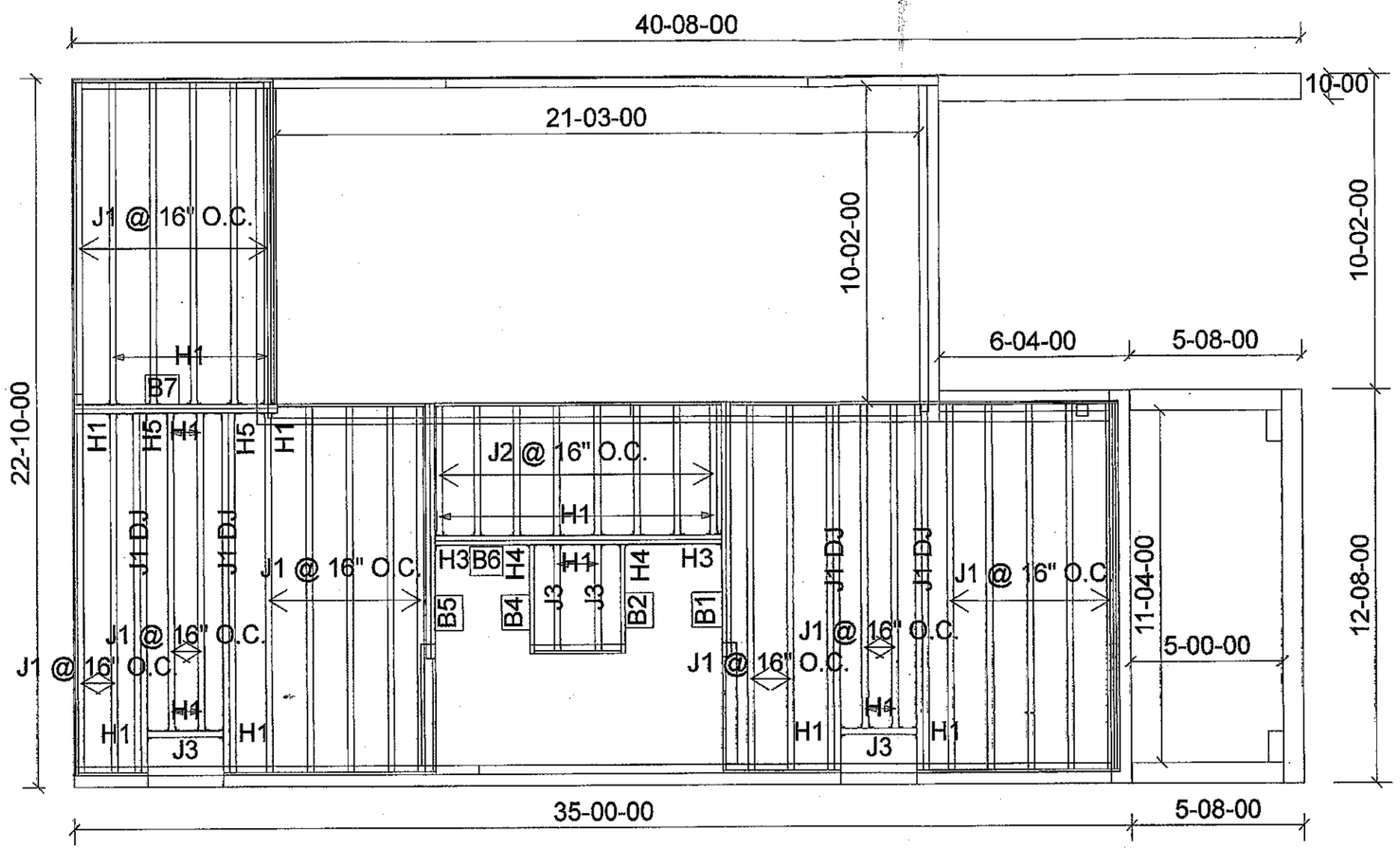


Products				
PlotID	Length	Product	Plies	Net Qty
J1	12-00-00	9 1/2" NI-40x	1	24
J1 DJ	12-00-00	9 1/2" NI-40x	2	8
J2	6-00-00	9 1/2" NI-40x	1	8
J3	4-00-00	9 1/2" NI-40x	1	4
B1	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B7	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B2	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
19	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
2	H3	HGUS410
2	H4	HUS1.81/10
2	H5	HU310-2

TAMARACK LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED: FEB 2019

BUILDER: GREENPARK HOMES

SITE: LAMBERTS LANE

MODEL: URBAN 1

ELEVATION: 1, 1A, 2, 2A

LOT:

CITY: CALEDON

SALESMAN: MD
DESIGNER: PL
REVISION: lbv

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

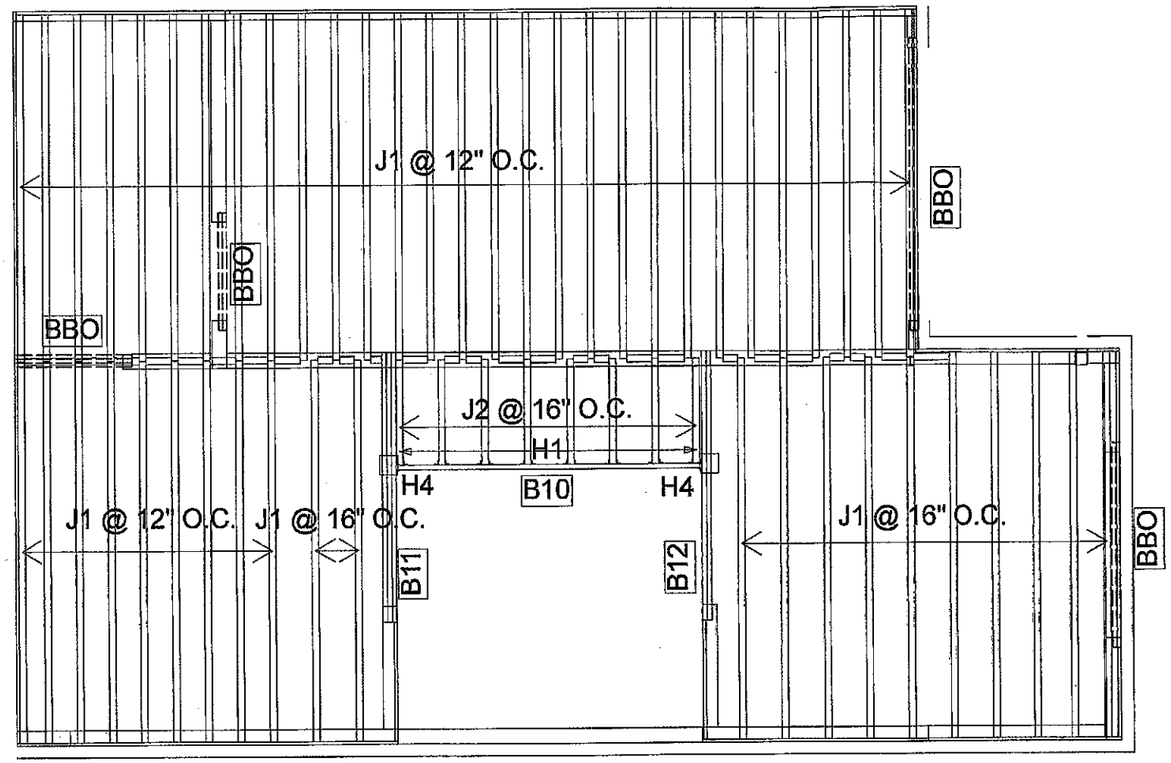
NOTES:
REFER TO THE **NORDIC INSTALLATION** GUIDE FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK** 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 O.B.C 9.30.6.

RECEIVED
JUL 11 2019
TOWN OF CALEDON
PLANNING SECTION
FILE NO.

LOADING:
DESIGN LOADS: L/480 @ 40 psf
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 20.0 lb/ft²
SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2019-06-19

LOWER LEVEL



Products				
PlotID	Length	Product	Plies	Net Qty
J1	12-00-00	9 1/2" NI-40x	1	50
J2	4-00-00	9 1/2" NI-40x	1	8
B10	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B12	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3

Connector Summary		
Qty	Manuf	Product
8	H1	IUS2.56/9.5
1	H4	HUS1.81/10
1	H4	HUS1.81/10

TAMARACK LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED: FEB 2019

BUILDER: GREENPARK HOMES

SITE: LAMBERTS LANE

MODEL: URBAN 1

ELEVATION: 1, 1A, 2, 2A

LOT:

CITY: CALEDON

SALESMAN: MD
DESIGNER: PL
REVISION: lbv

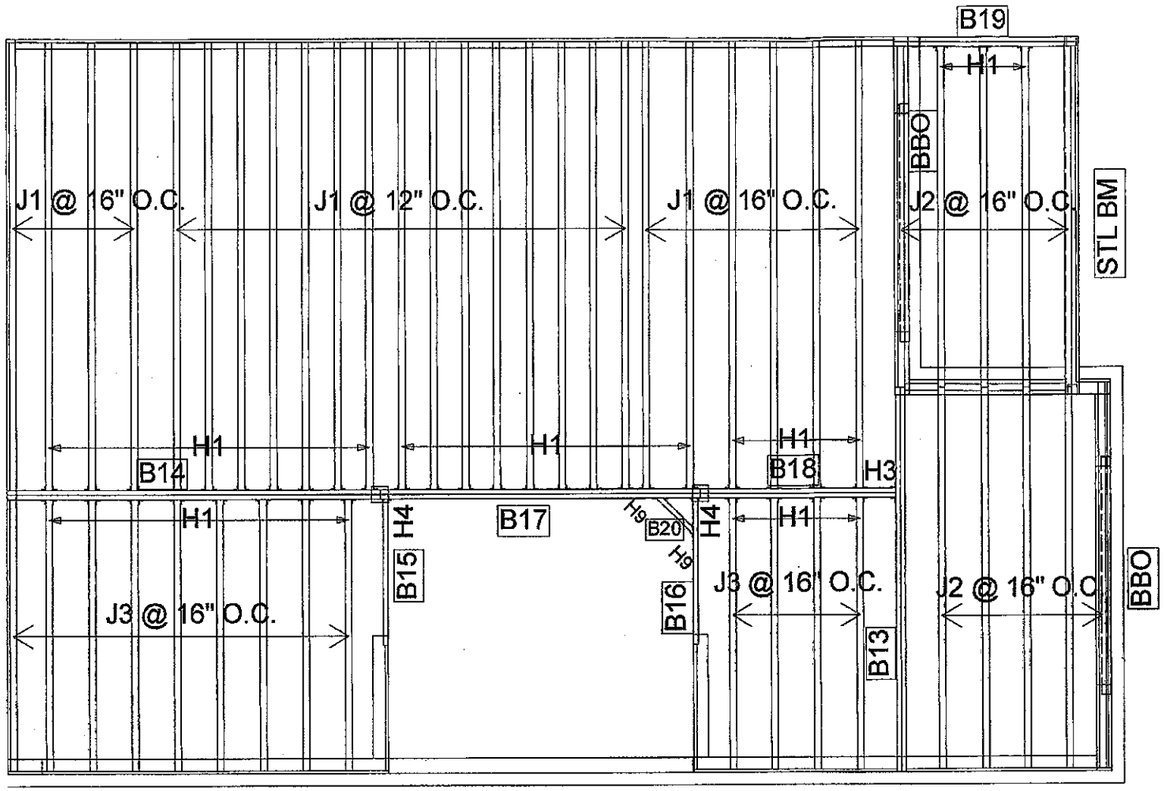
NOTES:
REFER TO THE NORDIC **INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION. **SQUASH BLOCKS** OF 2x4, 2x6, 2x8 #2 S.P.F. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER 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

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: 2019-06-19

MAIN LEVEL



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	11 7/8" NI-40x	1	25
J2	12-00-00	11 7/8" NI-40x	1	10
J3	10-00-00	11 7/8" NI-40x	1	13
B13	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B14	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B17	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B18	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B15	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B16	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B19	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B20	2-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
39	H1	IUS2.56/11.88
1	H3	HGUS410
2	H4	HUS1.81/10
1	H9	LS90
1	H9	LS90

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

TAMARACK LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED: FEB 2019

BUILDER: GREENPARK HOMES

SITE: LAMBERTS LANE

MODEL: URBAN 1

ELEVATION: 1, 1A, 2, 2A

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.

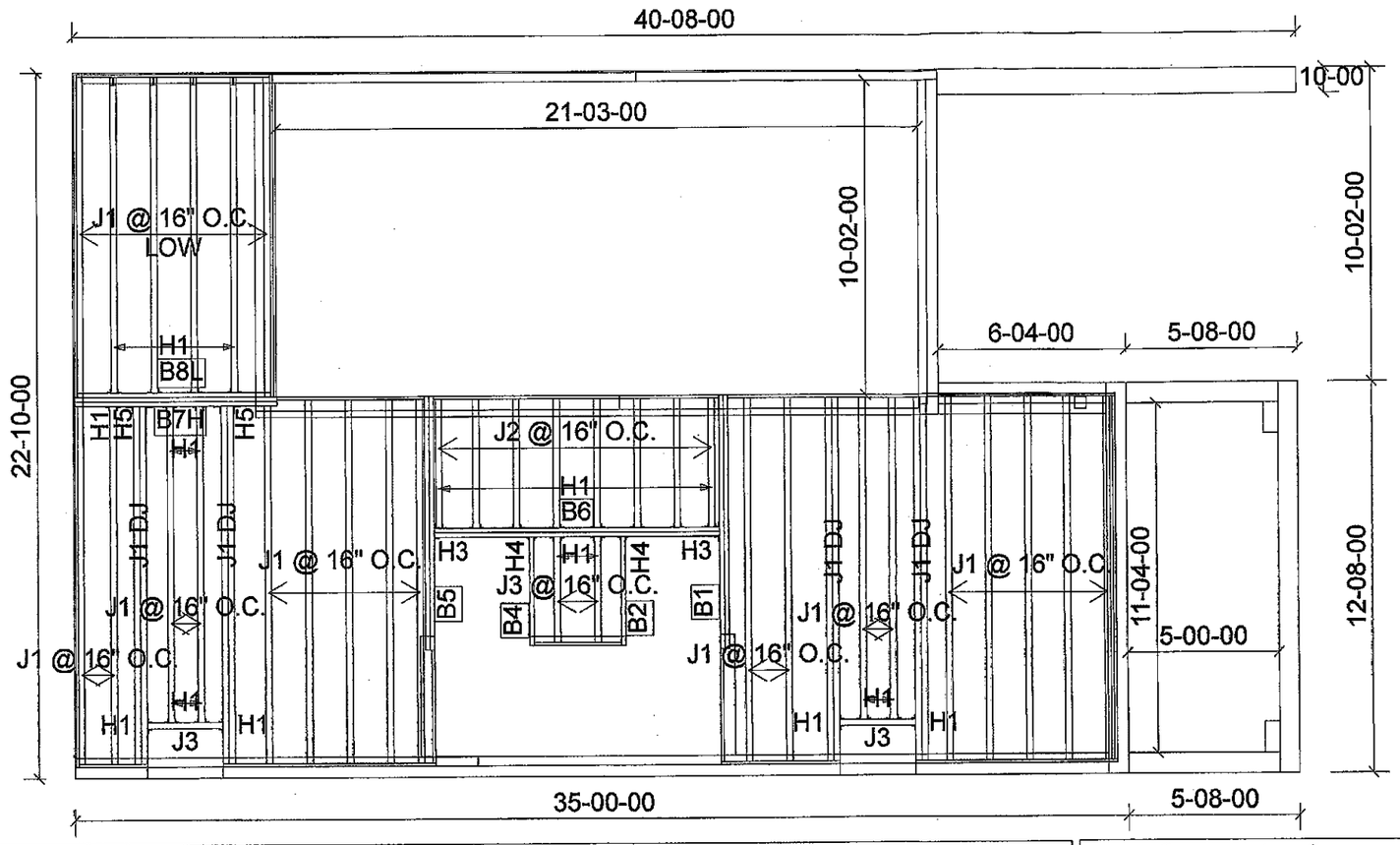
RECEIVED
JUL 11 2019
CITY OF CALEDON
BUILDING SECTION
FILE NO

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: 2019-06-19

UPPER LEVEL



Products				
PlotID	Length	Product	Plies	Net Qty
J1	12-00-00	9 1/2" NI-40x	1	24
J1 DJ	12-00-00	9 1/2" NI-40x	2	8
J2	6-00-00	9 1/2" NI-40x	1	8
J3	4-00-00	9 1/2" NI-40x	1	4
B1	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8L	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B7H	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B2	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
4	H1	IUS2.56/9.5
13	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
2	H3	HGUS410
2	H4	HUS1.81/10
2	H5	HU310-2

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

TAMARACK LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED: FEB 2019

BUILDER: GREENPARK HOMES

SITE: LAMBERTS LANE

MODEL: URBAN 1

ELEVATION: 1, 1A, 2, 2A

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 O.B.C 9.30.6.

RECEIVED
JUL 11 2019
TOWN OF CALEDON
BUILDING SECTION
FILE NO

LOADING:
DESIGN LOADS: L/480,000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 20.0 lb/ft²
SUBFLOOR: 3/4" GLUED AND NAILED

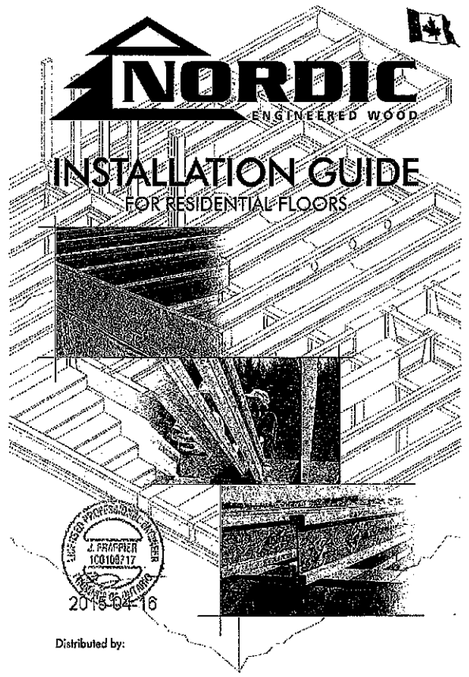
DATE: 2019-06-19

LOWER LEVEL

SUNKEN OPTION

NORDIC ENGINEERED WOOD

INSTALLATION GUIDE
FOR RESIDENTIAL FLOORS



Distributed by:

N-C201 / November 2014

SAFETY AND CONSTRUCTION PRECAUTIONS

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

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

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

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

MAXIMUM FLOOR SPANS

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 CSA S-16.1-06 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.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
6. Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
7. SI units conversion: 1 inch = 25.4 mm; 1 foot = 0.305 m

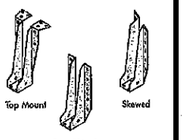
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS
SIMPLE AND MULTIPLE SPANS

Joist Depth	Joist Series	Simple spans On centre spacing 12"	16"	19.2"	24"	Multiple spans On centre spacing 12"	16"	19.2"	24"
9-1/4"	NI-20	15'-1"	14'-2"	13'-5"	13'-5"	16'-8"	15'-4"	14'-10"	14'-7"
	NI-40x	16'-1"	15'-2"	14'-8"	14'-5"	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'-6"	15'-7"	18'-7"	17'-4"	16'-9"	16'-10"
	NI-80	17'-5"	16'-5"	15'-8"	15'-9"	18'-10"	17'-6"	16'-11"	17'-0"
11-7/8"	NI-20	18'-11"	17'-10"	17'-2"	17'-2"	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'-2"	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'-5"	19'-4"
	NI-90	20'-2"	18'-7"	17'-10"	17'-11"	22'-3"	20'-7"	19'-8"	19'-9"
	NI-90x	20'-6"	18'-9"	17'-11"	18'-0"	22'-5"	20'-9"	19'-10"	19'-11"
14"	NI-40x	20'-1"	18'-7"	17'-10"	17'-11"	22'-2"	20'-4"	19'-5"	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"
	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'-6"	22'-10"	21'-10"	21'-10"
	NI-90x	22'-7"	20'-11"	19'-11"	20'-0"	25'-0"	23'-1"	22'-0"	22'-0"
16"	NI-40x	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

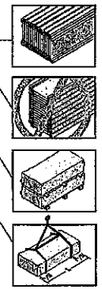
I-JOIST HANGERS

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 sides of the hangers do not laterally brace the top flange of the I-joist.



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 flatwise.
5. Protect I-joists from weather, and use spacers to separate bundles.
6. Bundled units should be kept intact until time of installation.
7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joists and injury 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 a horizontal orientation.
9. NEVER USE OR TRY TO REPAIR A DAMAGED I-JOIST.



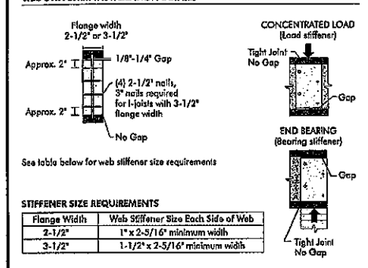
WEB STIFFENERS

RECOMMENDATIONS:

- A ***bearing stiffener*** is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found of the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at the top.
- A ***bearing stiffener*** is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
- A ***load stiffener*** is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

SI units conversion: 1 inch = 25.4 mm

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS

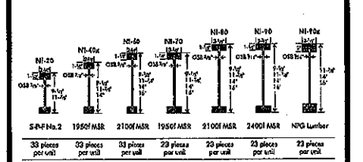


See table below for web stiffener size requirements

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

NORDIC I-JOIST SERIES



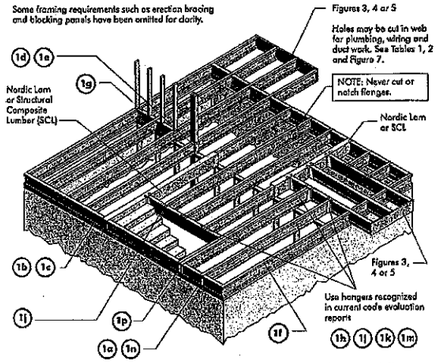
Chantiers Chibougamau Ltd. harvests its own trees, which enables Nordic products to adhere to strict quality control procedures throughout the manufacturing process. Every phase of the operation, from forest to the finished product, reflects our commitment to quality.

Nordic Engineered Wood I-joists use only finger-jointed black spruce lumber in their flanges, ensuring consistent quality, superior strength and longer span carrying capacity.

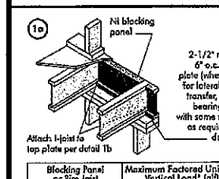
INSTALLING NORDIC I-JOISTS

1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, consult 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-span applications 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 or header.
8. Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include track lighting fixtures, audio equipment and security cameras. Never suspend unusual or heavy loads from the I-joist's bottom flange. Wherever 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 rollover. Use rim board, rim joists or I-joist blocking panels.
11. For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (cripple members) to transfer gravity loads through the floor system to the wall or foundation below.
12. Due to shrinkage, common framing lumber set on edge may never be used as blocking or rim boards. I-joist blocking panels or other engineered wood products – such as rim board – must be cut to fit between the I-joists, and an I-joist-compatible depth selected.
13. Provide permanent lateral support of the bottom flange of all 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. Give 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

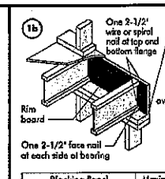


All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for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



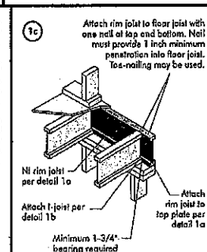
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

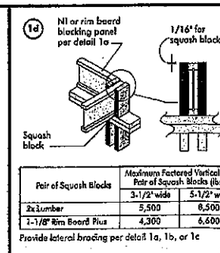
*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.



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

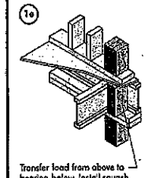
*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

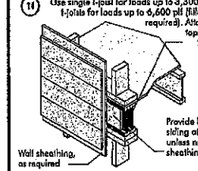


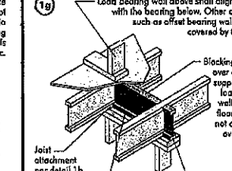


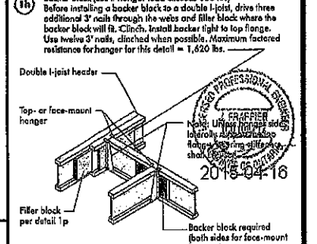
Pair of Squash Blocks	Maximum Factored Vertical per Pair of Squash Blocks (lbs)	
	3-1/2" wide	5-1/2" wide
2x Lumber	5,500	8,500
1-1/8" Rim Board Plus	4,300	6,600

Provide lateral bracing per detail 1a, 1b, or 1c







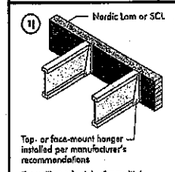


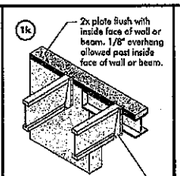
For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

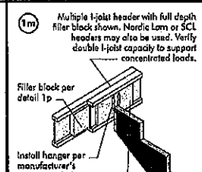
BACKER BLOCKS (Blocks must be long enough to permit required nailing without splitting)

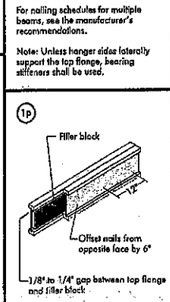
Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

* 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".





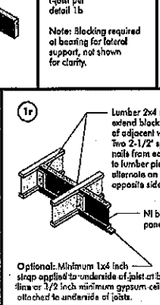


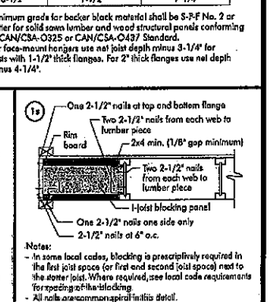


Notes:
1. Support back of I-joist web during nailing to prevent damage to web/flange connection.
2. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
3. Filler block is required between joists for full length of span.
4. Nail joists together with two rows of 3" 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.
5. 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-joist capacity.

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

Flange Size	Joist Depth	Filler Block Size
2-1/2" x 1-1/2"	9-1/2"	2-1/8" x 6"
	11-7/8"	2-1/8" x 8"
	14"	2-1/8" x 10"
	16"	2-1/8" x 12"
3-1/2" x 1-1/2"	9-1/2"	3" x 6"
	11-7/8"	3" x 8"
	14"	3" x 10"
	16"	3" x 12"
3-1/2" x 2"	11-7/8"	3" x 7"
	14"	3" x 9"
	16"	3" x 11"

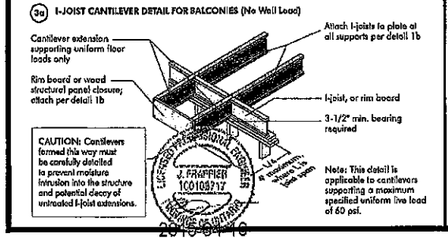




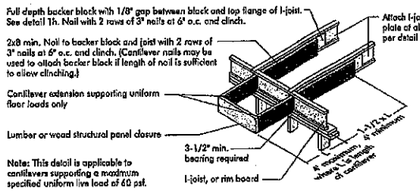
Notes:
- In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.
- All nails are common spiral nails this detail.

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)



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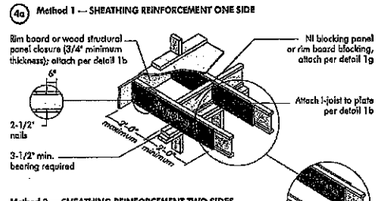
CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE

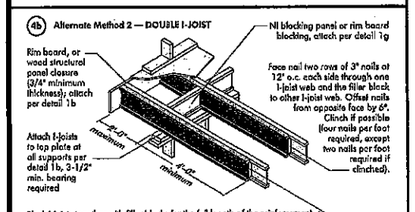


Method 2 — SHEATHING REINFORCEMENT TWO SIDES

- 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") 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.

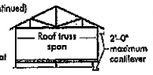
4b Alternate Method 2 — DOUBLE I-JOIST

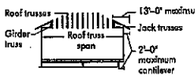


Block I-joists together with filler blocks for the full length of the reinforcement. For I-joist flange widths greater than 3 inches place an additional row of 3" nails along the centreline of the reinforcing panel from each side. Clinch when possible.

FIGURE 4 (continued)

See table below for NI reinforcement requirements at cantilever.





For hip roofs with the jack trusses running parallel to the cantilevered floor joists, the I-joist reinforcement requirements for a span of 26 ft. shall be permitted to be used.

CANTILEVER REINFORCEMENT METHODS ALLOWED

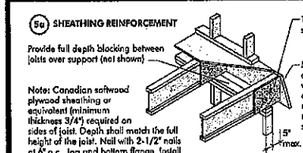
JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	ROOF LOADING (UNFACTORED) LL = 30 psf, DL = 15 psf JOIST SPACING (in.) 12	16	19.2	24	LL = 40 psf, DL = 15 psf JOIST SPACING (in.) 12	16	19.2	24	LL = 50 psf, DL = 15 psf JOIST SPACING (in.) 12	16	19.2	24
9-1/2"	26	N	N	1	2	N	1	2	X	N	2	X	X
	28	N	1	X	X	N	2	X	X	1	X	X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

1. N = No reinforcement required.
   1 = NI reinforced with 3/4" wood structural panel on one side only.
   2 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
   X = Try a deeper joist or closer spacing.
2. Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 plf wall load. Wall load is based on 3'-0" maximum width window or door openings.

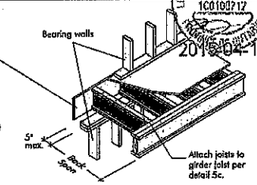
For larger openings, or multiple 3'-0" width openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.

3. 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.
4. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
5. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

5a SHEATHING REINFORCEMENT



5b SET-BACK DETAIL



5c SET-BACK CONNECTION

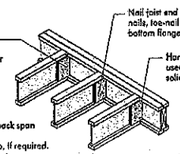
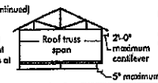
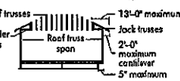


FIGURE 5 (continued)

See table below for NI reinforcement requirements at cantilever.





For hip roofs with the jack trusses running parallel to the cantilevered floor joists, the I-joist reinforcement requirements for a span of 26 ft. shall be permitted to be used.

BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	ROOF LOADING (UNFACTORED) LL = 30 psf, DL = 15 psf JOIST SPACING (in.) 12	16	19.2	24	LL = 40 psf, DL = 15 psf JOIST SPACING (in.) 12	16	19.2	24	LL = 50 psf, DL = 15 psf JOIST SPACING (in.) 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
	36	X	X	X	X	X	X	X	X	X	X	X	X
11-7/8"	26	N	2	X	X	1	X	X	X	2	X	X	X
	28	N	2	X	X	1	X	X	X	2	X	X	X
	30	1	2	X	X	1	X	X	X	2	X	X	X
	32	1	2	X	X	1	X	X	X	2	X	X	X
	34	1	X	X	X	2	X	X	X	X	X	X	X
	36	1	X	X	X	2	X	X	X	X	X	X	X
	38	1	X	X	X	2	X	X	X	X	X	X	X
14"	26	N	1	2	X	N	2	X	X	1	X	X	X
	28	N	1	2	X	1	2	X	X	1	X	X	X
	30	N	2	X	X	1	2	X	X	1	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
	36	1	2	X	X	1	X	X	X	2	X	X	X
	38	1	2	X	X	1	X	X	X	2	X	X	X
	40	1	X	X	X	2	X	X	X	X	X	X	X
16"	26	N	1	2	X	N	2	X	X	1	X	X	X
	28	N	1	2	X	N	2	X	X	1	X	X	X
	30	N	1	2	X	N	2	X	X	1	X	X	X
	32	N	1	2	X	1	2	X	X	1	X	X	X
	34	N	2	X	X	1	X	X	X	2	X	X	X
	36	N	2	X	X	1	X	X	X	2	X	X	X
	38	N	2	X	X	1	X	X	X	2	X	X	X
	40	N	2	X	X	1	X	X	X	2	X	X	X
	42	1	2	X	X	1	X	X	X	2	X	X	X

1. N = No reinforcement required.
   1 = NI reinforced with 3/4" wood structural panel on one side only.
   2 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
   X = Try a deeper joist or closer spacing.
2. Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 plf wall load. Wall load is based on 3'-0" maximum width window or door openings.

For larger openings, or multiple 3'-0" width openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.

3. 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.
4. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
5. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

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.

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.) 3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4	Span adjustment Factor
9-1/2"	NI-40	6'-7"	9'-0"	9'-10"	4'-3"	6'-4"	---	---	---	---	---	---	---	---	---	1.00
	NI-50	8'-7"	9'-0"	9'-10"	6'-4"	6'-4"	---	---	---	---	---	---	---	---	---	1.00
	NI-60	8'-7"	9'-0"	9'-10"	6'-4"	6'-4"	---	---	---	---	---	---	---	---	---	1.00
	NI-70	11'-3"	11'-9"	12'-4"	7'-4"	7'-4"	---	---	---	---	---	---	---	---	---	1.00
	NI-80	8'-7"	9'-0"	11'-9"	6'-4"	6'-4"	---	---	---	---	---	---	---	---	---	1.00
	NI-90	11'-3"	11'-9"	12'-4"	7'-4"	7'-4"	---	---	---	---	---	---	---	---	---	1.00
11-7/8"	NI-40	6'-7"	9'-0"	11'-3"	5'-8"	6'-4"	7'-9"	8'-4"	---	---	---	---	---	---	---	1.00
	NI-50	8'-7"	9'-0"	11'-3"	6'-4"	6'-4"	7'-9"	8'-4"	---	---	---	---	---	---	---	1.00
	NI-60	8'-7"	9'-0"	11'-3"	6'-4"	6'-4"	7'-9"	8'-4"	---	---	---	---	---	---	---	1.00
	NI-70	11'-3"	11'-9"	12'-4"	7'-4"	7'-4"	7'-9"	8'-4"	---	---	---	---	---	---	---	1.00
	NI-80	8'-7"	9'-0"	11'-9"	6'-4"	6'-4"	7'-9"	8'-4"	---	---	---	---	---	---	---	1.00
	NI-90	11'-3"	11'-9"	12'-4"	7'-4"	7'-4"	7'-9"	8'-4"	---	---	---	---	---	---	---	1.00
14"	NI-40	6'-7"	9'-0"	11'-9"	5'-8"	6'-4"	7'-9"	8'-4"	8'-9"	9'-0"	---	---	---	---	---	1.00
	NI-50	8'-7"	9'-0"	11'-9"	6'-4"	6'-4"	7'-9"	8'-4"	8'-9"	9'-0"	---	---	---	---	---	1.00
	NI-60	8'-7"	9'-0"	11'-9"	6'-4"	6'-4"	7'-9"	8'-4"	8'-9"	9'-0"	---	---	---	---	---	1.00
	NI-70	11'-3"	11'-9"	12'-4"	7'-4"	7'-4"	7'-9"	8'-4"	8'-9"	9'-0"	---	---	---	---	---	1.00
	NI-80	8'-7"	9'-0"	11'-9"	6'-4"	6'-4"	7'-9"	8'-4"	8'-9"	9'-0"	---	---	---	---	---	1.00
	NI-90	11'-3"	11'-9"	12'-4"	7'-4"	7'-4"	7'-9"	8'-4"	8'-9"	9'-0"	---	---	---	---	---	1.00
16"	NI-40	6'-7"	9'-0"	11'-9"	5'-8"	6'-4"	7'-9"	8'-4"	8'-9"	9'-0"	10'-6"	12'-0"	12'-4"	12'-9"	13'-3"	1.00
	NI-50	8'-7"	9'-0"	11'-9"	6'-4"	6'-4"	7'-9"	8'-4"	8'-9"	9'-0"	10'-6"	12'-0"	12'-4"	14'-0"	15'-6"	1.00
	NI-60	8'-7"	9'-0"	11'-9"	6'-4"	6'-4"	7'-9"	8'-4"	8'-9"	9'-0"	10'-6"	12'-0"	12'-4"	14'-0"	15'-6"	1.00
	NI-70	11'-3"	11'-9"	12'-4"	7'-4"	7'-4"	7'-9"	8'-4"	8'-9"	9'-0"	10'-6"	12'-0"	12'-4"	14'-0"	15'-6"	1.00
	NI-80	8'-7"	9'-0"	11'-9"	6'-4"	6'-4"	7'-9"	8'-4"	8'-9"	9'-0"	10'-6"	12'-0"	12'-4"	14'-0"	15'-6"	1.00
	NI-90	11'-3"	11'-9"	12'-4"	7'-4"	7'-4"	7'-9"	8'-4"	8'-9"	9'-0"	10'-6"	12'-0"	12'-4"	14'-0"	15'-6"	1.00

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:

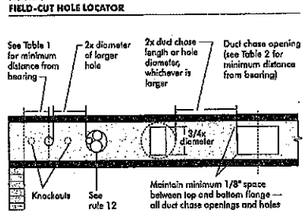
The above table is based on the I-joists used at their maximum span. If the I-joists are placed at less than their full maximum span (see Maximum Spans tables), the minimum distance from the centreline of the hole to the face of any support (D) as given above may be reduced as follows:

$D_{reduced} = \frac{I_{actual}}{SAF} \times D$

Where: $D_{reduced}$ = Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span applications (ft).
I_{actual} = The actual measured span distance between the inside faces of supports (ft).
SAF = 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 $\frac{I_{actual}}{SAF}$ is greater than 1, use 1 in the above calculation for $\frac{I_{actual}}{SAF}$.

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.

Knockouts are prescored holes provided for the contractor's convenience to install electrical or small plumbing lines. They are 1-1/2 inches in diameter, and are spaced 15 inches on centre along the length of the I-joist. Where possible, it is preferable to use knockouts instead of field-cut holes.

Never drill, cut or notch the flange, or over-cut the web.

Holes in webs should be cut with a sharp saw.

For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch diameter hole in each of the four corners and then making the cuts between the holes is another good method to minimize damage to the I-joist.

TABLE 2
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
9-1/2"	NI-40	4'-1"	4'-9"	4'-10"	5'-4"	5'-8"	6'-1"	6'-6"	7'-1"	7'-5"
	NI-50	5'-4"	5'-9"	6'-2"	6'-7"	7'-0"	7'-5"	7'-9"	8'-2"	8'-6"
	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-0"	7'-5"	7'-9"	8'-2"	8'-6"
	NI-70	6'-7"	7'-1"	7'-6"	7'-11"	8'-4"	8'-8"	9'-1"	9'-5"	9'-9"
	NI-80	5'-4"	5'-9"	6'-2"	6'-7"	7'-0"	7'-5"	7'-9"	8'-2"	8'-6"
	NI-90	6'-7"	7'-1"	7'-6"	7'-11"	8'-4"	8'-8"	9'-1"	9'-5"	9'-9"
11-7/8"	NI-40	4'-1"	4'-9"	5'-4"	5'-10"	6'-3"	6'-8"	7'-1"	7'-6"	7'-10"
	NI-50	5'-4"	5'-9"	6'-2"	6'-7"	7'-0"	7'-5"	7'-9"	8'-2"	8'-6"
	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-0"	7'-5"	7'-9"	8'-2"	8'-6"
	NI-70	6'-7"	7'-1"	7'-6"	7'-11"	8'-4"	8'-8"	9'-1"	9'-5"	9'-9"
	NI-80	5'-4"	5'-9"	6'-2"	6'-7"	7'-0"	7'-5"	7'-9"	8'-2"	8'-6"
	NI-90	6'-7"	7'-1"	7'-6"	7'-11"	8'-4"	8'-8"	9'-1"	9'-5"	9'-9"
14"	NI-40	4'-1"	4'-9"	5'-4"	5'-10"	6'-3"	6'-8"	7'-1"	7'-6"	7'-10"
	NI-50	5'-4"	5'-9"	6'-2"	6'-7"	7'-0"	7'-5"	7'-9"	8'-2"	8'-6"
	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-0"	7'-5"	7'-9"	8'-2"	8'-6"
	NI-70	6'-7"	7'-1"	7'-6"	7'-11"	8'-4"	8'-8"	9'-1"	9'-5"	9'-9"
	NI-80	5'-4"	5'-9"	6'-2"	6'-7"	7'-0"	7'-5"	7'-9"	8'-2"	8'-6"
	NI-90	6'-7"	7'-1"	7'-6"	7'-11"	8'-4"	8'-8"	9'-1"	9'-5"	9'-9"
16"	NI-40	4'-1"	4'-9"	5'-4"	5'-10"	6'-3"	6'-8"	7'-1"	7'-6"	7'-10"
	NI-50	5'-4"	5'-9"	6'-2"	6'-7"	7'-0"	7'-5"	7'-9"	8'-2"	8'-6"
	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-0"	7'-5"	7'-9"	8'-2"	8'-6"
	NI-70	6'-7"	7'-1"	7'-6"	7'-11"	8'-4"	8'-8"	9'-1"	9'-5"	9'-9"
	NI-80	5'-4"	5'-9"	6'-2"	6'-7"	7'-0"	7'-5"	7'-9"	8'-2"	8'-6"
	NI-90	6'-7"	7'-1"	7'-6"	7'-11"	8'-4"	8'-8"	9'-1"	9'-5"	9'-9"

1. Above table may be used for I-joist 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. For other applications, contact your local distributor.

INSTALLING THE GLUED FLOOR SYSTEM

1. Wipe any mud, dirt, water, or ice from I-joist flanges before gluing.
2. Snap a chalk line across the I-joists four feet in from the wall for panel edge alignment and as a boundary for spreading glue.
3. Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from the glue manufacturer.
4. Lay the first panel with tongue side to the wall, and nail in place. This protects the tongue of the next panel from damage when tapped into place with a block and sledgehammer.
5. Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joist. Apply glue in a winding pattern on wide areas, such as with double I-joists.
6. Apply two lines of glue on I-joists where panel ends butt to assure proper gluing of each end.
7. After the first row of panels is in place, spread glue in the groove of one or two panels at a time before laying the next row. Glue line may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) than used on I-joist flanges.
8. Tap the second row of panels into place, using a block to protect groove edges.
9. Stagger end joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&G edges, is recommended. (Use a spacer tool or an 2-1/2" common nail to assure accurate and consistent spacing.)
10. Complete all nailing of each panel before glue sets. Check the manufacturer's recommendations for cure time. (Warm weather accelerates glue setting.) Use 2" ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the glue bond.

FASTENERS FOR SHEATHING AND SUBFLOORING[1]

Maximum Joist Spacing (in.)	Minimum Panel Thickness (in.)	Nail Size and Type: Common Wire or Spiral Nails	Ring Thread Nails or Screws	Staples	Maximum Spacing of Fasteners: Edges	Interm. Supports
16	5/8	2"	1-3/4"	2"	6"	12"
20	5/8	2"	1-3/4"	2"	6"	12"
24	3/4	2"	1-3/4"	2"	6"	12"

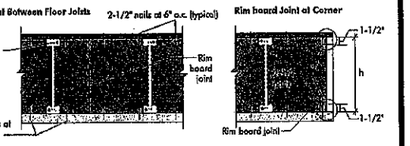
1. Fasteners of sheathing and subflooring shall conform to the above table.
2. Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to framing.
3. Flooring screws shall not be less than 1/8-inch in diameter.
4. Special conditions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

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

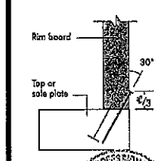
IMPORTANT NOTE:
Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed-only, I-joist spans must be verified with your local distributor.

RIM BOARD INSTALLATION DETAILS

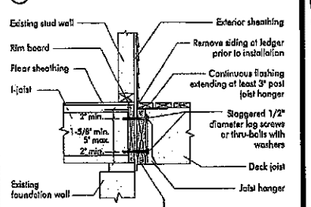
6a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

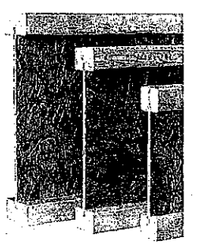


6b TOE-NAIL CONNECTION AT RIM BOARD



6c 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL





CONSTRUCTION DETAILS FOR RESIDENTIAL FLOORS

N-C303 / April 2014

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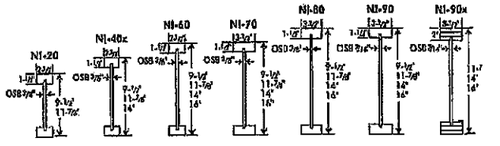


Refer to the *Installation Guide for Residential Floors* for additional information.
CCMC EVALUATION REPORT 13032-R

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-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 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 6 above.
10. All holes and duct chase openings shall be cut in a workmanlike manner in accordance with the restrictions listed above and as illustrated in Figure 7.
11. Until 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.

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	11	12	12-3/4
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'-8"	7'-9"	---	---	---	---	---	---
	NI-40x	0'-7"	0'-8"	1'-3"	2'-8"	4'-0"	4'-4"	5'-5"	7'-0"	8'-4"	---	---	---	---	---	---
	NI-60	0'-7"	1'-0"	2'-0"	3'-4"	5'-0"	5'-4"	6'-8"	8'-10"	10'-0"	---	---	---	---	---	---
	NI-70	0'-7"	1'-3"	2'-6"	4'-0"	5'-8"	6'-0"	7'-5"	9'-8"	11'-2"	---	---	---	---	---	---
	NI-80	0'-7"	1'-6"	2'-10"	4'-2"	5'-6"	5'-10"	7'-5"	9'-8"	11'-5"	---	---	---	---	---	---
	NI-90	0'-7"	0'-8"	1'-5"	3'-2"	4'-10"	5'-4"	6'-9"	8'-9"	10'-2"	---	---	---	---	---	---
	NI-90x	0'-7"	0'-8"	0'-9"	2'-6"	4'-4"	4'-9"	6'-3"	---	---	---	---	---	---	---	---
14"	NI-40x	0'-7"	0'-8"	0'-8"	1'-0"	2'-4"	2'-9"	3'-9"	5'-6"	6'-10"	6'-6"	8'-8"	10'-2"	---	---	---
	NI-60	0'-7"	0'-8"	1'-0"	1'-9"	3'-4"	4'-2"	4'-8"	6'-8"	8'-3"	7'-2"	9'-0"	10'-4"	11'-7"	---	---
	NI-70	0'-7"	0'-8"	1'-0"	2'-0"	4'-3"	4'-8"	5'-0"	7'-2"	9'-0"	8'-8"	10'-4"	11'-7"	---	---	---
	NI-80	0'-8"	1'-10"	3'-0"	4'-5"	5'-10"	6'-2"	7'-3"	8'-9"	9'-9"	10'-4"	12'-0"	13'-5"	---	---	---
	NI-90	0'-7"	0'-8"	0'-10"	2'-5"	4'-0"	4'-5"	5'-9"	7'-5"	8'-8"	9'-4"	11'-4"	12'-11"	---	---	---
	NI-90x	0'-7"	0'-8"	0'-9"	2'-0"	3'-7"	4'-2"	5'-5"	7'-3"	8'-5"	9'-2"	---	---	---	---	---
16"	NI-60	0'-7"	0'-8"	0'-8"	1'-4"	2'-10"	3'-2"	4'-0"	5'-8"	7'-0"	6'-4"	7'-8"	8'-9"	9'-8"	10'-2"	10'-8"
	NI-70	0'-7"	0'-8"	1'-0"	2'-0"	3'-6"	4'-0"	4'-5"	6'-4"	7'-8"	7'-0"	8'-6"	9'-8"	10'-8"	11'-4"	11'-9"
	NI-80	0'-7"	1'-3"	2'-6"	3'-10"	5'-3"	5'-6"	6'-6"	8'-0"	9'-4"	9'-0"	10'-8"	12'-0"	12'-11"	13'-5"	13'-9"
	NI-90	0'-7"	0'-8"	0'-8"	1'-9"	3'-3"	3'-8"	4'-5"	5'-5"	7'-5"	6'-0"	9'-10"	11'-3"	11'-9"	13'-5"	13'-9"
	NI-90x	0'-7"	0'-8"	0'-9"	2'-0"	3'-6"	4'-0"	5'-0"	6'-9"	7'-9"	8'-4"	10'-2"	11'-6"	12'-0"	---	---

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.
4. 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

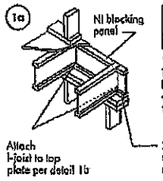
DUCT CHASE OPENING SIZES AND LOCATIONS

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'-8"
	NI-40x	5'-8"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"
	NI-60	5'-4"	5'-6"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8'-5"	8'-9"
	NI-70	5'-1"	5'-5"	5'-10"	6'-3"	6'-7"	7'-1"	7'-6"	8'-1"	8'-4"
	NI-80	5'-3"	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'-6"	7'-1"	7'-8"	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'-5"
	NI-60	7'-5"	7'-8"	8'-0"	8'-6"	9'-0"	9'-3"	9'-9"	10'-3"	11'-0"
	NI-70	7'-1"	7'-6"	7'-9"	8'-3"	8'-7"	9'-1"	9'-6"	10'-1"	10'-6"
	NI-80	7'-2"	7'-7"	8'-0"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-8"
	NI-90	7'-6"	7'-11"	8'-4"	8'-9"	9'-2"	9'-7"	10'-1"	10'-7"	10'-11"
	NI-90x	7'-7"	8'-1"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-8"	11'-2"
14"	NI-40x	8'-1"	8'-7"	9'-0"	9'-6"	10'-1"	10'-7"	11'-2"	12'-0"	12'-8"
	NI-60	8'-9"	9'-3"	9'-8"	10'-1"	10'-6"	11'-1"	11'-6"	13'-3"	13'-0"
	NI-70	8'-7"	9'-1"	9'-5"	9'-10"	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"
	NI-90	9'-0"	9'-3"	9'-8"	10'-1"	10'-7"	11'-1"	11'-6"	12'-1"	12'-6"
	NI-90x	9'-4"	9'-9"	10'-3"	10'-7"	11'-1"	11'-7"	12'-1"	12'-7"	13'-0"
16"	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'-6"
	NI-90	10'-9"	11'-2"	11'-8"	12'-0"	12'-6"	13'-0"	13'-6"	14'-2"	14'-10"
	NI-90x	11'-1"	11'-5"	11'-10"	12'-4"	12'-10"	13'-2"	13'-9"	14'-4"	15'-1"

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

1a

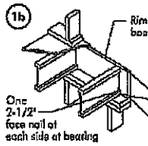


Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

*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)

1b



Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	6,090

*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.

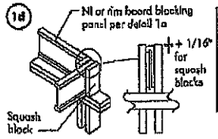
One 2-1/2" wire or spiral nail at top and bottom flange

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-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.

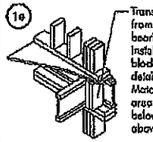
1d



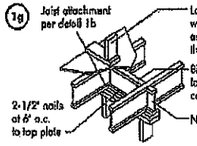
Pair of Squash Blocks	Maximum Factored Vertical Load per Pair of Squash Blocks (lbs) 3-1/2" wide	5-1/2" wide
2x Lumber	5,500	8,500
1-1/8" Rim Board Plus	4,300	6,600

Provide lateral bracing per detail 1a or 1b

1e



1g



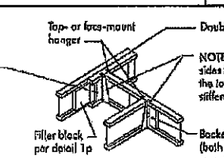
1h

Backer block (use if lumber load exceeds 360 lbs). Before installing a backer block to a double I-joist, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch. Install backer light to top flange. Use twelve 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)

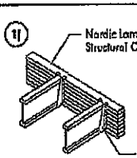
Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

* Minimum grade for backer block material shall be S-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".



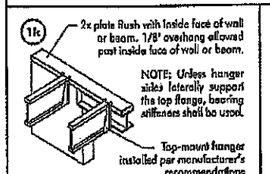
For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

1i

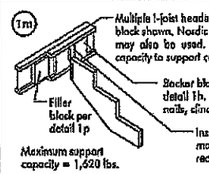


NOTE: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

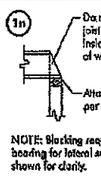
1k



1m

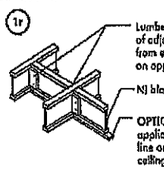


1n



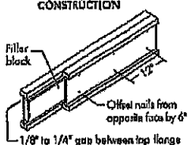
NOTE: Blocking required at bearing for lateral support, not shown for clarity.

1r



1p

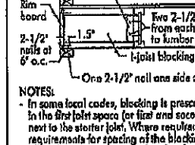
FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION



NOTES:
1. Support back of I-joist web during nailing to prevent damage to web/flange connection.
2. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
3. Filler block is required between joists for full length of span.
4. 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.
5. The maximum factored load that may be applied to one side of the double joist using this detail is 860 lbs/ft. Verify double I-joist capacity.

Flange Size	Net Depth	Filler Block Size
2-1/2" x 1-1/2"	9-1/2" 11-7/8" 14" 16"	2-7/8" x 6" 2-3/8" x 8" 2-1/8" x 10" 2-1/8" x 12"
3-1/2" x 1-1/2"	9-1/2" 11-7/8" 14" 16"	3" x 6" 3" x 8" 3" x 10" 3" x 12"
3-1/2" x 2"	11-7/8" 14" 16"	3" x 7" 3" x 9" 3" x 11"

1s

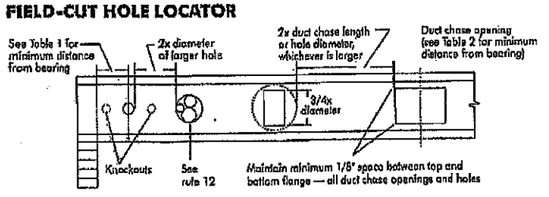


NOTES:
- In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.
- All nails are common spiral in this detail.

All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.128" 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.

FIGURE 7

FIELD-CUT HOLE LOCATOR



Knockouts are prescored holes provided for the contractor's convenience to install electrical or small plumbing lines. They are 1-1/2 inches in diameter, and are spaced 15 inches on centre along the length of the I-joist. Where possible, it is preferable to use knockouts instead of field-cut holes.

Never drill, cut or notch the flange, or over-cut the web.

Holes in webs should be cut with a sharp saw.

For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch diameter hole in each of the four corners and then making the cuts between the holes is another good method to minimize damage to the I-joist.

SAFETY AND CONSTRUCTION PRECAUTIONS

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

Never stack building materials over unsheathed I-joists. Once sheathed, do not overstress 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:

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

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

CHANTIERS CHIBOUGAMAU

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 assumes 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.

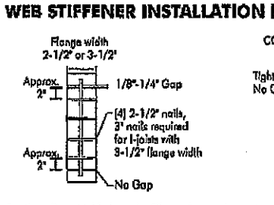
WEB STIFFENERS

RECOMMENDATIONS:

- A *bearing stiffener* is required in all engineered applications with factored reactions greater than shown in the I-Joist properties table found of the *I-Joist Construction Guide* (C10I). 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



STIFFENER 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

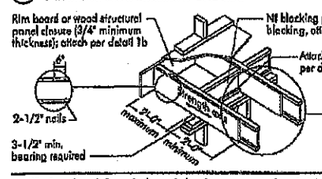
See the adjacent table for web stiffener size requirements

RECEIVED
JAN 1 2019
TOWN OF CALEDON
BUILDING SECTION
FILE NO

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

4a

Method 1 — SHEATHING REINFORCEMENT ONE SIDE



Method 2 — SHEATHING REINFORCEMENT TWO SIDES

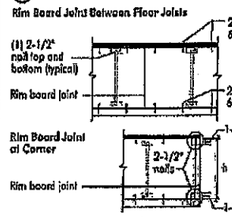
Use same installation as Method 1 but reinforce both sides of I-joist with sheathing.

Use nailing pattern shown for Method 1 with opposite face nailing offset by 3".

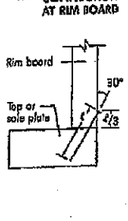
NOTE: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail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

RIM BOARD INSTALLATION DETAILS

8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



8b TOE-NAIL CONNECTION AT RIM BOARD



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

PASSED

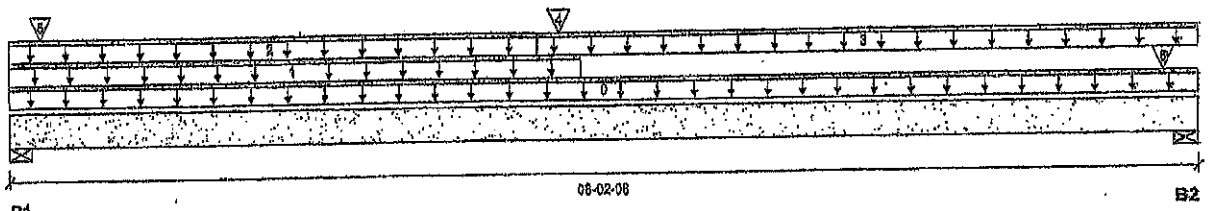
1ST FLOOR \Flush Beams\B1(I5388)

Dry | 1 span | No cant.

June 19, 2019 16:26:57

BC CALC® Member Report
Build 7118
Job name:
Address:
City, Province, Postal Code: CALEDON
Customer:
Code reports: CCMC 12472-R

File name: URBAN 1.mmdl
Description: 1ST FLOOR \Flush Beams\B1(I5388)
Specifier:
Designer: PL
Company:



Total Horizontal Product Length = 08-02-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	2,729 / 0	2,205 / 0		
B2, 5-1/2"	3,238 / 0	2,062 / 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	08-02-08	Top		10			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	03-11-04	Top		60			n\a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-07-12	Top	18				n\a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	03-07-12	08-02-08	Top	28	12			n\a
4	B6(I5206)	Conc. Pt. (lbs)	L	03-09-08	03-09-08	Top	1,283	697			n\a
5	27(I375)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	1,952	1,561			n\a
6	9(I291)	Conc. Pt. (lbs)	L	07-11-12	07-11-12	Top	2,558	1,606			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5,792 ft-lbs	23,220 ft-lbs	24.9%	1	03-09-08
End Shear	1,812 lbs	11,571 lbs	15.7%	1	01-03-00
Total Load Deflection	L/999 (0.067")	n\a	n\a	4	04-00-06
Live Load Deflection	L/999 (0.04")	n\a	n\a	6	04-00-06
Max Defl.	0.067"	n\a	n\a	4	04-00-06
Span / Depth	9.4				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	6,849 lbs	66.6%	29.2%	Unspecified
B2	Wall/Plate	5-1/2" x 3-1/2"	7,433 lbs	72.3%	31.7%	Unspecified

LICENSED PROFESSIONAL ENGINEER
D. O'CONNOR
100009580
07/09/2019
PROVINCE OF ONTARIO

CONFORMS TO OBC2012

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
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 ½" spiral nails @ 8" o.c. staggered in 2 rows

Boise Cascade

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

PASSED

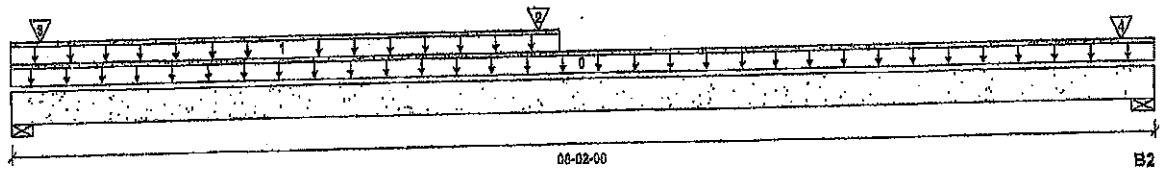
1ST FLOOR \Flush Beams\B5(I5539)

Dry | 1 span | No cant.

June 19, 2019 16:26:57

BC CALC® Member Report
Build 7118
Job name:
Address:
City, Province, Postal Code: CALEDON
Customer:
Code reports: CCMC 12472-R

File name: URBAN 1.mmdl
Description: 1ST FLOOR \Flush Beams\B5(I5539)
Specifier:
Designer: PL
Company:



Total Horizontal Product Length = 08-02-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	3,992 / 0	2,668 / 0		
B2, 5-1/2"	4,121 / 0	2,638 / 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	08-02-08	Top		10			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	03-11-04	Top		60			n\a
2	B6(I5206)	Conc. Pt. (lbs)	L	03-09-08	03-09-08	Top	1,267	698			n\a
3	28(I400)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	2,663	1,944			n\a
4	9(I291)	Conc. Pt. (lbs)	L	07-11-12	07-11-12	Top	3,483	2,104			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5,657 ft-lbs	23,220 ft-lbs	24.4%	1	03-09-08
End Shear	1,756 lbs	11,571 lbs	15.2%	1	01-03-00
Total Load Deflection	L/999 (0.065")	n\a	n\a	4	04-00-08
Live Load Deflection	L/999 (0.039")	n\a	n\a	5	04-00-08
Max Defl.	0.065"	n\a	n\a	4	04-00-08
Span / Depth	9.4				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	8,298 lbs	80.7%	35.3%	Unspecified
B2	Wall/Plate	5-1/2" x 3-1/2"	9,353 lbs	91.0%	39.8%	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 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
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 ½" spiral nails @ 6" o.c, staggered in 2 rows

LICENSED PROFESSIONAL ENGINEER
D. O'CONNOR
100009580
07/09/2019
PROVINCE OF ONTARIO

CONFORMS TO OBC2012

RECEIVED
JUL 11 2019
TOWN OF CALEDON
PLANNING SECTION
FILE NO: ET0000238

Boise Cascade

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

PASSED

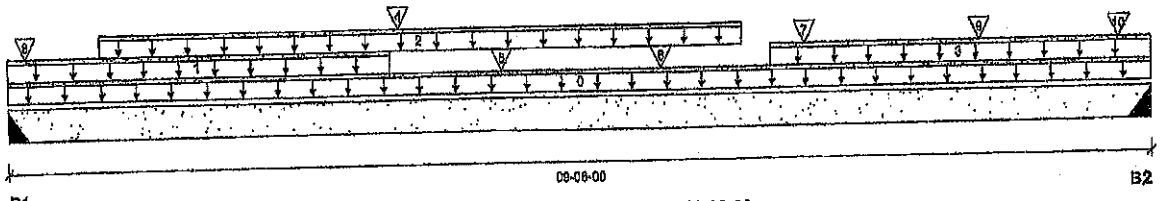
1ST FLOOR \Flush Beams\B6(I5206)

Dry | 1 span | No cant.

June 19, 2019 16:26:57

BC CALC® Member Report
Build: 7118
Job name:
Address:
City, Province, Postal Code: CALEDON
Customer:
Code reports: CCMC 12472-R

File name: URBAN 1.mmdl
Description: 1ST FLOOR \Flush Beams\B6(I5206)
Specifier:
Designer: PL
Company:



Total Horizontal Product Length = 09-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1,287 / 0	698 / 0		
B2, 4"	1,283 / 0	697 / 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	09-06-00	Top		10			00-00-00
1	STAIRS	Unf. Lin. (lb/ft)	L	00-00-00	03-02-00	Top	240	120			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-09-00	06-01-00	Top	84	43			n/a
3	STAIRS	Unf. Lin. (lb/ft)	L	06-04-00	09-06-00	Top	240	120			n/a
4	B4(I5369)	Conc. Pt. (lbs)	L	03-02-14	03-02-14	Top	30	23			n/a
5	J3(I5257)	Conc. Pt. (lbs)	L	04-01-00	04-01-00	Top	78	39			n/a
6	J3(I5322)	Conc. Pt. (lbs)	L	05-05-00	05-05-00	Top	78	39			n/a
7	-	Conc. Pt. (lbs)	L	06-07-10	06-07-10	Top	146	81			n/a
8	J2(I5299)	Conc. Pt. (lbs)	L	00-01-14	00-01-14	Top	70	35			n/a
9	J2(I5498)	Conc. Pt. (lbs)	L	06-01-00	06-01-00	Top	111	56			n/a
10	J2(I5337)	Conc. Pt. (lbs)	L	09-03-00	09-03-00	Top	70	35			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	4,949 ft-lbs	23,220 ft-lbs	21.3%	1	04-07-00
End Shear	2,068 lbs	11,571 lbs	17.9%	1	01-01-08
Total Load Deflection	L/999 (0.106")	n/a	n/a	4	04-09-00
Live Load Deflection	L/999 (0.068")	n/a	n/a	5	04-09-00
Max Defl.	0.106"	n/a	n/a	4	04-09-00
Span / Depth	11.3				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	4" x 3-1/2"	2,804 lbs	n/a	16.4%	HGUS410
B2	Hanger	4" x 3-1/2"	2,796 lbs	n/a	16.4%	HGUS410

LICENSED PROFESSIONAL ENGINEER
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100009580
07/09/2019
PROVINCE OF ONTARIO

CONFORMS TO OBC2012

Cautions

Header for the hanger HGUS410 at B1 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.

Header for the hanger HGUS410 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.

Nail one ply to another with
3 ½" spiral nails @ 10"
o.c. staggered in 2 rows

ET0000239

Boise Cascade

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

PASSED

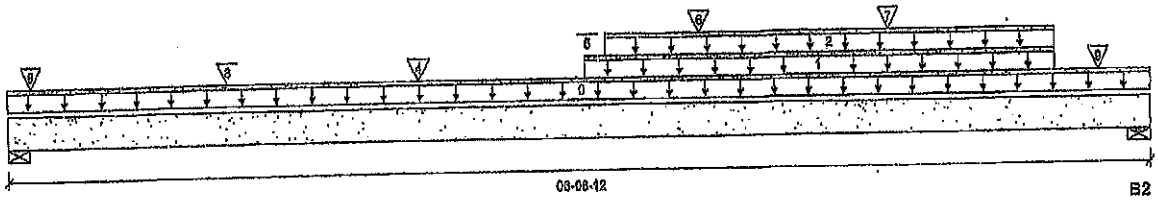
1ST FLOOR \Flush Beams\B7(I5526)

Dry | 1 span | No cant.

June 19, 2019 16:26:57

BC CALC® Member Report
Build 7118
Job name:
Address:
City, Province, Postal Code: CALEDON
Customer:
Code reports: CCMC 12472-R

File name: URBAN 1.mmdl
Description: 1ST FLOOR \Flush Beams\B7(I5526)
Specifier:
Designer: PL
Company:



Total Horizontal Product Length = 06-08-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	2,397 / 0	1,394 / 0		
B2, 3-3/4"	2,896 / 0	1,673 / 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	06-08-12	Top		10			00-00-00
1	13(I303)	Unf. Lin. (lb/ft)	L	03-04-08	06-02-00	Top		81			n\a
2	18(I303)	Unf. Lin. (lb/ft)	L	03-06-00	06-02-00	Top	443	221			n\a
3	"	Conc. Pt. (lbs)	L	01-03-08	01-03-08	Top	487	244			n\a
4	"	Conc. Pt. (lbs)	L	02-04-15	02-04-15	Top	528	264			n\a
5	"	Conc. Pt. (lbs)	L	03-04-12	03-04-12	Top	928	491			n\a
6	"	Conc. Pt. (lbs)	L	04-00-09	04-00-09	Top	481	241			n\a
7	"	Conc. Pt. (lbs)	L	05-02-03	05-02-03	Top	54(				
8	7(I246)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	57(				
9	"	Conc. Pt. (lbs)	L	06-05-02	06-05-02	Top	45(				

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	9,293 ft-lbs	23,220 ft-lbs	40.0%	1	03-05-08
End Shear	5,214 lbs	11,571 lbs	45.1%	1	05-07-08
Total Load Deflection	L/999 (0.088")	n\a	n\a	4	03-05-08
Live Load Deflection	L/999 (0.056")	n\a	n\a	5	03-05-08
Max Defl.	0.088"	n\a	n\a	4	03-05-08
Span / Depth	7.9				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 3-1/2"	6,339 lbs	81.6%	36.7%	Unspecified
B2	Wall/Plate	3-3/4" x 3-1/2"	6,345 lbs	90.5%	39.6%	Unspecified

LICENSED PROFESSIONAL ENGINEER
D. O'CONNOR
100009580
07/09/2019
PROVINCE OF ONTARIO

CONFORMS TO OBC2012

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
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 ½" spiral nails @ 6" o.c. staggered in 2 rows

ET0000240

Boise Cascade

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

PASSED

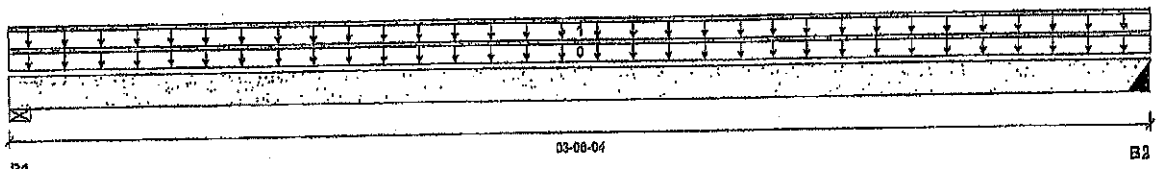
1ST FLOOR \Flush Beams\B2(I5371)

Dry | 1 span | No cant.

June 19, 2019 16:26:57

BC CALC® Member Report
Build 7118
Job name:
Address:
City, Province, Postal Code: CALEDON
Customer:
Code reports: CCMC 12472-R

File name: URBAN 1.mmdl
Description: 1ST FLOOR \Flush Beams\B2(I5371)
Specifier:
Designer: PL
Company:



Total Horizontal Product Length = 03-06-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	33 / 0	25 / 0		
B2, 3"	32 / 0	24 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.85	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-06-04	Top		5			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-06-04	Top	18	9			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	54 ft-lbs	11,610 ft-lbs	0.5%	1	01-09-06
End Shear	31 lbs	5,786 lbs	0.5%	1	01-01-00
Total Load Deflection	L/999 (0")	n/a	n/a	4	01-09-06
Live Load Deflection	L/999 (0")	n/a	n/a	5	01-09-06
Max Defl.	0"	n/a	n/a	4	01-09-06
Span / Depth	3.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Wall/Plate	3-1/2" x 1-3/4"	60 lbs	2.4%	1.1%	Unspecified
B2 Hanger	3" x 1-3/4"	78 lbs	n/a	1.2%	HUS1.81/10

LICENSED PROFESSIONAL ENGINEER
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07/09/2019
PROVINCE OF ONTARIO

CONFORMS TO OBC2012

Cautions

Header for the hanger HUS1.81/10 at B2 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

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

Disclosure

ET0000241

Boise Cascade

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

PASSED

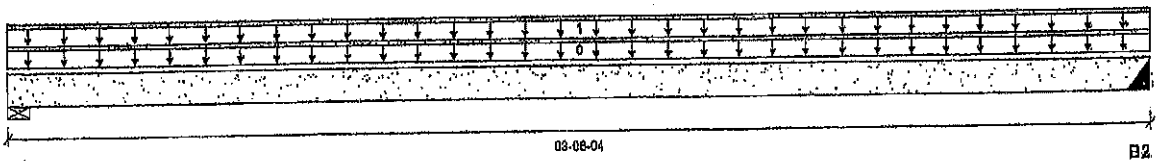
1ST FLOOR \Flush Beams\B4(I5371)

Dry | 1 span | No cant.

June 19, 2019 16:26:57

BC CALC® Member Report
Build 7118
Job name:
Address:
City, Province, Postal Code: CALEDON
Customer:
Code reports: CCMC 12472-R

File name: URBAN 1.mmdl
Description: 1ST FLOOR \Flush Beams\B4(I5371)
Specifier:
Designer: PL
Company:



Total Horizontal Product Length = 03-06-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	33 / 0	25 / 0		
B2, 3"	32 / 0	24 / 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	03-06-04	Top		5			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-06-04	Top	18	9			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	54 ft-lbs	11,610 ft-lbs	0.5%	1	01-09-06
End Shear	31 lbs	5,785 lbs	0.5%	1	01-01-00
Total Load Deflection	L/999 (0")	n\a	n\a	4	01-09-06
Live Load Deflection	L/999 (0")	n\a	n\a	5	01-09-06
Max Defl.	0"	n\a	n\a	4	01-09-06
Span / Depth	3.9				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 1-3/4"	80 lbs	2.4%	1.1%	Unspecified
B2	Hanger	3" x 1-3/4"	78 lbs	n\a	1.2%	HUS1.81/10

LICENSED PROFESSIONAL ENGINEER
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07/09/2019
PROVINCE OF ONTARIO

CONFORMS TO OBC2012

Cautions

Header for the hanger HUS1.81/10 at B2 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.

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

Disclosure

ET0000242

Boise Cascade

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

PASSED

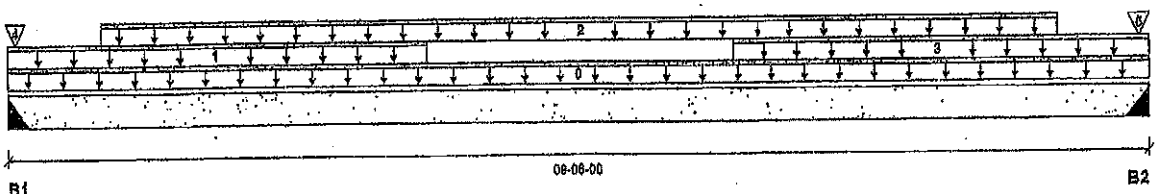
2ND FLOOR \Flush Beams\B10(I5505)

Dry | 1 span | No cant.

June 19, 2019 16:26:57

BC CALC® Member Report
Build 7118
Job name:
Address:
City, Province, Postal Code: CALEDON
Customer:
Code reports: CCMC 12472-R

File name: URBAN 1.mmdl
Description: 2ND FLOOR \Flush Beams\B10(I5505)
Specifier:
Designer: PL
Company:



Total Horizontal Product Length = 08-06-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	1,226 / 0	642 / 0		
B2, 3"	1,219 / 0	640 / 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	08-06-08	Top		6			00-00-00
1	STAIRS	Unf. Lin. (lb/ft)	L	00-00-00	03-06-00	Top	240	120			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-09-08	08-06-08	Top	66	34			n\a
3	STAIRS	Unf. Lin. (lb/ft)	L	06-00-08	09-06-08	Top	240	120			n\a
4	"	Conc. Pt. (lbs)	L	00-00-13	00-00-13	Top	120	65			n\a
5	"	Conc. Pt. (lbs)	L	09-05-08	09-05-08	Top	113	62			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	4,330 ft-lbs	11,610 ft-lbs	37.3%	1	04-01-08
End Shear	1,843 lbs	5,785 lbs	31.8%	1	01-00-08
Total Load Deflection	L/669 (0.197")	n\a	43.0%	4	04-09-08
Live Load Deflection	L/862 (0.139")	n\a	42.3%	5	04-09-08
Max Defl.	0.197"	n\a	n\a	4	04-09-08
Span / Depth	11.6				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	3" x 1-3/4"	2,841 lbs	n\a	41.2%	HUS1.81/10
B2	Hanger	3" x 1-3/4"	2,828 lbs	n\a	41.0%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 at B1 is a Triple 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.

Header for the hanger HUS1.81/10 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.

REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER
D. O'CONNOR
100009580
07/09/2019
PROVINCE OF ONTARIO

CONFORMS TO OBC2012

ET0000243

Boise Cascade

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

PASSED

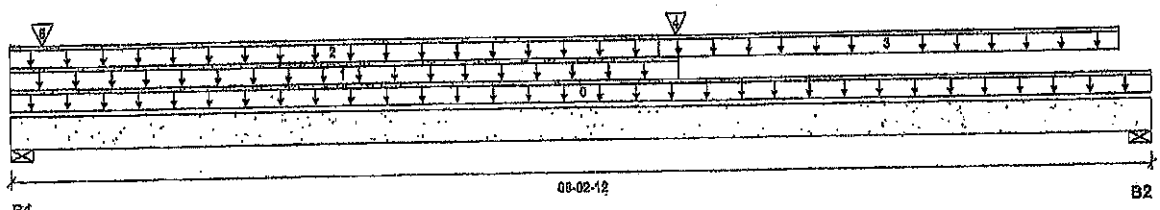
2ND FLOOR \Flush Beams\B12(I5218)

Dry | 1 span | No cant.

June 19, 2019 16:26:57

BC CALC® Member Report
Build 7118
Job name:
Address:
City, Province, Postal Code: CALEDON
Customer:
Code reports: CCMC 12472-R

File name: URBAN 1.mmdl
Description: 2ND FLOOR \Flush Beams\B12(I5218)
Specifier:
Designer: PL
Company:



Total Horizontal Product Length = 08-02-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-3/4"	1,878 / 0	1,470 / 0		
B2, 5-1/2"	2,562 / 0	1,596 / 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	08-02-12	Top		10			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	04-09-08	Top		80			n\a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-07-12	Top	25	12			n\a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	04-07-12	08-00-00	Top	26	14			n\a
4	-	Conc. Pt. (lbs)	L	04-09-04	04-09-04	Top	4,161	2,426			n\a
5	39(I1125)	Conc. Pt. (lbs)	L	00-02-14	00-02-14	Top	63	166			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	17,309 ft-lbs	23,220 ft-lbs	74.5%	1	04-09-08
End Shear	5,737 lbs	11,571 lbs	49.6%	1	08-11-12
Total Load Deflection	L/450 (0.198")	n\a	53.3%	4	04-03-15
Live Load Deflection	L/999 (0.121")	n\a	n\a	5	04-03-15
Max Defl.	0.198"	n\a	n\a	4	04-03-15
Span / Depth	9.4				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-3/4" x 3-1/2"	4,664 lbs	43.3%	19.0%	Unspecified
B2	Wall/Plate	5-1/2" x 3-1/2"	5,824 lbs	56.7%	24.8%	Unspecified

LICENSED PROFESSIONAL ENGINEER
D. O'CONNOR
100009580
07/09/2019
PROVINCE OF ONTARIO

CONFORMS TO OBC2012

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
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 ½" spiral nails @ 8"
o.c, staggered in 2 rows

ET0000244

Boise Cascade

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

PASSED

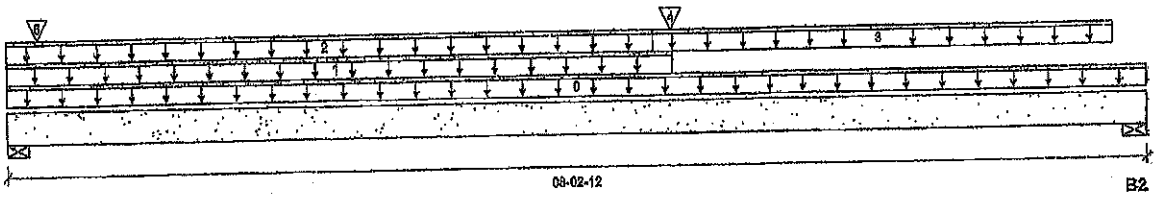
2ND FLOOR \Flush Beams\B11(I5307)

Dry | 1 span | No cant.

June 19, 2019 16:29:57

BC CALC® Member Report
Build 7118
Job name:
Address:
City, Province, Postal Code: CALEDON
Customer:
Code reports: CCMC 12472-R

File name: URBAN 1.mmdl
Description: 2ND FLOOR \Flush Beams\B11(I5307)
Specifier:
Designer: PL
Company:



Total Horizontal Product Length = 08-02-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-3/4"	2,546 / 0	1,836 / 0		
B2, 5-1/2"	3,516 / 0	2,116 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.68	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-02-12	Top		14			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	04-09-08	Top		60			n\a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-07-12	Top	24	12			n\a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	04-07-12	08-00-00	Top	27	13			n\a
4	-	Conc. Pt. (lbs)	L	04-09-05	04-09-05	Top	5,812	3,281			n\a
5	38(I1124)	Conc. Pt. (lbs)	L	00-02-14	00-02-14	Top		163			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	23,693 ft-lbs	36,222 ft-lbs	65.4%	1	04-09-08
End Shear	7,837 lbs	17,366 lbs	45.2%	1	06-11-12
Total Load Deflection	L/497 (0.179")	n\a	48.3%	4	04-03-15
Live Load Deflection	L/999 (0.112")	n\a	n\a	5	04-03-15
Max Defl.	0.179"	n\a	n\a	4	04-03-15
Span / Depth	9.4				

Bearing Supports		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-3/4" x 5-1/4"	6,114 lbs	37.9%	16.6%	Unspecified
B2	Wall/Plate	5-1/2" x 5-1/4"	7,918 lbs	51.3%	22.5%	Unspecified

LICENSED PROFESSIONAL ENGINEER
D. O'CONNOR
100009580
07/09/2019
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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
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 ½" spiral nails @ 8" o.c, staggered in 2 rows

ET0000245

Boise Cascade

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

PASSED

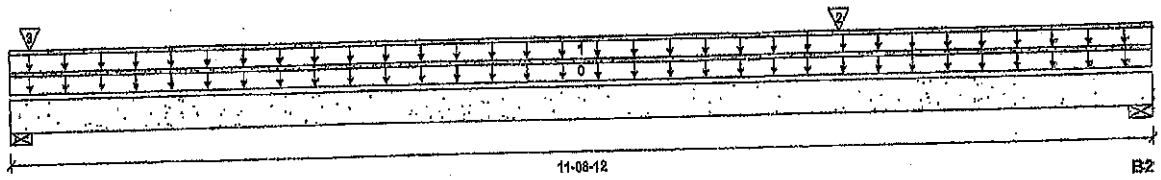
UPPER FLOOR \Flush Beams\B13(I5103)

Dry | 1 span | No cant.

June 19, 2019 16:26:57

BC CALC® Member Report
Build 7118
Job name:
Address:
City, Province, Postal Code: CALEDON
Customer:
Code reports: CCMC 12472-R

File name: URBAN 1.mmdl
Description: UPPER FLOOR \Flush Beams\B13(I5103)
Specifier:
Designer: PL
Company:



Total Horizontal Product Length = 11-08-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	630 / 0	425 / 0	39 / 0	
B2, 2-3/4"	1,114 / 0	662 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.85	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-08-12	Top		12			00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-08-12	Top	53	26			n\a
2	B18(I5215)	Conc. Pt. (lbs)	L	08-06-04	08-06-04	Top	1,116	593			n\a
3	E26(I1451)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top		34	39		n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	6,912 ft-lbs	35,392 ft-lbs	19.5%	1	08-06-04
End Shear	2,331 lbs	14,464 lbs	16.1%	1	10-06-02
Total Load Deflection	L/999 (0.098")	n\a	n\a	34	08-05-01
Live Load Deflection	L/999 (0.061")	n\a	n\a	51	08-05-01
Max Defl.	0.098"	n\a	n\a	34	08-05-01
Span / Depth	11.3				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	1,515 lbs	14.7%	6.4%	Unspecified
B2	Wall/Plate	2-3/4" x 3-1/2"	2,485 lbs	48.3%	21.2%	Unspecified

LICENSED PROFESSIONAL ENGINEER
D. O'CONNOR
100009580
07/09/2019
PROVINCE OF ONTARIO

CONFORMS TO OBC2012

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
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 ½" spiral nails @ 10"
o.c. staggered in 2 rows

ET0000246

Boise Cascade

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

PASSED

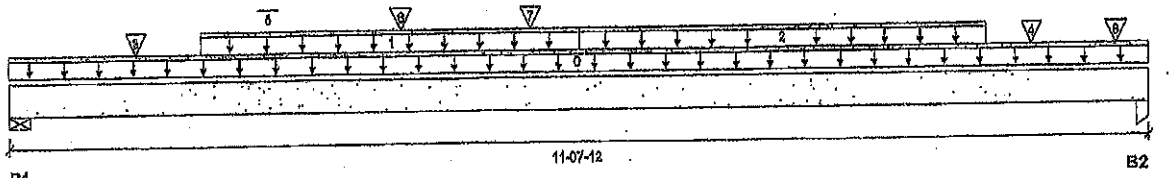
UPPER FLOOR \Flush Beams\B14(I5520)

Dry | 1 span | No cant.

June 19, 2019 16:26:57

BC CALC® Member Report
Build 7118
Job name:
Address:
City, Province, Postal Code: CALEDON
Customer:
Code reports: CCMC 12472-R

File name: URBAN 1.mmdl
Description: UPPER FLOOR \Flush Beams\B14(I5520)
Specifier:
Designer: PL
Company:



Total Horizontal Product Length = 11-07-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	2,246 / 0	1,210 / 0		
B2, 3"	2,564 / 0	1,347 / 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	11-07-12	Top		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	02-00-00	05-10-00	Top	173	86			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	05-10-00	10-00-00	Top	425	212			n\a
3	-	Conc. Pt. (lbs)	L	01-04-00	01-04-00	Top	545	273			n\a
4	-	Conc. Pt. (lbs)	L	10-05-11	10-05-11	Top	484	241			n\a
5	J1(I5418)	Conc. Pt. (lbs)	L	02-08-00	02-08-00	Top	369	184			n\a
6	J1(I5498)	Conc. Pt. (lbs)	L	04-00-00	04-00-00	Top	369	184			n\a
7	J1(I5514)	Conc. Pt. (lbs)	L	05-04-00	05-04-00	Top	323	161			n\a
8	J1(I5483)	Conc. Pt. (lbs)	L	11-04-00	11-04-00	Top	277	138			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	14,939 ft-lbs	35,392 ft-lbs	42.2%	1	05-04-00
End Shear	4,839 lbs	14,464 lbs	33.5%	1	01-03-06
Total Load Deflection	L/549 (0.245")	n\a	43.7%	4	05-10-00
Live Load Deflection	L/838 (0.161")	n\a	43.0%	5	05-10-00
Max Defl.	0.246"	n\a	n\a	4	05-10-00
Span / Depth	11.3				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 3-1/2"	4,882 lbs	74.6%	32.7%	Unspecified
B2	Column	3" x 3-1/2"	6,531 lbs	64.9%	43.2%	Unspecified

LICENSED PROFESSIONAL ENGINEER
D. O'CONNOR
100009580
07/09/2019
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CONFORMS TO OBC2012

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
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 ½" spiral nails @ 10" o.c, staggered in 2 rows

ET0000247

Boise Cascade

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

PASSED

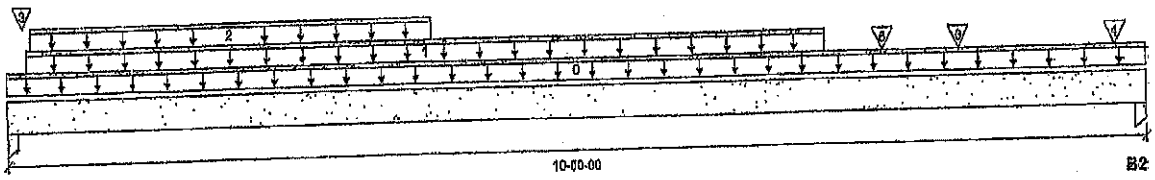
UPPER FLOOR \Flush Beams\B17(I5397)

Dry | 1 span | No cant.

June 19, 2019 16:28:57

BC CALC® Member Report
Build 7118
Job name:
Address:
City, Province, Postal Code: CALEDON
Customer:
Code reports: CCMC 12472-R

File name: URBAN 1.mmdl
Description: UPPER FLOOR \Flush Beams\B17(I5397)
Specifier:
Designer: PL
Company:



Total Horizontal Product Length = 10-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	2,087 / 0	1,244 / 0		
B2, 3"	1,770 / 0	1,091 / 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	10-00-00	Top		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-02-04	07-02-04	Top	282	140			n/a
2	STAIRS	Unf. Lin. (lb/ft)	L	00-02-12	03-08-12	Top	240	120			n/a
3	B15(I5518)	Conc. Pt. (lbs)	L	00-01-14	00-01-14	Top	51	166			n/a
4	-	Conc. Pt. (lbs)	L	09-08-13	09-08-13	Top	448	366			n/a
5	J1(I5516)	Conc. Pt. (lbs)	L	07-08-04	07-08-04	Top	235	118			n/a
6	J1(I5421)	Conc. Pt. (lbs)	L	08-04-04	08-04-04	Top	282	141			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	8,832 ft-lbs	35,392 ft-lbs	25.0%	1	04-08-04
End Shear	3,536 lbs	14,464 lbs	24.4%	1	01-02-14
Total Load Deflection	L/999 (0.107")	n/a	n/a	4	04-11-04
Live Load Deflection	L/999 (0.07")	n/a	n/a	5	04-11-04
Max Defl.	0.107"	n/a	n/a	4	04-11-04
Span / Depth	9.7				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	3" x 3-1/2"	4,685 lbs	55.0%	36.6%	Unspecified
B2	Column	3" x 3-1/2"	4,018 lbs	47.1%	31.4%	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.
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
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 ½" spiral nails @ 10" o.c, staggered in 2 rows

LICENSED PROFESSIONAL ENGINEER
D. O'CONNOR
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07/09/2019
PROVINCE OF ONTARIO

CONFORMS TO OBC2012

RECEIVED
JUL 11 2019
TOWN OF CALEDON
BUILDING SECTION
ET0000248

Boise Cascade

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

PASSED

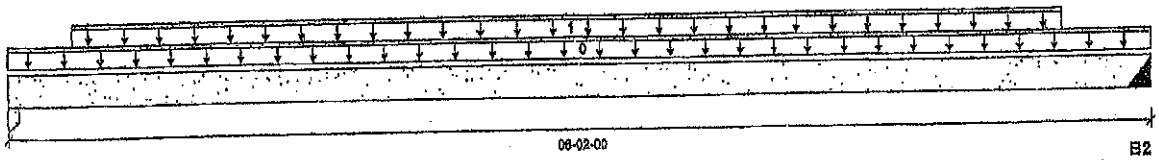
UPPER FLOOR \Flush Beams\B18(I5215)

Dry | 1 span | No cant.

June 19, 2019 16:26:57

BC CALC® Member Report
Build 7118
Job name:
Address:
City, Province, Postal Code: CALEDON
Customer:
Code reports: CCMC 12472-R

File name: URBAN 1.mmdl
Description: UPPER FLOOR \Flush Beams\B18(I5215)
Specifier:
Designer: PL
Company:



Total Horizontal Product Length = 06-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	1,188 / 0	628 / 0		
B2, 4"	1,164 / 0	619 / 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	06-02-00	Top		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-04-04	05-08-04	Top	439	220			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3,867 ft-lbs	35,392 ft-lbs	10.9%	1	03-08-04
End Shear	2,278 lbs	14,464 lbs	15.8%	1	04-10-02
Total Load Deflection	L/999 (0.017")	n\a	n\a	4	03-00-04
Live Load Deflection	L/999 (0.011")	n\a	n\a	5	03-00-04
Max Defl.	0.017"	n\a	n\a	4	03-00-04
Span / Depth	5.8				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	3" x 3-1/2"	2,563 lbs	30.1%	20.0%	Unspecified
B2	Hanger	4" x 3-1/2"	2,620 lbs	n\a	14.8%	HGUS410

Cautions

Header for the hanger HGUS410 at B2 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.

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
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 ½" spiral nails @ 6" o.c, staggered in 2 rows

LICENSED PROFESSIONAL ENGINEER
D. O'CONNOR
100009580
07/09/2019
PROVINCE OF ONTARIO

CONFORMS TO OBC2012

ET0000249

Boise Cascade

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

PASSED

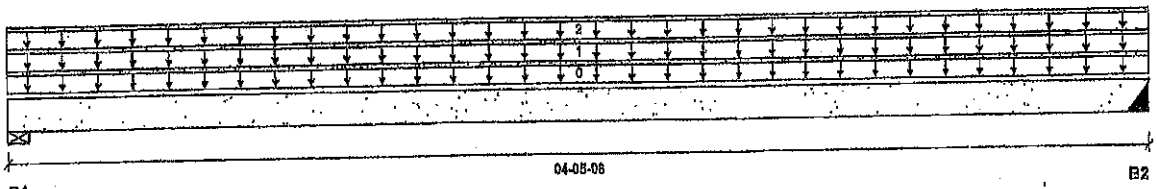
UPPER FLOOR \Flush Beams\B15(I5518)

Dry | 1 span | No cant.

June 19, 2019 16:26:57

BC CALC® Member Report
Build 7118
Job name:
Address:
City, Province, Postal Code: CALEDON
Customer:
Code reports: CCMC 12472-R

File name: URBAN 1.mmdl
Description: UPPER FLOOR \Flush Beams\B15(I5518)
Specifier:
Designer: PL
Company:



Total Horizontal Product Length = 04-05-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	54 / 0	176 / 0		
B2, 3"	53 / 0	172 / 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	04-05-08	Top		6			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	04-05-08	Top		60			n\a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-05-08	Top	24	12			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	223 ft-lbs	11,502 ft-lbs	1.9%	0	02-03-00
End Shear	106 lbs	4,701 lbs	2.3%	0	01-03-08
Total Load Deflection	L/999 (0.001")	n\a	n\a	4	02-03-00
Live Load Deflection	L/999 (0")	n\a	n\a	6	02-03-00
Max Defl.	0.001"	n\a	n\a	4	02-03-00
Span / Depth	4.1				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 1-3/4"	246 lbs	11.6%	5.1%	Unspecified
B2	Hanger	3" x 1-3/4"	241 lbs	n\a	5.8%	HUS1.81/10

LICENSED PROFESSIONAL ENGINEER
D. O'CONNOR
100009580
07/09/2019
PROVINCE OF ONTARIO

CONFORMS TO OBC2012

Cautions

Header for the hanger HUS1.81/10 at B2 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. I

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

Disclosure

Boise Cascade

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

PASSED

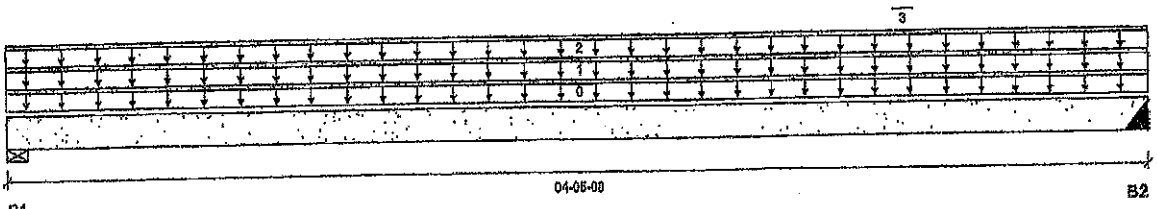
UPPER FLOOR \Flush Beams\B16(I5500)

Dry | 1 span | No cant.

June 19, 2019 16:26:57

BC CALC® Member Report
Build 7118
Job name:
Address:
City, Province, Postal Code: CALEDON
Customer:
Code reports: CCMC 12472-R

File name: URBAN 1.mmdl
Description: UPPER FLOOR \Flush Beams\B16(I5500)
Specifier:
Designer: PL
Company:



Total Horizontal Product Length = 04-05-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	62 / 0	180 / 0		
B2, 3"	78 / 0	188 / 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	04-05-08	Top		6			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	04-05-08	Top		80			n\a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-05-08	Top	25	13			n\a
3	B20(I5376)	Conc. Pt. (lbs)	L	03-06-00	03-06-00	Top	28	18			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	234 ft-lbs	11,502 ft-lbs	2.0%	0	02-03-12
End Shear	120 lbs	4,701 lbs	2.5%	0	03-02-10
Total Load Deflection	L/999 (0.001")	n\a	n\a	4	02-03-00
Live Load Deflection	L/999 (0")	n\a	n\a	5	02-03-12
Max Defl.	0.001"	n\a	n\a	4	02-03-00
Span / Depth	4.1				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 1-3/4"	252 lbs	11.9%	5.2%	Unspecified
B2	Hanger	3" x 1-3/4"	263 lbs	n\a	6.3%	HUS1.81/10

LICENSED PROFESSIONAL ENGINEER
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07/09/2019
PROVINCE OF ONTARIO

CONFORMS TO OBC2012

Cautions

Header for the hanger HUS1.81/10 at B2 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 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

Disclosure

ET0000251

Boise Cascade

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

PASSED

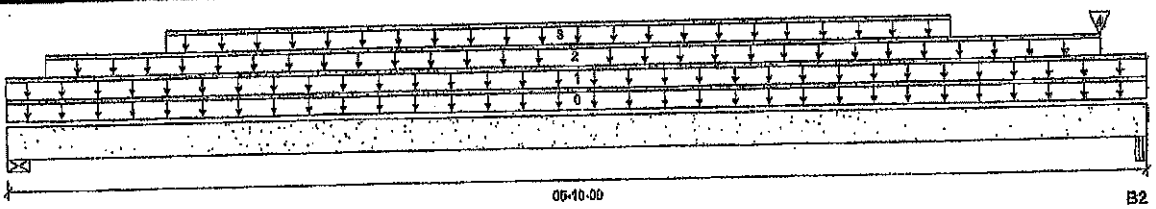
UPPER FLOOR \Flush Beams\B19(I5373)

Dry | 1 span | No cant.

June 19, 2019 16:26:57

BC CALC® Member Report
Build 7118
Job name:
Address:
City, Province, Postal Code: CALEDON
Customer:
Code reports: CCMC 12472-R

File name: URBAN 1.mmdl
Description: UPPER FLOOR \Flush Beams\B19(I5373)
Specifier:
Designer: PL
Company:



Total Horizontal Product Length = 05-10-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	537 / 0	531 / 0	295 / 0	
B2, 5"	513 / 0	518 / 0	319 / 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	05-10-00	Top		12			00-00-00
1	40(I1446)	Unf. Lin. (lb/ft)	L	00-00-00	05-10-00	Top		66			n/a
2	40(I1446)	Unf. Lin. (lb/ft)	L	00-02-08	05-07-04	Top	33	30	108		n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	00-10-00	04-10-00	Top	216	108			n/a
4	40(I1446)	Conc. Pt. (lbs)	L	05-07-04	05-07-04	Top			31		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2,451 ft-lbs	35,392 ft-lbs	6.9%	1	02-10-00
End Shear	1,384 lbs	14,464 lbs	9.6%	1	01-05-06
Total Load Deflection	L/999 (0.009")	n/a	n/a	35	02-11-00
Live Load Deflection	L/999 (0.005")	n/a	n/a	51	02-11-00
Max Defl.	0.009"	n/a	n/a	35	02-11-00
Span / Depth	5.1				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	1,764 lbs	17.2%	7.5%	Unspecified
B2	Beam	5" x 3-1/2"	1,736 lbs	18.6%	8.1%	Unspecified

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CONFORMS TO OBC2012

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
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 ½" spiral nails @ 6" o.c, staggered in 2 rows

RECEIVED
JUL 11 2019
TOWN OF CALEDON
BUILDING SECTION
FILE NO
ET0000252

Boise Cascade

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

PASSED

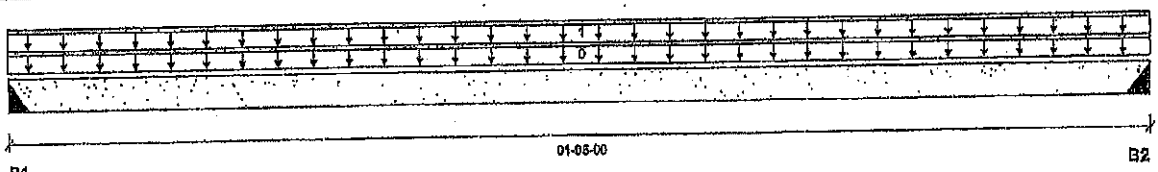
UPPER FLOOR \Flush Beams\B20(15376)

Dry | 1 span | No cant.

June 19, 2019 16:28:57

BC CALC® Member Report
Build 7118
Job name:
Address:
City, Province, Postal Code: CALEDON
Customer:
Code reports: CCMC 12472-R

File name: URBAN 1.mmdl
Description: UPPER FLOOR \Flush Beams\B20(15376)
Specifier:
Designer: PL
Company:



Total Horizontal Product Length = 01-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	28 / 0	18 / 0		
B2, 2"	28 / 0	18 / 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	01-05-00	Top		6			00-00-00
1	FLOOR	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	40	20			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	17 ft-lbs	17,696 ft-lbs	n\a	1	00-08-08
End Shear	42 lbs	7,232 lbs	0.6%	1	01-01-14
Span / Depth	1.2				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	2" x 1-3/4"	65 lbs	n\a	1.5%	LS90
B2	Hanger	2" x 1-3/4"	65 lbs	n\a	1.5%	LS90

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CONFORMS TO OBC2012

Cautions

Header for the hanger LS90 at B1 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF.
Hanger model LS90 and seat length were input by the user. I

Header for the hanger LS90 at B2 is a Single 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF.

Notes

Calculations assume unbraced length of Top: 00-01-12, Bottom: 00-01-12.
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

Disclosure

ET0000253

Boise Cascade

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

PASSED

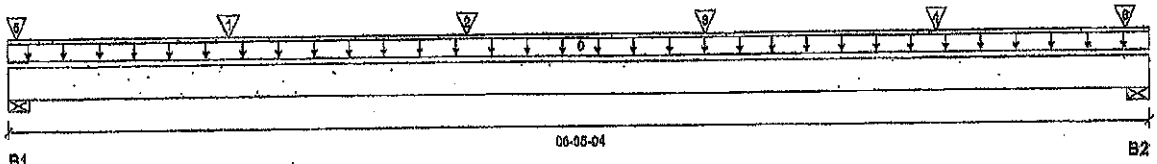
1ST FLOOR \Flush Beams\B8L(I5721)

Dry | 1 span | No cant.

June 19, 2019 16:30:12

BC CALC® Member Report
Build 7118
Job name:
Address:
City, Province, Postal Code: CALEDON
Customer:
Code reports: CCMC 12472-R

File name: URBAN 1 SUNKEN OPTION.mmdl
Description: 1ST FLOOR \Flush Beams\B8L(I5721)
Specifier:
Designer: PL
Company:



Total Horizontal Product Length = 06-05-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	537 / 0	316 / 0		
B2, 2-3/8"	534 / 0	298 / 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	06-05-04	Top		6			00-00-00
1	J1(I5619)	Conc. Pt. (lbs)	L	01-02-14	01-02-14	Top	257	128			n\a
2	J1(I5620)	Conc. Pt. (lbs)	L	02-06-14	02-06-14	Top	277	139			n\a
3	J1(I5681)	Conc. Pt. (lbs)	L	03-10-14	03-10-14	Top	277	139			n\a
4	J1(I5622)	Conc. Pt. (lbs)	L	05-02-14	05-02-14	Top	252	126			n\a
5	62(I4774)	Conc. Pt. (lbs)	L	00-00-10	00-00-10	Top		36			n\a
6	29(I414)	Conc. Pt. (lbs)	L	06-03-10	06-03-10	Top		16			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2,044 ft-lbs	11,610 ft-lbs	17.6%	1	02-06-14
End Shear	1,148 lbs	5,785 lbs	19.8%	1	05-05-06
Total Load Deflection	L/999 (0.04")	n\a	n\a	4	03-02-14
Live Load Deflection	L/999 (0.026")	n\a	n\a	5	03-02-14
Max Defl.	0.04"	n\a	n\a	4	03-02-14
Span / Depth	7.8				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	2-3/8" x 1-3/4"	1,202 lbs	54.1%	23.7%	Unspecified
B2	Wall/Plate	2-3/8" x 1-3/4"	1,172 lbs	52.8%	23.1%	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 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

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07/09/2019
PROVINCE OF ONTARIO

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.

ET0000254

Boise Cascade

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

PASSED

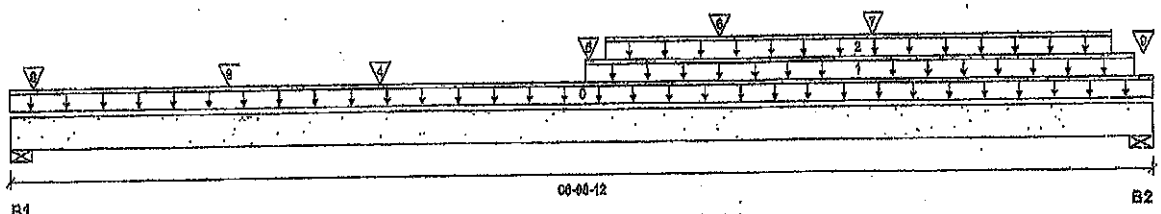
1ST FLOOR \Flush Beams\B7H(I5730)

Dry | 1 span | No cant.

June 19, 2019 16:30:12

BC CALC® Member Report
Build 7118
Job name:
Address:
City, Province, Postal Code: CALEDON
Customer:
Code reports: CCMC 12472-R

File name: URBAN 1 SUNKEN OPTION.mmdl
Description: 1ST FLOOR \Flush Beams\B7H(I5730)
Specifier:
Designer: PL
Company:



Total Horizontal Product Length = 00-00-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,749 / 0	1,057 / 0		
B2, 8-1/4"	2,131 / 0	1,334 / 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	00-00-12	Top		10			00-00-00
1	13(I303)	Unf. Lin. (lb/ft)	L	00-04-08	00-07-08	Top		61			n/a
2	13(I303)	Unf. Lin. (lb/ft)	L	00-00-00	00-00-00	Top	443	221			n/a
3	J1(I5520)	Conc. Pt. (lbs)	L	01-03-08	01-03-08	Top	237	119			n/a
4	J1 DJ(I5690)	Conc. Pt. (lbs)	L	02-02-00	02-02-00	Top	253	126			n/a
5	-	Conc. Pt. (lbs)	L	03-04-12	03-04-12	Top	934	494			n/a
6	J1(I5555)	Conc. Pt. (lbs)	L	04-02-00	04-02-00	Top	206	103			n/a
7	J1 DJ(I5642)	Conc. Pt. (lbs)	L	05-01-00	05-01-00	Top	287	149			n/a
8	7(I246)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	579	376			n/a
9	9(I291)	Conc. Pt. (lbs)	L	06-08-02	06-08-02	Top	46	31			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	6,419 ft-lbs	23,220 ft-lbs	27.6%	1	03-05-08
End Shear	3,425 lbs	11,571 lbs	29.6%	1	05-03-00
Total Load Deflection	L/999 (0.052")	n/a	n/a	4	03-03-05
Live Load Deflection	L/999 (0.033")	n/a	n/a	5	03-03-05
Max Defl.	0.052"	n/a	n/a	4	03-03-05
Span / Depth	7.4				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 3-1/2"	3,944 lbs	60.3%	26.4%	Unspecified
B2	Wall/Plate	8-1/4" x 3-1/2"	4,864 lbs	31.5%	13.8%	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 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
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 ½" spiral nails @ 6" o.c, staggered in 2 rows

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07/09/2019
PROVINCE OF ONTARIO

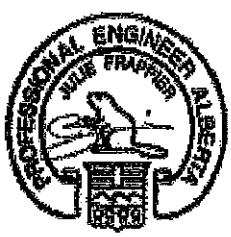
RECEIVED
JUL 11 2019
TOWN OF CALEDON
BUILDING SECTION
FILE NO

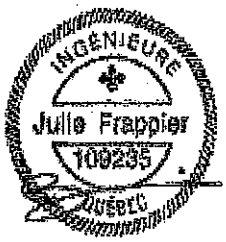
CONFORMS TO OBC2012

ET0000255

Maximum Floor Spans

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

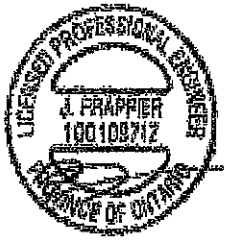


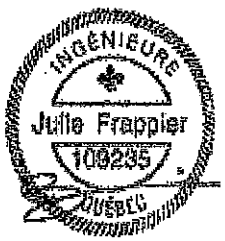


Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16'-1"	15'-1"	13'-11"
	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"	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"
	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'-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"
	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	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"
	NI-90x	24'-3"	22'-6"	21'-3"	19'-7"	24'-8"	22'-7"	21'-3"	19'-7"
14"	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"
	NI-90x	27'-3"	25'-4"	24'-1"	22'-4"	27'-9"	25'-10"	24'-3"	22'-4"
16"	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"

1. 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.
2. 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.
3. Minimum bearing length shall be 1-3/4 inches for the end 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 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.
6. 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

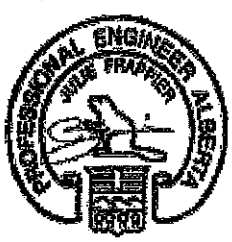
Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing

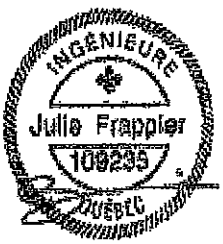
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"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

1. 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.
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 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.
3. Minimum bearing length shall be 1-3/4 inches for the end 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 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.
6. 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.

NORDIC ENGINEERED WOOD





Maximum Floor Spans

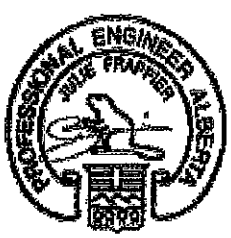
Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing

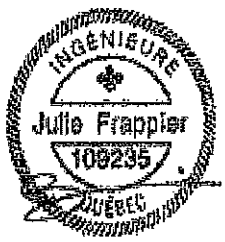
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"	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'-6"	25'-1"
	NI-90x	29'-11"	27'-10"	26'-6"	25'-0"	30'-6"	28'-5"	27'-1"	25'-8"

1. 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.
2. 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.
3. Minimum bearing length shall be 1-3/4 inches for the end 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 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.
6. 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.

NORDIC ENGINEERED WOOD





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
	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	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
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
14"	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
	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"	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

1. 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.
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. 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.
3. Minimum bearing length shall be 1-3/4 inches for the end 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 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.
6. 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.

Construction Detail
Limit States Design

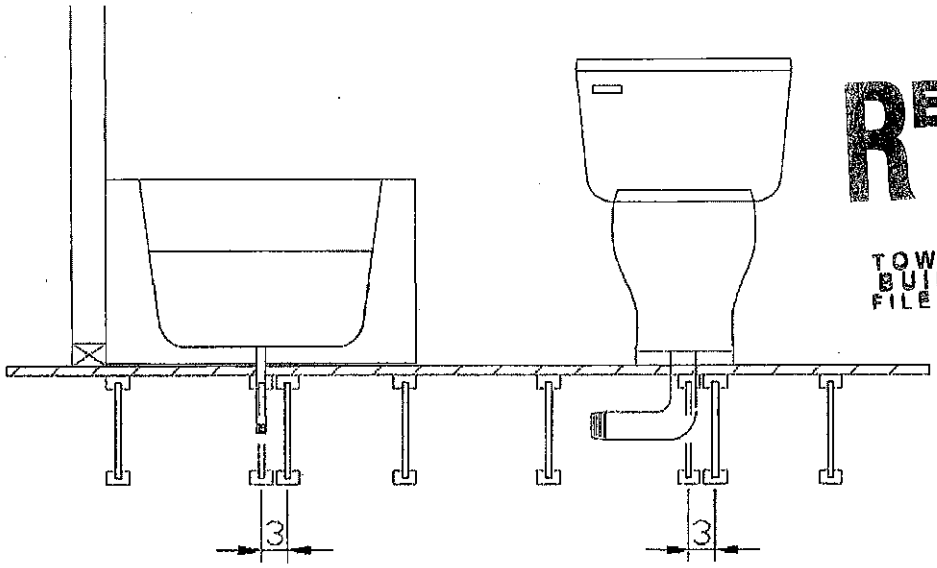
Allowance for Piping (Installation Notes)

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.

ALLOWANCE FOR PIPING



Every third joist may be shifted up to 3 inches to avoid heating/plumbing interference.

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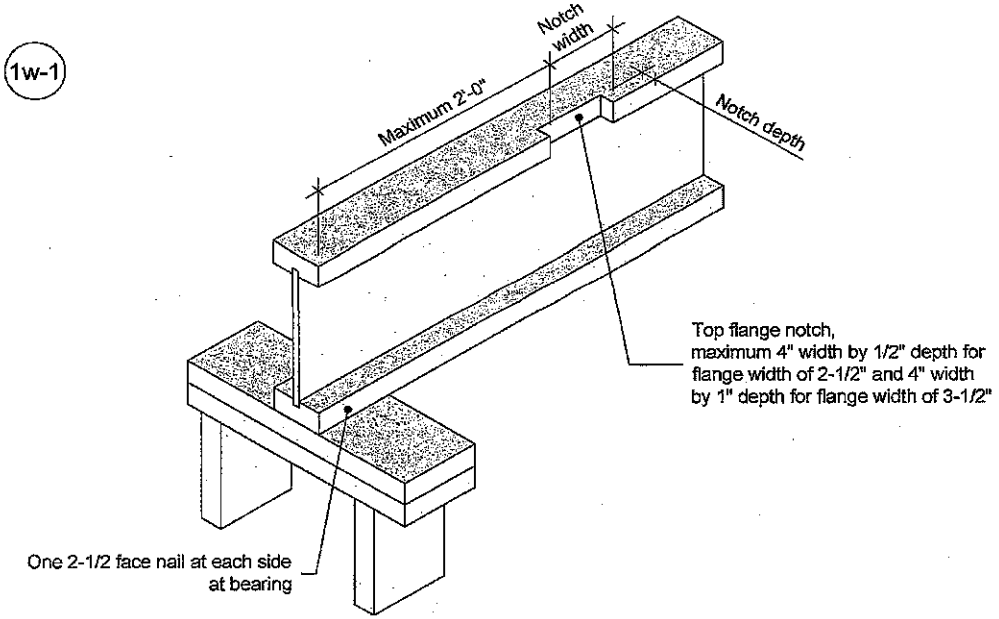

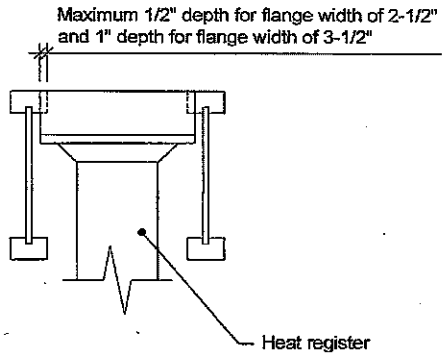

Notes:

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.

NORDIC STRUCTURES

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TITLE	DOCUMENT	
Notch in I-joist for Heat Register	-	
CATEGORY	DATE	NUMBER
I-joist - Typical Floor Framing and Construction Details	2018-04-10	1w-1