

**ALLOWABLE DIAPHRAGM SHEARS FOR  
DEEP DEK 7.5 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							
			16'-0"	18'-0"	20'-0"	22'-0"	24'-0"	26'-0"	28'-0"	30'-0"
20/20 .0358"/.0358"	12"	Qd	425	414	405	398	392	387	383	379
		G'	42.9	44.2	45.3	46.2	47.0	47.7	48.3	48.8
	24"	Qd	261	250	242	235	229	224	219	216
		G'	30.3	30.5	30.6	30.7	30.7	30.8	30.8	30.8
	36"	Qd	207	196	187	180	174	169	165	161
		G'	24.8	24.6	24.4	24.2	24.0	23.8	23.6	23.5
20/18 .0358"/.0474"	12"	Qd	435	423	414	406	399	394	389	385
		G'	54.7	55.2	55.5	55.8	56.1	56.2	56.4	56.5
	24"	Qd	272	260	250	242	236	230	225	189
		G'	35.8	35.4	35.0	34.7	34.4	34.1	33.9	28.6
	36"	Qd	217	205	196	188	181	176	171	167
		G'	28.3	27.6	27.1	26.6	26.1	25.8	25.4	25.1
18/20 .0474"/.0358"	12"	Qd	548	535	525	517	510	504	499	494
		G'	44.2	45.9	47.4	48.6	49.7	50.7	51.5	52.3
	24"	Qd	332	319	309	300	293	287	282	278
		G'	32.2	32.7	33.0	33.3	33.5	33.6	33.7	33.9
	36"	Qd	259	247	236	228	221	215	210	206
		G'	26.7	26.7	26.6	26.5	26.4	26.3	26.2	26.1
18/18 .0474"/.0474"	12"	Qd	558	544	533	524	516	510	505	500
		G'	59.0	59.8	60.5	61.1	61.6	61.9	62.3	62.6
	24"	Qd	342	328	317	308	300	294	288	283
		G'	39.4	39.1	38.9	38.7	38.4	38.2	38.1	37.9
	36"	Qd	270	256	244	235	228	221	216	211
		G'	31.5	30.9	30.4	29.8	29.4	29.0	28.7	28.4
18/16 .0474"/.0598"	12"	Qd	568	553	541	532	523	516	510	505
		G'	68.0	68.1	68.1	68.1	68.1	68.1	68.1	68.1
	24"	Qd	352	337	325	315	307	300	294	289
		G'	43.3	42.5	41.9	41.4	40.9	40.5	40.1	39.8
	36"	Qd	280	265	253	243	235	228	222	217
		G'	33.9	32.9	32.1	31.4	30.8	30.3	29.9	29.5
16/18 .0598"/.0474"	12"	Qd	689	673	660	650	641	634	628	622
		G'	62.1	63.4	64.4	65.3	66.0	66.7	67.2	67.7
	24"	Qd	416	400	387	377	368	361	355	349
		G'	42.4	42.3	42.2	42.1	41.9	41.8	41.7	41.6
	36"	Qd	325	309	296	286	277	270	264	258
		G'	34.2	33.6	33.1	32.7	32.3	32	31.6	31.4
16/16 .0598"/.0598"	12"	Qd	698	682	668	657	648	640	633	627
		G'	73.4	73.8	74.1	74.3	74.4	74.6	74.7	74.7
	24"	Qd	425	408	395	384	375	367	360	354
		G'	47.4	46.7	46.1	45.6	45.2	44.8	44.4	44.1
	36"	Qd	334	317	304	293	284	276	269	263
		G'	37.3	36.3	35.5	34.8	34.2	33.7	33.2	32.8
14/16 .0747"/.0598"	12"	Qd	854	835	820	807	797	788	780	774
		G'	78.5	79.3	79.9	80.3	80.7	81.0	81.2	81.5
	24"	Qd	513	494	478	466	456	447	439	433
		G'	51.5	50.9	50.4	50.0	49.6	49.2	48.9	48.6
	36"	Qd	399	380	365	352	342	333	325	319
		G'	40.8	39.8	39.0	38.3	37.7	37.1	36.7	36.3
14/14 .0747"/.0747"	12"	Qd	864	844	828	814	803	794	786	779
		G'	88.1	87.9	87.7	87.6	87.5	87.3	87.2	87.1
	24"	Qd	523	502	486	473	462	453	445	438
		G'	55.4	54.3	53.4	52.7	52.0	51.5	51.0	50.6
	36"	Qd	409	389	373	359	348	339	331	324
		G'	43.2	41.9	40.8	39.9	39.1	38.4	37.8	37.3

**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 7.5 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							
			16'-0"	18'-0"	20'-0"	22'-0"	24'-0"	26'-0"	28'-0"	30'-0"
20/20 .0358"/.0358"	12"	Qd	1631	1610	1593	1578	1566	1566	1548	1540
		G'	42.9	44.2	45.3	46.2	47.0	47.0	48.3	48.8
	24"	Qd	938	919	903	891	880	872	864	857
		G'	30.3	30.5	30.6	30.7	30.7	30.8	30.8	30.8
	36"	Qd	683	664	648	636	625	616	609	602
		G'	24.8	24.6	24.4	24.2	24.0	23.8	23.6	23.5
20/18 .0358"/.0474"	12"	Qd	1856	1831	1812	1796	1782	1771	1761	1752
		G'	54.7	55.2	55.5	55.8	56.1	56.2	56.4	56.5
	24"	Qd	1067	1045	1028	1013	1002	991.0	983.0	975.0
		G'	35.8	35.4	35.0	34.7	34.4	34.1	33.9	33.7
	36"	Qd	777	755	738	723	711	701	693	685
		G'	28.3	27.6	27.1	26.6	26.1	25.8	25.4	25.1
18/20 .0474"/.0358"	12"	Qd	1856	1831	1812	1796	1782	1771	1761	1752
		G'	44.2	45.9	47.4	48.6	49.7	50.7	51.5	52.3
	24"	Qd	1067	1045	1028	1013	1002	991.0	983.0	975.0
		G'	32.2	32.7	33.0	33.3	33.5	33.6	33.7	33.9
	36"	Qd	777	755	738	723	711	701	693	685
		G'	26.7	26.7	26.6	26.5	26.4	26.3	26.2	26.1
18/18 .0474"/.0474"	12"	Qd	2069	2042	2020	2002	1987	1974	1963	1954
		G'	59.0	59.8	60.5	61.1	61.6	61.9	62.3	62.6
	24"	Qd	1190	1166	1146	1130	1117	1106.0	1096.0	1088.0
		G'	39.4	39.1	38.9	38.7	38.4	38.2	38.1	37.9
	36"	Qd	866	842	823	807	793	782	772	764
		G'	31.5	30.9	30.3	29.8	29.4	29.0	28.7	28.4
18/16 .0474"/.0598"	12"	Qd	2285	2255	2231	2211	2194	2180	2168	2158
		G'	68.0	68.1	68.1	68.1	68.1	68.1	68.1	68.1
	24"	Qd	1314	1287	1266	1248	1233	1221.0	1210.0	1201.0
		G'	43.3	42.5	41.9	41.4	40.9	40.5	40.1	39.8
	36"	Qd	957	930	908	891	876	864	853	844
		G'	33.9	32.9	32.1	31.4	30.8	30.3	29.9	29.5
16/18 .0598"/.0474"	12"	Qd	2285	2255	2231	2211	2194	2180	2168	2158
		G'	62.1	63.4	64.4	65.3	66.0	66.7	67.2	67.7
	24"	Qd	1314	1287	1266	1248	1233	1221.0	1210.0	1201.0
		G'	42.4	42.3	42.2	42.1	41.9	41.8	41.7	41.6
	36"	Qd	957	930	908	891	876	864	853	844
		G'	34.2	33.6	33.1	32.7	32.3	32.0	31.6	31.4
16/16 .0598"/.0598"	12"	Qd	2488	2456	2429	2408	2390	2374	2361	2350
		G'	73.4	73.8	74.1	74.3	74.4	74.6	74.7	74.7
	24"	Qd	1431	1402	1378	1359	1343	1329.0	1318.0	1308.0
		G'	47.4	46.7	46.1	45.6	45.2	44.8	44.4	44.1
	36"	Qd	1042	1013	989	970	954	940	929	919
		G'	37.3	36.3	35.5	34.8	34.2	33.7	33.2	32.8
14/16 .0747"/.0598"	12"	Qd	2716	2680	2652	2628	2608	2591	2577	2564
		G'	78.5	79.3	79.9	80.3	80.7	81.0	81.2	81.5
	24"	Qd	1562	1530	1504	1483	1466	1451.0	1438.0	1427.0
		G'	51.5	50.9	50.4	50.0	49.6	49.2	48.9	48.6
	36"	Qd	1137	1105	1080	1059	1041	1026	1014	1003
		G'	40.8	39.8	39.0	38.3	37.7	37.1	36.7	36.3
14/14 .0747"/.0747"	12"	Qd	2925	2887	2856	2830	2809	2791	2775	2762
		G'	88.1	87.9	87.7	87.6	87.5	87.3	87.2	87.1
	24"	Qd	1682	1648	1620	1598	1579	1563.0	1549.0	1537.0
		G'	55.4	54.3	53.4	52.7	52.0	51.5	51.0	50.6
	36"	Qd	1225	1190	1163	1140	1121	1106	1092	1080
		G'	43.2	41.9	40.8	39.9	39.1	38.4	37.8	37.3

**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 7.5 CELLULAR ACOUSTICAL**



a unit of **CSI**™

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							
			16'-0"	18'-0"	20'-0"	22'-0"	24'-0"	26'-0"	28'-0"	30'-0"
20/20 .0358"/.0358"	12"	Qd	435	430	425	422	417	414	411	408
		G'	42.6	43.9	45.0	45.9	46.7	47.4	48.0	48.5
	24"	Qd	243	238	233	229	226	224	221	219
		G'	29.9	30.1	30.2	30.3	30.4	30.4	30.4	30.5
	36"	Qd	179	174	169	165	162	160	157	155
		G'	24.3	24.1	23.9	23.7	23.6	23.4	23.2	23.1
20/18 .0358"/.0474"	12"	Qd	435	430	425	422	417	414	411	408
		G'	54.2	54.7	55.1	55.4	55.7	55.9	56.1	56.2
	24"	Qd	243	238	233	229	226	224	221	219
		G'	35.1	34.8	34.5	34.2	33.9	33.7	33.5	33.3
	36"	Qd	179	174	169	165	162	160	157	155
		G'	27.7	27.0	26.5	26	25.6	25.3	25.0	24.7
18/20 .0474"/.0358"	12"	Qd	577	569	563	558	553	548	544	541
		G'	43.9	45.6	47.1	48.4	49.5	50.4	51.3	52.0
	24"	Qd	322	315	309	304	300	296	293	291
		G'	31.8	32.2	32.6	32.9	33.1	33.2	33.4	33.5
	36"	Qd	237	230	224	219	215	211	208	206
		G'	26.2	26.2	26.1	26.0	26.0	25.9	25.8	25.7
18/18 .0474"/.0474"	12"	Qd	577	569	563	558	553	548	544	541
		G'	58.5	59.3	60.1	60.7	61.2	61.6	61.9	62.2
	24"	Qd	322	315	309	304	300	296	293	291
		G'	38.8	38.5	38.3	38.1	37.9	37.8	37.6	37.5
	36"	Qd	237	230	224	219	215	211	208	206
		G'	30.8	30.2	29.7	29.2	28.9	28.5	28.2	27.9
18/16 .0474"/.0598"	12"	Qd	577	569	563	558	553	548	544	541
		G'	67.3	67.4	67.5	67.6	67.6	67.6	67.7	67.7
	24"	Qd	322	315	309	304	300	296	293	291
		G'	42.5	41.8	41.2	40.7	40.3	40.0	39.6	39.4
	36"	Qd	237	230	224	219	215	211	208	206
		G'	33.1	32.1	31.4	30.8	30.2	29.8	29.4	29.0
16/18 .0598"/.0474"	12"	Qd	727	718	710	704	697	691	686	682
		G'	61.6	62.9	64.0	64.9	65.6	66.3	66.8	67.3
	24"	Qd	406	397	389	383	378	374	370	367
		G'	41.7	41.7	41.6	41.5	41.4	41.3	41.2	41.1
	36"	Qd	299	290	282	276	271	267	263	260
		G'	33.4	32.9	32.5	32.1	31.7	31.4	31.1	30.9
16/16 .0598"/.0598"	12"	Qd	727	718	710	704	697	691	686	682
		G'	72.7	73.1	73.5	73.7	73.9	74.1	74.2	74.3
	24"	Qd	406	397	389	383	378	374	370	367
		G'	46.5	45.9	45.4	44.9	44.6	44.2	43.9	43.6
	36"	Qd	299	290	282	276	271	267	263	260
		G'	36.4	35.5	34.7	34.1	33.5	33.0	32.6	32.3
14/16 .0747"/.0598"	12"	Qd	909	897	887	880	871	864	857	852
		G'	77.8	78.6	79.2	79.7	80.1	80.5	80.7	81.0
	24"	Qd	508	496	486	479	472	467	462	458
		G'	50.6	50.1	49.6	49.2	48.9	48.6	48.3	48.0
	36"	Qd	374	362	353	345	338	333	328	324
		G'	39.8	38.9	38.2	37.5	37.0	36.5	36.0	35.7
14/14 .0747"/.0747"	12"	Qd	909	897	887	880	871	864	857	852
		G'	87.2	87.1	87.0	86.9	86.8	86.7	86.6	86.6
	24"	Qd	508	496	486	479	472	467	462	458
		G'	54.4	53.4	52.6	51.9	51.3	50.8	50.3	50.0
	36"	Qd	374	362	353	345	338	333	328	324
		G'	42.1	40.9	39.9	39.0	38.3	37.7	37.2	36.7

**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.