

# Roof Decks

New Millennium produces a wide range of roof decks. This publication contains information on all the roof deck products currently being produced, for use by specifying engineers and architects. Roof deck is available in lengths from 6'-0" to 40'-0". Extra charges are applied to lengths less than 6'-0". Contact New Millennium if lengths exceeding 40'-0" are required.

Roof decks are manufactured from steel with a yield strength of up to 80 ksi, conforming to ASTM A1008/A1008M for uncoated and painted deck and A653/A653M for galvanized deck. Refer to tables for the minimum yield strength used for each deck type; contact New Millennium for availability of higher yield strengths when required.

Primer-painted or galvanized roof deck finishes are available. The standard primer-painted finish is gray on both the top and bottom sides. The galvanized finish is available in G30, G40, G60 and G90 coatings. Roof deck can also be furnished with a two-coat bright white primer bottom side combined with either a primer-painted or galvanized top side. The primer-painted finish is intended to protect the steel for a reasonable installation period while exposed to ordinary atmospheric conditions and shall be considered an impermanent and provisional coating. Always store deck off the ground with one end elevated and protected from the elements with a weatherproof covering that is ventilated to avoid condensation.

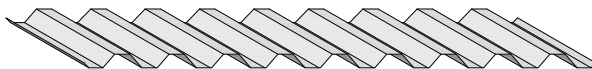
New Millennium roof decks are approved by UL, LLC and listed in the UL and ULC Fire Resistance Directories. See page 94 for a complete listing of approved UL Designs.

New Millennium roof decks are Factory Mutual approved for use as a component in Class 1-60, 1-75 and 1-90 wind uplift construction. See website at [www.newmill.com](http://www.newmill.com) for approved types and maximum FM construction spans.

All acoustical roof decks have been tested in accordance with ANSI/ASTM C423 and E795 to determine the noise reduction coefficient (NRC) rating.

Roof deck attachment to supports can be made either by welding using a minimum visible 5/8" diameter puddle weld or properly designed mechanical fasteners, spaced an average of 12" on center, not to exceed 18" on center. Weld washers must be used on all deck units that are less than 22 gage. Side laps are to be fastened together between supports at a maximum spacing of 36" on center whenever the deck span exceeds 5'-0".

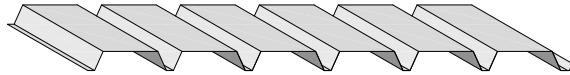
## 1.0RD, 1.0RDV DECK



- Type 1.0RD provides an economical option when support spacing is small. Where rigid roofing insulation is used with 1.0RD deck, a minimum 1" thickness is required.
- Available with nested side laps only.
- Available as a vented deck, type 1.0RDV is manufactured with slot vents in the bottom flutes. The openings equal 0.5% of total surface. Type 1.0RDV is to be specified when venting is required for cementitious insulation fill.
- 1.0RD deck can also be used as wall siding.

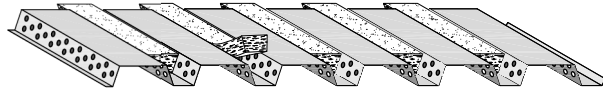
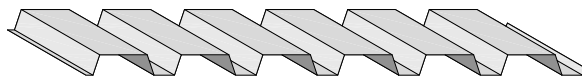


## F DECK



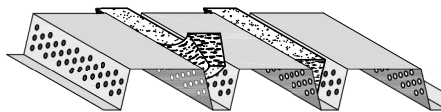
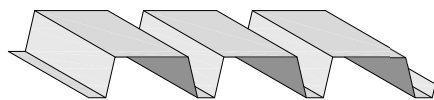
- Type F (Intermediate Rib) provides an economical choice for applications where insulation requirements are lower. Where rigid roofing insulation is used with F deck, a minimum 1" thickness is required.
- Available with nested side laps only.

## B, BI, BV, BIV, BA, BIA DECK



- Type B (Wide Rib) provides the best balance of strength and economy of all the 1 1/2" deep roof decks. Where rigid roofing insulation is used with B deck, a minimum 1" thickness is required.
- Available with nested side laps, types B, BV and BA or with interlocking side laps, types BI, BIV and BIA.
- Available as an acoustic deck, types BA and BIA are manufactured with perforations in the vertical ribs, having an NRC rating of 0.60 with a minimum of 1 1/2" thick rigid roofing insulation.
- Available as a vented deck, types BV and BIV are manufactured with slot vents in the bottom flutes. The openings can be specified from 0.5% up to 1.5% of total surface. Types BV and BIV are to be specified when venting is required for cementitious insulation fill.
- Also available with rolled-in hanger tabs (non-vented types only).

## N, NA DECK

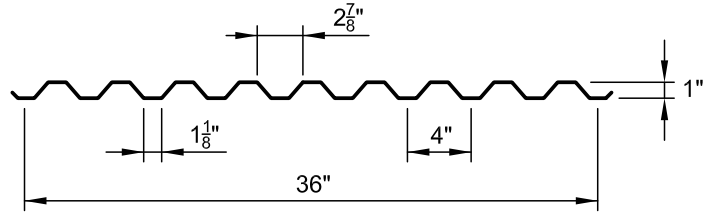


- Type N (Deep Wide Rib) is well-suited for applications where it is desirable to space the supporting members as far apart as possible. This is often the case in structures such as gymnasiums where it is usually more economical to minimize the number of long span structural members by using N deck to span large spaces.
- Available with nested side laps only.
- Available as an acoustic deck, type NA is manufactured with perforations in the vertical ribs, having an NRC rating of 0.65 with or without rigid roofing insulation.

# Roof Decks - Types 1.0RD, 1.0RDV

## PROPERTIES

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)
26	0.0179	36	0.94
24	0.0238		1.24
22	0.0295		1.54
20	0.0358		1.87



## SECTION PROPERTIES

Gage	F <sub>y</sub> (ksi)	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.)
26	60	0.041	0.041	0.068	0.073
24		0.056	0.056	0.098	0.105
22		0.070	0.070	0.129	0.132
20		0.085	0.085	0.160	0.160

## DESIGN STRENGTHS

Gage	F <sub>y</sub> (ksi)	M <sub>n,p</sub> /Ω (in.-lb./ft.)	M <sub>n,n</sub> /Ω (in.-lb./ft.)	V <sub>n</sub> /Ω (lb./ft.)	R <sub>be</sub> /Ω (lb./ft.)	R <sub>bi</sub> /Ω (lb./ft.)
26	60	2428	2633	2216	466	828
24		3518	3780	3652	789	1422
22		4631	4732	4516	1169	2126
20		5749	5738	5467	1665	3047

Section properties are calculated in accordance with the AISI Cold-Formed Steel Design Specifications, 2007 Edition.

R<sub>be</sub>/Ω and R<sub>bi</sub>/Ω values are based on minimum bearing lengths of 1 1/2" for end bearing and 3" for interior bearing.

## ALLOWABLE UNIFORM LOADS AND MAXIMUM CONSTRUCTION SPANS - ASD

Span Condition	Gage	Allowable Uniform Total Load (psf) / Load that Produces Span/240 Deflection (psf)										Max. Constr. Span (Ctr. to Ctr.)
		Center to Center Span (ft. - in.)										
		3 - 0	3 - 6	4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	8 - 0	
Single	26	180 / 100	132 / 63	101 / 42	-	-	-	-	-	-	-	4 - 0
	24	261 / 137	191 / 86	147 / 58	116 / 41	94 / 30	78 / 22	65 / 17	-	-	-	5 - 10
	22	343 / 170	252 / 107	193 / 72	152 / 50	123 / 37	102 / 28	86 / 21	73 / 17	63 / 13	48 / 9	7 - 8
	20	426 / 206	313 / 130	240 / 87	189 / 61	153 / 45	127 / 33	106 / 26	91 / 20	78 / 16	60 / 11	9 - 6
Double	26	193 / <b>241</b>	142 / <b>152</b>	109 / 102	86 / 71	70 / 52	-	-	-	-	-	4 - 10
	24	277 / <b>329</b>	204 / <b>207</b>	157 / 139	124 / 98	100 / 71	83 / 53	70 / 41	60 / 32	51 / 26	-	7 - 0
	22	347 / <b>409</b>	256 / <b>258</b>	196 / 173	155 / 121	126 / 88	104 / 66	87 / 51	75 / 40	64 / 32	49 / 22	9 - 3
	20	421 / <b>497</b>	310 / <b>313</b>	238 / 210	188 / 147	153 / 107	126 / 81	106 / 62	90 / 49	78 / 39	60 / 26	11 - 6
Triple	26	239 / 189	177 / 119	136 / 80	107 / 56	87 / 41	-	-	-	-	-	4 - 11
	24	345 / 258	254 / 162	195 / 109	155 / 76	125 / 56	104 / 42	87 / 32	74 / 25	64 / 20	49 / 14	7 - 1
	22	432 / 320	318 / 202	244 / 135	193 / 95	157 / 69	130 / 52	109 / 40	93 / 31	80 / 25	61 / 17	9 - 5
	20	523 / 389	386 / 245	296 / 164	235 / 115	190 / 84	157 / 63	132 / 49	113 / 38	97 / 31	75 / 21	11 - 8

### Notes:

- Uniform loads and maximum construction spans shown are based on the following criteria:
  - ANSI/SDI RD-2010 Standard for Steel Roof Deck
  - Minimum bearing lengths of 1 1/2" for end bearing and 3" for interior bearing
  - 60 ksi material.
- Maximum construction spans shown include a check for a 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.
- Values 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.
- See website at [www.newmill.com](http://www.newmill.com) for Factory Mutual approved deck types and maximum FM construction spans.

## MAXIMUM CANTILEVER SPANS - ASD

Gage	F <sub>y</sub> (ksi)	Back-Span Condition		
		Single	Double	Triple
26	60	0 - 9	0 - 9	0 - 9
24		0 - 11	0 - 11	0 - 11
22		1 - 0	1 - 0	1 - 0
20		1 - 2	1 - 2	1 - 2

Maximum cantilever spans shown are based on the following criteria:

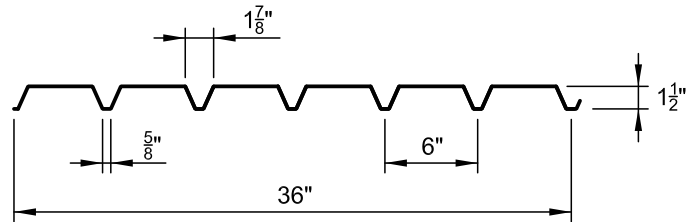
- ANSI/SDI RD-2010 Standard for Steel Roof Deck
- Adjacent span assumed to be at least 3 times longer than the cantilever and no greater than the max. constr. span shown in table above
- Bearing width at perimeter support assumed to be 3" minimum
- Design total uniform load of 45 psf in conjunction with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



# Roof Decks - Type F

## PROPERTIES

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)
22	0.0295	36	1.58
20	0.0358		1.92
18	0.0474		2.54
16	0.0598		3.21



## SECTION PROPERTIES

Gage	F <sub>y</sub> (ksi)	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.)	F <sub>y</sub> (ksi)	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.)
22	33	0.121	0.128	0.111	0.121	40	0.118	0.128	0.110	0.121
20		0.152	0.155	0.138	0.146		0.149	0.155	0.136	0.146
18		0.205	0.205	0.188	0.192		0.205	0.205	0.186	0.192
16		0.259	0.259	0.240	0.240		Not Available			

Section properties are calculated in accordance with the AISI Cold-Formed Steel Design Specifications, 2007 Edition.

## DESIGN STRENGTHS

Gage	F <sub>y</sub> (ksi)	M <sub>n,p</sub> /Ω (in.-lb./ft.)	M <sub>n,n</sub> /Ω (in.-lb./ft.)	V <sub>n</sub> /Ω (lb./ft.)	R <sub>be</sub> /Ω (lb./ft.)	R <sub>bf</sub> /Ω (lb./ft.)
22	40	2628	2890	2337	622	1144
20		3264	3494	2828	887	1641
18	33	4446	4595	3723	1483	2761
16		4737	4748	3851	1872	3498

R<sub>be</sub>/Ω and R<sub>bf</sub>/Ω values are based on minimum bearing lengths of 1 1/2" for end bearing and 3" for interior bearing.

## ALLOWABLE UNIFORM LOADS AND MAXIMUM CONSTRUCTION SPANS - ASD

Span Condition	Gage	Allowable Uniform Total Load (psf) / Load that Produces Span/240 Deflection (psf)										Max. Constr. Span (Ctr. to Ctr.)	
		Center to Center Span (ft. - in.)											
		4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	8 - 0	9 - 0	10 - 0		
Single	22	110 / 121	87 / 85	-	-	-	-	-	-	-	-	-	4 - 4
	20	136 / 153	107 / 107	87 / 78	72 / 59	-	-	-	-	-	-	-	5 - 5
	18	185 / 210	146 / 147	119 / 107	98 / 81	82 / 62	70 / 49	60 / 39	46 / 26	-	-	-	7 - 4
	16	197 / 265	156 / 186	126 / 136	104 / 102	88 / 78	75 / 62	64 / 49	49 / 33	-	-	-	7 - 10
Double	22	120 / 304	95 / 213	77 / 155	63 / 117	-	-	-	-	-	-	-	5 - 3
	20	145 / 376	114 / 264	93 / 193	77 / 145	65 / 111	55 / 88	-	-	-	-	-	6 - 6
	18	190 / 506	150 / 356	122 / 259	101 / 195	85 / 150	72 / 118	62 / 94	48 / 63	38 / 44	-	-	8 - 11
	16	196 / 639	155 / 449	126 / 327	104 / 246	88 / 189	75 / 149	64 / 119	49 / 80	39 / 56	32 / 41	-	9 - 6
Triple	22	149 / 238	118 / 167	96 / 122	79 / 91	-	-	-	-	-	-	-	5 - 4
	20	180 / 294	142 / 207	116 / 151	96 / 113	80 / 87	69 / 69	59 / 55	-	-	-	-	6 - 7
	18	237 / 396	187 / 278	152 / 203	126 / 152	106 / 117	90 / 92	78 / 74	60 / 50	47 / 35	-	-	9 - 0
	16	244 / 500	194 / 351	157 / 256	130 / 192	109 / 148	93 / 117	80 / 93	62 / 62	49 / 44	39 / 32	-	9 - 7

### Notes:

- Uniform loads and maximum construction spans shown are based on the following criteria:
  - ANSI/SDI RD-2010 Standard for Steel Roof Deck
  - Minimum bearing lengths of 1 1/2" for end bearing and 3" for interior bearing
  - 40 ksi material for gages 22, 20 and 18, 33 ksi material for 16 gage.
- Maximum construction spans shown include a check for a 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.
- Values 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.
- See website at [www.newmill.com](http://www.newmill.com) for Factory Mutual approved deck types and maximum FM construction spans.

## MAXIMUM CANTILEVER SPANS - ASD

Gage	F <sub>y</sub> (ksi)	Back-Span Condition		
		Single	Double	Triple
22	40	1 - 1	1 - 1	1 - 1
20		1 - 4	1 - 4	1 - 4
18		1 - 9	1 - 9	1 - 9
16	33	1 - 10	1 - 10	1 - 10

Maximum cantilever spans shown are based on the following criteria:

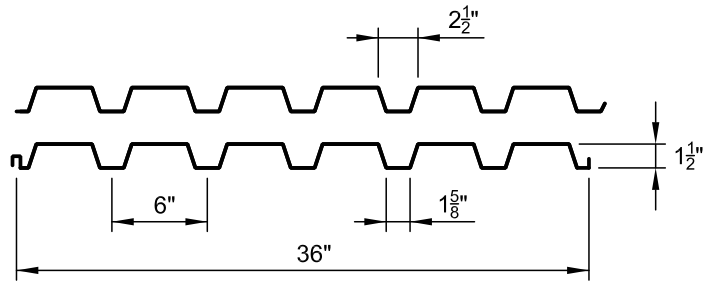
- ANSI/SDI RD-2010 Standard for Steel Roof Deck
- Adjacent span assumed to be at least 3 times longer than the cantilever and no greater than the max. constr. span shown in table above
- Bearing width at perimeter support assumed to be 3" minimum
- Design total uniform load of 45 psf in conjunction with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



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

## PROPERTIES

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)
22	0.0295	36	1.63
20	0.0358		1.98
18	0.0474		2.62
16	0.0598		3.30



## SECTION PROPERTIES

Gage	F <sub>y</sub> (ksi)	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.)
22	33	0.162	0.175	0.183	0.189
20		0.205	0.213	0.227	0.238
18		0.281	0.281	0.307	0.315
16		0.355	0.355	0.393	0.395

Section properties are calculated in accordance with the AISI Cold-Formed Steel Design Specifications, 2007 Edition.

## DESIGN STRENGTHS

Gage	F <sub>y</sub> (ksi)	M <sub>n,p</sub> /Ω (in.-lb./ft.)	M <sub>n,r</sub> /Ω (in.-lb./ft.)	V <sub>n</sub> /Ω (lb./ft.)	R <sub>be</sub> /Ω (lb./ft.)	R <sub>br</sub> /Ω (lb./ft.)
22	33	3626	3734	1738	539	974
20		4484	4712	2100	769	1399
18		6073	6233	2761	1285	2358
16		7757	7800	3456	1964	3627

R<sub>be</sub>/Ω and R<sub>br</sub>/Ω values are based on minimum bearing lengths of 1 1/2" for end bearing and 3" for interior bearing.

## ALLOWABLE UNIFORM LOADS AND MAXIMUM CONSTRUCTION SPANS - ASD

Span Condition	Gage	Allowable Uniform Total Load (psf) / Load that Produces Span/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	8 - 0	9 - 0	10 - 0	11 - 0	12 - 0	
Single	22	97 / 85	80 / 64	67 / 49	-	-	-	-	-	-	-	6 - 0
	20	120 / 108	99 / 81	83 / 62	71 / 49	61 / 39	47 / 26	-	-	-	-	7 - 5
	18	162 / 147	134 / 111	112 / 85	96 / 67	83 / 54	63 / 36	50 / 25	40 / 18	33 / 14	-	10 - 1
	16	207 / 186	171 / 140	144 / 108	122 / 85	106 / 68	81 / 45	64 / 32	52 / 23	43 / 17	36 / 13	12 - 11
Double	22	98 / 213	81 / 160	68 / 123	58 / 97	50 / 78	39 / 52	-	-	-	-	7 - 3
	20	124 / 264	102 / 199	86 / 153	74 / 120	64 / 96	49 / 65	39 / 45	-	-	-	9 - 0
	18	163 / 356	136 / 267	114 / 206	97 / 162	84 / 130	65 / 87	51 / 61	41 / 44	34 / 33	29 / 26	12 - 2
	16	205 / 448	170 / 337	143 / 260	122 / 204	105 / 163	81 / 109	64 / 77	52 / 56	43 / 42	36 / 32	15 - 6
Triple	22	122 / 167	101 / 125	85 / 96	73 / 76	63 / 61	48 / 41	-	-	-	-	7 - 4
	20	153 / 207	127 / 155	107 / 120	92 / 94	79 / 75	61 / 50	48 / 35	39 / 26	-	-	9 - 1
	18	203 / 278	168 / 209	142 / 161	121 / 127	105 / 101	80 / 68	64 / 48	52 / 35	43 / 26	36 / 20	12 - 4
	16	254 / 351	210 / 264	177 / 203	152 / 160	131 / 128	101 / 86	80 / 60	65 / 44	53 / 33	45 / 25	15 - 9

### Notes:

- Uniform loads and maximum construction spans shown are based on the following criteria:
  - ANSI/SDI RD-2010 Standard for Steel Roof Deck
  - Minimum bearing lengths of 1 1/2" for end bearing and 3" for interior bearing
  - 33 ksi material.
- Maximum construction spans shown include a check for a 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.
- Values 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.
- See website at [www.newmill.com](http://www.newmill.com) for Factory Mutual approved deck types and maximum FM construction spans.

## MAXIMUM CANTILEVER SPANS - ASD

Gage	F <sub>y</sub> (ksi)	Back-Span Condition		
		Single	Double	Triple
22	33	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:

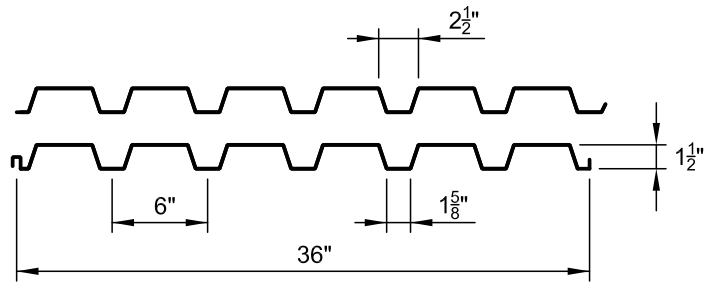
- ANSI/SDI RD-2010 Standard for Steel Roof Deck
- Adjacent span assumed to be at least 3 times longer than the cantilever and no greater than the max. constr. span shown in table above
- Bearing width at perimeter support assumed to be 3" minimum
- Design total uniform load of 45 psf in conjunction with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



# Roof Decks - Types BA, BIA

## PROPERTIES

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)
22	0.0295	36	1.63
20	0.0358		1.98
18	0.0474		2.62
16	0.0598		3.30



## SECTION PROPERTIES

Gage	F <sub>y</sub> (ksi)	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.)
22	33	0.159	0.172	0.180	0.182
20		0.202	0.208	0.222	0.230
18		0.276	0.276	0.299	0.305
16		0.347	0.347	0.380	0.381

Section properties are calculated in accordance with the AISI Cold-Formed Steel Design Specifications, 2007 Edition with updates from SDI white paper "Perforated Metal Deck Design with Commentary".

## DESIGN STRENGTHS

Gage	F <sub>y</sub> (ksi)	M <sub>n,p</sub> /Ω (in.-lb./ft.)	M <sub>n,n</sub> /Ω (in.-lb./ft.)	V <sub>n</sub> /Ω (lb./ft.)	R <sub>be</sub> /Ω (lb./ft.)	R <sub>bi</sub> /Ω (lb./ft.)
22	33	3555	3593	1250	521	969
20		4380	4548	1509	746	1393
18		5902	6019	1978	1252	2349
16		7507	7532	2469	1919	3615

R<sub>be</sub>/Ω and R<sub>bi</sub>/Ω values are based on minimum bearing lengths of 1 1/2" for end bearing and 3" for interior bearing.

## ALLOWABLE UNIFORM LOADS AND MAXIMUM CONSTRUCTION SPANS - ASD

Span Condition	Gage	Allowable Uniform Total Load (psf) / Load that Produces Span/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	8 - 0	9 - 0	10 - 0	11 - 0	12 - 0	
Single	22	95 / 83	78 / 63	66 / 48	-	-	-	-	-	-	-	5 - 10
	20	117 / 106	97 / 80	81 / 61	69 / 48	60 / 39	46 / 26	-	-	-	-	7 - 3
	18	157 / 145	130 / 109	109 / 84	93 / 66	80 / 53	61 / 35	49 / 25	39 / 18	-	-	9 - 9
	16	200 / 182	165 / 137	139 / 105	118 / 83	102 / 66	78 / 44	62 / 31	50 / 23	41 / 17	35 / 13	12 - 6
Double	22	93 / 209	77 / 157	65 / 121	56 / 95	48 / 76	37 / 51	-	-	-	-	7 - 1
	20	118 / 259	98 / 195	83 / 150	71 / 118	61 / 95	47 / 63	37 / 44	-	-	-	8 - 9
	18	156 / 349	129 / 262	109 / 202	93 / 159	81 / 127	62 / 85	49 / 60	40 / 44	33 / 33	28 / 25	11 - 10
	16	195 / 439	162 / 330	137 / 254	117 / 200	101 / 160	78 / 107	61 / 75	50 / 55	41 / 41	35 / 32	15 - 0
Triple	22	115 / 164	96 / 123	81 / 95	69 / 74	60 / 60	46 / 40	-	-	-	-	7 - 2
	20	145 / 203	121 / 153	102 / 118	87 / 92	76 / 74	58 / 50	46 / 35	-	-	-	8 - 10
	18	192 / 273	160 / 205	135 / 158	116 / 124	100 / 99	77 / 67	61 / 47	50 / 34	41 / 26	35 / 20	12 - 0
	16	240 / 344	200 / 258	169 / 199	145 / 157	125 / 125	96 / 84	76 / 59	62 / 43	51 / 32	43 / 25	15 - 3

### Notes:

- Uniform loads and maximum construction spans shown are based on the following criteria:
  - ANSI/SDI RD-2010 Standard for Steel Roof Deck
  - Minimum bearing lengths of 1 1/2" for end bearing and 3" for interior bearing
  - 33 ksi material.
- Maximum construction spans shown include a check for a 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.
- Values 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.
- See website at [www.newmill.com](http://www.newmill.com) for Factory Mutual approved deck types and maximum FM construction spans.

## MAXIMUM CANTILEVER SPANS - ASD

Gage	F <sub>y</sub> (ksi)	Back-Span Condition		
		Single	Double	Triple
22	33	1 - 4	1 - 4	1 - 4
20		1 - 9	1 - 9	1 - 9
18		2 - 4	2 - 3	2 - 3
16		2 - 10	2 - 7	2 - 7

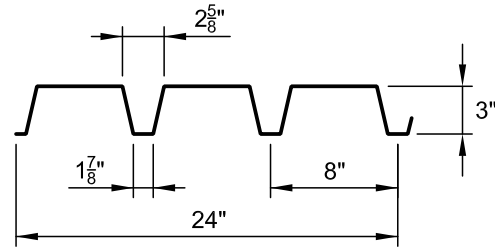
Maximum cantilever spans shown are based on the following criteria:

- 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.

# Roof Decks - Type N

## PROPERTIES

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)
22	0.0295	24	2.05
20	0.0358		2.48
18	0.0474		3.29
16	0.0598		4.14



## SECTION PROPERTIES

Gage	F <sub>y</sub> (ksi)	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.)
22	33	0.720	0.888	0.386	0.438
20		0.936	1.088	0.507	0.557
18		1.342	1.440	0.696	0.757
16		1.775	1.814	0.901	0.951

Section properties are calculated in accordance with the AISI Cold-Formed Steel Design Specifications, 2007 Edition.

## DESIGN STRENGTHS

Gage	F <sub>y</sub> (ksi)	M <sub>n,p</sub> /Ω (in.-lb./ft.)	M <sub>n,n</sub> /Ω (in.-lb./ft.)	V <sub>n</sub> /Ω (lb./ft.)	R <sub>be</sub> /Ω (lb./ft.)	R <sub>bf</sub> /Ω (lb./ft.)
22	33	7623	8646	2232	381	750
20		10011	11005	3287	549	1079
18		13751	14956	4707	930	1822
16		17797	18783	5914	1436	2805

R<sub>be</sub>/Ω and R<sub>bf</sub>/Ω values are based on minimum bearing lengths of 1 1/2" for end bearing and 3" for interior bearing.

## ALLOWABLE UNIFORM LOADS AND MAXIMUM CONSTRUCTION SPANS - ASD

Span Condition	Gage	Allowable Uniform Total Load (psf) / Load that Produces Span/240 Deflection (psf)										Max. Constr. Span (Ctr. to Ctr.)
		Center to Center Span (ft. - in.)										
		10 - 0	11 - 0	12 - 0	13 - 0	14 - 0	15 - 0	16 - 0	18 - 0	20 - 0	22 - 0	
Single	22	51 / 47	42 / 35	35 / 27	30 / 21	-	-	-	-	-	-	12 - 8
	20	67 / 61	55 / 46	46 / 36	39 / 28	34 / 22	30 / 18	26 / 15	21 / 11	-	-	16 - 8
	18	92 / 88	76 / 66	64 / 51	54 / 40	47 / 32	41 / 26	36 / 21	28 / 15	23 / 11	19 / 8	22 - 10
	16	119 / 116	98 / 87	82 / 67	70 / 53	61 / 42	53 / 34	46 / 28	37 / 20	30 / 15	25 / 11	29 - 7
Double	22	57 / 127	47 / 95	40 / 74	34 / 58	29 / 46	25 / 38	22 / 31	-	-	-	15 - 3
	20	73 / 160	60 / 120	51 / 93	43 / 73	37 / 58	32 / 47	29 / 39	23 / 27	18 / 20	15 / 15	20 - 1
	18	99 / 220	82 / 165	69 / 127	59 / 100	51 / 80	44 / 65	39 / 54	31 / 38	25 / 27	21 / 21	27 - 7
	16	124 / 284	103 / 213	87 / 164	74 / 129	64 / 103	55 / 84	49 / 69	39 / 49	31 / 35	26 / 27	30 - 0
Triple	22	68 / 99	59 / 75	49 / 58	42 / 45	36 / 36	32 / 29	28 / 24	-	-	-	15 - 6
	20	90 / 125	75 / 94	63 / 72	54 / 57	46 / 46	41 / 37	36 / 31	28 / 21	23 / 16	19 / 12	20 - 4
	18	123 / 172	102 / 129	86 / 100	73 / 78	63 / 63	55 / 51	48 / 42	38 / 30	31 / 22	26 / 16	27 - 11
	16	155 / 222	128 / 167	108 / 128	92 / 101	79 / 81	69 / 66	61 / 54	48 / 38	39 / 28	32 / 21	30 - 0

### Notes:

- Uniform loads and maximum construction spans shown are based on the following criteria:
  - ANSI/SDI RD-2010 Standard for Steel Roof Deck
  - Minimum bearing lengths of 1 1/2" for end bearing and 3" for interior bearing
  - 33 ksi material.
- Maximum construction spans shown include a check for a 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.
- Values 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.
- See website at [www.newmill.com](http://www.newmill.com) for Factory Mutual approved deck types and maximum FM construction spans.

## MAXIMUM CANTILEVER SPANS - ASD

Gage	F <sub>y</sub> (ksi)	Back-Span Condition		
		Single	Double	Triple
22	33	3 - 3	3 - 3	3 - 3
20		3 - 10	4 - 0	4 - 0
18		4 - 2	4 - 11	5 - 0
16		4 - 6	5 - 3	5 - 4

Maximum cantilever spans shown are based on the following criteria:

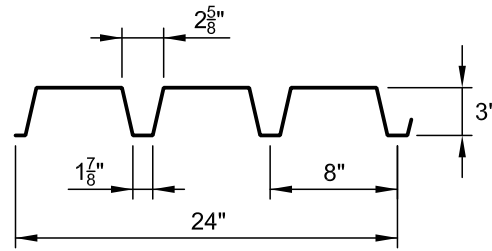
- ANSI/SDI RD-2010 Standard for Steel Roof Deck
- Adjacent span assumed to be at least 3 times longer than the cantilever and no greater than the max. constr. span shown in table above
- Bearing width at perimeter support assumed to be 3" minimum
- Design total uniform load of 45 psf in conjunction with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



# Roof Decks - Type NA

## PROPERTIES

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)
22	0.0295	24	2.05
20	0.0358		2.48
18	0.0474		3.29
16	0.0598		4.14



## SECTION PROPERTIES

Gage	F <sub>y</sub> (ksi)	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.)
22	33	0.680	0.829	0.354	0.393
20		0.882	1.017	0.470	0.504
18		1.266	1.346	0.643	0.687
16		1.669	1.696	0.829	0.863

Section properties are calculated in accordance with the AISI Cold-Formed Steel Design Specifications, 2007 Edition with updates from SDI white paper "Perforated Metal Deck Design with Commentary".

## DESIGN STRENGTHS

Gage	F <sub>y</sub> (ksi)	M <sub>n,p</sub> /Ω (in.-lb./ft.)	M <sub>n,r</sub> /Ω (in.-lb./ft.)	V <sub>n</sub> /Ω (lb./ft.)	R <sub>be</sub> /Ω (lb./ft.)	R <sub>bi</sub> /Ω (lb./ft.)
22	33	6991	7759	1457	353	743
20		9284	9951	2144	513	1070
18		12712	13584	3063	879	1808
16		16380	17058	3840	1367	2786

R<sub>be</sub>/Ω and R<sub>bi</sub>/Ω values are based on minimum bearing lengths of 1 1/2" for end bearing and 3" for interior bearing.

## ALLOWABLE UNIFORM LOADS AND MAXIMUM CONSTRUCTION SPANS - ASD

Span Condition	Gage	Allowable Uniform Total Load (psf) / Load that Produces Span/240 Deflection (psf)										Max. Constr. Span (Ctr. to Ctr.)
		Center to Center Span (ft. - in.)										
		10 - 0	11 - 0	12 - 0	13 - 0	14 - 0	15 - 0	16 - 0	18 - 0	20 - 0	22 - 0	
Single	22	47 / 45	39 / 34	32 / 26	-	-	-	-	-	-	-	11 - 7
	20	62 / 58	51 / 43	43 / 33	37 / 26	32 / 21	28 / 17	24 / 14	-	-	-	15 - 5
	18	85 / 83	70 / 62	59 / 48	50 / 38	43 / 30	38 / 25	33 / 20	26 / 14	21 / 10	18 / 8	21 - 2
	16	109 / 109	90 / 82	76 / 63	65 / 50	56 / 40	49 / 32	43 / 27	34 / 19	27 / 14	23 / 10	27 - 3
Double	22	51 / 119	42 / 90	35 / 69	30 / 54	26 / 43	-	-	-	-	-	14 - 0
	20	65 / 150	54 / 113	46 / 87	39 / 68	34 / 55	29 / 44	26 / 37	20 / 26	17 / 19	-	18 - 7
	18	89 / 206	74 / 155	62 / 119	53 / 94	46 / 75	40 / 61	35 / 50	28 / 35	23 / 26	19 / 19	25 - 6
	16	112 / 266	93 / 200	78 / 154	67 / 121	58 / 97	50 / 79	44 / 65	35 / 46	28 / 33	23 / 25	30 - 0
Triple	22	62 / 93	52 / 70	44 / 54	37 / 42	32 / 34	28 / 28	-	-	-	-	14 - 2
	20	81 / 117	67 / 88	57 / 68	48 / 53	42 / 43	36 / 35	32 / 29	25 / 20	21 / 15	-	18 - 10
	18	111 / 162	92 / 121	77 / 93	66 / 74	57 / 59	50 / 48	44 / 39	35 / 28	28 / 20	23 / 15	25 - 10
	16	139 / 208	115 / 156	97 / 120	83 / 95	72 / 76	62 / 62	55 / 51	44 / 36	35 / 26	29 / 20	30 - 0

### Notes:

- Uniform loads and maximum construction spans shown are based on the following criteria:
  - ANSI/SDI RD-2010 Standard for Steel Roof Deck
  - Minimum bearing lengths of 1 1/2" for end bearing and 3" for interior bearing
  - 33 ksi material.
- Maximum construction spans shown include a check for a 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.
- Values 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.
- See website at [www.newmill.com](http://www.newmill.com) for Factory Mutual approved deck types and maximum FM construction spans.

## MAXIMUM CANTILEVER SPANS - ASD

Gage	F <sub>y</sub> (ksi)	Back-Span Condition		
		Single	Double	Triple
22	33	2 - 11	2 - 11	2 - 11
20		3 - 8	3 - 8	3 - 8
18		4 - 1	4 - 10	4 - 10
16		4 - 5	5 - 2	5 - 3

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.

