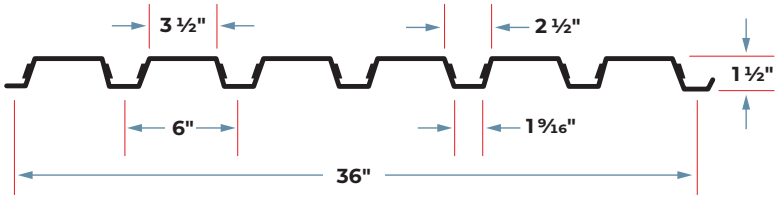
1.5” COMPOSITE DECK

GRADE 40 STEEL

PRODUCTS & SOLUTIONS



Options

Hanger Tabs

Section Properties

Gage	Design Thickness (inches)	Weight (psf)	F_y ksi	S_e + (inch³) per foot	Se - (inch³) per foot	ASD (Ω = 1.67)		I_d + (inch⁴) per ft.	I_d - (inch⁴) per ft.
						M_p/ Ω inch-lbs per ft	M_n/ Ω inch-lbs per foot		
22	0.0295	1.6	40	0.173	0.184	4135	4415	0.147	0.171
20	0.0358	2.0	40	0.219	0.231	5246	5533	0.187	0.216
18	0.0474	2.6	40	0.299	0.312	7154	7473	0.263	0.290
16	0.0598	3.0	40	0.383	0.390	9166	9333	0.350	0.363

Note
All section properties and ASD flexural strengths are calculated in accordance with ANSI/SDI RD-2017, AISI S100-2012 and AISI S100-2016

Shear and Web Crippling

Gage	V_n/Ω (lbs/ft)	Web Crippling (R_n/Ω), lbs/ft One Flange Loading End Bearing			Web Crippling (R_n/Ω), lbs/ft One Flange Loading Interior Bearing		
		1-1/2”	2”	3”	1-1/2”	2”	3”
22	1939	640	704	810	877	951	1076
20	3042	915	1002	1149	1284	1388	1563
18	4025	1531	1670	1902	2218	2386	2667
16	4975	2345	2547	2885	3476	3723	4138

Note
All section properties and ASD flexural strengths are calculated in accordance with ANSI/SDI RD-2017, AISI S100-2012 and AISI S100-2016

Allowable Uniform Downward Loads, ASD (PSF)

Span	Gage	5'-0"	5”-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"	9-0"	9'-6"	10'-0"
Single	**22**	110	91	77	65	56	49	43	38	34	31	28
	20	140	116	97	83	71	62	55	48	43	39	35
	18	191	158	132	113	97	85	75	66	59	53	48
	16	244	202	170	145	125	109	95	85	75	68	61
Double	**22**	118	97	82	70	60	52	46	41	36	33	29
	20	148	122	102	87	75	66	58	51	46	41	37
	18	199	165	138	118	102	89	78	69	62	55	50
	16	249	206	173	147	127	111	97	86	77	69	62
Triple	**22**	147	122	102	87	75	65	57	51	45	41	37
	20	184	152	128	109	94	82	72	64	57	51	46
	18	249	206	173	147	127	111	97	86	77	69	62
	16	311	257	216	184	159	138	122	108	96	86	78

Notes

1. All section properties and ASD (Ω = 1.67) uniform loads are calculated in accordance with ANSI/SDI RD-2017, AISI S100-2012 and AISI S100-2016
2. Loads shown in tables are uniformly distributed superimposed loads in psf. Span length assumes center-to-center spacing of supports. Tabulated loads shall not be increased by assuming clear span dimensions.
3. Bending Moment formulae used for flexural stress limitations are: Simple and Two Span $M=\frac{w\ell^2}{8}$ Three Span or More $M=\frac{w\ell^2}{10}$
4. Web crippling and shear have not been accounted for in these tables. Required bearing should be determined based on specific span conditions.

Uniform Superimposed Service Load that Causes L/240 Deflection (PSF)

Span	Gage	5'-0"	5"-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"	9-0"	9'-6"	10'-0"
Single	**22**	77	58	45	35	28	23	19	16	13	11	10
	20	98	74	57	45	36	29	24	20	17	14	12
	18	138	104	80	63	50	41	34	28	24	20	17
	16	184	138	106	84	67	54	45	37	32	27	23
Double	**22**	185	139	107	84	68	55	45	38	32	27	23
	20	236	177	137	107	86	70	58	48	40	34	30
	18	333	250	193	152	121	99	81	68	57	49	42
	16	443	333	256	201	161	131	108	90	76	65	55
Triple	**22**	145	109	84	66	53	43	35	30	25	21	18
	20	185	139	107	84	67	55	45	38	32	27	23
	18	261	196	151	119	95	77	64	53	45	38	33
	16	346	260	200	158	126	103	85	71	59	51	43

Note
For loads that cause L/120 Deflection, multiply by 2.0. For loads that cause L/180 Deflection, multiply by 1.5. For loads that cause L/360 Deflection, multiply by 0.667.

Construction Span Table – 20 psf Construction Load

Normal Weight Concrete (145 pcf)				
Total Slab Depth	Deck Type	Maximum Unshored Clear Span		
		1 span	2 span	3 span
3.50 (t=2.00) 31 PSF	**1.5x6x22 ga**	5' 7"	6' 7"	6' 8"
	1.5x6x20 ga	6' 8"	7' 10"	7' 11"
	1.5x6x18 ga	8' 3"	9' 7"	9' 9"
	1.5x6x16 ga	9' 8"	10' 9"	11' 1"
4.00 (t=2.50) 37 PSF	**1.5x6x22 ga**	5' 4"	6' 4"	6' 5"
	1.5x6x20 ga	6' 4"	7' 5"	7' 6"
	1.5x6x18 ga	7' 10"	9' 1"	9' 3"
	1.5x6x16 ga	9' 2"	10' 2"	10' 6"
4.50 (t=3.00) 43 PSF	**1.5x6x22 ga**	5' 2"	6' 0"	6' 1"
	1.5x6x20 ga	6' 7"	7' 8"	7' 9"
	1.5x6x18 ga	7' 5"	8' 8"	8' 9"
	1.5x6x16 ga	8' 9"	9' 9"	10' 0"
5.00 (t=3.50) 49 PSF	**1.5x6x22 ga**	4' 11"	5' 10"	5' 10"
	1.5x6x20 ga	5' 10"	6' 10"	6' 10"
	1.5x6x18 ga	7' 1"	8' 4"	8' 5"
	1.5x6x16 ga	8' 4"	9' 4"	9' 7"
5.50 (t=4.00) 55 PSF	**1.5x6x22 ga**	4' 9"	5' 7"	5' 8"
	1.5x6x20 ga	5' 7"	6' 6"	6' 7"
	1.5x6x18 ga	6' 10"	7' 12"	8' 1"
	1.5x6x16 ga	7' 12"	8' 11"	9' 3"
6.00 (t=4.50) 61 PSF	**1.5x6x22 ga**	4' 8"	5' 5"	5' 6"
	1.5x6x20 ga	5' 5"	6' 4"	6' 5"
	1.5x6x18 ga	6' 7"	7' 8"	7' 9"
	1.5x6x16 ga	7' 8"	8' 7"	8' 11"

Lightweight Concrete (115 pcf)				
Total Slab Depth	Deck Type	Maximum Unshored Clear Span		
		1 span	2 span	3 span
3.50 (t=2.00) 23 PSF	**1.5x6x22 ga**	6' 3"	7' 4"	7' 6"
	1.5x6x20 ga	7' 5"	8' 9"	8' 11"
	1.5x6x18 ga	9' 3"	10' 9"	11' 1"
	1.5x6x16 ga	11' 0"	12' 0"	12' 5"
4.00 (t=2.50) 28 PSF	**1.5x6x22 ga**	5' 11"	6' 12"	7' 1"
	1.5x6x20 ga	7' 0"	8' 3"	8' 5"
	1.5x6x18 ga	8' 9"	10' 2"	10' 5"
	1.5x6x16 ga	10' 4"	11' 5"	11' 9"
4.50 (t=3.00) 33 PSF	**1.5x6x22 ga**	5' 8"	6' 8"	6' 9"
	1.5x6x20 ga	7' 5"	8' 8"	8' 9"
	1.5x6x18 ga	8' 4"	9' 8"	9' 10"
	1.5x6x16 ga	9' 10"	10' 10"	11' 2"
5.00 (t=3.50) 37 PSF	**1.5x6x22 ga**	5' 6"	6' 5"	6' 6"
	1.5x6x20 ga	6' 6"	7' 7"	7' 8"
	1.5x6x18 ga	8' 0"	9' 4"	9' 6"
	1.5x6x16 ga	9' 5"	10' 5"	10' 10"
5.50 (t=4.00) 42 PSF	**1.5x6x22 ga**	5' 3"	6' 3"	6' 3"
	1.5x6x20 ga	6' 3"	7' 4"	7' 5"
	1.5x6x18 ga	7' 8"	8' 11"	9' 1"
	1.5x6x16 ga	9' 0"	10' 0"	10' 4"
6.00 (t=4.50) 46 PSF	**1.5x6x22 ga**	5' 2"	6' 0"	6' 1"
	1.5x6x20 ga	6' 1"	7' 1"	7' 2"
	1.5x6x18 ga	7' 5"	8' 8"	8' 9"
	1.5x6x16 ga	8' 9"	9' 9"	10' 0"

Note
Web crippling and shear have not been accounted for in these tables. Required bearing should be determined based on specific span conditions.

Composite Deck-Slab Allowable Superimposed Load (ASD), PSF

22 ga Normalweight Concrete (145 pcf, f'c = 3,000 psi)

Slab Thickness (Inches)	Weight (psf)	5'-0	5'-6	6'-0	6'-6	7'-0	7'-6	8'-0
3.5	31	400	354	295	249	212	182	158
4	37	400	400	372	314	268	231	200
4.5	43	400	400	400	383	326	281	244
5	49	400	400	400	400	387	333	290
5.5	55	400	400	400	400	400	387	336
6	61	400	400	400	400	400	400	383

Slab Thickness (Inches)	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0	11'-6	12'-0
3.5	138	121	107	95	84	75	67	60
4	175	154	136	120	107	96	86	77
4.5	213	188	166	147	131	118	105	95
5	253	223	197	175	156	140	126	113
5.5	294	259	229	204	182	163	146	132
6	336	296	262	233	208	186	168	151

20/18/16 ga Normalweight Concrete (145 pcf, f'c = 3,000 psi)

Slab Thickness (Inches)	Weight (psf)	5'-0	5'-6	6'-0	6'-6	7'-0	7'-6	8'-0
3.5	31	400	400	359	303	259	223	194
4	37	400	400	400	383	328	283	246
4.5	43	400	400	400	400	400	345	300
5	49	400	400	400	400	400	400	357
5.5	55	400	400	400	400	400	400	400
6	61	400	400	400	400	400	400	400

Slab Thickness (Inches)	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0	11'-6	12'-0
3.5	170	150	132	118	105	94	85	76
4	215	190	168	150	134	120	108	98
4.5	263	232	206	183	164	147	133	120
5	313	276	245	218	195	176	158	143
5.5	364	321	285	254	227	204	184	167
6	400	367	326	290	260	234	211	191

Note
Because of the profile of the embossments, there is no gain in strength for the composite deck-slab when the deck gets thicker than 20 gage. However, the construction spans do get longer for 18 and 16 gage deck.

22 ga Lightweight Concrete (115 pcf, f'c = 3,000 psi)

Slab Thickness (Inches)	Weight (psf)	5'-0	5'-6	6'-0	6'-6	7'-0	7'-6	8'-0
3.5	23	400	341	285	241	206	178	154
4	28	400	400	361	305	261	225	196
4.5	33	400	400	400	372	319	275	239
5	37	400	400	400	400	379	327	285
5.5	42	400	400	400	400	400	380	332
6	46	400	400	400	400	400	400	379

Slab Thickness (Inches)	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0	11'-6	12'-0
3.5	135	119	106	94	84	76	68	61
4	172	151	134	120	107	96	87	78
4.5	210	185	164	146	131	118	106	96
5	250	221	196	175	157	141	127	115
5.5	291	257	228	204	182	164	148	134
6	333	294	261	233	209	188	170	154

20/18/16 ga Lightweight Concrete (115 pcf, f'c = 3,000 psi)

Slab Thickness (Inches)	Weight (psf)	5'-0	5'-6	6'-0	6'-6	7'-0	7'-6	8'-0
3.5	23	400	400	344	291	249	216	188
4	28	400	400	400	370	317	274	239
4.5	33	400	400	400	400	388	335	292
5	37	400	400	400	400	400	400	349
5.5	42	400	400	400	400	400	400	400
6	46	400	400	400	400	400	400	400

Slab Thickness (Inches)	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0	11'-6	12'-0
3.5	165	146	129	115	104	93	84	76
4	210	185	165	147	132	119	107	97
4.5	257	227	202	180	162	146	132	119
5	306	271	241	216	194	174	158	143
5.5	357	316	281	251	226	203	184	167
6	400	362	322	288	259	233	211	192

Note
Because of the profile of the embossments, there is no gain in strength for the composite deck-slab when the deck gets thicker than 20 gage. However, the construction spans do get longer for 18 and 16 gage deck.