

Roseburg RFPI® Series I-Joists Roseburg Forest Products Company

Products: Roseburg RFPI-20, 40S, 400, 40, 60S, 70, 80S, 90, 700, and 900 Series I-Joists Roseburg Forest Products Company, 4500 Riddle Bypass Road, Riddle, Oregon 97469 (800) 347-7260

www.roseburg.com

- 1. Basis of the product report:
 - 2018, 2015, and 2012 International Building Code (IBC): Sections 104.11 Alternative materials and 2303.1.2 Prefabricated wood I-joists
 - 2018 and 2015 International Residential Code (IRC): Sections 104.11 Alternative materials, and R502.1.2 and R802.1.8 (2018 IRC only) Prefabricated wood I-joists
 - 2012 IRC: Sections R104.11 Alternative materials and R502.1.4 Prefabricated wood Ijoists
 - ASTM D5055-13e1, D5055-13, and D5055-09 recognized by the 2018 IBC and IRC, 2015 IBC and IRC, and 2012 IBC and IRC, respectively
 - Performance Standard for APA EWS I-Joists, PRI-400
 - AWC SDPWS-2015 Special Design Provisions for Wind and Seismic
 - APA Reports T2000P-14, T2001P-64, T2002P-57, T2002P-62A, T2003P-15, T2003P-20, T2003P-67, T2005P-101C, T2006P-04, T2006P-76A, T2008P-11, T2008P-75, T2009P-33, T2009P-42, T2009P-48, T2009P-50, T2010P-35, T2010P-57, T2011P-51, T2011P-52, T2012P-31, T2013P-22, T2013P-24A, T2015L-05B, T2015P-06, and T2017L-25, and other qualification data
- 2. Product description:

All RFPI series I-joists, as described in Table 1, are made with laminated veneer lumber (LVL) flanges with the exception of RFPI-40S, RFPI-60S and RFPI-80S, which are made of lumber flanges, and OSB webs in accordance with the in-plant manufacturing standard approved by APA.

3. Design properties:

Tables 2, 3a, and 3b list the design properties for RFPI series I-joists. Table 4 shows the allowable lateral shear capacities of RFPI series I-joists in diaphragm applications. Table 5 shows web stiffener information. Allowable span information for RFPI series I-joists shall be in accordance with the recommendations provided by the manufacturer (www.roseburg.com).

4. Product installation:

Installation of RFPI series I-joists shall be in accordance with the recommendations provided by the manufacturer (see link above). Permissible web holes and cantilever reinforcements shall be 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-S259, or APA Design/Construction Guide: *Fire-Rated Systems*, Form W305 (<u>www.apawood.org/resource-library</u>).

- 6. Limitations:
 - a) RFPI series I-joists shall be designed in accordance with the code using the design properties specified in this report.

- b) RFPI series I-joists are limited to dry service conditions where the average equilibrium moisture content of sawn lumber is less than 16 percent.
- c) RFPI series I-joists are produced at the Roseburg Forest Products Company facility in Riddle, Oregon under a quality assurance program audited by APA.
- RFPI-40S, RFPI-60S and RFPI-80S are also produced at the EACOM Timber Corporation facility in Sault Ste. Marie, Ontario under a quality assurance program audited by APA.
- e) RFPI-40S and RFPI-60S are also produced at the International Beams facilities in Pohénégamook, Quebec and Tillsonburg, Ontario, under a quality assurance program audited by APA.
- f) This report is subject to re-examination in one year.
- 7. Identification:

The RFPI series I-joists described in this report are identified by a label bearing the manufacturer's name (Roseburg Forest Products Company) and/or trademark, the APA assigned plant number (1053 for Roseburg Forest Products, Riddle, Oregon, 1058 for EACOM, Sault Ste. Marie, Ontario, 1033 for International Beams, Pohénégamook, Quebec, and 1114 for International Beams, Tillsonburg, Ontario), the I-joist series and depth, the APA logo, the report number PR-L259, and a means of identifying the date of manufacture. RFPI-40, RFPI-70, and RFPI-90 are permitted to be labelled as onCENTER[®] BLI 400, BLI 700, and BLI 900, respectively.

| | Joist Depths | | Flange | Web | | | | |
|--------------|--------------|---------------------------------|---------------------|----------------|----------------|----------|-----------|--|
| Joist Series | | | | Dime | ension | | Thiskness | |
| | (In.) | Material | G ^(b) | Depth (in.) | Width (in.) | Material | (in.) | |
| RFPI-20 | 9-1/2 - 14 | LVL | 0.50 | 1-3/8 | 1-3/4 | OSB | 3/8 | |
| RFPI-40S | 9-1/2 - 16 | Proprietary SPF/DFL (MSR) | 0.42 ^(c) | 1-1/2 | 2-1/2 | OSB | 3/8 | |
| RFPI-400 | 9-1/2 - 16 | LVL | 0.50 | 1-3/8 | 2-1/16 | OSB | 3/8 | |
| RFPI-40 | 9-1/2 - 16 | LVL | 0.50 | 1-3/8 | 2-5/16 | OSB | 3/8 | |
| RFPI-60S | 9-1/2 - 16 | Proprietary SPF/DFL (MSR) | 0.46 ^(c) | 1-1/2 | 2-1/2 | OSB | 3/8 | |
| RFPI-70 | 9-1/2 - 16 | LVL | 0.50 | 1-1/2 | 2-5/16 | OSB | 3/8 | |
| RFPI-80S | 11-7/8 - 16 | MSR SPF/DFL | 0.46 ^(c) | 1-1/2 | 3-1/2 | OSB | 3/8 | |
| RFPI-90 | 11-7/8 - 16 | LVL | 0.50 | 1-1/2 | 3-1/2 | OSB | 7/16 | |
| RFPI-700 | 18 - 24 | LVL | 0.50 | 1-1/2 | 2-5/16 | OSB | 7/16 | |
| RFPI-900 | 18 - 24 | LVL | 0.50 | 1-1/2 | 3-1/2 | OSB | 7/16 | |

Table 1. Description of Roseburg Forest Products RFPI Series I-Joists^(a)

For SI: 1 inch = 25.4 mm.

^(a) Referenced dimensions are nominal. Tolerances are as specified in the plant quality manual.

^(b) Specific gravity of flanges for use in diaphragm design (see Table 4) based on oven-dry weight and oven-dry volume for lumber flanges or equivalent specific gravity for LVL flanges.

^(c) The specific gravity value is permitted to be increased to 0.50 if the flange species is Douglas fir-Larch.

| Table 2. | Design Propertie | s for Roseburg | Forest Products | RFPI Series I-Joists ^(a) |
|----------|------------------|----------------|-----------------|-------------------------------------|
| | = = = | | | |

| Depth (in.) | Joist Designation | Permitted to Be Labelled as | EI ^(b) (10 ⁶ lbf-in. ²) | M ^(c) (Ibf-ft) | V ^(d) (Ibf) | VLC ^(e) (lbf/ft) | K ^(f) (10 ⁶ lbf) |
|----------------|--|-----------------------------------|--|---|---|--|---|
| 9-1/2 | RFPI-20 RFPI-40S RFPI-400 RFPI-40 RFPI-60S | BLI 400 | 165 193 193 215 231 | 2,820 2,735 3,345 3,760 3,780 | 1,220 1,120 1,220 1,330 1,120 | 2,000 2,000 2,000 2,000 2,000 2,000 | 4.94 4.94 4.94 4.94 4.94 |
| | RFPI-70 RFPI-20 | BLI 700 | 266 283 | 5,130 3,640 | 1,330 | 2,000 | 4.94 |
| 11-7/8 | RFPI-40S RFPI-400 RFPI-40 RFPI-60S | BLI 400 | 330 330 366 396 | 3,545 4,315 4,855 4,900 | 1,420 1,480 1,550 1,420 | 2,000 2,000 2,000 2,000 2,000 | 6.18 6.18 6.18 6.18 6.18 |
| | RFPI-70 RFPI-80S RFPI-90 RFPI-20 | BLI 700 BLI 900 | 455 547 676 420 | 6,645 6,970 10,145 4 330 | 1,550 1,590 2,050 1,610 | 2,000 2,000 2,000 2,000 | 6.18 6.18 6.18 7.28 |
| 14 | RFPI-40S RFPI-400 RFPI-40 RFPI-60S | BLI 400 | 482 486 540 584 | 4,270 5,140 5,785 5,895 | 1,710 1,710 1,770 1,770 1,710 | 2,000 2,000 2,000 2,000 2,000 | 7.28 7.28 7.28 7.28 7.28 |
| | RFPI-70 RFPI-80S RFPI-90 | BLI 700 BLI 900 | 672 802 992 | 7,925 8,390 12,100 | 1,770 1,835 2,195 | 2,000 2,000 2,000 | 7.28 7.28 7.28 |
| 16 | RFPI-40S RFPI-400 RFPI-40 RFPI-60S | BLI 400 | 657 665 737 799 | 4,950 5,880 6,615 6,835 | 1,970 1,970 1,970 1,970 1,970 | 2,000 2,000 2,000 2,000 2,000 | 8.32 8.32 8.32 8.32 |
| | RFPI-70 RFPI-80S RFPI-90 | BLI 700 BLI 900 | 918 1,092 1,350 | 9,080 9,730 13,865 | 1,970 2,070 2,330 | 2,000 2,000 2,000 | 8.32 8.32 8.32 |
| 18 | RFPI-700 RFPI-900 | | 1,245 1,849 | 10,450 16,080 | 2,575 2,885 | 2,200 2,200 | 11.34 11.34 |
| 20 | RFPI-700 RFPI-900 | | 1,579 2,337 | 11,600 17,855 | 2,740 2,945 | 2,200 2,200 | 12.60 12.60 |
| 22 | RFPI-700 RFPI-900 | | 1,955 2,886 | 12,740 19,615 | 2,935 3,010 | 1,800 1,800 | 13.86 13.86 |
| 24 | RFPI-700 RFPI-900 | | 2,375 3,496 | 13,870 21,355 | 3,060 3,060 | 1,750 1,750 | 15.12 15.12 |

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 lbf = 4.448 N.

(a) The tabulated values are allowable stress design (ASD) 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 of the I-joist.

(e)

Vertical load capacity when continuously supported. Coefficient of shear deflection (K). For calculating uniform load and center point load deflections of an (f) I-joist in a simple-span application, use Equations 1 and 2.

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

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

where δ = calculated deflection (in.),

P = concentrated load (lbf),EI = bending stiffness of the I-joist (lbf-in.²), and ω = uniform load (lbf/in.),

L = design span (in.),

K = coefficient of shear deflection (lbf).

| | | | | | End Read | ction (lbf) | | | Inte | ermediate l | Reaction (| lbf) | |
|--------|-------------|--------------|----------|----------|----------|-------------|------------|-----------|----------|-------------|----------------|-----------|----------------------|
| Depth | loist | Permitted to | 1-3/4 ii | n. Brg. | 3-1/2 i | n. Brg. | 1 in Bro | | 3-1/2 ii | n. Brg. | 5-1/4 in. Brg. | | Web |
| (in) | Designation | Be Labelled | Len | gth | Ler | ngth | 4 III. DIQ | g. Lengui | Len | igth | Ler | ngth | Stiff. |
| () | Booignation | as | Web St | iffeners | Web St | tiffeners | Web St | tiffeners | Web St | iffeners | Web St | tiffeners | Nails ^(b) |
| | | | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | i iuno / |
| | RFPI-20 | | 910 | 1,150 | 1,150 | 1,200 | 1,220 | 1,220 | 1,775 | 1,875 | 2,000 | 2,300 | 4-8d |
| | RFPI-40S | | 1,080 | 1,120 | 1,110 | 1,120 | 1,120 | 1,120 | 2,160 | 2,240 | 2,240 | 2,240 | 4-8d |
| 9-1/2 | RFPI-400 | | 1,025 | 1,220 | 1,175 | 1,220 | 1,220 | 1,220 | 2,150 | 2,250 | 2,300 | 2,440 | 4-8d |
| 5 1/2 | RFPI-40 | BLI 400 | 1,080 | 1,220 | 1,270 | 1,305 | 1,330 | 1,330 | 2,250 | 2,500 | 2,550 | 2,650 | 4-8d |
| | RFPI-60S | | 1,080 | 1,120 | 1,110 | 1,120 | 1,120 | 1,120 | 2,160 | 2,240 | 2,240 | 2,240 | 4-8d |
| | RFPI-70 | BLI 700 | 1,120 | 1,330 | 1,280 | 1,330 | 1,330 | 1,330 | 2,335 | 2,500 | 2,550 | 2,650 | 4-8d |
| | RFPI-20 | | 950 | 1,225 | 1,315 | 1,375 | 1,420 | 1,420 | 1,935 | 2,035 | 2,135 | 2,435 | 4-8d |
| | RFPI-40S | | 1,200 | 1,340 | 1,370 | 1,400 | 1,420 | 1,420 | 2,500 | 2,625 | 2,660 | 2,840 | 4-8d |
| | RFPI-400 | | 1,050 | 1,265 | 1,380 | 1,430 | 1,480 | 1,480 | 2,250 | 2,350 | 2,350 | 2,650 | 4-8d |
| 11-7/8 | RFPI-40 | BLI 400 | 1,200 | 1,400 | 1,470 | 1,515 | 1,550 | 1,550 | 2,500 | 2,625 | 2,660 | 2,870 | 4-8d |
| 11-770 | RFPI-60S | | 1,200 | 1,340 | 1,370 | 1,400 | 1,420 | 1,420 | 2,500 | 2,625 | 2,660 | 2,840 | 4-8d |
| | RFPI-70 | BLI 700 | 1,200 | 1,470 | 1,470 | 1,530 | 1,550 | 1,550 | 2,500 | 2,625 | 2,660 | 2,870 | 4-8d |
| | RFPI-80S | | 1,280 | 1,590 | 1,490 | 1,590 | 1,550 | 1,590 | 2,810 | 3,180 | 3,100 | 3,180 | 4-10d |
| | RFPI-90 | BLI 900 | 1,400 | 1,745 | 1,775 | 1,980 | 1,885 | 2,050 | 3,355 | 3,475 | 3,475 | 3,675 | 4-10d |
| | RFPI-20 | | 950 | 1,290 | 1,415 | 1,535 | 1,550 | 1,610 | 1,935 | 2,035 | 2,135 | 2,435 | 4-8d |
| | RFPI-40S | | 1,200 | 1,530 | 1,470 | 1,670 | 1,550 | 1,710 | 2,500 | 2,740 | 2,755 | 3,050 | 4-8d |
| | RFPI-400 | | 1,050 | 1,305 | 1,435 | 1,620 | 1,550 | 1,710 | 2,250 | 2,350 | 2,350 | 2,650 | 4-8d |
| 14 | RFPI-40 | BLI 400 | 1,200 | 1,560 | 1,470 | 1,720 | 1,550 | 1,770 | 2,500 | 2,740 | 2,755 | 3,065 | 4-8d |
| 14 | RFPI-60S | | 1,200 | 1,530 | 1,470 | 1,670 | 1,550 | 1,710 | 2,500 | 2,740 | 2,755 | 3,050 | 4-8d |
| | RFPI-70 | BLI 700 | 1,200 | 1,590 | 1,470 | 1,730 | 1,550 | 1,770 | 2,500 | 2,740 | 2,755 | 3,065 | 4-8d |
| | RFPI-80S | | 1,280 | 1,750 | 1,490 | 1,815 | 1,550 | 1,835 | 3,020 | 3,360 | 3,210 | 3,600 | 4-10d |
| | RFPI-90 | BLI 900 | 1,400 | 1,885 | 1,775 | 2,125 | 1,885 | 2,195 | 3,355 | 3,500 | 3,500 | 3,850 | 4-10d |
| | RFPI-40S | | 1,200 | 1,710 | 1,470 | 1,910 | 1,550 | 1,970 | 2,500 | 2,850 | 2,850 | 3,250 | 4-8d |
| | RFPI-400 | | 1,050 | 1,340 | 1,435 | 1,830 | 1,550 | 1,970 | 2,250 | 2,350 | 2,350 | 2,650 | 4-8d |
| | RFPI-40 | BLI 400 | 1,200 | 1,710 | 1,470 | 1,910 | 1,550 | 1,970 | 2,500 | 2,850 | 2,850 | 3,250 | 4-8d |
| 16 | RFPI-60S | | 1,200 | 1,710 | 1,470 | 1,910 | 1,550 | 1,970 | 2,500 | 2,850 | 2,850 | 3,250 | 4-8d |
| | RFPI-70 | BLI 700 | 1,200 | 1,710 | 1,470 | 1,910 | 1,550 | 1,970 | 2,500 | 2,850 | 2,850 | 3,250 | 4-8d |
| | RFPI-80S | | 1,280 | 1,900 | 1,490 | 2,030 | 1,550 | 2,070 | 3,020 | 3,525 | 3,310 | 4,000 | 4-10d |
| | RFPI-90 | BLI 900 | 1,400 | 2,025 | 1,775 | 2,260 | 1,885 | 2,330 | 3,355 | 3,525 | 3,525 | 4,025 | 4-10d |
| 18 | RFPI-700 | | 1,125 | 2,200 | 1,650 | 2,575 | 1,800 | 2,575 | 2,745 | 4,050 | 3,025 | 4,475 | 8-8d |
| 10 | RFPI-900 | | 1,475 | 2,570 | 1,765 | 2,885 | 1,850 | 2,885 | 3,000 | 5,110 | 3,475 | 5,710 | 8-16d |
| 20 | RFPI-700 | | 1,090 | 2,300 | 1,585 | 2,740 | 1,725 | 2,740 | 2,745 | 4,050 | 3,025 | 4,475 | 8-8d |
| 20 | RFPI-900 | | 1.350 | 2.665 | 1.700 | 2.945 | 1.800 | 2.945 | 3.000 | 5.110 | 3.475 | 5.710 | 8-16d |

Table 3a. Reaction Capacities for Roseburg Forest Products RFPI Series I-Joists^(a)

| | Joist Designation | Joist Designation Designation | End Reaction (lbf) | | | | | Intermediate Reaction (lbf) | | | | | |
|-------|----------------------|-------------------------------------|----------------------|----------|------------------|---------|----------------|-----------------------------|----------------|---------|----------------|---------|----------|
| Depth | | | 1-3/4 in. Brg. 3-1/2 | | 3-1/2 i | n. Brg. | 1 in Dro | 1 in Dra Longth | | n. Brg. | 5-1/4 i | n. Brg. | Web |
| | | | Length Length | | 4 m. big. Lengin | | Length | | Length | | Stiff. | | |
| (11.) | | as | Web St | iffeners | Web Stiffeners | | Web Stiffeners | | Web Stiffeners | | Web Stiffeners | | |
| | | | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes | INdiis." |
| 22 | RFPI-700 | | N.A. | 2,400 | N.A. | 2,935 | N.A. | 2,935 | N.A. | 4,150 | N.A. | 4,605 | 10-8d |
| 22 | RFPI-900 | | N.A. | 2,755 | N.A. | 3,010 | N.A. | 3,010 | N.A. | 5,405 | N.A. | 6,020 | 10-16d |
| 24 | RFPI-700 | | N.A. | 2,500 | N.A. | 3,060 | N.A. | 3,060 | N.A. | 4,150 | N.A. | 4,605 | 10-8d |
| 24 | RFPI-900 | | N.A. | 2,850 | N.A. | 3,060 | N.A. | 3,060 | N.A. | 5,405 | N.A. | 6,020 | 10-16d |

Table 3a. Reaction Capacities for Roseburg Forest Products RFPI Series I-Joists^(a) (Continued)

For SI: 1 inch = 25.4 mm, 1 lbf = 4.448 N.

General Note: Determine the allowable reaction value using appropriate adjustments for Tables 3a and 3b and use the lesser of the two values (refer to the notes for each table)

(a) The tabulated design values in Table 3a above are for normal duration of load. Interpolation between tabulated values is permitted. All values in Table 3a shall be permitted to be adjusted for other load durations.

^(b) Number and size of nails required for web stiffeners. Refer to Table 5 for web stiffener and nail dimensions. Web stiffeners shall be installed in accordance with the recommendations provided by the manufacturer.

| Table 3b. | Reaction Capacity for Roseburg Forest Products RFPI Series I-Joists Based on the Compressive Stress Perpendicular to the |
|-----------|--|
| | Grain of Flanges Only ^(a,b) |

| | | | End Reaction (lbf) | | | | | | Intermediate Reaction ^(c) (lbf) | | | |
|---------|----------------------|-----------------------------|-------------------------------|-------------|-----------------------|----------------|----------|-------------------|--|-----------------|--------------------------|-----|
| Depth | Joist Designation | Permitted to Be Labelled | 1-3/4 in. Brg. Length | | 3-1/2 in. Brg. Length | | 4 in. Br | 4 in. Brg. Length | | n. Brg. ngth | 5-1/4 in. Brg. Length | |
| - | | as | Web Stiffeners Web Stiffeners | | tiffeners | Web Stiffeners | | Web Stiffeners | | Web S | tiffeners | |
| | | | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes |
| | RFPI-20 | | 1,8 | 35 | 3,6 | 675 | 4,2 | 205 | 4,0 | 070 | 5,9 | 910 |
| | RFPI-40S | | 1,7 | 60 | 3,520 | | 4,020 | | 3,895 | | 5,655 | |
| | RFPI-400 | | 2,1 | 2,195 4,390 | | 390 | 5, | 015 | 4,860 | | 7,055 | |
| All | RFPI-40 | BLI 400 | 2,475 | | 4,955 | | 5, | 665 | 5,4 | 190 | 7,970 | |
| Depths | RFPI-60S | | 2,1 | 75 | 4,350 | | 4,970 | | 4,815 | | 6,990 | |
| in each | RFPI-70 | BLI 700 | 2,4 | 75 | 4,955 | | 5,665 | | 5,490 | | 7,970 | |
| Series | RFPI-80S | | 3,0 | 90 | 6,1 | 85 | 7, | 070 | 6,8 | 350 | 9,9 | 940 |
| Conce | RFPI-90 | BLI 900 | 3,8 | 30 | 7,6 | 60 | 8, | 755 | 8,4 | 180 | 12,310 | |
| | RFPI-700 | | 2,4 | 75 | 4,9 | 955 | 5, | 665 | 5,490 | | 7,970 | |
| | RFPI-900 | | 3,8 | 30 | 7,6 | 60 | 8, | 755 | 8,4 | 180 | 12, | 310 |

For SI: 1 inch = 25.4 mm, 1 lbf = 4.448 N.

General Note: Determine the allowable reaction value using appropriate adjustments for Tables 3a and 3b and use the lesser of the two values (refer to the notes for each table)

^(a) Maximum allowable reaction capacity based on flange F_{c1}. Interpolation between tabulated values in Table 3b is permitted.

^(b) The tabulated values are for normal duration of load and shall not be adjusted for other durations of load.

(c) The tabulated intermediate reaction values include the bearing area factor $C_b = (\ell_b + 0.375) / \ell_b$, where ℓ_b is the bearing length in inches.

| I-、 | Joists for V | Vind ^(a) or Se | eismic Loadin | g ^(b,c) | | | | | | |
|--------------|-------------------|---------------------------|---|---|--|--|--|---|-----------------------------|--|
| | | | | | Bloo | ked Diaphra | igms | Unblocked | Diaphragms | |
| Panel | Common | Minimum Nominal | Minimum Nominal Width of Framing Members at | RFPI-Joist series approved for | Nail space bound continuou to load (C panel ec | cing (in.) at d laries (all cas ls panel edg Cases 3 & 4), lges (Cases | iaphragm ses), at es parallel and at all 5 & 6) ^(f,g) | Nails Spaced 6 in. max. at supported edges ^(f,g) | | |
| Grade | Nail Size | Thickness | Adjoining | diaphragm construction as indicated. | 6 | 4 ^(h) | 2-1/2 ⁽ⁱ⁾ | Case 1 (No | | |
| | | (in.) | and Boundaries ^(e) | | Nail spac edges | ing (in.) at o (Cases 1, 2, | ther panel 3, & 4) | unblocked edges or | All other configurations | |
| | | | (in.) | | 6 | 6 | 4 | joints parallel to load | (Cases 2, 3, 4, 5 &6) | |
| | O -1(d) | 5/40 | 2 | RFPI 20 & 400 | 185 | 250 | NA ^(k) | 165 | 125 | |
| | 60 ^(a) | 5/16 | 3 | RFPI 40, 40S, 60S, 70, 80S, 90, 700 & 900 | 210 | 280 | 420 ^(j) | 185 | 140 | |
| Structural I | 0.4 | 2/9 | 2 | RFPI 20 & 400 | 270 | 360 | NA ^(k) | 240 | 180 | |
| Grades | 80 | 3/8 | 3 | RFPI 40, 40S, 60S, 70, 80S, 90, 700 & 900 | 300 | 400 | 600 ^(j) | 265 | 200 | |
| | 104 | 15/00 | 2 | RFPI 20 & 400 | 320 | 425 | NA ^(k) | 285 | 215 | |
| | 100 | 15/32 | 3 | RFPI 40, 40S, 60S, 70, 80S, 90, 700 & 900 | 360 | 480 | 720 ^(j) | 320 | 240 | |
| | | 5/16 | 2 | RFPI 20 & 400 | 170 | 225 | NA ^(k) | 150 | 110 | |
| | 6d ^(d) | | 3 | RFPI 40, 40S, 60S, 70, 80S, 90, 700 & 900 | 190 | 250 | 380 ^(j) | 170 | 125 | |
| | ou | 3/8 | 2 | RFPI 20 & 400 | 185 | 250 | NA ^(k) | 165 | 125 | |
| | | | 3 | RFPI 40, 40S, 60S, 70, 80S, 90,700 & 900 | 210 | 280 | 420 ^(j) | 185 | 140 | |
| Sheathing. | | 2/9 | 2 | RFPI 20 & 400 | 240 | 320 | NA ^(k) | 215 | 160 | |
| single floor | | 3/0 | 3 | RFPI 40, 40S, 60S, 70, 80S, 90,700 & 900 | 270 | 360 | 540 ^(j) | 240 | 180 | |
| and other | 84 | 7/16 | 2 | RFPI 20 & 400 | 255 | 340 | NA ^(k) | 230 | 170 | |
| covered in | ou | //10 | 3 | RFPI 40, 40S, 60S, 70, 80S, 90,700 & 900 | 285 | 380 | 570 ^(j) | 255 | 190 | |
| DOC PS 1 | | 15/22 | 2 | RFPI 20 & 400 | 270 | 360 | NA ^(k) | 240 | 180 | |
| and PS 2 | | 15/52 | 3 | RFPI 40, 40S, 60S, 70, 80S, 90,700 & 900 | 300 | 400 | 600 ^(j) | 265 | 200 | |
| | | 15/22 | 2 | RFPI 20 & 400 | 290 | 385 | NA ^(k) | 255 | 190 | |
| | 104 | 10/32 | 3 | RFPI 40, 40S, 60S, 70, 80S, 90,700 & 900 | 325 | 430 | 650 ^(j) | 290 | 215 | |
| | 100 | 19/32 | 2 | RFPI 20 & 400 | 320 | 425 | NA ^(k) | 285 | 215 | |
| | | | 3 | RFPI 40, 40S, 60S, 70, 80S, 90,700 & 900 | 360 | 480 | 720 ^(j) | 320 | 240 | |

| Table 4. | Allowable Shear (Pounds Per Foot) for Horizontal Wood Structural Panel Diaphragms Framed With Roseburg RFPI Series |
|----------|--|
| | I-Joists for Wind ^(a) or Seismic Loading ^(b,c) |

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 pages)



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.</p>
- ^(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) For lumber flange I-joists (RFPI-40S, RFPI-60S, and RFPI-80S), adjacent nails within a row must be staggered ½ inch at diaphragm boundaries 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).
- ⁽ⁱ⁾ Nail spacing of 2-½ inches at diaphragm boundaries is permitted only for lumber flange I-joists (RFPI-40S, RFPI-60S, and RFPI-80S).
- ^(k) Not allowed.



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



| Τ | Table 5. | Minimum Dim | ensions for | Web | Stiffeners | and | Accom | panvi | ina N | lails |
|---|----------|-------------|-------------|-----|------------|-----|-------|-------|-------|-------|

| | | nsions | | | |
|-------------------|-----------------|-------------|---------------------------------|--|--|
| Joist Designation | Web S | tiffeners | Noile | | |
| | Thickness (in.) | Width (in.) | INAIIS | | |
| RFPI-20 | 19/32 | 2-5/16 | 8d box - 2-1/2 in. x 0.113 in. | | |
| RFPI-40S | 1 | 2-5/16 | 8d box - 2-1/2 in. x 0.113 in. | | |
| RFPI-400 | 3/4 | 2-5/16 | 8d box - 2-1/2 in. x 0.113 in. | | |
| RFPI-40 | 1 | 2-5/16 | 8d box - 2-1/2 in. x 0.113 in. | | |
| RFPI-60S | 1 | 2-5/16 | 8d box - 2-1/2 in. x 0.113 in. | | |
| RFPI-70 | 1 | 2-5/16 | 8d box - 2-1/2 in. x 0.113 in. | | |
| RFPI-80S | 1-1/2 | 2-5/16 | 10d box - 3 in. x 0.128 in. | | |
| RFPI-90 | 1-1/2 | 2-5/16 | 10d box - 3 in. x 0.128 in. | | |
| RFPI-700 | 7/8 | 3-1/2 | 8d box - 2-1/2 in. x 0.113 in. | | |
| RFPI-900 | 1-1/2 | 3-1/2 | 16d box - 3-1/2 in. x 0.135 in. | | |

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