

FROM PLAN DATED: AUG 26 2018

BUILDER: GREENPARK HOMES

SITE: LAMBERTS LANE

MODEL: PRESTON 12

ELEVATION: 1

LOT:

CITY: CALEDON

SALESMAN: M D

DESIGNER: PL

REVISION:

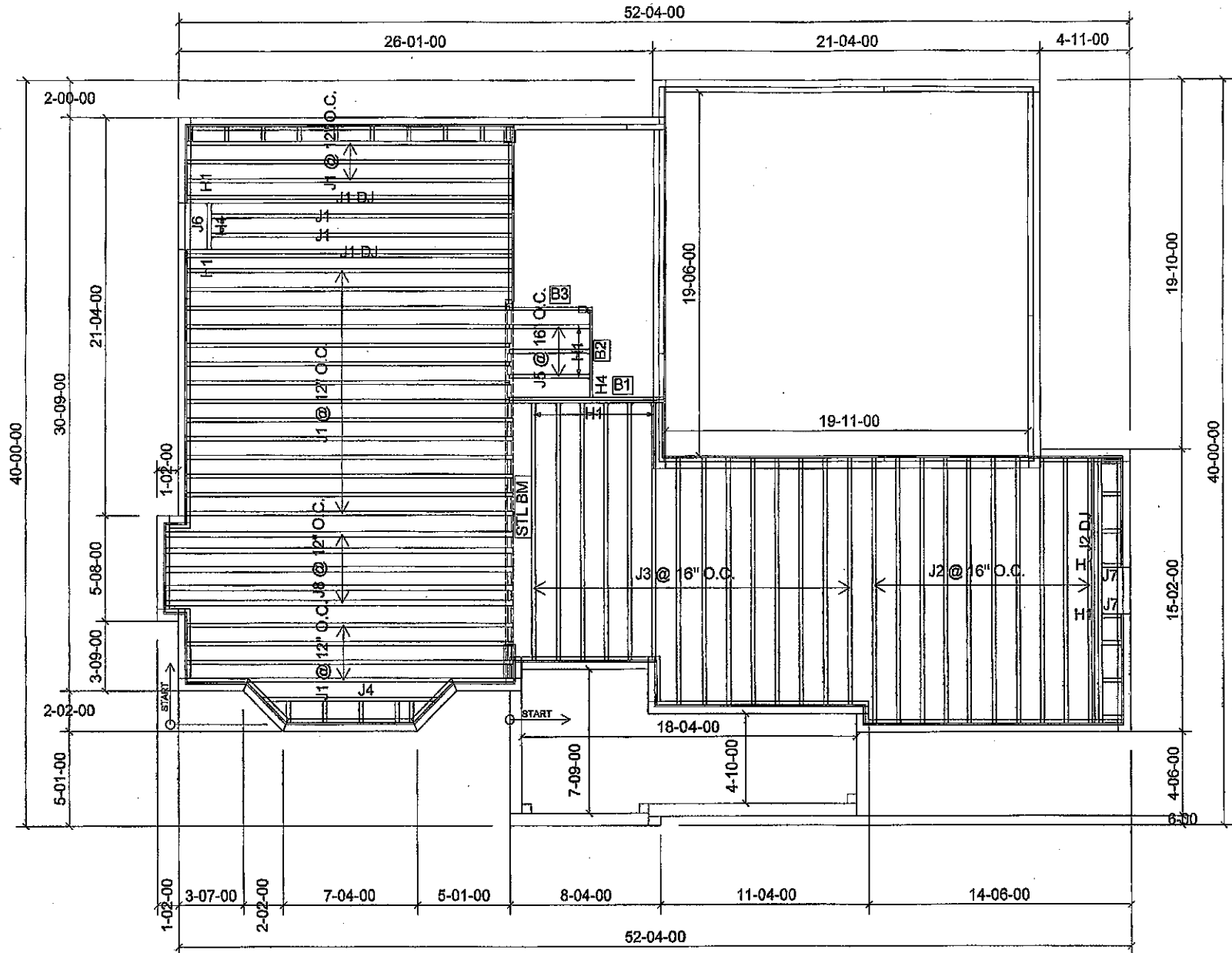
NOTES:
REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK REQ. I-JOIST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

LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILED AREAS: 20 lb/ft²
SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2019-03-28

1st FLOOR

STANDARD & DECK OPTION

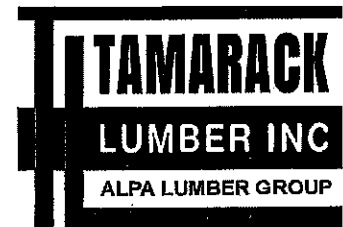


THIS STRUCTURE MUST BE
CONSTRUCTED TO MEET OR
EXCEED THE PROVISIONS OF
THE ONTARIO BUILDING CODE

Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	23
J1 DJ	18-00-00	11 7/8" NI-40x	2	4
J2	16-00-00	11 7/8" NI-40x	1	10
J2 DJ	16-00-00	11 7/8" NI-40x	2	2
J3	14-00-00	11 7/8" NI-40x	1	14
J4	10-00-00	11 7/8" NI-40x	1	1
J5	6-00-00	11 7/8" NI-40x	1	3
J6	4-00-00	11 7/8" NI-40x	1	1
J7	2-00-00	11 7/8" NI-40x	1	2
J8	20-00-00	11 7/8" NI-80	1	5
B1	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
3	H1	IUS2.56/11.88
6	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
1	H4	HUS1.81/10

RECEIVED
JUN 25 2019
TOWN OF CALEDON
BUILDING SECTION
FILE NO.



FROM PLAN DATED: AUG 26 2018

BUILDER: GREENPARK HOMES

SITE: LAMBERTS LANE

MODEL: PRESTON 12

ELEVATION: 1

LOT:

CITY: CALEDON

SALESMAN: M D

DESIGNER: PL

REVISION:

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

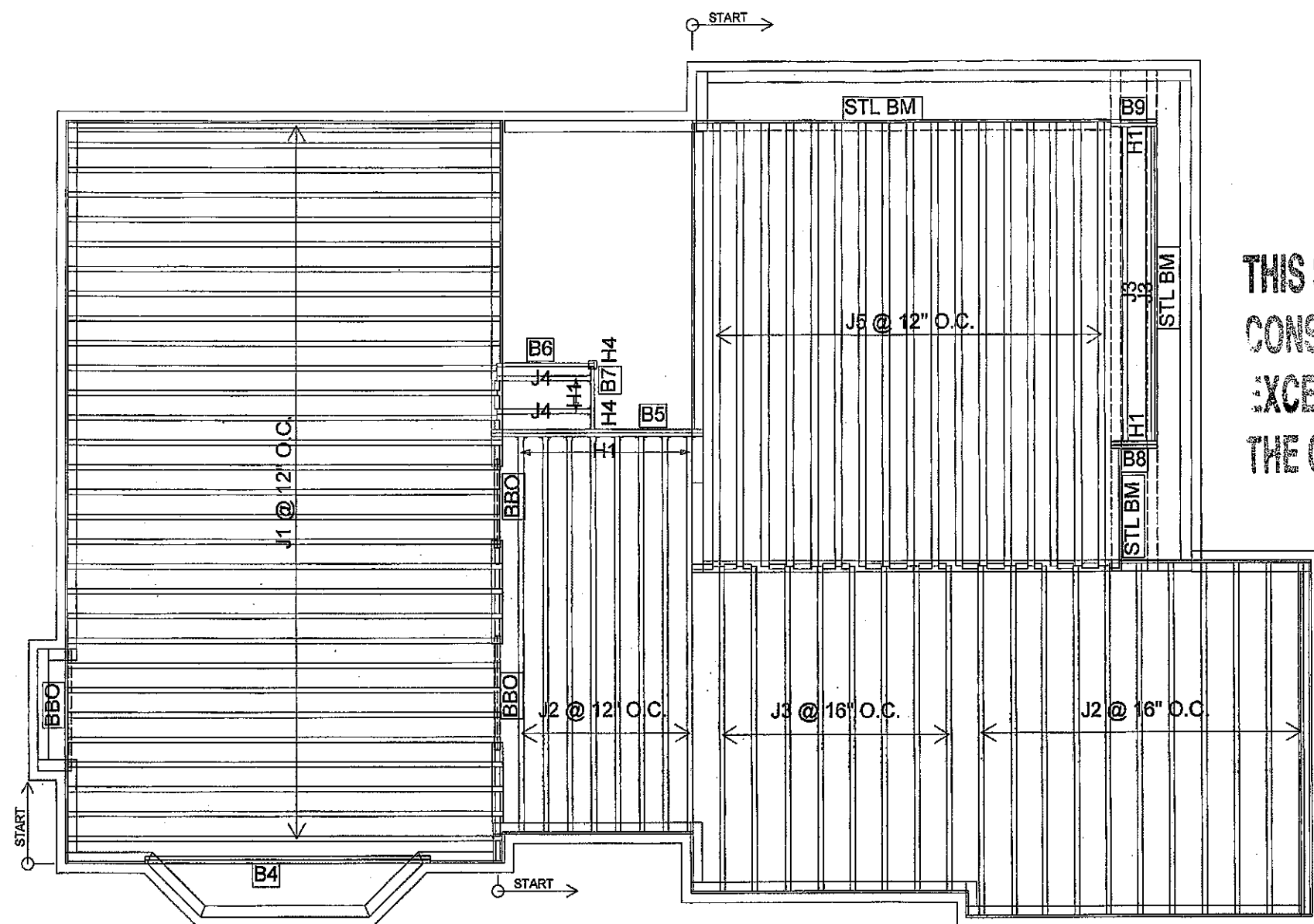
DEAD LOAD: 15.0 lb/ft²

TILED AREAS: 20 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2019-03-28

2nd FLOOR

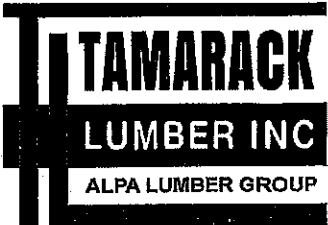


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Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	30
J2	16-00-00	11 7/8" NI-40x	1	19
J3	14-00-00	11 7/8" NI-40x	1	10
J4	4-00-00	11 7/8" NI-40x	1	2
J5	18-00-00	11 7/8" NI-80	1	17
B4	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B7	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B8	2-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B9	2-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
2	H1	IUS2.56/11.88
10	H1	IUS2.56/11.88
1	H4	HUS1.81/10
1	H4	HUS1.81/10

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FROM PLAN DATED: AUG 26 2018

BUILDER: GREENPARK HOMES

SITE: LAMBERTS LANE

MODEL: PRESTON 12

ELEVATION: 2

LOT:

CITY: CALEDON

SALESMAN: M D

DESIGNER: PL

REVISION:

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.

LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 15.0 lb/ft²

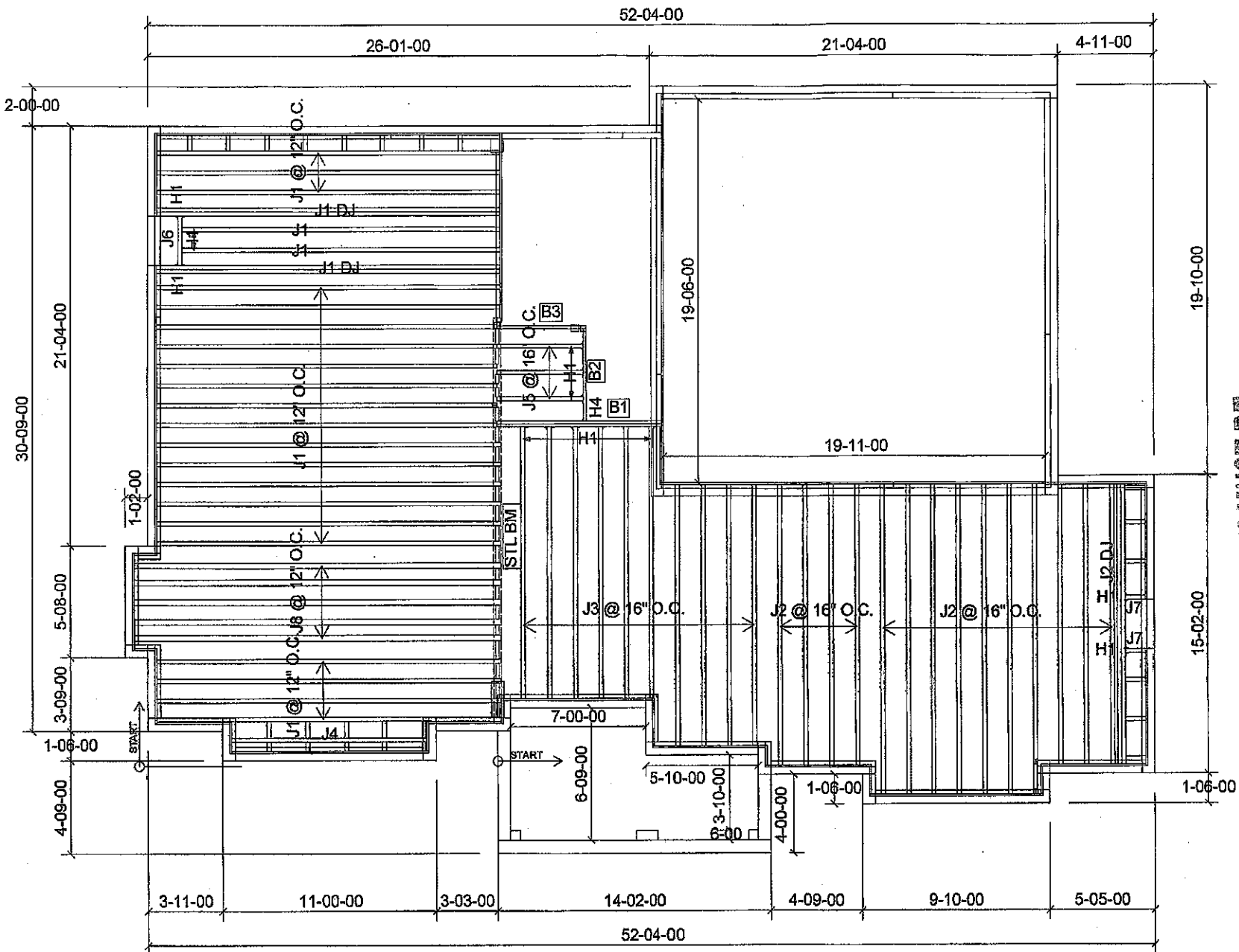
TILED AREAS: 20 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2019-03-28

1st FLOOR

STANDARD & DECK OPTION

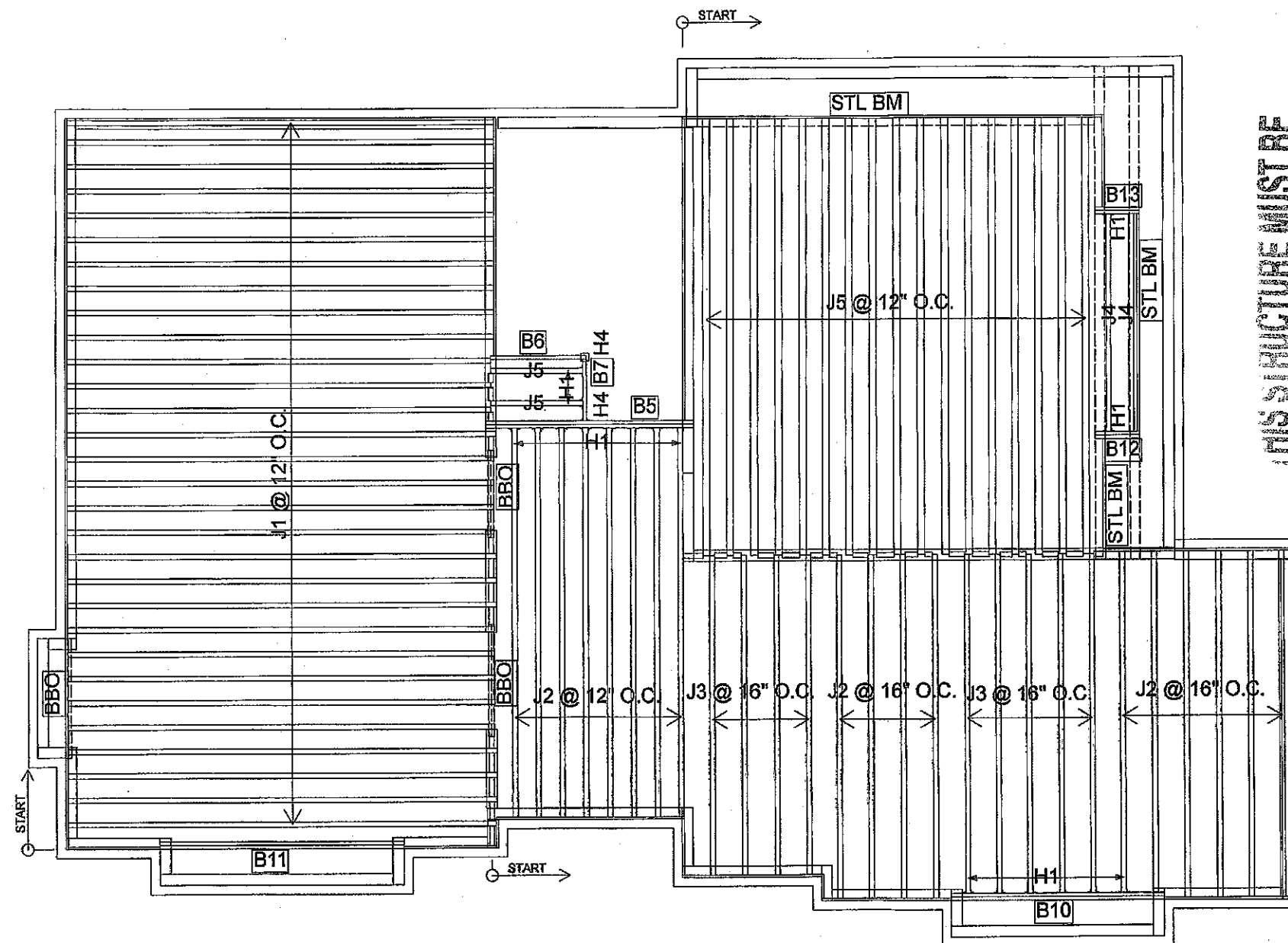


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Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	23
J1 DJ	18-00-00	11 7/8" NI-40x	2	4
J2	16-00-00	11 7/8" NI-40x	1	14
J2 DJ	16-00-00	11 7/8" NI-40x	2	2
J3	14-00-00	11 7/8" NI-40x	1	10
J4	12-00-00	11 7/8" NI-40x	1	1
J5	6-00-00	11 7/8" NI-40x	1	3
J6	4-00-00	11 7/8" NI-40x	1	1
J7	2-00-00	11 7/8" NI-40x	1	2
J8	20-00-00	11 7/8" NI-80	1	5
B1	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
3	H1	IUS2.56/11.88
6	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
1	H4	HUS1.81/10

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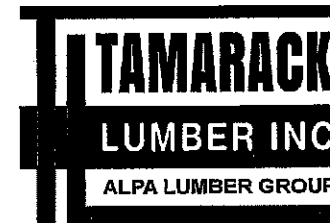


THIS STRUCTURE MUST BE
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EXCEED THE PROVISIONS OF
THE CANADIAN BUILDING CODE

Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	30
J2	16-00-00	11 7/8" NI-40x	1	18
J3	14-00-00	11 7/8" NI-40x	1	9
J4	10-00-00	11 7/8" NI-40x	1	2
J5	4-00-00	11 7/8" NI-40x	1	2
J5	18-00-00	11 7/8" NI-80	1	17
B11	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B10	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B7	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B12	2-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B13	2-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
2	H1	IUS2.56/11.88
16	H1	IUS2.56/11.88
1	H4	HUS1.81/10
1	H4	HUS1.81/10

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ELEVATION: 2

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CITY: CALEDON

SALESMAN: M D

DESIGNER: PL

REVISION:

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DEAD LOAD: 15.0 lb/ft²

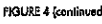
TILED AREAS: 20 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2019-03-28

2nd FLOOR

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

FIGURE 5 (continued)

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- FIGURE 7



- ### FASTENERS FOR SHEATHING AND SUBFLOORING(1)

1. Fasteners of sheathing and subflooring shall conform to the above table.

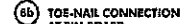
- Ref.: NBC-CNRC, National Building Code of Canada 2010, Table 9.23.3.5.

OPTIONAL

TABLE 2
FACILITY SURVEY DURING SIXTH AND SEVENTH GRADES

RIM BOARD INSTALLATION DETAILS

- (8d) ATTACHMENT DETAILS WHERE RIM BOARDS ABUT**



FILE NO. _____



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

WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- I-joint top and bottom flanges must NEVER be cut, notched, or otherwise modified. Whenever possible, field-cut holes should be centred on the middle of the web.
- The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joint web shall equal the clear distance between the flanges of the I-joint minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joint flange.
- The sides of square holes or largest sides of rectangular holes shall not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the largest side of the largest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.

- A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
- All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
- Limit three maximum size holes per span, of which one may be a duct chase opening.
- A group of round holes of approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

TABLE 1
LOCATION OF CIRCULAR HOLES IN JOIST WEBS
Simple or Multiple Span for Dead Loads up to 15 psf and Live Loads up to 40 psf

Joist Depth	Joist Series	Minimum Distance from Inside Face of Any Support to Centre of Hole (ft - in.)											
		Round Hole Diameter (in.)											
		2	3	4	5	6	6-1/4	7	8	8-3/8	9	10	10-3/4
9-1/2"	NI-20	0-7"	1-6"	2-10"	4-3"	5-8"	6-0"	---	---	---	---	---	---
	NI-40x	0-7"	1-6"	3-0"	4-4"	6-0"	6-4"	---	---	---	---	---	---
	NI-60	1-3"	2-6"	4-0"	5-4"	7-0"	7-5"	---	---	---	---	---	---
	NI-70	2-0"	3-4"	4-9"	6-3"	8-0"	8-4"	---	---	---	---	---	---
	NI-80	2-8"	3-6"	5-0"	6-6"	8-2"	8-8"	---	---	---	---	---	---
11-7/8"	NI-20	0-7"	0-8"	1-8"	2-4"	3-8"	4-0"	5-0"	6-0"	7-0"	---	---	---
	NI-40x	0-7"	0-8"	1-3"	2-8"	4-0"	4-4"	5-5"	7-0"	8-4"	---	---	---
	NI-60	0-7"	1-8"	3-0"	4-2"	5-8"	6-0"	7-10"	8-10"	10-0"	---	---	---
	NI-70	1-3"	2-6"	4-0"	5-4"	6-9"	7-2"	8-4"	10-0"	11-2"	---	---	---
	NI-80	1-6"	2-10"	4-2"	5-6"	7-0"	7-5"	8-8"	10-3"	11-4"	---	---	---
14"	NI-20	0-7"	0-8"	1-5"	3-2"	4-10"	4-0"	5-0"	6-0"	8-9"	---	---	---
	NI-40x	0-7"	0-8"	0-9"	2-6"	4-2"	4-9"	6-3"	---	---	---	---	---
	NI-60	0-7"	0-8"	1-0"	3-0"	4-5"	4-9"	5-8"	7-2"	8-0"	---	---	---
	NI-70	0-8"	1-10"	3-0"	4-5"	5-10"	5-10"	7-3"	8-9"	9-9"	10-4"	12-0"	13-3"
	NI-80	0-10"	2-0"	3-4"	4-9"	6-2"	6-5"	7-8"	9-0"	10-0"	10-8"	12-4"	13-3"
16"	NI-20	0-7"	0-8"	1-0"	2-8"	4-0"	4-0"	5-5"	7-5"	8-8"	9-4"	11-4"	12-11"
	NI-40x	0-7"	0-8"	0-10"	2-8"	4-0"	4-0"	5-5"	7-5"	8-8"	9-4"	11-4"	12-11"
	NI-60	0-7"	0-8"	1-0"	2-8"	4-0"	4-0"	5-5"	7-5"	8-8"	9-4"	11-4"	12-11"
	NI-70	0-7"	1-0"	2-3"	3-6"	4-10"	4-10"	6-3"	7-8"	8-6"	9-2"	10-8"	12-4"
	NI-80	0-7"	1-3"	2-6"	3-10"	5-3"	5-6"	6-6"	8-3"	9-0"	9-2"	11-0"	12-3"

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

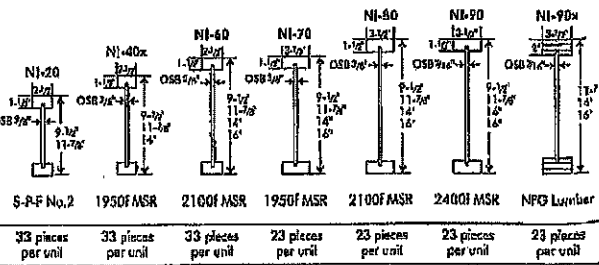
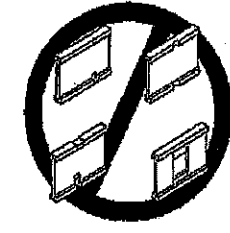
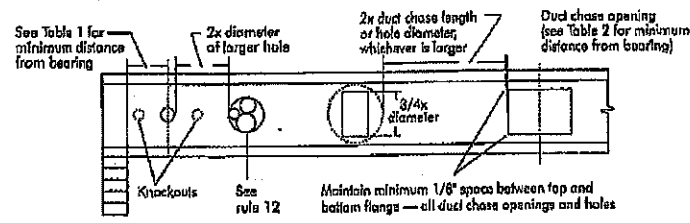


TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS
Simple Span Only

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

- Above table may be used for I-joint spacing of 24 inches on centre or less.
- Duct chase opening location distance is measured from inside face of support to centre of opening.
- The above table is based on simple span joists only. For other applications, contact your local distributor.
- Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of 1/160.
- The above table is based on the I-joints being used of their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

FIGURE 7
FIELD-CUT HOLE LOCATOR



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

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

Holes in webs should be cut with a sharp saw.

For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. 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-joint.

SAFETY AND CONSTRUCTION PRECAUTIONS

- WARNING:** I-joints are not stable until completely installed, and will not carry any load until fully braced and sheathed.
- AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:**
- Brace and nail each I-joint as it is installed, using hangers, blocking panels, rim board, and/or cross-bracing at joint ends. When I-joints are applied continuously over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
 - When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joints. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joint rollover or buckling.
 - Temporary bracing or struts must be 1x4 inch minimum, at least 9 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joint. Nail the bracing to a lateral restraint at the end of each bay. Top ends of adjoining bracing over at least two I-joints.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joints at the end of the bay.
 - For cantilevered I-joints, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bracing.
 - Install and fully nail permanent sheathing to each I-joint before placing loads on the floor system. Then, stack building materials over beams or walls only.
 - Never install on damaged I-joints.
- Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joints, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines carefully.

PRODUCT WARRANTY

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

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

1a NI blocking panel

Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	8,800

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

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

Attach I-joint to top plate per detail 1b

1b Rim board

Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,800

*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" wide or spiral nail at top and bottom flange

Attach rim board to top plate using 2-1/2" wide or spiral (see detail 1b)

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

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

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

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

Provide lateral bracing per detail 1a or 1b

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

1f Joint attachment per detail 1b

Load bearing wall above shall align vertically with the bearing below. Other conditions, such as offset bearing walls, are not covered by this detail.

Blocking required over all interior supports under load-bearing walls or when floor joists are not continuous over support

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

NI blocking panel per detail 1a

1h Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double I-joint, drive three additional 3" nails through the webs and filler block where the backer block will fit. Chisel. Install backer block 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-PF No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-C325 or CAN/CSA-O137 Standard.

** For face-mount hangers use nail joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use nail joist depth minus 4-1/4".

1i Top- or face-mount hanger

Double I-joint header

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

Backer block required (both sides for face-mount hangers)

1j Nordic Lamin or Structural Composite Lumber (SCL)

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

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

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

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

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

Top-mount hanger installed per manufacturer's recommendations

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

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

Install hanger per manufacturer's recommendations

Maximum support capacity = 1,620 lbs.

1n Do not bevel-cut joint beyond inside face of wall

Attach I-joint per detail 1b

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

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

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

1p FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

Filler block

Chisel nails from opposite face by 6"

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

NOTES:

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

Flange Size	Net 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 9"
	14"	3" x 11"
	16"	3" x 13"

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

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

Two 2-1/2" nails from each web to lumber piece

One 2-1/2" nail one side only

NOTES:

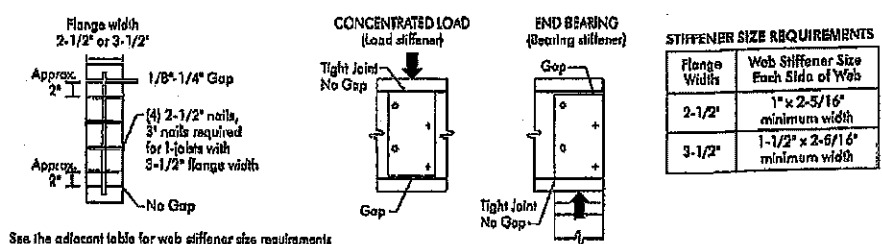
- In some local codes, blocking is prescriptively required in the first joist space for first and second joist spaces next to the exterior joist. Where required, see local code requirements for spacing of the blocking.
- All nails are common spiral in this detail.

All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.125" dia.) common spiral nails may be substituted for 2-1/2" (0.125" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.

WEB STIFFENERS

- RECOMMENDATIONS:**
- A bearing stiffener is required in all engineered applications with factored reactions greater than those in the I-joint properties table found in the I-joint Connection Details (C101). The gap between the stiffener and the flange is at the top.
 - A bearing stiffener is required when the I-joint 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 2,870 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE

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

NI blocking panel or rim board blocking, attach per detail 1g

Attach I-joint to plate per detail 1b

2-1/2" nails

3-1/2" min. bracing required

Method 2 — SHEATHING REINFORCEMENT TWO SIDES

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

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

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

RIM BOARD INSTALLATION DETAILS

2a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

Rim Board Joint Between Floor Joists

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

Rim board joint

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

Rim Board Joint at Corner

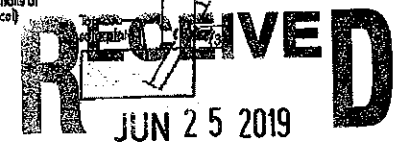
1-1/2"

Rim board joint

2b TOE-NAIL CONNECTION AT RIM BOARD

Rim board

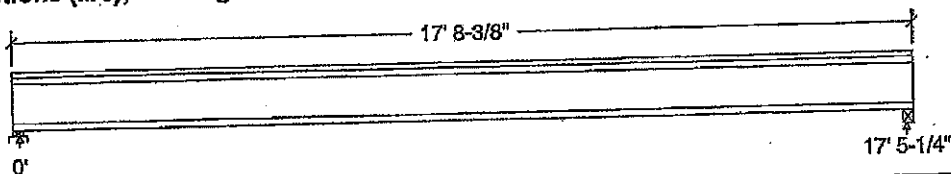
30°



TOWN OF CALEDON
BUILDING SECTION
FILE NO

PROJECT
J1 1ST FLOOR:

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



Unfactored:			
Dead	174		174
Live	349		349
Factored:			
Total	741		741
Bearing:			
Resistance			2119
Joist	2102		-
Support	3981		-
Des ratio			0.35
Joist	0.35		-
Support	0.19		#2
Load case	#2		2-1/2
Length	2-3/8		1-3/4
Min req'd	1-3/4		No
Stiffener	No		1.00
KD	1.00		-
KB support	1.00		-
fcp sup	769		-
Kzcp sup	1.09		-

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



REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF ONTARIO

Nordic Joist 11-7/8" NI-40x Floor Joist @ 12" o.c.
 Supports: 1 - Lumber Sill plate, No.1/No.2; 2 - Steel Beam, W;
 Total length: 17' 8-3/8"; Clear span: 17' 3-1/2"; 3/4" nailed and glued OSB sheathing
This section PASSES the design code check.

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$V_f = 741$	$V_r = 2336$	lbs	$V_f/V_r = 0.32$
Moment (+)	$M_f = 3231$	$M_r = 6255$	lbs-ft	$M_f/M_r = 0.52$
Perm. Defl'n	$0.11 = < L/999$	$0.58 = L/360$	in	0.18
Live Defl'n	$0.21 = L/990$	$0.44 = L/480$	in	0.48
Total Defl'n	$0.32 = L/660$	$0.87 = L/240$	in	0.36
Bare Defl'n	$0.25 = L/844$	$0.58 = L/360$	in	0.43
Vibration	$I_{max} = 17''-5.3$	$I_v = 19''-6.3$	ft	0.89
Defl'n	$= 0.026$	$= 0.036$	in	0.74

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JUN 25 2019

TOWN OF CALEDON
BUILDING SECTION
FILE NO.

T.1904/1687

Additional Data:

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

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

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

Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

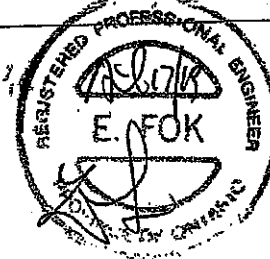
Support 2 - LC #2 = 1.25D + 1.5L

Load Types: D=dead W=wind S=snow H=earth, groundwater E=earthquake
L=live (use, occupancy) Ls=live (storage, equipment) f=fireLoad Patterns: s=S/2 L=L+Ls _=no pattern load in this span
All Load Combinations (LCs) are listed in the Analysis output**CALCULATIONS:**Deflection: E_{IEff} = 443e06 lb-in² K= 6.18e06 lbs

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

Design Notes:

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



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TOWN OF CALEDON
BUILDING SECTION
FILE NO. _____

T. 19041687(2)

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER INC.
3289 NORTH SERVICE ROAD
BURLINGTON ONTARIO
Nov. 3, 2018 09:41

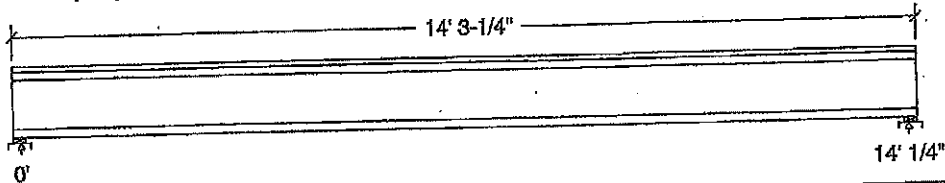
PROJECT
J2 1ST FLOOR

Design Check Calculation Sheet Nordic Sizer - Canada 7.1

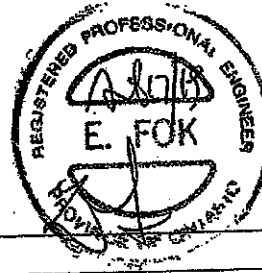
Loads:

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

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



Unfactored:			187
Dead	187		374
Live	374		
Factored:			794
Total	794		
Bearing:			
Resistance			2102
Joist	2102		3981
Support	3981		
Des ratio			0.38
Joist	0.38		0.20
Support	0.20		#2
Load case	#2		2-3/8
Length	2-3/8		1-3/4
Min req'd	1-3/4		No
Stiffener	No		1.00
KD	1.00		1.00
KB support	1.00		769
fcp sup	769		1.09
Kzcp sup	1.09		



Nordic Joist 11-7/8" NI-40x Floor Joist @ 16" o.c.
Supports: All - Lumber Sill plate, No.1/No.2
Total length: 14' 3-1/4"; Clear span: 13' 10-1/2"; 3/4" nailed and glued OSB sheathing
This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 794	Vr = 2336	lbs	Vf/Vr = 0.34
Moment (+)	Mf = 2785	Mr = 6255	lbs-ft	Mf/Mr = 0.45
Perm. Defl'n	0.06 = < L/999	0.47 = L/360	in	0.13
Live Defl'n	0.12 = < L/999	0.35 = L/480	in	0.35
Total Defl'n	0.18 = L/925	0.70 = L/240	in	0.26
Bare Defl'n	0.15 = < L/999	0.47 = L/360	in	0.31
Vibration	Lmax = 14'-0.3	Lv = 18'-1.3	ft	0.77
Defl'n	= 0.021	= 0.048	in	0.45

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T.19041688

TOWN OF CALEDON
BUILDING SECTION
FILE NO

J2 1ST FLOOR

Nordic Sizer -- Canada 7.1

Page 2

Additional Data:

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

CRITICAL LOAD COMBINATIONS:

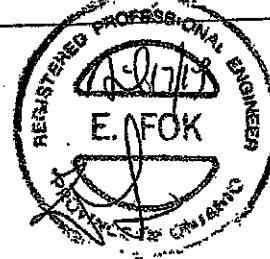
Shear : LC #2 = 1.25D + 1.5L
 Moment (+) : LC #2 = 1.25D + 1.5L
 Deflection: LC #1 = 1.0D (permanent)
 LC #2 = 1.0D + 1.0L (live)
 LC #2 = 1.0D + 1.0L (total)
 LC #2 = 1.0D + 1.0L (bare joist)
 Bearing : Support 1 -- LC #2 = 1.25D + 1.5L
 Support 2 - LC #2 = 1.25D + 1.5L
 Load Types: D=dead W=wind S=snow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

CALCULATIONS:

Deflection: E_Ieff = 460e06 lb-in² K= 6.18e06 lbs
 "Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Design Notes:

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



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TOWN OF CALEDON
 BUILDING SECTION
 FILE NO.

T.19041688(2)

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER INC.
3269 NORTH SERVICE ROAD
BURLINGTON ONTARIO
Nov. 3, 2018 09:43

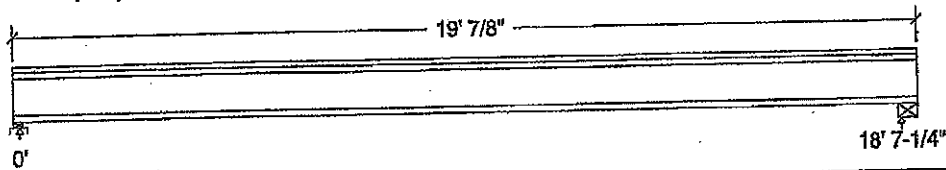
PROJECT
J8 1ST FLOOR

Design Check Calculation Sheet Nordic Sizer - Canada 7.1

Loads:

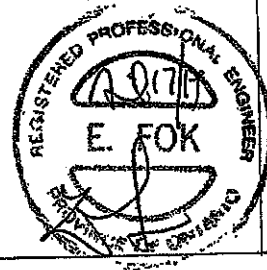
Load	Type	Distribution	Pat- tern	Location [ft] Start End	Magnitude Start End	Unit
Load1	Dead	Full Area			20.00	psf
Load2	Live	Full Area			40.00	psf

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



Unfactored:			
Dead	186		186
Live	372		372
Factored:			
Total	791		791
Bearing:			
Resistance			2336
Joist	2187		-
Support	5559		-
Des ratio			0.34
Joist	0.34		-
Support	0.11		#2
Load case	#2		5
Length	2-3/8		1-3/4
Min req'd	1-3/4		No
Stiffener	No		1.00
KD	1.00		-
KB support	1.00		-
fcp sup	769		-
Kzcp sup	1.09		-

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



Nordic Joist 11-7/8" NI-80 Floor Joist @ 12" o.c.
Supports: 1 - Lumber Sill plate, No.1/No.2; 2 - Steel Beam, W;
Total length: 19' 7/8"; Clear span: 18' 5-1/2"; 3/4" nailed and glued OSB sheathing
This section PASSES the design code check.

Limit States Design using CSA 086-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 791	Vr = 2336	lbs	Vf/Vr = 0.34
Moment (+)	Mf = 3678	Mr = 11609	lbs-ft	Mf/Mr = 0.32
Perm. Defl'n	0.10 = < L/999	0.62 = L/360	in	0.16
Live Defl'n	0.20 = < L/999	0.47 = L/480	in	0.43
Total Defl'n	0.30 = L/746	0.93 = L/240	in	0.32
Bare Defl'n	0.22 = L/996	0.62 = L/360	in	0.36
Vibration	Lmax = 18'-7.3	Lv = 21'-2.7	ft	0.88
Defl'n	= 0.024	= 0.034	in	0.72

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TOWN OF CALEDON
BUILDING SECTION
FILE NO

T-19041689

J8 1ST FLOOR

Nordic Sizer – Canada 7.1

Page 2

Additional Data:

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

CRITICAL LOAD COMBINATIONS:

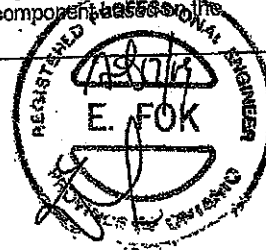
Shear : LC #2 = 1.25D + 1.5L
 Moment(+) : LC #2 = 1.25D + 1.5L
 Deflection: LC #1 = 1.0D (permanent)
 LC #2 = 1.0D + 1.0L (live)
 LC #2 = 1.0D + 1.0L (total)
 LC #2 = 1.0D + 1.0L (bare joist)
 Bearing : Support 1 - LC #2 = 1.25D + 1.5L
 Support 2 - LC #2 = 1.25D + 1.5L
 Load Types: D=dead W=wind S=snow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

CALCULATIONS:

Deflection: E_{eff} = 625e06 lb-in² K= 6.18e06 lbs
 "Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Design Notes:

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



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TOWN OF CALEDON
 BUILDING SECTION
 FILE NO. _____

T.1904/1689(2)

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER INC.
3289 NORTH SERVICE ROAD
BURLINGTON ONTARIO
Nov. 3, 2018 09:41

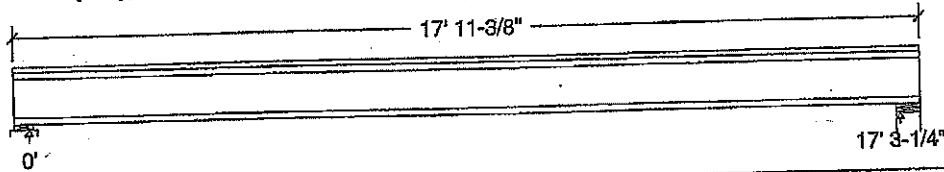
PROJECT
J1 2ND FLOOR

Design Check Calculation Sheet Nordic Sizer - Canada 7.1

Loads:

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

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



Unfactored:			
Dead	173		173
Live	345		345
Factored:			
Total	734		734
Bearing:			
Resistance			2336
Joist	2336		9724
Support	7735		
Des ratio			0.31
Joist	0.31		0.08
Support	0.09		#2
Load case	#2		5-1/2
Length	4-3/8		1-3/4
Min req'd	1-3/4		No
Stiffener	No		1.00
KD	1.00		1.00
KB support	1.00		769
fcp sup	769		1.15
Kzcp sup	1.15		



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

Nordic Joist 11-7/8" NI-40x Floor Joist @ 12" o.c.

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

Total length: 17' 11-3/8"; Clear span: 17' 1-1/2"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 734	Vr = 2336	lbs	Vf/Vr = 0.31
Moment (+)	Mf = 3169	Mr = 6255	lbs-ft	Mf/Mr = 0.51
Perm. Defl'n	0.10 = < L/999	0.58 = L/360	in	0.18
Live Defl'n	0.21 = L/995	0.43 = L/480	in	0.48
Total Defl'n	0.31 = L/663	0.86 = L/240	in	0.36
Bare Defl'n	0.24 = L/867	0.58 = L/360	in	0.42
Vibration	Lmax = 17'-3.3	Lv = 18'-11.1	ft	0.91
Defl'n	= 0.028	= 0.036	in	0.78

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7-19041690

TOWN OF CALEDON
BUILDING SECTION
FILE NO

Additional Data:

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

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

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

Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

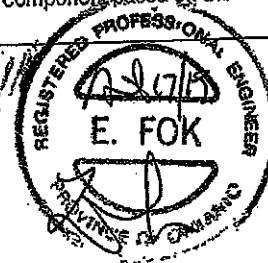
Support 2 - LC #2 = 1.25D + 1.5L

Load Types: D=dead W=wind S=snow H=earth, groundwater E=earthquake
L=live(use, occupancy) Ls=live(storage, equipment) f=fireLoad Patterns: s=S/2 L=L+Ls _=no pattern load in this span
All Load Combinations (LCs) are listed in the Analysis output**CALCULATIONS:**Deflection: $EI_{eff} = 433e06 \text{ lb-in}^2$ $K = 6.18e06 \text{ lbs}$

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

Design Notes:

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



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TOWN OF CALEDON
BUILDING SECTION
FILE NO. _____

T-19041690(2)

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER INC.
3269 NORTH SERVICE ROAD
BURLINGTON ONTARIO
Nov. 6, 2018 15:10

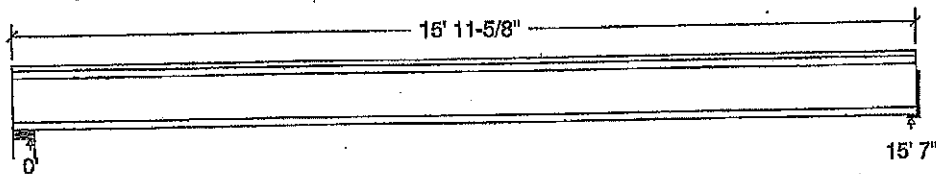
PROJECT
J2 2ND FLOOR

Design Check Calculation Sheet Nordic Sizer - Canada 7.1

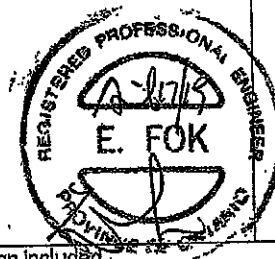
Loads:

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

Maximum Reactions (lbs), Bearing Resistances (lbs) and Bearing Lengths (In) :



Unfactored:			
Dead	156		156
Live	312		312
Factored:			
Total	662		662
Bearing:			
Resistance			2048
Joist	2336		-
Support	7735		-
Des ratio			0.32
Joist	0.28		-
Support	0.09		-
Load case	#2		#2
Length	4-3/8		2
Min req'd	1-3/4		-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		-
fcp sup	769		-
Kzcp sup	1.15		-



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

Nordic Joist 11-7/8" NI-40x Floor Joist @ 12" o.c.

Supports: 1 - Lumber Wall, No.1/No.2; 2 - Hanger;

Total length: 15' 11-5/8"; Clear span: 15' 5-1/4"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

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JUN 25 2019

TOWN OF CALEDON
BUILDING SECTION
FILE NO

T.1904(691)

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$V_f = 662$	$V_r = 2336$	lbs	$V_f/V_r = 0.28$
Moment (+)	$M_f = 2580$	$M_r = 6255$	lbs-ft	$M_f/M_r = 0.41$
Perm. Defl'n	$0.07 = < L/999$	$0.52 = L/360$	in	0.14
Live Defl'n	$0.14 = < L/999$	$0.39 = L/480$	in	0.36
Total Defl'n	$0.21 = L/881$	$0.78 = L/240$	in	0.27
Bare Defl'n	$0.16 = < L/999$	$0.52 = L/360$	in	0.31
Vibration	$L_{max} = 15'-7"$	$L_v = 18'-11.1"$	ft	0.82
Defl'n	$= 0.024$	$= 0.042$	in	0.56

Additional Data:

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

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

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

Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

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

Load Types: D=dead W=wind S=snow H=earth, groundwater E=earthquake
L=live (use, occupancy) Ls=live (storage, equipment) f=fireLoad Patterns: s=S/2 L=L+Ls _=no pattern load in this span
All Load Combinations (LCs) are listed in the Analysis output

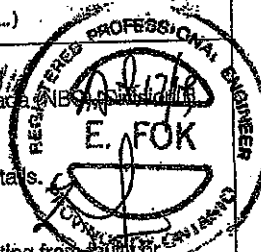
CALCULATIONS:

Deflection: $E I_{eff} = 433e06 \text{ lb-in}^2$ $K = 6.18e06 \text{ lbs}$

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

Design Notes:

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



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TOWN OF CALEDON
BUILDING SECTION
FILE NO. _____

T.19041691(2)

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER INC.
3269 NORTH SERVICE ROAD
BURLINGTON ONTARIO
Nov. 3, 2018 09:42

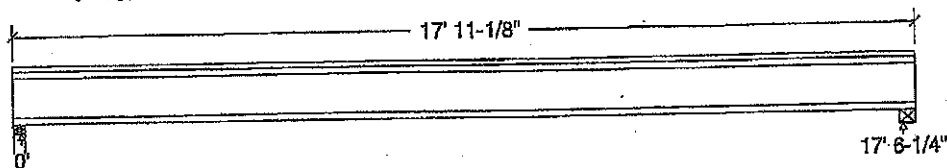
PROJECT
J5 2ND FLOOR ABOVE GARAGE

Design Check Calculation Sheet Nordic Sizer - Canada 7.1

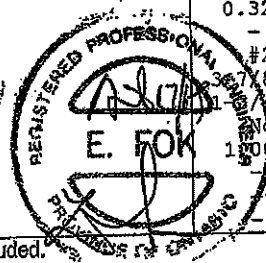
Loads:

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

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



Unfactored:			
Dead	175		175
Live	350		350
Factored:			
Total	745		745
Bearing:			
Resistance			2323
Joist	2221		-
Support	6659		-
Des ratio			0.32
Joist	0.34		-
Support	0.11		-
Load case	#2		#2
Length	2-3/4		18
Min req'd	1-3/4		18
Stiffener	No		18
KD	1.00		18
KB support	1.00		18
fcp sup	.769		18
Kzcp sup	1.13		18



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

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

Supports: 1 - Lumber Wall, No.1/No.2; 2 - Steel Beam, W;
Total length: 17' 11-1/8"; Clear span: 17' 4-1/2"; 5/8" nailed and glued OSB sheathing
This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 745	Vr = 2336	lbs	Vf/Vr = 0.32
Moment (+)	Mf = 3262	Mr = 11609	lbs-ft	Mf/Mr = 0.28
Perm. Defl'n	0.08 = < L/999	0.58 = L/360	in	0.14
Live Defl'n	0.16 = < L/999	0.44 = L/480	in	0.37
Total Defl'n	0.24 = L/864	0.88 = L/240	in	0.28
Bare Defl'n	0.18 = < L/999	0.58 = L/360	in	0.31
Vibration	Lmax = 17'-6.3	Lv = 19'-11	ft	0.88
Defl'n	= 0.026	= 0.036	in	0.72

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T.19041692

TOWN OF CALEDON
BUILDING SECTION

J5 2ND FLOOR ABOVE GARAGE

Nordic Sizer – Canada 7.1

Page 2

Additional Data:

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

CRITICAL LOAD COMBINATIONS:

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

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

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

Load Patterns: s=S/2 L=L+Ls _=no pattern load in this span
 All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:

Deflection: $EI_{eff} = 613e06 \text{ lb-in}^2$ $K = 6.18e06 \text{ lbs}$
 "Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Design Notes:

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



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TOWN OF CALEDON
 BUILDING SECTION
 FILE NO. _____

T.19041692(2)

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER INC.
3269 NORTH SERVICE ROAD
BURLINGTON ONTARIO
Nov. 6, 2018 13:07

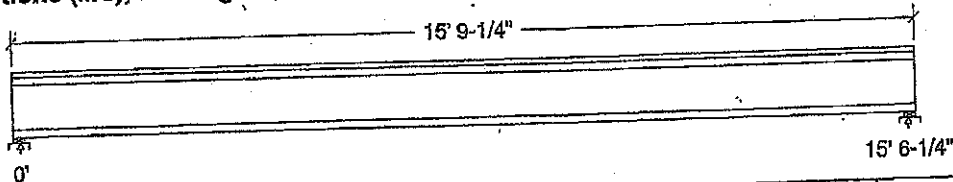
PROJECT
J2 1ST FLOOR ELEV 2

Design Check Calculation Sheet Nordic Sizer - Canada 7.1

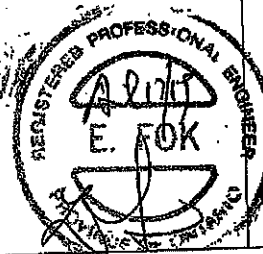
Loads:

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

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



Unfactored:			207
Dead	207		414
Live	414		
Factored:			879
Total	879		
Bearing:			
Resistance			2102
Joist	2101		3659
Support	3651		
Des ratio			0.42
Joist	0.42		0.24
Support	0.24		#2
Load case	#2		2-3/8
Length	2-3/8		-3/4
Min req'd	1-3/4		No
Stiffener	No		1.00
KD	1.00		1.00
KB support	1.00		769
fcp sup.	769		1.00
Kzcp sup	1.00		



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

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

Total length: 15' 9-1/4"; Clear span: 15' 4-1/2"; 3/4" nailed and glued OSB sheathing

This section **PASSES** the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 879	Vr = 2336	lbs	VE/Vr = 0.38
Moment (+)	Mf = 3413	Mr = 6255	lbs-ft	Mf/Mr = 0.55
Perm. Defl'n	0.09 = < L/999	0.52 = L/360	in	0.17
Live Defl'n	0.18 = < L/999	0.39 = L/480	in	0.45
Total Defl'n	0.26 = L/703	0.78 = L/240	in	0.34
Bare Defl'n	0.21 = L/876	0.52 = L/360	in	0.41
Vibration	Lmax = 15'-6.3	Lv = 18'-1.3	ft	0.86
Defl'n	= 0.026	= 0.042	in	0.62

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JUN 25 2019

TOWN OF CALEDON
BUILDING SECTION
FILE NO

J. 19041693

J2 1ST FLOOR ELEV 2

Nordic Sizer - Canada 7.1

Additional Data:

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

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

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

Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

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

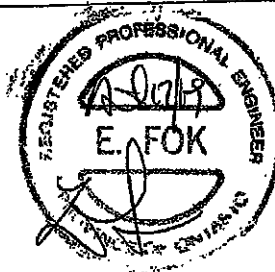
Load Types: D=dead W=wind S=snow H=earth, groundwater E=earthquake
L=live (use, occupancy) Ls=live (storage, equipment) f=fireLoad Patterns: s=S/2 L=L+Ls _=no pattern load in this span
All Load Combinations (LCs) are listed in the Analysis output**CALCULATIONS:**Deflection: E_{IEff} = 460e06 lb-in² K = 6.18e06 lbs

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

Design Notes:

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

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



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JUN 25 2019

TOWN OF CALEDON
BUILDING SECTION
FILE NO

J. 19041693(2)

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER INC.
3269 NORTH SERVICE ROAD
BURLINGTON ONTARIO
Nov. 7, 2018 13:21

PROJECT
J2 2ND FLOOR ELEV 2 CANT

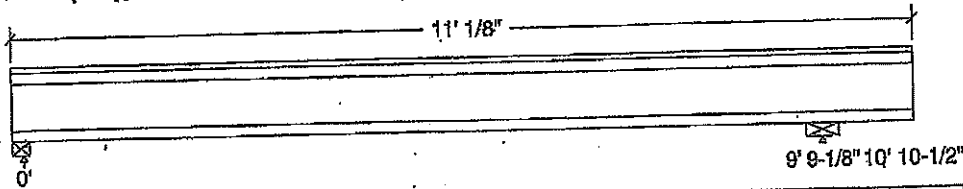
Design Check Calculation Sheet Nordic Sizer - Canada 7.1

Loads:

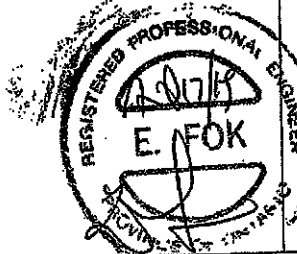
Load	Type	Distribution	Pat-tern	Location [ft] Start End	Magnitude Start End	Unit
Load1	Dead	Full Area	No		20.00	psf
Load2	Live	Full Area	Yes		40.00	psf
WALL	Dead	Point	No	11.01	133	lbs
ROOF D	Dead	Point	No	11.01	40	lbs
ROOF L	Live	Point	Yes	11.01	44	lbs
ROOF SN	Snow	Point	Yes	11.01	127	lbs

Load magnitude does not include Normal Importance factor from O88 Table 5.2.3.2, which is applied during analysis.

Maximum Reactions (lbs), Bearing Resistances (lbs) and Bearing Lengths (ln) :



Unfactored:					
Dead	109			354	
Live	260			372	
Snow	-15			142	
Factored:				1143	
Total	526				
Bearing:					
Resistance				4063	
Joist	1867			-	
Support	-			-	
Des ratio				0.28	
Joist	0.28			-	
Support	-			-	
Load case	#10			#4	
Length	2-1/2			5	
Min req'd	1-3/4			1-1/2	
Stiffener	No			No	
KD	1.00			1.00	
KB support	-			-	
fcp sup	-			-	
Kzcp sup	-			-	



Maximum reaction on at least one support is from a different load combination than the critical one for bearing design, shown here, due to KD factor. See Analysis results for reaction from critical load combination.

Nordic Joist 9-1/2" NI-40x Floor joist @ 16" o.c.

Supports: All - Steel Beam, W

Total length: 11' 1/8"; Clear span: 9' 5-3/4", 0' 10-7/8", 3/4" nailed and glued OSB sheathing

This section PASSES the design code check.

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JUN 25 2019

T.19041694

TOWN OF CALEDON
BUILDING SECTION
FILE NO

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 607	Vr = 1895	lbs	Vf/Vr = 0.32
Moment (+)	Mf = 1222	Mr = 4824	lbs-ft	Mf/Mr = 0.25
Moment (-)	Mf = 556	Mr = 4680	lbs-ft	Mf/Mr = 0.12
Deflection:				
Interior Perm	0.02 = < L/999	0.33 = L/360	in	0.05
Live	0.05 = < L/999	0.24 = L/480	in	0.21
Total	0.07 = < L/999	0.49 = L/240	in	0.14
Cantil. Perm	-0.00 = < L/999	0.07 = L/180	in	0.03
Live	-0.01 = L/926	0.06 = L/240	in	0.26
Total	-0.02 = L/817	0.11 = L/120	in	0.15
Bare Defl'n	-0.02 = L/733	0.07 = L/180	in	0.25
Vibration	Lmax = 9'-9.1	Lv = 16'-2.1	ft	0.60
Defl'n	= 0.015	= 0.079	in	0.19

Additional Data:

FACTORS:	F/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	1895	1.00	1.00	-	-	-	-	-	#4
Mr+	4824	1.00	1.00	-	1.000	-	-	-	#10
Mr-	4824	0.97	1.00	-	1.000	-	-	-	#5
EI	218.1 million	-	-	-	-	-	-	-	#10

CRITICAL LOAD COMBINATIONS:

Shear : LC #4 = 1.25D + 1.5L + (1.0)1.0S
 Moment (+) : LC #10 = 1.25D + 1.5L (pattern: L)
 Moment (-) : LC #5 = 1.25D + (1.0)1.5S + 1.0L
 Deflection: LC #1 = 1.0D (permanent)
 LC #10 = 1.0D + 1.0L (pattern: L) (live)
 LC #10 = 1.0D + 1.0L (pattern: L) (total)
 LC #10 = 1.0D + 1.0L (pattern: L) (bare joist)
 Bearing : Support 1 - LC #4 = 1.25D + 1.5L + (1.0)1.0S
 Support 2 - LC #0 = 1.4D

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

Load Patterns: s=S/2 L=L+Ls no pattern load in this span
 All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:

Deflection: E_{ieff} = 276e06 lb-in² K = 4.94e06 lbs
 "Live" deflection = Deflection from all non-dead loads (live, wind, snow)



Design Notes:

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

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TOWN OF CALEDON
 BUILDING SECTION
 FILE NO. _____

T.19041694(2)



Boise Cascade



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B3(13459)

Dry | 1 span | No cant.

November 6, 2018 15:13:49

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

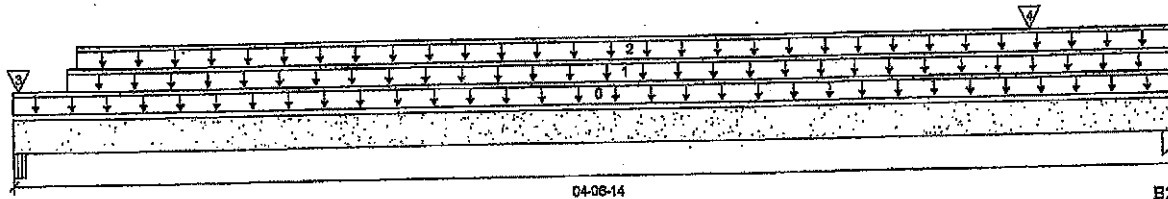
File name: PRESTON 12.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B3(13459)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 04-06-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-1/2"	755 / 0	420 / 0		
B2, 3-1/2"	1,149 / 0	682 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.18	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-06-14	Top		8			00-00-00
1	STAIRS	Unf. Lin. (lb/ft)	L	00-02-08	04-06-14	Top	240	120			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-03-00	04-06-14	Top	21	10			n/a
3	5(1258)	Conc. Pt. (lbs)	L	00-00-04	00-00-04	Top	174	108			n/a
4	PBO3(1263)	Conc. Pt. (lbs)	L	04-00-00	04-00-00	Top	591	397			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,485 ft-lbs	17,696 ft-lbs	8.4%	1	02-05-05
End Shear	868 lbs	7,232 lbs	12.0%	1	03-03-08
Total Load Deflection	L/999 (0.007")	n/a	n/a	4	02-03-12
Live Load Deflection	L/999 (0.005")	n/a	n/a	5	02-03-12
Max Defl.	0.007"	n/a	n/a	4	02-03-12
Span / Depth	4.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 2-1/2" x 1-3/4"	1,657 lbs	70.9%	31.1%	Unspecified
B2	Column 3-1/2" x 1-3/4"	2,577 lbs	51.8%	34.5%	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



Disclosure

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

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

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TOWN OF CALEDON
BUILDING SECTION
FILE NO. _____

T-19041695



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B4(12896)

Dry | 1 span | No cant.

November 6, 2018 15:13:49

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

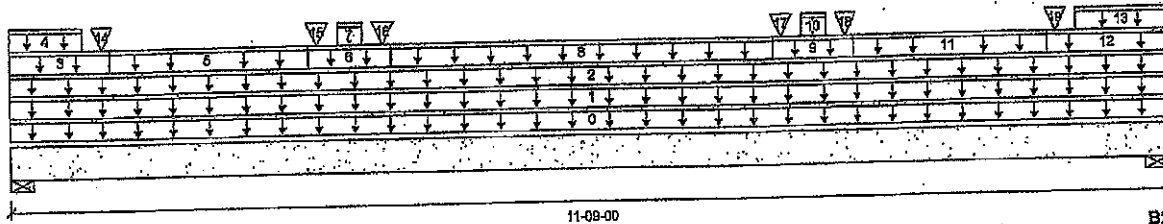
File name: PRESTON 12.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B4(12896)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 11-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 7-1/4"	498 / 0	857 / 0	1,182 / 0	
B2, 9-1/2"	513 / 0	887 / 0	1,217 / 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	11-09-00	Top	12				00-00-00
1	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	11-09-00	Top	33	30	102		n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-09-00	Top	20	10			n/a
3	E26(12687)	Unf. Lin. (lb/ft)	L	00-00-00	01-00-06	Top		81			n/a
4	E26(12687)	Unf. Lin. (lb/ft)	L	00-00-00	00-08-14	Top	33	30	102		n/a
5	E27(12688)	Unf. Lin. (lb/ft)	L	01-00-06	03-00-06	Top		41			n/a
6	E28(12689)	Unf. Lin. (lb/ft)	L	03-00-06	03-10-06	Top		81			n/a
7	E28(12689)	Unf. Lin. (lb/ft)	L	03-03-14	03-06-14	Top			102		n/a
8	E29(12690)	Unf. Lin. (lb/ft)	L	03-10-06	07-08-06	Top		41			n/a
9	E30(12691)	Unf. Lin. (lb/ft)	L	07-08-06	08-06-06	Top		81			n/a
10	E30(12691)	Unf. Lin. (lb/ft)	L	07-11-14	08-02-14	Top		41	102		n/a
11	E31(12682)	Unf. Lin. (lb/ft)	L	08-06-06	10-06-06	Top		81			n/a
12	E25(12684)	Unf. Lin. (lb/ft)	L	10-06-06	11-09-00	Top	33	30	102		n/a
13	E25(12684)	Unf. Lin. (lb/ft)	L	10-09-14	11-09-00	Top					n/a
14	E26(12687)	Conc. Pt. (lbs)	L	00-11-06	00-11-06	Top	44	59	135		n/a
15	E28(12689)	Conc. Pt. (lbs)	L	03-01-06	03-01-06	Top	42	57	129		n/a
16	E28(12689)	Conc. Pt. (lbs)	L	03-09-06	03-09-06	Top	73	100	227		n/a
17	E30(12691)	Conc. Pt. (lbs)	L	07-09-06	07-09-06	Top	72	99	224		n/a
18	E30(12691)	Conc. Pt. (lbs)	L	08-05-06	08-05-06	Top	44	59	135		n/a
19	E25(12684)	Conc. Pt. (lbs)	L	10-07-06	10-07-06	Top	42	57	129		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	7,379 ft-lbs	35,392 ft-lbs	20.8%	13	05-09-06
End Shear	2,505 lbs	14,464 lbs	17.3%	13	01-07-02
Total Load Deflection	1/999 (0.117")	n/a	n/a	35	05-09-06
Live Load Deflection	1/999 (0.077")	n/a	n/a	51	05-09-06
Max Defl.	0.117"	n/a	n/a	35	05-09-06
Span / Depth	10.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 7-1/4" x 3-1/2"	3,342 lbs	24.7%	10.8%	Unspecified
B2	Wall/Plate 9-1/2" x 3-1/2"	3,447 lbs	19.4%	8.5%	Unspecified

Nail one ply to another with
3 1/2" spiral nails @ 12"
o.c. staggered in 2 rows

T.19041696





Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING/Flush Beams/B6(3367)

PASSED

November 6, 2018 15:13:49

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

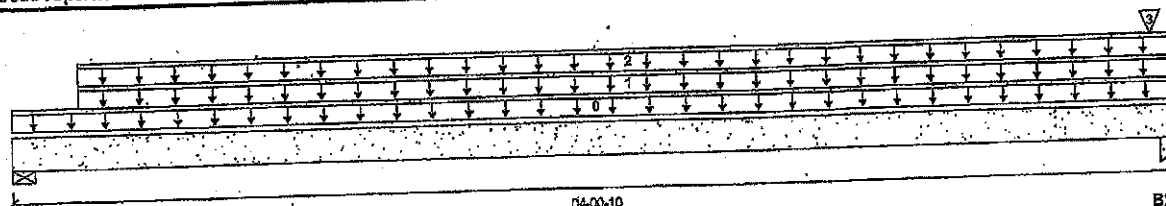
File name: PRESTON 12.mmdl

Description: 2ND FLOOR FRAMING/Flush Beams/B6(3367)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 04-00-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/4"	452 / 0	238 / 0		
B2, 2-7/8"	601 / 0	320 / 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	04-00-10	Top		6			00-00-00
1	STAIRS	Unf. Lin. (lb/ft)	L	00-02-12	04-00-10	Top	240	120			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	04-00-10	Top	12	6			n/a
3	B7(3353)	Conc. PL (lbs)	L	03-11-12	03-11-12	Top	89	52			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	934 ft-lbs	17,896 ft-lbs	5.3%	1	02-00-04
End Shear	436 lbs	7,232 lbs	6.0%	1	01-02-10
Total Load Deflection	1/999 (0.003")	n/a	n/a	4	02-00-04
Live Load Deflection	1/999 (0.002")	n/a	n/a	5	02-00-04
Max Defl.	0.003"	n/a	n/a	4	02-00-04
Span / Depth	3.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2-3/4" x 1-3/4"	976 lbs	38.0%	16.6%	Unspecified
B2	Column 2-7/8" x 1-3/4"	1,301 lbs	32.2%	21.4%	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

Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA).
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Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

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TOWN OF CALEDON
BUILDING SECTION
FILE NO

T.19041697



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

PASSED

2ND FLOOR FRAMING Flush Beams B7(I3353)

November 6, 2018 15:13:49

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

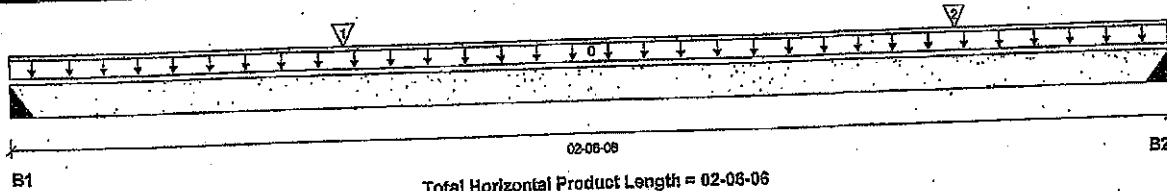
File name: PRESTON 12.mmdl

Description: 2ND FLOOR FRAMING Flush Beams B7(I3353)

Specifier:

Designer: PL

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	77 / 0	45 / 0		
B2, 3"	90 / 0	53 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. L.in. (lb/ft)	L	00-00-00	02-06-06	Top	1.00	0.65	1.00	1.15	0.00-00-00
1	J4(I3371)	Conc. Pt. (lbs)	L	00-08-12	00-08-12	Top	89	45			n/a
2	J4(I3330)	Conc. Pt. (lbs)	L	02-00-12	02-00-12	Top	78	39			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	92 ft-lbs	17,696 ft-lbs	0.5%	1	00-08-12
End Shear	66 lbs	7,232 lbs	0.9%	1	01-02-14
Total Load Deflection	L/999 (0")	n/a	n/a	4	01-02-14
Live Load Deflection	L/999 (0")	n/a	n/a	5	01-02-14
Max Defl.	0"	n/a	n/a	4	01-02-14
Span / Depth	2.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	3" x 1-3/4"	173 lbs	n/a	2.7%	HUS1.81/10
B2 Hanger	3" x 1-3/4"	201 lbs	n/a	3.1%	HUS1.81/10

Cautions

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

Header for the hanger HUS1.81/10 at B2 is a Single 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF.

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

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

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

T. 19041698



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

PASSED

2ND FLOOR FRAMING/Flush Beams/B8(I3570)

Dry | 1 span | No cant.

February 19, 2019 11:21:55

BC CALCO® Member Report

Build 6768

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

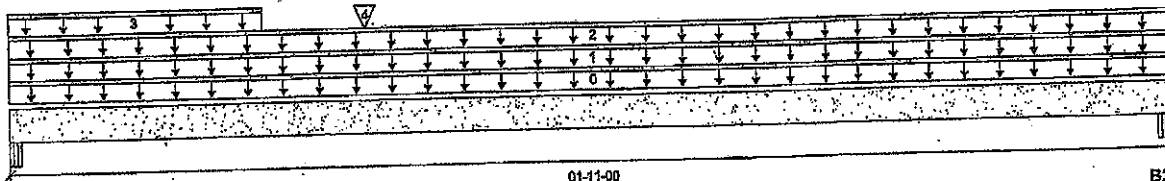
File name: PRESTON 12 ELEV 1.mmdl

Description: 2ND FLOOR FRAMING/Flush Beams/B8(I3570)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 01-11-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 6"	332 / 0	302 / 0	358 / 0	
B2, 6"	165 / 0	219 / 0	358 / 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	01-11-00	Top	88	161	272		n/a
1	8(I2686)	Unf. Lin. (lb/ft)	L	00-00-00	01-11-00	Top	33	30	102		n/a
2	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	00-05-00	Top	12				n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	00-05-00	Top	280	130			n/a
4	J3(I3564)	Conc. Pt. (lbs)	L	00-07-00	00-07-00	Top					n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	222 ft-lbs	35,392 ft-lbs	0.6%	13	00-10-06
End Shear	428 lbs	14,464 lbs	3.0%	13	01-04-14
Total Load Deflection	L/999 (0")	n/a	n/a	35	00-11-03
Max Defl.	0"	n/a	n/a	35	00-11-03
Span / Depth	1.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	5" x 3-1/2"	1,247 lbs	13.3%	5.8%	Unspecified
B2 Beam	5" x 3-1/2"	976 lbs	10.4%	4.6%	Unspecified

Notes

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

Calculations assume member is fully braced.

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

BC CALCO 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 1/2" spiral nails @ 4"

p.c. staggered in 2 rows



RECEIVED

JUN 25 2019

7.19041700

TOWN OF CALEDON
BUILDING SECTION
FILE NO



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B9\13571

Dry | 1 span | No cant.

February 19, 2019 11:21:55

BC CALCO Member Report

Build 6766

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

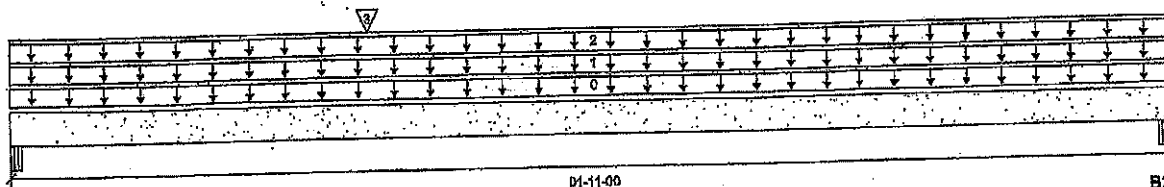
File name: PRESTON 12 ELEV 1.mxd

Description: 2ND FLOOR FRAMING\Flush Beams\B9\13571

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 01-11-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5"	329 / 0	301 / 0	358 / 0	
B2, 5"	166 / 0	219 / 0	358 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-11-00	Top	12	161	272		n/a
1	7(12685)	Unf. Lin. (lb/ft)	L	00-00-00	01-10-15	Top	33	30	102		n/a
2	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	01-11-00	Top	263	132			n/a
3	J3(13584)	Conc. Pt. (lbs)	L	00-07-00	00-07-00	Top					n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	223 ft-lbs	35,382 ft-lbs	0.6%	13	00-10-06
End Shear	429 lbs	14,464 lbs	3.0%	13	01-04-14
Total Load Deflection	L/999 (0")	n/a	n/a	35	00-11-03
Max Defl.	0"	n/a	n/a	35	00-11-03
Span / Depth	1.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	5" x 3-1/2"	1,242 lbs	13.3%	5.8%	Unspecified
B2 Beam	5" x 3-1/2"	977 lbs	10.5%	4.6%	Unspecified

Notes

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

Calculations assume member is fully braced.

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

BC CALCO 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 1/2" spiral nails @ 4"
o.c., staggered in 2 rows



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

T.19041701



Boise Cascade



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B2(13530)

Dry | 1 span | No cant.

November 6, 2018 15:13:49

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

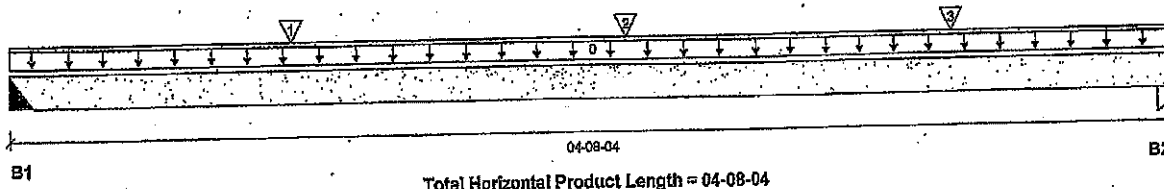
File name: PRESTON 12.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B2(13530)

Specifier:

Designer: PL

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	169 / 0	98 / 0		
B2, 1-3/4"	173 / 0	99 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-08-04	Top	1.00	0.65	1.00	1.15	00-00-00
1	J5(13502)	Conc. Pt. (lbs)	L	01-01-10	01-01-10	Top	118	58			n/a
2	J5(13497)	Conc. Pt. (lbs)	L	02-05-10	02-05-10	Top	119	59			n/a
3	J5(13516)	Conc. Pt. (lbs)	L	03-09-10	03-09-10	Top	105	52			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	503 ft-lbs	17,696 ft-lbs	2.8%	1	02-05-10
End Shear	341 lbs	7,232 lbs	4.7%	1	01-02-14
Total Load Deflection	L/999 (0.002")	n/a	n/a	4	02-04-11
Live Load Deflection	L/999 (0.002")	n/a	n/a	5	02-04-11
Max Defl.	0.002"	n/a	n/a	4	02-04-11
Span / Depth	4.5				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	3" x 1-3/4"	376 lbs	n/a	5.9%	HUS1.81/10
B2 Column	1-3/4" x 1-3/4"	383 lbs	15.4%	10.3%	Unspecified

Cautions

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

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Hanger Manufacturer: Unassigned
 Resistance Factor phi has been applied to all presented results per CSA 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 0

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.

RECEIVED
 ALLJOIST®, BC RIM BOARD®, BC BOISE-GLULAM™, BC FloorVibe®, VERSA-LAM®, VERSA-RIM PLUS®
 JUN 25 2019



Boise Cascade



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B12\13816

Dry | 1 span | No cant.

February 19, 2019 11:23:10

BC CALCO® Member Report

Build 6786

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

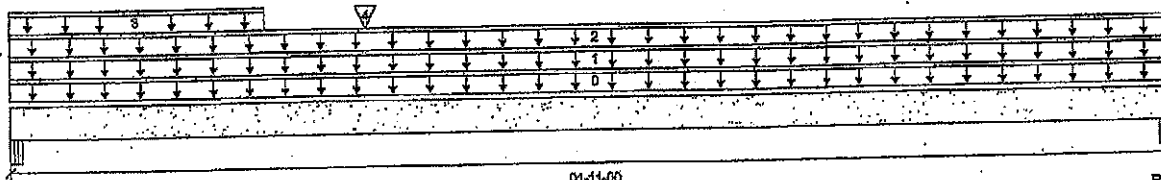
File name: PRESTON 12 ELEV 2.mxd

Description: 2ND FLOOR FRAMING\Flush Beams\B12\13816

Specifier:

Designer: PL

Company:



B1

B2

Total Horizontal Product Length = 01-11-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5"	250 / 0	253 / 0	293 / 0	
B2, 5"	130 / 0	193 / 0	293 / 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	01-11-00	Top		12			00-00-00
1	8(2686)	Unf. Lin. (lb/ft)	L	00-00-00	01-11-00	Top	66	141	204		n/a
2	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	01-11-00	Top	33	30	102		n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	00-05-00	Top	12				n/a
4	J4(13823)	Conc. Pt. (lbs)	L	00-07-00	00-07-00	Top	185	93			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	180 ft-lbs	35,392 ft-lbs	0.5%	13	00-10-09
End Shear	358 lbs	14,464 lbs	2.5%	13	01-04-14
Span / Depth	1.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Beam	5" x 3-1/2"	1,006 lbs	10.8%	4.7%	Unspecified
B2 Beam	5" x 3-1/2"	811 lbs	8.7%	3.8%	Unspecified

Notes

Calculations assume member is fully braced.

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

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

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 1/2" spiral nails @ 4"

o.c., staggered in 2 rows

RECEIVED
JUN 25 2019TOWN OF CALEDON
BUILDING SECTION
FILE NO.

T. 19041703



Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****2ND FLOOR FRAMING\Flush Beams\B10\I3514**

Dry | 1 span | No cant.

PASSED

November 6, 2018 13:14:39

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

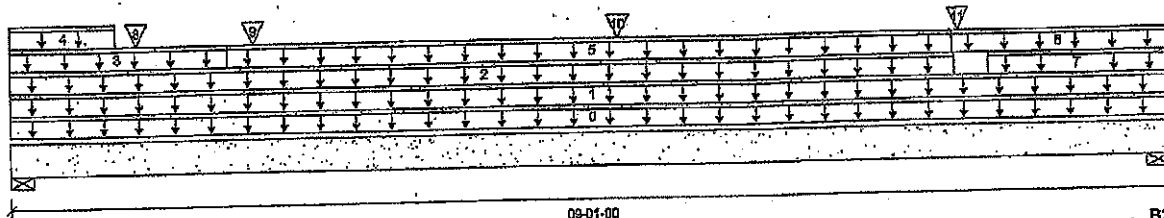
File name: PRESTON 12 ELEV 2.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B10\I3514

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 09-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1,707 / 0	1,437 / 0	1,250 / 0	
B2, 5-1/2"	1,326 / 0	1,150 / 0	951 / 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	09-01-00	Top	12	30	102		00-00-00
1	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	09-01-00	Top	33	122			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	07-04-12	Top	191				n/a
3	E42(I3526)	Unf. Lin. (lb/ft)	L	00-00-00	01-08-08	Top		81			n/a
4	E42(I3526)	Unf. Lin. (lb/ft)	L	00-00-00	00-10-00	Top		35	104		n/a
5	E43(I3527)	Unf. Lin. (lb/ft)	L	01-08-08	07-04-08	Top		41			n/a
6	E41(I3525)	Unf. Lin. (lb/ft)	L	07-04-08	09-01-00	Top		81			n/a
7	E41(I3525)	Unf. Lin. (lb/ft)	L	07-08-00	09-01-00	Top	33	30	102		n/a
8	E42(I3526)	Conc. Pt. (lbs)	L	01-00-00	01-00-00	Top			388		n/a
9	-	Conc. Pt. (lbs)	L	01-10-14	01-10-14	Top	383	192	320		n/a
10	J3(I3391)	Conc. Pt. (lbs)	L	04-08-12	04-08-12	Top	383	192			n/a
11	-	Conc. Pt. (lbs)	L	07-05-02	07-05-02	Top	486	332	318		n/a

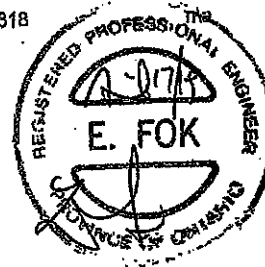
Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	8,646 ft-lbs	35,392 ft-lbs	24.4%	1	04-08-12
End Shear	4,101 lbs	14,464 lbs	28.4%	1	01-05-08
Total Load Deflection	L/999 (0.085")	n/a	n/a	35	04-06-12
Live Load Deflection	L/999 (0.057")	n/a	n/a	51	04-06-12
Max Defl.	0.085"	n/a	n/a	35	04-08-12
Span / Depth	8.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	5,606 lbs	54.6%	23.9%	Unspecified
B2	Wall/Plate 5-1/2" x 3-1/2"	4,378 lbs	42.6%	18.6%	Unspecified

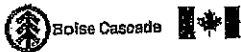
Nail one ply to another with
3 1/2" spiral nails @ 4"
o.c., staggered in 2 rows



RECEIVED
JUN 25 2019

TOWN OF CALEDON
BUILDING SECTION
FILE NO

T.19041704



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B13(13831)

Dry | 1 span | No cant

February 19, 2019 11:23:10

BC CALCO Member Report

Build 8766

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

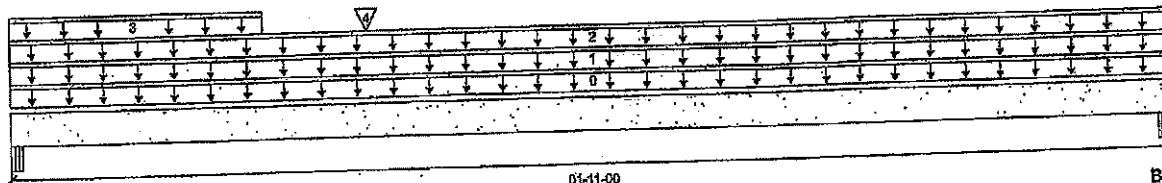
File name: PRESTON 12 ELEV 2.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B13(13831)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 01-11-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5"	250 / 0	263 / 0	293 / 0	
B2, 5"	130 / 0	193 / 0	293 / 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	01-11-00	Top	66	141	204		n/a
1	7(2685)	Unf. Lin. (lb/ft)	L	00-00-00	01-10-15	Top	33	30	102		n/a
2	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	01-11-00	Top	12				n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	00-06-00	Top	185	93			n/a
4	J4(13823)	Conc. Pt. (lbs)	L	00-07-00	00-07-00	Top					n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	180 ft-lbs	35,392 ft-lbs	0.5%	13	00-10-09
End Shear	358 lbs	14,464 lbs	2.5%	13	01-04-14
Span / Depth	1.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 5" x 3-1/2"	1,006 lbs	10.8%	4.7%	Unspecified
B2	Beam 5" x 3-1/2"	810 lbs	8.7%	3.8%	Unspecified

Notes

Calculations assume member is fully braced.

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

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

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 1/2" spiral nails @ 4"
o.c. staggered in 2 rows



RECEIVED
JUN 25 2019

TOWN OF CALEDON
BUILDING SECTION
FILE NO

T.19041705



Balse Cascade



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

2ND FLOOR FRAMING\Flush Beams\B5(13498)

Dry | 1 span | No cant.

PASSED

November 6, 2018 15:13:49

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

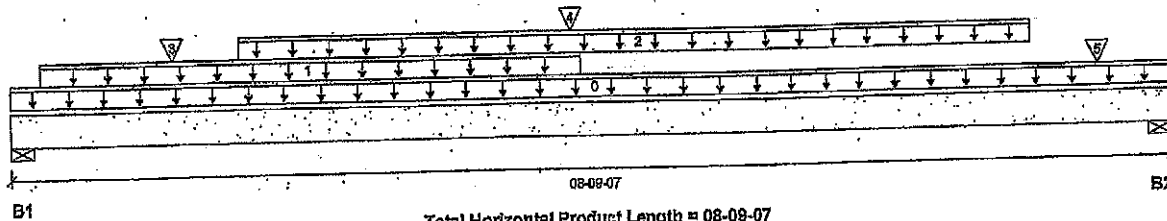
File name: PRESTON 12.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B5(13498)

Specifier:

Designer: PL

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1,338 / 0	727 / 0		
B2, 5-7/16"	1,498 / 0	805 / 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	08-09-07	Top	18	12			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	04-03-06	Top	322	9			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-08-12	07-08-12	Top	393	161			n/a
3	J2(13327)	Conc. Pt. (lbs)	L	01-02-12	01-02-12	Top	78	196			n/a
4	B7(13353)	Conc. Pt. (lbs)	L	04-02-08	04-02-08	Top	355	47			n/a
5	J2(13542)	Conc. Pt. (lbs)	L	08-02-12	08-02-12	Top		177			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	6,204 ft-lbs	35,392 ft-lbs	17.5%	1	04-02-12
End Shear	2,664 lbs	14,464 lbs	18.4%	1	01-05-06
Total Load Deflection	L/999 (0.051")	n/a	n/a	4	04-04-12
Live Load Deflection	L/999 (0.033")	n/a	n/a	5	04-04-12
Max Defl.	0.051"	n/a	n/a	4	04-04-12
Span / Depth	8.1				

Bearing Supports	Dtm. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	2,916 lbs	28.4%	12.4%	Unspecified
B2	Wall/Plate 5-7/16" x 3-1/2"	3,250 lbs	31.9%	13.9%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

Nail one ply to another with
3 1/2" spiral nails @ 10"
o.c., staggered in 2 rows



RECEIVED
JUN 25 2019

TOWN OF CALEDON
BUILDING SECTION
FILE NO.

T.19041706



Boise Cascade



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B1(13449)

Dry | 1 span | No cant.

November 6, 2018 15:13:49

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

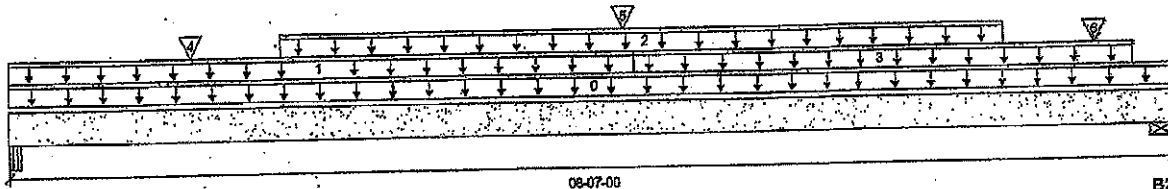
File name: PRESTON 12.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B1(13449)

Specifier:

Designer: PL

Company:



B1

Total Horizontal Product Length = 08-07-00

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-1/2"	1,470 / 0	791 / 0		
B2, 3-1/2"	2,025 / 0	1,095 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary 00-00-00
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-07-00	Top	26	12			n/a
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-06-14	Top	280	140			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	02-00-00	07-04-00	Top	240	120			n/a
3	STAIRS	Unf. Lin. (lb/ft)	L	04-06-14	08-03-08	Top	478	239			n/a
4	J3(13483)	Conc. Pt. (lbs)	L	01-04-00	01-04-00	Top	162	94			n/a
5	B2(13530)	Conc. Pt. (lbs)	L	04-06-00	04-06-00	Top	330	189			n/a
6	-	Conc. Pt. (lbs)	L	08-00-03	08-00-03	Top					n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	8,142 ft-lbs	35,392 ft-lbs	23.0%	1	04-06-00
End Shear	3,342 lbs	14,464 lbs	23.1%	1	07-03-10
Total Load Deflection	1/999 (0.071")	n/a	n/a	4	04-04-08
Live Load Deflection	1/999 (0.046")	n/a	n/a	5	04-04-08
Max Defl.	0.071"	n/a	n/a	4	04-04-08
Span / Depth	8.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 2-1/2" x 3-1/2"	3,194 lbs	68.4%	29.9%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	4,406 lbs	67.4%	29.5%	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 1/2" spiral nails @ 10"

o.c., staggered in 2 rows



T. 19041707



Boise Cascade



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B11(i3421)

Dry | 1 span | No cant.

November 6, 2018 13:14:39

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CGMC 12472-R

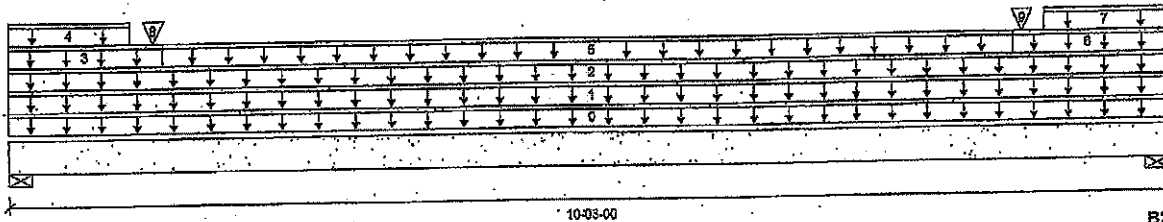
File name: PRESTON 12 ELEV 2.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B11(i3421)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 10-03-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	441 / 0	746 / 0	1,046 / 0	
B2, 5-1/2"	440 / 0	746 / 0	1,045 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-03-00	Top	12				00-00-00
1	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	10-03-00	Top	33	30	102		n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-03-00	Top	20	10			n/a
3	E44(i3529)	Unf. Lin. (lb/ft)	L	00-00-00	01-04-08	Top		81			n/a
4	E44(i3529)	Unf. Lin. (lb/ft)	L	00-00-00	01-01-00	Top	33	30	102		n/a
5	E46(i3630)	Unf. Lin. (lb/ft)	L	01-04-08	08-10-08	Top		41			n/a
6	E26(i2687)	Unf. Lin. (lb/ft)	L	08-10-08	10-03-00	Top		81			n/a
7	E26(i2687)	Unf. Lin. (lb/ft)	L	09-02-00	10-03-00	Top	33	30	102		n/a
8	E44(i3529)	Conc. Pt. (lbs)	L	01-03-08	01-03-08	Top	134	182	413		n/a
9	E26(i2687)	Conc. Pt. (lbs)	L	08-11-08	08-11-08	Top	133	182	411		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4,566 ft-lbs	35,392 ft-lbs	12.9%	13	05-01-08
End Shear	2,245 lbs	14,484 lbs	15.5%	13	01-05-08
Total Load Deflection	1/999 (0.06")	n/a	n/a	35	05-01-08
Live Load Deflection	1/999 (0.039")	n/a	n/a	51	05-01-08
Max Defl.	0.06"	n/a	n/a	35	05-01-08
Span / Depth	9.8				



Bearing Supports

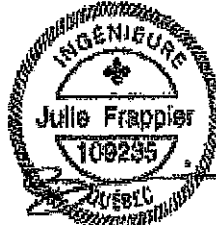
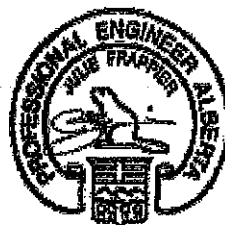
	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	2,942 lbs	28.6%	12.6%	Unspecified
B2	Wall/Plate 5-1/2" x 3-1/2"	2,940 lbs	28.6%	12.5%	Unspecified

Nail one ply to another with
3 1/2" spiral nails @ 12"
o.c. staggered in 2 rows

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BUILDING SECTION
FILE NO.

T.19041708



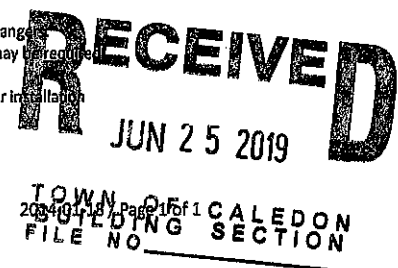
Maximum Floor Spans

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

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

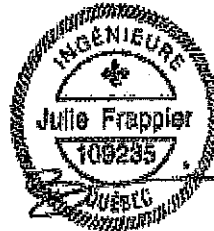
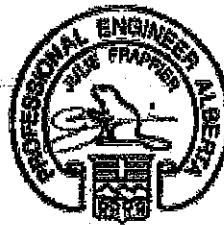
Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-9"	16'-1"	15'-1"	13'-11"	17'-9"	16'-1"	15'-1"	13'-11"
	NI-60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

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





Maximum Spans - A1
Limit States Design (CAN)



Maximum Floor Spans

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

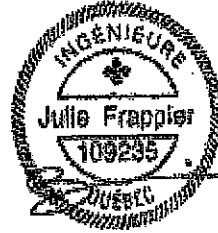
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-8"	N/A	15'-7"	14'-8"	14'-2"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"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

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 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 220.

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



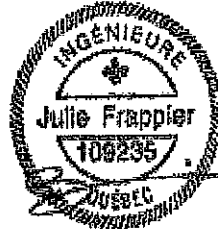
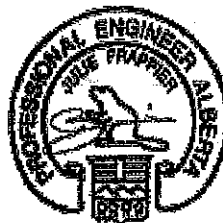
Maximum Floor Spans

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

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

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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of $1.50L + 1.25D$. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA Q86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



Maximum Floor Spans

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

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

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

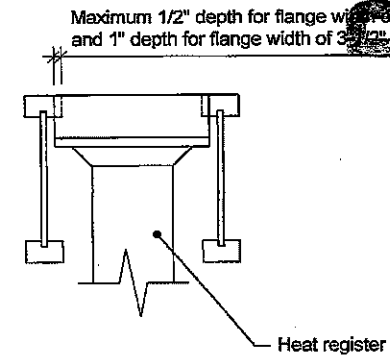
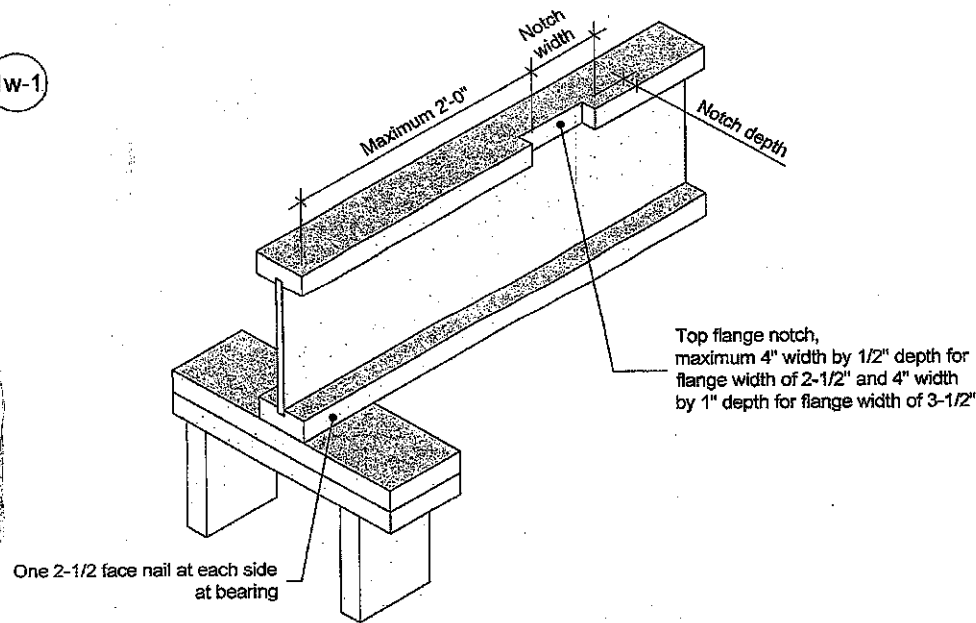
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- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274.

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Notes:

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

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

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

NORDIC
STRUCTURES

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nordic.ca

TITLE

Notch in I-joist for Heat Register

CATEGORY

I-joist - Typical Floor Framing and Construction Details

DOCUMENT

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2018-04-10

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Construction Detail Limit States Design

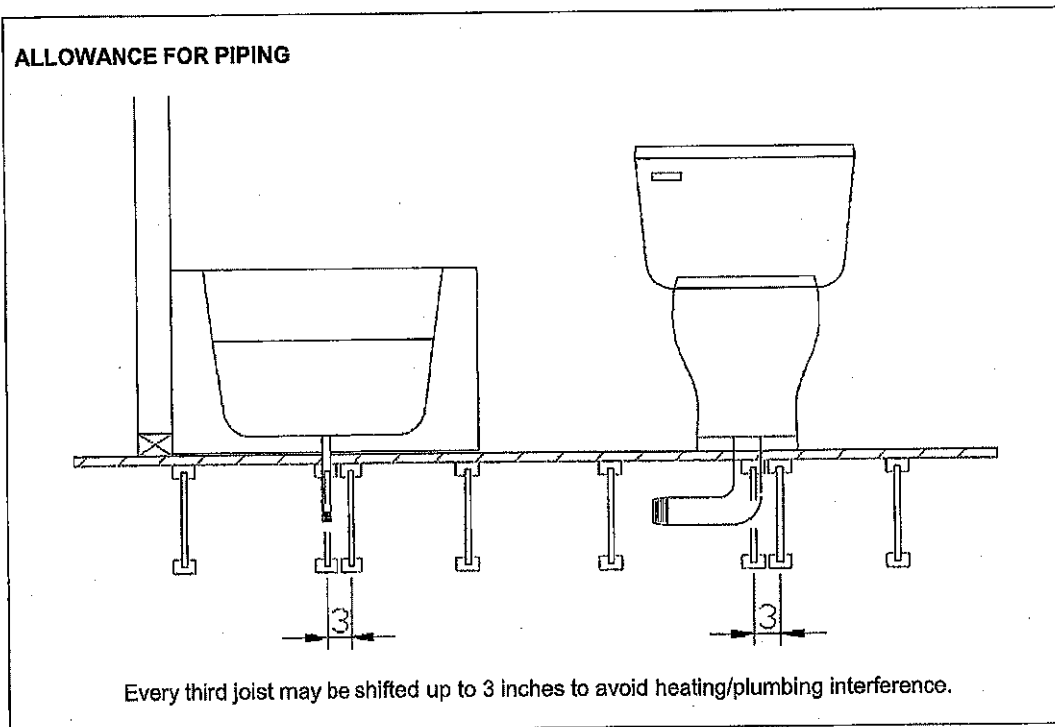
THE ONTARIO BUILDING CODE
EXCEEDS THE PROVISIONS OF
CONSTRUCTED TO MEET OR
THIS STRUCTURE MUST BE

Allowance for Piping (Installation Notes)

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

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

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



Revised April 12, 2012