

FLOOR LOADS

SIMPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 20						PWI 30				PWI 40						PWI 50									
	9½"		11⅞"		14"		9½"		11⅞"		9½"		14"		16"		9½"		11⅞"		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%	Live L/480	Total 100%	Live L/480	Total 100%	Live L/480	Total 100%		
6	-	305	-	305	-	305	-	315	-	315	-	360	-	400	-	400	-	400	-	338	-	338	-	338	-	338
7	-	261	-	261	-	261	-	270	-	270	-	309	-	343	-	343	-	343	-	290	-	290	-	290	-	290
8	-	229	-	229	-	229	-	236	-	236	-	270	-	300	-	300	-	300	-	254	-	254	-	254	-	254
9	185	203	-	203	-	203	202	210	-	210	234	240	-	267	-	267	-	267	-	226	-	226	-	226	-	226
10	139	183	-	183	-	183	152	189	-	189	177	216	-	240	-	240	-	240	172	203	-	203	-	203	-	203
11	107	166	-	166	-	166	118	172	-	172	137	181	-	218	-	218	-	218	133	185	-	185	-	185	-	185
12	84	140	141	153	-	153	92	158	154	158	108	152	177	197	-	200	-	200	105	169	-	169	-	169	-	169
13	67	119	113	141	-	141	74	145	124	145	87	129	143	168	-	185	-	185	84	156	140	156	-	156	-	156
14	54	103	92	131	-	131	60	120	101	135	71	112	117	145	165	171	-	171	68	137	114	145	-	145	-	145
15	45	89	76	116	109	122	49	98	83	126	58	97	96	126	137	152	-	160	56	112	94	135	-	135	-	135
16	37	74	63	102	91	114	41	82	69	118	48	85	81	111	115	133	-	150	47	94	79	127	114	127	-	127
17			53	90	77	108			58	111			68	98	97	118	130	137		66	119	97	119	-	119	
18			45	81	66	96			50	99			58	88	83	105	111	122		57	113	82	113	112	113	
19			39	72	56	86			43	85			50	79	71	95	95	110		48	97	71	107	96	107	
20			33	65	48	78			37	73			43	71	62	85	83	99		42	84	61	102	83	102	
21					42	71									54	77	72	90				53	97	73	97	
22					37	64									47	71	63	82				47	92	64	92	
23					32	59									41	65	56	75				41	82	56	88	
24					29	54									37	59	49	69				36	73	50	85	
25																	44	63						44	81	
26																	39	59						39	78	
27																	35	54						35	71	
28																	32	51						32	64	
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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 1¼" 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 81 for more details.

FLOOR LOADS

SIMPLE-SPAN JOIST—ALLOWABLE LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 60								PWI 70									
	9½"		11⅞"		14"		16"		11⅞"		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	-	400	-	400	-	400	-	387	-	387	-	387	-	387	-	387
7	-	309	-	343	-	343	-	343	-	331	-	331	-	331	-	331	-	331
8	-	270	-	300	-	300	-	300	-	290	-	290	-	290	-	290	-	290
9	-	240	-	267	-	267	-	267	-	258	-	258	-	258	-	258	-	258
10	205	216	-	240	-	240	-	240	-	232	-	232	-	232	-	232	-	232
11	160	196	-	218	-	218	-	218	-	211	-	211	-	211	-	211	-	211
12	127	180	-	200	-	200	-	200	-	193	-	193	-	193	-	193	-	193
13	102	166	167	185	-	185	-	185	-	178	-	178	-	178	-	178	-	178
14	83	154	137	171	-	171	-	171	149	166	-	166	-	166	-	166	-	166
15	68	134	113	160	-	160	-	160	124	155	-	155	-	155	-	155	-	155
16	57	114	95	150	136	150	-	150	104	145	-	145	-	145	-	145	-	145
17			80	136	115	141	-	141	88	136	125	136	-	136	-	136	-	136
18			68	121	98	133	131	133	75	129	107	129	-	129	-	129	-	129
19			59	109	85	126	113	126	65	122	92	122	-	122	-	122	-	122
20			51	98	73	118	98	120	56	112	80	116	107	116	-	116	-	116
21					64	107	86	114			70	110	93	110	-	110	-	110
22					56	97	75	109			61	105	82	105	105	105	-	105
23					49	89	67	103			54	101	72	101	93	101	-	101
24					44	82	59	95			48	96	64	97	83	97	-	97
25							53	87					57	93	74	93	92	93
26							47	81					51	89	66	89	83	89
27							42	75					46	86	59	86	74	86
28							38	70					41	83	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	
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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 LOADS FOR PWI JOISTS (PLF)

Joist Span (ft)	PWI 77																PWI 90																		
	9½"		11⅞"		14"		16"		18"		20"		22"		24"		9½"		11⅞"		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	-	797	-	797	-	467	-	467	-	467	-	467	-	467	-	800	-	800					
7	-	367	-	367	-	367	-	367	-	367	-	367	-	683	-	683	-	400	-	400	-	400	-	400	-	400	-	686	-	686					
8	-	321	-	321	-	321	-	321	-	321	-	321	-	598	-	598	-	350	-	350	-	350	-	350	-	350	-	600	-	600					
9	-	286	-	286	-	286	-	286	-	286	-	286	-	531	-	531	-	311	-	311	-	311	-	311	-	311	-	533	-	533					
10	232	257	-	257	-	257	-	257	-	257	-	257	-	478	-	478	-	280	-	280	-	280	-	280	-	280	-	480	-	480					
11	181	234	-	234	-	234	-	234	-	234	-	234	-	435	-	435	250	255	-	255	-	255	-	255	-	255	-	436	-	436					
12	143	214	-	214	-	214	-	214	-	214	-	214	-	398	-	398	200	233	-	233	-	233	-	233	-	233	-	400	-	400					
13	115	198	186	198	-	198	-	198	-	198	-	198	-	368	-	368	162	215	-	215	-	215	-	215	-	215	-	369	-	369					
14	94	184	152	184	-	184	-	184	-	184	-	184	-	341	-	341	133	200	-	200	-	200	-	200	-	200	-	343	-	343					
15	77	155	126	171	-	171	-	171	-	171	-	171	-	319	-	319	111	187	177	187	-	187	-	187	-	187	-	320	-	320					
16	65	129	106	161	151	161	-	161	-	161	-	161	-	299	-	299	93	175	150	175	-	175	-	175	-	175	-	300	-	300					
17			89	151	128	151	-	151	-	151	-	151	-	281	-	281			127	165	-	165	-	165	-	165	-	282	-	282					
18			76	143	109	143	-	143	-	143	-	143	-	266	-	266			109	156	154	156	-	156	-	156	-	267	-	267					
19			65	131	94	135	125	135	-	135	-	135	244	252	-	252			94	147	133	147	-	147	-	147	-	253	-	253					
20			57	113	81	129	109	129	-	129	-	129	212	239	-	239			81	140	116	140	-	140	-	140	-	240	-	240					
21					71	122	95	122	122	-	122	186	227	223	228					101	133	-	133	-	133	-	229	-	229						
22					62	117	83	117	107	117	-	117	164	207	197	217				89	127	118	127	-	127	-	127	-	218	-	218				
23					55	110	73	112	95	112	-	112	145	189	174	206				79	122	105	122	-	122	-	122	202	209	-	209				
24					49	97	65	107	84	107	105	107	129	174	155	189				70	117	93	117	-	117	-	117	180	200	-	200				
25							58	103	75	103	94	103	115	160	139	174						83	112	106	112	-	112	161	192	-	192				
26							52	99	67	99	84	99	103	148	124	161						74	108	95	108	-	108	145	185	173	185				
27							47	93	60	95	76	95	93	137	112	150						67	104	86	104	-	104	131	178	156	178				
28							42	84	54	92	68	92	84	128	101	139						60	100	78	100	97	100	118	171	142	171				
29								49	89	62	89	76	119	92	130										70	97	88	97	107	166	129	166			
30								45	86	56	86	69	111	83	121									64	93	80	93	98	160	117	160				
31								41	81	51	83	63	104	76	113									58	90	73	90	89	155	107	155				
32												47	80	57	98	69	106											67	88	82	150	98	150		
33												43	78	53	92	63	100											61	85	75	141	90	145		
34												39	76	48	87	58	94											56	82	69	133	83	141		
35												36	72	44	82	54	89											52	80	63	126	76	137		
36													41	77	49	84																			
37													38	73	46	80																			
38													35	69	42	76																			
39														39	72																				
40															36	68																			
41															34	65																			
42															32	62																			
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