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-S136-01, 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

38 mm (1 1/2") DECK (METRIC)
Given:

- Triple span continuous, L = 2.4 m each span
- Deck thickness, t = 0.762 mm
- L/180 deflection limit (data in tables are based on L/240)
- Bearing length, n = 50 mm
- Specified loads

1) Dead loads (DL)
   a) deck 0.1 kPa
   b) superimposed 0.4 kPa
   DL = 0.5 kPa
2) Live load (LL)
   LL = 2.0 kPa

Solution:

▪ ***Strength***

1) Specified loads
   [LL + 0.833 DL]
   [2.0 + 0.833 (0.5)] = 2.42 kPa
2) Maximum specified load (from Table under "S") is 2.50 kPa
   Since 2.50 > 2.42 ∴ OK
3) Check end web crippling (n = 50 mm)
   a) Specified end reaction
   0.400(2.42)2.4 = 2.32 kN/m
   b) Maximum specified end reaction
   (from Section Property Table)
   $P_e = P_{e1} + P_{e2}\sqrt{n/t}$
   $P_e = 2.57 + 0.642\sqrt{50/0.762} = 7.77$ kN/m
   Since 7.77 > 2.32 ∴ OK
4) Check interior web crippling (n = 50 mm)
   a) Specified interior reaction
   1.10(2.42)2.4 = 6.39 kN/m
   b) Maximum specified interior reaction
   (from Section Property Table)
   $P_i = P_{i1} + P_{i2}\sqrt{n/t}$
   $P_i = 4.50 + 0.766\sqrt{50/0.762} = 10.7$ kN/m
   Since 10.7 > 6.39 ∴ OK

▪ ***Deflection***

From Table under "D" (L/240) = 2.10 kPa
For L/180, multiply 2.10 by 240/180 = 2.8 kPa
Since 2.8 is > 2.0 ∴ OK

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