

2.8 BN-36

No. 12 Screws to Supports with No. 10 Screws Side Seam Attachment



Diaphragm Shear in pounds per linear foot (plf)



Support Fastener Pattern	Gage	Seam Attach. Spacing	Allowable Shear (q_a) (plf), Factored Shear (q_f) (plf), and Flexibility Factor (F) (10^6 in/lbs)																					
			Span →	4' - 0"		5' - 0"		6' - 0"		7' - 0"		8' - 0"		9' - 0"		10' - 0"		11' - 0"		12' - 0"				
36/4	16 ga	4"	q_a	q_f	986	1587	986	1587	986	1587	986	1587	986	1587	986	1587	986	1587	986	1587	986	1587		
			F		3.4 +0R																			
		6"	q_a	q_f	986	1587	986	1587	986	1587	986	1587	986	1587	986	1587	986	1587	986	1587	986	1587	986	1587
			F		4.1 +0R	4.1 +0R																		
		8"	q_a	q_f	984	1585	986	1587	948	1526	955	1537	928	1494	936	1507	915	1473	923	1486	906	1459	906	1459
			F		4.8 +0R	4.8 +0R																		
	12"	q_a	q_f	847	1363	814	1311	791	1273	774	1245	760	1224	749	1207	741	1193	734	1181	727	1171	727	1171	
		F		6.2 +0R																				
	18"	q_a	q_f	753	1363	734	1183	644	1036	645	1039	647	1041	590	950	597	961	602	970	562	904	562	904	
		F		8.2 +0R																				
	24"	q_a	q_f	637	1026	641	1032	555	893	570	918	510	821	528	850	482	777	500	804	463	746	463	746	
		F		10.2 +0R																				
	18 ga	4"	q_a	q_f	788	1268	788	1268	788	1268	788	1268	788	1268	788	1268	788	1268	788	1268	788	1268	788	1268
			F		4.1 +0R	4.1 +0R																		
		6"	q_a	q_f	788	1268	788	1268	788	1268	788	1268	788	1268	788	1268	788	1268	786	1265	783	1261	783	1261
			F		4.9 +0R	4.9 +0R																		
		8"	q_a	q_f	757	1218	756	1217	723	1165	728	1172	705	1135	711	1145	693	1116	699	1126	685	1103	685	1103
			F		5.6 +0R	5.6 +0R																		
	12"	q_a	q_f	647	1041	618	996	598	963	583	939	571	920	562	905	554	893	548	883	543	874	543	874	
		F		7.2 +0R																				
	18"	q_a	q_f	574	1041	557	897	485	781	485	780	484	780	440	709	444	716	448	721	417	671	417	671	
		F		9.4 +0R																				
	24"	q_a	q_f	488	785	486	783	419	675	428	690	382	616	394	634	359	579	371	598	344	553	344	553	
		F		11.7 +0R																				
20 ga	4"	q_a	q_f	592	953	592	953	592	953	592	953	592	953	592	953	592	953	592	953	592	953	592	953	
		F		5.2 +0R																				
	6"	q_a	q_f	592	953	585	942	576	928	570	918	565	909	561	903	558	898	555	893	553	890	553	890	
		F		6.1 +0R																				
	8"	q_a	q_f	539	868	536	864	510	821	512	825	494	795	497	801	484	779	488	785	477	767	477	767	
		F		7 +0R	7 +0R																			
12"	q_a	q_f	458	737	434	699	418	672	405	652	396	637	388	625	382	615	377	606	372	599	372	599		
	F		8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R		
18"	q_a	q_f	407	737	391	629	339	545	336	541	334	538	303	488	305	491	306	493	284	458	284	458		
	F		11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R		
24"	q_a	q_f	347	559	342	551	294	473	298	479	265	426	271	437	247	398	254	409	235	378	235	378		
	F		14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R		
22 ga	4"	q_a	q_f	493	793	493	793	493	793	493	793	493	793	493	793	493	793	493	793	493	793	493	793	
		F		6.1 +0R																				
	6"	q_a	q_f	482	777	471	758	463	745	457	735	452	728	448	722	445	717	443	713	440	709	440	709	
		F		7 +0R																				
	8"	q_a	q_f	433	698	430	692	407	655	408	657	392	631	395	636	383	617	386	622	377	606	377	606	
		F		8 +0R	8 +0R																			
12"	q_a	q_f	367	591	346	558	332	534	321	517	312	503	306	492	300	483	296	476	292	470	292	470		
	F		9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R		
18"	q_a	q_f	326	591	312	502	269	434	266	429	264	425	239	384	240	386	240	387	223	359	223	359		
	F		12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R		
24"	q_a	q_f	280	450	273	440	234	377	236	380	210	337	214	345	194	312	200	322	184	296	184	296		
	F		15.6 -0.1R	15.7 +0R																				

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Support Attachment: #12 SD HWH Screw

Side Seam Attachment: #10 SD HWH Screw

No. 12 Screws to Supports with No. 10 Screws Side Seam Attachment

Diaphragm Shear in pounds per linear foot (plf)



B PANELS

Support Fastener Pattern	Gage	Seam Attach. Spacing	Allowable Shear (q_a) (plf), Factored Shear (q_f) (plf), and Flexibility Factor (F) (10^{-6} in/lbs)																			
			Span →	4' - 0"		5' - 0"		6' - 0"		7' - 0"		8' - 0"		9' - 0"		10' - 0"		11' - 0"		12' - 0"		
36/7/4	16 ga	4"	q_a	q_f	1749	2816	1725	2777	1708	2751	1696	2731	1687	2716	1679	2704	1673	2694	1668	2686	1482	2371
			F		3.4 +0R		3.4 +0R		3.4 +0R													
		6"	q_a	q_f	1481	2385	1442	2322	1415	2279	1395	2246	1380	2222	1368	2202	1358	2186	1350	2173	1343	2162
			F		4.1 +0R		4.1 +0R		4.1 +0R													
		8"	q_a	q_f	1290	2077	1285	2069	1207	1943	1215	1956	1162	1871	1174	1890	1135	1827	1147	1847	1116	1796
			F		4.8 +0R		4.8 +0R		4.8 +0R													
		12"	q_a	q_f	1050	1691	989	1592	947	1524	916	1475	892	1437	874	1407	859	1383	847	1363	836	1346
			F		6.2 +0R		6.2 +0R		6.2 +0R													
		18"	q_a	q_f	910	1691	873	1406	744	1199	741	1193	738	1188	663	1068	669	1077	673	1084	622	1001
			F		8.2 +0R		8.2 +0R		8.2 +0R													
		24"	q_a	q_f	757	1219	750	1207	635	1022	647	1042	572	920	588	947	531	855	550	885	503	810
			F		10.2 +0R		10.2 +0R		10.2 +0R													
	18 ga	4"	q_a	q_f	1341	2159	1319	2123	1303	2098	1292	2080	1283	2066	1276	2054	1270	2045	1266	2038	1077	1723
			F		4.1 +0R		4.1 +0R		4.1 +0R													
		6"	q_a	q_f	1124	1809	1089	1754	1065	1715	1048	1687	1034	1665	1023	1648	1015	1634	1007	1622	1001	1612
			F		4.9 +0R		4.9 +0R		4.9 +0R													
		8"	q_a	q_f	975	1569	966	1556	903	1454	907	1461	865	1393	873	1405	841	1355	850	1369	826	1329
			F		5.6 +0R		5.6 +0R		5.6 +0R													
		12"	q_a	q_f	793	1277	742	1195	707	1139	682	1098	662	1066	647	1042	635	1022	624	1005	616	991
			F		7.2 +0R		7.2 +0R		7.2 +0R													
		18"	q_a	q_f	690	1277	657	1058	558	899	553	890	549	883	492	793	495	797	497	800	458	738
			F		9.4 +0R		9.4 +0R		9.4 +0R													
		24"	q_a	q_f	578	931	566	912	479	771	485	780	425	684	436	702	391	629	404	650	370	596
			F		11.7 +0R		11.7 +0R		11.7 +0R													
20 ga	4"	q_a	q_f	950	1530	930	1498	916	1475	906	1459	898	1446	892	1436	887	1428	847	1355	712	1139	
		F		5.2 +0R		5.2 +0R		5.2 +0R		5.2 +0R		5.2 +0R		5.2 +0R		5.2 +0R		5.2 +0R		5.2 +0R		5.2 +0R
	6"	q_a	q_f	787	1267	758	1221	738	1188	723	1165	712	1146	703	1132	696	1120	690	1111	685	1102	
		F		6.1 +0R		6.1 +0R		6.1 +0R		6.1 +0R		6.1 +0R		6.1 +0R		6.1 +0R		6.1 +0R		6.1 +0R		6.1 +0R
	8"	q_a	q_f	681	1096	670	1079	623	1002	623	1003	592	953	596	959	573	922	578	930	560	902	
		F		7 +0R		7 +0R		7 +0R		7 +0R		7 +0R		7 +0R		7 +0R		7 +0R		7 +0R		7 +0R
	12"	q_a	q_f	555	894	515	830	488	785	468	753	453	729	441	709	431	694	423	681	416	670	
		F		8.7 +0R		8.7 +0R		8.7 +0R		8.7 +0R		8.7 +0R		8.7 +0R		8.7 +0R		8.7 +0R		8.7 +0R		8.7 +0R
	18"	q_a	q_f	485	894	458	737	388	624	381	614	376	606	335	539	336	541	338	544	310	498	
		F		11.3 +0R		11.3 +0R		11.3 +0R		11.4 +0R		11.4 +0R		11.4 +0R								
	24"	q_a	q_f	411	661	397	639	332	535	333	537	290	467	296	476	266	428	274	441	251	404	
		F		14 -0.1R		14 -0.1R		14 -0.1R		14 +0R		14 +0R		14 +0R		14 +0R		14 +0R		14 +0R		14 +0R
22 ga	4"	q_a	q_f	761	1225	742	1195	729	1174	720	1159	713	1148	707	1138	702	1131	644	1031	541	866	
		F		6.1 +0R		6.1 +0R		6.1 +0R		6.1 +0R		6.1 +0R		6.1 +0R		6.1 +0R		6.1 +0R		6.1 +0R		6.1 +0R
	6"	q_a	q_f	626	1008	601	967	583	938	570	917	560	901	552	889	546	878	540	870	536	863	
		F		7 +0R		7 +0R		7 +0R		7 +0R		7 +0R		7 +0R		7 +0R		7 +0R		7 +0R		7 +0R
	8"	q_a	q_f	541	871	530	854	491	790	490	789	464	747	466	751	448	721	451	726	437	703	
		F		8 +0R		8 +0R		8 +0R		8 +0R		8 +0R		8 +0R		8 +0R		8 +0R		8 +0R		8 +0R
	12"	q_a	q_f	442	712	408	658	385	620	368	593	355	572	345	555	337	542	330	531	324	522	
		F		9.9 +0R		9.9 +0R		9.9 +0R		9.9 +0R		9.9 +0R		9.9 +0R		9.9 +0R		9.9 +0R		9.9 +0R		9.9 +0R
	18"	q_a	q_f	388	712	364	586	308	495	300	483	295	474	262	421	262	422	263	423	241	388	
		F		12.8 -0.1R		12.8 -0.1R		12.8 +0R		12.8 +0R		12.8 +0R		12.8 +0R								
	24"	q_a	q_f	331	533	317	511	263	424	262	422	228	367	232	373	209	336	214	344	196	316	
		F		15.6 -0.1R		15.7 +0R		15.7 +0R		15.7 +0R												

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No. 12 Screws to Supports with No. 10 Screws Side Seam Attachment



Diaphragm Shear in pounds per linear foot (plf)



Support Fastener Pattern	Gage	Seam Attach. Spacing	Allowable Shear (q_a) (plf), Factored Shear (q_f) (plf), and Flexibility Factor (F) (10^{-6} in/lbs)																					
			Span →	4' - 0"		5' - 0"		6' - 0"		7' - 0"		8' - 0"		9' - 0"		10' - 0"		11' - 0"		12' - 0"				
36/7	16 ga	4"	q_a	q_f	1768	2847	1742	2804	1723	2774	1709	2751	1698	2734	1690	2720	1683	2709	1677	2700	1482	2371		
			F		3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	
		6"	q_a	q_f	1513	2436	1470	2366	1439	2316	1416	2280	1398	2251	1384	2229	1373	2211	1364	2196	1356	2183	1356	2183
			F		4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R
		8"	q_a	q_f	1331	2142	1318	2122	1236	1990	1240	1997	1185	1908	1194	1923	1154	1857	1164	1874	1132	1822	1132	1822
			F		4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R
	12"	q_a	q_f	1100	1772	1031	1660	983	1583	948	1526	921	1483	899	1448	882	1420	868	1397	856	1378	856	1378	
		F		6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	
	18"	q_a	q_f	966	1772	919	1480	785	1264	776	1249	769	1238	692	1113	694	1118	697	1121	643	1036	643	1036	
		F		8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	
	24"	q_a	q_f	818	1317	798	1285	678	1091	684	1101	605	973	618	994	560	901	574	925	527	849	527	849	
		F		10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	
	18 ga	4"	q_a	q_f	1359	2188	1334	2148	1317	2120	1304	2099	1294	2083	1286	2070	1279	2059	1274	2050	1077	1723	1077	1723
			F		4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	
		6"	q_a	q_f	1152	1855	1113	1792	1086	1748	1066	1716	1050	1691	1038	1671	1028	1655	1020	1642	1013	1631	1013	1631
			F		4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R
		8"	q_a	q_f	1010	1625	995	1601	928	1495	929	1496	885	1425	890	1433	858	1381	865	1392	839	1351	839	1351
			F		5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R
	12"	q_a	q_f	835	1345	778	1252	738	1188	708	1140	686	1104	668	1076	654	1053	642	1033	632	1018	632	1018	
		F		7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	
	18"	q_a	q_f	735	1345	695	1118	592	953	582	936	574	924	515	830	516	830	516	831	476	766	476	766	
		F		9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	
	24"	q_a	q_f	627	1010	606	976	514	827	514	828	454	731	462	743	414	667	425	684	390	627	390	627	
		F		11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	
20 ga	4"	q_a	q_f	967	1556	944	1520	928	1495	917	1476	908	1462	901	1450	895	1441	847	1355	712	1139	712	1139	
		F		5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R		
	6"	q_a	q_f	811	1306	778	1253	755	1216	739	1189	726	1168	715	1152	707	1138	700	1127	694	1118	694	1118	
		F		6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	
	8"	q_a	q_f	709	1141	693	1116	643	1035	641	1032	608	979	610	982	586	943	590	950	571	919	571	919	
		F		7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	
12"	q_a	q_f	588	947	543	874	511	824	489	786	471	758	457	736	446	718	437	703	429	691	429	691		
	F		8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R		
18"	q_a	q_f	521	947	487	784	413	666	403	649	396	637	354	570	353	569	352	567	324	522	324	522		
	F		11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.4 +0R									
24"	q_a	q_f	448	722	428	688	362	582	358	577	312	502	315	507	283	456	290	466	265	427	265	427		
	F		13.9 -0.1R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R		
22 ga	4"	q_a	q_f	776	1249	755	1216	741	1192	730	1175	722	1162	715	1151	710	1142	644	1031	541	866	541	866	
		F		6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R		
	6"	q_a	q_f	647	1042	618	996	598	963	583	939	572	921	563	906	555	894	549	884	541	866	541	866	
		F		7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	
	8"	q_a	q_f	566	911	550	886	508	818	505	813	478	769	479	771	459	739	461	743	446	718	446	718	
		F		8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	
12"	q_a	q_f	471	758	432	696	405	652	386	621	371	597	359	578	349	563	342	550	335	539	335	539		
	F		9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R		
18"	q_a	q_f	418	758	388	625	329	530	320	515	313	503	278	447	277	446	276	444	253	407	253	407		
	F		12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R		
24"	q_a	q_f	363	584	343	552	287	463	283	455	246	396	248	399	223	359	227	366	208	335	208	335		
	F		15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.7 +0R																	

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Support Attachment: #12 SD HWH Screw

Side Seam Attachment: #10 SD HWH Screw

No. 12 Screws to Supports with No. 10 Screws Side Seam Attachment

Diaphragm Shear in pounds per linear foot (plf)



Support Fastener Pattern	Gage	Seam Attach. Spacing	Allowable Shear (q_a) (plf), Factored Shear (q_f) (plf), and Flexibility Factor (F) (10^{-6} in/lbs)																			
			Span →	4' - 0"		5' - 0"		6' - 0"		7' - 0"		8' - 0"		9' - 0"		10' - 0"		11' - 0"		12' - 0"		
36/9	16 ga	4"	q_a	q_f	1971	3174	1971	3174	1971	3174	1971	3174	1971	3174	1965	3164	1950	3139	1763	2821	1482	2371
			F	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R											
		6"	q_a	q_f	1827	2942	1745	2810	1687	2716	1643	2645	1609	2591	1583	2548	1561	2513	1542	2483	1482	2371
			F	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R											
		8"	q_a	q_f	1625	2617	1574	2534	1458	2347	1442	2322	1366	2199	1364	2196	1309	2107	1312	2112	1269	2043
			F	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R											
	12"	q_a	q_f	1385	2230	1269	2043	1188	1912	1128	1816	1081	1741	1045	1682	1015	1634	991	1595	970	1562	
		F	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R
	18"	q_a	q_f	1249	2230	1154	1858	985	1586	950	1530	924	1488	830	1336	820	1321	811	1306	742	1194	
		F	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R
	24"	q_a	q_f	1103	1776	1033	1663	877	1413	857	1380	750	1208	747	1203	669	1077	674	1085	616	991	
		F	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R
	18 ga	4"	q_a	q_f	1576	2537	1576	2537	1550	2496	1523	2453	1502	2419	1486	2392	1472	2370	1281	2050	1077	1723
			F	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R											
		6"	q_a	q_f	1396	2247	1325	2133	1275	2052	1237	1992	1208	1945	1185	1908	1166	1877	1150	1852	1077	1723
			F	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R											
		8"	q_a	q_f	1242	1999	1194	1922	1100	1771	1084	1745	1023	1647	1019	1640	975	1570	976	1571	942	1517
			F	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R											
	12"	q_a	q_f	1062	1710	967	1556	900	1448	850	1369	812	1307	782	1259	758	1220	738	1187	721	1160	
		F	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R
	18"	q_a	q_f	962	1710	882	1420	751	1210	721	1160	697	1122	618	996	608	978	600	966	550	886	
		F	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R
	24"	q_a	q_f	856	1378	794	1278	672	1082	649	1045	564	909	558	899	500	804	502	808	460	741	
		F	11.7 -0.1R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R											
20 ga	4"	q_a	q_f	1164	1875	1121	1804	1090	1754	1066	1717	1048	1688	1034	1665	1022	1640	847	1355	712	1139	
		F	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	
	6"	q_a	q_f	989	1592	931	1499	890	1433	859	1383	836	1345	817	1315	802	1291	789	1270	712	1139	
		F	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R
	8"	q_a	q_f	881	1418	839	1351	768	1237	753	1212	707	1139	702	1130	669	1077	668	1075	643	1036	
		F	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R
12"	q_a	q_f	758	1221	684	1101	632	1018	594	956	564	909	541	871	522	841	507	816	494	795		
	F	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	
18"	q_a	q_f	691	1221	628	1010	533	858	503	811	481	775	425	684	417	672	411	662	377	607		
	F	11.3 -0.1R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	
24"	q_a	q_f	621	1000	569	916	474	764	453	730	393	633	386	621	347	559	347	559	318	513		
	F	13.9 -0.1R	13.9 -0.1R	13.9 -0.1R	13.9 -0.1R	14 -0.1R	14 -0.1R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R								
22 ga	4"	q_a	q_f	935	1506	896	1443	868	1398	847	1364	831	1338	818	1318	779	1247	644	1031	541	866	
		F	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	
	6"	q_a	q_f	793	1277	743	1196	707	1139	681	1096	660	1063	644	1036	631	1015	620	998	541	866	
		F	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R
	8"	q_a	q_f	708	1140	670	1079	611	984	597	960	559	900	553	890	526	848	524	844	504	812	
		F	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R
12"	q_a	q_f	612	986	549	885	505	814	473	761	446	719	426	685	410	660	397	639	386	622		
	F	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	
18"	q_a	q_f	561	986	506	814	425	684	399	642	380	611	337	542	330	531	324	522	297	478		
	F	12.7 -0.1R	12.8 -0.1R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R												
24"	q_a	q_f	506	815	461	742	380	612	361	581	313	503	307	494	276	445	275	443	252	406		
	F	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.7 -0.1R	15.7 +0R						

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No. 12 Self-Drilling Screws to Supports with No. 12 Screws Side Seam Attachment



Diaphragm Shear in pounds per linear foot (plf)



Support Fastener Pattern	Gage	Seam Attach. Spacing	Allowable Shear (q_a) (plf), Factored Shear (q_f) (plf), and Flexibility Factor (F) (10^{-6} in/lbs)																					
			Span →	4' - 0"		5' - 0"		6' - 0"		7' - 0"		8' - 0"		9' - 0"		10' - 0"		11' - 0"		12' - 0"				
36/4	16 ga	4"	q_a	q_f	986	1587	986	1587	986	1587	986	1587	986	1587	986	1587	986	1587	986	1587	986	1587		
			F		3.4 +0R																			
		6"	q_a	q_f	986	1587	986	1587	986	1587	986	1587	986	1587	986	1587	986	1587	986	1587	986	1587	986	1587
			F		4.1 +0R	4.1 +0R																		
		8"	q_a	q_f	986	1587	986	1587	972	1565	979	1576	953	1535	962	1548	942	1516	950	1529	934	1503	934	1503
			F		4.8 +0R	4.8 +0R																		
	12"	q_a	q_f	869	1398	838	1349	816	1313	799	1287	787	1266	777	1250	768	1237	761	1226	756	1217	756	1217	
		F		6.2 +0R																				
	18"	q_a	q_f	773	1398	757	1219	665	1071	669	1076	671	1080	613	988	621	1000	628	1010	586	943	586	943	
		F		8.2 +0R																				
	24"	q_a	q_f	654	1053	661	1064	573	923	591	951	530	853	549	884	502	809	521	839	484	779	484	779	
		F		10.2 +0R																				
	18 ga	4"	q_a	q_f	788	1268	788	1268	788	1268	788	1268	788	1268	788	1268	788	1268	788	1268	788	1268	788	1268
			F		4.1 +0R																			
		6"	q_a	q_f	788	1268	788	1268	788	1268	788	1268	788	1268	788	1268	788	1268	788	1268	788	1268	788	1268
			F		4.9 +0R	4.9 +0R																		
		8"	q_a	q_f	774	1246	775	1247	743	1197	748	1205	726	1169	732	1179	715	1152	722	1162	708	1140	708	1140
			F		5.6 +0R	5.6 +0R																		
	12"	q_a	q_f	664	1069	637	1025	618	994	603	971	592	953	583	939	576	927	570	918	565	909	565	909	
		F		7.2 +0R																				
	18"	q_a	q_f	590	1069	574	924	502	808	502	809	503	809	458	737	463	745	467	752	435	700	435	700	
		F		9.4 +0R																				
	24"	q_a	q_f	500	805	501	807	433	697	444	714	397	639	410	659	374	602	387	623	359	578	359	578	
		F		11.7 +0R																				
20 ga	4"	q_a	q_f	592	953	592	953	592	953	592	953	592	953	592	953	592	953	592	953	592	953	592	953	
		F		5.2 +0R																				
	6"	q_a	q_f	592	953	592	953	591	951	585	941	580	934	576	928	573	923	571	919	569	916	569	916	
		F		6.1 +0R																				
	8"	q_a	q_f	552	889	551	886	525	845	528	850	510	821	514	827	500	805	505	812	494	795	494	795	
		F		7 +0R	7 +0R																			
12"	q_a	q_f	470	757	448	721	432	695	420	676	410	661	403	649	397	639	392	631	388	624	388	624		
	F		8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R		
18"	q_a	q_f	417	757	403	649	350	563	348	561	347	559	315	507	318	511	319	514	297	478	297	478		
	F		11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.4 +0R																	
24"	q_a	q_f	355	572	352	567	303	488	308	496	275	442	282	454	257	414	265	426	245	394	245	394		
	F		14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R		
22 ga	4"	q_a	q_f	493	793	493	793	493	793	493	793	493	793	493	793	493	793	493	793	493	793	493	793	
		F		6.1 +0R																				
	6"	q_a	q_f	493	793	482	777	475	765	469	756	465	749	462	743	459	738	456	735	454	731	454	731	
		F		7 +0R																				
	8"	q_a	q_f	444	715	442	711	419	675	421	678	406	653	409	658	397	639	400	644	391	629	391	629	
		F		8 +0R	8 +0R																			
12"	q_a	q_f	377	607	357	575	343	552	332	535	324	522	318	512	313	503	308	496	305	490	305	490		
	F		9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R		
18"	q_a	q_f	335	607	321	517	278	448	276	444	274	441	248	400	250	402	251	404	232	374	232	374		
	F		12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R		
24"	q_a	q_f	286	461	281	453	241	389	244	393	217	350	222	358	202	326	208	335	192	310	192	310		
	F		15.6 -0.1R	15.7 +0R																				

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Support Attachment: #12 SD HWH Screw

Side Seam Attachment: #12 SD HWH Screw

No. 12 Self-Drilling Screws to Supports with No. 12 Screws Side Seam Attachment

Diaphragm Shear in pounds per linear foot (plf)



Support Fastener Pattern	Gage	Seam Attach. Spacing	Allowable Shear (q_a) (plf), Factored Shear (q_f) (plf), and Flexibility Factor (F) (10^{-6} in/lbs)																			
			Span →	4' - 0"		5' - 0"		6' - 0"		7' - 0"		8' - 0"		9' - 0"		10' - 0"		11' - 0"		12' - 0"		
36/7/4	16 ga	4"	q_a	q_f	1788	2879	1767	2844	1751	2820	1740	2802	1732	2788	1725	2777	1720	2768	1715	2761	1482	2371
			F	3.4 +0R	3.4 +0R																	
		6"	q_a	q_f	1525	2455	1488	2396	1463	2355	1444	2325	1430	2302	1418	2283	1409	2269	1401	2256	1395	2246
			F	4.1 +0R	4.1 +0R																	
		8"	q_a	q_f	1332	2144	1330	2141	1252	2016	1262	2032	1209	1947	1222	1968	1183	1905	1196	1926	1165	1876
			F	4.8 +0R	4.8 +0R																	
	12"	q_a	q_f	1085	1747	1025	1651	984	1585	954	1536	931	1499	913	1470	899	1447	886	1427	876	1411	
		F	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R
	18"	q_a	q_f	939	1747	905	1457	773	1244	771	1241	770	1239	692	1115	699	1126	705	1135	651	1048	
		F	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R
	24"	q_a	q_f	778	1253	775	1247	657	1058	672	1082	594	957	613	988	556	895	575	926	528	850	
		F	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R
	18 ga	4"	q_a	q_f	1374	2212	1354	2179	1339	2156	1329	2139	1321	2126	1314	2116	1309	2108	1281	2050	1077	1723
			F	4.1 +0R	4.1 +0R																	
		6"	q_a	q_f	1158	1865	1126	1812	1103	1776	1086	1749	1073	1728	1063	1712	1055	1699	1048	1688	1043	1679
			F	4.9 +0R	4.9 +0R																	
		8"	q_a	q_f	1007	1621	1001	1611	938	1510	944	1519	901	1451	910	1465	879	1414	888	1430	863	1390
			F	5.6 +0R	5.6 +0R																	
	12"	q_a	q_f	819	1319	770	1239	735	1184	710	1143	691	1113	676	1088	664	1069	654	1053	645	1039	
		F	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R
	18"	q_a	q_f	711	1319	680	1095	579	932	575	926	572	921	514	827	517	833	520	838	480	773	
		F	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R
	24"	q_a	q_f	593	955	585	941	495	797	503	810	443	712	456	734	409	658	423	681	388	625	
		F	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R
20 ga	4"	q_a	q_f	976	1571	958	1542	945	1521	935	1506	928	1494	922	1484	917	1477	847	1355	712	1139	
		F	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	
	6"	q_a	q_f	812	1308	785	1264	766	1233	751	1210	741	1192	732	1179	725	1168	719	1158	712	1139	
		F	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R
	8"	q_a	q_f	703	1132	695	1118	647	1042	649	1045	617	994	622	1001	599	964	605	973	586	944	
		F	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R
12"	q_a	q_f	573	922	534	859	507	816	487	784	472	760	460	741	451	726	443	713	436	703		
	F	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	
18"	q_a	q_f	499	922	473	762	402	646	396	638	392	631	350	564	352	567	353	569	325	523		
	F	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	
24"	q_a	q_f	421	678	409	659	344	554	347	558	302	486	308	497	278	447	286	461	263	423		
	F	14 -0.1R	14 -0.1R	14 -0.1R	14 -0.1R	14 -0.1R	14 -0.1R	14 -0.1R	14 -0.1R	14 -0.1R	14 -0.1R	14 -0.1R	14 -0.1R	14 -0.1R	14 -0.1R	14 -0.1R	14 -0.1R	14 -0.1R	14 -0.1R	14 -0.1R	14 -0.1R	
22 ga	4"	q_a	q_f	782	1260	765	1232	753	1213	744	1198	738	1188	732	1179	728	1172	644	1031	541	866	
		F	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	
	6"	q_a	q_f	647	1041	622	1002	605	974	593	954	583	939	575	926	569	916	564	908	541	866	
		F	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R
	8"	q_a	q_f	559	900	550	885	510	821	510	821	484	779	487	784	468	754	472	760	457	736	
		F	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R
12"	q_a	q_f	456	735	423	681	400	644	383	617	370	596	360	580	352	567	345	556	340	547		
	F	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	
18"	q_a	q_f	399	735	376	605	318	513	313	503	308	496	273	440	275	442	275	444	253	407		
	F	12.8 -0.1R	12.8 -0.1R	12.8 -0.1R	12.8 -0.1R	12.8 -0.1R	12.8 -0.1R	12.8 -0.1R	12.8 -0.1R	12.8 -0.1R	12.8 -0.1R	12.8 -0.1R	12.8 -0.1R	12.8 -0.1R	12.8 -0.1R	12.8 -0.1R	12.8 -0.1R	12.8 -0.1R	12.8 -0.1R	12.8 -0.1R	12.8 -0.1R	
24"	q_a	q_f	339	545	327	526	272	438	272	438	237	381	242	389	217	350	224	360	205	330		
	F	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	

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No. 12 Self-Drilling Screws to Supports with No. 12 Screws Side Seam Attachment



Diaphragm Shear in pounds per linear foot (plf)



Support Fastener Pattern	Gage	Seam Attach. Spacing	Allowable Shear (q_a) (plf), Factored Shear (q_f) (plf), and Flexibility Factor (F) (10^{-6} in/lbs)																					
			Span →	4' - 0"		5' - 0"		6' - 0"		7' - 0"		8' - 0"		9' - 0"		10' - 0"		11' - 0"		12' - 0"				
36/7	16 ga	4"	q_a	q_f	1806	2908	1782	2868	1764	2841	1752	2820	1742	2805	1734	2792	1728	2782	1723	2774	1482	2371		
			F		3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	
		6"	q_a	q_f	1555	2503	1514	2437	1485	2391	1463	2356	1447	2330	1434	2309	1423	2292	1415	2277	1407	2265	1407	2265
			F		4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R
		8"	q_a	q_f	1371	2207	1361	2191	1280	2061	1286	2071	1232	1983	1242	2000	1201	1934	1213	1952	1181	1952	1181	1901
			F		4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R
	12"	q_a	q_f	1134	1826	1067	1717	1020	1642	985	1586	959	1544	938	1510	921	1483	907	1461	896	1461	896	1442	
		F		6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	
	18"	q_a	q_f	994	1826	950	1529	813	1309	806	1297	800	1288	720	1160	724	1166	728	1172	673	1172	673	1083	
		F		8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	
	24"	q_a	q_f	838	1349	823	1325	700	1126	709	1141	627	1009	642	1034	582	938	599	965	552	965	552	889	
		F		10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	
	18 ga	4"	q_a	q_f	1391	2239	1368	2202	1352	2176	1340	2157	1330	2142	1323	2130	1317	2121	1281	2050	1077	1723	1077	1723
			F		4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R
		6"	q_a	q_f	1185	1908	1148	1849	1123	1807	1104	1777	1089	1753	1077	1734	1068	1719	1060	1707	1053	1707	1053	1696
			F		4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R
		8"	q_a	q_f	1040	1675	1028	1655	962	1549	964	1553	920	1482	927	1492	894	1440	902	1452	876	1452	876	1411
			F		5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R
	12"	q_a	q_f	860	1385	804	1294	765	1231	736	1185	714	1150	697	1122	683	1099	671	1080	661	1080	661	1065	
		F		7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	
	18"	q_a	q_f	756	1385	717	1154	612	985	603	971	597	961	536	864	538	866	539	868	497	868	497	801	
		F		9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	
	24"	q_a	q_f	642	1034	624	1005	529	852	532	857	471	758	480	772	432	696	444	716	407	716	407	656	
		F		11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	
20 ga	4"	q_a	q_f	991	1596	970	1562	956	1539	945	1521	937	1508	930	1497	925	1489	847	1355	712	1139	712	1139	
		F		5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	
	6"	q_a	q_f	835	1344	804	1294	782	1259	766	1233	754	1213	744	1198	736	1185	729	1174	712	1174	712	1139	
		F		6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	
	8"	q_a	q_f	731	1176	717	1154	667	1074	666	1072	633	1019	636	1024	612	985	616	992	597	992	597	961	
		F		7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	
12"	q_a	q_f	605	974	561	903	530	853	507	817	490	789	477	767	466	750	456	735	449	735	449	723		
	F		8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R		
18"	q_a	q_f	534	974	502	808	427	687	418	673	411	662	369	594	368	593	368	592	339	592	339	546		
	F		11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.4 +0R									
24"	q_a	q_f	458	738	440	708	372	599	371	597	324	521	328	528	295	475	302	487	277	487	277	446		
	F		13.9 -0.1R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R		
22 ga	4"	q_a	q_f	796	1282	777	1251	764	1229	754	1213	746	1201	740	1191	735	1183	644	1031	541	866	541	866	
		F		6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	
	6"	q_a	q_f	667	1074	639	1029	620	998	606	975	595	957	586	943	579	932	573	922	541	922	541	866	
		F		7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	
	8"	q_a	q_f	583	938	569	916	527	849	525	845	498	801	499	804	479	771	482	776	467	776	467	751	
		F		8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	
12"	q_a	q_f	484	779	446	718	420	676	400	645	386	621	374	602	365	587	357	575	350	575	350	564		
	F		9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R		
18"	q_a	q_f	429	779	400	644	340	547	331	533	324	522	290	466	289	465	288	464	265	464	265	426		
	F		12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R		
24"	q_a	q_f	370	596	352	567	296	477	293	472	255	410	258	415	232	374	237	381	217	381	217	350		
	F		15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.7 +0R																	

BN-36 36/7

Support Attachment: #12 SD HWH Screw

No. 12 Self-Drilling Screws to Supports with No. 12 Screws Side Seam Attachment

Diaphragm Shear in pounds per linear foot (plf)



B PANELS

Support Fastener Pattern	Gage	Seam Attach. Spacing	Allowable Shear (q_a) (plf), Factored Shear (q_f) (plf), and Flexibility Factor (F) (10^{-6} in/lbs)																			
			Span →	4' - 0"		5' - 0"		6' - 0"		7' - 0"		8' - 0"		9' - 0"		10' - 0"		11' - 0"		12' - 0"		
36/9	16 ga	4"	q_a	q_f	1971	3174	1971	3174	1971	3174	1971	3174	1971	3174	1971	3174	1763	2821	1482	2371		
			F	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R	3.4 +0R													
		6"	q_a	q_f	1875	3018	1797	2892	1741	2803	1699	2736	1667	2684	1642	2643	1621	2609	1603	2581	1482	2371
			F	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R											
		8"	q_a	q_f	1668	2686	1622	2611	1506	2425	1494	2405	1418	2282	1417	2282	1362	2193	1367	2201	1324	2131
			F	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R	4.8 +0R											
	12"	q_a	q_f	1419	2285	1306	2102	1226	1974	1167	1879	1121	1806	1086	1748	1056	1701	1032	1662	1012	1629	
		F	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	6.2 +0R	
	18"	q_a	q_f	1277	2285	1185	1908	1013	1631	981	1579	956	1539	859	1384	851	1371	845	1360	775	1248	
		F	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	8.2 +0R	
	24"	q_a	q_f	1123	1808	1058	1703	899	1448	882	1420	775	1248	775	1248	694	1117	701	1129	641	1032	
		F	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	10.2 +0R	
	18 ga	4"	q_a	q_f	1576	2537	1576	2537	1576	2537	1570	2527	1550	2496	1534	2471	1522	2450	1281	2050	1077	1723
			F	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R	4.1 +0R											
		6"	q_a	q_f	1433	2306	1365	2197	1316	2119	1280	2061	1253	2017	1230	1981	1212	1952	1197	1928	1077	1723
			F	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R	4.9 +0R											
		8"	q_a	q_f	1274	2051	1230	1981	1137	1830	1123	1808	1062	1710	1059	1705	1015	1634	1017	1637	983	1582
			F	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R	5.6 +0R											
	12"	q_a	q_f	1087	1751	993	1600	928	1493	879	1415	842	1355	812	1307	788	1269	768	1237	751	1210	
		F	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R	7.2 +0R
	18"	q_a	q_f	983	1751	905	1457	772	1242	742	1195	720	1160	642	1034	633	1019	626	1008	574	924	
		F	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R	9.4 +0R
	24"	q_a	q_f	870	1401	812	1307	689	1109	670	1078	582	937	578	931	517	833	521	840	478	770	
		F	11.7 -0.1R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R	11.7 +0R											
20 ga	4"	q_a	q_f	1183	1905	1152	1855	1123	1808	1101	1773	1084	1745	1071	1724	1025	1640	847	1355	712	1139	
		F	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	5.2 +0R	
	6"	q_a	q_f	1015	1634	959	1544	919	1480	890	1433	867	1396	849	1367	834	1343	822	1323	712	1139	
		F	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R
	8"	q_a	q_f	903	1455	864	1392	794	1278	780	1255	734	1182	729	1174	697	1122	696	1121	671	1081	
		F	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R
12"	q_a	q_f	775	1248	702	1131	651	1048	613	987	584	940	561	904	543	874	527	849	514	828		
	F	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	8.7 +0R	
18"	q_a	q_f	705	1248	643	1035	547	880	520	837	499	803	440	709	434	698	428	690	393	632		
	F	11.3 -0.1R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	11.3 +0R	
24"	q_a	q_f	630	1015	581	935	486	783	467	751	405	652	399	642	359	577	360	580	330	532		
	F	13.9 -0.1R	13.9 -0.1R	13.9 -0.1R	13.9 -0.1R	14 -0.1R	14 -0.1R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R	14 +0R								
22 ga	4"	q_a	q_f	959	1545	922	1485	896	1442	876	1410	861	1385	848	1366	779	1247	644	1031	541	866	
		F	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	6.1 +0R	
	6"	q_a	q_f	814	1311	765	1232	731	1177	705	1135	685	1103	669	1078	656	1057	644	1031	541	866	
		F	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R	7 +0R
	8"	q_a	q_f	726	1169	690	1111	631	1016	618	994	580	934	575	925	548	882	547	880	526	847	
		F	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R	8 +0R
12"	q_a	q_f	626	1007	563	907	520	837	488	786	463	746	443	714	428	689	415	668	404	650		
	F	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	9.9 +0R	
18"	q_a	q_f	571	1007	518	833	437	703	412	663	393	632	348	561	342	551	337	542	309	497		
	F	12.7 -0.1R	12.8 -0.1R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R	12.8 +0R												
24"	q_a	q_f	514	827	470	756	389	626	371	597	322	518	317	510	285	459	285	459	261	421		
	F	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.6 -0.1R	15.7 -0.1R	15.7 +0R						

2.9 BN-36

Hilti X-HSN-24 Fasteners to Supports with No. 10 Screws Side Seam Attachment

Diaphragm Shear in pounds per linear foot (plf)



Support Fastener Pattern	Gage	Seam Attach. Spacing	Allowable Shear (q_a) (plf), Factored Shear (q_f) (plf), and Flexibility Factor (F) (10^6 in/lbs)																					
			Span →	4' - 0"		5' - 0"		6' - 0"		7' - 0"		8' - 0"		9' - 0"		10' - 0"		11' - 0"		12' - 0"				
36/4	16 ga	4"	q_a	q_f	1271	2047	1271	2047	1271	2047	1271	2047	1271	2047	1271	2047	1271	2047	1271	2047	1271	2047		
			F		3.3	-0.1R	3.4	-0.1R	3.4	-0.1R	3.4	-0.1R	3.4	-0.1R	3.4	-0.1R								
		6"	q_a	q_f	1271	2047	1257	2024	1239	1994	1225	1972	1214	1954	1205	1940	1198	1929	1192	1920	1187	1912	1187	1912
			F		3.8	-0.2R	3.8	-0.2R	3.9	-0.2R	3.9	-0.2R	3.9	-0.2R	3.9	-0.1R	4	-0.1R	4	-0.1R	4	-0.1R	4	-0.1R
		8"	q_a	q_f	1158	1865	1153	1856	1096	1764	1101	1772	1061	1709	1069	1721	1039	1673	1048	1687	1024	1649	1024	1649
			F		4.2	-0.4R	4.3	-0.3R	4.4	-0.3R	4.4	-0.3R	4.5	-0.2R	4.5	-0.2R	4.5	-0.2R	4.6	-0.2R	4.6	-0.2R	4.6	-0.2R
	12"	q_a	q_f	984	1584	933	1503	898	1445	871	1402	850	1369	834	1342	820	1321	809	1303	800	1288	800	1288	
		F		5	-0.6R	5.1	-0.6R	5.3	-0.5R	5.4	-0.5R	5.5	-0.5R	5.5	-0.4R	5.6	-0.4R	5.6	-0.4R	5.7	-0.4R	5.7	-0.4R	
	18"	q_a	q_f	874	1584	840	1352	728	1172	723	1163	719	1157	651	1048	655	1055	659	1060	611	984	611	984	
		F		5.8	-1R	6.2	-1R	6.4	-0.9R	6.6	-0.9R	6.8	-0.8R	6.9	-0.8R	7	-0.8R	7.1	-0.7R	7.2	-0.7R	7.2	-0.7R	
	24"	q_a	q_f	746	1201	735	1183	631	1016	640	1030	569	917	583	939	531	855	546	880	505	813	505	813	
		F		6.5	-1.3R	7	-1.3R	7.3	-1.3R	7.6	-1.3R	7.9	-1.2R	8.1	-1.2R	8.2	-1.2R	8.4	-1.1R	8.5	-1.1R	8.5	-1.1R	
	18 ga	4"	q_a	q_f	1029	1657	1029	1657	1029	1657	1029	1657	1029	1657	1029	1657	1029	1657	1029	1657	1029	1657	1029	1657
			F		3.9	-0.1R	4	-0.1R	4	-0.1R	4	-0.1R	4	-0.1R	4	-0.1R								
		6"	q_a	q_f	996	1603	971	1563	953	1535	940	1513	930	1497	922	1484	915	1473	909	1464	905	1457	905	1457
			F		4.5	-0.3R	4.6	-0.2R	4.6	-0.2R	4.6	-0.2R	4.7	-0.2R	4.7	-0.2R	4.7	-0.1R	4.7	-0.1R	4.7	-0.1R	4.7	-0.1R
		8"	q_a	q_f	893	1438	885	1425	836	1347	838	1350	805	1296	810	1304	785	1264	791	1274	772	1242	772	1242
			F		5	-0.4R	5.1	-0.4R	5.2	-0.3R	5.2	-0.3R	5.3	-0.3R	5.3	-0.3R	5.3	-0.2R	5.4	-0.2R	5.4	-0.2R	5.4	-0.2R
	12"	q_a	q_f	756	1218	712	1147	681	1097	658	1059	640	1031	626	1008	614	989	605	974	597	961	597	961	
		F		5.8	-0.7R	6	-0.6R	6.2	-0.6R	6.3	-0.6R	6.4	-0.5R	6.5	-0.5R	6.5	-0.5R	6.6	-0.4R	6.6	-0.4R	6.6	-0.4R	
	18"	q_a	q_f	673	1218	641	1032	553	891	546	879	541	871	489	787	490	789	491	791	455	733	455	733	
		F		6.8	-1.1R	7.2	-1.1R	7.4	-1R	7.7	-1R	7.8	-0.9R	8	-0.9R	8.1	-0.9R	8.2	-0.8R	8.3	-0.8R	8.3	-0.8R	
	24"	q_a	q_f	577	929	563	906	482	775	485	780	430	693	439	706	397	639	409	658	375	604	375	604	
		F		7.6	-1.4R	8.1	-1.5R	8.5	-1.4R	8.8	-1.4R	9.1	-1.4R	9.3	-1.3R	9.5	-1.3R	9.6	-1.2R	9.8	-1.2R	9.8	-1.2R	
20 ga	4"	q_a	q_f	783	1260	783	1260	783	1260	783	1260	783	1260	781	1258	778	1252	775	1247	712	1139	712	1139	
		F		5	-0.2R	5	-0.1R	5.1	-0.1R	5.1	-0.1R	5.1	-0.1R	5.1	-0.1R									
	6"	q_a	q_f	715	1151	693	1115	677	1090	665	1071	656	1056	648	1044	642	1034	637	1026	633	1019	633	1019	
		F		5.6	-0.3R	5.7	-0.3R	5.8	-0.2R	5.8	-0.2R	5.8	-0.2R	5.9	-0.2R	5.9	-0.2R	5.9	-0.2R	5.9	-0.1R	5.9	-0.1R	
	8"	q_a	q_f	638	1027	628	1011	589	948	588	947	562	905	564	909	545	878	549	883	533	859	533	859	
		F		6.2	-0.5R	6.3	-0.4R	6.4	-0.4R	6.5	-0.3R	6.5	-0.3R	6.6	-0.3R	6.6	-0.3R	6.7	-0.3R	6.7	-0.2R	6.7	-0.2R	
12"	q_a	q_f	539	869	503	810	478	769	459	739	444	715	433	697	423	682	416	669	409	659	409	659		
	F		7.2	-0.8R	7.4	-0.7R	7.6	-0.7R	7.7	-0.6R	7.8	-0.6R	7.9	-0.6R	8	-0.5R	8.1	-0.5R	8.1	-0.5R	8.1	-0.5R		
18"	q_a	q_f	481	869	454	731	390	628	382	615	376	605	339	546	338	545	338	544	312	503	312	503		
	F		8.3	-1.3R	8.7	-1.2R	9.1	-1.2R	9.3	-1.1R	9.5	-1.1R	9.7	-1R	9.8	-1R	9.9	-0.9R	10	-0.9R	10	-0.9R		
24"	q_a	q_f	417	671	401	645	342	550	340	548	298	480	302	486	272	437	279	449	256	412	256	412		
	F		9.2	-1.7R	9.8	-1.7R	10.2	-1.7R	10.6	-1.6R	10.9	-1.6R	11.2	-1.5R	11.4	-1.5R	11.6	-1.4R	11.7	-1.4R	11.7	-1.4R		
22 ga	4"	q_a	q_f	656	1056	655	1055	646	1040	639	1029	634	1020	629	1013	626	1007	623	1003	541	866	541	866	
		F		5.8	-0.2R	5.9	-0.1R	5.9	-0.1R	5.9	-0.1R	5.9	-0.1R	6	-0.1R	6	-0.1R	6	-0.1R	6	-0.1R	6	-0.1R	
	6"	q_a	q_f	577	929	557	896	542	872	531	855	522	841	516	830	510	821	506	814	502	808	502	808	
		F		6.5	-0.3R	6.6	-0.3R	6.7	-0.3R	6.7	-0.2R	6.8	-0.2R	6.8	-0.2R	6.8	-0.2R	6.8	-0.2R	6.9	-0.2R	6.9	-0.2R	
	8"	q_a	q_f	514	827	503	810	470	756	468	753	446	717	447	719	430	693	433	697	420	676	420	676	
		F		7.2	-0.5R	7.3	-0.5R	7.4	-0.4R	7.5	-0.4R	7.5	-0.3R	7.6	-0.3R	7.6	-0.3R	7.7	-0.3R	7.7	-0.3R	7.7	-0.3R	
12"	q_a	q_f	435	700	403	649	381	613	364	587	352	566	342	550	334	537	327	526	321	517	321	517		
	F		8.2	-0.9R	8.5	-0.8R	8.7	-0.8R	8.8	-0.7R	8.9	-0.7R	9	-0.6R	9.1	-0.6R	9.2	-0.5R	9.2	-0.5R	9.2	-0.5R		
18"	q_a	q_f	389	700	364	586	312	502	304	490	298	480	267	431	267	430	266	428	245	395	245	395		
	F		9.5	-1.4R	9.9	-1.4R	10.3	-1.3R	10.6	-1.2R	10.8	-1.2R	11	-1.1R	11.1	-1.1R	11.2	-1R	11.4	-1R	11.4	-1R		
24"	q_a	q_f	338	545	323	519	273	440	270	435	235	378	238	383	214	344	219	352	201	323	201	323		
	F		10.4	-1.8R	11.1	-1.8R	11.6	-1.8R	12	-1.8R	12.3	-1.7R	12.6	-1.7R	12.8	-1.6R	13.1	-1.6R	13.2	-1.5R	13.2	-1.5R		

Hilti X-HSN-24 Fasteners to Supports with No. 10 Screws Side Seam Attachment Diaphragm Shear in pounds per linear foot (plf)



HILTI



B PANELS

Support Fastener Pattern	Gage	Seam Attach. Spacing	Allowable Shear (q_a) (plf), Factored Shear (q_f) (plf), and Flexibility Factor (F) (10^{-6} in/lbs)																			
			Span →	4' - 0"		5' - 0"		6' - 0"		7' - 0"		8' - 0"		9' - 0"		10' - 0"		11' - 0"		12' - 0"		
36/7/4	16 ga	4"	q_a	q_f	2042	3288	1999	3219	1969	3171	1947	3135	1931	3108	1917	3087	1906	3069	1763	2821	1482	2371
			F		3.3 -0.2R		3.3 -0.2R		3.3 -0.2R		3.3 -0.2R		3.3 -0.1R		3.4 -0.1R		3.4 -0.1R		3.4 -0.1R		3.4 -0.1R	
		6"	q_a	q_f	1692	2724	1630	2624	1586	2554	1555	2503	1530	2464	1511	2433	1495	2408	1483	2387	1472	2370
			F		3.7 -0.4R		3.8 -0.4R		3.9 -0.3R		3.9 -0.3R		3.9 -0.3R		3.9 -0.3R		4 -0.2R		4 -0.2R		4 -0.2R	
		8"	q_a	q_f	1463	2355	1440	2319	1338	2154	1339	2156	1272	2048	1281	2062	1231	1982	1242	2000	1204	1938
			F		4.2 -0.6R		4.3 -0.5R		4.4 -0.5R		4.4 -0.5R		4.5 -0.4R		4.5 -0.4R		4.5 -0.4R		4.5 -0.4R		4.6 -0.3R	
	12"	q_a	q_f	1193	1921	1107	1783	1048	1688	1005	1619	973	1566	947	1525	926	1491	909	1464	895	1441	
		F		4.9 -1R		5.1 -0.9R		5.2 -0.9R		5.3 -0.8R		5.4 -0.8R		5.5 -0.8R		5.6 -0.7R		5.6 -0.7R		5.6 -0.7R		
	18"	q_a	q_f	1043	1921	983	1583	834	1342	819	1319	809	1302	725	1167	725	1168	726	1169	665	1071	
		F		5.7 -1.4R		6 -1.5R		6.3 -1.4R		6.5 -1.4R		6.7 -1.4R		6.8 -1.3R		6.9 -1.3R		7 -1.2R		7.1 -1.2R		
	24"	q_a	q_f	883	1421	853	1374	720	1160	722	1163	630	1014	641	1033	575	926	590	949	539	868	
		F		6.3 -1.8R		6.8 -1.9R		7.1 -1.9R		7.4 -1.9R		7.7 -1.9R		7.9 -1.9R		8.1 -1.9R		8.2 -1.8R		8.4 -1.8R		
	18 ga	4"	q_a	q_f	1565	2520	1526	2456	1498	2412	1478	2379	1462	2354	1450	2334	1440	2318	1281	2050	1077	1723
			F		3.9 -0.2R		4 -0.2R		4 -0.2R		4 -0.2R		4 -0.2R		4 -0.1R		4 -0.1R		4 -0.1R		4 -0.1R	
		6"	q_a	q_f	1287	2071	1232	1983	1194	1922	1166	1878	1145	1843	1128	1816	1115	1794	1103	1776	1077	1723
			F		4.5 -0.4R		4.5 -0.4R		4.6 -0.4R		4.6 -0.3R		4.7 -0.3R		4.7 -0.3R		4.7 -0.3R		4.7 -0.2R		4.7 -0.2R	
		8"	q_a	q_f	1111	1789	1087	1750	1004	1617	1002	1613	948	1527	953	1534	914	1471	920	1482	890	1433
			F		4.9 -0.7R		5.1 -0.6R		5.1 -0.6R		5.2 -0.5R		5.3 -0.5R		5.3 -0.4R		5.4 -0.4R		5.4 -0.4R		5.4 -0.4R	
	12"	q_a	q_f	910	1465	838	1350	789	1271	753	1213	726	1169	705	1135	688	1107	673	1084	661	1065	
		F		5.7 -1.1R		6 -1R		6.1 -1R		6.2 -0.9R		6.3 -0.9R		6.4 -0.9R		6.5 -0.8R		6.5 -0.8R		6.6 -0.7R		
	18"	q_a	q_f	799	1465	747	1203	632	1018	617	994	606	976	537	865	536	863	535	862	491	790	
		F		6.6 -1.6R		7 -1.6R		7.3 -1.6R		7.5 -1.6R		7.7 -1.5R		7.9 -1.5R		8 -1.4R		8.1 -1.4R		8.2 -1.3R		
	24"	q_a	q_f	683	1100	653	1051	546	878	542	873	472	760	477	769	428	689	437	704	401	645	
		F		7.3 -2.1R		7.8 -2.1R		8.2 -2.2R		8.6 -2.2R		8.9 -2.2R		9.1 -2.1R		9.3 -2.1R		9.5 -2R		9.6 -2R		
20 ga	4"	q_a	q_f	1107	1782	1072	1726	1048	1687	1030	1659	1017	1637	1006	1619	997	1605	847	1355	712	1139	
		F		5 -0.3R		5 -0.2R		5.1 -0.2R		5.1 -0.2R		5.1 -0.2R		5.1 -0.2R		5.1 -0.1R		5.1 -0.1R		5.1 -0.1R		
	6"	q_a	q_f	904	1455	859	1382	827	1332	804	1295	787	1267	773	1245	762	1227	753	1212	712	1139	
		F		5.6 -0.5R		5.7 -0.5R		5.8 -0.4R		5.8 -0.4R		5.8 -0.4R		5.9 -0.3R		5.9 -0.3R		5.9 -0.3R		5.9 -0.3R		
	8"	q_a	q_f	781	1258	757	1219	695	1120	690	1111	650	1047	651	1048	623	1003	626	1008	604	972	
		F		6.2 -0.8R		6.3 -0.7R		6.4 -0.7R		6.5 -0.6R		6.5 -0.6R		6.6 -0.5R		6.6 -0.5R		6.6 -0.5R		6.7 -0.4R		
12"	q_a	q_f	644	1037	588	947	549	885	521	840	500	805	484	778	470	757	459	739	450	724		
	F		7.1 -1.2R		7.3 -1.2R		7.5 -1.1R		7.7 -1.1R		7.8 -1R		7.9 -1R		7.9 -0.9R		8 -0.9R		8.1 -0.8R			
18"	q_a	q_f	570	1037	527	849	442	711	426	686	415	668	367	591	365	588	364	586	334	537		
	F		8.1 -1.9R		8.6 -1.9R		8.9 -1.9R		9.2 -1.8R		9.4 -1.8R		9.6 -1.7R		9.7 -1.7R		9.8 -1.6R		9.9 -1.6R			
24"	q_a	q_f	493	794	463	745	383	617	376	605	327	526	328	528	295	475	300	483	275	443		
	F		8.9 -2.4R		9.5 -2.5R		10 -2.5R		10.4 -2.5R		10.7 -2.5R		11 -2.4R		11.2 -2.4R		11.4 -2.3R		11.6 -2.3R			
22 ga	4"	q_a	q_f	885	1424	853	1374	831	1339	815	1313	803	1293	793	1277	779	1247	644	1031	541	866	
		F		5.8 -0.3R		5.9 -0.3R		5.9 -0.2R		5.9 -0.2R		5.9 -0.2R		6 -0.2R		6 -0.2R		6 -0.2R		6 -0.1R		
	6"	q_a	q_f	721	1160	681	1096	654	1052	634	1020	618	995	606	976	596	960	588	947	541	866	
		F		6.5 -0.6R		6.6 -0.5R		6.7 -0.5R		6.7 -0.4R		6.8 -0.4R		6.8 -0.4R		6.8 -0.3R		6.8 -0.3R		6.8 -0.3R		
	8"	q_a	q_f	624	1004	601	968	550	885	543	875	511	823	510	822	487	784	489	787	471	759	
		F		7.1 -0.8R		7.3 -0.8R		7.4 -0.7R		7.5 -0.7R		7.5 -0.6R		7.6 -0.6R		7.6 -0.5R		7.6 -0.5R		7.7 -0.5R		
12"	q_a	q_f	517	832	469	755	436	703	413	664	393	632	378	609	367	591	358	576	351	564		
	F		8.1 -1.4R		8.4 -1.3R		8.6 -1.3R		8.8 -1.2R		8.9 -1.1R		9 -1.1R		9.1 -1R		9.1 -1R		9.2 -0.9R			
18"	q_a	q_f	460	832	422	680	350	564	336	541	326	524	289	465	287	462	285	459	261	421		
	F		9.3 -2R		9.7 -2.1R		10.1 -2R		10.4 -2R		10.6 -1.9R		10.8 -1.9R		11 -1.8R		11.1 -1.8R		11.3 -1.7R			
24"	q_a	q_f	400	644	370	596	306	492	298	480	259	417	259	417	233	376	236	381	217	349		
	F		10.1 -2.6R		10.8 -2.7R		11.3 -2.8R		11.7 -2.7R		12.1 -2.7R		12.4 -2.7R		12.6 -2.6R		12.9 -2.6R		13.1 -2.5R			

2.9 BN-36

Hilti X-HSN-24 Fasteners to Supports with No. 10 Screws Side Seam Attachment

Diaphragm Shear in pounds per linear foot (plf)



Support Fastener Pattern	Gage	Seam Attach. Spacing	Allowable Shear (q_a) (plf), Factored Shear (q_f) (plf), and Flexibility Factor (F) (10^6 in/lbs)																				
			Span →	4' - 0"		5' - 0"		6' - 0"		7' - 0"		8' - 0"		9' - 0"		10' - 0"		11' - 0"		12' - 0"			
36/7	16 ga	4"	q_a	q_f	2077	3344	2029	3267	1995	3212	1970	3172	1951	3141	1936	3116	1923	3096	1763	2821	1482	2371	
			F		3.2	-0.2R	3.2	-0.1R	3.3	-0.1R	3.3	-0.1R	3.3	-0.1R	3.3	-0.1R	3.3	-0.1R	3.3	-0.1R	3.3	-0.1R	3.3
		6"	q_a	q_f	1743	2806	1673	2693	1624	2614	1587	2556	1560	2511	1537	2475	1520	2446	1505	2423	1482	2371	
			F		3.6	-0.3R	3.7	-0.3R	3.8	-0.2R	3.8	-0.2R	3.8	-0.2R	3.9	-0.2R	3.9	-0.2R	3.9	-0.2R	3.9	-0.2R	3.9
		8"	q_a	q_f	1523	2453	1490	2399	1382	2225	1377	2217	1306	2103	1311	2111	1259	2028	1268	2041	1227	1976	
			F		4	-0.4R	4.1	-0.4R	4.2	-0.4R	4.3	-0.3R	4.3	-0.3R	4.4	-0.3R	4.4	-0.3R	4.4	-0.3R	4.4	-0.3R	4.5
	12"	q_a	q_f	1264	2035	1167	1878	1099	1770	1050	1690	1012	1630	982	1582	958	1543	939	1511	922	1484		
		F		4.6	-0.7R	4.8	-0.6R	5	-0.6R	5.1	-0.6R	5.2	-0.6R	5.3	-0.5R	5.4	-0.5R	5.4	-0.5R	5.4	-0.5R	5.5	-0.5R
	18"	q_a	q_f	1119	2035	1046	1684	889	1431	867	1396	850	1369	763	1228	760	1223	757	1219	697	1122		
		F		5.2	-1R	5.6	-1R	5.8	-1R	6.1	-1R	6.2	-0.9R	6.4	-0.9R	6.5	-0.9R	6.7	-0.9R	6.8	-0.8R		
	24"	q_a	q_f	964	1551	919	1479	777	1251	771	1241	677	1090	683	1100	613	987	624	1005	571	919		
		F		5.7	-1.2R	6.1	-1.3R	6.5	-1.3R	6.8	-1.3R	7.1	-1.3R	7.3	-1.3R	7.5	-1.3R	7.7	-1.3R	7.8	-1.2R		
	18 ga	4"	q_a	q_f	1598	2572	1553	2501	1522	2450	1499	2413	1481	2384	1467	2361	1455	2343	1281	2050	1077	1723	
			F		3.9	-0.2R	3.9	-0.2R	3.9	-0.1R	4	-0.1R	4	-0.1R	4	-0.1R	4	-0.1R	4	-0.1R	4	-0.1R	
		6"	q_a	q_f	1331	2144	1270	2044	1227	1975	1195	1924	1171	1885	1151	1853	1136	1828	1123	1807	1077	1723	
			F		4.3	-0.3R	4.4	-0.3R	4.5	-0.3R	4.5	-0.2R	4.6	-0.2R	4.6	-0.2R	4.6	-0.2R	4.6	-0.2R	4.7	-0.2R	
		8"	q_a	q_f	1163	1873	1129	1818	1042	1678	1034	1665	978	1574	979	1575	938	1510	942	1517	910	1466	
			F		4.7	-0.5R	4.9	-0.4R	5	-0.4R	5.1	-0.4R	5.1	-0.4R	5.2	-0.3R	5.2	-0.3R	5.2	-0.3R	5.3	-0.3R	
	12"	q_a	q_f	969	1560	888	1429	832	1339	790	1272	759	1222	734	1182	714	1150	698	1123	684	1101		
		F		5.4	-0.7R	5.6	-0.7R	5.8	-0.7R	6	-0.7R	6.1	-0.6R	6.2	-0.6R	6.3	-0.6R	6.3	-0.5R	6.4	-0.5R		
	18"	q_a	q_f	862	1560	799	1286	677	1091	656	1057	641	1031	571	920	566	912	563	907	516	831		
		F		6.1	-1.1R	6.5	-1.1R	6.8	-1.1R	7.1	-1.1R	7.3	-1.1R	7.4	-1R	7.6	-1R	7.7	-1R	7.8	-0.9R		
	24"	q_a	q_f	749	1207	706	1137	596	960	586	943	510	821	511	823	458	738	465	748	426	686		
		F		6.6	-1.3R	7.1	-1.4R	7.6	-1.4R	7.9	-1.5R	8.2	-1.5R	8.5	-1.4R	8.7	-1.4R	8.9	-1.4R	9.1	-1.4R		
20 ga	4"	q_a	q_f	1136	1828	1096	1765	1069	1721	1049	1688	1033	1663	1021	1643	1011	1627	847	1355	712	1139		
		F		4.9	-0.2R	5	-0.2R	5	-0.1R	5	-0.1R	5	-0.1R	5.1	-0.1R	5.1	-0.1R	5.1	-0.1R	5.1	-0.1R		
	6"	q_a	q_f	941	1515	890	1433	854	1376	828	1333	808	1301	792	1275	779	1254	769	1237	712	1139		
		F		5.5	-0.4R	5.6	-0.3R	5.6	-0.3R	5.7	-0.3R	5.7	-0.3R	5.8	-0.2R	5.8	-0.2R	5.8	-0.2R	5.8	-0.2R		
	8"	q_a	q_f	823	1325	792	1275	726	1168	716	1153	674	1085	672	1082	642	1033	643	1036	620	998		
		F		5.9	-0.5R	6.1	-0.5R	6.2	-0.5R	6.3	-0.4R	6.4	-0.4R	6.4	-0.4R	6.5	-0.4R	6.5	-0.3R	6.5	-0.3R		
12"	q_a	q_f	691	1112	627	1009	583	938	550	886	526	847	506	815	491	790	478	770	467	752			
	F		6.7	-0.8R	7	-0.8R	7.2	-0.8R	7.3	-0.8R	7.5	-0.7R	7.6	-0.7R	7.7	-0.7R	7.8	-0.6R	7.8	-0.6R			
18"	q_a	q_f	619	1112	567	914	480	773	459	740	444	715	393	632	388	625	385	620	353	568			
	F		7.5	-1.2R	8	-1.3R	8.3	-1.3R	8.6	-1.2R	8.8	-1.2R	9	-1.2R	9.2	-1.2R	9.4	-1.1R	9.5	-1.1R			
24"	q_a	q_f	544	876	506	815	422	679	409	659	356	573	354	569	318	512	321	517	294	474			
	F		8.1	-1.5R	8.7	-1.6R	9.2	-1.7R	9.6	-1.7R	9.9	-1.7R	10.2	-1.7R	10.5	-1.6R	10.7	-1.6R	10.9	-1.6R			
22 ga	4"	q_a	q_f	911	1466	875	1409	850	1369	832	1339	818	1317	807	1299	779	1247	644	1031	541	866		
		F		5.7	-0.2R	5.8	-0.2R	5.8	-0.2R	5.9	-0.2R	5.9	-0.1R	5.9	-0.1R	5.9	-0.1R	5.9	-0.1R	5.9	-0.1R		
	6"	q_a	q_f	753	1213	708	1141	677	1090	654	1053	637	1025	623	1003	612	985	602	970	541	866		
		F		6.3	-0.4R	6.5	-0.4R	6.5	-0.3R	6.6	-0.3R	6.6	-0.3R	6.7	-0.3R	6.7	-0.2R	6.7	-0.2R	6.8	-0.2R		
	8"	q_a	q_f	660	1063	631	1016	576	927	566	911	531	855	528	851	504	811	504	811	485	781		
		F		6.9	-0.6R	7	-0.5R	7.2	-0.5R	7.3	-0.5R	7.3	-0.4R	7.4	-0.4R	7.5	-0.4R	7.5	-0.4R	7.5	-0.3R		
12"	q_a	q_f	557	897	502	809	465	748	437	704	416	670	400	644	387	622	376	605	367	590			
	F		7.7	-0.9R	8	-0.9R	8.2	-0.9R	8.4	-0.8R	8.6	-0.8R	8.7	-0.8R	8.8	-0.7R	8.9	-0.7R	8.9	-0.7R			
18"	q_a	q_f	502	897	457	735	383	616	364	586	350	564	311	500	306	493	303	487	278	447			
	F		8.6	-1.4R	9.1	-1.4R	9.5	-1.4R	9.8	-1.4R	10	-1.3R	10.3	-1.3R	10.5	-1.3R	10.6	-1.2R	10.8	-1.2R			
24"	q_a	q_f	444	715	409	659	338	545	326	525	283	456	281	452	253	407	254	409	233	375			
	F		9.2	-1.7R	9.9	-1.8R	10.4	-1.8R	10.9	-1.8R	11.2	-1.8R	11.6	-1.8R	11.8	-1.8R	12.1	-1.8R	12.3	-1.7R			

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Support Attachment: Hilti X-HSN 24 PAF

Side Seam Attachment: #10 SD HWH Screw

Hilti X-HSN-24 Fasteners to Supports with No. 10 Screws Side Seam Attachment Diaphragm Shear in pounds per linear foot (plf)



HILTI



B PANELS

Support Fastener Pattern	Gage	Seam Attach. Spacing	Allowable Shear (q_a) (plf), Factored Shear (q_f) (plf), and Flexibility Factor (F) (10^{-6} in/lbs)																			
			Span →	4' - 0"		5' - 0"		6' - 0"		7' - 0"		8' - 0"		9' - 0"		10' - 0"		11' - 0"		12' - 0"		
			q_a q_f	q_a q_f	q_a q_f	q_a q_f	q_a q_f	q_a q_f	q_a q_f	q_a q_f	q_a q_f	q_a q_f	q_a q_f	q_a q_f	q_a q_f	q_a q_f	q_a q_f	q_a q_f	q_a q_f	q_a q_f	q_a q_f	q_a q_f
36/9	16 ga	4"	q_a q_f	2502	4028	2408	3878	2342	3770	2292	3690	2253	3627	2222	3578	2134	3414	1763	2821	1482	2371	
			F	3.1 -0.2R		3.2 -0.2R		3.2 -0.2R		3.2 -0.1R		3.3 -0.1R										
		6"	q_a q_f	2125	3421	2000	3221	1912	3079	1847	2973	1796	2892	1756	2827	1723	2774	1696	2730	1482	2371	
			F	3.5 -0.3R		3.6 -0.3R		3.6 -0.3R		3.7 -0.3R		3.7 -0.2R		3.8 -0.2R								
		8"	q_a q_f	1893	3048	1804	2904	1651	2659	1618	2605	1520	2448	1508	2428	1438	2316	1436	2311	1383	2226	
			F	3.7 -0.4R		3.9 -0.4R		4 -0.4R		4.1 -0.4R		4.2 -0.4R		4.2 -0.4R		4.3 -0.3R		4.3 -0.3R		4.3 -0.3R		4.3 -0.3R
	12"	q_a q_f	1629	2623	1470	2367	1358	2187	1276	2054	1213	1953	1163	1873	1123	1808	1089	1754	1061	1709		
		F	4.2 -0.6R		4.4 -0.7R		4.6 -0.7R		4.7 -0.6R		4.9 -0.6R		5 -0.6R		5.1 -0.6R		5.1 -0.6R		5.2 -0.6R		5.2 -0.6R	
	18"	q_a q_f	1486	2623	1349	2171	1146	1845	1090	1756	1047	1686	926	1491	905	1456	887	1428	811	1305		
		F	4.6 -0.9R		4.9 -0.9R		5.2 -1R		5.5 -1R		5.7 -1R		5.8 -1R		6 -1R		6.1 -1R		6.3 -0.9R		6.3 -0.9R	
	24"	q_a q_f	1334	2148	1222	1968	1032	1662	987	1588	858	1381	842	1355	753	1213	750	1207	684	1102		
		F	4.9 -1R		5.3 -1.1R		5.7 -1.2R		6 -1.2R		6.3 -1.3R		6.5 -1.3R		6.7 -1.3R		6.9 -1.3R		7.1 -1.3R		7.1 -1.3R	
	18 ga	4"	q_a q_f	1928	3104	1844	2969	1784	2873	1740	2801	1705	2745	1678	2701	1550	2481	1281	2050	1077	1723	
			F	3.8 -0.2R		3.8 -0.2R		3.9 -0.2R		3.9 -0.2R		3.9 -0.1R		3.9 -0.1R		3.9 -0.1R		4 -0.1R		4 -0.1R		4 -0.1R
		6"	q_a q_f	1635	2633	1528	2460	1452	2338	1396	2247	1353	2178	1318	2122	1290	2077	1267	2040	1077	1723	
			F	4.1 -0.4R		4.3 -0.3R		4.3 -0.3R		4.4 -0.3R		4.4 -0.3R		4.5 -0.3R		4.5 -0.2R		4.6 -0.2R		4.6 -0.2R		4.6 -0.2R
		8"	q_a q_f	1460	2351	1380	2221	1256	2023	1224	1971	1146	1845	1132	1823	1077	1735	1072	1726	1030	1659	
			F	4.5 -0.5R		4.6 -0.5R		4.7 -0.5R		4.8 -0.4R		4.9 -0.4R		5 -0.4R		5 -0.4R		5.1 -0.4R		5.1 -0.3R		5.1 -0.3R
	12"	q_a q_f	1265	2037	1133	1824	1040	1675	972	1565	920	1481	878	1413	840	1352	811	1306	789	1270		
		F	4.9 -0.7R		5.2 -0.7R		5.4 -0.7R		5.6 -0.7R		5.7 -0.7R		5.8 -0.7R		5.9 -0.7R		6 -0.6R		6.1 -0.6R		6.1 -0.6R	
	18"	q_a q_f	1160	2037	1044	1681	886	1426	831	1337	790	1271	697	1123	678	1091	664	1068	608	979		
		F	5.4 -1R		5.8 -1R		6.1 -1.1R		6.4 -1.1R		6.6 -1.1R		6.8 -1.1R		7 -1.1R		7.1 -1.1R		7.3 -1.1R		7.3 -1.1R	
	24"	q_a q_f	1050	1691	953	1534	795	1281	753	1213	654	1053	637	1026	570	917	565	910	518	834		
		F	5.7 -1.1R		6.2 -1.3R		6.6 -1.3R		7 -1.4R		7.3 -1.4R		7.6 -1.4R		7.8 -1.5R		8 -1.5R		8.2 -1.5R		8.2 -1.5R	
20 ga	4"	q_a q_f	1377	2216	1305	2102	1255	2020	1217	1960	1188	1913	1165	1876	1025	1640	847	1355	712	1139		
		F	4.8 -0.2R		4.9 -0.2R		4.9 -0.2R		4.9 -0.2R		5 -0.2R		5 -0.2R		5 -0.1R		5 -0.1R		5 -0.1R		5 -0.1R	
	6"	q_a q_f	1169	1882	1082	1742	1020	1643	975	1570	940	1513	912	1469	890	1432	847	1355	712	1139		
		F	5.2 -0.4R		5.4 -0.4R		5.5 -0.4R		5.5 -0.3R		5.6 -0.3R		5.6 -0.3R		5.7 -0.3R		5.7 -0.3R		5.7 -0.3R		5.7 -0.3R	
	8"	q_a q_f	1048	1688	980	1577	886	1427	857	1380	799	1286	785	1265	745	1199	738	1189	708	1139		
		F	5.6 -0.6R		5.8 -0.5R		5.9 -0.5R		6 -0.5R		6.1 -0.5R		6.2 -0.5R		6.3 -0.4R		6.3 -0.4R		6.4 -0.4R		6.4 -0.4R	
12"	q_a q_f	917	1476	813	1309	741	1193	685	1103	639	1029	604	972	578	931	558	898	540	870			
	F	6.2 -0.8R		6.5 -0.8R		6.7 -0.8R		6.9 -0.8R		7 -0.8R		7.2 -0.8R		7.3 -0.8R		7.4 -0.7R		7.5 -0.7R		7.5 -0.7R		
18"	q_a q_f	847	1476	754	1214	629	1013	585	941	551	888	486	783	473	761	462	743	423	681			
	F	6.7 -1.1R		7.1 -1.2R		7.5 -1.2R		7.8 -1.3R		8.1 -1.3R		8.3 -1.3R		8.5 -1.3R		8.7 -1.2R		8.8 -1.2R		8.8 -1.2R		
24"	q_a q_f	774	1246	692	1114	571	919	534	861	463	746	447	720	402	647	398	640	364	587			
	F	7.1 -1.3R		7.6 -1.5R		8.1 -1.5R		8.5 -1.6R		8.9 -1.6R		9.2 -1.7R		9.5 -1.7R		9.7 -1.7R		9.9 -1.7R		9.9 -1.7R		
22 ga	4"	q_a q_f	1109	1785	1045	1683	1001	1611	967	1557	941	1516	921	1483	779	1247	644	1031	541	866		
		F	5.6 -0.3R		5.7 -0.2R		5.7 -0.2R		5.8 -0.2R		5.8 -0.2R		5.8 -0.2R		5.9 -0.2R		5.9 -0.2R		5.9 -0.1R		5.9 -0.1R	
	6"	q_a q_f	943	1518	867	1397	814	1311	775	1248	745	1199	721	1161	701	1129	644	1031	541	866		
		F	6.1 -0.4R		6.2 -0.4R		6.3 -0.4R		6.4 -0.4R		6.5 -0.4R		6.5 -0.3R		6.6 -0.3R		6.6 -0.3R		6.6 -0.3R		6.6 -0.3R	
	8"	q_a q_f	849	1366	788	1268	710	1143	683	1100	635	1022	622	1002	589	948	582	937	541	866		
		F	6.5 -0.6R		6.7 -0.6R		6.9 -0.6R		7 -0.6R		7.1 -0.5R		7.2 -0.5R		7.2 -0.5R		7.3 -0.5R		7.3 -0.4R		7.3 -0.4R	
12"	q_a q_f	747	1202	659	1060	596	959	544	876	506	814	478	770	457	736	440	708	425	685			
	F	7.1 -0.9R		7.4 -0.9R		7.7 -0.9R		7.9 -0.9R		8.1 -0.9R		8.2 -0.9R		8.4 -0.8R		8.5 -0.8R		8.6 -0.8R		8.6 -0.8R		
18"	q_a q_f	693	1202	613	988	506	815	468	753	439	706	389	626	377	607	367	591	336	541			
	F	7.7 -1.2R		8.2 -1.3R		8.6 -1.4R		8.9 -1.4R		9.2 -1.4R		9.5 -1.4R		9.7 -1.4R		9.9 -1.4R		10.1 -1.3R		10.1 -1.3R		
24"	q_a q_f	637	1025	560	902	462	743	429	691	372	599	359	578	323	520	318	512	292	470			
	F	8.1 -1.5R		8.7 -1.6R		9.2 -1.7R		9.7 -1.8R		10.1 -1.8R		10.4 -1.8R		10.7 -1.8R		11 -1.8R		11.3 -1.8R		11.3 -1.8R		

2.9 BN-36

Hilti X-ENP-19 Fasteners to Supports with No. 10 Screws Side Seam Attachment

Diaphragm Shear in pounds per linear foot (plf)



Support Fastener Pattern	Gage	Seam Attach. Spacing	Allowable Shear (q_a) (plf), Factored Shear (q_f) (plf), and Flexibility Factor (F) (10^{-6} in/lbs)																					
			Span →	4' - 0"		5' - 0"		6' - 0"		7' - 0"		8' - 0"		9' - 0"		10' - 0"		11' - 0"		12' - 0"				
36/4	16 ga	4"	q_a	q_f	1369	2204	1369	2204	1369	2204	1369	2204	1369	2204	1369	2204	1369	2204	1369	2204	1369	2204		
			F		3.2	-0.2R	3.2	-0.1R	3.3	-0.1R	3.3	-0.1R	3.3	-0.1R	3.3	-0.1R	3.3	-0.1R	3.3	-0.1R	3.3	-0.1R	3.3	-0.1R
		6"	q_a	q_f	1348	2171	1317	2121	1295	2085	1279	2058	1266	2038	1255	2021	1247	2008	1240	1997	1234	1987	1234	1987
			F		3.6	-0.3R	3.7	-0.3R	3.7	-0.2R	3.8	-0.2R	3.8	-0.2R	3.8	-0.2R	3.9	-0.2R	3.9	-0.2R	3.9	-0.2R	3.9	-0.2R
		8"	q_a	q_f	1212	1952	1203	1937	1140	1835	1144	1841	1100	1771	1108	1783	1075	1730	1083	1744	1057	1702	1057	1702
			F		3.9	-0.4R	4.1	-0.4R	4.2	-0.4R	4.2	-0.4R	4.3	-0.3R	4.3	-0.3R	4.4	-0.3R	4.4	-0.3R	4.4	-0.3R	4.4	-0.3R
	12"	q_a	q_f	1028	1655	971	1563	930	1498	900	1449	877	1412	859	1382	844	1358	831	1338	821	1321	821	1321	
		F		4.5	-0.7R	4.7	-0.6R	4.9	-0.6R	5	-0.6R	5.1	-0.6R	5.2	-0.6R	5.3	-0.5R	5.3	-0.5R	5.4	-0.5R	5.4	-0.5R	
	18"	q_a	q_f	913	1655	874	1406	755	1215	747	1203	741	1193	670	1079	673	1084	676	1088	626	1008	626	1008	
		F		5.1	-0.9R	5.4	-1R	5.7	-1R	5.9	-1R	6.1	-1R	6.3	-0.9R	6.4	-0.9R	6.5	-0.9R	6.6	-0.9R	6.6	-0.9R	
	24"	q_a	q_f	782	1259	766	1233	656	1056	662	1066	589	948	601	968	547	880	561	904	518	834	518	834	
		F		5.5	-1.2R	5.9	-1.2R	6.3	-1.3R	6.6	-1.3R	6.9	-1.3R	7.1	-1.3R	7.3	-1.3R	7.5	-1.3R	7.7	-1.3R	7.7	-1.3R	
	18 ga	4"	q_a	q_f	1108	1784	1108	1784	1108	1784	1108	1784	1108	1784	1108	1784	1108	1784	1108	1784	1077	1723	1077	1723
			F		3.8	-0.2R	3.9	-0.2R	3.9	-0.1R	3.9	-0.1R	4	-0.1R	4	-0.1R	4	-0.1R	4	-0.1R	4	-0.1R	4	-0.1R
		6"	q_a	q_f	1044	1681	1015	1634	994	1601	979	1576	967	1557	957	1541	949	1529	943	1518	937	1509	937	1509
			F		4.3	-0.3R	4.4	-0.3R	4.5	-0.3R	4.5	-0.3R	4.5	-0.2R	4.6	-0.2R	4.6	-0.2R	4.6	-0.2R	4.6	-0.2R	4.6	-0.2R
		8"	q_a	q_f	934	1504	922	1485	869	1399	869	1399	833	1341	837	1348	810	1304	816	1314	795	1279	795	1279
			F		4.7	-0.5R	4.8	-0.4R	4.9	-0.4R	5	-0.4R	5.1	-0.4R	5.1	-0.3R	5.2	-0.3R	5.2	-0.3R	5.2	-0.3R	5.2	-0.3R
	12"	q_a	q_f	790	1272	741	1193	706	1136	680	1095	660	1063	644	1037	631	1017	621	999	612	985	612	985	
		F		5.3	-0.7R	5.5	-0.7R	5.7	-0.7R	5.9	-0.7R	6	-0.7R	6.1	-0.6R	6.2	-0.6R	6.3	-0.6R	6.3	-0.6R	6.3	-0.6R	
	18"	q_a	q_f	703	1272	667	1074	574	925	565	910	558	898	504	811	504	811	504	812	467	751	467	751	
		F		5.9	-1R	6.3	-1.1R	6.6	-1.1R	6.9	-1.1R	7.1	-1.1R	7.3	-1.1R	7.4	-1R	7.6	-1R	7.7	-1R	7.7	-1R	
	24"	q_a	q_f	606	976	587	945	502	807	502	809	446	718	453	729	407	655	418	673	383	617	383	617	
		F		6.4	-1.3R	6.9	-1.4R	7.3	-1.4R	7.7	-1.5R	8	-1.5R	8.2	-1.5R	8.5	-1.4R	8.7	-1.4R	8.9	-1.4R	8.9	-1.4R	
20 ga	4"	q_a	q_f	843	1357	843	1357	837	1348	829	1334	822	1323	817	1315	812	1308	809	1302	712	1139	712	1139	
		F		4.9	-0.2R	4.9	-0.2R	5	-0.2R	5	-0.2R	5	-0.1R	5	-0.1R	5.1	-0.1R	5.1	-0.1R	5.1	-0.1R	5.1	-0.1R	
	6"	q_a	q_f	749	1205	723	1163	704	1134	690	1112	680	1094	671	1081	664	1070	659	1060	654	1053	654	1053	
		F		5.4	-0.4R	5.5	-0.3R	5.6	-0.3R	5.7	-0.3R	5.7	-0.3R	5.7	-0.3R	5.8	-0.2R	5.8	-0.2R	5.8	-0.2R	5.8	-0.2R	
	8"	q_a	q_f	666	1073	653	1052	611	983	609	980	580	934	582	937	561	904	565	909	548	882	548	882	
		F		5.9	-0.5R	6	-0.5R	6.1	-0.5R	6.2	-0.5R	6.3	-0.4R	6.4	-0.4R	6.4	-0.4R	6.5	-0.4R	6.5	-0.3R	6.5	-0.3R	
12"	q_a	q_f	564	908	524	843	495	797	474	764	458	738	445	717	435	700	426	687	419	675	419	675		
	F		6.6	-0.8R	6.8	-0.8R	7.1	-0.8R	7.2	-0.8R	7.4	-0.8R	7.5	-0.7R	7.6	-0.7R	7.7	-0.7R	7.8	-0.6R	7.8	-0.6R		
18"	q_a	q_f	504	908	473	761	405	652	396	637	388	625	349	562	348	561	347	559	320	516	320	516		
	F		7.3	-1.2R	7.8	-1.3R	8.1	-1.3R	8.4	-1.3R	8.7	-1.2R	8.9	-1.2R	9.1	-1.2R	9.2	-1.2R	9.3	-1.1R	9.3	-1.1R		
24"	q_a	q_f	438	705	419	674	356	574	353	569	307	495	310	499	279	449	286	460	262	422	262	422		
	F		7.8	-1.5R	8.4	-1.6R	8.9	-1.6R	9.3	-1.7R	9.7	-1.7R	10	-1.7R	10.2	-1.7R	10.5	-1.6R	10.7	-1.6R	10.7	-1.6R		
22 ga	4"	q_a	q_f	702	1130	687	1106	676	1088	667	1075	661	1064	656	1056	652	1049	644	1031	541	866	541	866	
		F		5.7	-0.2R	5.8	-0.2R	5.8	-0.2R	5.8	-0.2R	5.9	-0.2R	5.9	-0.1R	5.9	-0.1R	5.9	-0.1R	5.9	-0.1R	5.9	-0.1R	
	6"	q_a	q_f	604	972	580	934	563	907	551	886	541	871	533	858	527	848	522	840	517	833	517	833	
		F		6.3	-0.4R	6.4	-0.4R	6.5	-0.3R	6.6	-0.3R	6.6	-0.3R	6.7	-0.3R	6.7	-0.3R	6.7	-0.2R	6.7	-0.2R	6.7	-0.2R	
	8"	q_a	q_f	536	863	523	842	487	784	484	779	460	740	460	741	443	713	445	716	431	694	431	694	
		F		6.8	-0.6R	7	-0.6R	7.1	-0.5R	7.2	-0.5R	7.3	-0.5R	7.4	-0.4R	7.4	-0.4R	7.5	-0.4R	7.5	-0.4R	7.5	-0.4R	
12"	q_a	q_f	454	731	419	675	395	636	377	607	363	584	352	566	343	552	335	540	329	530	329	530		
	F		7.5	-0.9R	7.9	-0.9R	8.1	-0.9R	8.3	-0.9R	8.4	-0.8R	8.6	-0.8R	8.7	-0.8R	8.8	-0.7R	8.9	-0.7R	8.9	-0.7R		
18"	q_a	q_f	407	731	380	611	325	523	315	508	308	496	274	442	274	441	273	440	250	403	250	403		
	F		8.4	-1.3R	8.9	-1.4R	9.3	-1.4R	9.6	-1.4R	9.9	-1.4R	10.1	-1.3R	10.3	-1.3R	10.5	-1.3R	10.6	-1.2R	10.6	-1.2R		
24"	q_a	q_f	356	574	337	543	284	458	279	450	242	390	245	394	220	354	224	361	206	331	206	331		
	F		8.9	-1.6R	9.6	-1.7R	10.1	-1.8R	10.6	-1.8R	11	-1.8R	11.3	-1.8R	11.6	-1.8R	11.8	-1.8R	12.1	-1.8R	12.1	-1.8R		

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Support Attachment: Hilti X-ENP-19 PAF

Side Seam Attachment: #10 SD HWH Screw

Hilti X-ENP-19 Fasteners to Supports with No. 10 Screws Side Seam Attachment Diaphragm Shear in pounds per linear foot (plf)



HILTI



B PANELS

Support Fastener Pattern	Gage	Seam Attach. Spacing	Allowable Shear (q_a) (plf), Factored Shear (q_f) (plf), and Flexibility Factor (F) (10^6 in/lbs)																			
			Span →	4' - 0"		5' - 0"		6' - 0"		7' - 0"		8' - 0"		9' - 0"		10' - 0"		11' - 0"		12' - 0"		
36/7/4	16 ga	4"	q_a	q_f	2130	3429	2080	3349	2045	3292	2019	3251	1999	3219	1984	3194	1971	3174	1763	2821	1482	2371
			F	3.2 -0.3R	3.2 -0.3R	3.2 -0.2R	3.3 -0.2R	3.3 -0.2R	3.3 -0.2R	3.3 -0.2R	3.3 -0.2R	3.3 -0.2R	3.3 -0.1R									
		6"	q_a	q_f	1756	2827	1685	2713	1636	2635	1600	2577	1573	2533	1551	2498	1534	2469	1519	2446	1482	2371
			F	3.6 -0.5R	3.6 -0.4R	3.7 -0.4R	3.8 -0.4R	3.8 -0.4R	3.8 -0.3R	3.9 -0.3R	3.9 -0.3R	3.9 -0.3R										
		8"	q_a	q_f	1517	2442	1488	2395	1378	2218	1376	2216	1304	2100	1312	2112	1259	2027	1269	2044	1229	1978
			F	3.9 -0.6R	4 -0.6R	4.1 -0.6R	4.2 -0.6R	4.3 -0.6R	4.3 -0.5R	4.4 -0.5R	4.4 -0.5R											
	12"	q_a	q_f	1240	1996	1146	1844	1081	1740	1034	1665	998	1607	970	1562	947	1525	929	1495	913	1470	
		F	4.4 -1R	4.6 -1R	4.8 -1R	4.9 -1R	5 -0.9R	5.1 -0.9R	5.2 -0.9R	5.3 -0.9R	5.4 -0.8R											
	18"	q_a	q_f	1087	1996	1020	1642	863	1390	845	1361	832	1339	743	1196	742	1194	741	1193	678	1091	
		F	4.9 -1.3R	5.2 -1.4R	5.5 -1.4R	5.8 -1.5R	6 -1.5R	6.1 -1.5R	6.3 -1.4R	6.4 -1.4R	6.5 -1.4R											
	24"	q_a	q_f	925	1490	888	1430	747	1203	745	1200	649	1045	658	1060	590	950	603	971	552	888	
		F	5.2 -1.6R	5.7 -1.7R	6.1 -1.8R	6.4 -1.9R	6.7 -1.9R	6.9 -1.9R	7.1 -1.9R	7.3 -1.9R	7.5 -1.9R											
	18 ga	4"	q_a	q_f	1629	2623	1584	2550	1552	2498	1528	2460	1510	2431	1496	2408	1484	2390	1281	2050	1077	1723
			F	3.8 -0.3R	3.9 -0.3R	3.9 -0.3R	3.9 -0.2R	4 -0.2R	4 -0.2R	4 -0.2R	4 -0.2R	4 -0.2R										
		6"	q_a	q_f	1334	2148	1273	2049	1230	1981	1199	1931	1175	1892	1157	1862	1141	1838	1129	1817	1077	1723
			F	4.3 -0.5R	4.4 -0.5R	4.4 -0.5R	4.5 -0.4R	4.5 -0.4R	4.6 -0.4R	4.6 -0.4R	4.6 -0.3R	4.6 -0.3R										
		8"	q_a	q_f	1152	1855	1123	1807	1034	1665	1029	1657	972	1565	975	1570	934	1504	940	1513	908	1462
			F	4.6 -0.7R	4.8 -0.7R	4.9 -0.7R	5 -0.7R	5 -0.6R	5.1 -0.6R	5.1 -0.6R	5.2 -0.5R	5.2 -0.5R										
	12"	q_a	q_f	946	1524	868	1398	815	1311	775	1248	746	1201	722	1163	704	1133	688	1108	675	1087	
		F	5.2 -1.1R	5.4 -1.1R	5.6 -1.1R	5.8 -1.1R	5.9 -1R	6 -1R	6.1 -1R	6.2 -1R	6.3 -0.9R											
	18"	q_a	q_f	835	1524	776	1249	656	1056	637	1026	623	1002	551	887	548	882	546	880	501	806	
		F	5.7 -1.5R	6.1 -1.5R	6.4 -1.6R	6.7 -1.6R	6.9 -1.6R	7.1 -1.6R	7.3 -1.6R	7.5 -1.6R	7.6 -1.6R											
	24"	q_a	q_f	717	1155	681	1096	567	912	560	902	487	785	491	790	440	708	448	721	411	661	
		F	6.1 -1.7R	6.6 -1.9R	7 -2R	7.4 -2.1R	7.7 -2.1R	8 -2.2R	8.2 -2.2R	8.5 -2.2R	8.7 -2.2R											
20 ga	4"	q_a	q_f	1150	1852	1110	1788	1083	1743	1063	1711	1047	1686	1035	1666	1025	1640	847	1355	712	1139	
		F	4.9 -0.4R	4.9 -0.3R	5 -0.3R	5 -0.3R	5 -0.3R	5 -0.2R	5.1 -0.2R	5.1 -0.2R	5.1 -0.2R											
	6"	q_a	q_f	937	1509	887	1428	852	1372	826	1331	807	1299	792	1275	779	1255	769	1238	712	1139	
		F	5.4 -0.6R	5.5 -0.6R	5.6 -0.5R	5.6 -0.5R	5.7 -0.5R	5.7 -0.4R	5.8 -0.4R	5.8 -0.4R	5.8 -0.4R											
	8"	q_a	q_f	811	1306	782	1260	716	1154	709	1141	667	1074	666	1073	637	1025	639	1029	616	992	
		F	5.8 -0.8R	6 -0.8R	6.1 -0.8R	6.2 -0.8R	6.3 -0.7R	6.3 -0.7R	6.4 -0.7R	6.4 -0.6R	6.5 -0.6R											
12"	q_a	q_f	671	1081	610	982	568	915	538	866	514	828	494	796	480	773	468	754	459	738		
	F	6.4 -1.2R	6.7 -1.3R	6.9 -1.3R	7.1 -1.2R	7.3 -1.2R	7.4 -1.2R	7.5 -1.1R	7.6 -1.1R	7.7 -1.1R												
18"	q_a	q_f	597	1081	549	883	458	737	440	708	427	687	377	607	374	603	372	599	341	549		
	F	7.1 -1.7R	7.5 -1.8R	7.9 -1.8R	8.2 -1.9R	8.5 -1.9R	8.7 -1.9R	8.9 -1.9R	9.1 -1.8R	9.2 -1.8R												
24"	q_a	q_f	519	836	482	777	399	642	390	627	339	545	338	544	304	489	308	496	283	455		
	F	7.5 -2R	8.1 -2.2R	8.6 -2.3R	9 -2.4R	9.4 -2.5R	9.7 -2.5R	10 -2.5R	10.2 -2.5R	10.4 -2.5R												
22 ga	4"	q_a	q_f	918	1479	883	1421	858	1381	840	1352	826	1330	815	1312	779	1247	644	1031	541	866	
		F	5.7 -0.4R	5.8 -0.4R	5.8 -0.3R	5.8 -0.3R	5.9 -0.3R	5.9 -0.3R	5.9 -0.2R	5.9 -0.2R	5.9 -0.2R											
	6"	q_a	q_f	747	1203	703	1132	673	1084	651	1048	634	1021	621	999	610	982	601	967	541	866	
		F	6.2 -0.7R	6.4 -0.6R	6.5 -0.6R	6.5 -0.6R	6.6 -0.5R	6.6 -0.5R	6.7 -0.5R	6.7 -0.4R	6.7 -0.4R											
	8"	q_a	q_f	648	1043	621	1000	567	913	559	899	524	844	523	841	498	802	499	804	481	774	
		F	6.7 -0.9R	6.9 -0.9R	7 -0.9R	7.1 -0.8R	7.2 -0.8R	7.3 -0.8R	7.4 -0.7R	7.4 -0.7R	7.5 -0.7R											
12"	q_a	q_f	540	869	487	785	452	727	424	683	402	648	387	623	375	603	365	588	357	575		
	F	7.4 -1.3R	7.7 -1.4R	8 -1.4R	8.2 -1.4R	8.3 -1.3R	8.5 -1.3R	8.6 -1.3R	8.7 -1.2R	8.8 -1.2R												
18"	q_a	q_f	482	869	440	708	364	586	347	559	335	540	298	479	295	474	292	470	268	431		
	F	8.1 -1.8R	8.6 -2R	9 -2R	9.4 -2.1R	9.6 -2.1R	9.9 -2.1R	10.1 -2R	10.3 -2R	10.4 -2R												
24"	q_a	q_f	420	677	386	622	319	514	309	498	268	432	268	431	241	388	243	392	223	359		
	F	8.6 -2.2R	9.2 -2.4R	9.8 -2.5R	10.2 -2.6R	10.6 -2.7R	11 -2.7R	11.3 -2.8R	11.6 -2.8R	11.8 -2.7R												

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Hilti X-ENP-19 Fasteners to Supports with No. 10 Screws Side Seam Attachment

Diaphragm Shear in pounds per linear foot (plf)



Support Fastener Pattern	Gage	Seam Attach. Spacing	Allowable Shear (q_a) (plf), Factored Shear (q_f) (plf), and Flexibility Factor (F) (10^6 in/lbs)																					
			Span →	4' - 0"		5' - 0"		6' - 0"		7' - 0"		8' - 0"		9' - 0"		10' - 0"		11' - 0"		12' - 0"				
36/7	16 ga	4"	q_a	q_f	2171	3495	2115	3405	2075	3341	2046	3294	2023	3257	2005	3229	1991	3205	1763	2821	1482	2371		
			F		3.1 -0.2R	3.1 -0.2R	3.2 -0.2R	3.2 -0.2R	3.2 -0.1R	3.3 -0.1R	3.3 -0.1R	3.3 -0.1R	3.3 -0.1R	3.3 -0.1R	3.3 -0.1R	3.3 -0.1R	3.3 -0.1R	3.3 -0.1R	3.3 -0.1R	3.3 -0.1R	3.3 -0.1R	3.3 -0.1R	3.3 -0.1R	
		6"	q_a	q_f	1813	2920	1734	2792	1679	2703	1638	2637	1606	2586	1581	2546	1561	2513	1544	2486	1482	2371	1482	2371
			F		3.4 -0.3R	3.5 -0.3R	3.6 -0.3R	3.6 -0.3R	3.7 -0.3R	3.7 -0.2R	3.8 -0.2R	3.8 -0.2R												
		8"	q_a	q_f	1584	2551	1543	2484	1427	2297	1418	2284	1343	2162	1345	2166	1291	2078	1298	2089	1255	2021	1255	2021
			F		3.7 -0.4R	3.8 -0.4R	3.9 -0.4R	3.9 -0.4R	4 -0.4R	4 -0.4R	4.1 -0.4R	4.2 -0.4R	4.2 -0.4R											
	12"	q_a	q_f	1318	2121	1211	1949	1137	1830	1083	1743	1041	1676	1009	1624	982	1582	961	1547	943	1518	943	1518	
		F		4.1 -0.6R	4.3 -0.6R	4.5 -0.7R	4.6 -0.6R	4.6 -0.6R	4.6 -0.6R	4.8 -0.6R	4.8 -0.6R	4.8 -0.6R	4.8 -0.6R	4.8 -0.6R	4.8 -0.6R	4.8 -0.6R	4.8 -0.6R	4.8 -0.6R	4.8 -0.6R	4.8 -0.6R	4.8 -0.6R	4.8 -0.6R	4.8 -0.6R	
	18"	q_a	q_f	1170	2121	1088	1752	923	1486	897	1444	877	1412	786	1265	781	1258	777	1251	712	1146	712	1146	
		F		4.4 -0.8R	4.8 -0.9R	5 -0.9R	5.3 -1R	5.5 -1R	5.5 -1R	5.5 -1R	5.7 -1R													
	24"	q_a	q_f	1013	1631	959	1545	811	1305	800	1288	700	1127	704	1133	631	1016	640	1031	585	942	585	942	
		F		4.7 -1R	5.1 -1.1R	5.4 -1.2R	5.8 -1.2R	6 -1.2R	6 -1.2R	6 -1.2R	6.3 -1.3R	6.3 -1.3R												
	18 ga	4"	q_a	q_f	1667	2684	1615	2601	1579	2543	1552	2499	1532	2466	1515	2440	1502	2418	1281	2050	1077	1723	1077	1723
			F		3.7 -0.2R	3.8 -0.2R	3.8 -0.2R	3.9 -0.2R	3.9 -0.2R	3.9 -0.2R	3.9 -0.2R	3.9 -0.1R	4 -0.1R	4 -0.1R	4 -0.1R									
		6"	q_a	q_f	1385	2230	1316	2118	1267	2040	1231	1983	1204	1939	1182	1904	1165	1875	1150	1852	1077	1723	1077	1723
			F		4.1 -0.4R	4.2 -0.3R	4.3 -0.3R	4.4 -0.3R	4.4 -0.3R	4.4 -0.3R	4.4 -0.3R	4.5 -0.3R	4.5 -0.3R											
		8"	q_a	q_f	1210	1948	1170	1884	1076	1732	1065	1715	1005	1617	1004	1616	960	1546	964	1552	930	1498	930	1498
			F		4.4 -0.5R	4.5 -0.5R	4.7 -0.5R	4.8 -0.5R	4.8 -0.5R	4.8 -0.5R	4.9 -0.4R	4.9 -0.4R	4.9 -0.4R											
	12"	q_a	q_f	1012	1629	922	1485	861	1386	816	1314	782	1258	755	1215	733	1180	715	1151	700	1127	700	1127	
		F		4.8 -0.7R	5.1 -0.7R	5.3 -0.7R	5.5 -0.7R	5.5 -0.7R	5.5 -0.7R	5.6 -0.7R	5.6 -0.7R	5.6 -0.7R	5.6 -0.7R	5.6 -0.7R	5.6 -0.7R	5.6 -0.7R	5.6 -0.7R	5.6 -0.7R	5.6 -0.7R	5.6 -0.7R	5.6 -0.7R	5.6 -0.7R	5.6 -0.7R	
	18"	q_a	q_f	903	1629	832	1340	705	1135	680	1095	662	1066	588	946	581	935	576	928	528	850	528	850	
		F		5.2 -0.9R	5.6 -1R	5.9 -1R	6.2 -1.1R	6.4 -1.1R	6.4 -1.1R	6.4 -1.1R	6.6 -1.1R													
	24"	q_a	q_f	789	1271	739	1190	621	1001	607	977	528	851	527	849	473	761	478	769	438	705	438	705	
		F		5.5 -1.1R	6 -1.2R	6.4 -1.3R	6.7 -1.4R	7 -1.4R	7 -1.4R	7 -1.4R	7.3 -1.4R	7.3 -1.4R	7.3 -1.4R	7.3 -1.4R	7.3 -1.4R	7.3 -1.4R	7.3 -1.4R	7.3 -1.4R	7.3 -1.4R	7.3 -1.4R	7.3 -1.4R	7.3 -1.4R	7.3 -1.4R	
20 ga	4"	q_a	q_f	1183	1904	1138	1832	1107	1782	1084	1744	1066	1716	1052	1693	1025	1640	847	1355	712	1139	712	1139	
		F		4.8 -0.3R	4.8 -0.2R	4.9 -0.2R	4.9 -0.2R	5 -0.2R	5 -0.2R	5 -0.2R	5 -0.2R	5 -0.2R	5 -0.2R	5 -0.2R	5 -0.2R	5 -0.2R	5 -0.2R	5 -0.2R	5 -0.2R	5 -0.2R	5 -0.2R	5 -0.2R	5 -0.2R	
	6"	q_a	q_f	979	1576	922	1484	882	1420	853	1373	830	1337	813	1309	798	1285	787	1266	712	1139	712	1139	
		F		5.2 -0.4R	5.3 -0.4R	5.4 -0.4R	5.5 -0.4R	5.5 -0.4R	5.5 -0.4R	5.5 -0.3R	5.6 -0.3R													
	8"	q_a	q_f	857	1380	820	1321	750	1207	738	1187	693	1115	689	1110	658	1059	658	1059	634	1020	634	1020	
		F		5.5 -0.6R	5.7 -0.6R	5.9 -0.5R	6 -0.5R	6 -0.5R	6.1 -0.5R	6.1 -0.5R	6.1 -0.5R	6.1 -0.5R	6.1 -0.5R	6.1 -0.5R	6.1 -0.5R	6.1 -0.5R	6.1 -0.5R	6.1 -0.5R	6.1 -0.5R	6.1 -0.5R	6.1 -0.5R	6.1 -0.5R	6.1 -0.5R	
12"	q_a	q_f	722	1163	652	1050	604	973	569	916	542	873	521	839	504	812	490	789	479	771	479	771		
	F		6 -0.8R	6.3 -0.8R	6.6 -0.8R	6.8 -0.8R	6.8 -0.8R	6.8 -0.8R	6.9 -0.8R	6.9 -0.8R	6.9 -0.8R	6.9 -0.8R	6.9 -0.8R	6.9 -0.8R	6.9 -0.8R	6.9 -0.8R	6.9 -0.8R	6.9 -0.8R	6.9 -0.8R	6.9 -0.8R	6.9 -0.8R	6.9 -0.8R		
18"	q_a	q_f	650	1163	592	954	499	804	475	766	458	737	405	652	399	643	395	636	362	583	362	583		
	F		6.5 -1.1R	6.9 -1.2R	7.3 -1.2R	7.6 -1.2R	7.9 -1.3R	7.9 -1.3R	7.9 -1.3R	8.1 -1.3R	8.1 -1.3R	8.1 -1.3R	8.1 -1.3R	8.1 -1.3R	8.1 -1.3R	8.1 -1.3R	8.1 -1.3R	8.1 -1.3R	8.1 -1.3R	8.1 -1.3R	8.1 -1.3R	8.1 -1.3R		
24"	q_a	q_f	574	925	530	854	441	709	425	685	370	595	366	589	329	530	331	533	303	489	303	489		
	F		6.8 -1.3R	7.3 -1.4R	7.8 -1.5R	8.2 -1.6R	8.6 -1.6R	8.6 -1.6R	8.6 -1.6R	8.9 -1.6R	8.9 -1.6R	8.9 -1.6R	8.9 -1.6R	8.9 -1.6R	8.9 -1.6R	8.9 -1.6R	8.9 -1.6R	8.9 -1.6R	8.9 -1.6R	8.9 -1.6R	8.9 -1.6R	8.9 -1.6R		
22 ga	4"	q_a	q_f	948	1526	907	1461	879	1416	859	1382	843	1357	830	1336	779	1247	644	1031	541	866	541	866	
		F		5.6 -0.3R	5.7 -0.3R	5.7 -0.2R	5.8 -0.2R	5.8 -0.2R	5.8 -0.2R	5.8 -0.2R	5.8 -0.2R	5.8 -0.2R	5.8 -0.2R	5.8 -0.2R	5.8 -0.2R	5.8 -0.2R	5.8 -0.2R	5.8 -0.2R	5.8 -0.2R	5.8 -0.2R	5.8 -0.2R	5.8 -0.2R	5.8 -0.2R	
	6"	q_a	q_f	784	1262	734	1182	699	1126	674	1085	654	1053	639	1029	626	1009	616	992	541	866	541	866	
		F		6 -0.5R	6.2 -0.4R	6.3 -0.4R	6.4 -0.4R	6.4 -0.4R	6.4 -0.4R	6.4 -0.4R	6.5 -0.4R													
	8"	q_a	q_f	688	1108	654	1053	595	959	583	939	546	880	542	873	516	831	516	830	496	798	496	798	
		F		6.4 -0.6R	6.6 -0.6R	6.8 -0.6R	6.9 -0.6R	6.9 -0.6R	6.9 -0.6R	7 -0.6R	7 -0.6R	7.1 -0.5R	7.1 -0.5R											
12"	q_a	q_f	583	939	524	843	483	777	453	729	428	690	410	660	396	637	384	618	374	603	374	603		
	F		6.9 -0.9R	7.3 -0.9R	7.5 -0.9R	7.8 -0.9R	7.8 -0.9R	7.8 -0.9R	7.9 -0.9R	7.9 -0.9R	8.1 -0.9R													
18"	q_a	q_f	527	939	477	768	399	642	377	608	362	582	321	516	315	508	311	501	285	459	285	459		
	F		7.5 -1.2R	8 -1.3R	8.4 -1.3R	8.7 -1.4R	9 -1.4R	9 -1.4R	9 -1.4R	9.2 -1.4R	9.2 -1.4R	9.2 -1.4R	9.2 -1.4R	9.2 -1.4R	9.2 -1.4R	9.2 -1.4R	9.2 -1.4R	9.2 -1.4R	9.2 -1.4R	9.2 -1.4R	9.2 -1.4R	9.2 -1.4R		
24"	q_a	q_f	469	756	428	689	354	570	339	546	295	474	291	469	262	422	262	423	241	387	241	387		
	F		7.8 -1.4R	8.4 -1.5R	8.9 -1.6R	9.4 -1.7R	9.8 -1.8R	9.8 -1.8R	9.8 -1.8R	10.1 -1.8R														

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Support Attachment: Hilti X-ENP-19 PAF

Side Seam Attachment: #10 SD HWH Screw

Hilti X-ENP-19 Fasteners to Supports with No. 10 Screws Side Seam Attachment Diaphragm Shear in pounds per linear foot (plf)



HILTI



B PANELS

Support Fastener Pattern	Gage	Seam Attach. Spacing	Allowable Shear (q_a) (plf), Factored Shear (q_f) (plf), and Flexibility Factor (F) (10^6 in/lbs)																			
			Span →	4' - 0"		5' - 0"		6' - 0"		7' - 0"		8' - 0"		9' - 0"		10' - 0"		11' - 0"		12' - 0"		
36/9	16 ga	4"	q_a	q_f	2617	4213	2510	4041	2433	3917	2376	3826	2332	3754	2297	3698	2134	3414	1763	2821	1482	2371
			F		3 -0.2R		3 -0.2R		3.1 -0.2R		3.1 -0.2R		3.2 -0.1R									
		6"	q_a	q_f	2220	3575	2081	3351	1983	3192	1909	3074	1853	2983	1808	2911	1772	2852	1741	2803	1482	2371
			F		3.2 -0.3R		3.3 -0.3R		3.4 -0.3R		3.5 -0.3R		3.5 -0.3R		3.6 -0.3R		3.6 -0.3R		3.6 -0.3R		3.7 -0.3R	
		8"	q_a	q_f	1981	3189	1878	3023	1714	2759	1673	2694	1569	2526	1553	2500	1479	2381	1474	2373	1417	2282
			F		3.4 -0.4R		3.6 -0.4R		3.7 -0.4R		3.8 -0.4R		3.9 -0.4R		3.9 -0.4R		3.9 -0.4R		4 -0.4R		4.1 -0.4R	
	12"	q_a	q_f	1711	2755	1537	2475	1415	2278	1325	2133	1256	2023	1202	1935	1158	1864	1119	1802	1086	1749	
		F		3.6 -0.6R		3.9 -0.6R		4.1 -0.6R		4.2 -0.6R		4.4 -0.6R		4.5 -0.7R		4.6 -0.7R		4.7 -0.6R		4.7 -0.6R		4.8 -0.6R
	18"	q_a	q_f	1566	2755	1414	2277	1200	1932	1137	1831	1084	1745	958	1543	933	1503	913	1470	834	1343	
		F		3.9 -0.7R		4.2 -0.8R		4.4 -0.8R		4.7 -0.9R		4.9 -0.9R		5.1 -0.9R		5.2 -1R		5.4 -1R		5.4 -1R		5.5 -1R
	24"	q_a	q_f	1413	2274	1287	2071	1082	1743	1029	1657	895	1440	874	1407	782	1259	775	1249	708	1140	
		F		4 -0.8R		4.4 -0.9R		4.7 -1R		5 -1.1R		5.2 -1.1R		5.5 -1.2R		5.7 -1.2R		5.9 -1.2R		6 -1.3R		6 -1.3R
36/9	18 ga	4"	q_a	q_f	2015	3244	1920	3091	1852	2981	1801	2900	1762	2837	1731	2787	1550	2481	1281	2050	1077	1723
			F		3.6 -0.2R		3.7 -0.2R		3.7 -0.2R		3.8 -0.2R		3.8 -0.2R		3.8 -0.2R		3.9 -0.2R		3.9 -0.2R		3.9 -0.2R	
		6"	q_a	q_f	1709	2752	1590	2560	1506	2424	1443	2324	1395	2246	1357	2185	1326	2135	1281	2050	1077	1723
			F		3.9 -0.4R		4 -0.4R		4.1 -0.4R		4.2 -0.3R		4.2 -0.3R		4.3 -0.3R		4.3 -0.3R		4.4 -0.3R		4.4 -0.3R	
		8"	q_a	q_f	1529	2462	1438	2315	1305	2101	1267	2040	1184	1906	1167	1879	1108	1785	1101	1773	1057	1702
			F		4.1 -0.5R		4.2 -0.5R		4.4 -0.5R		4.5 -0.5R		4.6 -0.5R		4.7 -0.5R		4.7 -0.5R		4.8 -0.4R		4.8 -0.4R	
	12"	q_a	q_f	1331	2143	1186	1910	1085	1748	1011	1628	954	1536	904	1455	863	1390	832	1339	808	1300	
		F		4.4 -0.6R		4.6 -0.7R		4.8 -0.7R		5 -0.7R		5.1 -0.7R		5.3 -0.7R		5.4 -0.7R		5.5 -0.7R		5.6 -0.7R		5.6 -0.7R
	18"	q_a	q_f	1224	2143	1097	1766	926	1491	865	1392	819	1319	723	1165	701	1128	684	1102	627	1010	
		F		4.6 -0.8R		4.9 -0.9R		5.2 -0.9R		5.5 -1R		5.7 -1R		5.9 -1R		6.1 -1.1R		6.3 -1.1R		6.4 -1.1R		6.4 -1.1R
	24"	q_a	q_f	1114	1793	1004	1617	836	1346	788	1268	684	1101	663	1068	593	954	586	944	537	865	
		F		4.8 -0.9R		5.2 -1R		5.5 -1.1R		5.8 -1.2R		6.1 -1.2R		6.4 -1.3R		6.6 -1.3R		6.8 -1.4R		7 -1.4R		7 -1.4R
36/9	20 ga	4"	q_a	q_f	1438	2316	1358	2187	1301	2095	1259	2027	1226	1974	1200	1933	1025	1640	847	1355	712	1139
			F		4.6 -0.3R		4.7 -0.3R		4.8 -0.3R		4.8 -0.2R		4.8 -0.2R		4.9 -0.2R		4.9 -0.2R		4.9 -0.2R		5 -0.2R	
		6"	q_a	q_f	1223	1969	1127	1814	1059	1705	1009	1624	970	1562	939	1513	915	1473	847	1355	712	1139
			F		4.9 -0.4R		5.1 -0.4R		5.2 -0.4R		5.3 -0.4R		5.4 -0.4R		5.4 -0.4R		5.5 -0.4R		5.5 -0.3R		5.5 -0.3R	
		8"	q_a	q_f	1100	1770	1022	1646	922	1484	889	1431	826	1331	810	1305	767	1235	759	1222	712	1139
			F		5.2 -0.5R		5.4 -0.6R		5.5 -0.6R		5.7 -0.6R		5.8 -0.6R		5.9 -0.5R		5.9 -0.5R		6 -0.5R		6 -0.5R	
	12"	q_a	q_f	966	1555	853	1374	775	1248	711	1145	661	1065	623	1003	595	959	573	923	555	893	
		F		5.5 -0.7R		5.8 -0.8R		6 -0.8R		6.2 -0.8R		6.4 -0.8R		6.6 -0.8R		6.7 -0.8R		6.8 -0.8R		6.9 -0.8R		6.9 -0.8R
	18"	q_a	q_f	895	1555	794	1278	660	1062	610	983	573	923	506	814	490	789	477	769	438	705	
		F		5.8 -0.9R		6.2 -1R		6.5 -1.1R		6.8 -1.1R		7.1 -1.2R		7.3 -1.2R		7.5 -1.2R		7.7 -1.2R		7.9 -1.3R		7.9 -1.3R
	24"	q_a	q_f	822	1323	729	1173	601	968	560	902	485	782	467	751	420	675	413	666	379	610	
		F		5.9 -1R		6.4 -1.1R		6.8 -1.3R		7.2 -1.4R		7.5 -1.4R		7.8 -1.5R		8.1 -1.5R		8.3 -1.6R		8.6 -1.6R		8.6 -1.6R
36/9	22 ga	4"	q_a	q_f	1158	1865	1088	1751	1037	1670	1000	1610	971	1564	948	1527	779	1247	644	1031	541	866
			F		5.4 -0.3R		5.5 -0.3R		5.6 -0.3R		5.6 -0.3R		5.7 -0.2R		5.7 -0.2R		5.7 -0.2R		5.8 -0.2R		5.8 -0.2R	
		6"	q_a	q_f	987	1590	904	1456	846	1361	802	1292	769	1238	743	1196	721	1162	644	1031	541	866
			F		5.8 -0.5R		5.9 -0.5R		6 -0.5R		6.1 -0.4R		6.2 -0.4R		6.3 -0.4R		6.3 -0.4R		6.4 -0.4R		6.4 -0.4R	
		8"	q_a	q_f	891	1435	823	1325	739	1190	709	1141	658	1059	643	1034	605	975	599	964	541	866
			F		6 -0.6R		6.2 -0.6R		6.4 -0.6R		6.6 -0.6R		6.7 -0.6R		6.8 -0.6R		6.9 -0.6R		6.9 -0.6R		7 -0.6R	
	12"	q_a	q_f	788	1268	692	1114	621	999	565	910	524	844	494	796	472	759	453	729	438	705	
		F		6.4 -0.8R		6.7 -0.8R		7 -0.9R		7.2 -0.9R		7.4 -0.9R		7.5 -0.9R		7.7 -0.9R		7.8 -0.9R		7.9 -0.9R		7.9 -0.9R
	18"	q_a	q_f	733	1268	645	1038	532	856	489	787	457	736	405	652	391	630	380	612	348	561	
		F		6.7 -1R		7.1 -1.1R		7.5 -1.2R		7.8 -1.2R		8.1 -1.3R		8.4 -1.3R		8.6 -1.4R		8.8 -1.4R		9 -1.4R		9 -1.4R
	24"	q_a	q_f	677	1090	591	952	487	784	451	726	390	628	375	604	338	544	331	534	304	489	
		F		6.9 -1.1R		7.4 -1.3R		7.8 -1.4R		8.2 -1.5R		8.6 -1.6R		8.9 -1.6R		9.2 -1.7R		9.5 -1.7R		9.8 -1.8R		9.8 -1.8R