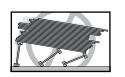


SAFETY AND CONSTRUCTION PRECAUTIONS



Do not walk on I-joists until fully fastened and braced, or serious injuries can result.



Never stack building materials over unsheathed I-joists. Once sheathed, do not over-stress I-joist with oncentrated loads from building materials.

WARNING

I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed. Avoid Accidents by Following these Important Guidelines:

- 1. Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends. When I-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support. 2. When the building is completed, the floor sheathing will provide lateral
- support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling. ■ Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long
- and spaced no more than 8 feet on centre, and must be secured with a ninimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
- Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
- 3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
- 4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only. 5. Never install a damaged I-joist.

Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines carefully.

MAXIMUM FLOOR SPANS

- . Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consider for floor vibration and a live load deflection limit of L/480. 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 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 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 used of gypsum and/or a row of blocking at mid-span
- 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 spacings given in this table, except as required for hangers.
- 5. This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
- 6. Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
- 7. SI units conversion: 1 inch = 25.4 mm

MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS

SIMPLE AND MULTIPLE SPANS

Depth	Series		On centre	spacing :		On centre spacing					
Беріп	501103	12"	16"	19.2	24"	12"	16"	19.2"	24"		
	NI-20	15'-1"	14'-2"	13'-9"	13'-5"	16'-3"	15'-4"	14'-10"	14'-7"		
	NI-40x	16'-1"	15'-2"	14'-8"	14'-9"	17'-5"	16'-5"	15'-10"	15'-5"		
9-1/2"	NI-60	16'-3"	15'-4"	14'-10"	14'-11"	17'-7"	16'-7"	16'-0"	16'-1"		
	NI-70	17'-1"	16'-1"	15'-6"	15'-7"	18'-7"	17'-4"	16'-9"	16'-10"		
	NI-80	17'-3"	16'-3"	15'-8"	15'-9"	18'-10"	17'-6"	16'-11"	17'-0"		
	NI-20	16'-11"	16'-0"	15'-5"	15'-6"	18'-4"	17'-3"	16'-8"	16'-7"		
	NI-40x	18'-1"	17'-0"	16'-5"	16'-6"	20'-0"	18'-6"	17'-9"	1 <i>7'-7</i> "		
	NI-60	18'-4"	17'-3"	16'-7"	16'-9"	20'-3"	18'-9"	18'-0"	18'-1"		
11-7/8"	NI-70	19'-6"	18'-0"	17'-4"	17'-5"	21'-6"	19'-11"	19'-0"	19'-1"		
	NI-80	19'-9"	18'-3"	17'-6"	17'-7"	21'-9"	20'-2"	19'-3"	19'-4"		
	NI-90	20'-2"	18'-7"	17'-10"	1 <i>7</i> '-11"	22'-3"	20'-7"	19'-8"	19'-9"		
	NI-90x	20'-4"	18'-9"	1 <i>7</i> '-11"	18'-0"	22'-5"	20'-9"	19'-10"	19'-11"		
	NI-40x	20'-1"	18'-7"	17'-10"	17'-11"	22'-2"	20'-6"	19'-8"	19'-4"		
	NI-60	20'-5"	18'-11"	18'-1"	18'-2"	22'-7"	20'-11"	20'-0"	20'-1"		
14"	NI-70	21'-7"	20'-0"	19'-1"	19'-2"	23'-10"	22'-1"	21'-1"	21'-2"		
14	NI-80	21'-11"	20'-3"	19'-4"	19'-5"	24'-3"	22'-5"	21'-5"	21'-6"		
	NI-90	22'-5"	20'-8"	19'-9"	19'-10"	24'-9"	22'-10"	21'-10"	21'-10"		
	NI-90x	22'-7"	20'-11"	19'-11"	20'-0"	25'-0"	23'-1"	22'-0"	22'-2"		
	NI-60	22'-3"	20'-8"	19'-9"	19'-10"	24'-7"	22'-9"	21'-9"	21'-10"		
	NI-70	23'-6"	21'-9"	20'-9"	20'-10"	26'-0"	24'-0"	22'-11"	23'-0"		
16"	NI-80	23'-11"	22'-1"	21'-1"	21'-2"	26'-5"	24'-5"	23'-3"	23'-4"		
	NI-90	24'-5"	22'-6"	21'-5"	21'-6"	26'-11"	24'-10"	23'-9"	23'-9"		
	NI-90x	24'-8"	22'-9"	21'-9"	21'-10"	27'-3"	25'-2"	24'-0"	24'-1"		

Tight Joint

Load bearing wall above shall align vertically

with the bearing below. Other conditions,

such as offset bearing walls, are no

covered by this detail

Blocking required

supports unde

load-bearing walls or whe

floor joists are

not continuou

NI blocking pane

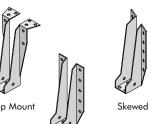
Do not bevel-cut

face of wall -

joist beyond inside

I-JOIST HANGERS

- 1. Hangers shown illustrate the three most commonly used metal hangers to support I-joists.
- 2. All nailing must meet the hanger
- 3. Hangers should be selected based on the joist depth, flange width and load capacity based on the maximum spans.
- 4. Web stiffeners are required when the sides of the hangers do not laterally brace the top flange of the I-joist.



Face Mount

STORAGE AND HANDLING GUIDELINES

- 1. Bundle wrap can be slippery when wet. Avoid walking on wrapped
- 2. Store, stack, and handle I-joists vertically and level only. 3. Always stack and handle I-joists in the upright position only.
- 4. Do not store I-joists in direct contact with the ground and/or flatwise.
- 5. Protect I-joists from weather, and use spacers to separate bundles. —
- 6. Bundled units should be kept intact until time of installation
- 7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joists and injury
- Pick I-joists in bundles as shipped by the supplier.

to your work crew.

FSC www.fsc.org

Attach rim board to top

One 2-1/2"

used in the design of a bending member, such as joist, header, or

rafter. For concentrated vertical load transfer, see detail 1d.

- Orient the bundles so that the webs of the I-joists are vertical.
- Pick the bundles at the 5th points, using a spreader bar if necessary.
- 8. Do not handle I-joists in a horizontal orientation
- 9. NEVER USE OR TRY TO REPAIR A DAMAGED I-JOIST.

WEB STIFFENERS RECOMMENDATIONS:

- A **bearing stiffener** is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found of the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at the top.
- 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.
- 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.

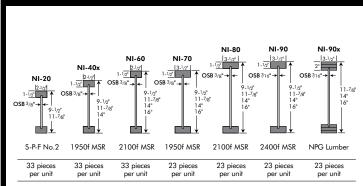
SI units conversion: 1 inch = 25.4 mm

WEB STIFFENER INSTALLATION DETAILS CONCENTRATED LOAD (Load stiffener) Tight Joint -1/8"-1/4" Gap Approx. 2" - (4) 2-1/2" nails, B" nails required Gap for I-joists with 3-1/2" flange width END BEARING (Bearing stiffener) See table below for web stiffener size requirements - Gap STIFFENER SIZE REQUIREMENTS Flange Width Web Stiffener Size Each Side of Web

1" x 2-5/16" minimum width

1-1/2" x 2-5/16" minimum width

NORDIC I-JOIST SERIES



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.

INSTALLING NORDIC I-JOISTS

- 1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contact your
- 2. Except for cutting to length, I-joist flanges should **never** be cut, drilled, or notched.
- 3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
- 4. I-joists must be anchored securely to supports before floor sheathing is attached, and supports for multiple-span joists must
- 5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
- 6. When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement.
- 7. Leave a 1/16-inch gap between the I-joist end and a header.

NI blocking

panel _

(1a)

Attach I-ioist to

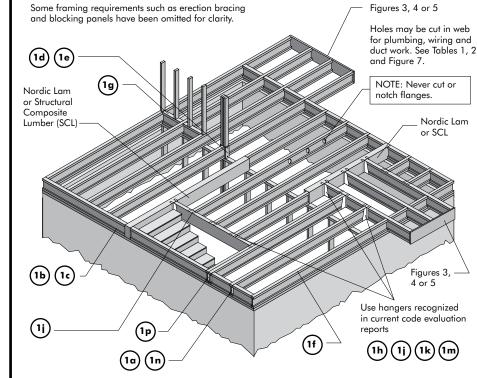
top plate per detail 1b

NI Joists

load transfer, see detail 1d.

- 8. Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include track lighting fixtures, audio equipment and security cameras. Never suspend unusual or heavy loads from the I-joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the I-joist. Or, attach the load to blocking that has been securely fastened to the
- 9. Never install I-joists where they will be permanently exposed to weather, or where they will remain in direct contact with
- 10. Restrain ends of floor joists to prevent rollover. Use rim board, rim joists or I-joist blocking panels.
- 11. For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (cripple nembers) to transfer gravity loads through the floor system to the wall or foundation below.
- 12. Due to shrinkage, common framing lumber set on edge may never be used as blocking or rim boards. I-joist blocking panels or other engineered wood products – such as rim board – must be cut to fit between the I-joists, and an I-joist-compatible depth selected.
- 13. Provide permanent lateral support of the bottom flange of all L-joists at interior supports of multiple-span joists. Similsupport the bottom flange of all cantilevered I-joists at the end support next to the cantilever extension. In the completed structure, the gypsum wallboard ceiling provides this lateral support. Until the final finished ceiling is applied, temporary
- 14. If square-edge panels are used, edges must be supported between I-joists with 2x4 blocking. Glue panels to blocking to minimize squeaks. Blocking is not required under structural finish flooring, such as wood strip flooring, or if a separate
- 15. Nail spacing: Space nails installed to the flange's top face in accordance with the applicable building code requirements or approved building plans.

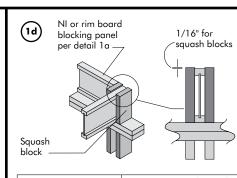
TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS

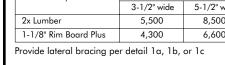


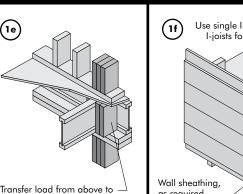
All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3' (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.

Attach rim joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimun penetration into floor joist Toe-nailing may be used NI rim ioist rim joist to Attach I-ioist per top plate per detail 1 Minimum 1-3/4"

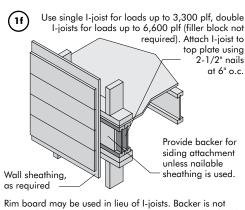
bearing required







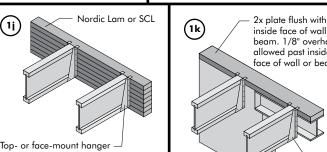
pearing below. Install squash blocks per detail 1d. Match bearing area of blocks belov to post above



required when rim board is used. Bracing per code shall be

2-1/2"

3-1/2"

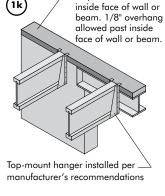


carried to the foundation.

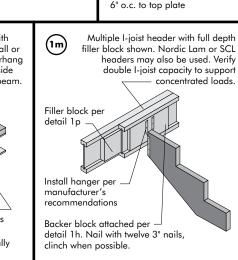
installed per manufacturer's For nailing schedules for multiple beams, see the manufacturer's

Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

recommendations.



Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

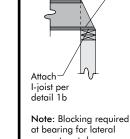


attachment

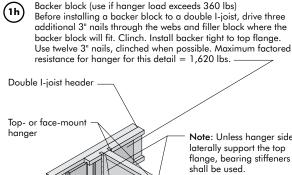
per detail 1b

2-1/2" nails at —

Maximum support capacity = 1,620 lbs.



support, not shown



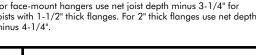
Note: Unless hanger sides flange, bearing stiffeners per detail 1p Backer block required both sides for face-moun

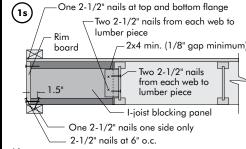
For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads

BACKER BLOCKS (Blocks must be long enough to permit required nailing without splitting)

lange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

- Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming
- to CAN/CSA-O325 or CAN/CSA-O437 Standard. * For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth
- minus 4-1/4".



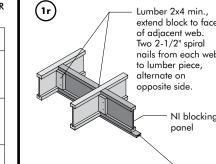


- In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirement for spacing of the blocking. All nails are common spiral in this detail.

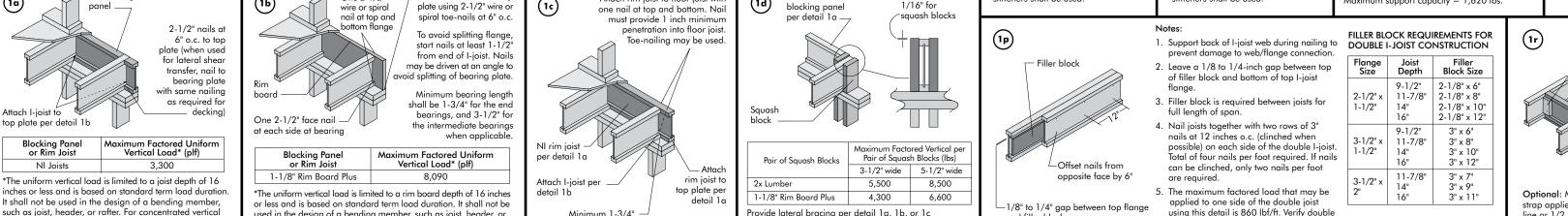
Offset nails from opposite face by 6" -1/8" to 1/4" gap between top flange and filler block

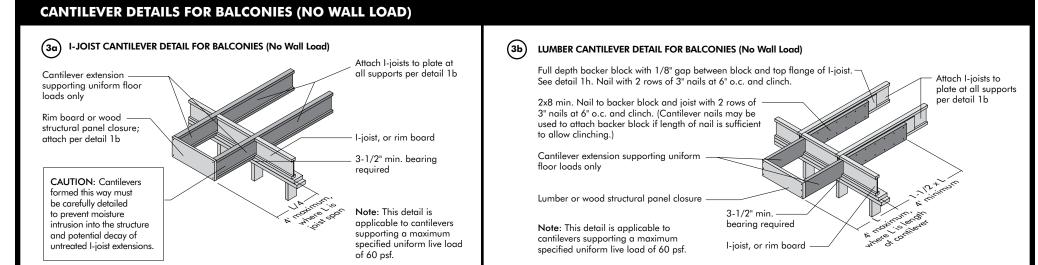
applied to one side of the double joist using this detail is 860 lbf/ft. Verify double I-joist capacity.

11-7/8" 3" x 7" 3-1/2" x 14" 3" x 9" 3" x 11" 16"



Optional: Minimum 1x4 inch strap applied to underside of joist at blocking ne or 1/2 inch minimum gypsum ceiling attached to underside of joists

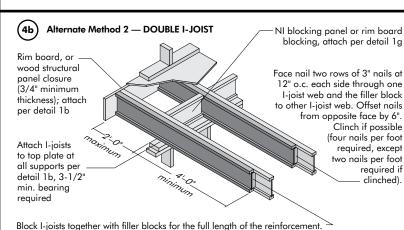




CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD) $\begin{picture}(4a) \put(0,0){a} \put(0,0){$$ Rim board or wood structural NI blocking pane panel closure (3/4" minimum or rim board blocking, thickness); attach per detail 1b attach per detail 1g Attach I-joist to plate 2-1/2" 3-1/2" min. bearing required Method 2 — SHEATHING REINFORCEMENT TWO SIDES Use same installation as Method 1 but reinforce both sides of I-joist with sheathing. Use nailing pattern shown for Method 1 with opposite face

Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail 1b. Verify reinforced I-joist capacity.

nailing offset by 3".



Block I-joists together with filler blocks for the full length of the reinforcemen For I-joist flange widths greater than 3 inches place an additional row of 3" nails along the centreline of the reinforcing panel from each side. Clinch when possible.

For hip roofs with the jack Jack trusses trusses running parallel to the cantilevered floor joists, _ Roof truss _ elow for NI Roof truss -2'-0" the I-joist reinforcement truss span span requirements tor a span or 26 ft. shall be permitted to irements for a span of equirements o be used. cantileve

JOIST DEPTH (in.)	ROOF					ROOF L	OADING	(UNFAC	TORED)					
	TRUSS	LL :	= 30 psf,	DL = 15	psf	LL :	= 40 psf,	DL = 15	psf	LL = 50 psf, DL = 15 psf				
	SPAN	J	OIST SPA	CING (in	.)	J	OIST SPA	CING (in.	.)	J	OIST SPA	CING (in.)	
	(ft)	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24	
	26	N	N	1	2	N	1	2	Х	N	2	X	Х	
	28	Ν	Ν	1	Χ	N	1	2	Χ	Ν	2	Χ	Χ	
9-1/2"	30	Ν	1	1	Χ	N	1	2	Χ	1	2	Χ	Χ	
7-1/2	32	Ν	1	2	Χ	N	2	X	Χ	1	Χ	X	Χ	
	34	Ν	1	2	Χ	N	2	X	Χ	1	Χ	X	Χ	
	36	N	11	2	X	1	2	X	Χ	1	X	X	Χ	
	26	Ν	Ν	Ν	1	N	Ν	1	2	Ν	Ν	1	2	
11-7/8"	28	Ν	Ν	Ν	1	N	Ν	1	2	Ν	1	1	Χ	
	30	Ν	Ν	Ν	1	N	Ν	1	2	Ν	1	2	Χ	
	32	Ν	Ν	1	1	N	Ν	1	2	Ν	1	2	Χ	
	34	Ν	Ν	1	2	N	1	1	Χ	Ν	1	2	Χ	
	36	Ν	Ν	1	2	N	1	2	Χ	Ν	1	2	Χ	
	38	Ν	N	1	2	N	1	2	Χ	Ζ	2	Χ	Χ	
	26	Ν	Ν	Ν	Ν	N	Ν	Ν	1	Ν	Ν	Ν	1	
	28	Ν	Ν	Ν	Ν	N	Ν	Ν	1	Ν	Ν	1	1	
	30	Ν	Ν	Ν	Ν	N	Ν	Ν	1	Ν	Ν	1	2	
14"	32	Ν	Ν	Ν	1	N	Ν	Ν	1	Ν	Ν	1	2	
14	34	Ν	Ν	Ν	1	N	Ν	1	1	Ν	Ν	1	2	
	36	Ν	Ν	Ν	1	N	Ν	1	2	Ν	1	1	2	
	38	Ν	Ν	Ν	1	N	Ν	1	2	Ν	1	1	Χ	
	40	Ν	Ν	Ν	1	N	Ν	1	2	Ν	1	2	Χ	
	26	Ν	N	N	N	N	N	N	Ν	Ν	N	N	1	
	28	Ν	Ν	Ν	Ν	N	Ν	Ν	1	Ν	Ν	Ν	1	
	30	Ν	Ν	Ν	Ν	N	Ν	Ν	1	Ν	Ν	Ν	1	
	32	Ν	Ν	Ν	Ν	N	Ν	Ν	1	Ν	Ν	1	1	
16"	34	Ν	Ν	Ν	Ν	N	Ν	Ν	1	Ν	Ν	1	2	
	36	Ν	Ν	Ν	1	N	Ν	Ν	1	Ν	Ν	1	2	
	38	Ν	Ν	Ν	1	N	Ν	Ν	1	Ν	Ν	1	2	
	40	Ν	Ν	Ν	1	N	Ν	1	2	Ν	Ν	1	2 X	
	42	Ν	Ν	Ν	1	N	Ν	1	2	Ν	1	1	X	

1 = NI reinforced with 3/4" wood structure panel on one side only. 2 = NI reinforced with 3/4" wood structural

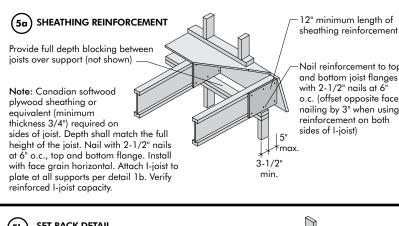
IGURE 5 (continued)

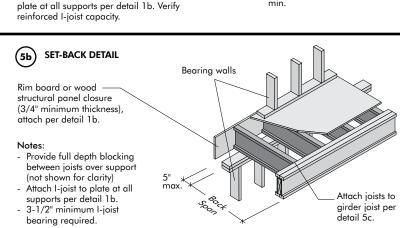
- panel on both sides, or double I-joist. X = Try a deeper joist or closer spacing. mum design load shall be: 15 psf roo plf wall load. Wall load is based on 3'-0"
- tional joists beneath the opening's cripple studs may be required. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a desig live load of 40 psf and dead load of 15 psf and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
- ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
 - 5. Cantilevered joists supporting girder trusses or roof beams may require additional

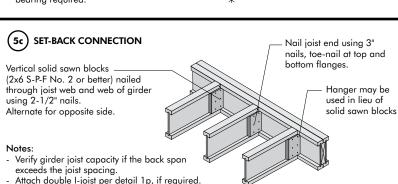
___ 13'-0" maximum

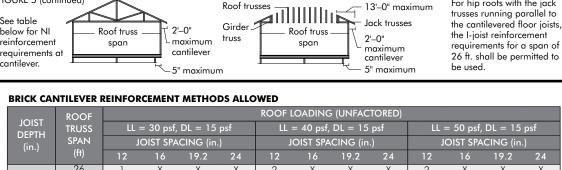
For hip roofs with the jack

BRICK CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)









10107	ROOF					ROOF L	OADING	(UNFAC	TORED)					
JOIST DEPTH	TRUSS	LL :	= 30 psf,	DL = 15	psf	LL :	= 40 psf,	DL = 15	psf	LL = 50 psf, DL = 15 psf				
(in.)	SPAN	JOIST SPACING (in.)			J	OIST SPA	CING (in.)	JOIST SPACING (in.)					
()	(ft)	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24	
	26	1	Х	X	X	2	Х	Х	Χ	2	X	Х	Χ	
	28	1	X	X	X	2	X	X	X	X	X	X	X	
9-1/2"	30 32		X	X	X	2	X	X	X	X	X	X	X	
	34	2 2	X	X X	X X	2 X	X	X X	X	X	X	X X	X	
	36	2	x	x	X	x	x	X	X	X	x	x	x	
	26	N	2	X	X	1	X	X	X	1	X	X	X	
	28	l n	2	X	X	l i	X	X	X	2	X	X	X	
	30	1	2	X	X	ĺ	X	X	Χ	2	X	X	X	
11-7/8"	32	1	2	Χ	Χ	1	Χ	Χ	Χ	2	Χ	Χ	Χ	
	34	1	Χ	Χ	Χ	2	Χ	Χ	Χ	2	Χ	Χ	Χ	
	36	1	Χ	Χ	Χ	2	Χ	Χ	Χ	X	Χ	Χ	Χ	
	38	11	X	X	X	2	X	X	X	X	X	X	X	
	26 28	N	- 1	2	X	N	2	X	X	1	X	X	X	
	30	N N	1	X	X X		2	X	X	1	X	X	X	
	32	l N	2	X	X		X	X X	X	2	X	X X	X	
14"	34	N	2	X	X		X	X	X	2	X	X	x	
	36	1 1	2	X	x	i	X	X	X	2	X	X	x	
	38	Ιί	2	X	X	i	X	X	X	2	X	X	X	
	40	i	X	X	X	2	X	X	Χ	2	X	X	X	
	26	N	1	2	X	N	1	X	Χ	N	2	Χ	X	
	28	N	1	2	Χ	N	2	Χ	Χ	1	2	Χ	Χ	
	30	N	1	2	Χ	N	2	Χ	Χ	1	Χ	Χ	Χ	
	32	N	1	2	X	N	2	X	X]	X	X	X	
16"	34	N	2	X	X		2	X	X		X	X	X	
	36	N	2	X	X		X	X	X		X	X	X	
	38 40	N N	2 2	X	X		X	X X	X	2	X	X X	X	
	40	l i	2	x	x	li	x	X	x	2 2	x	X	x	

1 = NI reinforced with 3/4" wood structural

panel on one side only.

2 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.

X = Try a deeper joist or closer spacing. mum design load shall be: 15 psf root dead load, 55 psf floor total load, and 80 plf

wall load. Wall load is based on 3'-0"

studs may be required. Table applies to joists 12" to 24" o.c. that meet the floor 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. Use 12" o.c. requirements for lesser spacing

For larger openings, or multiple 3'-0" width

4. For conventional roof construction using a openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the

distance between the supporting walls as if a truss is used. 5. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- 2. I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- 4. 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. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.

3. Whenever possible, field-cut holes should be centred on the middle of the web.

- 5. The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location
- Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- A knockout is **not** considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes
- 8. Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to
- 9. A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it
- meets the requirements of rule number 6 above 10. All holes and duct chase openings shall be cut in a workman-like manner in
- accordance with the restrictions listed above and as illustrated in Figure 7. 11. Limit three maximum size holes per span, of which one may be a duct chase
- 12. A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

LOCATION OF CIRCULAR HOLES IN JOIST WEBS Simple or Multiple Span for Dead Loads up to 15 psf and Live Loads up to 40 psf

Joist	Joist	Minimum distance trom inside tace ot any support to centre ot hole (tt-in.) Round hole diameter (in.)													Span		
Depth	Series						Rou	nd ho	le dia	meter (in.)						adjustme
Берііі	361163	2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4	Factor
	NI-20	0'-7"	1'-6"	2'-10"	4'-3"	5'-8"	6'-0"										13'-6"
	NI-40x	0'-7"	1'-6"	3'-0"	4'-4"	6'-0"	6'-4"										14'-9"
9-1/2"	NI-60	1'-3"	2'-6"	4'-0"	5'-4"	7'-0"	7'-5"										14'-11
	NI-70	2'-0"	3'-4"	4'-9"	6'-3"	8'-0"	8'-4"										15'-7"
	NI-80	2'-3"	3'-6"	5'-0"	6'-6"	8'-2"	8'-8"										15'-9"
	NI-20	0'-7"	0'-8"	1'-0"	2'-4"	3'-8"	4'-0"	5'-0"	6'-6"	7'-9"							15'-6"
	NI-40x	0'-7"	0'-8"	1'-3"	2'-8"	4'-0"	4'-4"	5'-5"	7'-0"	8'-4"							16'-6"
	NI-60	0'-7"	1'-8"	3'-0"	4'-3"	5'-9"	6'-0"	7'-3"	8'-10"	10'-0"							16'-9"
11-7/8"	NI-70	1'-3"	2'-6"	4'-0"	5'-4"	6'-9"	7'-2"	8'-4"	10'-0"	11'-2"							17'-5"
	NI-80	1'-6"	2'-10"	4'-2"	5'-6"	7'-0"	7'-5"	8'-6"	10'-3"	11'-4"							17'-7"
	NI-90	0'-7"	0'-8"	1'-5"	3'-2"	4'-10"	5'-4"	6'-9"	8'-9"	10'-2"							17'-11
	NI-90x	0'-7"	0'-8"	0'-9"	2'-5"	4'-4"	4'-9"	6'-3"									18'-0"
	NI-40x	0'-7"	0'-8"	0'-8"	1'-0"	2'-4"	2'-9"	3'-9"	5'-2"	6'-0"	6'-6"	8'-3"	10'-2"				17'-11
	NI-60	0'-7"	0'-8"	1'-8"	3'-0"	4'-3"	4'-8"	5'-8"	7'-2"	8'-0"	8'-8"	10'-4"	11'-9"				18'-2"
14"	NI-70	0'-8"	1'-10"	3'-0"	4'-5"	5'-10"	6'-2"	7'-3"	8'-9"	9'-9"	10'-4"	12'-0"	13'-5"				19'-2"
17	NI-80	0'-10"	2'-0"	3'-4"	4'-9"	6'-2"	6'-5"	7'-6"	9'-0"	10'-0"	10'-8"	12'-4"	13'-9"				19'-5"
	NI-90	0'-7"	0'-8"	0'-10"	2'-5"	4'-0"	4'-5"	5'-9"	7'-5"	8'-8"	9'-4"	11'-4"	12'-11"				19'-9"
	NI-90x	0'-7"	0'-8"	0'-8"	2'-0"	3'-9"	4'-2"	5'-5"	7'-3"	8'-5"	9'-2"						20'-0"
	NI-60	0'-7"	0'-8"	0'-8"	1'-6"	2'-10"	3'-2"	4'-2"	5'-6"	6'-4"	7'-0"	8'-5"	9'-8"	10'-2"	12'-2"	13'-9"	19'-10
	NI-70	0'-7"	1'-0"	2'-3"	3'-6"	4'-10"	5'-3"	6'-3"	7'-8"	8'-6"	9'-2"	10'-8"	12'-0"	12'-4"	14'-0"	15'-6"	20'-10
16"	NI-80	0'-7"	1'-3"	2-6"	3'-10"	5'-3"	5'-6"	6'-6"	8'-0"	9'-0"	9'-5"	11'-0"	12'-3"	12'-9"	14'-5"	16'-0"	21'-2"
	NI-90	0'-7"	0'-8"	0'-8"	1'-9"	3'-3"	3'-8"	4'-9"	6'-5"	7'-5"	8'-0"	9'-10"	11'-3"	11'-9"	13'-9"	15'-4"	21'-6"
	NI-90x	0'-7"	0'-8"	0'-9"	2'-0"	3'-6"	4'-0"	5'-0"	6'-9"	7'-9"	8'-4"	10'-2"	11'-6"	12'-0"			21'-10

- Above table may be used for I-joist spacing of 24 inches on centre or less.
 Hole location distance is measured from inside face of supports to centre of hole.
 Distances in this chart are based on uniformly loaded joists.

The above table is based on the I-joists used at their maximum span. If the I-joists are placed at less than their full maximum span (see Maximum Floor Spans), the minimum distance from the centreline of the hole to the face of any support (D) as given above may be reduced as follows:

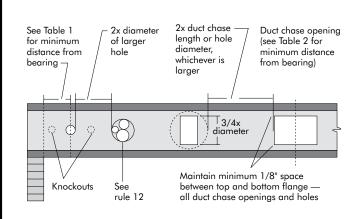
 $D_{reduced} = \frac{L_{actual}}{c_{AE}} \times D$

Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span applications (ft). The reduced distance shall not be less than 6 inches from the face of the support to edge of the hole.

= The actual measured span distance between the inside faces of supports (ft).

 Span Adjustment Factor given in this table. = The minimum distance from the inside face of any support to centre of hole from this table.

If Lactual is greater than 1, use 1 in the above calculation for Lactual.



FIELD-CUT HOLE LOCATOR

A knockout is **NOT** considered a hole, may be utilized wherever it occurs and may be ignored for purposes of calculating minimum distances

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 he corners, as this can cause unnecessary stress concentrations. Slightly rounding the rectangular hole by drilling a 1-inch diameter hole in each of the four corner and then making the cuts between minimize damage to the 1-joist.

DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only

	1.2.4	Minimu	m distan	ce from in	iside fac	e ot any s	upport to	o centre c	of openin	g (ff-in.)
Joist Depth	Joist Series				Duct ch	nase leng	th (in.)			
Берііі	301103	8	10	12	14	16	18	20	22	24
9-1/2"	NI-20 NI-40x NI-60 NI-70 NI-80	4'-1" 5'-3" 5'-4" 5'-1" 5'-3"	4'-5" 5'-8" 5'-9" 5'-5" 5'-8"	4'-10" 6'-0" 6'-2" 5'-10" 6'-0"	5'-4" 6'-5" 6'-7" 6'-3" 6'-5"	5'-8" 6'-10" 7'-1" 6'-7" 6'-10"	6'-1" 7'-3" 7'-5" 7'-1" 7'-3"	6'-6" 7'-8" 8'-0" 7'-6" 7'-8"	7'-1" 8'-2" 8'-3" 8'-1" 8'-2"	7'-5" 8'-6" 8'-9" 8'-4" 8'-6"
11-7/8"	NI-20 NI-40x NI-60 NI-70 NI-80 NI-90 NI-90x	5'-9" 6'-8" 7'-3" 7'-1" 7'-2" 7'-6" 7'-7"	6'-2" 7'-2" 7'-8" 7'-4" 7'-7" 7'-11" 8'-1"	6'-6" 7'-6" 8'-0" 7'-9" 8'-0" 8'-4" 8'-5"	7'-1" 8'-1" 8'-6" 8'-3" 8'-5" 8'-9" 8'-10"	7'-5" 8'-6" 9'-0" 8'-7" 8'-10" 9'-2"	7'-9" 9'-1" 9'-3" 9'-1" 9'-3" 9'-7" 9'-8"	8'-3" 9'-6" 9'-9" 9'-6" 9'-8" 10'-1" 10'-2"	8'-9" 10'-1" 10'-3" 10'-1" 10'-2" 10'-7" 10'-8"	9'-4" 10'-9" 11'-0" 10'-4" 10'-8" 10'-11
14"	NI-40x NI-60 NI-70 NI-80 NI-90 NI-90x	8'-1" 8'-9" 8'-7" 9'-0" 9'-2" 9'-4"	8'-7" 9'-3" 9'-1" 9'-3" 9'-8"	9'-0" 9'-8" 9'-5" 9'-9" 10'-0" 10'-3"	9'-6" 10'-1" 9'-10" 10'-1" 10'-6" 10'-7"	10'-1" 10'-6" 10'-4" 10'-7" 10'-11"	10'-7" 11'-1" 10'-8" 11'-1" 11'-5" 11'-7"	11'-2" 11'-6" 11'-2" 11'-6" 11'-9" 12'-1"	12'-0" 13'-3" 11'-7" 12'-1" 12'-4" 12'-7"	12'-8" 13'-0" 12'-3" 12'-6" 12'-11 13'-2"
16"	NI-60 NI-70 NI-80 NI-90 NI-90x	10'-3" 10'-1" 10'-4" 10'-9" 11'-1"	10'-8" 10'-5" 10'-9" 11'-2" 11'-5"	11'-2" 11'-0" 11'-3" 11'-8" 11'-10"	11'-6" 11'-4" 11'-9" 12'-0" 12'-4"	12'-1" 11'-10" 12'-1" 12'-6" 12'-10"	12'-6" 12'-3" 12'-7" 13'-0" 13'-2"	13'-2" 12'-8" 13'-1" 13'-6" 13'-9"	14'-1" 13'-3" 13'-8" 14'-2" 14'-4"	14'-10 14'-0" 14'-4" 14'-10 15'-2"

Above table may be used for I-joist spacing of 24 inches on centre or less.
 Duct chase opening location distance is measured from inside face of supports to centre of opening

3. The above table is based on simple-span joists only. For other applications, contact your local distributor.

4. 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.

INSTALLING THE GLUED FLOOR SYSTEM

- 1. Wipe any mud, dirt, water, or ice from I-joist flanges before gluing.
- 2. Snap a chalk line across the I-joists four feet in from the wall for panel edge alignment and as a ooundary for spreading glue.
- 3. Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from 4. Lay the first panel with tonaue side to the wall, and nail in place. This protects the tonaue of the next
- panel from damage when tapped into place with a block and sledgehamn
- 5. Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joist. Apply glue in a winding pattern on wide areas, such as with double I-joists. 6. Apply two lines of glue on I-joists where panel ends butt to assure proper gluing of each end.
- 7. After the first row of panels is in place, spread glue in the groove of one or two panels at a time
- 8. Tap the second row of panels into place, using a block to protect groove edges. 9. Stagger end joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&G edges, is recommended. (Use a spacer tool or an 2-1/2" common nail to assure accurate and consistent spacing.)

before laying the next row. Glue line may be continuous or spaced, but avoid squeeze-out by applying

10. Complete all nailing of each panel before glue sets. Check the manufacturer's recommendations for cure time. (Warm weather accelerates glue setting.) Use 2" ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the

FASTENERS FOR SHEATHING AND SUBFLOORING(1)

a thinner line (1/8 inch) than used on I-joist flanges.

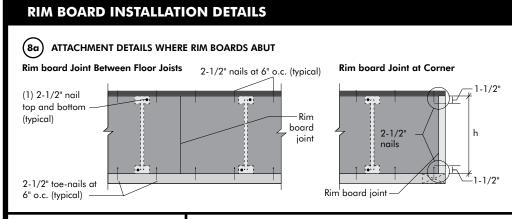
Maximum	Minimum	No	ail Size and Ty	Maximum Spacing			
Joist	Panel	Common	Ring Thread		of Fas	teners	
Spacing (in.)	Thickness (in.)	Wire or Spiral Nails	Nails or Screws	Staples	Edges	Interm. Supports	
16	5/8	2"	1-3/4"	2"	6"	12"	
20	5/8	2"	1-3/4"	2"	6"	12"	
24	3/4	2"	1-3/4"	2"	6"	12"	

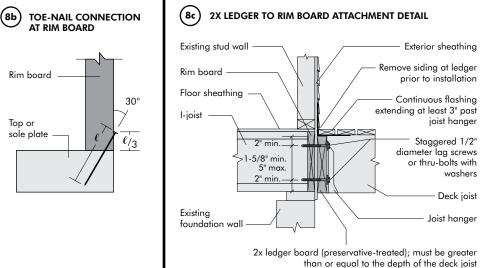
- 1. Fasteners of sheathing and subflooring shall conform to the above table
- 2. Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to framing.
- 3. Flooring screws shall not be less than 1/8-inch in diameter.
- 4. Special conditions may impose heavy traffic and concentrated loads that require construction in excess
- 5. Use only adhesives conforming to CAN/CGSB-71.26 Standard, Adhesives for Field-Gluing Plywood to umber Framing for Floor System, applied in accordance with the manufacturer's recom OSB panels with sealed surfaces and edges are to be used, use only solvent-based glues; check with panel manufacturer.

Ref.: NRC-CNRC, National Building Code of Canada 2010, Table 9.23.3.5.

IMPORTANT NOTE:

Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with vour local distributor.









Remove siding at ledger

extending at least 3" past

Continuous flashing

diameter lag screws

or thru-bolts with washers

joist hanger

Deck joist