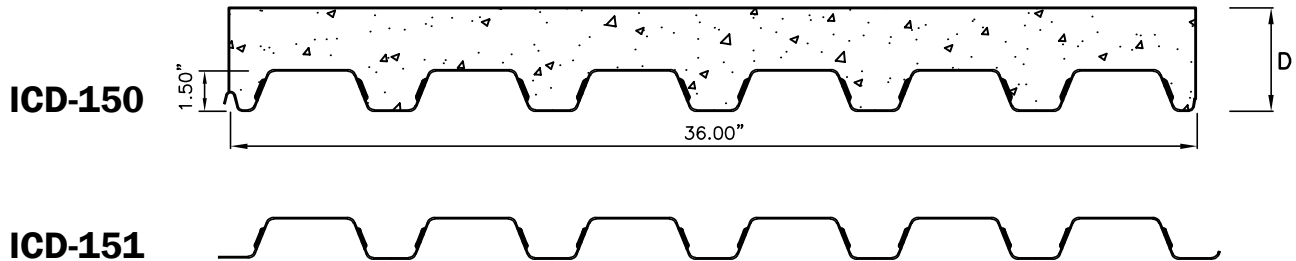




ICD-150 and ICD-151

Composite Floor Deck (LIGHTWEIGHT CONCRETE)

IMPERIAL



STEEL DECK SECTION PROPERTIES (F _y = 33 ksi) (per foot of width)						COMPOSITE SLAB DATA (110 pcf concrete) (per foot of width)										
Base Steel Thickness (in.)	Area of Steel (in ²)	Weight G90 (psf)	Section Modulus		Deflection Inertia (in ⁴)	Overall Slab Depth, h (in.)										
			Midspan (in ³)	Support (in ³)		4.0	4.5	5.0	5.5	6.0	6.5	7.0				
0.030	0.481	1.69	0.190	0.194	0.173	Slab Weight (psf)										
0.036	0.577	2.02	0.231	0.242	0.215	31.5	36.1	40.6	45.2	49.8	54.4	59.0	Concrete Volume (yd ³ /100ft ²)			
0.048	0.769	2.67	0.314	0.319	0.291	0.95	1.10	1.26	1.41	1.56	1.72	1.87				

Base Steel Thickness (in.)	Overall Slab Depth (in.)	Maximum Unshored Deck Span (ft-in.)			MAXIMUM ALLOWABLE UNIFORMLY DISTRIBUTED LOADS (psf)																
		1-SPAN	2-SPAN	3-SPAN	CLEAR SPAN (ft-in.)																
					5' 0"	5' 6"	6' 0"	6' 6"	7' 0"	7' 6"	8' 0"	8' 6"	9' 0"	9' 6"	10' 0"	10' 6"	11' 0"	11' 6"	12' 0"		
0.030	4.0	5' 6"	6' 6"	6' 7"	396	323	268	225	191	163	141	122	107	93	82	72	64	57	50		
	4.5	5' 3"	6' 3"	6' 3"	400	395	328	276	234	201	173	150	131	115	102	90	79	70	63		
	5.0	5' 1"	6' 0"	6' 0"	400	400	390	328	279	239	207	180	157	138	122	108	96	85	76		
	5.5	4' 11"	5' 9"	5' 10"	400	400	400	382	325	279	241	210	184	162	143	126	112	100	89		
	6.0	4' 9"	5' 7"	5' 8"	400	400	400	400	372	320	276	241	211	186	164	145	129	115	103		
	6.5	4' 7"	5' 5"	5' 6"	400	400	400	400	400	361	312	272	238	210	186	165	146	131	117		
	7.0	4' 6"	5' 3"	5' 4"	400	400	400	400	400	400	348	304	266	234	207	184	164	146	131		
0.036	4.0	6' 4"	7' 5"	7' 6"	400	380	316	266	226	194	168	146	128	112	99	88	78	69	62		
	4.5	6' 0"	7' 1"	7' 2"	400	400	387	326	278	239	206	180	158	139	123	109	97	86	77		
	5.0	5' 10"	6' 10"	6' 11"	400	400	400	389	332	285	247	215	189	167	147	131	117	104	93		
	5.5	5' 7"	6' 7"	6' 8"	400	400	400	400	387	333	289	252	221	195	173	154	137	123	110		
	6.0	5' 5"	6' 4"	6' 5"	400	400	400	400	400	382	331	289	254	224	199	177	158	141	127		
	6.5	5' 3"	6' 2"	6' 3"	400	400	400	400	400	400	374	327	287	254	225	200	179	161	144		
	7.0	5' 1"	6' 0"	6' 0"	400	400	400	400	400	400	400	365	321	284	252	224	201	180	162		
0.048	4.0	7' 9"	9' 1"	9' 3"	400	400	359	303	258	222	192	167	147	129	115	102	91	81	72		
	4.5	7' 5"	8' 8"	8' 9"	400	400	400	373	318	274	237	207	182	161	142	127	113	101	91		
	5.0	7' 1"	8' 4"	8' 5"	400	400	400	400	382	329	285	249	219	193	172	153	137	123	110		
	5.5	6' 10"	8' 0"	8' 1"	400	400	400	400	400	385	334	292	257	227	202	180	161	145	130		
	6.0	6' 7"	7' 8"	7' 10"	400	400	400	400	400	400	385	336	296	262	233	208	186	167	150		
	6.5	6' 5"	7' 5"	7' 6"	400	400	400	400	400	400	400	381	336	297	264	236	212	190	171		
	7.0	6' 2"	7' 3"	7' 4"	400	400	400	400	400	400	400	400	376	333	296	265	237	213	192		

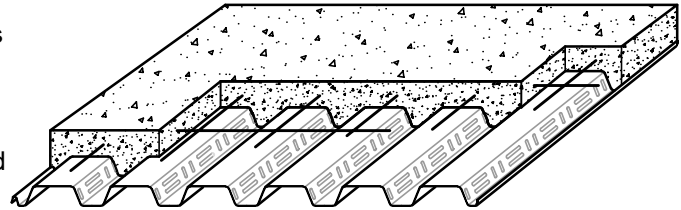
NOTES:

- The self-weight of the steel deck and concrete slab have already been accounted for in the composite slab load table.
- Web crippling check for shoring is required if end bearing length is less than **1.5 in.** or interior bearing length is less than **3.0 in.**
- See Example for use of table.

TECHNICAL NOTES

Material Properties

1. The IDEAL ROOFING composite steel deck has embossments rolled into the web elements to achieve the composite interlocking capacity between the steel deck and concrete.
2. Steel conforms to ASTM A653 SS Grade 33 and the surface coating complies with either G60 or G90.
3. Steel deck section properties were calculated in accordance with AISI S100-16.
4. Light weight concrete is based on 110 pcf and a minimum compressive concrete strength of 3 ksi is used.



Load Tables

1. Loads are allowable uniformly distributed resulting from human occupancy. Load and Resistance Factor Design (LRFD) principles were used in the establishment of the load tables in accordance with SDI SD-2022.
2. Loads greater than **200 psf** are commonly the result of large concentrated dynamic loads. In such cases, contact IDEAL ROOFING 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 6 x 6 - 10/10 is recommended.
4. Shoring requirements were established in accordance with SDI SD-2022.
 - a) Minimum end bearing length = 1.5in.
 - b) Minimum interior bearing length = 3 in.
5. To establish the composite slab strength, the Pre-qualified Section Method given in Section F3.2.1 of SDI SD-2022 was used. The composite live load slab deflection limit was L/360.
6. All technical information and load tables were prepared by Dr. R.M. Schuster, Distinguished Professor Emeritus of Structural Engineering, University of Waterloo, Ontario, Canada.

EXAMPLE (Use of Load Table)

Determine the allowable uniformly distributed live load that can be placed on the 1.5" IDEAL ROOFING composite floor slab, given the following information:

Given: 1.5" Composite Floor Slab

- Base steel deck thickness = 0.030 in.
- Yield stress = 33 ksi
- Normal weight concrete = 110 lb/ft³
- Overall slab depth = 5 in.
- 2-span slab, each = 10.5 ft
- Nominal superimposed dead load, DL = 30 psf

Solution:

The allowable load in (psf) from the load table must be $\geq [LL + (1.20/1.60)DL] = [LL + 0.75(DL)]$

where

LL = nominal live load

DL = nominal superimposed dead load

From the load table, the allowable load is

108 psf, therefore,

$$108 \geq [LL + 0.75(30)] \text{ and solving for LL,}$$

$$LL = 108 - 0.75(30) = \mathbf{85.5 \text{ psf}}$$

Since the maximum unshored 2-SPAN deck is **6'-0"**, **one** shore support is required at mid-span in each span.

Note:

The self-weight of the steel deck and concrete slab have been accounted for in the allowable uniformly distributed loads given in the composite slab load tables.



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

Québec Regional Sales Office
5240, boul. Wilfrid-Hamel
Québec, Qc., Canada G2E 2G9
Tel: (418) 874-0010
Fax: (418) 874-0011
Wats Line: 1-888-313-0010

Toronto Manufacturing Facility
223 Corporation Drive
Brampton, Ont., Canada L6S 6G5
Wats Line: 1-877-792-4354

Moncton Manufacturing Facility
650 Frenette Avenue
Moncton, NB., Canada E1H 2S7
Wats Line: 1-833-753-0051