Metal Dek Group® a unit of CSI®

DEEP-DEK® 4.5 ROOF (LSD)

117 mm high x 305 mm pitch x 305 mm wide

SECTION PROPERTIES

Fy = 276 MPa

GAGE	Wd	Ip	In	Sp	Sn	Rbe			Rbi			Va
						102 mm	127 mm	152 mm	102 mm	127 mm	152 mm	
20	15.14	3913989	4069277	59181	65014	11.67	12.67	13.57	19.49	20.97	22.30	34.99
18	20.02	5357207	5381903	83300	85958	19.65	21.27	22.73	32.43	34.76	36.87	79.01
16	25.24	6781843	6781843	107054	108282	30.12	32.51	34.67	49.41	52.80	55.87	125.76
14	31.50	8459627	8459627	135017	135017	45.23	48.68	51.80	73.94	78.78	83.15	180.97

MAXIMUM SUPERIMPOSED UNIFORM LSD LOADS (kPa)

LSD DESIGN		SINGLE SPAN				DOUBLE SPAN				TRIPLE SPAN			
Span (mm)	Load Combinations	GAGE											
		20	18	16	14	20	18	16	14	20	18	16	14
3350	$\alpha_D D+\alpha_L L$ (Strength)	6.78*	11.48*	17.66*	19.15	5.14*	8.55*	13.02*	18.7**	5.86*	9.75*	14.84*	19.15*
	D+L (Deflection)	6.62	9.07	11.48	14.32	5.14	8.55	13.02	18.70	5.86	9.75	14.84	19.15
	L (Deflection)	4.51	6.18	7.82	9.75	5.14	8.55	13.02	18.70	5.86	9.75	14.73	18.38
3650	$\alpha_D D+\alpha_L L$ (Strength)	6.2*	10.5*	15.58	19.15	4.69*	7.82*	11.51**	16.09**	5.36*	8.92*	13.58*	19.15**
	D+L (Deflection)	5.07	6.94	8.79	10.96	4.69	7.82	11.51	16.09	5.36	8.92	13.58	19.15
	L (Deflection)	3.48	4.76	6.02	7.51	4.69	7.82	11.51	16.09	5.36	8.92	11.35	14.15
3960	$\alpha_D D+\alpha_L L$ (Strength)	5.7*	9.67*	13.23	16.69	4.32*	7.02**	10.03**	13.98**	4.93*	8.21*	12.25**	17.14**
	D+L (Deflection)	3.95	5.42	6.86	8.56	4.32	7.02	10.03	13.98	4.93	8.21	12.25	16.39
	L (Deflection)	2.73	3.74	4.74	5.91	4.32	7.02	10.03	13.98	4.93	7.05	8.92	11.13
4260	$\alpha_D D+\alpha_L L$ (Strength)	5.28*	8.84	11.36	14.34	3.98**	6.2**	8.82**	12.25**	4.57*	7.55**	10.8**	15.06**
	D+L (Deflection)	3.14	4.30	5.44	6.79	3.98	6.20	8.82	12.25	4.57	7.55	10.47	13.06
	L (Deflection)	2.19	3.00	3.79	4.73	3.98	6.20	8.82	11.25	4.12	5.64	7.15	8.91
4570	$\alpha_D D+\alpha_L L$ (Strength)	4.92*	7.67	9.86	12.44	3.55**	5.5**	7.81**	10.81**	4.25*	6.72**	9.58**	13.32**
	D+L (Deflection)	2.52	3.46	4.38	5.46	3.55	5.50	7.81	10.81	4.25	6.69	8.47	10.56
	L (Deflection)	1.78	2.44	3.08	3.85	3.55	5.50	7.33	9.14	3.35	4.59	5.81	7.25
4870	$\alpha_D D+\alpha_L L$ (Strength)	4.6*	6.71	8.63	10.89	3.18**	4.91**	6.95**	9.61**	3.88**	6.02**	8.56**	11.86**
	D+L (Deflection)	2.05	2.81	3.56	4.45	3.18	4.91	6.95	9.61	3.88	5.48	6.93	8.65
	L (Deflection)	1.47	2.01	2.54	3.17	3.18	4.77	6.04	7.54	2.76	3.78	4.79	5.97
5180	$\alpha_D D+\alpha_L L$ (Strength)	4.19	5.92	7.61	9.60	2.87**	4.41**	6.23**	8.58**				
	D+L (Deflection)	1.69	2.31	2.93	3.66	2.87	4.41	6.23	8.58				
	L (Deflection)	1.22	1.67	2.12	2.64	2.87	3.98	5.04	6.28				
5480	$\alpha_D D+\alpha_L L$ (Strength)	3.72	5.25	6.75	8.52	2.59**	3.98**	5.6**	7.7**				
	D+L (Deflection)	1.40	1.92	2.43	3.03	2.59	3.98	5.60	7.63				
	L (Deflection)	1.03	1.41	1.78	2.23	2.45	3.35	4.24	5.29				
5790	$\alpha_D D+\alpha_L L$ (Strength)	3.32	4.69	6.03	7.61	2.35**	3.6**	5.06**	6.95**				
	D+L (Deflection)	1.17	1.60	2.03	2.53	2.35	3.60	5.06	6.44				
	L (Deflection)	0.88	1.20	1.52	1.89	2.08	2.85	3.61	4.50				
6090	$\alpha_D D+\alpha_L L$ (Strength)	2.98	4.21	5.41	6.83	2.14**	3.28**	4.6**	6.29**				
	D+L (Deflection)	0.98	1.35	1.70	2.13	2.14	3.28	4.39	5.48				
	L (Deflection)	0.75	1.03	1.30	1.62	1.78	2.44	3.09	3.86				
6400	$\alpha_D D+\alpha_L L$ (Strength)	2.68	3.79	4.88	6.16	1.96**	2.99**	4.18**	5.72**				
	D+L (Deflection)	0.82	1.14	1.44	1.79	1.96	2.97	3.76	4.69				
	L (Deflection)	0.65	0.89	1.12	1.40	1.54	2.11	2.67	3.33				
6700	$\alpha_D D+\alpha_L L$ (Strength)	2.43	3.43	4.42	5.58	1.8**	2.73**	3.82**	5.22**				
	D+L (Deflection)	0.70	0.96	1.22	1.52	1.80	2.56	3.24	4.04				
	L (Deflection)	0.56	0.77	0.98	1.22	1.34	1.84	2.32	2.90				
7010	$\alpha_D D+\alpha_L L$ (Strength)	2.21	3.12	4.02	5.07	1.65**	2.51**	3.5**	4.77**				
	D+L (Deflection)	0.59	0.82	1.04	1.29	1.61	2.21	2.80	3.50				
	L (Deflection)	0.49	0.68	0.86	1.07	1.17	1.61	2.03	2.54				
7310	$\alpha_D D+\alpha_L L$ (Strength)	2.01	2.85	3.66	4.62	1.52**	2.31**	3.22**	4.38**				
	D+L (Deflection)	0.50	0.70	0.88	1.10	1.40	1.92	2.44	3.04				
	L (Deflection)	0.43	0.59	0.75	0.94	1.03	1.41	1.79	2.23				

	$\alpha_D D+\alpha_L L$ (Strength)	6.78* ← **Max. superimposed factored LSD dead + live load (kPa) (governed by strength limitation)**
3350	D+L (Deflection)	6.62 ← **Max. superimposed unfactored LSD dead + live load (kPa) (governed by deflection limitation of L/240)**
↑	L (Deflection)	4.51 ← **Max. superimposed unfactored LSD live load (kPa) (governed by deflection limitation of L/360)**
Vertical load span (center to center spacing)		

Wd	Weight of deck (uncoated), kg/m^2		
Ip	Moment of inertia for positive bending per foot of deck width, mm^4/m	*Rbe*	Allowable exterior web crippling value per foot of deck width, kN/m
In	Moment of inertia for negative bending per foot of deck width, mm^4/m	*Rbi*	Allowable interior web crippling value per foot of deck width, kN/m
Sp	Section modulus for positive bending per foot of deck width, mm^3/m	*Va*	Allowable shear value per foot of deck width, kN/m
Sn	Section modulus for negative bending per foot of deck width, mm^3/m	*D*	Uniform dead load, kPa
α_D, α_L	Load factors for D & L loads to be applied by Engineer in accordance with Building Codes.	*L*	Uniform live load, kPa

Notes:

1. Bending strength based on allowable flexural stress of 248 MPa.
2. Loads marked with asterisk (*) are governed by interior reactions (web crippling) assuming 152 mm of interior bearing.
3. Loads marked with two asterisks (**) are governed by moment & shear or moment & reactions (web crippling) assuming 152 mm of interior bearing.
4. An upper limit of 19.15 kPa has been applied to the loads.
5. Deck length over 13.72 m 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).

Loads are calculated in accordance with requirements of CSSBI 10M-06. *Standard for Steel Roof Deck* .

Acoustical profile is also available.