

SECTION PROPERTIES  $f_y = 40 \text{ ksi}$

GAGE	Ip (in4)	In (in4)	Sp (in3)	Sn (in3)	R		
					Rbe (lb/ft)	Rbi (lb/ft)	Va (lb/ft)
20	1.802	1.746	0.721	0.771	1043	2138	5501
18	2.489	2.375	1.042	1.118	1761	3554	9644
16	3.190	2.375	1.414	1.448	2710	5412	13477

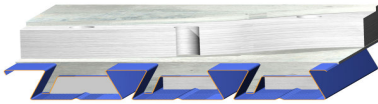
45 PCF LIGHTWEIGHT INSULATING CONCRETE

h	5.5"			6.5"			7.5"			8.5"			9.5"			10.5"			
	GAGE	20	18	16	20	18	16	20	18	16	20	18	16	20	18	16	20	18	16
Vc	1.0	1.0	1.0	1.3	1.3	1.3	1.6	1.6	1.6	1.9	1.9	1.9	2.2	2.2	2.2	2.5	2.5	2.5	2.5
Ac	24.0	24.0	24.0	36.0	36.0	36.0	48.0	48.0	48.0	60.0	60.0	60.0	72.0	72.0	72.0	84.0	84.0	84.0	84.0
Wc <sub>wet</sub>	12.1	12.1	12.1	15.8	15.8	15.8	19.6	19.6	19.6	23.3	23.3	23.3	27.1	27.1	27.1	30.8	30.8	30.8	30.8
Wc <sub>dry</sub>	9.4	9.4	9.4	12.3	12.3	12.3	15.2	15.2	15.2	18.2	18.2	18.2	21.1	21.1	21.1	24.0	24.0	24.0	24.0
L	Load Comb.	TRIPLE SPAN - MAXIMUM ALLOWABLE UNIFORM LIVE LOADS, (psf) - LRFD																	
8' -0"	D+L (Strength)	164	278	428	162	276	426	160	274	424	157	272	422	155	269	419	153	267	417
	D+L (Deflection)	666	909	1160	663	906	1157	660	903	1154	657	900	1152	654	897	1149	651	894	1146
8' -6"	D+L (Strength)	152	259	399	150	257	397	148	255	394	146	252	392	144	250	390	141	248	388
	D+L (Deflection)	539	736	941	536	733	938	533	731	935	530	728	932	527	725	929	525	722	926
9' -0"	D+L (Strength)	142	242	371	140	240	369	138	238	367	136	236	365	134	233	363	131	231	360
	D+L (Deflection)	442	604	772	439	601	769	436	598	767	433	596	764	430	593	761	427	590	758
9' -6"	D+L (Strength)	133	227	328	131	225	326	129	223	323	127	221	321	125	218	319	122	216	317
	D+L (Deflection)	366	502	641	363	499	639	361	496	636	358	493	633	355	490	630	352	487	627
10' -0"	D+L (Strength)	125	214	291	123	212	289	121	210	287	119	207	285	117	205	282	114	203	280
	D+L (Deflection)	307	420	538	304	417	535	301	414	532	298	412	529	295	409	526	292	406	523
10' -6"	D+L (Strength)	118	199	260	116	197	258	114	195	256	112	193	254	110	191	251	107	188	249
	D+L (Deflection)	259	355	455	256	352	452	253	349	449	250	347	446	247	344	444	244	341	441
11' -0"	D+L (Strength)	112	179	234	110	177	231	108	174	229	105	172	227	103	170	225	101	168	223
	D+L (Deflection)	220	303	388	217	300	385	214	297	382	211	294	379	208	291	377	206	288	374
11' -6"	D+L (Strength)	106	161	211	104	159	209	102	157	207	100	155	204	97	152	202	95	150	200
	D+L (Deflection)	188	260	333	185	257	330	183	254	327	180	251	325	177	248	322	174	245	319
12' -0"	D+L (Strength)	98	146	191	96	144	189	94	142	187	92	139	185	89	137	182	87	135	180
	D+L (Deflection)	162	224	288	159	221	285	156	218	282	153	215	279	151	212	276	148	209	273
12' -6"	D+L (Strength)	89	133	174	87	130	172	85	128	170	82	126	167	80	124	165	78	122	163
	D+L (Deflection)	140	194	250	137	191	247	135	188	244	132	186	241	129	183	238	126	180	236
13' -0"	D+L (Strength)	81	121	159	79	119	157	77	117	154	74	114	152	72	112	150	70	110	148
	D+L (Deflection)	122	169	218	119	166	215	116	164	213	113	161	210	110	158	207	107	155	204
13' -6"	D+L (Strength)	74	111	145	72	109	143	70	106	141	67	104	139	65	102	137	63	100	135
	D+L (Deflection)	106	148	191	104	145	189	101	142	186	98	139	183	95	137	180	92	134	177
14' -0"	D+L (Strength)	68	102	134	65	99	131	63	97	129	61	95	127	59	93	125	57	91	123
	D+L (Deflection)	93	130	169	90	127	166	87	124	163	84	121	160	82	119	157	79	116	154
14' -6"	D+L (Strength)	62	93	123	60	91	121	58	89	119	55	87	117	53	85	114	51	83	112
	D+L (Deflection)	82	115	149	79	112	146	76	109	143	73	106	140	70	103	137	67	100	134
15' -0"	D+L (Strength)	57	86	114	55	84	112	53	82	109	50	80	107	48	77	105	46	75	103
	D+L (Deflection)	72	102	132	69	99	129	66	96	126	63	93	123	60	90	120	58	87	117
MAXIMUM UNSHORED CONSTRUCTION CLEAR SPANS																			
GAGE	20	18	16	20	18	16	20	18	16	20	18	16	20	18	16	20	18	16	
3 Span	19'-6"	23'-1"	24'-2"	18'-3"	22'-0"	23'-0"	17'-2"	21'-1"	22'-1"	16'-3"	20'-4"	21'-4"	15'-5"	19'-8"	20'-8"	14'-9"	18'-10"	20'-2"	
Cantilever	8'-8"	10'-11"	10'-8"	8'-0"	10'-2"	10'-0"	7'-7"	9'-7"	9'-6"	7'-2"	9'-1"	9'-0"	6'-10"	8'-8"	8'-8"	6'-7"	8'-4"	8'-4"	

8' -0" D+L (Strength) 164 ← Maximum allowable live load (psf) based on strength  
 D+L (Deflection) 666 ← Maximum allowable live load (psf) based on deflection  
 The deflection limit (service phase) is the smaller of L/240 or 0.75"

- Ip** Moment of inertia of deck for positive bending
- In** Moment of inertia of deck for negative bending
- Sp** Section modulus of deck for positive bending
- Sn** Section modulus of deck for negative bending
- L** Span length; clear distance of deck between supports
- h** Total height of concrete slab (bottom of deck to top slab)
- Wc** Dry weight of concrete (neglecting deflection) (psf)
- Ac** Gross area of concrete (in2)
- Vc** Volume of concrete (cu.yd per 100 sq.ft of deck)
- fy** 40 ksi (for determining maximum loads)
- Rbe** Allowable web crippling for exterior reaction with 2" bearing
- Rbi** Allowable web crippling for interior reaction with 4" bearing

The section property table is based on 2001 AISI's Cold-Formed Steel Design Manual, 2004 Supplement.  
 The live loads and unshored clear spans are based on SDI's Insulating Concrete Metal Deck Design Handbook  
 The deflection limit for the maximum unshored construction spans is the smaller of L/180 or 0.75".  
 Deck length over 45' -0" require inquiry and special accommodations. Please contact the Metal-Dek Group® for further information.



SECTION PROPERTIES  $f_y = 40 \text{ ksi}$

GAGE	Ip (in4)	In (in4)	Sp (in3)	Sn (in3)	Rbe			Rbi			Va		
					(lb/ft)			(lb/ft)			(lb/ft)		
20	1.802	1.746	0.721	0.771	1043			2138			5501		
18	2.489	2.375	1.042	1.118	1761			3554			9644		
16	3.190	2.375	1.414	1.448	2710			5412			13477		

45 PCF LIGHTWEIGHT INSULATING CONCRETE

h	11.5"			12.5"			13.5"			14.5"			15.5"			16.5"			
	GAGE	20	18	16	20	18	16	20	18	16	20	18	16	20	18	16	20	18	16
Vc	2.8	2.8	2.8	3.2	3.2	3.2	3.5	3.5	3.5	3.8	3.8	3.8	4.1	4.1	4.1	4.4	4.4	4.4	4.4
Ac	96.0	96.0	96.0	108.0	108.0	108.0	120.0	120.0	120.0	132.0	132.0	132.0	144.0	144.0	144.0	156.0	156.0	156.0	156.0
Wc <sub>wet</sub>	34.6	34.6	34.6	38.3	38.3	38.3	42.1	42.1	42.1	45.8	45.8	45.8	49.6	49.6	49.6	53.3	53.3	53.3	53.3
Wc <sub>dry</sub>	26.9	26.9	26.9	29.8	29.8	29.8	32.7	32.7	32.7	35.7	35.7	35.7	38.6	38.6	38.6	41.5	41.5	41.5	41.5
L	Load Comb.	TRIPLE SPAN - MAXIMUM ALLOWABLE UNIFORM LIVE LOADS, (psf) - LRFD																	
8' -0"	D+L (Strength)	220	380	591	218	378	589	216	376	586	214	374	584	211	372	582	209	369	580
	D+L (Deflection)	1832	2500	3193	1829	2498	3190	1826	2495	3187	1824	2492	3184	1821	2489	3181	1818	2486	3178
8' -6"	D+L (Strength)	198	344	535	196	342	533	194	339	530	192	337	528	189	335	526	187	333	524
	D+L (Deflection)	1369	1871	2391	1366	1868	2388	1363	1865	2385	1360	1862	2382	1357	1859	2379	1355	1856	2376
9' -0"	D+L (Strength)	180	313	488	178	311	486	175	309	484	173	307	482	171	304	479	169	302	477
	D+L (Deflection)	1048	1434	1834	1045	1431	1831	1042	1428	1828	1039	1425	1825	1036	1422	1822	1033	1419	1819
9' -6"	D+L (Strength)	164	287	449	162	285	447	160	283	444	158	281	442	155	278	440	153	276	438
	D+L (Deflection)	818	1121	1435	815	1118	1433	812	1115	1430	809	1112	1427	806	1109	1424	803	1106	1421
10' -0"	D+L (Strength)	151	265	415	149	263	413	146	261	411	144	258	408	142	256	406	140	254	404
	D+L (Deflection)	649	891	1143	646	888	1140	643	886	1137	640	883	1134	637	880	1131	634	877	1128
10' -6"	D+L (Strength)	139	246	386	137	244	383	135	241	381	133	239	379	131	237	377	128	235	375
	D+L (Deflection)	522	719	923	519	716	920	516	713	917	513	710	914	510	707	911	507	704	909
11' -0"	D+L (Strength)	129	229	358	127	227	356	125	225	354	123	222	352	120	220	350	118	218	347
	D+L (Deflection)	424	587	755	422	584	752	419	581	749	416	578	746	413	575	743	410	572	740
11' -6"	D+L (Strength)	120	214	315	118	212	312	116	210	310	114	208	308	111	205	306	109	203	304
	D+L (Deflection)	349	484	624	346	481	621	343	478	618	340	475	615	337	472	612	334	469	609
12' -0"	D+L (Strength)	112	201	278	110	199	276	108	197	274	106	194	271	104	192	269	101	190	267
	D+L (Deflection)	289	403	521	286	400	518	283	397	515	280	394	512	277	391	509	275	388	506
12' -6"	D+L (Strength)	105	186	247	103	184	245	101	182	243	99	180	240	96	177	238	94	175	236
	D+L (Deflection)	241	338	438	238	335	435	235	332	432	233	329	429	230	326	426	227	323	423
13' -0"	D+L (Strength)	99	166	221	97	164	218	94	161	216	92	159	214	90	157	212	88	155	210
	D+L (Deflection)	203	285	371	200	282	368	197	279	365	194	276	362	191	274	359	188	271	356
13' -6"	D+L (Strength)	93	148	198	91	146	196	89	144	193	86	142	191	84	139	189	82	137	187
	D+L (Deflection)	171	242	316	168	239	313	165	236	310	162	233	307	159	230	304	156	227	301
14' -0"	D+L (Strength)	85	133	178	83	131	176	81	128	174	79	126	171	76	124	169	74	122	167
	D+L (Deflection)	145	206	270	142	204	268	139	201	265	136	198	262	133	195	259	130	192	256
14' -6"	D+L (Strength)	76	120	161	74	117	159	72	115	156	69	113	154	67	111	152	65	109	150
	D+L (Deflection)	123	177	233	120	174	230	117	171	227	114	168	224	111	165	221	108	162	218
15' -0"	D+L (Strength)	68	108	146	66	106	144	63	104	141	61	101	139	59	99	137	57	97	135
	D+L (Deflection)	104	152	201	102	149	198	99	146	195	96	143	192	93	140	189	90	137	186
MAXIMUM UNSHORED CONSTRUCTION CLEAR SPANS																			
GAGE	20	18	16	20	18	16	20	18	16	20	18	16	20	18	16	20	18	16	
3 Span	14'-1"	18'-0"	19'-8"	13'-6"	17'-4"	19'-3"	13'-0"	16'-9"	18'-10"	12'-6"	16'-2"	18'-6"	12'-1"	15'-8"	18'-2"	11'-8"	15'-2"	17'-10"	
Cantilever	6'-4"	8'-0"	8'-1"	6'-1"	7'-9"	7'-10"	5'-11"	7'-6"	7'-8"	5'-9"	7'-3"	7'-5"	5'-7"	7'-1"	7'-3"	5'-5"	6'-10"	7'-1"	

8' -0" D+L (Strength) 220 ← Maximum allowable live load (psf) based on strength  
 D+L (Deflection) 1832 ← Maximum allowable live load (psf) based on deflection  
 The deflection limit (service phase) is the smaller of L/240 or 0.75"

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