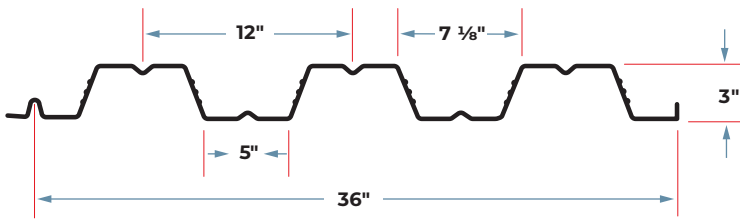


3" COMPOSITE DECK

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	1.7	50	0.397	0.426	11895	12744	0.722	0.680
20	0.0358	2.1	50	0.525	0.559	15709	16747	0.908	0.870
18	0.0474	2.7	50	0.796	0.795	23822	23812	1.274	1.260
16	0.0598	3.5	50	1.009	1.010	30200	30230	1.624	1.610

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	1781	402	463	515	643	728	799
20	2985	578	663	734	928	1045	1143
18	4372	974	1110	1224	1575	1760	1917
16	7370	1497	1696	1864	2435	2707	2936

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	220	162	124	98	79	66	55	47	40	35	31
	20	291	214	164	129	105	87	73	62	53	47	41
	18	441	324	248	196	159	131	110	94	81	71	62
	16	559	411	315	249	201	166	140	119	103	89	79
Double	22	236	173	133	105	85	70	59	50	43	38	33
	20	310	228	174	138	112	92	78	66	57	50	44
	18	441	324	248	196	159	131	110	94	81	71	62
	16	560	411	315	249	202	167	140	119	103	90	79
Triple	22	295	217	166	131	106	88	74	63	54	47	41
	20	388	285	218	172	140	115	97	83	71	62	55
	18	551	405	310	245	198	164	138	117	101	88	78
	16	700	514	394	311	252	208	175	149	129	112	98

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	207	130	87	61	45	34	26	20	16	13	11
	20	264	167	112	78	57	43	33	26	21	17	14
	18	383	241	162	113	83	62	48	38	30	25	20
	16	489	308	206	145	106	79	61	48	39	31	26
Double	22	498	313	210	147	107	81	62	49	39	32	26
	20	637	401	269	189	138	103	80	63	50	41	34
	18	922	581	389	273	199	150	115	91	73	59	49
	16	1178	742	497	349	254	191	147	116	93	75	62
Triple	22	389	245	164	115	84	63	49	38	31	25	21
	20	498	314	210	148	108	81	62	49	39	32	26
	18	722	454	304	214	156	117	90	71	57	46	38
	16	922	581	389	273	199	150	115	91	73	59	49

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
5.00 (t=2.00) 46 PSF	3x12x22 ga	10' 3"	11' 4"	11' 9"
	3x12x20 ga	11' 12"	13' 0"	13' 5"
	3x12x18 ga	13' 5"	15' 6"	16' 0"
	3x12x16 ga	14' 7"	17' 6"	18' 1"
5.50 (t=2.50) 52 PSF	3x12x22 ga	9' 10"	10' 10"	11' 3"
	3x12x20 ga	11' 6"	12' 5"	12' 10"
	3x12x18 ga	12' 11"	14' 10"	15' 4"
	3x12x16 ga	14' 0"	16' 9"	17' 4"
6.00 (t=3.00) 58 PSF	3x12x22 ga	9' 5"	10' 5"	10' 9"
	3x12x20 ga	11' 4"	12' 10"	13' 4"
	3x12x18 ga	12' 5"	14' 3"	14' 9"
	3x12x16 ga	13' 6"	16' 1"	16' 7"
6.50 (t=3.50) 64 PSF	3x12x22 ga	9' 0"	10' 1"	10' 5"
	3x12x20 ga	10' 8"	11' 6"	11' 11"
	3x12x18 ga	12' 0"	13' 9"	14' 3"
	3x12x16 ga	13' 1"	15' 6"	16' 0"
7.00 (t=4.00) 70 PSF	3x12x22 ga	8' 9"	9' 9"	10' 1"
	3x12x20 ga	10' 3"	11' 2"	11' 6"
	3x12x18 ga	11' 8"	13' 3"	13' 9"
	3x12x16 ga	12' 8"	15' 0"	15' 6"
7.50 (t=4.50) 76 PSF	3x12x22 ga	8' 5"	9' 5"	9' 9"
	3x12x20 ga	9' 11"	10' 9"	11' 2"
	3x12x18 ga	11' 4"	12' 10"	13' 4"
	3x12x16 ga	12' 4"	14' 6"	15' 0"

Lightweight Concrete (115 pcf)				
Total Slab Depth	Deck Type	Maximum Unshored Clear Span		
		1 span	2 span	3 span
5.00 (t=2.00) 37 PSF	3x12x22 ga	11' 2"	12' 3"	12' 7"
	3x12x20 ga	12' 11"	13' 12"	14' 6"
	3x12x18 ga	14' 5"	16' 8"	17' 3"
	3x12x16 ga	15' 8"	18' 10"	19' 5"
5.50 (t=2.50) 42 PSF	3x12x22 ga	10' 8"	11' 8"	12' 1"
	3x12x20 ga	12' 4"	13' 5"	13' 10"
	3x12x18 ga	13' 10"	16' 0"	16' 6"
	3x12x16 ga	15' 0"	18' 0"	18' 8"
6.00 (t=3.00) 47 PSF	3x12x22 ga	10' 2"	11' 3"	11' 8"
	3x12x20 ga	12' 4"	14' 2"	14' 8"
	3x12x18 ga	13' 4"	15' 5"	15' 11"
	3x12x16 ga	14' 6"	17' 4"	17' 11"
6.50 (t=3.50) 49 PSF	3x12x22 ga	10' 0"	11' 1"	11' 6"
	3x12x20 ga	11' 9"	12' 9"	13' 2"
	3x12x18 ga	13' 2"	15' 2"	15' 8"
	3x12x16 ga	14' 3"	17' 1"	17' 8"
7.00 (t=4.00) 52 PSF	3x12x22 ga	9' 10"	10' 10"	11' 3"
	3x12x20 ga	11' 6"	12' 5"	12' 10"
	3x12x18 ga	12' 11"	14' 10"	15' 4"
	3x12x16 ga	14' 0"	16' 9"	17' 4"
7.50 (t=4.50) 59 PSF	3x12x22 ga	9' 4"	10' 4"	10' 9"
	3x12x20 ga	11' 0"	11' 11"	12' 3"
	3x12x18 ga	12' 4"	14' 2"	14' 8"
	3x12x16 ga	13' 5"	16' 0"	16' 6"

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)	8'-0	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0
5	46	272	238	210	186	165	147	132
5.5	52	329	288	254	225	200	179	160
6	58	388	340	300	266	237	212	190
6.5	64	400	394	347	308	274	245	220
7	70	400	400	396	351	313	280	252
7.5	76	400	400	400	395	352	316	284

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	118	107	96	87	79	71	65	59
5.5	144	130	117	106	96	88	80	72
6	171	154	140	127	115	105	95	87
6.5	199	179	162	147	134	122	111	102
7	227	205	186	169	154	140	128	117
7.5	256	231	210	191	174	158	145	132

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

Slab Thickness (Inches)	Weight (psf)	8'-0	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0
5	46	329	288	254	226	201	180	162
5.5	52	397	349	308	273	244	218	196
6	58	400	400	363	323	288	258	232
6.5	64	400	400	400	374	334	299	270
7	70	400	400	400	400	381	342	308
7.5	76	400	400	400	400	400	385	347

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	146	132	119	108	98	90	82	75
5.5	177	160	145	132	120	110	100	92
6	210	190	172	157	143	131	120	110
6.5	244	221	201	183	167	152	140	128
7	278	252	229	209	191	175	160	147
7.5	314	285	259	236	216	198	181	166

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

Slab Thickness (Inches)	Weight (psf)	8'-0	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0
5	46	400	400	381	339	303	273	246
5.5	52	400	400	400	397	355	320	289
6	58	400	400	400	400	400	370	334
6.5	64	400	400	400	400	400	400	381
7	70	400	400	400	400	400	400	400
7.5	76	400	400	400	400	400	400	400

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	223	203	185	169	155	142	130	120
5.5	262	238	217	198	182	167	153	141
6	303	275	251	230	210	193	178	164
6.5	345	314	287	262	241	221	204	188
7	390	355	324	296	272	250	230	213
7.5	400	397	362	331	304	280	258	238

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

Slab Thickness (Inches)	Weight (psf)	8'-0	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0
5	46	400	400	400	368	330	297	268
5.5	52	400	400	400	400	400	360	325
6	58	400	400	400	400	400	400	386
6.5	64	400	400	400	400	400	400	400
7	70	400	400	400	400	400	400	400
7.5	76	400	400	400	400	400	400	400

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	243	221	202	185	169	155	143	132
5.5	295	269	245	225	206	190	175	161
6	350	319	291	267	245	225	208	192
6.5	400	371	339	311	285	263	243	224
7	400	400	388	356	327	301	278	257
7.5	400	400	400	400	370	341	315	291

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

Slab Thickness (Inches)	Weight (psf)	8'-0	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0
5	37	263	231	204	181	161	144	129
5.5	42	319	280	247	219	196	175	158
6	47	377	331	293	260	232	208	187
6.5	49	400	386	341	303	271	243	219
7	52	400	400	391	347	311	279	252
7.5	59	400	400	400	390	349	313	282

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	117	105	95	87	79	72	65	60
5.5	142	129	117	106	97	88	80	74
6	169	153	139	126	115	105	96	88
6.5	198	180	163	149	136	125	114	105
7	228	207	188	172	157	144	132	122
7.5	256	232	211	193	176	161	148	136

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

Slab Thickness (Inches)	Weight (psf)	8'-0	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0
5	37	316	277	245	218	194	174	157
5.5	42	383	336	297	264	236	212	191
6	47	400	398	352	313	280	252	227
6.5	49	400	400	400	366	327	294	266
7	52	400	400	400	400	375	337	305
7.5	59	400	400	400	400	400	379	342

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	142	129	117	106	97	89	81	75
5.5	173	157	143	130	119	109	100	92
6	205	186	170	155	142	130	119	110
6.5	241	219	199	182	167	153	141	130
7	276	251	229	210	192	177	163	150
7.5	310	282	258	236	216	198	183	169

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

Slab Thickness (Inches)	Weight (psf)	8'-0	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0
5	37	400	400	368	328	294	265	240
5.5	42	400	400	400	385	345	310	281
6	47	400	400	400	400	399	359	325
6.5	49	400	400	400	400	400	400	373
7	52	400	400	400	400	400	400	400
7.5	59	400	400	400	400	400	400	400

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	217	198	181	166	152	140	129	119
5.5	255	232	212	194	178	164	151	140
6	295	269	245	225	207	190	176	162
6.5	339	309	282	259	238	219	203	188
7	384	350	320	294	270	249	230	213
7.5	400	390	357	327	301	278	257	237

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

Slab Thickness (Inches)	Weight (psf)	8'-0	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0
5	37	400	400	391	349	313	282	255
5.5	42	400	400	400	400	380	343	310
6	47	400	400	400	400	400	400	369
6.5	49	400	400	400	400	400	400	400
7	52	400	400	400	400	400	400	400
7.5	59	400	400	400	400	400	400	400

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	231	211	193	177	162	149	138	127
5.5	282	257	235	215	198	182	168	156
6	335	306	280	257	236	217	201	186
6.5	393	358	328	301	277	256	237	219
7	400	400	378	347	320	295	273	253
7.5	400	400	400	391	361	333	308	286

