

# Roof Decks - Types B, BI, BV, BIV

**ASD**

**PROPERTIES**

**SECTION PROPERTIES**

**DESIGN STRENGTHS**

Gage	F <sub>y</sub> (ksi)	Coverage (in.)	Thickness (in.)	Weight (psf)	I <sub>p</sub> (in. <sup>4</sup> /ft.)	I <sub>n</sub> (in. <sup>4</sup> /ft.)	S <sub>p</sub> (in. <sup>3</sup> /ft.)	S <sub>n</sub> (in. <sup>3</sup> /ft.)	Mn,p/Ω (in.-lb./ft.)	Mn,n/Ω (in.-lb./ft.)	Vn/Ω (lb./ft.)	Rbe/Ω (lb./ft.)	Rbi/Ω (lb./ft.)
22	33	36	0.0295	1.63	0.162	0.175	0.184	0.189	3627	3734	1738	539	974
20	33	36	0.0358	1.98	0.205	0.213	0.227	0.238	4485	4712	2100	769	1399
18	33	36	0.0474	2.62	0.281	0.281	0.307	0.315	6074	6233	2761	1285	2358
16	33	36	0.0598	3.30	0.355	0.355	0.393	0.395	7758	7800	3456	1964	3627

- Notes:**
1. Section properties are calculated in accordance with the AISI Cold-Formed Steel Design Specifications, 2007 Edition.
  2. Rbe/Ω and Rbi/Ω values are based on minimum bearing lengths of 1.5" for end bearing and 3" for interior bearing.

**ALLOWABLE UNIFORM LOADS AND MAXIMUM CONSTRUCTION SPANS**

Span Condition	Gage	Allowable Uniform Total Load (psf) / Load that Produces L/240" Deflection (psf)										Max. Constr. Span (Ctr. to Ctr.)
		Center to Center Span (ft. - in.)										
		5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 6	
Single	22	97 / 85	80 / 64	67 / 49	57 / 39	49 / 31	43 / 25	38 / 21	33 / 17	30 / 15	27 / 12	6' - 0"
	20	120 / 108	99 / 81	83 / 62	71 / 49	61 / 39	53 / 32	47 / 26	41 / 22	37 / 18	33 / 16	7' - 5"
	18	162 / 147	134 / 111	112 / 85	96 / 67	83 / 54	72 / 44	63 / 36	56 / 30	50 / 25	45 / 21	10' - 1"
	16	207 / 186	171 / 140	144 / 108	122 / 85	106 / 68	92 / 55	81 / 45	72 / 38	64 / 32	57 / 27	12' - 11"
Double	22	98 / 213	81 / 160	68 / 123	58 / 97	50 / 78	44 / 63	39 / 52	34 / 43	31 / 37	27 / 31	7' - 3"
	20	124 / 264	102 / 199	86 / 153	74 / 120	64 / 96	55 / 78	49 / 65	43 / 54	39 / 45	35 / 39	9' - 0"
	18	163 / 356	136 / 267	114 / 206	97 / 162	84 / 130	73 / 105	65 / 87	57 / 72	51 / 61	46 / 52	12' - 2"
	16	205 / 448	170 / 337	143 / 260	122 / 204	105 / 163	92 / 133	81 / 109	72 / 91	64 / 77	57 / 65	15' - 7"
Triple	22	122 / 167	101 / 125	85 / 96	73 / 76	63 / 61	55 / 49	48 / 41	43 / 34	38 / 29	34 / 24	7' - 4"
	20	153 / 207	127 / 155	107 / 120	92 / 94	79 / 75	69 / 61	61 / 51	54 / 42	48 / 35	43 / 30	9' - 1"
	18	203 / 278	168 / 209	142 / 161	121 / 127	105 / 101	91 / 82	80 / 68	71 / 57	64 / 48	57 / 41	12' - 4"
	16	254 / 351	210 / 264	177 / 203	152 / 160	131 / 128	114 / 104	101 / 86	89 / 71	80 / 60	72 / 51	15' - 9"

- Notes:**
1. Maximum construction spans are based on minimum bearing lengths of 1.5" for end bearing and 3" for interior bearing. Check web crippling if minimums are not met.
  2. Uniform loads and maximum construction spans are based on ANSI/SDI RD-2010 Standard for Steel Roof Deck and the following construction loading:  
    - Deck self-weight plus worst-case of either a 200 lb. concentrated load or a 0 psf uniform load.
  3. Maximum construction spans shown include a check for a nominal 200 lbs. concentrated load supported by a one foot section of deck per SDI criteria, which exceeds the IBC requirement of a 300 lbs. roof maintenance load distributed over an area of 2 1/2 feet by 2 1/2 feet per Section 1607.4 and Table 1607.1.
  4. Values shown in RED are shown for use in determining deck capacity under deflection limits more stringent than Span/240. The total loads shown are not to be exceeded.
  5. See website at [www.newmill.com](http://www.newmill.com) for Factory Mutual approved deck types and maximum FM construction spans.

**MAXIMUM CANTILEVER SPANS**

Gage	Back-Span Condition		
	Single	Double	Triple
22	1' - 5"	1' - 5"	1' - 5"
20	1' - 10"	1' - 10"	1' - 10"
18	2' - 4"	2' - 3"	2' - 3"
16	2' - 11"	2' - 7"	2' - 7"

- Maximum cantilever spans shown are based on the following criteria:
- ANSI/SDI RD-2010 Standard for Steel Roof Deck.
  - Adjacent span assumed to be at least 3 times longer than the cantilever and no greater than the max. constr. span shown in table above.
  - Bearing width at perimeter support assumed to be 3" minimum.
  - Design total uniform load of 45 psf in conjunction with a 100 lb. concentrated load.