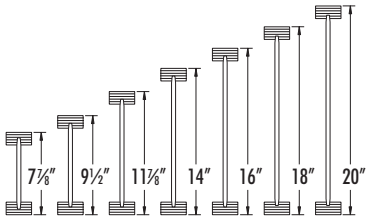
PACIFIC WOODTECH CORPORATION

PWI-47 I-JOIST

PWI 47



⅜″ OSB Web
2⁵⁄₁₆″ x 1⅛″ Flange

PWI-47 JOIST SERIES
JOIST DIMENSIONS & VALUES

REFERENCE DESIGN VALUES (1)

Joist Series	Joist Depth	EI (2) (x 10⁶ lb-in²)	k(3) (x 10⁶ lb)	M(4) (ft-lb)	V(5) (lb)	ER(6) (lb)	IR(7) (lb)	Vertical Load(8) (plf)
PWI 47	7⅞″	133	4.10	2690	1000	865	1810	2000
	9½″	206	4.94	3335	1330	875	1860	2000
	11⅞″	344	6.18	4280	1705	885	1930	2000
	14″	499	7.28	5075	1955	900	1995	2000
	16″	674	8.32	5790	2190	910	2060	2000
	18″	878	9.36	6500	2425	920	2120	1450
	20″	1112	10.40	7200	2660	930	2180	1450

1. Values apply to normal load duration. All values except EI, k and Vertical Load may be adjusted for other load durations as permitted by the code.
2. Bending stiffness (EI).
3. Coefficient of shear deflection (k). Use Equations 1 or 2 to calculate uniform load or center point load deflections in a simple-span application.

Uniform Load:

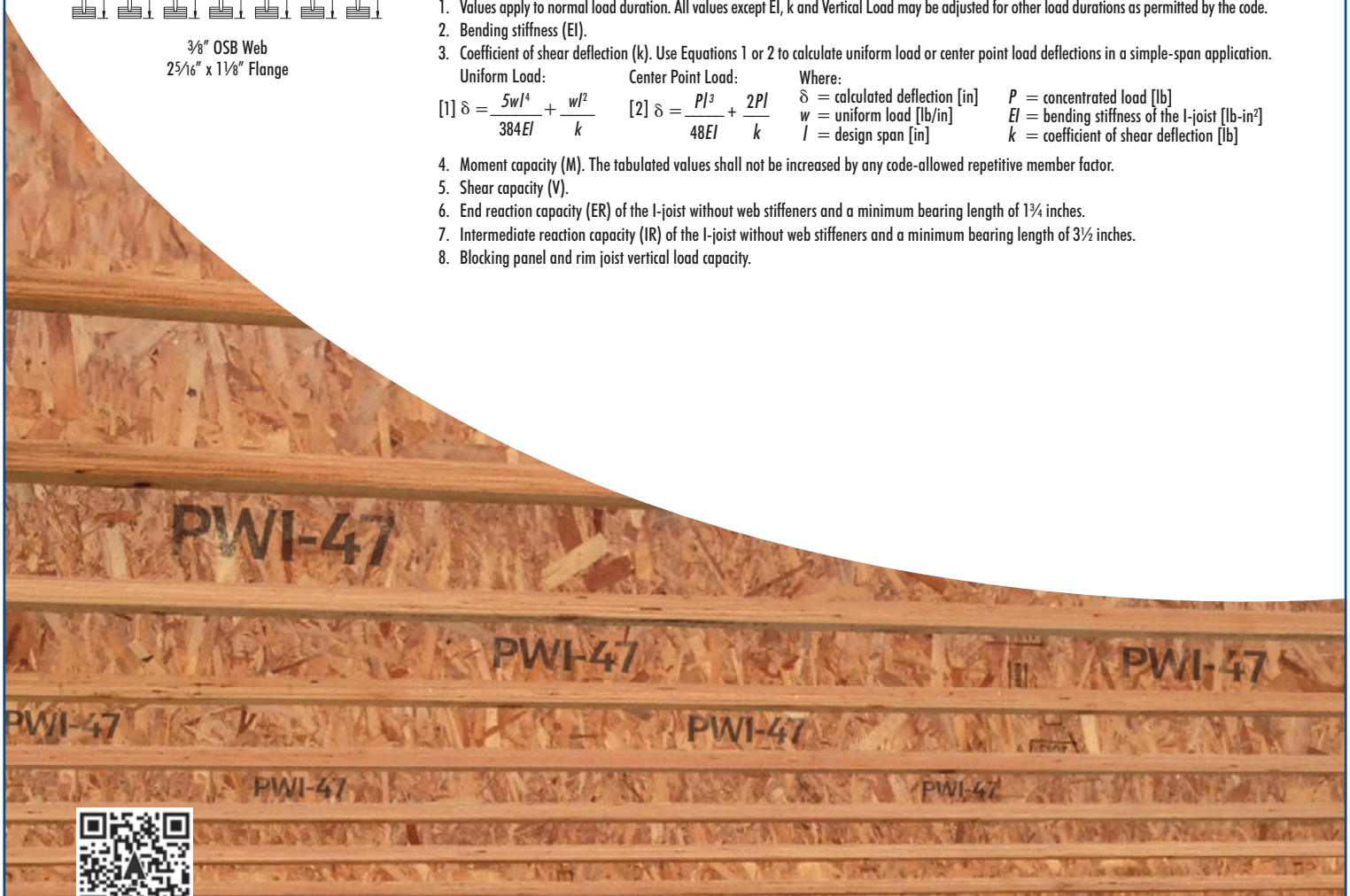
$$[1]\ \delta = \frac{5wl^4}{384EI} + \frac{wl^2}{k}$$

Center Point Load:

$$[2]\ \delta = \frac{Pl^3}{48EI} + \frac{2Pl}{k}$$

Where:
δ = calculated deflection [in]
w = uniform load [lb/in]
l = design span [in]
P = concentrated load [lb]
EI = bending stiffness of the I-joist [lb-in²]
k = coefficient of shear deflection [lb]

4. Moment capacity (M). The tabulated values shall not be increased by any code-allowed repetitive member factor.
5. Shear capacity (V).
6. End reaction capacity (ER) of the I-joist without web stiffeners and a minimum bearing length of 1¾ inches.
7. Intermediate reaction capacity (IR) of the I-joist without web stiffeners and a minimum bearing length of 3½ inches.
8. Blocking panel and rim joist vertical load capacity.



FLOOR SPANS

PWI-47

ALLOWABLE RESIDENTIAL FLOOR SPANS FOR PWI JOISTS – 40 PSF LIVE LOAD AND 10 PSF DEAD LOAD

Joist Series	Joist Depth	Simple Span				Multiple Span				Simple *or* Multiple Span			
		12″ o.c.	16″ o.c.	19.2″ o.c.	24″ o.c.	12″ o.c.	16″ o.c.	19.2″ o.c.	24″ o.c.	12″ o.c.	16″ o.c.	19.2″ o.c.	24″ o.c.
PWI 47	7⅞″	15′–10″	14′–6″	13′–8″	12′–9″	17′–7″	16′–1″	15′–2″	14′–1″	15′–10″	14′–6″	13′–8″	12′–9″
	9½″	18′–4″	16′–9″	15′–9″	14′–9″	20′–5″	18′–7″	17′–6″	14′–7″	18′–4″	16′–9″	15′–9″	14′–7″
	11⅞″	21′–8″	19′–10″	18′–8″	17′–5″	24′–2″	22′–0″	19′–0″	15′–2″	21′–8″	19′–10″	18′–8″	15′–2″
	14″	24′–6″	22′–5″	21′–2″	17′–10″	27′–4″	23′–8″	19′–8″	15′–8″	24′–6″	22′–5″	19′–8″	15′–8″
	16″	27′–2″	24′–9″	22′–7″	18′–0″	30′–2″	24′–6″	20′–4″	16′–3″	27′–2″	24′–6″	20′–4″	16′–3″
	18″	29′–7″	27′–1″	22′–10″	18′–3″	32′–0″	25′–2″	20′–11″	16′–8″	29′–7″	25′–2″	20′–11″	16′–8″
	20″	32′–1″	27′–9″	23′–1″	18′–5″	33′–8″	25′–11″	21′–6″	17′–2″	32′–1″	25′–11″	21′–6″	17′–2″

ALLOWABLE RESIDENTIAL FLOOR SPANS FOR PWI JOISTS – 40 PSF LIVE LOAD AND 20 PSF DEAD LOAD

PWI 47	7⅞″	15′–10″	14′–6″	13′–8″	12′–9″	17′–7″	16′–1″	14′–9″	11′–10″	15′–10″	14′–6″	13′–8″	11′–10″
	9½″	18′–4″	16′–9″	15′–9″	14′–5″	20′–5″	18′–0″	15′–3″	12′–2″	18′–4″	16′–9″	15′–3″	12′–2″
	11⅞″	21′–8″	19′–10″	18′–3″	14′–7″	23′–8″	19′–0″	15′–10″	12′–7″	21′–8″	19′–0″	15′–10″	12′–7″
	14″	24′–6″	22′–4″	18′–7″	14′–10″	25′–9″	19′–8″	16′–4″	13′–0″	24′–6″	19′–8″	16′–4″	13′–0″
	16″	27′–2″	22′–7″	18′–9″	15′–0″	27′–2″	20′–4″	16′–11″	13′–6″	27′–2″	20′–4″	16′–11″	13′–6″
	18″	29′–3″	22′–10″	19′–0″	15′–2″	28′–0″	20′–11″	17′–5″	13′–10″	28′–0″	20′–11″	17′–5″	13′–10″
	20″	30′–10″	23′–1″	19′–2″	15′–4″	28′–10″	21′–6″	17′–11″	14′–3″	28′–10″	21′–6″	17′–11″	14′–3″

Notes:

1. Table values apply to uniformly loaded, residential floor joists.
2. Span is measured from face to face of supports.
3. Deflection is limited to L/240 at total load and L/480 at live load.
4. Table values are based on glued and nailed sheathing panels (23/32″ for 24″ o.c., 19/32″ otherwise). Use an ASTM D3498 adhesive in accordance with the manufacturer's recommendations. Reduce spans by 12″ if sheathing is nailed only.
5. Provide at least 1¾″ of bearing length at end supports and 3½″ at intermediate supports.
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. commercial floors, different bearing conditions, 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

ALLOWABLE UNIFORM FLOOR LOAD (PLF)

Joist Span (ft)	PWI 47 — Simple Span Joist														PWI 47 — Multiple Span Joist													
	7⅞″		9½″		11⅞″		14″		16″		18″		20″		7⅞″		9½″		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%	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	-	288	-	292	-	295	-	300	-	303	-	307	-	310	-	241	-	248	-	257	-	266	-	275	-	283	-	291
7	-	247	-	250	-	253	-	257	-	260	-	263	-	266	-	207	-	213	-	221	-	228	-	235	-	242	-	249
8	-	216	-	219	-	221	-	225	-	228	-	230	-	233	-	181	-	186	-	193	-	200	-	206	-	212	-	218
9	167	192	-	194	-	197	-	200	-	202	-	204	-	207	-	161	-	165	-	172	-	177	-	183	-	188	-	194
10	126	173	-	175	-	177	-	180	-	182	-	184	-	186	-	145	-	149	-	154	-	160	-	165	-	170	-	174
11	97	157	145	159	-	161	-	164	-	165	-	167	-	169	129	132	-	135	-	140	-	145	-	150	-	154	-	159
12	76	144	115	146	-	148	-	150	-	152	-	153	-	155	102	121	-	124	-	129	-	133	-	137	-	141	-	145
13	61	122	92	135	-	136	-	138	-	140	-	142	-	143	82	111	-	114	-	119	-	123	-	127	-	130	-	134
14			75	125	121	126	-	129	-	130	-	131	-	133			100	106	-	110	-	114	-	118	-	121	-	125
15			62	117	100	118	-	120	-	121	-	123	-	124			83	99	-	103	-	106	-	110	-	113	-	116
16			51	103	84	111	-	113	-	114	-	115	-	116			70	93	-	97	-	100	-	103	-	106	-	109
17					71	104	100	106	-	107	-	108	-	109					-	91	-	94	-	97	-	100	-	103
18					60	98	85	100	-	101	-	102	-	103					81	86	-	89	-	92	-	94	-	97
19					51	93	73	95	-	96	-	97	-	98					70	81	-	84	-	87	-	89	-	92
20					44	86	64	90	84	91	-	92	-	93					61	77	-	80	-	82	-	85	-	87
21							55	86	74	87	-	88	-	89							75	76	-	78	-	81	-	83
22							48	82	65	83	83	84	-	85							66	73	-	75	-	77	-	79
23							43	77	57	79	73	80	-	81							58	69	-	72	-	74	-	76
24							38	70	50	76	65	77	-	78							52	67	69	69	-	71	-	73
25									45	73	58	74	72	74									61	66	-	68	-	70
26									40	69	52	71	65	72									55	63	-	65	-	67
27									36	64	46	68	58	69									49	61	-	63	-	65
28									32	59	42	66	52	66									44	59	57	61	-	62
29											38	62	47	64											52	58	-	60
30											34	58	43	62											47	57	-	58
31											31	54	39	60											43	54	54	56
32													36	56													49	55
33													33	53													45	53
34													30	50													41	50
35													28	47													38	47

Notes:

1. Table values apply to uniformly loaded floor joists.
2. Span is measured to the center of each support.
3. 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.
4. Table values do not account for stiffness added by glued or nailed sheathing.
5. Provide at least 1¾″ of bearing length at end supports and 3½″ at intermediate supports.
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.