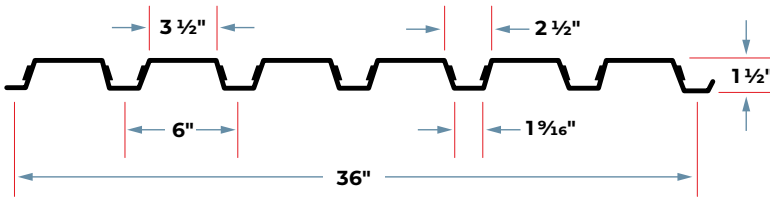


# 1.5" COMPOSITE DECK

GRADE 80 STEEL



## Options

Hanger Tabs

## Section Properties

Gage	Design Thickness (inches)	Weight (psf)	F <sub>y</sub> (ksi)	S <sub>e</sub> + (inch <sup>3</sup> ) per foot	S <sub>e</sub> - (inch <sup>3</sup> ) per foot	ASD (Ω = 1.67)		I <sub>d</sub> + (inch <sup>4</sup> ) per ft.	I <sub>d</sub> - (inch <sup>4</sup> ) per ft.
						M <sub>p</sub> /Ω (inch-lbs per ft)	M <sub>n</sub> /Ω (inch-lbs per foot)		
22	0.0295	1.6	60	0.166	0.175	5958	6269	0.142	0.167
20	0.0358	2.0	60	0.206	0.215	7398	7738	0.178	0.209
18	0.0474	2.6	60	0.291	0.306	10455	11006	0.252	0.288
16	0.0598	3.0	60	0.375	0.389	13461	13976	0.334	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 <sub>n</sub> /Ω (lbs/ft)	Web Crippling (R <sub>n</sub> /Ω), lbs/ft One Flange Loading End Bearing			Web Crippling (R <sub>n</sub> /Ω), lbs/ft One Flange Loading Interior Bearing		
		1-1/2"	2"	3"	1-1/2"	2"	3"
		22	2908	961	1056	1216	1316
20	4563	1372	1503	1723	1926	2082	2344
18	6038	2297	2505	2853	3327	3579	4001
16	7463	3517	3820	4327	5214	5584	6207

### 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	159	131	110	94	81	71	62	55	49	44	40
	20	197	163	137	117	101	88	77	68	61	55	49
	18	279	230	194	165	142	124	109	96	86	77	70
	16	359	297	249	212	183	160	140	124	111	99	90
Double	22	167	138	116	99	85	74	65	58	52	46	42
	20	206	171	143	122	105	92	81	71	64	57	52
	18	293	243	204	174	150	130	115	102	91	81	73
	16	373	308	259	221	190	166	146	129	115	103	93
Triple	22	209	173	145	124	107	93	82	72	65	58	52
	20	258	213	179	153	132	115	101	89	80	71	64
	18	367	303	255	217	187	163	143	127	113	102	92
	16	466	385	324	276	238	207	182	161	144	129	116

### Notes

- 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
- 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.
- Bending Moment formulae used for flexural stress limitations are: Simple and Two Span  $M = \frac{wL^2}{8}$  Three Span or More  $M = \frac{wL^2}{10}$
- 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	75	56	43	34	27	22	18	15	13	11	9
	20	93	70	54	43	34	28	23	19	16	14	12
	18	132	100	77	60	48	39	32	27	23	19	17
	16	176	132	102	80	64	52	43	36	30	26	22
Double	22	180	135	104	82	66	53	44	37	31	26	22
	20	225	169	130	102	82	67	55	46	39	33	28
	18	319	240	185	145	116	95	78	65	55	47	40
	16	423	318	245	193	154	125	103	86	73	62	53
Triple	22	141	106	81	64	51	42	34	29	24	21	18
	20	176	132	102	80	64	52	43	36	30	26	22
	18	250	188	144	114	91	74	61	51	43	36	31
	16	331	249	192	151	121	98	81	67	57	48	41

**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
<b>3.50</b> <b>(t=2.00)</b> <b>31 PSF</b>	1.5x6x22 ga	7' 3"	8' 6"	8' 7"
	1.5x6x20 ga	8' 5"	9' 9"	9' 12"
	1.5x6x18 ga	10' 7"	11' 8"	12' 1"
	1.5x6x16 ga	12' 5"	13' 2"	13' 7"
<b>4.00</b> <b>(t=2.50)</b> <b>37 PSF</b>	1.5x6x22 ga	6' 11"	8' 1"	8' 2"
	1.5x6x20 ga	7' 12"	9' 3"	9' 5"
	1.5x6x18 ga	9' 12"	11' 1"	11' 5"
	1.5x6x16 ga	11' 8"	12' 6"	12' 11"
<b>4.50</b> <b>(t=3.00)</b> <b>43 PSF</b>	1.5x6x22 ga	6' 7"	7' 8"	7' 10"
	1.5x6x20 ga	8' 4"	9' 4"	9' 8"
	1.5x6x18 ga	9' 6"	10' 7"	10' 11"
	1.5x6x16 ga	11' 1"	11' 11"	12' 3"
<b>5.00</b> <b>(t=3.50)</b> <b>49 PSF</b>	1.5x6x22 ga	6' 4"	7' 5"	7' 6"
	1.5x6x20 ga	7' 3"	8' 6"	8' 7"
	1.5x6x18 ga	9' 1"	10' 1"	10' 5"
	1.5x6x16 ga	10' 7"	11' 5"	11' 9"
<b>5.50</b> <b>(t=4.00)</b> <b>55 PSF</b>	1.5x6x22 ga	6' 1"	7' 1"	7' 2"
	1.5x6x20 ga	6' 12"	8' 2"	8' 3"
	1.5x6x18 ga	8' 8"	9' 8"	10' 0"
	1.5x6x16 ga	10' 1"	10' 11"	11' 4"
<b>6.00</b> <b>(t=4.50)</b> <b>61 PSF</b>	1.5x6x22 ga	5' 11"	6' 10"	6' 11"
	1.5x6x20 ga	6' 9"	7' 10"	7' 11"
	1.5x6x18 ga	8' 4"	9' 4"	9' 8"
	1.5x6x16 ga	9' 9"	10' 6"	10' 11"

Lightweight Concrete (115 pcf)				
Total Slab Depth	Deck Type	Maximum Unshored Clear Span		
		1 span	2 span	3 span
<b>3.50</b> <b>(t=2.00)</b> <b>23 PSF</b>	1.5x6x22 ga	8' 2"	9' 7"	9' 9"
	1.5x6x20 ga	9' 6"	10' 11"	11' 4"
	1.5x6x18 ga	12' 1"	13' 1"	13' 6"
	1.5x6x16 ga	14' 3"	14' 9"	15' 3"
<b>4.00</b> <b>(t=2.50)</b> <b>28 PSF</b>	1.5x6x22 ga	7' 8"	9' 1"	9' 2"
	1.5x6x20 ga	8' 11"	10' 4"	10' 8"
	1.5x6x18 ga	11' 4"	12' 4"	12' 9"
	1.5x6x16 ga	13' 4"	13' 11"	14' 5"
<b>4.50</b> <b>(t=3.00)</b> <b>33 PSF</b>	1.5x6x22 ga	7' 4"	8' 7"	8' 8"
	1.5x6x20 ga	9' 6"	10' 7"	10' 11"
	1.5x6x18 ga	10' 8"	11' 9"	12' 2"
	1.5x6x16 ga	12' 7"	13' 3"	13' 8"
<b>5.00</b> <b>(t=3.50)</b> <b>37 PSF</b>	1.5x6x22 ga	7' 1"	8' 3"	8' 5"
	1.5x6x20 ga	8' 2"	9' 6"	9' 8"
	1.5x6x18 ga	10' 3"	11' 4"	11' 9"
	1.5x6x16 ga	12' 0"	12' 9"	13' 3"
<b>5.50</b> <b>(t=4.00)</b> <b>42 PSF</b>	1.5x6x22 ga	6' 9"	7' 11"	8' 0"
	1.5x6x20 ga	7' 10"	9' 1"	9' 3"
	1.5x6x18 ga	9' 10"	10' 11"	11' 3"
	1.5x6x16 ga	11' 6"	12' 3"	12' 8"
<b>6.00</b> <b>(t=4.50)</b> <b>46 PSF</b>	1.5x6x22 ga	6' 7"	7' 8"	7' 10"
	1.5x6x20 ga	7' 7"	8' 10"	8' 12"
	1.5x6x18 ga	9' 6"	10' 7"	10' 11"
	1.5x6x16 ga	11' 1"	11' 11"	12' 3"

**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	400	372	314	269	232	202
4	37	400	400	400	397	340	293	255
4.5	43	400	400	400	400	400	357	311
5	49	400	400	400	400	400	400	369
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	177	156	138	123	110	98	88	80
4	224	197	175	156	139	125	113	102
4.5	273	241	213	190	170	153	138	125
5	323	286	253	226	202	182	164	148
5.5	375	331	294	262	235	211	191	173
6	400	378	336	300	269	242	218	197

**Note**  
AISI/SDI C-2017 permits the use of Grade 80 steel for composite deck, but it limits the yield strength for determining composite deck-slab strength to 50 ksi. Therefore for Grade 80 steel, 50 ksi tables are used.

**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	400	382	327	283	246
4	37	400	400	400	400	400	358	312
4.5	43	400	400	400	400	400	400	381
5	49	400	400	400	400	400	400	400
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	216	191	170	151	136	122	110	100
4	274	242	215	192	172	155	140	127
4.5	335	296	263	235	211	190	172	156
5	398	352	313	280	251	226	205	186
5.5	400	400	364	325	292	263	238	216
6	400	400	400	372	334	301	272	247

- Notes**
1. 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.
  2. AISI/SDI C-2017 permits the use of Grade 80 steel for composite deck, but it limits the yield strength for determining composite deck-slab strength to 50 ksi. Therefore for Grade 80 steel, 50 ksi tables are used.

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	400	359	304	260	225	196
4	28	400	400	400	385	329	285	248
4.5	33	400	400	400	400	400	348	304
5	37	400	400	400	400	400	400	362
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	172	152	135	121	108	97	88	80
4	218	193	172	153	138	124	112	102
4.5	267	236	210	188	168	152	137	125
5	318	281	250	224	201	181	164	149
5.5	369	327	291	260	234	211	191	173
6	400	374	333	298	268	242	219	199

**Note**  
 AISI/SDI C-2017 permits the use of Grade 80 steel for composite deck, but it limits the yield strength for determining composite deck-slab strength to 50 ksi. Therefore for Grade 80 steel, 50 ksi tables are used.

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	400	367	314	272	238
4	28	400	400	400	400	399	346	302
4.5	33	400	400	400	400	400	400	370
5	37	400	400	400	400	400	400	400
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	209	185	165	147	132	120	108	98
4	266	235	209	187	169	152	138	125
4.5	325	288	257	230	207	187	169	154
5	388	344	306	275	247	223	202	184
5.5	400	400	357	320	288	260	236	215
6	400	400	400	366	330	298	271	246

- Notes**
1. 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.
  2. AISI/SDI C-2017 permits the use of Grade 80 steel for composite deck, but it limits the yield strength for determining composite deck-slab strength to 50 ksi. Therefore for Grade 80 steel, 50 ksi tables are used.

