PRODUCT REPORT®
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P3 Joist I-Joists
EACOM Timber Corporation.

PR-L261C
Revised October 10, 2018

Products: PJI-40, -60, and -80 Prefabricated Wood I-Joists
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1. Basis of the product report:
   - 2015 National Building Code of Canada (NBCC): Clause 1.2.1.1 of Division A and Clauses 4.1, 4.3.1.1, and 9.23.4.2 of Division B
   - CAN/CSA O86-14 (reprinted May 2016) Engineering Design in Wood
   - ASTM D5055-13e recognized by CAN/CSA O86-14
   - Performance Standard for APA EWS I-Joists, PRI-400
   - APA Reports T2001P-41, T2002P-3, T2002P-19, T2003P-32, T2003P-53, T2003P-64B, T2005P-54, T2005P-56, T2005P-102, T2007P-105B, and T2008P-68, and other qualification data

2. Product description:
   The 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 factored resistances for P3 Joist I-Joists. The design spans for P3 Joist I-Joists shall be in accordance with the recommendations provided by the manufacturer (http://www.eacom.ca/wp-content/uploads/2018/02/Eacom-P3-Product-Guide-CAN.pdf) and with APA EWS Standard PRI-400 Performance Standard for APA EWS I-Joists (Limit States Design, Form EWS E720CA (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 – Canadian Limit States Design – Performance Rated I-Joists in Floor and Roof Framing*, Form E715CA (see link above). Permissible web holes and cantilever reinforcements shall be in accordance with the recommendations provided by the manufacturer, and with APA E715CA.

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 (see link above), or NBCC Table A-9.10.3.1.B.

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 as defined in CSA O86, at which the average equilibrium moisture content of solid-sawn lumber over a year is 15 percent or less and does not exceed 19 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-L261C, and a means of identifying the date of manufacture. PJI-40, PJI-60, and PJI-80 in depths of 241 mm through 406 mm are permitted to be labeled as RFPI-40S, RFPI-60S, and RFPI-80S, respectively, when using the design values specified in CCMC 13323-R.

Table 1. Description of PJI-40, -60 and -80 Series I-joists [(a)]

Joist Series	Joist Depths, mm (in.)	Flanges			Web	
		Material	Dimension		Material	Thickness, mm (in.)
			Depth, mm (in.)	Width, mm (in.)		
PJI-40	241 – 406 (9-1/2 – 16)	Proprietary SPF	38 (1-1/2)	64 (2-1/2)	OSB	9.5 (3/8)
PJI-60	235 – 406 (9-1/2 – 16)	MSR SPF	38 (1-1/2)	64 (2-1/2)	OSB	9.5 (3/8)
PJI-80	302-508 (11-7/8 – 24)	MSR SPF	38 (1-1/2)	89 (3-1/2)	OSB	9.5 (3/8) [(b)]

[(a)] Referenced dimensions are nominal. Tolerances are as specified in the in-plant quality manual.
[(b)] 11.1 mm (7/16 inch) for joist depths exceeding 406 mm (16 inches).

Table 2. Factored Resistances of P3 Joist I-Joists [a]

Depth (mm)	Joist Series Designation	Also Qualified for	EI [b] (10^6 kN-mm^2)	M_r [c] (kN-mm)	V_r [d] (kN)	VL_r [e] (kN/m)	K [f] (kN)
241	PJI-40	PRI-40	554	6,167	7.86	48.7	21,970
	PJI-60	PRI-60	663	8,523	7.86	48.7	21,970
302	PJI-40	PRI-40	947	7,994	9.97	48.7	27,490
	PJI-60	PRI-60	1,136	11,049	9.97	48.7	27,490
	PJI-80	PRI-80	1,570	15,717	11.16	48.7	27,490
356	PJI-40	PRI-40	1,383	9,628	12.01	48.7	32,380
	PJI-60	PRI-60	1,676	13,293	12.01	48.7	32,380
	PJI-80	PRI-80	2,301	18,909	12.88	48.7	32,380
406	PJI-40	PRI-40	1,885	11,162	13.83	48.7	37,010
	PJI-60	PRI-60	2,293	15,412	13.83	48.7	37,010
	PJI-80	PRI-80	3,134	21,941	14.53	48.7	37,010
457	PJI-80	N.A.	4,055	24,804	17.20	48.7	41,630
508	PJI-80	N.A.	5,137	27,464	17.76	41.9	46,260
559	PJI-80	N.A.	6,353	30,080	18.36	35.1	50,890
610	PJI-80	N.A.	7,711	32,673	18.92	33.8	55,510

For Imperial: 1 mm = 0.0394 in., 1 N = 0.2248 lbf, 1 kN/m = 5.71 lbf/in.

[a] All factored resistance values include the resistance factor specified in CAN/CSA-O86. The tabulated values are for the standard term of load duration (K_D = 1.0). All values, except for EI and K, are permitted to be adjusted for other load durations as permitted by the code.

[b] Bending stiffness (EI) of the I-joist.

[c] Factored moment resistance (M_r) of the I-joist, which shall not be increased by any system effect factor.

[d] Factored shear resistance (V_r) of the I-joist.

[e] Factored vertical load resistance (VL_r) of the I-joist.

[f] Coefficient of shear deflection (K). For calculating uniform load and center-point load deflections of the Power 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 (mm), ω = uniform load (kN/mm),
P = concentrated load (kN), L = design span (mm),
EI = bending stiffness of the I-joist (kN-mm^2), and K = coefficient of shear deflection (kN).

Table 3. Factored Reaction Resistances for P3 Joist I-Joists [a,b,c]

Depth (mm)	Joist Series Designation	Factored IR_r (kN)				Factored ER_r (kN)			
		89 mm Brg. Length		140 mm Brg. Length		44 mm Brg. Length		102 mm Brg. Length	
		With Brg. Stiffeners		With Brg. Stiffeners		With Brg. Stiffeners		With Brg. Stiffeners	
		No	Yes	No	Yes	No	Yes	No	Yes
241	PJI-40	19.34	20.36	22.78	22.78	7.58	7.86	7.86	7.86
	PJI-60	19.34	20.36	22.78	22.78	7.58	7.86	7.86	7.86
302	PJI-40	19.34	21.38	22.78	23.70	8.42	9.40	9.97	9.97
	PJI-60	19.34	21.38	22.78	23.70	8.42	9.40	9.97	9.97
	PJI-80	19.73	23.17	22.85	25.17	8.99	11.16	10.88	11.16
356	PJI-40	19.34	22.29	22.78	24.47	8.42	10.74	10.88	12.01
	PJI-60	19.34	22.29	22.78	24.47	8.42	10.74	10.88	12.01
	PJI-80	21.20	24.26	24.12	26.29	8.99	12.28	10.88	12.88
406	PJI-40	19.34	23.17	22.78	25.24	8.42	12.00	10.88	13.83
	PJI-60	19.34	23.17	22.78	25.24	8.42	12.00	10.88	13.83
	PJI-80	22.92	25.27	25.27	27.38	8.99	13.34	10.88	14.53
457	PJI-80	22.47	27.73	25.63	30.54	8.78	14.39	11.58	17.20
508	PJI-80	22.47	27.73	25.63	30.54	8.78	14.39	11.58	17.76
559	PJI-80	22.47	27.73	25.63	30.54	8.78	14.39	11.58	18.36
610	PJI-80	22.47	27.73	25.63	30.54	8.78	14.39	11.58	18.92

For Imperial: 1 N = 0.2248 lbf

[a] The tabulated values are for the standard term of load duration (K_D = 1.0). All values are permitted to be adjusted for other load durations as permitted by the code provided that the adjusted values do not exceed the factored compressive resistance perpendicular to grain (Q_r) of the bearing plate supporting the I-joist in accordance with CSA O86.

[b] Interpolation between bearing lengths is permitted.

[c] Bearing stiffeners shall be installed in accordance with the recommendations provided by the manufacturer and APA E715CA.

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