

# Floor Loads

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

Joist Span (ft)	PWI 20						PWI 45							
	9½"		11½"		14"		9½"		11½"		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%
6	-	305	-	305	-	305	-	327	-	327	-	327	-	327
7	-	261	-	261	-	261	-	280	-	280	-	280	-	280
8	-	229	-	229	-	229	-	245	-	245	-	245	-	245
9	185	203	-	203	-	203	-	218	-	218	-	218	-	218
10	139	183	-	183	-	183	177	196	-	196	-	196	-	196
11	107	166	-	166	-	166	137	178	-	178	-	178	-	178
12	84	140	141	153	-	153	108	163	-	163	-	163	-	163
13	67	119	113	141	-	141	87	151	143	151	-	151	-	151
14	54	103	92	131	-	131	71	137	117	140	-	140	-	140
15	45	89	76	116	109	122	58	116	96	131	-	131	-	131
16	37	74	63	102	91	114	48	97	81	123	116	123	-	123
17			53	90	77	108			68	115	98	115	-	115
18			45	81	66	96			58	107	83	109	-	109
19			39	72	56	86			50	96	72	103	96	103
20			33	65	48	78			43	86	62	98	83	98
21					42	71					54	93	73	93
22					37	64					47	85	64	89
23					32	59					42	78	56	85
24					29	54					37	71	50	82
25													44	75
26													40	70
27													35	65
28													32	60
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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 94 for more details.

# Floor Loads

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

Joist Span (ft)	PWI 47								PWI 50							
	9½"		11½"		14"		16"		9½"		11½"		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%
6	-	292	-	295	-	300	-	303	-	338	-	338	-	338	-	338
7	-	250	-	253	-	257	-	260	-	290	-	290	-	290	-	290
8	-	219	-	221	-	225	-	228	-	254	-	254	-	254	-	254
9	-	194	-	197	-	200	-	202	-	226	-	226	-	226	-	226
10	-	175	-	177	-	180	-	182	172	203	-	203	-	203	-	203
11	145	159	-	161	-	164	-	165	133	185	-	185	-	185	-	185
12	115	146	-	148	-	150	-	152	105	169	-	169	-	169	-	169
13	92	135	-	136	-	138	-	140	84	156	140	156	-	156	-	156
14	75	125	121	126	-	129	-	130	68	137	114	145	-	145	-	145
15	62	117	100	118	-	120	-	121	56	112	94	135	-	135	-	135
16	51	103	84	111	-	113	-	114	47	94	79	127	114	127	-	127
17			71	104	100	106	-	107			66	119	97	119	-	119
18			60	98	85	100	-	101			57	113	82	113	112	113
19			51	93	73	95	-	96			48	97	71	107	96	107
20			44	86	64	90	84	91			42	84	61	102	83	102
21					55	86	74	87					53	97	73	97
22					48	82	65	83					47	92	64	92
23					43	77	57	79					41	82	56	88
24					38	70	50	76					36	73	50	85
25							45	73							44	81
26							40	69							39	78
27							36	64							35	71
28							32	59							32	64
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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 60								PWI 70									
	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%
6	-	360	-	360	-	360	-	360	-	387	-	387	-	387	-	387	-	387
7	-	309	-	309	-	309	-	309	-	331	-	331	-	331	-	331	-	331
8	-	270	-	270	-	270	-	270	-	290	-	290	-	290	-	290	-	290
9	-	240	-	240	-	240	-	240	-	258	-	258	-	258	-	258	-	258
10	205	216	-	216	-	216	-	216	-	232	-	232	-	232	-	232	-	232
11	160	196	-	196	-	196	-	196	-	211	-	211	-	211	-	211	-	211
12	127	180	-	180	-	180	-	180	-	193	-	193	-	193	-	193	-	193
13	102	166	-	166	-	166	-	166	-	178	-	178	-	178	-	178	-	178
14	83	154	137	154	-	154	-	154	149	166	-	166	-	166	-	166	-	166
15	68	134	113	144	-	144	-	144	124	155	-	155	-	155	-	155	-	155
16	57	114	95	135	-	135	-	135	104	145	-	145	-	145	-	145	-	145
17			80	127	115	127	-	127	88	136	125	136	-	136	-	136	-	136
18			68	120	98	120	-	120	75	129	107	129	-	129	-	129	-	129
19			59	109	85	114	113	114	64	122	92	122	-	122	-	122	-	122
20			51	98	73	108	98	108	56	112	80	116	106	116	-	116	-	116
21					64	103	86	103			70	110	93	110	-	110	-	110
22					56	97	75	98			61	105	82	105	105	105	-	105
23					49	89	67	94			54	101	72	101	93	101	-	101
24					44	82	59	90			48	96	64	97	82	97	-	97
25							53	86					57	93	73	93	92	93
26							47	81					51	89	66	89	82	89
27							42	75					46	86	59	86	74	86
28							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																		
37																		
38																		
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**Notes:**

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

See notes on page 14