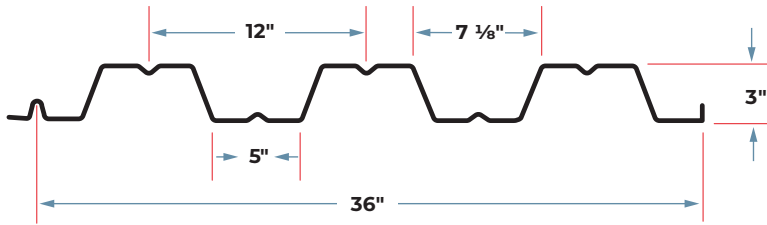


# 3" FORM DECK

## GRADE 33 STEEL



### 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	1.7	33	0.435	0.464	8603	9166	0.751	0.717
20	0.0358	2.1	33	0.572	0.596	11303	11777	0.941	0.917
18	0.0474	2.7	33	0.799	0.797	15782	15756	1.277	1.270
16	0.0598	3.5	33	1.013	1.013	20011	20011	1.627	1.627

**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		
		2"	3"	4"	2"	3"	4"
22	1600	266	306	340	425	480	527
20	2367	382	437	485	613	690	755
18	3607	643	732	808	1039	1162	1265
16	4864	988	1119	1230	1607	1786	1937

**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	159	117	90	71	57	47	40	34	29	25	22
	20	209	154	118	93	75	62	52	45	38	33	29
	18	292	215	164	130	105	87	73	62	54	47	41
	16	371	272	208	165	133	110	93	79	68	59	52
Double	22	170	125	95	75	61	51	42	36	31	27	24
	20	218	160	123	97	79	65	55	46	40	35	31
	18	292	214	164	130	105	87	73	62	54	47	41
	16	371	272	208	165	133	110	93	79	68	59	52
Triple	22	212	156	119	94	76	63	53	45	39	34	30
	20	273	200	153	121	98	81	68	58	50	44	38
	18	365	268	205	162	131	109	91	78	67	58	51
	16	463	340	261	206	167	138	116	99	85	74	65

**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	218	137	92	65	47	35	27	21	17	14	11
	20	279	175	118	83	60	45	35	27	22	18	15
	18	386	243	163	114	83	63	48	38	30	25	20
	16	494	311	209	147	107	80	62	49	39	32	26
Double	22	524	330	221	155	113	85	66	52	41	34	28
	20	671	422	283	199	145	109	84	66	53	43	35
	18	929	585	392	275	201	151	116	91	73	59	49
	16	1190	750	502	353	257	193	149	117	94	76	63
Triple	22	410	258	173	122	89	67	51	40	32	26	22
	20	525	331	221	156	113	85	66	52	41	34	28
	18	727	458	307	216	157	118	91	72	57	47	38
	16	932	587	393	276	201	151	116	92	73	60	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	8' 4"	9' 7"	9' 10"
	3x12x20 ga	9' 11"	10' 11"	11' 3"
	3x12x18 ga	12' 3"	12' 7"	13' 0"
	3x12x16 ga	14' 1"	14' 3"	14' 8"
5.50 (t=2.50) 52 PSF	3x12x22 ga	8' 0"	9' 3"	9' 5"
	3x12x20 ga	9' 6"	10' 5"	10' 10"
	3x12x18 ga	11' 8"	12' 1"	12' 6"
	3x12x16 ga	13' 5"	13' 7"	14' 1"
6.00 (t=3.00) 58 PSF	3x12x22 ga	7' 8"	8' 10"	9' 0"
	3x12x20 ga	9' 11"	10' 6"	10' 10"
	3x12x18 ga	11' 2"	11' 7"	12' 0"
	3x12x16 ga	12' 10"	13' 1"	13' 6"
6.50 (t=3.50) 64 PSF	3x12x22 ga	7' 5"	8' 6"	8' 8"
	3x12x20 ga	8' 9"	9' 8"	10' 0"
	3x12x18 ga	10' 8"	11' 2"	11' 7"
	3x12x16 ga	12' 3"	12' 7"	13' 0"
7.00 (t=4.00) 70 PSF	3x12x22 ga	7' 2"	8' 3"	8' 5"
	3x12x20 ga	8' 5"	9' 4"	9' 8"
	3x12x18 ga	10' 4"	10' 10"	11' 2"
	3x12x16 ga	11' 10"	12' 2"	12' 7"
7.50 (t=4.50) 76 PSF	3x12x22 ga	6' 11"	7' 12"	8' 2"
	3x12x20 ga	8' 2"	9' 1"	9' 4"
	3x12x18 ga	9' 11"	10' 6"	10' 10"
	3x12x16 ga	11' 5"	11' 9"	12' 2"

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	9' 0"	10' 4"	10' 8"
	3x12x20 ga	10' 9"	11' 9"	12' 2"
	3x12x18 ga	13' 3"	13' 7"	14' 0"
	3x12x16 ga	15' 4"	15' 4"	15' 10"
5.50 (t=2.50) 42 PSF	3x12x22 ga	8' 8"	9' 11"	10' 2"
	3x12x20 ga	10' 3"	11' 3"	11' 8"
	3x12x18 ga	12' 8"	13' 0"	13' 5"
	3x12x16 ga	14' 7"	14' 8"	15' 2"
6.00 (t=3.00) 47 PSF	3x12x22 ga	8' 4"	9' 7"	9' 9"
	3x12x20 ga	11' 1"	11' 6"	11' 11"
	3x12x18 ga	12' 1"	12' 6"	12' 11"
	3x12x16 ga	13' 11"	14' 1"	14' 7"
6.50 (t=3.50) 49 PSF	3x12x22 ga	8' 2"	9' 5"	9' 8"
	3x12x20 ga	9' 9"	10' 8"	11' 0"
	3x12x18 ga	11' 11"	12' 4"	12' 9"
	3x12x16 ga	13' 9"	13' 11"	14' 4"
7.00 (t=4.00) 52 PSF	3x12x22 ga	8' 0"	9' 3"	9' 5"
	3x12x20 ga	9' 6"	10' 5"	10' 10"
	3x12x18 ga	11' 8"	12' 1"	12' 6"
	3x12x16 ga	13' 5"	13' 7"	14' 1"
7.50 (t=4.50) 59 PSF	3x12x22 ga	7' 8"	8' 10"	9' 0"
	3x12x20 ga	9' 0"	9' 12"	10' 4"
	3x12x18 ga	11' 1"	11' 6"	11' 11"
	3x12x16 ga	12' 8"	13' 0"	13' 5"

**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	195	170	149	131	116	102	91
5.5	52	229	200	175	154	136	121	107
6	58	265	231	203	179	158	140	125
6.5	64	303	264	231	204	181	160	143
7	70	341	298	261	230	204	181	162
7.5	76	381	332	292	257	228	203	181

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	81	72	65	58	52	46	41	37
5.5	96	85	76	68	61	55	49	44
6	111	100	89	80	72	64	58	52
6.5	128	114	102	92	83	74	67	60
7	144	129	116	104	94	84	76	68
7.5	162	145	130	117	105	95	86	77

**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	239	209	183	162	144	128	114
5.5	52	280	245	215	190	169	150	134
6	58	324	283	249	220	195	174	156
6.5	64	369	323	284	251	223	199	178
7	70	400	364	320	283	252	225	201
7.5	76	400	400	357	316	281	251	225

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	102	92	82	74	67	60	54	49
5.5	120	108	97	88	79	71	65	58
6	139	125	113	102	92	83	75	68
6.5	160	144	130	117	106	96	87	79
7	181	163	147	133	120	109	99	90
7.5	202	182	164	149	135	122	111	101

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	316	277	244	216	193	172	155
5.5	52	369	324	286	253	226	202	181
6	58	400	374	330	293	261	234	210
6.5	64	400	400	376	334	298	267	240
7	70	400	400	400	377	336	301	271
7.5	76	400	400	400	400	376	337	303

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	397	348	308	274	244	219	197	397
5.5	400	400	360	320	286	257	231	400
6	400	400	400	370	331	297	268	400
6.5	400	400	400	400	378	339	306	400
7	400	400	400	400	400	383	345	400
7.5	400	400	400	400	400	400	386	400

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	397	348	308	274	244	219	197
5.5	52	400	400	360	320	286	257	231
6	58	400	400	400	370	331	297	268
6.5	64	400	400	400	400	378	339	306
7	70	400	400	400	400	400	383	345
7.5	76	400	400	400	400	400	400	386

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	178	162	147	134	122	112	102	94
5.5	209	190	172	157	144	131	120	111
6	242	220	200	182	167	152	140	129
6.5	277	251	229	209	191	175	160	148
7	313	284	258	236	216	198	182	167
7.5	350	318	289	264	242	222	204	188

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	193	168	148	130	116	103	92
5.5	42	226	197	173	153	136	121	108
6	47	261	228	201	178	158	140	126
6.5	49	300	263	231	205	182	162	146
7	52	339	297	262	232	207	185	166
7.5	59	378	331	291	258	229	205	184

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	82	74	66	60	54	49	44	40
5.5	97	87	78	71	64	58	52	47
6	113	101	91	82	74	67	61	55
6.5	131	118	106	96	87	79	72	65
7	149	134	121	110	100	91	83	75
7.5	165	149	135	122	111	101	91	83

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	234	205	180	160	142	127	114
5.5	42	274	240	211	187	167	149	134
6	47	317	277	245	217	193	173	155
6.5	49	363	318	281	249	222	199	179
7	52	400	360	318	282	252	226	203
7.5	59	400	400	354	314	280	251	226

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	102	92	83	75	68	62	57	51
5.5	120	108	98	89	81	73	67	61
6	139	126	114	103	94	85	78	71
6.5	161	146	132	120	109	100	91	83
7	183	166	151	137	125	114	104	95
7.5	204	184	167	152	139	126	116	106

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	307	269	238	211	189	169	152
5.5	42	358	315	278	247	221	198	178
6	47	400	364	321	286	255	229	206
6.5	49	400	400	369	328	293	263	237
7	52	400	400	400	371	332	299	269
7.5	59	400	400	400	400	370	332	300

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	137	125	113	103	94	86	79	72
5.5	161	146	133	121	110	101	92	85
6	186	169	154	140	128	117	107	99
6.5	215	195	178	162	148	136	125	115
7	244	222	202	184	169	155	142	131
7.5	272	247	225	205	188	172	158	146

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	383	337	298	265	237	213	192
5.5	42	400	393	348	310	277	249	225
6	47	400	400	400	358	321	288	260
6.5	49	400	400	400	400	368	331	299
7	52	400	400	400	400	400	375	339
7.5	59	400	400	400	400	400	400	379

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	174	158	144	132	121	111	102	94
5.5	204	185	169	154	141	130	119	110
6	236	214	196	179	164	150	138	128
6.5	271	247	225	206	189	174	160	148
7	308	280	256	235	215	198	183	169
7.5	343	313	286	261	240	221	204	188

