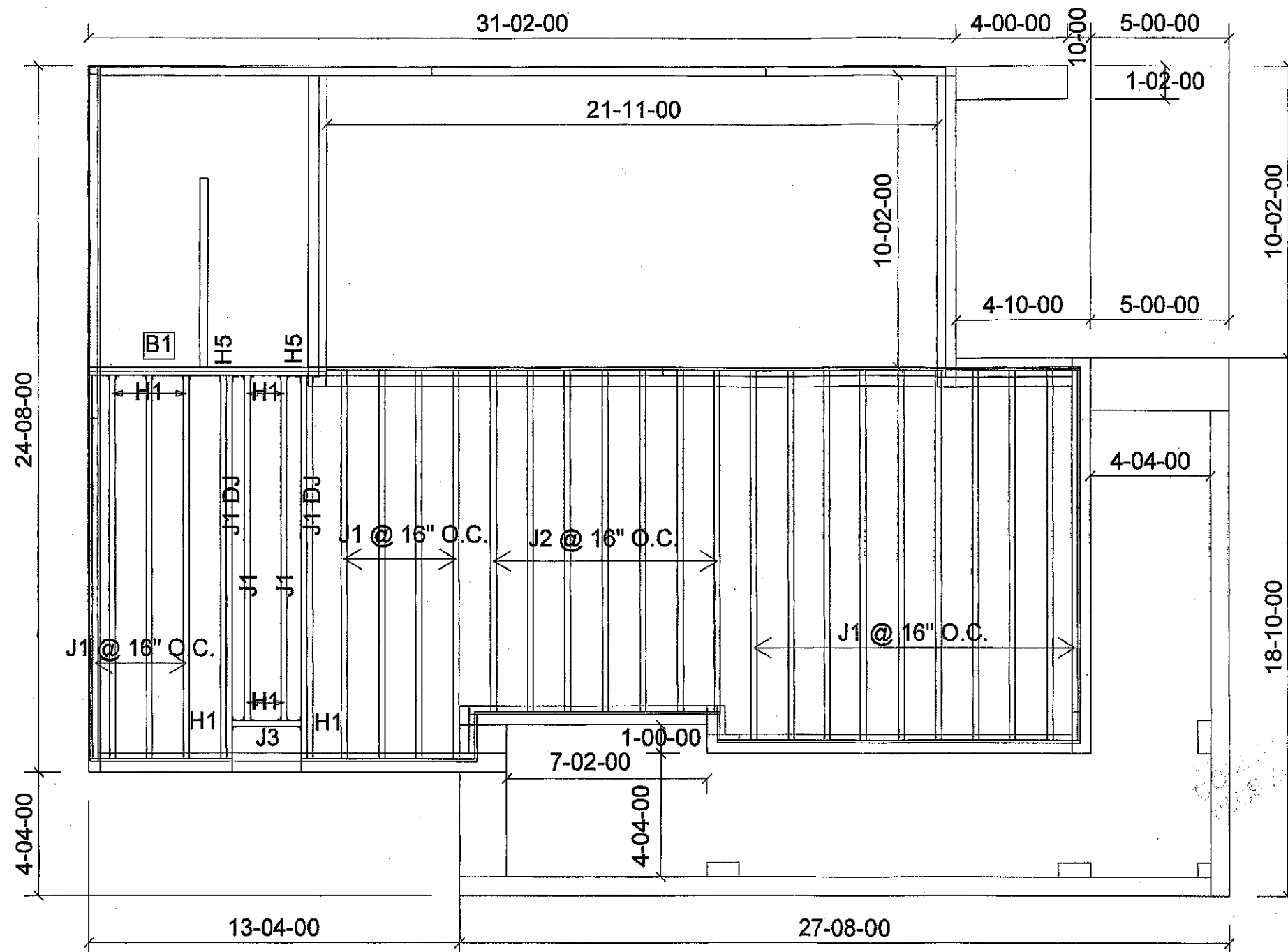
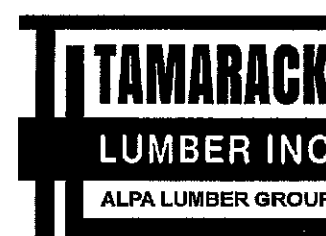


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Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	20
J1 DJ	14-00-00	9 1/2" NI-40x	2	4
J2	12-00-00	9 1/2" NI-40x	1	7
J3	4-00-00	9 1/2" NI-40x	1	1
B1	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
5	H1	IUS2.56/9.5
2	H1	IUS2.56/9.5
2	H1	IUS2.56/9.5
2	H5	HU310-2



FROM PLAN DATED:

BUILDER: GREENPARK HOMES

SITE: LAMBERTS LANE

MODEL: URBAN 12

ELEVATION: 1 & 2

LOT:

CITY: CALEDON

SALESMAN: MD

DESIGNER: PL

REVISION: lbv

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 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 TILE APPLICATION AS PER PERMITS. 13016

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LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2019-06-20

LOWER LEVEL

FROM PLAN DATED:

BUILDER: GREENPARK HOMES

SITE: LAMBERTS LANE

MODEL: URBAN 12

ELEVATION: 1 & 2

LOT:

CITY: CALEDON

SALESMAN: MD

DESIGNER: PL

REVISION: lbv

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 ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURE 7 TABLES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIELD CUT OPENINGS SEE FIGURE 7 TABLES 1 & 2 OF THE INSTALLATION GUIDE. CERAMIC TILE APPLICATION AS PER O.P.C. 0800

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JUL 11 2019

LOADING:

DESIGN LOADS: L/480

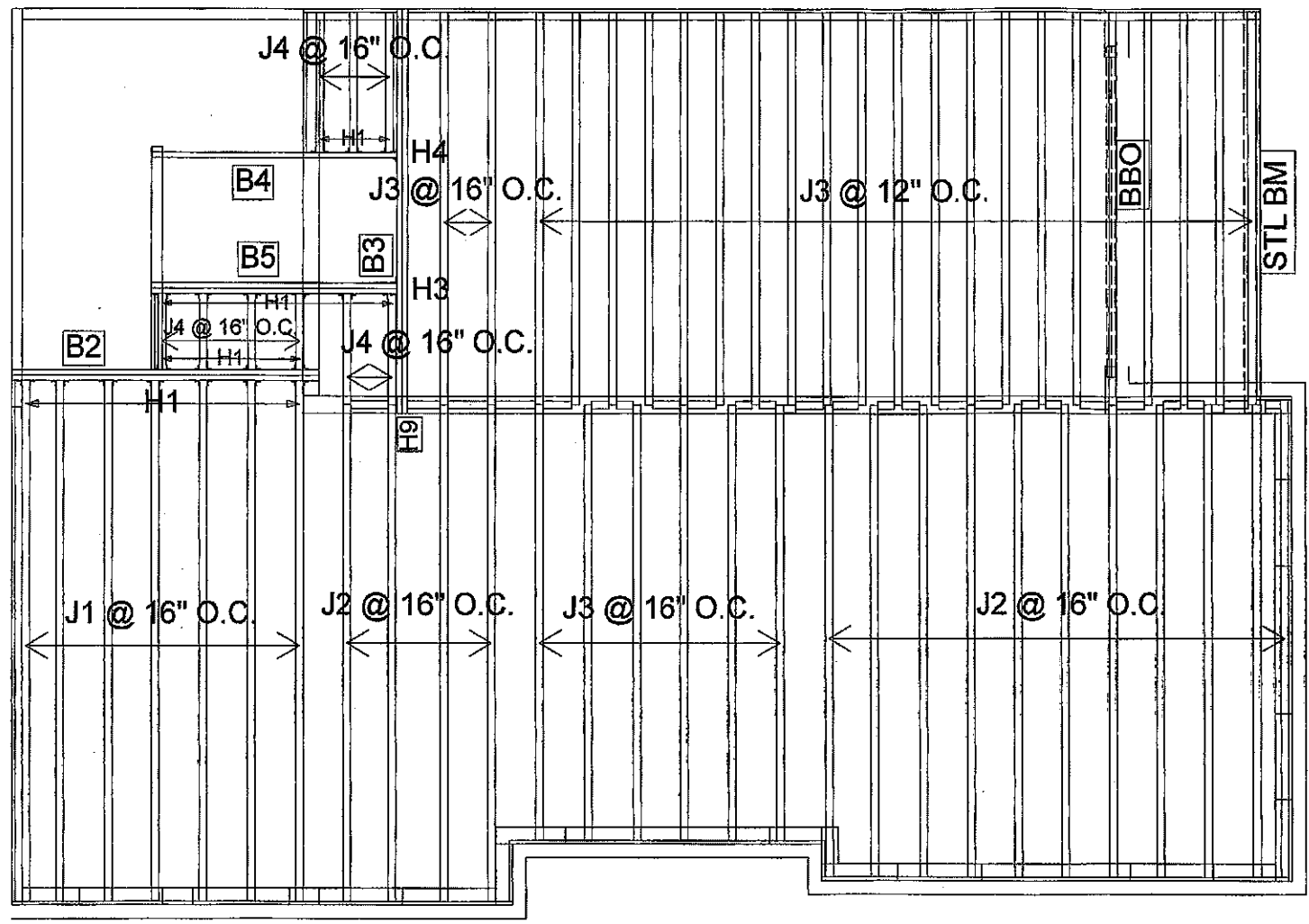
LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2019-06-20

MAIN LEVEL



Products					Connector Summary		
PlotID	Length	Product	Plies	Net Qty	Qty	Manuf	Product
J1	16-00-00	9 1/2" NI-40x	1	7	3	H1	IUS2.56/9.5
J2	14-00-00	9 1/2" NI-40x	1	15	17	H1	IUS2.56/9.5
J3	12-00-00	9 1/2" NI-40x	1	29	1	H3	HGUS410
J4	4-00-00	9 1/2" NI-40x	1	9	1	H4	HUS1.81/10
B3	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2	1	H9	H2.5A*
B2	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2			
B4	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1			
B5	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2			

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FROM PLAN DATED:

BUILDER: GREENPARK HOMES

SITE: LAMBERTS LANE

MODEL: URBAN 12

ELEVATION: 1 & 2

LOT:

CITY: CALEDON

SALESMAN: MD

DESIGNER: PL

REVISION: lbv

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 ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURE 7 TABLES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7 TABLES 1 & 2 OF THE INSTALLATION GUIDE. **CERAMIC TILE** APPLICATION AS PER O.B.C. 9.30.6

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LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

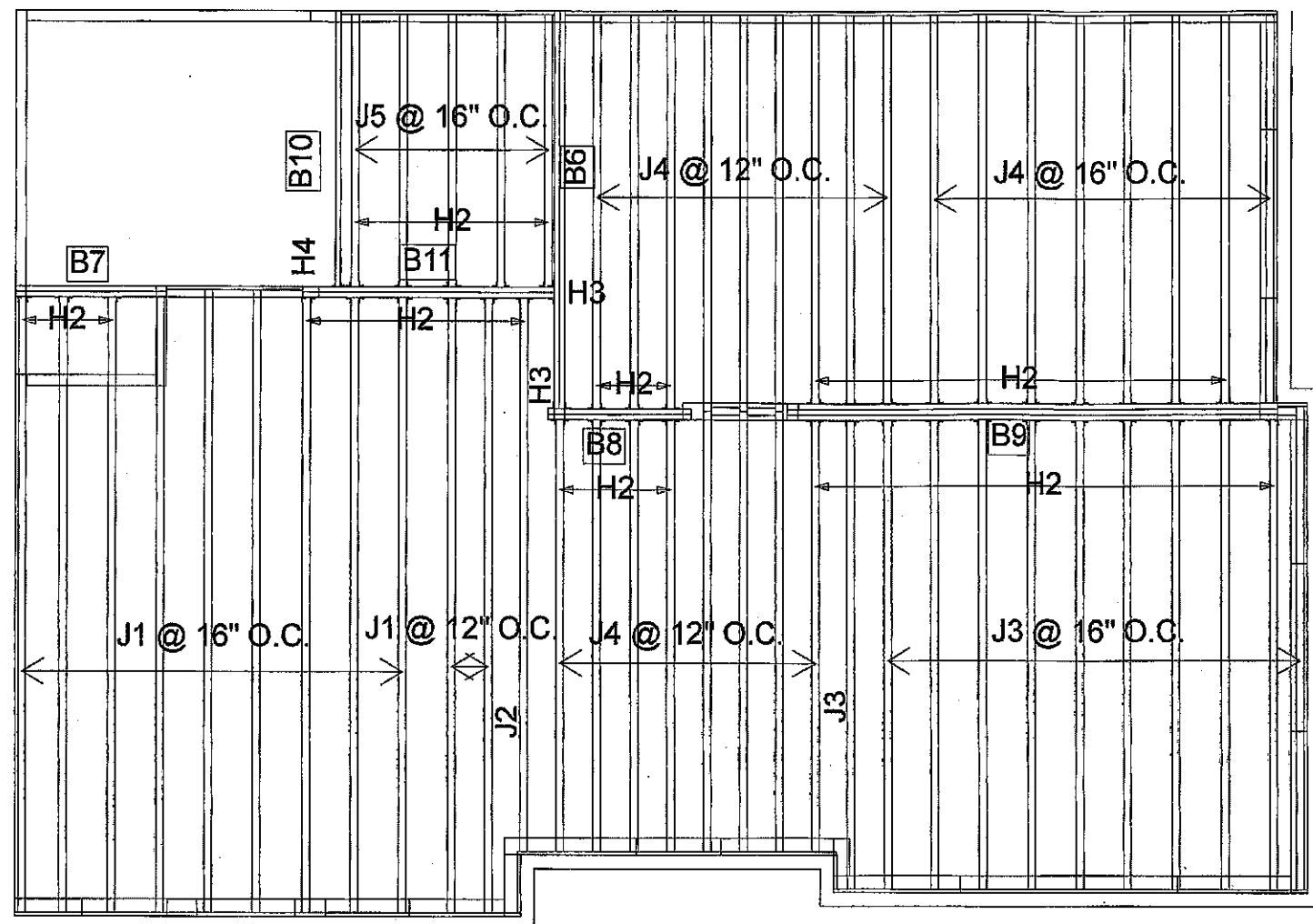
DEAD LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

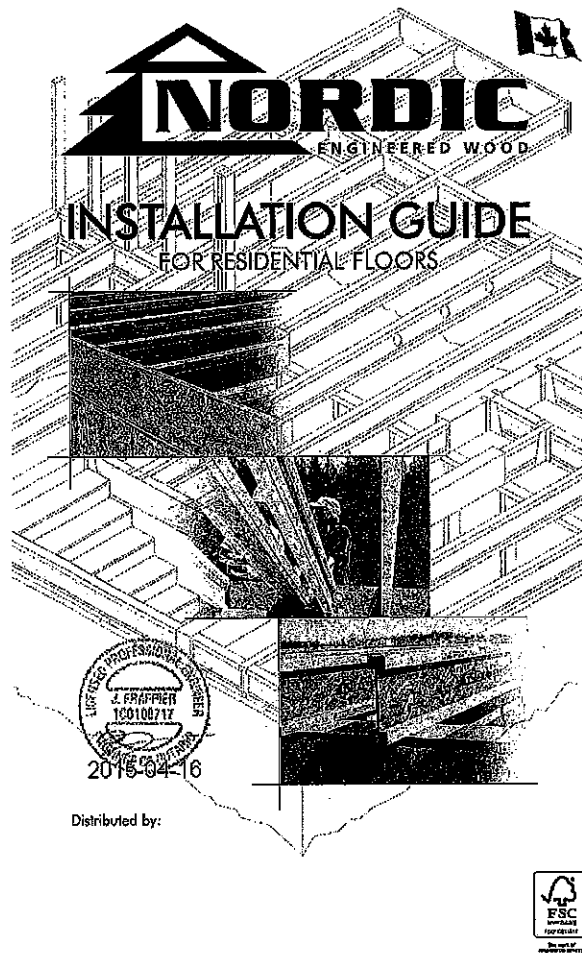
DATE: 2019-06-20

UPPER LEVEL

THIS STRUCTURE MUST BE
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THE ONTARIO BUILDING CODE



Products					Connector Summary		
PlotID	Length	Product	Plies	Net Qty	Qty	Manuf	Product
J1	18-00-00	11 7/8" NI-40x	1	11	21	H2	IUS2.56/11.88
J2	16-00-00	11 7/8" NI-40x	1	1	21	H2	IUS2.56/11.88
J3	14-00-00	11 7/8" NI-40x	1	11	2	H3	HGUS410
J4	12-00-00	11 7/8" NI-40x	1	25	1	H4	HUS1.81/10
J5	8-00-00	11 7/8" NI-40x	1	5			
B9	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3			
B6	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2			
B10	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1			
B11	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2			
B7	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2			
B8	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2			



SAFETY AND CONSTRUCTION PRECAUTIONS



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

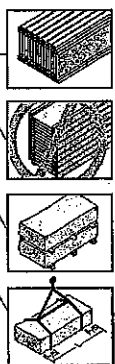


Never stack building materials over unsecured I-joists. Once sheathed, do not over-stress I-joist with building materials.

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

1. Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
2. Store, stack, and handle I-joists vertically and level only.
3. Always stack and handle I-joists in the upright position only.
4. Do not store I-joists in direct contact with the ground and/or floor/walls.
5. Protect I-joists from weather, and use spacers to separate bundles.
6. Bundled units should be kept intact until time of installation.
7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joists and injury 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.
8. Do not handle I-joists in horizontal orientation.
9. NEVER USE OR TRY TO REPAIR A DAMAGED I-JOIST.



MAXIMUM FLOOR SPANS

1. 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.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CAN/CSA A-140. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking of mid-span.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
6. Tables are based on Limit States Design per CAN/CSA C88-09 Standard, and NBC 2010.
7. SI units conversion: 1 inch = 25.4 mm
1 foot = 0.305 m

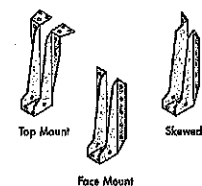
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS SIMPLE AND MULTIPLE SPANS

Joist Depth	Joist Spacing	Simple spans				Multiple spans			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
8"	N-8	15'-1"	14'-2"	13'-5"	13'-5"	16'-4"	14'-10"	14'-7"	14'-7"
10"	N-10	16'-1"	15'-2"	14'-5"	14'-5"	17'-5"	15'-10"	15'-7"	15'-7"
12"	N-12	17'-1"	16'-1"	15'-5"	15'-5"	18'-7"	16'-2"	16'-0"	16'-0"
14"	N-14	18'-1"	17'-3"	16'-7"	16'-7"	19'-10"	17'-6"	17'-4"	17'-4"
16"	N-16	19'-1"	18'-5"	17'-9"	17'-9"	20'-3"	18'-9"	18'-7"	18'-7"
18"	N-18	20'-1"	19'-7"	18'-11"	18'-11"	21'-6"	19'-11"	19'-9"	19'-9"
20"	N-20	21'-1"	20'-9"	19'-1"	19'-1"	22'-9"	20'-4"	20'-2"	20'-2"
22"	N-22	22'-1"	21'-11"	20'-5"	20'-5"	23'-10"	21'-5"	21'-3"	21'-3"
24"	N-24	23'-1"	22'-11"	21'-7"	21'-7"	24'-11"	22'-6"	22'-4"	22'-4"
26"	N-26	24'-1"	23'-11"	22'-9"	22'-9"	25'-12"	23'-7"	23'-5"	23'-5"
28"	N-28	25'-1"	24'-11"	23'-11"	23'-11"	26'-11"	24'-8"	24'-6"	24'-6"
30"	N-30	26'-1"	25'-11"	24'-11"	24'-11"	27'-3"	25'-9"	25'-7"	25'-7"
32"	N-32	27'-1"	26'-11"	25'-11"	25'-11"	28'-3"	26'-9"	26'-7"	26'-7"
34"	N-34	28'-1"	27'-11"	26'-11"	26'-11"	29'-3"	27'-9"	27'-7"	27'-7"
36"	N-36	29'-1"	28'-11"	27'-11"	27'-11"	30'-3"	28'-9"	28'-7"	28'-7"

CCMC EVALUATION REPORT #3032-B

I-JOIST HANGERS

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



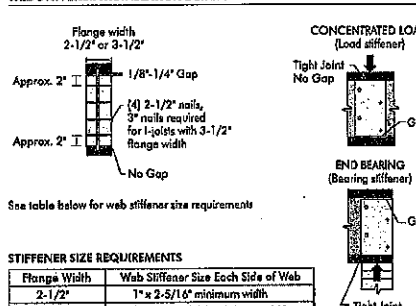
WEB STIFFENERS

RECOMMENDATIONS:

- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the I-joist Construction Guide (CIG). 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 of 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



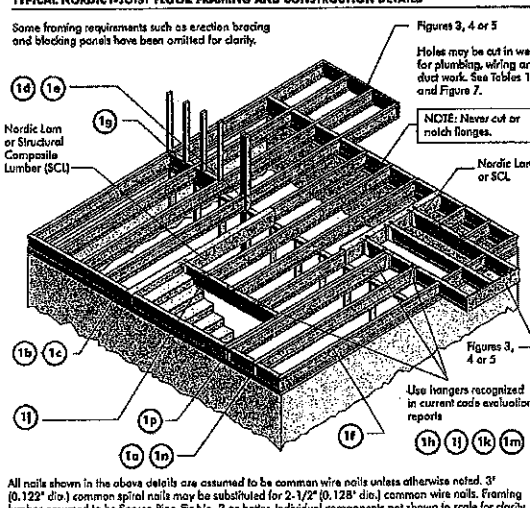
STIFFENER SIZE REQUIREMENTS

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

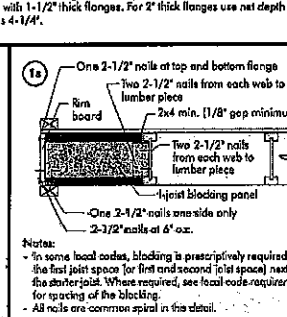
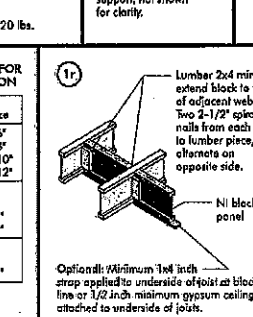
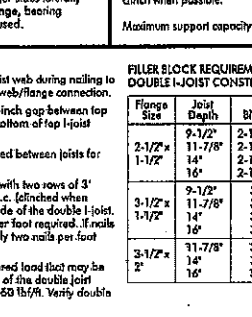
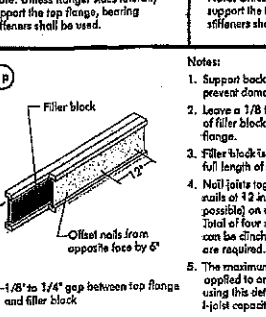
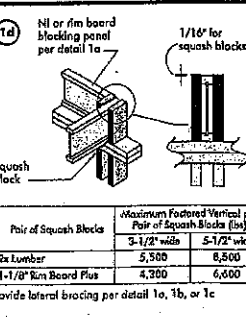
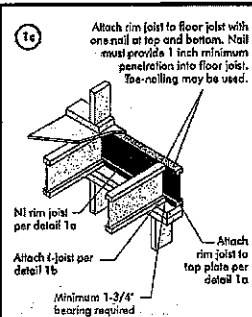
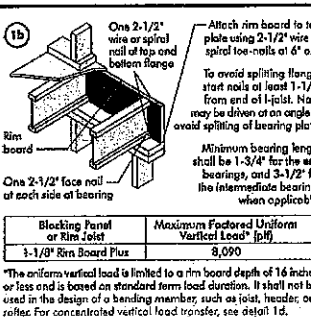
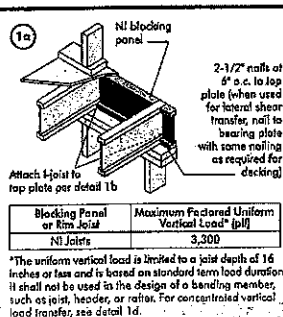
INSTALLING NORDIC I-JOISTS

1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contact supplier.
2. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
4. I-joists must be anchored securely to supports before floor sheathing is attached, and supports for multiple spans must be level.
5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
6. When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement.
7. Leave a 1/16-inch gap between the I-joist and end headers.
8. Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include lighting fixtures, oven/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.
9. Never install I-joists where they will be permanently exposed to weather, or where they will remain in direct contact with concrete or masonry.
10. Restrain ends of floor joists to prevent rafter. Use rim board, rim joist or I-joist blocking panels.
11. For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squish blocks (ripple members) to transfer gravity loads through the floor system to the wall or foundation below.
12. Due to shrinkage, common framing lumber seal on edge may never be used as blocking or rim boards. I-joist blocking panels or other engineered wood products – such as rim board – must be cut to fit between the I-joists, and an I-joist-compatible depth selected.
13. Provide permanent lateral support of the bottom flange of all 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.
14. If square-edge panels are used, edges must be supported between I-joists with 2x4 blocking. Glue panels to blocking to minimize squeaks. Blocking is not required under structural finish flooring, such as wood strip flooring, or if a separate underlayment layer is installed.
15. 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



All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (76.2 mm) common spiral nails may be substituted for 2-1/2" (63.5 mm) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.



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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:

- 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-joint 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-joint web shall equal the clear distance between the flanges of the I-joint 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-joint 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 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.
- 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 are 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 8 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 of 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.)											
		2	3	4	5	6	6-1/4	7	8	8-3/8	9	10	10-3/4
9-1/2"	NL-20	0'-7"	1'-6"	2'-10"	4'-3"	5'-8"	6'-0"	---	---	---	---	---	---
	NL-40x	0'-7"	1'-6"	3'-0"	4'-4"	6'-0"	6'-4"	---	---	---	---	---	---
	NL-60	0'-7"	2'-6"	4'-0"	5'-4"	7'-0"	7'-5"	---	---	---	---	---	---
	NL-70	0'-7"	3'-4"	4'-9"	6'-3"	8'-0"	8'-4"	---	---	---	---	---	---
	NL-80	0'-7"	3'-6"	5'-0"	6'-6"	8'-2"	8'-8"	---	---	---	---	---	---
11-7/8"	NL-20	0'-7"	0'-8"	1'-0"	2'-4"	3'-8"	4'-0"	5'-0"	6'-4"	7'-9"	---	---	---
	NL-40x	0'-7"	0'-8"	1'-3"	2'-8"	4'-4"	4'-4"	5'-5"	7'-0"	8'-4"	---	---	---
	NL-60	0'-7"	1'-8"	3'-0"	4'-3"	5'-8"	6'-0"	7'-3"	8'-10"	10'-0"	---	---	---
	NL-70	0'-7"	2'-6"	4'-0"	5'-4"	6'-9"	7'-0"	8'-4"	10'-0"	11'-2"	---	---	---
	NL-80	0'-7"	2'-10"	4'-2"	5'-6"	7'-0"	7'-3"	8'-6"	10'-3"	11'-6"	---	---	---
14"	NL-20	0'-7"	0'-8"	1'-5"	3'-2"	4'-10"	5'-4"	6'-9"	8'-9"	10'-2"	---	---	---
	NL-40x	0'-7"	0'-8"	1'-8"	3'-5"	4'-4"	4'-9"	6'-3"	---	---	---	---	---
	NL-60	0'-7"	0'-8"	1'-8"	3'-5"	4'-4"	4'-9"	6'-3"	---	---	---	---	---
	NL-70	0'-7"	0'-8"	1'-8"	3'-5"	4'-4"	4'-9"	6'-3"	---	---	---	---	---
	NL-80	0'-7"	0'-8"	1'-8"	3'-5"	4'-4"	4'-9"	6'-3"	---	---	---	---	---
16"	NL-20	0'-7"	0'-8"	1'-6"	3'-0"	4'-10"	5'-4"	6'-9"	8'-9"	10'-2"	12'-2"	13'-9"	---
	NL-40x	0'-7"	0'-8"	1'-6"	3'-0"	4'-10"	5'-4"	6'-9"	8'-9"	10'-2"	12'-2"	13'-9"	---
	NL-60	0'-7"	0'-8"	1'-6"	3'-0"	4'-10"	5'-4"	6'-9"	8'-9"	10'-2"	12'-2"	13'-9"	---
	NL-70	0'-7"	0'-8"	1'-6"	3'-0"	4'-10"	5'-4"	6'-9"	8'-9"	10'-2"	12'-2"	13'-9"	---
	NL-80	0'-7"	0'-8"	1'-6"	3'-0"	4'-10"	5'-4"	6'-9"	8'-9"	10'-2"	12'-2"	13'-9"	---

- 1. Above table may be used for I-joint spacing of 24 inches on centre or less.
- 2. Duct chase opening location distance is measured from inside face of supports to centre of hole.
- 3. Distances in this chart are based on uniformly loaded joists.
- 4. The above table is based on the I-joints being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

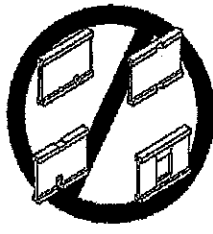
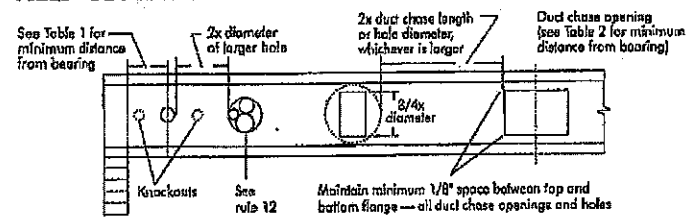
TABLE 2 DUCT CHASE OPENING SIZES AND LOCATIONS

Simple Span Only

Joist Depth	Joist Series	Minimum Distance from Inside Face of Supports to Centre of Opening (ft - in.)											
		8	10	12	14	16	18	20	22	24	26	28	30
9-1/2"	NL-20	4'-1"	4'-5"	4'-10"	5'-4"	5'-8"	6'-1"	6'-5"	7'-5"	7'-5"	---	---	---
	NL-40x	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"	---	---	---
	NL-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8'-3"	8'-9"	---	---	---
	NL-70	5'-1"	5'-6"	5'-10"	6'-3"	6'-7"	7'-1"	7'-6"	8'-1"	8'-4"	---	---	---
	NL-80	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"	---	---	---
11-7/8"	NL-20	5'-9"	6'-2"	6'-6"	7'-1"	7'-5"	7'-9"	8'-3"	8'-9"	9'-4"	---	---	---
	NL-40x	6'-8"	7'-2"	7'-6"	8'-1"	8'-5"	8'-9"	9'-3"	9'-9"	10'-1"	---	---	---
	NL-60	7'-5"	7'-9"	8'-3"	8'-8"	9'-2"	9'-6"	9'-9"	10'-3"	11'-0"	---	---	---
	NL-70	7'-1"	7'-4"	7'-9"	8'-3"	8'-7"	9'-1"	9'-6"	10'-1"	10'-4"	---	---	---
	NL-80	7'-2"	7'-7"	8'-1"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-8"	---	---	---
14"	NL-20	7'-6"	7'-11"	8'-4"	8'-9"	9'-2"	9'-7"	10'-1"	10'-7"	10'-11"	---	---	---
	NL-40x	7'-7"	8'-1"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-8"	11'-2"	---	---	---
	NL-60	8'-1"	8'-7"	9'-0"	9'-6"	10'-1"	10'-7"	11'-2"	11'-8"	12'-3"	---	---	---
	NL-70	8'-5"	9'-1"	9'-6"	10'-1"	10'-6"	11'-1"	11'-6"	12'-1"	12'-6"	---	---	---
	NL-80	8'-7"	9'-3"	9'-8"	10'-3"	10'-8"	11'-3"	11'-8"	12'-3"	12'-8"	---	---	---
16"	NL-20	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	11'-9"	12'-1"	12'-6"	12'-11"	---	---
	NL-40x	9'-4"	9'-9"	10'-3"	10'-7"	11'-1"	11'-5"	11'-9"	12'-3"	12'-7"	13'-2"	---	---
	NL-60	10'-3"	10'-8"	11'-2"	11'-6"	12'-1"	12'-6"	13'-2"	14'-3"	14'-10"	---	---	---
	NL-70	10'-1"	10'-5"	11'-0"	11'-4"	11'-9"	12'-3"	12'-8"	13'-3"	13'-8"	---	---	---
	NL-80	10'-4"	10'-9"	11'-3"	11'-7"	12'-1"	12'-5"	12'-9"	13'-4"	13'-8"	---	---	---

- 1. Above table may be used for I-joint spacing of 24 inches on centre or less.
- 2. Duct chase opening location distance is measured from inside face of supports to centre of opening.
- 3. The above table is based on simple span joists only. For other applications, contact your local distributor.
- 4. Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480.
- 5. The above table is based on the I-joints 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 predrilled 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-joint. 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. Notching 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-joint.

SAFETY AND CONSTRUCTION PRECAUTIONS

- WARNING:** I-joints are not stable until completely installed, and will not carry any load until fully braced and sheathed.
- AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:**
 - 1. Brace and nail each I-joint as it is installed, using hangers, blocking panels, rim board, and/or cross-briding at joint ends. When I-joints are applied continuously over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
 - 2. When the building is completed, the floor sheathing will provide lateral support for the top flange of the I-joints. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joint rollover or buckling.
 - a. 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-joint. Nail the bracing to a lateral restraint at the end of each bay. Top ends of adjoining bracing over at least two I-joints.
 - b. Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joints at the end of the bay.
 - 3. For cantilevered I-joints, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-briding.
 - 4. Install and fully nail permanent sheathing to each I-joint before placing loads on the floor system. Then, stack building materials over beams or walls only.
 - 5. Never install a damaged I-joint.
- Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joints, 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

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

Furthermore, Charters Chibogwanau 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 NI blocking panel or rim joist

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)

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

1d NI or rim board blocking panel per detail 1a

Pair of Squash Blocks

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 Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double I-joint, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch. Install backer tight to top flange. Use hives 3" nails, clinched when possible. Maximum factored resistance for hanger for this detail = 1,620 lbs.

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

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-PF No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-C3025 or CAN/CSA-O437 Standard.
** For face-mount hangers use net joist depth minus 2-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".

1k 2x plate flush with inside face of wall or beam. 1/8" overhang allowed past inside face of wall or beam.

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

Top-mount hanger installed per manufacturer's recommendations

1m Multiple I-joint header with full depth filler block shown. Nordic Lamin or SCL headers may also be used. Verify double I-joint capacity to support concentrated loads.

Backer block attached per detail 1h. Nail with twelve 3" nails, clinch when possible.

Install hanger per manufacturer's recommendations

Maximum support capacity = 1,620 lbs.

1n FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOINT CONSTRUCTION

Off-set nails from opposite face by 6"

1/8" to 1/4" gap between top flange and filler block

NOTES:

- Support back of I-joint 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-joint flange.
- Filler block is required between joists for full length of span.
- Nail joists together with two rows of 2" nails at 12 inches o.c. (staggered when possible) on each side of the double I-joint. 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 joist using this detail is 860 lb/ft. Verify double I-joint capacity.

1o Method 1 - SHEATHING REINFORCEMENT ONE SIDE

Rim board or wood structural panel closure (3/4" minimum thickness); attach per detail 1b

2-1/2" nails

3-1/2" min. bearing required

Method 2 - SHEATHING REINFORCEMENT TWO SIDES

Use same installation as Method 1 but reinforce both sides of I-joint 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") 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-joint to plate of all supports per detail 1b. Verify reinforced I-joint capacity.

1b Rim board

One 2-1/2" free nail at each side of bearing

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

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 toe-nails at 6" o.c.

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

1e Transfer load from above to bearing below. Install squash blocks per detail 1d. Attach bearing area at blocks below to post above.

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

1f Joint attachment per detail 1b

2-1/2" nails at 6" o.c. to top plate

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

1g Nordic Lamin or Structural Composite Lumber (SCL)

For nailing schedules for multiple beams, see the manufacturer's recommendations.

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

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

1i Lumber 2x4 min., extend back to face of adjacent web. Two 2-1/2" spiral nails from each web to lumber piece, alternate on opposite side.

NI blocking panel

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

1j One 2-1/2" nail at top and bottom flange

2x4 min. (1/8" gap minimum)

Two 2-1/2" nails from each web to lumber piece, alternate on opposite side

One 2-1/2" nail one side only

NOTE:

- In some local codes, blocking is prescriptively required in the first joist space for 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.

1k Rim board joint between floor joists

(1) 2-1/2" nail top and bottom (typical)

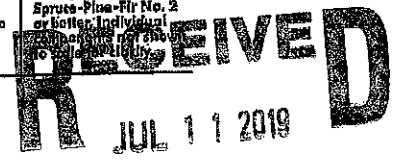
Rim board joint at corner

2-1/2" toe-nails at 6" o.c. (typical)

1-1/2"

2-1/2" nails

1-1/2"



STIFFENER SIZE REQUIREMENTS	
Flange Width	Minimum Width
2-1/2"	1-1/2" x 2-5/8" minimum width
3-1/2"	1-1/2" x 2-5/8" minimum width



Boise Cascade



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLOOR Flush Beams B1 (13647)

Dry | 1 span | No cant.

June 20, 2019 08:00:12

BC CALCO Member Report

Build 7118

Job name:

File name: URBAN 12.mxd

Address:

Description: 1ST FLOOR Flush Beams B1 (13647)

City, Province, Postal Code: CALEDON

Specifier:

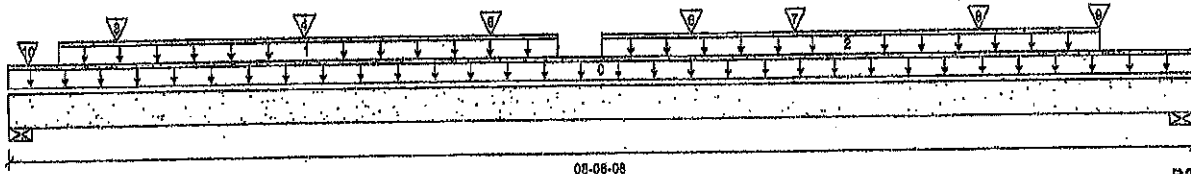
Customer:

Designer: PL

Code reports:

COMC 12472-R

Company:



B1

Total Horizontal Product Length = 08-06-08

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,955 / 0	1,115 / 0		
B2, 3-1/2"	1,999 / 0	1,079 / 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	08-06-08	Top	100	0.65	1.00	1.15	00-00-00
1	STAIRS	Unf. Lin. (lb/ft)	L	00-04-08	03-11-08	Top	240	120			n/a
2	STAIRS	Unf. Lin. (lb/ft)	L	04-03-04	07-10-08	Top	240	120			n/a
3	J1 (13608)	Conc. Pt. (lbs)	L	00-09-12	00-09-12	Top	270	135			n/a
4	J1 (13631)	Conc. Pt. (lbs)	L	02-01-12	02-01-12	Top	370	185			n/a
5	J1 (13685)	Conc. Pt. (lbs)	L	03-05-12	03-05-12	Top	384	192			n/a
6	J1 DJ (13636)	Conc. Pt. (lbs)	L	04-11-00	04-11-00	Top	331	166			n/a
7	J1 (13606)	Conc. Pt. (lbs)	L	05-08-00	05-08-00	Top	268	132			n/a
8	J1 (13620)	Conc. Pt. (lbs)	L	07-00-00	07-00-00	Top	274	137			n/a
9	-	Conc. Pt. (lbs)	L	07-10-08	07-10-08	Top	327	201			n/a
10	29 (13540)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	100				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	8,673 ft-lbs	23,220 ft-lbs	37.4%	1	04-07-02
End Shear	3,976 lbs	11,571 lbs	34.4%	1	01-01-00
Total Load Deflection	L/868 (0.146")	n/a	38.0%	4	04-03-04
Live Load Deflection	L/999 (0.096")	n/a	n/a	5	04-03-04
Max Defl.	0.146"	n/a	n/a	4	04-03-04
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"	4,327 lbs	82.7%	29.0%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	4,347 lbs	83.1%	29.1%	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 086.
 BC CALCO analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
 Nail one ply to another with 3 1/2" spiral nails @ 6"

THIS STRUCTURE MUST BE
 CONSTRUCTED TO MEET OR
 EXCEED THE PROVISIONS OF
 THE CANADIAN BUILDING CODE



CONFORMS TO OBC2012

ET0000276



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLOOR Flush Beams B3(13669)

Dry | 1 span | No cant.

June 20, 2019 08:09:00

BC CALCO® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R.

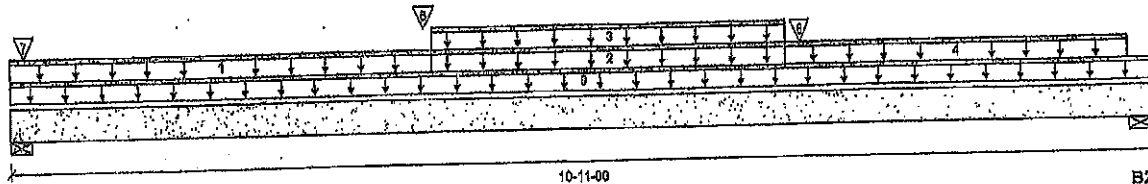
File name: URBAN 12.mmdl

Description: 2ND FLOOR Flush Beams B3(13669)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 10-11-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,129 / 0	714 / 0		
B2, 6-1/2"	1,832 / 0	1,161 / 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	10-11-00	Top	10				00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-00-04	Top	30	15			n/a
2	STAIRS	Unf. Lin. (lb/ft)	L	04-00-04	07-04-13	Top	240	120			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	04-00-04	07-04-13	Top	26	13			n/a
4	FC2 Floor Material	Unf. Lin. (lb/ft)	L	07-04-13	10-08-04	Top	28	14			n/a
5	B4(13029)	Conc. Pt. (lbs)	L	08-11-06	03-11-06	Top	87	46			n/a
6	B5(13673)	Conc. Pt. (lbs)	L	07-08-09	07-08-09	Top	1,719	1,129			n/a
7	20(1628)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	44				n/a

Controls Summary

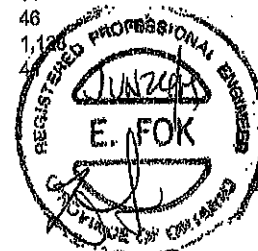
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	12,130 ft-lbs	23,220 ft-lbs	52.2%	1	07-08-09
End Shear	4,122 lbs	11,571 lbs	35.6%	1	08-08-00
Total Load Deflection	L/418 (0.299")	n/a	58.0%	4	08-08-09
Live Load Deflection	L/868 (0.185")	n/a	53.9%	5	08-08-09
Max Defl.	0.299"	n/a	n/a	4	08-08-09
Span / Depth	13.0				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	2,586 lbs	49.4%	17.3%	Unspecified
B2	Wall/Plate 6-1/2" x 3-1/2"	4,199 lbs	51.1%	17.9%	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 CALCO® 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
 Concentrated side-load exceeds allowable magnitude for connection design. Please consult a technical representative or Professional Engineer for the design of the connection.

Nail one ply to another with
 3 1/2" spiral nails @ 8" o.c., staggered in 2 rows



CONFORMS TO OBC2012



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLOOR (Flush Beams/B2(13645))

Dry | 1 span | No cant.

June 20, 2019 08:00:12

BOCALCO Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

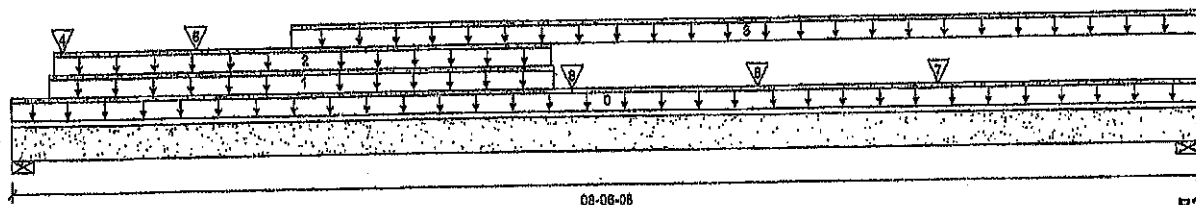
File name: URBAN 12.mmdl

Description: 2ND FLOOR (Flush Beams/B2(13645))

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 08-08-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,948 / 0	1,238 / 0		
B2, 5-1/2"	1,736 / 0	989 / 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	08-08-08	Top	100	0.85	1.00	1.18	00-00-00
1	STAIRS	Unf. Lin. (lb/ft)	L	00-03-08	03-10-11	Top	240	120			n/a
2	22(1763)	Unf. Lin. (lb/ft)	L	00-04-00	03-10-08	Top	86				n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	02-00-00	08-08-08	Top	298	149			n/a
4	J1(13646)	Conc. Pt. (lbs)	L	00-04-12	00-04-12	Top	102	98			n/a
5	J1(13610)	Conc. Pt. (lbs)	L	01-04-00	01-04-00	Top	327	164			n/a
6	J4(13679)	Conc. Pt. (lbs)	L	05-04-00	05-04-00	Top	58	29			n/a
7	J4(13591)	Conc. Pt. (lbs)	L	06-08-00	06-08-00	Top	83	31			n/a
8	21(1762)	Conc. Pt. (lbs)	L	04-00-04	04-00-04	Top	191				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	8,198 ft-lbs	23,220 ft-lbs	35.3%	1	04-00-00
End Shear	3,672 lbs	11,571 lbs	31.7%	1	01-01-00
Total Load Deflection	L/751 (0.127")	n/a	32.0%	4	04-00-04
Live Load Deflection	L/999 (0.079")	n/a	n/a	5	04-02-04
Max Defl.	0.127"	n/a	n/a	4	04-00-04
Span / Depth	10.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	4,489 lbs	86.4%	29.9%	Unspecified
B2	Wall/Plate 5-1/2" x 3-1/2"	3,841 lbs	48.7%	16.4%	Unspecified

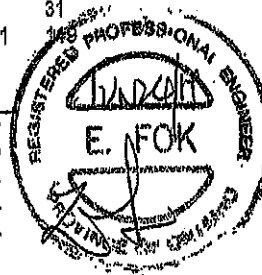
Notes

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.
 BO CALCO analysis is based on Canadian Limit States Design, as per NBCO 2015 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Nail one ply to another with
 3 1/2" spiral nails @ 6"
 o.c. staggered in 2 rows

**THIS STRUCTURE MUST BE
 CONSTRUCTED TO MEET OR
 EXCEED THE PROVISIONS OF
 THE ONTARIO BUILDING CODE**

ET0000278



CONFORMS TO OBC2012



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLOOR Flush Beams\B4\I3029

Dry | 2 spans | No cant.

June 20, 2019 08:00:12

BO CALCO® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

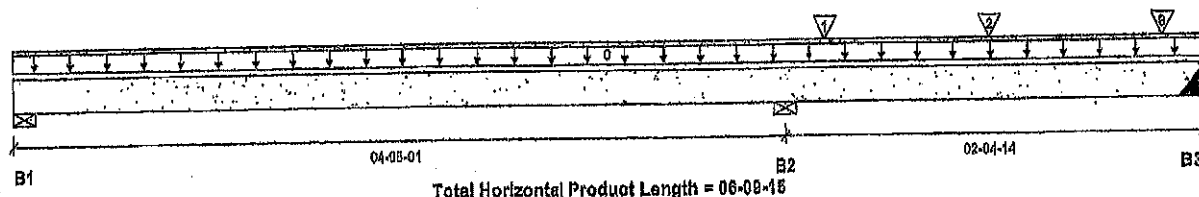
File name: URBAN 12.mmdl

Description: 2ND FLOOR Flush Beams\B4\I3029

Specifier:

Designer: PL

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	074	870		
B2, 5-1/2"	96 / 0	69 / 0		
B3, 3"	95 / 0	50 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.18	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-09-15	Top		6			00-00-00
1	J4(I3421)	Cono. Pt. (lbs)	L	04-07-15	04-07-15	Top	68	28			n/a
2	J4(I3298)	Cono. Pt. (lbs)	L	05-07-05	05-07-05	Top	77	39			n/a
3	J4(I3423)	Cono. Pt. (lbs)	L	06-07-05	06-07-05	Top	54	27			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	88 ft-lbs	9,470 ft-lbs	0.9%	1	05-07-05
Neg. Moment	-41 ft-lbs	-9,470 ft-lbs	0.4%	1	04-05-01
End Shear	84 lbs	5,785 lbs	1.4%	1	06-09-07
Cont. Shear	84 lbs	5,785 lbs	1.5%	1	06-05-05
Total Load Deflection	L/999 (0")	n/a	n/a	4	05-06-13
Live Load Deflection	L/999 (0")	n/a	n/a	5	05-06-13
Total Neg. Defl.	L/999 (-0")	n/a	n/a	4	03-00-07
Max Defl.	0"	n/a	n/a	4	05-06-13
Span / Depth	5.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 1-3/4"	11 lbs	0.6%	0.2%	Unspecified
B2	Wall/Plate 5-1/2" x 1-3/4"	230 lbs	5.6%	2.0%	Unspecified
B3	Hanger 3" x 1-3/4"	205 lbs	n/a	3.2%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 at B3 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model HUS1.81/10 and seat length were input by the user. Nail one ply to another with 3 1/2" spiral nails @ o.c, staggered in 2 rows



CONFORMS TO OBC2012



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLOOR VFlush Beams\B5\13673

Dry | 1 span | No carit.

June 20, 2019 08:07:22

EC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CGMC 12472-R

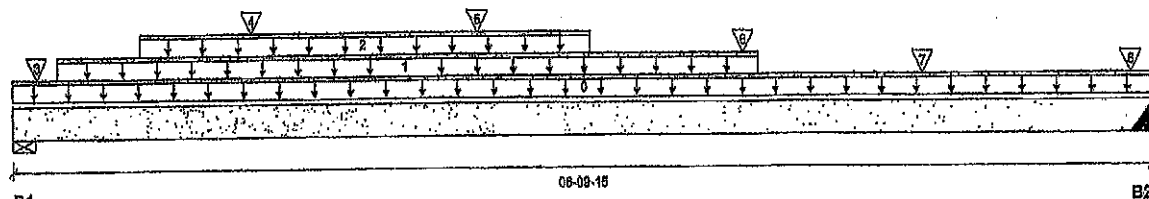
File name: URBAN 12.mmdl

Description: 2ND FLOOR VFlush Beams\B5\13673

Specifier:

Designer: PL

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,669 / 0	1,261 / 0		
B2, 4"	1,789 / 0	1,175 / 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	06-09-15	Top		10			00-00-00
1	23(1788)	Unf. Lin. (lb/ft)	L	00-03-05	04-05-05	Top		65			n/a
2	23(1788)	Unf. Lin. (lb/ft)	L	00-09-05	03-05-05	Top	334	227			n/a
3	-	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	204	127			n/a
4	J4(13859)	Conc. Pt. (lbs)	L	01-05-05	01-05-05	Top	66	33			n/a
5	J4(13674)	Conc. Pt. (lbs)	L	02-09-05	02-09-05	Top	70	35			n/a
6	-	Conc. Pt. (lbs)	L	04-04-03	04-04-03	Top	2,066	1,210			n/a
7	J4(13868)	Conc. Pt. (lbs)	L	05-05-05	05-05-05	Top	89	44			n/a
8	J4(13670)	Conc. Pt. (lbs)	L	06-08-05	06-08-05	Top	52	28			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	8,642 ft-lbs	23,220 ft-lbs	37.2%	1	04-04-05
End Shear	4,027 lbs	11,571 lbs	34.8%	1	05-08-07
Total Load Deflection	L/899 (0.081")	n/a	n/a	4	03-06-05
Live Load Deflection	L/899 (0.046")	n/a	n/a	5	03-06-05
Max Defl.	0.081"	n/a	n/a	4	03-06-05
Span / Depth	8.0				

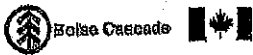
Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	4,080 lbs	78.0%	27.3%	Unspecified
B2	Hanger 4" x 3-1/2"	4,151 lbs	n/a	24.3%	HGUS410

Cautions

Header for the hanger HGUS410 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model HGUS410 and seat length were input by the user. Nail one ply to another with 3 1/2" spiral nails @ 6" o.c. staggered in 2 rows



CONFORMS TO OBC2012



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

PASSED

3RD FLOOR (Flush Beams) B9 (13156)

Dry | 1 span | No cant.

June 20, 2019 08:00:12

BC CALCO® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

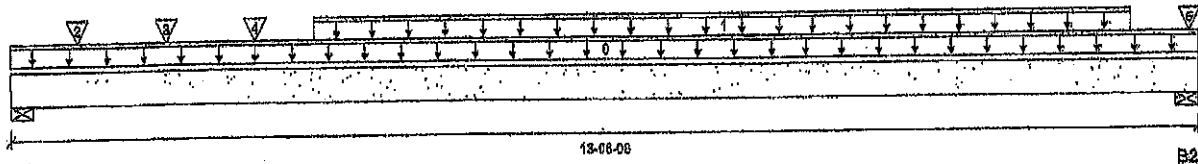
File name: URBAN 12.mmdl

Description: 3RD FLOOR (Flush Beams) B9 (13156)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 13-06-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-3/4"	2,883 / 0	1,813 / 0		
B2, 5-3/4"	3,098 / 0	1,678 / 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	13-06-08	Top	18				00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	03-06-04	12-09-04	Top	488	234			n/a
2	-	Conc. Pt. (lbs)	L	00-09-04	00-09-04	Top	448	224			n/a
3	-	Conc. Pt. (lbs)	L	01-09-04	01-09-04	Top	462	231			n/a
4	-	Conc. Pt. (lbs)	L	02-09-04	02-09-04	Top	547	273			n/a
5	J3(13244)	Conc. Pt. (lbs)	L	13-05-04	13-05-04	Top	261	131			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	21,217 ft-lbs	55,212 ft-lbs	38.4%	1	08-09-04
End Shear	6,112 lbs	21,898 lbs	28.2%	1	12-00-14
Total Load Deflection	L/509 (0.304")	n/a	47.2%	4	08-09-04
Live Load Deflection	L/783 (0.197")	n/a	46.0%	6	08-09-04
Max Defl.	0.304"	n/a	n/a	4	08-09-04
Span / Depth	13.0				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-3/4" x 5-1/4"	6,490 lbs	77.1%	27.0%	Unspecified
B2	Wall/Plate 5-3/4" x 5-1/4"	6,742 lbs	52.2%	18.3%	Unspecified

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 CALCO® 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
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
 Nailing schedule applies to both sides of the member.

Nail one ply to another with
 3 1/2" spiral nails @ 6" o.c. staggered in 2 rows



CONFORMS TO OBC2012



Bolse Cascade

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

PASSED

3RD FLOOR (Flush Beams) B6 (13451)

Dry | 1 span | No cant.

June 20, 2019 08:00:12

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

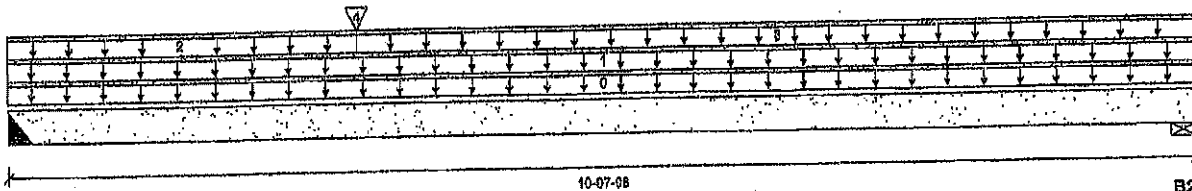
File name: URBAN 12.mmdl

Description: 3RD FLOOR (Flush Beams) B6 (13451)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 10-07-08

Reaction Summary (Down / Up) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1,210 / 0	698 / 0		
B2, 3-1/2"	648 / 0	349 / 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	10-07-08	Top		12			00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-07-08	Top	20	10			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-01-04	Top	20	10			n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	03-01-04	10-07-08	Top	6	3			n/a
4	B11 (13409)	Cono. Pt. (lbs)	L	03-01-04	03-01-04	Top	1,483	757			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	7,141 ft-lbs	36,392 ft-lbs	20.2%	1	03-01-04
End Shear	2,566 lbs	14,484 lbs	17.7%	1	01-03-14
Total Load Deflection	L/999 (0.077")	n/a	n/a	4	04-10-05
Live Load Deflection	L/999 (0.049")	n/a	n/a	5	04-10-05
Max Defl.	0.077"	n/a	n/a	4	04-10-05
Span / Depth	10.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 4" x 3-1/2"	2,688 lbs	n/a	15.7%	HGUS410
B2	Wall/Plate 3-1/2" x 3-1/2"	1,257 lbs	24.0%	8.4%	Unspecified

Cautions

Header for the hanger HGUS410 at B1 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF. Hanger model HGUS410 and seat length were input by the user. Nail one ply to another with 3 1/2" spiral nails @ 8" o.c. staggered in 2 rows



CONFORMS TO OBC2012



Boise Cascade

**Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****3RD FLOOR (Flush Beams) B10 (I3419)**

Dry | 1 span | No cant.

PASSED

June 20, 2019 08:00:12

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports:

CCMC 12472-R

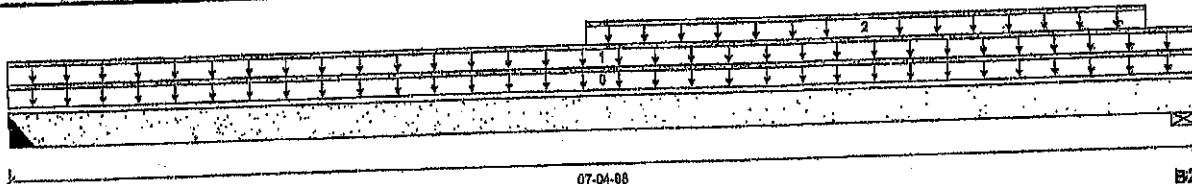
File name: URBAN 12.mmdl

Description: 3RD FLOOR (Flush Beams) B10 (I3419)

Specifier:

Designer: PL

Company:



B1

Total Horizontal Product Length = 07-04-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	260 / 0	147 / 0		
B2, 3-1/2"	638 / 0	341 / 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	07-04-08	Top		8			00-00-00
1	F03 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-04-08	Top	11	5			n/a
2	STAIRS	Unf. Lin. (lb/ft)	L	03-07-00	07-01-00	Top	231	115			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,887 ft-lbs	17,696 ft-lbs	10.7%	1	04-05-08
End Shear	1,344 lbs	7,232 lbs	18.6%	1	06-01-02
Total Load Deflection	L/999 (0.022")	n/a	n/a	4	03-10-12
Live Load Deflection	L/999 (0.014")	n/a	n/a	5	03-10-12
Max Defl.	0.022"	n/a	n/a	4	03-10-12
Span / Depth	7.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	3" x 1-3/4"	659 lbs	n/a	8.7%	HUS1.81/10
B2 Wall/Plate	3-1/2" x 1-3/4"	1,383 lbs	52.8%	18.5%	Unspecified

Cautions

Header for the hanger HUS1.81/10 at B1 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF.
Hanger model HUS1.81/10 and seat length were input by the user.

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 086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9



CONFORMS TO OBC2012

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™, BC®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,



B&C Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****3RD FLOOR Flush Beams B11 (I3409)**

Dry | 1 span | No cant.

PASSED

June 20, 2019 08:00:12

B&C CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

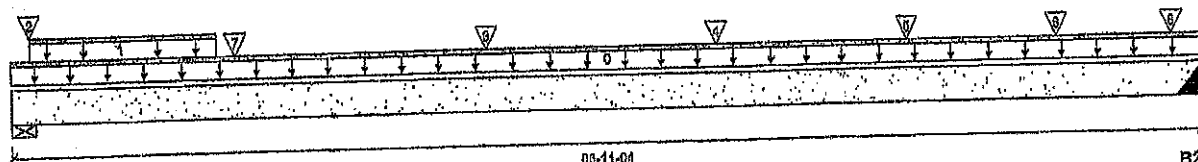
File name: URBAN 12.mmdl

Description: 3RD FLOOR Flush Beams B11 (I3409)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 06-11-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	1,937 / 0	1,131 / 0		
B2, 4"	1,511 / 0	801 / 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	06-11-04	Top		12			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-01-04	01-02-04	Top		30			n/a
2	J1(I3110)	Conc. Pt. (lbs)	L	00-01-04	00-01-04	Top	444	281			n/a
3	-	Conc. Pt. (lbs)	L	02-09-04	02-09-04	Top	639	319			n/a
4	-	Conc. Pt. (lbs)	L	04-01-04	04-01-04	Top	584	291			n/a
5	-	Conc. Pt. (lbs)	L	05-02-12	05-02-12	Top	529	264			n/a
6	J2(I3398)	Conc. Pt. (lbs)	L	06-01-04	06-01-04	Top	295	148			n/a
7	-	Conc. Pt. (lbs)	L	01-03-09	01-03-09	Top	827	448			n/a
8	J5(I3380)	Conc. Pt. (lbs)	L	06-09-04	06-09-04	Top	123	61			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5,130 ft-lbs	35,392 ft-lbs	14.5%	1	04-01-04
End Shear	3,014 lbs	14,464 lbs	20.8%	1	01-05-02
Total Load Deflection	L/999 (0.027")	n/a	n/a	4	03-06-04
Live Load Deflection	L/999 (0.018")	n/a	n/a	5	03-06-04
Max Defl.	0.027"	n/a	n/a	4	03-06-04
Span / Depth	6.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/4" x 3-1/2"	4,319 lbs	55.0%	19.3%	Unspecified
B2	Hanger 4" x 3-1/2"	3,269 lbs	n/a	19.1%	HGUS410

Cautions

Header for the hanger HGUS410 at B2 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 NF. Nail one ply to another with 3 1/2" spiral nails @ 8" o.c., staggered in 2 rows.



CONFORMS TO OBC2012



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

PASSED

3RD FLOOR Flush Beams B7 (13620)

Dry | 1 span | No cant.

June 20, 2019 08:00:12

BC CALCO® Member Report

Build 7118

Job name:

File name: URBAN 12.mmdl

Address:

Description: 3RD FLOOR Flush Beams B7 (13620)

City, Province, Postal Code: CALEDON

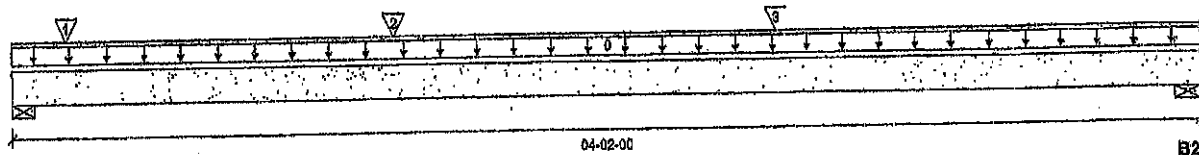
Specifier:

Customer:

Designer: PL

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 04-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	868 / 0	478 / 0		
B2, 3-1/2"	418 / 0	309 / 0		

Load Summary

Tap	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-02-00	Top	1.00	0.68	1.00	1.16	00-00-00
1	J1(13118)	Conc. Pt. (lbs)	L	00-02-08	00-02-08	Top	224	162			n/a
2	J1(13622)	Conc. Pt. (lbs)	L	01-04-00	01-04-00	Top	414	281			n/a
3	J1(13633)	Conc. Pt. (lbs)	L	02-08-00	02-08-00	Top	448	304			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,270 ft-lbs	36,392 ft-lbs	3.8%	1	02-08-00
End Shear	1,056 lbs	14,464 lbs	7.3%	1	01-03-08
Total Load Deflection	L/999 (0.002")	n/a	n/a	4	02-01-00
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	02-01-00
Max Defl.	0.002"	n/a	n/a	4	02-01-00
Span / Depth	3.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	1,800 lbs	30.6%	10.7%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	1,013 lbs	18.4%	6.8%	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 CALCO® 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
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Nail one ply to another with
 3 1/2" spiral nails @ 6"
 o.c. staggered in 2 rows



CONFORMS TO OBC2012



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

PASSED

3RD FLOOR Flush Beams B8 (13416)

Dry | 2 spans | L cant.

June 28, 2019 08:00:12

BC CALCO® Member Report

Build 7118

Job name:

File name: URBAN 12.mmdl

Address:

Description: 3RD FLOOR Flush Beams B8 (13416)

City, Province, Postal Code: CALEDON

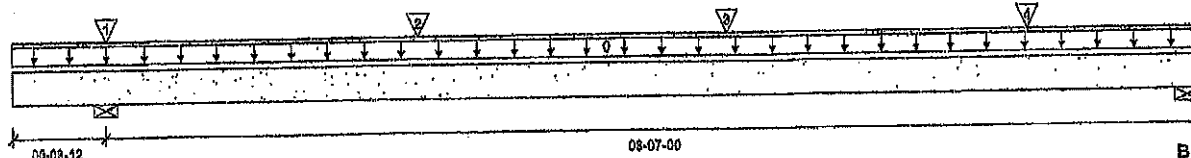
Specifier:

Customer:

Designer: PL

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 03-10-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,984 / 0	1,088 / 0		
B2, 2-3/4"	792 / 0	419 / 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	03-10-12	Top	1.00	0.65	1.00	1.15	00-00-00
1	-	Conc. Pt. (lbs)	L	00-03-13	00-03-13	Top	1,417	800			n/a
2	-	Conc. Pt. (lbs)	L	01-04-00	01-04-00	Top	447	224			n/a
3	-	Conc. Pt. (lbs)	L	02-04-00	02-04-00	Top	445	223			n/a
4	-	Conc. Pt. (lbs)	L	03-04-00	03-04-00	Top	443	222			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,419 ft-lbs	36,392 ft-lbs	4.0%	1	02-04-00
End Shear	1,068 lbs	14,464 lbs	7.4%	1	02-08-02
Cont. Shear	1,061 lbs	14,464 lbs	7.3%	1	01-05-08
Total Load Deflection	L/999 (0.002")	n/a	n/a	8	02-00-08
Live Load Deflection	L/999 (0.001")	n/a	n/a	11	02-00-08
Total Neg. Defl.	2xL/1,998 (-0.001")	n/a	n/a	10	00-00-00
Max Defl.	0.002"	n/a	n/a	8	02-00-08
Span / Depth	3.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	4,318 lbs	62.6%	28.9%	Unspecified
B2	Wall/Plate 2-3/4" x 3-1/2"	1,711 lbs	41.6%	14.6%	Unspecified

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 CALCO® 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.
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Nail one ply to another with
 3 1/2" spiral nails @ 4"
 o.c, staggered in 2 rows



CONFORMS TO OBC2012

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER
3289 NORTH SERVICE ROAD
BURLINGTON ONTARIO
Dec. 10, 2018 09:34

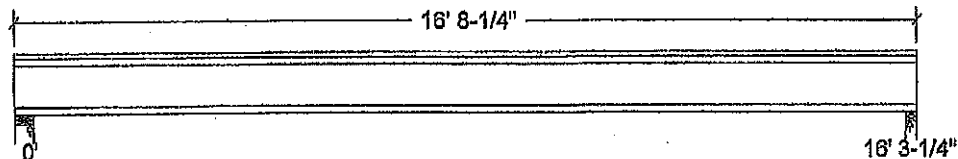
PROJECT
J1 UPPER FLOOR

Design Check Calculation Sheet Nordic Sizer - Canada 7.1

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), Bearing Resistances (lbs) and Bearing Lengths (in) :



Unfactored:				
Dead	217			217
Live	434			434
Factored:				
Total	922			922
Bearing:				
Resistance				
Joist	2336			2102
Support	7735			3981
Des ratio				
Joist	0.39			0.44
Support	0.12			0.23
Load case	#2			#2
Length	4-3/8			2-3/8
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	1.15			1.09

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

Nordic Joist 11-7/8" NI-40x Floor Joist @ 16" o.c.

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

Total length: 16' 8-1/4"; Clear span: 16' 1-1/2"; 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 = 922	Vr = 2336	lbs	Vf/Vr = 0.39
Moment (+)	Mf = 3750	Mr = 6255	lbs-ft	Mf/Mr = 0.60
Perm. Defl'n	0.11 = < L/999	0.54 = L/360	in	0.20
Live Defl'n	0.22 = L/906	0.41 = L/480	in	0.53
Total Defl'n	0.32 = L/604	0.81 = L/240	in	0.40
Bare Defl'n	0.25 = L/768	0.54 = L/360	in	0.47
Vibration	lmax = 16'-3.3	Lv = 17'-8.1	ft	0.92
Defl'n	= 0.030	= 0.039	in	0.77

THIS STRUCTURE MUST BE
CONSTRUCTED TO MEET OR
EXCEED THE PROVISIONS OF
THE CANADIAN BUILDING CODE

T-1905364

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	6255	1.00	1.00	-	1.000	-	-	-	#2
EI	371.1 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

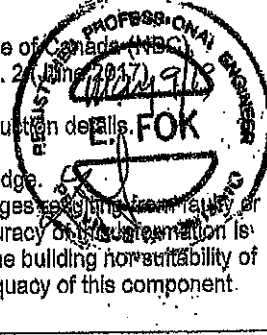
All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:Deflection: E_Ieff = 448e06 lb-in² K= 6.18e06 lbs

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

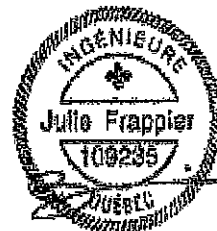
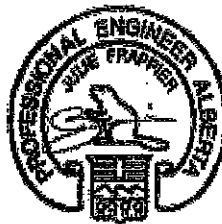
Design Notes:

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.
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 the 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.



THIS STRUCTURE MUST BE
CONSTRUCTED TO MEET OR
EXCEED THE PROVISIONS OF
THE ONTARIO BUILDING CODE

T-1905364(v)



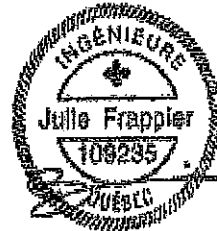
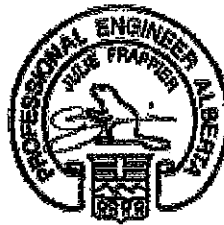
Maximum Floor Spans

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"
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'-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"
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	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'-8"	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"
14"	NI-90x	24'-3"	22'-6"	21'-6"	20'-4"	24'-8"	23'-0"	22'-0"	20'-9"
	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"
16"	NI-90x	27'-3"	25'-4"	24'-1"	22'-9"	27'-9"	25'-11"	24'-8"	23'-4"
	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.
- 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-1274C.



Maximum Floor Spans

Live Load = 40 psf, Dead Load = 15 psf

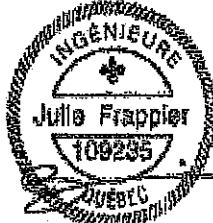
Simple Spans, L/480 Deflection Limit

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
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'-6"	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
14"	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
	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
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"	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 = 30 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing

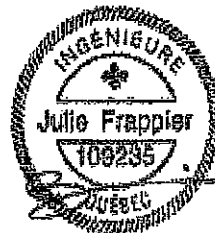
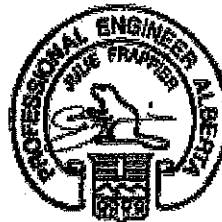
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16'-1"	15'-1"	13'-11"
	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"	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'-5"	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.

Maximum Floor Spans

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

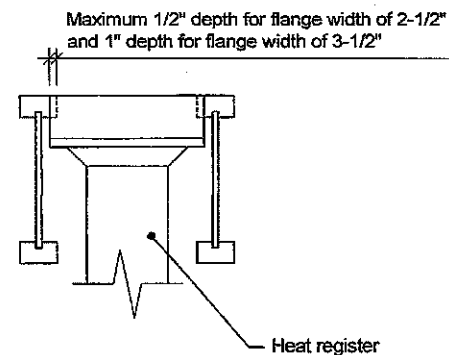
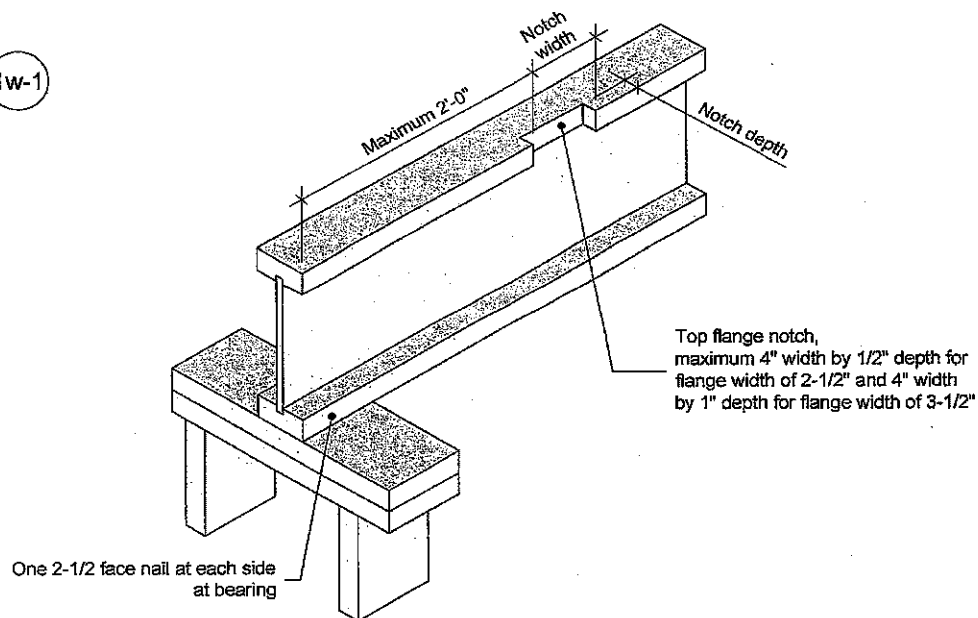


Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	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'-5"	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.

1W-1



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.

**NORDIC
STRUCTURES**

T 514-871-8526
1 866 817-3418
nordic.ca

TITLE

Notch in I-joist for Heat Register

CATEGORY

I-joist - Typical Floor Framing and Construction Details

DOCUMENT

-

DATE

2018-04-10

NUMBER

1W-1



Construction Detail

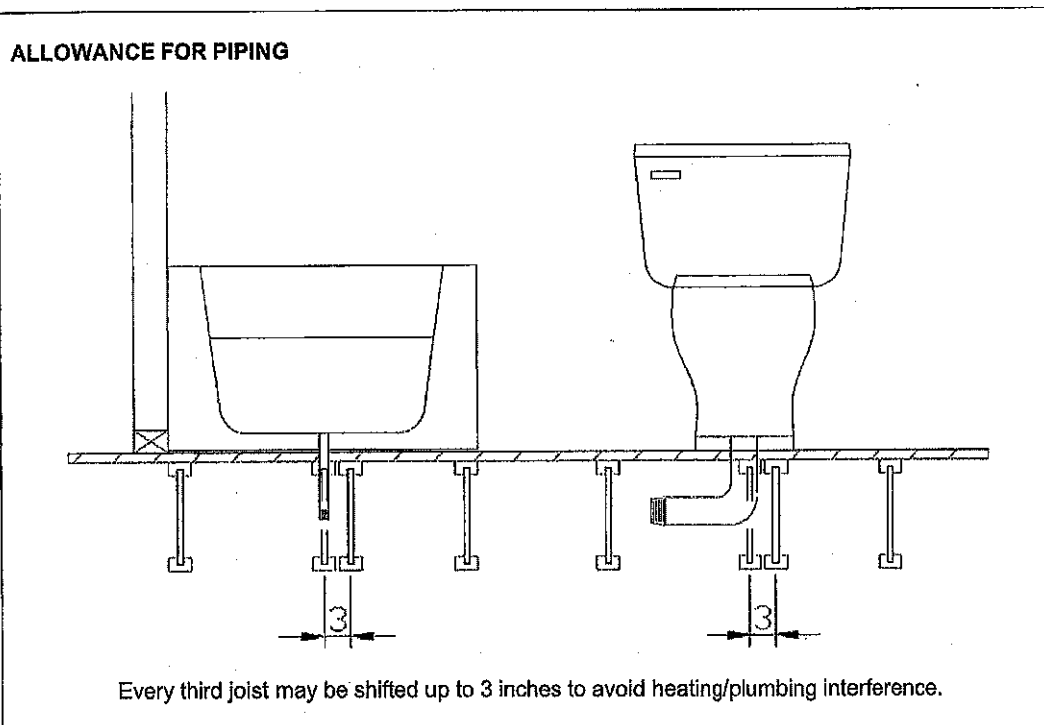
Limit States Design

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