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

$$W = I_w \boxed{qC_eC_gC_p} \qquad [1]$$

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

$$S = I_s \boxed{[S_s\,(C_b\,C_w\,C_s\,C_a) + S_r]} \qquad [2]$$

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 $\boldsymbol{0.6F_y}$.

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

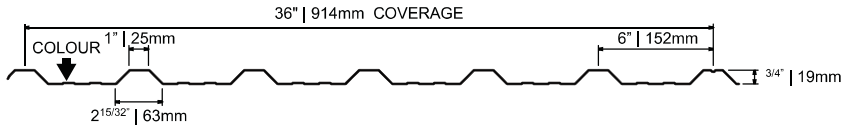
The live load is the value of the boxed-in portion of the specified snow load expression [2].

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.

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 (x10³mm³)	Support (x10³mm³)		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				
Y.S.* (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