GENERAL INFORMATION

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

❖ **Limit States Design (LSD)**

Strength - Limit States Design principles were used in the development of the load tables in accordance with CSA-S136-07, North American Specification for the Design of Cold Formed Steel Structural Members and the National Building Code of Canada,. The factored resistance under consideration, ϕR, must be equal to or greater than the effect of the factored loads, i.e.,

$\phi R \geq$ Effect of Factored Loads.

Hence, a short calculation must be carried out to compute the specified live load. See example.

Serviceability – Maximum specified deflection loads given in the tables must be compared with their respective specified live loads.

❖ **Steel**

Specification - Conforms to ASTM A653M grade 230; Yield strength 230 MPa (33 ksi) and tensile strength of 310 MPa (45 ksi).

Finishes – ZF 075 (A25) or Z275 (G90). For heavier galvanizing, refer to ASTM A653-A653M.

❖ **Design Considerations**

Strength - The maximum uniformly distributed specified load obtained from 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.

Conservative Strength Approach - The maximum uniformly distributed specified load obtained from the load table must be equal to or greater than ***(Specified live load + specified dead load).***

Web Crippling Check – If n/t > 210, use n/t = 210.

Serviceability (Deflection) – The effective moment of inertia for deflection determination has been calculated at an assumed specified live load stress of $0.6F_y$.

EXAMPLE

3" ROOF DECK (IMPERIAL)
Given:

- Two-span continuous, L = 12 ft each span
- Deck thickness, t = 0.036 in
- L/180 deflection limit (data in tables are based on L/240)
- Bearing length, n = 3 in. (n/t = 83.3)
- Specified loads

1) Dead loads (DL)
   a) deck 2.6 psf
   b) superimposed 8.2 psf
   DL = 10.8 psf
2) Live load (LL)
   LL = 40 psf

Solution:

▪ ***Strength***

1) Specified loads
   [LL + 0.833 DL]
   [40 + 0.833 (10.8)] = 49.0 psf
2) Maximum specified load (from Table under "S") is 52 psf
   Since 52 > 49.0 ∴ OK
3) Check end web crippling (n = 3 in.)
   a) Specified end reaction
   0.375(49.0)12 = 221 lb/ft
   b) Maximum specified end reaction (from Section Property Table)
   $P_e = P_{e1} + P_{e2}\sqrt{n/t}$
   $P_e = 216 + 54.0\sqrt{3/0.036} = 709$ lb/ft
   Since 709 > 221 ∴ OK
4) Check interior web crippling (n = 3 in.)
   a) Specified interior reaction
   1.25(49.0)12 = 735 lb/ft
   b) Maximum specified interior reaction (from Section Property Table)
   $P_i = P_{i1} + P_{i2}\sqrt{n/t}$
   $P_i = 409 + 69.5\sqrt{3/0.036} = 1043$ lb/ft
   Since 1043 > 735 ∴ OK

▪ ***Deflection***

From Table under "D" (L/240) = 88 psf
For L/180, multiply 88 by 240/180 = 117 psf.
Since 117 is > 40 ∴ OK

ideal roofing
Company Ltd Manufacturers

Head Office
1418 Michael St.
Ottawa, Ont., Canada K1B 3R2
Tel: (613) 746-3206
Fax: (613) 746-0445
Wats Line: 1-800-267-0860
E-mail: info@idealroofing.ca

Québec Regional Sales Office
600 des Canetons, Suite 250
Québec, Qc., Canada G2E 5W6
Tel: (418) 874-0010
Fax: (418) 874-0011
Wats Line: 1-888-313-0010

Toronto Manufacturing Facility
223 Corporation Drive
Brampton, Ont., Canada