



# NORDIC JOIST™

## LIGHT-COMMERCIAL I-JOISTS

**9-1/2"**

**NI-40x**

NORDIC JOIST  
MADE IN QUEBEC, CANADA  
BY CHANTIERS CHÉBOUGAMAU

**CCMC 13032-R**

**APA/EWS**

**MILL 1052**

Built for life



Distributed by:



FSC-CERTIFIED PRODUCTS AVAILABLE



The mark of  
responsible forestry

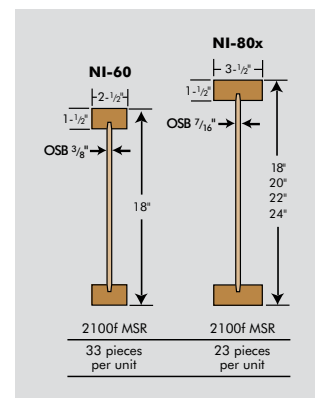


# NORDIC JOIST™

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 <sup>(a)</sup> (10 <sup>6</sup> lbf-in. <sup>2</sup> )	M <sub>v</sub> <sup>(d)</sup> (lbf-ft)	V <sub>v</sub> <sup>(e)</sup> (lbf)	K <sup>(h)</sup> (10 <sup>6</sup> lbf)	WEIGHT (lbf)
18"	NI-60	1019	12975	3160	9.36	3.77
	NI-80x	1399	18280	3730	9.36	4.45
20"	NI-80x	1771	20480	3870	10.4	4.75
22"	NI-80x	2191	22695	3990	11.44	5.05
24"	NI-80x	2660	24905	4100	12.48	5.25

## END AND INTERMEDIATE REACTION VALUES (a)

JOIST DEPTH	JOIST SERIES	IR <sub>v</sub> (lbf)				ER <sub>v</sub> (lbf)			
		3-1/2 in.		5-1/2 in.		1-3/4 in.		4 in.	
		wo/BS	w/BS	wo/BS	w/BS	wo/BS	w/BS	wo/BS	w/BS
18"	NI-60	4420	5710	5150	6500	2330	3160	2920	3160
	NI-80x	4920	6030	5180	6980	2050	3000	2920	3730
20"	NI-80x	5040	6500	5380	7220	2080	3230	3000	3870
22"	NI-80x	5150	6980	5580	7470	2120	3460	3080	3990
24"	NI-80x	5270	7460	5780	7710	2150	3690	3160	4100

For SI: 1 inch = 25.4 mm, 1 lbf = 4.448N, 1 lbf-ft = 1.356 N-m, 1 lbf-in<sup>2</sup> = 0.000287 N-m<sup>2</sup>

- The tabulated values are design values for the standard term load duration ( $K_D = 1.0$ ). All values, except for EI and K, may be adjusted for other load durations as permitted by the code for solid sawn lumber.
- The factored vertical (bearing) linear load resistance is 3,050 lbf/ft for 18-inch NI-60, and 2,100 lbf/ft for NI-80x (up to 24 inches) without load or bearing stiffeners.
- Bending stiffness (EI) of the I-joist.
- Factored moment capacity ( $M_v$ ) of the I-joist, which shall **not** be increased by any code allowed system effect factor.
- Factored shear capacity ( $V_v$ ) of the I-joist with a minimum bearing length of 4 inches.
- Factored intermediate (IR<sub>v</sub>) 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.
- Factored end (ER<sub>v</sub>) 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.
- Coefficient of shear deflection (K). For calculating uniform load and centre-point load deflections of the I-joist in a simple-span application, use Eqs. 1 and 2.

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

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

Where:  $\delta$  = calculated deflection (in.)

$\omega$  = unfactored uniform load (lbf/in.)

$\ell$  = design span (in.)

P = unfactored concentrated load (lbf)

EI = bending stiffness of the I-joist (lbf-in.<sup>2</sup>)

K = coefficient of shear deflection (lbf)

# MAXIMUM SPANS

## MAXIMUM FLOOR SPANS – Bare Joist

Live Load = 40 psf, Dead Load = 15 psf

JOIST DEPTH	JOIST SERIES	SIMPLE SPANS				MULTIPLE SPANS			
		ON CENTRE SPACING				ON CENTRE SPACING			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
18"	NI-60	23'-11"	22'-1"	21'-1"	21'-2"	26'-4"	24'-5"	23'-4"	23'-5"
	NI-80x	25'-8"	23'-8"	22'-7"	22'-8"	28'-4"	26'-2"	25'-0"	25'-0"
20"	NI-80x	27'-5"	25'-4"	24'-1"	24'-2"	30'-4"	28'-0"	26'-8"	26'-9"
22"	NI-80x	29'-1"	26'-10"	25'-7"	25'-8"	32'-3"	29'-8"	28'-4"	28'-4"
24"	NI-80x	30'-9"	28'-4"	27'-0"	27'-1"	34'-9"	31'-4"	29'-11"	29'-11"

## MAXIMUM FLOOR SPANS – Bare Joist

Live Load = 40 psf, Dead Load = 30 psf

JOIST DEPTH	JOIST SERIES	SIMPLE SPANS				MULTIPLE SPANS			
		ON CENTRE SPACING				ON CENTRE SPACING			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
18"	NI-60	23'-11"	22'-1"	21'-1"	21'-2"	26'-4"	24'-5"	23'-4"	22'-10"
	NI-80x	25'-8"	23'-8"	22'-7"	22'-8"	28'-4"	26'-2"	25'-0"	25'-0"
20"	NI-80x	27'-5"	25'-4"	24'-1"	24'-2"	30'-4"	28'-0"	26'-8"	26'-9"
22"	NI-80x	29'-1"	26'-10"	25'-7"	25'-8"	32'-3"	29'-8"	28'-4"	28'-4"
24"	NI-80x	30'-9"	28'-4"	27'-0"	27'-1"	34'-9"	31'-4"	29'-11"	29'-11"

## MAXIMUM FLOOR SPANS – Bare Joist

Live Load = 40 psf, Dead Load = 35 psf

JOIST DEPTH	JOIST SERIES	SIMPLE SPANS				MULTIPLE SPANS			
		ON CENTRE SPACING				ON CENTRE SPACING			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
18"	NI-60	23'-11"	22'-1"	21'-1"	21'-2"	26'-4"	24'-5"	23'-4"	22'-2"
	NI-80x	25'-8"	23'-8"	22'-7"	22'-8"	28'-4"	26'-2"	25'-0"	25'-0"
20"	NI-80x	27'-5"	25'-4"	24'-1"	24'-2"	30'-4"	28'-0"	26'-8"	26'-9"
22"	NI-80x	29'-1"	26'-10"	25'-7"	25'-8"	32'-3"	29'-8"	28'-4"	28'-4"
24"	NI-80x	30'-9"	28'-4"	27'-0"	27'-1"	34'-9"	31'-4"	29'-11"	29'-6"

### NOTES:

- Maximum clear span applicable to residential floor construction with a design live load of 40 psf and dead load as indicated. The ultimate limit states are based on the factored loads of  $1.50L + 1.25D$ . The serviceability limit states include the consideration for floor vibration, a live load deflection limit of  $L/480$  and a total load deflection limit of  $L/240$ . For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for a joist spacing of 24 inches. Adhesive shall meet the requirements given in CGBS-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
- Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings except for shaded areas which shall be 3-1/2 inches for the end bearings, and 5-1/2 inches for the intermediate bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacing given in these tables, except for underlined characters and as required for hangers.
- 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.



### MAXIMUM FLOOR SPANS – 1/2" Gypsum Ceiling

Live Load = 40 psf, Dead Load = 15 psf

JOIST DEPTH	JOIST SERIES	SIMPLE SPANS				MULTIPLE SPANS			
		ON CENTRE SPACING				ON CENTRE SPACING			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
18"	NI-60	24'-9"	23'-0"	21'-11"	22'-0"	27'-4"	25'-5"	24'-3"	24'-4"
	NI-80x	26'-5"	24'-6"	23'-4"	23'-5"	29'-3"	27'-1"	25'-10"	25'-11"
20"	NI-80x	28'-3"	26'-2"	25'-0"	25'-0"	31'-3"	28'-11"	27'-8"	27'-8"
22"	NI-80x	30'-0"	27'-9"	26'-6"	26'-6"	33'-8"	30'-9"	29'-4"	29'-5"
24"	NI-80x	31'-8"	29'-4"	28'-0"	28'-0"	36'-2"	32'-8"	31'-0"	31'-0"

### MAXIMUM FLOOR SPANS – 1/2" Gypsum Ceiling

Live Load = 40 psf, Dead Load = 30 psf

JOIST DEPTH	JOIST SERIES	SIMPLE SPANS				MULTIPLE SPANS			
		ON CENTRE SPACING				ON CENTRE SPACING			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
18"	NI-60	24'-9"	23'-0"	21'-11"	22'-0"	27'-4"	25'-5"	24'-3"	22'-10"
	NI-80x	26'-5"	24'-6"	23'-4"	23'-5"	29'-3"	27'-1"	25'-10"	25'-11"
20"	NI-80x	28'-3"	26'-2"	25'-0"	25'-0"	31'-3"	28'-11"	27'-8"	27'-8"
22"	NI-80x	30'-0"	27'-9"	26'-6"	26'-6"	33'-8"	30'-9"	29'-4"	29'-5"
24"	NI-80x	31'-8"	29'-4"	28'-0"	28'-0"	36'-2"	32'-8"	31'-0"	31'-0"

### MAXIMUM FLOOR SPANS – 1/2" Gypsum Ceiling

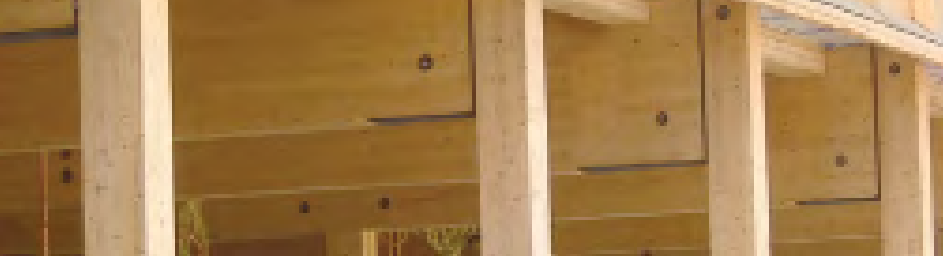
Live Load = 40 psf, Dead Load = 35 psf

JOIST DEPTH	JOIST SERIES	SIMPLE SPANS				MULTIPLE SPANS			
		ON CENTRE SPACING				ON CENTRE SPACING			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
18"	NI-60	24'-9"	23'-0"	21'-11"	22'-0"	27'-4"	25'-5"	24'-3"	22'-2"
	NI-80x	26'-5"	24'-6"	23'-4"	23'-5"	29'-3"	27'-1"	25'-10"	25'-11"
20"	NI-80x	28'-3"	26'-2"	25'-0"	25'-0"	31'-3"	28'-11"	27'-8"	27'-7"
22"	NI-80x	30'-0"	27'-9"	26'-6"	26'-6"	33'-8"	30'-9"	29'-4"	28'-7"
24"	NI-80x	31'-8"	29'-4"	28'-0"	28'-0"	36'-2"	32'-8"	31'-0"	29'-6"

#### NOTES:

- Maximum clear span applicable to residential floor construction with a design live load of 40 psf and dead load as indicated. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for a joist spacing of 24 inches. Adhesive shall meet the requirements given in CGBS-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of a row of blocking at mid-span.
- Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings except for shaded areas which shall be 3-1/2 inches for the end bearings, and 5-1/2 inches for the intermediate bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacing given in these tables, except for underlined characters and as required for hangers.
- 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.





### MAXIMUM FLOOR SPANS – Bare Joist

Live Load = 50 psf, Dead Load = 15 psf

JOIST DEPTH	JOIST SERIES	SIMPLE SPANS				MULTIPLE SPANS			
		ON CENTRE SPACING				ON CENTRE SPACING			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
18"	NI-60	23'-11"	22'-1"	21'-1"	21'-2"	26'-4"	24'-5"	23'-4"	23'-4"
	NI-80x	25'-8"	23'-8"	22'-7"	22'-8"	28'-4"	26'-2"	25'-0"	25'-0"
20"	NI-80x	27'-5"	25'-4"	24'-1"	24'-2"	30'-4"	28'-0"	26'-8"	26'-9"
22"	NI-80x	29'-1"	26'-10"	25'-7"	25'-8"	32'-3"	29'-8"	28'-4"	28'-4"
24"	NI-80x	30'-9"	28'-4"	27'-0"	27'-1"	34'-9"	31'-4"	29'-11"	29'-11"

### MAXIMUM FLOOR SPANS – Bare Joist

Live Load = 50 psf, Dead Load = 30 psf

JOIST DEPTH	JOIST SERIES	SIMPLE SPANS				MULTIPLE SPANS			
		ON CENTRE SPACING				ON CENTRE SPACING			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
18"	NI-60	23'-11"	22'-1"	21'-1"	21'-2"	26'-4"	24'-5"	23'-4"	21'-3"
	NI-80x	25'-8"	23'-8"	22'-7"	22'-8"	28'-4"	26'-2"	25'-0"	24'-7"
20"	NI-80x	27'-5"	25'-4"	24'-1"	24'-2"	30'-4"	28'-0"	26'-8"	25'-5"
22"	NI-80x	29'-1"	26'-10"	25'-7"	25'-8"	32'-3"	29'-8"	28'-4"	26'-4"
24"	NI-80x	30'-9"	28'-4"	27'-0"	27'-1"	34'-9"	31'-4"	29'-11"	27'-2"

### MAXIMUM FLOOR SPANS – Bare Joist

Live Load = 50 psf, Dead Load = 35 psf

JOIST DEPTH	JOIST SERIES	SIMPLE SPANS				MULTIPLE SPANS			
		ON CENTRE SPACING				ON CENTRE SPACING			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
18"	NI-60	23'-11"	22'-1"	21'-1"	20'-9"	26'-4"	24'-5"	23'-2"	20'-8"
	NI-80x	25'-8"	23'-8"	22'-7"	22'-8"	28'-4"	26'-2"	25'-0"	23'-4"
20"	NI-80x	27'-5"	25'-4"	24'-1"	24'-2"	30'-4"	28'-0"	26'-8"	24'-1"
22"	NI-80x	29'-1"	26'-10"	25'-7"	25'-8"	32'-3"	29'-8"	28'-4"	24'-11"
24"	NI-80x	30'-9"	28'-4"	27'-0"	27'-1"	34'-9"	31'-4"	29'-11"	25'-9"

#### NOTES:

- Maximum clear span applicable to light-commercial floor construction with a design live load of 50 psf and dead load as indicated. The ultimate limit states are based on the factored loads of  $1.50L + 1.25D$ . The serviceability limit states include the consideration for floor vibration, a live load deflection limit of  $L/480$  and a total load deflection limit of  $L/240$ . For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for a joist spacing of 24 inches. Adhesive shall meet the requirements given in CGBS-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
- Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings except for shaded areas which shall be 3-1/2 inches for the end bearings, and 5-1/2 inches for the intermediate bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacing given in these tables, except for underlined characters and as required for hangers.
- 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.
- The maximum spans have not been verified for concentrated loads, as it may be required for specific occupancies or uses. Refer to 2005 National Building Code, Article 4.1.5.10.

## MAXIMUM FLOOR SPANS – 1/2" Gypsum Ceiling

Live Load = 50 psf, Dead Load = 15 psf

JOIST DEPTH	JOIST SERIES	SIMPLE SPANS				MULTIPLE SPANS			
		ON CENTRE SPACING				ON CENTRE SPACING			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
18"	NI-60	24'-9"	23'-0"	21'-11"	22'-0"	27'-4"	25'-5"	24'-3"	23'-4"
	NI-80x	26'-5"	24'-6"	23'-4"	23'-5"	29'-3"	27'-1"	25'-10"	25'-11"
20"	NI-80x	28'-3"	26'-2"	25'-0"	25'-0"	31'-3"	28'-11"	27'-8"	27'-8"
22"	NI-80x	30'-0"	27'-9"	26'-6"	26'-6"	33'-8"	30'-9"	29'-4"	29'-5"
24"	NI-80x	31'-8"	29'-4"	28'-0"	28'-0"	36'-2"	32'-8"	31'-0"	31'-0"

## MAXIMUM FLOOR SPANS – 1/2" Gypsum Ceiling

Live Load = 50 psf, Dead Load = 30 psf

JOIST DEPTH	JOIST SERIES	SIMPLE SPANS				MULTIPLE SPANS			
		ON CENTRE SPACING				ON CENTRE SPACING			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
18"	NI-60	24'-9"	23'-0"	21'-11"	21'-4"	27'-4"	25'-5"	23'-10"	21'-3"
	NI-80x	26'-5"	24'-6"	23'-4"	23'-5"	29'-3"	27'-1"	25'-10"	24'-7"
20"	NI-80x	28'-3"	26'-2"	25'-0"	25'-0"	31'-3"	28'-11"	27'-8"	25'-5"
22"	NI-80x	30'-0"	27'-9"	26'-6"	26'-6"	33'-8"	30'-9"	29'-4"	26'-4"
24"	NI-80x	31'-8"	29'-4"	28'-0"	28'-0"	36'-2"	32'-8"	31'-0"	27'-2"

## MAXIMUM FLOOR SPANS – 1/2" Gypsum Ceiling

Live Load = 50 psf, Dead Load = 35 psf

JOIST DEPTH	JOIST SERIES	SIMPLE SPANS				MULTIPLE SPANS			
		ON CENTRE SPACING				ON CENTRE SPACING			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
18"	NI-60	24'-9"	23'-0"	21'-11"	20'-9"	27'-4"	25'-5"	23'-2"	20'-8"
	NI-80x	26'-5"	24'-6"	23'-4"	23'-5"	29'-3"	27'-1"	25'-10"	23'-4"
20"	NI-80x	28'-3"	26'-2"	25'-0"	25'-0"	31'-3"	28'-11"	27'-8"	24'-1"
22"	NI-80x	30'-0"	27'-9"	26'-6"	26'-6"	33'-8"	30'-9"	29'-4"	24'-11"
24"	NI-80x	31'-8"	29'-4"	28'-0"	28'-0"	36'-2"	32'-8"	31'-0"	25'-9"

### NOTES:

- Maximum clear span applicable to light-commercial floor construction with a design live load of 50 psf and dead load as indicated. The ultimate limit states are based on the factored loads of  $1.50L + 1.25D$ . The serviceability limit states include the consideration for floor vibration, a live load deflection limit of  $L/480$  and a total load deflection limit of  $L/240$ . For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for a joist spacing of 24 inches. Adhesive shall meet the requirements given in CGBS-71.26 Standard.  
No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of a row of blocking at mid-span.
- Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings except for shaded areas which shall be 3-1/2 inches for the end bearings, and 5-1/2 inches for the intermediate bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacing given in these tables, except for underlined characters and as required for hangers.
- 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.
- The maximum spans have not been verified for concentrated loads, as it may be required for specific occupancies or uses. Refer to 2005 National Building Code, Article 4.1.5.10.



# MAXIMUM ROOF SPANS



## MAXIMUM ROOF SPANS

Snow Load = 30 psf, Dead Load = 20 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 CENTRE SPACING			ON CENTRE SPACING			ON CENTRE SPACING		
		12"	16"	24"	12"	16"	24"	12"	16"	24"
18"	NI-60 NI-80x	34'-9"	31'-5"	26'-9"	32'-8"	29'-7"	25'-8"	30'-2"	27'-4"	23'-9"
		38'-7"	34'-11"	<u>30'-3"</u>	36'-3"	32'-10"	28'-6"	33'-6"	30'-4"	26'-4"
20"	NI-80x	41'-9"	37'-10"	<u>32'-10"</u>	39'-3"	35'-7"	30'-10"	36'-3"	32'-10"	28'-6"
22"	NI-80x	44'-11"	40'-7"	<u>35'-3"</u>	42'-2"	38'-2"	<u>33'-2"</u>	38'-11"	35'-3"	30'-8"
24"	NI-80x	47'-11"	43'-4"	<u>37'-1"</u>	45'-0"	40'-9"	<u>35'-5"</u>	41'-7"	37'-8"	32'-9"

## MAXIMUM ROOF SPANS

Snow Load = 40 psf, Dead Load = 20 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 CENTRE SPACING			ON CENTRE SPACING			ON CENTRE SPACING		
		12"	16"	24"	12"	16"	24"	12"	16"	24"
18"	NI-60 NI-80x	32'-9"	29'-8"	24'-3"	30'-10"	27'-11"	23'-9"	28'-7"	25'-11"	22'-6"
		36'-4"	32'-11"	<u>28'-6"</u>	34'-3"	31'-0"	26'-11"	31'-10"	28'-9"	25'-0"
20"	NI-80x	39'-4"	35'-7"	<u>30'-7"</u>	37'-1"	33'-7"	<u>29'-2"</u>	34'-5"	31'-2"	27'-1"
22"	NI-80x	42'-4"	<u>38'-3"</u>	<u>32'-2"</u>	39'-11"	36'-1"	<u>31'-4"</u>	37'-0"	33'-6"	29'-1"
24"	NI-80x	45'-2"	<u>40'-10"</u>	<u>33'-9"</u>	42'-7"	38'-7"	<u>33'-0"</u>	39'-6"	35'-9"	<u>31'-1"</u>

## MAXIMUM ROOF SPANS

Snow Load = 50 psf, Dead Load = 20 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 CENTRE SPACING			ON CENTRE SPACING			ON CENTRE SPACING		
		12"	16"	24"	12"	16"	24"	12"	16"	24"
18"	NI-60 NI-80x	30'-11"	27'-6"	<u>22'-5"</u>	29'-5"	26'-7"	22'-0"	27'-4"	24'-9"	21'-5"
		34'-3"	31'-0"	<u>26'-7"</u>	32'-8"	29'-7"	<u>25'-7"</u>	30'-5"	27'-6"	23'-10"
20"	NI-80x	37'-2"	<u>33'-7"</u>	<u>28'-2"</u>	35'-4"	32'-0"	<u>27'-8"</u>	32'-11"	29'-10"	25'-10"
22"	NI-80x	39'-11"	<u>36'-1"</u>	<u>29'-8"</u>	38'-0"	34'-5"	<u>29'-2"</u>	35'-4"	32'-0"	<u>27'-10"</u>
24"	NI-80x	42'-5"	<u>38'-2"</u>	<u>31'-1"</u>	40'-7"	<u>36'-9"</u>	<u>30'-7"</u>	37'-9"	34'-2"	<u>29'-8"</u>

### NOTES:

1. Maximum clear span applicable to simple-span roof construction with a design roof snow load as shown and dead load of 20 psf. The maximum span is based on the horizontal distance between inside face of supports. The ultimate limit states are based on the factored loads of  $1.50S + 1.25D$ . The serviceability limit states are based on a live load deflection limit of  $L/360$  and a total load deflection limit of  $L/240$ , and an importance factor of 0.9.
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 for underlined characters and 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.

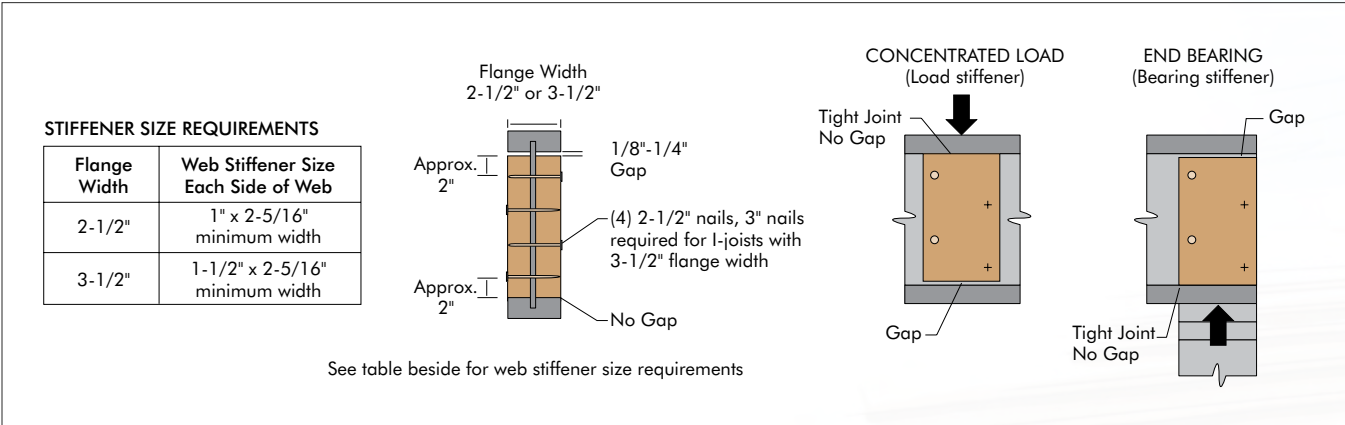
# WEB STIFFENER REQUIREMENTS

## RECOMMENDATIONS:

1. A **bearing stiffener** is required in all engineered applications with factored reactions greater than shown in the I-joist design properties table on page 2. The gap between the stiffener and the flange is at the top.
2. A **bearing stiffener** is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.

3. A **load stiffener** is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

## WEB STIFFENERS INSTALLATION DETAILS



# RIM BOARD

## DESIGN PROPERTIES FOR RIM BOARDS <sup>(a)</sup>

PRODUCT	$H_x^{(b)}$ (lb/ft)	$V_y^{(c)}$ (lb/ft)	$Z^{(d)}$ (lb/ft)	$P^{(e)}$ (lb/ft)	WEIGHT (pcf)
1-1/8" Rim Board Plus	260	5,335	580	5,845	35.6

- (a) These design values are applicable only to rim board applications in compliance with the connection requirements given in the *Nordic Joist Design/ Construction Guide* and should not be used in the design of a bending member, such as joist, header, rafter, or ledger. The design values are applicable to the standard term load duration for wood products, except for the horizontal load transfer resistance which is based on the short-term load duration. All values may be adjusted for other load durations in accordance with the applicable code.
- (b) Factored horizontal (shear) load transfer resistance ( $H_x$ ).
- (c) Factored bearing (vertical) load resistance ( $V_y$ ).
- (d) Factored lateral resistance of a 1/2-inch-diameter lag screw ( $Z_x$ ).
- (e) Factored concentrated load resistance ( $P_x$ ). The maximum concentrated load acting along any area of the floor sheathing above the rim board from 3 to 12 inches in length. The bearing load must be simultaneously satisfied along with the concentrated load resistance.



# WEB HOLE SPECIFICATIONS

## HOLE SIZES AND LOCATIONS — Simple or Multiple Span

JOIST DEPTH	JOIST SERIES	MINIMUM DISTANCE FROM INSIDE FACE OF ANY SUPPORT TO CENTRE OF HOLE (ft.-in.)															
		ROUND HOLE DIAMETER (in.)															
		2	4	6	8	10	12	14	14-3/4	16	16-3/4	18	18-3/4	20	20-3/4	22	
18"	NI-60	0'-7"	0'-8"	2'-0"	4'-6"	8'-0"	11'-6"	15'-2"	16'-5"	--	--	--	--	--	--	--	
	NI-80x	0'-7"	0'-8"	1'-2"	5'-3"	9'-5"	13'-8"	17'-10"	19'-5"	--	--	--	--	--	--	--	
20"	NI-80x	0'-7"	0'-8"	0'-9"	3'-9"	7'-8"	11'-6"	15'-6"	17'-0"	19'-6"	21'-0"	--	--	--	--	--	
22"	NI-80x	0'-7"	0'-8"	0'-9"	2'-3"	5'-10"	9'-5"	13'-2"	14'-6"	16'-10"	18'-3"	20'-8"	23'-0"	--	--	--	
24"	NI-80x	0'-7"	0'-8"	0'-9"	1'-0"	4'-4"	7'-9"	11'-2"	12'-5"	14'-8"	16'-0"	18'-2"	19'-9"	23'-6"	26'-0"	--	

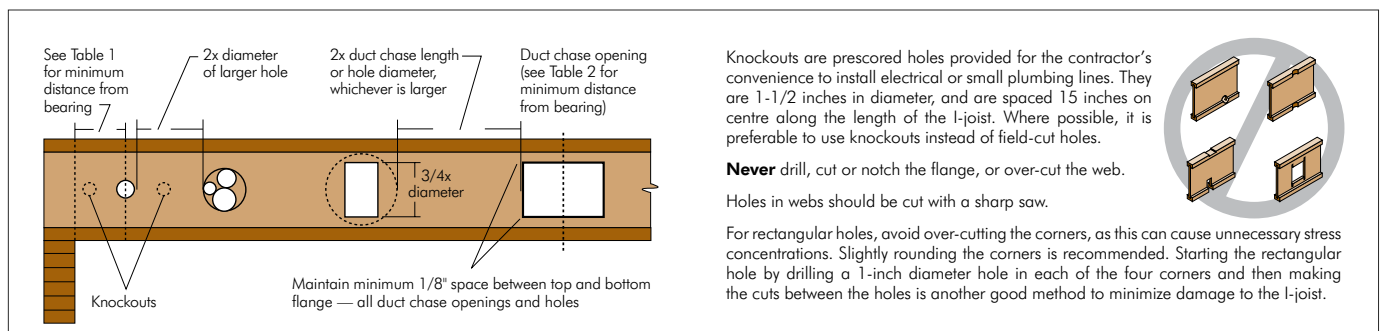
## DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only

JOIST DEPTH	JOIST SERIES	MINIMUM DISTANCE FROM INSIDE FACE OF ANY SUPPORT TO CENTRE OF OPENING (ft.-in.)									
		DUCT CHASE LENGTH (in.)									
		8	10	12	14	16	18	20	22	24	
18"	NI-60	12'-7"	13'-2"	13'-8"	14'-3"	14'-8"	15'-3"	15'-9"	16'-4"	17'-0"	
	NI-80x	13'-0"	13'-4"	14'-0"	14'-6"	15'-1"	15'-7"	16'-2"	16'-9"	17'-3"	
20"	NI-80x	14'-7"	15'-1"	15'-8"	16'-3"	16'-10"	17'-3"	18'-0"	18'-5"	19'-0"	
22"	NI-80x	16'-2"	16'-9"	17'-3"	17'-10"	18'-5"	19'-0"	19'-6"	20'-1"	20'-8"	
24"	NI-80x	17'-2"	17'-9"	18'-4"	19'-0"	19'-5"	20'-1"	20'-7"	21'-2"	21'-8"	

### NOTES:

- Above tables may be used for I-joist spacing of 24 inches on centre or less.
- Hole and duct chase opening location distance is measured from inside face of supports to centre of hole or opening.
- For continuous joists with more than one span, use the longest span to determine hole location in either span.
- Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. For other applications, contact your local distributor.
- 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).
- The duct chase opening table is based on simple-span joists only. For other applications, contact your local distributor.
- The above tables are 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



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