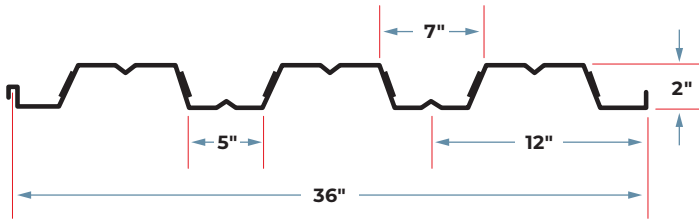


2" COMPOSITE DECK

GRADE 50 STEEL



Section Properties

Gage	Design Thickness (inches)	Weight (psf)	F _y (ksi)	S _e + (inch ³) per foot	S _e - (inch ³) per foot	ASD (Ω = 1.67)		I _d + (inch ⁴) per ft.	I _d - (inch ⁴) per ft.
						M _p /Ω (inch-lbs per ft)	M _n /Ω (inch-lbs per foot)		
22	0.0295	1.6	50	0.247	0.254	7407	7595	0.311	0.290
20	0.0358	1.9	50	0.329	0.336	9860	10060	0.393	0.373
18	0.0474	2.5	50	0.493	0.500	14760	14960	0.548	0.530
16	0.0598	3.2	50	0.645	0.644	19321	19271	0.703	0.693

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		
		2"	3"	4"	2"	3"	4"
22	1881	414	476	529	627	709	779
20	2781	590	677	749	904	1018	1113
18	3665	986	1123	1239	1532	1712	1865
16	4601	1507	1707	1875	2367	2631	2854

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	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	16'
Single	22	137	101	77	61	49	41	34	29	25	22	19
	20	183	134	103	81	66	54	46	39	34	29	26
	18	273	201	154	121	98	81	68	58	50	44	38
	16	358	263	201	159	129	106	89	76	66	57	50
Double	22	141	103	79	63	51	42	35	30	26	23	20
	20	186	137	105	83	67	55	47	40	34	30	26
	18	277	204	156	123	100	82	69	59	51	44	39
	16	357	262	201	159	128	106	89	76	66	57	50
Triple	22	176	129	99	78	63	52	44	37	32	28	25
	20	233	171	131	103	84	69	58	50	43	37	33
	18	346	254	195	154	125	103	87	74	64	55	49
	16	446	328	251	198	161	133	112	95	82	71	63

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	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	16'
Single	22	88	56	37	26	19	14	11	9	7	6	5
	20	113	71	48	34	25	18	14	11	9	7	6
	18	161	101	68	48	35	26	20	16	13	10	8
	16	211	133	89	62	46	34	26	21	17	13	11
Double	22	212	134	90	63	46	34	27	21	17	14	11
	20	273	172	115	81	59	44	34	27	22	17	14
	18	388	244	164	115	84	63	48	38	31	25	20
	16	507	320	214	150	110	82	63	50	40	32	27
Triple	22	166	105	70	49	36	27	21	16	13	11	9
	20	214	135	90	63	46	35	27	21	17	14	11
	18	304	191	128	90	66	49	38	30	24	19	16
	16	397	250	168	118	86	64	50	39	31	25	21

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
4.00 (t=2.00) 39 PSF	2x12x22 ga	7'- 11	9'- 1	9'- 3
	2x12x20 ga	9'- 3	10'- 6	10'- 10
	2x12x18 ga	10'- 5	12'- 9	12'- 5
	2x12x16 ga	11'- 4	14'- 2	13'- 4
4.50 (t=2.50) 45 PSF	2x12x22 ga	7'- 7	8'- 8	8'- 10
	2x12x20 ga	8'- 10	10'- 0	10'- 4
	2x12x18 ga	9'- 11	12'- 2	12'- 0
	2x12x16 ga	10'- 11	13'- 8	12'- 10
5.00 (t=3.00) 51 PSF	2x12x22 ga	7'- 3	8'- 4	8'- 6
	2x12x20 ga	8'- 6	9'- 7	9'- 11
	2x12x18 ga	9'- 7	11'- 8	11'- 8
	2x12x16 ga	10'- 6	13'- 3	12'- 6
5.50 (t=3.50) 57 PSF	2x12x22 ga	6'- 11	8'- 0	8'- 2
	2x12x20 ga	8'- 3	9'- 3	9'- 6
	2x12x18 ga	9'- 3	11'- 3	11'- 4
	2x12x16 ga	10'- 1	12'- 9	12'- 2
6.00 (t=4.00) 63 PSF	2x12x22 ga	6'- 9	7'- 9	7'- 10
	2x12x20 ga	7'- 11	8'- 11	9'- 2
	2x12x18 ga	8'- 11	10'- 10	11'- 0
	2x12x16 ga	9'- 9	12'- 4	11'- 10
6.50 (t=4.50) 69 PSF	2x12x22 ga	6'- 6	7'- 6	7'- 7
	2x12x20 ga	7'- 9	8'- 7	8'- 10
	2x12x18 ga	8'- 8	10'- 6	10'- 9
	2x12x16 ga	9'- 6	11'- 11	11'- 7

Lightweight Concrete (115 pcf)				
Total Slab Depth	Deck Type	Maximum Unshored Clear Span		
		1 span	2 span	3 span
4.00 (t=2.00) 31 PSF	2x12x22 ga	8'- 6	9'- 9	10'- 0
	2x12x20 ga	10'- 0	11'- 3	11'- 8
	2x12x18 ga	11'- 2	13'- 9	13'- 2
	2x12x16 ga	12'- 0	14'- 11	14'- 1
4.50 (t=2.50) 35 PSF	2x12x22 ga	8'- 2	9'- 5	9'- 8
	2x12x20 ga	9'- 7	10'- 10	11'- 3
	2x12x18 ga	10'- 9	13'- 3	12'- 9
	2x12x16 ga	11'- 8	14'- 6	13'- 8
5.00 (t=3.00) 39 PSF	2x12x22 ga	7'- 11	9'- 1	9'- 3
	2x12x20 ga	9'- 3	10'- 6	10'- 10
	2x12x18 ga	10'- 5	12'- 9	12'- 5
	2x12x16 ga	11'- 4	14'- 2	13'- 4
5.50 (t=3.50) 44 PSF	2x12x22 ga	7'- 7	8'- 9	8'- 11
	2x12x20 ga	8'- 11	10'- 1	10'- 5
	2x12x18 ga	10'- 0	12'- 4	12'- 1
	2x12x16 ga	11'- 0	13'- 9	12'- 11
6.00 (t=4.00) 48 PSF	2x12x22 ga	7'- 5	8'- 6	8'- 8
	2x12x20 ga	8'- 8	9'- 9	10'- 1
	2x12x18 ga	9'- 9	11'- 11	11'- 10
	2x12x16 ga	10'- 8	13'- 6	12'- 8
6.50 (t=4.50) 53 PSF	2x12x22 ga	7'- 2	8'- 3	8'- 4
	2x12x20 ga	8'- 5	9'- 5	9'- 9
	2x12x18 ga	9'- 5	11'- 6	11'- 7
	2x12x16 ga	10'- 4	13'- 1	12'- 4

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)	7'-0	7'-6	8'-0"	8'-6	9'-0	9'-6	10'-0
4	39	325	280	243	213	188	166	148
4.5	45	394	340	296	259	228	202	180
5	51	400	400	350	307	271	240	214
5.5	57	400	400	400	357	315	279	249
6	63	400	400	400	400	359	319	284
6.5	69	400	400	400	400	400	359	321

Slab Thickness (Inches)	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0
4	39	132	118	106	96	86	78	71
4.5	45	161	144	130	117	106	96	87
5	51	191	172	155	140	126	115	104
5.5	57	222	200	180	163	147	134	122
6	63	255	229	206	186	169	154	140
6.5	69	287	258	233	211	191	174	158

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

Slab Thickness (Inches)	Weight (psf)	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
4	39	393	339	296	259	229	203	181
4.5	45	400	400	359	315	278	247	220
5	51	400	400	400	373	329	293	261
5.5	57	400	400	400	400	383	340	304
6	63	400	400	400	400	400	389	347
6.5	69	400	400	400	400	400	400	391

Slab Thickness (Inches)	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0
4	39	162	146	132	119	108	98	89
4.5	45	197	178	160	145	132	120	109
5	51	234	211	190	173	157	143	130
5.5	57	272	245	222	201	183	166	152
6	63	312	281	254	230	209	191	174
6.5	69	351	317	286	260	236	216	197

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

Slab Thickness (Inches)	Weight (psf)	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
4	39	400	400	389	342	303	269	241
4.5	45	400	400	400	400	367	326	292
5	51	400	400	400	400	400	387	346
5.5	57	400	400	400	400	400	400	400
6	63	400	400	400	400	400	400	400
6.5	69	400	400	400	400	400	400	400

Slab Thickness (Inches)	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0
4	39	216	195	177	160	146	133	122
4.5	45	263	237	215	195	178	162	149
5	51	311	281	255	231	211	193	177
5.5	57	362	327	296	269	246	225	206
6	63	400	374	339	308	281	257	236
6.5	69	400	400	382	348	318	291	267

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

Slab Thickness (Inches)	Weight (psf)	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
4	39	400	400	400	400	377	336	301
4.5	45	400	400	400	400	400	400	365
5	51	400	400	400	400	400	400	400
5.5	57	400	400	400	400	400	400	400
6	63	400	400	400	400	400	400	400
6.5	69	400	400	400	400	400	400	400

Slab Thickness (Inches)	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0
4	39	271	245	222	202	185	169	155
4.5	45	328	297	269	245	224	205	188
5	51	389	352	320	291	266	244	224
5.5	57	400	400	372	339	310	284	261
6	63	400	400	400	388	355	325	299
6.5	69	400	400	400	400	400	368	338

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

Slab Thickness (Inches)	Weight (psf)	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
4	31	315	272	237	208	184	163	145
4.5	35	384	332	289	254	224	199	178
5	39	400	394	344	302	267	237	212
5.5	44	400	400	400	351	311	276	247
6	48	400	400	400	400	356	317	283
6.5	53	400	400	400	400	400	357	319

Slab Thickness (Inches)	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0
4	130	117	106	96	87	79	72	66
4.5	160	144	130	118	107	97	89	81
5	190	171	155	141	128	116	106	97
5.5	222	200	181	164	149	136	124	114
6	254	229	207	188	171	156	143	131
6.5	287	259	234	213	193	177	162	148

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

Slab Thickness (Inches)	Weight (psf)	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
4	31	380	329	287	252	223	198	177
4.5	35	400	400	349	307	272	242	216
5	39	400	400	400	365	323	287	257
5.5	44	400	400	400	400	375	334	299
6	48	400	400	400	400	400	383	343
6.5	53	400	400	400	400	400	400	387

Slab Thickness (Inches)	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0
4	159	143	130	118	107	98	89	82
4.5	194	175	159	144	131	120	110	101
5	231	209	189	172	157	143	131	120
5.5	269	243	220	200	183	167	153	140
6	309	279	253	230	210	192	176	162
6.5	348	315	285	260	237	217	199	183

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

Slab Thickness (Inches)	Weight (psf)	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
4	31	400	400	375	330	292	261	233
4.5	35	400	400	400	400	355	317	284
5	39	400	400	400	400	400	376	337
5.5	44	400	400	400	400	400	400	393
6	48	400	400	400	400	400	400	400
6.5	53	400	400	400	400	400	400	400

Slab Thickness (Inches)	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0
4	210	190	172	157	143	131	120	110
4.5	256	231	210	191	174	160	147	135
5	304	275	250	227	208	191	175	161
5.5	354	320	291	265	242	222	204	188
6	400	367	334	304	278	255	234	216
6.5	400	400	377	344	314	288	265	244

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

Slab Thickness (Inches)	Weight (psf)	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
4	31	400	400	400	400	362	323	290
4.5	35	400	400	400	400	400	392	352
5	39	400	400	400	400	400	400	400
5.5	44	400	400	400	400	400	400	400
6	48	400	400	400	400	400	400	400
6.5	53	400	400	400	400	400	400	400

Slab Thickness (Inches)	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0
4	261	236	215	196	179	164	151	139
4.5	317	287	261	238	218	200	184	170
5	377	342	311	284	260	238	219	202
5.5	400	398	362	330	303	278	256	236
6	400	400	400	380	348	319	294	272
6.5	400	400	400	400	393	361	333	307