WESTMAN STEEL
STATEMENTS IN STEEL™

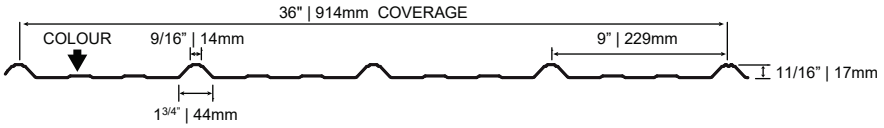
Imperial | Load Table
Tough Rib Roof Profile

05.28.21

westmansteel.com

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.

LIMIT STATES DESIGN



SECTION PROPERTIES | Per Foot of Width

Base Steel Thickness (in.)	Weight [G90] (psf)	Yield Stress (ksi)	Section Modulus Midspan (in^3)	Section Modulus Support (in^3)	Deflection Moment of Inertia (in^4)	Specified Web Crippling Data Pe1 End (lb)	Pe2 End (lb)	Pi1 Interior (lb)	Pi2 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 (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	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 Stress

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Metric | Load Table
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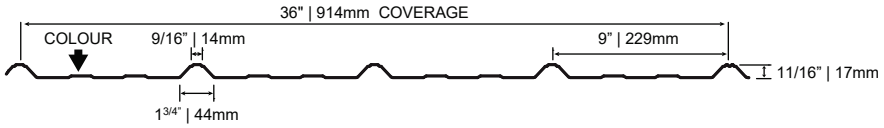
3. Values in row "D" are based on deflection of 1/180th span.
4. Web crippling not included in strength calculation. See example.
5. Limit States Design principles were used in accordance with CSA Standard S136-16.

LIMIT STATES DESIGN



SECTION PROPERTIES | Per Metre of Width

Base Steel Thickness (mm)	Mass [Z275] (kg/m²)	Yield Stress (MPa)	Section Modulus		Deflection Moment of Inertia (x10⁶ mm⁴)	Specified Web Crippling Data			
			Midspan (x10³ mm³)	Support (x10³ mm³)		Pe1 End (kN)	Pe2 End (kN)	Pi1 Interior (kN)	Pi2 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				
Y.S.* (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 Stress