CD-156
COMPOSITE DECK

COMPOSITE SLAB
TECHNICAL NOTES

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1. Steel deck section properties were calculated in accordance to CSA Standard S136-12.

2. Steel conforms to ASTM A653/653M grade 33 ksi (230 MPa).

3. Concrete is based on normal density of 145 pcf (2300 kg/m^3) and having a minimum compressive strength of 3000 psi (20 MPa) at 28 days.

4. Slab thickness is measured from the top of concrete to bottom of steel deck.

5. During construction, the steel deck must support itself, the concrete and a live load of 21 psf (1 kPa) or 137 plf (2 kN/m) transverse line load at centre span as specified in CSSBI 12M-08.

6. The asterisk "*" indicate spans in which one row of shoring at mid-span is required. Shoring requirements were established in accordance with CSSBI 12M-08.

7. The loads listed in the tables are maximum specified uniformly distributed loads resulting from human occupancy and should not be used for concentrated loads.

8. Loads greater than 200 psf (10 kPa) commonly indicate significant concentrated moving loads. The composite slab and its reinforcing should be verified for the effect of these loads.

9. For normal applications of the CD-156 composite deck, no additional reinforcing is necessary. To control shrinkage and temperature cracking, a minimum steel wire mesh is recommended as per CSSBI 12M-08.

10. To establish the shear-bond capacity of the CD-156 composite slab system, laboratory tests were carried out at the Structural Testing and Research laboratory, Cambridge, Ontario in accordance with CSSBI S2-08.

11. All technical information and load tables were prepared by Dr. R.M. Schuster, Professor Emeritus of Structural Engineering, University of Waterloo, Ontario.

DESIGN EXAMPLE (METRIC)

Determine the specified uniformly distributed live load that can be placed on the CD-156 composite floor slab, given the following information:

Given:

• Steel deck thickness	= 1.219 mm
• Yield strength	= 345 MPa
• Normal density concrete	= 2300 kg/m3
• Overall slab depth	= 120 mm
• Triple span condition at 2.6m	
• Specified superimposed dead loads:	

Floor finish/topping	DL = 0.52 kPa
Partitions	DL = 1.0 kPa
	Total DL = 1.52 kPa

Solution:

The maximum specified load in kPa from the load table must be >= (LL + (1.25/1.5)DL), where,

LL = specified uniformly distributed live load

DL = specified superimposed dead load

From the load table under 2.6m span, the maximum specified load is 10.3 kPa, therefore, 10.3 >= (LL + (1.25/1.5)1.52) and solving for LL,

LL = 9.0 kPa

Since this value has an asterisk "*", one shore support is required at mid-span in each support.

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 tables.

STEELWAY
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