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TECHNICAL NOTE

Load-Span Tables for APA Wood Structural Panels

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Load-span tables for specific wood structural panel applications are included in several APA publications. Recommended loads for sheathing and flooring applications in these publications directly reflect minimum performance criteria given in APA PRP-108, *Performance Standards and Qualification Policy for Wood Structural Panels*, Form E445; Voluntary Product Standard PS 2-18, *Performance Standard for Wood Structural Panels,* Form S350; and Voluntary Product Standard PS 1-22, *Structural Plywood*, Form L870. To qualify for a given span rating under the standards, a panel must meet all of the criteria for that rating. As a result, mechanical properties that are characteristic of APA wood structural panels are actually greater than the minimum necessary to pass one criterion.

Because it is sometimes necessary to have engineering design information for wood structural panels for conditions not specifically covered in the other APA literature, APA publishes separate design capacities for various span ratings. These values are listed in APA's *Panel Design Specification*, Form D510. The uniform loads in the following tables were calculated using these design capacities. These loads are recommended when engineering principles are used for design. It is important to remember that structural engineering principles alone do not necessarily take into account other factors, such as moisture and thermal conditions, that may impact design.

The following load-span tables apply to APA trademarked wood structural panels qualified and manufactured in accordance with APA PRP-108, PS 2 and PS 1. These panels include unsanded, touch-sanded and sanded plywood and oriented strand board (OSB). Loads are provided for applications where the panel strength axis is applied across supports and applied parallel to supports. For each table, loads are given for deflections of L/360, L/240 and L/180 and maximum loads controlled by bending and shear capacity.

Table 1a applies to APA Rated Plywood Sheathing. Table 1b applies to APA Rated Plywood Structural I Sheathing. Table 1c applies to APA Rated Plywood Sturd-I-Floor®. Table 1d applies to APA Rated Plywood Structural I Sturd-I-Floor. Tables 2a through 2d apply to APA Rated OSB Sheathing, APA Rated OSB Structural I Sheathing, APA Rated OSB Sturd-I-Floor and APA Rated OSB Structural I Sturd-I-Floor, respectively. For sanded plywood panels, see Table 3.

The values given in Tables 1 and 2 represent the maximum allowable loads for plywood or OSB. In some cases, load capacities of Rated Sheathing and Rated Sturd-I-Floor may be increased by application of the formulas found in *Panel Design Specification*. The values in Tables 1 and 2 are generated assuming dry conditions, normal load duration and untreated, Exposure 1, wood structural panels. Table 3 capacities may be adjusted for panel type using Table 4. For special application conditions for Tables 1, 2 and 3, use the factors listed in Table 5, Application Adjustment Factors. Table 6, Typical APA Panel Constructions, is provided to assist in selecting panel constructions for specific span ratings. See the examples for proper use of panel application adjustment factors.

For plywood, design pressures were calculated based on the most conservative properties obtained from the APA Panel Design Specification among the permissible plywood constructions listed in Table 6 for each span rating. If panel construction is known, higher pressures can be calculated following the design procedures in *Panel Design Specification*.

For strength axis across supports, and spans of 32 inches and less, three spans are assumed. Two spans are assumed for spans greater than 32 inches. For strength axis parallel to supports, tables are based on three spans for spans of 16 inches or less and two spans for 24 inches. The tables do not apply directly to panels having a single span. For one-span conditions, use the adjustment factors from Table 5.

Effects of support width have been considered when determining the loads based on shear and deflection. Supports are assumed to be 2x nominal members for spans less than 48 inches and 4x members for 48-inch and greater spans. Support-width factors are those published in the *Panel Design Specification*.

It is important to note that some wood structural panel applications are not controlled by uniform loads. Residential floors are a good example. They are commonly designed for 40 psf live loads. The allowable uniform floor load on panels applied at maximum span according to APA recommendations is greatly in excess of the typical design loads. This excess does not mean that floor spans for wood structural panels can be increased, but only that there is considerable reserve strength and stiffness for uniform loads. The recommendations for panel floors are based on performance under concentrated loads, how the floor "feels" to passing foot traffic and other subjective factors that relate to public acceptance. Always check the maximum floor and roof spans for wood structural panels before making a final panel selection for these applications.

TABLE 1a

UNIFORM LOADS (PSF) ON APA RATED PLYWOOD SHEATHING.
MULTI-SPAN, NORMAL DURATION OF LOAD, DRY CONDITIONS, PANELS 24 INCHES OR WIDER

Span Rating[b]	Load Governed By[c]	Strength Axis[a]: Perpendicular to Supports Span Center-to-Center of Supports (inches) 12	16	19.2	24	30	32	36	40	48	60	Parallel to Supports Span Center-to-Center of Supports (inches) 12	16	24
24/0	L/360	287	108	59	29	14	11	10				16		
	L/240	431	162	89	43	21	17	15				23		
	L/180	574	216	118	57	28	23	20				31		
	Bending	208	117	81	52	33	29	19				45		
	Shear	295	214	175	138	109	102	86				524		
32/16	L/360	544	205	112	54	27	22	19	14			35	13	
	L/240	816	307	168	81	40	32	29	21			53	20	
	L/180	1,088	409	224	108	53	43	38	27			70	27	
	Bending	308	173	120	77	49	43	27	22			77	43	
	Shear	381	276	226	178	140	131	111	100			314	228	
40/20	L/360	1,088	409	224	108	53	43	38	27	18		78	29	10
	L/240	1,631	614	336	163	80	65	57	41	27		117	44	15
	L/180	2,175	818	448	217	106	87	76	55	36		157	59	20
	Bending	521	293	203	130	83	73	46	38	26		125	70	25
	Shear	467	338	277	218	172	161	136	122	106		390	283	175
48/24	L/360	1,914	720	394	191	94	76	67	48	31	15	283	106	36
	L/240	2,871	1,080	591	286	140	114	100	72	47	23	424	160	54
	L/180	3,828	1,440	788	382	187	152	134	96	63	31	566	213	72
	Bending	775	436	303	194	124	109	69	56	39	25	225	127	45
	Shear	571	414	339	267	211	197	167	150	129	102	476	345	213

a. The strength axis is the long panel dimension unless otherwise identified.

b. Nominal thickness may vary within span rating. For range of thicknesses, see Table 5 of APA's *Panel Design Specification*, Form D510.

c. Tabulated values are based on the most conservative plywood construction, as shown in Table 6. Some capacities may be increased by application of formulas in *Panel Design Specification*, Form D510.

TABLE 1b

UNIFORM LOADS (PSF) ON APA RATED PLYWOOD STRUCTURAL I SHEATHING. MULTI-SPAN, NORMAL DURATION OF LOAD, DRY CONDITIONS, PANELS 24 INCHES OR WIDER

Span Rating[b]	Load Governed By[c]	Strength Axis[a]: Perpendicular to Supports Span Center-to-Center of Supports (inches) 12	16	19.2	24	30	32	36	40	48	60	Parallel to Supports Span Center-to-Center of Supports (inches) 12	16	24
24/0	L/360	287	108	59	29	14	11	10				23		
	L/240	431	162	89	43	21	17	15				35		
	L/180	574	216	118	57	28	23	20				47		
	Bending	208	117	81	52	33	29	19				59		
	Shear	413	299	245	193	152	142	121				733		
32/16	L/360	544	205	112	54	27	22	19	14			117	44	15
	L/240	816	307	168	81	40	32	29	21			176	66	22
	L/180	1,088	409	224	108	53	43	38	27			235	88	30
	Bending	338	190	132	84	54	47	30	24			128	72	26
	Shear	533	386	316	249	196	184	156	140			314	228	141
40/20	L/360	1,088	409	224	108	53	43	38	27	18		390	147	50
	L/240	1,631	614	336	163	80	65	57	41	27		585	220	74
	L/180	2,175	818	448	217	106	87	76	55	36		780	293	99
	Bending	625	352	244	156	100	88	56	45	31		338	190	68
	Shear	707	512	419	330	260	243	206	185	160		390	283	175
48/24	L/360	1,914	720	394	191	94	76	67	48	31	15	637	240	81
	L/240	2,871	1,080	591	286	140	114	100	72	47	23	955	359	121
	L/180	3,828	1,440	788	382	187	152	134	96	63	31	1,274	479	162
	Bending	833	469	326	208	133	117	74	60	42	27	506	285	101
	Shear	867	628	514	404	319	298	253	227	196	155	476	345	213

a. The strength axis is the long panel dimension unless otherwise identified.

b. Nominal thickness may vary within span rating. For range of thicknesses, see Table 5 of APA's *Panel Design Specification,* Form D510.

c. Tabulated values are based on the most conservative plywood construction, as shown in Table 6. Some capacities may be increased by application of formulas in *Panel Design Specification*, Form D510.

TABLE 1c

UNIFORM LOADS (PSF) ON APA RATED PLYWOOD STURD-I-FLOOR. MULTI-SPAN, NORMAL DURATION OF LOAD, DRY CONDITIONS, PANELS 24 INCHES OR WIDER

Span Rating[b]	Load Governed By[c]	Strength Axis[a]: Perpendicular to Supports Span Center-to-Center of Supports (inches) 12	16	19.2	24	30	32	36	40	48	60	Parallel to Supports Span Center-to-Center of Supports (inches) 12	16	24
	L/360	1,001	376	206	100	49	40	35	25	16		124	47	16
	L/240	1,501	565	309	150	73	60	53	38	25		186	70	24
20 o.c.	L/180	2,001	753	412	200	98	80	70	50	33		248	93	31
	Bending	442	248	173	110	71	62	39	32	22		142	80	28
	Shear	467	338	277	218	172	161	136	122	106		390	283	175
	L/360	1,436	540	295	143	70	57	50	36	24	11	248	93	31
	L/240	2,154	810	443	215	105	86	75	54	35	17	372	140	47
24 o.c.	L/180	2,871	1,080	591	286	140	114	100	72	47	23	496	187	63
	Bending	588	330	229	147	94	83	52	42	29	19	217	122	43
	Shear	571	414	339	267	211	197	167	150	129	102	476	345	213
	L/360	3,111	1,170	640	310	152	124	109	78	51	25	1,022	385	130
	L/240	4,666	1,755	960	465	228	186	163	117	77	37	1,534	577	195
32 o.c.	L/180	6,221	2,340	1,280	620	304	248	218	156	102	50	2,045	769	260
	Bending	875	492	342	219	140	123	78	63	44	28	571	321	114
	Shear	743	538	441	347	274	256	217	194	168	133	571	414	256
	L/360	5,503	2,070	1,133	549	269	219	193	138	90	44	2,154	810	273
	L/240	8,255	3,105	1,699	823	403	329	289	208	135	66	3,230	1,215	410
48 o.c.	L/180	11,007	4,141	2,265	1,097	538	438	385	277	181	88	4,307	1,620	547
	Bending	1,583	891	618	396	253	223	141	114	79	51	1,000	563	200
	Shear	952	690	565	444	351	328	278	249	216	170	733	531	329

a. The strength axis is the long panel dimension unless otherwise identified.

b. Nominal thickness may vary within span rating. For range of thicknesses, see Table 5 of APA's *Panel Design Specification*, Form D510.

c. Tabulated values are based on the most conservative plywood construction, as shown in Table 6. Some capacities may be increased by application of formulas in *Panel Design Specification*, Form D510.

TABLE 1d

UNIFORM LOADS (PSF) ON APA RATED PLYWOOD STRUCTURAL I STURD-I-FLOOR. MULTI-SPAN, NORMAL DURATION OF LOAD, DRY CONDITIONS, PANELS 24 INCHES OR WIDER

Span Rating[b]	Load Governed By[c]	Strength Axis[a]: Perpendicular to Supports Span Center-to-Center of Supports (inches) 12	16	19.2	24	30	32	36	40	48	60	Parallel to Supports Span Center-to-Center of Supports (inches) 12	16	24
20 o.c.	L/360	1,001	376	206	100	49	40	35	25	16		282	106	36
	L/240	1,501	565	309	150	73	60	53	38	25		423	159	54
	L/180	2,001	753	412	200	98	80	70	50	33		564	212	72
	Bending	479	270	187	120	77	67	43	35	24		313	176	63
	Shear	707	512	419	330	260	243	206	185	160		390	283	175
24 o.c.	L/360	1,436	540	295	143	70	57	50	36	24	11	560	211	71
	L/240	2,154	810	443	215	105	86	75	54	35	17	841	316	107
	L/180	2,871	1,080	591	286	140	114	100	72	47	23	1,121	422	142
	Bending	642	361	251	160	103	90	57	46	32	21	481	271	96
	Shear	867	628	514	404	319	298	253	227	196	155	476	345	213
32 o.c.	L/360	3,111	1,170	640	310	152	124	109	78	51	25	1,636	615	208
	L/240	4,666	1,755	960	465	228	186	163	117	77	37	2,454	923	312
	L/180	6,221	2,340	1,280	620	304	248	218	156	102	50	3,272	1,231	415
	Bending	875	492	342	219	140	123	78	63	44	28	856	482	171
	Shear	1,040	753	617	485	383	358	304	272	236	186	571	414	256
48 o.c.	L/360	5,503	2,070	1,133	549	269	219	193	138	90	44	3,446	1,296	438
	L/240	8,255	3,105	1,699	823	403	329	289	208	135	66	5,168	1,944	656
	L/180	11,007	4,141	2,265	1,097	538	438	385	277	181	88	6,891	2,592	875
	Bending	1,583	891	618	396	253	223	141	114	79	51	1,500	844	300
	Shear	1,333	966	791	622	491	459	390	349	302	238	733	531	329

a. The strength axis is the long panel dimension unless otherwise identified.

b. Nominal thickness may vary within span rating. For range of thicknesses, see Table 5 of APA's *Panel Design Specification,* Form D510.

c. Tabulated values are based on the most conservative plywood construction, as shown in Table 6. Some capacities may be increased by application of formulas in *Panel Design Specification*, Form D510.

TABLE 2a

UNIFORM LOADS (PSF) ON APA RATED OSB SHEATHING.
MULTI-SPAN, NORMAL DURATION OF LOAD, DRY CONDITIONS, PANELS 24 INCHES OR WIDER

Span Rating[b]	Load Governed By[c]	Strength Axis[a]: Perpendicular to Supports Span Center-to-Center of Supports (inches) 12	16	19.2	24	30	32	36	40	48	60	Parallel to Supports Span Center-to-Center of Supports (inches) 12	16	24
W24[d]	L/360[e]	226	85	47	23							48	18	
	L/240[e]	339	128	70	34							72	27	
	L/180[e]	452	170	93	45							96	36	
	Bending	250	141	98	63							81	45	
	Shear	248	179	147	116							248	179	
24/0	L/360[e]	261	98	54	26	13	10					48	18	
	L/240[e]	392	147	81	39	19	16					72	27	
	L/180[e]	522	196	107	52	26	21					96	36	
	Bending	250	141	98	63	40	35					81	45	
	Shear	248	179	147	116	91	85					248	179	
24/16	L/360[e]	339	128	70	34	17	14	12				70	26	
	L/240[e]	509	191	105	51	25	20	18				104	39	
	L/180[e]	679	255	140	68	33	27	24				139	52	
	Bending	321	180	125	80	51	45	29				96	54	
	Shear	286	207	169	133	105	98	83				286	207	
32/16	L/360[e]	500	188	103	50	24	20	18	13			109	41	14
	L/240[e]	750	282	154	75	37	30	26	19			163	61	21
	L/180[e]	1,001	376	206	100	49	40	35	25			218	82	28
	Bending	371	209	145	93	59	52	33	27			138	77	28
	Shear	314	228	186	147	116	108	92	82			314	228	141
40/20	L/360[e]	870	327	179	87	43	35	30	22	14		244	92	31
	L/240[e]	1,305	491	269	130	64	52	46	33	21		365	137	46
	L/180[e]	1,740	655	358	174	85	69	61	44	29		487	183	62
	Bending	625	352	244	156	100	88	56	45	31		225	127	45
	Shear	390	283	232	182	144	134	114	102	88		390	283	175
48/24	L/360[e]	1,523	573	313	152	74	61	53	38	25	12	398	150	51
	L/240[e]	2,284	859	470	228	112	91	80	57	37	18	597	225	76
	L/180[e]	3,045	1,146	627	304	149	121	107	77	50	24	796	300	101
	Bending	833	469	326	208	133	117	74	60	42	27	338	190	68
	Shear	476	345	282	222	175	164	139	125	108	85	476	345	213

a. The strength axis is the long panel dimension unless otherwise identified.

b. Nominal thickness may vary within span rating. For range of thicknesses, see Table 5 of APA's *Panel Design Specification*, Form D510.

c. Some capacities may be increased by application of formulas in *Panel Design Specification*, Form D510.

d. W24 is not recommended for roof and floor applications.

e. The wall sheathing deflection is not a code requirement.

TABLE 2b

UNIFORM LOADS (PSF) ON APA RATED OSB STRUCTURAL I SHEATHING.
MULTI-SPAN, NORMAL DURATION OF LOAD, DRY CONDITIONS, PANELS 24 INCHES OR WIDER

Span Rating[b]	Load Governed By[c]	Strength Axis[a]: Perpendicular to Supports Span Center-to-Center of Supports (inches) 12	16	19.2	24	30	32	36	40	48	60	Parallel to Supports Span Center-to-Center of Supports (inches) 12	16	24
	L/360	261	98	54	26	13	10					77	29	10
	L/240	392	147	81	39	19	16					115	43	15
24/0	L/180	522	196	107	52	26	21					153	58	19
	Bending	250	141	98	63	40	35					121	68	24
	Shear	248	179	147	116	91	85					248	179	111
	L/360	339	128	70	34	17	14	12				111	42	14
	L/240	509	191	105	51	25	20	18				167	63	21
24/16	L/180	679	255	140	68	33	27	24				223	84	28
	Bending	321	180	125	80	51	45	29				144	81	29
	Shear	286	207	169	133	105	98	83				286	207	128
	L/360	500	188	103	50	24	20	18	13			174	65	22
	L/240	750	282	154	75	37	30	26	19			261	98	33
32/16	L/180	1,001	376	206	100	49	40	35	25			348	131	44
	Bending	371	209	145	93	59	52	33	27			206	116	41
	Shear	314	228	186	147	116	108	92	82			314	228	141
	L/360	870	327	179	87	43	35	30	22	14		390	147	50
	L/240	1,305	491	269	130	64	52	46	33	21		585	220	74
40/20	L/180	1,740	655	358	174	85	69	61	44	29		780	293	99
	Bending	625	352	244	156	100	88	56	45	31		338	190	68
	Shear	390	283	232	182	144	134	114	102	88		390	283	175
	L/360	1,523	573	313	152	74	61	53	38	25	12	637	240	81
	L/240	2,284	859	470	228	112	91	80	57	37	18	955	359	121
48/24	L/180	3,045	1,146	627	304	149	121	107	77	50	24	1,274	479	162
	Bending	833	469	326	208	133	117	74	60	42	27	506	285	101
	Shear	476	345	282	222	175	164	139	125	108	85	476	345	213

a. The strength axis is the long panel dimension unless otherwise identified.

b. Nominal thickness may vary within span rating. For range of thicknesses, see Table 5 of APA's *Panel Design Specification*, Form D510.

c. Some capacities may be increased by application of formulas in *Panel Design Specification*, Form D510.

TABLE 2c

UNIFORM LOADS (PSF) ON APA RATED OSB STURD-I-FLOOR.
MULTI-SPAN, NORMAL DURATION OF LOAD, DRY CONDITIONS, PANELS 24 INCHES OR WIDER

Span Rating[b]	Load Governed By[c]	Strength Axis[a]: Perpendicular to Supports Span Center-to-Center of Supports (inches) 12	16	19.2	24	30	32	36	40	48	60	Parallel to Supports Span Center-to-Center of Supports (inches) 12	16	24
20 o.c.	L/360	848	319	175	85	41	34	30	21	14		176	66	22
	L/240	1,273	479	262	127	62	51	45	32	21		264	99	34
	L/180	1,697	638	349	169	83	68	59	43	28		352	133	45
	Bending	479	270	187	120	77	67	43	35	24		208	117	42
	Shear	390	283	232	182	144	134	114	102	88		390	283	175
24 o.c.	L/360	1,305	491	269	130	64	52	46	33	21	10	350	132	44
	L/240	1,958	736	403	195	96	78	69	49	32	16	525	198	67
	L/180	2,610	982	537	260	128	104	91	66	43	21	700	263	89
	Bending	642	361	251	160	103	90	57	46	32	21	321	180	64
	Shear	476	345	282	222	175	164	139	125	108	85	476	345	213
32 o.c.	L/360	2,828	1,064	582	282	138	113	99	71	46	23	1,022	385	130
	L/240	4,242	1,596	873	423	207	169	148	107	70	34	1,534	577	195
	L/180	5,656	2,128	1,164	564	276	225	198	142	93	45	2,045	769	260
	Bending	875	492	342	219	140	123	78	63	44	28	571	321	114
	Shear	571	414	339	267	211	197	167	150	129	102	571	414	256
48 o.c.	L/360	5,003	1,882	1,030	499	244	199	175	126	82	40	2,154	810	273
	L/240	7,505	2,823	1,545	748	367	299	263	189	123	60	3,230	1,215	410
	L/180	10,006	3,764	2,060	998	489	399	350	252	164	80	4,307	1,620	547
	Bending	1,583	891	618	396	253	223	141	114	79	51	1,000	563	200
	Shear	733	531	435	342	270	252	214	192	166	131	733	531	329

a. The strength axis is the long panel dimension unless otherwise identified.

b. Nominal thickness may vary within span rating. For range of thicknesses, see Table 5 of APA's *Panel Design Specification*, Form D510.

c. Some capacities may be increased by application of formulas in *Panel Design Specification*, Form D510.

TABLE 2d

UNIFORM LOADS (PSF) ON APA RATED OSB STRUCTURAL I RATED STURD-I-FLOOR. MULTI-SPAN, NORMAL DURATION OF LOAD, DRY CONDITIONS, PANELS 24 INCHES OR WIDER

Span Rating[b]	Load Governed By[c]	Strength Axis[a]: Perpendicular to Supports Span Center-to-Center of Supports (inches) 12	16	19.2	24	30	32	36	40	48	60	Parallel to Supports Span Center-to-Center of Supports (inches) 12	16	24
20 o.c.	L/360	848	319	175	85	41	34	30	21	14		282	106	36
	L/240	1,273	479	262	127	62	51	45	32	21		423	159	54
	L/180	1,697	638	349	169	83	68	59	43	28		564	212	72
	Bending	479	270	187	120	77	67	43	35	24		313	176	63
	Shear	390	283	232	182	144	134	114	102	88		390	283	175
24 o.c.	L/360	1,305	491	269	130	64	52	46	33	21	10	560	211	71
	L/240	1,958	736	403	195	96	78	69	49	32	16	841	316	107
	L/180	2,610	982	537	260	128	104	91	66	43	21	1,121	422	142
	Bending	642	361	251	160	103	90	57	46	32	21	481	271	96
	Shear	476	345	282	222	175	164	139	125	108	85	476	345	213
32 o.c.	L/360	2,828	1,064	582	282	138	113	99	71	46	23	1,636	615	208
	L/240	4,242	1,596	873	423	207	169	148	107	70	34	2,454	923	312
	L/180	5,656	2,128	1,164	564	276	225	198	142	93	45	3,272	1,231	415
	Bending	875	492	342	219	140	123	78	63	44	28	856	482	171
	Shear	571	414	339	267	211	197	167	150	129	102	571	414	256
48 o.c.	L/360	5,003	1,882	1,030	499	244	199	175	126	82	40	3,446	1,296	438
	L/240	7,505	2,823	1,545	748	367	299	263	189	123	60	5,168	1,944	656
	L/180	10,006	3,764	2,060	998	489	399	350	252	164	80	6,891	2,592	875
	Bending	1,583	891	618	396	253	223	141	114	79	51	1,500	844	300
	Shear	733	531	435	342	270	252	214	192	166	131	733	531	329

a. The strength axis is the long panel dimension unless otherwise identified.

b. Nominal thickness may vary within span rating. For range of thicknesses, see Table 5 of APA's *Panel Design Specification*, Form D510.

c. Some capacities may be increased by application of formulas in *Panel Design Specification*, Form D510.

TABLE 3

UNIFORM LOADS (PSF) ON GROUP 1 SANDED PLYWOOD PANELS.
MULTI-SPAN, NORMAL DURATION OF LOAD, DRY CONDITIONS, A-A, A-C DESIGN CAPACITIES USED

Span Rating[b]	Load Governed By[c]	Strength Axis[a]: Perpendicular to Supports Span Center-to-Center of Supports (inches) 12	16	19.2	24	30	32	36	40	48	60	Parallel to Supports Span Center-to-Center of Supports (inches) 12	16	24
1/4	L/360	65	25	13										
	L/240	98	37	20										
	L/180	131	49	27										
	Bending	96	54	37										
	Shear	200	145	119										
11/32	L/360	148	56	30	15									
	L/240	222	83	46	22									
	L/180	296	111	61	29									
	Bending	154	87	60	39									
	Shear	276	200	164	129									
3/8	L/360	213	80	44	21	10						12		
	L/240	320	120	66	32	16						18		
	L/180	426	160	88	43	21						24		
	Bending	204	115	80	51	33						37		
	Shear	314	228	186	147	116						314		
15/32	L/360	522	196	107	52	26	21	18	13			48	18	
	L/240	783	295	161	78	38	31	27	20			72	27	
	L/180	1,044	393	215	104	51	42	37	26			96	36	
	Bending	354	199	138	89	57	50	31	26			108	61	
	Shear	419	303	249	196	154	144	122	110			419	303	
1/2	L/360	609	229	125	61	30	24	21	15	10		67	25	
	L/240	914	344	188	91	45	36	32	23	15		101	38	
	L/180	1,218	458	251	121	60	49	43	31	20		135	51	
	Bending	392	220	153	98	63	55	35	28	20		146	82	
	Shear	448	324	266	209	165	154	131	117	101		448	324	
19/32	L/360	892	336	184	89	44	36	31	22	15		163	61	21
	L/240	1,338	503	275	133	65	53	47	34	22		245	92	31
	L/180	1,784	671	367	178	87	71	62	45	29		326	123	41
	Bending	521	293	203	130	83	73	46	38	26		225	127	45
	Shear	552	400	328	258	204	190	161	145	125		552	400	247
5/8	L/360	1,001	376	206	100	49	40	35	25	16		211	79	27
	L/240	1,501	565	309	150	73	60	53	38	25		317	119	40
	L/180	2,001	753	412	200	98	80	70	50	33		422	159	54
	Bending	558	314	218	140	89	79	50	40	28		271	152	54
	Shear	590	428	350	276	218	203	173	155	134		590	428	265
23/32	L/360	1,392	524	287	139	68	55	49	35	23	11	394	148	50
	L/240	2,088	786	430	208	102	83	73	53	34	17	591	222	75
	L/180	2,784	1,047	573	278	136	111	97	70	46	22	787	296	100
	Bending	646	363	252	161	103	91	57	47	32	21	379	213	76
	Shear	667	483	395	311	246	230	195	175	151	119	667	483	299

Continued on next page

TABLE 3 (Continued)

UNIFORM LOADS (PSF) ON GROUP 1 SANDED PLYWOOD PANELS.
MULTI-SPAN, NORMAL DURATION OF LOAD, DRY CONDITIONS, A-A, A-C DESIGN CAPACITIES USED

Span Rating[b]	Load Governed By[c]	Strength Axis[a]: Perpendicular to Supports Span Center-to-Center of Supports (inches) 12	16	19.2	24	30	32	36	40	48	60	Parallel to Supports Span Center-to-Center of Supports (inches) 12	16	24
3/4	L/360	1,544	581	318	154	75	62	54	39	25	12	500	188	64
	L/240	2,317	871	477	231	113	92	81	58	38	19	750	282	95
	L/180	3,089	1,162	636	308	151	123	108	78	51	25	1,001	376	127
	Bending	679	382	265	170	109	96	60	49	34	22	471	265	94
	Shear	686	497	407	320	253	236	200	180	155	122	686	497	307
7/8	L/360	2,175	818	448	217	106	87	76	55	36	17	805	303	102
	L/240	3,263	1,227	672	325	159	130	114	82	54	26	1,207	454	153
	L/180	4,351	1,637	895	434	213	173	152	109	71	35	1,610	606	204
	Bending	833	469	326	208	133	117	74	60	42	27	650	366	130
	Shear	810	586	480	378	298	279	237	212	183	144	810	586	363
1	L/360	3,306	1,244	681	330	162	132	116	83	54	26	1,436	540	182
	L/240	4,960	1,866	1,021	495	242	198	174	125	81	40	2,154	810	273
	L/180	6,613	2,488	1,361	659	323	263	231	166	109	53	2,871	1,080	365
	Bending	1,083	609	423	271	173	152	96	78	54	35	958	539	192
	Shear	895	648	531	418	330	308	262	234	203	160	895	648	401
1-1/8	L/360	4,285	1,612	882	427	209	171	150	108	70	34	2,132	802	271
	L/240	6,428	2,418	1,323	641	314	256	225	162	105	51	3,198	1,203	406
	L/180	8,571	3,224	1,764	855	419	341	300	216	141	68	4,264	1,604	541
	Bending	1,333	750	521	333	213	188	119	96	67	43	1,250	703	250
	Shear	1,000	724	593	467	368	344	292	262	227	178	1,000	724	448

a. The strength axis is the long panel dimension unless otherwise identified.

TABLE 4

SANDED PLYWOOD PANEL ADJUSTMENTS, C_C, TO ALLOWABLE LOAD CAPACITIES SHOWN IN TABLE 3

Species Group	Strength Axis[a]					
	Perpendicular to Supports			Parallel to Supports		
	A-A, A-C	Marine	Other	A-A, A-C	Marine	Other
STIFFNESS (L/360, L/240, L/180)						
1	1.00	1.00	1.00	1.00	1.38	1.00
2	0.83	NA	0.83	0.83	NA	0.83
3	0.67	NA	0.67	0.67	NA	0.67
4	0.56	NA	0.56	0.56	NA	0.56
Structural I	1.00	1.00	1.00	1.40	1.00	1.40
BENDING						
1	1.00	0.91	0.83	1.00	1.15	0.82
2	0.70	NA	0.61	0.70	NA	0.60
3	0.70	NA	0.61	0.70	NA	0.60
4	0.67	NA	0.56	0.67	NA	0.55
Structural I	1.00	1.00	1.10	1.40	1.00	1.40
SHEAR						
1	1.00	1.29	1.00	1.00	1.29	1.00
2	1.00	NA	1.00	1.00	NA	1.00
3	1.00	NA	1.00	1.00	NA	1.00
4	1.00	NA	1.00	1.00	NA	1.00
Structural I	1.30	1.00	1.30	1.40	1.00	1.40

a. The strength axis is the long panel dimension unless otherwise identified.

NA: Not applicable. Marine Grade is always Group 1.

TABLE 5

APPLICATION ADJUSTMENT FACTORS

Duration of Load[a], C_D (Applies to Bending and Shear Only):	
Permanent load (over 10 years)	0.90
2 months, as for snow	1.15
7 days	1.25
Wind or earthquake	1.60
Span Adjustments:	
2-SPAN TO 1-SPAN	
Deflection	0.42
Bending	1.00
Shear	1.25
3-SPAN TO 1-SPAN	
Deflection	0.53
Bending	0.80
Shear	1.20
3-SPAN TO 2-SPAN	
Deflection	1.28
Bending	0.80
Shear	0.96
Wet or Damp Locations, C_M (Moisture Content 16% or More):	
Deflection	0.85
Bending	0.75
Shear	0.75

a. Adjustment for impact load does not apply to wood structural panels.

TABLE 6

TYPICAL APA PANEL CONSTRUCTIONS FOR TABLE 1 AND TABLE 2 PANELS[a]

Span Rating	Plywood			OSB
	3-Ply	4-Ply	5-Ply[b]	
APA RATED SHEATHING				
W24				X
24/0	X			X
24/16				X
32/16	X	X[c]	X	X
40/20	X	X	X[c]	X
48/24		X	X[c]	X
APA RATED STURD-I-FLOOR				
20 o.c.		X	X[c]	X
24 o.c.		X	X[c]	X
32 o.c.			X	X
48 o.c.			X	X

a. Constructions may not be available in every area. Check with suppliers concerning availability.

b. Applies to plywood with 5 or more layers.

c. Minimum panel construction for Structural I plywood.

Examples Showing Use Of Load-Span Tables

EXAMPLE 1:

Find the allowable uniform floor load for APA RATED SHEATHING 32/16, plywood, when applied at its rated span. From Table 6 it can be seen that 32/16 sheathing is available in 3-, 4- or 5-ply. Since actual construction may not be known during design, assume the most conservative plywood values as given in Table 1a. Assume 10 psf dead load, and panel strength axis across supports 16 inches o.c. Unless stated otherwise, assume floor deflection criteria to be L/360 under live load and L/240 under total load.

Note: In these examples, panel type is selected for illustrative purposes. Often, specification is by grade and span rating without regard to panel type, and calculations should assume the lowest adjustments applicable to typical constructions (Table 6) for the specified span rating.

FROM TABLE 1a

FOR APA RATED PLYWOOD SHEATHING PANELS WITH STRENGTH AXIS PERPENDICULAR TO SUPPORTS:

Load Governed By	Load (psf)
L/360	205
L/240	307
L/180	409
Bending	173
Shear	276

Allowable total load for floors is the least of load capacities for L/240, bending and shear. Allowable total load is therefore 173 psf.
Live load is the lesser of the load for L/360, and total load, as determined above, minus dead load.
Live load for L/360 = 205 psf, or total load – dead load = 173 – 10 = 163 psf.
Allowable live load = 163 psf, or 165 psf (rounded to nearest 5 psf).

Note: Do not increase span beyond the floor span rating even though the allowable uniform live load greatly exceeds the 40 psf design live load normally used for floors. Recommended maximum span reflects performance under concentrated and impact loads in addition to uniform load.

EXAMPLE 2:

Find the allowable snow load for APA RATED STURD-I-FLOOR 24 o.c., OSB, when the panel is used as roof sheathing with the strength axis across supports spaced 32 inches o.c. In question are several panels in the 1-span condition. Deflection criteria are L/240 under live load only and L/180 under total load. Assuming a two-month duration of load for snow, allowable loads for bending and shear may be increased 15%. Assume that 10 psf dead load is supported by the Sturd-I-Floor. Find maximum roof span from the tables in APA's *Engineered Wood Construction Guide*, Form E30.

FROM TABLE 2c

FOR APA RATED OSB STURD-I-FLOOR PANELS WITH STRENGTH AXIS PERPENDICULAR TO SUPPORTS:

Load Governed by	Load (psf)		Adjustment for Duration of Load, C_D		Adjustment for Span		Adjusted Load (psf)
L/360	52			×	0.53	=	28
L/240	78			×	0.53	=	41
L/180	104			×	0.53	=	55
Bending	90	×	1.15	×	0.80	=	83
Shear	164	×	1.15	×	1.20	=	226

Allowable total load is the lesser of the load for L/180, bending and shear. Allowable total load is 55 psf.
Live load is the lesser of the load for L/240, and total load as determined above minus dead load.
Live load for L/240 = 41 psf, or total load – dead load = 55 – 10 = 45 psf.
In this case, live load is governed by deflection of L/240: Allowable live load = 41 psf, or 40 psf (rounded to the nearest 5 psf).

Load-Span Tables for APA Wood Structural Panels

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