
HOUSTON
B-DECKING

Table 1A – Section Properties and Flexural Resistance (Bare Deck) (2x12 Composite and 2x12 Form)

							ASD (Ω = 1.67)			
Profile	Gage Number	Design Thickness (inches)	Weight (psf)	F_y ksi	S_{e+} (inch^3) per foot	S_{e-} (inch^3) per foot	M_p/Ω inch-lbs per ft	M_n/Ω inch-lbs per foot	I_{d+} (inch^4) per ft.	I_{d-} (inch^4) per ft.
2x12	22	0.0295	1.6	50	0.236	0.255	7072	7644	0.304	0.283
2x12	20	0.0358	1.9	50	0.316	0.339	9461	10160	0.384	0.367
2x12	18	0.0474	2.5	50	0.458	0.494	13723	14780	0.527	0.513
2x12	16	0.0598	3.2	50	0.611	0.647	18283	19361	0.686	0.677

Table 1A Notes:

1. All section properties and ASD flexural strengths are calculated in accordance with ANSI/SDI C-2017, ANSI/SDI NC-2017, ANSI/SDI SD-2022, and AISI S100-2012 and AISI S100-2016

Table 1B – Shear and Web Crippling (Bare Deck) (2x12 Composite and 2x12 Form) (50 ksi)

			Web Crippling (R_n/Ω), lbs/ft One Flange Loading End Bearing			Web Crippling (R_n/Ω), lbs/ft One Flange Loading Interior Bearing		
Profile	Gage Number	V_n/Ω lbs per ft	2”	3”	4”	2”	3”	4”
2x12	22	1569	423	487	541	660	746	819
2x12	20	2166	604	692	766	947	1066	1166
2x12	18	3116	1007	1147	1265	1596	1784	1943
2x12	16	3913	1538	1742	1914	2458	2732	2963

Table 1A Notes:

1. All section properties and ASD flexural strengths are calculated in accordance with ANSI/SDI C-2017, ANSI/SDI NC-2017, ANSI/SDI SD-2022, and AISI S100-2012 and AISI S100-2016

Table 2 – 2x12 Deck (Bare Deck) – (2x12 Composite and 2x12 Form)

Table 2.1 2x12 Composite and 2x12 Form (50 ksi) ASD Uniform Superimposed Downward Loads (psf)

Span Cond.	Gage Number	6'-00"	7'-00"	8'-00"	9'-00"	10'-00"	11'-00"	12'-00"	13'-00"	14-00"	15'-00"	16'-00"
Single	22	131	96	74	58	47	39	33	28	24	21	18
	20	175	129	99	78	63	52	44	37	32	28	25
	18	254	187	143	113	91	76	64	54	47	41	36
	16	339	249	190	150	122	101	85	72	62	54	48
Double	22	142	104	80	63	51	42	35	30	26	23	20
	20	188	138	106	84	68	56	47	40	35	30	26
	18	274	201	154	122	99	81	68	58	50	44	38
	16	359	263	202	159	129	107	90	76	66	57	50
Triple	22	177	130	100	79	64	53	44	38	32	28	25
	20	235	173	132	105	85	70	59	50	43	38	33
	18	342	251	192	152	123	102	86	73	63	55	48
	16	448	329	252	199	161	133	112	95	82	72	63

Tables 2.1 and 2.2 Notes:

1. All section properties and ASD (Ω = 1.67) uniform loads are calculated in accordance with ANSI/SDI C-2017, ANSI/SDI NC-2017, ANSI/SDI SD-2022, and 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.

Table 2.3 2x12 Composite and 2x12 Form (50 ksi) Uniform Superimposed Service Load that Causes L/240 Deflection (psf)

Span Cond.	Gage Number	6'-00"	7'-00"	8'-00"	9'-00"	10'-00"	11'-00"	12'-00"	13'-00"	14-00"	15'-00"	16'-00"
Single	22	86	54	36	26	19	14	11	8	7	6	5
	20	111	70	47	33	24	18	14	11	9	7	6
	18	156	98	66	46	34	25	20	15	12	10	8
	16	206	130	87	61	44	33	26	20	16	13	11
Double	22	207	131	87	61	45	34	26	20	16	13	11
	20	268	169	113	80	58	44	34	26	21	17	14
	18	376	237	158	111	81	61	47	37	30	24	20
	16	495	312	209	147	107	80	62	49	39	32	26
Triple	22	162	102	68	48	35	26	20	16	13	10	9
	20	210	132	89	62	45	34	26	21	17	13	11
	18	294	185	124	87	64	48	37	29	23	19	16
	16	388	244	163	115	84	63	48	38	31	25	20

Table 2.3 Notes:

1. 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.

Table 4.1 – Construction Span Table – 2x12 Composite and 2x12 Form (Fy = 50 ksi) - 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 2x12x20 ga	7' 10" 9' 5"	9' 1" 10' 9"	9' 3" 11' 1"
	2x12x18 ga 2x12x16 ga	10' 7" 11' 7"	12' 11" 14' 9"	13' 4" 15' 3"
4.50 (t=2.50) 45 PSF	2x12x22 ga 2x12x20 ga	7' 5" 8' 12"	8' 8" 10' 2"	8' 9" 10' 7"
	2x12x18 ga 2x12x16 ga	10' 1" 11' 0"	12' 4" 14' 1"	12' 9" 14' 7"
5.00 (t=3.00) 51 PSF	2x12x22 ga 2x12x20 ga	7' 1" 8' 9"	8' 4" 10' 6"	8' 5" 10' 11"
	2x12x18 ga 2x12x16 ga	9' 8" 10' 7"	11' 9" 13' 6"	12' 2" 13' 11"
5.50 (t=3.50) 57 PSF	2x12x22 ga 2x12x20 ga	6' 10" 8' 3"	7' 12" 9' 5"	8' 1" 9' 8"
	2x12x18 ga 2x12x16 ga	9' 4" 10' 2"	11' 4" 12' 11"	11' 8" 13' 5"
6.00 (t=4.00) 63 PSF	2x12x22 ga 2x12x20 ga	6' 7" 7' 11"	7' 8" 9' 0"	7' 9" 9' 3"
	2x12x18 ga 2x12x16 ga	9' 0" 9' 10"	10' 11" 12' 6"	11' 3" 12' 11"
6.50 (t=4.50) 69 PSF	2x12x22 ga 2x12x20 ga	6' 4" 7' 8"	7' 5" 8' 9"	7' 6" 8' 11"
	2x12x18 ga 2x12x16 ga	8' 9" 9' 7”	10' 6" 12' 1"	10' 11" 12' 5"

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 2x12x20 ga	8' 5" 10' 3"	9' 10" 11' 6"	9' 12" 11' 11"
	2x12x18 ga 2x12x16 ga	11' 5" 12' 6"	13' 11" 15' 11"	14' 4" 16' 5"
4.50 (t=2.50) 35 PSF	2x12x22 ga 2x12x20 ga	8' 1" 9' 10"	9' 6" 11' 1"	9' 7" 11' 6"
	2x12x18 ga 2x12x16 ga	11' 0" 12' 0"	13' 5" 15' 4"	13' 10" 15' 10"
5.00 (t=3.00) 39 PSF	2x12x22 ga 2x12x20 ga	7' 10" 9' 7"	9' 1" 11' 7"	9' 3" 12' 0"
	2x12x18 ga 2x12x16 ga	10' 7" 11' 7"	12' 11" 14' 9"	13' 4" 15' 3"
5.50 (t=3.50) 44 PSF	2x12x22 ga 2x12x20 ga	7' 6" 9' 0"	8' 9" 10' 3"	8' 10" 10' 8"
	2x12x18 ga 2x12x16 ga	10' 2" 11' 1"	12' 5" 14' 2"	12' 10" 14' 8"
6.00 (t=4.00) 48 PSF	2x12x22 ga 2x12x20 ga	7' 3" 8' 9"	8' 6" 9' 12"	8' 7" 10' 4"
	2x12x18 ga 2x12x16 ga	9' 10" 10' 9"	12' 0" 13' 9"	12' 5" 14' 3"
6.50 (t=4.50) 53 PSF	2x12x22 ga 2x12x20 ga	7' 0" 8' 5"	8' 2" 9' 8"	8' 3" 9' 11"
	2x12x18 ga 2x12x16 ga	9' 7" 10' 5"	11' 7" 13' 4"	12' 0" 13' 9"

Tables 4 Notes:

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

Table 6A – Composite Deck-Slab Allowable Superimposed Load (ASD), psf

2 x 12	22 ga	F_y 50 ksi		f'_c 3000 psi		Normal weight Concrete (145 pcf)		
Slab Thickness (Inches)	Weight (psf)	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
4	39	328	283	246	215	190	168	149
4.5	45	398	344	299	262	231	204	182
5	51	400	400	354	310	273	242	216
5.5	57	400	400	400	360	318	282	251
6	63	400	400	400	400	363	322	287
6.5	69	400	400	400	400	400	363	324

2 x 12	22 ga	F_y 50 ksi		f'_c 3000 psi		Normal weight Concrete (145 pcf)		
Slab Thickness (Inches)	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0
4	134	120	108	97	88	79	72	65
4.5	163	146	131	119	107	97	88	80
5	193	173	156	141	128	116	105	96
5.5	225	202	182	164	149	135	123	112
6	257	231	208	188	171	155	141	129
6.5	290	261	235	213	193	175	160	146

Table 6B – Composite Deck-Slab Allowable Superimposed Load (ASD), psf

2 x 12	20 ga	F_y 50 ksi		f'_c 3000 psi		Normal weight Concrete (145 pcf)		
Slab Thickness (Inches)	Weight (psf)	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
4	39	396	342	298	261	231	205	183
4.5	45	400	400	362	317	280	249	222
5	51	400	400	400	376	332	295	264
5.5	57	400	400	400	400	386	343	306
6	63	400	400	400	400	400	392	350
6.5	69	400	400	400	400	400	400	395

2 x 12	20 ga	F_y 50 ksi		f'_c 3000 psi		Normal weight Concrete (145 pcf)		
Slab Thickness (Inches)	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0
4	164	147	133	120	109	99	90	82
4.5	199	179	162	146	133	121	110	101
5	236	213	192	174	158	144	131	120
5.5	275	247	224	203	184	168	153	140
6	314	283	256	232	211	192	176	161
6.5	354	319	289	262	238	218	199	182

Table 6C – Composite Deck-Slab Allowable Superimposed Load (ASD), psf

2 x 12	18 ga	F_y 50 ksi		f'_c 3000 psi		Normal weight Concrete (145 pcf)		
Slab Thickness (Inches)	Weight (psf)	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
4	39	400	400	390	343	303	270	241
4.5	45	400	400	400	400	368	328	293
5	51	400	400	400	400	400	388	348
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

2 x 12	18 ga	F_y 50 ksi		f'_c 3000 psi		Normal weight Concrete (145 pcf)		
Slab Thickness (Inches)	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0
4	217	196	177	161	146	134	122	112
4.5	263	238	215	196	178	163	149	137
5	313	282	256	233	212	194	178	163
5.5	364	329	298	271	247	226	207	190
6	400	376	341	310	283	259	238	218
6.5	400	400	385	350	320	293	269	247

Table 6D – Composite Deck-Slab Allowable Superimposed Load (ASD), psf

2 x 12	16 ga	F_y 50 ksi		f'_c 3000 psi		Normal weight Concrete (145 pcf)		
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	378	337	302
4.5	45	400	400	400	400	400	400	366
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

2 x 12	16 ga	F_y 50 ksi		f'_c 3000 psi		Normal weight Concrete (145 pcf)		
Slab Thickness (Inches)	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0
4	272	245	223	203	185	169	155	143
4.5	330	298	271	246	225	206	189	174
5	391	354	321	293	268	245	225	207
5.5	400	400	374	341	312	286	263	242
6	400	400	400	391	357	328	301	278
6.5	400	400	400	400	400	371	341	314

Table 6E – Composite Deck-Slab Allowable Superimposed Load (ASD), psf

2 x 12	22 ga	F_y 50 ksi		f'_c 3000 psi		Normal weight Concrete (115 pcf)		
Slab Thickness (Inches)	Weight (psf)	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
4	31	319	276	240	211	186	165	147
4.5	35	388	335	292	257	227	202	180
5	39	400	398	347	305	270	240	214
5.5	44	400	400	400	355	314	279	249
6	48	400	400	400	400	359	319	286
6.5	53	400	400	400	400	400	360	322

2 x 12	22 ga	F_y 50 ksi		f'_c 3000 psi		Normal weight Concrete (115 pcf)		
Slab Thickness (Inches)	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0
4	132	119	107	97	88	80	73	66
4.5	161	145	131	119	108	98	90	82
5	192	173	157	142	129	118	108	98
5.5	224	202	182	165	150	137	125	115
6	257	231	209	190	173	158	144	132
6.5	289	261	236	215	195	178	163	150

Table 6F – Composite Deck-Slab Allowable Superimposed Load (ASD), psf

2 x 12	20 ga	F_y 50 ksi		f'_c 3000 psi		Normal weight Concrete (115 pcf)		
Slab Thickness (Inches)	Weight (psf)	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
4	31	383	331	289	254	225	200	179
4.5	35	400	400	352	309	274	244	218
5	39	400	400	400	368	325	290	259
5.5	44	400	400	400	400	378	337	302
6	48	400	400	400	400	400	386	346
6.5	53	400	400	400	400	400	400	390

2 x 12	20 ga	F_y 50 ksi		f'_c 3000 psi		Normal weight Concrete (115 pcf)		
Slab Thickness (Inches)	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0
4	160	145	131	119	108	98	90	82
4.5	196	177	160	145	132	121	111	101
5	233	211	191	173	158	144	132	121
5.5	271	245	222	202	184	168	154	142
6	311	281	255	232	212	193	177	163
6.5	351	317	288	262	239	219	201	184

Table 6G – Composite Deck-Slab Allowable Superimposed Load (ASD), psf

2 x 12	18 ga	F_y 50 ksi		f'_c 3000 psi		Normal weight Concrete (115 pcf)		
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	293	261	234
4.5	35	400	400	400	400	356	318	285
5	39	400	400	400	400	400	378	339
5.5	44	400	400	400	400	400	400	395
6	48	400	400	400	400	400	400	400
6.5	53	400	400	400	400	400	400	400

2 x 12	18 ga	F_y 50 ksi		f'_c 3000 psi		Normal weight Concrete (115 pcf)		
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	111
4.5	256	232	210	192	175	160	147	135
5	305	276	251	228	209	191	176	162
5.5	356	322	292	266	243	223	205	189
6	400	369	336	306	280	257	236	217
6.5	400	400	379	346	316	290	267	246

Table 6H – Composite Deck-Slab Allowable Superimposed Load (ASD), psf

2 x 12	16 ga	F_y 50 ksi		f'_c 3000 psi		Normal weight Concrete (115 pcf)		
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	393	353
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

2 x 12	16 ga	F_y 50 ksi		f'_c 3000 psi		Normal weight Concrete (115 pcf)		
Slab Thickness (Inches)	10'-6	11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0
4	262	237	215	196	179	164	151	139
4.5	318	288	262	239	219	201	185	170
5	379	343	312	285	261	240	220	203
5.5	400	400	364	332	304	279	257	238
6	400	400	400	382	350	321	296	273
6.5	400	400	400	400	396	364	335	310