

**Nordic Joist™**  
**Nordic Structures**

**PR-L274C**

Revised April 16, 2021

Products: Nordic Structures Prefabricated Wood I-Joists  
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1. Basis of the product report:
  - 2015 National Building Code of Canada (NBC): Clause 1.2.1.1 of Division A and Clauses 4.1, 4.3.1.1, and 9.23.4.2 of Division B
  - CSA O86-19 Engineering Design in Wood
  - ASTM D5055-16 recognized by CSA O86-19
  - PRI-400 Performance Standard for APA EWS I-Joists
  - APA Reports T2004P-3, T2004P-21, T2004P-74, T2004P-76, T2005P-30, T2005P-31, T2006P-12, T2006P-13, T2007P-14A, T2007P-76, T2007P-79A, T2007P-81, T2007P-91, T2008P-17, T2010P-20, T2013P-05, T2013-37, and T2019P-46, and other qualification data
2. Product description:

Nordic Joist™ Series I-joists, as described in Table 1, are made with lumber flanges and OSB webs in accordance with the in-plant manufacturing standard approved by APA. The Nordic Joist Series are also qualified for PRI-400 Joist Series as shown in Table 1.
3. Design properties:

Tables 2 and 3 list the factored resistances for Nordic Joist Series I-joists. The maximum spans shall be in accordance with the recommendations provided by the manufacturer ([www.nordic.ca/en/documentation/technical-documents](http://www.nordic.ca/en/documentation/technical-documents)) and APA Design & Construction Guide, *Performance Rated I-Joists*, Form Z725 ([www.apawood.org/resource-library](http://www.apawood.org/resource-library)) for products contained in the PRI Series.
4. Product installation:

Nordic Joist Series I-joists shall be installed in accordance with the recommendations provided by the manufacturer (see link above) and APA Design & Construction Guide, *Performance Rated I-Joist Roof Framing Details*, Form D710 (see link above). Permissible web holes, web stiffeners and cantilever reinforcements shall be in accordance with the recommendations provided by the manufacturer and APA 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 (see link above), APA Product Report PR-S274 (see link above), Table 9.10.3.1.-B of NBC, or APA Design & Construction Guide, *Fire-Rated Systems*, Form W305 (see link above) for products contained in the PRI Series.
6. Limitations:
  - a) Nordic Joist Series I-joists shall be designed in accordance with the code using the design properties specified in this report.
  - b) Nordic Joist Series I-joists are limited to dry service conditions as defined in CSA O86, at which the average equilibrium moisture content of solid-sawn lumber over a year is 15 percent or less and does not exceed 19 percent.

- c) Nordic Joist Series I-joists are produced at the Nordic Structures facility in Chibougamau, Québec under a quality assurance program audited by APA.
- d) This report is subject to re-examination in one year.

7. Identification:

The Nordic Joist Series I-joists described in this report are identified by a label bearing the manufacturer's name (Nordic Structures) and/or trademark, the APA assigned plant number (1052), the I-joist series, the APA logo, the report number PR-L274, and a means of identifying the date of manufacture.

Table 1. Description of Nordic Joist Series I-Joists<sup>(a)</sup>

| Joist Series | Also Qualified for <sup>(b)</sup> | Joist Depths, mm (in.)        | Flanges         |                 |                 | Web      |                     |
|--------------|-----------------------------------|-------------------------------|-----------------|-----------------|-----------------|----------|---------------------|
|              |                                   |                               | Material        | Dimension       |                 | Material | Thickness, mm (in.) |
|              |                                   |                               |                 | Depth, mm (in.) | Width, mm (in.) |          |                     |
| NI-20        | PRI-20                            | 235 – 302<br>(9-1/4 – 11-7/8) | Proprietary SPF | 38<br>(1-1/2)   | 64<br>(2-1/2)   | OSB      | 9.5 (3/8)           |
| NI-40        | PRI-40                            | 241 – 406<br>(9-1/2 – 16)     | Proprietary SPF | 38<br>(1-1/2)   | 64<br>(2-1/2)   | OSB      | 9.5 (3/8)           |
| NI-40x       | PRI-40                            | 200 - 406<br>(7-7/8 – 16)     | Proprietary SPF | 38<br>(1-1/2)   | 64<br>(2-1/2)   | OSB      | 9.5 (3/8)           |
| NI-60        | PRI-60                            | 200 – 457<br>(7-7/8 – 18)     | MSR SPF         | 38<br>(1-1/2)   | 64<br>(2-1/2)   | OSB      | 9.5 (3/8)           |
| NI-70        | PRI-70                            | 241 – 406<br>(9-1/2 – 16)     | MSR SPF         | 38<br>(1-1/2)   | 89<br>(3-1/2)   | OSB      | 9.5 (3/8)           |
| NI-80        | PRI-80                            | 200 – 406<br>(7-7/8 – 16)     | MSR SPF         | 38<br>(1-1/2)   | 89<br>(3-1/2)   | OSB      | 9.5 (3/8)           |
| NI-80x       | NA                                | 457 – 610<br>(18 – 24)        | MSR SPF         | 38<br>(1-1/2)   | 89<br>(3-1/2)   | OSB      | 11 (7/16)           |
| NI-90        | PRI-90                            | 302 – 406<br>(11-7/8 – 16)    | Proprietary SPF | 38<br>(1-1/2)   | 89<br>(3-1/2)   | OSB      | 11 (7/16)           |
| NI-90x       | NA                                | 302 – 406<br>(11-7/8 – 16)    | Proprietary SPF | 51 (2)          | 89<br>(3-1/2)   | OSB      | 11 (7/16)           |

<sup>(a)</sup> Referenced dimensions are nominal. Tolerances are as specified in the in-plant quality manual.

<sup>(b)</sup> Applicable to 241 mm (9-1/2 in.), 302 mm (11-7/8 in.), 356 mm (14 in.), and 406 mm (16 in.) PRI-20, PRI-40, and PRI-60, and 302 mm (11-7/8 in.), 356 mm (14 in.), and 406 mm (16 in.) PRI-70, PRI-80, and PRI-90.

Table 2. Factored Resistances for Nordic Joist Series I-Joists<sup>(a)</sup>

| Joist Depth,<br>mm (in.) | Joist<br>Series | EI <sup>(b)</sup><br>(10 <sup>6</sup> kN-mm <sup>2</sup> ) | M <sub>r</sub> <sup>(c)</sup><br>(kN-mm) | V <sub>r</sub> <sup>(d)</sup><br>(kN) | VLC <sub>r</sub> <sup>(e)</sup><br>(kN/m) | K <sup>(f)</sup><br>(kN) |
|--------------------------|-----------------|--|--|---------------------------------------|---|--------------------------|
| 200 (7-7/8)              | NI-40x          | 396  | 5,210                                    | 6.18                                  | 48.7                                      | 18,240                   |
|                          | NI-60           | 422  | 6,835                                    | 6.18                                  | 48.7                                      | 18,240                   |
|                          | NI-80           | 585  | 9,665                                    | 6.18                                  | 48.7                                      | 18,240                   |
| 235 (9-1/4)              | NI-20           | 396  | 5,660                                    | 7.58                                  | 48.7                                      | 21,400                   |
|                          | NI-40x          | 568  | 6,335                                    | 8.21                                  | 48.7                                      | 21,400                   |
|                          | NI-60           | 623  | 8,300                                    | 8.21                                  | 48.7                                      | 21,400                   |
|                          | NI-80           | 872  | 11,760                                   | 8.21                                  | 48.7                                      | 21,400                   |
| 241 (9-1/2)              | NI-20           | 416  | 5,840                                    | 7.86                                  | 48.7                                      | 21,970                   |
|                          | NI-40           | 554  | 6,165                                    | 8.43                                  | 48.7                                      | 21,970                   |
|                          | NI-40x          | 626  | 6,540                                    | 8.43                                  | 48.7                                      | 21,970                   |
|                          | NI-60           | 663  | 8,590                                    | 8.43                                  | 48.7                                      | 21,970                   |
|                          | NI-70           | 872  | 11,545                                   | 8.43                                  | 48.7                                      | 21,970                   |
|                          | NI-80           | 930  | 12,145                                   | 8.43                                  | 48.7                                      | 21,970                   |
| 286 (11-1/4)             | NI-20           | 637  | 7,115                                    | 9.41                                  | 48.7                                      | 26,020                   |
|                          | NI-40x          | 898  | 7,970                                    | 9.90                                  | 48.7                                      | 26,020                   |
|                          | NI-60           | 996  | 10,440                                   | 9.90                                  | 48.7                                      | 26,020                   |
|                          | NI-80           | 1,389  | 14,795                                   | 9.90                                  | 48.7                                      | 26,020                   |
| 302 (11-7/8)             | NI-20           | 726  | 7,565                                    | 9.97                                  | 48.7                                      | 27,490                   |
|                          | NI-40           | 947  | 7,995                                    | 10.39                                 | 48.7                                      | 27,490                   |
|                          | NI-40x          | 1,065  | 8,480                                    | 10.39                                 | 48.7                                      | 27,490                   |
|                          | NI-60           | 1,136  | 11,130                                   | 10.39                                 | 48.7                                      | 27,490                   |
|                          | NI-70           | 1,478  | 14,960                                   | 10.39                                 | 48.7                                      | 27,490                   |
|                          | NI-80           | 1,570  | 15,740                                   | 10.39                                 | 48.7                                      | 27,490                   |
|                          | NI-90           | 1,725  | 19,800                                   | 13.52                                 | 48.7                                      | 27,490                   |
|                          | NI-90x          | 1,765  | 21,345                                   | 14.43                                 | 48.7                                      | 27,490                   |
| 356 (14)                 | NI-40           | 1,383  | 9,630                                    | 12.15                                 | 48.7                                      | 32,380                   |
|                          | NI-40x          | 1,550  | 10,215                                   | 12.15                                 | 48.7                                      | 32,380                   |
|                          | NI-60           | 1,676  | 13,405                                   | 12.15                                 | 48.7                                      | 32,380                   |
|                          | NI-70           | 2,149  | 18,015                                   | 12.15                                 | 48.7                                      | 32,380                   |
|                          | NI-80           | 2,302  | 18,955                                   | 12.15                                 | 48.7                                      | 32,380                   |
|                          | NI-90           | 2,517  | 23,835                                   | 14.92                                 | 48.7                                      | 32,380                   |
|                          | NI-90x          | 2,612  | 25,740                                   | 15.52                                 | 48.7                                      | 32,380                   |
| 406 (16)                 | NI-40           | 1,885  | 11,160                                   | 13.83                                 | 48.7                                      | 37,010                   |
|                          | NI-40x          | 2,106  | 11,840                                   | 13.83                                 | 48.7                                      | 37,010                   |
|                          | NI-60           | 2,293  | 15,550                                   | 13.83                                 | 48.7                                      | 37,010                   |
|                          | NI-70           | 2,913  | 20,895                                   | 13.83                                 | 48.7                                      | 37,010                   |
|                          | NI-80           | 3,134  | 21,975                                   | 13.83                                 | 48.7                                      | 37,010                   |
|                          | NI-90           | 3,406  | 27,645                                   | 16.36                                 | 48.7                                      | 37,010                   |
|                          | NI-90x          | 3,573  | 29,540                                   | 16.36                                 | 48.7                                      | 37,010                   |
| 457 (18)                 | NI-60           | 2,924  | 17,590                                   | 14.04                                 | 45.0                                      | 41,640                   |
|                          | NI-80x          | 4,015  | 24,780                                   | 16.57                                 | 31.0                                      | 41,640                   |
| 508 (20)                 | NI-80x          | 5,082  | 27,770                                   | 17.20                                 | 31.0                                      | 46,260                   |
| 559 (22)                 | NI-80x          | 6,288  | 30,770                                   | 17.76                                 | 31.0                                      | 50,890                   |
| 610 (24)                 | NI-80x          | 7,634  | 33,770                                   | 18.26                                 | 31.0                                      | 55,510                   |

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

- (a) All factored resistance values include the resistance factor specified in CSA O86. The tabulated values are for the standard term of load duration ( $K_D = 1.0$ ). All values, except for EI, vertical load resistance, and K, are permitted to be adjusted for other load durations as permitted by the code.
- (b) Bending stiffness (EI) of the I-joist.
- (c) Factored moment resistance ( $M_r$ ) of the I-joist.
- (d) Factored shear resistance ( $V_r$ ) of the I-joist.
- (e) Factored uniform vertical load resistance ( $VLC_r$ ) 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 Equations 1 and 2.

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

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

where  $\delta$  = calculated deflection (mm),  $\omega$  = uniform load (kN/mm),  
P = concentrated load (kN), L = design span (mm),  
EI = bending stiffness of the I-joist (kN-mm<sup>2</sup>), and K = coefficient of shear deflection (kN).

Table 3. Factored Reaction Resistances for Nordic Joist Series I-Joists<sup>(a,b,c,d)</sup>

| Joist Depth<br>mm (in.) | Joist<br>Series | Intermediate Reaction (kN)       |       |                                   |       | End Reaction (kN)                |       |                                  |       |                               |       |
|-------------------------|-----------------|----------------------------------|-------|-----------------------------------|-------|----------------------------------|-------|----------------------------------|-------|-------------------------------|-------|
|                         |                 | 89 mm (3-1/2 in.)<br>Brg. Length |       | 140 mm (5-1/2 in.)<br>Brg. Length |       | 38 mm (1-1/2 in.)<br>Brg. Length |       | 45 mm (1-3/4 in.)<br>Brg. Length |       | 102 mm (4 in.)<br>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   |
| 200 (7-7/8)             | NI-40x          | 14.11                            | 14.11 | 14.11                             | 14.11 | NA                               | NA    | 6.18                             | 6.18  | 6.18                          | 6.18  |
|                         | NI-60           | 14.11                            | 14.11 | 14.11                             | 14.11 | NA                               | NA    | 6.18                             | 6.18  | 6.18                          | 6.18  |
|                         | NI-80           | 14.11                            | 14.11 | 14.11                             | 14.11 | NA                               | NA    | 6.18                             | 6.18  | 6.18                          | 6.18  |
| 235 (9-1/4)             | NI-20           | 16.50                            | 16.57 | 17.62                             | 17.62 | NA                               | NA    | 7.13                             | 7.13  | 7.58                          | 7.58  |
|                         | NI-40x          | 16.50                            | 16.57 | 17.80                             | 17.90 | NA                               | NA    | 7.97                             | 7.97  | 8.21                          | 8.21  |
|                         | NI-60           | 16.50                            | 16.67 | 17.83                             | 17.90 | NA                               | NA    | 7.97                             | 7.97  | 8.21                          | 8.21  |
| 241 (9-1/2)             | NI-80           | 16.50                            | 18.04 | 18.11                             | 18.11 | NA                               | NA    | 8.21                             | 8.21  | 8.21                          | 8.21  |
|                         | NI-20           | 16.92                            | 17.03 | 18.08                             | 18.08 | 7.27                             | 7.27  | 7.27                             | 7.27  | 7.86                          | 7.86  |
|                         | NI-40           | 16.92                            | 17.03 | 18.46                             | 18.57 | 7.44                             | 8.42  | 8.25                             | 8.42  | 8.42                          | 8.42  |
| 241 (9-1/2)             | NI-40x          | 16.92                            | 17.03 | 18.46                             | 18.57 | 7.44                             | 8.42  | 8.25                             | 8.42  | 8.42                          | 8.42  |
|                         | NI-60           | 16.96                            | 17.13 | 18.50                             | 18.71 | 7.44                             | 8.42  | 8.25                             | 8.42  | 8.42                          | 8.42  |
|                         | NI-70           | 16.96                            | 18.75 | 18.85                             | 18.85 | 7.44                             | 8.42  | 8.42                             | 8.42  | 8.42                          | 8.42  |
| 241 (9-1/2)             | NI-80           | 16.96                            | 18.75 | 18.85                             | 18.85 | 7.44                             | 8.42  | 8.42                             | 8.42  | 8.42                          | 8.42  |
|                         | NI-20           | 19.97                            | 20.15 | 21.38                             | 21.38 | 7.37                             | 7.37  | 8.35                             | 8.35  | 9.41                          | 9.41  |
|                         | NI-40x          | 19.97                            | 20.15 | 23.17                             | 23.38 | 7.76                             | 9.90  | 8.78                             | 9.90  | 9.90                          | 9.90  |
| 286 (11-1/4)            | NI-60           | 20.01                            | 20.40 | 23.24                             | 23.70 | 7.76                             | 9.90  | 8.78                             | 9.90  | 9.90                          | 9.90  |
|                         | NI-80           | 20.01                            | 22.15 | 23.94                             | 23.94 | 7.76                             | 9.90  | 9.34                             | 9.90  | 9.90                          | 9.90  |
|                         | NI-20           | 21.06                            | 21.27 | 22.57                             | 22.57 | 7.41                             | 7.41  | 8.74                             | 8.74  | 9.97                          | 9.97  |
| 302 (11-7/8)            | NI-40           | 21.06                            | 21.27 | 24.85                             | 25.10 | 7.90                             | 9.34  | 8.95                             | 10.39 | 10.39                         | 10.39 |
|                         | NI-40x          | 21.06                            | 21.27 | 24.85                             | 25.10 | 7.90                             | 9.34  | 8.95                             | 10.39 | 10.39                         | 10.39 |
|                         | NI-60           | 21.10                            | 21.55 | 24.92                             | 25.45 | 7.90                             | 9.34  | 8.95                             | 10.39 | 10.39                         | 10.39 |
| 302 (11-7/8)            | NI-70           | 21.10                            | 23.38 | 25.77                             | 25.77 | 7.90                             | 9.34  | 9.48                             | 10.39 | 10.39                         | 10.39 |
|                         | NI-80           | 21.10                            | 23.38 | 25.77                             | 25.77 | 7.90                             | 9.34  | 9.48                             | 10.39 | 10.39                         | 10.39 |
|                         | NI-90           | 23.55                            | 23.55 | 25.77                             | 25.77 | 7.90                             | 9.34  | 9.83                             | 10.39 | 13.23                         | 13.52 |
| 302 (11-7/8)            | NI-90x          | 29.28                            | 29.28 | 29.28                             | 29.28 | 7.90                             | 9.34  | 12.39                            | 14.43 | 13.23                         | 14.43 |
|                         | NI-40           | 21.98                            | 22.19 | 24.78                             | 25.03 | 8.28                             | 11.69 | 9.30                             | 11.87 | 10.88                         | 12.15 |
|                         | NI-40x          | 21.98                            | 22.19 | 24.78                             | 25.03 | 8.28                             | 11.69 | 9.30                             | 11.87 | 10.88                         | 12.15 |
| 356 (14)                | NI-60           | 22.05                            | 22.89 | 24.85                             | 26.64 | 8.28                             | 11.69 | 9.44                             | 11.87 | 10.88                         | 12.15 |
|                         | NI-70           | 23.38                            | 25.56 | 26.82                             | 28.61 | 8.28                             | 11.69 | 10.22                            | 11.87 | 10.88                         | 12.15 |
|                         | NI-80           | 23.38                            | 25.56 | 26.82                             | 28.61 | 8.28                             | 11.69 | 10.22                            | 11.87 | 10.88                         | 12.15 |
| 356 (14)                | NI-90           | 23.55                            | 25.56 | 26.82                             | 28.61 | 8.28                             | 11.69 | 10.22                            | 11.87 | 13.23                         | 14.92 |
|                         | NI-90x          | 29.28                            | 29.28 | 29.28                             | 29.28 | 8.28                             | 11.69 | 12.64                            | 15.52 | 13.23                         | 15.52 |

(Footnotes on following page)

Table 3. Factored Reaction Resistances for Nordic Joist Series I-Joists<sup>(a,b,c,d)</sup> (Continued)

| Joist Depth<br>mm (in.) | Joist<br>Series | Intermediate Reaction (kN)       |       |                                   |       | End Reaction (kN)                |     |                                  |       |                               |       |
|-------------------------|-----------------|----------------------------------|-------|-----------------------------------|-------|----------------------------------|-----|----------------------------------|-------|-------------------------------|-------|
|                         |                 | 89 mm (3-1/2 in.)<br>Brg. Length |       | 140 mm (5-1/2 in.)<br>Brg. Length |       | 38 mm (1-1/2 in.)<br>Brg. Length |     | 45 mm (1-3/4 in.)<br>Brg. Length |       | 102 mm (4 in.)<br>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   |
| 406 (16)                | NI-40           | 22.85                            | 23.06 | 24.71                             | 24.96 | NA                               | NA  | 9.62                             | 13.16 | 10.88                         | 13.83 |
|                         | NI-40x          | 22.85                            | 23.06 | 24.71                             | 24.96 | NA                               | NA  | 9.62                             | 13.16 | 10.88                         | 13.83 |
|                         | NI-60           | 22.92                            | 24.15 | 24.78                             | 27.77 | NA                               | NA  | 9.90                             | 13.16 | 10.88                         | 13.83 |
|                         | NI-70           | 25.56                            | 27.59 | 27.80                             | 31.28 | NA                               | NA  | 10.88                            | 13.16 | 10.88                         | 13.83 |
|                         | NI-80           | 25.56                            | 27.59 | 27.80                             | 31.28 | NA                               | NA  | 10.88                            | 13.16 | 10.88                         | 13.83 |
|                         | NI-90           | 25.56                            | 27.59 | 27.80                             | 31.28 | NA                               | NA  | 10.88                            | 13.16 | 13.23                         | 16.36 |
| 457 (18)                | NI-60           | 29.28                            | 29.28 | 29.28                             | 29.28 | NA                               | NA  | 12.85                            | 16.32 | 13.23                         | 16.36 |
|                         | NI-80x          | 21.87                            | 26.82 | 23.03                             | 31.03 | NA                               | NA  | 9.13                             | 13.34 | 12.99                         | 16.57 |
| 508 (20)                | NI-80x          | 22.40                            | 28.93 | 23.94                             | 32.12 | NA                               | NA  | 9.27                             | 14.36 | 13.34                         | 17.20 |
| 559 (22)                | NI-80x          | 22.92                            | 31.07 | 24.82                             | 33.21 | NA                               | NA  | 9.41                             | 15.41 | 13.69                         | 17.76 |
| 610 (24)                | NI-80x          | 23.45                            | 33.17 | 25.73                             | 34.30 | NA                               | NA  | 9.55                             | 16.43 | 14.04                         | 18.25 |

For Imperial: 1 mm = 0.0394 in., 1 N = 0.2248 lbf

- (a) The tabulated end and intermediate reaction values shall not be greater than the bearing capacity of the flanges based on the specified compressive strength perpendicular to grain of 5.3 MPa when determined in accordance with CSA O86. Consult with the manufacturer for the factored compressive strength perpendicular to the grain of the flange for bearing design.
- (b) Factored reaction resistance is for the standard term of load duration ( $K_D = 1.0$ ) and shall be permitted to be adjusted for other load durations as permitted by the code.
- (c) Factored reaction resistance shall be permitted to be increased over that tabulated for the minimum bearing length by linear interpolation of the reaction resistance between the minimum and maximum bearing lengths. Extrapolation beyond the minimum and maximum bearing lengths is beyond the scope of this table.
- (d) Web stiffeners, when required, shall be installed in accordance with Table 4 and the recommendations provided by the manufacturer.

Table 4. Minimum Dimensions for Web Stiffeners<sup>(a)</sup>

| Joist Series | Web Stiffeners      |                 | Flange width, b <sub>f</sub> , mm (in.) |
|--------------|---------------------|-----------------|---|
|              | Thickness, mm (in.) | Width, mm (in.) |   |
| NI-20        | 25 (1)              | 59 (2-5/16)     | 64 (2-1/2)                              |
| NI-40        | 25 (1)              | 59 (2-5/16)     | 64 (2-1/2)                              |
| NI-40x       | 25 (1)              | 59 (2-5/16)     | 64 (2-1/2)                              |
| NI-60        | 25 (1)              | 59 (2-5/16)     | 64 (2-1/2)                              |
| NI-70        | 38 (1-1/2)          | 59 (2-5/16)     | 89 (3-1/2)                              |
| NI-80        | 38 (1-1/2)          | 59 (2-5/16)     | 89 (3-1/2)                              |
| NI-80x       | 38 (1-1/2)          | 59 (2-5/16)     | 89 (3-1/2)                              |
| NI-90        | 38 (1-1/2)          | 59 (2-5/16)     | 89 (3-1/2)                              |
| NI-90x       | 38 (1-1/2)          | 59 (2-5/16)     | 89 (3-1/2)                              |

<sup>(a)</sup> Web stiffener length is 3 mm (1/8 inch) to 6 mm (1/4 inch) less than the clear distance between flanges. Stiffeners 25 mm (1-inch) thick are wood structural panels and stiffeners 38 mm (1-1/2-inch) thick are SPF lumber (relative density of 0.42) or denser lumber.

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