

ROLL FORM GROUP COMPOSITE SLABS

TECHNICAL NOTES

Material Properties

1. The **ROLL FORM GROUP** composite steel decks have embossments rolled into the web elements to achieve the composite interlocking capacity between the steel deck and concrete.
2. Steel deck section properties were calculated in accordance with CSA S136-07.
3. Steel conforms to ASTM A653 SS Grade 33 and A653M SS Grade 230 with Z275 surface coatings.
4. Concrete is based on normal density of 2300 kg/m³ (145 pcf) and having a minimum compressive strength of 20 MPa (3 ksi).

Load Tables

1. Loads are maximum specified uniformly distributed loads resulting from human occupancy and should not be used for concentrated loads.
Maximum specified load table must be $\geq[LL + 0.883DL]$;
where LL = specified live load;
DL = specified dead load; $0.833=1.25/1.5$
2. Loads greater than **10 kPa (200 psf)** are commonly the result of large concentrated moving loads. In such cases, contact the **ROLL FORM GROUP** for additional design information.
3. The steel deck provides the positive reinforcement for the simply supported composite slab and no additional reinforcing steel is required. To control shrinkage and temperature cracking, a minimum steel wire mesh of 152 X 152 – MW9.1/MW9.1 (6X6-10/10) is recommended as per CSSBI S3-03.
4. Shoring requirements shown in shaded areas of the load table were established in accordance with CSSBI 12M-06.
5. To establish the shear-bond capacity of the **ROLL FORM GROUP** composite slab systems, laboratory tests were carried out at recognized Canadian Structural Testing and Research laboratories.
6. All technical information and load tables were prepared by Dr. R.M. Schuster, Professor emeritus of Structural Engineering, University of Waterloo, Ontario.

EXAMPLE (Imperial)

Determine the specified uniformly distributed live load that can be placed on the **ROLL FORM GROUP** S308K (ZF75) composite floor slab, given the following information.

Given:

- Steel deck thickness = 0.036 in.
- Yield stress = 33 ksi
- Normal density concrete = 145 lb/ft³
- Overall slab depth = 5.0 in.
- Triple span, each = 11.5 ft
- Specified superimposed dead load, DL=40psf

Solution:

The maximum specified load in (**psf**) from load table must be $\geq[LL + (1.25/1.5)DL]$,

where LL = specified live load

DD = specified superimposed dead load

From load table under 112.5 ft span, the maximum specified load is **140 psf**, therefore, $140 \geq[LL + 0.883(40)]$ and solving for LL,

$$LL = \underline{107 \text{ psf}}$$

Since this is in the shaded area, one shore support is required at mid-span in each span.

Note:

The self-weight of the steel deck and concrete slab have already been accounted for in the maximum specified uniformly distributed load given in the composite slab load table.