



NORDIC JOIST™

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



Built for life



Distributed by:



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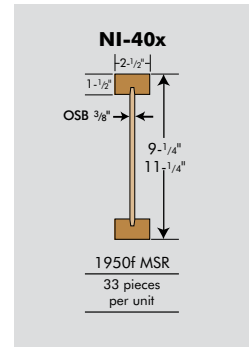
The mark of responsible forestry

NORDIC JOIST™

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)

JOIST DEPTH	JOIST SERIES	EI ^(c) (106 lbf-in. ²)	M _y ^(d) (lbf-ft)	V _y ^(e) (lbf)	IR _y ^(f) (lbf)	IR _y ^(f) w/ BS (lbf)	IR _y ^(f) (lbf)	IR _y ^(f) w/ BS (lbf)	ER _y ^(g) (lbf)	ER _y ^(g) w/ BS (lbf)	ER _y ^(g) (lbf)	ER _y ^(g) w/ BS (lbf)	K ^(h) (10 ⁶ lbf)	WEIGHT (plf)
					3-1/2-in BEARING		5-1/2-in BEARING		1-3/4-in BEARING		4-in BEARING			
9-1/4"	NI-40x	198	2810	1170	2350	2360	2535	2550	1135	1135	1170	1170	4.81	2.61
11-1/4"	NI-40x	313	3535	1410	2845	2870	3300	3330	1250	1410	1410	1410	5.85	2.81

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_y) 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_y) 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.

$$\text{Uniform Load: } \delta = \frac{5\omega\ell^4}{384 EI} + \frac{\omega\ell^2}{K} \quad (1)$$

$$\text{Center-Point Load: } \delta = \frac{P\ell^3}{48 EI} + \frac{2P\ell}{K} \quad (2)$$

Where: δ = calculated deflection (in.)

ω = uniform load (lbf/in.)

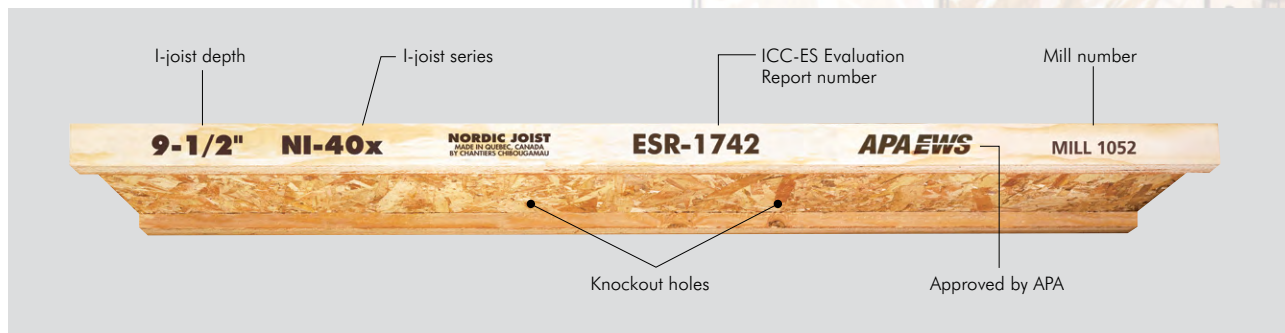
ℓ = design span (in.)

P = concentrated load (lbf)

EI = bending stiffness of the I-joist (lbf-in.²)

K = coefficient of shear deflection (lbf)

NORDIC JOIST™



ALLOWABLE SPANS



ALLOWABLE FLOOR SPANS

LIVE LOAD DEFLECTION LIMIT OF L/480

JOIST DEPTH	JOIST SERIES	SIMPLE SPANS				MULTIPLE SPANS			
		ON CENTER SPACING				ON CENTER SPACING			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/4"	NI-40x	18'-1"	16'-6"	15'-7"	14'-7"	19'-8"	18'-0"	16'-7"	14'-9"
11-1/4"	NI-40x	21'-0"	19'-3"	18'-2"	16'-8"	22'-11"	20'-5"	18'-7"	16'-7"

ALLOWABLE FLOOR SPANS

LIVE LOAD DEFLECTION LIMIT OF L/360

JOIST DEPTH	JOIST SERIES	SIMPLE SPANS				MULTIPLE SPANS			
		ON CENTER SPACING				ON CENTER SPACING			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/4"	NI-40x	20'-0"	18'-3"	16'-7"	14'-10"	21'-0"	18'-2"	16'-7"	14'-9"
11-1/4"	NI-40x	23'-3"	20'-5"	18'-8"	16'-8"	23'-7"	20'-5"	18'-7"	16'-7"

NOTES:

1. Allowable clear span applicable to residential floor construction with a design live load of 40 psf and dead load of 10 psf. The live load deflection is limited to L/480 or L/360 as shown, and the total load deflection to L/240. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
2. Spans are based on a composite floor with glued-nailed sheathing meeting the requirements for APA Rated Sheathing or APA Rated STURD-I-FLOOR conforming to PRP-108, PS 1, or PS 2 with a minimum thickness of 19/32 inch (40/20 or 20 oc) for a joist spacing of 19.2 inches or less, or 23/32 inch (48/24 or 24 oc) for a joist spacing of 24 inches. Adhesive shall meet APA Specification AFG-01 or ASTM D3498.
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.

ALLOWABLE ROOF SPANS

SNOW LOAD = 30 psf, DEAD LOAD = 15 psf

JOIST DEPTH	JOIST SERIES	SLOPE OF 1/4:12 TO 4:12			SLOPE OF >4:12 TO 8:12			SLOPE OF >8:12 TO 12:12		
		ON CENTER SPACING			ON CENTER SPACING			ON CENTER SPACING		
		12"	16"	24"	12"	16"	24"	12"	16"	24"
9-1/4"	NI-40x	22'-5"	20'-4"	16'-7"	21'-2"	19'-2"	16'-2"	19'-8"	17'-10"	15'-6"
11-1/4"	NI-40x	26'-3"	22'-10"	18'-7"	24'-9"	22'-3"	18'-2"	22'-11"	20'-9"	17'-7"

ALLOWABLE ROOF SPANS

SNOW LOAD = 40 psf, DEAD LOAD = 15 psf

JOIST DEPTH	JOIST SERIES	SLOPE OF 1/4:12 TO 4:12			SLOPE OF >4:12 TO 8:12			SLOPE OF >8:12 TO 12:12		
		ON CENTER SPACING			ON CENTER SPACING			ON CENTER SPACING		
		12"	16"	24"	12"	16"	24"	12"	16"	24"
9-1/4"	NI-40x	21'-0"	18'-5"	15'-0"	19'-10"	17'-11"	14'-8"	18'-6"	16'-9"	14'-3"
11-1/4"	NI-40x	23'-11"	20'-8"	16'-10"	23'-2"	20'-3"	16'-6"	21'-7"	19'-6"	16'-1"

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 duration of load (DOL) factor of 1.15.
2. Spans include a cantilever of up to 2 feet on one end of the I-joist.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches on end bearing adjacent to cantilever.
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.



TABLE 1
HOLE SIZES AND LOCATIONS — Simple or Multiple Span

JOIST DEPTH	JOIST SERIES	MINIMUM DISTANCE FROM INSIDE FACE OF ANY SUPPORT TO CENTER OF HOLE (ft.-in.)														
		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
9-1/4"	NI-40x	0'-7"	1'-5"	2'-10"	4'-3"	6'-0"	---	---	---	---	---	---	---	---	---	
11-1/4"	NI-40x	0'-7"	0'-8"	1'-5"	2'-9"	4'-2"	4'-6"	5'-8"	7'-6"	---	---	---	---	---	---	

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

JOIST DEPTH	JOIST SERIES	MINIMUM DISTANCE FROM INSIDE FACE OF ANY SUPPORT TO CENTER OF OPENING (ft.-in.)									
		DUCT CHASE LENGTH (in.)									
		8	10	12	14	16	18	20	22	24	
9-1/4"	NI-40x	5'-0"	5'-3"	5'-8"	6'-1"	6'-6"	7'-0"	7'-4"	7'-9"	8'-3"	
11-1/4"	NI-40x	6'-2"	6'-7"	7'-0"	7'-5"	8'-0"	8'-5"	9'-0"	9'-5"	10'-0"	

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.

FIELD-CUT HOLE LOCATOR

See Table 1 for minimum distance from bearing

2x diameter of larger hole

2x duct chase length or hole diameter, whichever is larger

Duct chase opening (see Table 2 for minimum distance from bearing)

3/4x diameter

Knockouts

Maintain minimum 1/8" space between top and bottom flange — all duct chase openings and holes

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 centre 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.



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