NORDIC JOIST™
9-1/4" AND 11-1/4" NI-40x I-JOISTS

Built for life

Distributed by:
Chantiers Chibougamau Ltd. harvests its own trees, which enables Nordic products to adhere to strict quality control procedures throughout the manufacturing process. Every phase of the operation, from forest to the finished product, reflects our commitment to quality.

Nordic Engineered Wood I-joists use only finger-jointed black spruce lumber in their flanges, ensuring consistent quality, superior strength, and longer span carrying capacity.

For further technical information, please refer to the Nordic Joist Construction Guide or contact your local distributor. Consult the Installation Guide for Residential Floors for proper procedures.

### DESIGN PROPERTIES FOR NORDIC I-JOISTS (a)(b)

<table>
<thead>
<tr>
<th>JOIST DEPTH</th>
<th>JOIST SERIES</th>
<th>EI (10^6 lbf-in.²)</th>
<th>M (lbf-ft)</th>
<th>V (lbf)</th>
<th>IR (lbf) w/ BS</th>
<th>IR (lbf) w/o BS</th>
<th>ER (lbf) w/ BS</th>
<th>ER (lbf) w/o BS</th>
<th>K (10^6 lbf)</th>
<th>WEIGHT (plf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-1/4&quot;</td>
<td>NI-40x</td>
<td>198</td>
<td>2810</td>
<td>1170</td>
<td>2350</td>
<td>2360</td>
<td>2535</td>
<td>2550</td>
<td>1135</td>
<td>2535</td>
</tr>
<tr>
<td>11-1/4&quot;</td>
<td>NI-40x</td>
<td>313</td>
<td>3355</td>
<td>1410</td>
<td>2845</td>
<td>2870</td>
<td>3300</td>
<td>3330</td>
<td>1250</td>
<td>3330</td>
</tr>
</tbody>
</table>

For SI: 1 lbf = 4.448 N, 1 lbf-ft = 1.356 N-m, 1 lbf-in² = 0.00287 N-m², 1 inch = 25.4 mm.

(a) The tabulated values are design values for normal duration of load. All values, except for EI and K, may be adjusted for other load durations as permitted by the code for solid sawn lumber.

(b) The vertical (bearing) linear load capacity is 2,000 lbf/ft without load or bearing stiffeners.

(c) Bending stiffness (EI) of the I-joist.

(d) Moment capacity (M) of the I-joist, which shall not be increased by any code allowed repetitive member use factor.

(e) Shear capacity (V) of the I-joist.

(f) Intermediate (IR) reaction of the I-joist with and without bearing stiffeners (BS). Minimum required bearing lengths as indicated. Interpolation of the intermediate reaction between 3-1/2 and 5-1/2-inch bearing is permitted.

(g) End (ER) reaction of the I-joist with and without bearing stiffeners (BS). Minimum required bearing lengths as indicated. Interpolation of the end reaction between 1-3/4 and 4-inch bearing is permitted.

(h) 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.

\[
\text{Uniform Load: } \delta = \frac{50w^4 + w\ell^3}{384 EI} \quad (1)
\]
\[
\text{Center-Point Load: } \delta = \frac{2w^2 + 4P\ell}{48 EI} \quad (2)
\]

Where:
- \( \delta \) = calculated deflection (in.)
- \( w \) = uniform load (lbf/ft)
- \( \ell \) = design span (in.)
- \( P \) = concentrated load (lbf)
- \( EI \) = bending stiffness of the I-joist (lbf-in.²)
- \( K \) = coefficient of shear deflection (lbf)

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**NORDIC JOIST™**

- I-joist depth
- I-joist series
- ICC-ES Evaluation Report number
- Approved by APA
- Mill number
- Knockout holes
- Approved by APA
- Mill number
### Allowable Roof Spans

#### Snow Load = 30 psf, Dead Load = 15 psf

<table>
<thead>
<tr>
<th>JOIST DEPTH</th>
<th>JOIST SERIES</th>
<th>SIMPLE SPANS SLOPE OF 1/4:12 TO 4:12</th>
<th>MULTIPLE SPANS SLOPE OF &gt;4:12 TO 8:12</th>
<th>MULTIPLE SPANS SLOPE OF &gt;8:12 TO 12:12</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ON CENTER SPACING</td>
<td>ON CENTER SPACING</td>
<td>ON CENTER SPACING</td>
</tr>
<tr>
<td>9-1/4&quot;</td>
<td>Ni-40x</td>
<td>19.7&quot;</td>
<td>17.1&quot;</td>
<td>14.8&quot;</td>
</tr>
<tr>
<td>11-1/4&quot;</td>
<td>Ni-40x</td>
<td>23.0&quot;</td>
<td>20.5&quot;</td>
<td>17.7&quot;</td>
</tr>
</tbody>
</table>

#### Snow Load = 40 psf, Dead Load = 15 psf

<table>
<thead>
<tr>
<th>JOIST DEPTH</th>
<th>JOIST SERIES</th>
<th>SIMPLE SPANS SLOPE OF 1/4:12 TO 4:12</th>
<th>MULTIPLE SPANS SLOPE OF &gt;4:12 TO 8:12</th>
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</tr>
<tr>
<td>9-1/4&quot;</td>
<td>Ni-40x</td>
<td>21.0&quot;</td>
<td>18.5&quot;</td>
<td>15.0&quot;</td>
</tr>
<tr>
<td>11-1/4&quot;</td>
<td>Ni-40x</td>
<td>23.1&quot;</td>
<td>20.8&quot;</td>
<td>16.1&quot;</td>
</tr>
</tbody>
</table>

### Notes:
1. Allowable clear span applicable to simple span roof construction with a design roof snow load as shown and dead load of 15 psf. The allowable span is based on the horizontal distance between inside face of supports. The snow load deflection is limited to L/240 and the total load deflection to L/180. Spans are based on a horizontal load factor of 1.15.
2. Spans include a cantilever of up to 2 feet on one end of the I-joint.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacing given in these tables, except as required for hangers.
5. These span charts are based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties.
Field-Cut Hole Locator

Knockouts are prescored holes provided for the contractor’s convenience to install electrical or small plumbing lines. They are 1-1/2 inches in diameter, and are spaced 15 inches on center along the length of the I-joist. Where possible, it is preferable to use knockouts instead of field-cut holes.

Never drill, cut or notch the flange, or over-cut the web.

Holes in webs should be cut with a sharp saw.

For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch diameter hole in each of the four corners and then making the cuts between the holes is another good method to minimize damage to the I-joist.

TABLE 1
HOLE SIZES AND LOCATIONS — Simple or Multiple Span

<table>
<thead>
<tr>
<th>JOIST DEPTH</th>
<th>JOIST SERIES</th>
<th>MINIMUM DISTANCE FROM INSIDE FACE OF ANY SUPPORT TO CENTER OF HOLE (ft-in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>9-1/4&quot;</td>
<td>NI-40x</td>
<td>0.7&quot;</td>
</tr>
<tr>
<td>11-1/4&quot;</td>
<td>NI-40x</td>
<td>0.7&quot;</td>
</tr>
</tbody>
</table>

NOTES:
1. Above tables may be used for I-joist spacing of 24 inches on center or less.
2. Hole and duct chase opening location distances are measured from inside face of supports to center of hole or opening.
3. For continuous joists with more than one span, use the longest span to determine hole location in either span.
4. Distances are based on uniformly loaded floor joists that meet the span requirements (see Allowable Floor Spans).
5. The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch (maintain a minimum of 1/8 inch between the top or bottom of the hole or opening and the adjacent I-joist flange).
6. The duct chase opening table is based on simple-span joists only. For other applications, contact your local distributor.
7. The above table is based on the I-joists being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only

<table>
<thead>
<tr>
<th>JOIST DEPTH</th>
<th>JOIST SERIES</th>
<th>MINIMUM DISTANCE FROM INSIDE FACE OF ANY SUPPORT TO CENTER OF OPENING (ft-in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>9-1/4&quot;</td>
<td>NI-40x</td>
<td>5.0&quot;</td>
</tr>
<tr>
<td>11-1/4&quot;</td>
<td>NI-40x</td>
<td>6.2&quot;</td>
</tr>
</tbody>
</table>

NOTES:
1. Above tables may be used for I-joist spacing of 24 inches on center or less.
2. Hole and duct chase opening location distances are measured from inside face of supports to center of hole or opening.
3. For continuous joists with more than one span, use the longest span to determine hole location in either span.
4. Distances are based on uniformly loaded floor joists that meet the span requirements (see Allowable Floor Spans).
5. The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch (maintain a minimum of 1/8 inch between the top or bottom of the hole or opening and the adjacent I-joist flange).
6. The duct chase opening table is based on simple-span joists only. For other applications, contact your local distributor.
7. The above table is based on the I-joists being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.