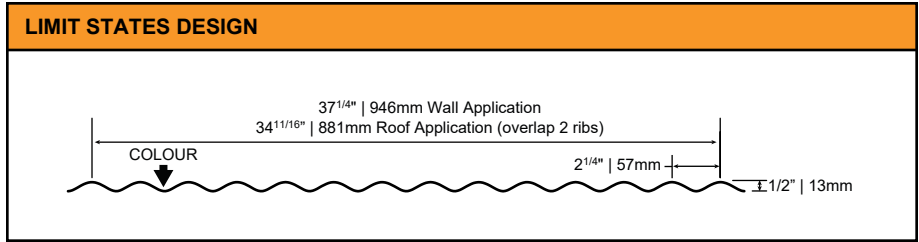


SECTION PROPERTIES Per Metre of Width									
Base Steel Thickness (mm)	Mass [Z275] (kg/m ²)	Yield Stress (MPa)	Section Modulus		Deflection Moment of Inertia (x10 ⁶ mm ⁴)	Specified Web Crippling Data			
			Midspan (x10 ³ mm ³)	Support (x10 ³ mm ³)		Pe1 End (kN)	Pe2 End (kN)	Pi1 Interior (kN)	Pi2 Interior (kN)
0.343	3.30	550	0.583	0.519	0.0087	0.546	0.137	1.00	0.170
0.457	4.31	345	0.876	0.768	0.0119	0.849	0.212	1.56	0.265
LLF = 1.40; IMPF = 0.75; 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	4.95	6.21			4.41	5.45			5.51	6.81		
0.5	D	8.06	11.0			19.4	26.4			15.2	20.8		
0.6	S	3.44	4.32			3.06	3.78			3.83	4.73		
0.6	D	4.67	6.37			11.2	15.3			8.82	12.0		
0.8	S	1.93	2.43			1.72	2.13			2.15	2.66		
0.8	D	1.97	2.69			4.72	6.45			3.72	5.08		
1.0	S	1.24	1.55			1.10	1.36			1.38	1.70		
1.0	D	1.01	1.38			2.42	3.30			1.90	2.60		
1.2	S	0.86	1.08			0.77	0.95			0.96	1.18		
1.2	D	0.58	0.80			1.40	1.91			1.10	1.50		
1.4	S	0.63	0.79			0.56	0.70			0.70	0.87		
1.4	D	0.37	0.50			0.88	1.20			0.69	0.95		
1.6	S	0.48	0.61			0.43	0.53			0.54	0.67		
1.6	D	0.25	0.34			0.59	0.81			0.47	0.63		

*Y.S. = Yield Stress

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 S136-16.



SECTION PROPERTIES | Per Foot of Width

Base Steel Thickness (in.)	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)	Pi2 Interior (lb)
0.0180	0.85	33	0.0235	0.0235	0.00587				
0.0180	0.85	50	0.0235	0.0235	0.00587				

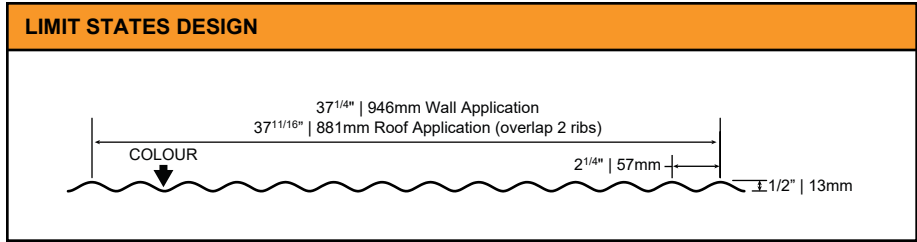
LLF = 1.40; IMPF = 0.75; NORMAL OCCUPANCY = 1.0

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

Span Length (ft)		1-Span Base Steel Thickness (in.)				2-Span Base Steel Thickness (in.)				3-Span Base Steel Thickness (in.)			
		0.0180	0.0180			0.0180	0.0180			0.0180	0.0180		
Y.S.* (ksi)		33	50			33	50			33	50		
1.5	S	148	224			148	224			185	280		
1.5	D	202	202			486	486			383	383		
2.0	S	83	126			83	126			104	157		
2.0	D	85	85			205	205			161	161		
2.5	S	53	81			53	81			66	101		
2.5	D	44	44			105	105			83	83		
3.0	S	37	56			37	56			46	70		
3.0	D	25	25			61	61			48	48		
3.5	S	27	41			27	41			34	51		
3.5	D	16	16			38	38			30	30		
4.0	S	21	31			21	31			26	39		
4.0	D	11	11			26	26			20	20		
4.5	S					16	25			21	31		
4.5	D					18	18			14	14		
5.0	S					13	20			17	25		
5.0	D					13	13			10	10		
5.5	S												
5.5	D												
6.0	S												
6.0	D												

*Y.S. = Yield Stress

1. Based on ASTM A 653M 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 S136-16.



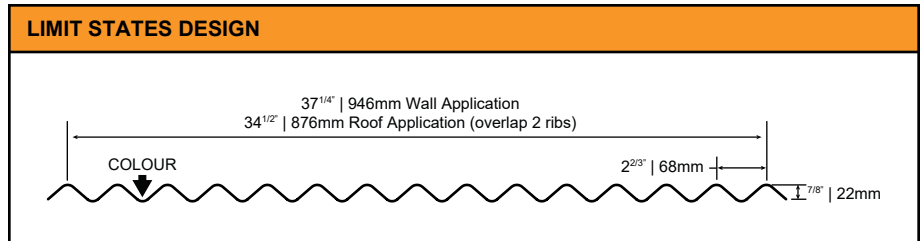
SECTION PROPERTIES Per Metre of Width									
Base Steel Thickness (mm)	Mass [Z275] (kg/m ²)	Yield Stress (MPa)	Section Modulus		Deflection Moment of Inertia (x10 ⁶ mm ⁴)	Specified Web Crippling Data			
			Midspan (x10 ³ mm ³)	Support (x10 ³ mm ³)		Pe1 End (kN)	Pe2 End (kN)	Pi1 Interior (kN)	Pi2 Interior (kN)
0.457	4.13	230	1.26	1.26	0.0080				
0.457	4.13	345	1.26	1.26	0.0080				

LLF = 1.40; IMPF = 0.75; 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		
Y.S.* (MPa)		230	345			230	345			230	345		
0.5	S	5.98	8.97			5.98	8.97			7.47	11.2		
0.5	D	7.41	7.41			17.8	17.8			14.0	14.0		
0.6	S	4.15	6.23			4.15	6.23			5.19	7.78		
0.6	D	4.29	4.29			10.3	10.3			8.11	8.11		
0.8	S	2.33	3.50			2.33	3.50			2.92	4.38		
0.8	D	1.81	1.81			4.34	4.34			3.42	3.42		
1.0	S	1.49	2.24			1.49	2.24			1.87	2.80		
1.0	D	0.93	0.93			2.22	2.22			1.75	1.75		
1.2	S	1.04	1.56			1.04	1.56			1.30	1.95		
1.2	D	0.54	0.54			1.29	1.29			1.01	1.01		
1.4	S					0.76	1.14			0.95	1.43		
1.4	D					0.81	0.81			0.64	0.64		
1.6	S					0.58	0.88						
1.6	D					0.54	0.54						
1.8	S												
1.8	D												

*Y.S. = Yield Stress

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 S136-16.



SECTION PROPERTIES | Per Foot of Width

Base Steel Thickness (in.)	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)	Pi2 Interior (lb)
0.0180	0.97	33	0.0531	0.0531	0.0232				
0.0180	0.97	50	0.0531	0.0531	0.0232				
0.0240	1.27	33	0.0697	0.0697	0.0305				
0.0300	1.58	33	0.0856	0.0856	0.0375				

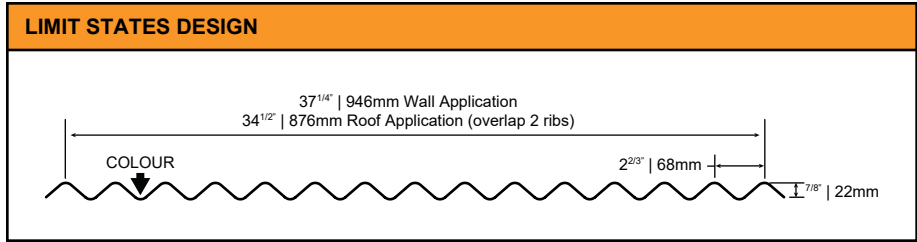
LLF = 1.40; IMPF = 0.75; NORMAL OCCUPANCY = 1.0

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

Span Length (ft)		1-Span Base Steel Thickness (in.)				2-Span Base Steel Thickness (in.)				3-Span Base Steel Thickness (in.)			
		0.0180	0.0180	0.0240	0.0300	0.0180	0.0180	0.0240	0.0300	0.0180	0.0180	0.0240	0.0300
Y.S.* (ksi)		33	50	33	33	33	50	33	33	33	50	33	33
2.0	S	188	285	246	303	188	285	246	303	235	356	308	378
2.0	D	338	338	443	545	811	811	1064	1307	639	639	838	1029
2.5	S	120	182	158	194	120	182	158	194	150	228	197	242
2.5	D	173	173	227	279	415	415	545	669	327	327	429	527
3.0	S	84	127	109	135	84	127	109	135	104	158	137	168
3.0	D	100	100	131	161	240	240	315	387	189	189	248	305
3.5	S	61	93	80	99	61	93	80	99	77	116	101	124
3.5	D	63	63	83	102	151	151	198	244	119	119	156	192
4.0	S	47	71	62	76	47	71	62	76	59	89	77	95
4.0	D	42	42	55	68	101	101	133	163	80	80	105	129
4.5	S	37	56	49	60	37	56	49	60	46	70	61	75
4.5	D	30	30	39	48	71	71	93	115	56	56	74	90
5.0	S	30	46	39	48	30	46	39	48	38	57	49	61
5.0	D	22	22	28	35	52	52	68	84	41	41	54	66
5.5	S	25	38	33	40	25	38	33	40	31	47	41	50
5.5	D	16	16	21	26	39	39	51	63	31	31	40	49
6.0	S	21	32	27	34	21	32	27	34	26	40	34	42
6.0	D	13	13	16	20	30	30	39	48	24	24	31	38
6.5	S			23	29	18	27	23	29	22	34	29	36
6.5	D			13	16	24	24	31	38	19	19	24	30
7.0	S			20	25	15	23	20	25	19	29	25	31
7.0	D			10	13	19	19	25	30	15	15	20	24
7.5	S			12		13	20	18	22	17	25	22	27
7.5	D			10		15	15	20	25	12	12	16	20
8.0	S					12	18	15	19			19	24
8.0	D					13	13	17	20			13	16

*Y.S. = Yield Stress

1. Based on ASTM A 653M 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 S136-16.



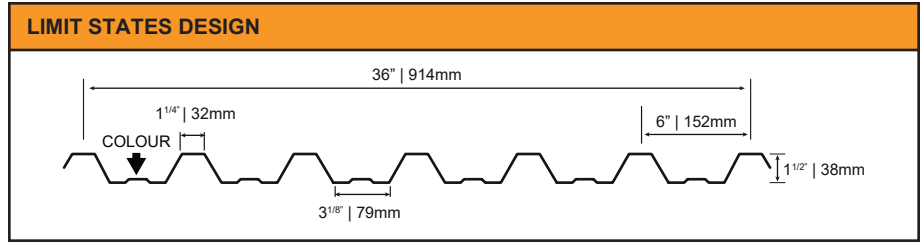
SECTION PROPERTIES Per Metre of Width									
Base Steel Thickness (mm)	Mass [Z275] (kg/m ²)	Yield Stress (MPa)	Section Modulus		Deflection Moment of Inertia (x10 ⁶ mm ⁴)	Specified Web Crippling Data			
			Midspan (x10 ³ mm ³)	Support (x10 ³ mm ³)		Pe1 End (kN)	Pe2 End (kN)	Pi1 Interior (kN)	Pi2 Interior (kN)
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 = 1.40; IMPF = 0.75; 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	3.38	5.07	4.43	5.45		3.38	5.07	4.43	5.45		4.22	6.34	5.54	6.81
1.0	D	3.67	3.67	4.81	5.91		8.80	8.80	11.5	14.2		6.93	6.93	9.09	11.2
1.2	S	2.35	3.52	3.08	3.78		2.35	3.52	3.08	3.78		2.93	4.40	3.85	4.73
1.2	D	2.12	2.12	2.78	3.42		5.09	5.09	6.68	8.21		4.01	4.01	5.26	6.46
1.4	S	1.72	2.59	2.26	2.78		1.72	2.59	2.26	2.78		2.16	3.23	2.83	3.47
1.4	D	1.34	1.34	1.75	2.15		3.21	3.21	4.20	5.17		2.53	2.53	3.31	4.07
1.6	S	1.32	1.98	1.73	2.13		1.32	1.98	1.73	2.13		1.65	2.48	2.16	2.66
1.6	D	0.90	0.90	1.17	1.44		2.15	2.15	2.82	3.46		1.69	1.69	2.22	2.73
1.8	S	1.04	1.56	1.37	1.68		1.04	1.56	1.37	1.68		1.30	1.96	1.71	2.10
1.8	D	0.63	0.63	0.82	1.01		1.51	1.51	1.98	2.43		1.19	1.19	1.56	1.91
2.0	S			1.11	1.36		0.84	1.27	1.11	1.36		1.06	1.58	1.38	1.70
2.0	D			0.60	0.74		1.10	1.10	1.44	1.77		0.87	0.87	1.14	1.40
2.2	S				1.13		0.70	1.05	0.92	1.13		0.87	1.31	1.14	1.41
2.2	D				0.55		0.83	0.83	1.08	1.33		0.65	0.65	0.85	1.05
2.4	S						0.59	0.88	0.77	0.95		0.73	1.10	0.96	1.18
2.4	D						0.64	0.64	0.83	1.03		0.50	0.50	0.66	0.81
2.6	S							0.75	0.66	0.81				0.82	1.01
2.6	D							0.50	0.66	0.81				0.52	0.64
2.8	S								0.57	0.69					0.87
2.8	D								0.53	0.65					0.51

*Y.S. = Yield Stress

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 S136-16.



SECTION PROPERTIES | Per Foot of Width

Base Steel Thickness (in.)	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)	Pi2 Interior (lb)
0.0180	1.04	33	0.0942	0.0892	0.0988	58.0	14.5	113	19.1
0.0180	1.04	50	0.0886	0.0822	0.0961	87.9	22.0	171	29.0
0.0240	1.36	33	0.136	0.129	0.133	109	27.3	211	35.8
0.0300	1.69	33	0.177	0.165	0.166	177	44.2	341	57.9

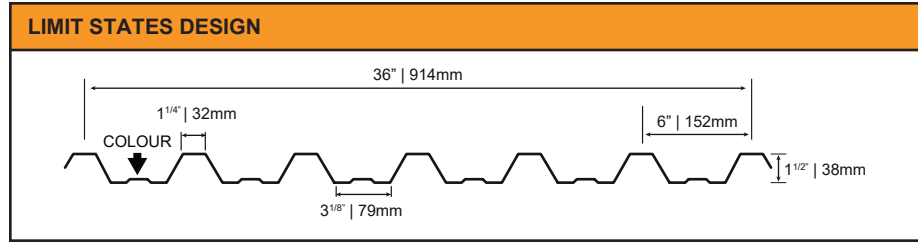
LLF = 1.40; IMPF = 0.75; NORMAL OCCUPANCY = 1.0

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

Span Length (ft)		1-Span Base Steel Thickness (in.)				2-Span Base Steel Thickness (in.)				3-Span Base Steel Thickness (in.)			
		0.0180	0.0180	0.0240	0.0300	0.0180	0.0180	0.0240	0.0300	0.0180	0.0180	0.0240	0.0300
Y.S.* (ksi)		33	50	33	33	33	50	33	33	33	50	33	33
3.0	S	148	211	214	278	140	196	203	260	175	245	253	324
3.0	D	426	414	573	715	1021	993	1375	1715	804	782	1082	1351
3.5	S	109	155	157	205	103	144	149	191	129	180	186	238
3.5	D	268	261	361	450	643	626	866	1080	507	493	682	851
4.0	S	83	119	120	157	79	110	114	146	99	138	143	182
4.0	D	180	175	242	301	431	419	580	724	339	330	457	570
4.5	S	66	94	95	124	62	87	90	115	78	109	113	144
4.5	D	126	123	170	212	303	294	407	508	238	232	321	400
5.0	S	53	76	77	100	50	70	73	93	63	88	91	117
5.0	D	92	89	124	154	221	215	297	370	174	169	234	292
5.5	S	44	63	64	83	42	58	60	77	52	73	75	97
5.5	D	69	67	93	116	166	161	223	278	131	127	176	219
6.0	S	37	53	54	70	35	49	51	65	44	61	63	81
6.0	D	53	52	72	89	128	124	172	214	101	98	135	169
6.5	S	32	45	46	59	30	42	43	55	37	52	54	69
6.5	D	42	41	56	70	100	98	135	169	79	77	106	133
7.0	S	27	39	39	51	26	36	37	48	32	45	47	60
7.0	D	34	33	45	56	80	78	108	135	63	62	85	106
7.5	S	24	34	34	45	22	31	32	42	28	39	41	52
7.5	D	27	26	37	46	65	64	88	110	51	50	69	86
8.0	S	21	30	30	39	20	28	29	36	25	34	36	46
8.0	D	22	22	30	38	54	52	72	90	42	41	57	71
8.5	S	18	26	27	35	17	24	25	32	22	30	32	40
8.5	D	19	18	25	31	45	44	60	75	35	34	48	59
9.0	S	16	23	24	31	16	22	23	29	19	27	28	36
9.0	D	16	15	21	26	38	37	51	64	30	29	40	50
9.5	S	15	21	21	28	14	20	20	26	17	24	25	32
9.5	D	13	13	18	23	32	31	43	54	25	25	34	43
10.0	S	13	19	19	25	13	18	18	23	16	22	23	29
10.0	D	11	11	15	19	28	27	37	46	22	21	29	36

*Y.S. = Yield Stress

1. Based on ASTM A 653M 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 S136-16.



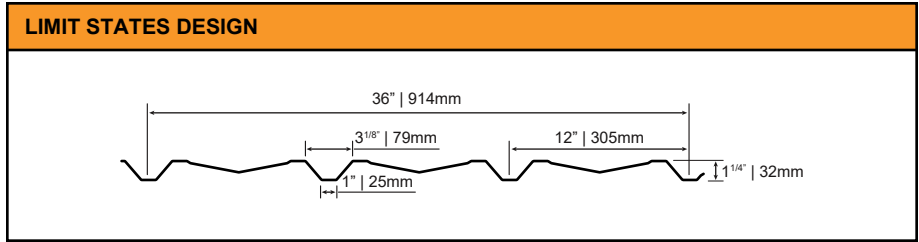
SECTION PROPERTIES Per Metre of Width									
Base Steel Thickness (mm)	Mass [Z275] (kg/m ²)	Yield Stress (MPa)	Section Modulus		Deflection Moment of Inertia (x10 ⁶ mm ⁴)	Specified Web Crippling Data			
			Midspan (x10 ³ mm ³)	Support (x10 ³ mm ³)		Pe1 End (kN)	Pe2 End (kN)	Pi1 Interior (kN)	Pi2 Interior (kN)
0.457	5.06	230	5.06	4.78	0.135	0.856	0.214	1.66	0.282
0.457	5.06	345	4.76	4.42	0.131	1.28	0.321	2.49	0.423
0.610	6.66	230	7.32	6.93	0.182	1.61	0.402	3.11	0.529
0.762	8.26	230	9.53	8.87	0.227	2.61	0.652	5.03	0.855

LLF = 1.40; IMPF = 0.75; 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	5.98	8.45	8.65	11.3	5.66	7.84	8.20	10.5	7.07	9.80	10.3	13.1
1.0	D	15.6	15.2	21.0	26.2	37.4	36.4	50.3	62.8	29.4	28.6	39.6	49.4
1.2	S	4.15	5.87	6.01	7.83	3.93	5.44	5.69	7.29	4.91	6.80	7.12	9.11
1.2	D	9.01	8.77	12.1	15.1	21.6	21.0	29.1	36.3	17.0	16.6	22.9	28.6
1.4	S	3.05	4.31	4.41	5.75	2.89	4.00	4.18	5.35	3.61	5.00	5.23	6.69
1.4	D	5.67	5.52	7.64	9.53	13.6	13.3	18.3	22.9	10.7	10.4	14.4	18.0
1.6	S	2.34	3.30	3.38	4.40	2.21	3.06	3.20	4.10	2.76	3.83	4.00	5.12
1.6	D	3.80	3.70	5.12	6.39	9.12	8.88	12.3	15.3	7.18	6.99	9.67	12.1
1.8	S	1.85	2.61	2.67	3.48	1.75	2.42	2.53	3.24	2.18	3.02	3.16	4.05
1.8	D	2.67	2.60	3.60	4.49	6.41	6.24	8.63	10.8	5.05	4.91	6.79	8.48
2.0	S	1.50	2.11	2.16	2.82	1.41	1.96	2.05	2.62	1.77	2.45	2.56	3.28
2.0	D	1.95	1.89	2.62	3.27	4.67	4.55	6.29	7.85	3.68	3.58	4.95	6.18
2.2	S	1.24	1.75	1.79	2.33	1.17	1.62	1.69	2.17	1.46	2.02	2.12	2.71
2.2	D	1.46	1.42	1.97	2.46	3.51	3.42	4.73	5.90	2.76	2.69	3.72	4.64
2.4	S	1.04	1.47	1.50	1.96	0.98	1.36	1.42	1.82	1.23	1.70	1.78	2.28
2.4	D	1.13	1.10	1.52	1.89	2.70	2.63	3.64	4.54	2.13	2.07	2.87	3.58
2.6	S	0.89	1.25	1.28	1.67	0.84	1.16	1.21	1.55	1.05	1.45	1.52	1.94
2.6	D	0.89	0.86	1.19	1.49	2.13	2.07	2.86	3.57	1.67	1.63	2.25	2.81
2.8	S	0.76	1.08	1.10	1.44	0.72	1.00	1.05	1.34	0.90	1.25	1.31	1.67
2.8	D	0.71	0.69	0.96	1.19	1.70	1.66	2.29	2.86	1.34	1.30	1.81	2.25
3.0	S	0.66	0.94	0.96	1.25	0.63	0.87	0.91	1.17	0.79	1.09	1.14	1.46
3.0	D	0.58	0.56	0.78	0.97	1.38	1.35	1.86	2.33	1.09	1.06	1.47	1.83
3.2	S	0.58	0.83	0.85	1.10	0.55	0.77	0.80	1.02	0.69	0.96	1.00	1.28
3.2	D	0.48	0.46	0.64	0.80	1.14	1.11	1.54	1.92	0.90	0.87	1.21	1.51
3.4	S	0.52	0.73	0.75	0.97	0.49	0.68	0.71	0.91	0.61	0.85	0.89	1.13
3.4	D	0.40	0.39	0.53	0.67	0.95	0.93	1.28	1.60	0.75	0.73	1.01	1.26

*Y.S. = Yield Stress

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 S136-16.



SECTION PROPERTIES | Per Foot of Width

Base Steel Thickness (in.)	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)	Pi2 Interior (lb)
0.0180	0.94	33	0.0344	0.0405	0.0264	25.9	6.5	52.0	8.83
0.0180	0.94	50	0.0324	0.0382	0.0242	39.2	9.8	78.7	13.4
0.0180	0.94	80	0.0312	0.0373	0.0233	47.1	11.8	94.5	16.1
0.0240	1.23	33	0.0477	0.0574	0.0420	48.6	12.1	96.4	16.4

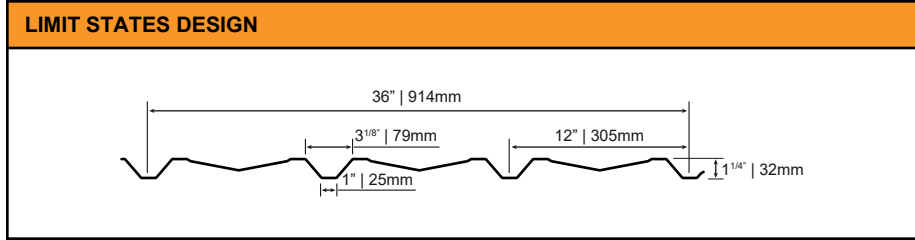
LLF = 1.40; IMPF = 0.75; NORMAL OCCUPANCY = 1.0

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

Span Length (ft)		1-Span Base Steel Thickness (in.)				2-Span Base Steel Thickness (in.)				3-Span Base Steel Thickness (in.)			
		0.0180	0.0180	0.0180	0.0240	0.0180	0.0180	0.0180	0.0240	0.0180	0.0180	0.0180	0.0240
Y.S.* (ksi)		33	50	80	33	33	50	80	33	33	50	80	33
2.0	S	122	173	200	169	143	205	240	203	179	256	300	254
2.0	D	384	352	339	611	922	845	815	1466	726	665	642	1154
2.5	S	78	111	128	108	92	131	153	130	114	164	192	162
2.5	D	197	180	174	313	472	433	417	751	372	341	328	591
3.0	S	54	77	89	75	64	91	107	90	79	114	133	113
3.0	D	114	104	101	181	273	250	241	434	215	197	190	342
3.5	S	40	57	65	55	47	67	78	66	58	84	98	83
3.5	D	72	66	63	114	172	158	152	274	135	124	120	215
4.0	S	30	43	50	42	36	51	60	51	45	64	75	63
4.0	D	48	44	42	76	115	106	102	183	91	83	80	144
4.5	S	24	34	40	33	28	40	47	40	35	51	59	50
4.5	D	34	31	30	54	81	74	72	129	64	58	56	101
5.0	S	19	28	32	27	23	33	38	32	29	41	48	41
5.0	D	25	23	22	39	59	54	52	94	46	43	41	74
5.5	S	16	23	26	22	19	27	32	27	24	34	40	34
5.5	D	18	17	16	29	44	41	39	70	35	32	31	56
6.0	S	14	19	22	19	16	23	27	23	20	28	33	28
6.0	D	14	13	13	23	34	31	30	54	27	25	24	43

*Y.S. = Yield Stress

1. Based on ASTM A 653M 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 S136-16.



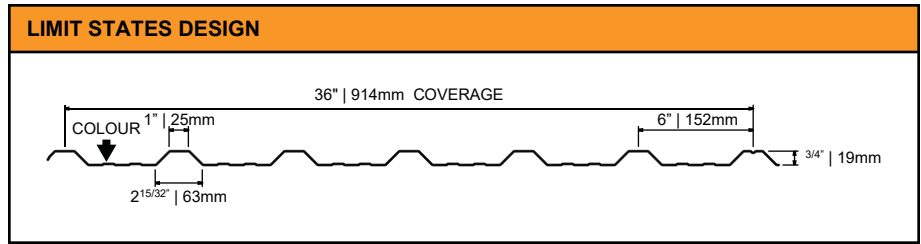
SECTION PROPERTIES Per Metre of Width									
Base Steel Thickness (mm)	Mass [Z275] (kg/m ²)	Yield Stress (MPa)	Section Modulus		Deflection Moment of Inertia (x10 ⁶ mm ⁴)	Specified Web Crippling Data			
			Midspan (x10 ³ mm ³)	Support (x10 ³ mm ³)		Pe1 End (kN)	Pe2 End (kN)	Pi1 Interior (kN)	Pi2 Interior (kN)
0.457	4.59	230	1.85	2.17	0.0360	0.382	0.096	0.766	0.130
0.457	4.59	345	1.74	2.06	0.0331	0.573	0.143	1.15	0.195
0.457	4.59	550	1.68	2.01	0.0319	0.685	0.171	1.38	0.234
0.610	6.02	230	2.57	3.09	0.0572	0.716	0.179	1.42	0.242

LLF = 1.40; IMPF = 0.75; 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	0.610	0.457	0.457	0.457	0.610	0.457	0.457	0.457	0.610		
YS* (MPa)		230	345	550	230	230	345	550	230	230	345	550	230		
0.6	S	6.08	8.58	9.88	8.43	7.14	10.1	11.8	10.2	8.92	12.7	14.8	12.7		
0.6	D	19.2	17.7	17.1	30.6	46.2	42.4	40.9	73.4	36.4	33.4	32.2	57.8		
0.8	S	3.42	4.82	5.56	4.74	4.01	5.70	6.65	5.71	5.02	7.12	8.31	7.14		
0.8	D	8.12	7.45	7.20	12.9	19.5	17.9	17.3	31.0	15.3	14.1	13.6	24.4		
1.0	S	2.19	3.09	3.56	3.03	2.57	3.65	4.26	3.65	3.21	4.56	5.32	4.57		
1.0	D	4.16	3.82	3.68	6.61	9.97	9.16	8.84	15.9	7.85	7.21	6.96	12.5		
1.2	S	1.52	2.14	2.47	2.11	1.78	2.53	2.96	2.54	2.23	3.17	3.69	3.17		
1.2	D	2.40	2.21	2.13	3.83	5.77	5.30	5.12	9.18	4.54	4.17	4.03	7.23		
1.4	S	1.12	1.58	1.81	1.55	1.31	1.86	2.17	1.86	1.64	2.33	2.71	2.33		
1.4	D	1.51	1.39	1.34	2.41	3.63	3.34	3.22	5.78	2.86	2.63	2.54	4.55		
1.6	S	0.85	1.21	1.39	1.19	1.00	1.42	1.66	1.43	1.25	1.78	2.08	1.78		
1.6	D	1.01	0.93	0.90	1.61	2.43	2.24	2.16	3.87	1.92	1.76	1.70	3.05		
1.8	S	0.68	0.95	1.10	0.94	0.79	1.13	1.31	1.13	0.99	1.41	1.64	1.41		
1.8	D	0.71	0.65	0.63	1.13	1.71	1.57	1.52	2.72	1.35	1.24	1.19	2.14		
2.0	S	0.55	0.77	0.89	0.76	0.64	0.91	1.06	0.91	0.80	1.14	1.33	1.14		
2.0	D	0.52	0.48	0.46	0.83	1.25	1.15	1.11	1.98	0.98	0.90	0.87	1.56		

*Y.S. = Yield Stress

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 S136-16.



SECTION PROPERTIES | Per Foot of Width

Base Steel Thickness (in.)	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)	Pi2 Interior (lb)
0.0180	0.93	50	0.0347	0.0325	0.0211	77.8	19.5	148	25.2
0.0180	0.93	80	0.0336	0.0311	0.0208	93.3	23.3	178	30.2

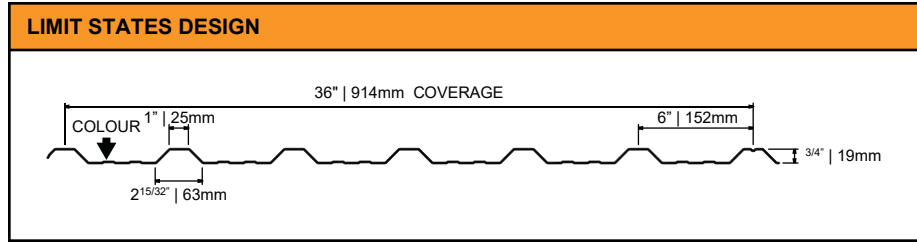
LLF = 1.40; IMPF = 0.75; NORMAL OCCUPANCY = 1.0

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

Span Length (ft)		1-Span Base Steel Thickness (in.)				2-Span Base Steel Thickness (in.)				3-Span Base Steel Thickness (in.)			
		0.0180	0.0180			0.0180	0.0180			0.0180	0.0180		
Y.S.* (ksi)		50	80			50	80			50	80		
2.0	S	186	216			174	200			218	250		
2.0	D	307	303			737	727			580	572		
2.5	S	119	138			112	128			139	160		
2.5	D	157	155			377	372			297	293		
3.0	S	83	96			77	89			97	111		
3.0	D	91	90			218	215			172	170		
3.5	S	61	70			57	65			71	82		
3.5	D	57	56			138	136			108	107		
4.0	S	46	54			44	50			54	63		
4.0	D	38	38			92	91			73	72		
4.5	S	37	43			34	40			43	49		
4.5	D	27	27			65	64			51	50		
5.0	S	30	35			28	32			35	40		
5.0	D	20	19			47	47			37	37		
5.5	S	25	29			23	26			29	33		
5.5	D	15	15			35	35			28	28		
6.0	S	21	24			19	22			24	28		
6.0	D	11	11			27	27			21	21		

*Y.S. = Yield Stress

1. Based on ASTM A 653M 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 S136-16.

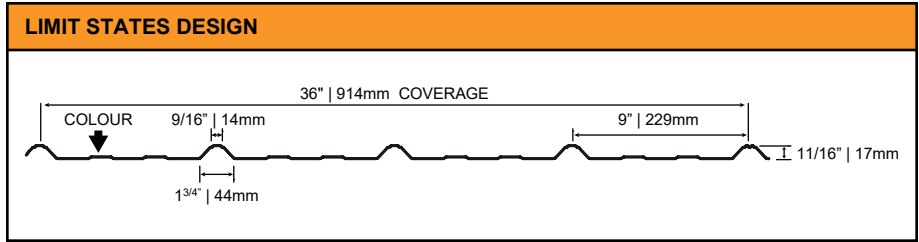


SECTION PROPERTIES Per Metre of Width									
Base Steel Thickness (mm)	Mass [Z275] (kg/m ²)	Yield Stress (MPa)	Section Modulus		Deflection Moment of Inertia (x10 ⁶ mm ⁴)	Specified Web Crippling Data			
			Midspan (x10 ³ mm ³)	Support (x10 ³ mm ³)		Pe1 End (kN)	Pe2 End (kN)	Pi1 Interior (kN)	Pi2 Interior (kN)
0.457	4.56	345	1.86	1.75	0.0288	1.14	0.284	2.16	0.367
0.457	4.56	550	1.81	1.68	0.0284	1.36	0.340	2.58	0.439
LLF = 1.40; IMPF = 0.75; NORMAL OCCUPANCY = 1.0									

LOAD TABLE Maximum Uniformly Distributed Specified Loads (kPa).													
Span Length (m)	YS* (MPa)	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		
0.6	S	9.18	10.6			8.62	9.87			10.8	12.3		
0.6	D	15.4	15.2			37.0	36.5			29.1	28.7		
0.8	S	5.16	5.98			4.85	5.55			6.06	6.94		
0.8	D	6.50	6.42			15.6	15.4			12.3	12.1		
1.0	S	3.30	3.83			3.10	3.55			3.88	4.44		
1.0	D	3.33	3.28			7.99	7.88			6.29	6.21		
1.2	S	2.30	2.66			2.16	2.47			2.69	3.08		
1.2	D	1.93	1.90			4.63	4.56			3.64	3.59		
1.4	S	1.69	1.95			1.58	1.81			1.98	2.27		
1.4	D	1.21	1.20			2.91	2.87			2.29	2.26		
1.6	S	1.29	1.50			1.21	1.39			1.52	1.74		
1.6	D	0.81	0.80			1.95	1.92			1.54	1.52		
1.8	S	1.02	1.18			0.96	1.10			1.20	1.37		
1.8	D	0.57	0.56			1.37	1.35			1.08	1.06		
2.0	S	0.83	0.96			0.78	0.89			0.97	1.11		
2.0	D	0.42	0.41			1.00	0.99			0.79	0.78		

*Y.S. = Yield Stress

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 S136-16.



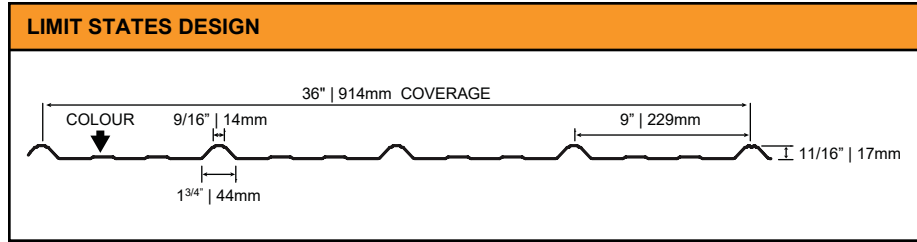
SECTION PROPERTIES Per Foot of Width									
Base Steel Thickness (in.)	Weight (G90) (psf)	Yield Stress (ksi)	Section Modulus		Deflection Moment of Inertia (in ⁴)	Specified Web Crippling Data			
			Midspan (in ³)	Support (in ³)		Pe1 End (lb)	Pe2 End (lb)	Pi1 Interior (lb)	Pi2 Interior (lb)
0.0135	0.68	80	0.0120	0.0096	0.0069	35.0	8.74	65.0	11.1
0.0180	0.88	50	0.0161	0.0134	0.0092	54.3	13.6	101	17.2

LLF = 1.40; IMPF = 0.75; NORMAL OCCUPANCY = 1.0

LOAD TABLE Maximum Uniformly Distributed Specified Loads (psf).													
Span Length (ft)		1-Span Base Steel Thickness (in.)				2-Span Base Steel Thickness (in.)				3-Span Base Steel Thickness (in.)			
		0.0135	0.0180			0.0135	0.0180			0.0135	0.0180		
Y.S.* (ksi)		80	50			80	50			80	50		
1.5	S	137	153			109	128			137	160		
1.5	D	238	317			571	760			450	599		
2.0	S	77	86			61	72			77	90		
2.0	D	100	134			241	321			190	253		
2.5	S	49	55			39	46			49	58		
2.5	D	51	68			123	164			97	129		
3.0	S	34	38			27	32			34	40		
3.0	D	30	40			71	95			56	75		
3.5	S	25	28			20	23			25	29		
3.5	D	19	25			45	60			35	47		
4.0	S	19	22			15	18			19	22		
4.0	D	13	17			30	40			24	32		
4.5	S	15	17			12	14			15	18		
4.5	D	9	12			21	28			17	22		
5.0	S	12	14			10	12			12	14		
5.0	D	6	9			15	21			12	16		

*Y.S. = Yield Stress

1. Based on ASTM A 653M 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 S136-16.



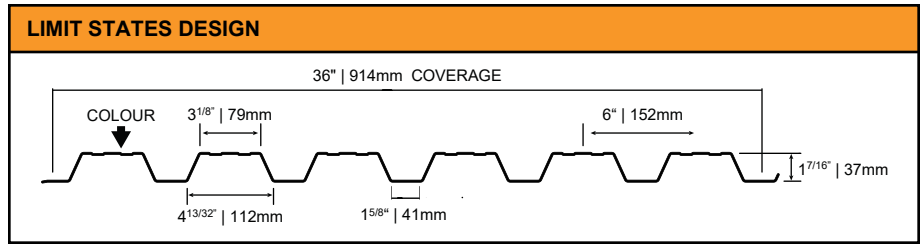
SECTION PROPERTIES Per Metre of Width									
Base Steel Thickness (mm)	Mass [Z275] (kg/m ²)	Yield Stress (MPa)	Section Modulus		Deflection Moment of Inertia (x10 ⁶ mm ⁴)	Specified Web Crippling Data			
			Midspan (x10 ³ mm ³)	Support (x10 ³ mm ³)		Pe1 End (kN)	Pe2 End (kN)	Pi1 Interior (kN)	Pi2 Interior (kN)
0.343	3.30	550	0.645	0.514	0.0094	0.509	0.127	0.95	0.161
0.457	4.31	345	0.866	0.721	0.0126	0.793	0.198	1.48	0.252

LLF = 1.40; IMPF = 0.75; 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	5.47	6.14			4.36	5.12			5.45	6.40		
0.5	D	8.71	11.6			20.9	27.8			16.5	21.9		
0.6	S	3.80	4.27			3.03	3.56			3.79	4.44		
0.6	D	5.04	6.71			12.1	16.1			9.53	12.7		
0.8	S	2.14	2.40			1.70	2.00			2.13	2.50		
0.8	D	2.13	2.83			5.11	6.79			4.02	5.35		
1.0	S	1.37	1.54			1.09	1.28			1.36	1.60		
1.0	D	1.09	1.45			2.61	3.48			2.06	2.74		
1.2	S	0.95	1.07			0.76	0.89			0.95	1.11		
1.2	D	0.63	0.84			1.51	2.01			1.19	1.59		
1.4	S	0.70	0.78			0.56	0.65			0.70	0.82		
1.4	D	0.40	0.53			0.95	1.27			0.75	1.00		
1.6	S	0.53	0.60			0.43	0.50			0.53	0.63		
1.6	D	0.27	0.35			0.64	0.85			0.50	0.67		

*Y.S. = Yield Stress

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 S136-16.



SECTION PROPERTIES | Per Foot of Width

Base Steel Thickness (in.)	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)	Pi2 Interior (lb)
0.0180	1.04	33	0.0847	0.0884	0.0754	62.1	15.5	119	20.2
0.0180	1.04	50	0.0778	0.0822	0.0707	94.1	23.5	180	30.5
0.0240	1.36	33	0.128	0.130	0.114	116	29.1	222	37.7
0.0300	1.69	33	0.175	0.176	0.152	188	47.1	359	61.0

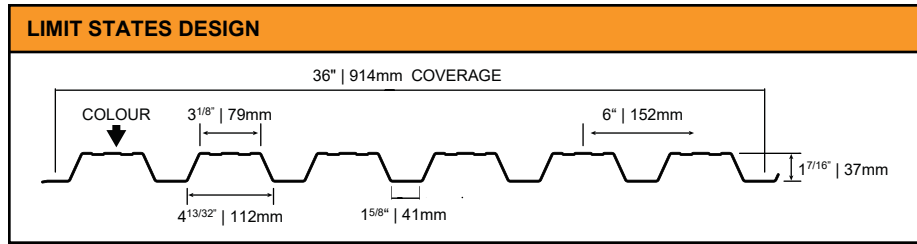
LLF = 1.40; IMPF = 0.75; NORMAL OCCUPANCY = 1.0

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

Span Length (ft)		1-Span Base Steel Thickness (in.)				2-Span Base Steel Thickness (in.)				3-Span Base Steel Thickness (in.)					
		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	75	104	113	154	78	110	115	155			98	138	144	194
4.0	D	137	128	207	276	329	308	497	662			259	243	391	521
4.5	S	59	82	89	122	62	87	91	123			77	109	114	153
4.5	D	96	90	145	194	231	217	349	465			182	171	275	366
5.0	S	48	67	72	99	50	70	74	99			63	88	92	124
5.0	D	70	66	106	141	168	158	254	339			133	124	200	267
5.5	S	40	55	60	82	41	58	61	82			52	73	76	103
5.5	D	53	49	80	106	126	119	191	255			100	93	151	200
6.0	S	33	46	50	69	35	49	51	69			43	61	64	86
6.0	D	41	38	61	82	97	91	147	196			77	72	116	154
6.5	S	28	39	43	58	30	42	44	59			37	52	55	74
6.5	D	32	30	48	64	77	72	116	154			60	57	91	121
7.0	S	24	34	37	50	26	36	38	51			32	45	47	63
7.0	D	26	24	39	51	61	58	93	123			48	45	73	97
7.5	S	21	30	32	44	22	31	33	44			28	39	41	55
7.5	D	21	19	31	42	50	47	75	100			39	37	59	79
8.0	S	19	26	28	39	20	28	29	39			24	34	36	49
8.0	D	17	16	26	34	41	39	62	83			32	30	49	65
8.5	S	17	23	25	34	17	24	26	34			22	30	32	43
8.5	D	14	13	22	29	34	32	52	69			27	25	41	54
9.0	S	15	21	22	30	15	22	23	31			19	27	28	38
9.0	D	12	11	18	24	29	27	44	58			23	21	34	46
9.5	S	13	18	20	27	14	20	20	28			17	24	26	34
9.5	D	10	10	15	21	25	23	37	49			19	18	29	39
10.0	S	12	17	18	25	13	18	18	25			16	22	23	31
10.0	D	9	8	13	18	21	20	32	42			17	16	25	33

*Y.S. = Yield Stress

1. Based on ASTM A 653M 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 S136-16.



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)	Pi2 Interior (kN)
0.457	5.06	230	4.54	4.74	0.103	0.916	0.229	1.75	0.297
0.457	5.06	345	4.18	4.42	0.0965	1.37	0.344	2.62	0.446
0.610	6.66	230	6.87	7.00	0.155	1.72	0.429	3.27	0.556
0.762	8.26	230	9.37	9.43	0.207	2.78	0.695	5.29	0.900

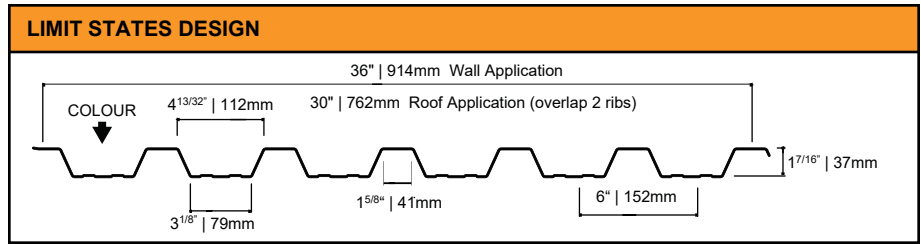
LLF = 1.40; IMPF = 0.75; NORMAL OCCUPANCY = 1.0

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	5.37	7.42	8.13	11.1	5.61	7.84	8.28	11.2	7.01	9.80	10.4	14.0
1.0	D	11.9	11.2	17.9	23.9	28.5	26.8	43.1	57.3	22.4	21.1	33.9	45.2
1.2	S	3.73	5.15	5.64	7.70	3.90	5.45	5.75	7.75	4.87	6.81	7.18	9.68
1.2	D	6.87	6.45	10.4	13.8	16.5	15.5	24.9	33.2	13.0	12.2	19.6	26.1
1.4	S	2.74	3.78	4.15	5.66	2.86	4.00	4.22	5.69	3.58	5.00	5.28	7.12
1.4	D	4.32	4.06	6.54	8.71	10.4	9.75	15.7	20.9	8.17	7.68	12.4	16.5
1.6	S	2.10	2.90	3.17	4.33	2.19	3.06	3.23	4.36	2.74	3.83	4.04	5.45
1.6	D	2.90	2.72	4.38	5.83	6.95	6.53	10.5	14.0	5.47	5.14	8.28	11.0
1.8	S	1.66	2.29	2.51	3.42	1.73	2.42	2.55	3.44	2.16	3.03	3.19	4.30
1.8	D	2.03	1.91	3.08	4.10	4.88	4.59	7.38	9.83	3.85	3.61	5.81	7.74
2.0	S	1.34	1.85	2.03	2.77	1.40	1.96	2.07	2.79	1.75	2.45	2.59	3.49
2.0	D	1.48	1.39	2.24	2.99	3.56	3.34	5.38	7.17	2.80	2.63	4.24	5.64
2.2	S	1.11	1.53	1.68	2.29	1.16	1.62	1.71	2.31	1.45	2.03	2.14	2.88
2.2	D	1.11	1.05	1.68	2.24	2.67	2.51	4.04	5.39	2.11	1.98	3.18	4.24
2.4	S	0.93	1.29	1.41	1.92	0.97	1.36	1.44	1.94	1.22	1.70	1.80	2.42
2.4	D	0.86	0.81	1.30	1.73	2.06	1.94	3.11	4.15	1.62	1.52	2.45	3.27
2.6	S	0.79	1.10	1.20	1.64	0.83	1.16	1.22	1.65	1.04	1.45	1.53	2.06
2.6	D	0.68	0.63	1.02	1.36	1.62	1.52	2.45	3.26	1.28	1.20	1.93	2.57
2.8	S	0.69	0.95	1.04	1.41	0.72	1.00	1.06	1.42	0.89	1.25	1.32	1.78
2.8	D	0.54	0.51	0.82	1.09	1.30	1.22	1.96	2.61	1.02	0.96	1.54	2.06
3.0	S	0.60	0.82	0.90	1.23	0.62	0.87	0.92	1.24	0.78	1.09	1.15	1.55
3.0	D	0.44	0.41	0.66	0.88	1.05	0.99	1.59	2.12	0.83	0.78	1.26	1.67

*Y.S. = Yield Stress

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 S136-16.



SECTION PROPERTIES | Per Foot of Width

Base Steel Thickness (in.)	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)	Pi2 Interior (lb)
0.0180	1.04	33	0.0884	0.0847	0.0923	62.1	15.5	119	20.2
0.0180	1.04	50	0.0822	0.0778	0.0881	94.1	23.5	180	30.5
0.0240	1.36	33	0.130	0.128	0.129	116	29.1	222	37.7
0.0300	1.69	33	0.176	0.175	0.162	188	47.1	359	61.0

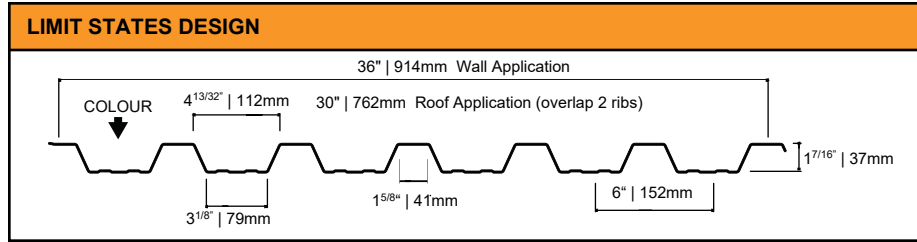
LLF = 1.40; IMPF = 0.75; NORMAL OCCUPANCY = 1.0

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

Span Length (ft)		1-Span Base Steel Thickness (in.)				2-Span Base Steel Thickness (in.)				3-Span Base Steel Thickness (in.)			
		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	78	110	115	155	75	104	113	154	94	130	142	193
4.0	D	168	160	234	295	403	384	562	708	317	303	442	558
4.5	S	62	87	91	123	59	82	89	122	74	103	112	152
4.5	D	118	112	164	207	283	270	394	497	223	212	311	392
5.0	S	50	70	74	99	48	67	72	99	60	83	91	123
5.0	D	86	82	120	151	206	197	288	362	162	155	226	285
5.5	S	41	58	61	82	40	55	60	82	49	69	75	102
5.5	D	65	62	90	113	155	148	216	272	122	116	170	214
6.0	S	35	49	51	69	33	46	50	69	42	58	63	86
6.0	D	50	47	69	87	119	114	166	210	94	90	131	165
6.5	S	30	42	44	59	28	39	43	58	35	49	54	73
6.5	D	39	37	55	69	94	90	131	165	74	71	103	130
7.0	S	26	36	38	51	24	34	37	50	31	43	46	63
7.0	D	31	30	44	55	75	72	105	132	59	56	83	104
7.5	S	22	31	33	44	21	30	32	44	27	37	40	55
7.5	D	25	24	36	45	61	58	85	107	48	46	67	85
8.0	S	20	28	29	39	19	26	28	39	23	33	35	48
8.0	D	21	20	29	37	50	48	70	88	40	38	55	70
8.5	S	17	24	26	34	17	23	25	34	21	29	31	43
8.5	D	17	17	24	31	42	40	59	74	33	32	46	58
9.0	S	15	22	23	31	15	21	22	30	18	26	28	38
9.0	D	15	14	21	26	35	34	49	62	28	27	39	46
9.5	S	14	20	20	28	13	18	20	27	17	23	25	34
9.5	D	13	12	17	22	30	29	42	53	24	23	33	42
10.0	S	13	18	18	25	12	17	18	25	15	21	23	31
10.0	D	11	10	15	19	26	25	36	45	20	19	28	36

*Y.S. = Yield Stress

1. Based on ASTM A 653M 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 S136-16.



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)	Pi2 Interior (kN)
0.457	5.06	230	4.74	4.54	0.126	0.916	0.229	1.75	0.297
0.457	5.06	345	4.42	4.18	0.120	1.37	0.344	2.62	0.446
0.610	6.66	230	7.00	6.87	0.176	1.72	0.429	3.27	0.556
0.762	8.26	230	9.43	9.37	0.222	2.78	0.695	5.29	0.900

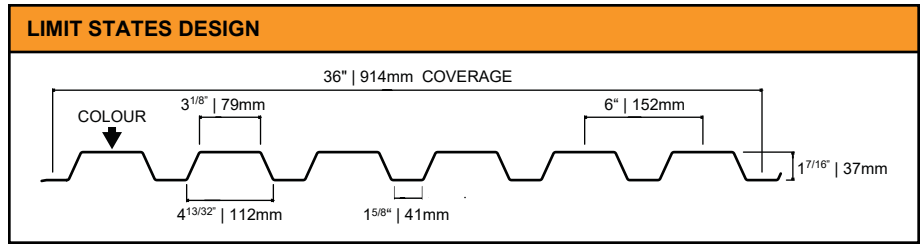
LLF = 1.40; IMPF = 0.75; NORMAL OCCUPANCY = 1.0

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
Y.S.* (MPa)		230	345	230	230	230	345	230	230	230	345	230	230
1.0	S	5.61	7.84	8.28	11.2	5.37	7.42	8.13	11.1	6.72	9.27	10.2	13.9
1.0	D	14.6	13.9	20.3	25.6	34.9	33.3	48.7	61.4	27.5	26.3	38.4	48.4
1.2	S	3.90	5.45	5.75	7.75	3.73	5.15	5.64	7.70	4.66	6.44	7.05	9.62
1.2	D	8.42	8.04	11.7	14.8	20.2	19.3	28.2	35.6	15.9	15.2	22.2	28.0
1.4	S	2.86	4.00	4.22	5.69	2.74	3.78	4.15	5.66	3.43	4.73	5.18	7.07
1.4	D	5.30	5.06	7.40	9.33	12.7	12.2	17.8	22.4	10.0	9.57	14.0	17.6
1.6	S	2.19	3.06	3.23	4.36	2.10	2.90	3.17	4.33	2.62	3.62	3.97	5.41
1.6	D	3.55	3.39	4.95	6.25	8.52	8.14	11.9	15.0	6.71	6.41	9.36	11.8
1.8	S	1.73	2.42	2.55	3.44	1.66	2.29	2.51	3.42	2.07	2.86	3.14	4.28
1.8	D	2.49	2.38	3.48	4.39	5.99	5.72	8.35	10.5	4.71	4.50	6.58	8.30
2.0	S	1.40	1.96	2.07	2.79	1.34	1.85	2.03	2.77	1.68	2.32	2.54	3.46
2.0	D	1.82	1.74	2.54	3.20	4.36	4.17	6.09	7.68	3.44	3.28	4.79	6.05
2.2	S	1.16	1.62	1.71	2.31	1.11	1.53	1.68	2.29	1.39	1.92	2.10	2.86
2.2	D	1.37	1.30	1.91	2.40	3.28	3.13	4.57	5.77	2.58	2.46	3.60	4.54
2.4	S	0.97	1.36	1.44	1.94	0.93	1.29	1.41	1.92	1.17	1.61	1.76	2.41
2.4	D	1.05	1.00	1.47	1.85	2.53	2.41	3.52	4.44	1.99	1.90	2.77	3.50
2.6	S	0.83	1.16	1.22	1.65	0.79	1.10	1.20	1.64	0.99	1.37	1.50	2.05
2.6	D	0.83	0.79	1.15	1.46	1.99	1.90	2.77	3.50	1.56	1.49	2.18	2.75
2.8	S	0.72	1.00	1.06	1.42	0.69	0.95	1.04	1.41	0.86	1.18	1.30	1.77
2.8	D	0.66	0.63	0.92	1.17	1.59	1.52	2.22	2.80	1.25	1.20	1.75	2.20
3.0	S	0.62	0.87	0.92	1.24	0.60	0.82	0.90	1.23	0.75	1.03	1.13	1.54
3.0	D	0.54	0.51	0.75	0.95	1.29	1.23	1.80	2.28	1.02	0.97	1.42	1.79

*Y.S. = Yield Stress

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 S136-16.



SECTION PROPERTIES | Per Foot of Width

Base Steel Thickness (in.)	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)	Pi2 Interior (lb)
0.0180	1.04	33	0.0847	0.0884	0.0754	62.1	15.5	119	20.2
0.0180	1.04	50	0.0778	0.0822	0.0707	94.1	23.5	180	30.5
0.0240	1.36	33	0.128	0.130	0.114	116	29.1	222	37.7
0.0300	1.69	33	0.175	0.176	0.152	188	47.1	359	61.0

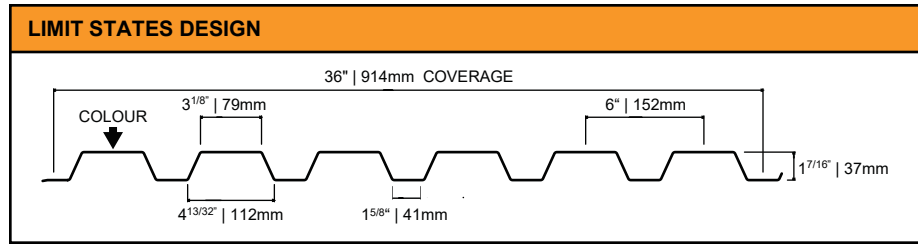
LLF = 1.40; IMPF = 0.75; NORMAL OCCUPANCY = 1.0

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

Span Length (ft)		1-Span Base Steel Thickness (in.)				2-Span Base Steel Thickness (in.)				3-Span Base Steel Thickness (in.)			
		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	75	104	113	154	78	110	115	155	98	138	144	194
4.0	D	137	128	207	276	329	308	497	662	259	243	391	521
4.5	S	59	82	89	122	62	87	91	123	77	109	114	153
4.5	D	96	90	145	194	231	217	349	465	182	171	275	366
5.0	S	48	67	72	99	50	70	74	99	63	88	92	124
5.0	D	70	66	106	141	168	158	254	339	133	124	200	267
5.5	S	40	55	60	82	41	58	61	82	52	73	76	103
5.5	D	53	49	80	106	126	119	191	255	100	93	151	200
6.0	S	33	46	50	69	35	49	51	69	43	61	64	86
6.0	D	41	38	61	82	97	91	147	196	77	72	116	154
6.5	S	28	39	43	58	30	42	44	59	37	52	55	74
6.5	D	32	30	48	64	77	72	116	154	60	57	91	121
7.0	S	24	34	37	50	26	36	38	51	32	45	47	63
7.0	D	26	24	39	51	61	58	93	123	48	45	73	97
7.5	S	21	30	32	44	22	31	33	44	28	39	41	55
7.5	D	21	19	31	42	50	47	75	100	39	37	59	79
8.0	S	19	26	28	39	20	28	29	39	24	34	36	49
8.0	D	17	16	26	34	41	39	62	83	32	30	49	65
8.5	S	17	23	25	34	17	24	26	34	22	30	32	43
8.5	D	14	13	22	29	34	32	52	69	27	25	41	54
9.0	S	15	21	22	30	15	22	23	31	19	27	28	38
9.0	D	12	11	18	24	29	27	44	58	23	21	34	46
9.5	S	13	18	20	27	14	20	20	28	17	24	26	34
9.5	D	10	10	15	21	25	23	37	49	19	18	29	39
10.0	S	12	17	18	25	13	18	18	25	16	22	23	31
10.0	D	9	8	13	18	21	20	32	42	17	16	25	33

*Y.S. = Yield Stress

1. Based on ASTM A 653M 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 S136-16.



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)	Pi2 Interior (kN)
0.457	5.06	230	4.54	4.74	0.103	0.916	0.229	1.75	0.297
0.457	5.06	345	4.18	4.42	0.0965	1.37	0.344	2.62	0.446
0.610	6.66	230	6.87	7.00	0.155	1.72	0.429	3.27	0.556
0.762	8.26	230	9.37	9.43	0.207	2.78	0.695	5.29	0.900

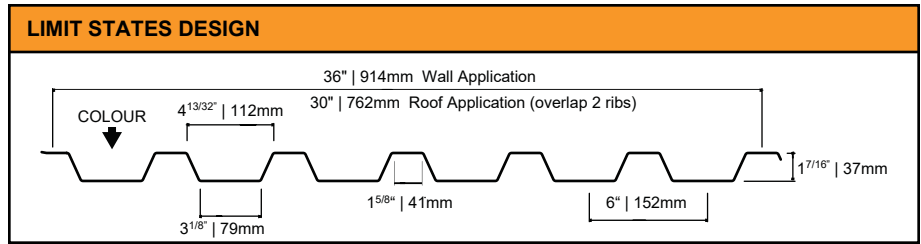
LLF = 1.40; IMPF = 0.75; NORMAL OCCUPANCY = 1.0

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
Y.S.* (MPa)		230	345	230	230	230	345	230	230	230	345	230	230
1.0	S	5.37	7.42	8.13	11.1	5.61	7.84	8.28	11.2	7.01	9.80	10.4	14.0
1.0	D	11.9	11.2	17.9	23.9	28.5	26.8	43.1	57.3	22.4	21.1	33.9	45.2
1.2	S	3.73	5.15	5.64	7.70	3.90	5.45	5.75	7.75	4.87	6.81	7.18	9.68
1.2	D	6.87	6.45	10.4	13.8	16.5	15.5	24.9	33.2	13.0	12.2	19.6	26.1
1.4	S	2.74	3.78	4.15	5.66	2.86	4.00	4.22	5.69	3.58	5.00	5.28	7.12
1.4	D	4.32	4.06	6.54	8.71	10.4	9.75	15.7	20.9	8.17	7.68	12.4	16.5
1.6	S	2.10	2.90	3.17	4.33	2.19	3.06	3.23	4.36	2.74	3.83	4.04	5.45
1.6	D	2.90	2.72	4.38	5.83	6.95	6.53	10.5	14.0	5.47	5.14	8.28	11.0
1.8	S	1.66	2.29	2.51	3.42	1.73	2.42	2.55	3.44	2.16	3.03	3.19	4.30
1.8	D	2.03	1.91	3.08	4.10	4.88	4.59	7.38	9.83	3.85	3.61	5.81	7.74
2.0	S	1.34	1.85	2.03	2.77	1.40	1.96	2.07	2.79	1.75	2.45	2.59	3.49
2.0	D	1.48	1.39	2.24	2.99	3.56	3.34	5.38	7.17	2.80	2.63	4.24	5.64
2.2	S	1.11	1.53	1.68	2.29	1.16	1.62	1.71	2.31	1.45	2.03	2.14	2.88
2.2	D	1.11	1.05	1.68	2.24	2.67	2.51	4.04	5.39	2.11	1.98	3.18	4.24
2.4	S	0.93	1.29	1.41	1.92	0.97	1.36	1.44	1.94	1.22	1.70	1.80	2.42
2.4	D	0.86	0.81	1.30	1.73	2.06	1.94	3.11	4.15	1.62	1.52	2.45	3.27
2.6	S	0.79	1.10	1.20	1.64	0.83	1.16	1.22	1.65	1.04	1.45	1.53	2.06
2.6	D	0.68	0.63	1.02	1.36	1.62	1.52	2.45	3.26	1.28	1.20	1.93	2.57
2.8	S	0.69	0.95	1.04	1.41	0.72	1.00	1.06	1.42	0.89	1.25	1.32	1.78
2.8	D	0.54	0.51	0.82	1.09	1.30	1.22	1.96	2.61	1.02	0.96	1.54	2.06
3.0	S	0.60	0.82	0.90	1.23	0.62	0.87	0.92	1.24	0.78	1.09	1.15	1.55
3.0	D	0.44	0.41	0.66	0.88	1.05	0.99	1.59	2.12	0.83	0.78	1.26	1.67

*Y.S. = Yield Stress

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 S136-16.



SECTION PROPERTIES | Per Foot of Width

Base Steel Thickness (in.)	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)	Pi2 Interior (lb)
0.0180	1.04	33	0.0884	0.0847	0.0923	62.1	15.5	119	20.2
0.0180	1.04	50	0.0822	0.0778	0.0881	94.1	23.5	180	30.5
0.0240	1.36	33	0.130	0.128	0.129	116	29.1	222	37.7
0.0300	1.69	33	0.176	0.175	0.162	188	47.1	359	61.0

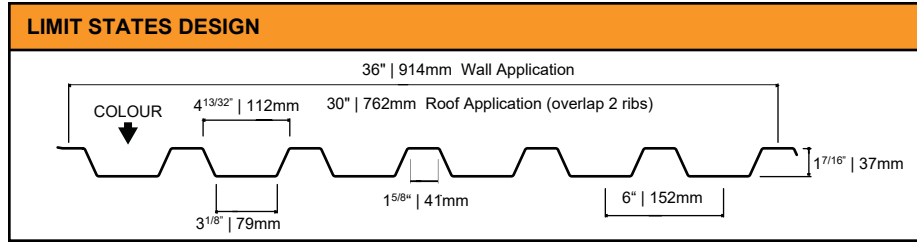
LLF = 1.40; IMPF = 0.75; NORMAL OCCUPANCY = 1.0

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

Span Length (ft)		1-Span Base Steel Thickness (in.)				2-Span Base Steel Thickness (in.)				3-Span Base Steel Thickness (in.)			
		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	78	110	115	155	75	104	113	154	94	130	142	193
4.0	D	168	160	234	295	403	384	562	708	317	303	442	558
4.5	S	62	87	91	123	59	82	89	122	74	103	112	152
4.5	D	118	112	164	207	283	270	394	497	223	212	311	392
5.0	S	50	70	74	99	48	67	72	99	60	83	91	123
5.0	D	86	82	120	151	206	197	288	362	162	155	226	285
5.5	S	41	58	61	82	40	55	60	82	49	69	75	102
5.5	D	65	62	90	113	155	148	216	272	122	116	170	214
6.0	S	35	49	51	69	33	46	50	69	42	58	63	86
6.0	D	50	47	69	87	119	114	166	210	94	90	131	165
6.5	S	30	42	44	59	28	39	43	58	35	49	54	73
6.5	D	39	37	55	69	94	90	131	165	74	71	103	130
7.0	S	26	36	38	51	24	34	37	50	31	43	46	63
7.0	D	31	30	44	55	75	72	105	132	59	56	83	104
7.5	S	22	31	33	44	21	30	32	44	27	37	40	55
7.5	D	25	24	36	45	61	58	85	107	48	46	67	85
8.0	S	20	28	29	39	19	26	28	39	23	33	35	48
8.0	D	21	20	29	37	50	48	70	88	40	38	55	70
8.5	S	17	24	26	34	17	23	25	34	21	29	31	43
8.5	D	17	17	24	31	42	40	59	74	33	32	46	58
9.0	S	15	22	23	31	15	21	22	30	18	26	28	38
9.0	D	15	14	21	26	35	34	49	62	28	27	39	46
9.5	S	14	20	20	28	13	18	20	27	17	23	25	34
9.5	D	13	12	17	22	30	29	42	53	24	23	33	42
10.0	S	13	18	18	25	12	17	18	25	15	21	23	31
10.0	D	11	10	15	19	26	25	36	45	20	19	28	36

*Y.S. = Yield Stress

1. Based on ASTM A 653M 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 S136-16.



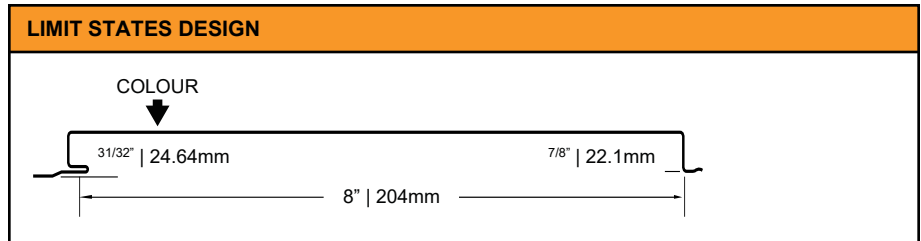
SECTION PROPERTIES Per Metre of Width									
Base Steel Thickness (mm)	Mass [Z275] (kg/m ²)	Yield Stress (MPa)	Section Modulus		Deflection Moment of Inertia (x10 ⁶ mm ⁴)	Specified Web Crippling Data			
			Midspan (x10 ³ mm ³)	Support (x10 ³ mm ³)		Pe1 End (kN)	Pe2 End (kN)	Pi1 Interior (kN)	Pi2 Interior (kN)
0.457	5.06	230	4.74	4.54	0.126	0.916	0.229	1.75	0.297
0.457	5.06	345	4.42	4.18	0.120	1.37	0.344	2.62	0.446
0.610	6.66	230	7.00	6.87	0.176	1.72	0.429	3.27	0.556
0.762	8.26	230	9.43	9.37	0.222	2.78	0.695	5.29	0.900

LLF = 1.40; IMPF = 0.75; 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	5.61	7.84	8.28	11.2	5.37	7.42	8.13	11.1	6.72	9.27	10.2	13.9	
1.0	D	14.6	13.9	20.3	25.6	34.9	33.3	48.7	61.4	27.5	26.3	38.4	48.4	
1.2	S	3.90	5.45	5.75	7.75	3.73	5.15	5.64	7.70	4.66	6.44	7.05	9.62	
1.2	D	8.42	8.04	11.7	14.8	20.2	19.3	28.2	35.6	15.9	15.2	22.2	28.0	
1.4	S	2.86	4.00	4.22	5.69	2.74	3.78	4.15	5.66	3.43	4.73	5.18	7.07	
1.4	D	5.30	5.06	7.40	9.33	12.7	12.2	17.8	22.4	10.0	9.57	14.0	17.6	
1.6	S	2.19	3.06	3.23	4.36	2.10	2.90	3.17	4.33	2.62	3.62	3.97	5.41	
1.6	D	3.55	3.39	4.95	6.25	8.52	8.14	11.9	15.0	6.71	6.41	9.36	11.8	
1.8	S	1.73	2.42	2.55	3.44	1.66	2.29	2.51	3.42	2.07	2.86	3.14	4.28	
1.8	D	2.49	2.38	3.48	4.39	5.99	5.72	8.35	10.5	4.71	4.50	6.58	8.30	
2.0	S	1.40	1.96	2.07	2.79	1.34	1.85	2.03	2.77	1.68	2.32	2.54	3.46	
2.0	D	1.82	1.74	2.54	3.20	4.36	4.17	6.09	7.68	3.44	3.28	4.79	6.05	
2.2	S	1.16	1.62	1.71	2.31	1.11	1.53	1.68	2.29	1.39	1.92	2.10	2.86	
2.2	D	1.37	1.30	1.91	2.40	3.28	3.13	4.57	5.77	2.58	2.46	3.60	4.54	
2.4	S	0.97	1.36	1.44	1.94	0.93	1.29	1.41	1.92	1.17	1.61	1.77	2.41	
2.4	D	1.05	1.00	1.47	1.85	2.53	2.41	3.52	4.44	1.99	1.90	2.77	3.50	
2.6	S	0.83	1.16	1.22	1.65	0.79	1.10	1.20	1.64	0.99	1.37	1.50	2.05	
2.6	D	0.83	0.79	1.15	1.46	1.99	1.90	2.77	3.50	1.56	1.49	2.18	2.75	
2.8	S	0.72	1.00	1.06	1.42	0.69	0.95	1.04	1.41	0.86	1.18	1.30	1.77	
2.8	D	0.66	0.63	0.92	1.17	1.59	1.52	2.22	2.80	1.25	1.20	1.75	2.20	
3.0	S	0.62	0.87	0.92	1.24	0.60	0.82	0.90	1.23	0.75	1.03	1.13	1.54	
3.0	D	0.54	0.51	0.75	0.95	1.29	1.23	1.80	2.28	1.02	0.97	1.42	1.79	

*Y.S. = Yield Stress

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 S136-16.



SECTION PROPERTIES | Per Foot of Width

Base Steel Thickness (in.)	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)	Pi2 Interior (lb)
0.0240	1.53	33	0.0511	0.0573	0.0364				
0.0300	1.89	33	0.0728	0.0745	0.0484				

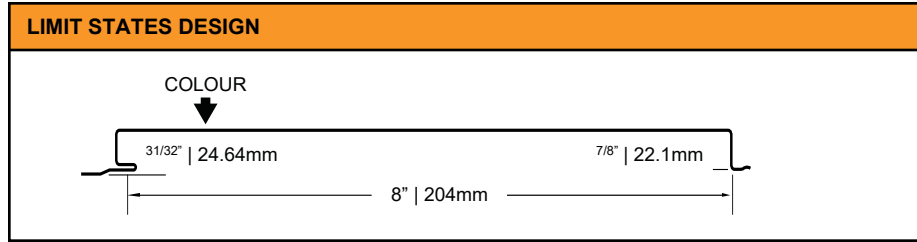
LLF = 1.40; IMPF = 0.75; NORMAL OCCUPANCY = 1.0

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

Span Length (ft)		1-Span Base Steel Thickness (in.)				2-Span Base Steel Thickness (in.)				3-Span Base Steel Thickness (in.)			
		0.0240	0.0300			0.0240	0.0300			0.0240	0.0300		
Y.S.* (ksi)		33	33			33	33			33	33		
4.0	S	45	64			51	66			63	82		
4.0	D	66	88			132	176			119	158		
4.5	S	36	51			40	52			50	65		
4.5	D	46	62			93	124			84	111		
5.0	S	29	41			32	42			41	53		
5.0	D	34	45			68	90			61	81		
5.5	S	24	34			27	35			33	44		
5.5	D	25	34			51	68			46	61		
6.0	S	20	29			23	29			28	37		
6.0	D	20	26			39	52			35	47		
6.5	S	17	24			19	25			24	31		
6.5	D	15	20			31	41			28	37		
7.0	S	15	21			17	22			21	27		
7.0	D	12	16			25	33			22	30		
7.5	S	13	18			14	19			18	23		
7.5	D	10	13			20	27			18	24		
8.0	S		16			13	16			16	21		
8.0	D		11			17	22			15	20		

*Y.S. = Yield Stress

1. Based on ASTM A 653M 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 S136-16.



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)	Pi2 Interior (kN)
0.610	7.47	230	2.75	3.08	0.0497				
0.762	9.23	230	3.91	4.01	0.0661				

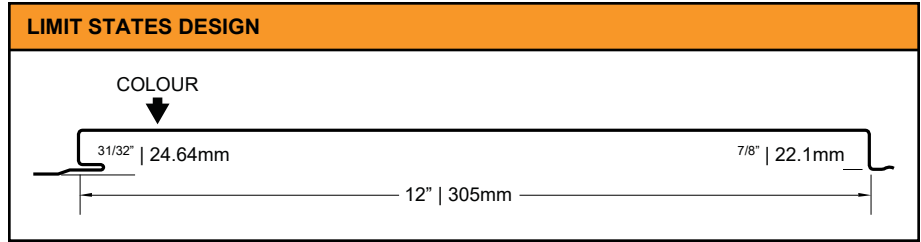
LLF = 1.40; IMPF = 0.75; NORMAL OCCUPANCY = 1.0

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)		230	230			230	230			230	230		
1.0	S	2.23	3.18			2.50	3.25			3.13	4.07		
1.0	D	3.32	4.42			6.64	8.83			5.98	7.95		
1.2	S	1.64	2.34			1.84	2.39			2.30	2.99		
1.2	D	2.09	2.78			4.18	5.56			3.77	5.01		
1.4	S	1.26	1.79			1.41	1.83			1.76	2.29		
1.4	D	1.40	1.86			2.80	3.73			2.52	3.35		
1.6	S	0.99	1.41			1.11	1.45			1.39	1.81		
1.6	D	0.98	1.31			1.97	2.62			1.77	2.36		
1.8	S	0.80	1.14			0.90	1.17			1.13	1.46		
1.8	D	0.72	0.95			1.44	1.91			1.29	1.72		
2.0	S	0.66	0.95			0.74	0.97			0.93	1.21		
2.0	D	0.54	0.72			1.08	1.43			0.97	1.29		
2.2	S		0.80			0.63	0.81			0.78	1.02		
2.2	D		0.55			0.83	1.10			0.75	0.99		
2.4	S					0.53	0.69			0.67	0.87		
2.4	D					0.65	0.87			0.59	0.78		
2.6	S												
2.6	D												
2.8													
2.8													

*Y.S. = Yield Stress

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 S136-16.



SECTION PROPERTIES | Per Foot of Width

Base Steel Thickness (in.)	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)	Pi2 Interior (lb)
0.0240	1.36	33	0.0397	0.0476	0.0286				
0.0300	1.69	33	0.0576	0.0690	0.0382				

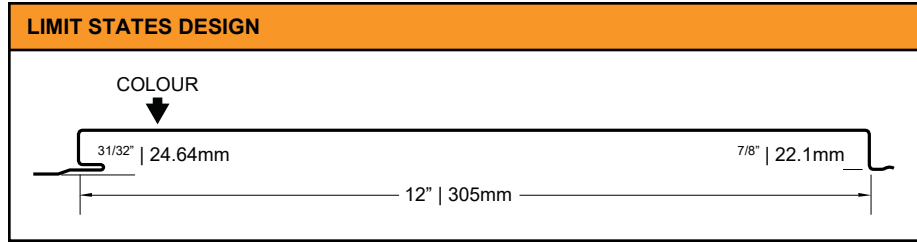
LLF = 1.40; IMPF = 0.75; NORMAL OCCUPANCY = 1.0

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

Span Length (ft)		1-Span Base Steel Thickness (in.)				2-Span Base Steel Thickness (in.)				3-Span Base Steel Thickness (in.)			
		0.0240	0.0300			0.0240	0.0300			0.0240	0.0300		
Y.S.* (ksi)		33	33			33	33			33	33		
4.0	S	35	51			42	61			53	76		
4.0	D	52	69			104	139			94	125		
4.5	S	28	40			33	48			42	60		
4.5	D	37	49			73	98			66	88		
5.0	S	22	33			27	39			34	49		
5.0	D	27	36			53	71			48	64		
5.5	S	19	27			22	32			28	40		
5.5	D	20	27			40	53			36	48		
6.0	S	16	23			19	27			23	34		
6.0	D	15	21			31	41			28	37		
6.5	S	13	19			16	23			20	29		
6.5	D	12	16			24	32			22	29		
7.0	S		17			14	20			17	25		
7.0	D		13			19	26			17	23		
7.5	S		14			12	17			15	22		
7.5	D		11			16	21			14	19		
8.0	S					11	15			13	19		
8.0	D					13	17			12	16		

*Y.S. = Yield Stress

1. Based on ASTM A 653M 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 S136-16.



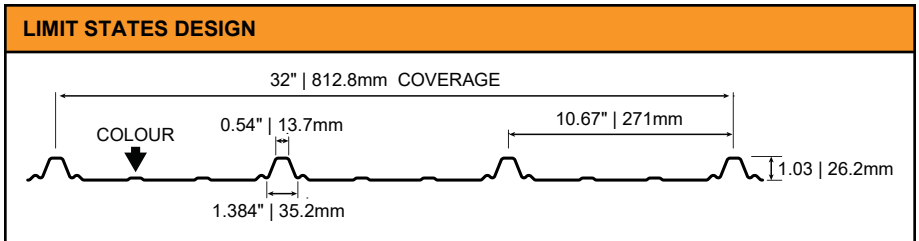
SECTION PROPERTIES Per Metre of Width									
Base Steel Thickness (mm)	Mass [Z275] (kg/m ²)	Yield Stress (MPa)	Section Modulus		Deflection Moment of Inertia (x10 ⁶ mm ⁴)	Specified Web Crippling Data			
			Midspan (x10 ³ mm ³)	Support (x10 ³ mm ³)		Pe1 End (kN)	Pe2 End (kN)	Pi1 Interior (kN)	Pi2 Interior (kN)
0.610	6.64	230	2.13	2.56	0.0391				
0.762	8.25	230	3.10	3.72	0.0522				

LLF = 1.40; IMPF = 0.75; 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)		230	230			230	230			230	230		
1.2	S	1.73	2.52			2.08	3.01			2.60	3.77		
1.2	D	2.61	3.49			5.22	6.97			4.70	6.28		
1.4	S	1.27	1.85			1.53	2.21			1.91	2.77		
1.4	D	1.64	2.20			3.29	4.39			2.96	3.95		
1.6	S	0.98	1.42			1.17	1.70			1.46	2.12		
1.6	D	1.10	1.47			2.20	2.94			1.98	2.65		
1.8	S	0.77	1.12			0.92	1.34			1.16	1.67		
1.8	D	0.77	1.03			1.55	2.07			1.39	1.86		
2.0	S	0.62	0.91			0.75	1.09			0.94	1.36		
2.0	D	0.56	0.75			1.13	1.51			1.01	1.36		
2.2	S		0.75			0.62	0.90			0.77	1.12		
2.2	D		0.57			0.85	1.13			0.76	1.02		
2.4	S					0.52	0.75			0.65	0.94		
2.4	D					0.65	0.87			0.59	0.78		
2.6	S						0.64				0.80		
2.6	D						0.69				0.62		
2.8	S												
2.8	D												

*Y.S. = Yield Stress

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 S136-16.



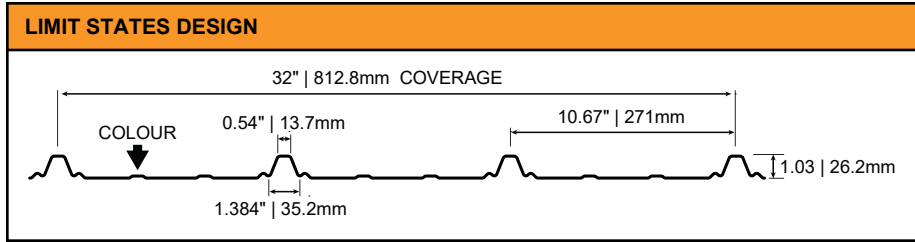
SECTION PROPERTIES Per Foot of Width									
Base Steel Thickness (in.)	Weight [G90] (psf)	Yield Stress (ksi)	Section Modulus		Deflection Moment of Inertia (in ⁴)	Specified Web Crippling Data			
			Midspan (in ³)	Support (in ³)		Pe1 End (lb)	Pe2 End (lb)	Pi1 Interior (lb)	Pi2 Interior (lb)
0.0180	1.00	50	0.0240	0.0195	0.0217	56.7	14.2	104	17.6

LLF = 1.40; IMPF = 0.75; NORMAL OCCUPANCY = 1.0

LOAD TABLE Maximum Uniformly Distributed Specified Loads (psf).													
Span Length (ft)		1-Span Base Steel Thickness (in.)				2-Span Base Steel Thickness (in.)				3-Span Base Steel Thickness (in.)			
		0.0180				0.0180				0.0180			
Y.S.* (ksi)	50					50				50			
1.0 S	515					418				523			
1.0 D	2518					6044				4760			
1.5 S	229					186				232			
1.5 D	746					1791				1410			
2.0 S	129					105				131			
2.0 D	315					755				595			
2.5 S	82					67				84			
2.5 D	161					387				305			
3.0 S	57					46				58			
3.0 D	93					224				176			
3.5 S	42					34				43			
3.5 D	59					141				111			
4.0 S	32					26				33			
4.0 D	39					94				74			

*Y.S. = Yield Stress

1. Based on ASTM A 653M 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 S136-16.



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)	Pi2 Interior (kN)
0.457	4.82	345	1.29	1.05	0.0296	0.828	0.207	1.51	0.257

LLF = 1.40; IMPF = 0.75; 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				
YS* (MPa)	345					345					345			
0.4	S	14.3				11.6					14.5			
0.4	D	53.4				128					101			
0.5	S	9.17				7.44					9.30			
0.5	D	27.3				65.6					51.6			
0.6	S	6.36				5.17					6.46			
0.6	D	15.8				37.9					29.9			
0.8	S	3.58				2.91					3.63			
0.8	D	6.67				16.0					12.6			
1.0	S	2.29				1.86					2.33			
1.0	D	3.41				8.19					6.45			
1.2	S	1.59				1.29					1.62			
1.2	D	1.98				4.74					3.73			

*Y.S. = Yield Stress