

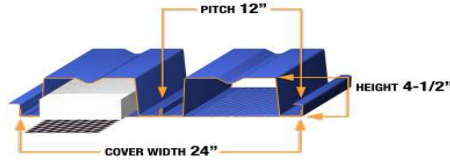
# DEEP-DEK® 4.5 CELLULAR ACOUSTICAL ROOF (ASD)

4-1/2" high x 12" pitch x 24" wide

## SECTION PROPERTIES

fy=40 ksi

GAGE	Wd	I <sub>b</sub> (DEFLECTION)	Sp	Sn	Rbe			Rbi			Va
					4"	5"	6"	4"	5"	6"	
20/20	4.31	4.558	1.204	1.541	588	638	684	1018	1095	1164	1873
20/18	4.83	4.878	1.207	1.595	588	638	684	1018	1095	1164	1873
18/20	5.19	5.775	1.841	2.003	990	1071	1145	1693	1815	1925	4230
18/18	5.71	6.238	1.860	2.067	990	1071	1145	1693	1815	1925	4230
18/16	6.27	6.666	1.859	2.128	990	1071	1145	1693	1815	1925	4230



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)	74*	74*	126	126*	126*	53*	53*	75*	76*	76*	61*	62*	88*	88*	89*
	D+L (Deflection)	74	74	107	116	123	53	53	75	76	76	61	62	88	88	89
	L (Deflection)	59	63	75	81	86	53	53	75	76	76	61	62	88	88	89
16' - 0"	D+L (Strength)	69*	69*	110	111	110	48*	49*	69*	69*	70*	57*	57*	81*	81*	82*
	D+L (Deflection)	69	69	87	94	101	48	49	69	69	70	57	57	81	81	82
	L (Deflection)	49	52	62	67	71	48	49	69	69	70	57	57	81	81	82
17' - 0"	D+L (Strength)	62	62	97	97	97	45*	45*	63*	64*	64*					
	D+L (Deflection)	57	60	72	78	83	45	45	63	64	64					
	L (Deflection)	41	43	51	56	59	45	45	63	64	64					
18' - 0"	D+L (Strength)	55	55	86	86	86	41*	41*	58*	59*	59*					
	D+L (Deflection)	47	50	60	65	69	41	41	58	59	59					
	L (Deflection)	34	37	43	47	50	41	41	58	59	59					
19' - 0"	D+L (Strength)	49	49	76	77	76	38*	38*	54*	54*	55*					
	D+L (Deflection)	39	42	50	54	58	38	38	54	54	55					
	L (Deflection)	29	31	37	40	43	38	38	54	54	55					
20' - 0"	D+L (Strength)	44	43	68	69	68	36*	36*	50*	51*	51*					
	D+L (Deflection)	33	35	42	45	48	36	36	50	51	51					
	L (Deflection)	25	27	32	34	36	36	36	50	51	51					
21' - 0"	D+L (Strength)	39	39	62	62	61	33*	33*	47*	47*	47*					
	D+L (Deflection)	26	28	34	36	39	33	33	47	47	47					
	L (Deflection)	22	23	27	29	32	33	33	47	47	47					
22' - 0"	D+L (Strength)	35	35	56	56	55	31*	31*	44*	44*	44*					
	D+L (Deflection)	21	23	27	29	31	31	31	44	44	44					
	L (Deflection)	19	20	24	26	27	31	31	44	44	44					
23' - 0"	D+L (Strength)	32	32	50	51	50	29*	29*	41*	41*	41*					
	D+L (Deflection)	17	18	22	24	25	29	29	41	41	41					
	L (Deflection)	16	18	21	22	24	29	29	41	41	41					
24' - 0"	D+L (Strength)	29	29	46	46	45	27*	27*	38*	38*	39*					
	D+L (Deflection)	14	14	18	19	20	27	27	38	38	39					
	L (Deflection)	14	14	18	19	20	27	27	38	38	39					
25' - 0"	D+L (Strength)	27	26	42	42	41										
	D+L (Deflection)	11	12	14	15	16										
	L (Deflection)	11	12	14	15	16										
26' - 0"	D+L (Strength)	24	24	38	38	38										
	D+L (Deflection)	9	9	11	12	13										
	L (Deflection)	9	9	11	12	13										
27' - 0"	D+L (Strength)	22	22	35	35	35										
	D+L (Deflection)	7	7	9	10	10										
	L (Deflection)	7	7	9	10	10										
28' - 0"	D+L (Strength)	20	20	32	32	32										
	D+L (Deflection)	5	6	7	8	8										
	L (Deflection)	5	6	7	8	8										

15' - 0"	D+L (Strength)	74*	← Max. superimposed ASD dead + live load (psf) (governed by strength limitation)
	D+L (Deflection)	74	← Max. superimposed ASD dead + live load (psf) (governed by deflection limitation of L/240 or 1")
	L (Deflection)	59	← 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<sub>b</sub>** Moment of inertia for deflection per foot of deck width (in<sup>4</sup>/ft)
- Sp** Section modulus for positive bending per foot of deck width, (in<sup>3</sup>/ft)
- Sn** Section modulus for negative bending per foot of deck width, (in<sup>3</sup>/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).

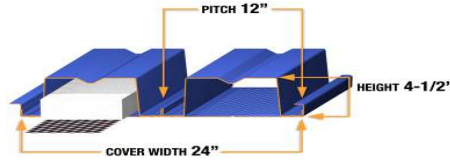
# DEEP-DEK® 4.5 CELLULAR ACOUSTICAL ROOF (ASD)

4-1/2" high x 12" pitch x 24" wide

## SECTION PROPERTIES

fy=40 ksi

GAGE	Wd	I <sub>b</sub> (DEFLECTION)	S <sub>p</sub>	S <sub>n</sub>	R <sub>be</sub>			R <sub>bi</sub>			V <sub>a</sub>
					4"	5"	6"	4"	5"	6"	
16/18	6.65	7.451	2.506	2.565	1518	1638	1747	2580	2757	2917	6732
16/16	7.20	7.956	2.551	2.636	1518	1638	1747	2580	2757	2917	6732
16/14	7.87	8.491	2.598	2.705	1518	1638	1747	2580	2757	2917	6732
14/16	8.33	9.360	3.338	3.237	2279	2453	2610	3860	4113	4341	9688
14/14	9.00	9.981	3.397	3.321	2279	2453	2610	3860	4113	4341	9688



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
15' - 0"	D+L (Strength)	172	174	177	229	233	100*	101*	102*	131*	132*	118*	119*	119*	155*	156*
	D+L (Deflection)	138	148	157	174	185	100	101	102	131	132	118	119	119	155	156
	L (Deflection)	97	103	110	121	129	100	101	102	131	132	118	119	119	155	156
16' - 0"	D+L (Strength)	150	152	154	200	203	92*	92*	93*	120*	121*	108*	109*	109*	141*	143*
	D+L (Deflection)	113	120	128	142	151	92	92	93	120	121	108	109	109	141	143
	L (Deflection)	80	85	91	100	107	92	92	93	120	121	108	109	109	141	143
17' - 0"	D+L (Strength)	132	134	136	176	179	84*	85*	85*	110*	111*					
	D+L (Deflection)	93	99	106	117	124	84	85	85	110	111					
	L (Deflection)	66	71	76	83	89	84	85	85	110	111					
18' - 0"	D+L (Strength)	117	119	120	156	159	78*	78*	78*	101*	102*					
	D+L (Deflection)	77	82	88	97	103	78	78	78	101	102					
	L (Deflection)	56	60	64	70	75	78	78	78	101	102					
19' - 0"	D+L (Strength)	104	106	107	140	142	72*	72*	73*	93*	94*					
	D+L (Deflection)	65	69	73	81	87	72	72	73	93	94					
	L (Deflection)	48	51	54	60	64	72	72	73	93	94					
20' - 0"	D+L (Strength)	94	95	96	125	127	66*	67*	67*	86*	87*					
	D+L (Deflection)	55	58	62	68	73	66	67	67	86	87					
	L (Deflection)	41	44	46	51	55	66	67	67	86	87					
21' - 0"	D+L (Strength)	84	85	86	113	114	62*	62*	62*	80*	81*					
	D+L (Deflection)	44	47	49	55	58	62	62	62	80	81					
	L (Deflection)	35	38	40	44	47	62	62	62	80	81					
22' - 0"	D+L (Strength)	76	77	78	102	103	58*	58*	58*	74*	75*					
	D+L (Deflection)	35	37	40	44	47	58	58	58	74	75					
	L (Deflection)	31	33	35	38	41	58	58	58	74	75					
23' - 0"	D+L (Strength)	69	70	71	93	94	54*	54*	54*	69*	70*					
	D+L (Deflection)	28	30	32	36	38	54	54	54	69	70					
	L (Deflection)	27	29	31	34	36	54	54	54	69	70					
24' - 0"	D+L (Strength)	63	64	64	84	85	50*	51*	51*	65*	65*					
	D+L (Deflection)	23	24	26	29	31	50	51	51	65	65					
	L (Deflection)	23	24	26	29	31	50	51	51	65	65					
25' - 0"	D+L (Strength)	58	58	59	77	78										
	D+L (Deflection)	18	20	21	23	25										
	L (Deflection)	18	20	21	23	25										
26' - 0"	D+L (Strength)	53	53	54	71	71										
	D+L (Deflection)	15	16	17	19	20										
	L (Deflection)	15	16	17	19	20										
27' - 0"	D+L (Strength)	48	49	49	65	66										
	D+L (Deflection)	12	12	13	15	16										
	L (Deflection)	12	12	13	15	16										
28' - 0"	D+L (Strength)	44	45	45	60	60										
	D+L (Deflection)	9	10	10	12	12										
	L (Deflection)	9	10	10	12	12										

15' - 0"	D+L (Strength)	172	← Max. superimposed ASD dead + live load (psf) (governed by strength limitation)
	D+L (Deflection)	138	← Max. superimposed ASD dead + live load (psf) (governed by deflection limitation of L/240 or 1")
	L (Deflection)	97	← Max. superimposed ASD live load (psf) (governed by deflection limitation of L/360 or 1")

Vertical load span (center to center spacing)

<b>Wd</b>	Weight of deck (uncoated), psf	<b>Rbe</b>	Allowable exterior web crippling value per foot of deck width, plf
<b>I<sub>b</sub></b>	Moment of inertia for deflection per foot of deck width (in <sup>4</sup> /ft)	<b>Rbi</b>	Allowable interior web crippling value per foot of deck width, plf
<b>S<sub>p</sub></b>	Section modulus for positive bending per foot of deck width, (in <sup>3</sup> /ft)	<b>D</b>	Uniform dead load, psf
<b>S<sub>n</sub></b>	Section modulus for negative bending per foot of deck width, (in <sup>3</sup> /ft)	<b>L</b>	Uniform live load, psf
<b>V<sub>a</sub></b>	Allowable shear value per foot of deck width, plf		

- 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).