

**ALLOWABLE DIAPHRAGM SHEARS FOR
DEEP DEK 4.5 CELLULAR ACOUSTICAL**



SUPPORT CONNECTION: 5/8" Puddle Welds
 SUPPORT PATTERN : 24/4
 SIDELAP CONNECTION : # 10 Screws (Type 2)

Qd = Allowable Design Shear (lbs/foot)
 G' = Diaphragm Shear Stiffness (kips/in)

GAGE THICKNESS	SIDE LAP SPACING	SHEAR STIFFNESS	DECK SPAN - C TO C SUPPORT							
			10'-0"	12'-0"	14'-0"	16'-0"	18'-0"	20'-0"	22'-0"	24'-0"
20/20 .0358"/.0358"	12"	Qd	484	457	439	425	414	405	398	392
		G'	43.7	45.8	47.3	48.5	49.5	50.3	50.9	51.4
	24"	Qd	320	294	275	261	250	242	235	229
		G'	32.8	33.1	33.1	33.0	32.9	32.8	32.7	32.6
	36"	Qd	265	239	221	207	196	187	180	174
		G'	28.1	27.6	27.1	26.6	26.1	25.7	25.4	25.1
20/18 .0358"/.0474"	12"	Qd	501	472	451	435	423	414	406	399
		G'	57.5	58.0	58.3	58.5	58.6	58.7	58.8	58.8
	24"	Qd	337	308	287	272	260	250	242	236
		G'	40.0	39.0	38.1	37.4	36.7	36.2	35.8	35.4
	36"	Qd	282	254	233	217	205	196	188	181
		G'	33.2	31.6	30.3	29.3	28.5	27.8	27.2	26.7
18/20 .0474"/.0358"	12"	Qd	617	586	565	548	535	525	517	510
		G'	44.5	47.3	49.4	51.1	52.6	53.7	54.7	55.5
	24"	Qd	401	370	348	332	319	309	300	293
		G'	34.4	35.1	35.5	35.8	35.9	36.0	36.0	36.0
	36"	Qd	328	298	276	259	247	236	228	221
		G'	29.8	29.7	29.4	29.1	28.8	28.5	28.2	28.0
18/18 .0474"/.0474"	12"	Qd	633	600	576	558	544	533	524	516
		G'	61.4	62.7	63.5	64.1	64.6	64.9	65.2	65.4
	24"	Qd	417	383	360	342	328	317	308	300
		G'	43.7	43.0	42.3	41.7	41.1	40.7	40.2	39.9
	36"	Qd	345	311	287	270	256	244	235	228
		G'	36.5	35.1	33.9	32.9	32.1	31.4	30.8	30.3
18/16 .0474"/.0598"	12"	Qd	650	614	588	568	553	541	532	523
		G'	72.2	72.0	71.7	71.4	71.1	70.9	70.7	70.5
	24"	Qd	433	397	371	352	337	325	315	307
		G'	48.9	47.2	45.7	44.6	43.7	42.9	42.3	41.7
	36"	Qd	361	325	299	280	265	253	243	235
		G'	40.1	37.8	36.1	34.7	33.6	32.7	32.0	31.3
16/18 .0598"/.0474"	12"	Qd	774	736	709	689	673	660	650	641
		G'	64.2	66.2	67.6	68.6	69.4	70.1	70.6	71.0
	24"	Qd	501	463	436	416	400	387	377	368
		G'	46.6	46.2	45.8	45.3	44.9	44.5	44.2	43.9
	36"	Qd	410	372	345	325	309	296	286	277
		G'	39.3	38.1	37.0	36.1	35.3	34.6	34.0	33.4
16/16 .0598"/.0598"	12"	Qd	790	749	720	698	682	668	657	648
		G'	77.6	77.9	77.9	77.9	77.9	77.8	77.7	77.6
	24"	Qd	517	476	447	425	408	395	384	375
		G'	53.3	51.7	50.3	49.2	48.3	47.5	46.9	46.3
	36"	Qd	425	385	356	334	317	304	293	284
		G'	43.9	41.7	39.9	38.5	37.3	36.3	35.5	34.9
14/16 .0747"/.0598"	12"	Qd	957	911	878	854	835	820	807	797
		G'	82.6	83.5	84.0	84.4	84.6	84.7	84.8	84.9
	24"	Qd	615	570	537	513	494	478	466	456
		G'	57.6	56.2	54.9	53.9	53.3	52.3	51.7	51.1
	36"	Qd	502	456	423	399	380	365	352	342
		G'	47.7	45.5	43.8	42.3	41.1	40.1	39.3	38.6
14/14 .0747"/.0747"	12"	Qd	973	924	890	864	844	828	814	803
		G'	94.1	93.3	92.5	91.9	91.3	90.9	90.4	90.1
	24"	Qd	631	583	548	523	502	486	473	462
		G'	63.0	60.4	58.4	56.9	55.6	54.6	53.7	53.0
	36"	Qd	518	469	435	409	389	373	359	348
		G'	51.4	48.3	46.0	44.1	42.7	41.5	40.5	39.6

NOTES: Data is prepared in accordance with SDI's DIAPHRAGM DESIGN MANUAL, 3rd Edition
 Qd Values have been divided by SF of 2.35 to obtain (ASD) Diaphragm Shear values for wind loading.
 Calculations are based on a "Single Span Condition". For "Multiple Spans", contact the Metal Dek Group for additional information.

**ALLOWABLE DIAPHRAGM SHEARS FOR
DEEP DEK 4.5 CELLULAR ACOUSTICAL**



SUPPORT CONNECTION: 5/8" Diameter Puddle Welds
 SUPPORT PATTERN : 24.5/4
 SIDELAP CONNECTION : 1-1/2" Seam Welds

Qd = Allowable Design Shear (lbs/foot)
 G' = Diaphragm Shear Stiffness (kips/in)

GAGE THICKNESS	SIDE LAP SPACING	SHEAR STIFFNESS	DECK SPAN - C TO C SUPPORT							
			10'-0"	12'-0"	14'-0"	16'-0"	18'-0"	20'-0"	22'-0"	24'-0"
20/20 .0358"/.0358"	12"	Qd	1744	1695	1659	1631	1610	1593	1578	1566
		G'	43.7	45.8	47.3	48.5	49.5	50.3	50.9	51.4
	24"	Qd	1042	996	963	938	919	903	891	880
		G'	32.8	33.1	33.1	33.0	32.9	32.8	32.7	32.6
	36"	Qd	787	741	708	683	664	648	636	625
		G'	28.1	27.6	27.1	26.6	26.1	25.7	25.4	25.1
20/18 .0358"/.0474"	12"	Qd	1984	1928	1887	1856	1831	1812	1796	1782
		G'	57.5	58.0	58.3	58.5	58.6	58.7	58.8	58.8
	24"	Qd	1185	1133	1095	1067	1045	1028	1013	1002
		G'	40.0	39.0	38.1	37.4	36.7	36.2	35.8	35.4
	36"	Qd	895	843	805	777	755	738	723	711
		G'	33.2	31.6	30.3	29.3	28.5	27.8	27.2	26.7
18/20 .0474"/.0358"	12"	Qd	1984	1928	1887	1856	1831	1812	1796	1782
		G'	44.5	47.3	49.4	51.1	52.6	53.7	54.7	55.5
	24"	Qd	1185	1133	1095	1067	1045	1028	1013	1002
		G'	34.4	35.1	35.5	35.8	35.9	36.0	36.0	36.0
	36"	Qd	895	843	805	777	755	738	723	711
		G'	29.8	29.7	29.4	29.1	28.8	28.5	28.2	28.0
18/18 .0474"/.0474"	12"	Qd	2212	2150	2104	2069	2042	2020	2002	1987
		G'	61.4	62.7	63.5	64.1	64.6	64.9	65.2	65.4
	24"	Qd	1322	1263	1221	1190	1166	1146	1130	1117
		G'	43.7	43.0	42.3	41.7	41.1	40.7	40.2	39.9
	36"	Qd	998	940	898	866	842	823	807	793
		G'	36.5	35.1	33.9	32.9	32.1	31.4	30.8	30.3
18/16 .0474"/.0598"	12"	Qd	2443	2374	2323	2285	2255	2231	2211	2194
		G'	72.2	72.0	71.7	71.4	71.1	70.9	70.7	70.5
	24"	Qd	1459	1395	1349	1314	1287	1266	1248	1233
		G'	48.9	47.2	45.7	44.6	43.7	42.9	42.3	41.7
	36"	Qd	1102	1038	991	957	930	908	891	876
		G'	40.1	37.8	36.1	34.7	33.6	32.7	32.0	31.3
16/18 .0598"/.0474"	12"	Qd	2443	2374	2323	2285	2255	2231	2211	2194
		G'	64.2	66.2	67.6	68.6	69.4	70.1	70.6	71.0
	24"	Qd	1459	1395	1349	1314	1287	1266	1248	1233
		G'	46.6	46.2	45.8	45.3	44.9	44.5	44.2	43.9
	36"	Qd	1102	1038	991	957	930	908	891	876
		G'	39.3	38.1	37.0	36.1	35.3	34.6	34.0	33.4
16/16 .0598"/.0598"	12"	Qd	2661	2585	2530	2488	2456	2429	2408	2390
		G'	77.6	77.9	77.9	77.9	77.9	77.8	77.7	77.6
	24"	Qd	1589	1519	1469	1431	1402	1378	1359	1343
		G'	53.3	51.7	50.3	49.2	48.3	47.5	46.9	46.3
	36"	Qd	1200	1130	1080	1042	1013	989	970	954
		G'	43.9	41.7	39.9	38.5	37.3	36.3	35.5	34.9
14/16 .0747"/.0598"	12"	Qd	2904	2821	2761	2716	2680	2652	2628	2608
		G'	82.6	83.5	84.0	84.4	84.6	84.7	84.8	84.9
	24"	Qd	1735	1658	1603	1562	1530	1504	1483	1466
		G'	57.6	56.2	54.9	53.9	53.0	52.3	51.7	51.1
	36"	Qd	1310	1233	1178	1137	1105	1080	1059	1041
		G'	47.7	45.5	43.8	42.3	41.1	40.1	39.3	38.6
14/14 .0747"/.0747"	12"	Qd	3128	3039	2974	2925	2887	2856	2830	2809
		G'	94.1	93.3	92.5	91.9	91.3	90.9	90.4	90.1
	24"	Qd	1868	1785	1726	1682	1648	1620	1598	1579
		G'	63.0	60.4	58.4	56.9	55.6	54.6	53.7	53.0
	36"	Qd	1411	1328	1269	1225	1190	1163	1140	1121
		G'	51.4	48.3	46.0	44.1	42.7	41.5	40.5	39.6

NOTES: Data is prepared in accordance with SDI's DIAPHRAGM DESIGN MANUAL, 3rd Edition
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 Calculations are based on a "Single Span Condition". For "Multiple Spans", contact the Metal Dek Group for additional information.

**ALLOWABLE DIAPHRAGM SHEARS FOR
DEEP DEK 4.5 CELLULAR ACOUSTICAL**



SUPPORT CONNECTION: #12 Support Screws (Type 5)
 SUPPORT PATTERN : 24/4
 SIDELAP CONNECTION : # 10 Screws (Type 2)

Qd = Allowable Design Shear (lbs/foot)
 G' = Diaphragm Shear Stiffness (kips/in)

GAGE THICKNESS	SIDE LAP SPACING	SHEAR STIFFNESS	DECK SPAN - C TO C SUPPORT							
			10'-0"	12'-0"	14'-0"	16'-0"	18'-0"	20'-0"	22'-0"	24'-0"
20/20 .0358"/.0358"	12"	Qd	466	453	443	435	430	425	422	417
		G'	43.3	45.4	46.9	48.2	49.1	49.9	50.6	51.1
	24"	Qd	274	260	251	243	238	233	229	226
		G'	32.2	32.5	32.5	32.5	32.4	32.3	32.3	32.2
	36"	Qd	210	196	187	179	174	169	165	162
		G'	27.3	26.9	26.4	26.0	25.6	25.2	24.9	24.6
20/18 .0358"/.0474"	12"	Qd	466	453	443	435	430	425	422	417
		G'	56.7	57.4	57.7	58.0	58.1	58.2	58.3	58.4
	24"	Qd	274	260	251	243	238	233	229	226
		G'	39.1	38.1	37.4	36.7	36.1	35.7	35.2	34.9
	36"	Qd	210	196	187	179	174	169	165	162
		G'	32.1	30.7	29.5	28.6	27.8	27.2	26.6	26.2
18/20 .0474"/.0358"	12"	Qd	617	599	586	577	569	563	558	553
		G'	44.1	46.9	49.0	50.8	52.2	53.4	54.4	55.2
	24"	Qd	363	345	332	322	315	309	304	300
		G'	33.8	34.5	35.0	35.2	35.4	35.5	35.5	35.5
	36"	Qd	278	260	247	237	230	224	219	215
		G'	29.1	29.0	28.8	28.5	28.2	27.9	27.7	27.5
18/18 .0474"/.0474"	12"	Qd	617	599	586	577	569	563	558	553
		G'	60.7	62.0	62.9	63.5	64.0	64.4	64.7	64.9
	24"	Qd	363	345	332	322	315	309	304	300
		G'	42.8	42.1	41.5	40.9	40.4	40.0	39.7	39.3
	36"	Qd	278	260	247	237	230	224	219	215
		G'	35.5	34.1	33.0	32.1	31.3	30.7	30.1	29.7
18/16 .0474"/.0598"	12"	Qd	617	599	586	577	569	563	558	553
		G'	71.2	71.1	70.9	70.7	70.5	70.3	70.1	70.0
	24"	Qd	363	345	332	322	315	309	304	300
		G'	47.7	46.1	44.8	43.8	42.9	42.2	41.6	41.1
	36"	Qd	278	260	247	237	230	224	219	215
		G'	38.8	36.7	35.1	33.8	32.8	32.0	31.3	30.7
16/18 .0598"/.0474"	12"	Qd	779	756	740	727	718	710	704	697
		G'	63.5	65.5	67.0	68.0	68.9	69.5	70.1	70.5
	24"	Qd	458	435	419	406	397	389	383	378
		G'	45.7	45.3	44.9	44.6	44.2	43.9	43.6	43.3
	36"	Qd	351	328	312	299	290	282	276	271
		G'	38.2	37.1	36.1	35.2	34.5	33.8	33.3	32.8
16/16 .0598"/.0598"	12"	Qd	779	756	740	727	718	710	704	697
		G'	76.6	76.9	77.1	77.2	77.2	77.1	77.1	77.1
	24"	Qd	458	435	419	406	397	389	383	378
		G'	52.1	50.5	49.3	48.3	47.5	46.8	46.2	45.7
	36"	Qd	351	328	312	299	290	282	276	271
		G'	42.6	40.5	38.8	37.5	36.4	35.5	34.8	34.2
14/16 .0747"/.0598"	12"	Qd	973	944	924	909	897	887	880	871
		G'	81.5	82.5	83.1	83.5	83.8	84.0	84.2	84.3
	24"	Qd	572	543	523	508	496	486	479	472
		G'	56.3	55.0	53.9	52.9	52.1	51.5	50.9	50.4
	36"	Qd	438	410	389	374	362	353	345	338
		G'	46.3	44.2	42.6	41.3	40.2	39.2	38.5	37.8
14/14 .0747"/.0747"	12"	Qd	973	944	924	909	897	887	880	871
		G'	92.8	92.1	91.4	90.9	90.4	90.1	89.7	89.4
	24"	Qd	572	543	523	508	496	486	479	472
		G'	61.4	59.0	57.2	55.8	54.6	53.7	52.9	52.2
	36"	Qd	438	410	389	374	362	353	345	338
		G'	49.7	46.8	44.7	43.0	41.6	40.5	39.6	38.8

NOTES: Data is prepared in accordance with SDI's DIAPHRAGM DESIGN MANUAL, 3rd Edition
 Qd Values have been divided by SF of 2.00 to obtain (ASD) Diaphragm Shear values for wind loading.
 Calculations are based on a "Single Span Condition". For "Multiple Spans", contact the Metal Dek Group for additional information.