



PWI Joists (formerly SolidStart[®]) Pacific Woodtech Corporation

PR-L238

Revised November 1, 2022

Products: PWI Joists (formerly SolidStart[®])

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1. Basis of the product report:

- 2021, 2018, 2015, and 2012 International Building Code (IBC): Sections 104.11 Alternative materials and 2303.1.2 Prefabricated wood I-joists
- 2021, 2018, and 2015 International Residential Code (IRC): Sections 104.11 Alternative materials, and R502.1.2 and R802.1.8 (2021 and 2018 IRC only) Prefabricated wood I-joists
- 2012 IRC: Sections R104.11 Alternative materials and R502.1.4 Prefabricated wood I-joists
- ASTM D5055-16, D5055-13e1, ASTM D5055-13, and D5055-09 recognized in the 2021 IBC and IRC, 2018 IBC and IRC, 2015 IBC and IRC, and 2012 IBC and IRC, respectively
- APA PRI-400, Performance Standard for Residential I-Joists
- 2021, 2015, and 2008 ANSI/AWC Special Design Provisions for Wind and Seismic (SPDWS) recognized in the 2021, 2018, and 2015, and 2012 IBC, respectively
- Intertek LPI 20, LPI 20X1.7 and LPI 32 Test Report, Intertek LPI 20X1.5 Test Report, PFS LPI 23 (a.k.a. LPI 32) Test Report, APA Reports T2005M-21, T2005M-52, T2006M-03, T2006M-07, T2008P-42, T2008P-45, T2008P-69, T2008P-97, T2008P-111, T2009P-03, T2009P-14, T2009P-21, T2009P-38, T2009P-47, T2009P-60, T2009P-61, T2009P-82, T2010P-36, T2010P-39, T2010P-52A, T2010P-58, T2010P-59, T2011P-08, T2011P-53A, T2011P-61, T2012P-25A, T2013P-30, T2013P-38, T2014P-03, T2014P-18, T2014P-29, T2014P-36, T2015L-05B, T2015P-10A, T2015P-30A, T2016P-01, T2016P-19, T2016P-27, T2017L-25, and T2017P-32, and other qualification data

2. Product description:

PWI Joists are described in Table 1 in accordance with the in-plant manufacturing standard approved by APA.

3. Design properties:

Tables 2 and 3 list the design properties for the PWI Joists covered by this report. Table 4 shows the allowable lateral shear capacities of I-Joists in diaphragm applications. The allowable spans for PWI Joists shall be in accordance with the recommendations provided by the manufacturer (<https://pacificwoodtech.com>). The allowable spans for PWI Joists qualified as the PRI series shall be permitted in accordance with the APA *Performance Rated I-Joists*, Form Z725 (www.apawood.org/resource-library).

4. Product installation:

PWI Joists covered by this report shall be installed in accordance with the recommendations provided by the manufacturer (see link above) or the APA Z725 (see link above) for products qualified as the PRI Series. Permissible web holes and cantilever reinforcements shall be in accordance with the recommendations provided by the manufacturer or with the APA Z725 for products qualified as the PRI Series.

5. Fire-rated assemblies:

Fire-rated assemblies shall be constructed in accordance with the recommendations provided by the manufacturer, APA Product Report PR-S238, or APA *Fire-Rated Systems*, Form W305 (see link above) for products qualified as the PRI Series.

6. Limitations:

- a) PWI Joists shall be designed in accordance with the code using the design properties specified in this report.
- b) PWI Joists are limited to dry service conditions where the average equilibrium moisture content of solid-sawn lumber is less than 16%.
- c) PWI Joists are produced at Pacific Woodtech Corporation facility in Red Bluff, California under a quality assurance program audited by APA.
- d) PWI Joists are also produced at the Resolute Engineered Wood Larouche Inc. and Resolute Engineered Wood St. Prime Limited Partnership facilities in Larouche, Quebec, and St. Prime, Quebec, respectively, under a quality assurance program audited by APA.
- e) This report is subject to re-examination in one year.

7. Identification:

The Pacific Woodtech I-joists described in this report are identified by a label bearing the manufacturer's name (Pacific Woodtech Corporation) and/or trademark, the APA assigned plant number (1069 for the Pacific Woodtech Red Bluff plant, 1068 for the Larouche plant of Resolute Engineered Wood Larouche Inc, and 1077 for the St. Prime plant of Resolute Engineered Wood St. Prime Limited Partnership), the I-joist series designation and depth, the APA logo, the report number PR-L238, and a means of identifying the date of manufacture.

Table 1. Description of PWI Joists^(a)

Joist Series	Joist Depths (in.)	Flanges				Web	
		Material	G ^(b)	Dimension		Material	Thickness ^(d) (in.)
				Depth (in.)	Width (in.)		
LPI 18/ PWI 18S	7-7/8 - 16	Proprietary SPF	0.42	1-1/2	2-1/2	OSB	3/8
LPI 20Plus/ PWI 20S	7-7/8 - 16	Proprietary SPF	0.42	1-1/2	2-1/2	OSB	3/8
LPI 32Plus/ PWI 32S	7-7/8 - 16	MSR SPF	0.46	1-1/2	2-1/2	OSB	3/8
LPI 42Plus/ PWI 42S	7-7/8 - 24	Proprietary SPF	0.46 ^(c)	1-1/2	3-1/2	OSB	3/8 ^(e)
LPI 52Plus/ PWI 52S	9-1/4 - 24	MSR SPF	0.50	1-1/2	3-1/2	OSB	7/16
LPI 36/ PWI 36L	11-7/8 - 24	LVL	0.50	1-1/2	2-1/4	OSB	3/8
LPI 530/ PWI 53L	9-1/2 - 16	LVL	0.50	1-5/16	2-1/16	OSB	3/8
LPI 56/ PWI 56L	11-7/8 - 24	LVL	0.50	1-1/2	3-1/2	OSB	7/16

- ^(a) Referenced dimensions are nominal. Tolerances are as specified in the in-plant quality manual.
- ^(b) Specific gravity of flanges for use in diaphragm design (see Table 4) based on oven-dry weight and oven-dry volume for lumber flanges or equivalent specific gravity for LVL flanges.
- ^(c) Specific gravity of flanges for LPI 42Plus/PWI 42S Joist trademarked with mill number 1069 (Red Bluff, CA) is 0.50.
- ^(d) 7/16-inch webs shall be permitted to substitute for 3/8-inch webs.
- ^(e) 7/16-inch webs for joist depths exceeding 16 inches.

Table 2. Design Properties (Allowable Stress Design) for PWI Joists^(a)

Joist Series Designation	Joist Depth (inches, unless otherwise noted)	EI ^(b) (10 ⁶ lbf-in. ²)	M ^(c) (lbf-ft)	V ^(d) (lbf)	VLC ^(e) (lbf/ft)	K ^(f) (10 ⁶ lbf-ft/in.)
LPI 18/ PWI 18S	7-7/8	69	1,910	940	1,900	0.302
	8-7/8	92	2,205	1,055	1,900	0.334
	9-1/4	114	2,315	1,100	1,900	0.347
	9-1/2	142	2,365	1,130	1,900	0.355
	11-1/4	228	2,915	1,280	1,760	0.414
	11-7/8	248	3,100	1,335	1,760	0.435
	14	371	3,720	1,510	1,600	0.508
	16	514	4,230	1,680	1,200	0.577
LPI 20Plus/ PWI 20S	7-7/8	117	2,235	1,045	1,900	0.305
	8-7/8	157	2,580	1,175	1,900	0.337
	9-1/4	173	2,710	1,225	1,900	0.350
	240 mm	183	2,795	1,250	1,900	0.356
	9-1/2 ^(g)	185	2,810	1,260	1,900	0.358
	11-1/4	280	3,410	1,425	1,760	0.417
	300 mm	314	3,735	1,475	1,760	0.436
	11-7/8 ^(g)	318	3,755	1,485	1,760	0.438
	14 ^(g)	474	4,400	1,680	1,600	0.512
	360 mm	488	4,460	1,700	1,500	0.518
400 mm	629	4,965	1,845	1,500	0.573	
16 ^(g)	652	5,050	1,870	1,500	0.582	
LPI 32Plus/ PWI 32S	7-7/8	152	2,890	1,045	2,200	0.200
	8-7/8	203	3,340	1,175	2,200	0.201
	9-1/4	228	3,510	1,225	2,200	0.208
	9-1/2 ^(h)	243	3,620	1,260	2,200	0.213
	11-1/4	359	4,410	1,425	2,200	0.252
	11-7/8 ^(h)	406	4,690	1,485	2,200	0.267
	14 ^(h)	589	5,645	1,680	1,600	0.313
	16 ^(h)	791	6,545	1,870	1,500	0.358
LPI 42Plus/ PWI 42S	7-7/8	204	4,290	1,145	2,200	0.341
	8-7/8	272	4,955	1,265	2,200	0.385
	9-1/4	301	5,210	1,310	2,200	0.401
	240 mm	317	5,340	1,335	2,200	0.410
	9-1/2	321	5,375	1,340	2,200	0.412
	11-1/4	480	6,550	1,550	2,200	0.488
	300 mm	535	6,920	1,615	2,200	0.513
	11-7/8 ⁽ⁱ⁾	547	6,965	1,625	2,200	0.515
	14 ⁽ⁱ⁾	802	8,390	1,875	2,000	0.607
	360 mm	825	8,505	1,895	2,000	0.614
	400 mm	1,054	9,560	2,085	2,000	0.682
	16 ⁽ⁱ⁾	1,092	9,725	2,115	2,000	0.693
	18	1,333	11,000	2,555	1,700	0.960
	20	1,688	12,170	2,795	1,580	1.067
22	2,088	13,335	3,030	1,300	1.173	
24	2,534	14,480	3,270	1,100	1.280	

(Footnotes on Page 6)

Table 2. Design Properties (Allowable Stress Design) for PWI Joists^(a) (Continued)

Joist Series Designation	Joist Depth (inches, unless otherwise noted)	EI ^(b) (10 ⁶ lbf-in. ²)	M ^(c) (lbf-ft)	V ^(d) (lbf)	I ^(e) (lbf/ft)	K ^(f) (10 ⁶ lbf-ft/in.)
LPI 52Plus/ PWI 52S	9-1/4	334	6,340	1,715	2,400	0.493
	9-1/2	356	6,540	1,745	2,400	0.507
	11-1/4	529	7,965	1,975	2,400	0.600
	11-7/8	600	8,475	2,055	2,400	0.633
	14	874	10,205	2,330	2,200	0.747
	16	1,183	11,835	2,585	2,000	0.853
	18	1,540	13,380	2,845	1,700	0.960
	20	1,948	14,810	3,105	1,580	1.067
LPI 36/ PWI 36L	22	2,408	16,220	3,360	1,300	1.173
	24	2,919	17,615	3,620	1,100	1.280
	11-7/8	429	6,445	1,615	1,800	0.468
	14	622	7,755	1,830	1,800	0.550
	16	836	8,995	2,020	1,800	0.625
	18	1,082	10,135	2,185	1,300	0.700
	20	1,360	11,270	2,320	1,300	0.774
LPI 530/ PWI 53L	22	1,669	12,390	2,435	1,200	0.850
	24	2,010	13,505	2,525	1,100	0.922
	9-1/2	207	4,000	1,340	2,000	0.478
	11-7/8	345	5,150	1,565	2,000	0.591
LPI 56/ PWI 56L	14	501	6,110	1,765	1,100	0.693
	16	677	6,990	1,955	1,100	0.789
	11-7/8	668	10,170	2,055	2,400	0.549
	14	968	12,250	2,330	2,200	0.641
	16	1,301	14,205	2,585	1,900	0.729
	18	1,684	16,010	2,845	1,700	0.817
	20	2,115	17,800	3,105	1,580	0.905
LPI 56/ PWI 56L	22	2,597	19,575	3,360	1,300	0.993
	24	3,127	21,340	3,620	1,100	1.081

(Footnotes on Page 6)

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 lbf = 4.448 N.

- (a) The tabulated values are design values for normal duration of load. All values, except for EI, VLC, and K, shall be adjusted for other load durations in accordance with the code.
- (b) Bending stiffness (EI) of the I-joist.
- (c) Moment capacity (M) of the I-joist, which shall not be increased by any repetitive member factor.
- (d) Shear capacity (V) of the I-joist.
- (e) Uniform vertical load capacity of the I-joist.
- (f) Coefficient of shear deflection (K). For calculating uniform load and center-point load deflections of the I-joist in a simple-span application, use Eqs. 1 and 2.

$$\text{Uniform Load:} \quad \delta = \frac{5 \omega L^4}{384 EI} + \frac{\omega L^2}{12 K} \quad [1]$$

$$\text{Center-Point Load:} \quad \delta = \frac{PL^3}{48 EI} + \frac{PL}{6 K} \quad [2]$$

where δ = calculated deflection (in.), ω = uniform load (lbf/in.),
 P = concentrated load (lbf), L = design span (in.),
 EI = bending stiffness of the I-joist (lbf-in.²), and K = coefficient of shear deflection (lbf-ft/in.).

- (g) The 9-1/2, 11-7/8, 14, and 16-inch LPI 20Plus/PWI 20S trademarked with mill number 1068 (Larouche, QC) shall be permitted to be designed as PRI-40 I-joists. The 9-1/2, 11-7/8, and 14-inch LPI 20Plus/PWI 20S trademarked with mill number 1077 (St. Prime, QC) shall be permitted to be designed as PRI-40 I-joists.
- (h) The 9-1/2, 11-7/8, 14, and 16-inch LPI 32Plus/PWI 32S trademarked with mill number 1068 (Larouche, QC) shall be permitted to be designed as PRI-60 I-joists. The 9-1/2, 11-7/8, and 14-inch LPI 32Plus/PWI 32S trademarked with mill number 1077 (St. Prime, QC) shall be permitted to be designed as PRI-60 I-joists.
- (i) The 11-7/8, 14, and 16-inch LPI 42Plus/PWI 42S I-joists trademarked with mill numbers 1068 (Larouche, QC) and 1069 (Red Bluff, CA) are recognized as PRI-80 I-joists. The 11-7/8 and 14-inch LPI 42Plus/PWI 42S trademarked with mill number 1077 (St. Prime, QC) are recognized as PRI-80 I-joists.

Table 3. Reaction Capacities (Allowable Stress Design) for PWI Joists^(a,b,c)

Joist Series Designation	Joist Depth (inches, unless otherwise noted)	Intermediate Reaction ^(d) (lbf)				End Reaction ^(e) (lbf)				Compressive Stress Perpendicular to Grain (F _{cL}), psi
		3-1/2 in. Brg. Length		5-1/2 in. Brg. Length		1-1/2 in. Brg. Length		4 in. Brg. Length		
		With Brg. Stiffeners		With Brg. Stiffeners		With Brg. Stiffeners		With Brg. Stiffeners		
		No	Yes	No	Yes	No	Yes	No	Yes	
LPI 18/ PWI 18S	7-7/8	1,890	2,035	2,115	2,250	870	940	940	940	425
	8-7/8	1,940	2,095	2,165	2,320	870	990	975	1,055	
	9-1/4	1,960	2,115	2,190	2,350	870	1,010	990	1,100	
	9-1/2	1,975	2,135	2,205	2,370	870	1,025	995	1,130	
	11-1/4	2,065	2,235	2,300	2,500	870	1,110	1,030	1,280	
	11-7/8	2,095	2,270	2,335	2,545	870	1,145	1,040	1,335	
	14	2,205	2,395	2,450	2,700	870	1,255	1,080	1,510	
	16	2,310	2,515	2,565	2,855	870	1,355	1,115	1,680	
LPI 20Plus/ PWI 20S	7-7/8	2,100	2,265	2,350	2,500	970	1,045	1,045	1,045	425
	8-7/8	2,160	2,330	2,410	2,580	970	1,100	1,085	1,175	
	9-1/4	2,180	2,355	2,435	2,615	970	1,125	1,100	1,225	
	240 mm	2,190	2,370	2,445	2,630	970	1,135	1,105	1,250	
	9-1/2 ^(f)	2,195	2,375	2,450	2,635	970	1,140	1,110	1,260	
	11-1/4	2,295	2,485	2,560	2,780	970	1,235	1,145	1,425	
	300 mm	2,325	2,520	2,590	2,825	970	1,270	1,155	1,475	
	11-7/8 ^(f)	2,330	2,525	2,595	2,830	970	1,275	1,160	1,485	
	14 ^(f)	2,455	2,665	2,725	3,005	970	1,395	1,200	1,680	
	360 mm	2,465	2,675	2,740	3,020	970	1,405	1,205	1,700	
	400 mm	2,555	2,780	2,835	3,150	970	1,495	1,235	1,845	
16 ^(f)	2,570	2,795	2,850	3,175	970	1,510	1,240	1,870		
LPI 32Plus/ PWI 32S	7-7/8	2,100	2,265	2,350	2,500	970	1,045	1,045	1,045	525
	8-7/8	2,160	2,330	2,410	2,580	970	1,100	1,085	1,175	
	9-1/4	2,180	2,355	2,435	2,615	970	1,125	1,100	1,225	
	9-1/2 ^(g)	2,195	2,375	2,450	2,635	970	1,140	1,110	1,260	
	11-1/4	2,295	2,485	2,560	2,780	970	1,235	1,145	1,425	
	11-7/8 ^(g)	2,330	2,525	2,595	2,830	970	1,275	1,160	1,485	
	14 ^(g)	2,455	2,665	2,725	3,005	970	1,395	1,200	1,680	
	16 ^(g)	2,570	2,795	2,850	3,175	970	1,510	1,240	1,870	

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Table 3. Reaction Capacities (Allowable Stress Design) for PWI Joists^(a,b,c) (Continued)

Joist Series Designation	Joist Depth (inches, unless otherwise noted)	Intermediate Reaction ^(d) (lbf)				End Reaction ^(e) (lbf)				Compressive Stress Perpendicular to Grain (F _{cL}), psi
		3-1/2 in. Brg. Length		5-1/2 in. Brg. Length		1-1/2 in. Brg. Length		4 in. Brg. Length		
		With Brg. Stiffeners		With Brg. Stiffeners		With Brg. Stiffeners		With Brg. Stiffeners		
		No	Yes	No	Yes	No	Yes	No	Yes	
LPI 42Plus/ PWI 42S	7-7/8	2,815	2,920	2,815	2,970	1,145	1,145	1,145	1,145	525 ⁽ⁱ⁾
	8-7/8	2,870	3,025	2,890	3,105	1,170	1,265	1,240	1,265	
	9-1/4	2,890	3,065	2,920	3,160	1,180	1,310	1,280	1,310	
	240 mm	2,895	3,085	2,935	3,185	1,185	1,335	1,295	1,335	
	9-1/2	2,900	3,095	2,940	3,195	1,185	1,340	1,305	1,340	
	11-1/4	2,995	3,270	3,075	3,430	1,230	1,465	1,515	1,550	
	300 mm	3,020	3,335	3,115	3,505	1,245	1,505	1,585	1,615	
	11-7/8 ^(h)	3,025	3,340	3,120	3,515	1,245	1,510	1,595	1,625	
	14 ^(h)	3,140	3,565	3,280	3,805	1,300	1,660	1,595	1,875	
	360 mm	3,150	3,580	3,295	3,830	1,305	1,670	1,595	1,895	
	400 mm	3,230	3,750	3,415	4,045	1,345	1,780	1,595	2,085	
	16 ^(h)	3,245	3,775	3,435	4,080	1,350	1,800	1,595	2,115	
	18	3,450	4,285	3,850	4,625	1,500 ⁽ⁱ⁾	2,305 ⁽ⁱ⁾	1,690	2,555	
20	3,450	4,410	3,850	4,835	1,500 ⁽ⁱ⁾	2,450 ⁽ⁱ⁾	1,690	2,795		
22	3,450	4,530	3,850	5,030	1,500 ⁽ⁱ⁾	2,595 ⁽ⁱ⁾	1,690	3,030		
24	3,450	4,640	3,850	5,210	1,500 ⁽ⁱ⁾	2,705 ⁽ⁱ⁾	1,690	3,270		
LPI 52Plus/ PWI 52S	9-1/4	3,400	3,680	3,500	3,800	1,330	1,630	1,590	1,715	615
	9-1/2	3,400	3,710	3,515	3,840	1,335	1,650	1,600	1,745	
	11-1/4	3,415	3,925	3,605	4,110	1,360	1,775	1,665	1,975	
	11-7/8	3,420	4,000	3,635	4,210	1,370	1,820	1,690	2,055	
	14	3,435	4,260	3,745	4,540	1,385	1,970	1,845	2,330	
	16	3,450	4,505	3,850	4,855	1,400	2,110	1,985	2,585	
	18	3,450	4,750	3,850	5,165	1,700 ⁽ⁱ⁾	2,490 ⁽ⁱ⁾	2,130	2,845	
	20	3,450	4,990	3,850	5,475	1,700 ⁽ⁱ⁾	2,675 ⁽ⁱ⁾	2,130	3,105	
22	3,450	5,235	3,850	5,790	1,700 ⁽ⁱ⁾	2,865 ⁽ⁱ⁾	2,130	3,360		
24	3,450	5,480	3,850	6,100	1,700 ⁽ⁱ⁾	3,055 ⁽ⁱ⁾	2,130	3,620		
LPI 36/ PWI 36L	11-7/8	2,500	3,105	2,835	3,470	1,025	1,500	1,290	1,615	550
	14	2,500	3,205	2,835	3,565	1,025	1,515	1,325	1,830	
	16	2,500	3,305	2,835	3,655	1,025	1,525	1,360	2,020	
	18	2,500	3,405	2,835	3,750	1,175 ⁽ⁱ⁾	1,800 ⁽ⁱ⁾	1,395	2,185	
	20	2,500	3,500	2,835	3,840	1,185 ⁽ⁱ⁾	1,860 ⁽ⁱ⁾	1,430	2,320	
	22	2,500	3,600	2,835	3,930	1,200 ⁽ⁱ⁾	1,915 ⁽ⁱ⁾	1,465	2,435	
	24	2,500	3,700	2,835	4,025	1,215 ⁽ⁱ⁾	1,960 ⁽ⁱ⁾	1,500	2,525	

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Table 3. Reaction Capacities (Allowable Stress Design) for PWI Joists^(a,b,c) (Continued)

Joist Series Designation	Joist Depth (inches, unless otherwise noted)	Intermediate Reaction ^(e) (lbf)				End Reaction ^(e) (lbf)				Compressive Stress Perpendicular to Grain (F _{cL}), psi
		3-1/2 in. Brg. Length		5-1/2 in. Brg. Length		1-1/2 in. Brg. Length		4 in. Brg. Length		
		With Brg. Stiffeners		With Brg. Stiffeners		With Brg. Stiffeners		With Brg. Stiffeners		
		No	Yes	No	Yes	No	Yes	No	Yes	
LPI 530/ PWI 53L	9-1/2	2,065	2,300	2,265	2,500	880	1,125	1,095	1,340	550
	11-7/8	2,120	2,485	2,400	2,735	880	1,245	1,120	1,565	
	14	2,165	2,655	2,525	2,945	880	1,350	1,145	1,765	
	16	2,210	2,810	2,640	3,140	880	1,450	1,165	1,955	
LPI 56/ PWI 56L	11-7/8	3,130	3,860	3,670	4,060	1,145	1,660	1,515	2,055	550
	14	3,130	4,055	3,670	4,300	1,145	1,755	1,535	2,330	
	16	3,130	4,245	3,670	4,525	1,145	1,845	1,555	2,585	
	18	3,130	4,435	3,670	4,750	1,315 ⁽ⁱ⁾	2,300 ⁽ⁱ⁾	1,575	2,845	
	20	3,130	4,620	3,670	4,975	1,325 ⁽ⁱ⁾	2,455 ⁽ⁱ⁾	1,595	3,105	
	22	3,130	4,810	3,670	5,200	1,335 ⁽ⁱ⁾	2,610 ⁽ⁱ⁾	1,615	3,360	
24	3,130	5,000	3,670	5,430	1,340 ⁽ⁱ⁾	2,770 ⁽ⁱ⁾	1,635	3,620		

(Footnotes on Page 10)

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 lbf = 4.448 N, 1 psi = 6.895 kPa.

- (a) Reaction capacity shall be limited by the tabulated I-joist reaction capacity, flange bearing capacity, or the bearing capacity of the support material, whichever is less. The flange bearing capacity is based on the allowable compressive stress perpendicular to grain of the I-joist flange, the net flange width, and the bearing length, and may be further limited by the bearing capacity of the support material. To calculate the net flange width, subtract 0.25 inch from the flange width (see Table 1) of the LPI 18/PWI 18S, LPI 20Plus/PWI 20S, LPI 32Plus/PWI 32S, LPI 42Plus/PWI 42S, and LPI 52Plus/PWI 52S Joist, or subtract 0.10 inch from the flange width (see Table 1) of the LPI 36/PWI 36L, LPI 530/PWI 53L, and LPI 56/PWI 56L Joist.
- (b) Reaction capacity is for normal duration of load and shall be adjusted for other load durations provided that the adjusted reaction design value is not greater than the flange bearing capacity or the bearing capacity of the support material. Flange bearing capacity and the bearing capacity of any wood support shall not be adjusted for load duration.
- (c) Reaction capacity and flange bearing capacity shall be permitted to be increased over that tabulated for the minimum bearing length. Linear interpolation of the reaction capacity between the minimum and maximum bearing length is permitted. Bearing lengths longer than the maximum do not further increase the reaction capacity. Flange bearing capacity and that of a wood support will increase with additional bearing length.
- (d) For depths of 9-1/2 inches and greater, the intermediate reaction with a minimum bearing length of 3 inches shall be permitted to be determined based on the intermediate reaction values with a bearing length of 3-1/2 inches and 5-1/2 inches.
- (e) The minimum bearing length for end reactions is 1-1/2 inches, unless otherwise noted.
- (f) The 9-1/2, 11-7/8, 14, and 16-inch LPI 20Plus/PWI 20S trademarked with mill number 1068 (Larouche, QC) shall be permitted to be designed as PRI-40. The 9-1/2, 11-7/8, and 14-inch LPI 20Plus/PWI 20S trademarked with mill number 1077 (St. Prime, QC) shall be permitted to be designed as PRI-40.
- (g) The 9-1/2, 11-7/8, 14, and 16-inch LPI 32Plus/PWI 32S trademarked with mill number 1068 (Larouche, QC) shall be permitted to be designed as PRI-60 I-joists. The 9-1/2, 11-7/8, and 14-inch LPI 32Plus/PWI 32S trademarked with mill number 1077 (St. Prime, QC) shall be permitted to be designed as PRI-60 I-joists.
- (h) The 11-7/8, 14, and 16-inch LPI 42Plus/PWI 42S I-joists trademarked with mill numbers 1068 (Larouche, QC) and 1069 (Red Bluff, CA) are recognized as PRI-80 I-joists. The 11-7/8 and 14-inch LPI 42Plus/PWI 42S trademarked with mill number 1077 (St. Prime, QC) are recognized as PRI-80 I-joists.
- (i) Minimum bearing length is 2-1/2 inches.
- (j) Compressive stress perpendicular to grain ($F_{c\perp}$) of flanges for LPI 42Plus/PWI 42L Joist trademarked with mill number 1069 (Red Bluff, CA) is 615 psi.

Table 4. Allowable Shear (Pounds Per Foot) for Horizontal Wood Structural Panel Diaphragms Framed With PWI Joists for Wind^(a) or Seismic Loading^(b,c)

Panel Grade	Common Nail Size	Minimum Nominal Panel Thickness (in.)	Minimum Nominal Width of Framing Members at Adjoining Panel Edges and Boundaries ^(d) (in.)	I-Joist series approved for diaphragm construction as indicated.	Blocked Diaphragms			Unblocked Diaphragms	
					Nail spacing (in.) at diaphragm boundaries (all cases), at continuous panel edges parallel to load (Cases 3 & 4), and at all panel edges (Cases 5 & 6) ^(e,g)			Nails Spaced 6 in. max. at supported edges ^(e)	
					6	4 ^(h)	2-1/2 ^(h,i)	Case 1 (No unblocked edges or continuous joints parallel to load)	All other configurations (Cases 2, 3, 4, 5 & 6)
					Nail spacing (in.) at other panel edges (Cases 1, 2, 3, & 4) ^(e)				
					6	6	4		
Structural 1 Grades	6d ^(f)	5/16	2	LPI 530/PWI 53L	185	250	NP ^(k)	165	125
			3	LPI 18, 20Plus, 32Plus, 42Plus, 52Plus, 36 ^(j) & 56/PWI 18S, 20S, 32S, 42S, 52S, 36L ^(j) & 56L	210	280	420 ^(j)	185	140
	8d	3/8	2	LPI 530/PWI 53L	270	360	NP ^(k)	240	180
			3	LPI 18, 20Plus, 32Plus, 42Plus, 52Plus, 36 ^(j) & 56/PWI 18S, 20S, 32S, 42S, 52S, 36L ^(j) & 56L	300	400	600 ^(j)	265	200
	10d	15/32	2	LPI 530/PWI 53L	320	425	NP ^(k)	285	215
			3	LPI 18, 20Plus, 32Plus, 42Plus, 52Plus, 36 ^(j) & 56/PWI 18S, 20S, 32S, 42S, 52S, 36L ^(j) & 56L	360	480	720 ^(j)	320	240
Sheathing, single floor and other grades covered in DOC PS 1 and PS 2	6d ^(f)	5/16	2	LPI 530/PWI 53L	170	225	NP ^(k)	150	110
			3	LPI 18, 20Plus, 32Plus, 42Plus, 52Plus, 36 ^(j) & 56/PWI 18S, 20S, 32S, 42S, 52S, 36L ^(j) & 56L	190	250	380 ^(j)	170	125
		3/8	2	LPI 530/PWI 53L	185	250	NP ^(k)	165	125
			3	LPI 18, 20Plus, 32Plus, 42Plus, 52Plus, 36 ^(j) & 56/PWI 18S, 20S, 32S, 42S, 52S, 36L ^(j) & 56L	210	280	420 ^(j)	185	140
	8d	3/8	2	LPI 530/PWI 53L	240	320	NP ^(k)	215	160
			3	LPI 18, 20Plus, 32Plus, 42Plus, 52Plus, 36 ^(j) & 56/PWI 18S, 20S, 32S, 42S, 52S, 36L ^(j) & 56L	270	360	540 ^(j)	240	180
		7/16	2	LPI 530/PWI 53L	255	340	NP ^(k)	230	170
			3	LPI 18, 20Plus, 32Plus, 42Plus, 52Plus, 36 ^(j) & 56/PWI 18S, 20S, 32S, 42S, 52S, 36L ^(j) & 56L	285	380	570 ^(j)	255	190
		15/32	2	LPI 530/PWI 53L	270	360	NP ^(k)	240	180
			3	LPI 18, 20Plus, 32Plus, 42Plus, 52Plus, 36 ^(j) & 56/PWI 18S, 20S, 32S, 42S, 52S, 36L ^(j) & 56L	300	400	600 ^(j)	265	200
	10d	15/32	2	LPI 530/PWI 53L	290	385	NP ^(k)	255	190
			3	LPI 18, 20Plus, 32Plus, 42Plus, 52Plus, 36 ^(j) & 56/PWI 18S, 20S, 32S, 42S, 52S, 36L ^(j) & 56L	325	430	650 ^(j)	290	215
		19/32	2	LPI 530/PWI 53L	320	425	NP ^(k)	285	215
			3	LPI 18, 20Plus, 32Plus, 42Plus, 52Plus, 36 ^(j) & 56/PWI 18S, 20S, 32S, 42S, 52S, 36L ^(j) & 56L	360	480	720 ^(j)	320	240

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 lbf = 4.448 N, 1 lbf/ft = 0.0146 N/mm.

(Footnotes on following page)

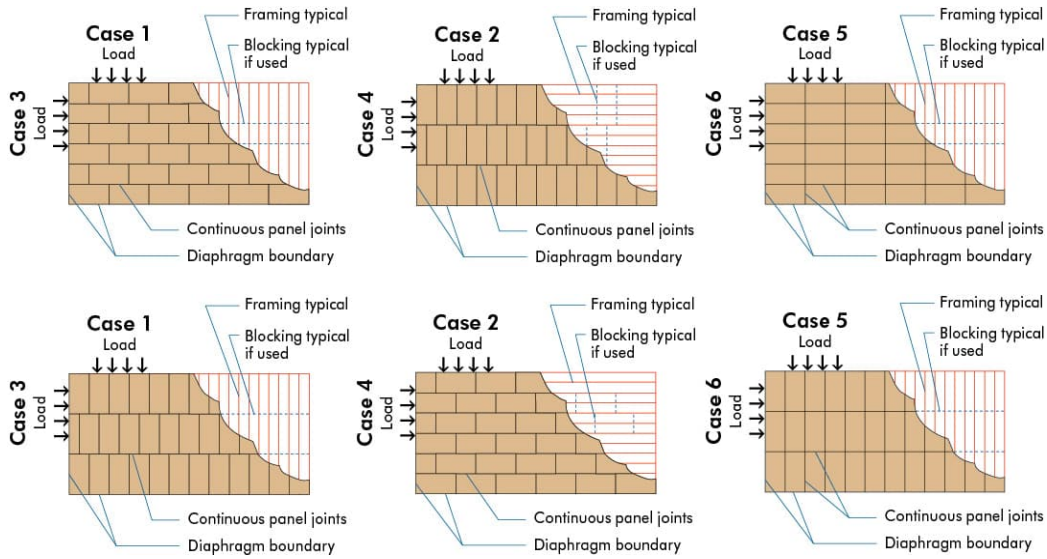


Figure 1. Diaphragm configurations

- (a) For wind load applications, the values in the table above shall be permitted to be multiplied by 1.4.
- (b) For shear loads of normal or permanent load duration as defined by the NDS, the values in the table above shall be multiplied by 0.63 or 0.56, respectively.
- (c) The tabulated allowable shear capacities are for I-joist series with flanges having a specific gravity (G) of 0.50 or higher (see Table 1). For $G < 0.50$ the allowable shear capacities shall be reduced by multiplying the allowable shear capacities by the Specific Gravity Adjustment Factor = $[1 - (0.5 - G)]$. The Specific Gravity Adjustment Factor shall not be greater than 1.
- (d) The minimum nominal width of framing members not located at boundaries or adjoining panel edges shall be 2 inches.
- (e) Space nails maximum 12 inches o.c. along intermediate framing members (6 inches o.c. when supports are spaced 48 inches o.c. or greater). Fasteners shall be located 3/8 inch minimum from panel edges (see Figures 2, 3, and 4).
- (f) 8d common nails minimum are recommended for roofs due to negative pressures of high winds.
- (g) Fasteners shall be located 3/8 inch minimum from panel edges (see Figures 2, 3, and 4).
- (h) Adjacent nails within a row must be staggered 1/2 inch at diaphragm boundaries when nail spacing is 4 inches o.c. or less (see Figure 3).
- (i) Adjacent nails within a row must be staggered 1/2 inch at adjoining panel edges when nail spacing is 2-1/2 inches o.c. (see Figure 4).
- (j) LPI 36/PWI 36L is not permitted with the nail spacing of 2-1/2 inches o.c.
- (k) Not permitted.

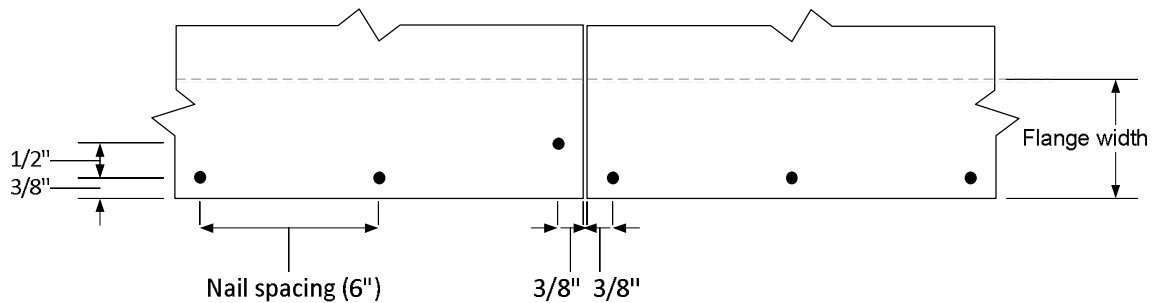


Figure 2. Boundary nails for nail spacing of 6 inches o.c. (not to scale)

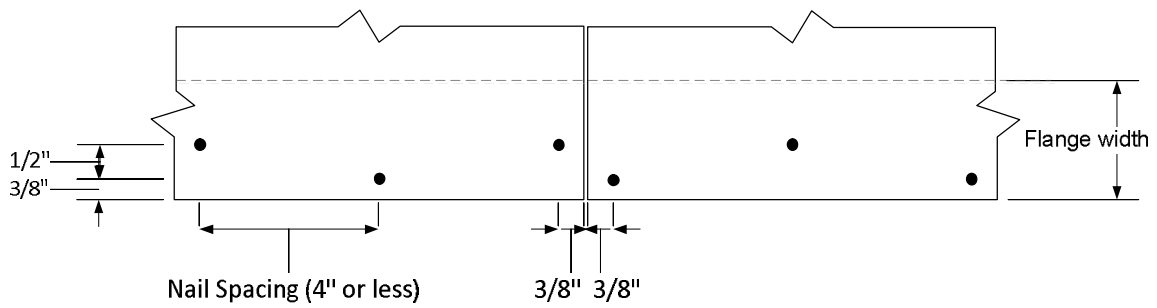


Figure 3. Staggered nails when the nail spacing is 4 inches o.c. or less at diaphragm boundaries (not to scale)

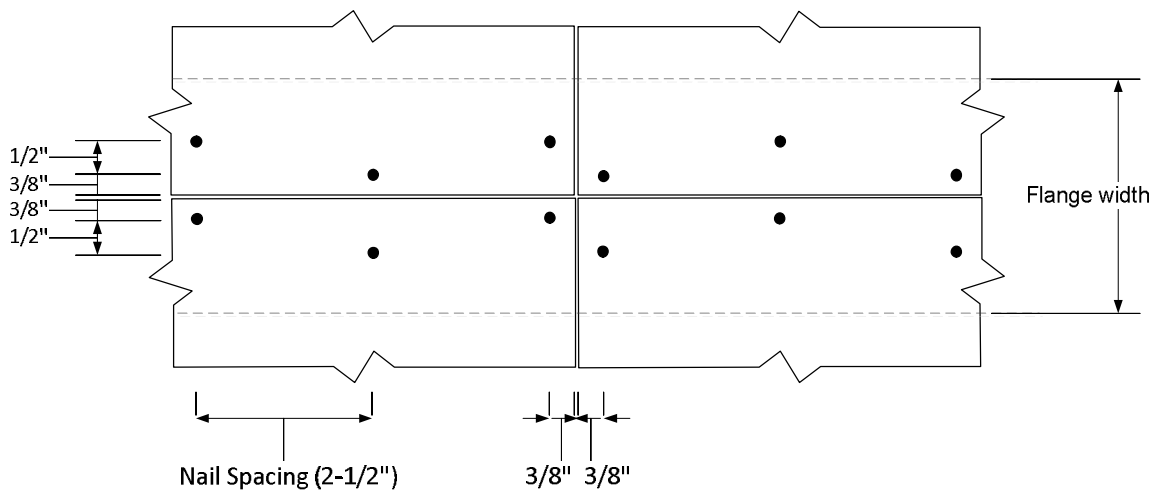


Figure 4. Staggered nails when the nail spacing is 2-1/2 inches o.c. at adjoining panel edges (not to scale)

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