



Joint Evaluation Report

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ESR-1251

Reissued 04/2017

This report is subject to renewal 04/2019.

DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES
SECTION: 06 17 33—WOOD I-JOISTS

REPORT HOLDER:

ROSEBURG FOREST PRODUCTS CO.

POST OFFICE BOX 1088
ROSEBURG, OREGON 97470

EVALUATION SUBJECT:

RFPI® PREFABRICATED WOOD I-JOISTS: RFPI® 20 SERIES, RFPI® 25 SERIES, RFPI® 30 SERIES, RFPI® 40 SERIES, RFPI® 400 SERIES, RFPI® 45 SERIES, RFPI® 50 SERIES, RFPI® 70 SERIES, RFPI® 90 SERIES, RFPI® 40S SERIES, RFPI® 60S SERIES, RFPI® 80S SERIES, RFPI® 700 SERIES AND RFPI® 900 SERIES



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Reissued April 2017

Revised June 2017

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A Subsidiary of the International Code Council®

DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES

Section: 06 17 33—Wood I-joists

REPORT HOLDER:

ROSEBURG FOREST PRODUCTS CO.

POST OFFICE BOX 1088

ROSEBURG, OREGON 97470

(800) 245-1115

www.roseburg.com

EVALUATION SUBJECT:

RFPI® PREFABRICATED WOOD I-JOISTS: RFPI® 20 SERIES, RFPI® 25 SERIES, RFPI® 30 SERIES, RFPI® 40 SERIES, RFPI® 400 SERIES, RFPI® 45 SERIES, RFPI® 50 SERIES, RFPI® 70 SERIES, RFPI® 90 SERIES, RFPI® 40S SERIES, RFPI® 60S SERIES, RFPI® 80S SERIES, RFPI® 700 SERIES AND RFPI® 900 SERIES

ADDITIONAL LISTEE:

**BLUELINX CORPORATION
4300 WILDWOOD PARKWAY
ATLANTA, GEORGIA 30339**

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2015, 2012, 2009 and 2006 *International Building Code*® (IBC)
- 2015, 2012, 2009 and 2006 *International Residential Code*® (IRC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)[†]

[†]The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

Property evaluated:

Structural

1.2 Evaluation to the following green code(s) and/or standards:

- 2016 California Green Building Standards Code (CALGreen), Title 24, Part 11
- 2015, 2012 and 2008 ICC 700 *National Green Building Standard*™ (ICC 700-2015, ICC 700-2012 and ICC 700-2008)

Attributes verified:

- See Section 3.1

2.0 USES

RFPI® Prefabricated Wood I-Joists are used as floor joists and roof rafters to support code-required loads.

3.0 DESCRIPTION

3.1 General:

The pre-fabricated wood I-joists described in this report comply with the requirements of the codes specifically referenced in Section 1.0 of this report, and are manufactured in accordance with the requirements of ASTM D5055.

RFPI® Prefabricated Wood I-Joists consist of laminated veneer lumber (LVL) flanges or solid sawn lumber flanges and oriented strand board (OSB) webs fabricated to form an I-shaped cross section. Top and bottom flanges are placed to create a constant-depth joist. For all RFPI-joists, the web sections are installed with the face grain (strong axis) perpendicular to the long axis of the I-joist. The web-to-flange joint is made by inserting the web into a groove in the center of the face of the flange member.

The attributes of the wood joists have been verified as conforming to the provisions of (i) CALGreen Sections A4.404.3 for efficient framing techniques; (ii) ICC 700-2015 and ICC 700-2012 Section 608.1(2), 11.608.1(2) and 12(A).608.1 for resource-efficient materials; and (iii) ICC 700-2008 Section 607.1(2) for resource-efficient materials. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

3.2 Material:

3.2.1 LVL Flanges: Laminated veneer lumber (LVL) flange material is manufactured by Roseburg Forest Products in accordance with the Roseburg Forest Products I-Joist Quality Control Manual. Flange dimensions are as shown in Table 3.

3.2.2 Solid Sawn Lumber Flanges; Solid sawn lumber flange material for the RFPI® 40S, RFPI® 60S, and RFPI® 80S is manufactured from lumber that meets the requirements noted in the Roseburg Forest Products quality control manual. The lumber is finger jointed and

re-graded to the required specifications documented in the quality control manual. Flange dimensions are as shown in Table 3.

3.2.3 Webs: Webs are $3/8$ - or $7/16$ -inch-thick (9.5 or 11.1 mm) OSB Exposure 1 with a span rating of 24/0, conforming to U.S. Product Standard PS-2.

3.2.4 Adhesives: Adhesives used in the I-joint manufacturing process conform to the requirements of ASTM D2559, are tested in accordance with ASTM D7247 and meet the heat durability requirements of ASTM D5055-07.

4.0 DESIGN AND INSTALLATION

Installation of RFPI® Prefabricated Wood I-Joists must comply with this report and the manufacturer's published installation instructions. The manufacturer's published installation instructions must be available at the jobsite at all times during installation.

4.1 General:

Reference design values are as indicated in Tables 1 and 2 of this report. Available joist dimensions are as indicated in Table 3 of this report. Joist webs contain prefabricated $1\frac{1}{2}$ -inch-diameter (38 mm) knockouts, 16 inches (406 mm) on center, located approximately 2 inches (51 mm) from one flange. Round holes are permitted in the webs of the I-joint in accordance with Table 6 of this report. Allowable floor spans are as indicated in Tables 4 and 5 of this report. When web stiffeners are required, installation details must comply with Table 7 and Figure 1 of this report. Minimum bearing length for simple spans of joists must be $1\frac{3}{4}$ inches (44 mm). Minimum bearing length at intermediate support points for multiple-span I-joists must be $3\frac{1}{2}$ inches (89 mm). When I-joists are used as simple-span members, the design shear must be equal to the end reaction.

4.2 Repetitive Member Factor:

Moment capacity of the I-joint must not be increased by any repetitive member factor ($C_r = 1.0$).

4.3 Lateral Support:

The compression flange of the I-joint must be laterally supported throughout its length to prevent lateral displacement (e.g. through attachment to wood structural panel sheathing, gypsum board sheathing, wood structural panel soffit). Joist ends must be restrained to prevent rollover, as by diaphragm sheathing attached to the top flange and to an end wall or shear transfer panel, or blocking or cross-bracing capable of transferring the larger of 50 pounds per foot (730 N/m) or the required shear force due to wind, seismic or soil conditions. Code-recognized methods specified for solid-sawn lumber are acceptable. Bridging is not required in RFPI® floor and roof joist applications.

4.4 Duration of Load:

Adjustments for duration of load provided for wood members and their connections must be in accordance with the applicable code.

4.5 In-service Moisture Conditions:

RFPI® I-joint properties and allowable loads in this report are limited to covered installations with dry conditions of use. Dry conditions of use are those environmental conditions represented by sawn lumber in which the moisture content is less than 16 percent.

4.6 Deflection:

Deflection of the joists under design load based on deflection due to bending and shear stresses related to

strength-of-material principles must be calculated using the following formulas:

For simple span with concentrated load at mid-span:

$$D = PL^3/48EI + 2PL/K$$

For simple span with uniformly distributed load:

$$D = 5WL^4/384EI + WL^2/K$$

where:

D = Deflection (inch) at mid-span

W = Uniform load (lbf/inch)

L = On-center span (inch)

K = Shear deflection coefficient from Table 1 of this report (inch-lbf/inch)

EI = Value from Table 1 of this report (lbf-in.²)

P = Concentrated load (lbf)

4.7 Fasteners:

The allowable withdrawal and lateral loads for nails installed perpendicular or parallel to the wide face of the LVL flange are the same as those provided in the applicable code for sawn lumber having a minimum specific gravity of 0.50, such as Douglas fir-larch.

The allowable withdrawal and lateral loads for nails installed perpendicular or parallel to the wide face of the solid sawn flange are to be based on values provided in the applicable code for lumber with a minimum specific gravity of 0.42 for the RFPI® 40S series and 0.46 for RFPI® 60S and 80S series. See Table 8 for adjustments to and limitations on the allowable lateral design values of RFPI®-Joists when used as framing members in horizontal wood diaphragms.

4.8 One-hour Fire-resistance-rated Floor-ceiling Assemblies:

4.8.1 Assembly 1: The I-joists described in this report, with minimum flange size of $1\frac{1}{2}$ by $2\frac{1}{2}$ inches (38 by 64 mm), may be used in the assembly as described in Section 4.2.2.1 of [ESR-1405](#).

4.8.2 Assembly 2: The I-joists described in this report may be used in the appropriate assembly as described in Section 4.2.2.3 of [ESR-1405](#).

4.8.3 Other Assemblies: The I-joists described in this report may be used in the assemblies described in 2012 IBC Table 721.1(3) and 2009 IBC Table 720.1(3), Item Numbers 21-1.1 and 23-1.1 through 28-1.1; and in 2006 IBC Table 720.1(3), Item Numbers 21-1.1, 23-1.1 and 25-1.1 through 29-1.1; provided the I-joists used meet the required criteria as described in the tabulated "Floor or Roof Construction" column. For the purposes of the minimum flange area requirement of 2.3 square inches (1480 mm²) in Item Number 23-1.1, a $1\frac{1}{2}$ -by- $1\frac{1}{2}$ flange having a cross sectional area of 2.25 square inches (1450 mm²) may be considered sufficient.

4.9 Fire Protection of Floors:

Roseburg RFPI®-Joists may be used in the fire protection assemblies described in Section 4.3 of ICC-ES evaluation report ESR-1405, to meet the provisions of 2012 IRC Section R501.3 and 2015 IRC Section R302.13.

5.0 CONDITIONS OF USE

The RFPI® Prefabricated Wood I-Joists described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 Installation must comply with this report, the manufacturer's published installation instructions and the applicable code.
- 5.2 Allowable design properties, loads and spans for the I-joists must not exceed the values shown in Tables 1, 2, 4 and 5 of this report.
- 5.3 Design calculations and details for specific applications, demonstrating that RFPI® Prefabricated Wood I-Joists comply with this report, must be submitted to the code official. The design calculations and details for specific applications must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed. Where applicable, Tables 4 and 5 of this report are intended to serve as alternatives to the design calculations for member size, span, spacing and deflection.
- 5.4 Flanges must not be cut and round holes in the webs must conform to the requirements as stated in this report (See Table 6 of this report.)

5.5 RFPI® Prefabricated Wood I-Joists are produced in Riddle, Oregon, under a quality control program with inspections by ICC-ES and APA—The Engineered Wood Association (AA-649).

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Prefabricated Wood I-Joists (AC14), dated October 2013 (editorially revised January 2016).

7.0 IDENTIFICATION

The RFPI® Prefabricated Wood I-Joists described in this report are identified by a label bearing the manufacturer's name (Roseburg Forest Products Co.) and/or trademark (see Figure 2), the plant location, the product type, the name of the inspection agency (APA—The Engineered Wood Association) and the evaluation report number (ESR-1251).

TABLE 1—REFERENCE DESIGN VALUES FOR RFPI JOISTS^{1,2}

LVL FLANGE JOIST SERIES [depth (in.) - series]	I-JOIST WEIGHT (plf)	STIFFNESS, EI (10 ⁶ lbf-in. ²)	MOMENT, M _r ³ (lbf-ft)	SHEAR, V _r (lbf)	SHEAR DEFL. COEFF., K (10 ⁶ lbf)
9 ¹ / ₂ RFPI® - 20	2.0	165	2820	1220	4.94
9 ¹ / ₂ RFPI® - 25	1.7	156	2980	1120	4.94
9 ¹ / ₂ RFPI® - 30	1.7	161	3225	1120	4.94
9 ¹ / ₂ RFPI® - 400	2.3	193	3345	1220	4.94
9 ¹ / ₂ RFPI® - 40	2.4	215	3760	1330	4.94
9 ¹ / ₂ RFPI® - 45	2.3	235	4690	1120	4.94
9 ¹ / ₂ RFPI® - 50	1.9	186	3800	1120	4.94
9 ¹ / ₂ RFPI® - 70	2.6	266	5130	1330	4.94
11 ⁷ / ₈ RFPI® - 20	2.3	283	3640	1420	6.18
11 ⁷ / ₈ RFPI® - 25	2.0	270	3860	1420	6.18
11 ⁷ / ₈ RFPI® - 30	2.0	280	4170	1420	6.18
11 ⁷ / ₈ RFPI® - 400	2.6	330	4315	1480	6.18
11 ⁷ / ₈ RFPI® - 40	2.7	366	4855	1550	6.18
11 ⁷ / ₈ RFPI® - 45	2.6	400	6075	1420	6.18
11 ⁷ / ₈ RFPI® - 50	2.2	322	4915	1420	6.18
11 ⁷ / ₈ RFPI® - 70	2.9	455	6645	1550	6.18
11 ⁷ / ₈ RFPI® - 90	3.8	676	10145	2050	6.18
14 RFPI® - 20	2.5	420	4330	1610	7.28
14 RFPI® - 400	2.8	486	5140	1710	7.28
14 RFPI® - 40	3.0	540	5785	1770	7.28
14 RFPI® - 45	2.8	592	7245	1710	7.28
14 RFPI® - 50	2.4	480	5860	1710	7.28
14 RFPI® - 70	3.1	672	7925	1770	7.28
14 RFPI® - 90	4.2	992	12100	2195	7.28
16 RFPI® - 400	3.0	665	5880	1970	8.32
16 RFPI® - 40	3.1	737	6615	1970	8.32
16 RFPI® - 45	3.0	810	8300	1970	8.32
16 RFPI® - 50	2.6	663	6715	1970	8.32
16 RFPI® - 70	3.4	918	9080	1970	8.32
16 RFPI® - 90	4.4	1350	13865	2330	8.32
SOLID SAWN FLANGE JOIST SERIES [depth (in.) - series]	I-JOIST WEIGHT (plf)	STIFFNESS, EI (10 ⁶ lbf-in. ²)	MOMENT, M_r³ (lbf-ft)	SHEAR, V_r (lbf)	SHEAR DEFL. COEFF., K (10 ⁶ lbf)
9 ¹ / ₂ RFPI® - 40S	2.6	193	2735	1120	4.94
9 ¹ / ₂ RFPI® - 60S	2.6	231	3780	1120	4.94
11 ⁷ / ₈ RFPI® - 40S	2.8	330	3545	1420	6.18
11 ⁷ / ₈ RFPI® - 60S	2.8	396	4900	1420	6.18
11 ⁷ / ₈ RFPI® - 80S	3.8	547	6970	1590	6.18
14 RFPI® - 40S	3.1	482	4270	1710	7.28
14 RFPI® - 60S	3.1	584	5895	1710	7.28
14 RFPI® - 80S	4.0	802	8390	1835	7.28
16 RFPI® - 40S	3.3	657	4950	1970	8.32
16 RFPI® - 60S	3.3	799	6835	1970	8.32
16 RFPI® - 80S	4.3	1092	9730	2070	8.32
DEEP DEPTH LVL FLANGE JOIST SERIES [depth (in.) - series]	I-JOIST WEIGHT (plf)	STIFFNESS, EI (10 ⁶ lbf-in. ²)	MOMENT, M_r³ (lbf-ft)	SHEAR, V_r (lbf)	SHEAR DEFL. COEFF., K (10 ⁶ lbf)
18 RFPI®-700	3.9	1245	10450	2575	11.34
18 RFPI®-900	4.8	1849	16080	2885	11.34
20 RFPI®-700	4.1	1579	11600	2740	12.60
20 RFPI®-900	5.2	2337	17855	2945	12.60
22 RFPI®-700	4.4	1955	12740	2935	13.86
22 RFPI®-900	5.5	2886	19615	3010	13.86
24 RFPI®-700	4.6	2375	13870	3060	15.12
24 RFPI®-900	5.7	3496	21355	3060	15.12

For SI: 1 in. = 25.4 mm; 1 ft = 304.8 mm; 1 lbf = 4.4 N.

¹ Reference design values must be adjusted in accordance with Section 7.3 of the NDS.

² Refer to Table 2a for reference design reactions and required use of web stiffeners. Adjusted design reactions must not exceed the flange bearing capacities given in Table 2b.

³ Moment capacity of the I-joist must not be increased by any repetitive member use factor.

TABLE 2a—REFERENCE DESIGN REACTION VALUES, R_r, FOR RFPI JOISTS^{1,2}

LVL FLANGE JOIST SERIES [depth (in.) – series]	END REACTION (lb _f)						INTERMEDIATE REACTION (lb _f)				Web Stiff. Nails ⁴
	1 ³ / ₄ in. Brg. Length		3 ¹ / ₂ in. Brg. Length		4 in. Brg. Length ³		3 ¹ / ₂ in. Brg. Length		5 ¹ / ₄ in. Brg. Length		
	Web Stiffeners		Web Stiffeners		Web Stiffeners		Web Stiffeners		Web Stiffeners		
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	
9 ¹ / ₂ RFPI®-20	910	1150	1150	1200	1220	1220	1775	1875	2000	2300	4-8d
9 ¹ / ₂ RFPI®-25	830	-	1055	-	1120	-	1700	-	-	-	-
9 ¹ / ₂ RFPI®-30	945	-	1080	-	1120	-	1905	-	-	-	-
9 ¹ / ₂ RFPI®-400	1025	1220	1175	1220	1220	1220	2150	2250	2300	2440	4-8d
9 ¹ / ₂ RFPI®-40	1080	1220	1270	1305	1330	1330	2250	2500	2550	2650	4-8d
9 ¹ / ₂ RFPI®-45	1080	-	1110	-	1120	-	2160	-	-	-	-
9 ¹ / ₂ RFPI®-50	1015	-	1070	-	1120	-	2040	-	-	-	-
9 ¹ / ₂ RFPI®-70	1120	1330	1280	1330	1330	1330	2335	2500	2550	2650	4-8d
11 ⁷ / ₈ RFPI®-20	950	1225	1315	1375	1420	1420	1935	2035	2135	2435	4-8d
11 ⁷ / ₈ RFPI®-25	830	-	1290	-	1420	-	1700	-	-	-	-
11 ⁷ / ₈ RFPI®-30	945	-	1310	-	1420	-	1905	-	-	-	-
11 ⁷ / ₈ RFPI®-400	1050	1265	1380	1430	1480	1480	2250	2350	2350	2650	4-8d
11 ⁷ / ₈ RFPI®-40	1200	1400	1470	1515	1550	1550	2500	2625	2660	2870	4-8d
11 ⁷ / ₈ RFPI®-45	1200	-	1370	-	1420	-	2500	-	-	-	-
11 ⁷ / ₈ RFPI®-50	1015	-	1230	-	1420	-	2040	-	-	-	-
11 ⁷ / ₈ RFPI®-70	1200	1470	1470	1530	1550	1550	2500	2625	2660	2870	4-8d
11 ⁷ / ₈ RFPI®-90	1400	1745	1775	1980	1885	2050	3355	3475	3475	3675	4-10d
14 RFPI®-20	950	1290	1415	1535	1550	1610	1935	2035	2135	2435	4-8d
14 RFPI®-400	1050	1305	1435	1620	1550	1710	2250	2350	2350	2650	4-8d
14 RFPI®-40	1200	1560	1470	1720	1550	1770	2500	2740	2755	3065	4-8d
14 RFPI®-45	1200	-	1550	1,595	1550	1710	2500	-	-	-	-
14 RFPI®-50	1015	-	1390	1390	1550 ³	1710 ³	2040	-	-	-	-
14 RFPI®-70	1200	1590	1470	1730	1550	1770	2500	2740	2755	3065	4-8d
14 RFPI®-90	1400	1885	1775	2125	1885	2195	3355	3500	3500	3850	4-10d
16 RFPI®-400	1050	1340	1435	1830	1550	1970	2250	2350	2350	2650	4-8d
16 RFPI®-40	1200	1710	1470	1910	1550	1970	2500	2850	2850	3250	4-8d
16 RFPI®-45	1200	-	1550	1800	1550	1970	2500	-	-	-	-
16 RFPI®-50	1015	-	1530	1530	1550 ³	1970 ³	2040	-	-	-	-
16 RFPI®-70	1200	1710	1470	1910	1550	1970	2500	2850	2850	3250	4-8d
16 RFPI®-90	1400	2025	1775	2260	1885	2330	3355	3525	3525	4025	4-10d
SOLID SAWN FLANGE JOIST SERIES [depth (in.) – series]	END REACTION (lb _f)						INTERMEDIATE REACTION (lb _f)				Web Stiff. Nails ⁴
	1 ³ / ₄ in. Brg. Length		3 ¹ / ₂ in. Brg. Length		4 in. Brg. Length		3 ¹ / ₂ in. Brg. Length		5 ¹ / ₄ in. Brg. Length		
	Web Stiffeners		Web Stiffeners		Web Stiffeners		Web Stiffeners		Web Stiffeners		
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	
9 ¹ / ₂ RFPI®-40S	1080	1120	1110	1120	1120	1120	2160	2240	2240	2240	4-8d
9 ¹ / ₂ RFPI®-60S	1080	1120	1110	1120	1120	1120	2160	2240	2240	2240	4-8d
11 ⁷ / ₈ RFPI®-40S	1200	1340	1370	1400	1420	1420	2500	2625	2660	2840	4-8d
11 ⁷ / ₈ RFPI®-60S	1200	1340	1370	1400	1420	1420	2500	2625	2660	2840	4-8d
11 ⁷ / ₈ RFPI®-80S	1280	1590	1490	1590	1550	1590	2810	3180	3100	3180	4-10d
14 RFPI®-40S	1200	1530	1470	1670	1550	1710	2500	2740	2755	3050	4-8d
14 RFPI®-60S	1200	1530	1470	1670	1550	1710	2500	2740	2755	3050	4-8d
14 RFPI®-80S	1280	1750	1490	1815	1550	1835	3020	3360	3210	3600	4-10d
16 RFPI®-40S	1200	1710	1470	1910	1550	1970	2500	2850	2850	3250	4-8d
16 RFPI®-60S	1200	1710	1470	1910	1550	1970	2500	2850	2850	3250	4-8d
16 RFPI®-80S	1280	1900	1490	2030	1550	2070	3020	3525	3310	4000	4-10d
DEEP DEPTH LVL FLANGE JOIST SERIES [depth (in.) – series]	END REACTION (lb _f)						INTERMEDIATE REACTION (lb _f)				Web Stiff. Nails ⁴
	1 ³ / ₄ in. Brg. Length		3 ¹ / ₂ in. Brg. Length		4 in. Brg. Length		3 ¹ / ₂ in. Brg. Length		5 ¹ / ₄ in. Brg. Length		
	Web Stiffeners		Web Stiffeners		Web Stiffeners		Web Stiffeners		Web Stiffeners		
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	
18 RFPI®-700	1125	2200	1650	2575	1800	2575	2745	4050	3025	4475	8-8d
18 RFPI®-900	1475	2570	1765	2885	1850	2885	3000	5110	3475	5710	8-16d
20 RFPI®-700	1090	2300	1585	2740	1725	2740	2745	4050	3025	4475	8-8d
20 RFPI®-900	1350	2665	1700	2945	1800	2945	3000	5110	3475	5710	8-16d
22 RFPI®-700	N.A.	2400	N.A.	2935	N.A.	2935	N.A.	4150	N.A.	4605	10-8d
22 RFPI®-900	N.A.	2755	N.A.	3010	N.A.	3010	N.A.	5405	N.A.	6020	10-16d
24 RFPI®-700	N.A.	2500	N.A.	3060	N.A.	3060	N.A.	4150	N.A.	4605	10-8d
24 RFPI®-900	N.A.	2850	N.A.	3060	N.A.	3060	N.A.	5405	N.A.	6020	10-16d

For Notes for Table 2a, see the next page.

NOTES FOR TABLE 2a

For SI: 1 in. = 25.4 mm; 1 lbf = 4.4 N.

¹Reference design reaction values must be adjusted in accordance with Section 7.3 of the NDS; however, adjusted design values must not exceed the allowable flange bearing capacities based on compression perpendicular-to-grain, as given in Table 2b.

²Tabulated values may be interpolated for bearing lengths between those given.

³The values in these columns require a minimum bearing length of 5 inches for the 14- and 16-inch-deep RFPI[®] 50.

⁴Number of nails required for web stiffeners (where web stiffeners are required). Web stiffeners must be installed in accordance with Table 7, Figure 1, and the recommendations provided by the manufacturer.

TABLE 2b—ALLOWABLE FLANGE BEARING CAPACITIES BASED ON COMPRESSION PERPENDICULAR-TO-GRAIN^{1,2,3}

Depth	Joist Designation	END REACTION (lbf)			INTERMEDIATE REACTION (lbf)	
		1 ³ / ₄ in. Brg. Length	3 ¹ / ₂ in. Brg. Length	4 in. Brg. Length	3 ¹ / ₂ in. Brg. Length	5 ¹ / ₄ in. Brg. Length
All Depths in each Series	RFPI [®] -20	1,835	3,675	4,205	4,070	5,910
	RFPI [®] -25	1,555	3,110	3,555	3,440	4,995
	RFPI [®] -30	1,555	3,110	5,015	3,440	4,995
	RFPI [®] -400	2,195	4,390	5,665	4,860	7,055
	RFPI [®] -40	2,475	4,955	5,665	5,490	7,970
	RFPI [®] -45	2,475	4,955	4,205	5,490	7,970
	RFPI [®] -50	1,835	3,675	5,665	4,070	5,910
	RFPI [®] -70	2,475	4,955	8,755	5,490	7,970
	RFPI [®] -90	3,830	7,660	4,020	8,480	12,310
	RFPI [®] -40S	1,760	3,520	4,970	3,895	5,655
	RFPI [®] -60S	2,175	4,350	7,070	4,815	6,990
	RFPI [®] -80S	3,090	6,185	7,070	6,850	9,940
	RFPI [®] -700	2,475	4,955	5,665	5,490	7,970
	RFPI [®] -900	3,830	7,660	8,755	8,480	12,310

For SI: 1 in. = 25.4 mm; 1 lbf = 4.4 N.

¹Adjusted design reaction values for RFPI I-joists must be determined in accordance with Table 2a (previous page), but must not exceed the allowable flange bearing capacities given in Table 2b (above).

²Allowable flange bearing capacities given in Table 2b must not be adjusted by any load duration factor.

³Tabulated values may be interpolated for bearing lengths between those given.

TABLE 3—JOIST DIMENSIONS

LVL FLANGE JOIST SERIES [depth (in.) - series]	NET JOIST DEPTH (in.)	FLANGE		WEB
		Width (in.)	Thickness (in.)	Thickness (in.)
9 ¹ / ₂ RFPI® - 20	9 ¹ / ₂	1 ³ / ₄	1 ³ / ₈	3/ ₈
9 ¹ / ₂ RFPI® - 25	9 ¹ / ₂	1 ¹ / ₂	1 ¹ / ₂	3/ ₈
9 ¹ / ₂ RFPI® - 30	9 ¹ / ₂	1 ¹ / ₂	1 ¹ / ₂	3/ ₈
9 ¹ / ₂ RFPI® - 400	9 ¹ / ₂	2 ¹ / ₁₆	1 ³ / ₈	3/ ₈
9 ¹ / ₂ RFPI® - 40	9 ¹ / ₂	2 ⁵ / ₁₆	1 ³ / ₈	3/ ₈
9 ¹ / ₂ RFPI® - 45	9 ¹ / ₂	2 ⁵ / ₁₆	1 ¹ / ₂	3/ ₈
9 ¹ / ₂ RFPI® - 50	9 ¹ / ₂	1 ³ / ₄	1 ¹ / ₂	3/ ₈
9 ¹ / ₂ RFPI® - 70	9 ¹ / ₂	2 ⁵ / ₁₆	1 ¹ / ₂	3/ ₈
11 ⁷ / ₈ RFPI® - 20	11 ⁷ / ₈	1 ³ / ₄	1 ³ / ₈	3/ ₈
11 ⁷ / ₈ RFPI® - 25	11 ⁷ / ₈	1 ¹ / ₂	1 ¹ / ₂	3/ ₈
11 ⁷ / ₈ RFPI® - 30	11 ⁷ / ₈	1 ¹ / ₂	1 ¹ / ₂	3/ ₈
11 ⁷ / ₈ RFPI® - 400	11 ⁷ / ₈	2 ¹ / ₁₆	1 ³ / ₈	3/ ₈
11 ⁷ / ₈ RFPI® - 40	11 ⁷ / ₈	2 ⁵ / ₁₆	1 ³ / ₈	3/ ₈
11 ⁷ / ₈ RFPI® - 45	11 ⁷ / ₈	2 ⁵ / ₁₆	1 ¹ / ₂	3/ ₈
11 ⁷ / ₈ RFPI® - 50	11 ⁷ / ₈	1 ³ / ₄	1 ¹ / ₂	3/ ₈
11 ⁷ / ₈ RFPI® - 70	11 ⁷ / ₈	2 ⁵ / ₁₆	1 ¹ / ₂	3/ ₈
11 ⁷ / ₈ RFPI® - 90	11 ⁷ / ₈	3 ¹ / ₂	1 ¹ / ₂	7/ ₁₆
14 RFPI® - 20	14	1 ³ / ₄	1 ³ / ₈	3/ ₈
14 RFPI® - 400	14	2 ¹ / ₁₆	1 ³ / ₈	3/ ₈
14 RFPI® - 40	14	2 ⁵ / ₁₆	1 ³ / ₈	3/ ₈
14 RFPI® - 45	14	2 ⁵ / ₁₆	1 ¹ / ₂	3/ ₈
14 RFPI® - 50	14	1 ³ / ₄	1 ¹ / ₂	3/ ₈
14 RFPI® - 70	14	2 ⁵ / ₁₆	1 ¹ / ₂	3/ ₈
14 RFPI® - 90	14	3 ¹ / ₂	1 ¹ / ₂	7/ ₁₆
16 RFPI® - 400	16	2 ¹ / ₁₆	1 ³ / ₈	3/ ₈
16 RFPI® - 40	16	2 ⁵ / ₁₆	1 ³ / ₈	3/ ₈
16 RFPI® - 45	16	2 ⁵ / ₁₆	1 ¹ / ₂	3/ ₈
16 RFPI® - 50	16	1 ³ / ₄	1 ¹ / ₂	3/ ₈
16 RFPI® - 70	16	2 ⁵ / ₁₆	1 ¹ / ₂	3/ ₈
16 RFPI® - 90	16	3 ¹ / ₂	1 ¹ / ₂	7/ ₁₆
SOLID SAWN FLANGE JOIST SERIES [depth (in.) - series]	NET JOIST DEPTH (in.)	FLANGE		WEB
		Width (in.)	Thickness (in.)	Thickness (in.)
9 ¹ / ₂ RFPI® - 40S	9 ¹ / ₂	2 ¹ / ₂	1 ¹ / ₂	3/ ₈
9 ¹ / ₂ RFPI® - 60S	9 ¹ / ₂	2 ¹ / ₂	1 ¹ / ₂	3/ ₈
11 ⁷ / ₈ RFPI® - 40S	11 ⁷ / ₈	2 ¹ / ₂	1 ¹ / ₂	3/ ₈
11 ⁷ / ₈ RFPI® - 60S	11 ⁷ / ₈	2 ¹ / ₂	1 ¹ / ₂	3/ ₈
11 ⁷ / ₈ RFPI® - 80S	11 ⁷ / ₈	3 ¹ / ₂	1 ¹ / ₂	3/ ₈
14 RFPI® - 40S	14	2 ¹ / ₂	1 ¹ / ₂	3/ ₈
14 RFPI® - 60S	14	2 ¹ / ₂	1 ¹ / ₂	3/ ₈
14 RFPI® - 80S	14	3 ¹ / ₂	1 ¹ / ₂	3/ ₈
16 RFPI® - 40S	16	2 ¹ / ₂	1 ¹ / ₂	3/ ₈
16 RFPI® - 60S	16	2 ¹ / ₂	1 ¹ / ₂	3/ ₈
16 RFPI® - 80S	16	3 ¹ / ₂	1 ¹ / ₂	3/ ₈
DEEP DEPTH LVL FLANGE JOIST SERIES [depth (in.) - series]	NET JOIST DEPTH (in.)	FLANGE		WEB
		Width (in.)	Thickness (in.)	Thickness (in.)
18 RFPI®-700	18	2 ⁵ / ₁₆	1 ¹ / ₂	7/ ₁₆
18 RFPI®-900	18	3 ¹ / ₂	1 ¹ / ₂	7/ ₁₆
20 RFPI®-700	20	2 ⁵ / ₁₆	1 ¹ / ₂	7/ ₁₆
20 RFPI®-900	20	3 ¹ / ₂	1 ¹ / ₂	7/ ₁₆
22 RFPI®-700	22	2 ⁵ / ₁₆	1 ¹ / ₂	7/ ₁₆
22 RFPI®-900	22	3 ¹ / ₂	1 ¹ / ₂	7/ ₁₆
24 RFPI®-700	24	2 ⁵ / ₁₆	1 ¹ / ₂	7/ ₁₆
24 RFPI®-900	24	3 ¹ / ₂	1 ¹ / ₂	7/ ₁₆

For SI: 1 in. = 25.4 mm.

TABLE 4—ALLOWABLE SPAN LENGTH—SIMPLE SPANS^{1,2,3,4,5,6}

LVL FLANGE JOIST SERIES [depth (in.) - series]	ON-CENTER SPACING (in.)			
	12	16	19.2	24
9 ¹ / ₂ RFPI® - 20	17'-2"	15'-9"	14'-10"	13'-10"
9 ¹ / ₂ RFPI® - 25	17'-0"	15'-6"	14'-8"	13'-9"
9 ¹ / ₂ RFPI® - 30	17'-1"	15'-8"	14'-10"	13'-10"
9 ¹ / ₂ RFPI® - 400	18'-0"	16'-5"	15'-6"	14'-6"
9 ¹ / ₂ RFPI® - 40	18'-7"	16'-11"	16'-0"	14'-11"
9 ¹ / ₂ RFPI® - 45	19'-1"	17'-5"	16'-5"	15'-4"
9 ¹ / ₂ RFPI® - 50	17'-10"	16'-4"	15'-5"	14'-5"
9 ¹ / ₂ RFPI® - 70	19'-9"	18'-0"	17'-0"	15'-10"
11 ⁷ / ₈ RFPI® - 20	20'-6"	18'-9"	17'-9"	16'-6"
11 ⁷ / ₈ RFPI® - 25	20'-3"	18'-7"	17'-6"	16'-5"
11 ⁷ / ₈ RFPI® - 30	20'-6"	18'-9"	17'-8"	16'-6"
11 ⁷ / ₈ RFPI® - 400	21'-5"	19'-7"	18'-6"	17'-3"
11 ⁷ / ₈ RFPI® - 40	22'-1"	20'-2"	19'-0"	17'-9"
11 ⁷ / ₈ RFPI® - 45	22'-8"	20'-9"	19'-7"	18'-3"
11 ⁷ / ₈ RFPI® - 50	21'-4"	19'-6"	18'-5"	17'-2"
11 ⁷ / ₈ RFPI® - 70	23'-7"	21'-6"	20'-3"	18'-10"
11 ⁷ / ₈ RFPI® - 90	26'-6"	24'-1"	22'-8"	21'-1"
14 RFPI® - 20	23'-4"	21'-4"	20'-2"	18'-6"
14 RFPI® - 400	24'-4"	22'-3"	21'-0"	19'-7"
14 RFPI® - 40	25'-2"	22'-11"	21'-8"	20'-2"
14 RFPI® - 45	25'-10"	23'-7"	22'-3"	20'-9"
14 RFPI® - 50	24'-4"	22'-2"	21'-0"	19'-7"
14 RFPI® - 70	26'-10"	24'-5"	23'-0"	21'-5"
14 RFPI® - 90	30'-1"	27'-5"	25'-9"	23'-11"
16 RFPI® - 400	27'-0"	24'-8"	23'-4"	20'-10"
16 RFPI® - 40	27'-10"	25'-5"	24'-0"	22'-4"
16 RFPI® - 45	28'-8"	26'-2"	24'-8"	23'-0"
16 RFPI® - 50	27'-0"	24'-8"	23'-4"	20'-2"
16 RFPI® - 70	29'-9"	27'-1"	25'-6"	23'-9"
16 RFPI® - 90	33'-4"	30'-4"	28'-7"	26'-7"
SOLID SAWN FLANGE JOIST SERIES [depth (in.) - series]	ON-CENTER SPACING (in.)			
	12	16	19.2	24
9 ¹ / ₂ RFPI® - 40S	18'-0"	16'-5"	15'-6"	14'-6"
9 ¹ / ₂ RFPI® - 60S	18'-11"	17'-4"	16'-4"	15'-3"
11 ⁷ / ₈ RFPI® - 40S	21'-5"	19'-7"	18'-6"	16'-8"
11 ⁷ / ₈ RFPI® - 60S	22'-7"	20'-8"	19'-6"	18'-2"
11 ⁷ / ₈ RFPI® - 80S	24'-11"	22'-8"	21'-4"	19'-11"
14 RFPI® - 40S	24'-4"	22'-3"	20'-6"	18'-4"
14 RFPI® - 60S	25'-9"	23'-6"	22'-2"	20'-8"
14 RFPI® - 80S	28'-3"	25'-9"	24'-3"	22'-7"
16 RFPI® - 40S	26'-11"	24'-3"	22'-1"	19'-9"
16 RFPI® - 60S	28'-6"	26'-0"	24'-7"	22'-11"
16 RFPI® - 80S	31'-4"	28'-6"	26'-10"	25'-0"

For SI: 1 in. = 25.4 mm; 1 ft = 304.8 mm; 1 lbf = 4.4 N.

¹Allowable clear span applicable to simple-span residential floor construction with a design dead load of 10 psf and a live load of 40 psf. The live load deflection is limited to L/480.

²Spans are based on a composite floor with glue-nailed sheathing meeting the requirements for APA Rated Sheathing or APA Rated STURD-I-FLOOR conforming to PS 1 or PS 2, with a minimum thickness of 19/32 inch for a joist spacing of 19.2 inches or less, or 23/32 inch for a joist spacing of 24 inches. Spans must be reduced 12 inches when the floor sheathing is nailed only.

³Minimum bearing length must be 1 3/4 inches for the end bearings.

⁴Span lengths are based on uniform loads.

⁵Web stiffeners are not required for the spans shown.

⁶Allowable spans for the RFP® 700 and RFP® 900 series I-joists are outside the scope of this evaluation report. Contact the report holder (Roseburg Forest Products Company) regarding allowable spans for these two series.

TABLE 5—ALLOWABLE SPAN LENGTH—MULTIPLE SPANS^{1,2,3,4,5,6}

LVL FLANGE JOIST SERIES [depth (in.) - series]	ON-CENTER SPACING (in.)			
	12	16	19.2	24
9 ¹ / ₂ RFPI® - 20	18'-9"	17'-1"	16'-2"	14'-0"
9 ¹ / ₂ RFPI® - 25	18'-6"	16'-11"	15'-11"	13'-5"
9 ¹ / ₂ RFPI® - 30	18'-7"	17'-0"	16'-1"	15'-0"
9 ¹ / ₂ RFPI® - 400	19'-7"	17'-10"	16'-10"	15'-9"
9 ¹ / ₂ RFPI® - 40	20'-2"	18'-5"	17'-5"	16'-2"
9 ¹ / ₂ RFPI® - 45	20'-9"	18'-11"	17'-10"	16'-8"
9 ¹ / ₂ RFPI® - 50	19'-5"	17'-9"	16'-9"	15'-7"
9 ¹ / ₂ RFPI® - 70	21'-6"	19'-7"	18'-5"	17'-2"
11 ⁷ / ₈ RFPI® - 20	22'-4"	20'-5"	18'-10"	15'-3"
11 ⁷ / ₈ RFPI® - 25	22'-1"	20'-2"	16'-9"	13'-5"
11 ⁷ / ₈ RFPI® - 30	22'-4"	20'-5"	18'-10"	15'-0"
11 ⁷ / ₈ RFPI® - 400	23'-4"	21'-4"	20'-1"	17'-9"
11 ⁷ / ₈ RFPI® - 40	24'-1"	22'-0"	20'-8"	19'-3"
11 ⁷ / ₈ RFPI® - 45	24'-9"	22'-7"	21'-3"	19'-9"
11 ⁷ / ₈ RFPI® - 50	23'-3"	21'-2"	20'-0"	16'-1"
11 ⁷ / ₈ RFPI® - 70	25'-8"	23'-5"	22'-0"	19'-9"
11 ⁷ / ₈ RFPI® - 90	28'-10"	26'-3"	24'-8"	22'-11"
14 RFPI® - 20	25'-5"	22'-7"	19'-2"	15'-3"
14 RFPI® - 400	26'-7"	24'-3"	22'-3"	17'-9"
14 RFPI® - 40	27'-5"	25'-0"	23'-7"	19'-9"
14 RFPI® - 45	28'-2"	25'-8"	24'-3"	19'-9"
14 RFPI® - 50	26'-6"	24'-2"	20'-2"	16'-1"
14 RFPI® - 70	29'-3"	26'-7"	24'-9"	19'-9"
14 RFPI® - 90	32'-10"	29'-10"	28'-1"	26'-0"
16 RFPI® - 400	29'-6"	26'-4"	22'-3"	17'-9"
16 RFPI® - 40	30'-4"	27'-8"	24'-9"	19'-9"
16 RFPI® - 45	31'-3"	28'-6"	24'-9"	19'-9"
16 RFPI® - 50	29'-6"	24'-3"	20'-2"	16'-1"
16 RFPI® - 70	32'-5"	29'-6"	24'-9"	19'-9"
16 RFPI® - 90	36'-5"	33'-1"	31'-1"	26'-7"
SOLID SAWN FLANGE JOIST SERIES [depth (in.) - series]	ON-CENTER SPACING (in.)			
	12	16	19.2	24
9 ¹ / ₂ RFPI® - 40S	19'-7"	17'-11"	16'-4"	14'-7"
9 ¹ / ₂ RFPI® - 60S	20'-8"	18'-10"	17'-9"	16'-6"
11 ⁷ / ₈ RFPI® - 40S	23'-5"	20'-5"	18'-7"	16'-7"
11 ⁷ / ₈ RFPI® - 60S	24'-8"	22'-6"	21'-2"	19'-7"
11 ⁷ / ₈ RFPI® - 80S	27'-1"	24'-8"	23'-3"	21'-7"
14 RFPI® - 40S	25'-11"	22'-5"	20'-5"	18'-3"
14 RFPI® - 60S	28'-0"	25'-7"	24'-1"	19'-9"
14 RFPI® - 80S	30'-9"	28'-0"	26'-4"	23'-11"
16 RFPI® - 40S	27'-11"	24'-2"	22'-0"	19'-8"
16 RFPI® - 60S	31'-1"	28'-4"	24'-9"	19'-9"
16 RFPI® - 80S	34'-2"	31'-1"	29'-3"	23'-11"

For SI: 1 in. = 25.4 mm; 1 ft = 304.8 mm; 1 lbf = 4.4 N.

¹Allowable clear span applicable to multiple-span residential floor construction with a design dead load of 10 psf and a live load of 40 psf. The length of the end span must be 40% or more of the adjacent span. The live load deflection is limited to $L/480$.

²Spans are based on a composite floor with glue-nailed sheathing meeting the requirements for APA Rated Sheathing or APA Rated STURD-I-FLOOR conforming to PS 1 or PS 2, with a minimum thickness of $19/32$ inch for a joist spacing of 19.2 inches or less, or $23/32$ inch for a joist spacing of 24 inches. Spans must be reduced 12 inches when the floor sheathing is nailed only.

³Minimum bearing length must be $1\frac{3}{4}$ inches for the end bearings and $3\frac{1}{2}$ inches for the intermediate bearings.

⁴Span lengths are based on uniform loads.

⁵Web stiffeners are not required for the spans shown.

⁶Allowable spans for the RFP[®] 700 and RFP[®] 900 series I-joists are outside the scope of this evaluation report. Contact the report holder (Roseburg Forest Products Company) regarding allowable spans for these two series.

TABLE 6—CIRCULAR HOLE PLACEMENT^{1,2,3,4,5,6}

JOIST SERIES [depth (in.) – series]	MINIMUM DISTANCE FROM INSIDE FACE OF ANY SUPPORT TO CENTER OF HOLE (feet - inches)															
	Round Hole Diameter (in.)															
	2	3	4	5	6	6 ¹ / ₄	7	8	8 ⁵ / ₈	9	10	10 ³ / ₄	11	12	12 ³ / ₄	
9 ¹ / ₂ RFPI-20	0-7	0-8	1-11	3-4	5-1	5-7										
9 ¹ / ₂ RFPI-25	0-7	0-11	2-2	3-9	5-6	5-11										
9 ¹ / ₂ RFPI-30	0-9	2-0	3-3	4-7	6-1	6-6										
9 ¹ / ₂ RFPI-400	0-7	1-9	3-1	4-7	6-2	6-7										
9 ¹ / ₂ RFPI-40	0-7	1-3	2-8	4-3	6-0	6-5										
9 ¹ / ₂ RFPI-40S	0-7	1-8	3-0	4-4	5-9	6-3										
9 ¹ / ₂ RFPI-45	1-10	3-1	4-5	5-10	7-4	7-9										
9 ¹ / ₂ RFPI-50	1-1	2-4	3-8	5-0	6-6	6-11										
9 ¹ / ₂ RFPI-60S	1-8	3-0	4-4	5-8	7-3	7-8										
9 ¹ / ₂ RFPI-70	0-7	1-10	3-5	5-0	6-9	7-2										
11 ⁷ / ₈ RFPI-20	0-7	0-8	0-8	1-9	3-4	3-9	5-0	6-10	8-0							
11 ⁷ / ₈ RFPI-25	0-7	0-8	0-8	0-9	2-4	2-10	4-3	6-4	7-9							
11 ⁷ / ₈ RFPI-30	0-7	0-8	0-8	1-9	3-4	3-9	5-0	6-10	8-0							
11 ⁷ / ₈ RFPI-400	0-7	0-8	1-6	2-10	4-2	4-7	5-8	7-5	8-8							
11 ⁷ / ₈ RFPI-40	0-7	0-8	2-0	3-5	4-10	5-3	6-5	8-1	9-2							
11 ⁷ / ₈ RFPI-40S	0-7	0-8	1-2	2-5	3-9	4-1	5-1	6-8	7-11							
11 ⁷ / ₈ RFPI-45	0-9	2-0	3-3	4-7	6-0	6-4	7-5	9-0	10-1							
11 ⁷ / ₈ RFPI-50	0-7	0-8	0-11	2-6	4-1	4-6	5-10	7-8	8-11							
11 ⁷ / ₈ RFPI-60S	0-8	1-10	3-2	4-5	5-10	6-2	7-4	8-11	10-0							
11 ⁷ / ₈ RFPI-70	0-7	1-0	2-4	3-9	5-2	5-7	6-9	8-6	9-10							
11 ⁷ / ₈ RFPI-80S	0-7	1-10	3-3	4-9	6-3	6-8	7-11	9-8	10-11							
11 ⁷ / ₈ RFPI-90	0-7	0-8	0-11	2-9	4-7	5-1	6-7	8-8	10-2							
14 RFPI-20	0-7	0-8	0-8	0-9	0-9	1-1	2-3	4-2	5-4	6-1	8-2	9-11				
14 RFPI-400	0-7	0-8	0-8	0-9	1-11	2-4	3-7	5-3	6-4	7-0	8-11	10-8				
14 RFPI-40	0-7	0-8	0-8	1-2	2-6	2-10	4-0	5-10	6-11	7-8	9-8	11-4				
14 RFPI-40S	0-7	0-8	0-8	0-9	1-10	2-2	3-2	4-7	5-5	6-0	7-7	9-4				
14 RFPI-45	0-7	0-8	0-8	1-8	3-3	3-8	4-11	6-8	7-9	8-6	10-6	12-1				
14 RFPI-50	0-7	0-8	0-8	0-9	0-9	1-1	2-6	4-6	5-9	6-7	8-10	10-7				
14 RFPI-60S	0-7	0-8	0-8	1-7	3-2	3-6	4-9	6-6	7-8	8-4	10-4	11-11				
14 RFPI-70	0-7	0-8	0-8	1-6	3-1	3-6	4-10	6-7	7-9	8-6	10-7	12-3				
14 RFPI-80S	0-7	0-9	2-1	3-6	4-11	5-3	6-5	7-11	9-0	9-7	11-5	13-2				
14 RFPI-90	0-7	0-8	0-9	2-4	4-1	4-6	5-9	7-7	8-9	9-6	11-7	13-3				
16 RFPI-400	0-7	0-8	0-8	0-9	0-9	0-10	0-10	1-11	3-1	3-10	5-11	7-6	8-0	10-4	12-3	
16 RFPI-40	0-7	0-8	0-8	0-9	0-9	0-10	1-10	3-6	4-6	5-2	6-11	8-5	9-0	11-4	13-3	
16 RFPI-40S	0-7	0-8	0-8	0-9	0-9	0-10	1-5	2-9	3-7	4-1	5-6	6-7	7-0	8-9	10-9	
16 RFPI-45	0-7	0-8	0-8	0-9	0-9	0-10	1-10	3-6	4-7	5-4	7-5	9-0	9-7	12-0	13-11	
16 RFPI-50	0-7	0-8	0-8	0-9	0-9	0-10	0-10	0-10	1-9	2-6	4-6	6-0	6-8	9-7	11-11	
16 RFPI-60S	0-7	0-8	0-8	0-9	0-9	0-10	1-10	3-6	4-6	5-2	7-3	8-11	9-6	11-10	13-9	
16 RFPI-70	0-7	0-8	0-8	0-9	0-9	0-10	2-1	4-0	5-3	6-0	8-1	9-9	10-4	12-9	14-8	
16 RFPI-80S	0-7	0-8	0-8	0-11	2-4	2-9	4-1	5-10	6-11	7-8	9-7	11-1	11-7	13-10	15-7	
16 RFPI-90	0-7	0-8	0-8	0-10	2-3	2-8	3-10	5-5	6-6	7-4	9-5	11-1	11-8	14-1	16-1	

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

¹Tabulated values are for simple or multiple spans, based on 40 psf live load and 10 psf dead load, and I-joist spacing of 24 inches on center or less with the full shear design values given in Table 1 of this report.

²The top and bottom of each hole must be at least 1/8 inch away from the top and bottom flanges, respectively; and wherever practical, the web hole should be approximately centered vertically on the depth of the web.

³Distances are based on uniformly loaded joists that meet the span requirements in Tables 4 and 5 of this report.

⁴Some of the minimum distances given in Table 6 are not achievable for certain maximum spans given in Tables 4 and 5. For such cases, a smaller hole size or tighter joist spacing should be used in order to satisfy both the minimum hole distance and the maximum span requirements.

⁵For webs with multiple holes, the minimum allowable center-to-center hole spacing is 3D, where D is the diameter of the larger hole.

⁶The allowable location of round holes for the RFPI[®] 700 and RFPI[®] 900 series of I-joists may be determined by utilizing the following equation to calculate the allowable shear capacity of the I-joist with a given hole size: $V_{hole} = V_r \times \{joist\ depth - hole\ diameter\} / joist\ depth\}$

Where: V_{hole} is the allowable shear at the centerline of the hole (lbf)
 V_r is the allowable shear value for the I-joist as given in Table 1 (lbf)
 Joist depth is the out-to-out depth of the I-joist (in)
 Hole diameter is in inches.

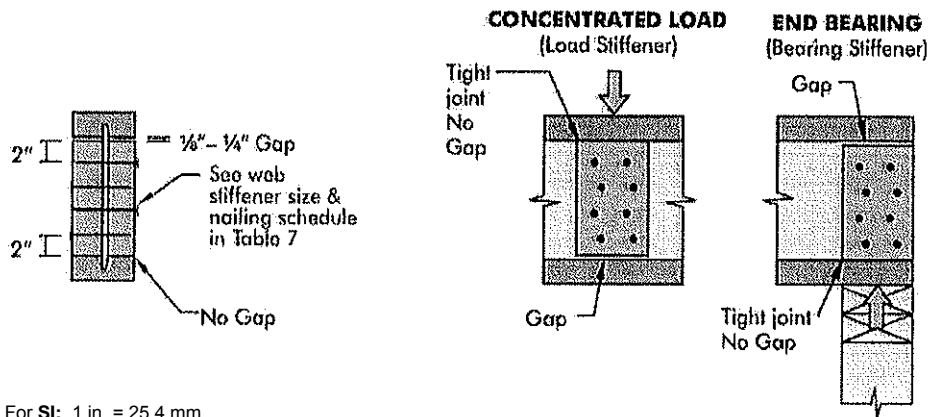
TABLE 7—MINIMUM WEB STIFFENER DIMENSIONS AND NAILING REQUIREMENTS

LVL FLANGE JOIST SERIES	FLANGE WIDTH (in.)	MINIMUM DIMENSIONS AND NAILING REQUIREMENTS		
		Web Stiffener Dimensions (in.)		Nails
		Thickness	Width	
RFPI® - 20	1 ³ / ₄	1 ⁹ / ₃₂	2 ⁵ / ₁₆	8d box – 2 ¹ / ₂ x 0.113 inch
RFPI® - 25	1 ¹ / ₂	1 ⁵ / ₃₂	2 ⁵ / ₁₆	8d box – 2 ¹ / ₂ x 0.113 inch
RFPI® - 30	1 ¹ / ₂	1 ⁵ / ₃₂	2 ⁵ / ₁₆	8d box – 2 ¹ / ₂ x 0.113 inch
RFPI® - 400	2 ¹ / ₁₆	7/ ₈	2 ⁵ / ₁₆	8d box – 2 ¹ / ₂ x 0.113 inch
RFPI® - 40	2 ⁵ / ₁₆	1	2 ⁵ / ₁₆	8d box – 2 ¹ / ₂ x 0.113 inch
RFPI® - 45	2 ⁵ / ₁₆	1	2 ⁵ / ₁₆	8d box – 2 ¹ / ₂ x 0.113 inch
RFPI® - 50	1 ³ / ₄	1 ⁹ / ₃₂	2 ⁵ / ₁₆	8d box – 2 ¹ / ₂ x 0.113 inch
RFPI® - 70	2 ⁵ / ₁₆	1	2 ⁵ / ₁₆	8d box – 2 ¹ / ₂ x 0.113 inch
RFPI® - 90	3 ¹ / ₂	1 ¹ / ₂	2 ⁵ / ₁₆	10d box – 3 x 0.128 inch

SOLID SAWN FLANGE JOIST SERIES	FLANGE WIDTH (in.)	MINIMUM DIMENSIONS AND NAILING REQUIREMENTS		
		Web Stiffener Dimensions (in.)		Nails
		Thickness (in)	Width (in)	
RFPI® - 40S	2 ¹ / ₂	1	2 ⁵ / ₁₆	8d box – 2 ¹ / ₂ x 0.113 inch
RFPI® - 60S	2 ¹ / ₂	1	2 ⁵ / ₁₆	8d box – 2 ¹ / ₂ x 0.113 inch
RFPI® - 80S	3 ¹ / ₂	1 ¹ / ₂	2 ⁵ / ₁₆	10d box – 3 x 0.128 inch

DEEP DEPTH LVL FLANGE JOIST SERIES	FLANGE WIDTH (in.)	MINIMUM DIMENSIONS AND NAILING REQUIREMENTS		
		Web Stiffener Dimensions (in.)		Nails
		Thickness (in)	Width (in)	
RFPI® - 700	2 ⁵ / ₁₆	7/ ₈	3 ¹ / ₂	8d box – 2 ¹ / ₂ x 0.113 inch
RFPI® - 900	3 ¹ / ₂	1 ¹ / ₂	3 ¹ / ₂	16d box – 3 ¹ / ₂ x 0.135 inch

For SI: 1 in. = 25.4 mm.



For SI: 1 in. = 25.4 mm.

FIGURE 1—WEB STIFFENER DIAGRAM (See Table 7 for stiffener size and nailing requirements)

TABLE 8—ALLOWABLE SHEAR (POUNDS PER FOOT) FOR HORIZONTAL WOOD STRUCTURAL PANEL DIAPHRAGMS FRAMED WITH ROSEBURG RFPI-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.)	RFPI-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,f)		Nails Spaced 6 in. max. at supported edges ^(e)	
					6	4		
					Nail spacing (in.) at other panel edges (Cases 1, 2, 3, & 4) ^(e)		Case 1 (No unblocked edges or continuous joints parallel to load)	All other configurations (Cases 2, 3, 4, 5 & 6)
6	6							
Structural 1 Grades	6d ^(g)	5/16	2	RFPI 20 & 400	185	250	165	125
			3	RFPI 40, 40S, 60S, 70, 80S, 90, 700 & 900	210	280	185	140
	8d	3/8	2	RFPI 20 & 400	270	360	240	180
			3	RFPI 40, 40S, 60S, 70, 80S, 90, 700 & 900	300	400	265	200
	10d	15/32	2	RFPI 20 & 400	320	425	285	215
			3	RFPI 40, 40S, 60S, 70, 80S, 90, 700 & 900	360	480	320	240
Sheathing, single floor and other grades covered in DOC PS 1 and PS 2	6d ^(g)	5/16	2	RFPI 20 & 400	170	225	150	110
			3	RFPI 40, 40S, 60S, 70, 80S, 90, 700 & 900	190	250	170	125
		3/8	2	RFPI 20 & 400	185	250	165	125
			3	RFPI 40, 40S, 60S, 70, 80S, 90,700 & 900	210	280	185	140
	8d	3/8	2	RFPI 20 & 400	240	320	215	160
			3	RFPI 40, 40S, 60S, 70, 80S, 90,700 & 900	270	360	240	180
		7/16	2	RFPI 20 & 400	255	340	230	170
			3	RFPI 40, 40S, 60S, 70, 80S, 90,700 & 900	285	380	255	190
		15/32	2	RFPI 20 & 400	270	360	240	180
			3	RFPI 40, 40S, 60S, 70, 80S, 90,700 & 900	300	400	265	200
	10d	15/32	2	RFPI 20 & 400	290	385	255	190
			3	RFPI 40, 40S, 60S, 70, 80S, 90,700 & 900	325	430	290	215
		19/32	2	RFPI 20 & 400	320	425	285	215
			3	RFPI 40, 40S, 60S, 70, 80S, 90,700 & 900	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.

- (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. 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. See Section 4.7 for flange specific gravity information.
- (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.
- (f) When nail spacing is 4 inches on center at diaphragm boundaries, adjacent nails within a row must be offset (staggered) 1/2 inch for RFPI-40S, 60S and 80S series I-joists.
- (g) 8d common nails minimum are recommended for roofs due to negative pressures of high winds.



FIGURE 2—PRODUCT LOGO

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