

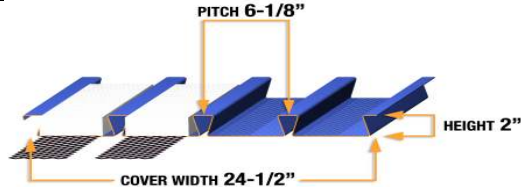
VERSA-DEK® S ACOUSTICAL ROOF (LRFD)

2" high x 6-1/8" pitch x 24-1/2" wide

SECTION PROPERTIES

fy=40 ksi

GAGE	Wd	I _b (DEFLECTION)	Sp	Sn	Rbe			Rbi			Va
					2"	3"	4"	3"	4"	5"	
22	2.05	0.385	0.284	0.267	1089	1254	1393	1891	2076	2239	4482
20	2.48	0.469	0.357	0.336	1550	1777	1969	2693	2947	3170	5414
18	3.28	0.644	0.477	0.463	2583	2942	3245	4493	4892	5245	7107
16	4.14	0.788	0.606	0.599	3937	4461	4902	6862	7441	7952	8884



LRFD DESIGN		MAXIMUM SUPERIMPOSED UNIFORM LRFD LOADS (psf)											
Span	Load Combinations	SINGLE SPAN				DOUBLE SPAN				TRIPLE SPAN			
		22	20	18	16	22	20	18	16	22	20	18	16
8' - 6"	λ _D D+λ _L L (Strength)	97	122	163	208	90*	114*	157*	203*	113*	143*	197*	255*
	D+L (Deflection)	39	48	66	80	90	114	157	199	76	92	127	155
	L (Deflection)	27	33	46	56	66	80	111	135	52	63	87	106
9' - 0"	λ _D D+λ _L L (Strength)	86	109	145	185	81*	102*	140*	181*	101*	127*	175*	227*
	D+L (Deflection)	33	40	55	67	81	99	136	167	63	77	106	130
	L (Deflection)	23	28	39	47	56	68	93	114	44	53	73	89
9' - 6"	λ _D D+λ _L L (Strength)	77	97	130	165	72*	91*	125*	162*	90*	114*	157*	203*
	D+L (Deflection)	27	33	46	56	69	84	116	141	54	65	90	110
	L (Deflection)	20	24	33	40	47	58	79	97	37	45	62	76
10' - 0"	λ _D D+λ _L L (Strength)	70	87	117	149	65*	82*	113*	146*	81*	103*	142*	183*
	D+L (Deflection)	23	28	39	48	59	72	99	120	46	55	76	93
	L (Deflection)	17	21	28	35	41	49	68	83	32	39	53	65
10' - 6"	λ _D D+λ _L L (Strength)	63	79	106	134	59*	74*	102*	132*	74*	93*	128*	166*
	D+L (Deflection)	20	24	33	41	51	62	85	104	39	48	66	80
	L (Deflection)	15	18	24	30	35	43	59	72	27	33	46	56
11' - 0"	λ _D D+λ _L L (Strength)	57	72	96	122	53*	67*	93*	120*	67*	85*	117*	151*
	D+L (Deflection)	17	21	29	35	44	53	73	89	34	41	57	69
	L (Deflection)	13	15	21	26	30	37	51	62	24	29	40	49
11' - 6"	λ _D D+λ _L L (Strength)	52	65	87	111	48*	61*	84*	109*	61*	77*	106*	138*
	D+L (Deflection)	15	18	25	30	38	46	64	78	29	36	49	60
	L (Deflection)	11	13	19	23	27	32	45	55	21	25	35	43
12' - 0"	λ _D D+λ _L L (Strength)	48	60	80	102	44*	56*	77*	100*	56*	71*	97*	126*
	D+L (Deflection)	13	15	21	26	33	40	56	68	26	31	43	52
	L (Deflection)	10	12	16	20	23	29	39	48	18	22	31	38
12' - 6"	λ _D D+λ _L L (Strength)	44	55	73	93	41*	51*	71*	92*	51*	65*	89*	116*
	D+L (Deflection)	11	13	18	22	29	35	49	60	22	27	38	46
	L (Deflection)	9	11	14	18	21	25	35	43	16	20	27	33
13' - 0"	λ _D D+λ _L L (Strength)	40	50	68	86	37*	47*	65*	85*	47*	60*	82*	107*
	D+L (Deflection)	9	12	16	19	26	31	43	53	20	24	33	40
	L (Deflection)	8	9	13	16	18	22	31	38	14	18	24	30
13' - 6"	λ _D D+λ _L L (Strength)	37	47	62	79	35*	44*	60*	78*	44*	55*	76*	99*
	D+L (Deflection)	8	10	14	17	23	28	38	47	17	21	29	35
	L (Deflection)	7	8	11	14	16	20	28	34	13	16	22	26
14' - 0"	λ _D D+λ _L L (Strength)	34	43	58	73	32*	40*	56*	72*	40*	51*	71*	91*
	D+L (Deflection)	7	9	12	15	20	25	34	41	15	19	26	31
	L (Deflection)	6	7	10	13	15	18	25	30	12	14	19	24
14' - 6"	λ _D D+λ _L L (Strength)	32	40	53	68	30*	37*	52*	67*	38*	48*	66*	85*
	D+L (Deflection)	6	8	11	13	18	22	30	37	14	17	23	28
	L (Deflection)	6	7	9	11	13	16	22	27	10	13	17	21
15' - 0"	λ _D D+λ _L L (Strength)	30	37	50	63	28*	35*	48*	62*	35*	44*	61*	79*
	D+L (Deflection)	5	7	9	11	16	19	27	33	12	15	20	25
	L (Deflection)	5	6	8	10	12	15	20	25	9	11	16	19

8' - 6"	λ _D D+λ _L L (Strength)	97	← Max. superimposed factored LRFD dead + live load (psf) (governed by strength limitation)
	D+L (Deflection)	39	← Max. superimposed unfactored LRFD dead + live load (psf) (governed by deflection limitation of L/240 or 1")
	L (Deflection)	27	← Max. superimposed unfactored LRFD live load (psf) (governed by deflection limitation of L/360 or 1")

↑ Vertical load span (center to center spacing)

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|---------------------------------|---|------------|--|
| Wd | Weight of deck (uncoated), psf | Rbe | Allowable exterior web crippling value per foot of deck width, plf |
| I_b | Moment of inertia for deflection per foot of deck width (in ⁴ /ft) | Rbi | Allowable interior web crippling value per foot of deck width, plf |
| Sp | Section modulus for positive bending per foot of deck width, (in ³ /ft) | Va | Allowable shear value per foot of deck width, plf |
| Sn | Section modulus for negative bending per foot of deck width, (in ³ /ft) | D | Uniform dead load, psf |
| λ _D , λ _L | Load factors for D & L loads to be applied by Engineer in accordance with Building Codes. | L | Uniform live load, psf |

- Notes:**
- Bending strength based on allowable flexural stress of 38 ksi.
 - Loads marked with asterisk (*) are governed by moment & shear, interior reactions (web crippling) or applied moment & reactions assuming 4" of interior bearing.
 - An upper limit of 400 psf has been applied to the loads.
 - Deck length over 45'-0" require inquiry and special accommodations. Please contact the Metal-Dek Group® for further information.

The section properties table is based on 2001 AISI's North American Specification for the Design of Cold-Formed Steel Structural Members (2004 Supplement).