



P3 Joist I-Joists EACOM Timber Corporation.

PR-L261(F)

Revised January 3, 2018

Products: PJI-40, -60, -80, and -90 Prefabricated Wood I-Joists
EACOM Timber Corporation, 1100 Rene-Levesque Blvd. West Suite 2110, Montreal, QC,
Canada H3B 4N4
(514) 848-6815 or (877) 243-2266
Plant: EACOM, 1195 Peoples Road, Sault Ste. Marie, ON, Canada P6C 3W7
www.eacom.ca

1. Basis of the product report:
 - 2017 Florida Building Code (FBC), Building: Section 2303.1.2 Prefabricated wood I-joists
 - 2017 FBC, Residential: Section R502.1.2 Prefabricated wood I-joists
 - ASTM D5055-13 recognized by the 2017 FBC
 - Performance Standard for APA EWS I-Joists, PRI-400
 - AWC SDPWS-2015 Special Design Provisions for Wind and Seismic
 - ICC-ES Acceptance Criteria for Prefabricated Wood I-Joists, AC14, approved June 2016
 - 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, and T2009P-07A, and T2015L-05B, 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 lists the design properties for P3 Joist I-Joists. Table 4 shows the allowable lateral shear capacities of P3 Joist I-Joists in diaphragm applications.
4. Product installation:

P3 Joist I-Joists shall be installed in accordance with the recommendations provided by the manufacturer.
5. Fire-rated assemblies:

Fire-rated assemblies shall be constructed in accordance with the recommendations provided by the manufacturer, APA Product Report PR-S261 dated January 2, 2018, and with APA *Fire-Rated Systems*, Form W305Y, dated June 2005.
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 percent.
 - c) P3 Joist I-Joists are produced at EACOM's facility under a quality assurance program audited by APA.
 - d) This report is subject to re-examination in one year.
7. Identification:

The 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-40, -60, -80 and -90 Series I-joists ^(a)

Joist Series	Joist Depths, (in.)	Flanges			Web	
		Material	Dimension		Material	Thickness, (in.)
			Depth, (in.)	Width, (in.)		
PJI-40	9-1/4 – 16	Proprietary SPF	1-1/2	2-1/2	OSB	3/8
PJI-60	9-1/2 – 16	MSR SPF	1-1/2	2-1/2	OSB	3/8
PJI-80	11-7/8 – 24	MSR SPF	1-1/2	3-1/2	OSB	3/8 ^(b)
PJI-90	11-7/8 – 24	MSR SPF	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) 7/16 inch for joist depths exceeding 16 inches.

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	9-1/4" PJI-40	N.A.	181	2,690	1,080	2,000	4.81
9-1/2	9-1/2" PJI-40	9-1/2" PRI-40	193	2,735	1,120	2,000	4.94
	9-1/2" PJI-60	9-1/2" PRI-60	231	3,780	1,120	2,000	4.94
11-1/4	11-1/4" PJI-40	N.A.	289	3,380	1,345	2,000	5.85
11-7/8	11-7/8" PJI-40	11-7/8" PRI-40	330	3,545	1,420	2,000	6.18
	11-7/8" PJI-60	11-7/8" PRI-60	396	4,900	1,420	2,000	6.18
	11-7/8" PJI-80	11-7/8" PRI-80	547	6,940	1,420	2,000	6.18
	11-7/8" PJI-90	N.A.	601	8,515	1,420	2,000	6.18
14	14" PJI-40	14" PRI-40	482	4,270	1,710	2,000	7.28
	14" PJI-60	14" PRI-60	584	5,895	1,710	2,000	7.28
	14" PJI-80	14" PRI-80	802	8,360	1,710	2,000	7.28
	14" PJI-90	N.A.	877	10,255	1,710	2,000	7.28
16	16" PJI-40	16" PRI-40	657	4,950	1,970	2,000	8.32
	16" PJI-60	16" PRI-60	799	6,835	1,970	2,000	8.32
	16" PJI-80	16" PRI-80	1,092	9,690	1,970	2,000	8.32
	16" PJI-90	N.A.	1,187	11,895	1,970	2,000	8.32
18	18" PJI-80	N.A.	1,413	11,000	2,450	2,000	9.36
	18" PJI-90	N.A.	1,546	13,445	2,450	2,000	9.36
20	20" PJI-80	N.A.	1,790	12,180	2,530	1,720	10.40
	20" PJI-90	N.A.	1,957	14,885	2,530	1,720	10.40
22	22" PJI-80	N.A.	2,214	13,340	2,615	1,440	11.44
	22" PJI-90	N.A.	2,419	16,305	2,615	1,440	11.44
24	24" PJI-80	N.A.	2,687	14,490	2,695	1,390	12.48
	24" PJI-90	N.A.	2,934	17,710	2,695	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.

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

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

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	1,080	1,120	1,120	1,120
	PJI-60	2,755	2,900	3,245	3,245	1,080	1,120	1,120	1,120
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	1,310	1,420	1,420
	PJI-60	2,755	3,045	3,245	3,375	1,200	1,310	1,420	1,420
	PJI-80	2,760	3,300	3,255	3,585	1,280	1,420	1,420	1,420
	PJI-90	2,760	3,300	3,255	3,585	1,280	1,420	1,420	1,420
14	PJI-40	2,755	3,175	3,245	3,485	1,200	1,480	1,550	1,710
	PJI-60	2,755	3,175	3,245	3,485	1,200	1,480	1,550	1,710
	PJI-80	3,020	3,455	3,435	3,745	1,280	1,710	1,550	1,710
	PJI-90	3,020	3,455	3,435	3,745	1,280	1,710	1,550	1,710
16	PJI-40	2,755	3,300	3,245	3,595	1,200	1,640	1,550	1,970
	PJI-60	2,755	3,300	3,245	3,595	1,200	1,640	1,550	1,970
	PJI-80	3,265	3,600	3,600	3,900	1,280	1,845	1,550	1,970
	PJI-90	3,265	3,600	3,600	3,900	1,280	1,845	1,550	1,970
18	PJI-80	3,200	3,950	3,650	4,350	1,250	2,050	1,650	2,450
	PJI-90	3,200	3,950	3,650	4,350	1,250	2,050	1,650	2,450
20	PJI-80	3,200	3,950	3,650	4,350	1,250	2,050	1,650	2,530
	PJI-90	3,200	3,950	3,650	4,350	1,250	2,050	1,650	2,530
22	PJI-80	3,200	3,950	3,650	4,350	1,250	2,050	1,650	2,615
	PJI-90	3,200	3,950	3,650	4,350	1,250	2,050	1,650	2,615
24	PJI-80	3,200	3,950	3,650	4,350	1,250	2,050	1,650	2,695
	PJI-90	3,200	3,950	3,650	4,350	1,250	2,050	1,650	2,695

^(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.

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-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.

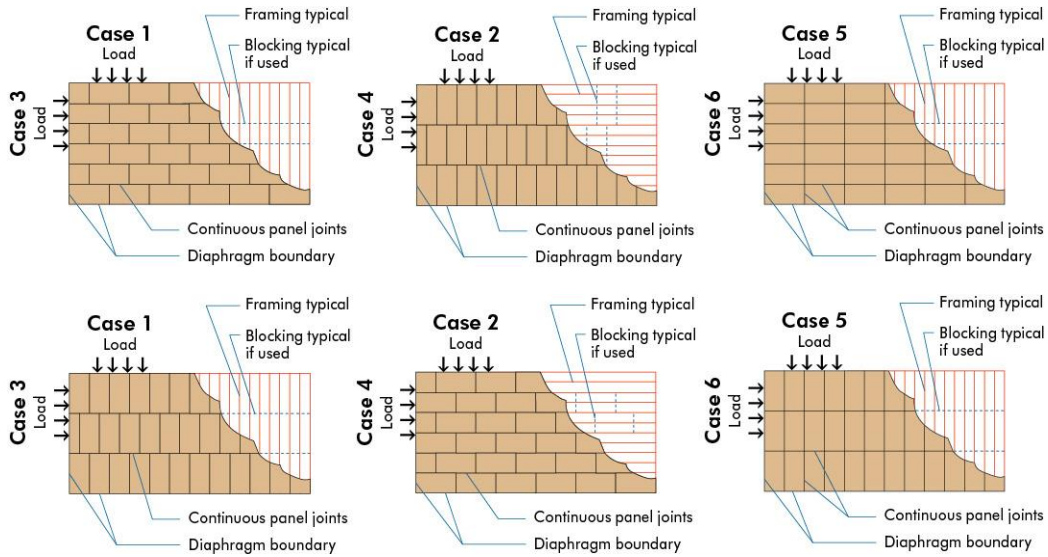
^(d) Interpolation of the end reaction between 1-3/4- and 4-inch bearing lengths is permitted.

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)

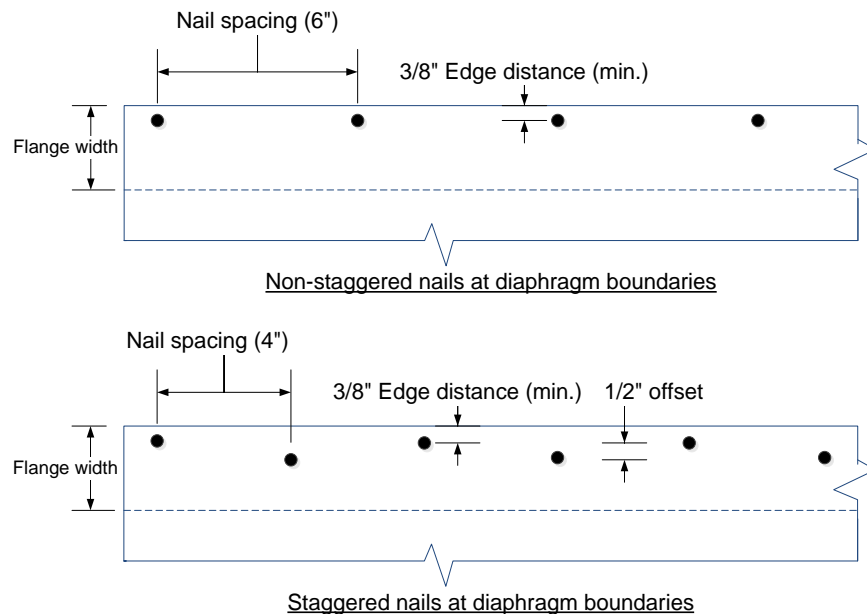
Panel Grade	Common Nail Size	Minimum Nominal Panel Thickness (in.)	Minimum Nominal Width of Framing Members at Adjoining Panel Edges and Boundaries ^(d) (in.)	Blocked Diaphragms		Unblocked Diaphragms	
				Nail spacing (in.) at diaphragm boundaries (all cases), at continuous panel edges parallel to load (Cases 3 & 4), and at all panel edges (Cases 5 & 6) ^(e,f)		Nails Spaced 6 in. max. at supported edges ^(e)	
				6	4	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		
Structural 1 Grades	6d ^(g)	5/16	3	210	280	185	140
	8d	3/8		300	400	265	200
	10d	15/32		360	480	320	240
Sheathing, single floor and other grades covered in DOC PS 1 and PS 2	6d ^(g)	5/16		190	250	170	125
		3/8		210	280	185	140
	8d	3/8		270	360	240	180
		7/16		285	380	255	190
		15/32		300	400	265	200
	10d	15/32		325	430	290	215
		19/32		360	480	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)



- (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 figure below).
- (f) 8d common nails minimum are recommended for roofs due to negative pressures of high winds.
- (g) When nail spacing is closer than 6 inches on center at diaphragm boundaries, adjacent nails within a row must be offset (staggered) 1/2 inch (see figure below).



APA – *The Engineered Wood Association* is an approved national standards developer accredited by American National Standards Institute (ANSI). APA publishes ANSI standards and Voluntary Product Standards for wood structural panels and engineered wood products. APA is an accredited certification body under ISO/IEC 17065 by Standards Council of Canada (SCC), an accredited inspection agency under ISO/IEC 17020 by International Code Council (ICC) International Accreditation Service (IAS), and an accredited testing organization under ISO/IEC 17025 by IAS. APA is also an approved Product Certification Agency, Testing Laboratory, Quality Assurance Entity, and Validation Entity by the State of Florida, and an approved testing laboratory by City of Los Angeles.

**APA – THE ENGINEERED WOOD ASSOCIATION
HEADQUARTERS**

7011 So. 19th St. • Tacoma, Washington 98466
Phone: (253) 565-6600 • Fax: (253) 565-7265 • Internet Address: www.apawood.org

PRODUCT SUPPORT HELP DESK
(253) 620-7400 • *E-mail Address:* help@apawood.org

DISCLAIMER

APA Product Report® is a trademark of *APA – The Engineered Wood Association*, Tacoma, Washington. The information contained herein is based on the product evaluation in accordance with the references noted in this report. Neither APA, nor its members make any warranty, expressed or implied, or assume any legal liability or responsibility for the use, application of, and/or reference to opinions, findings, conclusions, or recommendations included in this report. Consult your local jurisdiction or design professional to assure compliance with code, construction, and performance requirements. Because APA has no control over quality of workmanship or the conditions under which engineered wood products are used, it cannot accept responsibility for product performance or designs as actually constructed.