

FLOOR LOADS

SIMPLE-SPAN JOIST—ALLOWABLE UNIFORM FLOOR LOAD (PLF)

Joist Span (ft)	PWI 20						PWI 30				PWI 40							
	9½"		11⅝"		14"		9½"		11⅝"		9½"		11⅝"		14"		16"	
	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%
6	-	305	-	305	-	305	-	315	-	315	-	360	-	360	-	360	-	360
7	-	261	-	261	-	261	-	270	-	270	-	309	-	309	-	309	-	309
8	-	229	-	229	-	229	-	236	-	236	-	270	-	270	-	270	-	270
9	185	203	-	203	-	203	202	210	-	210	234	240	-	240	-	240	-	240
10	139	183	-	183	-	183	152	189	-	189	177	216	-	216	-	216	-	216
11	107	166	-	166	-	166	118	172	-	172	137	181	-	196	-	196	-	196
12	84	140	141	153	-	153	92	158	154	158	108	152	177	180	-	180	-	180
13	67	119	113	141	-	141	74	145	124	145	87	129	143	166	-	166	-	166
14	54	103	92	131	-	131	60	120	101	135	71	112	117	145	-	154	-	154
15	45	89	76	116	109	122	49	98	83	126	58	97	96	126	137	144	-	144
16	37	74	63	102	91	114	41	82	69	118	48	85	81	111	115	133	-	135
17			53	90	77	108			58	111			68	98	97	118	-	127
18			45	81	66	96			50	99			58	88	83	105	111	120
19			39	72	56	86			43	85			50	79	71	95	95	110
20			33	65	48	78			37	73			43	71	62	85	83	99
21					42	71									54	77	72	90
22					37	64									47	71	63	82
23					32	59									41	65	56	75
24					29	54									37	59	49	69
25																	44	63
26																	39	59
27																	35	54
28																	32	51
29																		
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Notes:

- Table values apply to uniformly loaded floor joists.
- Span is measured to the center of each support.
- The values in the Total columns are based on an L/240 total load deflection limit. Building codes typically require L/360 for live load. Experience has shown that a live load deflection limit of L/480 at 40 psf for residential floors does a better job than L/360 of meeting most performance expectations.
- Table values do not account for stiffness added by glued or nailed sheathing.
- Provide at least 1¾" of bearing length at end supports and 3½" at intermediate supports.
- Provide lateral restraint at supports (e.g. blocking panels, rim board) and along the compression flange of each joist (e.g. floor sheathing, gypsum board ceiling).
- Use sizing software or consult a professional engineer to analyze conditions outside the scope of this table (e.g. different bearing lengths, concentrated loads) or for multiple span joists if the length of any span is less than half the length of an adjacent span.

HOW TO USE FLOOR LOAD TABLES

- Choose a joist spacing and convert the live and total design loads specified in pounds per square foot (psf) to joist loads in pounds per lineal foot (plf).
Joist Spacing [ft] x Design Load [psf] = Joist Load [plf]

JOIST LOAD (PLF)

Joist Spacing		Design Load (psf)								
Inches	Feet	20	30	40	50	60	70	80	90	100
12	1	20	30	40	50	60	70	80	90	100
16	1.33	27	40	53	67	80	93	106	120	133
19.2	1.6	32	48	64	80	96	112	128	144	160
24	2	40	60	80	100	120	140	160	180	200

- Choose a span and scan across the Span row to find a joist size with sufficient Live and Total load capacities. Both requirements must be satisfied. When no value is shown in a Live column, Total load governs.
- Web stiffeners are required at all supports for 22" and 24" joists. See *Web Stiffener Requirements* on page 93 for more details.

FLOOR LOADS

SIMPLE-SPAN JOIST—ALLOWABLE UNIFORM FLOOR LOAD (PLF)

Joist Span (ft)	PWI 45								PWI 47														
	9½"		11½"		14"		16"		7½"		9½"		11½"		14"		16"		18"		20"		
	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	
6	-	327	-	327	-	327	-	327	-	288	-	292	-	295	-	300	-	303	-	307	-	310	
7	-	280	-	280	-	280	-	280	-	247	-	250	-	253	-	257	-	260	-	263	-	266	
8	-	245	-	245	-	245	-	245	-	216	-	219	-	221	-	225	-	228	-	230	-	233	
9	-	218	-	218	-	218	-	218	167	192	-	194	-	197	-	200	-	202	-	204	-	207	
10	177	196	-	196	-	196	-	196	126	173	-	175	-	177	-	180	-	182	-	184	-	186	
11	137	178	-	178	-	178	-	178	97	157	145	159	-	161	-	164	-	165	-	167	-	169	
12	108	163	-	163	-	163	-	163	76	144	115	146	-	148	-	150	-	152	-	153	-	155	
13	87	151	143	151	-	151	-	151	61	122	92	135	-	136	-	138	-	140	-	142	-	143	
14	71	137	117	140	-	140	-	140			75	125	121	126	-	129	-	130	-	131	-	133	
15	58	116	96	131	-	131	-	131			62	117	100	118	-	120	-	121	-	123	-	124	
16	48	97	81	123	116	123	-	123			51	103	84	111	-	113	-	114	-	115	-	116	
17			68	115	98	115	-	115						71	104	100	106	-	107	-	108	-	109
18			58	107	83	109	-	109						60	98	85	100	-	101	-	102	-	103
19			50	96	72	103	96	103						51	93	73	95	-	96	-	97	-	98
20			43	86	62	98	83	98						44	86	64	90	84	91	-	92	-	93
21					54	93	73	93								55	86	74	87	-	88	-	89
22					47	85	64	89								48	82	65	83	83	84	-	85
23					42	78	56	85								43	77	57	79	73	80	-	81
24					37	71	50	82								38	70	50	76	65	77	-	78
25							44	75										45	73	58	74	72	74
26							40	70										40	69	52	71	65	72
27							35	65										36	64	46	68	58	69
28							32	60										32	59	42	66	52	66
29																				38	62	47	64
30																				34	58	43	62
31																				31	54	39	60
32																						36	56
33																						33	53
34																						30	50
35																						28	47
36																							
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See notes on page 12

PSF TO PLF CONVERSION – LOAD IN POUNDS PER LINEAL FOOT (PLF)

O.C. Spacing		Load in Pounds per Square Foot (psf)											
Inches	Feet	20	25	30	35	40	45	50	55	60	65	70	75
12	1.00	20	25	30	35	40	45	50	55	60	65	70	75
16	1.33	27	33	40	47	53	60	67	73	80	87	93	100
19.2	1.60	32	40	48	56	64	72	80	88	96	104	112	120
24	2.00	40	50	60	70	80	90	100	110	120	130	140	150

o.c. spacing (ft) x load (psf) = load (plf)

FLOOR LOADS

SIMPLE-SPAN JOIST—ALLOWABLE UNIFORM FLOOR LOAD (PLF)

Joist Span (ft)	PWI 50								PWI 60								PWI 70										
	9½"		11½"		14"		16"		9½"		11½"		14"		16"		11½"		14"		16"		18"		20"		
	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	
6	-	338	-	338	-	338	-	338	-	360	-	360	-	360	-	360	-	387	-	387	-	387	-	387	-	387	
7	-	290	-	290	-	290	-	290	-	309	-	309	-	309	-	309	-	331	-	331	-	331	-	331	-	331	
8	-	254	-	254	-	254	-	254	-	270	-	270	-	270	-	270	-	290	-	290	-	290	-	290	-	290	
9	-	226	-	226	-	226	-	226	-	240	-	240	-	240	-	240	-	258	-	258	-	258	-	258	-	258	
10	172	203	-	203	-	203	-	203	205	216	-	216	-	216	-	216	-	232	-	232	-	232	-	232	-	232	
11	133	185	-	185	-	185	-	185	160	196	-	196	-	196	-	196	-	211	-	211	-	211	-	211	-	211	
12	105	169	-	169	-	169	-	169	127	180	-	180	-	180	-	180	-	193	-	193	-	193	-	193	-	193	
13	84	156	140	156	-	156	-	156	102	166	-	166	-	166	-	166	-	178	-	178	-	178	-	178	-	178	
14	68	137	114	145	-	145	-	145	83	154	137	154	-	154	-	154	149	166	-	166	-	166	-	166	-	166	
15	56	112	94	135	-	135	-	135	68	134	113	144	-	144	-	144	124	155	-	155	-	155	-	155	-	155	
16	47	94	79	127	114	127	-	127	57	114	95	135	-	135	-	135	104	145	-	145	-	145	-	145	-	145	
17			66	119	97	119	-	119			80	127	115	127	-	127	88	136	125	136	-	136	-	136	-	136	
18			57	113	82	113	112	113			68	120	98	120	-	120	75	129	107	129	-	129	-	129	-	129	
19			48	97	71	107	96	107			59	109	85	114	113	114	64	122	92	122	-	122	-	122	-	122	
20			42	84	61	102	83	102			51	98	73	108	98	108	56	112	80	116	106	116	-	116	-	116	
21					53	97	73	97					64	103	86	103			70	110	93	110	-	110	-	110	
22					47	92	64	92					56	97	75	98			61	105	82	105	105	105	-	105	
23					41	82	56	88					49	89	67	94			54	101	72	101	93	101	-	101	
24					36	73	50	85					44	82	59	90			48	96	64	97	82	97	-	97	
25							44	81							53	86					57	93	73	93	92	93	
26							39	78							47	81					51	89	66	89	82	89	
27							35	71							42	75					46	86	59	86	74	86	
28							32	64							38	70					41	82	53	83	67	83	
29																							48	80	61	80	
30																							44	77	55	77	
31																							40	75	50	75	
32																									46	73	
33																										42	70
34																										38	68
35																										35	66
36																											
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6. Provide lateral restraint at supports (e.g. blocking panels, rim board) and along the compression flange of each joist (e.g. floor sheathing, gypsum board ceiling).
7. Use sizing software or consult a professional engineer to analyze conditions outside the scope of this table (e.g. different bearing lengths, concentrated loads) or for multiple span joists if the length of any span is less than half the length of an adjacent span.

FLOOR LOADS

SIMPLE-SPAN JOIST—ALLOWABLE UNIFORM FLOOR LOAD (PLF)

Joist Span (ft)	PWI 77																PWI 90															
	9½"		11½"		14"		16"		18"		20"		22"		24"		9½"		11½"		14"		16"		18"		20"		22"		24"	
	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%		
6	-	428	-	428	-	428	-	428	-	428	-	428	-	649	-	649	-	467	-	467	-	467	-	467	-	467	-	467	-	800	-	800
7	-	367	-	367	-	367	-	367	-	367	-	367	-	556	-	556	-	400	-	400	-	400	-	400	-	400	-	400	-	686	-	686
8	-	321	-	321	-	321	-	321	-	321	-	321	-	487	-	487	-	350	-	350	-	350	-	350	-	350	-	350	-	600	-	600
9	-	286	-	286	-	286	-	286	-	286	-	286	-	432	-	432	-	311	-	311	-	311	-	311	-	311	-	311	-	533	-	533
10	236	257	-	257	-	257	-	257	-	257	-	257	-	389	-	389	-	280	-	280	-	280	-	280	-	280	-	280	-	480	-	480
11	183	234	-	234	-	234	-	234	-	234	-	234	-	354	-	354	255	255	-	255	-	255	-	255	-	255	-	255	-	436	-	436
12	145	214	-	214	-	214	-	214	-	214	-	214	-	324	-	324	203	233	-	233	-	233	-	233	-	233	-	233	-	400	-	400
13	116	198	189	198	-	198	-	198	-	198	-	198	-	299	-	299	165	215	-	215	-	215	-	215	-	215	-	215	-	369	-	369
14	95	184	155	184	-	184	-	184	-	184	-	184	-	278	-	278	135	200	-	200	-	200	-	200	-	200	-	200	-	343	-	343
15	78	156	128	171	-	171	-	171	-	171	-	171	-	259	-	259	112	187	180	187	-	187	-	187	-	187	-	187	-	320	-	320
16	65	130	107	161	153	161	-	161	-	161	-	161	-	243	-	243	94	175	152	175	-	175	-	175	-	175	-	175	-	300	-	300
17			90	151	129	151	-	151	-	151	-	151	-	229	-	229			129	165	-	165	-	165	-	165	-	165	-	282	-	282
18			77	143	110	143	-	143	-	143	-	143	-	216	-	216			110	156	-	156	-	156	-	156	-	156	-	267	-	267
19			66	132	95	135	127	135	-	135	-	135	-	205	-	205			95	147	135	147	-	147	-	147	-	147	-	253	-	253
20			57	114	82	129	110	129	-	129	-	129	-	195	-	195			82	140	117	140	-	140	-	140	-	140	-	240	-	240
21				71	122	96	122	-	122	-	122	-	185	-	185					102	133	-	133	-	133	-	133	-	229	-	229	
22				63	117	84	117	108	117	-	117	166	177	-	177					90	127	119	127	-	127	-	127	-	218	-	218	
23				55	110	74	112	96	112	-	112	147	169	-	169					79	122	106	122	-	122	-	122	204	209	-	209	
24				49	98	66	107	85	107	106	107	130	162	157	162					71	117	94	117	-	117	-	117	182	200	-	200	
25					58	103	75	103	95	103	116	156	140	156							84	112	108	112	-	112	163	192	-	192		
26					52	99	68	99	85	99	104	148	125	150							75	108	96	108	-	108	147	185	175	185		
27					47	94	61	95	76	95	94	137	113	144							67	104	87	104	-	104	132	178	158	178		
28					42	84	55	92	69	92	84	128	102	139							61	100	78	100	98	100	119	171	143	171		
29						49	89	62	89	76	119	92	130								71	97	89	97	108	166	130	166		166		
30						45	86	56	86	69	111	84	121									64	93	81	93	99	160	118	160		160	
31						41	81	51	83	63	104	76	113									59	90	74	90	90	155	108	155		155	
32							47	80	58	98	70	106													67	88	82	150	99	150		150
33								43	78	53	92	64	100												62	85	75	141	91	145		145
34								39	76	48	87	59	94												57	82	69	133	83	141		141
35								36	72	45	82	54	89												52	80	64	126	77	137		137
36									41	77	50	84															59	118	71	129		129
37									38	73	46	80															54	109	66	122		122
38									35	69	42	76															50	101	61	116		116
39										39	72																		56	110		110
40										37	68																		52	105		105
41										34	65																		49	98		98
42										32	62																		46	91		91

See notes on page 14