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Issue Date: 02/05/21

LAMPONE INVESTMENT INC

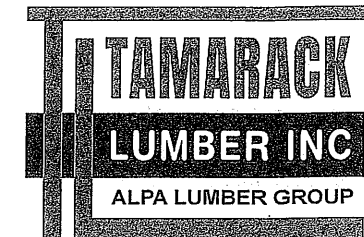
ALL CONSTRUCTION SHALL COMPLY WITH THE
ONTARIO BUILDING CODE.

CITY OF MARKHAM

FLOOR JOISTS SHOP DRAWINGS

MODEL NAME : KIMBERLY 4

ELEV 1, 2 & 3



FROM PLAN DATED: *JULY 2, 2020*

BUILDER: GREENPARK HOMES

SITE: LAMPONE INVESTMENTS

MODEL: KIMBERLY 4

ELEVATION: 1,2,3

LOT:

CITY: MARKHAM

SALESMAN: MARIO DI CIANO

DESIGNER: L.D.

REVISION: L.D

NOTES:

REFER TO THE **NORDIC INSTALLATION** GUIDE FOR PROPER STORAGE AND INSTALLATION.

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK** RE I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7, TABLES 1 & 2. **CERAMIC TIL** APPLICATION AS PER O.B.C 9.30.6.

LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

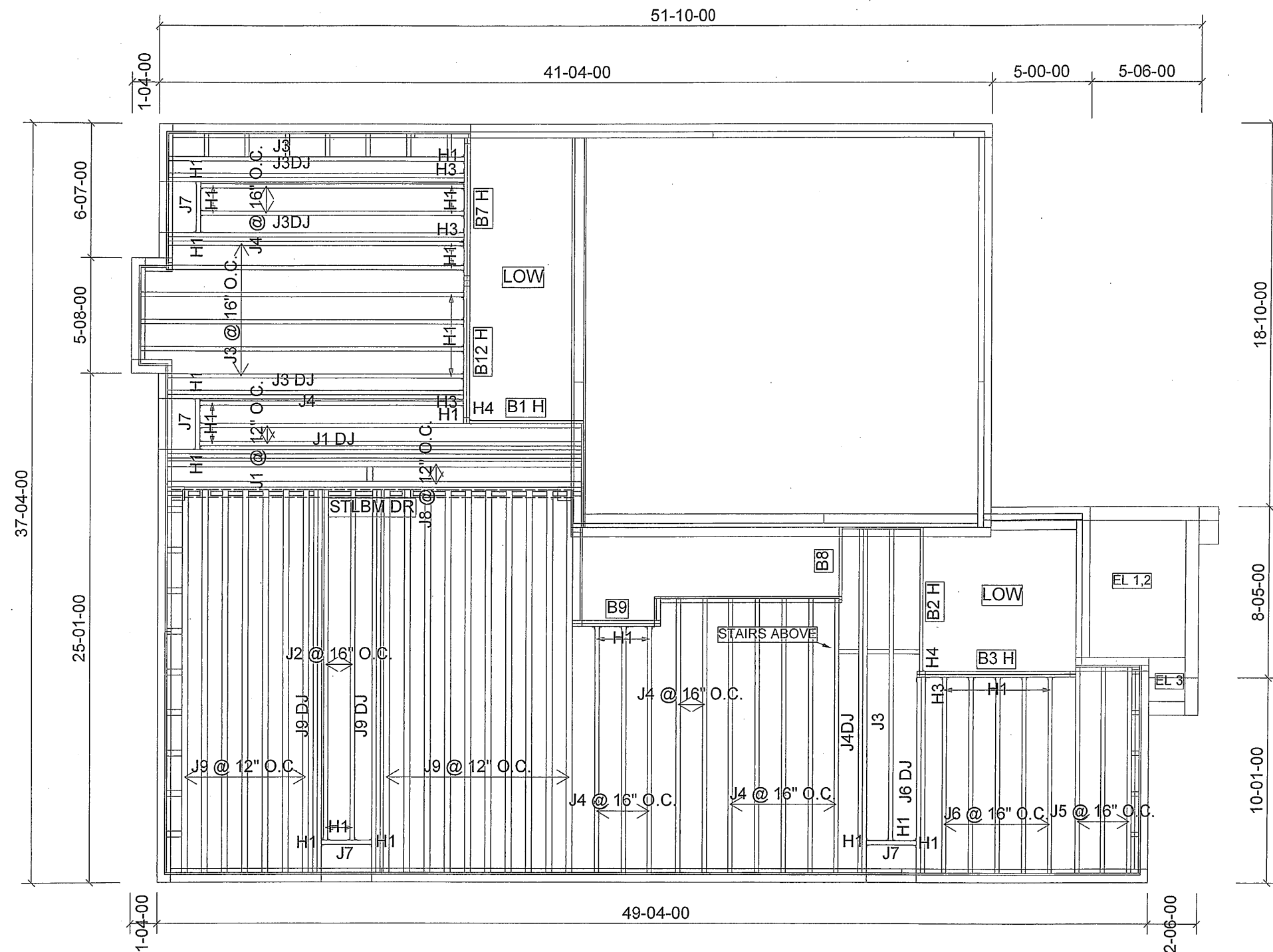
DEAD LOAD: 15.0 lb/ft²

TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2020-07-23

1st FLOOR

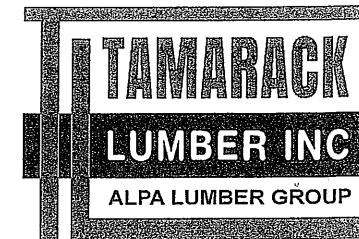


Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1 DJ	22-00-00	11 7/8" NI-40x	2	2	MFD
J1	20-00-00	11 7/8" NI-40x	1	2	MFD
J9 DJ	20-00-00	11 7/8" NI-40x	2	4	MFD
J2	18-00-00	11 7/8" NI-40x	1	2	MFD
J4DJ	18-00-00	11 7/8" NI-40x	2	2	MFD
J3	16-00-00	11 7/8" NI-40x	1	8	MFD
J3 DJ	16-00-00	11 7/8" NI-40x	2	2	MFD
J3DJ	16-00-00	11 7/8" NI-40x	2	4	MFD
J4	14-00-00	11 7/8" NI-40x	1	13	MFD
J5	12-00-00	11 7/8" NI-40x	1	3	MFD

Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J6	10-00-00	11 7/8" NI-40x	1	5	MFD
J6 DJ	10-00-00	11 7/8" NI-40x	2	2	MFD
J7	4-00-00	11 7/8" NI-40x	1	4	MFD
J8	22-00-00	11 7/8" NI-80	1	2	MFD
J9	20-00-00	11 7/8" NI-80	1	17	MFD
B2 H	8-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	1	1	MFD
B12 H	8-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	2	2	MFD
B3 H	8-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	2	2	MFD
B7 H	8-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	2	2	MFD
B1 H	6-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	1	1	MFD

Connector Summary		
Qty	Manuf	Product
18	H1	IUS2.56/11.88
8	H1	IUS2.56/11.88
8	H1	IUS2.56/11.88
4	H3	HU312-2
2	H4	HUS1.81/10

Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
B9	6-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	2	2	MFD
B8	4-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	1	1	MFD



FROM PLAN DATED: JULY 2, 2020

BUILDER: GREENPARK HOMES

SITE: LAMPONE INVESTMENTS

MODEL: KIMBERLY 4

ELEVATION: 1,2

LOT:

CITY: MARKHAM

SALESMAN: MARIO DI CIANO

DESIGNER: L.D.

REVISION: L.D.

NOTES:

REFER TO THE NORDIC **INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION. **SQUASH BLOCKS** OF 2x4, 2x6, 2x8 #2 S.P.F. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK** REQ. I-JOIST BLOCKING ALO BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURE 7 TABLES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIEL CUT OPENINGS** SEE FIGURE 7 TABLES 1 & 8 OF THE INSTALLATION GUIDE. **CERAMIC T** APPLICATION AS PER O.B.C. 9.30.6

LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

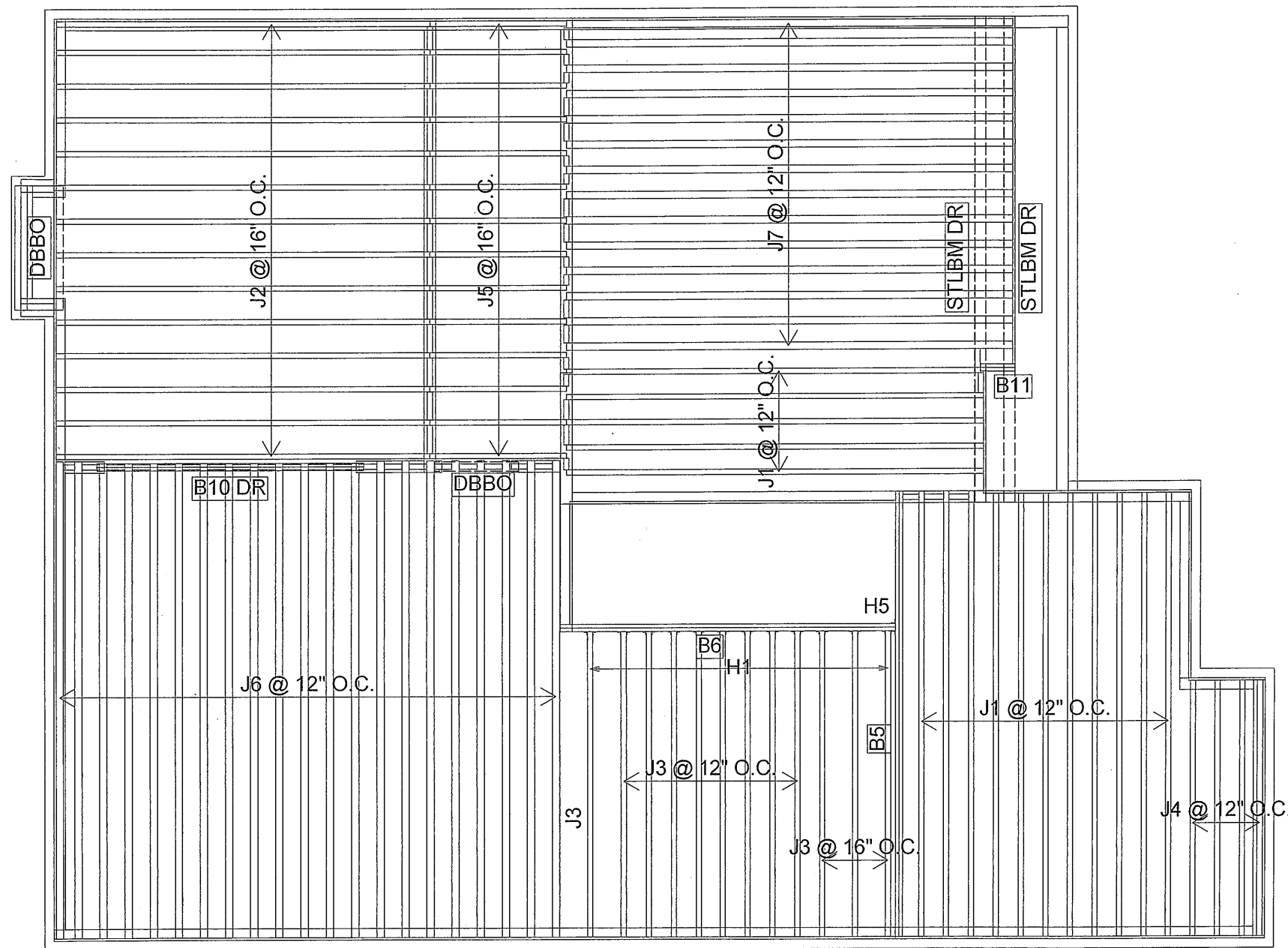
DEAD LOAD: 15.0 lb/ft²

TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2020-07-23

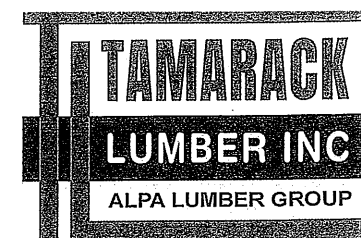
2nd FLOOR



Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1	18-00-00	11 7/8" NI-40x	1	16	MFD
J2	16-00-00	11 7/8" NI-40x	1	14	MFD
J3	14-00-00	11 7/8" NI-40x	1	12	MFD
J4	12-00-00	11 7/8" NI-40x	1	4	MFD
J5	6-00-00	11 7/8" NI-40x	1	14	MFD
J6	20-00-00	11 7/8" NI-80	1	21	MFD
J7	18-00-00	11 7/8" NI-80	1	14	MFD
B5	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B6	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B10 DR	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD

Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
B11	2-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD

Connector Summary		
Qty	Manuf	Product
12	H1	IUS2.56/11.88
1	H5	HGUS410



FROM PLAN DATED: JULY 2, 2021

BUILDER: GREENPARK HOMES

SITE: LAMPONE INVESTMENTS

MODEL: KIMBERLY 4

ELEVATION: 3

LOT:

CITY: MARKHAM

SALESMAN: MARIO DI CIANO

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NOTES:

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LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

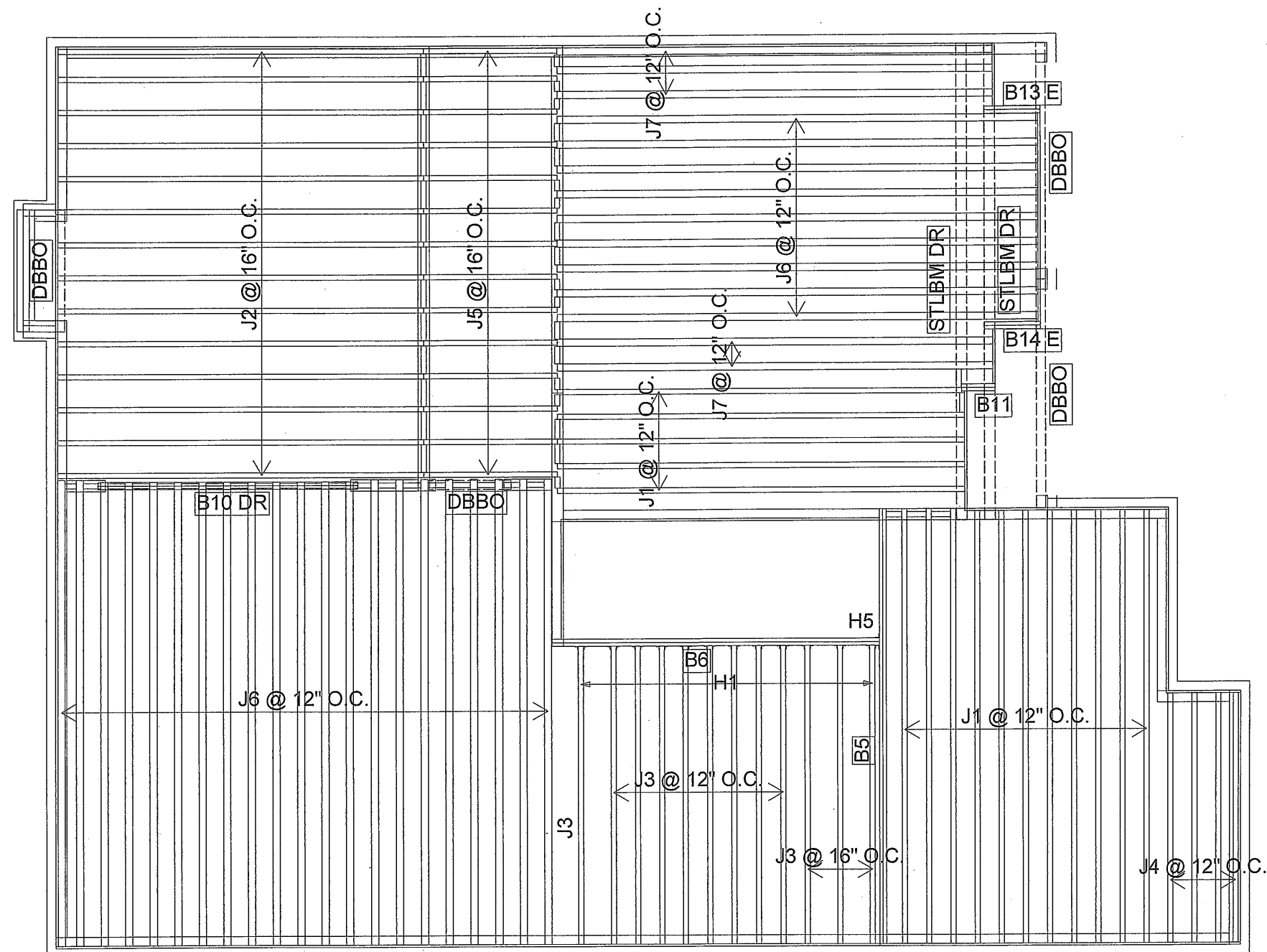
DEAD LOAD: 15.0 lb/ft²

TILE LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2020-07-23

2nd FLOOR



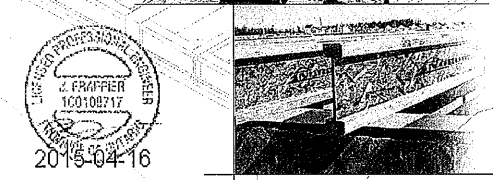
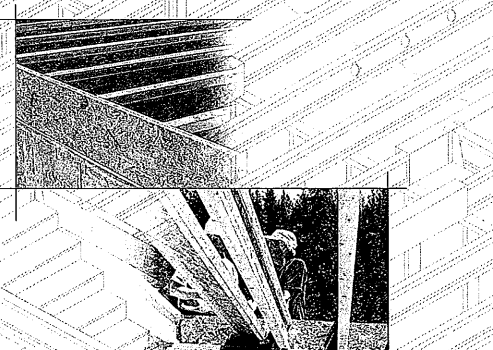
Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1	18-00-00	11 7/8" NI-40x	1	16	MFD
J2	16-00-00	11 7/8" NI-40x	1	14	MFD
J3	14-00-00	11 7/8" NI-40x	1	12	MFD
J4	12-00-00	11 7/8" NI-40x	1	4	MFD
J5	6-00-00	11 7/8" NI-40x	1	14	MFD
J6	20-00-00	11 7/8" NI-80	1	30	MFD
J7	18-00-00	11 7/8" NI-80	1	5	MFD
B5	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B6	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B10 DR	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD

Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
B13 E	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B14 E	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B11	2-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD

Connector Summary		
Qty	Manuf	Product
12	H1	IUS2.56/11.88
1	H5	HGUS410

INSTALLATION GUIDE

FOR RESIDENTIAL FLOORS



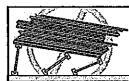
Distributed by:



SAFETY AND CONSTRUCTION PRECAUTIONS



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

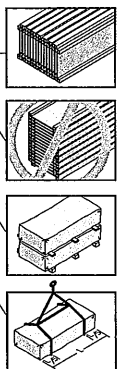


Never stack building materials over unshathed I-joists. Once shathed, do not over-stress I-joist with concentrated loads from building materials.

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.

STORAGE AND HANDLING GUIDELINES

- Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
- Store, stack, and handle I-joists vertically and level only.
- Always stack and handle I-joists in the upright position only.
- Do not store I-joists in direct contact with the ground and/or flatwise.
- Protect I-joists from weather, and use spacers to separate bundles.
- Bundled units should be kept intact until time of installation.
- 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 to your work crew.
 - Pick I-joists in bundles as shipped by the supplier.
 - 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.
- Do not handle I-joists in a horizontal orientation.
- NEVER USE OR TRY TO REPAIR A DAMAGED I-JOIST.



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 consideration 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.
- 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 CGS-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.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- 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.
- Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
- SI units conversion: 1 inch = 25.4 mm
1 foot = 0.305 m

MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS

SIMPLE AND MULTIPLE SPANS

Joist Depth	Joist Series	Simple spans				Multiple spans			
		On centre spacing				On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	13'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	NI-40x	16'-1"	15'-2"	14'-8"	14'-9"	17'-5"	16'-5"	15'-10"	15'-5"
	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'-4"	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"
11-7/8"	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"	17'-7"
	NI-60	18'-4"	17'-3"	16'-7"	16'-9"	20'-3"	18'-9"	18'-0"	18'-1"
	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"
14"	NI-90	20'-2"	18'-7"	17'-10"	17'-11"	22'-3"	20'-7"	19'-8"	19'-9"
	NI-90x	20'-4"	18'-9"	17'-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"
	NI-70	21'-7"	20'-0"	19'-1"	19'-2"	23'-10"	22'-1"	21'-1"	21'-2"
16"	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-40	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"
	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"

CCMC EVALUATION REPORT 13032-R

WEB STIFFENERS

RECOMMENDATIONS:

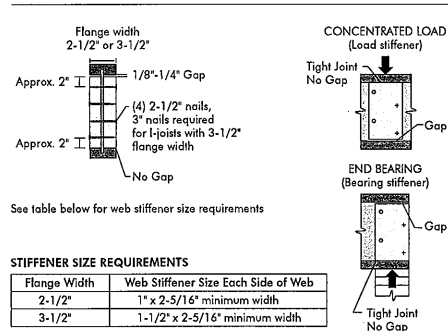
■ A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at the top.

■ 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 the 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

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS



See table below for web stiffener size requirements

STIFFENER SIZE REQUIREMENTS

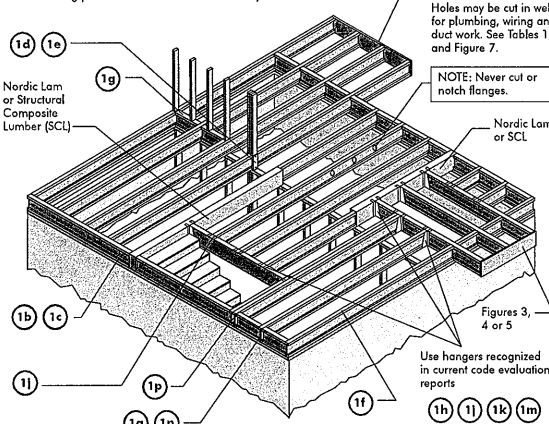
Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-5/16" minimum width
3-1/2"	1-1/2" x 2-5/16" minimum width

INSTALLING NORDIC I-JOISTS

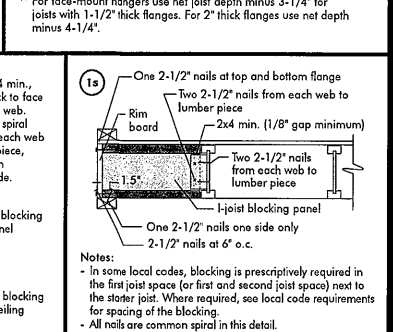
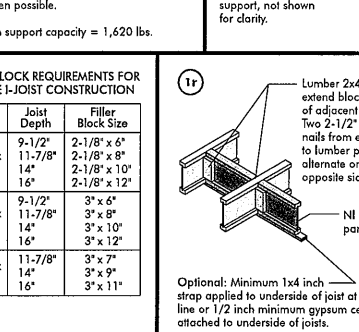
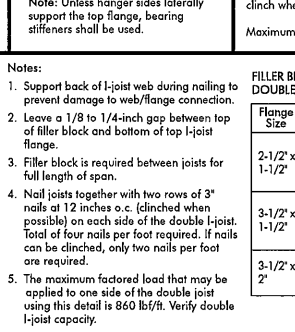
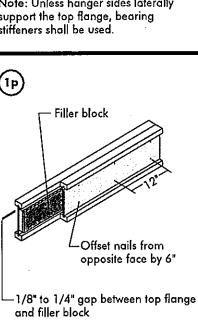
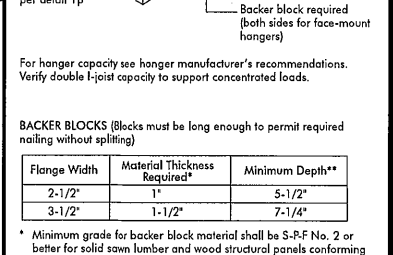
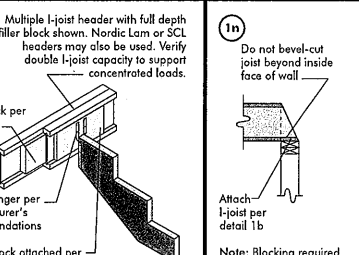
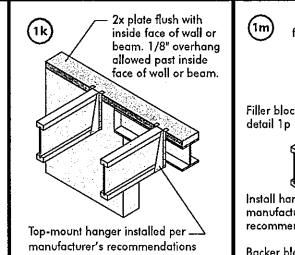
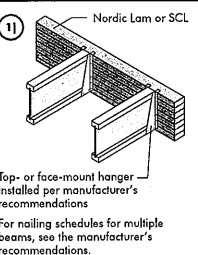
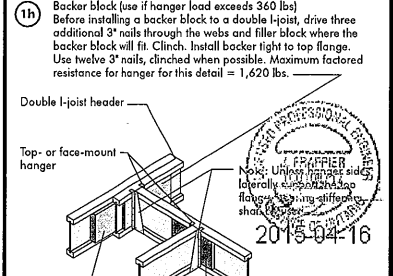
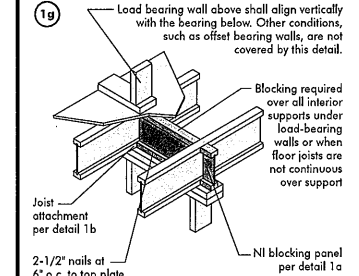
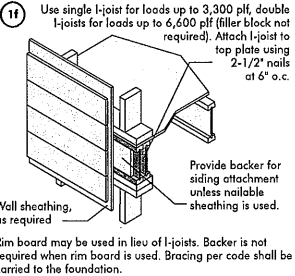
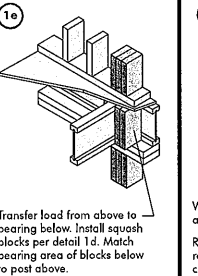
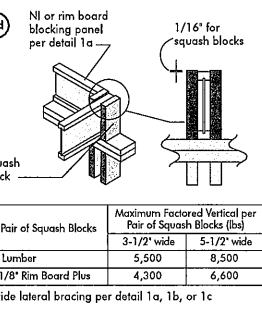
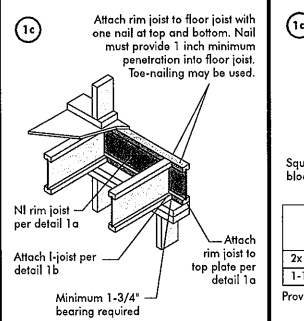
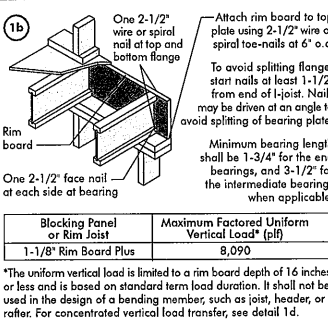
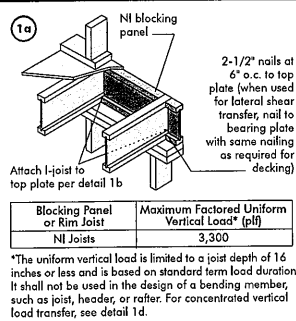
- Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, consult your supplier.
- Except for cutting to length, I-joist flanges should **never** be cut, drilled, or notched.
- Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
- I-joists must be anchored securely to supports before floor sheathing is attached, and supports for multiple-span applications must be level.
- Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
- When using hangers, seal I-joists firmly in hanger bottoms to minimize settlement.
- Leave a 1/16-inch gap between the I-joist end and a header.
- 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 I-joist webs.
- Never install I-joists where they will be permanently exposed to weather, or where they will remain in direct contact with concrete or masonry.
- Restrain ends of floor joists to prevent rollover. Use rim board, rim joists or I-joist blocking panels.
- For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (cripple members) to transfer gravity loads through the floor system to the wall or foundation below.
- 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.
- Provide permanent lateral support of the bottom flange of all I-joists at interior supports of multiple-span joists. Similarly, support 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 bracing or struts must be used.
- 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 underlayment layer is installed.
- Nail spacing: Space nails installed to the flange's top face in accordance with the applicable building code requirements or approved building plans.

FIGURE 1
TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS

Some framing requirements such as erection bracing and blocking panels have been omitted for clarity.



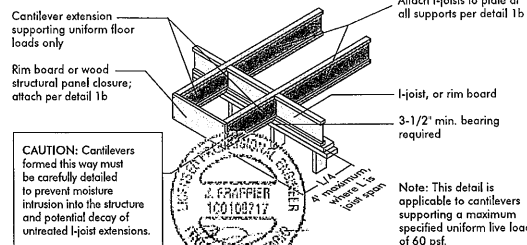
All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for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



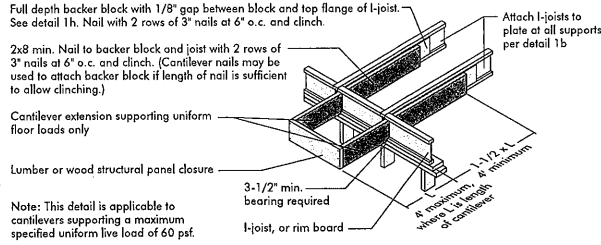
Notes:
- In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.
- All nails are common spiral in this detail.

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

3a I-JOIST CANTILEVER DETAIL FOR BALCONIES (No Wall Load)

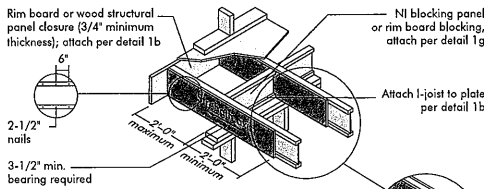


3b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE

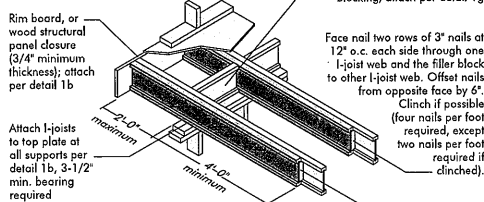


Method 2 — SHEATHING REINFORCEMENT TWO SIDES

- 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 nailing offset by 3'.

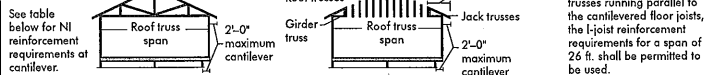
Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4 inch) required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2 inch nails at 6 inch on center, top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports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

4b Alternate Method 2 — DOUBLE I-JOIST



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

FIGURE 4 (continued)



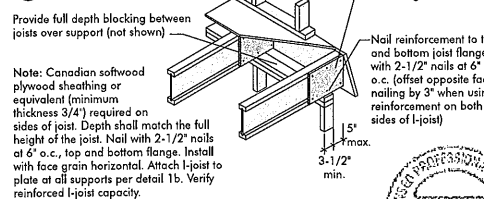
CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	ROOF LOADING (UNFACTORED)											
		LL = 30 psf, DL = 15 psf				LL = 40 psf, DL = 15 psf				LL = 50 psf, DL = 15 psf			
		JOIST SPACING (in.)				JOIST SPACING (in.)				JOIST SPACING (in.)			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2"	26	N	N	1	2	N	1	2	X	N	2	X	X
	28	N	N	1	X	N	1	2	X	N	2	X	X
	30	N	1	1	X	N	1	2	X	1	2	X	X
	32	N	1	2	X	N	2	X	X	1	X	X	X
	34	N	1	2	X	N	2	X	X	1	X	X	X
11-7/8"	26	N	N	1	2	X	1	2	X	X	1	X	X
	28	N	N	N	1	N	N	1	2	N	1	1	2
	30	N	N	N	1	N	N	1	2	N	1	2	X
	32	N	N	N	1	N	N	1	2	N	1	2	X
	34	N	N	1	2	N	1	1	X	N	1	2	X
14"	26	N	N	1	2	N	1	2	X	N	1	2	X
	28	N	N	N	N	N	N	N	1	N	N	N	1
	30	N	N	N	N	N	N	N	1	N	N	1	2
	32	N	N	N	1	N	N	N	1	N	N	1	2
	34	N	N	1	N	N	1	1	N	1	N	1	2
16"	26	N	N	N	1	N	N	1	2	N	1	1	X
	28	N	N	N	1	N	N	1	2	N	1	2	X
	30	N	N	N	N	N	N	N	1	N	N	N	1
	32	N	N	N	N	N	N	N	1	N	N	N	1
	34	N	N	N	N	N	N	N	1	N	N	1	2
16"	26	N	N	N	1	N	N	N	1	N	N	1	2
	28	N	N	N	1	N	N	N	1	N	N	1	2
	30	N	N	N	1	N	N	N	1	N	N	1	2
	32	N	N	N	1	N	N	N	1	N	N	1	2
	34	N	N	N	1	N	N	N	1	N	N	1	2
16"	26	N	N	N	1	N	N	N	1	N	N	1	2
	28	N	N	N	1	N	N	N	1	N	N	1	2
	30	N	N	N	1	N	N	N	1	N	N	1	2
	32	N	N	N	1	N	N	N	1	N	N	1	2
	34	N	N	N	1	N	N	N	1	N	N	1	2

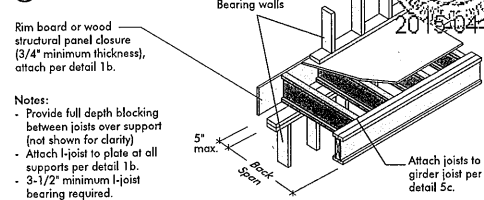
1. N = No reinforcement required.
2. N = NI reinforced with 3/4" wood structural panel on one side only.
3. N = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
4. X = Try a deeper joist or closer spacing.
5. Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 psf wall load. Wall load is based on 3'-0" maximum width window or door openings.
6. For larger openings, or multiple 3'-0" wide openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
7. 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.
8. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting walls as it is used.
9. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

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

5a SHEATHING REINFORCEMENT



5b SET-BACK DETAIL



5c SET-BACK CONNECTION

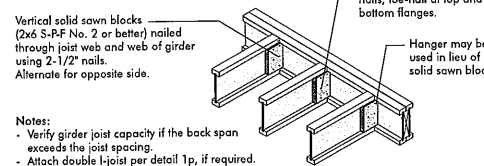
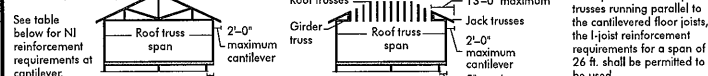


FIGURE 5 (continued)



BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	ROOF LOADING (UNFACTORED)											
		LL = 30 psf, DL = 15 psf				LL = 40 psf, DL = 15 psf				LL = 50 psf, DL = 15 psf			
		JOIST SPACING (in.)				JOIST SPACING (in.)				JOIST SPACING (in.)			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2"	26	1	X	X	X	2	X	X	X	2	X	X	X
	28	1	X	X	X	2	X	X	X	X	X	X	X
	30	1	X	X	X	2	X	X	X	X	X	X	X
	32	2	X	X	X	2	X	X	X	X	X	X	X
	34	2	X	X	X	X	X	X	X	X	X	X	X
11-7/8"	26	2	X	X	X	X	X	X	X	1	X	X	X
	28	N	2	X	X	1	X	X	X				
	30	N	2	X	X	1	X	X	X				
	32	N	1	2	X	X	1	X	X	2	X	X	X
	34	N	1	2	X	X	1	X	X	2	X	X	X
14"	26	1	X	X	X	2	X	X	X	2	X	X	X
	28	1	X	X	X	2	X	X	X	X	X	X	X
	30	N	1	2	X	N	2	X	X	1	X	X	X
	32	N	1	2	X	N	2	X	X	1	X	X	X
	34	N	2	X	X	1	X	X	X	2	X	X	X
16"	26	1	2	2	X	1	2	2	X	2	2	X	X
	28	1	2	2	X	1	2	2	X	2	2	X	X
	30	N	1	2	X	N	2	X	X	N	2	X	X
	32	N	1	2	X	N	2	X	X	1	X	X	X
	34	N	2	X	X	1	2	X	X	1	X	X	X
18"	26	N	2	X	X	N	2	X	X	1	X	X	X
	28	N	2	X	X	1	X	X	X	2	X	X	X
	30	N	2	X	X	1	X	X	X	2	X	X	X
	32	N	2	X	X	1	X	X	X	2	X	X	X
	34	N	2	X	X	1	X	X	X	2	X	X	X

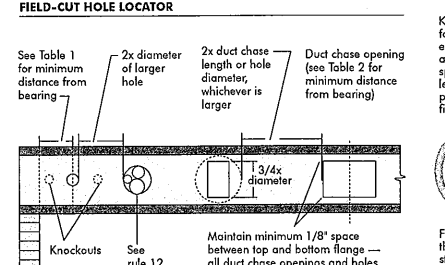
1. N = No reinforcement required.
2. N = NI reinforced with 3/4" wood structural panel on one side only.
3. N = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
4. X = Try a deeper joist or closer spacing.
5. Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 psf wall load. Wall load is based on 3'-0" maximum width window or door openings.
6. For larger openings, or multiple 3'-0" wide openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
7. 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.
8. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting walls as it is used.
9. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

1. 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.
3. Whenever possible, field-cut holes should be centred on the middle of the web.
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.
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.
6. 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.
7. 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 and/or duct chase openings.
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 verification.
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 opening.
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.

FIGURE 7 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 between holes.

TABLE 1 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 Depth	Joist Series	Minimum distance from inside face of any support to center of hole (0-in.)																Span adjustment factor	
		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			
9-1/2"	N120	0.7	1.2	2.1	4.3	5.8	6.0	...	...	...	...	...	...	...	...	...	1.34
	N140x	0.7	1.6	3.0	4.4	6.0	6.4	...	...	...	...	...	...	...	...	...	1.41
	N160	1.3	2.6	4.0	5.4	7.0	7.5	...	...	...	...	...	...	...	...	...	1.57
	N180	2.0	3.4	4.9	6.3	8.0	8.4	...	...	...	...	...	...	...	...	...	1.73
	N200	2.5	3.8	5.0	6.8	8.2	8.8	...	...	...	...	...	...	...	...	...	1.89
11-7/8"	N120	0.7	0.8	1.0	2.4	3.8	4.0	5.0	6.4	7.5	...	...	...	...	...	...	1.54
	N140x	0.7	0.8	1.3	2.8	4.0	4.4	5.5	7.0	8.4	...	...	...	...	...	...	1.66
	N160	0.7	0.8	1.0	4.3	5.9	6.0	7.5	8.1	10.0	...	...	...	...	...	...	1.75
	N180	1.3	2.6	4.0	5.4	6.9	7.2	8.4	10.0	11.2	...	...	...	...	...	...	1.85
	N200	1.8	2.1	4.2	5.6	7.0	7.5	8.6	10.3	11.4	...	...	...	...	...	...	1.93
14"	N120	0.7	0.8	1.0	2.5	4.0	4.1	6.0	6.4	7.5	10.2	...	...	...	...	...	1.71
	N140x	0.7	0.8	0.9	2.5	4.4	4.9	6.3	...	...	...	...	...	...	...	...	1.71
	N160	0.7	0.8	0.9	2.4	2.4	2.9	3.9	5.2	6.0	8.5	10.2	...	...	...	...	1.92
	N180	0.7	0.8	0.9	2.4	2.4	2.9	3.9	5.2	6.0	8.5	10.2	12.2	13.9	...	...	1.92
	N200	0.7	0.8	0.9	2.4	2.4	2.9	3.9	5.2	6.0	8.5	10.2	12.2	13.9	15.6	...	1.92		
16"	N120	0.7	0.8	0.9	2.5	4.0	4.1	6.0	6.4	7.5	10.2	12.2	13.9	15.6	...	...	1.92
	N140x	0.7	0.8	0.9	2.5	4.0	4.1	6.0	6.4	7.5	10.2	12.2	13.9	15.6	17.3	...	1.92		
	N160	0.7	0.8	0.9	2.5	4.0	4.1	6.0	6.4	7.5	10.2	12.2	13.9	15.6	17.3	19.0	...	1.92	
	N180	0.7	0.8	0.9	2.5	4.0	4.1	6.0	6.4	7.5	10.2	12.2	13.9	15.6	17.3	19.0	20.7	...	1.92
	N200	0.7	0.8	0.9	2.5	4.0	4.1	6.0	6.4	7.5	10.2	12.2	13.9	15.6	17.3	19.0	20.7	22.4	...

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

OPTIONAL:

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 Span Table), the minimum distance from the centreline of the hole to the face of any support (S) as given above may be reduced as follows:

$$\text{Reduced } S = \frac{\text{Actual } S \times D}{\text{Maximum Span}}$$

Where:

- Reduced S = Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span applications.
- Actual S = The actual measured span distance between the inside faces of supports (S).
- Maximum Span = Span Adjustment Factor given in this table.
- D = The minimum distance from the inside face of any support to centre of hole from this table.
- If Reduced S is greater than 1, use 1 in the above calculation for Reduced S.

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

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	26	28	30	32	34	36	38
9-1/2"	N120	4.1*	4.5*	4.10*	5.4*	5.8*	6.1*	6.6*	7.1*	7.5*							
	N140	4.1*	4.5*	4.10*	5.4*	5.8*	6.1*	6.6*	7.1*	7.5*							
	N160	5.1*	5.5*	5.10*	6.3*	6.7*	7.1*	7.6*	8.1*	8.5*							
	N180	5.3*	5.7*	5.10*	6.3*	6.7*	7.1*	7.6*	8.1*	8.5*							
	N200	5.9*	6.2*	6.6*	7.1*	7.5*	7.9*	8.3*	8.8*	9.4*							
11-7/8"	N120	5.8*	7.2*	7.6*	8.8*	8.6*	9.1*	9.4*	10.1*	11.1*							
	N140	5.8*	7.2*	7.6*	8.8*	8.6*	9.1*	9.4*	10.1*	11.1*							
	N160	7.1*	7.4*	7.9*	8.3*	8.7*	9.1*	9.6*	10.1*	10.6*							
	N180	7.1*	7.4*	7.9*	8.3*	8.7*	9.1*	9.6*	10.1*	10.6*							
	N200	7.6*	7.11*	8.4*	8.9*	9.2*	9.7*	10.1*	10.7*	10.1*							
14"	N120	7.1*	8.1*	8.5*	9.8*	9.2*	9.8*	10.2*	10.6*	11.1*							
	N140	7.1*	7.9*	8.4*	9.8*	9.1*	9.7*	10.1*	10.5*	11.1*							
	N160	8.9*	9.3*	9.8*	10.1*	10.6*	11.1*	11.6*	13.3*	13.3*							
	N180	8.9*	9.3*	9.8*	10.1*	10.6*	11.1*	11.6*	13.3*	13.3*							
	N200	9.0*	9.3*	9.8*	10.1*	10.7*	11.1*	11.6*	12.2*	12.2*							
16"	N120	9.2*	9.8*	10.2*	10.6*	10.11*	11.5*	11.5*	12.4*	12.4*							
	N140	10.2*	10.2*	10.2*	11.1*	11.1*	11.1*	12.1*	12.1*	12.1*							
	N160	10.3*	10.8*	11.2*	11.6*	12.1*	12.6*	13.2*	14.1*	14.1*							
	N180	10.3*	10.8*	11.2*	11.6*	12.1*	12.6*	13.2*	14.1*	14.1*							
	N200	10.4*	10.9*	11.3*	11.9*	12.4*	12.9*	13.4*	14.1*	14.1*							

Refer to the Installation Guide for Residential Floors for additional information.
CCMC EVALUATION REPORT 13032-R

WEB HOLE SPECIFICATIONS

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.
- I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- Whenever possible, field-cut holes should be centred on the middle of the web.
- 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.

- 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 largest 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 and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.

- 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.
- 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.
- Limit three maximum size holes per span, of which one may be a duct chase opening.
- 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.

TABLE 1
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 Depth	Joist Series	Minimum Distance from Inside Face of Any Support to Centre 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
9-1/2"	NI-20	0-7"	1-6"	2-10"	4-3"	5-8"	6-0"	---	---	---	---	---	---
	NI-40x	0-7"	1-6"	3-0"	4-4"	6-0"	6-4"	---	---	---	---	---	---
	NI-60	1-3"	2-6"	4-0"	5-4"	7-0"	7-5"	---	---	---	---	---	---
	NI-70	2-0"	3-4"	4-9"	6-3"	8-0"	8-4"	---	---	---	---	---	---
	NI-80	2-3"	3-6"	5-0"	6-6"	8-2"	8-8"	---	---	---	---	---	---
11-7/8"	NI-20	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-5"	7-9"	---	---	---
	NI-40x	0-7"	0-8"	1-1"	2-6"	4-0"	4-4"	5-5"	7-0"	8-4"	---	---	---
	NI-60	0-7"	1-6"	3-0"	4-3"	5-9"	6-0"	7-3"	8-10"	10-0"	---	---	---
	NI-70	1-3"	2-6"	4-0"	5-4"	6-9"	7-2"	8-4"	10-0"	11-2"	---	---	---
	NI-80	1-6"	2-10"	4-2"	5-6"	7-0"	7-5"	8-6"	10-3"	11-4"	---	---	---
14"	NI-20	0-7"	0-8"	1-5"	3-2"	4-10"	5-4"	6-9"	8-9"	10-2"	---	---	---
	NI-40x	0-7"	0-8"	0-9"	2-5"	4-4"	4-9"	6-3"	---	---	---	---	---
	NI-60	0-7"	0-8"	0-8"	1-0"	2-4"	2-9"	3-9"	5-2"	6-0"	6-6"	8-3"	10-2"
	NI-70	0-7"	0-8"	1-8"	3-0"	4-3"	4-8"	5-8"	7-2"	8-0"	8-8"	10-4"	11-9"
	NI-80	0-7"	0-8"	1-10"	3-0"	4-5"	5-10"	6-2"	7-3"	8-9"	9-9"	10-4"	12-0"
16"	NI-20	0-7"	0-8"	0-10"	2-5"	4-0"	4-5"	5-9"	7-5"	8-8"	9-4"	11-4"	12-11"
	NI-40x	0-7"	0-8"	0-8"	2-0"	3-9"	4-2"	5-5"	7-3"	8-5"	9-2"	---	---
	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"
	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"
	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"

- 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 being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

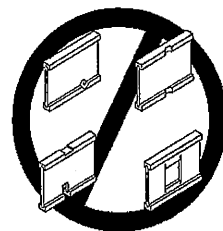
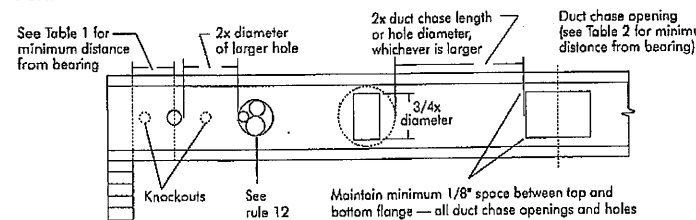
TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS

Simple Span Only

Joist Depth	Joist Series	Minimum distance from inside face of supports to centre of opening (ft - in.)											
		Duct Chase Length (in.)											
		8	10	12	14	16	18	20	22	24			
9-1/2"	NI-20	4-1"	4-5"	4-10"	5-4"	5-8"	6-1"	6-6"	7-1"	7-5"			
	NI-40x	5-3"	5-8"	6-0"	6-5"	6-10"	7-3"	7-8"	8-2"	8-6"			
	NI-60	5-4"	5-9"	6-2"	6-7"	7-1"	7-5"	8-0"	8-3"	8-9"			
	NI-70	5-11"	5-5"	5-10"	6-3"	6-7"	7-1"	7-6"	8-1"	8-4"			
	NI-80	5-9"	5-8"	6-0"	6-5"	6-10"	7-3"	7-8"	8-2"	8-6"			
11-7/8"	NI-20	5-9"	6-2"	6-0"	7-1"	7-5"	7-9"	8-3"	8-9"	9-4"			
	NI-40x	6-8"	7-2"	7-6"	8-1"	8-6"	9-1"	9-6"	10-1"	10-9"			
	NI-60	7-3"	7-8"	8-0"	8-6"	9-0"	9-3"	9-9"	10-3"	11-0"			
	NI-70	7-1"	7-4"	7-9"	8-3"	8-7"	9-1"	9-6"	10-1"	10-4"			
	NI-80	7-2"	7-7"	8-0"	8-5"	8-9"	9-3"	9-8"	10-2"	10-8"			
14"	NI-20	7-6"	7-11"	8-4"	8-9"	9-2"	9-7"	10-1"	10-7"	10-11"			
	NI-40x	8-1"	8-7"	9-0"	9-6"	10-1"	10-7"	11-2"	12-0"	12-6"			
	NI-60	8-9"	9-3"	9-5"	10-1"	10-6"	11-1"	11-6"	12-3"	13-0"			
	NI-70	8-7"	9-1"	9-5"	10-1"	10-4"	10-8"	11-2"	11-7"	12-3"			
	NI-80	9-0"	9-3"	9-9"	10-1"	10-7"	11-1"	11-6"	12-1"	12-6"			
16"	NI-20	9-2"	9-8"	10-0"	10-6"	10-11"	11-5"	11-9"	12-4"	12-11"			
	NI-40x	9-4"	9-9"	10-3"	10-7"	11-1"	11-7"	12-1"	12-7"	13-2"			
	NI-60	10-3"	10-8"	11-2"	11-6"	12-1"	12-6"	13-2"	14-1"	14-10"			
	NI-70	10-1"	10-5"	11-0"	11-4"	11-10"	12-3"	12-8"	13-3"	14-0"			
	NI-80	10-4"	10-9"	11-3"	11-9"	12-1"	12-7"	13-1"	13-8"	14-4"			

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

FIGURE 7
FIELD-CUT HOLE LOCATOR



Knockouts are pre-scored 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.

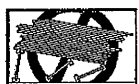
Holes in webs should be cut with a sharp saw.

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.

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 unshelved I-joists. Once shelved, do not over-stress I-joists with concentrated 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:

- 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.
- 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 minimum 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.
- For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
- Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stock building materials over beams or walls only.
- 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.

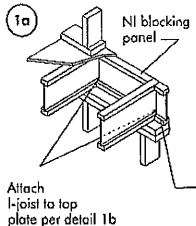


PRODUCT WARRANTY

Chantiers Chibougamau guarantees that, in accordance with our specifications, Nordic products are free from manufacturing defects in material and workmanship.

Furthermore, Chantiers Chibougamau warrants that our products, when utilized in accordance with our handling and installation instructions, will meet or exceed our specifications for the lifetime of the structure.

1a



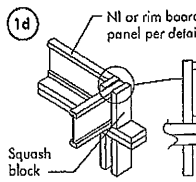
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

2-1/2" nails at 6" o.c. to top plate (when used for lateral shear transfer, nail to bearing plate with same nailing as required for decking)

Attach I-joist to top plate per detail 1b

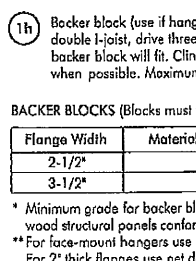
1d



Pair of Squash Blocks	Maximum Factored Vertical Load per Pair of Squash Blocks (lbs)
2x Lumber	5,500
1-1/8" Rim Board Plus	4,300

Provide lateral bracing per detail 1a or 1b

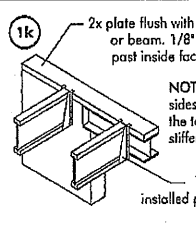
1h



Flange 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".

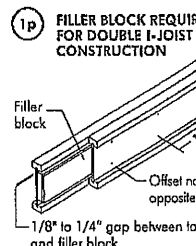
1k



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

Top-mount hanger installed per manufacturer's recommendations

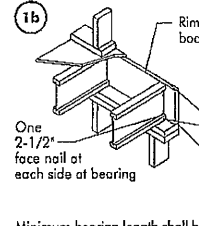
1p



NOTES:

- Support back of I-joist web during nailing to prevent damage to web/flange connection.
- Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
- Filler block is required between joists for full length of span.
- Nail joists together with two rows of 3" nails at 12 inches o.c. (clinched when possible) on each side of the double I-joist. Total of four nails per foot required. If nails can be clinched, only two nails per foot are required.
- The maximum factored load that may be applied to one side of the double I-joist using this detail is 860 lb/ft. Verify double I-joist capacity.

1b



Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

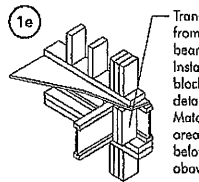
One 2-1/2" wire or spiral nail at top and bottom flange

Attach rim board to top plate using 2-1/2" wire or spiral (oe-nails at 6" o.c.

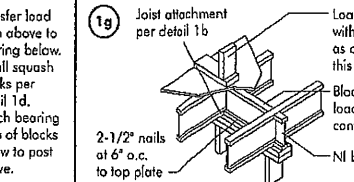
To avoid splitting flange, start nails at least 1-1/2" from end of I-joist. Nails may be driven at an angle to avoid splitting of bearing plate.

Minimum bearing length shall be 1-3/4" for the end bearings, and 3-1/2" for the intermediate bearings when applicable.

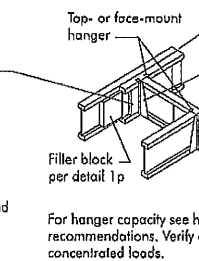
1e



1g



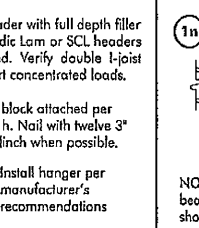
1i



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

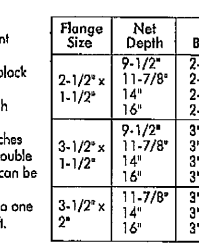
Top- or face-mount hanger installed per manufacturer's recommendations

1m



NOTE: Blocking required at bearing for lateral support, not shown for clarity.

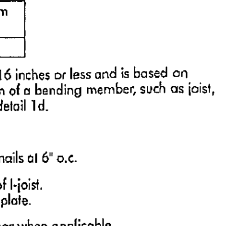
1s



NOTES:

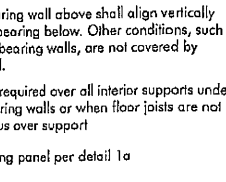
- In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.
- All nails are common spiral in this detail.

1j



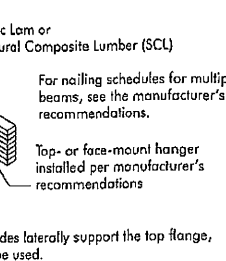
NOTE: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

1l



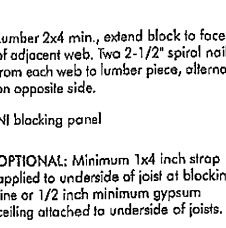
OPTIONAL: Minimum 1x4 inch strap applied to underside of joist at blocking line or 1/2 inch minimum gypsum ceiling attached to underside of joists.

1n



NOTE: Blocking required at bearing for lateral support, not shown for clarity.

1o



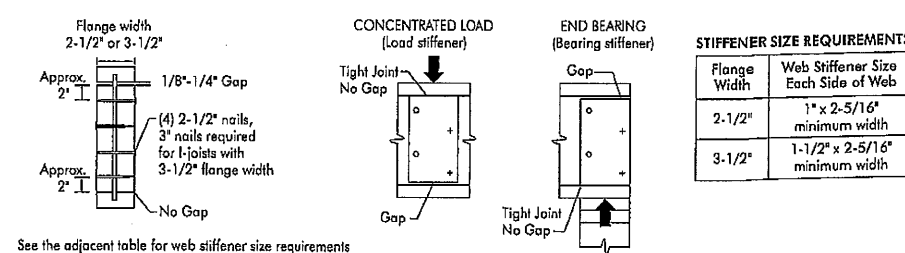
NOTE: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

WEB STIFFENERS

RECOMMENDATIONS:

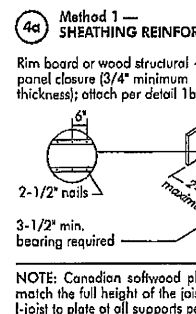
- A **bearing stiffener** is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at the top.
- A **bearing stiffener** is required when the I-joist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

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS

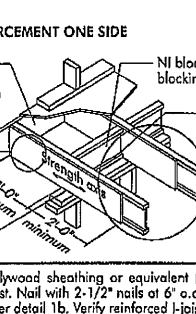


CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

4a



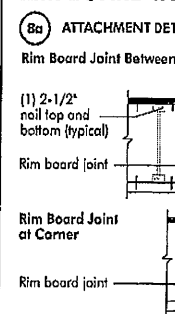
Method 2 - Sheathing Reinforcement Two Sides



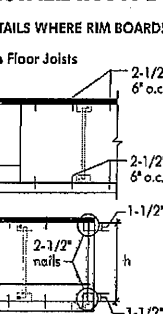
NOTE: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail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

RIM BOARD INSTALLATION DETAILS

8a



8b



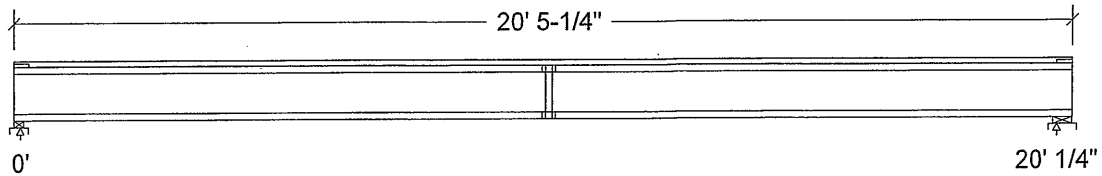
Design Check Calculation Sheet

Nordic Sizer – Canada 7.2

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start End	Magnitude Start End	Unit
Load1	Dead	Full Area			20.00	psf
Load2	Live	Full Area			40.00	psf

Maximum Reactions (lbs) and Support Bearing (in):



Unfactored:			
Dead	200		200
Live	400		400
Factored:			
Total	851		851
Bearing:			
Capacity			
Joist	2188		2336
Support	5573		10841
Des ratio			
Joist	0.39		0.36
Support	0.15		0.08
Load case	#2		#2
Length	2-3/8		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		1.00
fcp sup	769		769
Kzcp sup	1.09		1.15

Nordic Joist 11-7/8" NI-80 Floor joist @ 12" o.c.

Supports: All - Lumber Sill plate, No.1/No.2

Total length: 20' 5-1/4"; Clear span: 19' 10-1/2"; 3/4" nailed and glued OSB sheathing with 1 row of blocking

This section PASSES the design code check.

Limit States Design using CSA O86-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 851	Vr = 2336	lbs	Vf/Vr = 0.36
Moment(+)	Mf = 4259	Mr = 11609	lbs-ft	Mf/Mr = 0.37
Perm. Defl'n	0.13 = < L/999	0.67 = L/360	in	0.20
Live Defl'n	0.26 = L/915	0.50 = L/480	in	0.52
Total Defl'n	0.39 = L/610	1.00 = L/240	in	0.39
Bare Defl'n	0.30 = L/813	0.67 = L/360	in	0.44
Vibration	Lmax = 20'-0.3	Lv = 22'-6.2	ft	0.89
Defl'n	= 0.024	= 0.032	in	0.76



ENG. NO. TAM/1116-20
STRUCTURAL
COM. ONENT ONLY

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	11609	1.00	1.00	-	1.000	-	-	-	#2
EI	547.1 million	-	-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

Moment(+) : LC #2 = 1.25D + 1.5L

Deflection: LC #1 = 1.0D (permanent)

LC #2 = 1.0D + 1.0L (live)

LC #2 = 1.0D + 1.0L (total)

LC #2 = 1.0D + 1.0L (bare joist)

Bearing : Support 1 - LC #2 = 1.25D + 1.5L

Support 2 - LC #2 = 1.25D + 1.5L

Load Types: D=dead W=wind S=snow H=earth,groundwater E=earthquake
L=live(use,occupancy) Ls=live(storage,equipment) f=fireLoad Patterns: s=S/2 L=L+Ls _=no pattern load in this span
All Load Combinations (LCs) are listed in the Analysis output**CALCULATIONS:**EI_{eff} = 625.37 lb-in² K= 6.18e06 lbs

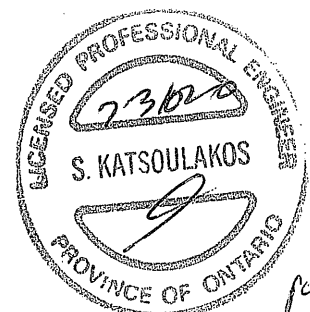
"Live" deflection is due to all non-dead loads (live, wind, snow...)

CONFORMS TO OBC 2012

AMENDED 2020

Design Notes:

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



NO. TAM 1/116 #20
STRUCTURAL
COMPONENT ONLY

NORDIC STRUCTURES

COMPANY
June 2, 2020 14:28

PROJECT
J1 - 1ST FLOOR CANT

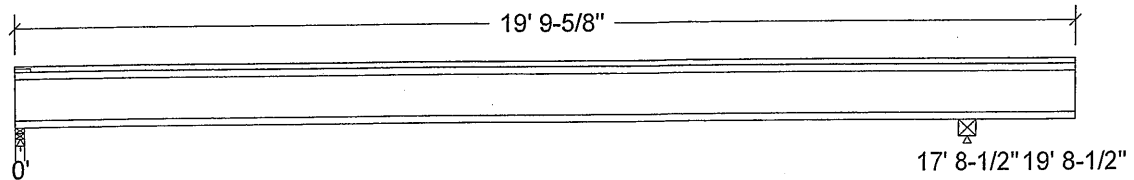
Design Check Calculation Sheet

Nordic Sizer – Canada 7.2

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start End	Magnitude Start End	Unit
Load1	Dead	Full Area	No		20.00	psf
Load2	Live	Full Area	Yes		40.00	psf

Maximum Reactions (lbs) and Support Bearing (in):



Unfactored:				
Dead	175		219	
Live	354		439	
Factored:				
Total	750		932	
Bearing:				
Capacity			5006	
Joist	2154		-	
Support	4520		-	
Des ratio			0.19	
Joist	0.35		-	
Support	0.17		-	
Load case	#4		#2	
Length	2		4	
Min req'd	1-3/4		3-1/2	
Stiffener	No		No	
KD	1.00		1.00	
KB support	-		-	
fcp sup	769		-	
Kzcp sup	-		-	

Bearing for wall supports is perpendicular-to-grain bearing on top plate. No stud design included.

Nordic Joist 11-7/8" NI-80 Floor joist @ 12" o.c.

Supports: 1 - Lumber Wall, No.1/No.2; 2 - Steel Beam, W;

Total length: 19' 9-5/8"; Clear span: 17' 5-5/8", 1' 10"; 5/8" nailed and glued OSB sheathing

This section PASSES the design code check.



861
DWG NO. TAM 1117 -20
STRUCTURAL
COMPONENT ONLY

Limit States Design using CSA O86-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 762	Vr = 2336	lbs	Vf/Vr = 0.33
Moment(+)	Mf = 3307	Mr = 11609	lbs-ft	Mf/Mr = 0.28
Moment(-)	Mf = 170	Mr = 11609	lbs-ft	Mf/Mr = 0.01
Deflection:				
Interior Perm	0.08 = < L/999	0.59 = L/360	in	0.14
Live	0.17 = < L/999	0.44 = L/480	in	0.38
Total	0.25 = L/848	0.89 = L/240	in	0.28
Cantil. Perm	-0.02 = L/974	0.13 = L/180	in	0.18
Live	-0.05 = L/460	0.10 = L/240	in	0.52
Total	-0.08 = L/312	0.20 = L/120	in	0.38
Bare Defl'n	-0.06 = L/410	0.13 = L/180	in	0.44
Vibration	Lmax = 17'-8.5	Lv = 19'-11	ft	0.89
Defl'n	= 0.026	= 0.035	in	0.74

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	11609	1.00	1.00	-	1.000	-	-	-	#4
Mr-	11609	1.00	1.00	-	1.000	-	-	-	#2
EI	547.1 million	-	-	-	-	-	-	-	#4

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L
 Moment(+) : LC #4 = 1.25D + 1.5L (pattern: L₋)
 Moment(-) : LC #2 = 1.25D + 1.5L
 Deflection: LC #1 = 1.0D (permanent)
 LC #4 = 1.0D + 1.0L (pattern: L₋) (live)
 LC #4 = 1.0D + 1.0L (pattern: L₋) (total)
 LC #4 = 1.0D + 1.0L (pattern: L₋) (bare joist)

Bearing : Support 1 - LC #4 = 1.25D + 1.5L (pattern: L₋)
 Support 2 - LC #2 = 1.25D + 1.5L

Load Types: D=dead W=wind S=snow H=earth,groundwater E=earthquake
 L=live(use,occupancy) Ls=live(storage,equipment) f=fire

Load Patterns: s=S/2 L=L+Ls _no pattern load in this span
 All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:

E_Ieff = 613.27 lb-in² K= 6.18e06 lbs

"Live" deflection is due to all non-dead loads (live, wind, snow...)

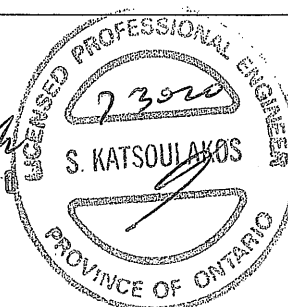
CONFORMS TO OBC 2012

Design Notes:

AMENDED 2020

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.

OWB NO. 7AM 11117 -20
 STRUCTURAL
 COMPONENT ONLY



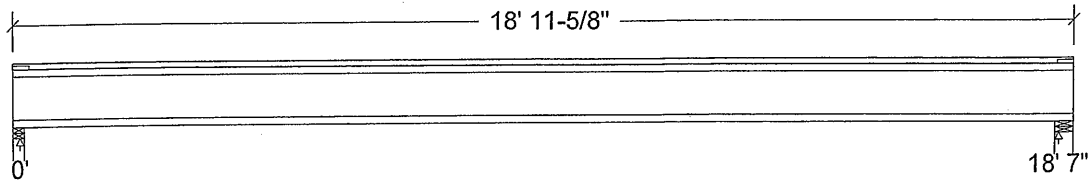
Design Check Calculation Sheet

Nordic Sizer – Canada 7.2

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start End	Magnitude Start End	Unit
Load1	Dead	Full Area			20.00	psf
Load2	Live	Full Area			40.00	psf

Maximum Reactions (lbs) and Support Bearing (in):



Unfactored:			
Dead	186		186
Live	372		372
Factored:			
Total	790		790
Bearing:			
Capacity			
Joist	2188		2334
Support	5573		9901
Des ratio			
Joist	0.36		0.34
Support	0.14		0.08
Load case	#2		#2
Length	2-3/8		4
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		-
fcp sup	769		769
Kzcp sup	-		-

Bearing for wall supports is perpendicular-to-grain bearing on top plate. No stud design included.

Nordic Joist 11-7/8" NI-80 Floor joist @ 12" o.c.

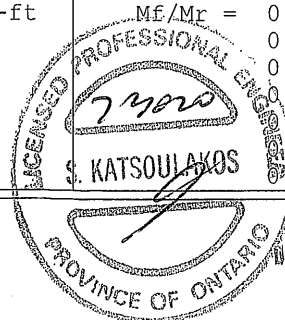
Supports: All - Lumber Wall, No.1/No.2

Total length: 18' 11-5/8"; Clear span: 18' 5-1/4"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

Limit States Design using CSA O86-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 790	Vr = 2336	lbs	Vf/Vr = 0.34
Moment (+)	Mf = 3669	Mr = 11609	lbs-ft	Mf/Mr = 0.32
Perm. Defl'n	0.10 = < L/999	0.62 = L/360	in	0.16
Live Defl'n	0.20 = < L/999	0.46 = L/480	in	0.43
Total Defl'n	0.30 = L/736	0.93 = L/240	in	0.33
Bare Defl'n	0.22 = < L/999	0.62 = L/360	in	0.36
Vibration	Lmax = 18'-7	Lv = 20'-5.8	ft	0.91
Defl'n	= 0.027	= 0.034	in	0.79



NO. 11118-20
STRUCTURAL
COMPONENT ONLY

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	11609	1.00	1.00	-	1.000	-	-	-	#2
EI	547.1 million	-	-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

Moment(+) : LC #2 = 1.25D + 1.5L

Deflection: LC #1 = 1.0D (permanent)

LC #2 = 1.0D + 1.0L (live)

LC #2 = 1.0D + 1.0L (total)

LC #2 = 1.0D + 1.0L (bare joist)

Bearing : Support 1 - LC #2 = 1.25D + 1.5L

Support 2 - LC #2 = 1.25D + 1.5L

Load Types: D=dead W=wind S=snow H=earth,groundwater E=earthquake

L=live(use,occupancy) Ls=live(storage,equipment) f=fire

Load Patterns: s=S/2 L=L+Ls =no pattern load in this span

All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:E_Ieff = 613.27 lb-in² K= 6.18e06 lbs

"Live" deflection is due to all non-dead loads (live, wind, snow...)

CONFORMS TO OBC 2012

Design Notes:

AMENDED 2020

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



AWG NO. TAW 11118-20
STRUCTURAL
COMPONENT ONLY

NORDIC STRUCTURES

COMPANY
June 3, 2020 13:47

PROJECT
J6 - 2ND FLOOR CANT

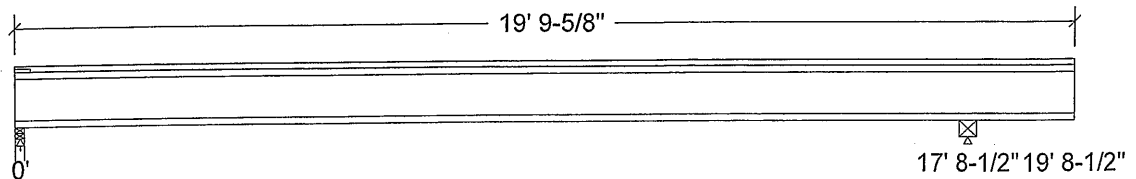
Design Check Calculation Sheet Nordic Sizer – Canada 7.2

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start End	Magnitude Start End	Unit
Load1	Dead	Full Area	No		20.00	psf
Load2	Live	Full Area	Yes		40.00	psf
WALL	Dead	Point	No	17.80	100	lbs
ROOF	Dead	Point	No	17.80	45	lbs
ROOF SNOW	Snow	Point	Yes	17.80	72	lbs

Load magnitude does not include Normal Importance factor from O86 Table 5.2.3.2, which is applied during analysis.

Maximum Reactions (lbs) and Support Bearing (in):



Unfactored:				
Dead	175		364	
Live	354		439	
Snow			72	
Factored:				
Total	750		1185	
Bearing:				
Capacity				
Joist	2154		5006	
Support	4520		-	
Des ratio				
Joist	0.35		0.24	
Support	0.17		-	
Load case	#10		#4	
Length	2		4	
Min req'd	1-3/4		3-1/2	
Stiffener	No		No	
KD	1.00		1.00	
KB support	-		-	
fcpsup	769		-	
Kzcp sup	-		-	

Bearing for wall supports is perpendicular-to-grain bearing on top plate. No stud design included.

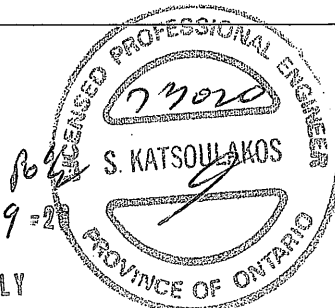
Nordic Joist 11-7/8" NI-80 Floor joist @ 12" o.c.

Supports: 1 - Lumber Wall, No.1/No.2; 2 - Steel Beam, W;

Total length: 19' 9-5/8"; Clear span: 17' 5-5/8", 1' 10"; 5/8" nailed and glued OSB sheathing

This section PASSES the design code check.

ENG NO. TAM 11119-2
STRUCTURAL
COMPONENT ONLY



Limit States Design using CSA O86-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 762	Vr = 2336	lbs	Vf/Vr = 0.33
Moment(+)	Mf = 3307	Mr = 11609	lbs-ft	Mf/Mr = 0.28
Moment(-)	Mf = 170	Mr = 11609	lbs-ft	Mf/Mr = 0.01
Deflection:				
Interior Perm	0.08 = < L/999	0.59 = L/360	in	0.14
Live	0.17 = < L/999	0.44 = L/480	in	0.38
Total	0.25 = L/848	0.89 = L/240	in	0.28
Cantil. Perm	-0.02 = L/974	0.13 = L/180	in	0.18
Live	-0.05 = L/460	0.10 = L/240	in	0.52
Total	-0.08 = L/312	0.20 = L/120	in	0.38
Bare Defl'n	-0.06 = L/410	0.13 = L/180	in	0.44
Vibration	Lmax = 17'-8.5	Lv = 19'-11	ft	0.89
Defl'n	= 0.026	= 0.035	in	0.74

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	11609	1.00	1.00	-	1.000	-	-	-	#10
Mr-	11609	1.00	1.00	-	1.000	-	-	-	#2
EI	547.1 million	-	-	-	-	-	-	-	#10

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L
 Moment(+) : LC #10 = 1.25D + 1.5L (pattern: L₋)
 Moment(-) : LC #2 = 1.25D + 1.5L
 Deflection: LC #1 = 1.0D (permanent)
 LC #10 = 1.0D + 1.0L (pattern: L₋) (live)
 LC #10 = 1.0D + 1.0L (pattern: L₋) (total)
 LC #10 = 1.0D + 1.0L (pattern: L₋) (bare joist)
 Bearing : Support 1 - LC #10 = 1.25D + 1.5L (pattern: L₋)
 Support 2 - LC #4 = 1.25D + 1.5L + (1.0)1.0S
 Load Types: D=dead W=wind S=snow H=earth,groundwater E=earthquake
 L=live(use,occupancy) Ls=live(storage,equipment) f=fire
 Load Patterns: s=S/2 L=L+Ls _=no pattern load in this span
 All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:

E_Ieff = 613.27 lb-in² K= 6.18e06 lbs

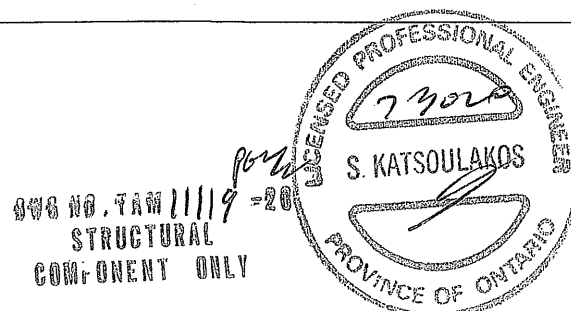
"Live" deflection is due to all non-dead loads (live, wind, snow...)

CONFORMS TO OBC 2012

AMENDED 2020

Design Notes:

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
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BC CALC® Member Report

Dry | 1 span | No cant.

July 23, 2020 17:02:01

Build 7493

Job name:

File name: KIMBERLY 4 - EL 1,2.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B2 H(i20605)

City, Province, Postal Code: MARKHAM

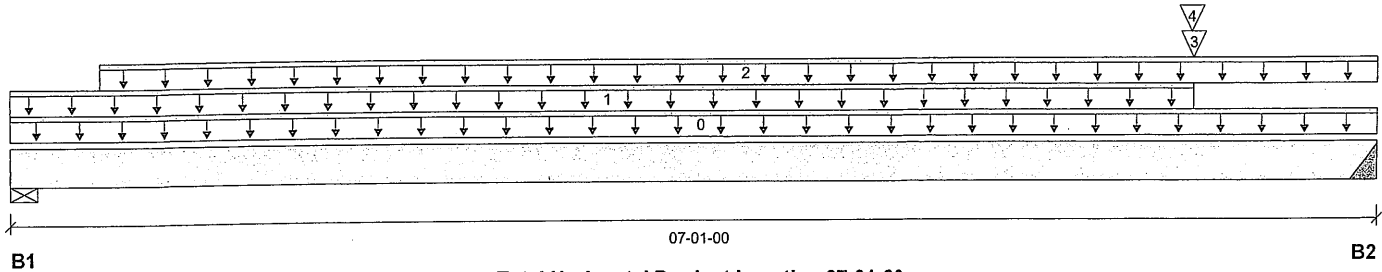
Specifier:

Customer:

Designer: L.D.

Code reports: CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	896 / 0	470 / 0		
B2, 3"	1046 / 0	543 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-01-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	06-01-08	Top	31	16			n/a
2	STAIRS	Unf. Lin. (lb/ft)	L	00-05-08	07-01-00	Top	240	120			n/a
3	Bk2(i20671)	Conc. Pt. (lbs)	L	06-01-08	06-01-08	Top	97	48			n/a
4	STAIRS	Conc. Pt. (lbs)	L	06-01-06	06-01-06	Top	56	28			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3200 ft-lbs	17696 ft-lbs	18.1%	1	03-08-09
End Shear	1500 lbs	7232 lbs	20.7%	1	05-10-02
Total Load Deflection	L/999 (0.035")	n/a	n/a	4	03-07-12
Live Load Deflection	L/999 (0.023")	n/a	n/a	5	03-07-12
Max Defl.	0.035"	n/a	n/a	4	03-07-12
Span / Depth	6.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	1931 lbs	32.6%	16.4%	Spruce-Pine-Fir
B2	Hanger 3" x 1-3/4"	2249 lbs	n/a	35.1%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



ENG NO. TAM 11120-20

**STRUCTURAL
COMPONENT ONLY**

Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

BC CALC® Member Report

Dry | 1 span | No cant.

July 23, 2020 17:02:01

Build 7493

Job name:

File name: KIMBERLY 4 - EL 1,2.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B12 H(i20633)

City, Province, Postal Code: MARKHAM

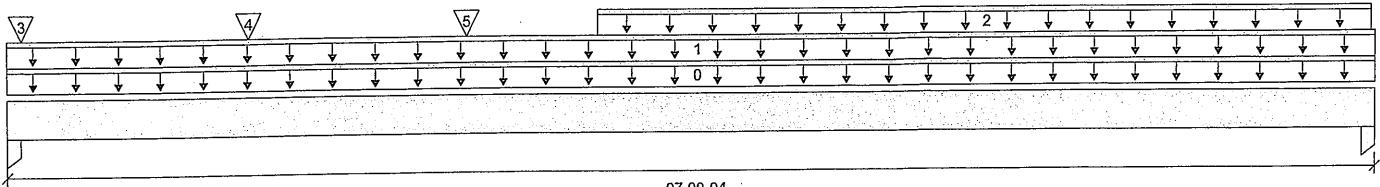
Specifier:

Customer:

Designer: L.D.

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 07-00-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	3031 / 0	1862 / 0		
B2, 3"	2533 / 0	1592 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-00-04	Top		12			00-00-00
1	10(i89)	Unf. Lin. (lb/ft)	L	00-00-00	07-00-04	Top	403	283			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	03-00-00	07-00-00	Top	329	164			n/a
3	B1 H(i20621)	Conc. Pt. (lbs)	L	00-00-14	00-00-14	Top	628	330			n/a
4	-	Conc. Pt. (lbs)	L	01-02-11	01-02-11	Top	451	227			n/a
5	J3(i20663)	Conc. Pt. (lbs)	L	02-04-00	02-04-00	Top	340	170			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	9151 ft-lbs	35392 ft-lbs	25.9%	1	03-08-00
End Shear	4148 lbs	14464 lbs	28.7%	1	01-03-06
Total Load Deflection	L/999 (0.052")	n/a	n/a	4	03-06-00
Live Load Deflection	L/999 (0.032")	n/a	n/a	5	03-06-00
Max Defl.	0.052"	n/a	n/a	4	03-06-00
Span / Depth	6.7				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Column	3-1/2" x 3-1/2"	6875 lbs	86.4%	46.0%	Unspecified
B2 Column	3" x 3-1/2"	5790 lbs	84.9%	45.2%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



DWG NO. FAM11121-20
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
1ST FLR FRAMING\Flush Beams\B12 H(i20633) (Flush Beam)

PASSED

BC CALC® Member Report
Build 7493

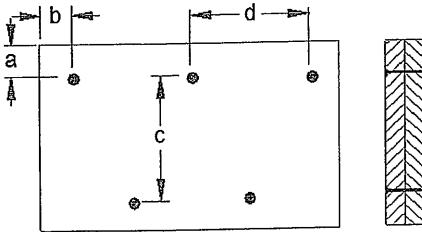
Dry | 1 span | No cant.

July 23, 2020 17:02:01

Job name:
Address:
City, Province, Postal Code: MARKHAM
Customer:
Code reports: CCMC 12472-R

File name: KIMBERLY 4 - EL 1,2.mmdl
Description: 1ST FLR FRAMING\Flush Beams\B12 H(i20633)
Specifier:
Designer: L.D.
Company:

Connection Diagram: Full Length of Member



a minimum = 2" c = 7-7/8"
b minimum = 3" d = 6"

Calculated Side Load = 931.5 lb/ft

Connectors are: Nails

3 1/2" ARDOX SPIRAL



DWG NO. YAM 1114-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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BC CALC®, BC FRAMER®, AJST™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

BC CALC® Member Report

Dry | 2 spans | L cant.

July 23, 2020 17:02:01

Build 7493

Job name:

File name: KIMBERLY 4 - EL 1,2.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B3 H(i20453)

City, Province, Postal Code: MARKHAM

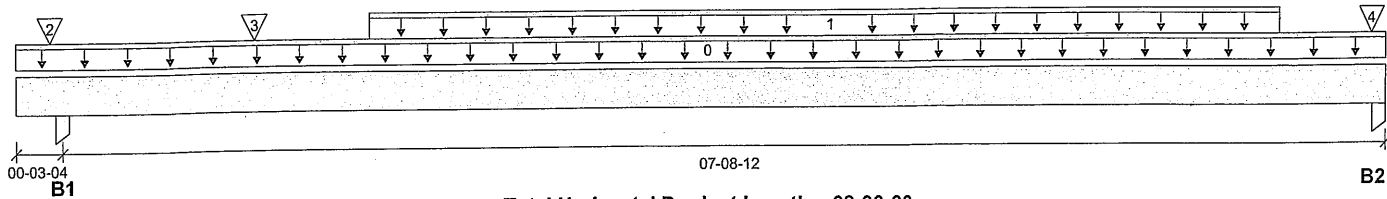
Specifier:

Customer:

Designer: L.D.

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 08-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1983 / 0	1060 / 0		
B2, 3-1/2"	712 / 0	423 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-00-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	02-00-08	07-04-08	Top	204	102			n/a
2	-	Conc. Pt. (lbs)	L	00-02-06	00-02-06	Top	1318	679			n/a
3	J6(i20460)	Conc. Pt. (lbs)	L	01-04-08	01-04-08	Top	254	127			n/a
4	E44(i69)	Conc. Pt. (lbs)	L	07-11-00	07-11-00	Top	29	34			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3187 ft-lbs	35392 ft-lbs	9.0%	1	04-00-08
End Shear	1491 lbs	14464 lbs	10.3%	1	06-08-10
Cont. Shear	1435 lbs	14464 lbs	9.9%	1	01-04-14
Total Load Deflection	L/999 (0.023")	n/a	n/a	8	04-00-08
Live Load Deflection	L/999 (0.015")	n/a	n/a	11	04-00-08
Total Neg. Defl.	2xL/1998 (-0.003")	n/a	n/a	10	00-00-00
Max Defl.	0.023"	n/a	n/a	8	04-00-08
Span / Depth	7.6				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Column	3-1/2" x 3-1/2"	4300 lbs	54.0%	28.8%	Unspecified
B2 Column	3-1/2" x 3-1/2"	1597 lbs	20.1%	10.7%	Unspecified

Cautions

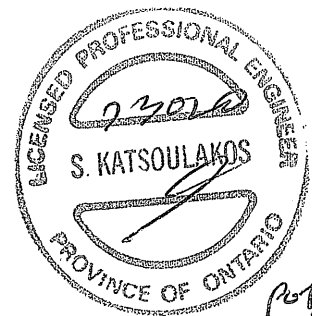
Concentrated side load(s) 1 are closer than 18" from end of member. Please consult a technical representative or Professional of Record.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9
 Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.

CONFORMS TO OBC 2012

AMENDED 2020



DWG NO. FAM 11122-20
 STRUCTURAL
 COMPONENT ONLY



Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****1ST FLR FRAMING\Flush Beams\B3 H(i20453) (Flush Beam)****PASSED**

BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: MARKHAM

Customer:

Code reports: CCMC 12472-R

Dry | 2 spans | L cant.

July 23, 2020 17:02:01

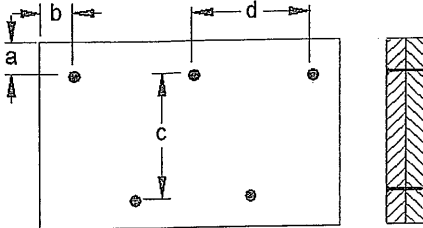
File name: KIMBERLY 4 - EL 1,2.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B3 H(i20453)

Specifier:

Designer: L.D.

Company:

Connection Diagram: Full Length of Member

a minimum = 2" c = 7-7/8"
 b minimum = 3" d = 8"

Calculated Side Load = 573.8 lb/ft

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL

OWN NO. YAM 11122-20
 STRUCTURAL
 COMPONENT ONLY

Disclosure

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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

BC CALC® Member Report

Dry | 1 span | No cant.

July 23, 2020 17:02:01

Build 7493

Job name:

File name: KIMBERLY 4 - EL 1,2.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B7 H(i20630)

City, Province, Postal Code: MARKHAM

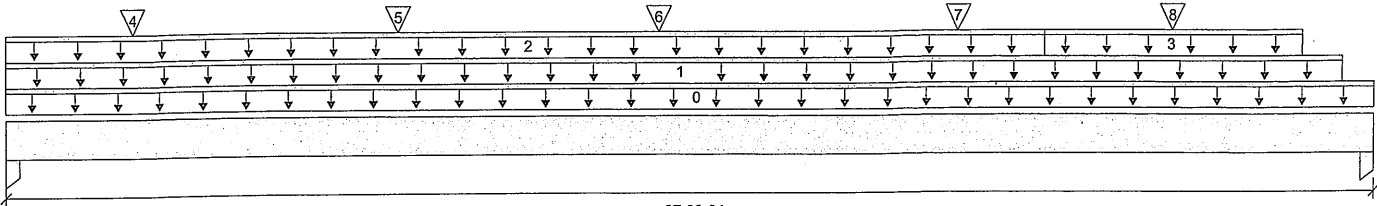
Specifier:

Customer:

Designer: L.D.

Code reports: CCMC 12472-R

Company:



B1

Total Horizontal Product Length = 07-00-04

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	2460 / 0	1554 / 0		
B2, 3-1/2"	2195 / 0	1413 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-00-04	Top		12			00-00-00
1	10(i89)	Unf. Lin. (lb/ft)	L	00-00-00	06-10-04	Top		81			n/a
2	10(i89)	Unf. Lin. (lb/ft)	L	00-00-00	05-03-12	Top	403	202			n/a
3	10(i89)	Unf. Lin. (lb/ft)	L	05-03-12	06-07-12	Top	371	186			n/a
4	J3(i20505)	Conc. Pt. (lbs)	L	00-07-12	00-07-12	Top	381	190			n/a
5	-	Conc. Pt. (lbs)	L	01-11-15	01-11-15	Top	473	236			n/a
6	J4(i20503)	Conc. Pt. (lbs)	L	03-03-12	03-03-12	Top	341	170			n/a
7	-	Conc. Pt. (lbs)	L	04-10-04	04-10-04	Top	478	239			n/a
8	J3(i20614)	Conc. Pt. (lbs)	L	05-11-12	05-11-12	Top	324	162			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	8800 ft-lbs	35392 ft-lbs	24.9%	1	03-03-12
End Shear	4748 lbs	14464 lbs	32.8%	1	05-08-14
Total Load Deflection	L/999 (0.05")	n/a	n/a	4	03-05-12
Live Load Deflection	L/999 (0.031")	n/a	n/a	5	03-05-12
Max Defl.	0.05"	n/a	n/a	4	03-05-12
Span / Depth	6.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Column	3" x 3-1/2"	5632 lbs	82.6%	44.0%	Unspecified
B2 Column	3-1/2" x 3-1/2"	5060 lbs	63.6%	33.9%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86.

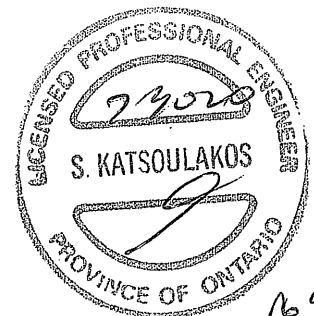
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

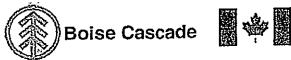
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



Draw No. FAM 11123-20
 STRUCTURAL
 COMPONENT ONLY



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
1ST FLR FRAMING\Flush Beams\B7 H(i20630) (Flush Beam)

PASSED

BC CALC® Member Report
Build 7493

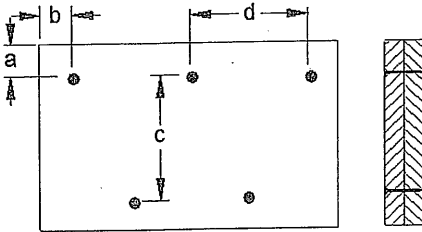
Dry | 1 span | No cant.

July 23, 2020 17:02:01

Job name:
Address:
City, Province, Postal Code: MARKHAM
Customer:
Code reports: CCMC 12472-R

File name: KIMBERLY 4 - EL 1,2.mmdl
Description: 1ST FLR FRAMING\Flush Beams\B7 H(i20630)
Specifier:
Designer: L.D.
Company:

Connection Diagram: Full Length of Member



a minimum = 2" c = 7-7/8"
b minimum = 3" d = 6"

Calculated Side Load = 869.9 lb/ft
Connectors are: 16d C 1 Nails
3 1/2" ARDOX SPIRAL



DWG NO. TAM 11/23-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

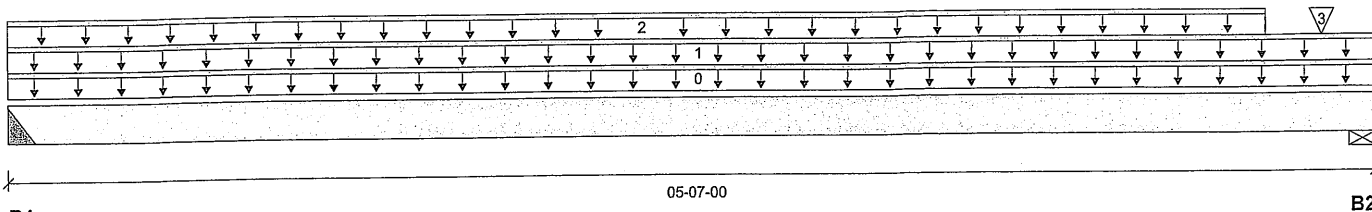
BC CALC® Member Report
 Build 7493

Dry | 1 span | No cant.

July 23, 2020 17:02:01

Job name:
 Address:
 City, Province, Postal Code: MARKHAM
 Customer:
 Code reports: CCMC 12472-R

File name: KIMBERLY 4 - EL 1,2.mmdl
 Description: 1ST FLR FRAMING\Flush Beams\B1 H(i20621)
 Specifier:
 Designer: L.D.
 Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	658 / 0	345 / 0		
B2, 5-1/2"	675 / 0	378 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-07-00	Top		6			00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-07-00	Top	5	3			n/a
2	STAIRS	Unf. Lin. (lb/ft)	L	00-00-00	05-01-08	Top	240	120			n/a
3	12(i2210)	Conc. Pt. (lbs)	L	05-04-04	05-04-04	Top	75	61			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1650 ft-lbs	17696 ft-lbs	9.3%	1	02-08-04
End Shear	765 lbs	7232 lbs	10.6%	1	01-02-14
Total Load Deflection	L/999 (0.011")	n/a	n/a	4	02-08-04
Live Load Deflection	L/999 (0.007")	n/a	n/a	5	02-08-04
Max Defl.	0.011"	n/a	n/a	4	02-08-04
Span / Depth	5.1				

Bearing Supports

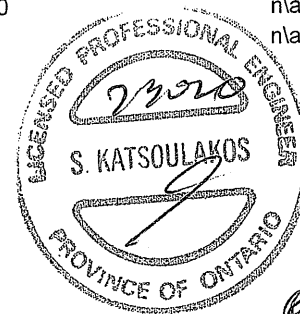
	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 3" x 1-3/4"	1419 lbs	n/a	22.2%	HUS1.81/10
B2	Wall/Plate 5-1/2" x 1-3/4"	1485 lbs	25.1%	12.6%	Spruce-Pine-Fir

Cautions

Header for the hanger HUS1.81/10 is a Double 1-3/4" x 11-7/8" LVL Beam.
 Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Hanger Manufacturer: Unassigned
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9



DWG NO. TAM 11124-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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31/03/2020 TO 08/06/2020

AMENDED 2020



Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B9(i20465) (Flush Beam)**

Dry | 1 span | No cant.

July 23, 2020 17:02:01

BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: MARKHAM

Customer:

Code reports: CCMC 12472-R

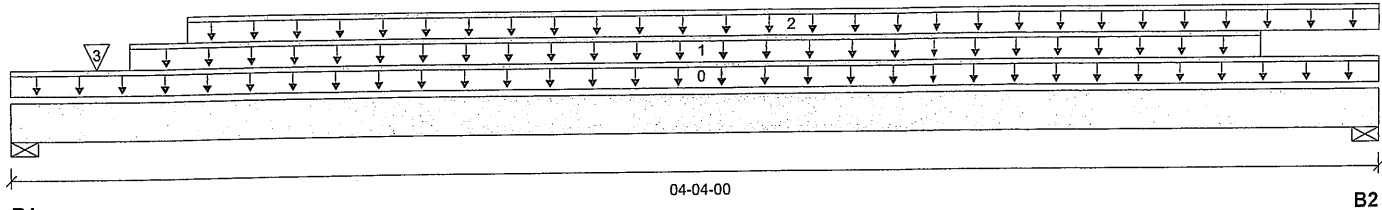
File name: KIMBERLY 4 - EL 1,2.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B9(i20465)

Specifier:

Designer: L.D.

Company:



Total Horizontal Product Length = 04-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	3215 / 0	1740 / 0		
B2, 3-1/2"	985 / 0	517 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-04-00	Top		12			00-00-00
1	STAIRS	Unf. Lin. (lb/ft)	L	00-04-08	03-11-08	Top	240	120			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-06-11	04-04-00	Top	264	132			n/a
3	26(i11628)	Conc. Pt. (lbs)	L	00-03-04	00-03-04	Top	2333	1272			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1875 ft-lbs	35392 ft-lbs	5.3%	1	02-06-08
End Shear	1557 lbs	14464 lbs	10.8%	1	03-00-10
Total Load Deflection	L/999 (0.003")	n/a	n/a	4	02-03-03
Live Load Deflection	L/999 (0.002")	n/a	n/a	5	02-03-03
Max Defl.	0.003"	n/a	n/a	4	02-03-03
Span / Depth	3.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	6999 lbs	59.1%	29.8%	Spruce-Pine-Fir
B2	Wall/Plate 3-1/2" x 3-1/2"	2125 lbs	28.2%	14.2%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.

Resistance Factor phi has been applied to all presented results per CSA O86.

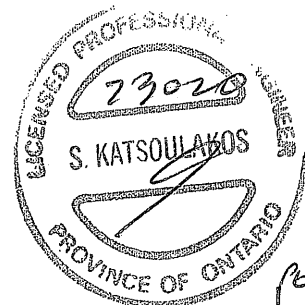
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

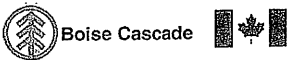
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



BWG NO. TAM 11125-20
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B9(i20465) (Flush Beam)

BC CALC® Member Report
Build 7493

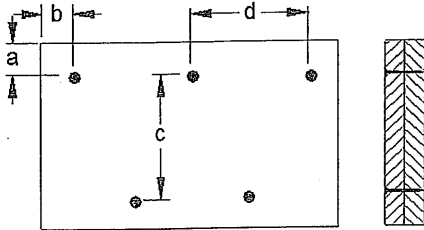
Dry | 1 span | No cant.

July 23, 2020 17:02:01

Job name:
Address:
City, Province, Postal Code: MARKHAM
Customer:
Code reports: CCMC 12472-R

File name: KIMBERLY 4 - EL 1,2.mmdl
Description: 1ST FLR FRAMING\Flush Beams\B9(i20465)
Specifier:
Designer: L.D.
Company:

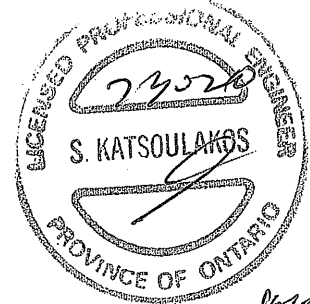
Connection Diagram: Full Length of Member



a minimum = 2" c = 7-7/8"
b minimum = 3" d = 8"

Calculated Side Load = 356.3 lb/ft
Connectors are: 16d 1 Nails

3/4" ARDOX SPIRAL



ENG. NO. 7411125-20
STRUCTURAL
COMPONENT ONLY

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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

BC CALC® Member Report

Dry | 1 span | No cant.

July 23, 2020 17:02:01

Build 7493

Job name:

File name: KIMBERLY 4 - EL 1,2.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B8(i20656)

City, Province, Postal Code: MARKHAM

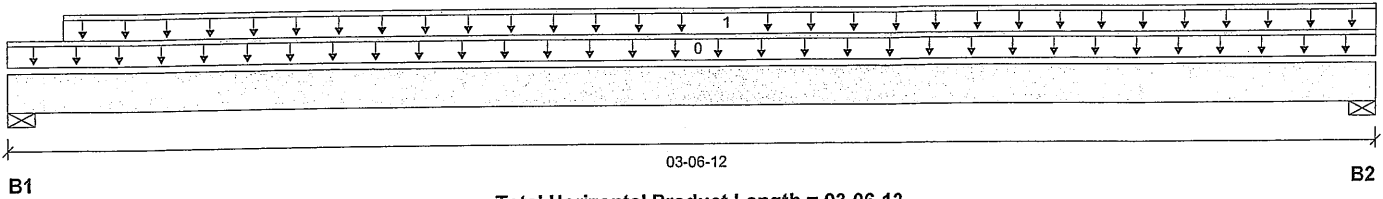
Specifier:

Customer:

Designer: L.D.

Code reports: CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	35 / 0	27 / 0		
B2, 5-1/2"	46 / 0	35 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-06-12	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-01-12	03-06-12	Top	24	12			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	69 ft-lbs	17696 ft-lbs	0.4%	1	01-07-08
End Shear	28 lbs	7232 lbs	0.4%	1	01-01-10
Total Load Deflection	L/999 (0")	n/a	n/a	4	01-07-08
Live Load Deflection	L/999 (0")	n/a	n/a	5	01-07-08
Max Defl.	0"	n/a	n/a	4	01-07-08
Span / Depth	3.1				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 1-3/4" x 1-3/4"	87 lbs	4.6%	2.3%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 1-3/4"	112 lbs	1.9%	1.0%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.
 Resistance Factor phi has been applied to all presented results per CSA O86. **CONFORMS TO OBC 2012**
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86. **AMENDED 2020**
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9



OWN NO. YAM 11126-20
STRUCTURAL
COMPONENT ONLY

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 Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

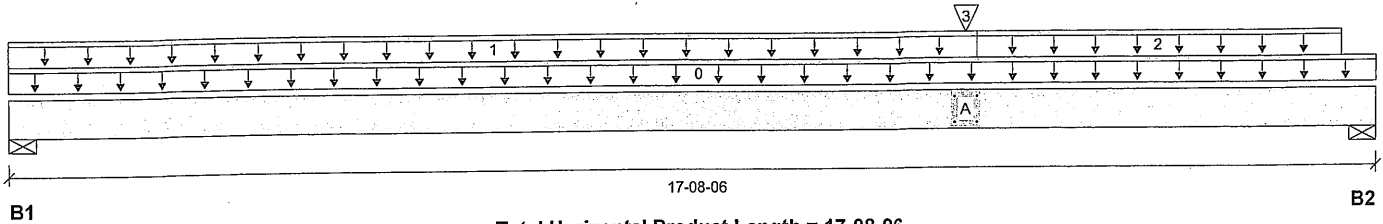
BC CALC® Member Report
 Build 7493

Dry | 1 span | No cant.

July 23, 2020 17:02:01

Job name:
 Address:
 City, Province, Postal Code: MARKHAM
 Customer:
 Code reports: CCMC 12472-R

File name: KIMBERLY 4 - EL 1,2.mmdl
 Description: 2ND FLR FRAMING\Flush Beams\B5(i20140)
 Specifier:
 Designer: L.D.
 Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	741 / 0	499 / 0		
B2, 5-1/2"	1428 / 0	875 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	17-08-06	Top		12			00-00-00
1	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	12-05-06	Top	27	13			n/a
2	FC4 Floor Material	Unf. Lin. (lb/ft)	L	12-05-06	17-02-14	Top	21	10			n/a
3	B6(i20268)	Conc. Pt. (lbs)	L	12-03-10	12-03-10	Top	1734	944			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	15391 ft-lbs	35392 ft-lbs	43.5%	1	12-03-10
End Shear	3165 lbs	14464 lbs	21.9%	1	16-03-00
Total Load Deflection	L/426 (0.479")	n/a	56.4%	4	09-06-12
Live Load Deflection	L/687 (0.297")	n/a	52.4%	5	09-06-12
Max Defl.	0.479"	n/a	n/a	4	09-06-12
Span / Depth	17.2				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 3-1/2"	1734 lbs	18.4%	9.3%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	3236 lbs	27.3%	13.8%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



SWD NO. TAM 11127-20
 STRUCTURAL
 COMPONENT ONLY

BC CALC® Member Report
Build 7493

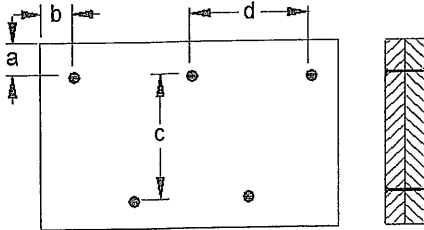
Dry | 1 span | No cant.

July 23, 2020 17:02:01

Job name:
Address:
City, Province, Postal Code: MARKHAM
Customer:
Code reports: CCMC 12472-R

File name: KIMBERLY 4 - EL 1,2.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B5(i20140)
Specifier:
Designer: L.D.
Company:

Connection Diagram: Full Length of Member

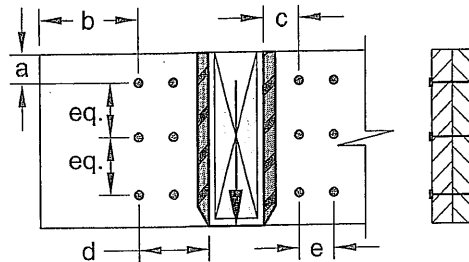


a minimum = 2"
b minimum = 3"
c = 7-7/8"
d = 8"

Connectors are: 3 1/2" ARDOX SPIRAL Nails

Connection Diagrams: Concentrated Side Loads

Connection Tag: A Applies to load tag(s): 2



a minimum = 2"
b minimum = 4"
c minimum = 4"
d maximum = 12"
e minimum = 4"
Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL



OWB NO. YAM 11127-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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BC CALC® Member Report

Dry | 1 span | No cant.

July 23, 2020 17:02:01

Build 7493

Job name:

File name: KIMBERLY 4 - EL 1,2.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B6(i20268)

City, Province, Postal Code: MARKHAM

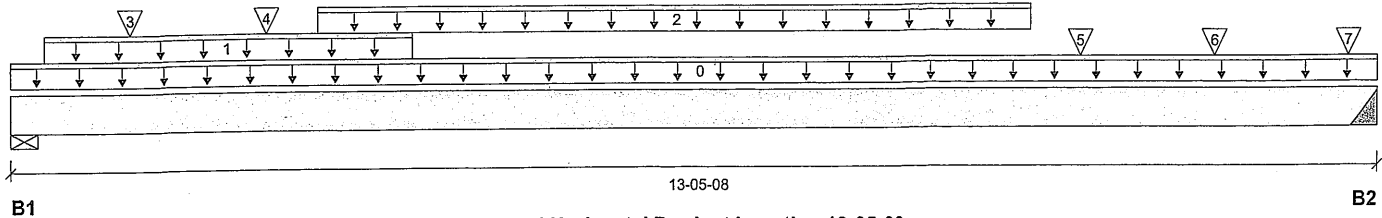
Specifier:

Customer:

Designer: L.D.

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 13-05-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	2305 / 0	1233 / 0		
B2, 4"	1762 / 0	959 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-05-08	Top		12			00-00-00
1	STAIRS	Unf. Lin. (lb/ft)	L	00-04-00	03-11-00	Top	240	120			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	03-00-00	10-00-00	Top	249	124			n/a
3	J3(i20267)	Conc. Pt. (lbs)	L	01-02-00	01-02-00	Top	328	164			n/a
4	J3(i20318)	Conc. Pt. (lbs)	L	02-06-00	02-06-00	Top	290	145			n/a
5	J3(i20173)	Conc. Pt. (lbs)	L	10-06-00	10-06-00	Top	290	145			n/a
6	J3(i20109)	Conc. Pt. (lbs)	L	11-10-00	11-10-00	Top	332	166			n/a
7	J3(i20149)	Conc. Pt. (lbs)	L	13-02-00	13-02-00	Top	220	110			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	12801 ft-lbs	35392 ft-lbs	36.2%	1	06-06-00
End Shear	4211 lbs	14464 lbs	29.1%	1	01-05-06
Total Load Deflection	L/556 (0.276")	n/a	43.1%	4	06-09-00
Live Load Deflection	L/857 (0.179")	n/a	42.0%	5	06-09-00
Max Defl.	0.276"	n/a	n/a	4	06-09-00
Span / Depth	12.9				

			Demand/Resistance Support	Demand/Resistance Member		
Bearing Supports	Dim. (LxW)	Demand			Material	
B1	Wall/Plate	5-1/2" x 3-1/2"	4999 lbs	42.2%	21.3%	Spruce-Pine-Fir
B2	Hanger	4" x 3-1/2"	3841 lbs	n/a	22.5%	HGUS410

Cautions

Header for the hanger HGUS410 is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



DWG NO. TAM 11120-20
 STRUCTURAL
 COMPONENT ONLY



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B6(i20268) (Flush Beam)

PASSED

BC CALC® Member Report
Build 7493

Dry | 1 span | No cant.

July 23, 2020 17:02:01

Job name:
Address:
City, Province, Postal Code: MARKHAM
Customer:
Code reports: CCMC 12472-R

File name: KIMBERLY 4 - EL 1,2.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B6(i20268)
Specifier:
Designer: L.D.
Company:

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

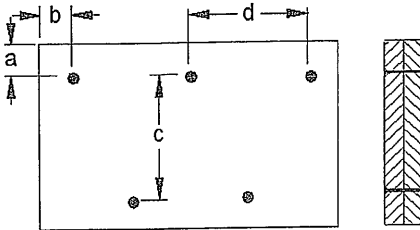
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020

Connection Diagram: Full Length of Member



a minimum = 2" c = 7-7/8"
b minimum = 3" d = 3"

Calculated Side Load = 660.9 lb/ft
Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL



HWG NO. TAM 11/28-20
STRUCTURAL
COMPONENT ONLY

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Boise Cascade



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

2ND FLR FRAMING\Dropped Beams\B10 DR(i20088) (Dropped Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

July 23, 2020 17:02:01

Build 7493

Job name:

File name: KIMBERLY 4 - EL 1,2.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B10 DR(i20088)

City, Province, Postal Code: MARKHAM

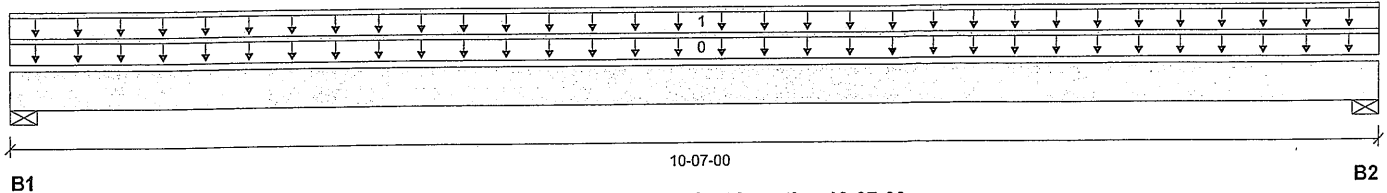
Specifier:

Customer:

Designer: L.D.

Code reports: CCMC 12472-R

Company:

**Reaction Summary (Down / Uplift) (lbs)**

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	2085 / 0	1110 / 0		
B2, 3-1/2"	2058 / 0	1096 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-07-00	Top		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	10-07-00	Top	386	194			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	10440 ft-lbs	35392 ft-lbs	29.5%	1	05-03-00
End Shear	3679 lbs	14464 lbs	25.4%	1	01-03-06
Total Load Deflection	L/878 (0.138")	n/a	27.3%	4	05-03-00
Live Load Deflection	L/999 (0.09")	n/a	n/a	5	05-03-00
Max Defl.	0.138"	n/a	n/a	4	05-03-00
Span / Depth	10.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	4515 lbs	27.6%	30.2%	Spruce-Pine-Fir
B2	Wall/Plate 3-1/2" x 3-1/2"	4457 lbs	27.3%	29.8%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Design meets Code minimum (L/360) Live load deflection criteria.

Calculations assume unbraced length of Top: 00-08-08, Bottom: 00-08-08.

Resistance Factor phi has been applied to all presented results per CSA O86.

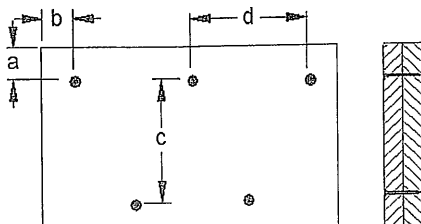
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020

Connection Diagram: Full Length of Member

OWG NO. 7AM11129 -20
STRUCTURAL
COMPONENT ONLY



Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Dropped Beams\B10 DR(i20088) (Dropped Beam)**

BC CALC® Member Report

Dry | 1 span | No cant.

July 23, 2020 17:02:01

Build 7493

Job name:

File name: KIMBERLY 4 - EL 1,2.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B10 DR(i20088)

City, Province, Postal Code: MARKHAM

Specifier:

Customer:

Designer: L.D.

Code reports: CCMC 12472-R


Company:

Connection Diagram: Full Length of Member

a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = ~~2~~ 8 21Connectors are:  Nails**3 1/2" ARDOX SPIRAL**

DWG NO. YAM 11129-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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BC CALC®, BC FRAMER®, AJS™,
 ALLJOIST®, BC RIM BOARD™, BCI®,
 BOISE GLULAM™, BC FloorValue®,
 VERSA-LAM®, VERSA-RIM PLUS®,

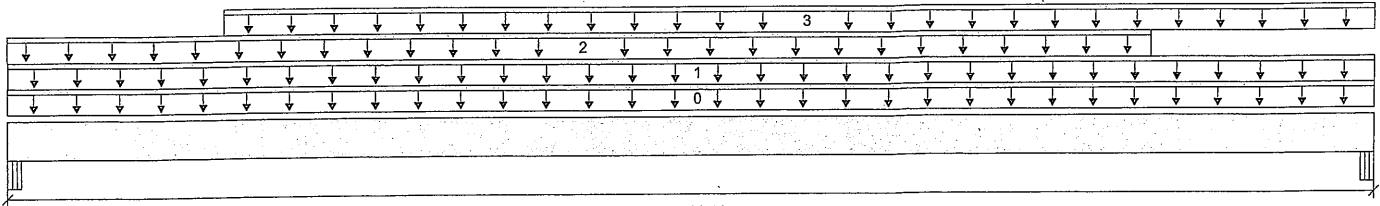
BC CALC® Member Report
 Build 7493

Dry | 1 span | No cant.

July 23, 2020 17:02:01

Job name:
 Address:
 City, Province, Postal Code: MARKHAM
 Customer:
 Code reports: CCMC 12472-R

File name: KIMBERLY 4 - EL 1,2.mmdl
 Description: 2ND FLR FRAMING\Flush Beams\B11(i20137)
 Specifier:
 Designer: L.D.
 Company:



B1

Total Horizontal Product Length = 01-04-10

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-5/8"	8 / 0	137 / 0	126 / 0	
B2, 5-1/4"	17 / 0	160 / 0	124 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-04-10	Top		12			00-00-00
1	E25(i49)	Unf. Lin. (lb/ft)	L	00-00-00	01-04-10	Top		81			n/a
2	E25(i49)	Unf. Lin. (lb/ft)	L	00-00-00	01-01-14	Top		135	216		n/a
3	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	01-04-10	Top	21	10			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	59 ft-lbs	35392 ft-lbs	0.2%	13	00-07-00
End Shear	234 lbs	14464 lbs	1.6%	13	00-02-10
Span / Depth	0.9				

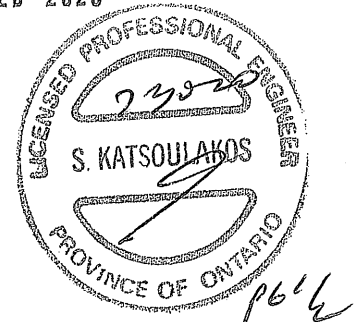
Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Beam	2-5/8" x 3-1/2"	368 lbs	9.4%	3.3%	Unspecified
B2 Beam	5-1/4" x 3-1/2"	403 lbs	5.1%	1.8%	Unspecified

Notes

Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
 Unbalanced snow loads determined from building geometry were used in selected product's verification.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



09/08/2020 11:30-20
 STRUCTURAL
 COMPONENT ONLY

BC CALC® Member Report
 Build 7493

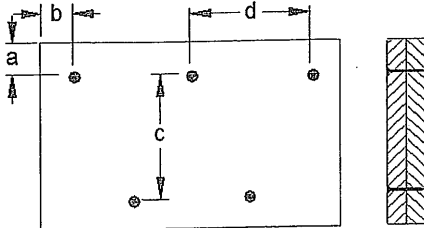
Dry | 1 span | No cant.

July 23, 2020 17:02:01


Job name:
 Address:
 City, Province, Postal Code: MARKHAM
 Customer:
 Code reports: CCMC 12472-R

File name: KIMBERLY 4 - EL 1,2.mmdl
 Description: 2ND FLR FRAMING\Flush Beams\B11(i20137)
 Specifier:
 Designer: L.D.
 Company:

Connection Diagram: Full Length of Member



a minimum = 2" c = 7-7/8"
 b minimum = 3" d = 6"

Connectors are:  Nails
 3 1/2" ARDOX SPIRAL



DWG NO. TAM 11130-20
 STRUCTURAL
 COMPONENT ONLY

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BC CALC® Member Report

Dry | 1 span | No cant.

July 23, 2020 17:05:07

Build 7493

Job name:

File name: KIMBERLY 4 - EL 3.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B13 E(i22460)

City, Province, Postal Code: MARKHAM

Specifier:

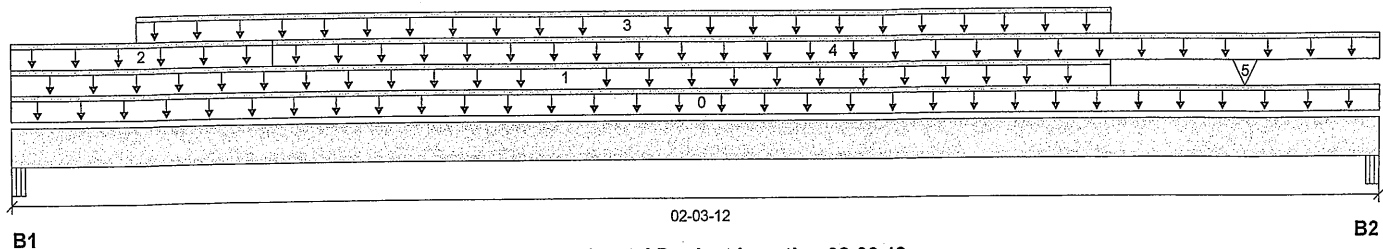
Customer:

Designer: L.D.

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 02-03-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	11 / 0	170 / 0	155 / 0	
B2, 2"	9 / 0	148 / 0	136 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	02-03-12	Top		12			00-00-00
1	E70(i18710)	Unf. Lin. (lb/ft)	L	00-00-00	01-10-04	Top		40			n/a
2	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	00-05-04	Top	6				n/a
3	E70(i18710)	Unf. Lin. (lb/ft)	L	00-02-08	01-10-04	Top		90	144		n/a
4	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-05-04	02-03-12	Top	9	5			n/a
5	E69(i18709)	Conc. Pt. (lbs)	L	02-01-00	02-01-00	Top		57	54		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	169 ft-lbs	35392 ft-lbs	0.5%	13	01-03-08
End Shear	222 lbs	14464 lbs	1.5%	13	01-01-14
Total Load Deflection	L/999 (0")	n/a	n/a	35	01-03-08
Max Defl.	0"	n/a	n/a	35	01-03-08
Span / Depth	1.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 5-1/4" x 3-1/2"	455 lbs	4.6%	2.0%	Unspecified
B2	Beam 2" x 3-1/2"	399 lbs	10.7%	4.7%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



DWG NO. TAM 11131-20
 STRUCTURAL
 COMPONENT ONLY



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B13 E(i22460) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

July 23, 2020 17:05:07

Build 7493

Job name:

File name: KIMBERLY 4 - EL 3.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B13 E(i22460)

City, Province, Postal Code: MARKHAM

Specifier:

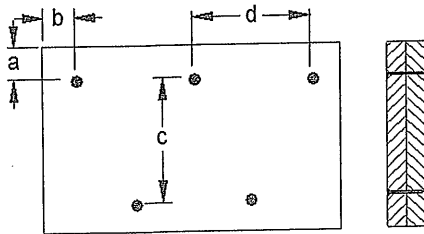
Customer:

Designer: L.D.

Code reports: CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = 6"

Connectors are: 1 Nails

3 1/2" ARDOX SPIRAL



pg 2/2

DWG NO. TAM 11131-20
STRUCTURAL
COMPONENT ONLY

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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

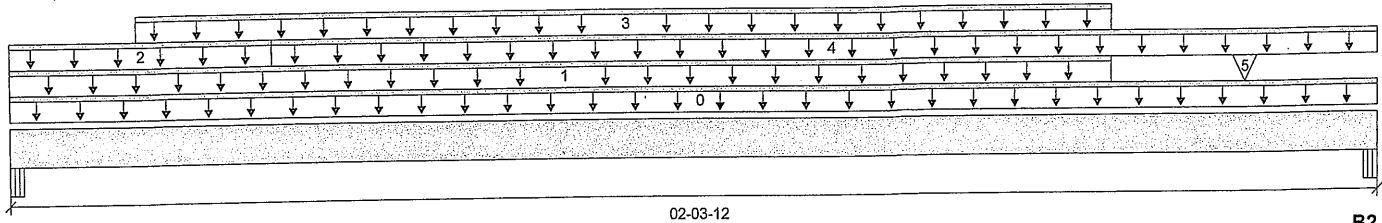
BC CALC® Member Report
 Build 7493

Dry | 1 span | No cant.

July 23, 2020 17:05:07

Job name:
 Address:
 City, Province, Postal Code: MARKHAM
 Customer:
 Code reports: CCMC 12472-R

File name: KIMBERLY 4 - EL 3.mmdl
 Description: 2ND FLR FRAMING\Flush Beams\B14 E(i22445)
 Specifier:
 Designer: L.D.
 Company:



Total Horizontal Product Length = 02-03-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	13 / 0	222 / 0	155 / 0	
B2, 2"	11 / 0	180 / 0	140 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	02-03-12	Top		12			00-00-00
1	E71(i18711)	Unf. Lin. (lb/ft)	L	00-00-00	01-10-04	Top		81			n/a
2	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	00-05-04	Top	8				n/a
3	E71(i18711)	Unf. Lin. (lb/ft)	L	00-02-08	01-10-04	Top		90	144		n/a
4	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-05-04	02-03-12	Top	11	5			n/a
5	E75(i21506)	Conc. Pt. (lbs)	L	02-01-00	02-01-00	Top		64	58		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	191 ft-lbs	35392 ft-lbs	0.5%	13	01-03-08
End Shear	253 lbs	14464 lbs	1.7%	23	01-01-14
Total Load Deflection	L/999 (0")	n/a	n/a	35	01-03-08
Live Load Deflection	L/999 (0")	n/a	n/a	51	01-03-08
Max Defl.	0"	n/a	n/a	35	01-03-08
Span / Depth	1.9				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	5-1/4" x 3-1/2"	523 lbs	5.3%	2.3%	Unspecified
B2 Beam	2" x 3-1/2"	446 lbs	11.9%	5.2%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
 Unbalanced snow loads determined from building geometry were used in selected product's verification.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



SWG NO. TAM 11132-20
 STRUCTURAL
 COMPONENT ONLY



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B14 E(i22445) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

July 23, 2020 17:05:07

Build 7493

Job name:

File name: KIMBERLY 4 - EL 3.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B14 E(i22445)

City, Province, Postal Code: MARKHAM

Specifier:

Customer:

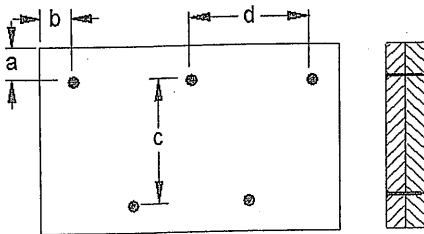
Designer: L.D.

Code reports:

CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

c = 7-7/8"
d = 6"

Connectors are: 3/4" ARDOX SPIRAL Nails

3/4" ARDOX SPIRAL



OWN NO. TAM 11/32-20
STRUCTURAL
COMPONENT ONLY

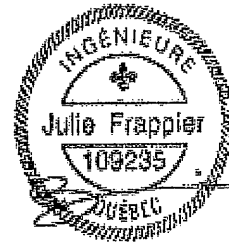
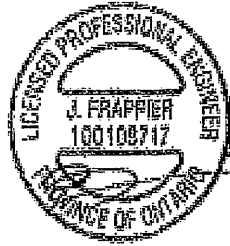
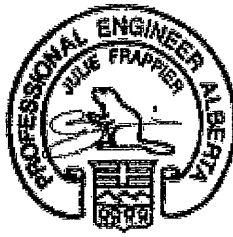
Disclosure

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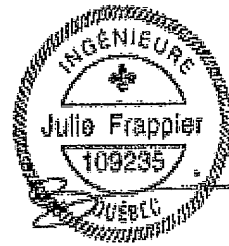
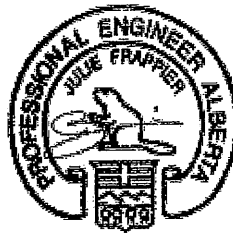
Maximum Floor Spans

Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing



Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	N/A
	NI-70	17'-1"	16'-1"	15'-6"	N/A	17'-5"	16'-5"	15'-10"	N/A
	NI-80	17'-3"	16'-3"	15'-8"	N/A	17'-8"	16'-7"	16'-0"	N/A
11-7/8"	NI-20	16'-11"	16'-0"	15'-5"	N/A	17'-6"	16'-6"	16'-0"	N/A
	NI-40x	18'-1"	17'-0"	16'-5"	N/A	18'-9"	17'-6"	16'-11"	N/A
	NI-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17'-8"	17'-1"	N/A
	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A
14"	NI-40x	20'-1"	18'-7"	17'-10"	N/A	20'-10"	19'-4"	18'-6"	N/A
	NI-60	20'-5"	18'-11"	18'-1"	N/A	21'-2"	19'-7"	18'-9"	N/A
	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
16"	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A
	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A
	NI-80	23'-11"	22'-1"	21'-1"	N/A	24'-8"	22'-10"	21'-9"	N/A
	NI-90x	24'-8"	22'-9"	21'-9"	N/A	25'-4"	23'-5"	22'-4"	N/A
Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-8"	15'-3"	14'-5"	N/A	16'-8"	15'-3"	14'-5"	N/A
	NI-40x	17'-11"	16'-11"	16'-1"	N/A	18'-5"	17'-1"	16'-1"	N/A
	NI-60	18'-2"	17'-1"	16'-4"	N/A	18'-7"	17'-4"	16'-4"	N/A
	NI-70	19'-2"	17'-10"	17'-2"	N/A	19'-7"	18'-3"	17'-7"	N/A
	NI-80	19'-5"	18'-0"	17'-4"	N/A	19'-10"	18'-5"	17'-8"	N/A
11-7/8"	NI-20	19'-6"	18'-1"	17'-3"	N/A	19'-11"	18'-3"	17'-3"	N/A
	NI-40x	21'-0"	19'-6"	18'-8"	N/A	21'-7"	20'-2"	19'-2"	N/A
	NI-60	21'-4"	19'-9"	18'-11"	N/A	21'-11"	20'-4"	19'-6"	N/A
	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-5"	20'-5"	N/A
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"	20'-8"	N/A
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
14"	NI-40x	23'-7"	21'-11"	20'-11"	N/A	24'-3"	22'-7"	21'-7"	N/A
	NI-60	24'-0"	22'-3"	21'-3"	N/A	24'-8"	22'-11"	21'-11"	N/A
	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-11"	N/A
	NI-80	25'-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A
	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
16"	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	25'-3"	24'-2"	N/A
	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A
	NI-80	28'-2"	26'-1"	24'-10"	N/A	28'-10"	26'-9"	25'-6"	N/A
	NI-90x	29'-0"	26'-10"	25'-7"	N/A	29'-7"	27'-5"	26'-2"	N/A

- Maximum clear span applicable to simple-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 consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- 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. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is 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. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



Maximum Floor Spans

Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing

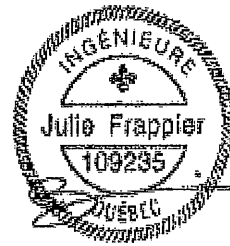
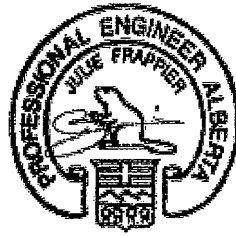
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9'-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"	16'-7"	15'-11"	15'-3"
	NI-70	18'-0"	16'-11"	16'-3"	15'-7"	18'-5"	17'-3"	16'-7"	15'-11"
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	16'-1"
11'-7/8"	NI-20	17'-10"	16'-10"	16'-2"	15'-6"	18'-6"	17'-4"	16'-9"	16'-1"
	NI-40x	19'-4"	17'-11"	17'-3"	16'-6"	19'-11"	18'-6"	17'-9"	17'-0"
	NI-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	18'-9"	17'-11"	17'-2"
	NI-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"	18'-10"	17'-10"
	NI-80	21'-1"	19'-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
	NI-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"
14"	NI-40x	21'-5"	19'-10"	18'-11"	17'-11"	22'-1"	20'-6"	19'-7"	18'-7"
	NI-60	21'-10"	20'-2"	19'-3"	18'-2"	22'-5"	20'-10"	19'-11"	18'-10"
	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"	20'-10"	19'-9"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
	NI-90x	24'-1"	22'-3"	21'-2"	20'-0"	24'-8"	22'-10"	21'-9"	20'-7"
16"	NI-60	23'-9"	22'-0"	20'-11"	19'-10"	24'-6"	22'-9"	21'-8"	20'-6"
	NI-70	25'-1"	23'-2"	22'-0"	20'-10"	25'-9"	23'-10"	22'-9"	21'-6"
	NI-80	25'-6"	23'-6"	22'-4"	21'-2"	26'-1"	24'-2"	23'-1"	21'-10"
	NI-90x	26'-4"	24'-3"	23'-1"	21'-10"	26'-11"	24'-11"	23'-8"	22'-5"

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9'-1/2"	NI-20	16'-10"	15'-5"	14'-6"	13'-5"	16'-10"	15'-5"	14'-6"	13'-5"
	NI-40x	18'-8"	17'-2"	16'-3"	15'-2"	18'-10"	17'-2"	16'-3"	15'-2"
	NI-60	18'-11"	17'-6"	16'-6"	15'-5"	19'-2"	17'-6"	16'-6"	15'-5"
	NI-70	20'-0"	18'-7"	17'-9"	16'-7"	20'-5"	18'-11"	17'-10"	16'-7"
	NI-80	20'-3"	18'-10"	17'-11"	16'-10"	20'-8"	19'-3"	18'-2"	16'-10"
11'-7/8"	NI-20	20'-1"	18'-5"	17'-5"	16'-2"	20'-1"	18'-5"	17'-5"	16'-2"
	NI-40x	21'-10"	20'-4"	19'-4"	17'-8"	22'-5"	20'-6"	19'-4"	17'-8"
	NI-60	22'-1"	20'-7"	19'-7"	18'-4"	22'-8"	20'-10"	19'-8"	18'-4"
	NI-70	23'-4"	21'-8"	20'-8"	19'-7"	23'-10"	22'-3"	21'-2"	19'-9"
	NI-80	23'-7"	21'-11"	20'-11"	19'-9"	24'-1"	22'-6"	21'-5"	20'-0"
	NI-90x	24'-3"	22'-6"	21'-6"	20'-4"	24'-8"	23'-0"	22'-0"	20'-9"
14"	NI-40x	24'-5"	22'-9"	21'-8"	19'-5"	25'-1"	23'-2"	21'-9"	19'-5"
	NI-60	24'-10"	23'-1"	22'-0"	20'-10"	25'-6"	23'-8"	22'-4"	20'-10"
	NI-70	26'-1"	24'-3"	23'-2"	21'-10"	26'-8"	24'-11"	23'-9"	22'-4"
	NI-80	26'-6"	24'-7"	23'-5"	22'-2"	27'-1"	25'-3"	24'-1"	22'-9"
	NI-90x	27'-3"	25'-4"	24'-1"	22'-9"	27'-9"	25'-11"	24'-8"	23'-4"
16"	NI-60	27'-3"	25'-5"	24'-2"	22'-10"	28'-0"	26'-2"	24'-9"	23'-1"
	NI-70	28'-8"	26'-8"	25'-4"	23'-11"	29'-3"	27'-4"	26'-1"	24'-8"
	NI-80	29'-1"	27'-0"	25'-9"	24'-4"	29'-8"	27'-9"	26'-5"	25'-0"
	NI-90x	29'-11"	27'-10"	26'-6"	25'-0"	30'-6"	28'-5"	27'-2"	25'-8"

- Maximum clear span applicable to simple-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 consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
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Maximum Floor Spans

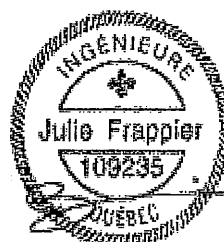
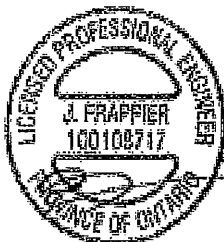
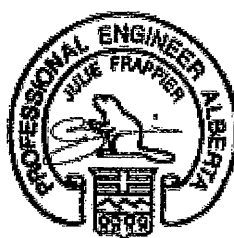
Live Load = 40 psf, Dead Load = 30 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing



Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	N/A
	NI-70	17'-1"	16'-1"	15'-6"	N/A	17'-5"	16'-5"	15'-10"	N/A
	NI-80	17'-3"	16'-3"	15'-8"	N/A	17'-8"	16'-7"	16'-0"	N/A
11-7/8"	NI-20	16'-11"	16'-0"	15'-5"	N/A	17'-6"	16'-6"	16'-0"	N/A
	NI-40x	18'-1"	17'-0"	16'-5"	N/A	18'-9"	17'-6"	16'-11"	N/A
	NI-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17'-8"	17'-1"	N/A
	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A
14"	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A
	NI-40x	20'-1"	18'-7"	17'-10"	N/A	20'-10"	19'-4"	18'-6"	N/A
	NI-60	20'-5"	18'-11"	18'-1"	N/A	21'-2"	19'-7"	18'-9"	N/A
	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A
16"	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A
	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A
	NI-80	23'-11"	22'-1"	21'-1"	N/A	24'-8"	22'-10"	21'-9"	N/A
	NI-90x	24'-8"	22'-9"	21'-9"	N/A	25'-4"	23'-5"	22'-4"	N/A

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	17'-9"	16'-1"	15'-1"	N/A	17'-9"	16'-1"	15'-1"	N/A
	NI-60	18'-1"	16'-4"	15'-4"	N/A	18'-1"	16'-4"	15'-4"	N/A
	NI-70	19'-2"	17'-10"	16'-9"	N/A	19'-7"	17'-10"	16'-9"	N/A
	NI-80	19'-5"	18'-0"	17'-1"	N/A	19'-10"	18'-3"	17'-1"	N/A
11-7/8"	NI-20	18'-9"	17'-0"	16'-0"	N/A	18'-9"	17'-0"	16'-0"	N/A
	NI-40x	21'-0"	19'-3"	17'-9"	N/A	21'-3"	19'-3"	17'-9"	N/A
	NI-60	21'-4"	19'-8"	18'-5"	N/A	21'-8"	19'-8"	18'-5"	N/A
	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-4"	20'-0"	N/A
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"	20'-5"	N/A
14"	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
	NI-40x	23'-7"	21'-5"	19'-6"	N/A	24'-1"	21'-5"	19'-6"	N/A
	NI-60	24'-0"	22'-3"	21'-0"	N/A	24'-8"	22'-5"	21'-0"	N/A
	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-9"	N/A
	NI-80	25'-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A
16"	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	24'-10"	23'-4"	N/A
	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A
	NI-80	28'-2"	26'-1"	24'-10"	N/A	28'-10"	26'-9"	25'-6"	N/A
	NI-90x	29'-0"	26'-10"	25'-7"	N/A	29'-7"	27'-5"	26'-2"	N/A

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. 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.
- 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. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is 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. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



Maximum Floor Spans

Live Load = 40 psf, Dead Load = 30 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing

Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16'-1"	15'-1"	13'-11"
	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"	16'-5"	15'-5"	14'-3"
	NI-70	18'-0"	16'-11"	16'-3"	15'-6"	18'-5"	17'-3"	16'-7"	15'-6"
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	15'-10"
11-7/8"	NI-20	17'-10"	16'-10"	16'-0"	14'-10"	18'-6"	17'-1"	16'-0"	14'-10"
	NI-40x	19'-4"	17'-11"	17'-3"	15'-10"	19'-11"	18'-6"	17'-9"	15'-10"
	NI-60	19'-7"	18'-2"	17'-9"	16'-9"	20'-2"	18'-9"	17'-11"	17'-1"
	NI-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"	18'-10"	17'-10"
	NI-80	21'-1"	19'-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
14"	NI-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"
	NI-40x	21'-5"	19'-10"	18'-11"	17'-5"	22'-1"	20'-6"	19'-6"	17'-5"
	NI-60	21'-10"	20'-2"	19'-3"	18'-2"	22'-5"	20'-10"	19'-11"	18'-10"
	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"	20'-10"	19'-9"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
16"	NI-90x	24'-1"	22'-3"	21'-2"	20'-0"	24'-8"	22'-10"	21'-9"	20'-7"
	NI-60	23'-9"	22'-0"	20'-11"	19'-10"	24'-6"	22'-9"	21'-8"	20'-6"
	NI-70	25'-1"	23'-2"	22'-0"	20'-10"	25'-9"	23'-10"	22'-9"	21'-6"
	NI-80	25'-6"	23'-6"	22'-4"	21'-2"	26'-1"	24'-2"	23'-1"	21'-10"
	NI-90x	26'-4"	24'-3"	23'-1"	21'-10"	26'-11"	24'-11"	23'-8"	22'-5"

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-9"	16'-1"	15'-1"	13'-11"	17'-9"	16'-1"	15'-1"	13'-11"
	NI-60	18'-1"	16'-5"	15'-5"	14'-3"	18'-1"	16'-5"	15'-5"	14'-3"
	NI-70	19'-10"	17'-11"	16'-9"	15'-6"	19'-10"	17'-11"	16'-9"	15'-6"
	NI-80	20'-2"	18'-3"	17'-1"	15'-10"	20'-2"	18'-3"	17'-1"	15'-10"
11-7/8"	NI-20	18'-10"	17'-1"	16'-0"	14'-10"	18'-10"	17'-1"	16'-0"	14'-10"
	NI-40x	21'-3"	19'-3"	17'-9"	15'-10"	21'-3"	19'-3"	17'-9"	15'-10"
	NI-60	21'-9"	19'-8"	18'-5"	17'-1"	21'-9"	19'-8"	18'-5"	17'-1"
	NI-70	23'-4"	21'-5"	20'-1"	18'-6"	23'-8"	21'-5"	20'-1"	18'-6"
	NI-80	23'-7"	21'-10"	20'-5"	18'-11"	24'-1"	21'-10"	20'-5"	18'-11"
14"	NI-90x	24'-3"	22'-6"	21'-3"	19'-7"	24'-8"	22'-7"	21'-3"	19'-7"
	NI-40x	24'-2"	21'-5"	19'-6"	17'-5"	24'-2"	21'-5"	19'-6"	17'-5"
	NI-60	24'-9"	22'-5"	21'-0"	19'-6"	24'-9"	22'-5"	21'-0"	19'-6"
	NI-70	26'-1"	24'-3"	22'-9"	21'-0"	26'-8"	24'-3"	22'-9"	21'-0"
	NI-80	26'-6"	24'-7"	23'-3"	21'-6"	27'-1"	24'-10"	23'-3"	21'-6"
16"	NI-90x	27'-3"	25'-4"	24'-1"	22'-4"	27'-9"	25'-10"	24'-3"	22'-4"
	NI-60	27'-3"	24'-11"	23'-5"	21'-7"	27'-6"	24'-11"	23'-5"	21'-7"
	NI-70	28'-8"	26'-8"	25'-3"	23'-4"	29'-3"	26'-11"	25'-3"	23'-4"
	NI-80	29'-1"	27'-0"	25'-9"	23'-10"	29'-8"	27'-6"	25'-10"	23'-10"
	NI-90x	29'-11"	27'-10"	26'-6"	24'-10"	30'-6"	28'-5"	26'-11"	24'-10"

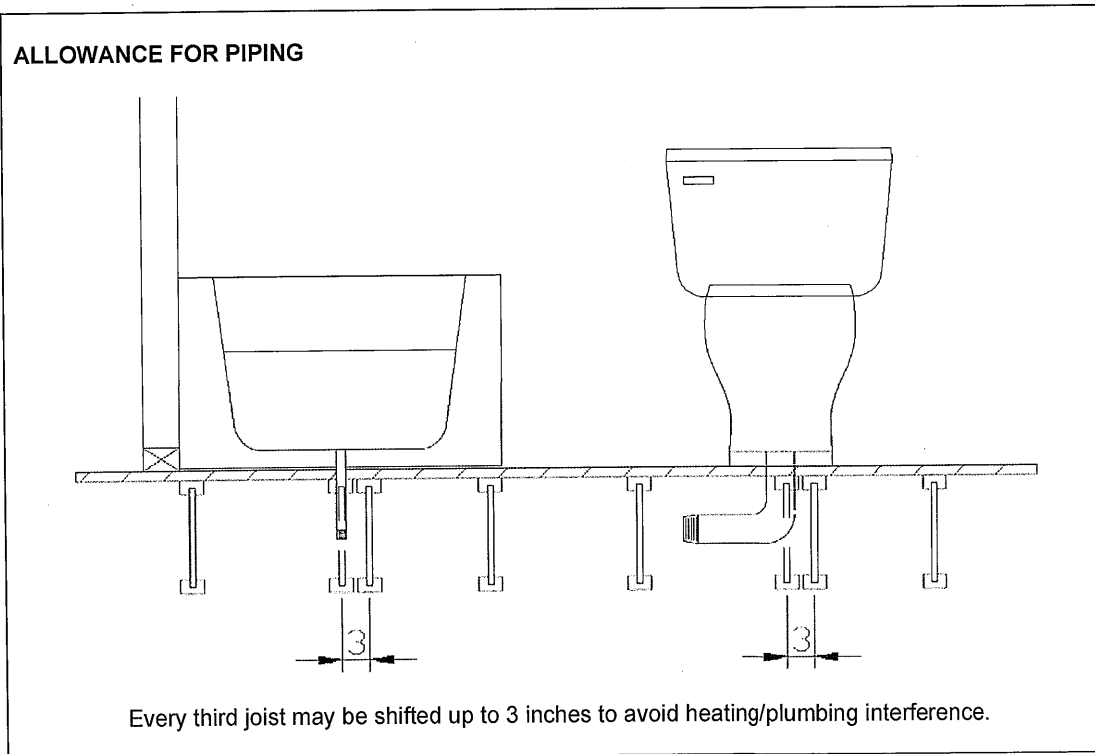
- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is 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. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.

Allowance for Piping (Installation Notes)

The floor layouts have usually not been checked for heating and/or plumbing interference. On-site adjustment of joists of up to 3 inches is permitted to avoid interferences. When moving a joist, the subfloor thickness shall be checked with code requirements when the joist spacing exceeds 19.2 inches. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.

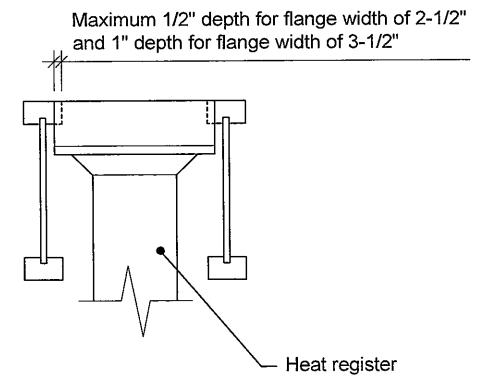
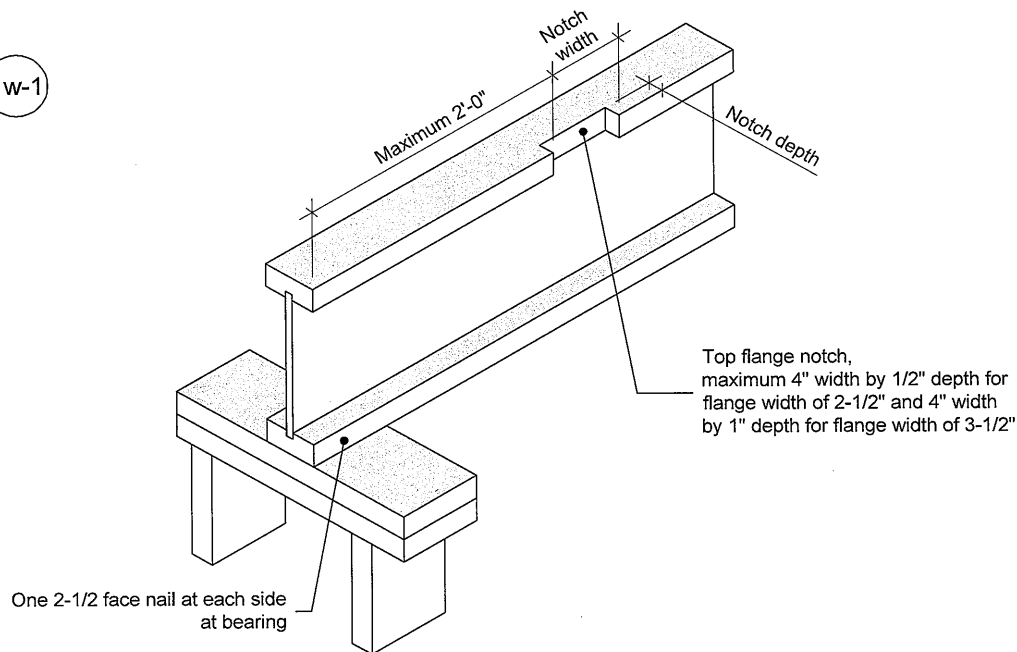
Installation of Nordic I-joists shall be as per *Nordic Joist Installation Guide for Residential Floors*. Refer to Tables 1 and 2 for maximum web hole and duct chase openings, respectively. These tables are based on the I-joists being used at their maximum spans. The minimum distance given may be reduced for shorter spans; contact your distributor for additional information.

The detail below shows the 3-inch allowance for piping. Every third joist may be shifted up to 3 inches to avoid heating/plumbing interference. For other applications, please contact your distributor.



Revised April 12, 2012

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Notes:

1. Blocking required at bearing for lateral support, not shown for clarity.
2. The maximum dimensions for a notch on the side of the top flange are 4-inch width by 1/2-inch depth for flange width of 2-1/2 inches, and 4-inch width by 1-inch depth for flange width of 3-1/2 inches.
3. This detail applies to simple-span joists and multiple-span joists where the notch is located at the end half-span.
4. For other applications, contact Nordic Structures.

This document supersedes all previous versions. If the document has been in effect for more than one year, consult nordic.ca or contact Nordic Structures.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.

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TITLE

Notch in I-joist for Heat Register

CATEGORY

I-joist - Typical Floor Framing and Construction Details

DOCUMENT

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