APA PRODUCT REPORT®

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JSI Series I-Joists — PR-L295
Jager Engineered Wood Products Ltd. — Revised December 15, 2010

Products: JSI Prefabricated Wood I-Joists
Jager Engineered Wood Products Ltd., 4334 – 68th Ave SE Calgary, Alberta, T2C 2T9
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1. Basis of the product report:
   - 2009 and 2006 International Building Code (IBC): Sections 104.11 Alternative Materials and 2303.1.2 Prefabricated wood I-joists
   - 2009 and 2006 International Residential Code (IRC): Sections R104.11 Alternative Materials and R502.1.4 Prefabricated wood I-joists
   - ASTM D5055-05 and D5055-04 recognized by the 2009 IBC and IRC, and 2006 IBC and IRC, respectively
   - Performance Standard for APA EWS I-Joists, PRI-400
   - APA Reports T2005M-35, T2005M-64, T2005M-77, T2006M-16A, T2006M-40, T2006M-42, T2006M-90, T2008M-115, T2009P-79, and other qualification data

2. Product description:
   JSI Series I-joists are made with lumber flanges and OSB web in accordance with the in-plant manufacturing standard approved by APA.

3. Design properties:
   Table 1 lists the design properties for JSI Series I-joists. The allowable spans for JSI Series I-joists shall be in accordance with the recommendations provided by the manufacturer (www.jagerewp.com or contact the manufacturer for additional information), and with APA *Performance Rated I-Joists*, Form Z725 (www.apawood.org/publications) for products contained in the PRI Series.

4. Product installation:
   JSI Series I-joists shall be installed in accordance with the recommendations provided by the manufacturer (see link above) and *APA Installation Guide: I-Joist Construction Details,* 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 for products contained in the PRI Series.

5. Fire-rated assemblies:
   Fire-rated assemblies shall be constructed in accordance with the recommendations provided by the manufacturer, and with *APA Design and Construction Guide: Fire-Rated Systems*, Form W305 (see link above) for products contained in the PRI Series.

6. Limitations:
   a) JSI Series I-joists shall be designed in accordance with the code using the design properties specified in this report.
   b) JSI Series I-joists are limited to dry service conditions where the average equilibrium moisture content of sawn lumber is less than 16 percent.
   c) JSI Series I-joists are produced at Jager Engineered Wood Products Ltd. facilities in Calgary, Alberta under a quality assurance program audited by APA.
   d) This report is subject to re-examination in one year.

7. Identification:
   The JSI prefabricated wood I-joists described in this report are identified by a label bearing the manufacturer's name (Jager Engineered Wood Products Ltd.) and/or trademark, the

APA assigned plant number (1096), the I-joist depth and series, the APA logo, the report number PR-L295, and a means of identifying the date of manufacture.

Table 1. Design Properties (Allowable Stress Design) for JSI Series I-Joists [a]

Joist Depth (in.)	Joist Series	EI [b] (10^6 lbf-in.^{2})	M [c] (lbf-ft)	V [d] (lbf)		IR [e] (lbf)		ER [f] (lbf)				K [g] (10^6 lbf)
								1-1/2 in. Bearing		1-3/4 in. Bearing		
				no WS	WS	no WS	WS	no WS	WS	no WS	WS	
9-1/2	JSI 2000/PRI-40	193	2,735	1,120		2,160		1,070		1,080		4.94
	JSI 3000/PRI-60	231	3,780	1,120		2,160		1,070		1,080		4.94
	JSI 4000	320	5,355	1,120		2,470		1,070		1,080		4.94
11-7/8	JSI 2000/PRI-40	330	3,545	1,420		2,500		1,160		1,200		6.18
	JSI 3000/PRI-60	396	4,900	1,420		2,500		1,160		1,200		6.18
	JSI 4000/PRI-80	547	6,940	1,420		2,760		1,200		1,280		6.18
14	JSI 2000/PRI-40	482	4,270	1,550	1,710	2,500		1,160		1,200		7.28
	JSI 3000/PRI-60	584	5,895	1,550	1,710	2,500		1,160		1,200		7.28
	JSI 4000/PRI-80	802	8,360	1,550	1,710	3,020		1,200		1,280		7.28
16	JSI 2000/PRI-40	657	4,950	1,550	1,970	2,500		1,160		1,200		8.32
	JSI 3000/PRI-60	799	6,835	1,550	1,970	2,500		1,160		1,200		8.32
	JSI 4000/PRI-80	1,092	9,690	1,550	1,970	3,020		1,200		1,280		8.32
18	JSI 3000	1,019	7,705	N/A	2,190	N/A	2,800	N/A	1,200	N/A	1,400	9.36
	JSI 4000	1,398	10,960	N/A	2,230	N/A	3,980	N/A	1,700	N/A	1,990	9.36
20	JSI 3000	1,294	8,525	N/A	2,450	N/A	2,800	N/A	1,200	N/A	1,400	10.40
	JSI 4000	1,771	12,130	N/A	2,490	N/A	3,980	N/A	1,700	N/A	1,990	10.40

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 lbf = 0.454 kg.

[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 use factor.
[d] Shear capacity (V) of the I-joist.
[e] Intermediate reaction (IR) of the I-joist with a minimum bearing length of 3-1/2 inches.
[f] End reaction (ER) of the I-joist with a minimum bearing length as specified. For a bearing length of 4 inches, the end reaction may be set equal to the tabulated shear value. Interpolation of the end reaction between 1-3/4- and 4-inch bearings is permitted.
[g] 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.

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

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).

APA – The Engineered Wood Association is an accredited certification body under ISO 65 by Standards Council of Canada (SCC) and an accredited inspection agency by the International Code Council (ICC) International Accreditation Service (IAS) under ISO/IEC 17020. APA is also an accredited testing organization recognized by IAS and SCC under ISO/IEC 17025. APA is a recognized testing laboratory by Miami-Dade County, and a Product Testing Laboratory, Product Quality Assurance Entity, and Product Validation Entity by the Florida Department of Community Affairs (DCA).

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