

# Composite Decks - Types 1.5CD, 1.5CDI

ASD

PROPERTIES			SECTION PROPERTIES					DESIGN STRENGTHS (No Concrete Fill)						
Gage	F <sub>y</sub> (ksi)	Coverage (in.)	Thickness (in.)	Weight (psf)	A <sub>s</sub> (in. <sup>2</sup> /ft.)	I <sub>p</sub> (in. <sup>4</sup> /ft.)	I <sub>n</sub> (in. <sup>4</sup> /ft.)	S <sub>p</sub> (in. <sup>3</sup> /ft.)	S <sub>n</sub> (in. <sup>3</sup> /ft.)	Mn,p/Ω (in.-lb./ft.)	Mn,n/Ω (in.-lb./ft.)	Vn/Ω (lb./ft.)	Rbe/Ω (lb./ft.)	Rbi/Ω (lb./ft.)
22	40	36	0.0295	1.63	0.480	0.157	0.175	0.176	0.183	4215	4391	2106	654	1181
20	40	36	0.0358	1.98	0.582	0.201	0.213	0.224	0.235	5375	5624	2546	932	1696
18	40	36	0.0474	2.62	0.770	0.279	0.281	0.304	0.315	7291	7553	3347	1557	2858
16	40	36	0.0598	3.30	0.971	0.355	0.355	0.390	0.395	9332	9454	4190	2381	4396

## CONSTRUCTION SPANS AND COMPOSITE SLAB DESIGN

Total Slab Depth (in.)	Gage	Concrete Weight (psf)	Maximum Construction Clear Span (ft. - in.)			Allowable Superimposed Uniform Load (psf)															Concrete Volume ft. <sup>3</sup> /ft. <sup>2</sup>	
			Single	Double	Triple	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		
3 1/2	22	Light Weight Concrete (γ <sub>c</sub> = 110 pcf, f <sub>c</sub> = 3000 psi, n = 14)	23	6 - 2	7 - 2	7 - 3	400	361	300	252	213	183	158	137	119	104	90	77	67	59	52	0.213
	20		23	7 - 4	8 - 5	8 - 8	400	400	357	300	256	219	190	159	134	114	98	84	73	64	56	
	18		23	9 - 0	9 - 9	10 - 1	400	400	400	386	323	262	216	180	152	129	111	96	83	73	64	
	16		23	10 - 6	10 - 10	11 - 3	400	400	400	400	359	292	240	200	169	143	123	106	92	81	71	
4	22		28	5 - 10	6 - 11	6 - 11	400	400	379	318	270	232	200	174	152	133	117	104	92	81	72	0.255
	20		28	7 - 0	8 - 2	8 - 3	400	400	400	381	324	279	241	210	184	162	144	125	109	95	84	
	18		28	8 - 7	9 - 9	10 - 1	400	400	400	400	361	313	267	225	191	164	142	123	108	95		
	16		28	9 - 11	10 - 10	11 - 3	400	400	400	400	400	355	296	249	212	182	157	137	120	105		
4 1/2	22		33	5 - 8	6 - 7	6 - 8	400	400	400	389	330	283	245	213	186	164	144	128	113	101	90	0.297
	20		33	6 - 8	7 - 10	7 - 11	400	400	400	400	397	341	296	258	226	200	177	157	140	125	112	
	18		33	8 - 2	9 - 6	9 - 8	400	400	400	400	400	385	337	297	263	232	200	174	152	134		
	16		33	9 - 6	10 - 7	10 - 11	400	400	400	400	400	400	352	300	257	222	193	169	149			
5	22		37	5 - 5	6 - 4	6 - 5	400	400	400	400	392	337	291	254	222	195	172	153	136	121	108	0.338
	20		37	6 - 5	7 - 6	7 - 7	400	400	400	400	400	352	308	270	238	211	188	168	150	135		
	18	37	7 - 10	9 - 2	9 - 3	400	400	400	400	400	400	355	314	280	250	224	202	182				
	16	37	9 - 1	10 - 2	10 - 6	400	400	400	400	400	400	400	391	349	302	263	230	202				
5 1/2	22	42	5 - 3	6 - 2	6 - 2	400	400	400	400	400	392	339	295	259	228	201	178	159	142	126	0.380	
	20	42	6 - 2	7 - 3	7 - 4	400	400	400	400	400	400	359	315	278	247	220	196	176	158			
	18	42	7 - 7	8 - 10	8 - 11	400	400	400	400	400	400	400	368	328	293	263	237	214				
	16	42	8 - 9	9 - 10	10 - 2	400	400	400	400	400	400	400	400	367	331	299	267					
6	22	46	5 - 1	5 - 11	6 - 0	400	400	400	400	400	400	387	338	296	261	231	205	182	163	145	0.422	
	20	46	6 - 0	7 - 0	7 - 1	400	400	400	400	400	400	400	361	319	283	252	226	202	182			
	18	46	7 - 4	8 - 6	8 - 7	400	400	400	400	400	400	400	400	376	337	302	272	246				
	16	46	8 - 6	9 - 6	9 - 10	400	400	400	400	400	400	400	400	400	381	344	312					

- Notes:
- Section properties are calculated in accordance with the AISI Cold-Formed Steel Design Specifications, 2007 Edition.
  - Web crippling design strengths and maximum construction spans are based on 1.5" for end bearing and 3" for interior bearing. Check web crippling if minimums are not met.
  - Maximum construction spans are based on ANSI/SDI C-2011 Standard for Composite Steel Floor Deck and the following construction loading:
    - Deck self-weight and concrete weight plus worst-case of either a 150 lb. concentrated load or a 20 psf uniform load; or
    - Deck self-weight plus a 50 psf uniform construction load, whichever controls.
  - Welded wire fabric shown in the table below is the SDI minimum required for temperature and shrinkage (0.00075 x concrete area above top of deck).
  - Concrete weights do not include weight of deck.
  - Deck profile has been accounted for in determining concrete volumes. Deck and support deflections have not been included in concrete volumes or weights.
  - Allowable Superimposed Uniform Loads shown in table above are based on the following criteria:
    - Unfactored service level loads, determined using SDI design method per ANSI/SDI C-2011 Standard for Composite Steel Floor Deck-Slabs.
    - Single span conditions without negative bending reinforcing over supports.
    - The presence of shear studs have not been considered, design strength may be increased if shear studs are used.
    - Slab deflection is limited to minimum of Clear Span/360 or 1" under service level superimposed loading.

## MINIMUM SDI SLAB REINFORCEMENT

Total Slab Depth (in.)	SDI Recommended Welded Wire Fabric	Wire Area (in. <sup>2</sup> /ft.)
3 1/2	6x6 - W1.4xW1.4	0.028
4	6x6 - W1.4xW1.4	0.028
4 1/2	6x6 - W1.4xW1.4	0.028
5	6x6 - W2.0xW2.0	0.040
5 1/2	6x6 - W2.0xW2.0	0.040
6	4x4 - W1.4xW1.4	0.042