CSM METAL DECK
DESIGN GUIDE

PRODUCTS & SOLUTIONS

metaldecking.com

ABOUT CSM

Family-owned and operated, CSM Products & Solutions, LLC has been supplying deck for more than 50 years. We take pride in our full line of products, knowledgeable staff and timely delivery. Choose from roof deck, composite deck and form deck.

We stock deck for prompt shipment to locations across the United States. To give you the best value on large orders, we manufacture deck in our Houston facility. When needed, we rely on decades-long relationships with quality mills across the country.

CERTIFIED QUALITY

Our metal deck is produced to the quality required by the Steel Deck Institute. CSM is a certified SDI member.

COMPETITIVE PRICING

Our estimators choose between stock and production to give you the best prices within your delivery date.

EXPERIENCED TEAM

Ensure peace of mind by working with a knowledgeable and professional vendor. Our experienced in-house team is here to help you with your orders.

PRODUCTS & SOLUTIONS

CONTENT

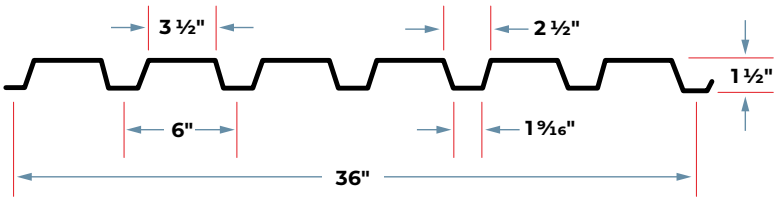
SECTION 1
PROPERTIES

ROOF DECK

Metal roof deck is widely used in commercial and industrial construction projects. It is strong, lightweight and economical. Roof deck works for most types of structures, including pitched, flat and arched roofs.

B-DECK

GRADE 40 STEEL



Options

– Vented
– Hanger Tabs

Section Properties

Gage	Design Thickness (inches)	Weight (psf)	F_y ksi	S_e + (inch³) per foot	Se - (inch³) per foot	ASD (Ω = 1.67)		I_d + (inch⁴) per ft.	I_d - (inch⁴) per ft.
						M_p/ Ω inch-lbs per ft	M_n/ Ω inch-lbs per foot		
22	0.0295	1.6	40	0.173	0.184	4135	4415	0.147	0.171
20	0.0358	2.0	40	0.219	0.231	5246	5533	0.187	0.216
18	0.0474	2.6	40	0.299	0.312	7154	7473	0.263	0.290
16	0.0598	3.0	40	0.383	0.390	9166	9333	0.350	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_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		
		1-1/2"	2"	3"	1-1/2"	2"	3"
22	1939	640	704	810	877	951	1076
20	3042	915	1002	1149	1284	1388	1563
18	4025	1531	1670	1902	2218	2386	2667
16	4975	2345	2547	2885	3476	3723	4138

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**	110	91	77	65	56	49	43	38	34	31	28
	20	140	116	97	83	71	62	55	48	43	39	35
	18	191	158	132	113	97	85	75	66	59	53	48
	16	244	202	170	145	125	109	95	85	75	68	61
Double	**22**	118	97	82	70	60	52	46	41	36	33	29
	20	148	122	102	87	75	66	58	51	46	41	37
	18	199	165	138	118	102	89	78	69	62	55	50
	16	249	206	173	147	127	111	97	86	77	69	62
Triple	**22**	147	122	102	87	75	65	57	51	45	41	37
	20	184	152	128	109	94	82	72	64	57	51	46
	18	249	206	173	147	127	111	97	86	77	69	62
	16	311	257	216	184	159	138	122	108	96	86	78

Allowable Uniform Upward 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**	118	97	82	70	60	52	46	41	36	33	29
	20	148	122	102	87	75	66	58	51	46	41	37
	18	199	165	138	118	102	89	78	69	62	55	50
	16	249	206	173	147	127	111	97	86	77	69	62
Double	**22**	110	91	77	65	56	49	43	38	34	31	28
	20	140	116	97	83	71	62	55	48	43	39	35
	18	191	158	132	113	97	85	75	66	59	53	48
	16	244	202	170	145	125	109	95	85	75	68	61
Triple	**22**	138	114	96	82	70	61	54	48	43	38	34
	20	175	145	121	103	89	78	68	61	54	48	44
	18	238	197	166	141	122	106	93	83	74	66	60
	16	306	252	212	181	156	136	119	106	94	85	76

Notes

1. All section properties and ASD ($\Omega = 1.67$) uniform loads are calculated in accordance with ANSI/SDI RD-2017, 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.

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**	77	58	45	35	28	23	19	16	13	11	10
	20	98	74	57	45	36	29	24	20	17	14	12
	18	138	104	80	63	50	41	34	28	24	20	17
	16	184	138	106	84	67	54	45	37	32	27	23
Double	**22**	185	139	107	84	68	55	45	38	32	27	23
	20	236	177	137	107	86	70	58	48	40	34	30
	18	333	250	193	152	121	99	81	68	57	49	42
	16	443	333	256	201	161	131	108	90	76	65	55
Triple	**22**	145	109	84	66	53	43	35	30	25	21	18
	20	185	139	107	84	67	55	45	38	32	27	23
	18	261	196	151	119	95	77	64	53	45	38	33
	16	346	260	200	158	126	103	85	71	59	51	43

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.

Maximum Construction and Cantilever Spans

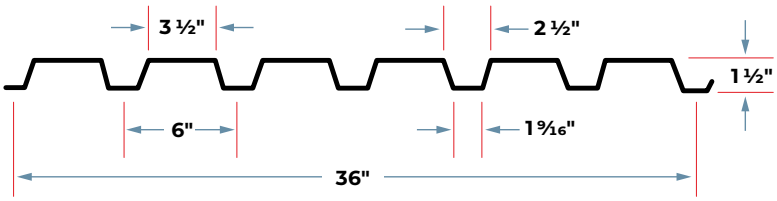
Span	Gage	ASD Span	ASD Cantilever Span
Single	**22**	6'-11"	1'-10"
	20	8'-9"	2'-3"
	18	11'-11"	3'-1"
	16	15'-3"	3'-10"
Double or Triple	**22**	8'-6"	
	20	10'-9"	
	18	14'-8"	
	16	18'-10"	

Notes

1. All construction load spans are calculated using a 200 pound service load on a 1 foot width of deck, in accordance with ANSI/SDI RD-2017.
2. All cantilever construction load spans are calculated using a 200 pound service load on a 1 foot width of deck and a 10 psf uniform distributed load, in accordance with ANSI/SDI RD-2017.

B-DECK

GRADE 50 STEEL



Options

– Vented
– Hanger Tabs

Section Properties

Gage	Design Thickness (inches)	Weight (psf)	F_y ksi	S_e + (inch³) per foot	Se - (inch³) per foot	ASD (Ω = 1.67)		I_d + (inch⁴) per ft.	I_d - (inch⁴) per ft.
						M_p/ Ω inch-lbs per ft	M_n/ Ω inch-lbs per foot		
22	0.0295	1.6	50	0.170	0.179	5101	5358	0.144	0.167
20	0.0358	2.0	50	0.216	0.222	6457	6661	0.182	0.210
18	0.0474	2.6	50	0.294	0.310	8812	9291	0.257	0.290
16	0.0598	3.0	50	0.378	0.390	11327	11667	0.341	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_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		
		1-1/2"	2"	3"	1-1/2"	2"	3"
22	2424	801	880	1013	1096	1189	1345
20	3803	1143	1253	1436	1605	1735	1953
18	5032	1914	2087	2377	2773	2983	3334
16	6219	2931	3183	3606	4345	4654	5172

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**	136	112	94	80	69	60	53	47	42	38	34
	20	172	142	120	102	88	77	67	60	53	48	43
	18	235	194	163	139	120	104	92	81	73	65	59
	16	302	250	210	179	154	134	118	105	93	84	76
Double	**22**	143	118	99	85	73	64	56	49	44	40	36
	20	178	147	123	105	91	79	69	61	55	49	44
	18	248	205	172	147	126	110	97	86	76	69	62
	16	311	257	216	184	159	138	122	108	96	86	78
Triple	**22**	179	148	124	106	91	79	70	62	55	49	45
	20	222	183	154	131	113	99	87	77	69	62	56
	18	310	256	215	183	158	138	121	107	96	86	77
	16	389	321	270	230	198	173	152	135	120	108	97

Allowable Uniform Upward 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**	143	118	99	85	73	64	56	49	44	40	36
	20	178	147	123	105	91	79	69	61	55	49	44
	18	248	205	172	147	126	110	97	86	76	69	62
	16	311	257	216	184	159	138	122	108	96	86	78
Double	**22**	136	112	94	80	69	60	53	47	42	38	34
	20	172	142	120	102	88	77	67	60	53	48	43
	18	235	194	163	139	120	104	92	81	73	65	59
	16	302	250	210	179	154	134	118	105	93	84	76
Triple	**22**	170	141	118	101	87	76	66	59	52	47	43
	20	215	178	149	127	110	96	84	74	66	60	54
	18	294	243	204	174	150	131	115	102	91	81	73
	16	378	312	262	223	193	168	147	131	117	105	94

Notes

1. All section properties and ASD ($\Omega = 1.67$) uniform loads are calculated in accordance with ANSI/SDI RD-2017, 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.

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**	76	57	44	35	28	22	19	15	13	11	9
	20	96	72	55	44	35	28	23	19	16	14	12
	18	135	101	78	61	49	40	33	27	23	20	17
	16	179	135	104	82	65	53	44	36	31	26	22
Double	**22**	183	137	106	83	67	54	45	37	31	27	23
	20	230	173	133	105	84	68	56	47	40	34	29
	18	325	244	188	148	118	96	79	66	56	47	41
	16	431	324	250	196	157	128	105	88	74	63	54
Triple	**22**	143	107	83	65	52	42	35	29	25	21	18
	20	180	135	104	82	66	53	44	37	31	26	23
	18	254	191	147	116	93	75	62	52	44	37	32
	16	338	254	195	154	123	100	82	69	58	49	42

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.

Maximum Construction and Cantilever Spans

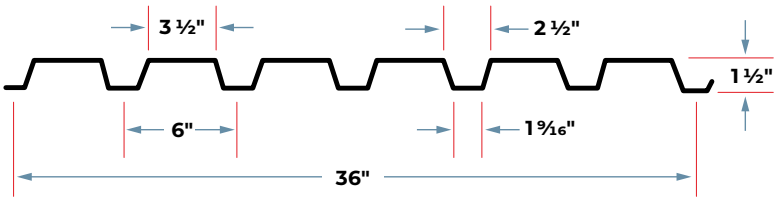
Span	Gage	ASD Span	ASD Cantilever Span
Single	**22**	8'-6"	2'-3"
	20	10'-9"	2'-9"
	18	14'-8"	3'-10"
	16	18'-11"	4'-9"
Double or Triple	**22**	10'-6"	
	20	13'-3"	
	18	18'-1"	
	16	23'-3"	

Notes

1. All construction load spans are calculated using a 200 pound service load on a 1 foot width of deck, in accordance with ANSI/SDI RD-2017.
2. All cantilever construction load spans are calculated using a 200 pound service load on a 1 foot width of deck and a 10 psf uniform distributed load, in accordance with ANSI/SDI RD-2017.

B-DECK

GRADE 80 STEEL



Options

– Vented
– Hanger Tabs

Section Properties

Gage	Design Thickness (inches)	Weight (psf)	F_y ksi	S_e + ($inch^3$) per foot	Se - ($inch^3$) 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	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_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		
		1-1/2"	2"	3"	1-1/2"	2"	3"
22	2908	961	1056	1216	1316	1427	1614
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

Allowable Uniform Upward 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**	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
Double	**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
Triple	**22**	199	164	138	118	101	88	78	69	61	55	50
	20	247	204	171	146	126	110	96	85	76	68	62
	18	349	288	242	206	178	155	136	121	108	97	87
	16	449	371	312	266	229	199	175	155	138	124	112

Notes

1. All section properties and ASD ($\Omega = 1.67$) uniform loads are calculated in accordance with ANSI/SDI RD-2017, 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.

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.

Maximum Construction and Cantilever Spans

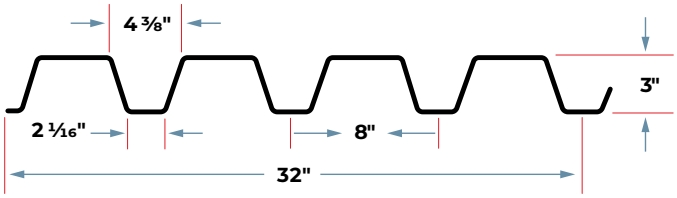
Span	Gage	ASD Span	ASD Cantilever Span
Single	**22**	9'-11"	2'-7"
	20	12'-4"	3'-2"
	18	17'-5"	4'-6"
	16	22'-5"	5'-8"
Double or Triple	**22**	12'-3"	
	20	15'-2"	
	18	21'-5"	
	16	27'-7"	

Notes

1. All construction load spans are calculated using a 200 pound service load on a 1 foot width of deck, in accordance with ANSI/SDI RD-2017.
2. All cantilever construction load spans are calculated using a 200 pound service load on a 1 foot width of deck and a 10 psf uniform distributed load, in accordance with ANSI/SDI RD-2017.

N-DECK

GRADE 40 STEEL



Section Properties

Gage	Design Thickness (inches)	Weight (psf)	F_y ksi	S_e + ($inch^3$) per foot	Se - ($inch^3$) 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	1.8	40	0.354	0.378	8484	9062	0.648	0.713
20	0.0358	2.2	40	0.462	0.489	11071	11706	0.809	0.889
18	0.0474	2.9	40	0.684	0.703	16392	16841	1.121	1.221
16	0.0598	3.7	40	0.904	0.924	21647	22141	1.479	1.574

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		
		1-1/2"	2"	3"	1-1/2"	2"	3"
22	2263	437	480	553	709	769	870
20	3602	630	690	791	1026	1109	1249
18	6218	1066	1162	1324	1749	1881	2103
16	8045	1645	1786	2023	2715	2909	3233

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	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"	17'-0"	18-0"	19'-0"	20'-0"
Single	**22**	57	47	39	33	29	25	22	20	17	16	14
	20	74	61	51	44	38	33	29	26	23	20	18
	18	109	90	76	65	56	49	43	38	34	30	27
	16	144	119	100	85	74	64	56	50	45	40	36
Double	**22**	60	50	42	36	31	27	24	21	19	17	15
	20	78	64	54	46	40	35	30	27	24	22	20
	18	112	93	78	66	57	50	44	39	35	31	28
	16	148	122	103	87	75	66	58	51	46	41	37
Triple	**22**	76	62	52	45	39	34	29	26	23	21	19
	20	98	81	68	58	50	43	38	34	30	27	24
	18	140	116	97	83	72	62	55	49	43	39	35
	16	185	152	128	109	94	82	72	64	57	51	46

Allowable Uniform Upward Loads, ASD (PSF)

Span	Gage	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"	17'-0"	18-0"	19'-0"	20'-0"
Single	**22**	60	50	42	36	31	27	24	21	19	17	15
	20	78	64	54	46	40	35	30	27	24	22	20
	18	112	93	78	66	57	50	44	39	35	31	28
	16	148	122	103	87	75	66	58	51	46	41	37
Double	**22**	57	47	39	33	29	25	22	20	17	16	14
	20	74	61	51	44	38	33	29	26	23	20	18
	18	109	90	76	65	56	49	43	38	34	30	27
	16	144	119	100	85	74	64	56	50	45	40	36
Triple	**22**	71	58	49	42	36	31	28	24	22	20	18
	20	92	76	64	55	47	41	36	32	28	26	23
	18	137	113	95	81	70	61	53	47	42	38	34
	16	180	149	125	107	92	80	70	62	56	50	45

Notes

1. All section properties and ASD ($\Omega = 1.67$) uniform loads are calculated in accordance with ANSI/SDI RD-2017, 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.

Uniform Superimposed Service Load that Causes L/240 Deflection (PSF)

Span	Gage	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"	17'-0"	18-0"	19'-0"	20'-0"
Single	**22**	43	32	25	19	15	13	10	9	7	6	5
	20	53	40	31	24	19	16	13	11	9	8	7
	18	74	55	43	34	27	22	18	15	13	11	9
	16	97	73	56	44	35	29	24	20	17	14	12
Double	**22**	102	77	59	47	37	30	25	21	18	15	13
	20	128	96	74	58	47	38	31	26	22	19	16
	18	177	133	103	81	65	53	43	36	30	26	22
	16	234	176	135	106	85	69	57	48	40	34	29
Triple	**22**	80	60	46	36	29	24	20	16	14	12	10
	20	100	75	58	46	36	30	24	20	17	15	13
	18	139	104	80	63	51	41	34	28	24	20	17
	16	183	137	106	83	67	54	45	37	31	27	23

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.

Maximum Construction and Cantilever Spans

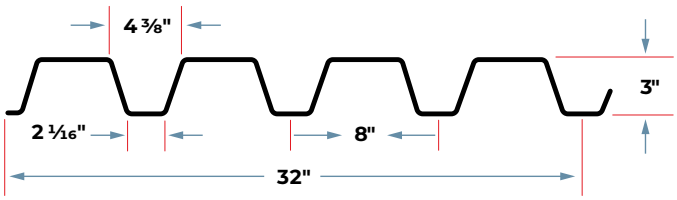
Span	Gage	ASD Span	ASD Cantilever Span
Single	**22**	14'-2"	3'-9"
	20	18'-5"	4'-9"
	18	27'-4"	6'-10"
	16	36'-1"	8'-11"
Double or Triple	**22**	17'-5"	
	20	22'-9"	
	18	33'-7"	
	16	44'-5"	

Notes

1. All construction load spans are calculated using a 200 pound service load on a 1 foot width of deck, in accordance with ANSI/SDI RD-2017.
2. All cantilever construction load spans are calculated using a 200 pound service load on a 1 foot width of deck and a 10 psf uniform distributed load, in accordance with ANSI/SDI RD-2017.

N-DECK

GRADE 50 STEEL



Section Properties

Gage	Design Thickness (inches)	Weight (psf)	F_y ksi	S_e + ($inch^3$) per foot	Se - ($inch^3$) 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	1.8	50	0.340	0.351	10190	10512	0.637	0.692
20	0.0358	2.2	50	0.443	0.471	13259	14109	0.794	0.876
18	0.0474	2.9	50	0.654	0.681	19570	20389	1.101	1.206
16	0.0598	3.7	50	0.891	0.914	26688	27350	1.446	1.564

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		
		1-1/2"	2"	3"	1-1/2"	2"	3"
22	2309	546	600	691	886	961	1087
20	3999	787	862	989	1282	1386	1561
18	6990	1332	1453	1655	2186	2351	2628
16	10055	2056	2233	2529	3394	3636	4041

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	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"	17'-0"	18-0"	19'-0"	20'-0"
Single	**22**	68	56	47	40	35	30	27	24	21	19	17
	20	88	73	61	52	45	39	35	31	27	24	22
	18	130	108	91	77	67	58	51	45	40	36	33
	16	178	147	124	105	91	79	69	62	55	49	44
Double	**22**	70	58	49	41	36	31	27	24	22	19	18
	20	94	78	65	56	48	42	37	33	29	26	24
	18	136	112	94	80	69	60	53	47	42	38	34
	16	182	151	127	108	93	81	71	63	56	51	46
Triple	**22**	88	72	61	52	45	39	34	30	27	24	22
	20	118	97	82	70	60	52	46	41	36	33	29
	18	170	140	118	101	87	76	66	59	52	47	42
	16	228	188	158	135	116	101	89	79	70	63	57

Allowable Uniform Upward Loads, ASD (PSF)

Span	Gage	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"	17'-0"	18-0"	19'-0"	20'-0"
Single	**22**	70	58	49	41	36	31	27	24	22	19	18
	20	94	78	65	56	48	42	37	33	29	26	24
	18	136	112	94	80	69	60	53	47	42	38	34
	16	182	151	127	108	93	81	71	63	56	51	46
Double	**22**	68	56	47	40	35	30	27	24	21	19	17
	20	88	73	61	52	45	39	35	31	27	24	22
	18	130	108	91	77	67	58	51	45	40	36	33
	16	178	147	124	105	91	79	69	62	55	49	44
Triple	**22**	85	70	59	50	43	38	33	29	26	24	21
	20	110	91	77	65	56	49	43	38	34	31	28
	18	163	135	113	96	83	72	64	56	50	45	41
	16	222	184	154	132	113	99	87	77	69	62	56

Notes

1. All section properties and ASD ($\Omega = 1.67$) uniform loads are calculated in accordance with ANSI/SDI RD-2017, 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.

Uniform Superimposed Service Load that Causes L/240 Deflection (PSF)

Span	Gage	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"	17'-0"	18-0"	19'-0"	20'-0"
Single	**22**	42	31	24	19	15	12	10	9	7	6	5
	20	52	39	30	24	19	15	13	11	9	8	7
	18	72	54	42	33	26	21	18	15	12	11	9
	16	95	71	55	43	35	28	23	19	16	14	12
Double	**22**	101	76	58	46	37	30	25	20	17	15	13
	20	125	94	73	57	46	37	31	26	22	18	16
	18	174	131	101	79	63	52	42	35	30	25	22
	16	229	172	132	104	83	68	56	47	39	33	29
Triple	**22**	79	59	46	36	29	23	19	16	14	11	10
	20	98	74	57	45	36	29	24	20	17	14	12
	18	136	102	79	62	50	40	33	28	23	20	17
	16	179	134	104	81	65	53	44	36	31	26	22

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.

Maximum Construction and Cantilever Spans

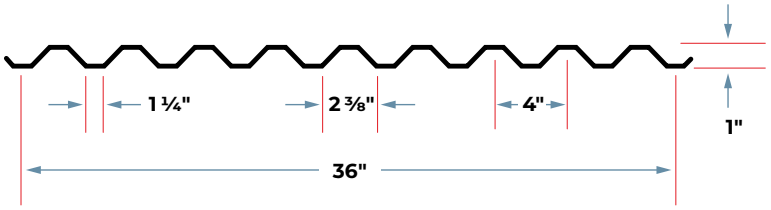
Span	Gage	ASD Span	ASD Cantilever Span
Single	**22**	17'-0"	4'-4"
	20	22'-1"	5'-9"
	18	32'-7"	8'-3"
	16	42'-6"	10'-11"
Double or Triple	**22**	20'-11"	
	20	27'-2"	
	18	40'-2"	
	16	54'-9"	

Notes

1. All construction load spans are calculated using a 200 pound service load on a 1 foot width of deck, in accordance with ANSI/SDI RD-2017.
2. All cantilever construction load spans are calculated using a 200 pound service load on a 1 foot width of deck and a 10 psf uniform distributed load, in accordance with ANSI/SDI RD-2017.

1” ROOF DECK

GRADE 80 STEEL



Section Properties

Gage	Design Thickness (inches)	Weight (psf)	F_y ksi	S_e + (inch³) per foot	Se - (inch³) per foot	ASD (Ω = 1.67)		I_d + (inch⁴) per ft.	I_d - (inch⁴) per ft.
						M_p/ Ω inch-lbs per ft	M_n/ Ω inch-lbs per foot		
26	0.0179	0.9	60	0.061	0.064	2184	2314	0.035	0.035
24	0.0239	1.2	60	0.090	0.095	3218	3416	0.048	0.048
22	0.0295	1.5	60	0.118	0.124	4248	4449	0.061	0.061
20	0.0358	1.8	60	0.152	0.152	5446	5443	0.077	0.077

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		
		1-1/2”	2”	3”	1-1/2”	2”	3”
26	1691	458	507	590	559	611	700
24	3005	779	860	994	1006	1096	1246
22	3715	1146	1259	1450	1531	1660	1878
20	4508	1631	1787	2049	2240	2421	2726

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	2'-0"	2"-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6-0"	6'-6"	7'-0"
Single	**26**	364	233	162	119	91	72	58	48	40	34	30
	24	536	343	238	175	134	106	86	71	60	51	44
	22	708	453	315	231	177	140	113	94	79	67	58
	20	908	581	403	296	227	179	145	120	101	86	74
Double	**26**	386	247	171	126	96	76	62	51	43	37	31
	24	569	364	253	186	142	112	91	75	63	54	46
	22	742	475	330	242	185	146	119	98	82	70	61
	20	907	581	403	296	227	179	145	120	101	86	74
Triple	**26**	482	309	214	157	121	95	77	64	54	46	39
	24	712	455	316	232	178	141	114	94	79	67	58
	22	927	593	412	303	232	183	148	123	103	88	76
	20	1134	726	504	370	283	224	181	150	126	107	93

Allowable Uniform Upward Loads, ASD (PSF)

Span	Gage	2'-0"	2"-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6-0"	6'-6"	7'-0"
Single	**26**	386	247	171	126	96	76	62	51	43	37	31
	24	569	364	253	186	142	112	91	75	63	54	46
	22	742	475	330	242	185	146	119	98	82	70	61
	20	907	581	403	296	227	179	145	120	101	86	74
Double	**26**	364	233	162	119	91	72	58	48	40	34	30
	24	536	343	238	175	134	106	86	71	60	51	44
	22	708	453	315	231	177	140	113	94	79	67	58
	20	908	581	403	296	227	179	145	120	101	86	74
Triple	**26**	455	291	202	149	114	90	73	60	51	43	37
	24	670	429	298	219	168	132	107	89	74	63	55
	22	885	566	393	289	221	175	142	117	98	84	72
	20	1134	726	504	370	284	224	182	150	126	107	93

Notes

1. All section properties and ASD ($\Omega = 1.67$) uniform loads are calculated in accordance with ANSI/SDI RD-2017, 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.

Uniform Superimposed Service Load that Causes L/240 Deflection (PSF)

Span	Gage	2'-0"	2"-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6-0"	6'-6"	7'-0"
Single	**26**	268	137	79	50	34	24	17	13	10	8	6
	24	383	196	113	71	48	34	25	18	14	11	9
	22	492	252	146	92	62	43	32	24	18	14	11
	20	629	322	186	117	79	55	40	30	23	18	15
Double	**26**	645	330	191	120	81	57	41	31	24	19	15
	24	922	472	273	172	115	81	59	44	34	27	22
	22	1186	607	351	221	148	104	76	57	44	35	28
	20	1515	776	449	283	189	133	97	73	56	44	35
Triple	**26**	505	259	150	94	63	44	32	24	19	15	12
	24	722	369	214	135	90	63	46	35	27	21	17
	22	928	475	275	173	116	81	59	45	34	27	22
	20	1186	607	351	221	148	104	76	57	44	35	28

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.

Maximum Construction and Cantilever Spans

Span	Gage	ASD Span	ASD Cantilever Span
Single	**26**	3'-08"	1'-00"
	24	5'-04"	1'-05"
	22	7'-01"	1'-10"
	20	9'-01"	2'-03"
Double or Triple	**26**	4'-06"	
	24	6'-07"	
	22	8'-09"	
	20	11'-02"	

Notes

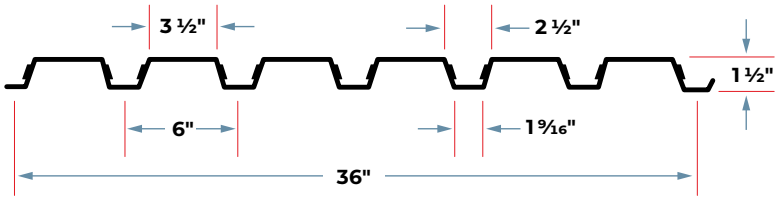
1. All construction load spans are calculated using a 200 pound service load on a 1 foot width of deck, in accordance with ANSI/SDI RD-2017.
2. All cantilever construction load spans are calculated using a 200 pound service load on a 1 foot width of deck and a 10 psf uniform distributed load, in accordance with ANSI/SDI RD-2017.

COMPOSITE DECK

Composite metal floor deck has embossments designed to interlock with concrete slabs. The result: a concrete slab that serves the dual purpose of permanent form and positive reinforcement.

1.5” COMPOSITE DECK

GRADE 40 STEEL



Options

Hanger Tabs

Section Properties

Gage	Design Thickness (inches)	Weight (psf)	F_y ksi	S_e + (inch³) per foot	Se - (inch³) per foot	ASD (Ω = 1.67)		I_d + (inch⁴) per ft.	I_d - (inch⁴) per ft.
						M_p/ Ω inch-lbs per ft	M_n/ Ω inch-lbs per foot		
22	0.0295	1.6	40	0.173	0.184	4135	4415	0.147	0.171
20	0.0358	2.0	40	0.219	0.231	5246	5533	0.187	0.216
18	0.0474	2.6	40	0.299	0.312	7154	7473	0.263	0.290
16	0.0598	3.0	40	0.383	0.390	9166	9333	0.350	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_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		
		1-1/2”	2”	3”	1-1/2”	2”	3”
22	1939	640	704	810	877	951	1076
20	3042	915	1002	1149	1284	1388	1563
18	4025	1531	1670	1902	2218	2386	2667
16	4975	2345	2547	2885	3476	3723	4138

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**	110	91	77	65	56	49	43	38	34	31	28
	20	140	116	97	83	71	62	55	48	43	39	35
	18	191	158	132	113	97	85	75	66	59	53	48
	16	244	202	170	145	125	109	95	85	75	68	61
Double	**22**	118	97	82	70	60	52	46	41	36	33	29
	20	148	122	102	87	75	66	58	51	46	41	37
	18	199	165	138	118	102	89	78	69	62	55	50
	16	249	206	173	147	127	111	97	86	77	69	62
Triple	**22**	147	122	102	87	75	65	57	51	45	41	37
	20	184	152	128	109	94	82	72	64	57	51	46
	18	249	206	173	147	127	111	97	86	77	69	62
	16	311	257	216	184	159	138	122	108	96	86	78

Notes

1. 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
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.

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**	77	58	45	35	28	23	19	16	13	11	10
	20	98	74	57	45	36	29	24	20	17	14	12
	18	138	104	80	63	50	41	34	28	24	20	17
	16	184	138	106	84	67	54	45	37	32	27	23
Double	**22**	185	139	107	84	68	55	45	38	32	27	23
	20	236	177	137	107	86	70	58	48	40	34	30
	18	333	250	193	152	121	99	81	68	57	49	42
	16	443	333	256	201	161	131	108	90	76	65	55
Triple	**22**	145	109	84	66	53	43	35	30	25	21	18
	20	185	139	107	84	67	55	45	38	32	27	23
	18	261	196	151	119	95	77	64	53	45	38	33
	16	346	260	200	158	126	103	85	71	59	51	43

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

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

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	354	295	249	212	182	158
4	37	400	400	372	314	268	231	200
4.5	43	400	400	400	383	326	281	244
5	49	400	400	400	400	387	333	290
5.5	55	400	400	400	400	400	387	336
6	61	400	400	400	400	400	400	383

Slab Thickness (Inches)	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0	11'-6	12'-0
3.5	138	121	107	95	84	75	67	60
4	175	154	136	120	107	96	86	77
4.5	213	188	166	147	131	118	105	95
5	253	223	197	175	156	140	126	113
5.5	294	259	229	204	182	163	146	132
6	336	296	262	233	208	186	168	151

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	359	303	259	223	194
4	37	400	400	400	383	328	283	246
4.5	43	400	400	400	400	400	345	300
5	49	400	400	400	400	400	400	357
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	170	150	132	118	105	94	85	76
4	215	190	168	150	134	120	108	98
4.5	263	232	206	183	164	147	133	120
5	313	276	245	218	195	176	158	143
5.5	364	321	285	254	227	204	184	167
6	400	367	326	290	260	234	211	191

Note
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.

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	341	285	241	206	178	154
4	28	400	400	361	305	261	225	196
4.5	33	400	400	400	372	319	275	239
5	37	400	400	400	400	379	327	285
5.5	42	400	400	400	400	400	380	332
6	46	400	400	400	400	400	400	379

Slab Thickness (Inches)	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0	11'-6	12'-0
3.5	135	119	106	94	84	76	68	61
4	172	151	134	120	107	96	87	78
4.5	210	185	164	146	131	118	106	96
5	250	221	196	175	157	141	127	115
5.5	291	257	228	204	182	164	148	134
6	333	294	261	233	209	188	170	154

20/18/16 ga Lightweight Concrete (115 pcf, f'c = 3,000 psi)

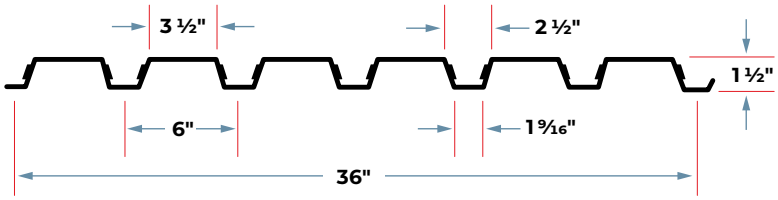
Slab Thickness (Inches)	Weight (psf)	5'-0	5'-6	6'-0	6'-6	7'-0	7'-6	8'-0
3.5	23	400	400	344	291	249	216	188
4	28	400	400	400	370	317	274	239
4.5	33	400	400	400	400	388	335	292
5	37	400	400	400	400	400	400	349
5.5	42	400	400	400	400	400	400	400
6	46	400	400	400	400	400	400	400

Slab Thickness (Inches)	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0	11'-6	12'-0
3.5	165	146	129	115	104	93	84	76
4	210	185	165	147	132	119	107	97
4.5	257	227	202	180	162	146	132	119
5	306	271	241	216	194	174	158	143
5.5	357	316	281	251	226	203	184	167
6	400	362	322	288	259	233	211	192

Note
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.

1.5” COMPOSITE DECK

GRADE 50 STEEL



Options

Hanger Tabs

Section Properties

Gage	Design Thickness (inches)	Weight (psf)	F_y ksi	S_e + (inch³) per foot	Se - (inch³) per foot	ASD (Ω = 1.67)		I_d + (inch⁴) per ft.	I_d - (inch⁴) per ft.
						M_p/ Ω inch-lbs per ft	M_n/ Ω inch-lbs per foot		
22	0.0295	1.6	50	0.170	0.179	5101	5358	0.144	0.167
20	0.0358	2.0	50	0.216	0.222	6457	6661	0.182	0.210
18	0.0474	2.6	50	0.294	0.310	8812	9291	0.257	0.290
16	0.0598	3.0	50	0.378	0.390	11327	11667	0.341	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_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		
		1-1/2”	2”	3”	1-1/2”	2”	3”
22	2424	801	880	1013	1096	1189	1345
20	3803	1143	1253	1436	1605	1735	1953
18	5032	1914	2087	2377	2773	2983	3334
16	6219	2931	3183	3606	4345	4654	5172

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**	136	112	94	80	69	60	53	47	42	38	34
	20	172	142	120	102	88	77	67	60	53	48	43
	18	235	194	163	139	120	104	92	81	73	65	59
	16	302	250	210	179	154	134	118	105	93	84	76
Double	**22**	143	118	99	85	73	64	56	49	44	40	36
	20	178	147	123	105	91	79	69	61	55	49	44
	18	248	205	172	147	126	110	97	86	76	69	62
	16	311	257	216	184	159	138	122	108	96	86	78
Triple	**22**	179	148	124	106	91	79	70	62	55	49	45
	20	222	183	154	131	113	99	87	77	69	62	56
	18	310	256	215	183	158	138	121	107	96	86	77
	16	389	321	270	230	198	173	152	135	120	108	97

Notes

1. 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
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.

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**	76	57	44	35	28	22	19	15	13	11	9
	20	96	72	55	44	35	28	23	19	16	14	12
	18	135	101	78	61	49	40	33	27	23	20	17
	16	179	135	104	82	65	53	44	36	31	26	22
Double	**22**	183	137	106	83	67	54	45	37	31	27	23
	20	230	173	133	105	84	68	56	47	40	34	29
	18	325	244	188	148	118	96	79	66	56	47	41
	16	431	324	250	196	157	128	105	88	74	63	54
Triple	**22**	143	107	83	65	52	42	35	29	25	21	18
	20	180	135	104	82	66	53	44	37	31	26	23
	18	254	191	147	116	93	75	62	52	44	37	32
	16	338	254	195	154	123	100	82	69	58	49	42

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

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

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

Note
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.

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

20/18/16 ga Lightweight Concrete (115 pcf, f'c = 3,000 psi)

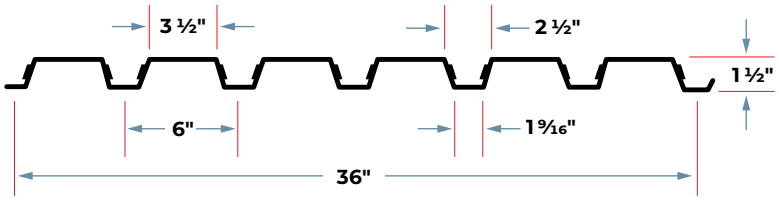
Slab Thickness (Inches)	Weight (psf)	5'-0	5'-6	6'-0	6'-6	7'-0	7'-6	8'-0
3.5	23	400	400	400	367	314	272	238
4	28	400	400	400	400	399	346	302
4.5	33	400	400	400	400	400	400	370
5	37	400	400	400	400	400	400	400
5.5	42	400	400	400	400	400	400	400
6	46	400	400	400	400	400	400	400

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

Note
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.

1.5” COMPOSITE DECK

GRADE 80 STEEL



Options

Hanger Tabs

Section Properties

Gage	Design Thickness (inches)	Weight (psf)	F_y ksi	S_e + (inch³) per foot	Se - (inch³) per foot	ASD (Ω = 1.67)		I_d + (inch⁴) per ft.	I_d - (inch⁴) per ft.
						M_p/ Ω inch-lbs per ft	M_n/ 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_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		
		1-1/2”	2”	3”	1-1/2”	2”	3”
22	2908	961	1056	1216	1316	1427	1614
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

1. 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
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.

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
3.50 (t=2.00) 31 PSF	**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"
4.00 (t=2.50) 37 PSF	**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"
4.50 (t=3.00) 43 PSF	**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"
5.00 (t=3.50) 49 PSF	**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"
5.50 (t=4.00) 55 PSF	**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"
6.00 (t=4.50) 61 PSF	**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
3.50 (t=2.00) 23 PSF	**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"
4.00 (t=2.50) 28 PSF	**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"
4.50 (t=3.00) 33 PSF	**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"
5.00 (t=3.50) 37 PSF	**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"
5.50 (t=4.00) 42 PSF	**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"
6.00 (t=4.50) 46 PSF	**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)

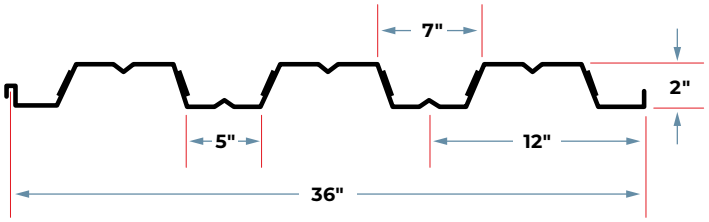
Slab Thickness (Inches)	Weight (psf)	5'-0	5'-6	6'-0	6'-6	7'-0	7'-6	8'-0
3.5	23	400	400	400	367	314	272	238
4	28	400	400	400	400	399	346	302
4.5	33	400	400	400	400	400	400	370
5	37	400	400	400	400	400	400	400
5.5	42	400	400	400	400	400	400	400
6	46	400	400	400	400	400	400	400

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.

2” COMPOSITE DECK

GRADE 50 STEEL



Options

Hanger Tabs

Section Properties

Gage	Design Thickness (inches)	Weight (psf)	F_y ksi	S_e + (inch³) per foot	Se - (inch³) per foot	ASD (Ω = 1.67)		I_d + (inch⁴) per ft.	I_d - (inch⁴) 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

1. 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
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.

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	132	118	106	96	86	78	71	64
4.5	161	144	130	117	106	96	87	79
5	191	172	155	140	126	115	104	95
5.5	222	200	180	163	147	134	122	111
6	255	229	206	186	169	154	140	127
6.5	287	258	233	211	191	174	158	144

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	162	146	132	119	108	98	89	82
4.5	197	178	160	145	132	120	109	100
5	234	211	190	173	157	143	130	119
5.5	272	245	222	201	183	166	152	139
6	312	281	254	230	209	191	174	160
6.5	351	317	286	260	236	216	197	180

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	216	195	177	160	146	133	122	112
4.5	263	237	215	195	178	162	149	136
5	311	281	255	231	211	193	177	162
5.5	362	327	296	269	246	225	206	189
6	400	374	339	308	281	257	236	217
6.5	400	400	382	348	318	291	267	245

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	271	245	222	202	185	169	155	143
4.5	328	297	269	245	224	205	188	173
5	389	352	320	291	266	244	224	206
5.5	400	400	372	339	310	284	261	240
6	400	400	400	388	355	325	299	276
6.5	400	400	400	400	400	368	338	312

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)

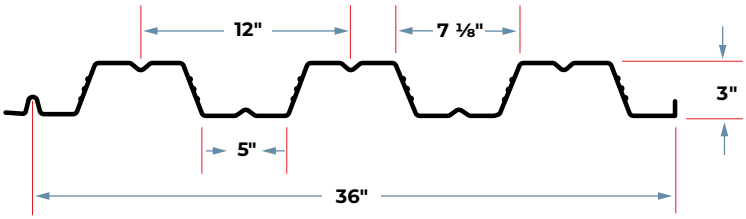
Slab Thickness (Inches)	Weight (psf)	7'-0	7'-6	8'-0	8'-6	9'-0	9'-6	10'-0
4	31	400	400	400	400	362	323	290
4.5	35	400	400	400	400	400	392	352
5	39	400	400	400	400	400	400	400
5.5	44	400	400	400	400	400	400	400
6	48	400	400	400	400	400	400	400
6.5	53	400	400	400	400	400	400	400

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

3” COMPOSITE DECK

GRADE 40 STEEL

PRODUCTS & SOLUTIONS



Section Properties

Gage	Design Thickness (inches)	Weight (psf)	F_y ksi	S_e + ($inch^3$) per foot	Se - ($inch^3$) 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	40	0.417	0.481	9999	11531	0.738	0.700
20	0.0358	2.1	40	0.550	0.591	13174	14164	0.928	0.893
18	0.0474	2.7	40	0.764	0.789	18299	18898	1.252	1.227
16	0.0598	3.5	40	1.013	1.012	24255	24248	1.627	1.623

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	1720	322	371	412	515	582	639
20	2634	463	530	587	743	836	915
18	5062	779	888	979	1260	1408	1534
16	5896	1198	1357	1491	1948	2165	2348

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**	185	136	104	82	67	55	46	39	34	30	26
	20	244	179	137	108	88	73	61	52	45	39	34
	18	339	249	191	151	122	101	85	72	62	54	48
	16	449	330	253	200	162	134	112	96	83	72	63
Double	**22**	214	157	120	95	77	64	53	45	39	34	30
	20	262	193	148	117	94	78	66	56	48	42	37
	18	350	257	197	156	126	104	87	75	64	56	49
	16	449	330	253	200	162	134	112	96	82	72	63
Triple	**22**	267	196	150	119	96	79	67	57	49	43	38
	20	328	241	184	146	118	98	82	70	60	52	46
	18	437	321	246	194	157	130	109	93	80	70	62
	16	561	412	316	249	202	167	140	120	103	90	79

Notes
1. 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
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.

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**	213	134	90	63	46	35	27	21	17	14	11
	20	272	171	115	80	59	44	34	27	21	17	14
	18	373	235	157	110	81	61	47	37	29	24	20
	16	493	311	208	146	107	80	62	49	39	32	26
Double	**22**	512	323	216	152	111	83	64	50	40	33	27
	20	654	412	276	194	141	106	82	64	51	42	34
	18	898	565	379	266	194	146	112	88	71	57	47
	16	1188	748	501	352	257	193	148	117	94	76	63
Triple	**22**	401	252	169	119	87	65	50	39	32	26	21
	20	512	322	216	152	111	83	64	50	40	33	27
	18	703	442	296	208	152	114	88	69	55	45	37
	16	930	585	392	275	201	151	116	91	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**	9' 3"	10' 9"	10' 10"
	3x12x20 ga	9'- 3	10'- 6	10'- 10
	3x12x18 ga	10' 11"	11' 12"	12' 4"
	3x12x16 ga	13' 4"	13' 10"	14' 3"
5.50 (t=2.50) 52 PSF	**3x12x16 ga**	14' 7"	15' 8"	16' 2"
	3x12x22 ga	8' 10"	10' 3"	10' 4"
	3x12x20 ga	10' 5"	11' 5"	11' 10"
	3x12x18 ga	12' 8"	13' 3"	13' 8"
6.00 (t=3.00) 58 PSF	**3x12x16 ga**	14' 0"	14' 12"	15' 6"
	3x12x22 ga	8' 5"	9' 10"	9' 11"
	3x12x20 ga	10' 10"	11' 5"	11' 10"
	3x12x18 ga	12' 2"	12' 9"	13' 2"
6.50 (t=3.50) 64 PSF	**3x12x16 ga**	13' 6"	14' 5"	14' 11"
	3x12x22 ga	8' 2"	9' 5"	9' 6"
	3x12x20 ga	9' 7"	10' 7"	11' 0"
	3x12x18 ga	11' 8"	12' 3"	12' 8"
7.00 (t=4.00) 70 PSF	**3x12x16 ga**	13' 1"	13' 10"	14' 4"
	3x12x22 ga	7' 10"	9' 1"	9' 2"
	3x12x20 ga	9' 3"	10' 3"	10' 7"
	3x12x18 ga	11' 3"	11' 10"	12' 3"
7.50 (t=4.50) 76 PSF	**3x12x16 ga**	12' 8"	13' 5"	13' 10"
	3x12x22 ga	7' 7"	8' 10"	8' 11"
	3x12x20 ga	8' 11"	9' 11"	10' 3"
	3x12x18 ga	10' 10"	11' 5"	11' 10"

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**	10' 0"	11' 7"	11' 9"
	3x12x20 ga	11' 11"	12' 10"	13' 4"
	3x12x18 ga	14' 4"	14' 10"	15' 4"
	3x12x16 ga	15' 8"	16' 10"	17' 5"
5.50 (t=2.50) 42 PSF	**3x12x22 ga**	9' 6"	11' 1"	11' 3"
	3x12x20 ga	11' 4"	12' 4"	12' 9"
	3x12x18 ga	13' 9"	14' 3"	14' 9"
	3x12x16 ga	15' 0"	16' 2"	16' 8"
6.00 (t=3.00) 47 PSF	**3x12x22 ga**	9' 2"	10' 8"	10' 9"
	3x12x20 ga	12' 1"	12' 8"	13' 1"
	3x12x18 ga	13' 3"	13' 9"	14' 2"
	3x12x16 ga	14' 6"	15' 6"	16' 1"
6.50 (t=3.50) 49 PSF	**3x12x22 ga**	9' 0"	10' 6"	10' 7"
	3x12x20 ga	10' 8"	11' 8"	12' 1"
	3x12x18 ga	13' 0"	13' 6"	14' 0"
	3x12x16 ga	14' 3"	15' 4"	15' 10"
7.00 (t=4.00) 52 PSF	**3x12x22 ga**	8' 10"	10' 3"	10' 4"
	3x12x20 ga	10' 5"	11' 5"	11' 10"
	3x12x18 ga	12' 8"	13' 3"	13' 8"
	3x12x16 ga	14' 0"	14' 12"	15' 6"
7.50 (t=4.50) 59 PSF	**3x12x22 ga**	8' 5"	9' 9"	9' 10"
	3x12x20 ga	9' 11"	10' 11"	11' 4"
	3x12x18 ga	12' 1"	12' 8"	13' 1"
	3x12x16 ga	13' 5"	14' 4"	14' 9"

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	213	185	163	143	127	112	100
5.5	52	258	225	197	174	154	137	122
6	58	304	266	233	206	183	163	145
6.5	64	352	308	271	239	212	189	169
7	70	400	351	309	273	242	216	193
7.5	76	400	395	347	307	273	244	218

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	89	80	72	64	58	52	46	42
5.5	109	98	88	79	71	64	58	52
6	130	117	105	95	85	77	70	63
6.5	152	136	123	111	100	90	82	74
7	174	156	141	127	115	104	94	86
7.5	196	176	159	144	130	118	107	97

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	258	225	198	175	156	139	124
5.5	52	312	273	240	213	189	169	151
6	58	368	322	284	252	224	200	179
6.5	64	400	374	329	292	260	232	208
7	70	400	400	376	333	297	265	238
7.5	76	400	400	400	375	334	299	269

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	111	100	90	81	73	66	60	55
5.5	136	122	110	100	90	82	74	67
6	161	145	131	119	108	98	89	81
6.5	188	169	153	139	126	115	104	95
7	215	194	176	159	145	132	120	110
7.5	242	219	198	180	164	149	136	124

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	386	339	299	266	237	213	192
5.5	52	400	397	351	312	278	250	225
6	58	400	400	400	360	322	289	260
6.5	64	400	400	400	400	368	330	297
7	70	400	400	400	400	400	373	336
7.5	76	400	400	400	400	400	400	375

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	173	157	142	130	118	108	99	91
5.5	203	184	167	153	139	127	117	107
6	235	213	194	177	162	148	136	125
6.5	269	244	222	203	185	170	156	143
7	304	276	251	229	210	192	176	162
7.5	340	309	281	256	235	215	198	182

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	368	326	290	259	232	209
5.5	52	400	400	395	351	314	282	254
6	58	400	400	400	400	372	335	302
6.5	64	400	400	400	400	400	389	351
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	189	172	156	142	130	119	109	100
5.5	230	209	190	174	159	146	134	123
6	273	248	226	207	189	174	160	147
6.5	318	289	264	241	221	203	187	172
7	365	332	302	277	254	233	215	198
7.5	400	375	342	313	287	264	243	224

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	206	180	159	140	125	111	99
5.5	42	251	219	193	171	152	135	121
6	47	297	260	229	203	180	161	144
6.5	49	346	303	267	237	211	189	170
7	52	396	347	307	272	243	217	195
7.5	59	400	390	344	305	272	244	219

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	89	80	72	65	59	53	48	44
5.5	109	98	88	80	72	66	60	54
6	130	117	106	96	87	79	72	65
6.5	153	138	125	114	103	94	86	78
7	176	159	145	131	120	109	100	91
7.5	198	179	162	147	134	122	112	102

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	248	218	192	170	151	135	121
5.5	42	301	264	233	207	184	165	148
6	47	357	313	276	245	219	196	176
6.5	49	400	365	323	287	256	230	207
7	52	400	400	370	329	294	264	238
7.5	59	400	400	400	370	330	297	267

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	109	99	89	81	74	67	61	56
5.5	133	121	109	99	90	82	75	69
6	159	144	130	118	108	98	90	82
6.5	187	169	154	140	128	117	107	98
7	215	195	177	162	148	135	124	114
7.5	242	219	199	182	166	152	139	128

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	373	328	291	259	231	208	187
5.5	42	400	384	340	303	271	244	220
6	47	400	400	393	350	314	282	254
6.5	49	400	400	400	400	360	324	293
7	52	400	400	400	400	400	367	332
7.5	59	400	400	400	400	400	400	370

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	170	154	140	128	117	108	99	91
5.5	199	181	165	151	138	127	116	107
6	231	210	191	175	160	147	135	124
6.5	265	241	220	202	185	170	157	144
7	301	274	250	229	210	193	178	165
7.5	335	305	279	255	234	215	198	183

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

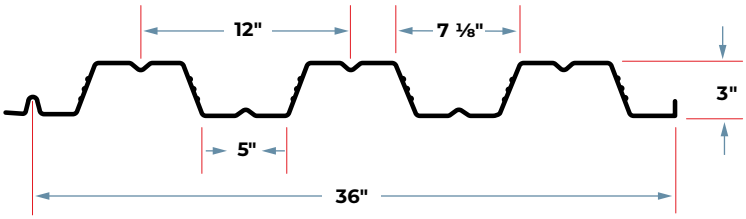
Slab Thickness (Inches)	Weight (psf)	8'-0	8'-6	9'-0	9'-6	10'-0	10'-6	11'-0
5	37	396	349	309	275	246	221	200
5.5	42	400	400	376	335	300	270	243
6	47	400	400	400	398	356	321	290
6.5	49	400	400	400	400	400	376	340
7	52	400	400	400	400	400	400	391
7.5	59	400	400	400	400	400	400	400

Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	181	164	150	137	125	115	106	98
5.5	221	201	183	167	154	141	130	120
6	263	239	218	200	183	169	155	143
6.5	309	281	257	235	216	199	184	170
7	355	324	296	272	250	230	212	197
7.5	400	365	334	306	282	260	240	222

3” COMPOSITE DECK

GRADE 50 STEEL

PRODUCTS & SOLUTIONS



Section Properties

Gage	Design Thickness (inches)	Weight (psf)	F_y ksi	S_e + (inch³) per foot	Se - (inch³) per foot	ASD (Ω = 1.67)		I_d + (inch⁴) per ft.	I_d - (inch⁴) 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
1. 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
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.

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

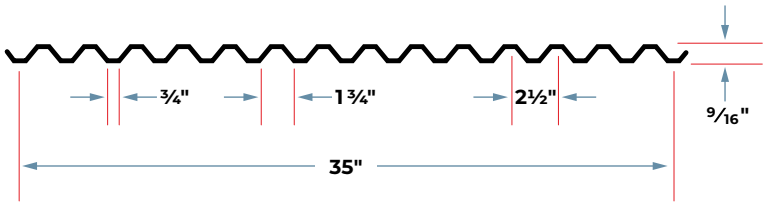
Slab Thickness (Inches)	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	14'-6	15'-0
5	231	211	193	177	162	149	138	127
5.5	282	257	235	215	198	182	168	156
6	335	306	280	257	236	217	201	186
6.5	393	358	328	301	277	256	237	219
7	400	400	378	347	320	295	273	253
7.5	400	400	400	391	361	333	308	286

FORM DECK

Metal form deck is used extensively in floor construction. It serves as a permanent steel base for poured, reinforced concrete floor slabs. Installation is fast, easy and economical.

9/16" FORM DECK

GRADE 80 STEEL



Section Properties

Gage	Design Thickness (inches)	Weight (psf)	F_y ksi	S_e + (inch³) per foot	Se - (inch³) per foot	ASD (Ω = 1.67)		I_d + (inch⁴) per ft.	I_d - (inch⁴) per ft.
						M_p/ Ω inch-lbs per ft	M_n/ Ω inch-lbs per foot		
28	0.0149	0.7	60	0.034	0.036	1239	1304	0.012	0.012
26	0.0179	0.9	60	0.045	0.047	1599	1683	0.015	0.015
24	0.0239	1.2	60	0.065	0.068	2348	2433	0.021	0.021
22	0.0295	1.4	60	0.084	0.084	3024	3024	0.024	0.024

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		
		1-1/2"	2"	3"	1-1/2"	2"	3"
28	2191	670	744	869	721	791	909
26	2686	934	1034	1203	1058	1157	1324
24	3551	1570	1732	2002	1902	2071	2354
22	4384	2291	2519	2900	2890	3135	3546

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	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5-0"	5'-6"	6'-0"
Single	**28**	826	367	207	132	92	67	52	41	33	27	23
	26	1066	474	266	171	118	87	67	53	43	35	30
	24	1565	696	391	250	174	128	98	77	63	52	43
	22	2016	896	504	323	224	165	126	100	81	67	56
Double	**28**	870	387	217	139	97	71	54	43	35	29	24
	26	1122	499	280	179	125	92	70	55	45	37	31
	24	1622	721	405	260	180	132	101	80	65	54	45
	22	2016	896	504	323	224	165	126	100	81	67	56
Triple	**28**	1087	483	272	174	121	89	68	54	43	36	30
	26	1402	623	351	224	156	114	88	69	56	46	39
	24	2027	901	507	324	225	165	127	100	81	67	56
	22	2520	1120	630	403	280	206	158	124	101	83	70

Allowable Uniform Upward Loads, ASD (PSF)

Span	Gage	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5-0"	5'-6"	6'-0"
Single	**28**	870	387	217	139	97	71	54	43	35	29	24
	26	1122	499	280	179	125	92	70	55	45	37	31
	24	1622	721	405	260	180	132	101	80	65	54	45
	22	2016	896	504	323	224	165	126	100	81	67	56
Double	**28**	826	367	207	132	92	67	52	41	33	27	23
	26	1066	474	266	171	118	87	67	53	43	35	30
	24	1565	696	391	250	174	128	98	77	63	52	43
	22	2016	896	504	323	224	165	126	100	81	67	56
Triple	**28**	1033	459	258	165	115	84	65	51	41	34	29
	26	1332	592	333	213	148	109	83	66	53	44	37
	24	1957	870	489	313	217	160	122	97	78	65	54
	22	2520	1120	630	403	280	206	158	124	101	83	70

Notes

1. All section properties and ASD ($\Omega = 1.67$) uniform loads are calculated in accordance with ANSI/SDI RD-2017, 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.

Uniform Superimposed Service Load that Causes L/240 Deflection (PSF)

Span	Gage	1'-0"	1'-6"	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5-0"	5'-6"	6'-0"
Single	**28**	743	220	93	48	28	17	12	8	6	4	3
	26	923	273	115	59	34	22	14	10	7	6	4
	24	1351	400	169	86	50	32	21	15	11	8	6
	22	1576	467	197	101	58	37	25	17	13	9	7
Double	**28**	1788	530	224	114	66	42	28	20	14	11	8
	26	2222	658	278	142	82	52	35	24	18	13	10
	24	3252	963	406	208	120	76	51	36	26	20	15
	22	3794	1124	474	243	141	88	59	42	30	23	18
Triple	**28**	1400	415	175	90	52	33	22	15	11	8	6
	26	1739	515	217	111	64	41	27	19	14	10	8
	24	2545	754	318	163	94	59	40	28	20	15	12
	22	2969	880	371	190	110	69	46	33	24	18	14

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

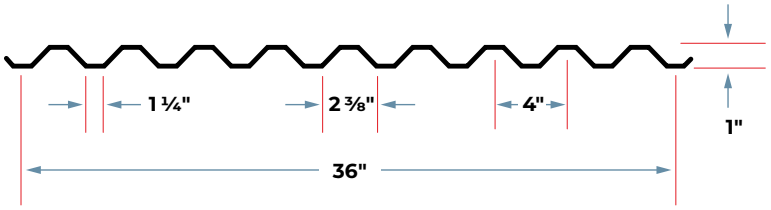
Normal Weight Concrete (145 pcf)				
Total Slab Depth	Deck Type	Maximum Unshored Clear Span		
		1 span	2 span	3 span
2.50 (t=1.94) 27 PSF	**9/16x2.5x28 ga**	2'- 3	2'- 9	2'- 8
	9/16x2.5x26 ga	2'- 10	3'- 4	3'- 4
	9/16x2.5x24 ga	3'- 10	4'- 7	4'- 7
	9/16x2.5x22 ga	4'- 3	5'- 7	5'- 3
3.00 (t=2.44) 33 PSF	**9/16x2.5x28 ga**	2'- 2	2'- 8	2'- 7
	9/16x2.5x26 ga	2'- 9	3'- 3	3'- 3
	9/16x2.5x24 ga	3'- 8	4'- 4	4'- 4
	9/16x2.5x22 ga	3'- 11	5'- 3	4'- 11
3.50 (t=2.94) 39 PSF	**9/16x2.5x28 ga**	2'- 2	2'- 7	2'- 6
	9/16x2.5x26 ga	2'- 8	3'- 2	3'- 1
	9/16x2.5x24 ga	3'- 7	4'- 2	4'- 2
	9/16x2.5x22 ga	3'- 9	5'- 0	4'- 8
4.00 (t=3.44) 45 PSF	**9/16x2.5x28 ga**	2'- 1	2'- 6	2'- 6
	9/16x2.5x26 ga	2'- 7	3'- 0	3'- 0
	9/16x2.5x24 ga	3'- 5	4'- 1	4'- 1
	9/16x2.5x22 ga	3'- 7	4'- 9	4'- 5
4.50 (t=3.94) 51 PSF	**9/16x2.5x28 ga**	2'- 0	2'- 5	2'- 5
	9/16x2.5x26 ga	2'- 6	2'- 11	2'- 11
	9/16x2.5x24 ga	3'- 3	3'- 11	3'- 11
	9/16x2.5x22 ga	3'- 5	4'- 7	4'- 3
5.00 (t=4.44) 57 PSF	**9/16x2.5x28 ga**	1'- 12	2'- 4	2'- 4
	9/16x2.5x26 ga	2'- 5	2'- 10	2'- 10
	9/16x2.5x24 ga	3'- 2	3'- 10	3'- 10
	9/16x2.5x22 ga	3'- 4	4'- 5	4'- 1

Lightweight Concrete (115 pcf)				
Total Slab Depth	Deck Type	Maximum Unshored Clear Span		
		1 span	2 span	3 span
2.50 (t=1.94) 20 PSF	**9/16x2.5x28 ga**	2'- 10	3'- 5	3'- 4
	9/16x2.5x26 ga	3'- 6	4'- 2	4'- 2
	9/16x2.5x24 ga	4'- 5	5'- 8	5'- 6
	9/16x2.5x22 ga	4'- 8	6'- 3	5'- 9
3.00 (t=2.44) 25 PSF	**9/16x2.5x28 ga**	2'- 9	3'- 3	3'- 3
	9/16x2.5x26 ga	3'- 4	4'- 0	4'- 0
	9/16x2.5x24 ga	4'- 2	5'- 4	5'- 1
	9/16x2.5x22 ga	4'- 4	5'- 10	5'- 4
3.50 (t=2.94) 30 PSF	**9/16x2.5x28 ga**	3'- 3	3'- 10	3'- 10
	9/16x2.5x26 ga	3'- 3	3'- 10	3'- 10
	9/16x2.5x24 ga	3'- 11	5'- 1	4'- 10
	9/16x2.5x22 ga	4'- 1	5'- 6	5'- 0
4.00 (t=3.44) 34 PSF	**9/16x2.5x28 ga**	2'- 7	3'- 1	3'- 1
	9/16x2.5x26 ga	3'- 2	3'- 9	3'- 9
	9/16x2.5x24 ga	3'- 9	4'- 11	4'- 8
	9/16x2.5x22 ga	3'- 11	5'- 3	4'- 10
4.50 (t=3.94) 39 PSF	**9/16x2.5x28 ga**	2'- 6	3'- 0	3'- 0
	9/16x2.5x26 ga	3'- 0	3'- 7	3'- 7
	9/16x2.5x24 ga	3'- 7	4'- 9	4'- 5
	9/16x2.5x22 ga	3'- 9	5'- 0	4'- 8
5.00 (t=4.44) 43 PSF	**9/16x2.5x28 ga**	2'- 5	2'- 11	2'- 11
	9/16x2.5x26 ga	3'- 0	3'- 6	3'- 6
	9/16x2.5x24 ga	3'- 6	4'- 7	4'- 3
	9/16x2.5x22 ga	3'- 8	4'- 10	4'- 6

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

1” FORM DECK

GRADE 80 STEEL



Options

Vented

Section Properties

Gage	Design Thickness (inches)	Weight (psf)	F_y ksi	S_e + (inch³) per foot	Se - (inch³) per foot	ASD (Ω = 1.67)		I_d + (inch⁴) per ft.	I_d - (inch⁴) per ft.
						M_p/ Ω inch-lbs per ft	M_n/ Ω inch-lbs per foot		
26	0.0179	0.9	60	0.061	0.065	2199	2329	0.036	0.035
24	0.0239	1.2	60	0.090	0.096	3228	3432	0.049	0.049
22	0.0295	1.5	60	0.120	0.125	4298	4493	0.064	0.062
20	0.0358	1.8	60	0.154	0.153	5521	5509	0.080	0.078

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		
		1-1/2”	2”	3”	1-1/2”	2”	3”
26	1759	513	568	661	773	846	969
24	2899	857	945	1093	1310	1427	1622
22	3584	1261	1386	1595	1947	2112	2389
20	4339	1785	1955	2242	2781	3006	3384

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	2'-0"	2”-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6-0"	6'-6"	7'-0"
Single	**26**	366	235	163	120	92	72	59	48	41	35	30
	24	538	344	239	176	134	106	86	71	60	51	44
	22	716	458	318	234	179	142	115	95	80	68	58
	20	920	589	409	300	230	182	147	122	102	87	75
Double	**26**	388	248	173	127	97	77	62	51	43	37	32
	24	572	366	254	187	143	113	92	76	64	54	47
	22	749	479	333	245	187	148	120	99	83	71	61
	20	918	588	408	300	230	181	147	121	102	87	75
Triple	**26**	485	311	216	158	121	96	78	64	54	46	40
	24	715	458	318	233	179	141	114	95	79	68	58
	22	936	599	416	306	234	185	150	124	104	89	76
	20	1148	735	510	375	287	227	184	152	128	109	94

Allowable Uniform Upward Loads, ASD (PSF)

Span	Gage	2'-0"	2"-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6-0"	6'-6"	7'-0"
Single	**26**	388	248	173	127	97	77	62	51	43	37	32
	24	572	366	254	187	143	113	92	76	64	54	47
	22	749	479	333	245	187	148	120	99	83	71	61
	20	918	588	408	300	230	181	147	121	102	87	75
Double	**26**	366	235	163	120	92	72	59	48	41	35	30
	24	538	344	239	176	134	106	86	71	60	51	44
	22	716	458	318	234	179	142	115	95	80	68	58
	20	920	589	409	300	230	182	147	122	102	87	75
Triple	**26**	458	293	204	150	115	90	73	61	51	43	37
	24	672	430	299	220	168	133	108	89	75	64	55
	22	895	573	398	292	224	177	143	118	99	85	73
	20	1150	736	511	376	288	227	184	152	128	109	94

Notes

1. All section properties and ASD ($\Omega = 1.67$) uniform loads are calculated in accordance with ANSI/SDI RD-2017, 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.

Uniform Superimposed Service Load that Causes L/240 Deflection (PSF)

Span	Gage	2'-0"	2"-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6-0"	6'-6"	7'-0"
Single	**26**	289	148	86	54	36	25	19	14	11	8	7
	24	401	205	119	75	50	35	26	19	15	12	9
	22	511	261	151	95	64	45	33	25	19	15	12
	20	638	327	189	119	80	56	41	31	24	19	15
Double	**26**	696	356	206	130	87	61	45	33	26	20	16
	24	966	495	286	180	121	85	62	46	36	28	23
	22	1229	629	364	229	154	108	79	59	46	36	29
	20	1537	787	455	287	192	135	98	74	57	45	36
Triple	**26**	545	279	161	102	68	48	35	26	20	16	13
	24	756	387	224	141	94	66	48	36	28	22	18
	22	962	493	285	180	120	84	62	46	36	28	22
	20	1203	616	356	224	150	106	77	58	45	35	28

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.

Maximum Construction and Cantilever Spans

Span	Gage	ASD Span	ASD Cantilever Span
Single	**26**	3'-8"	1'-0"
	24	5'-5"	1'-5"
	22	7'-2"	1'-10"
	20	9'-2"	2'-3"
Double or Triple	**26**	4'-6"	
	24	6'-7"	
	22	8'-10"	
	20	11'-4"	

Notes

1. All construction load spans are calculated using a 200 pound service load on a 1 foot width of deck, in accordance with ANSI/SDI RD-2017.
2. All cantilever construction load spans are calculated using a 200 pound service load on a 1 foot width of deck and a 10 psf uniform distributed load, in accordance with ANSI/SDI RD-2017.

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
2.50 (t=1.50) 25 PSF	**1x4x26 ga**	3'-9"	4'-5"	4'-6"
	1x4x24 ga	5'-1"	6'-0"	6'-1"
	1x4x22 ga	6'-1"	7'-5"	7'-6"
	1x4x20 ga	6'-7"	8'-11"	9'-0"
3.00 (t=2.00) 31 PSF	**1x4x26 ga**	3'-7"	4'-3"	4'-4"
	1x4x24 ga	4'-10"	5'-8"	5'-9"
	1x4x22 ga	5'-8"	7'-0"	7'-1"
	1x4x20 ga	6'-1"	8'-4"	8'-5"
3.50 (t=2.50) 37 PSF	**1x4x26 ga**	3'-5"	4'-1"	4'-2"
	1x4x24 ga	4'-9"	5'-11"	5'-11"
	1x4x22 ga	5'-4"	6'-8"	6'-9"
	1x4x20 ga	5'-9"	7'-10"	8'-0"
4.00 (t=3.00) 43 PSF	**1x4x26 ga**	3'-4"	3'-11"	4'-0"
	1x4x24 ga	4'-5"	5'-2"	5'-3"
	1x4x22 ga	5'-1"	6'-4"	6'-5"
	1x4x20 ga	5'-6"	7'-6"	7'-7"
4.50 (t=3.50) 48 PSF	**1x4x26 ga**	3'-3"	3'-10"	3'-10"
	1x4x24 ga	4'-3"	5'-0"	5'-1"
	1x4x22 ga	4'-11"	6'-1"	6'-2"
	1x4x20 ga	5'-3"	7'-3"	7'-4"
5.00 (t=4.00) 54 PSF	**1x4x26 ga**	3'-2"	3'-8"	3'-9"
	1x4x24 ga	4'-1"	4'-10"	4'-11"
	1x4x22 ga	4'-9"	5'-11"	5'-11"
	1x4x20 ga	5'-1"	6'-11"	7'-0"

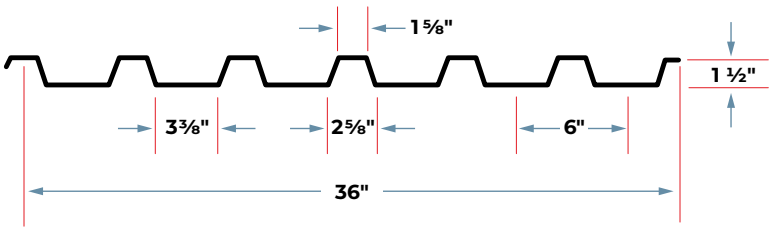
Lightweight Concrete (115 pcf)				
Total Slab Depth	Deck Type	Maximum Unshored Clear Span		
		1 span	2 span	3 span
2.50 (t=1.50) 19 PSF	**1x4x26 ga**	3'-11"	4'-8"	4'-9"
	1x4x24 ga	5'-4"	6'-5"	6'-6"
	1x4x22 ga	6'-8"	8'-0"	8'-1"
	1x4x20 ga	7'-2"	9'-7"	9'-9"
3.00 (t=2.00) 24 PSF	**1x4x26 ga**	3'-9"	4'-6"	4'-7"
	1x4x24 ga	5'-1"	6'-1"	6'-2"
	1x4x22 ga	6'-2"	7'-6"	7'-7"
	1x4x20 ga	6'-8"	9'-0"	9'-1"
3.50 (t=2.50) 29 PSF	**1x4x26 ga**	3'-7"	4'-4"	4'-4"
	1x4x24 ga	5'-2"	6'-5"	6'-6"
	1x4x22 ga	5'-10"	7'-1"	7'-3"
	1x4x20 ga	6'-3"	8'-6"	8'-7"
4.00 (t=3.00) 32 PSF	**1x4x26 ga**	3'-7"	4'-3"	4'-3"
	1x4x24 ga	4'-9"	5'-8"	5'-8"
	1x4x22 ga	5'-7"	6'-11"	7'-0"
	1x4x20 ga	6'-0"	8'-3"	8'-4"
4.50 (t=3.50) 37 PSF	**1x4x26 ga**	3'-5"	4'-1"	4'-2"
	1x4x24 ga	4'-7"	5'-5"	5'-6"
	1x4x22 ga	5'-4"	6'-8"	6'-9"
	1x4x20 ga	5'-9"	7'-10"	8'-0"
5.00 (t=4.00) 41 PSF	**1x4x26 ga**	3'-4"	4'-0"	4'-0"
	1x4x24 ga	4'-5"	5'-3"	5'-4"
	1x4x22 ga	5'-2"	6'-5"	6'-6"
	1x4x20 ga	5'-7"	7'-7"	7'-8"

Note

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

1.5” FORM DECK

GRADE 40 STEEL / FIELD INVERTED DECK



Options

Vented

Section Properties

Gage	Design Thickness (inches)	Weight (psf)	F_y ksi	S_e + (inch³) per foot	Se - (inch³) per foot	ASD (Ω = 1.67)		I_d + (inch⁴) per ft.	I_d - (inch⁴) per ft.
						M_p/ Ω inch-lbs per ft	M_n/ Ω inch-lbs per foot		
22	0.0295	1.6	40	0.184	0.173	4415	4135	0.171	0.147
20	0.0358	2.0	40	0.231	0.219	5533	5246	0.216	0.187
18	0.0474	2.6	40	0.312	0.299	7473	7154	0.290	0.263
16	0.0598	3.0	40	0.390	0.383	9333	9166	0.363	0.350

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		
		1-1/2”	2”	3”	1-1/2”	2”	3”
22	1939	640	704	810	877	951	1076
20	3042	915	1002	1149	1284	1388	1563
18	4025	1531	1670	1902	2218	2386	2667
16	4975	2345	2547	2885	3476	3723	4138

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**	118	97	82	70	60	52	46	41	36	33	29
	20	148	122	102	87	75	66	58	51	46	41	37
	18	199	165	138	118	102	89	78	69	62	55	50
	16	249	206	173	147	127	111	97	86	77	69	62
Double	**22**	110	91	77	65	56	49	43	38	34	31	28
	20	140	116	97	83	71	62	55	48	43	39	35
	18	191	158	132	113	97	85	75	66	59	53	48
	16	244	202	170	145	125	109	95	85	75	68	61
Triple	**22**	138	114	96	82	70	61	54	48	43	38	34
	20	175	145	121	103	89	78	68	61	54	48	44
	18	238	197	166	141	122	106	93	83	74	66	60
	16	306	252	212	181	156	136	119	106	94	85	76

Notes

1. 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
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.

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**	77	58	45	35	28	23	19	16	13	11	10
	20	98	74	57	45	36	29	24	20	17	14	12
	18	138	104	80	63	50	41	34	28	24	20	17
	16	184	138	106	84	67	54	45	37	32	27	23
Double	**22**	185	139	107	84	68	55	45	38	32	27	23
	20	236	177	137	107	86	70	58	48	40	34	30
	18	333	250	193	152	121	99	81	68	57	49	42
	16	443	333	256	201	161	131	108	90	76	65	55
Triple	**22**	145	109	84	66	53	43	35	30	25	21	18
	20	185	139	107	84	67	55	45	38	32	27	23
	18	261	196	151	119	95	77	64	53	45	38	33
	16	346	260	200	158	126	103	85	71	59	51	43

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

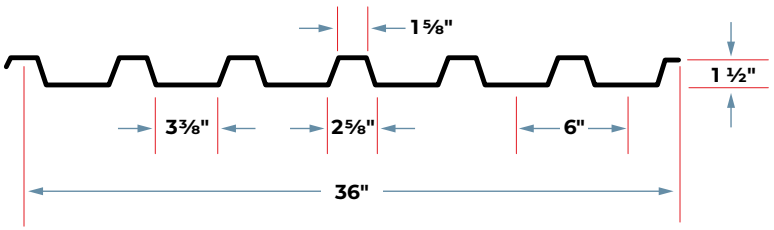
Normal Weight Concrete (145 pcf)				
Total Slab Depth	Deck Type	Maximum Unshored Clear Span		
		1 span	2 span	3 span
3.50 (t=2.00) 31 PSF	**1.5x6x22 ga**	5' 9"	6' 10"	6' 11"
	1.5x6x20 ga	6' 9"	7' 11"	8' 1"
	1.5x6x18 ga	8' 4"	9' 3"	9' 6"
	1.5x6x16 ga	9' 7"	10' 5"	10' 10"
4.00 (t=2.50) 37 PSF	**1.5x6x22 ga**	5' 6"	6' 6"	6' 7"
	1.5x6x20 ga	6' 5"	7' 6"	7' 8"
	1.5x6x18 ga	7' 11"	8' 9"	9' 1"
	1.5x6x16 ga	9' 1"	9' 11"	10' 3"
4.50 (t=3.00) 43 PSF	**1.5x6x22 ga**	5' 4"	6' 3"	6' 4"
	1.5x6x20 ga	6' 8"	7' 5"	7' 8"
	1.5x6x18 ga	7' 6"	8' 4"	8' 8"
	1.5x6x16 ga	8' 8"	9' 6"	9' 10"
5.00 (t=3.50) 49 PSF	**1.5x6x22 ga**	5' 1"	5' 12"	6' 1"
	1.5x6x20 ga	5' 11"	6' 10"	7' 0"
	1.5x6x18 ga	7' 3"	8' 0"	8' 4"
	1.5x6x16 ga	8' 4"	9' 1"	9' 5"
5.50 (t=4.00) 55 PSF	**1.5x6x22 ga**	4' 11"	5' 9"	5' 10"
	1.5x6x20 ga	5' 9"	6' 7"	6' 9"
	1.5x6x18 ga	6' 11"	7' 9"	7' 12"
	1.5x6x16 ga	7' 12"	8' 9"	9' 0"
6.00 (t=4.50) 61 PSF	**1.5x6x22 ga**	4' 9"	5' 7"	5' 8"
	1.5x6x20 ga	5' 6"	6' 5"	6' 6"
	1.5x6x18 ga	6' 8"	7' 5"	7' 8"
	1.5x6x16 ga	7' 8"	8' 5"	8' 9"

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

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

1.5” FORM DECK

GRADE 50 STEEL / FIELD INVERTED DECK



Options

Vented

Section Properties

Gage	Design Thickness (inches)	Weight (psf)	F_y ksi	S_e + (inch³) per foot	Se - (inch³) per foot	ASD (Ω = 1.67)		I_d + (inch⁴) per ft.	I_d - (inch⁴) per ft.
						M_p/ Ω inch-lbs per ft	M_n/ Ω inch-lbs per foot		
22	0.0295	1.6	50	0.179	0.170	5358	5101	0.167	0.144
20	0.0358	2.0	50	0.222	0.216	6661	6457	0.210	0.182
18	0.0474	2.6	50	0.310	0.294	9291	8812	0.290	0.257
16	0.0598	3.0	50	0.390	0.378	11667	11327	0.363	0.341

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		
		1-1/2”	2”	3”	1-1/2”	2”	3”
22	2424	801	880	1013	1096	1189	1345
20	3803	1143	1253	1436	1605	1735	1953
18	5032	1914	2087	2377	2773	2983	3334
16	6219	2931	3183	3606	4345	4654	5172

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**	143	118	99	85	73	64	56	49	44	40	36
	20	178	147	123	105	91	79	69	61	55	49	44
	18	248	205	172	147	126	110	97	86	76	69	62
	16	311	257	216	184	159	138	122	108	96	86	78
Double	**22**	136	112	94	80	69	60	53	47	42	38	34
	20	172	142	120	102	88	77	67	60	53	48	43
	18	235	194	163	139	120	104	92	81	73	65	59
	16	302	250	210	179	154	134	118	105	93	84	76
Triple	**22**	170	141	118	101	87	76	66	59	52	47	43
	20	215	178	149	127	110	96	84	74	66	60	54
	18	294	243	204	174	150	131	115	102	91	81	73
	16	378	312	262	223	193	168	147	131	117	105	94

Notes

1. 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
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.

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**	68	51	40	31	25	20	17	14	12	10	9
	20	86	64	50	39	31	25	21	17	15	13	11
	18	126	95	73	57	46	37	31	26	22	18	16
	16	173	130	100	79	63	51	42	35	30	25	22
Double	**22**	164	124	95	75	60	49	40	33	28	24	21
	20	207	155	120	94	75	61	50	42	35	30	26
	18	303	228	176	138	111	90	74	62	52	44	38
	16	417	314	241	190	152	124	102	85	72	61	52
Triple	**22**	129	97	74	59	47	38	31	26	22	19	16
	20	162	121	94	74	59	48	39	33	28	24	20
	18	238	178	137	108	87	70	58	48	41	35	30
	16	327	245	189	149	119	97	80	66	56	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

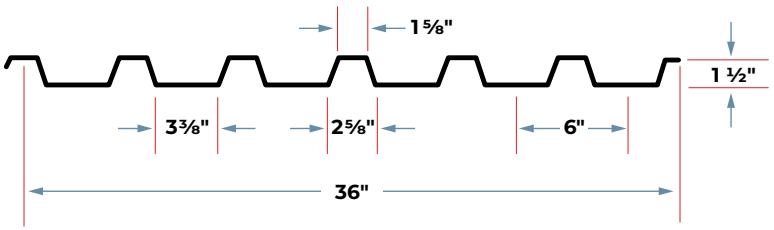
Normal Weight Concrete (145 pcf)				
Total Slab Depth	Deck Type	Maximum Unshored Clear Span		
		1 span	2 span	3 span
3.50 (t=2.00) 36 PSF	**1.5x6x22 ga**	6' 8"	7' 9"	7' 11"
	1.5x6x20 ga	7' 8"	8' 9"	9' 1"
	1.5x6x18 ga	9' 7"	10' 3"	10' 7"
	1.5x6x16 ga	11' 1"	11' 7"	12' 0"
4.00 (t=2.50) 42 PSF	**1.5x6x22 ga**	6' 4"	7' 5"	7' 6"
	1.5x6x20 ga	7' 4"	8' 4"	8' 7"
	1.5x6x18 ga	9' 1"	9' 9"	10' 1"
	1.5x6x16 ga	10' 6"	11' 0"	11' 5"
4.50 (t=3.00) 48 PSF	**1.5x6x22 ga**	6' 1"	7' 1"	7' 2"
	1.5x6x20 ga	7' 8"	8' 3"	8' 7"
	1.5x6x18 ga	8' 8"	9' 4"	9' 7"
	1.5x6x16 ga	9' 12"	10' 6"	10' 11"
5.00 (t=3.50) 54 PSF	**1.5x6x22 ga**	5' 10"	6' 9"	6' 11"
	1.5x6x20 ga	6' 8"	7' 8"	7' 11"
	1.5x6x18 ga	8' 3"	8' 11"	9' 3"
	1.5x6x16 ga	9' 6"	10' 1"	10' 5"
5.50 (t=4.00) 60 PSF	**1.5x6x22 ga**	5' 7"	6' 6"	6' 8"
	1.5x6x20 ga	6' 6"	7' 4"	7' 7"
	1.5x6x18 ga	7' 12"	8' 7"	8' 10"
	1.5x6x16 ga	9' 2"	9' 9"	10' 1"
6.00 (t=4.50) 66 PSF	**1.5x6x22 ga**	5' 5"	6' 3"	6' 5"
	1.5x6x20 ga	6' 3"	7' 1"	7' 4"
	1.5x6x18 ga	7' 8"	8' 3"	8' 7"
	1.5x6x16 ga	8' 10"	9' 4"	9' 8"

Lightweight Concrete (115 pcf)				
Total Slab Depth	Deck Type	Maximum Unshored Clear Span		
		1 span	2 span	3 span
3.50 (t=2.00) 27 PSF	**1.5x6x22 ga**	7' 3"	8' 6"	8' 7"
	1.5x6x20 ga	8' 5"	9' 7"	9' 11"
	1.5x6x18 ga	10' 7"	11' 2"	11' 7"
	1.5x6x16 ga	12' 4"	12' 8"	13' 1"
4.00 (t=2.50) 32 PSF	**1.5x6x22 ga**	6' 10"	8' 1"	8' 2"
	1.5x6x20 ga	7' 12"	9' 1"	9' 5"
	1.5x6x18 ga	9' 12"	10' 8"	10' 12"
	1.5x6x16 ga	11' 7"	12' 1"	12' 5"
4.50 (t=3.00) 37 PSF	**1.5x6x22 ga**	6' 7"	7' 9"	7' 10"
	1.5x6x20 ga	8' 6"	9' 2"	9' 6"
	1.5x6x18 ga	9' 6"	10' 2"	10' 6"
	1.5x6x16 ga	11' 0"	11' 6"	11' 11"
5.00 (t=3.50) 41 PSF	**1.5x6x22 ga**	6' 4"	7' 6"	7' 7"
	1.5x6x20 ga	7' 4"	8' 5"	8' 8"
	1.5x6x18 ga	9' 2"	9' 10"	10' 2"
	1.5x6x16 ga	10' 7"	11' 2"	11' 6"
5.50 (t=4.00) 46 PSF	**1.5x6x22 ga**	6' 2"	7' 2"	7' 3"
	1.5x6x20 ga	7' 1"	8' 1"	8' 4"
	1.5x6x18 ga	8' 10"	9' 5"	9' 9"
	1.5x6x16 ga	10' 2"	10' 8"	11' 1"
6.00 (t=4.50) 50 PSF	**1.5x6x22 ga**	5' 12"	6' 12"	7' 1"
	1.5x6x20 ga	6' 11"	7' 10"	8' 1"
	1.5x6x18 ga	8' 6"	9' 2"	9' 6"
	1.5x6x16 ga	9' 10"	10' 5"	10' 9"

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

1.5” FORM DECK

GRADE 80 STEEL / FIELD INVERTED DECK



Options

Vented

Section Properties

Gage	Design Thickness (inches)	Weight (psf)	F_y ksi	S_e + ($inch^3$) per foot	Se - ($inch^3$) 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	60	0.175	0.166	6269	5958	0.167	0.142
20	0.0358	2.0	60	0.215	0.206	7738	7398	0.209	0.178
18	0.0474	2.6	60	0.306	0.291	11006	10455	0.288	0.252
16	0.0598	3.0	60	0.389	0.375	13976	13461	0.363	0.334

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		
		1-1/2”	2”	3”	1-1/2”	2”	3”
22	2908	961	1056	1216	1316	1427	1614
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**	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
Double	**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
Triple	**22**	199	164	138	118	101	88	78	69	61	55	50
	20	247	204	171	146	126	110	96	85	76	68	62
	18	349	288	242	206	178	155	136	121	108	97	87
	16	449	371	312	266	229	199	175	155	138	124	112

Notes

1. 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
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.

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

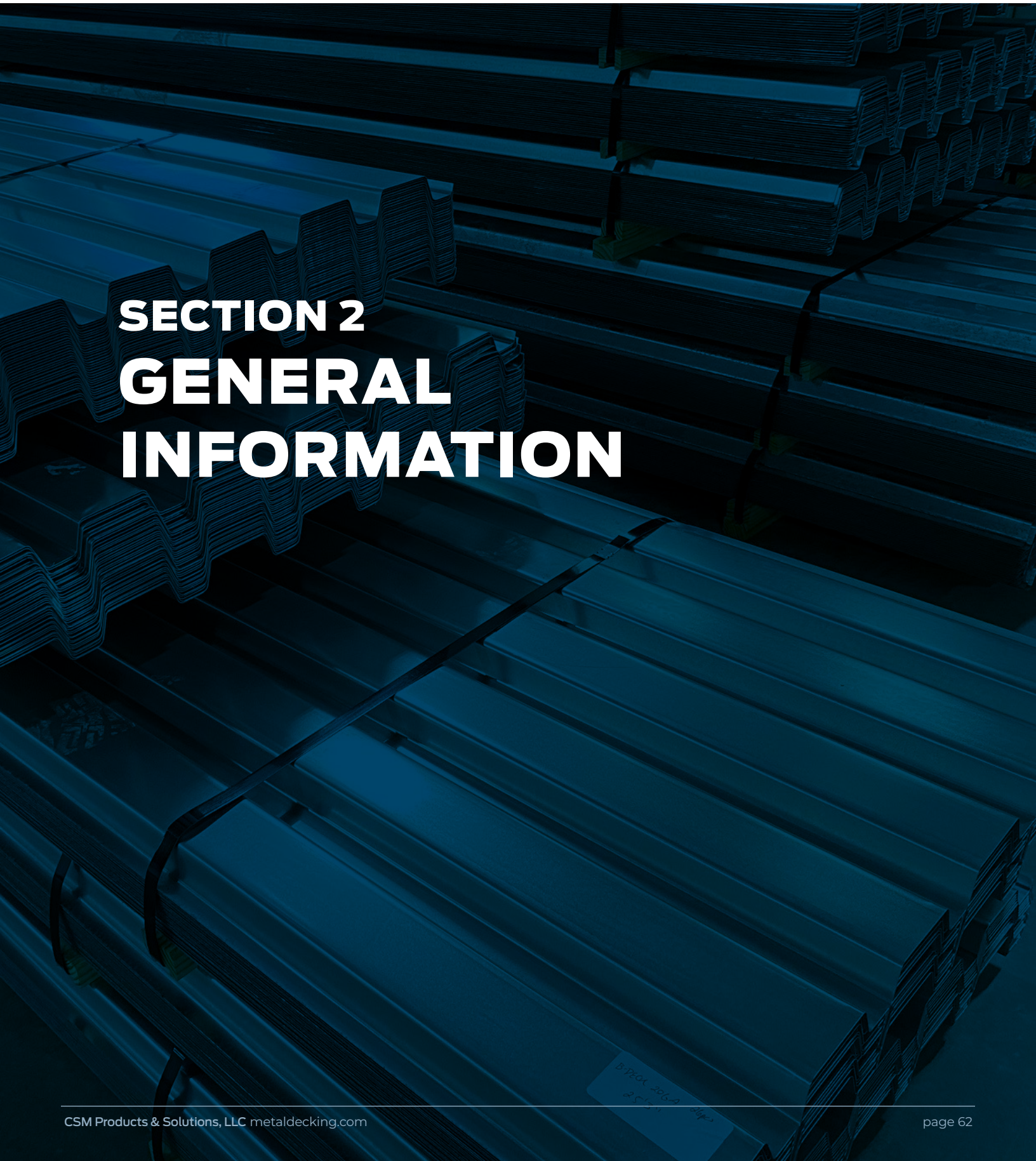
Note
For loads that cause L/120 Deflection, multiply by 2.0. For loads that cause L/180 Deflection, multiply by 1.5. For loads that cause L/360 Deflection, multiply by 0.667.

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
3.50 (t=2.00) 36 PSF	**1.5x6x22 ga**	7' 5"	8' 5"	8' 8"
	1.5x6x20 ga	8' 6"	9' 5"	9' 8"
	1.5x6x18 ga	10' 8"	11' 2"	11' 6"
	1.5x6x16 ga	12' 5"	12' 8"	13' 1"
4.00 (t=2.50) 42 PSF	**1.5x6x22 ga**	7' 0"	8' 0"	8' 3"
	1.5x6x20 ga	8' 1"	8' 11"	9' 3"
	1.5x6x18 ga	10' 1"	10' 7"	10' 12"
	1.5x6x16 ga	11' 9"	12' 0"	12' 5"
4.50 (t=3.00) 48 PSF	**1.5x6x22 ga**	6' 9"	7' 8"	7' 11"
	1.5x6x20 ga	8' 6"	9' 0"	9' 4"
	1.5x6x18 ga	9' 8"	10' 1"	10' 6"
	1.5x6x16 ga	11' 2"	11' 6"	11' 10"
5.00 (t=3.50) 54 PSF	**1.5x6x22 ga**	6' 5"	7' 4"	7' 7"
	1.5x6x20 ga	7' 5"	8' 2"	8' 5"
	1.5x6x18 ga	9' 2"	9' 8"	10' 0"
	1.5x6x16 ga	10' 8"	11' 0"	11' 5"
5.50 (t=4.00) 60 PSF	**1.5x6x22 ga**	6' 3"	7' 1"	7' 3"
	1.5x6x20 ga	7' 1"	7' 10"	8' 1"
	1.5x6x18 ga	8' 10"	9' 4"	9' 8"
	1.5x6x16 ga	10' 3"	10' 7"	10' 11"
6.00 (t=4.50) 66 PSF	**1.5x6x22 ga**	6' 0"	6' 10"	7' 0"
	1.5x6x20 ga	6' 10"	7' 7"	7' 10"
	1.5x6x18 ga	8' 6"	9' 0"	9' 4"
	1.5x6x16 ga	9' 10"	10' 3"	10' 7"

Lightweight Concrete (115 pcf)				
Total Slab Depth	Deck Type	Maximum Unshored Clear Span		
		1 span	2 span	3 span
3.50 (t=2.00) 27 PSF	**1.5x6x22 ga**	8' 1"	9' 2"	9' 6"
	1.5x6x20 ga	9' 4"	10' 3"	10' 7"
	1.5x6x18 ga	11' 10"	12' 2"	12' 7"
	1.5x6x16 ga	13' 10"	13' 10"	14' 3"
4.00 (t=2.50) 32 PSF	**1.5x6x22 ga**	7' 8"	8' 9"	9' 0"
	1.5x6x20 ga	8' 10"	9' 9"	10' 1"
	1.5x6x18 ga	11' 2"	11' 7"	11' 12"
	1.5x6x16 ga	13' 0"	13' 2"	13' 7"
4.50 (t=3.00) 37 PSF	**1.5x6x22 ga**	7' 4"	8' 4"	8' 8"
	1.5x6x20 ga	9' 6"	9' 12"	10' 4"
	1.5x6x18 ga	10' 7"	11' 1"	11' 5"
	1.5x6x16 ga	12' 4"	12' 7"	12' 12"
5.00 (t=3.50) 41 PSF	**1.5x6x22 ga**	7' 1"	8' 1"	8' 4"
	1.5x6x20 ga	8' 2"	8' 12"	9' 4"
	1.5x6x18 ga	10' 3"	10' 8"	11' 1"
	1.5x6x16 ga	11' 10"	12' 2"	12' 6"
5.50 (t=4.00) 46 PSF	**1.5x6x22 ga**	6' 10"	7' 9"	8' 0"
	1.5x6x20 ga	7' 10"	8' 8"	8' 11"
	1.5x6x18 ga	9' 9"	10' 3"	10' 7"
	1.5x6x16 ga	11' 4"	11' 8"	12' 1"
6.00 (t=4.50) 50 PSF	**1.5x6x22 ga**	6' 7"	7' 6"	7' 9"
	1.5x6x20 ga	7' 7"	8' 5"	8' 8"
	1.5x6x18 ga	9' 6"	9' 12"	10' 4"
	1.5x6x16 ga	10' 12"	11' 4"	11' 8"

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



SECTION 2
GENERAL INFORMATION

Roof Deck Installation

CSM steel roof deck shall be installed by qualified and experienced workers. Roof deck panels shall be placed in accordance with approved erection drawings. End laps shall be a nominal 2" and positioned over supports. A snap chalk line shall be used at reasonable intervals to assure proper alignment of deck panels.

Position the first sheet as noted on the drawing with the upstanding leg of the sheet away from the wall. Overlap roof deck sheets end to end maintaining alignment. When one row is placed end to end, begin another, making alignment adjustments if necessary. Do not use unfastened deck as a work or storage area.

All sheets are furnished with square ends. All openings in the roof deck which are shown on the erection drawings and which are less than 25 square feet in area, as well as skew cuts, shall be field cut by the deck erector. Openings not shown on the erection drawings such as those required for stack, conduits, plumbing, vents, etc., shall be cut (and reinforced if necessary) by the trades requiring the openings.

Attachment

Roof deck sheets shall be attached as soon as possible after placement and all sheets placed shall be attached at the end of each working day. Electric arc welding is the best and most economical method for attaching CSM steel roof deck to structural supports. Welder shall follow close to the placement crew.

All welds are to be made from the top of the deck down through the bottom flange of the ribs. Welds shall penetrate and attach all thicknesses of material to the structural supports. Care shall be exercised on the selection of the electrodes to provide positive attachment and to prevent high amperage blow holes. Puddle welds shall be at least 5/8" diameter or elongated puddle welds with an equal perimeter. Fillet welds, when used, shall be at least 1" long. Roof deck shall be welded to structural supports with the following pattern:

1-1/2" Deck – Ends of deck to be welded to supports at 12 inches on center maximum and 18 inches on center maximum at intermediate supports.

3" Deck – Deck to be welded to all supports at 8 inches on center.

Various mechanical fastening systems other than welding are recognized as viable anchoring methods provided that they are reviewed, approved or specified by the project designer. These include but are not limited to screws, powder-activated or pneumatically driven fasteners.

When spans exceed 5'-0", side laps shall be fastened together at a maximum spacing of 36 inches on center.

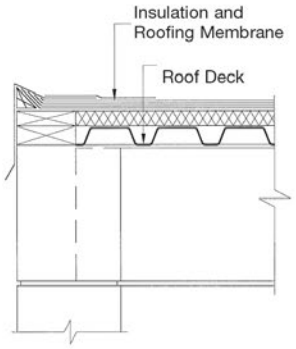
Site Storage

Deck not promptly erected shall be stored off the ground with one end elevated and protected from the elements with a tarpaulin or other weather-proof covering, ventilated to avoid condensation. Reference SDI Manual of Construction Site Storage and Protection.

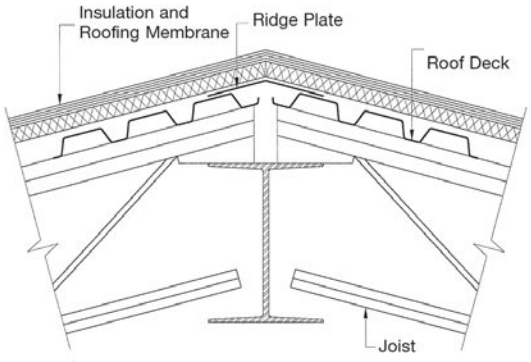
Protective Coating

All steel to be used in CSM steel roof deck shall be galvanized or given a protective shop coat of primer paint. The paint coating is considered only a primer and is intended to protect the steel for only a reasonable period of time exposed to normal atmospheric conditions and shall be considered an impermanent and provisional coating. Galvanized finish in G-60 or G-90 coating is desirable in high moisture atmospheric conditions.

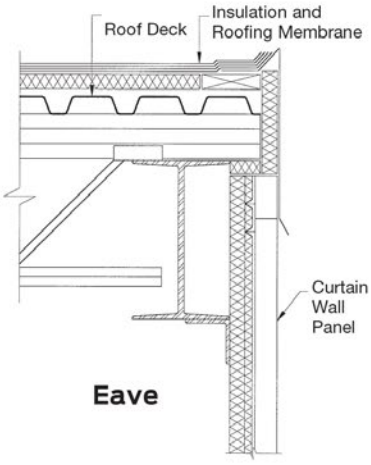
CSM Products & Solutions shall not be responsible for the cleaning of the underside of the steel roof deck to ensure bond of the sprayed-on fireproofing. Adherence of fireproofing material is dependent on many variables. The adhesion or adhesive ability of fireproofing material is the responsibility of the fireproofing applicator and fireproofing manufacturer.



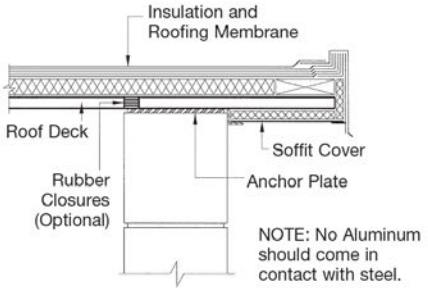
Flush Eave



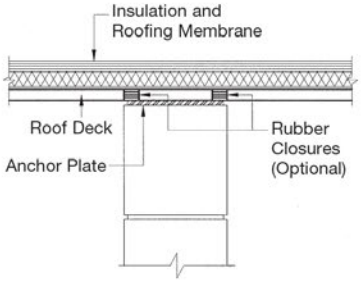
Ridge Beam



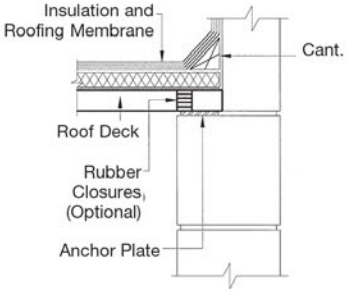
Eave



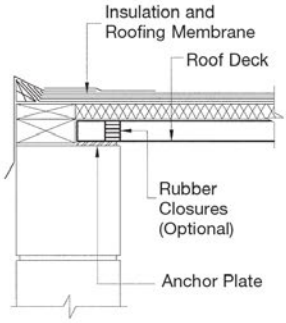
Roof Overhang



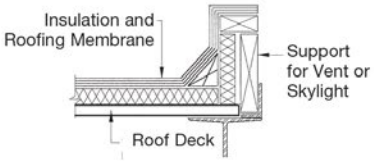
Interior Wall



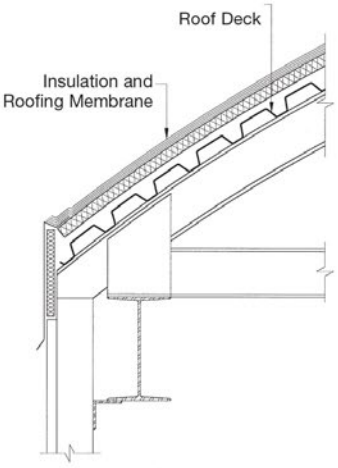
Parapet



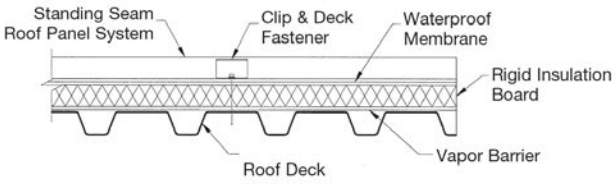
Flush Eave



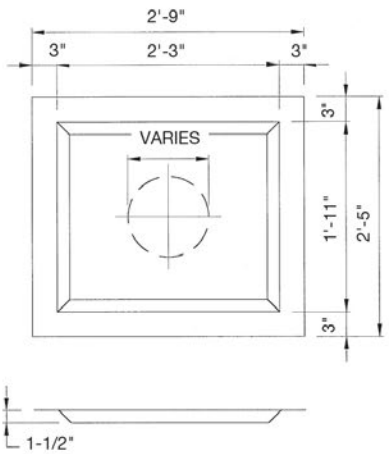
Open-Framing Detail



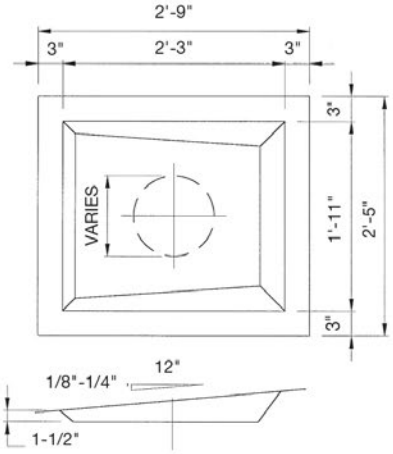
Curved Roof



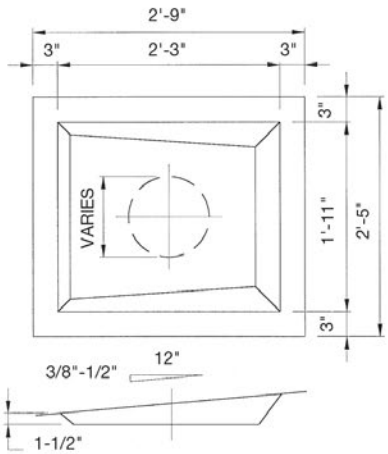
Metal Roofing



Recessed Sump Pan
SP-1



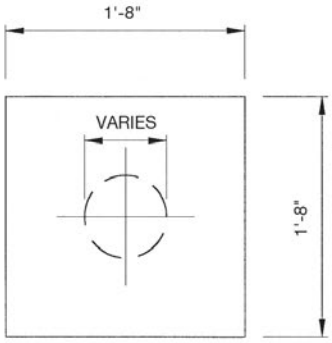
Recessed Sloped Sump Pan
SP-3



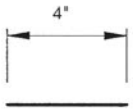
Recessed Sloped Sump Pan
SP-4

Sump Pans and Plate:

Galvanized Steel, 14 gage. Four types to suit any roof sump requirement. Wide flanges secure welding to the steel deck.

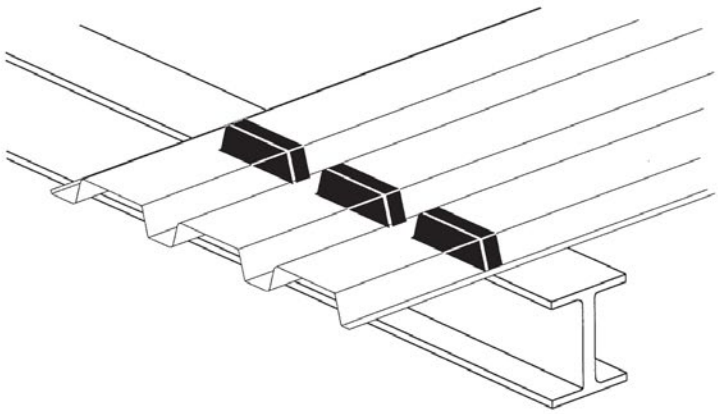


Flat Plate
FSP-1



Deck Plate:

Deck Plate should be used when deck changes direction. They are supplied as 20 gage galva-nized in 10'-0" lengths.



Ridge and Valley Plates:

Plates should be used at ridges and valleys when the slope exceeds 1/2" per foot. They are normally supplied as 20 gage galvanized steel in 10'-0" lengths.

Rubber Closures:

Flexible Rubber Closures seal the flutes of types A, BW36, F36, and N. They close the top of the interior partitions when there is no ceiling below the deck and seal against weather where deck is cantilevered over exterior beams or walls. Closures are also available for the flutes on the top side of the deck.

Floor Deck Installation

CSM steel composite floor deck panels and accessories shall be installed by qualified and experienced workers. Floor deck and accessories shall be placed in accordance with approved erection drawings. Maintaining rib alignment across the structure is very important to achieve continuous concrete ribs across abutting sheet ends. A snap chalk line shall be used at reasonable intervals to assure proper alignment and accurate coverage of deck panels.

Position the first sheet as noted on the erection drawings with the upstanding leg the leading or open edge. When one row is placed, begin another, making alignment adjustments as necessary. Do not use unfastened deck as a working platform or storage area.

All sheets are furnished with square ends and full width. Partial width sheets as well as skew cuts shall be field cut by the deck erector to fit field conditions. All accessories, i.e. pour stops, side closures and end closures are manufactured in standard stock lengths. Cutting and fitting of accessories when furnished is by the deck erector. Openings not shown on the erection drawings such as those required for stack, conduits, plumbing, vents, etc. shall be cut (and reinforced if necessary) by the trades requiring the openings.

Integral hanger tabs are rolled in when required. The maximum loading per tab is 100 lb. The deck erector must flatten out all tabs that interfere with proper bearing of deck on supporting steel. Hanger tabs are spaced nominally 12” on center each way. Hanger tabs occur in a repetitive pattern that cannot be maintained across deck joints and cannot be located at predetermined locations. It is imperative that the load carried by the tabs is designed in such a way that the design load is not exceeded on any one tab.

Attachment

Floor deck sheets and accessories shall be attached as soon as possible and all sheets and accessories shall be attached at the end of each working day. Electric arc welding is the best and most economical method for attaching composite deck sheets to structural supports. Welder shall follow close to the placement crew.

All welds are to be made from the top of the deck down through the bottom flange of the ribs. Welds shall penetrate and attach all thickness of material to the structural supports. Care shall be exercised on the selection of the electrodes to provide positive attachment and to prevent high amperage blow holes.

Deck panels are to be fastened to all supports at 12” on center maximum with not less than 3/4” diameter arc spot welds. At deck butt joints, both sheets are to be fastened.

Deck panels with spans greater than 5 feet shall have side laps and perimeter edges (at perimeter supports) fastened at mid-span or 36” intervals - whichever is smaller.

1-1/2” deep deck side laps are to be screw attached or welded.

2” and 3” deep deck side laps are to be button punched, welded or Gator Crimp (GTR).

End closures of the deck (if required) are to be fastened by tack welding or sheet metal screws at 36” centers maximum.

Side closures of the deck (if required) are to be fastened by 1” fillet welds at 12” centers maximum.

Pour stop accessories of the deck (if required) are to be fastened by 1” fillet welds at 12” centers maximum.

Site Storage

Deck not promptly erected shall be stored off the ground with one end elevated and protected from the elements with a tarpaulin or other weatherproof covering, ventilated to avoid condensation. Reference SDI Manual of Construction Site Storage and Protection.

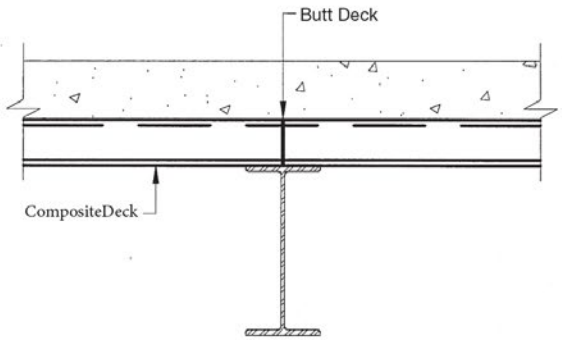
Protective Coating

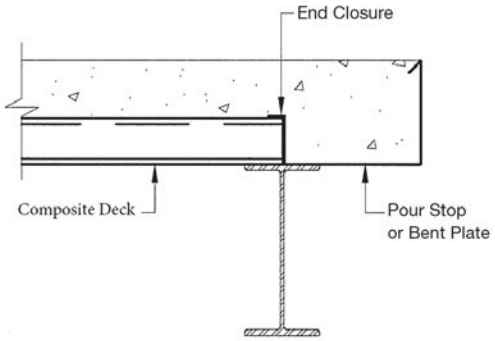
All steel to be used in CSM steel composite floor deck shall be galvanized or phosphatized top and prime painted bottom. The paint coating is considered only a primer and shall be considered an impermanent and provisional coating. Galvanized finish in G-60 or G-90 coating is desirable in high moisture atmospheric conditions.CSM shall not be responsible for the cleaning of the underside of steel floor deck to ensure bond of the sprayed-on fireproofing. Adherence of fireproofing is dependent on many variables. The adhesion or adherence

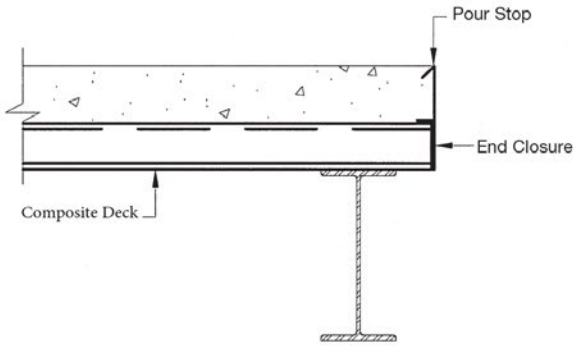
Construction Loading

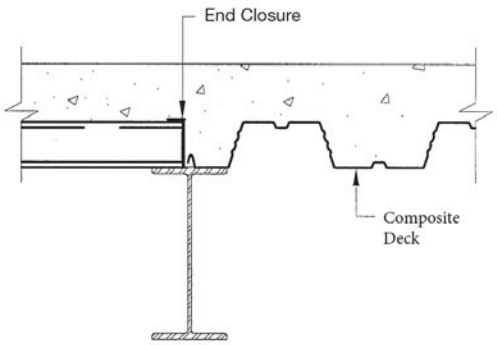
Do not use unfastened deck as a work or storage platform. Caution must be used with construction loading so that deck capacity is not exceeded and the deck is not damaged. When placing concrete, care must be exercised so that the deck will not be subject to impact that exceeds the design capacity of the deck. Concrete shall be placed from a low level in a uniform manner over the supporting structure and spread toward the center of the deck span.

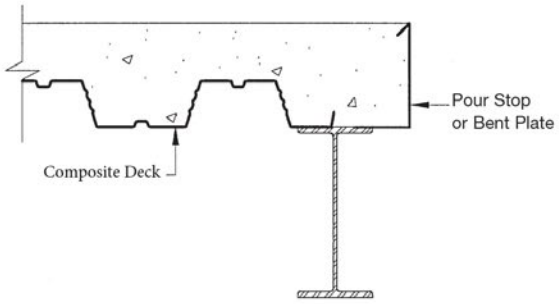
Do not use chloride admixtures or admixtures containing chloride salts in concrete poured on composite deck. Such additives have proven deleterious to steel and steel finish.

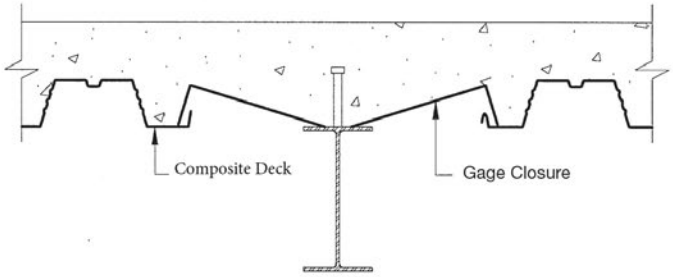

Butt Deck
CompositeDeck

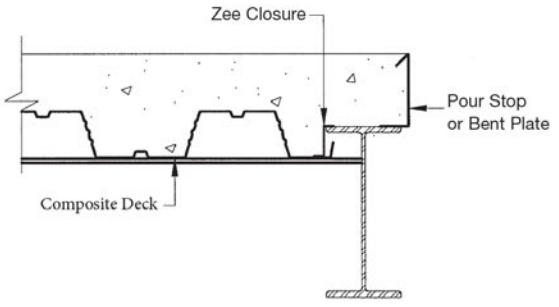

End Closure
Composite Deck
Pour Stop
or Bent Plate

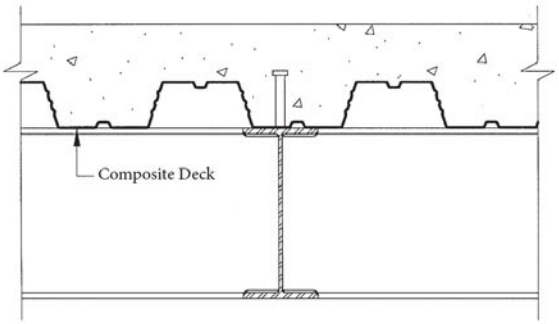

Pour Stop
End Closure
Composite Deck


End Closure
Composite
Deck


Pour Stop
or Bent Plate
Composite Deck


Composite Deck
Gage Closure


Zee Closure
Pour Stop
or Bent Plate
Composite Deck


Composite Deck

Form Deck Installation

CSM Steel Form Deck shall be installed by qualified and experienced workers. Beginning at the corner of building place form deck sheets end to end maintaining alignment.

Place sheets with edges up and ends lapped a minimum of 2" over supports. When one row is placed begin another, lapping side laps one-half corrugation and making alignment adjustments when necessary. A snap chalk line should be used at reasonable multiples for proper alignment. All sheets are furnished with square ends. All cutting and fitting shall be done in the field by the deck erector. All openings such as those required for stack, conduits, plumbing, vents, etc., shall be cut (and reinforced, if necessary) by trades requiring the openings.

Attachment

Form deck sheets shall be attached at the end of each working day. Electric arc welding is the most popular method for attaching form deck to structural supports. Welder should follow close to the placement crew.

All welds are to be made from the top of the deck through the bottom flange of the rib, penetrate and attach all thickness of material to the structural supports. Welds shall be through welding washers for form deck sheet design thickness less than 0.028". Care shall be exercised on the selection of the electrodes to provide positive attachment and to prevent high amperage blow holes.

Minimum welding attachments are as follows:

End Laps: Ends of form deck are fastened using a weld at each side lap plus one intermediate weld (3 per sheet).

Intermediate Supports: Fasten sheet at side laps only at each intermediate support for spans up to 4'-6"; for spans from 4'-6" to 8'-0", fasten at side laps and one at mid sheet.

All Supports: If spans exceed 8'-0", weld should be placed so that the average spacing (at all supports) is not more than 15" on center.

Mechanical fasteners (screws, powder-actuated and pneumatically driven fasteners) are recognized as viable anchoring methods providing the type and spacing of said fasteners satisfies the design criteria. Documentation in the form of test data, design calculations or design charts should be submitted by the manufacturer to the architect on the basis for obtaining approval.

Site Storage

Deck not promptly erected shall be stored off the ground with one end elevated and protected from the elements with a tarpaulin or other weather-proof covering, ventilated to avoid condensation. Reference SDI Manual of Construction Site Storage and Protection.

Protective Coating

Do not use unfastened deck as a work or storage platform. Form deck areas subject to heavy or repeated traffic, concentrated loads, impact loads, wheel loads, etc., shall be adequately protected by planking of adequate stiffness to transfer loads to the steel deck without damaging the deck. Care must be exercised when placing concrete so that the deck will not be subjected to any impact that exceeds the design capacity of the deck. Concrete shall be placed from a low level in a uniform manner over the supporting structure and spread toward the center of the deck span.

Construction Loading

All steel to be used in CSM steel form deck will be galvanized or uncoated. Uncoated steel must not be used in roof applications. Galvanized steel in G-60 or G-90 coating is to be used in roof applications or in high moisture atmospheric conditions.

CSM Products & Solutions shall not be responsible for the cleaning of the underside of the steel roof deck to ensure bond of the sprayed-on fireproofing. Adherence of fireproofing material is dependent on many variables. The adhesion or adhesive ability of fireproofing material is the responsibility of the fireproofing applicator and fireproofing manufacturer.

SECTION 3
ATTACHMENT GUIDE

TYPES OF ATTACHMENTS

Depending on the kind of metal deck you are using and what it will be used for, there are a variety of options for attachment. Whether you're using floor deck that needs to support beams and joists, roof deck, form deck, or composite metal decking for concrete will impact the recommended attachment method for your application.

The Engineer of Record shall determine the required fastening type and pattern. This is typically noted on the structural drawings or specifications.

This section's content comes from Steel Deck Institute *Manual of Construction with Steel Deck, Edition 3*. Used with permission.

FASTENING AND INSTALLING DECK

Deck is installed in accordance with the “Approved for Construction”drawings. The deck must be installed by qualified and experienced workers. The beginning point should be carefully selected for proper deck orientation and edge of roof or floor slab location.

Maintaining rib or flute alignment across the structure is very important. A snap chalk line should be used at reasonable intervals to assure proper alignment of deck panels. Panel cover widths must be maintained to achieve long straight runs of deck.

Roof deck is often left exposed on the bottom. Rib alignment must be parallel to the girders at all girder lines to prevent unsightly conditions.

Floor deck flutes should, if possible, maintain alignment to achieve continuous concrete ribs across abutting sheet ends, minimizing concrete leakage. Flutes that do not align can create closure problems that may interrupt the slab design. Proper alignment can only be achieved by proper adjustment of each deck panel as it is placed. Cover width errors accumulated across the bay cannot be corrected with the last sheets in the run.

On site experience has demonstrated that the frequency of snapping a chalk line determines the accuracy of rib and flute alignment. This minor effort at the time of deck placement eliminates the need for field corrections.

For deck to perform its design functions and serve as a working platform, it must be adequately and properly attached. Often the deck is used as part of the horizontal bracing system and the fastening method and pattern have been selected to provide a certain strength and stiffness in the plane of the deck.

NO SUBSTITUTION of fastener type or pattern should be made without the approval of the designer.

Deck fastening to the structural frame can be accomplished with welds, self drilling screws, air driven, or powder driven fasteners. A minimum of 1 ½” of end bearing should be provided for deck, unless noted otherwise on the deck installation drawings. If there is less than 1 ½” of bearing, additional fastening should be provided and the deck web crippling capacity should be checked. For deck that is intended to end lap (roof deck), the end lap location should be adjusted so the center of the lapped portion occurs over the support or, when supported by bar joists, over a top chord member.

Only qualified operators may use powder actuated tools. Operators must be trained by the tool manufacturer or other authorized party in accordance with ANSI/ASSE A10.3-2013. Air actuated tools must be used by trained operators familiar with all safety procedures.

A typical steel deck installation

Screws

Special electric screw guns are used to drive self drilling screws to attach deck to the structural frame. These screw guns are equipped with a clutch and depth limiting nosepiece to prevent over torquing. Screws are typically #12's or ¼" diameter with a special drill point selected according to the total thickness of metal (deck plus frame) being joined.

Power-Actuated Fasteners (Powder Cartridge Actuated)

Powder-actuated tools are designed to drive fasteners, specifically designed for deck attachment, through the sheet metal decking and into the base steel. A powder cartridge (blank cartridge) is used as the energy source to drive the fastener into the steel. Low-velocity tools utilize a captive piston which has much greater mass than the fastener. The energy from the powder cartridge acts on the piston which in turn drives the fastener. Only low-velocity tools, designed specifically for the decking application, should be used to fasten metal deck. OSHA requires that users of these tools are qualified in the operation of the particular tool in use.

Powder-actuated fasteners are made from hardened steel,with a ballistic point to penetrate the sheet steel and base steel. The fasteners typically have a knurling pattern which improves the hold of the fastener in the steel. Powder-actuated fasteners used for decking attachment should have one or more integrated washers which serve to clamp the deck sheet metal to the base steel, thereby improving the shear resistance capacity of the connection as well as the uplift capacity.

Power-Actuated Fasteners (Compressed Gas/Air Actuated)

Air driven tools are operated at a pre-set pressure level consistent with the fastening requirements of the deck attachment. Air is supplied by a compressor or equipped with a regulator that prevents over driving or under driving the fastener. The fasteners have a flat head at the drive end and a ballistic point at the penetrating end. A variety of sizes are available to meet the penetration requirements of the steel substrate.

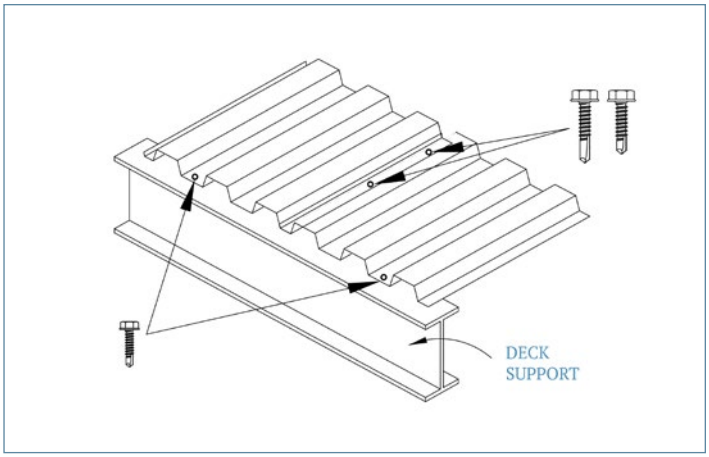


Figure 1A Support and side lap screws

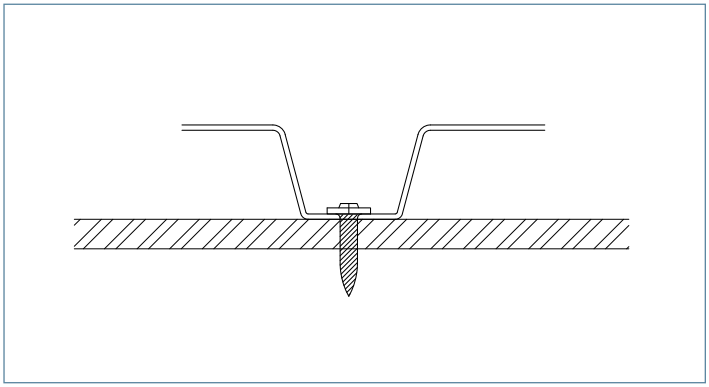


Figure 1B Power-actuated fastener attachment

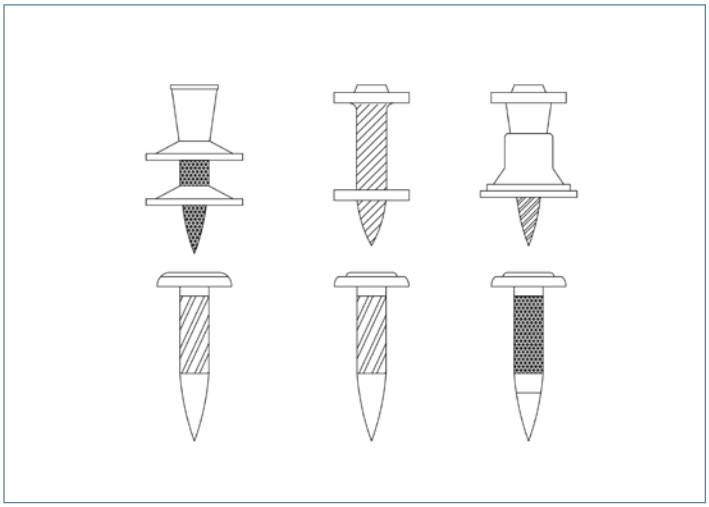


Figure 1C Examples of power-actuated fasteners

Welding must be done by a qualified welder during proper weather conditions. Quality welding of deck requires experience and the selection of proper amperage and electrodes. A weld quality control test procedure is shown in Figure 2. All welding should be done in accordance with the Structural Welding Code, AWS D1.1 or D1.3.

Weld washers are not recommended for deck thicknesses of 0.028 inches thick (minimum 22 gage) and greater. Weld washers are required for metal thicknesses less than 0.028 inches. Proper welding requires good metal to metal contact; therefore, lapping composite deck sheets with embossments is not recommended. For the same reason, built in hanger tabs (in floor deck) that bear on structural steel should be flattened or removed.

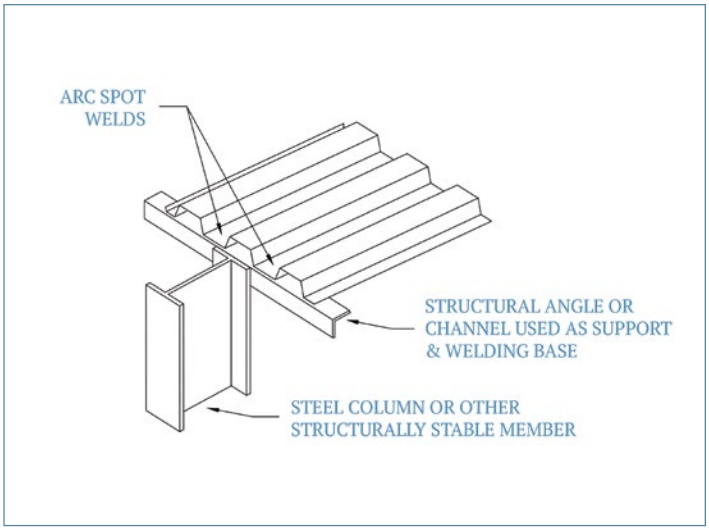


Figure 2 Weld quality control test procedure

Shear studs, welded in place with special equipment (in accordance with AWS D1.1) can serve as welding to hold the deck to the frame when installed as shown in Figure 3. These studs are usually installed after the deck has been spread to act as a working platform. Therefore, it is necessary that the platform be adequately attached to the structure before the studs are installed.

Shear studs can be welded through the double metal thickness of cellular deck. Note: If the deck is heavier than 16 gage the stud manufacturer should be consulted for installation procedures. Shear studs, like all other fasteners, must be installed in accordance with the design drawings.

Since most construction work is done in open air, ventilation for welding is usually adequate. However, for closed in areas, ventilation must be provided. Adequate ventilation is extremely important when welding galvanized deck. All workers involved in the welding operation must wear eye protection to avoid weld flash.

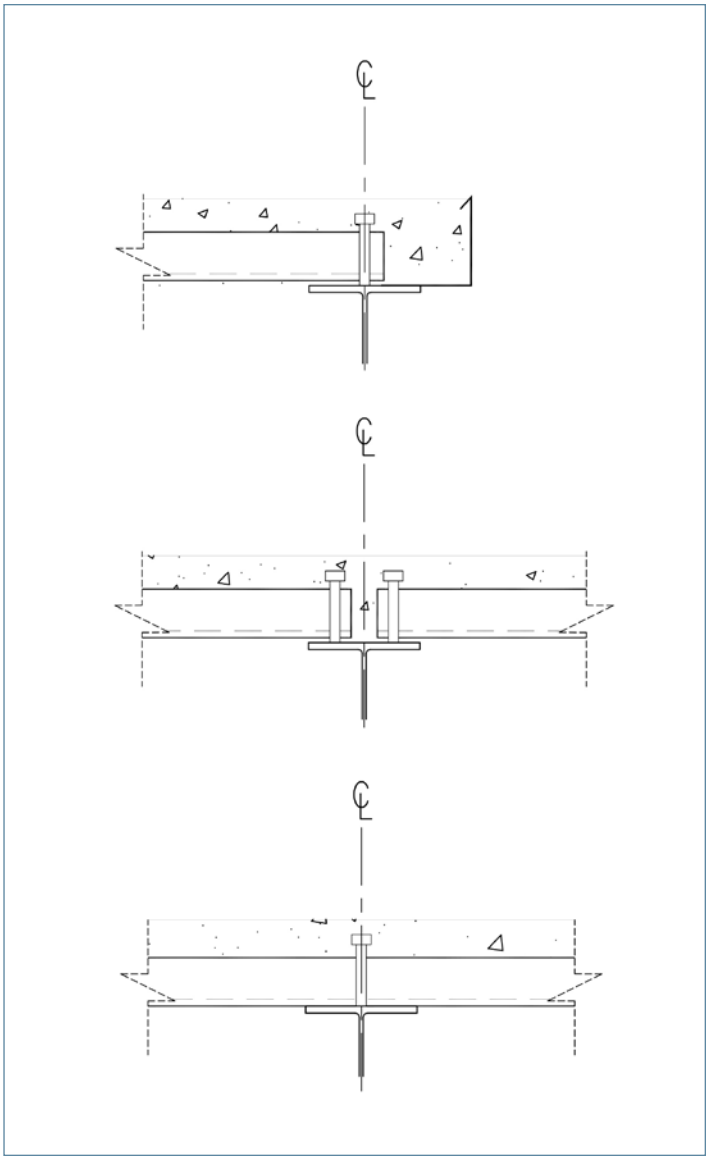


Figure 3 Examples of proper deck attachment with studs

SIDE LAP CONNECTIONS

Sheet to sheet connections may be required at the side laps of deck. These are frequently referred to as stitch connections. Self drilling screws, welds, clinching or button punches are the usual stitch connections. Stitch screws are usually self drilling type; #8's through 1/4 inch diameter can be used but screws smaller than #10 diameter are not recommended. The installer must be sure that the underlying sheet is drawn tightly against the top sheet. Again, as when screws are used as the frame attachment, the special screw driving guns are used to prevent over torquing.

Manual button punching of side laps requires a special crimping tool. Button punching requires the worker to adjust his weight so the top of the deck stays level across the joint. Since the quality of the button punch attachment depends on the strength and care of the tool operator, it is important that a consistent method be developed. Automatic power driven devices are also used.

Good metal to metal contact is necessary for good side lap welds. Burn holes are the rule rather than the exception and an inspector should not be surprised to see them in the deck. The weld develops its strength by holding around the perimeter. A good weld will have 7/8th's or more of its perimeter working. On occasion, side lap welds will be specified for deck that has the button punchable side lap arrangement (see Figure 4A for comments on this subject; see Figures 4B for welding these deck sheets to the frame). Welding side laps is not recommended for 22 gage decks (0.028 inch minimum) or lighter. Weld washers should never be used at side laps between supports. Just as when welding to the frame, adequate ventilation must be available and welding near combustibles is prohibited.

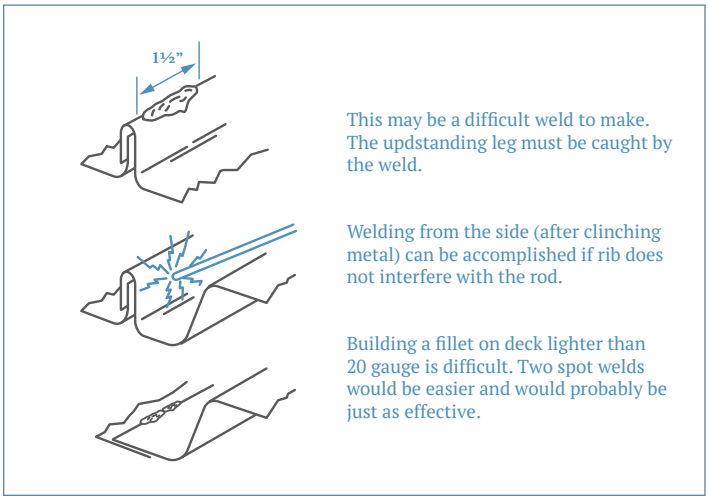


Figure 4A Side lap welds between supports

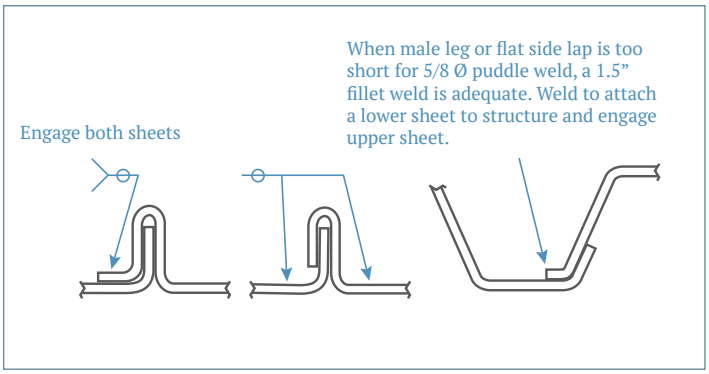


Figure 4B Side lap welds at supports

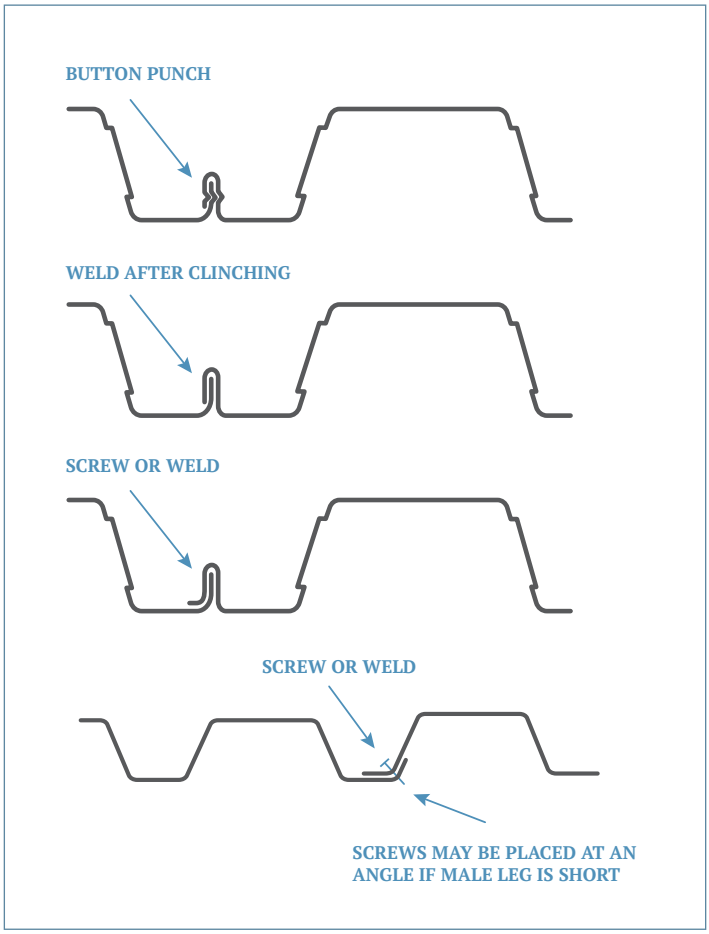
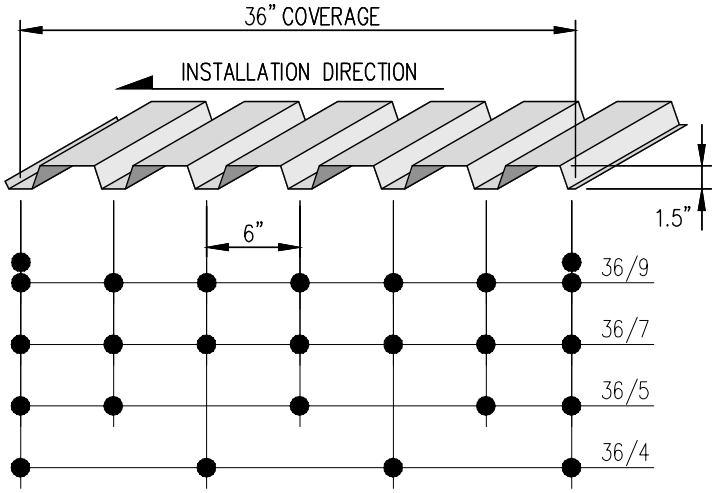


Figure 4C Side lap welds at supports

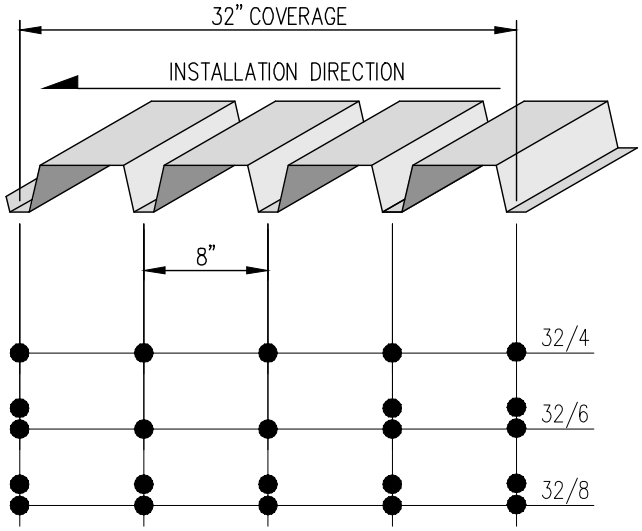
TYPICAL FASTENER LAYOUTS

The engineer of record designs the deck attachment patterns. The type of fastening system depends on factors like uplift capacity, diaphragm shear capacity, and the thickness of the supporting members. The different system types include power-driven fasteners, arc spot welds, arc seam welds, and self-drilling screws.

ROOF DECK ATTACHMENT LAYOUTS

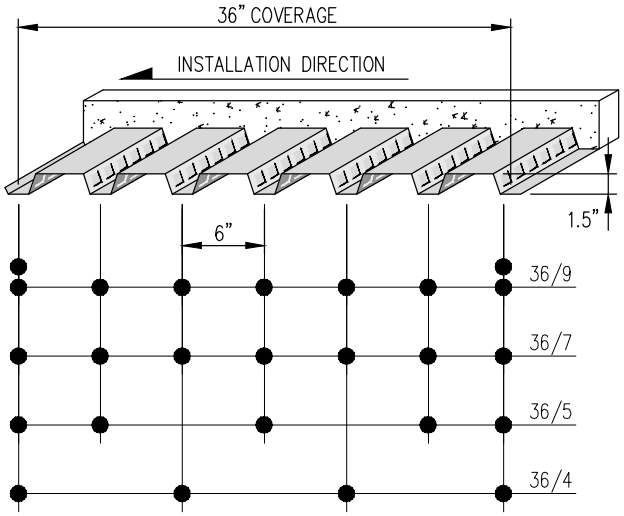


B-Deck BW-36, Wide Rib, 1.5B
36" Coverage

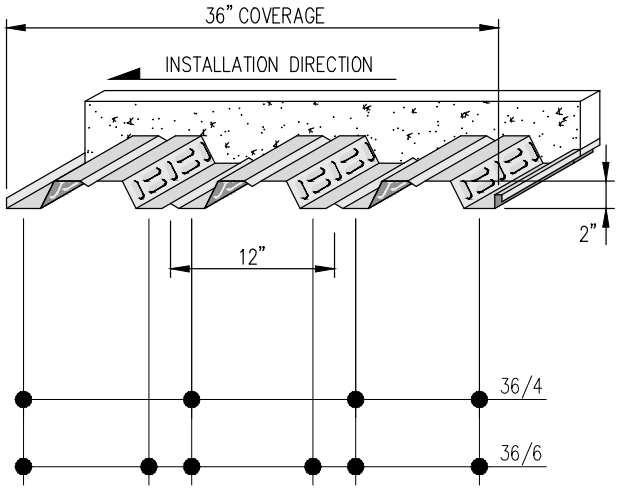


N-Deck Deep Rib, 3N
32" Coverage

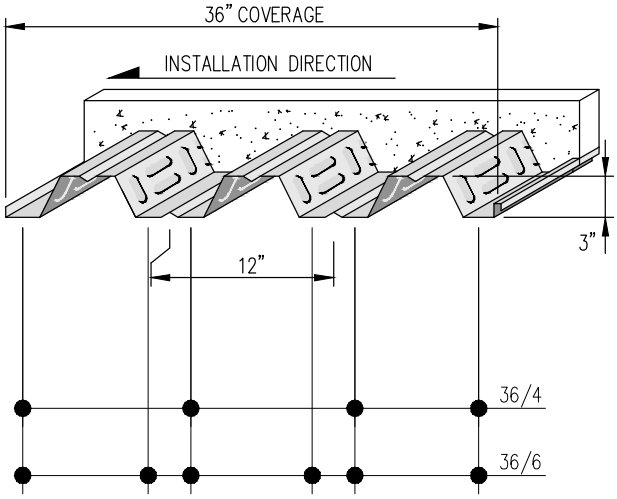
COMPOSITE DECK ATTACHMENT LAYOUTS



1.5" Composite Deck
36" Coverage

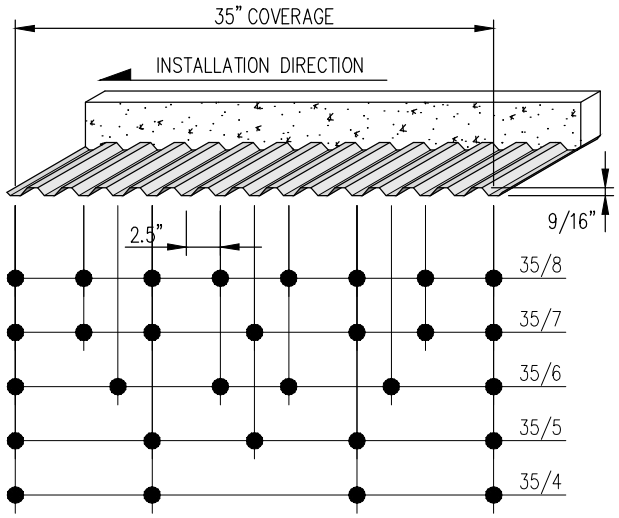


2" Composite Deck
36" Coverage

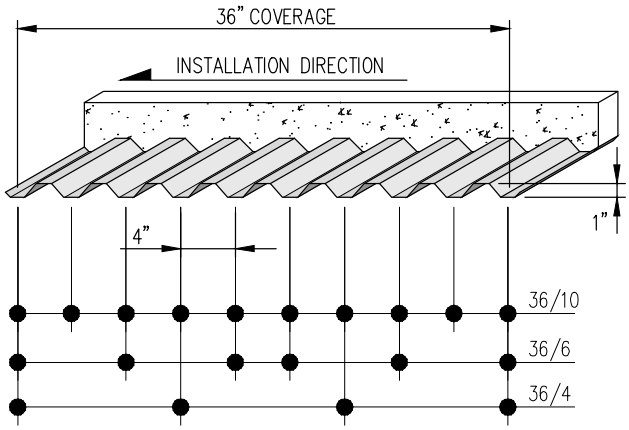


3" Composite Deck
36" Coverage

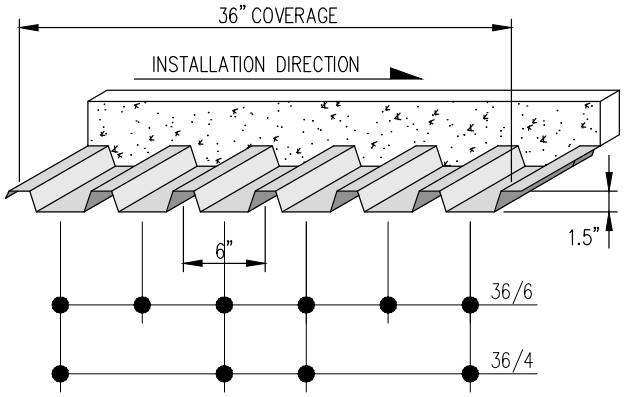
FORM DECK ATTACHMENT LAYOUTS



9/16" Form Deck
35" Coverage

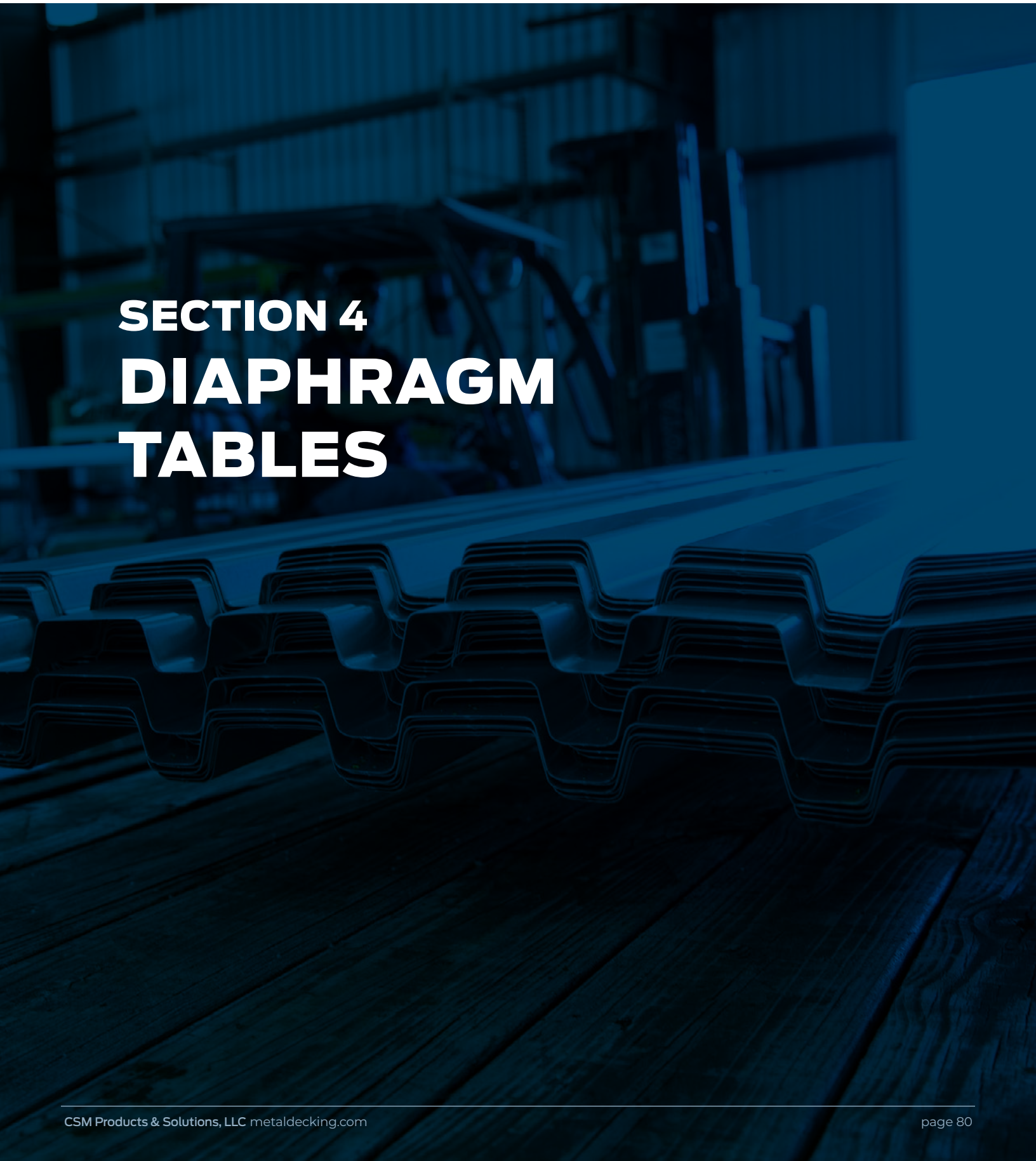


1" Form Deck
36" Coverage



1.5" Form Deck
36" Coverage

PRODUCTS & SOLUTIONS



SECTION 4
DIAPHRAGM TABLES

DIAPHRAGM 1.5” FORM

WELDED ATTACHMENT

PRODUCTS & SOLUTIONS

1.5” x 6” x 22 Ga.

Design thickness	0.0295 in.
Support fastening	5/8” weld
Side-lap fastening	#10 screws

Fu	50 ksi
Fy	40 ksi
Fxx	60 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕdf	Ωdf	Loading	ϕdf	Ωdf
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/ Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
			4	4.5	5	5.5	6	6.5	7	7.5	8	1/ft
No Fill (Bare Deck)	**36/7**	0	1965	1735	1550							0.486
		1	2080	1835	1645	1485	1355					0.377
		2	2195	1940	1735	1570	1430	1310	1210	1125	1045	0.308
		3	2300	2040	1825	1650	1505	1385	1275	1185	1105	0.261
		4	2400	2145	1920	1735	1585	1455	1345	1245	1160	0.226
	36/5	0	1800	1605	1435							0.583
		1	1895	1705	1525	1380	1255					0.433
		2	1985	1790	1615	1460	1330	1220	1125	1045	975	0.345
		3	2075	1875	1710	1545	1410	1290	1195	1105	1030	0.286
		4	2165	1960	1785	1630	1485	1365	1260	1170	1090	0.245
	36/4	0	1375	1210	1080							0.728
		1	1475	1315	1170	1055	960					0.509
		2	1565	1415	1265	1140	1035	950	875	810	755	0.391
		3	1650	1495	1355	1225	1115	1020	940	870	810	0.318
		4	1735	1575	1440	1305	1190	1090	1005	930	870	0.267
2 1/2” NW Conc. (Above Deck)	**36/4**	0	6375	6215	6080							0.728
		1	6490	6315	6175	6060	5960					0.509
		2	6535	6415	6265	6140	6040	5950	5875	5810	5755	0.391
		3	6535	6520	6355	6225	6115	6020	5940	5870	5810	0.318
		4	6535	6535	6450	6310	6190	6090	6005	5935	5870	0.267
2 1/2” LW Conc. (Above Deck)	**36/4**	0	4615	4615	4615							0.728
		1	4615	4615	4615	4615	4520					0.509
		2	4615	4615	4615	4615	4600	4510	4435	4370	4315	0.391
		3	4615	4615	4615	4615	4615	4580	4500	4430	4370	0.318
		4	4615	4615	4615	4615	4615	4615	4565	4495	4430	0.267
Type I Insul. Fill	**36/4**	0	1920	1755	1625							0.728
		1	2035	1860	1715	1600	1505					0.509
		2	2150	1960	1810	1685	1580	1495	1420	1355	1295	0.391
		3	2265	2060	1900	1770	1660	1565	1485	1415	1355	0.318
		4	2380	2165	1990	1850	1735	1635	1550	1475	1410	0.267

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in⁴/ft	4	4.5	5	5.5	6	6.5	7	7.5	8
1.5x6	0.173	8575	6775	5490	4535	3810	3245	2800	2440	2140

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min {S_{nf}/Ω_{df}, S_{nb}/Ω_{db}} • LRFD Required strength (Factored Applied Load) <= Min {$\phi_{df}S_{nf}$, $\phi_{db}S_{nb}$}

1.5" x 6" x 20 Ga.

Design thickness	0.0358 in.
Support fastening	5/8" weld
Side-lap fastening	#10 screws

Fu	50 ksi
Fy	40 ksi
Fxx	60 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕdf	Ωdf	Loading	ϕdf	Ωdf
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/ Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
			4	4.5	5	5.5	6	6.5	7	7.5	8	1/ft
No Fill (Bare Deck)	**36/7**	0	2070	1830	1640							0.535
		1	2225	1965	1760	1590	1450					0.415
		2	2370	2105	1885	1705	1555	1425	1320	1225	1140	0.340
		3	2505	2240	2005	1815	1655	1520	1405	1305	1220	0.287
		4	2635	2365	2130	1925	1760	1615	1495	1390	1295	0.249
	36/5	0	1890	1695	1515							0.642
		1	2015	1815	1635	1480	1350					0.477
		2	2140	1930	1755	1590	1450	1330	1230	1140	1065	0.380
		3	2255	2040	1860	1705	1555	1425	1320	1225	1140	0.315
		4	2370	2150	1965	1805	1655	1520	1405	1305	1220	0.270
	36/4	0	1450	1280	1145							0.802
		1	1570	1415	1265	1140	1040					0.561
		2	1690	1530	1390	1255	1140	1045	965	895	835	0.431
		3	1805	1640	1495	1365	1245	1140	1055	975	910	0.350
		4	1915	1745	1595	1470	1345	1235	1140	1060	985	0.294
2 1/2" NW Conc. (Above Deck)	**36/4**	0	6450	6280	6140							0.802
		1	6535	6415	6265	6140	6035					0.561
		2	6535	6535	6385	6250	6140	6045	5960	5890	5830	0.431
		3	6535	6535	6510	6365	6240	6140	6050	5975	5905	0.350
		4	6535	6535	6535	6475	6345	6235	6140	6055	5985	0.294
2 1/2" LW Conc. (Above Deck)	**36/4**	0	4615	4615	4615							0.802
		1	4615	4615	4615	4615	4595					0.561
		2	4615	4615	4615	4615	4615	4605	4520	4450	4390	0.431
		3	4615	4615	4615	4615	4615	4615	4610	4535	4465	0.350
		4	4615	4615	4615	4615	4615	4615	4615	4615	4545	0.294
Type I Insul. Fill	**36/4**	0	1995	1820	1685							0.802
		1	2145	1955	1805	1680	1580					0.561
		2	2300	2095	1930	1795	1680	1585	1505	1435	1370	0.431
		3	2455	2230	2050	1905	1785	1680	1595	1515	1450	0.350
		4	2605	2365	2175	2020	1885	1775	1680	1600	1525	0.294

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in⁴/ft	4	4.5	5	5.5	6	6.5	7	7.5	8
1.5x6	0.210	11480	9070	7345	6070	5100	4345	3745	3265	2870

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min $\{S_{nf}/\Omega_{df}, S_{nb}/\Omega_{db}\}$ • LRFD Required strength (Factored Applied Load) <= Min $\{\phi_{df}S_{nf}, \phi_{db}S_{nb}\}$

1.5" x 6" x 18 Ga.

Design thickness	0.0474 in.
Support fastening	5/8" weld
Side-lap fastening	#10 screws

Fu	50 ksi
Fy	40 ksi
Fxx	60 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕdf	Ωdf	Loading	ϕdf	Ωdf
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/ Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
			5	5.5	6	6.5	7	7.5	8	8.5	9	1/ft
No Fill (Bare Deck)	**36/7**	0	1190									0.615
		1	1375	1245	1135							0.478
		2	1565	1415	1295	1190	1100	1020	955	895	840	0.391
		3	1730	1585	1450	1335	1235	1145	1070	1005	945	0.330
		4	1895	1735	1605	1475	1365	1270	1190	1115	1050	0.286
	36/5	0	1100									0.739
		1	1275	1165	1065							0.549
		2	1430	1315	1215	1120	1035	965	900	845	790	0.437
		3	1580	1455	1350	1255	1170	1090	1015	955	895	0.363
		4	1720	1590	1475	1375	1290	1210	1135	1065	1000	0.310
	36/4	0	830									0.923
		1	1015	920	840							0.645
		2	1165	1075	995	915	845	785	730	685	645	0.496
		3	1305	1210	1120	1045	980	910	850	795	750	0.403
		4	1440	1335	1245	1160	1090	1025	965	905	850	0.339
2 1/2" NW Conc. (Above Deck)	**36/4**	0	5795									0.923
		1	5980	5885	5800							0.645
		2	6170	6055	5960	5875	5805	5745	5695	5645	5605	0.496
		3	6355	6225	6115	6020	5940	5870	5810	5760	5710	0.403
		4	6535	6395	6270	6165	6075	5995	5930	5870	5815	0.339
2 1/2" LW Conc. (Above Deck)	**36/4**	0	4355									0.923
		1	4540	4445	4360							0.645
		2	4615	4615	4520	4435	4365	4305	4255	4205	4165	0.496
		3	4615	4615	4615	4580	4500	4430	4370	4315	4270	0.403
		4	4615	4615	4615	4615	4615	4555	4490	4425	4375	0.339
Type I Insul. Fill	**36/4**	0	1340									0.923
		1	1525	1425	1345							0.645
		2	1710	1595	1500	1420	1350	1290	1235	1190	1150	0.496
		3	1900	1765	1655	1565	1485	1415	1355	1300	1255	0.403
		4	2085	1940	1815	1710	1620	1540	1470	1410	1355	0.339

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in⁴/ft	5	5.5	6	6.5	7	7.5	8	8.5	9
1.5x6	0.279	11210	9265	7785	6630	5715	4980	4375	3875	3460

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min $\{S_{nf}/\Omega_{df}, S_{nb}/\Omega_{db}\}$ • LRFD Required strength (Factored Applied Load) <= Min $\{\phi_{df}S_{nf}, \phi_{db}S_{nb}\}$

1.5" x 6" x 16 Ga.

Design thickness	0.0598 in.
Support fastening	5/8" weld
Side-lap fastening	#10 screws

Fu	50 ksi
Fy	50 ksi
Fxx	60 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕdf	Ωdf	Loading	ϕdf	Ωdf
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/ Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
			6	6.5	7	7.5	8	8.5	9	9.5	10	1/ft
No Fill (Bare Deck)	**36/7**	0	1440									0.537
		1	1660	1530	1415	1315	1230	1155	1085			0.439
		2	1885	1735	1605	1495	1395	1310	1235	1165	1105	0.371
		3	2080	1930	1795	1670	1560	1465	1380	1305	1235	0.322
		4	2275	2115	1975	1845	1725	1620	1530	1445	1370	0.284
	36/5	0	1350									0.617
		1	1550	1440	1335	1245	1160	1090	1025			0.491
		2	1735	1615	1515	1420	1325	1245	1170	1105	1050	0.408
		3	1915	1785	1675	1575	1485	1400	1320	1245	1180	0.349
		4	2085	1950	1830	1720	1625	1540	1460	1385	1315	0.304
	36/4	0	1075									0.725
		1	1275	1185	1100	1020	955	895	840			0.557
		2	1455	1355	1270	1195	1120	1050	990	935	885	0.452
		3	1620	1515	1425	1340	1270	1200	1135	1075	1015	0.381
		4	1775	1665	1570	1480	1405	1330	1265	1205	1150	0.329
2 1/2" NW Conc. (Above Deck)	**36/4**	0	6040									0.725
		1	6265	6160	6070	5990	5925	5865	5810			0.557
		2	6485	6360	6260	6170	6090	6020	5955	5900	5850	0.452
		3	6535	6535	6450	6345	6255	6175	6105	6040	5985	0.381
		4	6535	6535	6535	6520	6420	6330	6250	6180	6115	0.329
2 1/2" LW Conc. (Above Deck)	**36/4**	0	4600									0.725
		1	4615	4615	4615	4550	4480	4420	4370			0.557
		2	4615	4615	4615	4615	4615	4580	4515	4460	4410	0.452
		3	4615	4615	4615	4615	4615	4615	4615	4600	4545	0.381
		4	4615	4615	4615	4615	4615	4615	4615	4615	4615	0.329
Type I Insul. Fill	**36/4**	0	1585									0.725
		1	1805	1700	1610	1535	1465	1405	1350			0.557
		2	2025	1905	1800	1710	1630	1560	1500	1445	1395	0.452
		3	2250	2110	1990	1885	1795	1720	1645	1585	1525	0.381
		4	2470	2315	2180	2065	1965	1875	1795	1725	1660	0.329

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in⁴/ft	6	6.5	7	7.5	8	8.5	9	9.5	10
1.5x6	0.383	11745	10005	8625	7515	6605	5850	5220	4685	4225

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min {S_{nf}/Ω_{df}, S_{nb}/Ω_{db}} • LRFD Required strength (Factored Applied Load) <= Min {$\phi_{df}S_{nf}$, $\phi_{db}S_{nb}$}

DIAPHRAGM 1.5” FORM

SCREW ATTACHMENT

PRODUCTS & SOLUTIONS

1.5” x 6” x 22 Ga.

Design thickness	0.0298 in.
Support fastening	#12 screws
Side-lap fastening	#10 screws
Minimum support thickness	0.075 in.

Fu	50 ksi
Fy	40 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕdf	Ωdf	Loading	ϕdf	Ωdf
Seismic	0.70	2.30	Seismic	0.50	3.25
Wind	0.80	2.00	Wind	0.50	3.25
Other	0.70	3.30	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/ Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
			4	4.5	5	5.5	6	6.5	7	7.5	8	1/ft
No Fill (Bare Deck)	**36/7**	0	415	370	330							0.552
		1	525	470	425	380	350					0.416
		2	625	560	510	465	425	390	360	335	315	0.334
		3	715	645	590	540	500	465	430	400	370	0.279
		4	800	725	665	610	565	530	495	460	430	0.240
	36/5	0	380	340	305							0.662
		1	475	430	390	360	325					0.476
		2	555	505	465	430	400	370	345	320	300	0.372
		3	630	575	535	495	460	430	405	380	355	0.305
		4	690	640	595	555	515	485	455	430	405	0.259
	36/4	0	290	255	230							0.828
		1	380	345	315	290	265					0.556
		2	460	420	385	360	335	310	290	270	250	0.419
		3	520	480	450	420	390	365	345	325	305	0.336
		4	575	535	500	470	440	415	395	370	350	0.281
2 1/2” NW Conc. (Above Deck)	**36/4**	0	5215	5180	5155							0.828
		1	5335	5285	5245	5215	5190					0.556
		2	5450	5390	5340	5300	5265	5240	5215	5195	5175	0.419
		3	5565	5495	5435	5385	5345	5310	5280	5255	5235	0.336
		4	5685	5595	5525	5470	5425	5385	5350	5320	5295	0.281
2 1/2” LW Conc. (Above Deck)	**36/4**	0	3775	3740	3715							0.828
		1	3895	3845	3805	3775	3750					0.556
		2	4010	3950	3900	3860	3825	3800	3775	3755	3735	0.419
		3	4125	4050	3995	3945	3905	3870	3840	3815	3795	0.336
		4	4245	4155	4085	4030	3985	3940	3910	3880	3850	0.281
Type I Insul. Fill	**36/4**	0	760	725	695							0.828
		1	875	830	790	760	730					0.556
		2	995	930	885	845	810	780	760	735	720	0.419
		3	1110	1035	975	930	890	855	825	800	775	0.336
		4	1225	1140	1070	1015	965	925	890	860	835	0.281

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in⁴/ft	4	4.5	5	5.5	6	6.5	7	7.5	8
1.5x6	0.173	8640	6825	5530	4570	3840	3270	2820	2455	2160

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min {S_{nf}/Ω_{df}, S_{nb}/Ω_{db}} • LRFD Required strength (Factored Applied Load) <= Min {$\phi_{df}S_{nf}$, $\phi_{db}S_{nb}$}

1.5" x 6" x 20 Ga.

Design thickness	0.0358 in.
Support fastening	#12 screws
Side-lap fastening	#10 screws
Minimum support thickness	0.09 in.

Fu	50 ksi
Fy	40 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕdf	Ωdf	Loading	ϕdf	Ωdf
Seismic	0.70	2.30	Seismic	0.50	3.25
Wind	0.80	2.00	Wind	0.50	3.25
Other	0.70	3.30	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/ Span	Nominal Shear Strength, S_{nf}, plf[1,2]									K_1
			Span, ft.									
			4	4.5	5	5.5	6	6.5	7	7.5	8	1/ft
No Fill (Bare Deck)	**36/7**	0	505	445	400							0.605
		1	645	580	520	470	430					0.456
		2	770	695	635	580	535	490	455	420	395	0.366
		3	890	805	735	675	625	580	540	505	470	0.306
		4	995	905	830	770	710	665	620	580	545	0.263
	36/5	0	460	410	370							0.726
		1	580	525	480	440	405					0.522
		2	685	625	575	530	495	460	430	400	375	0.408
		3	780	715	660	615	575	535	505	475	445	0.334
		4	855	795	740	690	645	605	570	540	510	0.283
	36/4	0	350	310	275							0.907
		1	470	425	390	360	330					0.610
		2	565	520	480	445	415	385	365	340	320	0.459
		3	645	600	560	520	490	460	430	405	385	0.368
		4	710	665	625	585	555	520	495	465	445	0.307
2 1/2" NW Conc. (Above Deck)	**36/4**	0	5280	5240	5205							0.907
		1	5435	5375	5325	5290	5255					0.610
		2	5585	5510	5450	5400	5360	5325	5295	5265	5245	0.459
		3	5740	5650	5575	5510	5460	5420	5380	5350	5320	0.368
		4	5895	5785	5695	5625	5565	5515	5470	5430	5400	0.307
2 1/2" LW Conc. (Above Deck)	**36/4**	0	3840	3800	3765							0.907
		1	3995	3935	3885	3850	3815					0.610
		2	4145	4070	4010	3960	3920	3885	3855	3825	3805	0.459
		3	4300	4205	4135	4070	4020	3980	3940	3910	3880	0.368
		4	4455	4345	4255	4185	4125	4070	4030	3990	3960	0.307
Type I Insul. Fill	**36/4**	0	825	780	745							0.907
		1	975	915	870	830	800					0.610
		2	1130	1055	995	945	900	865	835	810	785	0.459
		3	1285	1190	1115	1055	1005	960	925	890	865	0.368
		4	1440	1325	1240	1165	1105	1055	1010	975	940	0.307

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2]								
		Span, ft.								
	in⁴/ft	4	4.5	5	5.5	6	6.5	7	7.5	8
1.5x6	0.210	11480	9070	7345	6070	5100	4345	3745	3265	2870

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min {S_{nf}/Ω_{df}, S_{nb}/Ω_{db}} • LRFD Required strength (Factored Applied Load) <= Min {$\phi_{df}S_{nf}$, $\phi_{db}S_{nb}$}

1.5" x 6" x 18 Ga.

Design thickness	0.0474 in.
Support fastening	#12 screws
Side-lap fastening	#10 screws
Minimum support thickness	0.119 in.

Fu	50 ksi
Fy	40 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕdf	Ωdf	Loading	ϕdf	Ωdf
Seismic	0.70	2.30	Seismic	0.50	3.25
Wind	0.80	2.00	Wind	0.50	3.25
Other	0.70	3.30	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/ Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
			5	5.5	6	6.5	7	7.5	8	8.5	9	1/ft
No Fill (Bare Deck)	**36/7**	0	530									0.696
		1	720	650	595							0.525
		2	880	810	745	690	640	595	555	520	490	0.422
		3	1035	950	880	820	765	720	675	630	595	0.352
		4	1175	1085	1010	940	880	830	780	740	700	0.303
	36/5	0	490									0.835
		1	655	605	560							0.601
		2	800	740	685	640	600	565	530	500	470	0.469
		3	925	860	805	755	710	665	630	600	570	0.385
		4	1035	970	910	855	805	765	725	685	655	0.326
	36/4	0	370									1.044
		1	535	495	460							0.702
		2	670	620	580	545	510	480	455	425	400	0.528
		3	780	730	685	645	610	575	545	520	495	0.424
		4	875	825	780	735	700	665	630	600	575	0.354
2 1/2" NW Conc. (Above Deck)	**36/4**	0	5300									1.044
		1	5490	5435	5390							0.702
		2	5675	5605	5550	5500	5455	5420	5385	5360	5330	0.528
		3	5865	5775	5705	5640	5590	5545	5505	5470	5435	0.424
		4	6050	5945	5860	5785	5725	5670	5620	5580	5540	0.354
2 1/2" LW Conc. (Above Deck)	**36/4**	0	3860									1.044
		1	4050	3995	3950							0.702
		2	4235	4165	4105	4060	4015	3980	3945	3915	3890	0.528
		3	4425	4335	4265	4200	4150	4105	4065	4030	3995	0.424
		4	4610	4505	4420	4345	4285	4230	4180	4140	4100	0.354
Type I Insul. Fill	**36/4**	0	845									1.044
		1	1035	980	935							0.702
		2	1220	1150	1090	1040	1000	960	930	900	875	0.528
		3	1405	1320	1245	1185	1130	1085	1045	1010	980	0.424
		4	1595	1490	1405	1330	1265	1210	1165	1120	1085	0.354

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in⁴/ft	5	5.5	6	6.5	7	7.5	8	8.5	9
1.5x6	0.279	11210	9265	7785	6630	5715	4980	4375	3875	3460

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min $\{S_{nf}/\Omega_{df}, S_{nb}/\Omega_{db}\}$ • LRFD Required strength (Factored Applied Load) <= Min $\{\phi_{df}S_{nf}, \phi_{db}S_{nb}\}$

1.5" x 6" x 16 Ga.

Design thickness	0.0598 in.
Support fastening	#12 screws
Side-lap fastening	#10 screws
Minimum support thickness	0.15 in.

Fu	50 ksi
Fy	40 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕdf	Ωdf	Loading	ϕdf	Ωdf
Seismic	0.70	2.30	Seismic	0.50	3.25
Wind	0.80	2.00	Wind	0.50	3.25
Other	0.70	3.30	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/ Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
			6	6.5	7	7.5	8	8.5	9	9.5	10	1/ft
No Fill (Bare Deck)	**36/7**	0	780									0.590
		1	985	915	855	795	740	695	655			0.474
		2	1175	1090	1020	960	905	855	805	760	720	0.396
		3	1350	1260	1180	1110	1050	990	940	895	855	0.340
		4	1515	1420	1335	1255	1190	1125	1070	1020	970	0.298
	36/5	0	725									0.675
		1	905	845	790	745	705	665	630			0.527
		2	1065	1000	940	890	840	795	760	720	690	0.432
		3	1210	1140	1075	1020	970	920	875	840	800	0.366
		4	1335	1265	1200	1140	1085	1035	990	945	905	0.318
	36/4	0	600									0.788
		1	770	720	675	635	605	570	545			0.594
		2	910	860	815	770	730	695	665	635	605	0.476
		3	1035	980	935	890	845	810	775	740	710	0.397
		4	1135	1085	1035	990	950	910	870	835	805	0.341
2 1/2" NW Conc. (Above Deck)	**36/4**	0	5545									0.788
		1	5765	5700	5640	5595	5550	5510	5475			0.594
		2	5985	5905	5830	5770	5715	5665	5625	5585	5555	0.476
		3	6210	6105	6020	5945	5880	5825	5770	5725	5685	0.397
		4	6430	6310	6210	6125	6045	5980	5920	5865	5820	0.341
2 1/2" LW Conc. (Above Deck)	**36/4**	0	4105									0.788
		1	4325	4260	4200	4150	4110	4070	4035			0.594
		2	4545	4465	4390	4330	4275	4225	4185	4145	4110	0.476
		3	4615	4615	4580	4505	4440	4385	4330	4285	4245	0.397
		4	4615	4615	4615	4615	4605	4540	4480	4425	4380	0.341
Type I Insul. Fill	**36/4**	0	1085									0.788
		1	1310	1240	1185	1135	1090	1055	1020			0.594
		2	1530	1445	1375	1310	1260	1210	1170	1130	1095	0.476
		3	1750	1650	1565	1490	1425	1365	1315	1270	1230	0.397
		4	1970	1855	1755	1665	1590	1525	1465	1410	1360	0.341

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in⁴/ft	6	6.5	7	7.5	8	8.5	9	9.5	10
1.5x6	0.383	11745	10005	8625	7515	6605	5850	5220	4685	4225

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min {S_{nf}/Ω_{df}, S_{nb}/Ω_{db}} • LRFD Required strength (Factored Applied Load) <= Min {$\phi_{df}S_{nf}$, $\phi_{db}S_{nb}$}

DIAPHRAGM 1" FORM

WELDED ATTACHMENT

PRODUCTS & SOLUTIONS

1" x 4" x 26 Ga.

Design thickness	0.0179 in.
Support fastening	16 ga weld washer w/ 3/8" hole
Side-lap fastening	#10 screws

Fu	62 ksi
Fy	60 ksi
Fxx	60 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕdf	Ωdf	Loading	ϕdf	Ωdf
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/ Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
			1.5	2	2.5	3	3.5	4	4.5	5	5.5	1/ft
No Fill (Bare Deck)	**36/10**	0	2255	1795	1485	1260	1090	955	845	760		0.272
		1	2360	1895	1570	1335	1160	1025	905	815	735	0.226
		2	2465	1995	1660	1415	1230	1085	965	865	785	0.193
		3	2565	2085	1745	1490	1295	1145	1025	920	835	0.168
		4	2655	2175	1825	1560	1360	1205	1080	975	885	0.149
	36/6	0	1635	1370	1165	1005	885	785	705	635		0.358
		1	1705	1440	1235	1075	945	840	755	685	625	0.282
		2	1765	1510	1300	1135	1005	895	810	735	670	0.232
		3	1820	1570	1365	1195	1060	950	855	780	715	0.197
		4	1865	1630	1425	1255	1115	1000	905	825	760	0.171
	36/4	0	1020	865	740	640	565	505	450	400		0.567
		1	1080	930	805	705	625	555	505	455	410	0.396
		2	1130	985	865	760	680	610	550	505	460	0.305
		3	1170	1035	915	815	730	660	595	545	505	0.247
		4	1205	1080	965	865	775	705	640	590	540	0.208
2 1/2" NW Conc. (Above Deck)	**36/4**	0	6340	5980	5765	5620	5520	5440	5380	5335		0.567
		1	6520	6115	5870	5710	5595	5510	5440	5385	5345	0.396
		2	6535	6250	5980	5800	5670	5575	5500	5440	5390	0.305
		3	6535	6385	6090	5890	5750	5645	5560	5495	5440	0.247
		4	6535	6520	6195	5980	5825	5710	5620	5550	5490	0.208
2 1/2" LW Conc. (Above Deck)	**36/4**	0	4615	4540	4325	4180	4080	4000	3940	3895		0.567
		1	4615	4615	4430	4270	4155	4070	4000	3945	3905	0.396
		2	4615	4615	4540	4360	4230	4135	4060	4000	3950	0.305
		3	4615	4615	4615	4450	4310	4205	4120	4055	4000	0.247
		4	4615	4615	4615	4540	4385	4270	4180	4110	4050	0.208
Type I Insul. Fill	**36/4**	0	1885	1525	1310	1165	1060	985	925	875		0.567
		1	2060	1660	1415	1255	1140	1050	985	930	885	0.396
		2	2240	1795	1525	1345	1215	1120	1045	985	935	0.305
		3	2420	1925	1630	1435	1290	1185	1105	1040	985	0.247
			2600	2060	1740	1525	1370	1255	1165	1090	1035	0.208

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in⁴/ft	1.5	2	2.5	3	3.5	4	4.5	5	5.5
1x4	0.040	14530	8170	5230	3630	2665	2040	1610	1305	1080

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min {S_{nf}/Ω_{df}, S_{nb}/Ω_{db}} • LRFD Required strength (Factored Applied Load) <= Min {$\phi_{df}S_{nf}$, $\phi_{db}S_{nb}$}

1" x 4" x 24 Ga.

Design thickness	0.0239 in.
Support fastening	16 ga weld washer w/ 3/8" hole
Side-lap fastening	#10 screws

Fu	62 ksi
Fy	60 ksi
Fxx	60 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕdf	Ωdf	Loading	ϕdf	Ωdf
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/ Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
			2	2.5	3	3.5	4	4.5	5	5.5	6	1/ft
No Fill (Bare Deck)	**36/10**	0	1860	1535	1300	1125	995	880	790			0.315
		1	2010	1670	1420	1235	1090	970	870	790	720	0.261
		2	2155	1800	1535	1340	1185	1060	955	865	790	0.223
		3	2290	1925	1650	1440	1275	1145	1035	940	860	0.194
		4	2420	2045	1760	1540	1365	1225	1110	1015	930	0.172
	36/6	0	1415	1205	1040	910	810	730	660			0.414
		1	1525	1310	1140	1005	895	810	735	675	615	0.325
		2	1625	1410	1235	1095	980	885	805	740	680	0.268
		3	1710	1500	1325	1180	1060	960	875	805	745	0.228
		4	1785	1580	1405	1260	1135	1030	945	870	805	0.198
	36/4	0	890	765	665	585	520	465	420			0.656
		1	990	860	760	670	600	545	495	455	415	0.458
		2	1070	945	840	755	680	615	565	520	480	0.352
		3	1135	1020	915	825	750	685	630	580	540	0.286
		4	1185	1080	980	890	815	745	690	635	595	0.241
2 1/2" NW Conc. (Above Deck)	**36/4**	0	6015	5795	5645	5540	5460	5395	5350			0.656
		1	6225	5960	5785	5655	5565	5490	5430	5385	5345	0.458
		2	6430	6125	5920	5775	5665	5580	5515	5460	5410	0.352
		3	6535	6290	6060	5895	5770	5675	5595	5535	5480	0.286
		4	6535	6460	6200	6015	5875	5765	5680	5610	5550	0.241
2 1/2" LW Conc. (Above Deck)	**36/4**	0	4575	4355	4205	4100	4020	3955	3905			0.656
		1	4615	4520	4345	4215	4125	4050	3990	3940	3900	0.458
		2	4615	4615	4480	4335	4225	4140	4075	4020	3970	0.352
		3	4615	4615	4615	4455	4330	4235	4155	4095	4040	0.286
		4	4615	4615	4615	4575	4435	4325	4240	4170	4110	0.241
Type I Insul. Fill	**36/4**	0	1560	1335	1190	1080	1000	940	890			0.656
		1	1765	1505	1325	1200	1105	1030	975	925	885	0.458
		2	1975	1670	1465	1320	1210	1125	1055	1000	955	0.352
		3	2185	1835	1605	1440	1315	1215	1140	1075	1025	0.286
			2390	2000	1740	1555	1420	1310	1225	1150	1095	0.241

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in^4/ft	2	2.5	3	3.5	4	4.5	5	5.5	6
1x4	0.053	12660	8105	5625	4135	3165	2500	2025	1670	1405

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min {S_{nf}/Ω_{df}, S_{nb}/Ω_{db}} • LRFD Required strength (Factored Applied Load) <= Min {$\phi_{df}S_{nf}$, $\phi_{db}S_{nb}$}

1" x 4" x 22 Ga.

Design thickness	0.0295 in.
Support fastening	5/8" weld
Side-lap fastening	#10 screws

Fu	62 ksi
Fy	60 ksi
Fxx	60 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕdf	Ωdf	Loading	ϕdf	Ωdf
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/ Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
			2	2.5	3	3.5	4	4.5	5	5.5	6	1/ft
No Fill (Bare Deck)	**36/10**	0	2655	2190	1860	1610	1420	1260	1130			0.350
		1	2865	2375	2025	1755	1550	1385	1245	1130	1030	0.290
		2	3065	2555	2185	1900	1680	1505	1360	1235	1125	0.247
		3	3250	2730	2340	2040	1805	1620	1465	1335	1220	0.216
		4	3430	2895	2490	2180	1930	1735	1570	1435	1315	0.191
	36/6	0	2025	1720	1485	1305	1160	1040	945			0.460
		1	2175	1865	1625	1435	1275	1150	1045	960	880	0.362
		2	2310	2005	1755	1555	1390	1255	1145	1050	970	0.298
		3	2430	2125	1875	1670	1500	1360	1240	1140	1050	0.253
		4	2535	2240	1990	1780	1605	1455	1330	1225	1135	0.220
	36/4	0	1275	1090	950	835	745	670	600			0.728
		1	1410	1225	1080	955	855	775	705	645	590	0.509
		2	1520	1345	1195	1070	960	875	800	735	680	0.391
		3	1610	1445	1295	1170	1060	965	890	820	760	0.318
		4	1685	1530	1385	1260	1150	1055	970	900	835	0.267
2 1/2" NW Conc. (Above Deck)	**36/4**	0	6495	6175	5965	5810	5700	5610	5540			0.728
		1	6535	6405	6155	5975	5840	5735	5655	5585	5525	0.509
		2	6535	6535	6345	6135	5985	5865	5765	5690	5620	0.391
		3	6535	6535	6535	6300	6125	5990	5880	5790	5715	0.318
		4	6535	6535	6535	6465	6270	6115	5995	5895	5810	0.267
2 1/2" LW Conc. (Above Deck)	**36/4**	0	4615	4615	4525	4370	4255	4170	4100			0.728
		1	4615	4615	4615	4535	4400	4295	4210	4145	4085	0.509
		2	4615	4615	4615	4615	4540	4420	4325	4250	4180	0.391
		3	4615	4615	4615	4615	4615	4550	4440	4350	4275	0.318
		4	4615	4615	4615	4615	4615	4615	4555	4455	4370	0.267
Type I Insul. Fill	**36/4**	0	2035	1720	1505	1355	1240	1150	1080			0.728
		1	2320	1945	1695	1515	1385	1280	1195	1125	1070	0.509
		2	2605	2175	1885	1680	1525	1405	1310	1230	1165	0.391
		3	2890	2400	2075	1845	1670	1530	1425	1335	1260	0.318
			3175	2630	2265	2005	1810	1660	1535	1440	1355	0.267

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in^4/ft	2	2.5	3	3.5	4	4.5	5	5.5	6
1x4	0.067	17525	11215	7785	5720	4380	3460	2800	2315	1945

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min $\{S_{nf}/\Omega_{df}, S_{nb}/\Omega_{db}\}$ • LRFD Required strength (Factored Applied Load) <= Min $\{\phi_{df}S_{nf}, \phi_{db}S_{nb}\}$

1" x 4" x 20 Ga.

Design thickness	0.0358 in.
Support fastening	5/8" weld
Side-lap fastening	#10 screws

Fu	62 ksi
Fy	60 ksi
Fxx	60 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕdf	Ωdf	Loading	ϕdf	Ωdf
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/ Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
			2	2.5	3	3.5	4	4.5	5	5.5	6	1/ft
No Fill (Bare Deck)	**36/10**	0	3555	2935	2490	2160	1905	1695	1520			0.385
		1	3840	3185	2710	2355	2080	1860	1675	1515	1385	0.319
		2	4105	3425	2925	2545	2250	2015	1825	1655	1515	0.272
		3	4355	3655	3135	2735	2420	2170	1965	1795	1640	0.238
		4	4595	3880	3335	2920	2590	2320	2105	1925	1770	0.211
	36/6	0	2710	2305	1995	1750	1555	1395	1265			0.507
		1	2915	2505	2180	1920	1710	1545	1400	1285	1180	0.398
		2	3095	2685	2350	2085	1865	1685	1535	1405	1300	0.328
		3	3255	2850	2515	2240	2010	1820	1660	1525	1410	0.279
		4	3395	3000	2665	2385	2150	1950	1785	1640	1520	0.243
	36/4	0	1710	1465	1270	1120	995	895	810			0.802
		1	1890	1645	1445	1280	1150	1040	945	870	795	0.561
		2	2040	1800	1600	1430	1290	1170	1070	985	910	0.431
		3	2160	1935	1735	1565	1420	1295	1190	1100	1020	0.350
		4	2260	2050	1855	1690	1540	1410	1300	1205	1120	0.294
2 1/2" NW Conc. (Above Deck)	**36/4**	0	6535	6535	6325	6120	5970	5850	5755			0.802
		1	6535	6535	6535	6340	6160	6020	5905	5815	5740	0.561
		2	6535	6535	6535	6535	6350	6190	6060	5955	5865	0.431
		3	6535	6535	6535	6535	6535	6360	6210	6095	5995	0.350
		4	6535	6535	6535	6535	6535	6525	6365	6230	6120	0.294
2 1/2" LW Conc. (Above Deck)	**36/4**	0	4615	4615	4615	4615	4530	4410	4315			0.802
		1	4615	4615	4615	4615	4615	4580	4465	4375	4300	0.561
		2	4615	4615	4615	4615	4615	4615	4615	4515	4425	0.431
		3	4615	4615	4615	4615	4615	4615	4615	4615	4555	0.350
		4	4615	4615	4615	4615	4615	4615	4615	4615	4615	0.294
Type I Insul. Fill	**36/4**	0	2580	2150	1865	1665	1510	1395	1300			0.802
		1	2960	2455	2120	1880	1700	1560	1450	1360	1285	0.561
		2	3340	2760	2375	2100	1890	1730	1605	1495	1410	0.431
		3	3720	3065	2630	2315	2085	1900	1755	1635	1535	0.350
			4100	3370	2885	2535	2275	2070	1910	1775	1665	0.294

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in^4/ft	2	2.5	3	3.5	4	4.5	5	5.5	6
1x4	0.080	23250	14880	10330	7590	5810	4590	3720	3070	2580

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min $\{S_{nf}/\Omega_{df}, S_{nb}/\Omega_{db}\}$ • LRFD Required strength (Factored Applied Load) <= Min $\{\phi_{df}S_{nf}, \phi_{db}S_{nb}\}$

DIAPHRAGM 1” FORM

SCREW ATTACHMENT

PRODUCTS & SOLUTIONS

1” x 4” x 26 Ga.

Design thickness	0.0179 in.
Support fastening	#12 screws
Side-lap fastening	#10 screws
Minimum support thickness	0.045 in.

Fu	62 ksi
Fy	60 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕdf	Ωdf	Loading	ϕdf	Ωdf
Seismic	0.70	2.30	Seismic	0.50	3.25
Wind	0.80	2.00	Wind	0.50	3.25
Other	0.70	3.30	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/ Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
			1.5	2	2.5	3	3.5	4	4.5	5	5.5	1/ft
No Fill (Bare Deck)	**36/10**	0	980	780	645	545	475	415	365	330		0.308
		1	1085	880	730	625	540	480	425	385	345	0.249
		2	1175	965	815	695	610	540	480	435	395	0.210
		3	1255	1050	890	765	670	595	535	485	445	0.181
		4	1325	1125	960	835	735	655	590	535	490	0.159
	36/6	0	710	595	505	435	380	340	305	275		0.405
		1	775	665	575	500	440	395	355	325	295	0.310
		2	820	720	630	560	495	445	405	370	340	0.251
		3	860	770	685	610	545	495	450	410	380	0.211
		4	890	805	725	655	595	540	495	455	420	0.182
	36/4	0	440	375	320	280	245	215	195	175		0.641
		1	495	435	380	335	300	270	245	225	205	0.431
		2	530	480	430	385	350	315	290	265	245	0.325
		3	555	510	465	425	390	355	330	305	280	0.260
		4	570	535	495	460	425	390	365	335	315	0.217
2 1/2” NW Conc. (Above Deck)	**36/4**	0	5525	5370	5275	5215	5170	5135	5110	5090		0.641
		1	5705	5505	5385	5305	5245	5205	5170	5145	5120	0.431
		2	5885	5640	5495	5395	5325	5270	5230	5195	5170	0.325
		3	6065	5775	5600	5485	5400	5340	5290	5250	5220	0.260
		4	6245	5910	5710	5575	5480	5405	5350	5305	5270	0.217
2 1/2” LW Conc. (Above Deck)	**36/4**	0	4085	3930	3835	3775	3730	3695	3670	3650		0.641
		1	4265	4065	3945	3865	3805	3765	3730	3705	3680	0.431
		2	4445	4200	4050	3955	3885	3830	3790	3755	3730	0.325
		3	4615	4335	4160	4045	3960	3900	3850	3810	3780	0.260
		4	4615	4470	4270	4135	4035	3965	3910	3865	3830	0.217
Type I Insul. Fill	**36/4**	0	1070	915	820	755	715	680	655	630		0.641
		1	1250	1050	930	845	790	745	715	685	665	0.431
		2	1430	1185	1035	935	865	815	775	740	715	0.325
		3	1610	1320	1145	1025	945	880	835	795	760	0.260
			1790	1455	1250	1115	1020	950	895	850	810	0.217

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in⁴/ft	1.5	2	2.5	3	3.5	4	4.5	5	5.5
1x4	0.040	14530	8170	5230	3630	2665	2040	1610	1305	1080

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min {S_{nf}/Ω_{df}, S_{nb}/Ω_{db}} • LRFD Required strength (Factored Applied Load) <= Min {$\phi_{df}S_{nf}$, $\phi_{db}S_{nb}$}

1" x 4" x 24 Ga.

Design thickness	0.0239 in.
Support fastening	#12 screws
Side-lap fastening	#10 screws
Minimum support thickness	0.06 in.

Fu	62 ksi
Fy	60 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕdf	Ωdf	Loading	ϕdf	Ωdf
Seismic	0.70	2.30	Seismic	0.50	3.25
Wind	0.80	2.00	Wind	0.50	3.25
Other	0.70	3.30	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/ Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
			2	2.5	3	3.5	4	4.5	5	5.5	6	1/ft
No Fill (Bare Deck)	**36/10**	0	1040	860	730	630	555	495	440			0.356
		1	1190	995	850	740	650	585	525	475	435	0.288
		2	1330	1120	960	840	745	665	605	550	505	0.242
		3	1450	1235	1065	935	835	750	680	620	570	0.209
		4	1555	1340	1165	1030	920	830	755	690	635	0.184
	36/6	0	795	675	585	510	455	410	370			0.468
		1	900	780	680	605	540	485	445	405	375	0.358
		2	985	865	770	685	620	560	510	470	435	0.290
		3	1050	940	845	760	690	630	575	530	495	0.243
		4	1105	1005	910	825	755	690	640	590	550	0.210
	36/4	0	500	430	370	325	290	260	235			0.741
		1	590	520	460	410	370	335	310	285	260	0.498
		2	655	590	535	485	440	405	370	345	320	0.375
		3	695	645	590	545	500	460	430	400	370	0.301
		4	730	680	635	590	550	510	475	445	420	0.251
2 1/2" NW Conc. (Above Deck)	**36/4**	0	5530	5405	5320	5260	5215	5180	5150			0.741
		1	5735	5570	5460	5380	5320	5270	5235	5205	5180	0.498
		2	5945	5735	5595	5495	5425	5365	5320	5280	5250	0.375
		3	6150	5900	5735	5615	5525	5455	5400	5355	5320	0.301
		4	6360	6070	5875	5735	5630	5550	5485	5430	5390	0.251
2 1/2" LW Conc. (Above Deck)	**36/4**	0	4090	3960	3880	3820	3775	3740	3710			0.741
		1	4295	4130	4015	3940	3880	3830	3795	3765	3740	0.498
		2	4505	4295	4155	4055	3980	3925	3880	3840	3810	0.375
		3	4615	4460	4295	4175	4085	4015	3960	3915	3880	0.301
		4	4615	4615	4435	4295	4190	4110	4045	3990	3945	0.251
Type I Insul. Fill	**36/4**	0	1070	945	860	800	760	725	695			0.741
		1	1280	1110	1000	920	860	815	780	750	725	0.498
		2	1485	1280	1140	1040	965	910	860	825	790	0.375
		3	1695	1445	1280	1160	1070	1000	945	900	860	0.301
			1900	1610	1415	1280	1175	1095	1030	975	930	0.251

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in^4/ft	2	2.5	3	3.5	4	4.5	5	5.5	6
1x4	0.053	12660	8105	5625	4135	3165	2500	2025	1670	1405

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min $\{S_{nf}/\Omega_{df}, S_{nb}/\Omega_{db}\}$ • LRFD Required strength (Factored Applied Load) <= Min $\{\phi_{df}S_{nf}, \phi_{db}S_{nb}\}$

1" x 4" x 22 Ga.

Design thickness	0.0295 in.
Support fastening	#12 screws
Side-lap fastening	#10 screws
Minimum support thickness	0.074 in.

Fu	62 ksi
Fy	60 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕdf	Ωdf	Loading	ϕdf	Ωdf
Seismic	0.70	2.30	Seismic	0.50	3.25
Wind	0.80	2.00	Wind	0.50	3.25
Other	0.70	3.30	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/ Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
			2	2.5	3	3.5	4	4.5	5	5.5	6	1/ft
No Fill (Bare Deck)	**36/10**	0	1285	1060	900	780	690	610	550			0.395
		1	1490	1245	1065	925	820	730	660	600	550	0.320
		2	1675	1415	1215	1065	945	845	765	700	645	0.269
		3	1835	1570	1360	1195	1065	960	870	795	735	0.232
		4	1975	1710	1495	1320	1180	1065	970	890	820	0.204
	36/6	0	980	835	720	630	560	505	460			0.520
		1	1125	975	855	755	675	610	555	510	470	0.398
		2	1235	1090	970	870	785	710	650	600	555	0.322
		3	1320	1190	1070	970	880	805	740	680	635	0.270
		4	1390	1270	1155	1055	965	890	820	760	705	0.233
	36/4	0	620	530	460	405	360	325	290			0.823
		1	740	655	580	520	470	425	390	360	330	0.554
		2	820	745	675	615	560	515	475	440	410	0.417
		3	875	810	750	690	640	590	550	510	480	0.334
		4	915	860	805	750	700	655	615	575	540	0.279
2 1/2" NW Conc. (Above Deck)	**36/4**	0	5675	5520	5415	5345	5290	5245	5210			0.823
		1	5960	5750	5605	5505	5430	5370	5325	5285	5255	0.554
		2	6245	5975	5795	5670	5575	5500	5440	5390	5350	0.417
		3	6530	6205	5985	5830	5715	5625	5555	5495	5445	0.334
		4	6535	6430	6175	5995	5860	5750	5665	5595	5540	0.279
2 1/2" LW Conc. (Above Deck)	**36/4**	0	4235	4080	3975	3905	3850	3805	3770			0.823
		1	4520	4310	4165	4065	3990	3930	3885	3845	3815	0.554
		2	4615	4535	4355	4230	4135	4060	4000	3950	3910	0.417
		3	4615	4615	4545	4390	4275	4185	4115	4055	4005	0.334
		4	4615	4615	4615	4555	4420	4310	4225	4155	4100	0.279
Type I Insul. Fill	**36/4**	0	1220	1065	960	885	830	790	755			0.823
		1	1505	1290	1150	1050	975	915	870	830	795	0.554
		2	1790	1520	1340	1210	1115	1040	980	935	890	0.417
		3	2075	1745	1530	1375	1260	1170	1095	1035	985	0.334
			2360	1975	1720	1540	1400	1295	1210	1140	1080	0.279

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in^4/ft	2	2.5	3	3.5	4	4.5	5	5.5	6
1x4	0.067	34610	22150	15380	11300	8650	6835	5535	4575	3845

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min $\{S_{nf}/\Omega_{df}, S_{nb}/\Omega_{db}\}$ • LRFD Required strength (Factored Applied Load) <= Min $\{\phi_{df}S_{nf}, \phi_{db}S_{nb}\}$

1" x 4" x 20 Ga.

Design thickness	0.0358 in.
Support fastening	#12 screws
Side-lap fastening	#10 screws
Minimum support thickness	0.09 in.

Fu	62 ksi
Fy	60 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕdf	Ωdf	Loading	ϕdf	Ωdf
Seismic	0.70	2.30	Seismic	0.50	3.25
Wind	0.80	2.00	Wind	0.50	3.25
Other	0.70	3.30	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/ Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
			2	2.5	3	3.5	4	4.5	5	5.5	6	1/ft
No Fill (Bare Deck)	**36/10**	0	1565	1290	1095	950	835	745	665			0.435
		1	1835	1535	1310	1140	1010	905	815	745	680	0.353
		2	2075	1755	1515	1325	1175	1055	955	875	805	0.297
		3	2280	1960	1700	1500	1335	1205	1095	1000	920	0.256
		4	2465	2140	1875	1660	1490	1345	1225	1125	1035	0.225
	36/6	0	1190	1010	875	765	680	615	555			0.573
		1	1380	1200	1055	935	835	755	690	630	585	0.438
		2	1525	1350	1205	1080	975	890	815	750	695	0.355
		3	1635	1475	1335	1210	1100	1010	925	860	795	0.298
		4	1715	1575	1440	1320	1210	1115	1035	960	895	0.257
	36/4	0	750	640	560	490	435	395	355			0.907
		1	910	810	720	645	580	530	485	445	415	0.610
		2	1010	925	840	770	705	645	595	555	515	0.459
		3	1080	1005	930	865	800	745	695	645	605	0.368
		4	1125	1060	1000	940	880	825	775	730	685	0.307
2 1/2" NW Conc. (Above Deck)	**36/4**	0	5840	5650	5525	5440	5370	5320	5275			0.907
		1	6220	5955	5780	5655	5560	5490	5430	5380	5340	0.610
		2	6535	6260	6035	5875	5750	5655	5580	5520	5470	0.459
		3	6535	6535	6290	6090	5940	5825	5735	5660	5595	0.368
		4	6535	6535	6535	6310	6135	5995	5885	5795	5725	0.307
2 1/2" LW Conc. (Above Deck)	**36/4**	0	4400	4210	4085	3995	3930	3880	3835			0.907
		1	4615	4515	4340	4215	4120	4050	3990	3940	3900	0.610
		2	4615	4615	4595	4435	4310	4215	4140	4080	4030	0.459
		3	4615	4615	4615	4615	4500	4385	4295	4220	4155	0.368
		4	4615	4615	4615	4615	4615	4555	4445	4355	4280	0.307
Type I Insul. Fill	**36/4**	0	1385	1195	1070	980	915	860	820			0.907
		1	1765	1500	1325	1200	1105	1030	970	925	885	0.610
		2	2145	1805	1580	1415	1295	1200	1125	1065	1010	0.459
		3	2525	2110	1830	1635	1485	1370	1275	1200	1140	0.368
			2905	2415	2085	1850	1675	1540	1430	1340	1265	0.307

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in⁴/ft	2	2.5	3	3.5	4	4.5	5	5.5	6
1x4	0.080	23250	14880	10330	7590	5810	4590	3720	3070	2580

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min $\{S_{nf}/\Omega_{df}, S_{nb}/\Omega_{db}\}$ • LRFD Required strength (Factored Applied Load) <= Min $\{\phi_{df}S_{nf}, \phi_{db}S_{nb}\}$

DIAPHRAGM B-DECK

WELDED ATTACHMENT

PRODUCTS & SOLUTIONS

1.5WR22

Design thickness	0.0295 in.
Support fastening	5/8" arc spot welds or equivalent
Side-lap fastening	#10 screws

Fu	50 ksi
Fy	40 ksi
Fxx	60 ksi

Loading	ϕdf	Ωdf
Seismic	0.55	3.00
Wind	0.75	2.15
Other	0.55	3.00

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2]									K_1
		Span, ft.									
		3	3.5	4	4.5	5	5.5	6	6.5	7	l/ft
36/9	0	1940	1705	1520	1345	1200					0.324
	1	2045	1805	1610	1445	1290	1165	1060			0.272
	2	2150	1905	1705	1540	1385	1250	1140	1045	960	0.234
	3	2250	2000	1795	1620	1475	1335	1215	1115	1025	0.206
	4	2350	2090	1880	1705	1555	1415	1290	1185	1095	0.183
	5	2440	2180	1965	1780	1630	1500	1370	1255	1160	0.165
	6	2525	2265	2045	1860	1700	1570	1445	1325	1225	0.151
36/7	0	1240	1075	935	825	740					0.486
	1	1365	1190	1050	930	830	750	685			0.377
	2	1490	1300	1155	1030	925	835	760	700	645	0.308
	3	1605	1410	1255	1125	1015	920	840	770	710	0.261
	4	1715	1510	1350	1215	1105	1000	915	840	775	0.226
	5	1820	1610	1440	1300	1185	1085	990	910	845	0.199
	6	1925	1705	1530	1385	1260	1160	1070	980	910	0.178
36/5	0	1095	965	860	765	685					0.583
	1	1205	1065	950	860	775	700	640			0.433
	2	1305	1160	1040	940	860	785	715	655	605	0.345
	3	1395	1250	1125	1020	935	860	790	725	670	0.286
	4	1485	1335	1205	1100	1005	925	860	795	735	0.245
	5	1560	1410	1280	1170	1075	995	920	860	805	0.214
	6	1630	1485	1355	1240	1145	1055	985	920	860	0.190
36/4	0	840	740	655	575	515					0.728
	1	945	835	750	675	605	545	495			0.509
	2	1040	930	835	760	695	630	575	525	485	0.391
	3	1125	1010	915	835	765	705	650	595	550	0.318
	4	1200	1085	990	905	835	770	715	665	615	0.267
	5	1265	1155	1060	975	900	835	775	725	680	0.231
	6	1325	1220	1120	1035	960	890	830	780	730	0.203

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2]								
		Span, ft.								
	in^4/ft	3	3.5	4	4.5	5	5.5	6	6.5	7
WR	0.173	15257	11209	8582	6781	5493	4539	3814	3250	2802

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min $\{S_{nf}/\Omega_{df}, S_{nb}/\Omega_{db}\}$ • LRFD Required strength (Factored Applied Load) <= Min $\{\phi_{df}S_{nf}, \phi_{db}S_{nb}\}$

1.5WR20

Design thickness	0.0358 in.
Support fastening	5/8" arc spot welds or equivalent
Side-lap fastening	#10 screws

Fu	50 ksi
Fy	40 ksi
Fxx	60 ksi

Loading	ϕdf	Ωdf
Seismic	0.55	3.00
Wind	0.75	2.15
Other	0.55	3.00

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
		4	4.5	5	5.5	6	6.5	7	7.5	8	1/ft
36/9	0	1855	1650	1475							0.357
	1	1980	1785	1600	1445	1315					0.299
	2	2100	1900	1720	1555	1420	1300	1200	1115	1035	0.258
	3	2220	2010	1830	1670	1520	1395	1290	1195	1115	0.226
	4	2335	2115	1935	1775	1625	1490	1375	1275	1190	0.202
	5	2445	2220	2030	1870	1725	1585	1465	1360	1270	0.182
	6	2555	2325	2130	1960	1815	1680	1550	1440	1345	0.166
36/7	0	1150	1015	910							0.535
	1	1300	1150	1030	935	850					0.415
	2	1435	1285	1155	1045	955	875	810	750	700	0.340
	3	1565	1405	1275	1155	1055	970	895	835	780	0.287
	4	1690	1525	1385	1270	1160	1065	985	915	855	0.249
	5	1810	1635	1490	1365	1260	1160	1075	1000	930	0.219
	6	1930	1745	1595	1465	1350	1255	1160	1080	1010	0.196
36/5	0	1050	940	840							0.642
	1	1175	1060	965	870	795					0.477
	2	1290	1170	1065	980	895	825	760	705	660	0.380
	3	1405	1275	1165	1075	995	920	850	790	735	0.315
	4	1510	1375	1260	1165	1080	1005	935	870	810	0.270
	5	1605	1470	1355	1250	1160	1085	1015	950	890	0.236
	6	1700	1560	1440	1335	1240	1160	1090	1025	965	0.209
36/4	0	805	710	635							0.802
	1	925	835	755	685	620					0.561
	2	1040	945	865	795	725	665	615	570	530	0.431
	3	1145	1045	960	885	820	760	700	650	605	0.350
	4	1240	1140	1050	970	900	840	790	735	685	0.294
	5	1330	1225	1135	1050	980	915	860	810	760	0.254
	6	1410	1305	1210	1130	1055	990	930	875	830	0.224

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in⁴/ft	4	4.5	5	5.5	6	6.5	7	7.5	8
WR	0.210	11482	9072	7348	6073	5103	4348	3749	3266	2870

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min {S_{nf}/Ω_{df}, S_{nb}/Ω_{db}} • LRFD Required strength (Factored Applied Load) <= Min {$\phi_{df}S_{nf}$, $\phi_{db}S_{nb}$}

1.5WR18

Design thickness	0.0474 in.
Support fastening	5/8" arc spot welds or equivalent
Side-lap fastening	#10 screws

Fu	50 ksi
Fy	40 ksi
Fxx	60 ksi

Loading	ϕdf	Ωdf
Seismic	0.55	3.00
Wind	0.75	2.15
Other	0.55	3.00

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
		5	5.5	6	6.5	7	7.5	8	8.5	9	1/ft
36/9	0	1935									0.410
	1	2120	1920	1750							0.344
	2	2290	2090	1905	1750	1615	1500	1400	1310	1230	0.297
	3	2450	2250	2060	1895	1750	1625	1515	1420	1335	0.261
	4	2600	2390	2215	2035	1885	1750	1635	1530	1440	0.232
	5	2750	2530	2345	2180	2015	1875	1750	1640	1545	0.210
	6	2890	2670	2475	2305	2150	2000	1865	1750	1645	0.191
36/7	0	1190									0.615
	1	1375	1245	1135							0.478
	2	1565	1415	1295	1190	1100	1020	955	895	840	0.391
	3	1730	1585	1450	1335	1235	1145	1070	1005	945	0.330
	4	1895	1735	1605	1475	1365	1270	1190	1115	1050	0.286
	5	2050	1885	1740	1615	1500	1395	1305	1225	1155	0.253
	6	2205	2030	1875	1745	1630	1520	1425	1335	1260	0.226
36/5	0	1100									0.739
	1	1275	1165	1065							0.549
	2	1430	1315	1215	1120	1035	965	900	845	790	0.437
	3	1580	1455	1350	1255	1170	1090	1015	955	895	0.363
	4	1720	1590	1475	1375	1290	1210	1135	1065	1000	0.310
	5	1855	1720	1600	1495	1400	1315	1245	1175	1105	0.271
	6	1985	1840	1715	1605	1510	1420	1340	1270	1205	0.241
36/4	0	830									0.923
	1	1015	920	840							0.645
	2	1165	1075	995	915	845	785	730	685	645	0.496
	3	1305	1210	1120	1045	980	910	850	795	750	0.403
	4	1440	1335	1245	1160	1090	1025	965	905	850	0.339
	5	1560	1455	1355	1270	1195	1130	1065	1010	955	0.293
	6	1675	1565	1465	1375	1295	1225	1160	1100	1045	0.257

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in⁴/ft	5	5.5	6	6.5	7	7.5	8	8.5	9
WR	0.279	11211	9265	7786	6634	5720	4983	4379	3879	3460

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min $\{S_{nf}/\Omega_{df}, S_{nb}/\Omega_{db}\}$ • LRFD Required strength (Factored Applied Load) <= Min $\{\phi_{df}S_{nf}, \phi_{db}S_{nb}\}$

1.5WR16

Design thickness	0.0598 in.
Support fastening	5/8" arc spot welds or equivalent
Side-lap fastening	#10 screws

Fu	50 ksi
Fy	40 ksi
Fxx	60 ksi

Loading	ϕdf	Ωdf
Seismic	0.55	3.00
Wind	0.75	2.15
Other	0.55	3.00

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
		6	6.5	7	7.5	8	8.5	9	9.5	10	1/ft
36/9	0	2205									0.387
	1	2425	2230	2060	1915	1785	1675	1575			0.333
	2	2640	2430	2250	2090	1950	1830	1720	1625	1535	0.293
	3	2830	2630	2440	2270	2120	1985	1870	1765	1670	0.261
	4	3015	2805	2625	2445	2285	2140	2015	1905	1800	0.235
	5	3195	2980	2790	2620	2450	2300	2165	2040	1935	0.214
	6	3370	3145	2945	2770	2615	2455	2310	2180	2065	0.197
36/7	0	1440									0.537
	1	1660	1530	1415	1315	1230	1155	1085			0.439
	2	1885	1735	1605	1495	1395	1310	1235	1165	1105	0.371
	3	2080	1930	1795	1670	1560	1465	1380	1305	1235	0.322
	4	2275	2115	1975	1845	1725	1620	1530	1445	1370	0.284
	5	2460	2290	2140	2010	1890	1780	1675	1585	1500	0.254
	6	2645	2465	2305	2165	2040	1930	1825	1725	1635	0.229
36/5	0	1350									0.617
	1	1550	1440	1335	1245	1160	1090	1025			0.491
	2	1735	1615	1515	1420	1325	1245	1170	1105	1050	0.408
	3	1915	1785	1675	1575	1485	1400	1320	1245	1180	0.349
	4	2085	1950	1830	1720	1625	1540	1460	1385	1315	0.304
	5	2245	2105	1980	1865	1765	1670	1590	1515	1445	0.270
	6	2395	2250	2120	2005	1895	1800	1710	1630	1560	0.243
36/4	0	1075									0.725
	1	1275	1185	1100	1020	955	895	840			0.557
	2	1455	1355	1270	1195	1120	1050	990	935	885	0.452
	3	1620	1515	1425	1340	1270	1200	1135	1075	1015	0.381
	4	1775	1665	1570	1480	1405	1330	1265	1205	1150	0.329
	5	1920	1810	1705	1615	1530	1455	1385	1320	1265	0.289
	6	2055	1940	1835	1740	1655	1575	1500	1435	1370	0.258

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in^4/ft	6	6.5	7	7.5	8	8.5	9	9.5	10
WR	0.353	11049	9414	8117	7071	6215	5505	4910	4407	3977

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min {S_{nf}/Ω_{df}, S_{nb}/Ω_{db}} • LRFD Required strength (Factored Applied Load) <= Min {$\phi_{df}S_{nf}$, $\phi_{db}S_{nb}$}

DIAPHRAGM B-DECK

SCREW ATTACHMENT

PRODUCTS & SOLUTIONS

1.5WR22

Design thickness	0.0295 in.
Support fastening	#12 screws
Side-lap fastening	#10 screws

Fu	50 ksi
Fy	40 ksi

Loading	ϕdf	Ωdf
Seismic	0.70	2.30
Wind	0.80	2.00
Other	0.70	2.30

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
		3	3.5	4	4.5	5	5.5	6	6.5	7	l/ft
36/9	0	855	755	670	595	530					0.366
	1	960	850	765	690	620	560	510			0.301
	2	1060	945	850	770	705	645	585	540	495	0.255
	3	1145	1030	930	845	775	715	665	610	565	0.222
	4	1220	1105	1005	920	845	780	725	675	630	0.196
	5	1290	1175	1075	990	910	845	785	735	690	0.176
	6	1355	1240	1140	1050	975	905	845	790	740	0.159
36/7	0	545	475	415	365	325					0.549
	1	670	585	520	465	420	380	345			0.414
	2	785	690	615	555	505	460	420	385	360	0.333
	3	885	785	705	640	585	535	495	460	425	0.278
	4	970	870	790	715	655	605	560	520	485	0.239
	5	1050	950	865	790	725	670	625	580	545	0.209
	6	1115	1020	935	855	790	735	685	640	600	0.186
36/5	0	485	425	380	335	300					0.659
	1	585	520	470	425	385	355	325			0.474
	2	675	605	550	500	460	425	395	365	340	0.370
	3	745	680	620	570	525	490	455	425	400	0.304
	4	800	740	680	630	585	545	510	480	450	0.257
	5	850	790	735	685	640	600	560	530	500	0.223
	6	885	830	780	730	685	645	610	575	545	0.197
36/4	0	370	325	290	255	225					0.823
	1	470	420	380	345	315	285	260			0.554
	2	545	495	455	415	380	355	330	305	285	0.417
	3	605	555	515	475	445	415	385	360	340	0.334
	4	650	605	565	530	495	465	435	410	390	0.279
	5	680	645	605	570	540	510	480	455	430	0.240
	6	710	675	640	610	575	550	520	495	470	0.210

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in⁴/ft	3	3.5	4	4.5	5	5.5	6	6.5	7
WR	0.173	15257	11209	8582	6781	5493	4539	3814	3250	2802

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min $\{S_{nf}/\Omega_{df}, S_{nb}/\Omega_{db}\}$ • LRFD Required strength (Factored Applied Load) <= Min $\{\phi_{df}S_{nf}, \phi_{db}S_{nb}\}$

1.5WR20

Design thickness	0.0358 in.
Support fastening	#12 screws
Side-lap fastening	#10 screws

Fu	50 ksi
Fy	40 ksi

Loading	ϕdf	Ωdf
Seismic	0.70	2.30
Wind	0.80	2.00
Other	0.70	2.30

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 4	4.5	5	5.5	6	6.5	7	7.5	8	K_1 1/ft
36/9	0	815	725	650							0.403
	1	935	845	770	695	635					0.331
	2	1050	955	875	805	735	675	625	580	540	0.281
	3	1160	1055	970	895	830	770	715	660	620	0.244
	4	1255	1150	1060	980	910	850	795	745	695	0.216
	5	1345	1240	1145	1065	990	925	870	815	770	0.193
	6	1430	1320	1225	1140	1065	1000	940	885	835	0.175
36/7	0	505	445	400							0.605
	1	645	580	520	470	430					0.456
	2	770	695	635	580	535	490	455	420	395	0.366
	3	890	805	735	675	625	580	540	505	470	0.306
	4	995	905	830	770	710	665	620	580	545	0.263
	5	1090	1000	925	855	795	740	695	655	615	0.230
	6	1180	1090	1005	935	870	815	765	720	680	0.205
36/5	0	460	410	370							0.726
	1	580	525	480	440	405					0.522
	2	685	625	575	530	495	460	430	400	375	0.408
	3	780	715	660	615	575	535	505	475	445	0.334
	4	855	795	740	690	645	605	570	540	510	0.283
	5	920	860	805	755	710	670	635	600	570	0.246
	6	980	920	865	820	770	730	690	655	625	0.217
36/4	0	350	310	275							0.907
	1	470	425	390	360	330					0.610
	2	565	520	480	445	415	385	365	340	320	0.459
	3	645	600	560	520	490	460	430	405	385	0.368
	4	710	665	625	585	555	520	495	465	445	0.307
	5	760	720	680	645	610	580	550	520	495	0.264
	6	800	760	725	690	660	625	600	570	545	0.231

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft. 4	4.5	5	5.5	6	6.5	7	7.5	8
	in⁴/ft									
WR	0.210	11482	9072	7348	6073	5103	4348	3749	3266	2870

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min {S_{nf}/Ω_{df}, S_{nb}/Ω_{db}} • LRFD Required strength (Factored Applied Load) <= Min {$\phi_{df}S_{nf}$, $\phi_{db}S_{nb}$}

1.5WR18

Design thickness	0.0474 in.
Support fastening	#12 screws
Side-lap fastening	#10 screws

Fu	50 ksi
Fy	40 ksi

Loading	ϕdf	Ωdf
Seismic	0.70	2.30
Wind	0.80	2.00
Other	0.70	2.30

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
		5	5.5	6	6.5	7	7.5	8	8.5	9	1/ft
36/9	0	865									0.464
	1	1045	955	870							0.381
	2	1195	1100	1020	940	870	810	755	710	665	0.324
	3	1340	1235	1150	1070	1000	935	870	820	770	0.281
	4	1475	1365	1270	1185	1115	1045	990	930	875	0.248
	5	1595	1485	1385	1300	1220	1150	1085	1030	975	0.223
	6	1715	1600	1495	1405	1320	1250	1180	1120	1065	0.202
36/7	0	530									0.696
	1	720	650	595							0.525
	2	880	810	745	690	640	595	555	520	490	0.422
	3	1035	950	880	820	765	720	675	630	595	0.352
	4	1175	1085	1010	940	880	830	780	740	700	0.303
	5	1305	1215	1130	1055	990	935	880	835	790	0.265
	6	1425	1330	1245	1165	1095	1035	980	930	880	0.236
36/5	0	490									0.835
	1	655	605	560							0.601
	2	800	740	685	640	600	565	530	500	470	0.469
	3	925	860	805	755	710	665	630	600	570	0.385
	4	1035	970	910	855	805	765	725	685	655	0.326
	5	1130	1065	1005	950	900	850	810	770	735	0.283
	6	1210	1150	1090	1030	980	935	890	850	810	0.250
36/4	0	370									1.044
	1	535	495	460							0.702
	2	670	620	580	545	510	480	455	425	400	0.528
	3	780	730	685	645	610	575	545	520	495	0.424
	4	875	825	780	735	700	665	630	600	575	0.354
	5	950	900	855	815	775	740	710	675	650	0.304
	6	800	760	725	690	660	625	600	570	545	0.266

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in^4/ft	5	5.5	6	6.5	7	7.5	8	8.5	9
WR	0.279	11211	9265	7786	6634	5720	4983	4379	3879	3460

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min $\{S_{nf}/\Omega_{df}, S_{nb}/\Omega_{db}\}$ • LRFD Required strength (Factored Applied Load) <= Min $\{\phi_{df}S_{nf}, \phi_{db}S_{nb}\}$

1.5WR16

Design thickness	0.0598 in.
Support fastening	#12 screws
Side-lap fastening	#10 screws

Fu	50 ksi
Fy	40 ksi

Loading	ϕdf	Ωdf
Seismic	0.70	2.30
Wind	0.80	2.00
Other	0.70	2.30

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
		6	6.5	7	7.5	8	8.5	9	9.5	10	1/ft
36/9	0	1130									0.428
	1	1325	1235	1150	1070	995	935	880			0.363
	2	1505	1405	1315	1235	1165	1090	1025	970	920	0.316
	3	1675	1570	1470	1385	1310	1240	1175	1110	1050	0.279
	4	1835	1720	1620	1530	1445	1370	1305	1240	1185	0.250
	5	1985	1865	1760	1665	1575	1500	1425	1360	1300	0.227
	6	2125	2005	1895	1795	1700	1620	1545	1475	1410	0.207
36/7	0	780									0.590
	1	985	915	855	795	740	695	655			0.474
	2	1175	1090	1020	960	905	855	805	760	720	0.396
	3	1350	1260	1180	1110	1050	990	940	895	855	0.340
	4	1515	1420	1335	1255	1190	1125	1070	1020	970	0.298
	5	1670	1565	1475	1395	1320	1255	1195	1140	1085	0.265
	6	1810	1705	1610	1525	1450	1375	1310	1250	1200	0.239
36/5	0	725									0.675
	1	905	845	790	745	705	665	630			0.527
	2	1065	1000	940	890	840	795	760	720	690	0.432
	3	1210	1140	1075	1020	970	920	875	840	800	0.366
	4	1335	1265	1200	1140	1085	1035	990	945	905	0.318
	5	1445	1375	1310	1250	1195	1140	1090	1045	1005	0.281
	6	1540	1470	1405	1345	1290	1235	1185	1140	1095	0.251
36/4	0	600									0.788
	1	770	720	675	635	605	570	545			0.594
	2	910	860	815	770	730	695	665	635	605	0.476
	3	1035	980	935	890	845	810	775	740	710	0.397
	4	1135	1085	1035	990	950	910	870	835	805	0.341
	5	1220	1170	1125	1080	1035	995	960	925	890	0.299
	6	1285	1240	1195	1155	1115	1075	1035	1000	970	0.266

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling. See Table below.

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in⁴/ft	6	6.5	7	7.5	8	8.5	9	9.5	10
WR	0.353	11049	9414	8117	7071	6215	5505	4910	4407	3977

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min $\{S_{nf}/\Omega_{df}, S_{nb}/\Omega_{db}\}$ • LRFD Required strength (Factored Applied Load) <= Min $\{\phi_{df}S_{nf}, \phi_{db}S_{nb}\}$

N-Deck 32/3 Weld Pattern

Support fastening	5/8" arc spot welds or equivalent
Side-lap fastening	AISI #10 screws or equivalent

Fu	60 ksi
Fy	50 ksi
Fxx	60 ksi

Loading	ϕdf	Ωdf
Seismic	0.55	3.00
Wind	0.75	2.15
Other	0.55	3.00

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
		8	8.5	9	9.5	10	10.5	11	11.5	12	1/ft
3DR22 0.0295" 32/3	2	435	410	385							0.508
	3	505	475	445	425	400	385	365	350	335	0.401
	4	570	540	510	480	455	435	415	395	380	0.331
	5	635	605	570	540	510	490	465	445	425	0.282
	6	685	655	620	595	565	540	515	495	470	0.246
	7	735	700	670	640	610	585	565	540	520	0.217
	8	780	745	715	685	655	630	605	580	560	0.195
	9	825	790	755	725	695	670	645	620	595	0.177
	10	865	830	795	765	735	705	680	655	635	0.162
	11	905	870	835	800	770	745	715	690	670	0.149
	12	940	905	870	840	805	780	750	725	700	0.138
	I, in4/ft	Nominal Shear Strength due to Panel Buckling, Snb, plf									
	0.808	6643	5884	5249	4711	4252	3856	3514	3215	2952	

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
		9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	1/ft
3DR20 0.0358 32/3	2	510									0.560
	3	595	565	535	510	485	465	445			0.442
	4	675	640	610	580	555	530	505	485	465	0.365
	5	760	720	680	650	620	595	570	545	525	0.311
	6	825	790	755	720	685	655	630	605	580	0.270
	7	890	850	815	780	750	720	690	665	635	0.240
	8	950	910	870	835	805	775	745	720	695	0.215
	9	1005	965	925	890	855	825	795	765	740	0.195
	10	1060	1015	975	940	905	875	840	815	785	0.178
	11	1110	1065	1025	990	955	920	890	860	830	0.164
	12	1160	1115	1075	1035	1000	965	935	905	875	0.152
	I, in4/ft	Nominal Shear Strength due to Panel Buckling, Snb, plf									
	0.989	7060	6337	5719	5187	4726	4324	3971	3660	3384	

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2]									K_1
		Span, ft.									
		10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	1/ft
3DR18 0.0474 32/3	3	745	710	675	645	620					0.508
	4	855	815	780	745	715	685	660	635	610	0.420
	5	970	925	880	840	805	775	745	715	690	0.357
	6	1060	1020	975	940	900	865	830	800	770	0.311
	7	1145	1100	1060	1020	980	950	915	885	850	0.276
	8	1230	1180	1135	1095	1055	1020	985	955	925	0.247
	9	1305	1255	1210	1170	1130	1090	1055	1020	990	0.224
	10	1380	1330	1285	1240	1195	1160	1120	1085	1055	0.205
	11	1450	1400	1350	1305	1265	1225	1185	1150	1115	0.189
	12	1515	1465	1415	1370	1325	1285	1245	1210	1175	0.175
	13	1575	1525	1475	1430	1385	1345	1305	1270	1235	0.163
	I, in4/ft	Nominal Shear Strength due to Panel Buckling, Snb, plf									
	1.323	8782	7966	7258	6640	6099	5620	5196	4819	4481	

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2]									K_1
		Span, ft.									
		11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	1/ft
3DR16 0.0598 32/3	3	860	825	790							0.571
	4	1005	965	925	885	850	820	790	765	740	0.471
	5	1140	1100	1055	1015	975	940	905	875	845	0.401
	6	1255	1210	1165	1125	1090	1050	1020	985	950	0.350
	7	1365	1315	1270	1225	1185	1150	1115	1080	1045	0.310
	8	1465	1415	1370	1325	1280	1240	1205	1170	1135	0.278
	9	1565	1510	1465	1415	1375	1330	1290	1255	1220	0.252
	10	1655	1600	1550	1505	1460	1415	1375	1335	1300	0.230
	11	1740	1690	1635	1590	1540	1500	1455	1415	1380	0.212
	12	1820	1770	1715	1670	1620	1575	1535	1495	1455	0.197
	13	1895	1845	1790	1745	1695	1650	1605	1565	1525	0.184
	I, in4/ft	Nominal Shear Strength due to Panel Buckling, Snb, plf									
	1.672	10299	9423	8654	7975	7374	6838	6358	5927	5538	

	ϕdf	Ωdf
Buckling	0.80	2.00

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling.

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min $\{S_{nf}/\Omega_{df}, S_{nb}/\Omega_{db}\}$ • LRFD Required strength (Factored Applied Load) <= Min $\{\phi_{df}S_{nf}, \phi_{db}S_{nb}\}$

N-Deck 32/5 Weld Pattern

Support fastening	5/8" arc spot welds or equivalent
Side-lap fastening	AISI #10 screws or equivalent

Fu	60 ksi
Fy	50 ksi
Fxx	60 ksi

Loading	ϕdf	Ωdf
Seismic	0.55	3.00
Wind	0.75	2.15
Other	0.55	3.00

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
		8	8.5	9	9.5	10	10.5	11	11.5	12	1/ft
3DR22 0.0295" 32/5	2	520	490	465							0.412
	3	590	555	525	495	470	450	430	410	395	0.339
	4	660	620	585	555	525	500	480	460	440	0.288
	5	730	685	645	615	580	555	530	505	485	0.250
	6	800	750	710	670	640	605	580	555	530	0.221
	7	865	815	770	730	695	660	630	600	575	0.198
	8	935	880	830	785	750	710	680	650	625	0.179
	9	1000	945	895	845	805	765	730	700	670	0.164
	10	1060	1005	955	905	860	815	780	745	715	0.151
	11	1115	1060	1005	960	915	870	830	795	760	0.140
	12	1175	1115	1060	1010	960	920	880	840	805	0.130
	I, in4/ft	Nominal Shear Strength due to Panel Buckling, Snb, plf									
	0.808	6643	5884	5249	4711	4252	3856	3514	3215	2952	

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
		9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	1/ft
3DR20 0.0358 32/5	2	615									0.454
	3	695	660	625	595	570	545	520			0.373
	4	780	740	700	665	635	610	585	560	540	0.317
	5	860	815	775	740	705	675	645	620	595	0.275
	6	945	895	850	810	770	735	705	680	650	0.243
	7	1025	970	920	880	840	800	770	735	710	0.218
	8	1105	1050	995	950	905	865	830	795	765	0.197
	9	1190	1125	1070	1020	970	930	890	855	820	0.180
	10	1270	1205	1145	1090	1040	995	950	915	880	0.166
	11	1340	1275	1215	1160	1105	1060	1015	975	935	0.154
	12	1410	1340	1280	1225	1175	1120	1075	1030	990	0.143
	I, in4/ft	Nominal Shear Strength due to Panel Buckling, Snb, plf									
	0.989	7060	6337	5719	5187	4726	4324	3971	3660	3384	

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2]									K_1
		Span, ft.									
		10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	1/ft
3DR18 0.0474 32/5	3	865	825	785	750	720					0.429
	4	975	930	890	850	815	780	750	725	695	0.364
	5	1090	1035	990	945	905	870	835	805	775	0.317
	6	1200	1145	1090	1045	1000	960	925	890	860	0.280
	7	1315	1250	1195	1140	1095	1050	1010	975	940	0.251
	8	1425	1360	1295	1240	1190	1140	1095	1055	1020	0.227
	9	1540	1465	1400	1340	1280	1230	1185	1140	1100	0.207
	10	1640	1570	1500	1435	1375	1320	1270	1220	1180	0.191
	11	1740	1665	1595	1530	1470	1410	1355	1305	1260	0.177
	12	1835	1755	1685	1615	1555	1495	1440	1390	1340	0.165
	13	1925	1845	1770	1700	1635	1575	1520	1470	1420	0.154
	I, in4/ft	Nominal Shear Strength due to Panel Buckling, Snb, plf									
	1.323	8782	7966	7258	6640	6099	5620	5196	4819	4481	

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2]									K_1
		Span, ft.									
		11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	1/ft
3DR16 0.0598 32/5	3	990	945	905							0.482
	4	1135	1085	1040	995	960	925	890	860	830	0.409
	5	1280	1220	1170	1125	1080	1040	1005	970	935	0.356
	6	1425	1360	1305	1250	1205	1160	1115	1080	1045	0.314
	7	1570	1500	1435	1380	1325	1275	1230	1190	1150	0.282
	8	1710	1640	1570	1505	1450	1395	1345	1300	1255	0.255
	9	1845	1775	1700	1635	1570	1515	1460	1410	1360	0.233
	10	1970	1895	1820	1755	1690	1630	1570	1520	1465	0.215
	11	2095	2015	1935	1865	1800	1740	1680	1625	1575	0.199
	12	2215	2130	2050	1975	1905	1845	1780	1725	1670	0.185
	13	2330	2245	2160	2085	2010	1945	1880	1820	1765	0.173
	I, in4/ft	Nominal Shear Strength due to Panel Buckling, Snb, plf									
	1.672	10299	9423	8654	7975	7374	6838	6358	5927	5538	

	ϕdf	Ωdf
Buckling	0.80	2.00

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling.

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min $\{S_{nf}/\Omega_{df}, S_{nb}/\Omega_{db}\}$ • LRFD Required strength (Factored Applied Load) <= Min $\{\phi_{df}S_{nf}, \phi_{db}S_{nb}\}$

N-Deck 32/3 Screw Pattern

Support fastening	AISI #12 screws or equivalent
Side-lap fastening	AISI #10 screws or equivalent

Fu	60 ksi
Fy	50 ksi
Fxx	60 ksi

Loading	ϕdf	Ωdf
Seismic	0.70	2.30
Wind	0.80	2.00
Other	0.70	2.30

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
		8	8.5	9	9.5	10	10.5	11	11.5	12	1/ft
3DR22 0.0295" 32/3	2	280	260	245							0.537
	3	335	315	305	290	275	265	250	240	230	0.419
	4	380	365	345	335	320	305	295	285	275	0.343
	5	420	405	390	375	360	345	330	320	310	0.291
	6	460	440	425	410	395	380	365	355	345	0.252
	7	490	475	455	440	425	410	400	385	375	0.223
	8	520	500	485	470	455	440	430	415	405	0.199
	9	545	525	510	495	480	470	455	440	430	0.180
	10	565	550	535	520	505	490	480	465	455	0.165
	11	585	570	555	540	525	515	500	490	475	0.152
	12	600	585	575	560	545	535	520	510	495	0.140
	I, in4/ft	Nominal Shear Strength due to Panel Buckling, Snb, plf									
	0.808	6643	5884	5249	4711	4252	3856	3514	3215	2952	

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
		9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	1/ft
3DR20 0.0358 32/3	2	315									0.592
	3	385	370	350	340	325	310	300			0.461
	4	445	425	410	390	375	365	350	340	325	0.378
	5	495	475	460	440	425	410	395	385	370	0.320
	6	540	520	505	485	470	455	440	425	415	0.278
	7	580	560	545	525	510	495	480	465	450	0.245
	8	615	600	580	565	545	530	515	500	490	0.219
	9	645	630	610	595	580	565	550	535	520	0.199
	10	675	655	640	625	610	595	580	565	550	0.181
	11	700	680	665	650	635	620	605	590	580	0.167
	12	720	705	690	675	660	645	630	615	605	0.155
	I, in4/ft	Nominal Shear Strength due to Panel Buckling, Snb, plf									
	0.989	7060	6337	5719	5187	4726	4324	3971	3660	3384	

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2]									K_1
		Span, ft.									
		10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	1/ft
3DR18 0.0474 32/3	3	500	480	460	445	430					0.531
	4	580	560	540	520	500	485	470	455	440	0.435
	5	655	630	610	590	570	550	535	520	505	0.368
	6	715	695	670	650	630	610	595	575	560	0.319
	7	770	750	725	705	685	665	650	630	615	0.282
	8	820	795	775	755	735	715	700	680	665	0.253
	9	860	840	820	800	780	760	745	725	710	0.229
	10	900	880	860	840	820	800	785	765	750	0.209
	11	930	910	890	875	855	835	820	805	785	0.192
	12	955	940	920	905	885	870	855	835	820	0.178
	13	980	965	950	930	915	900	880	865	850	0.166
	I, in4/ft	Nominal Shear Strength due to Panel Buckling, Snb, plf									
	1.323	8782	7966	7258	6640	6099	5620	5196	4819	4481	

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2]									K_1
		Span, ft.									
		11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	1/ft
3DR16 0.0598 32/3	3	805	770	735							0.596
	4	990	945	905	870	835	805	775	750	725	0.488
	5	1175	1125	1075	1035	995	955	925	890	860	0.414
	6	1360	1300	1245	1195	1150	1110	1070	1030	995	0.359
	7	1530	1480	1420	1360	1310	1260	1215	1175	1135	0.317
	8	1530	1530	1530	1525	1465	1410	1360	1315	1270	0.284
	9	1530	1530	1530	1530	1530	1530	1505	1455	1405	0.257
	10	1530	1530	1530	1530	1530	1530	1530	1530	1530	0.234
	11	1530	1530	1530	1530	1530	1530	1530	1530	1530	0.216
	12	1530	1530	1530	1530	1530	1530	1530	1530	1530	0.200
	13	1530	1530	1530	1530	1530	1530	1530	1530	1530	0.186
	I, in4/ft	Nominal Shear Strength due to Panel Buckling, Snb, plf									
	1.672	10299	9423	8654	7975	7374	6838	6358	5927	5538	

	ϕdf	Ωdf
Buckling	0.80	2.00

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling.

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min $\{S_{nf}/\Omega_{df}, S_{nb}/\Omega_{db}\}$ • LRFD Required strength (Factored Applied Load) <= Min $\{\phi_{df}S_{nf}, \phi_{db}S_{nb}\}$

N-Deck 32/5 Screw Pattern

Support fastening	AISI #12 screws or equivalent
Side-lap fastening	AISI #10 screws or equivalent

Fu	60 ksi
Fy	50 ksi
Fxx	60 ksi

Loading	ϕdf	Ωdf
Seismic	0.70	2.30
Wind	0.80	2.00
Other	0.70	2.30

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
		8	8.5	9	9.5	10	10.5	11	11.5	12	1/ft
3DR22 0.0295" 32/5	2	320	300	285							0.441
	3	390	365	345	325	310	295	280	270	260	0.358
	4	460	430	405	385	365	350	335	320	305	0.301
	5	520	490	465	445	420	400	385	365	350	0.260
	6	575	545	520	495	470	450	430	415	395	0.229
	7	630	595	570	540	520	495	475	455	440	0.204
	8	680	645	615	590	565	540	520	500	480	0.184
	9	725	690	660	635	605	580	560	535	520	0.168
	10	770	735	705	675	650	620	600	575	555	0.154
	11	815	780	745	715	685	660	635	615	590	0.143
	12	855	820	785	755	725	700	675	650	625	0.133
	I, in4/ft	Nominal Shear Strength due to Panel Buckling, Snb, plf									
	0.808	6643	5884	5249	4711	4252	3856	3514	3215	2952	

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
		9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	1/ft
3DR20 0.0358 32/5	2	360									0.486
	3	445	420	400	380	360	345	330			0.394
	4	525	495	470	450	430	410	395	375	365	0.332
	5	600	570	545	520	495	475	455	435	420	0.286
	6	665	635	605	580	555	535	515	495	475	0.252
	7	730	700	670	640	615	590	570	545	530	0.225
	8	795	760	725	695	670	645	620	600	575	0.203
	9	850	815	780	750	720	695	670	645	625	0.185
	10	905	870	835	805	775	745	720	695	670	0.170
	11	960	920	885	855	820	795	765	740	715	0.157
	12	1010	970	935	900	870	840	810	785	760	0.146
	I, in4/ft	Nominal Shear Strength due to Panel Buckling, Snb, plf									
	0.989	7060	6337	5719	5187	4726	4324	3971	3660	3384	

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2]									K_1
		Span, ft.									
		10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	1/ft
3DR18 0.0474 32/5	3	570	545	520	495	475					0.454
	4	685	650	620	595	570	545	525	505	490	0.382
	5	785	750	720	690	665	635	615	590	570	0.330
	6	880	840	805	775	745	720	695	670	650	0.290
	7	965	925	890	855	825	795	770	745	720	0.259
	8	1050	1010	970	935	900	870	840	815	785	0.234
	9	1130	1090	1050	1010	975	940	910	880	855	0.213
	10	1205	1165	1120	1080	1045	1010	980	950	920	0.196
	11	1280	1235	1190	1150	1115	1075	1045	1010	980	0.181
	12	1345	1300	1255	1215	1175	1140	1105	1075	1040	0.168
	13	1410	1360	1320	1275	1240	1200	1165	1130	1100	0.157
	I, in4/ft	Nominal Shear Strength due to Panel Buckling, Snb, plf									
	1.323	8782	7966	7258	6640	6099	5620	5196	4819	4481	

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2]									K_1
		Span, ft.									
		11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	1/ft
3DR16 0.0598 32/5	3	925	885	850							0.510
	4	1115	1065	1020	980	940	905	875	845	815	0.429
	5	1300	1240	1190	1145	1100	1060	1020	985	950	0.370
	6	1485	1420	1360	1305	1255	1210	1165	1125	1090	0.326
	7	1670	1600	1530	1470	1415	1360	1310	1265	1225	0.291
	8	1855	1775	1700	1635	1570	1510	1460	1410	1360	0.262
	9	2045	1955	1870	1795	1730	1665	1605	1550	1495	0.239
	10	2230	2130	2045	1960	1885	1815	1750	1690	1635	0.220
	11	2415	2310	2215	2125	2045	1965	1895	1830	1770	0.203
	12	2600	2485	2385	2290	2200	2120	2045	1970	1905	0.189
	13	2785	2665	2555	2450	2355	2270	2190	2115	2045	0.177
	I, in4/ft	Nominal Shear Strength due to Panel Buckling, Snb, plf									
	1.672	10299	9423	8654	7975	7374	6838	6358	5927	5538	

	ϕdf	Ωdf
Buckling	0.80	2.00

[1] Nominal shear strength of bare deck shown above may be limited by shear buckling.

[2] Design Strengths: ASD Required strength (Service Applied Load) <= Min $\{S_{nf}/\Omega_{df}, S_{nb}/\Omega_{db}\}$ • LRFD Required strength (Factored Applied Load) <= Min $\{\phi_{df}S_{nf}, \phi_{db}S_{nb}\}$

CSM Products & Solutions, LLC
8660 Lambright Road, Houston, TX 77075 / metaldecking.com
info@metaldecking.com / 1-866-553-0373

PRODUCTS & SOLUTIONS