# APA PRODUCT REPORT®

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## IB Series I-Joists
## IB EWP Inc.

**PR-L330**

Revised June 15, 2023

Products: IB EWP IB Series I-Joists
IB EWP Inc., 480 rue Jocelyn-Bastille C.P. 10, Pohénégamook, Quebec, G0L 1J0, Canada
www.ibewp.com

1. Basis of the product report:
   - 2021, 2018, 2015, and 2012 International Building Code (IBC): Sections 104.11 Alternative materials and 2303.1.2 Prefabricated wood I-joists
   - 2021, 2018, and 2015 International Residential Code (IRC): Sections R104.11 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 I-joists
   - ASTM D5055-16, D5055-13e1, D5055-13, and D5055-09 recognized in the 2021 IBC and IRC, 2018 IBC and IRC, 2015 IBC and IRC, and 2012 IBC and IRC, respectively
   - APA PRI-400, Performance Standard for Residential I-Joists
   - 2021, 2015, and 2008 ANSI/AWC Special Design Provisions for Wind and Seismic (SDPWS) recognized in the 2021, 2018 and 2015, and 2012 IBC, respectively.
   - APA Reports T2000P-42A, T2001P-53, T2001P-63, T2001P-78, T2002P-65, T2003P-17, T2003P-18A, T2003P-52, T2005P-01A, T2005P-40B, T2005P-99A, T2006P-36, T2006P-43, T2006P-53, T2008P-37, T2009P-34A, T2010P-06, T2010P-49A, T2013P-31, T2014P-10, T2015L-05B, T2017P-25, T2019P-25A, T2019P-40, T2021P-34, and T2021P-52, and other qualification data

2. Product description:
   IB Series I-joists are made with lumber flanges and OSB web, as described in Table 1, and the in-plant manufacturing standard approved by APA.

3. Design properties:
   Tables 2 through 4 list the design properties for IB Series I-joists. Table 5 shows the allowable lateral shear capacities of IB Series I-Joists in diaphragm applications. The allowable spans for IB Series I-joists shall be in accordance with the recommendations provided by the manufacturer (www.ibewp.com), and with APA Design & Construction Guide, *Performance Rated I-Joists*, Form Z725 (www.apawood.org/resource-library) for products contained in the PRI Series.

4. Product installation:
   IB Series I-joists shall be installed in accordance with the recommendations provided by the manufacturer (see link above) and APA Z725 (see link above). Permissible web holes and cantilever reinforcements shall be in accordance with the recommendations provided by the manufacturer, and with APA Z725 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 (see link above), APA Product Report PR-S330 (see link above), or APA Design & Construction Guide, *Fire-Rated Systems,* Form W305 (see link above). I-joists listed in this report may be used in the fire-rated assemblies described in the 2021, 2018, 2015, and 2012 IBC Table 721.1(3), as applicable, provided the I-joists meet the criteria described in the respective assemblies.

6. Limitations:
   a) IB Series I-joists shall be designed in accordance with the code using the design properties specified in this report.
   b) IB Series I-joists are limited to dry service conditions where the average equilibrium moisture content of solid-sawn lumber is less than 16%.
   c) All IB Series I-joists are produced at IB EWP Inc. facility in Pohénégamook, Quebec, under a quality assurance program audited by APA.
   d) This report is subject to re-examination in one year.

7. Identification:
   The IB Series prefabricated wood I-joists described in this report are identified by a label bearing the manufacturer's name (IB EWP Inc.) and/or trademark, the APA assigned plant number (1135), the I-joist depth and series, the APA logo, the report number PR-L330, and a means of identifying the date of manufacture.

Table 1. Description of IB Series I-Joists [(a)]

| Joist Series | Joist Depths (in.) | Flanges | | | | Web | |
|---|---|---|---|---|---|---|---|
| | | Material | G[(b)] | Dimension | | Material | Thickness (in.) |
| | | | | Depth (in.) | Width (in.) | | |
| IB400 | 7-7/8 – 16 | Proprietary SPF | 0.42 | 1-1/2 | 2-1/2 | OSB | 3/8 |
| IB450 | 9-1/2 – 16 | Proprietary SPF | 0.42 | 1-1/2 | 3-1/2 | OSB | 3/8 |
| IB600 | 7-7/8 – 20 | MSR | 0.46 | 1-1/2 | 2-1/2 | OSB | 3/8 |
| IB700 | 9-1/2 – 16 | MSR | 0.42 | 1-1/2 | 3-1/2 | OSB | 3/8 |
| IB800 | 7-7/8 – 20 | MSR | 0.46 | 1-1/2 | 3-1/2 | OSB | 3/8 |
| IB900x | 7-7/8 – 24 | MSR | 0.50 | 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)] Specific gravity of flanges for use in diaphragm design (see Table 5) based on oven-dry weight and oven-dry volume.

 

Table 2. Design Properties (Allowable Stress Design) for IB Series I-Joists[a]

| Joist Series | Joist Depth (in.) | Also Qualified for | EI[b] ($10^6$ lbf-in.$^2$) | M[c] (lbf-ft) | V[d] (lbf) | VLC[e] (plf) | k[f] ($10^6$ lbf) |
|---|---|---|---|---|---|---|---|
| IB400 | 7-7/8 | NA | 123 | 2,235 | 1,155 | 2,000 | 4.10 |
| | 8-5/8 | NA | 153 | 2,495 | 1,155 | 2,000 | 4.49 |
| | 9-1/4 | NA | 185 | 2,715 | 1,155 | 2,000 | 4.81 |
| | 9-1/2 | PRI-40 | 198 | 2,800 | 1,185 | 2,000 | 4.94 |
| | 11-1/4 | NA | 296 | 3,410 | 1,405 | 2,000 | 5.85 |
| | 11-7/8 | PRI-40 | 336 | 3,630 | 1,480 | 2,000 | 6.18 |
| | 14 | PRI-40 | 494 | 4,370 | 1,750 | 2,000 | 7.28 |
| | 16 | PRI-40 | 673 | 5,065 | 2,000 | 2,000 | 8.32 |
| IB450 | 9-1/2 | PRI-40 | 240 | 2,915 | 1,400 | 2,000 | 4.94 |
| | 11-7/8 | PRI-40 | 407 | 3,780 | 1,620 | 2,000 | 6.18 |
| | 14 | PRI-40 | 596 | 4,455 | 1,815 | 2,000 | 7.28 |
| | 16 | PRI-40 | 809 | 5,065 | 2,000 | 2,000 | 8.32 |
| IB600 | 7-7/8 | NA | 145 | 3,080 | 1,155 | 2,000 | 4.10 |
| | 8-5/8 | NA | 181 | 3,440 | 1,155 | 2,000 | 4.49 |
| | 9-1/4 | NA | 220 | 3,740 | 1,350 | 2,000 | 4.81 |
| | 9-1/2 | PRI-60 | 235 | 3,860 | 1,370 | 2,000 | 4.94 |
| | 11-1/4 | NA | 356 | 4,700 | 1,515 | 2,000 | 5.85 |
| | 11-7/8 | PRI-60 | 399 | 5,000 | 1,570 | 2,000 | 6.18 |
| | 14 | PRI-60 | 585 | 6,020 | 1,750 | 2,000 | 7.28 |
| | 16 | PRI-60 | 799 | 6,980 | 2,000 | 2,000 | 8.32 |
| | 18 | NA | 1,046 | 7,895 | 2,250 | 1,750 | 9.36 |
| | 20 | NA | 1,304 | 8,735 | 2,500 | 1,500 | 10.40 |
| IB700 | 9-1/2 | PRI-60 | 270 | 3,965 | 1,400 | 2,000 | 4.94 |
| | 11-7/8 | PRI-60 | 457 | 5,140 | 1,620 | 2,000 | 6.18 |
| | 14 | PRI-60 | 668 | 6,190 | 1,815 | 2,000 | 7.28 |
| | 16 | PRI-60 | 906 | 7,175 | 2,000 | 2,000 | 8.32 |
| IB800 | 7-7/8 | NA | 204 | 4,360 | 1,155 | 2,000 | 4.10 |
| | 8-5/8 | NA | 254 | 4,870 | 1,155 | 2,000 | 4.49 |
| | 9-1/4 | NA | 307 | 5,295 | 1,390 | 2,000 | 4.81 |
| | 9-1/2 | NA | 326 | 5,465 | 1,405 | 2,000 | 4.94 |
| | 11-1/4 | NA | 493 | 6,655 | 1,540 | 2,000 | 5.85 |
| | 11-7/8 | PRI-80 | 552 | 7,080 | 1,590 | 2,000 | 6.18 |
| | 14 | PRI-80 | 807 | 8,530 | 1,835 | 2,000 | 7.28 |
| | 16 | PRI-80 | 1,094 | 9,890 | 2,070 | 2,000 | 8.32 |
| | 18 | NA | 1,445 | 11,135 | 2,300 | 1,810 | 9.36 |
| | 20 | NA | 1,799 | 12,380 | 2,600 | 1,625 | 10.40 |
| IB900x | 7-7/8 | NA | 216 | 5,365 | 1,360 | 2,000 | 5.04 |
| | 8-5/8 | NA | 270 | 5,990 | 1,465 | 2,000 | 5.52 |
| | 9-1/2 | NA | 340 | 6,725 | 1,590 | 2,000 | 6.08 |
| | 11-7/8 | NA | 573 | 8,715 | 1,925 | 2,000 | 7.60 |
| | 14 | PRI-90 | 836 | 10,490 | 2,125 | 2,000 | 8.96 |
| | 16 | PRI-90 | 1,131 | 12,165 | 2,330 | 2,000 | 10.24 |
| | 18 | NA | 1,473 | 13,755 | 2,510 | 1,810 | 11.52 |
| | 20 | NA | 1,864 | 15,225 | 2,695 | 1,625 | 12.80 |
| | 22 | NA | 2,304 | 16,680 | 2,875 | 1,250 | 14.08 |
| | 24 | NA | 2,794 | 18,115 | 3,060 | 1,250 | 15.36 |

(footnotes on next page)

 

(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. Values for Limit States Design in Canada are available from the manufacturer.
(b) Bending stiffness (EI) of the I-joist.
(c) Moment capacity (M) of the I-joist.
(d) Shear capacity (V) of the I-joist.
(e) Uniform vertical (bearing) load capacity (VLC) of the I-joist.
(f) 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: $$\delta = \frac{5\,\omega L^4}{384\,EI} + \frac{\omega L^2}{K} \quad [1]$$

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

where $\delta$ = calculated deflection (in.), $\omega$ = 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. Intermediate Reaction (Allowable Stress Design) for IB Series I-Joists[a]

| Joist Series | Joist Depth (in.) | Also Qualified for | IR[b] (lbf) | | | |
|---|---|---|---|---|---|---|
| | | | 3-1/2-in. Bearing | | 5-1/2-in. Bearing | |
| | | | w/o BS | w/ BS | w/o BS | w/ BS |
| IB400 | 7-7/8 | NA | 2,160 | 2,205 | 2,310 | 2,350 |
| | 8-5/8 | NA | 2,160 | 2,285 | 2,310 | 2,370 |
| | 9-1/4 | NA | 2,160 | 2,355 | 2,310 | 2,370 |
| | 9-1/2 | PRI-40 | 2,160 | 2,370 | 2,370 | 2,370 |
| | 11-1/4 | NA | 2,500 | 2,795 | 2,810 | 2,810 |
| | 11-7/8 | PRI-40 | 2,500 | 2,800 | 2,810 | 2,960 |
| | 14 | PRI-40 | 2,500 | 2,825 | 3,100 | 3,455 |
| | 16 | PRI-40 | 2,500 | 2,850 | 3,100 | 3,650 |
| IB450 | 9-1/2 | PRI-40 | 2,500 | 2,800 | 2,500 | 2,800 |
| | 11-7/8 | PRI-40 | 2,500 | 3,240 | 2,910 | 3,240 |
| | 14 | PRI-40 | 2,500 | 3,630 | 3,100 | 3,630 |
| | 16 | PRI-40 | 2,500 | 4,000 | 3,100 | 4,000 |
| IB600 | 7-7/8 | NA | 2,160 | 2,205 | 2,310 | 2,350 |
| | 8-5/8 | NA | 2,160 | 2,285 | 2,310 | 2,495 |
| | 9-1/4 | NA | 2,160 | 2,700 | 2,310 | 2,700 |
| | 9-1/2 | PRI-60 | 2,160 | 2,740 | 2,370 | 2,740 |
| | 11-1/4 | NA | 2,500 | 3,030 | 2,810 | 3,030 |
| | 11-7/8 | PRI-60 | 2,500 | 3,075 | 2,810 | 3,140 |
| | 14 | PRI-60 | 2,500 | 3,215 | 3,100 | 3,455 |
| | 16 | PRI-60 | 2,500 | 3,350 | 3,100 | 3,650 |
| | 18 | NA | 2,500 | 3,425 | 3,100 | 3,735 |
| | 20 | NA | 2,500 | 3,450 | 3,100 | 3,820 |
| IB700 | 9-1/2 | PRI-60 | 2,500 | 2,800 | 2,500 | 2,800 |
| | 11-7/8 | PRI-60 | 2,500 | 3,240 | 2,910 | 3,240 |
| | 14 | PRI-60 | 2,500 | 3,630 | 3,100 | 3,630 |
| | 16 | PRI-60 | 2,500 | 4,000 | 3,100 | 4,000 |
| IB800 | 7-7/8 | NA | 2,170 | 2,205 | 2,310 | 2,350 |
| | 8-5/8 | NA | 2,175 | 2,285 | 2,310 | 2,495 |
| | 9-1/4 | NA | 2,310 | 2,700 | 2,310 | 2,700 |
| | 9-1/2 | NA | 2,470 | 2,740 | 2,470 | 2,740 |
| | 11-1/4 | NA | 2,810 | 3,030 | 2,810 | 3,030 |
| | 11-7/8 | PRI-80 | 2,815 | 3,180 | 3,140 | 3,180 |
| | 14 | PRI-80 | 3,100 | 3,600 | 3,310 | 3,665 |
| | 16 | PRI-80 | 3,100 | 4,000 | 3,340 | 4,100 |
| | 18 | NA | 3,100 | 4,225 | 3,100 | 4,225 |
| | 20 | NA | 3,100 | 4,350 | 3,100 | 4,350 |
| IB900x | 7-7/8 | NA | 2,835 | 3,100 | 2,855 | 3,150 |
| | 8-5/8 | NA | 2,935 | 3,150 | 2,950 | 3,190 |
| | 9-1/2 | NA | 3,045 | 3,205 | 3,060 | 3,235 |
| | 11-7/8 | NA | 3,355 | 3,355 | 3,355 | 3,355 |
| | 14 | PRI-90 | 3,355 | 3,600 | 3,355 | 3,665 |
| | 16 | PRI-90 | 3,355 | 4,000 | 3,355 | 4,100 |
| | 18 | NA | 3,355 | 4,270 | 3,355 | 4,640 |
| | 20 | NA | 3,355 | 4,600 | 3,355 | 4,810 |
| | 22 | NA | 3,355 | 4,855 | 3,355 | 4,870 |
| | 24 | NA | 3,355 | 4,925 | 3,355 | 4,925 |

(footnotes on next page)

 

(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 and APA Z725.

| Depth | I-Joist Series | Maximum adjusted reaction capacity(b,c) (lbf) | | | |
|---|---|---|---|---|---|
| | | 3-1/2 in. Brg. Length | | 5-1/2 in. Brg. Length | |
| | | With Brg. Stiffeners | | With Brg. Stiffeners | |
| | | No | Yes | No | Yes |
| All | IB400 | 3,495 | | 5,495 | |
| | IB450 | 5,515 | | 8,365 | |
| | IB600 | 4,320 | | 6,785 | |
| | IB700 | 5,515 | | 8,365 | |
| | IB800 | 6,155 | | 9,675 | |
| | IB900x | 7,210 | | 11,330 | |

(b) Interpolation between 3-1/2- and 5-1/2-inch bearing lengths is permitted.
(c) The maximum adjusted reaction capacity shall not be adjusted for load duration.

 

Table 4. End Reaction Design Properties (Allowable Stress Design) for IB Series I-Joists[a]

| Joist Series | Joist Depth | Also Qualified for | ER[b] (lbf) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1-1/2 in. Bearing | | 1-3/4 in. Bearing | | 2-3/4 in. Bearing | | 3-1/2 in. Bearing | | 4 in. Bearing | |
| | | | w/o BS | w/ BS | w/o BS | w/ BS | w/o BS | w/ BS | w/o BS | w/ BS | w/o BS | w/ BS |
| IB400 | 7-7/8 | NA | 955 | 1,055 | 975 | 1,065 | 1,055 | 1,105 | 1,115 | 1,135 | 1,155 | 1,155 |
| | 8-5/8 | NA | 1,065 | 1,110 | 1,075 | 1,115 | 1,110 | 1,130 | 1,135 | 1,145 | 1,155 | 1,155 |
| | 9-1/4” | NA | 1,110 | 1,155 | 1,115 | 1,155 | 1,155 | 1,155 | 1,155 | 1,155 | 1,155 | 1,155 |
| | 9-1/2” | PRI-40 | 1,120 | 1,185 | 1,130 | 1,185 | 1,185 | 1,185 | 1,185 | 1,185 | 1,185 | 1,185 |
| | 11-1/4” | NA | 1,175 | 1,355 | 1,205 | 1,360 | 1,340 | 1,405 | 1,405 | 1,405 | 1,405 | 1,405 |
| | 11-7/8” | PRI-40 | 1,200 | 1,420 | 1,230 | 1,430 | 1,370 | 1,480 | 1,465 | 1,480 | 1,480 | 1,480 |
| | 14” | PRI-40 | 1,260 | 1,630 | 1,295 | 1,645 | 1,455 | 1,750 | 1,550 | 1,750 | 1,550 | 1,750 |
| | 16” | PRI-40 | 1,325 | 1,825 | 1,355 | 1,845 | 1,455 | 2,000 | 1,550 | 2,000 | 1,550 | 2,000 |
| IB450 | 9-1/2 | PRI-40 | 1,150 | 1,365 | 1,175 | 1,370 | 1,275 | 1,385 | 1,350 | 1,395 | 1,400 | 1,400 |
| | 11-7/8 | PRI-40 | 1,235 | 1,565 | 1,265 | 1,575 | 1,375 | 1,595 | 1,465 | 1,610 | 1,520 | 1,620 |
| | 14 | PRI-40 | 1,315 | 1,745 | 1,345 | 1,755 | 1,460 | 1,785 | 1,560 | 1,805 | 1,625 | 1,815 |
| | 16 | PRI-40 | 1,385 | 1,915 | 1,420 | 1,925 | 1,555 | 2,000 | 1,655 | 2,000 | 1,725 | 2,000 |
| IB600 | 7-7/8 | NA | 955 | 1,055 | 975 | 1,065 | 1,055 | 1,105 | 1,115 | 1,135 | 1,155 | 1,155 |
| | 8-5/8 | NA | 1,065 | 1,110 | 1,075 | 1,115 | 1,110 | 1,130 | 1,135 | 1,145 | 1,155 | 1,155 |
| | 9-1/4” | NA | 1,110 | 1,155 | 1,130 | 1,350 | 1,155 | 1,350 | 1,155 | 1,350 | 1,155 | 1,350 |
| | 9-1/2” | PRI-60 | 1,120 | 1,185 | 1,140 | 1,370 | 1,185 | 1,370 | 1,185 | 1,370 | 1,185 | 1,370 |
| | 11-1/4” | NA | 1,175 | 1,355 | 1,215 | 1,515 | 1,340 | 1,515 | 1,405 | 1,515 | 1,405 | 1,515 |
| | 11-7/8” | PRI-60 | 1,200 | 1,420 | 1,240 | 1,570 | 1,370 | 1,570 | 1,465 | 1,570 | 1,480 | 1,570 |
| | 14” | PRI-60 | 1,260 | 1,630 | 1,335 | 1,750 | 1,460 | 1,750 | 1,550 | 1,750 | 1,550 | 1,750 |
| | 16” | PRI-60 | 1,325 | 1,825 | 1,420 | 1,925 | 1,495 | 1,970 | 1,550 | 2,000 | 1,550 | 2,000 |
| | 18” | NA | NA | NA | NA | 1,505 | 2,095 | 1,530 | 2,185 | 1,550 | 2,250 | 1,550 | 2,250 |
| | 20” | NA | NA | NA | NA | 1,550 | 2,260 | 1,550 | 2,395 | 1,550 | 2,500 | 1,550 | 2,500 |
| IB700 | 9-1/2 | PRI-60 | 1,150 | 1,365 | 1,175 | 1,370 | 1,275 | 1,385 | 1,350 | 1,395 | 1,400 | 1,400 |
| | 11-7/8 | PRI-60 | 1,235 | 1,565 | 1,265 | 1,575 | 1,375 | 1,595 | 1,465 | 1,610 | 1,520 | 1,620 |
| | 14 | PRI-60 | 1,315 | 1,745 | 1,345 | 1,755 | 1,460 | 1,785 | 1,560 | 1,805 | 1,625 | 1,815 |
| | 16 | PRI-60 | 1,385 | 1,915 | 1,420 | 1,925 | 1,555 | 2,000 | 1,655 | 2,000 | 1,725 | 2,000 |
| IB800 | 7-7/8 | NA | 955 | 1,055 | 975 | 1,065 | 1,055 | 1,105 | 1,115 | 1,135 | 1,155 | 1,155 |
| | 8-5/8 | NA | 1,065 | 1,110 | 1,075 | 1,115 | 1,110 | 1,130 | 1,135 | 1,145 | 1,155 | 1,155 |
| | 9-1/4” | NA | 1,110 | 1,155 | 1,130 | 1,380 | 1,155 | 1,380 | 1,155 | 1,380 | 1,155 | 1,390 |
| | 9-1/2” | NA | 1,120 | 1,185 | 1,140 | 1,405 | 1,185 | 1,405 | 1,185 | 1,405 | 1,185 | 1,405 |
| | 11-1/4” | NA | 1,175 | 1,355 | 1,215 | 1,540 | 1,340 | 1,540 | 1,405 | 1,540 | 1,405 | 1,540 |
| | 11-7/8” | PRI-80 | 1,260 | 1,590 | 1,290 | 1,590 | 1,405 | 1,590 | 1,490 | 1,590 | 1,550 | 1,590 |
| | 14” | PRI-80 | 1,335 | 1,795 | 1,365 | 1,800 | 1,470 | 1,815 | 1,550 | 1,830 | 1,600 | 1,835 |
| | 16” | PRI-80 | 1,410 | 1,990 | 1,435 | 2,000 | 1,530 | 2,030 | 1,550 | 2,055 | 1,600 | 2,070 |
| | 18” | NA | NA | NA | NA | 1,505 | 2,270 | 1,530 | 2,285 | 1,550 | 2,300 | 1,600 | 2,300 |
| | 20” | NA | NA | NA | NA | 1,550 | 2,460 | 1,550 | 2,540 | 1,550 | 2,600 | 1,650 | 2,600 |
| IB900x | 7-7/8 | NA | 1,255 | 1,275 | 1,265 | 1,285 | 1,310 | 1,320 | 1,340 | 1,345 | 1,360 | 1,360 |
| | 8-5/8 | NA | 1,285 | 1,335 | 1,305 | 1,350 | 1,375 | 1,405 | 1,425 | 1,440 | 1,460 | 1,465 |
| | 9-1/2 | NA | 1,320 | 1,405 | 1,345 | 1,425 | 1,450 | 1,500 | 1,525 | 1,555 | 1,575 | 1,590 |
| | 11-7/8” | NA | 1,400 | 1,600 | 1,400 | 1,635 | 1,630 | 1,765 | 1,790 | 1,860 | 1,885 | 1,925 |
| | 14” | PRI-90 | 1,400 | 1,800 | 1,400 | 1,800 | 1,630 | 1,870 | 1,805 | 1,960 | 1,885 | 2,125 |
| | 16” | PRI-90 | 1,420 | 1,990 | 1,435 | 2,000 | 1,640 | 2,190 | 1,805 | 2,330 | 1,885 | 2,330 |
| | 18” | NA | NA | NA | NA | 1,505 | 2,270 | 1,600 | 2,405 | 1,675 | 2,510 | 1,885 | 2,510 |
| | 20” | NA | NA | NA | NA | 1,520 | 2,470 | 1,600 | 2,590 | 1,675 | 2,680 | 1,885 | 2,695 |
| | 22” | NA | NA | NA | NA | 1,470 | 2,595 | 1,585 | 2,725 | 1,675 | 2,820 | 1,865 | 2,875 |
| | 24” | NA | NA | NA | NA | 1,470 | 2,880 | 1,585 | 2,925 | 1,675 | 2,960 | 1,820 | 3,060 |

(footnotes on next page)

 

(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 and APA Z725.

| Depth | I-Joist Series Designation | Maximum adjusted reaction capacity[b,c] (lbf) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 1/2 in. Brg. Length | | 1-3/4 in. Brg. Length | | 2-3/4 in. Brg. Length | | 3-1/2 in. Brg. Length | | 4 in. Brg. Length | |
| | | With Brg. Stiffeners | | With Brg. Stiffeners | | With Brg. Stiffeners | | With Brg. Stiffeners | | With Brg. Stiffeners | |
| | | No | Yes | No | Yes | No | Yes | No | Yes | No | Yes |
| All | IB400 | 1,500 | | 1,750 | | 2,745 | | 3,495 | | 3,995 | |
| | IB450 | 2,135 | | 2,490 | | 3,915 | | 4,985 | | 5,695 | |
| | IB600 | 1,850 | | 2,160 | | 3,395 | | 4,320 | | 4,935 | |
| | IB700 | 2,135 | | 2,490 | | 3,915 | | 4,985 | | 5,695 | |
| | IB800 | 2,640 | | 3,080 | | 4,835 | | 6,155 | | 7,035 | |
| | IB900x | 3,090 | | 3,605 | | 5,665 | | 7,210 | | 8,240 | |

(b) Interpolation between bearing lengths is permitted.
(c) The maximum adjusted reaction capacity shall not be adjusted for load duration.

 

Table 5. Allowable Shear (Pounds Per Foot) for Horizontal Wood Structural Panel Diaphragms Framed with IB Series I-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[e] (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)[f,g] | | | Nails Spaced 6 in. max. at supported edges[f,g] | |
| | | | | 6 | 4[h] | 2-1/2[i] | 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) | | | | |
| | | | | 6 | 6 | 4 | | |
| Structural I Grades | 6d[d] | 5/16 | 3 | 210 | 280 | 420 | 185 | 140 |
| | 8d | 3/8 | | 300 | 400 | 600 | 265 | 200 |
| | 10d | 15/32 | | 360 | 480 | 720 | 320 | 240 |
| Sheathing, single floor and other grades covered in DOC PS 1 and PS 2 | 6d[d] | 5/16 | | 190 | 250 | 380 | 170 | 125 |
| | | 3/8 | | 210 | 280 | 420 | 185 | 140 |
| | 8d | 3/8 | | 270 | 360 | 540 | 240 | 180 |
| | | 7/16 | | 285 | 380 | 570 | 255 | 190 |
| | | 15/32 | | 300 | 400 | 600 | 265 | 200 |
| | 10d | 15/32 | | 325 | 430 | 650 | 290 | 215 |
| | | 19/32 | | 360 | 480 | 720 | 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 next pages)

 

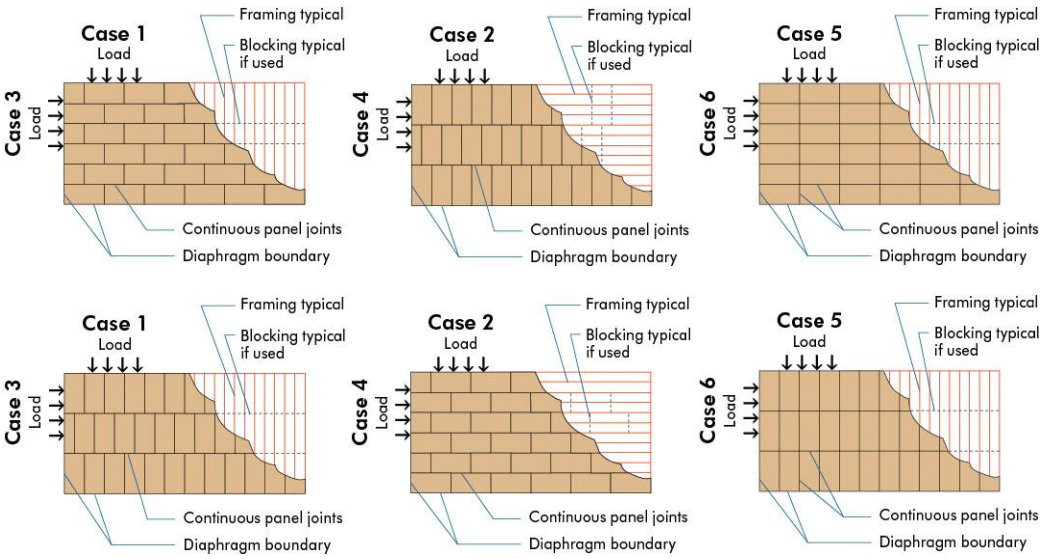


Figure 1. Diaphragm configurations

(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.
(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 from panel edges (see Figures 2, 3, and 4).
(h) Adjacent nails within a row must be staggered ½ inch 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).

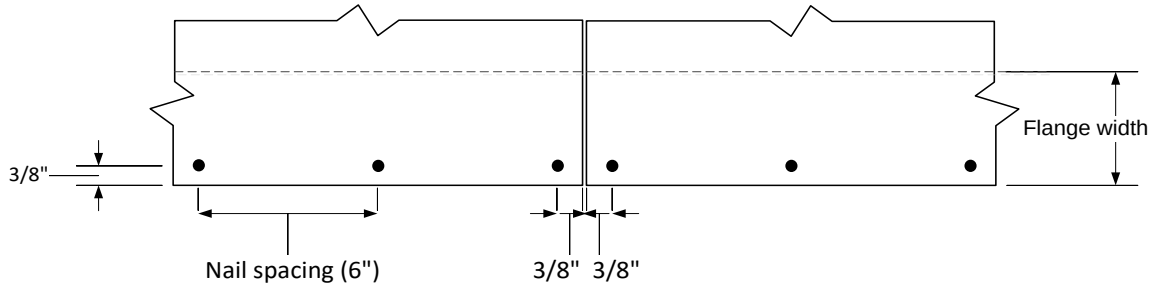


Figure 2. Non-staggered nails at diaphragm boundaries (see Footnote g), not to scale.

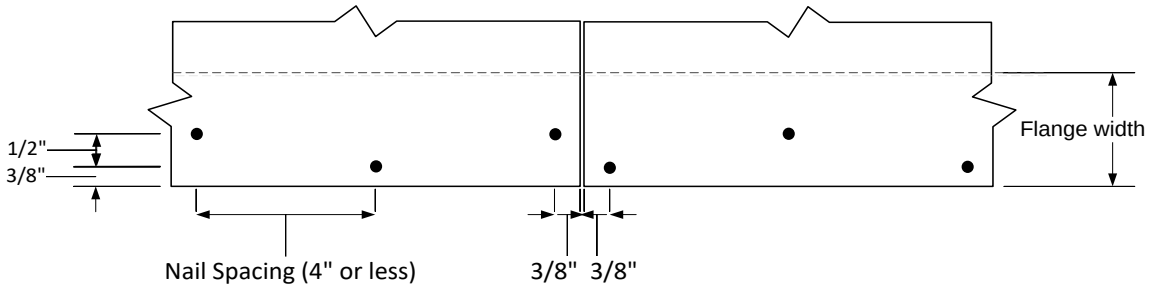


Figure 3. Staggered nails at diaphragm boundaries (see Footnote h), not to scale.

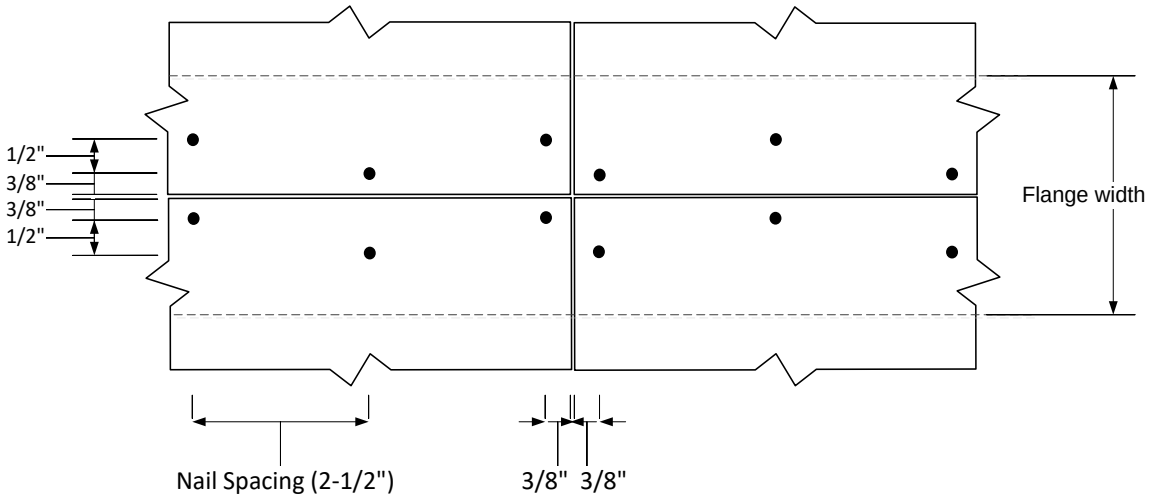


Figure 4. Staggered nails at adjoining panel edges (see Footnote i), not to scale.

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