

ACCUFORM METAL LTD.
COMPOSITE FLOOR SLAB INFORMATION
METRIC UNITS

Material Properties

1. The composite steel decks AFCD 15-36 and AFCD 3-26, are the respective roof decks AFRD 15-36 and AFRD 3-26 with 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 S136-16.
3. Steel conforms to ASTM A653M SS Grade 275 with Z275 (Galvanized) surface coating.
4. Concrete is based on normal density of 2300 kg/m³ and having a minimum compressive strength of 20 MPa.

Load Table

1. Loads are maximum specified uniformly distributed loads resulting from human occupancy and should not be used for concentrated loads.
Maximum specified load from load table must be $\geq LL + (1.25/1.5)DL$;
Where LL = specified live load;
DL = specified superimposed dead load;
2. Loads greater than **20 kPa** are commonly the result of large concentrated moving loads. In such cases, contact **ACCUFORM METAL**.
3. The AFCD 15-36 and AFCD 3-26 steel decks provide the positive reinforcement for the simply supported composite slab and no additional reinforcing steel is required. To control shrinkage and temperature cracking, it is the responsibility of the design engineer to provide the minimum shrinkage and temperature reinforcement as specified in CSSBI S3-2019.
4. *Shoring requirements shown in shaded areas of the load table were established in accordance with CSSBI 12M-2024 and are based on a Light Duty uniform construction live load of 1 kPa. For Medium or Heavy Duty construction live loads contact **ACCUFORM METAL**.*
5. *For the AFCD 15-36 deck, the minimum bearing length at end support is 40 mm and at mid-support 100 mm For the AFCD 3-26 deck, the minimum bearing length at end support is 75 mm and at mid-support 150 mm.*
6. To establish the shear-bond capacity of the composite slab system, laboratory tests were carried out at the Structures Laboratory at the University of Waterloo in accordance with CSSBI S2-2017.

7. Use of deflection parameter, DP

$$W_d = \frac{DP \times 10^3}{DC \times (L)^3}$$

where:

W_d = Maximum specified deflection load in kPa

DP = Deflection parameter from load table

DC = Deflection constant such as 360

L = Span length in meter

8. All technical information and load tables were prepared by Dr. R.M. Schuster, P.Eng. Distinguished Professor Emeritus, University of Waterloo, Ontario.

EXAMPLE

Determine the specified uniformly distributed live load that can be placed on the **AFCD 3-26** composite floor slab, given the following information:

Given:

- Steel deck thickness = 1.219 mm
- Yield stress = 275 MPa
- Overall slab depth = 140 mm
- Triple span, each = 4 m
- Specified superimposed dead load, DL = 1.3 kPa

Check Strength:

The maximum specified load in (**kPa**) from load table must be $\geq LL + 0.833(DL)$,

where:

LL = specified live load

DL = specified superimposed dead load

From load table under 4 m span, the maximum specified load is **8.4 kPa**, therefore,

$8.4 \geq LL + 0.833(1.3)$ and solving for LL,

LL = 7.3 kPa

Since this is NOT in the shaded area, no shore support is required.

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.

Check Deflection:

From table DP = 242 and assuming DC = 360

$$W_d = 242 \times 10^3 / 360 / (4)^3 = \mathbf{10.5 \text{ kPa}}$$

Since this is greater than 7.3 kPa, strength controls.