APA PRODUCT REPORT®

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P3 Joist I-Joists PR-L261

EACOM Timber Corporation (DBA INTERFOR) Revised January 19, 2025

Products: PJI Prefabricated Wood I-Joists
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Plant: EACOM, 1195 Peoples Road, Sault Ste. Marie, ON, Canada P6C 3W7
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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, and 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, 2018 and 2015 IBC, respectively
   - APA Reports T2001P-41, T2002P-3, T2002P-19, T2003P-32, T2003P-53, T2003P-64B, T2005P-54, T2005P-56, T2005P-102, T2007P-105B, T2008P-68, T2008P-90, T2009P-07A, T2009P-35, T2015L-05B, T2017L-25, T2019P-65, T2021P-17, T2021P-21, T2021P-42, T2021P-54, and T2022P-31, and other qualification data

2. Product description:
   P3 Joist I-Joists® covered by this report, as described in Table 1, are made with lumber flanges and OSB web in accordance with the in-plant manufacturing standard approved by APA.

3. Design properties:
   Tables 2 and 3 list the design properties for P3 Joist I-Joists. Table 4 shows the allowable lateral shear capacities of P3 Joist I-Joists in diaphragm applications. The allowable spans for P3 Joist I-Joists shall be in accordance with the recommendations provided by the manufacturer (https://interfor.com/products/engineered-wood-products/p3-joist/) and with APA Performance Rated I-Joists, Form Z725 (www.apawood.org/resource-library) for depths contained in the PRI Series.

4. Product installation:
   P3 Joist I-Joists shall be installed in accordance with the recommendations provided by the manufacturer (see link above) and APA *I-Joist Construction Details - Performance Rated I-Joists in Floor and Roof Framing*, Form D710 (see link above). Permissible web holes and cantilever reinforcements shall be in accordance with the recommendations provided by the manufacturer, and with APA Form D710.

5. Fire-rated assemblies:
   Fire-rated assemblies shall be constructed in accordance with the recommendations provided by the manufacturer (see link above), APA Product Report PR-S261, or APA Design/Construction Guide: *Fire-Rated Systems*, Form W305 (see link above).

6. Limitations:
   a) P3 Joist I-Joists shall be designed in accordance with the code using the design properties specified in this report.
   b) P3 Joist I-Joists are limited to dry service conditions where the average equilibrium moisture content of sawn lumber is less than 16%.
   c) P3 Joist I-Joists are produced at EACOM's facility in Sault Ste. Marie, Ontario under a quality assurance program audited by APA.
   d) This report is subject to re-examination in one year.

7. Identification:
   P3 Joist prefabricated wood I-joists described in this report are identified by a label bearing the manufacturer's name (EACOM) and/or trademark, the APA assigned plant number (1058), the I-joist depth and series, the APA logo, the report number PR-L261, and a means of identifying the date of manufacture.

Table 1. Description of PJI Series I-joists[(a)]

Joist Series	Joist Depths, (in.)	Flanges				Web	
		Material	G[(b)]	Dimension		Material	Thickness, (in.)
				Depth, (in.)	Width, (in.)		
PJI-40	9-1/4 – 16	Proprietary SPF	0.42	1-1/2	2-1/2	OSB	3/8
PJI-60	9-1/2 – 16	MSR SPF	0.46	1-1/2	2-1/2	OSB	3/8
PJI-65	11-7/8 – 16	Proprietary SPF	0.42	1-1/2	3-1/2	OSB	3/8
PJI-80	9-1/2 – 24	MSR SPF	0.46	1-1/2	3-1/2	OSB	7/16
PJI-90	11-7/8 – 24	MSR SPF	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 based on oven-dry weight and oven-dry volume.

Table 2. Design Properties (Allowable Stress Design) for P3 Joist I-Joists[a]

Depth (in.)	Joist Series Designation	Also Qualified for	EI[b] (10^6 lbf-in.^{2})	M[c] (lbf-ft)	V[d] (lbf)	VLC (lbf/ft)	K[g] (10^6 lbf)
9-1/4	PJI-40	N.A.	181	2,690	1,080	2,000	4.81
9-1/2	PJI-40	PRI-40	193	2,735	1,400	2,000	4.94
	PJI-60	PRI-60	231	3,780	1,400	2,000	4.94
	PJI-80	N.A.	321	5,375	1,405	2,000	4.94
11-1/4	PJI-40	N.A.	289	3,380	1,345	2,000	5.85
11-7/8	PJI-40	PRI-40	330	3,545	1,620	2,000	6.18
	PJI-60	PRI-60	396	4,900	1,620	2,000	6.18
	PJI-65	PRI-60	454	5,085	1,620	2,000	6.18
	PJI-80	PRI-80	547	6,970	1,650	2,000	6.18
	PJI-90	N.A.	601	8,515	1,650	2,000	6.18
14	PJI-40	PRI-40	482	4,270	1,815	2,000	7.28
	PJI-60	PRI-60	584	5,895	1,815	2,000	7.28
	PJI-65	PRI-60	664	6,125	1,815	2,000	7.28
	PJI-80	PRI-80	802	8,390	1,865	2,000	7.28
	PJI-90	N.A.	877	10,255	1,865	2,000	7.28
16	PJI-40	PRI-40	657	4,950	2,000	2,000	8.32
	PJI-60	PRI-60	799	6,835	2,000	2,000	8.32
	PJI-65	PRI-60	901	7,105	2,000	2,000	8.32
	PJI-80	PRI-80	1,092	9,730	2,070	2,000	8.32
	PJI-90	N.A.	1,187	11,895	2,070	2,000	8.32
18	PJI-80	N.A.	1,413	11,000	2,450	2,000	9.36
	PJI-90	N.A.	1,546	13,445	2,450	2,000	9.36
20	PJI-80	N.A.	1,790	12,180	2,550	1,720	10.40
	PJI-90	N.A.	1,957	14,885	2,550	1,720	10.40
22	PJI-80	N.A.	2,214	13,340	2,650	1,440	11.44
	PJI-90	N.A.	2,419	16,305	2,650	1,440	11.44
24	PJI-80	N.A.	2,687	14,490	2,750	1,390	12.48
	PJI-90	N.A.	2,934	17,710	2,750	1,390	12.48

[a] The tabulated values are design values for normal duration of load. All values, except for EI and K, shall be permitted to be adjusted for other load durations as permitted by 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] Vertical Load Capacity of the I-joist.
[f] Coefficient of shear deflection (K). For calculating uniform load and center-point load deflections of the P3 Joist® in a simple-span application, use Eqs. 1 and 2.

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

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

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).

Table 3. Reaction Capacities (Allowable Stress Design) for P3 Joist I-Joists[a]

Depth (in.)	Joist Series Designation	Intermediate Reaction[c] (lbf)				End Reaction[d] (lbf)			
		3-1/2 in. Brg. Length		5-1/2 in. Brg. Length		1-3/4 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
9-1/4	PJI-40	2,700	2,880	2,795	3,230	1,080	1,080	1,080	1,080
9-1/2	PJI-40	2,755	2,900	3,245	3,245	1,195	1,275	1,260	1,400
	PJI-60	2,755	2,900	3,245	3,245	1,195	1,275	1,260	1,400
	PJI-80	2,760	3,125	3,245	3,400	1,305	1,405	1,405	1,405
11-1/4	PJI-40	2,755	3,010	3,245	3,340	1,200	1,310	1,345	1,345
11-7/8	PJI-40	2,755	3,045	3,245	3,375	1,200	1,460	1,430	1,620
	PJI-60	2,755	3,045	3,245	3,375	1,200	1,460	1,430	1,620
	PJI-65	2,810	3,300	3,255	3,585	1,200	1,460	1,430	1,620
	PJI-80	2,810	3,300	3,255	3,585	1,315	1,590	1,590	1,650
	PJI-90	2,810	3,300	3,255	3,585	1,315	1,590	1,590	1,650
14	PJI-40	2,755	3,175	3,245	3,485	1,200	1,620	1,580	1,815
	PJI-60	2,755	3,175	3,245	3,485	1,200	1,620	1,580	1,815
	PJI-65	3,020	3,455	3,435	3,745	1,200	1,620	1,580	1,815
	PJI-80	3,020	3,455	3,435	3,745	1,325	1,760	1,615	1,865
	PJI-90	3,020	3,455	3,435	3,745	1,325	1,760	1,615	1,865
16	PJI-40	2,755	3,300	3,245	3,595	1,200	1,750	1,720	2,000
	PJI-60	2,755	3,300	3,245	3,595	1,200	1,750	1,720	2,000
	PJI-65	3,265	3,600	3,600	3,900	1,200	1,750	1,720	2,000
	PJI-80	3,265	3,600	3,600	3,900	1,330	1,915	1,630	2,070
	PJI-90	3,265	3,600	3,600	3,900	1,330	1,915	1,630	2,070
18	PJI-80	3,200	3,950	3,650	4,350	1,340	1,925	1,650	2,450
	PJI-90	3,200	3,950	3,650	4,350	1,340	1,925	1,650	2,450
20	PJI-80	3,200	3,950	3,650	4,350	1,350	2,170	1,665	2,550
	PJI-90	3,200	3,950	3,650	4,350	1,350	2,170	1,665	2,550
22	PJI-80	3,200	3,950	3,650	4,350	1,355	2,415	1,685	2,650
	PJI-90	3,200	3,950	3,650	4,350	1,355	2,415	1,685	2,650
24	PJI-80	3,200	3,950	3,650	4,350	1,365	2,660	1,700	2,750
	PJI-90	3,200	3,950	3,650	4,350	1,365	2,660	1,700	2,750

[a] The tabulated values are design values for normal duration of load. All values shall be permitted to be adjusted for other load durations provided that the adjusted reaction design value is not greater than the value specified below. Bearing stiffeners shall be installed in accordance with the recommendations provided by the manufacturer and APA D710.

Depth	Joist Series Designation	Maximum adjusted reaction capacity[b] (lbf)							
		3-1/2 in. Brg. Length		5-1/2 in. Brg. Length		1-3/4 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
All	PJI-40	3,345		5,260		1,675		3,825	
	PJI-60	4,135		6,495		2,065		4,725	
	PJI-65	4,835		7,595		2,415		5,525	
	PJI-80	5,970		9,385		2,985		6,825	
	PJI-90	6,995		10,995		3,500		7,995	

[b] The allowable reaction design capacity interpolated in accordance with Footnotes (c) and (d) as necessary and multiplied by an applicable load duration factor.
[c] Interpolation of the intermediate reaction between 3-1/2- and 5-1/2-inch bearing lengths is permitted.
[d] Interpolation of the end reaction between 1-3/4- and 4-inch bearing lengths is permitted.

Table 4. Allowable Shear (Pounds Per Foot) for Horizontal Wood Structural Panel Diaphragms Framed With P3 Joist I-Joist 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[e] (in.)	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)[f,g]			Nails Spaced 6 in. max. at supported edges[f,g]	
				6	4[h]	2-1/2[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)				
				6	6	4		
Structural 1 Grades	6d[d]	5/16	3	210	280	420	185	140
	8d	3/8		300	400	600	265	200
	10d	15/32		360	480	720	320	240
Sheathing, single floor and other grades covered in DOC PS 1 and PS 2	6d[d]	5/16		190	250	380	170	125
		3/8		210	280	420	185	140
	8d	3/8		270	360	540	240	180
		7/16		285	380	570	255	190
		15/32		300	400	600	265	200
	10d	15/32		325	430	650	290	215
		19/32		360	480	720	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)

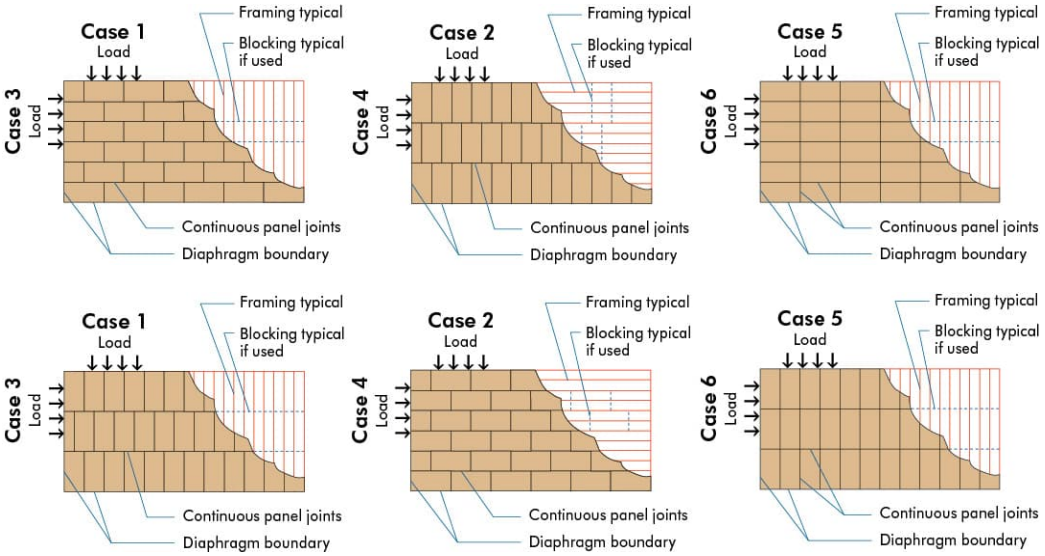

Figure 1. Diaphragm configurations

(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) 8d common nails minimum are recommended for roofs due to negative pressures of high winds.
(e) The minimum nominal width of framing members not located at boundaries or adjoining panel edges shall be 2 inches.
(f) 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).
(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 when nail spacing is 4 inches 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).

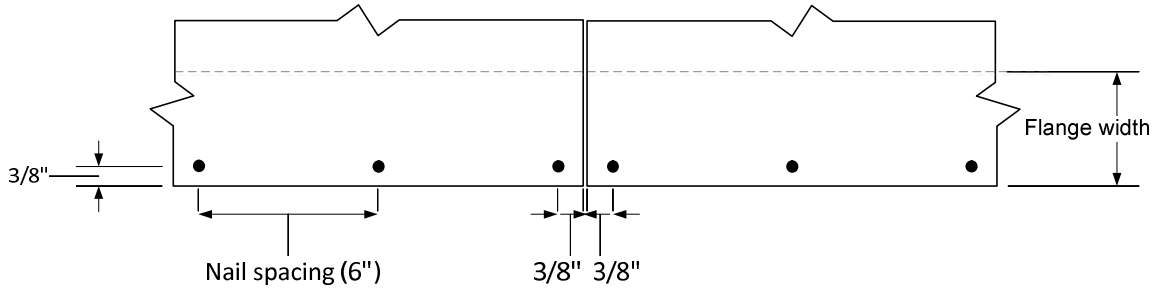

Figure 2. Non-staggered nails at diaphragm boundaries (see Footnote g), not to scale.

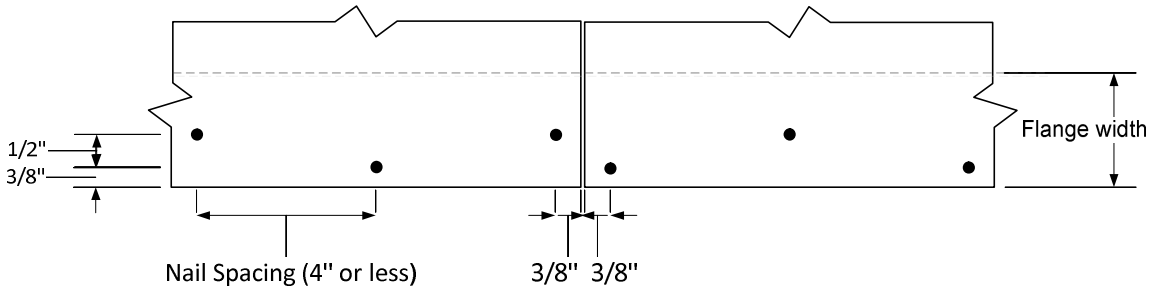

Figure 3. Staggered nails at diaphragm boundaries (see Footnote h), not to scale.

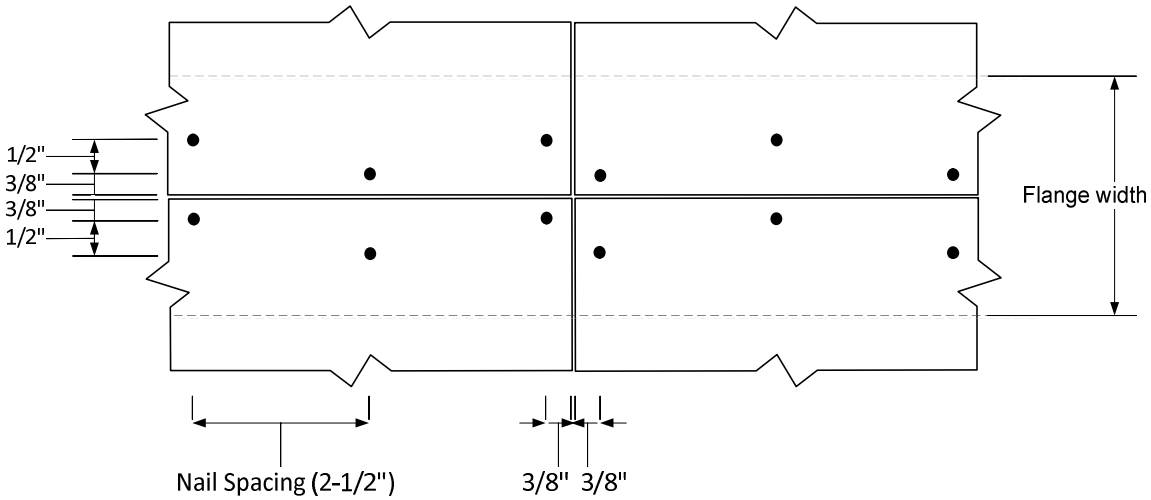

Figure 4. Staggered nails at adjoining panel edges (see Footnote i), not to scale.

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