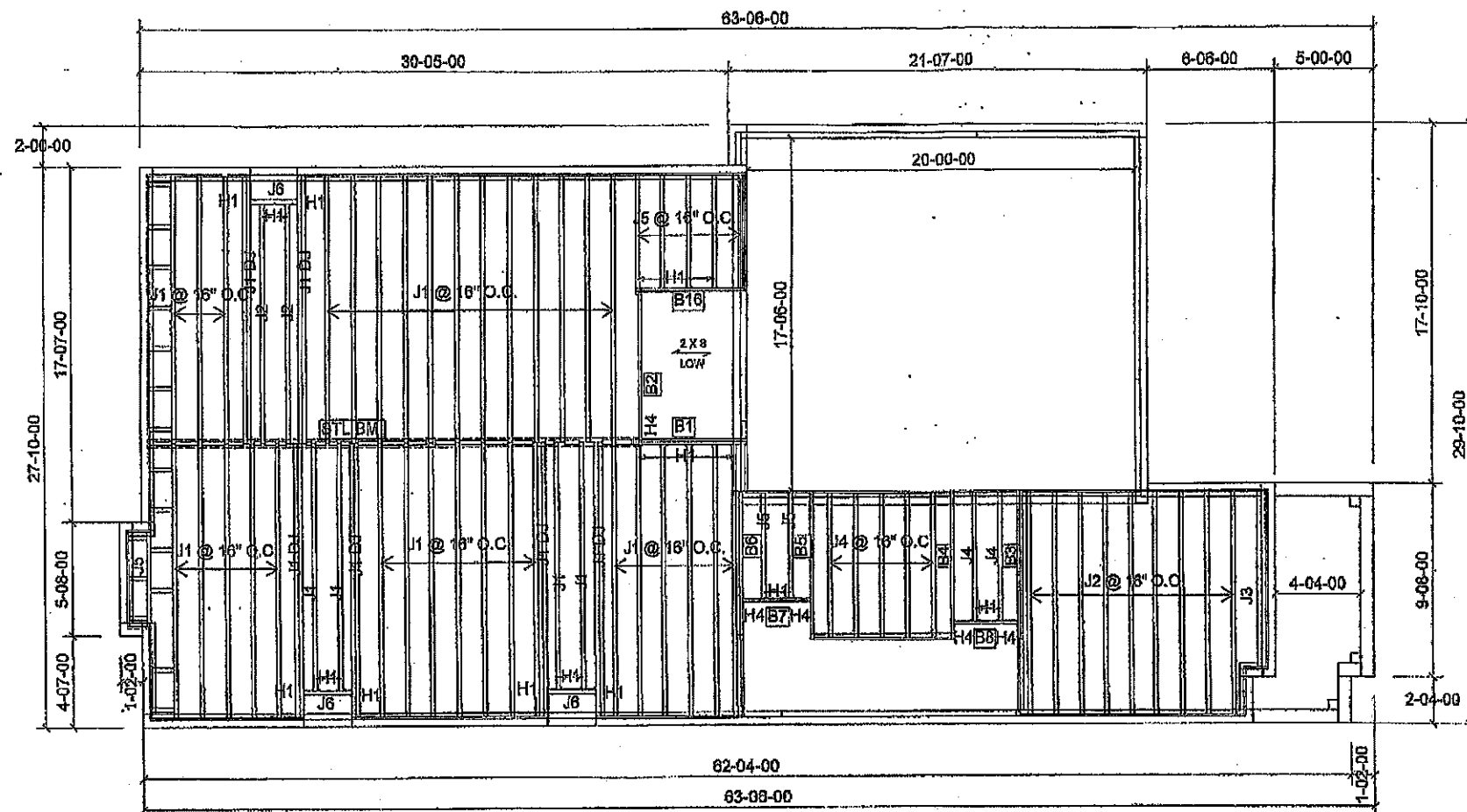
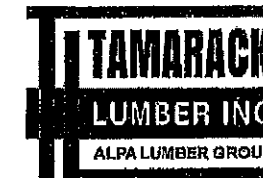




Products				
PlotID	Length	Product	Piles	Net Qty
J1	14'-00"-00	9 1/2" NI-40x	1	37
J1 DJ	14'-00"-00	9 1/2" NI-40x	2	12
J2	12'-00"-00	9 1/2" NI-40x	1	11
J3	10'-00"-00	9 1/2" NI-40x	1	1
J4	8'-00"-00	9 1/2" NI-40x	1	7
J6	6'-00"-00	9 1/2" NI-40x	1	8
J6	4'-00"-00	9 1/2" NI-40x	1	3
B2	8'-00"-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	8'-00"-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6	8'-00"-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B8	8'-00"-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	8'-00"-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B16	6'-00"-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B1	6'-00"-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B7	4'-00"-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B8	4'-00"-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
8	H1	IUS2.56/9.5
5	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
2	H4	HUS1.81/10
3	H4	HUS1.81/10



FROM PLAN DATED: OCT 15 2018

BUILDER: GREEN PARK HOMES

SITE: LAMBERT LANE

MODEL: BARTON 4

ELEVATION: 1

LOT: 34

CITY: CALEDON

SALESMAN: M D

DESIGNER: PL

REVISION:

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

NOTES:

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

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK REQ. 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

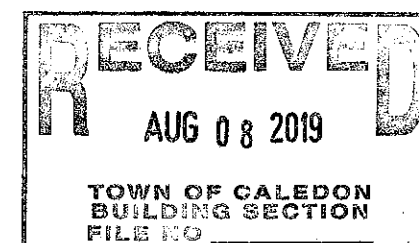
DEAD LOAD: 15.0 lb/ft²

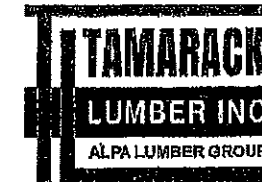
TILED AREAS: 20 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2019-04-12

1st FLOOR





FROM PLAN DATED: OCT 15 2018

BUILDER: GREEN PARK HOMES

SITE: LAMBERT LANE

MODEL: BARTON 4

ELEVATION: 1

LOT: 34

CITY: CALEDON

SALESMAN: MD

DESIGNER: PL

REVISION:

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

NOTES:

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

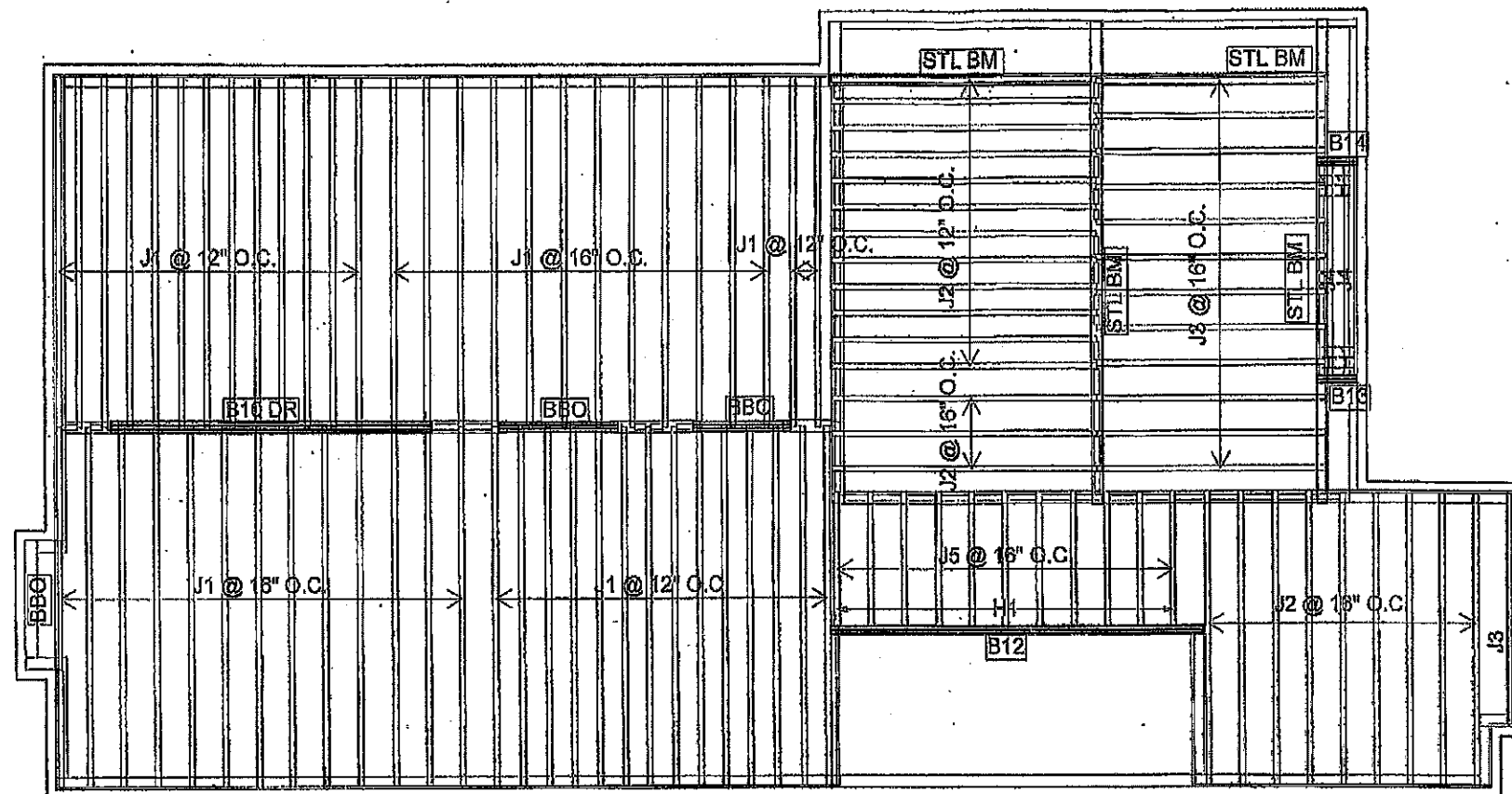
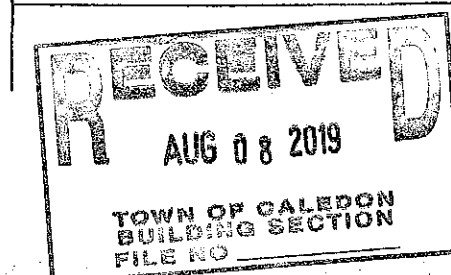
DEAD LOAD: 15.0 lb/ft²

TILED AREAS: 20 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 11/15/2018

2nd FLOOR



Products				
PlotID	Length	Product	Piles	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	54
J2	12-00-00	9 1/2" NI-40x	1	24
J3	10-00-00	9 1/2" NI-40x	1	13
J4	8-00-00	9 1/2" NI-40x	1	2
J5	6-00-00	9 1/2" NI-40x	1	11
B12	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B10 DR	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B13	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B14	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
15	H1	IUS2.56/9.5



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 centerline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- 1-joint top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- Whenever possible, field-cut holes should be centered on the middle of the web.
- The minimum 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 longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joint. 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 Figures 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.)											
9-1/2"	N1-20	0-7"	1-6"	2-5"	3-4"	4-3"	5-2"	6-1"	7-0"	8-0"	9-0"	10-0"	11-0"
	N1-40x	0-7"	1-6"	2-5"	3-4"	4-3"	5-2"	6-1"	7-0"	8-0"	9-0"	10-0"	11-0"
	N1-60	0-7"	1-6"	2-5"	3-4"	4-3"	5-2"	6-1"	7-0"	8-0"	9-0"	10-0"	11-0"
	N1-70	0-7"	1-6"	2-5"	3-4"	4-3"	5-2"	6-1"	7-0"	8-0"	9-0"	10-0"	11-0"
	N1-80	0-7"	1-6"	2-5"	3-4"	4-3"	5-2"	6-1"	7-0"	8-0"	9-0"	10-0"	11-0"
11-7/8"	N1-20	0-7"	1-6"	2-5"	3-4"	4-3"	5-2"	6-1"	7-0"	8-0"	9-0"	10-0"	11-0"
	N1-40x	0-7"	1-6"	2-5"	3-4"	4-3"	5-2"	6-1"	7-0"	8-0"	9-0"	10-0"	11-0"
	N1-60	0-7"	1-6"	2-5"	3-4"	4-3"	5-2"	6-1"	7-0"	8-0"	9-0"	10-0"	11-0"
	N1-70	0-7"	1-6"	2-5"	3-4"	4-3"	5-2"	6-1"	7-0"	8-0"	9-0"	10-0"	11-0"
	N1-80	0-7"	1-6"	2-5"	3-4"	4-3"	5-2"	6-1"	7-0"	8-0"	9-0"	10-0"	11-0"
14"	N1-20	0-7"	1-6"	2-5"	3-4"	4-3"	5-2"	6-1"	7-0"	8-0"	9-0"	10-0"	11-0"
	N1-40x	0-7"	1-6"	2-5"	3-4"	4-3"	5-2"	6-1"	7-0"	8-0"	9-0"	10-0"	11-0"
	N1-60	0-7"	1-6"	2-5"	3-4"	4-3"	5-2"	6-1"	7-0"	8-0"	9-0"	10-0"	11-0"
	N1-70	0-7"	1-6"	2-5"	3-4"	4-3"	5-2"	6-1"	7-0"	8-0"	9-0"	10-0"	11-0"
	N1-80	0-7"	1-6"	2-5"	3-4"	4-3"	5-2"	6-1"	7-0"	8-0"	9-0"	10-0"	11-0"
16"	N1-20	0-7"	1-6"	2-5"	3-4"	4-3"	5-2"	6-1"	7-0"	8-0"	9-0"	10-0"	11-0"
	N1-40x	0-7"	1-6"	2-5"	3-4"	4-3"	5-2"	6-1"	7-0"	8-0"	9-0"	10-0"	11-0"
	N1-60	0-7"	1-6"	2-5"	3-4"	4-3"	5-2"	6-1"	7-0"	8-0"	9-0"	10-0"	11-0"
	N1-70	0-7"	1-6"	2-5"	3-4"	4-3"	5-2"	6-1"	7-0"	8-0"	9-0"	10-0"	11-0"
	N1-80	0-7"	1-6"	2-5"	3-4"	4-3"	5-2"	6-1"	7-0"	8-0"	9-0"	10-0"	11-0"

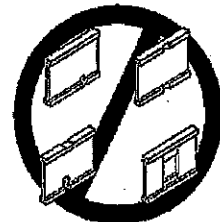
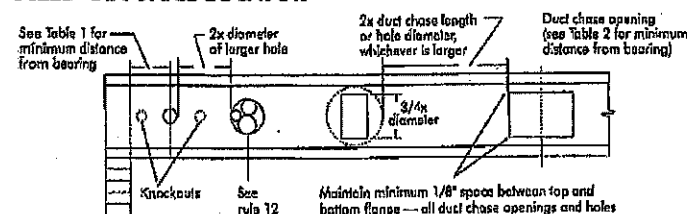
- Above table may be used for I-joint spacing of 24 inches on centre or less.
- Hole location distance is measured from inside face of supports to centre of hole.
- Distances in this chart are based on uniformly loaded joists.
- The above table is based on the I-joints being used at their maximum spans.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

TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS
Simple Span Only

Joist Depth	Joist Series	Minimum Distance from Inside Face of Supports to Centre of Opening (ft - in.)											
		Duct Chase Length (in.)											
9-1/2"	N1-20	4-1"	4-5"	4-10"	5-4"	5-8"	6-1"	6-5"	7-1"	7-5"	8-0"	8-4"	8-9"
	N1-40x	5-3"	5-8"	6-2"	6-6"	6-10"	7-3"	7-8"	8-2"	8-6"	9-0"	9-4"	9-8"
	N1-60	5-4"	5-9"	6-3"	6-7"	7-1"	7-5"	8-0"	8-4"	8-8"	9-2"	9-6"	10-0"
	N1-70	5-1"	5-6"	5-10"	6-3"	6-7"	7-1"	7-5"	8-0"	8-4"	8-8"	9-2"	9-6"
	N1-80	5-3"	5-8"	6-2"	6-6"	6-10"	7-3"	7-8"	8-2"	8-6"	9-0"	9-4"	9-8"
11-7/8"	N1-20	5-9"	6-3"	6-7"	7-1"	7-5"	7-9"	8-3"	8-7"	9-1"	9-5"	9-9"	10-3"
	N1-40x	6-8"	7-2"	7-6"	8-0"	8-4"	8-8"	9-2"	9-6"	10-0"	10-4"	10-8"	11-2"
	N1-60	7-9"	7-3"	7-7"	8-1"	8-5"	8-9"	9-3"	9-7"	10-1"	10-5"	10-9"	11-3"
	N1-70	7-1"	7-5"	7-9"	8-3"	8-7"	9-1"	9-5"	9-9"	10-3"	10-7"	11-1"	11-5"
	N1-80	7-2"	7-6"	8-0"	8-4"	8-8"	9-2"	9-6"	10-0"	10-4"	10-8"	11-2"	11-6"
14"	N1-20	7-6"	7-11"	8-4"	8-9"	9-2"	9-7"	10-1"	10-5"	10-9"	11-3"	11-7"	12-1"
	N1-40x	8-11"	8-7"	9-0"	9-4"	10-1"	10-7"	11-2"	11-6"	12-0"	12-4"	12-8"	13-2"
	N1-60	8-9"	8-3"	9-6"	10-1"	10-5"	10-9"	11-3"	11-7"	12-1"	12-5"	12-9"	13-3"
	N1-70	8-7"	8-1"	9-5"	10-0"	10-4"	10-8"	11-2"	11-6"	12-0"	12-4"	12-8"	13-2"
	N1-80	8-0"	8-3"	9-2"	10-1"	10-7"	11-1"	11-5"	11-9"	12-3"	12-7"	13-1"	13-5"
16"	N1-20	9-2"	9-8"	10-9"	10-4"	10-11"	11-5"	11-9"	12-3"	12-7"	13-1"	13-5"	13-9"
	N1-40x	10-3"	10-8"	11-9"	11-4"	12-1"	12-6"	13-0"	13-4"	13-8"	14-2"	14-6"	15-0"
	N1-60	10-1"	10-5"	11-6"	11-1"	11-8"	12-3"	12-7"	13-1"	13-5"	13-9"	14-3"	14-7"
	N1-70	10-4"	10-9"	11-9"	11-4"	12-1"	12-6"	13-0"	13-4"	13-8"	14-2"	14-6"	15-0"
	N1-80	10-5"	11-0"	12-0"	11-5"	12-2"	12-7"	13-1"	13-5"	13-9"	14-3"	14-7"	15-1"

- 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 supports to centre of opening.
- The above table is based on simple span joists only. For other applications, contact your local distributor.
- Distances are based on uniformly loaded 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 1/480.
- The above table is based on the I-joints being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

FIGURE 7
FIELD-CUT HOLE LOCATOR



Knockouts are precast 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 18 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



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



Never stack building materials over unfastened I-joints. Once sheathed, do not over-stress I-joints with concentrated loads from building materials.

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:

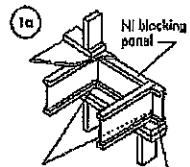
- Brace and nail each I-joint as it is installed, using hangers, blocking panels, rim board, and/or cross-bracing of joist ends. When I-joints are applied continuously over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
- When 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 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joint. Nail the bracing to a lateral restraint at the end of each bay. Lap 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 a damaged I-joint.
- Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joints, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines carefully.



PRODUCT WARRANTY

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

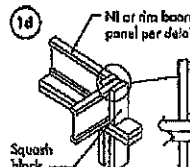
Furthermore, Charters Chibougamau warrants that our products, when utilized in accordance with our handling and installation instructions, will meet or exceed our specifications for the lifetime of the structure.



Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (psf)
N1 Joists	3,300

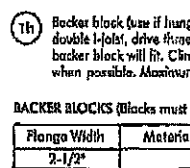
*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

Attach I-joint to top plate per detail 1b



Pair of Squash Blocks	Maximum Factored Uniform Vertical Load per Pair of Squash Blocks (lbs)
2x Lumber	3,125
1-1/8" Rim Board Plus	4,300

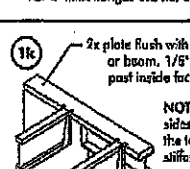
Provide lateral bracing per detail 1a or 1b



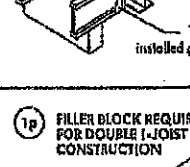
Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

* 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-C308 or CAN/CSA-C437 Standard.
** For face-mount hangers use nail depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use nail depth minus 4-1/4".

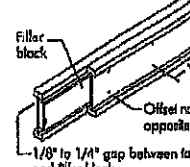
BACKER BLOCKS (Blocks must be long enough to permit required nailing without splitting)



Backer block (use if hanger load exceeds 350 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. Check. Install backer right to top flange. Use twelve 3" nails, clinched when possible. Maximum factored resistance for hanger for this detail = 1,420 lbs.



Top-mount hanger installed per manufacturer's recommendations



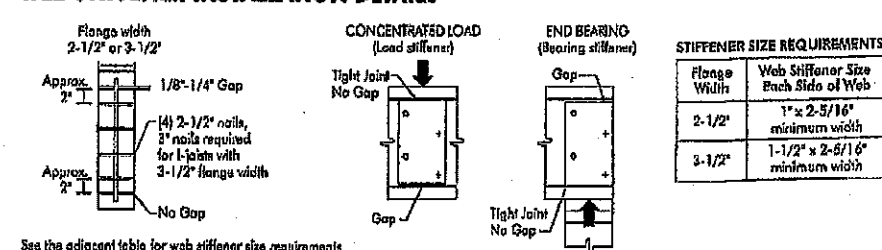
Filler block per detail 1p

WEB STIFFENERS

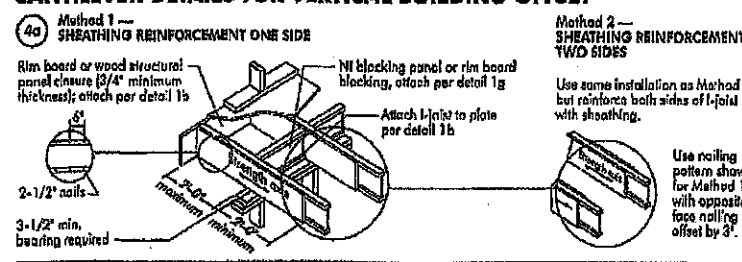
RECOMMENDATIONS:

- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joint properties table found in the Joist Construction Guide (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 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS

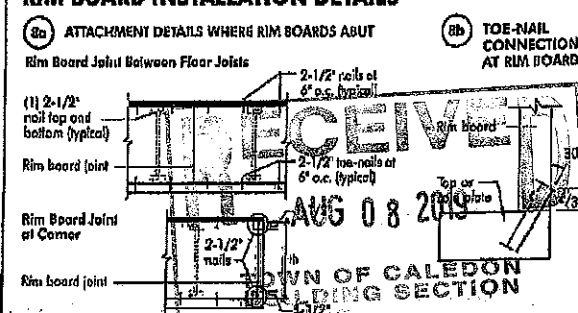


CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET



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 at all supports per detail 1b. Verify reinforced I-joint capacity.

RIM BOARD INSTALLATION DETAILS





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

PASSED

BC CALC® Member Report

Bulid 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

November 15, 2018 12:04:59

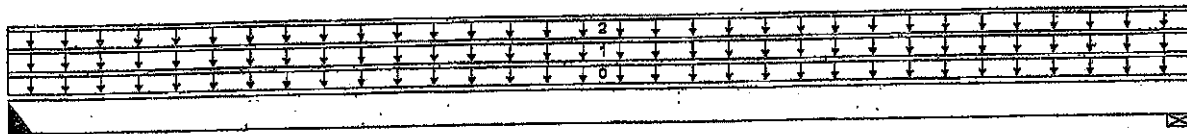
File name: BARTON 4.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B2\15296\

Specifier:

Designer: PL

Company:



B1 07-05-08 B2
Total Horizontal Product Length = 07-05-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	115 / 0	293 / 0		
B2, 1-3/4"	112 / 0	285 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-05-08	Top	1.00	0.85	1.00	1.15	00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	07-05-08	Top		58			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-05-08	Top	30	15			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	701 ft-lbs	7,546 ft-lbs	9.3%	0	03-09-08
End Shear	378 lbs	3,761 lbs	10.1%	0	01-00-08
Total Load Deflection	1/999 (0.026")	n/a	n/a	4	03-09-08
Live Load Deflection	1/999 (0.007")	n/a	n/a	6	03-09-08
Max Defl.	0.026"	n/a	n/a	4	03-09-08
Span / Depth	9.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	3" x 1-3/4"	411 lbs	n/a	9.9%	HUS1.81/10
B2 Wall/Plate	1-3/4" x 1-3/4"	399 lbs	37.5%	16.4%	Unspecified

Cautions

Header for the hanger HUS1.81/10 at B1 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model HUS1.81/10 and seat length were input by the user.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.
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

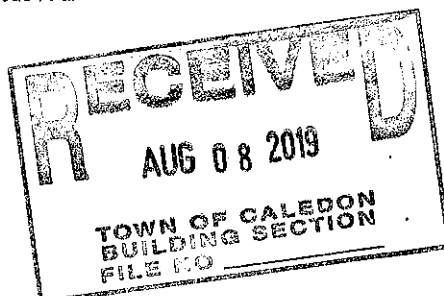


DESIGN CONFORMS TO OBC2012

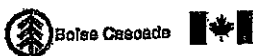
Disclosure

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

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



ET0000361



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B4\14478

Dry | 1 span | No cant.

November 14, 2018 16:20:24

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

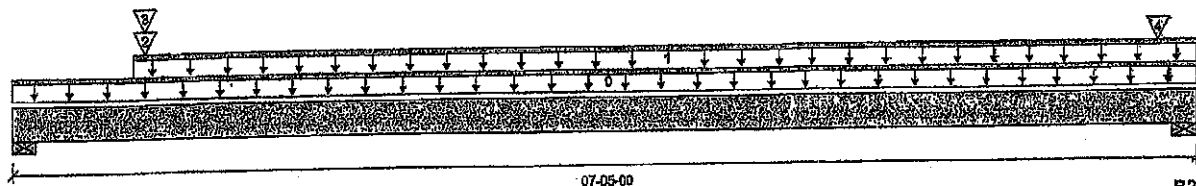
File name: BARTON 4.mmdf

Description: 1ST FLOOR FRAMING\Flush Beams\B4\14478

Specifier:

Designer: PL

Company:



B1

Total Horizontal Product Length = 07-05-00

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	633 / 0	342 / 0		
B2, 3-1/2"	223 / 0	141 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-05-00	Top	5				00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-09-02	07-05-00	Top	43	22			n/a
2	B8(14410)	Conc. Pt. (lbs)	L	00-10-00	00-10-00	Top	426	221			n/a
3	STAIRS	Conc. Pt. (lbs)	L	00-10-00	00-10-00	Top	127				
4	7(1542)	Conc. Pt. (lbs)	L	07-02-04	07-02-04	Top	15				

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	997 ft-lbs	11,610 ft-lbs	8.6%	1	02-07-11
End Shear	997 lbs	5,785 lbs	17.2%	1	01-01-00
Total Load Deflection	L/999 (0.025")	n/a	n/a	4	03-05-09
Live Load Deflection	L/999 (0.016")	n/a	n/a	5	03-05-09
Max Defl.	0.025"	n/a	n/a	4	03-05-09
Span / Depth	8.8				

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 3-1/2" x 1-3/4"	1,378 lbs	42.1%	18.4%	Unspecified
B2	Wall/Plate 3-1/2" x 1-3/4"	511 lbs	15.6%	6.8%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC 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



DESIGN CONFORMS TO OBC2012

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

ET0000362

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

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant

November 14, 2018 16:20:24

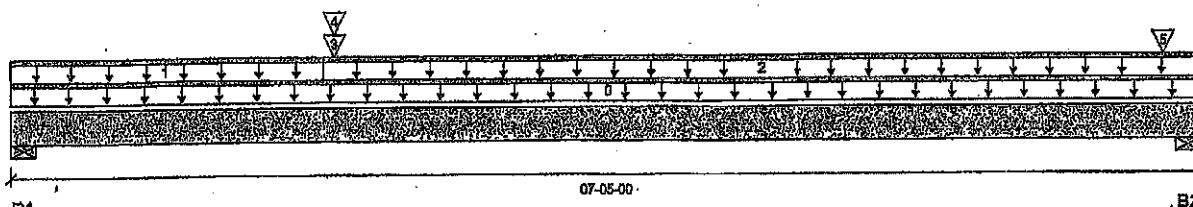
File name: BARTON 4.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B5(14384)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 07-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	509 / 0	278 / 0		
B2, 3-1/2"	293 / 0	178 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-05-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-11-02	Top	19	10			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	01-11-02	07-05-00	Top	38	19			n/a
3	B7(14490)	Conc. Pt. (lbs)	L	02-00-00	02-00-00	Top	429	223			n/a
4	STAIRS	Conc. Pt. (lbs)	L	02-00-00	02-00-00	Top	107	53			n/a
5	7(1542)	Conc. Pt. (lbs)	L	07-02-04	07-02-04	Top	18	21			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,876 ft-lbs	11,610 ft-lbs	16.2%	1	02-00-00
End Shear	1,060 lbs	5,785 lbs	18.3%	1	01-01-00
Total Load Deflection	L/999 (0.04")	n/a	n/a	4	03-05-01
Live Load Deflection	L/999 (0.026")	n/a	n/a	5	03-05-01
Max Defl.	0.04"	n/a	n/a	4	03-05-01
Span / Depth	8.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 1-3/4"	1,111 lbs	34.0%	14.9%	Unspecified
B2	Wall/Plate 3-1/2" x 1-3/4"	662 lbs	20.2%	8.9%	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.

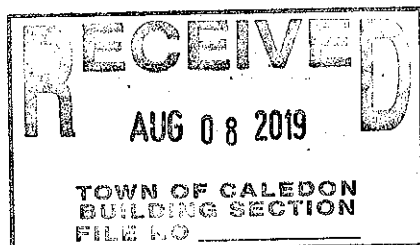
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Disclosure

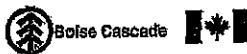
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BC CALC®, BC FRAMER®, AJST™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,



DESIGN CONFORMS TO OBC2012

ET0000363



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B3(I4404)

Dry | 1 span | No cant.

November 14, 2018 16:20:24

BC CALC® Member Report

Build 8475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

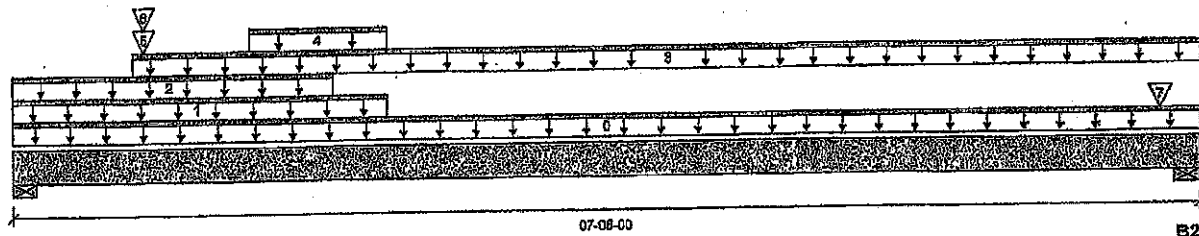
File name: BARTON 4.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B3(I4404)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 07-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,306 / 0	1,235 / 0		
B2, 3-1/2"	440 / 0	396 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-05-00	Top	1.09	0.85	1.00	1.15	00-00-00
1	14(I555)	Unf. Lin. (lb/ft)	L	00-00-00	02-04-00	Top		81			n/a
2	14(I555)	Unf. Lin. (lb/ft)	L	00-00-00	02-00-00	Top	12	89			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-09-02	07-05-00	Top	30	15			n/a
4	14(I555)	Unf. Lin. (lb/ft)	L	01-05-12	02-04-00	Top	1,028	866			n/a
5	B8(I4410)	Conc. Pt. (lbs)	L	00-10-00	00-10-00	Top	479	248			n/a
6	STAIRS	Conc. Pt. (lbs)	L	00-10-00	00-10-00	Top	90	45			n/a
7	7(I542)	Conc. Pt. (lbs)	L	07-02-04	07-02-04	Top	66	56			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3,878 ft-lbs	23,220 ft-lbs	16.7%	1	02-01-00
End Shear	2,845 lbs	11,571 lbs	24.6%	1	01-01-00
Total Load Deflection	L/999 (0.041")	n/a	n/a	4	03-04-00
Live Load Deflection	L/999 (0.021")	n/a	n/a	5	03-04-00
Max Defl.	0.041"	n/a	n/a	4	03-04-00
Span / Depth	8.8				



DESIGN CONFORMS TO OBC2012

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	3,502 lbs	63.5%	23.4%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	1,166 lbs	17.7%	7.7%	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 @ 6"
 o.c., staggered in 2 rows

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

ET0000364

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLOOR FRAMING\Flush Beams\B6(14458)**

Dry | 1 span | No cant.

November 14, 2018 16:20:24

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

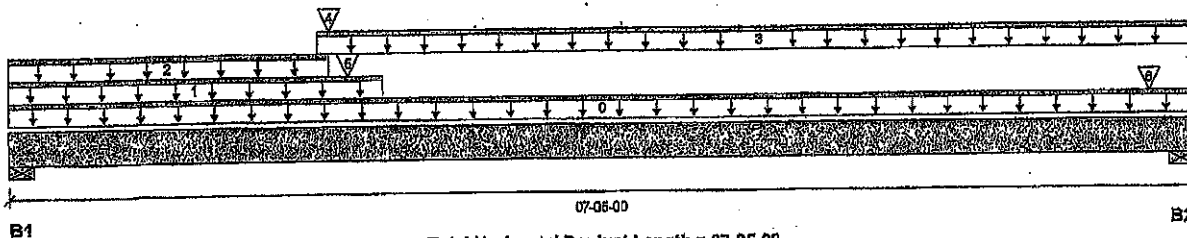
File name: BARTON 4.mxd

Description: 1ST FLOOR FRAMING\Flush Beams\B6(14458)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 07-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,610 / 0	1,187 / 0		
B2, 3-1/2"	721 / 0	505 / 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	07-06-00	Top		10			00-00-00
1	13(1554)	Unf. Lin. (lb/ft)	L	00-00-00	02-04-00	Top		66			n/a
2	13(1554)	Unf. Lin. (lb/ft)	L	00-00-00	02-00-00	Top		71			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	01-11-02	07-06-00	Top	29	14			n/a
4	STAIRS	Conc. Pt. (lbs)	L	02-00-00	02-00-00	Top	110	55			n/a
5	-	Conc. Pt. (lbs)	L	02-01-06	02-01-06	Top	1,979	1,123			n/a
6	6(1541)	Conc. Pt. (lbs)	L	07-01-11	07-01-11	Top	42	50			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	6,827 ft-lbs	23,220 ft-lbs	29.4%	1	02-01-12
End Shear	3,670 lbs	11,571 lbs	31.7%	1	01-01-00
Total Load Deflection	1/999 (0.067")	n/a	n/a	4	03-04-00
Live Load Deflection	1/999 (0.04")	n/a	n/a	5	03-04-00
Max Defl.	0.067"	n/a	n/a	4	03-04-00
Span / Depth	8.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	3,899 lbs	59.6%	26.1%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	1,712 lbs	26.2%	11.5%	Unspecified



DESIGN CONFORMS TO OBC2012

Notes

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

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

Calculations assume member is fully braced.

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

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

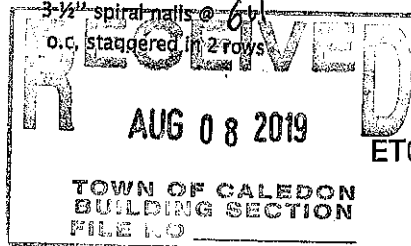
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

Nail one ply to another with

3-1/2" spiral nails @ 6" o.c. staggered in 2 rows



ET0000365



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

1ST FLOOR FRAMING\Flush Beams\B16\15831

PASSED

BC CALC® Member Report

Build 6786

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

April 12, 2019 11:17:36

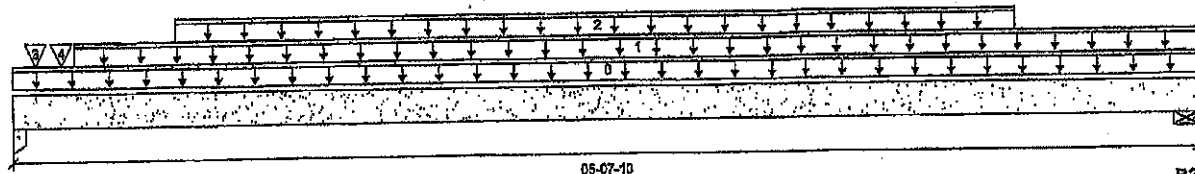
File name: BARTON 4 ELEV 1.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B16\15831

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 05-07-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	393 / 0	219 / 0		
B2, 2-3/8"	225 / 0	126 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-07-10	Top		5			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-03-08	05-07-10	Top	3	1			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-09-04	04-09-04	Top	113	58			n/a
3	J5(15885)	Conc. Pt. (lbs)	L	00-01-04	00-01-04	Top	151	80			n/a
4	WALL	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top					

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	876 ft-lbs	11,610 ft-lbs	7.5%	1	02-09-04
End Shear	517 lbs	5,785 lbs	8.9%	1	01-01-00
Total Load Deflection	L/999 (0.012")	n/a	n/a	4	02-10-04
Live Load Deflection	L/999 (0.008")	n/a	n/a	5	02-10-04
Max Defl.	0.012"	n/a	n/a	4	02-10-04
Span / Depth	6.7				



DESIGN CONFORMS TO OBC2012

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	863 lbs	17.3%	11.5%	Unspecified
B2	Wall/Plate 2-3/8" x 1-3/4"	495 lbs	22.3%	9.8%	Unspecified

Notes

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

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



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B1(i5294)

Dry | 1 span | No cant.

November 15, 2018 12:04:59

BC CALCO Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

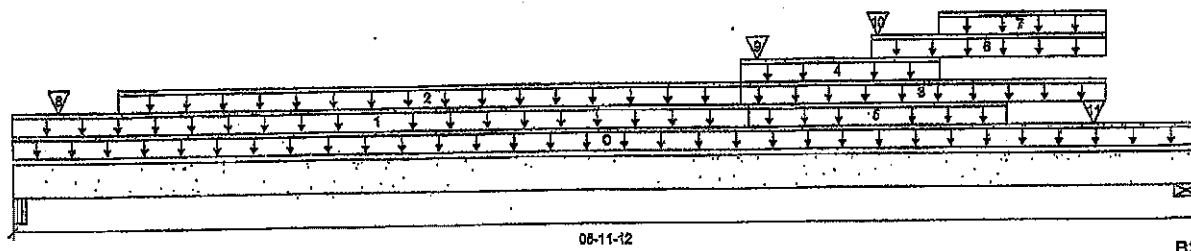
File name: BARTON 4.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B1(i5294)

Specifier:

Designer: PL

Company:



B1

Total Horizontal Product Length = 05-11-12

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 6-1/2"	3,102 / 0	1,919 / 0		
B2, 3-1/2"	2,143 / 0	1,280 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-11-12	Top		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	03-08-04	Top	332	150			n/a
2	STAIRS	Unf. Lin. (lb/ft)	L	00-06-08	03-07-12	Top	120	60			n/a
3	10(i548)	Unf. Lin. (lb/ft)	L	03-07-12	05-06-04	Top		81			n/a
4	10(i548)	Unf. Lin. (lb/ft)	L	03-07-12	04-08-01	Top	261	126			n/a
5	10(i548)	Unf. Lin. (lb/ft)	L	03-08-04	05-00-04	Top	199	100			n/a
6	10(i548)	Unf. Lin. (lb/ft)	L	04-03-14	05-06-04	Top	220	110			n/a
7	10(i548)	Unf. Lin. (lb/ft)	L	04-08-00	05-06-04	Top	218	109			n/a
8	-	Conc. Pt. (lbs)	L	00-02-13	00-02-13	Top	1,250	974			n/a
9	10(i548)	Conc. Pt. (lbs)	L	03-08-12	03-08-12	Top	826	442			n/a
10	J1(i5263)	Conc. Pt. (lbs)	L	04-04-04	04-04-04	Top	324	162			n/a
11	-	Conc. Pt. (lbs)	L	05-05-09	05-05-09	Top	267	15			n/a

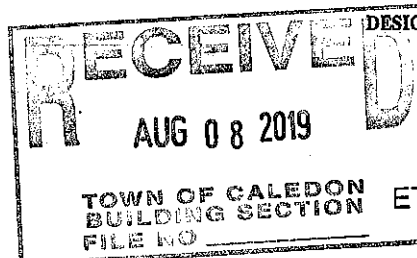
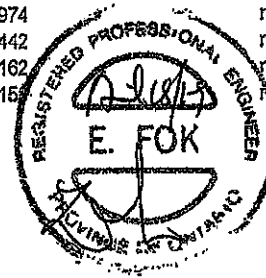
Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	6,206 ft-lbs	23,220 ft-lbs	26.7%	1	03-08-12
End Shear	4,364 lbs	11,571 lbs	37.7%	1	04-10-12
Total Load Deflection	L/999 (0.041")	n/a	n/a	4	03-03-01
Live Load Deflection	L/999 (0.026")	n/a	n/a	5	03-03-01
Max Defl.	0.041"	n/a	n/a	4	03-03-01
Span / Depth	6.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	6-1/2" x 3-1/2"	7,051 lbs	58.0%	25.4%	Unspecified
B2 Wall/Plate	3-1/2" x 3-1/2"	4,789 lbs	73.2%	32.0%	Unspecified

Nail one ply to another with
3 1/4" spiral nails @ 6".
o.c. staggered in 2 rows



DESIGN CONFORMS TO OBC2012



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B7(14490)

Dry | 1 span | No cant.

November 14, 2018 16:20:24

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC-12472-R

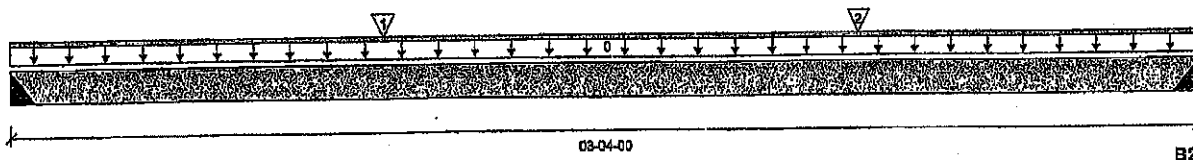
File name: BARTON 4.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B7(14490)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 03-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	418 / 0	217 / 0		
B2, 3"	430 / 0	224 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-04-00	Top	1.00	0.85	1.00	1.15	00-00-00
1	J5(14501)	Conc. Pt. (lbs)	L	01-00-08	01-00-08	Top	437	219			n/a
2	J5(14419)	Conc. Pt. (lbs)	L	02-04-08	02-04-08	Top	411	206			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	764 ft-lbs	11,610 ft-lbs	6.6%	1	01-00-08
End Shear	893 lbs	5,785 lbs	15.4%	1	01-00-08
Total Load Deflection	L/999 (0.004")	n/a	n/a	4	01-08-00
Live Load Deflection	L/999 (0.002")	n/a	n/a	5	01-08-00
Max Defl.	0.004"	n/a	n/a	4	01-08-00
Span / Depth	3.7				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	3" x 1-3/4"	899 lbs	n/a	14.0%	HUS1.81/10
B2 Hanger	3" x 1-3/4"	924 lbs	n/a	14.4%	HUS1.81/10



DESIGN CONFORMS TO OBC2012

Cautions

Header for the hanger HUS1.81/10 at B1 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model HUS1.81/10 and seat length were input by the user. †

Header for the hanger HUS1.81/10 at B2 is a Single 1-3/4" x 9-1/2" 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™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

ET0000368



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B8(14410)

Dry | 1 span | No cant.

November 14, 2018 16:20:24

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

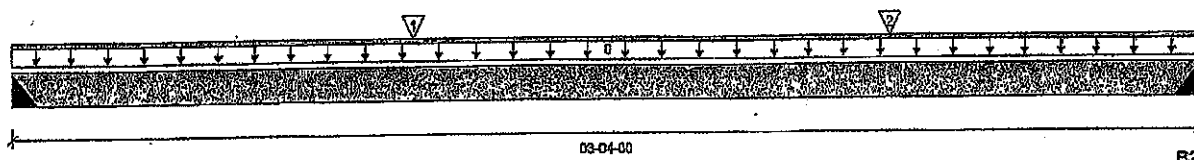
File name: BARTON 4.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B8(14410)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 03-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	422 / 0	219 / 0		
B2, 3"	483 / 0	250 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-04-00	Top	1.00	0.45	1.00	1.15	00-00-00
1	J4(14375)	Conc. Pt. (lbs)	L	01-01-08	01-01-08	Top	470	235			n/a
2	J4(14420)	Conc. Pt. (lbs)	L	02-05-08	02-05-08	Top	435	218			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	847 ft-lbs	11,610 ft-lbs	7.3%	1	01-01-08
End Shear	901 lbs	5,785 lbs	15.6%	1	01-00-08
Total Load Deflection	L/999 (0.004")	n/a	n/a	4	01-08-01
Live Load Deflection	L/999 (0.002")	n/a	n/a	5	01-08-01
Max Defl.	0.004"	n/a	n/a	4	01-08-01
Span / Depth	3.7				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	3" x 1-3/4"	907 lbs	n/a	14.2%	HUS1.81/10
B2 Hanger	3" x 1-3/4"	1,037 lbs	n/a	16.2%	HUS1.81/10



DESIGN CONFORMS TO OBC2012

Cautions

Header for the hanger HUS1.81/10 at B1 is a Single 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model HUS1.81/10 and seat length were input by the user.

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

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

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

ET0000369



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B12(14357)

Dry | 1 span | No cant.

November 14, 2018 16:20:24

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

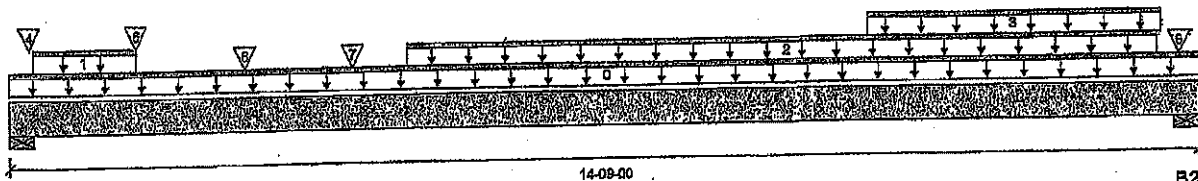
File name: BARTON 4.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B12(14357)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 14-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,555 / 0	902 / 0		
B2, 6-1/2"	882 / 0	743 / 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	14-09-00	Top	100	0.65	1.00	1.15	00-00-00
1	STAIRS	Unf. Lin. (lb/ft)	L	00-03-08	01-07-00	Top	240	120			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	04-11-00	14-03-00	Top	109	54			n/a
3	22(1848)	Unf. Lin. (lb/ft)	L	10-07-08	14-03-08	Top		65			n/a
4	-	Conc. Pt. (lbs)	L	00-02-14	00-02-14	Top	88	66			n/a
5	J4(14244)	Conc. Pt. (lbs)	L	01-07-00	01-07-00	Top	302	181			n/a
6	J4(14163)	Conc. Pt. (lbs)	L	02-11-00	02-11-00	Top	458	229			n/a
7	J4(13954)	Conc. Pt. (lbs)	L	04-03-00	04-03-00	Top	244	122			n/a
8	18(1842)	Conc. Pt. (lbs)	L	14-08-04	14-08-04	Top	24				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	8,243 ft-lbs	23,220 ft-lbs	35.5%	1	06-11-00
End Shear	2,815 lbs	11,571 lbs	24.3%	1	01-01-00
Total Load Deflection	1/393 (0.432")	n/a	61.1%	4	07-01-00
Live Load Deflection	1/842 (0.264")	n/a	56.1%	5	07-01-00
Max Defl.	0.432"	n/a	n/a	4	07-01-00
Span / Depth	17.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	3,480 lbs	62.9%	23.2%	Unspecified
B2	Wall/Plate 6-1/2" x 3-1/2"	2,262 lbs	21.9%	9.6%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

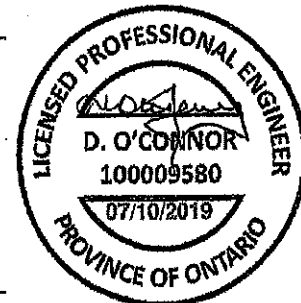
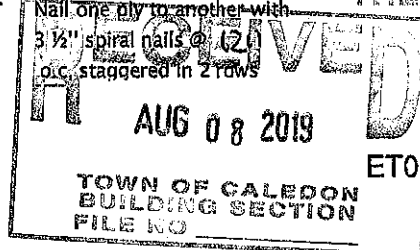
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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 @ 12"
o.c. staggered in 2 rows



DESIGN CONFORMS TO OBC2012

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



Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING/Dropped Beams B10 DR(I4180)

PASSED

BC CALCO® Member Report

Dry | 1 span | No cant.

November 14, 2018 16:20:24

Build 6475

Job name:

File name: BARTON 4.mxd

Address:

Description: 2ND FLOOR FRAMING/Dropped Beams B10 DR(I4180)

City, Province, Postal Code: CALEDON

Specifier:

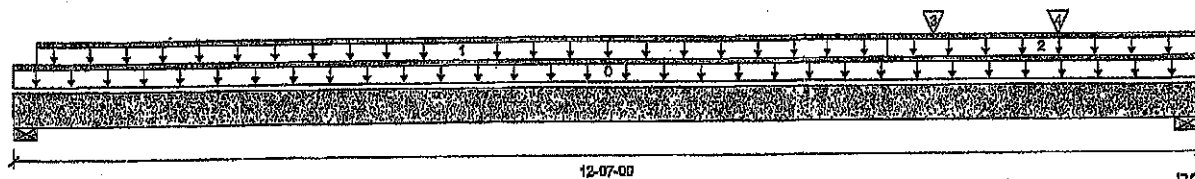
Customer:

Designer: PL

Code reports:

CCMC 12472-R

Company:



B1

Total Horizontal Product Length = 12-07-00

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	3,345 / 0	1,763 / 0		
B2, 3-1/2"	3,614 / 0	1,899 / 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	12-07-00	Top	14	14			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-03-00	09-03-00	Top	676	288			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	09-03-00	12-07-00	Top	334	167			n/a
3	J1(I3925)	Conc. Pt. (lbs)	L	09-09-00	09-09-00	Top	304	152			n/a
4	J1(I4253)	Conc. Pt. (lbs)	L	11-01-00	11-01-00	Top	361	181			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	21,020 ft-lbs	36,222 ft-lbs	58.0%	1	08-08-00
End Shear	6,321 lbs	17,356 lbs	36.4%	1	01-01-00
Total Load Deflection	L/277 (0.525")	n/a	86.6%	4	08-03-00
Live Load Deflection	L/423 (0.344")	n/a	85.0%	5	08-03-00
Max Defl.	0.525"	n/a	n/a	4	08-03-00
Span / Depth	15.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 5-1/4"	7,220 lbs	48.4%	32.2%	Unspecified
B2	Wall/Plate 3-1/2" x 5-1/4"	7,795 lbs	52.2%	34.8%	Unspecified



DESIGN CONFORMS TO OBC2012

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume unbraced length of Top: 00-04-03, Bottom: 00-04-03.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALCO® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
 Nailing schedule applies to both sides of the member.
 Member has no side loads.

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

ET0000371



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

PASSED

2ND FLOOR FRAMING Flush Beams B13(14972)

Dry | 1 span | No cant.

November 15, 2018 11:42:08

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

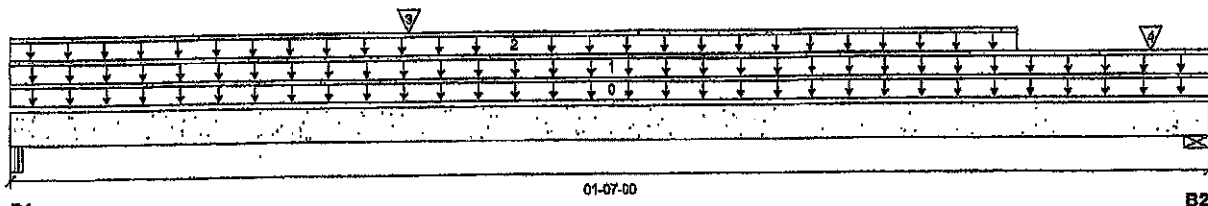
File name: BARTON 4.mmdl

Description: 2ND FLOOR FRAMING Flush Beams B13(14972)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 01-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5"	142 / 0	174 / 0	178 / 0	
B2, 3-1/2"	289 / 0	566 / 0	621 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.68	Snow 1.00	Wind 1.16	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-07-00	Top		10			00-00-00
1	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	01-07-00	Top	33	30	102		n/a
2	E25(1003)	Unf. Lin. (lb/ft)	L	00-00-00	01-04-00	Top	33	111	102		n/a
3	J4(5180)	Conc. Pt. (lbs)	L	00-08-05	00-08-06	Top	84	42			n/a
4	-	Conc. Pt. (lbs)	L	01-08-01	01-08-01	Top	261	488	502		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	99 ft-lbs	23,220 ft-lbs	0.4%	13	00-10-08
End Shear	187 lbs	11,571 lbs	1.6%	13	00-08-00
Span / Depth	1.3				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	5" x 3-1/2"	627 lbs	6.7%	2.9%	Unspecified
B2 Wall/Plate	3-1/2" x 3-1/2"	1,938 lbs	29.8%	13.0%	Unspecified

Notes

Calculations assume member is fully braced.

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

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

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

Design based on Dry Service Condition.

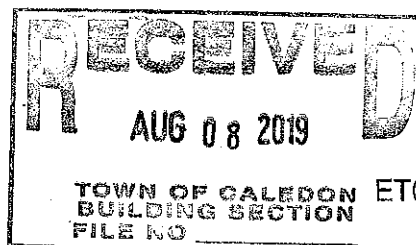
Importance Factor : Normal Part code : Part 9.

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



DESIGN CONFORMS TO OBC2012





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

PASSED

2ND FLOOR FRAMING\Flush Beams\B14(14973)

Dry | 1 span | No cant.

November 15, 2018 11:42:08

BC CALCO® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

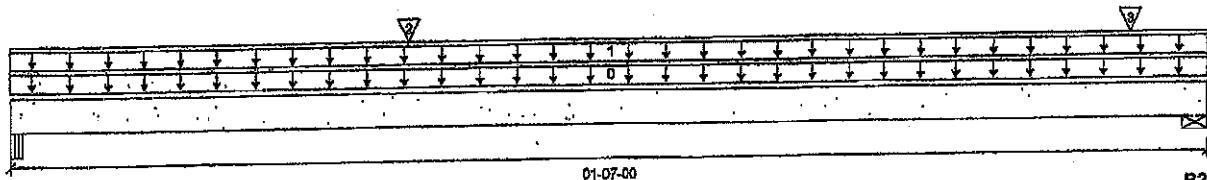
File name: BARTON 4.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B14(14973)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 01-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 6"	129 / 0	163 / 0	141 / 0	
B2, 3-1/2"	292 / 0	566 / 0	806 / 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	01-07-00	Top	10				00-00-00
1	E24(11002)	Unf. Lin. (lb/ft)	L	00-00-00	01-07-00	Top	33	111	102		n/a
2	J4(16180)	Conc. Pt. (lbs)	L	00-08-05	00-08-05	Top	99	56	50		n/a
3	-	Conc. Pt. (lbs)	L	01-05-13	01-05-13	Top	270	482	536		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	90 ft-lbs	23,220 ft-lbs	0.4%	13	00-10-10
End Shear	97 lbs	11,671 lbs	0.8%	13	00-08-00
Span / Depth	1.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	6" x 3-1/2"	546 lbs	5.8%	2.6%	Unspecified
B2 Wall/Plate	3-1/2" x 3-1/2"	1,909 lbs	29.2%	12.8%	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



DESIGN CONFORMS TO OBC2012

ET0000373



Bolted Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****2ND FLOOR FRAMING (Flush Beams) B15(11744)****PASSED**

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

November 15, 2018 11:40:21

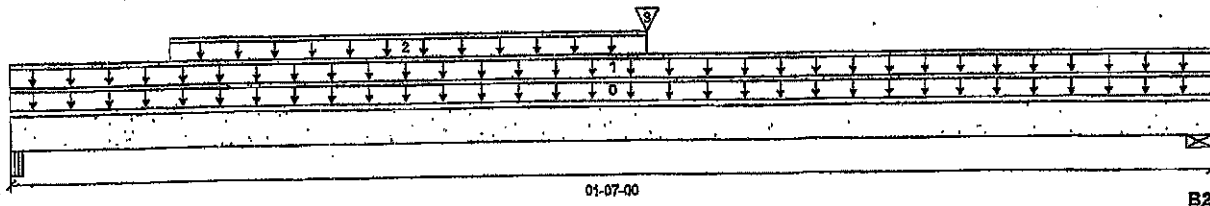
File name: BARTON 4 ELEV 2.mxd

Description: 2ND FLOOR FRAMING (Flush Beams) B15(11744)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 01-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 6"	103 / 0	131 / 0	118 / 0	
B2, 3-1/2"	91 / 0	113 / 0	103 / 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	01-07-00	Top	1.00	0.86	1.00	1.16	00-00-00
1	31(19271)	Unf. Lin. (lb/ft)	L	00-00-00	01-07-00	Top	33	95	102		n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-08	00-10-00	Top	6				n/a
3	J3(111767)	Conc. Pt. (lbs)	L	00-10-00	00-10-00	Top	138	77	60		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	127 ft-lbs	23,220 ft-lbs	0.6%	1	00-10-00
End Shear	94 lbs	11,571 lbs	0.8%	13	01-02-08
Span / Depth	1.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	5" x 3-1/2"	444 lbs	4.8%	2.1%	Unspecified
B2 Wall/Plate	3-1/2" x 3-1/2"	387 lbs	6.9%	2.6%	Unspecified

Notes

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

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

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

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



DESIGN CONFORMS TO OBC2012

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

ET0000374



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B1A(16011)

Dry | 1 span | No cant.

April 12, 2019 11:25:40

BC CALC® Member Report

Build 6766

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

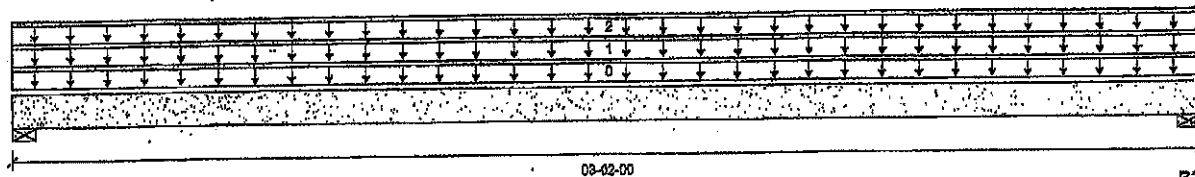
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Description: 1ST FLOOR FRAMING\Flush Beams\B1A(16011)

Specifier:

Designer: PL

Company:



B1

Total Horizontal Product Length = 03-02-00

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	91 / 0	197 / 0		
B2, 4"	91 / 0	197 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-02-00	Top	10	10			00-00-00
1	E10(525)	Unf. Lin. (lb/ft)	L	00-00-00	03-02-00	Top	31	101			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-02-00	Top	27	13			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	150 ft-lbs	15,093 ft-lbs	1.0%	0	01-07-00
End Shear	80 lbs	7,521 lbs	1.1%	0	01-01-08
Total Load Deflection	L/999 (0")	n/a	n/a	4	01-07-00
Live Load Deflection	L/999 (0")	n/a	n/a	5	01-07-00
Max Defl.	0"	n/a	n/a	4	01-07-00
Span / Depth	3.3				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	275 lbs	5.7%	2.5%	Unspecified
B2	Wall/Plate 4" x 3-1/2"	275 lbs	5.7%	2.5%	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.

Member has no side loads.

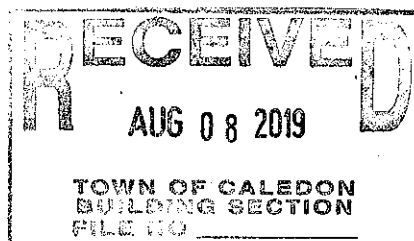
Nail one ply to another with

3 1/2" spiral nails @ 4"

o.c. staggered in 2 rows



DESIGN CONFORMS TO OBC2012





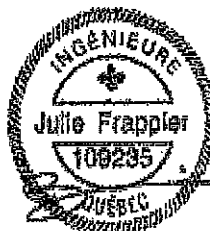
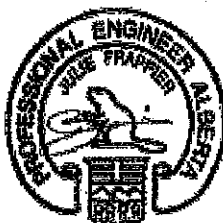
Maximum Floor Spans

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"

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



Maximum Floor Spans

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

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

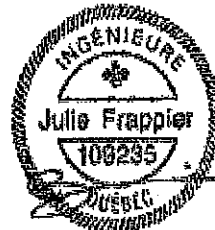
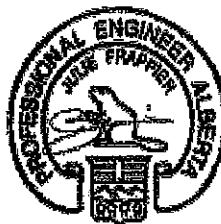
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall 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 PR-L274C.



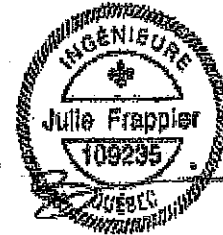
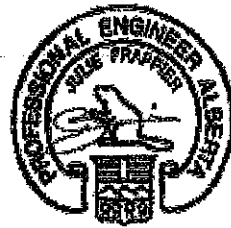
Maximum Floor Spans

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

Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"	16'-7"	15'-11"	15'-3"
	NI-70	18'-0"	16'-11"	16'-3"	15'-7"	18'-5"	17'-3"	16'-7"	15'-11"
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	16'-1"
11-7/8"	NI-20	17'-10"	16'-10"	16'-2"	15'-6"	18'-6"	17'-4"	16'-9"	16'-1"
	NI-40x	19'-4"	17'-11"	17'-3"	16'-6"	19'-11"	18'-6"	17'-9"	17'-0"
	NI-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	18'-9"	17'-11"	17'-2"
	NI-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"	18'-10"	17'-10"
	NI-80	21'-1"	19'-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
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 O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



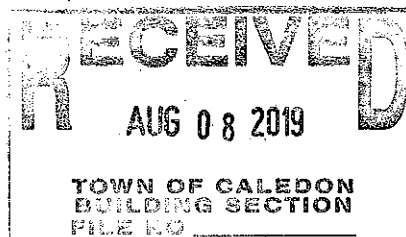
Maximum Floor Spans

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

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

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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.





Construction Detail

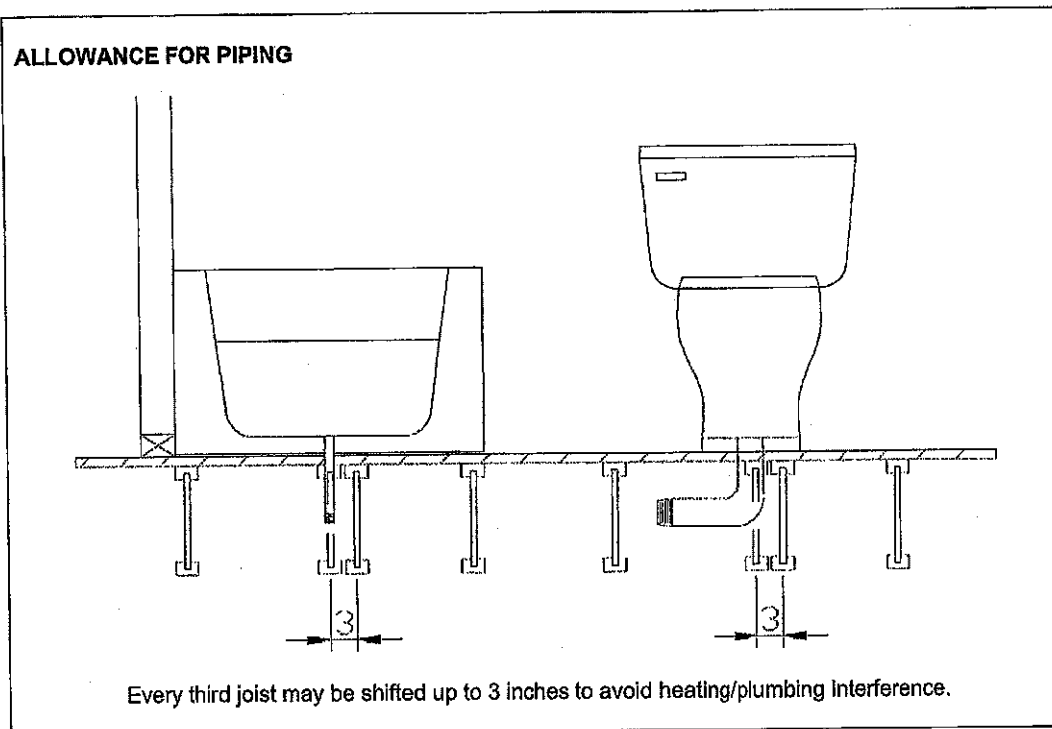
Limit States Design

Allowance for Piping (Installation Notes)

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

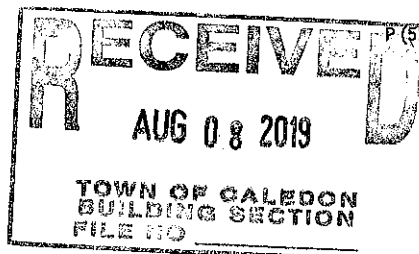
Installation of Nordic I-joists shall be as per *Nordic Joist Installation Guide for Residential Floors*. Refer to Tables 1 and 2 for maximum web hole and duct chase openings, respectively. These tables are based on the I-joists being used at their maximum spans. The minimum distance given may be reduced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

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



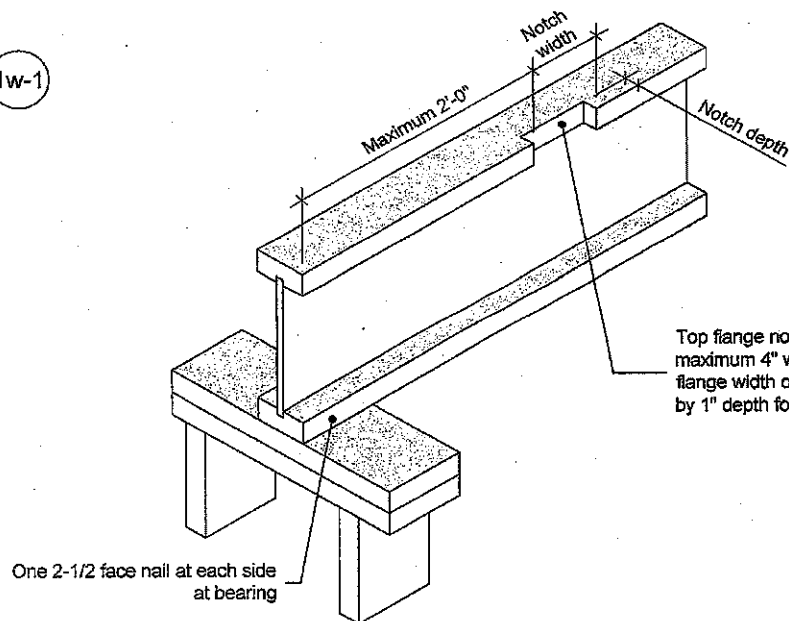
Revised April 12, 2012

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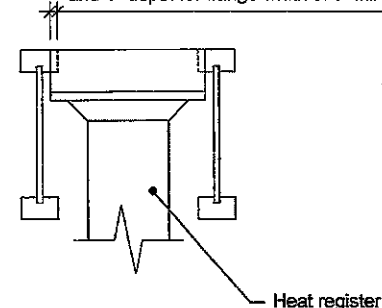
Top flange notch,
maximum 4" width by 1/2" depth for
flange width of 2-1/2" and 4" width
by 1" depth for flange width of 3-1/2"

One 2-1/2" face nail at each side
at bearing

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.

Maximum 1/2" depth for flange width of 2-1/2"
and 1" depth for flange width of 3-1/2"



Heat register

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

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

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

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TITLE

Notch in I-joist for Heat Register

CATEGORY

I-joist - Typical Floor Framing and Construction Details

DOCUMENT

DATE

2018-04-10

NUMBER

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