

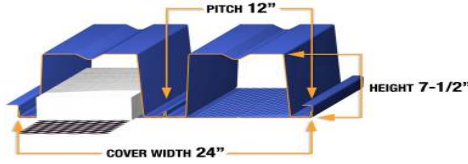
DEEP-DEK® 7.5 CELLULAR ACOUSTICAL ROOF (ASD)

7-1/2" high x 12" pitch x 24" wide

SECTION PROPERTIES

fy=40 ksi

GAGE	Wd	I _b (DEFLECTION)	Sp	Sn	Rbe			Rbi			Va
					4"	5"	6"	4"	5"	6"	
20/20	5.01	13.247	2.056	2.899	521	565	606	1003	1080	1148	1109
20/18	5.53	14.476	2.058	3.004	521	565	606	1003	1080	1148	1109
18/20	6.11	17.359	3.190	3.759	896	970	1037	1673	1793	1902	2578
18/18	6.63	18.512	3.180	3.884	896	970	1037	1673	1793	1902	2578
18/16	7.19	19.571	3.175	4.001	896	970	1037	1673	1793	1902	2578



ASD DESIGN		MAXIMUM SUPERIMPOSED UNIFORM ASD LOADS (psf)														
Span	Load Combinations	SINGLE SPAN					DOUBLE SPAN					TRIPLE SPAN				
		GAGE														
		20/20	20/18	18/20	18/18	18/16	20/20	20/18	18/20	18/18	18/16	20/20	20/18	18/20	18/18	18/16
15' - 0"	D+L (Strength)	64*	64*	113*	113*	112*	56*	56*	92*	92*	93*	65*	64*	106*	107*	107*
	D+L (Deflection)	64	64	113	113	112	56	56	92	92	93	65	64	106	107	107
	L (Deflection)	64	64	113	113	112	56	56	92	92	93	65	64	106	107	107
16' - 0"	D+L (Strength)	60*	60*	106*	105*	105*	52*	52*	85*	86*	86*	60*	60*	99*	99*	99*
	D+L (Deflection)	60	60	106	105	105	52	52	85	86	86	60	60	99	99	99
	L (Deflection)	60	60	106	105	105	52	52	85	86	86	60	60	99	99	99
17' - 0"	D+L (Strength)	56*	56*	99*	99*	98*	49*	49*	79*	79*	80*					
	D+L (Deflection)	56	56	99	99	98	49	49	79	79	80					
	L (Deflection)	56	56	99	99	98	49	49	79	79	80					
18' - 0"	D+L (Strength)	53*	52*	93*	93*	92*	46*	46*	74*	74*	74*					
	D+L (Deflection)	53	52	93	93	92	46	46	74	74	74					
	L (Deflection)	53	52	93	93	92	46	46	74	74	74					
19' - 0"	D+L (Strength)	50*	49*	88*	88*	87*	43*	43*	69*	69*	69*					
	D+L (Deflection)	50	49	88	88	87	43	43	69	69	69					
	L (Deflection)	50	49	88	88	87	43	43	69	69	69					
20' - 0"	D+L (Strength)	47*	47*	84*	83*	82*	41*	40*	64*	65*	65*					
	D+L (Deflection)	47	47	84	83	82	41	40	64	65	65					
	L (Deflection)	47	47	84	83	82	41	40	64	65	65					
21' - 0"	D+L (Strength)	45*	44*	79*	79*	78*	39*	38*	60*	61*	61*					
	D+L (Deflection)	45	44	79	79	78	39	38	60	61	61					
	L (Deflection)	45	44	79	79	78	39	38	60	61	61					
22' - 0"	D+L (Strength)	42*	42*	75*	75*	74*	37*	36*	57*	57*	57*					
	D+L (Deflection)	42	42	75	75	74	37	36	57	57	57					
	L (Deflection)	42	42	71	75	74	37	36	57	57	57					
23' - 0"	D+L (Strength)	40*	40*	72*	71*	71*	35*	34*	54*	54*	54*					
	D+L (Deflection)	40	40	72	71	71	35	34	54	54	54					
	L (Deflection)	40	40	62	67	70	35	34	54	54	54					
24' - 0"	D+L (Strength)	38*	38*	69*	68*	68*	33*	33*	51*	51*	51*					
	D+L (Deflection)	38	38	63	67	68	33	33	51	51	51					
	L (Deflection)	38	38	55	59	62	33	33	51	51	51					
25' - 0"	D+L (Strength)	37*	36*	66*	65*	65*										
	D+L (Deflection)	37	36	52	56	59										
	L (Deflection)	37	36	49	52	55										
26' - 0"	D+L (Strength)	35*	35*	63*	62*	62*										
	D+L (Deflection)	33	35	44	47	49										
	L (Deflection)	33	35	43	46	49										
27' - 0"	D+L (Strength)	34*	33*	60*	60*	59*										
	D+L (Deflection)	28	29	37	39	41										
	L (Deflection)	28	29	37	39	41										
28' - 0"	D+L (Strength)	32*	32*	58*	57*	57*										
	D+L (Deflection)	23	25	31	33	35										
	L (Deflection)	23	25	31	33	35										

15' - 0"	D+L (Strength)	64*	← Max. superimposed ASD dead + live load (psf) (governed by strength limitation)
	D+L (Deflection)	64	← Max. superimposed ASD dead + live load (psf) (governed by deflection limitation of L/240 or 1")
	L (Deflection)	64	← Max. superimposed ASD live load (psf) (governed by deflection limitation of L/360 or 1")

Vertical load span (center to center spacing)

- Wd** Weight of deck (uncoated), psf
- I_b** Moment of inertia for deflection per foot of deck width (in⁴/ft)
- Sp** Section modulus for positive bending per foot of deck width, (in³/ft)
- Sn** Section modulus for negative bending per foot of deck width, (in³/ft)
- Va** Allowable shear value per foot of deck width, plf
- Rbe** Allowable exterior web crippling value per foot of deck width, plf
- Rbi** Allowable interior web crippling value per foot of deck width, plf
- D** Uniform dead load, psf
- L** Uniform live load, psf

- Notes:**
- Bending strength based on allowable flexural stress of 24 ksi.
 - Loads marked with asterisk (*) are governed by moment & shear, interior (6" bearing) and exterior (4" bearing) reactions (web crippling) or applied moment & reactions.
 - 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).

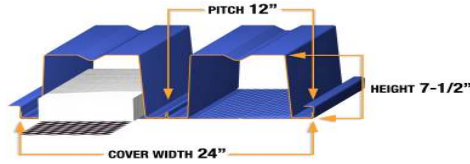
DEEP-DEK® 7.5 CELLULAR ACOUSTICAL ROOF (ASD)

7-1/2" high x 12" pitch x 24" wide

SECTION PROPERTIES

fy=40 ksi

GAGE	Wd	I _b (DEFLECTION)	S _p	S _n	R _{be}			R _{bi}			V _a
					4"	5"	6"	4"	5"	6"	
16/18	7.81	22.489	4.603	4.809	1394	1505	1605	2552	2727	2886	5185
16/16	8.37	23.990	4.575	4.947	1394	1505	1605	2552	2727	2886	5185
16/14	9.04	25.477	4.556	5.078	1394	1505	1605	2552	2727	2886	5185
14/16	9.78	28.212	6.294	6.066	2117	2279	2425	3824	4074	4300	10126
14/14	10.45	30.041	6.416	6.237	2117	2279	2425	3824	4074	4300	10126



ASD DESIGN		MAXIMUM SUPERIMPOSED UNIFORM ASD LOADS (psf)														
Span	Load Combinations	SINGLE SPAN					DOUBLE SPAN					TRIPLE SPAN				
		GAGE														
		16/18	16/16	16/14	14/16	14/14	16/18	16/16	16/14	14/16	14/14	16/18	16/16	16/14	14/16	14/14
22' - 0"	D+L (Strength)	119*	118*	118*	183*	182*	77*	77*	77*	102*	102*					
	D+L (Deflection)	118	118	118	148	158	77	77	77	102	102					
	L (Deflection)	92	99	105	116	123	77	77	77	102	102					
23' - 0"	D+L (Strength)	113*	113*	112*	174*	174*	72*	73*	73*	96*	96*					
	D+L (Deflection)	98	104	111	123	131	72	73	73	96	96					
	L (Deflection)	81	86	92	102	108	72	73	73	96	96					
24' - 0"	D+L (Strength)	108*	108*	107*	165	166*	68*	68*	69*	90*	91*					
	D+L (Deflection)	81	87	92	102	108	68	68	69	90	91					
	L (Deflection)	71	76	81	89	95	68	68	69	90	91					
25' - 0"	D+L (Strength)	104*	103*	102*	151	154										
	D+L (Deflection)	68	72	77	85	91										
	L (Deflection)	63	67	71	79	84										
26' - 0"	D+L (Strength)	99*	99*	98*	139	141										
	D+L (Deflection)	57	61	64	71	76										
	L (Deflection)	56	60	63	70	75										
27' - 0"	D+L (Strength)	93	92	91	128	130										
	D+L (Deflection)	48	51	54	60	64										
	L (Deflection)	48	51	54	60	64										
28' - 0"	D+L (Strength)	86	85	84	119	120										
	D+L (Deflection)	40	43	45	50	54										
	L (Deflection)	40	43	45	50	54										
29' - 0"	D+L (Strength)	80	79	78	110	112										
	D+L (Deflection)	34	36	38	43	45										
	L (Deflection)	34	36	38	43	45										
30' - 0"	D+L (Strength)	74	73	72	102	104										
	D+L (Deflection)	29	31	32	36	38										
	L (Deflection)	29	31	32	36	38										
31' - 0"	D+L (Strength)	69	68	67	95	96										
	D+L (Deflection)	24	26	27	30	32										
	L (Deflection)	24	26	27	30	32										
32' - 0"	D+L (Strength)	64	63	62	89	90										
	D+L (Deflection)	20	22	23	26	27										
	L (Deflection)	20	22	23	26	27										
33' - 0"	D+L (Strength)	60	59	58	83	84										
	D+L (Deflection)	17	18	19	21	23										
	L (Deflection)	17	18	19	21	23										
34' - 0"	D+L (Strength)	56	55	54	77	78										
	D+L (Deflection)	14	15	16	18	19										
	L (Deflection)	14	15	16	18	19										
35' - 0"	D+L (Strength)	52	51	50	72	73										
	D+L (Deflection)	12	13	13	15	16										
	L (Deflection)	12	13	13	15	16										

22' - 0"	D+L (Strength)	119*	← Max. superimposed ASD dead + live load (psf) (governed by strength limitation)
	D+L (Deflection)	118	← Max. superimposed ASD dead + live load (psf) (governed by deflection limitation of L/240 or 1")
	L (Deflection)	92	← Max. superimposed ASD live load (psf) (governed by deflection limitation of L/360 or 1")
			Vertical load span (center to center spacing)

Wd Weight of deck (uncoated), psf

I_b Moment of inertia for deflection per foot of deck width (in⁴/ft)

S_p Section modulus for positive bending per foot of deck width, (in³/ft)

S_n Section modulus for negative bending per foot of deck width, (in³/ft)

V_a Allowable shear value per foot of deck width, plf

R_{be} Allowable exterior web crippling value per foot of deck width, plf

R_{bi} Allowable interior web crippling value per foot of deck width, plf

D Uniform dead load, psf

L Uniform live load, psf

Notes:

- Bending strength based on allowable flexural stress of 24 ksi.
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