APA PRODUCT REPORT®

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PWT™ I-Joists
PWT

PR-L238

Revised November 4, 2024

Products: PWT™ I-Joists
PWT, 1850 Park Lane, Burlington, Washington 98233
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www.pwtewp.com

1. Basis of the product report:
   - 2024 International Building Code (IBC): Sections 104.2.3 Alternative materials and 2303.1.2 Prefabricated wood I-joists
   - 2021, 2018, and 2015 IBC: Sections 104.11 Alternative materials and 2303.1.2 Prefabricated wood I-joists
   - 2024 International Residential Code (IRC): Sections R104.2.2 Alternative materials and R502.1.2 and R802.1.7 Prefabricated wood I-joists
   - 2021, 2018, and 2015 IRC: Sections 104.11 Alternative materials, and R502.1.2 and R802.1.8 (2021 and 2018 IRC only) Prefabricated wood I-joists
   - ASTM D5055-19e1, D5055-16, D5055-13e1, and D5055-13 recognized in the 2024 IBC and IRC, 2021 IBC and IRC, 2018 IBC and IRC, 2015 IBC and IRC, respectively
   - APA PRI-400, Performance Standard for Residential I-Joists
   - 2021 and 2015 ANSI/AWC Special Design Provisions for Wind and Seismic (SPDWS) recognized in the 2024 and 2021 IBC, and 2018 and 2015 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, T2012P-25A, T2013P-35, T2013P-36, T2014P-03, T2014P-29, T2014P-36, T2015L-05B, T2015P-10A, T2016P-01, T2016P-19, T2017L-25, T2017P-32, T2024P-24, T2024P-25, and T2024P-27, and other qualification data

2. Product description:
   PWT™ I-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 PWT I-joists covered by this report. Table 4 shows the allowable lateral shear capacities of I-Joists in diaphragm applications. The allowable spans for PWT I-joists shall be in accordance with the recommendations provided by the manufacturer (www.pwtewp.com). The allowable spans for PWT I-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:
   PWT I-joists covered by this report shall be installed in accordance with the recommendations provided by the manufacturer (see link above) or the APA *Performance Rated I-Joists*, Form 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) PWT I-joists shall be designed in accordance with the code using the design properties specified in this report.
   b) PWT I-joists are limited to dry service conditions where the average equilibrium moisture content of solid-sawn lumber is less than 16%.
   c) PWT I-joists are produced at PWT facility in Red Bluff, California under a quality assurance program audited by APA.
   d) PWT I-joists are also produced at the Resolute Engineered Wood St. Prime Limited Partnership facilities in St. Prime, Quebec under a quality assurance program audited by APA.
   e) This report is subject to re-examination in one year.

7. Identification:
   The PWT I-joists described in this report are identified by a label bearing the manufacturer's name (PWT) and/or trademark, the APA assigned plant number (1069 for the PWT Red Bluff plant 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 PWT I-Joists[a]

Joist Series	Joist Depths (in.)	Flanges				Web	
		Material	G[b]	Dimension		Material	Thickness[c] (in.)
				Depth (in.)	Width (in.)		
PWI 18S/ LPI 18	7-7/8 - 16	Proprietary SPF	0.42	1-1/2	2-1/2	OSB	3/8
PWI 20S/ LPI 20Plus	7-7/8 - 16	Proprietary SPF	0.42	1-1/2	2-1/2	OSB	3/8
PWI 32S/ LPI 32Plus	7-7/8 - 16	MSR SPF	0.46	1-1/2	2-1/2	OSB	3/8
PWI 42S/ LPI 42Plus	7-7/8 - 24	Proprietary SPF	0.46	1-1/2	3-1/2	OSB	3/8[d]
PWI 52S/ LPI 52Plus	9-1/4 - 24	MSR SPF	0.50	1-1/2	3-1/2	OSB	7/16
PWI 36L/ LPI 36	11-7/8 - 24	LVL	0.50	1-1/2	2-1/4	OSB	3/8
PWI 53L/ LPI 530	9-1/2 - 16	LVL	0.50	1-5/16	2-1/16	OSB	3/8
PWI 56L/ LPI 56	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] 7/16-inch webs shall be permitted to substitute for 3/8-inch webs.
[d] 7/16-inch webs for joist depths exceeding 16 inches.

Table 2. Design Properties (Allowable Stress Design) for PWT I-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.)
PWI 18S/ LPI 18	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
PWI 20S/ LPI 20Plus	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
PWI 32S/ LPI 32Plus	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
PWI 42S/ LPI 42Plus	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 the following page)

Table 2. Design Properties (Allowable Stress Design) for PWT I-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)	VLC[e] (lbf/ft)	K[f] (10^6 lbf-ft/in.)
PWI 52S/ LPI 52Plus	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
	22	2,408	16,220	3,360	1,300	1.173
	24	2,919	17,615	3,620	1,100	1.280
PWI 36L/ LPI 36	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
	22	1,669	12,390	2,435	1,200	0.850
	24	2,010	13,505	2,525	1,100	0.922
PWI 53L/ LPI 530	9-1/2	207	4,000	1,340	2,000	0.478
	11-7/8	345	5,150	1,565	2,000	0.591
	14	501	6,110	1,765	1,100	0.693
	16	677	6,990	1,955	1,100	0.789
PWI 56L/ LPI 56	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
	22	2,597	19,575	3,360	1,300	0.993
	24	3,127	21,340	3,620	1,100	1.081

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.

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

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

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, and 14-inch PWI 20S/LPI 20Plus 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, and 14-inch PWI 32S/LPI 32Plus trademarked with mill number 1077 (St. Prime, QC) shall be permitted to be designed as PRI-60 I-joists.
[i] The 11-7/8 and 14-inch PWI 42S/LPI 42Plus trademarked with mill number 1077 (St. Prime, QC) are recognized as PRI-80 I-joists.

Table 3. Reaction Capacities (Allowable Stress Design) for PWT I-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 ($F_{c\perp}$), 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	
PWI 18S/ LPI 18	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	
PWI 20S/ LPI 20Plus	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	2,570	2,795	2,850	3,175	970	1,510	1,240	1,870	
PWI 32S/ LPI 32Plus	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	2,570	2,795	2,850	3,175	970	1,510	1,240	1,870	

(Footnotes on the following page)

Table 3. Reaction Capacities (Allowable Stress Design) for PWT I-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 ($F_{c\perp}$), 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	
PWI 42S/ LPI 42Plus	7-7/8	2,815	2,920	2,815	2,970	1,145	1,145	1,145	1,145	525
	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	
PWI 52S/ LPI 52Plus	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	
PWI 36L/ LPI 36	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	

(Footnotes on the following page)

Table 3. Reaction Capacities (Allowable Stress Design) for PWT I-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 ($F_{c\perp}$), 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	
PWI 53L/ LPI 530	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	
PWI 56L/ LPI 56	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 the following page)

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 PWI 18S/LPI 18, PWI 20S/LPI 20Plus, PWI 32S/LPI 32Plus, PWI 42S/LPI 42Plus, and PWI 52S/LPI 52Plus, or subtract 0.10 inch from the flange width (see Table 1) of the PWI 36L/LPI 36, PWI 56L/LPI 56, PWI 53L/LPI 530.

(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, and 14-inch PWI 20S/LPI 20Plus 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, and 14-inch PWI 32S/LPI 32Plus 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-inch, and 16-inch PWI 42S/LPI 42Plus trademarked with mill number 1077 (St. Prime, QC) are recognized as PRI-80 I-joists.

(i) Minimum bearing length is 2-1/2 inches.

Table 4. Allowable Shear (Pounds Per Foot) for Horizontal Wood Structural Panel Diaphragms Framed With PWT I-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	PWI 53L/LPI 530	185	250	NP[k]	165	125
			3	PWI 18S, 20S, 32S, 42S, 52S, 36L[j] & 56L LPI 18, 20Plus, 32Plus, 42Plus, 52Plus, 36[j] & 56	210	280	420[j]	185	140
	8d	3/8	2	PWI 53L/LPI 530	270	360	NP[k]	240	180
			3	PWI 18S, 20S, 32S, 42S, 52S, 36L[j] & 56L LPI 18, 20Plus, 32Plus, 42Plus, 52Plus, 36[j] & 56	300	400	600[j]	265	200
	10d	15/32	2	PWI 53L/LPI 530	320	425	NP[k]	285	215
			3	PWI 18S, 20S, 32S, 42S, 52S, 36L[j] & 56L LPI 18, 20Plus, 32Plus, 42Plus, 52Plus, 36[j] & 56	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	PWI 53L/LPI 530	170	225	NP[k]	150	110
			3	PWI 18S, 20S, 32S, 42S, 52S, 36L[j] & 56L LPI 18, 20Plus, 32Plus, 42Plus, 52Plus, 36[j] & 56	190	250	380[j]	170	125
		3/8	2	PWI 53L/LPI 530	185	250	NP[k]	165	125
			3	PWI 18S, 20S, 32S, 42S, 52S, 36L[j] & 56L LPI 18, 20Plus, 32Plus, 42Plus, 52Plus, 36[j] & 56	210	280	420[j]	185	140
	8d	3/8	2	PWI 53L/LPI 530	240	320	NP[k]	215	160
			3	PWI 18S, 20S, 32S, 42S, 52S, 36L[j] & 56L LPI 18, 20Plus, 32Plus, 42Plus, 52Plus, 36[j] & 56	270	360	540[j]	240	180
		7/16	2	PWI 53L/LPI 530	255	340	NP[k]	230	170
			3	PWI 18S, 20S, 32S, 42S, 52S, 36L[j] & 56L LPI 18, 20Plus, 32Plus, 42Plus, 52Plus, 36[j] & 56	285	380	570[j]	255	190
		15/32	2	PWI 53L/LPI 530	270	360	NP[k]	240	180
			3	PWI 18S, 20S, 32S, 42S, 52S, 36L[j] & 56L LPI 18, 20Plus, 32Plus, 42Plus, 52Plus, 36[j] & 56	300	400	600[j]	265	200
	10d	15/32	2	PWI 53L/LPI 530	290	385	NP[k]	255	190
			3	PWI 18S, 20S, 32S, 42S, 52S, 36L[j] & 56L LPI 18, 20Plus, 32Plus, 42Plus, 52Plus, 36[j] & 56	325	430	650[j]	290	215
		19/32	2	PWI 53L/LPI 530	320	425	NP[k]	285	215
			3	PWI 18S, 20S, 32S, 42S, 52S, 36L[j] & 56L LPI 18, 20Plus, 32Plus, 42Plus, 52Plus, 36[j] & 56	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 the following page)

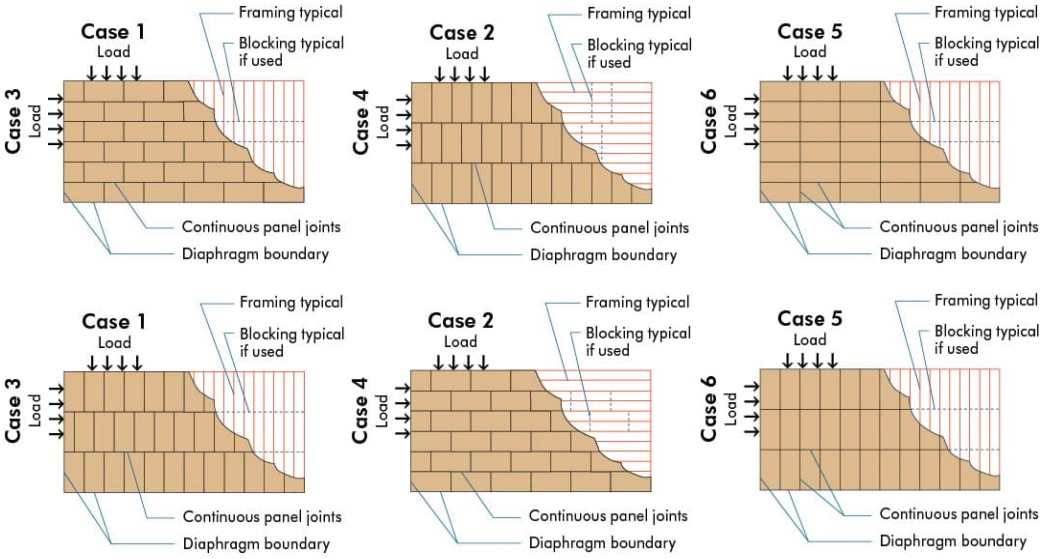

Figure 1. Diaphragm configurations

(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 ½ 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 ½ inch at adjoining panel edges when nail spacing is 2-½ inches o.c. (see Figure 4).
(j) PWI 36L/LPI 36 is not permitted with the nail spacing of 2-1/2 inches o.c.
(k) Not permitted.

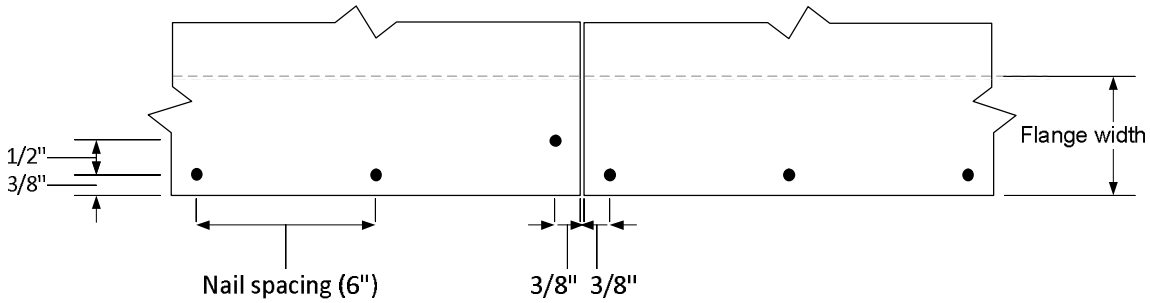

Figure 2. Boundary nails for nail spacing of 6 inches o.c. (not to scale)

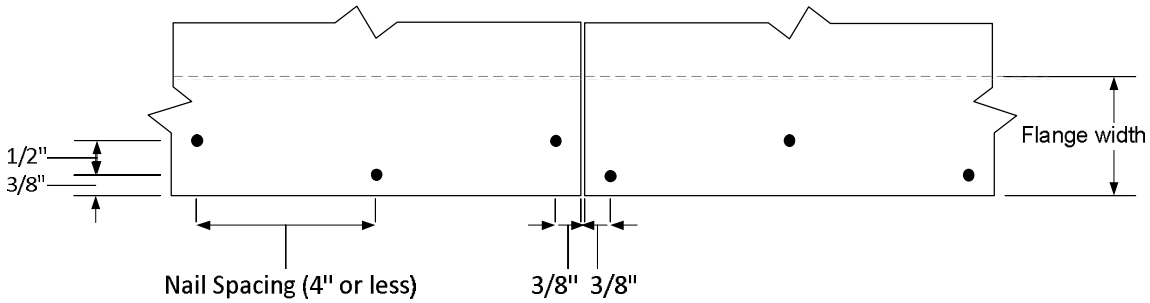

Figure 3. Staggered nails when the nail spacing is 4 inches o.c. or less at diaphragm boundaries (not to scale)

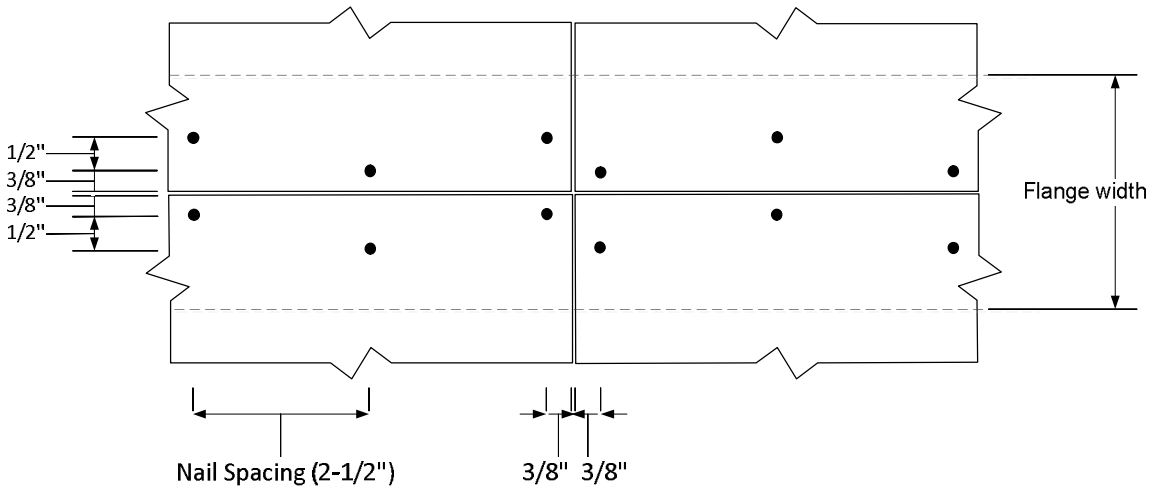

Figure 4. Staggered nails when the nail spacing is 2-1/2 inches o.c. at adjoining panel edges (not to scale)

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