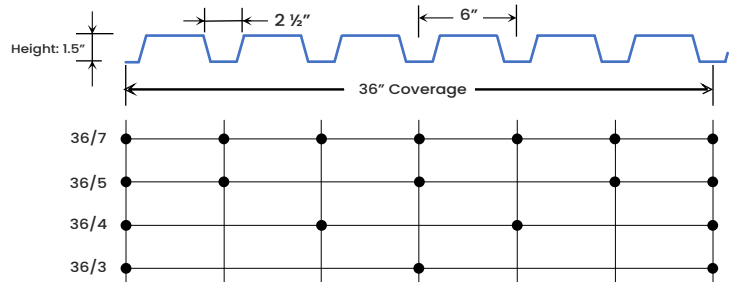
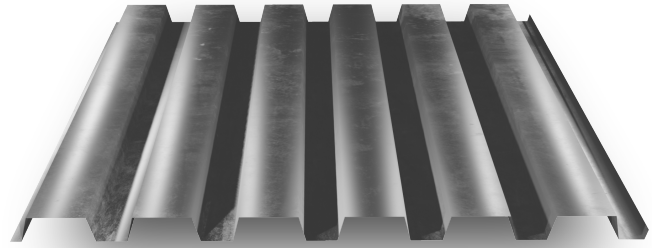


1.5" ROOF DECK 50 ksi

According to SDI, steel roof deck panels are used in a structural manner as a base for constructing and supporting the roof insulation and membrane, resisting seismic and wind loads. 1.5" Roof Deck is designed to enclose the building from the exterior environment and transfer lateral loads to its vertical components.



Typical Fastener Layouts

Material: Galvanized G90 or G60 ASTM A653 Structural
Steel $F_y = 50$ ksi.
Options: Painted

Section Properties and Flexural Resistance (Bare Deck)

Gage	Design Thickness (inches)	Weight (psf)	F_y (ksi)	S_{e+} (in ²) per foot	S_{e-} (in ²) per foot	ASD ($\Omega = 1.67$)		I_{d+} (in ⁴) per foot	I_{d-} (in ⁴) per foot
						M_p/Ω inch-lbs per foot	M_n/Ω inch-lbs per foot		
22	0.0295	1.7	50	0.165	0.172	4939	5158	0.149	0.176
20	0.0358	2.1	50	0.221	0.222	6611	6656	0.189	0.218
18	0.0474	2.7	50	0.299	0.312	8962	9331	0.267	0.298
16	0.0598	3.4	50	0.386	0.394	11547	11806	0.356	0.378

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

Shear and Web Crippling (Bare Deck)

Gage	Design Thickness (inches)	F_y (ksi)	V_n/Ω lbs per foot	Web Crippling (R_n/Ω), lbs/ft One Flange Loading End Bearing			Web Crippling (R_n/Ω), lbs/ft One Flange Loading Interior Bearing		
				1.5"	2"	3"	1.5"	2"	3"
				22	0.0295	50	2804	840	923
20	0.0358	50	3392	1194	1309	1500	1938	2095	2358
18	0.0474	50	4465	1988	2168	2470	3247	3493	3905
16	0.0598	50	5599	3032	3293	3730	4984	5339	5934

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

ASD Uniform Downward Loads (psf)

Span Cond.	Gage	Fy	5'- 0"	5'- 6"	6'- 0"	6'- 6"	7'- 0"	7'- 6"	8'- 0"	8'- 6"	9'- 0"	9'- 6"	10'- 0"
Single	22	50	132	109	91	78	67	59	51	46	41	36	33
	20	50	176	146	122	104	90	78	69	61	54	49	44
	18	50	239	198	166	141	122	106	93	83	74	66	60
	16	50	308	254	214	182	157	137	120	107	95	85	77
Double	22	50	138	114	96	81	70	61	54	48	42	38	34
	20	50	177	147	123	105	91	79	69	61	55	49	44
	18	50	249	206	173	147	127	111	97	86	77	69	62
	16	50	315	260	219	186	161	140	123	109	97	87	79
Triple	22	50	172	142	119	102	88	76	67	59	53	48	43
	20	50	222	183	154	131	113	99	87	77	68	61	55
	18	50	311	257	216	184	159	138	122	108	96	86	78
	16	50	394	325	273	233	201	175	154	136	121	109	98

ASD Uniform Upward Loads (psf)

Span Cond.	Gage	Fy	5'- 0"	5'- 6"	6'- 0"	6'- 6"	7'- 0"	7'- 6"	8'- 0"	8'- 6"	9'- 0"	9'- 6"	10'- 0"
Single	22	50	138	114	96	81	70	61	54	48	42	38	34
	20	50	177	147	123	105	91	79	69	61	55	49	44
	18	50	249	206	173	147	127	111	97	86	77	69	62
	16	50	315	260	219	186	161	140	123	109	97	87	79
Double	22	50	132	109	91	78	67	59	51	46	41	36	33
	20	50	176	146	122	104	90	78	69	61	54	49	44
	18	50	239	198	166	141	122	106	93	83	74	66	60
	16	50	308	254	214	182	157	137	120	107	95	85	77
Triple	22	50	165	136	114	97	84	73	64	57	51	46	41
	20	50	220	182	153	130	112	98	86	76	68	61	55
	18	50	299	247	207	177	152	133	117	103	92	83	75
	16	50	385	318	267	228	196	171	150	133	119	107	96

Notes:

- All section properties and ASD ($\Omega = 1.67$) uniform loads are calculated in accordance with ANSI/SDI C-2017, ANSI/SDI NC-2017 and AISI S100-2012 and AISI S100-2016.
- Loads shown in tables are uniformly distributed superimposed loads in psf. Span length assumes center-to-centerspacing of supports. Tabulated loads shall not be increased by assuming clear span dimensions.
- Bending Moment formulae used for flexural stress limitations are:
 - Simple and Two Span $M = W l^2/8$
 - Three Span or More $M = W l^2/10$
- Web crippling and shear have not been accounted for in these tables. Required bearing should be determined based on specific span conditions.



Uniform Service Load that Causes L/240 Deflection (psf)

Span Cond.	Gage	Fy	5'- 0"	5'- 6"	6'- 0"	6'- 6"	7'- 0"	7'- 6"	8'- 0"	8'- 6"	9'- 0"	9'- 6"	10'- 0"
Single	22	50	78	59	45	36	29	23	19	16	13	11	10
	20	50	99	75	57	45	36	29	24	20	17	14	12
	18	50	140	105	81	64	51	42	34	29	24	20	18
	16	50	187	140	108	85	68	55	46	38	32	27	23
Double	22	50	188	141	109	86	69	56	46	38	32	27	24
	20	50	239	179	138	109	87	71	58	49	41	35	30
	18	50	337	253	195	153	123	100	82	69	58	49	42
	16	50	450	338	260	205	164	133	110	92	77	66	56
Triple	22	50	147	111	85	67	54	44	36	30	25	21	18
	20	50	187	140	108	85	68	55	46	38	32	27	23
	18	50	264	198	153	120	96	78	64	54	45	38	33
	16	50	352	264	204	160	128	104	86	72	60	51	44

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.

Roof Deck Construction Spans

Span Cond.	Gage Number	ASD Span	ASD Cantilever Span
Single	22	8'-03"	2'-02"
	20	11'-00"	2'-09"
	18	14'-11"	3'-10"
	16	19'-03"	4'-10"
Double Or Triple	22	10'-02"	
	20	13'-07"	
	18	18'-05"	
	16	23'-08"	

Notes:

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.

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.

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Composite Deck-Slab Allowable Superimposed Load (ASD)

Slab Thickness	F _y : 50 ksi		f' _c : 3000 psi						Normal Weight Concrete (145 pcf)									
	Gage	Weight (psf)	5'- 0"	5'- 6"	6'-0"	6'- 5"	7'-0"	7'-6"	8'-0"	8'- 6"	9'-0"	9'- 6"	10'- 0"	10'- 6"	11'- 0"	11'- 6"	12'- 0"	
4"	22	39	324	280	243	213	187	166	148	132	118	106	96	86	78	71	64	
	20	39	392	338	295	258	228	202	181	162	145	131	119	108	98	89	81	
	18	39	400	400	386	340	300	267	239	215	194	175	159	145	132	121	111	
	16	39	400	400	400	400	374	333	298	269	243	220	200	183	167	154	141	
4.5"	22	45	394	340	295	259	228	202	180	161	144	130	117	106	96	87	79	
	20	45	400	400	358	314	277	246	220	197	177	160	145	131	119	109	99	
	18	45	400	400	400	400	364	324	290	261	235	213	194	177	161	148	136	
	16	45	400	400	400	400	400	400	362	326	295	268	244	222	204	187	172	
5"	22	51	400	400	350	307	270	240	213	191	171	154	139	126	114	104	95	
	20	51	400	400	400	372	328	292	260	234	210	190	172	156	142	130	119	
	18	51	400	400	400	400	400	385	344	309	279	253	230	210	192	176	161	
	16	51	400	400	400	400	400	400	400	387	350	318	289	264	242	223	205	
5.5"	22	57	400	400	400	356	314	278	248	222	199	180	162	147	134	121	111	
	20	57	400	400	400	400	381	339	303	272	245	221	200	182	166	151	139	
	18	57	400	400	400	400	400	400	400	360	325	295	268	244	223	205	188	
	16	57	400	400	400	400	400	400	400	400	400	370	337	308	282	259	239	
6"	22	63	400	400	400	400	359	318	284	254	228	206	186	169	153	139	127	
	20	63	400	400	400	400	400	387	346	311	280	253	229	209	190	174	159	
	18	63	400	400	400	400	400	400	400	400	372	337	307	280	256	235	216	
	16	63	400	400	400	400	400	400	400	400	400	400	386	353	324	297	274	
6.5"	22	69	400	400	400	400	400	359	320	286	257	232	210	190	173	158	144	
	20	69	400	400	400	400	400	400	390	350	316	285	259	236	215	196	180	
	18	69	400	400	400	400	400	400	400	400	400	400	381	346	316	289	265	244
	16	69	400	400	400	400	400	400	400	400	400	400	400	399	366	336	310	

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