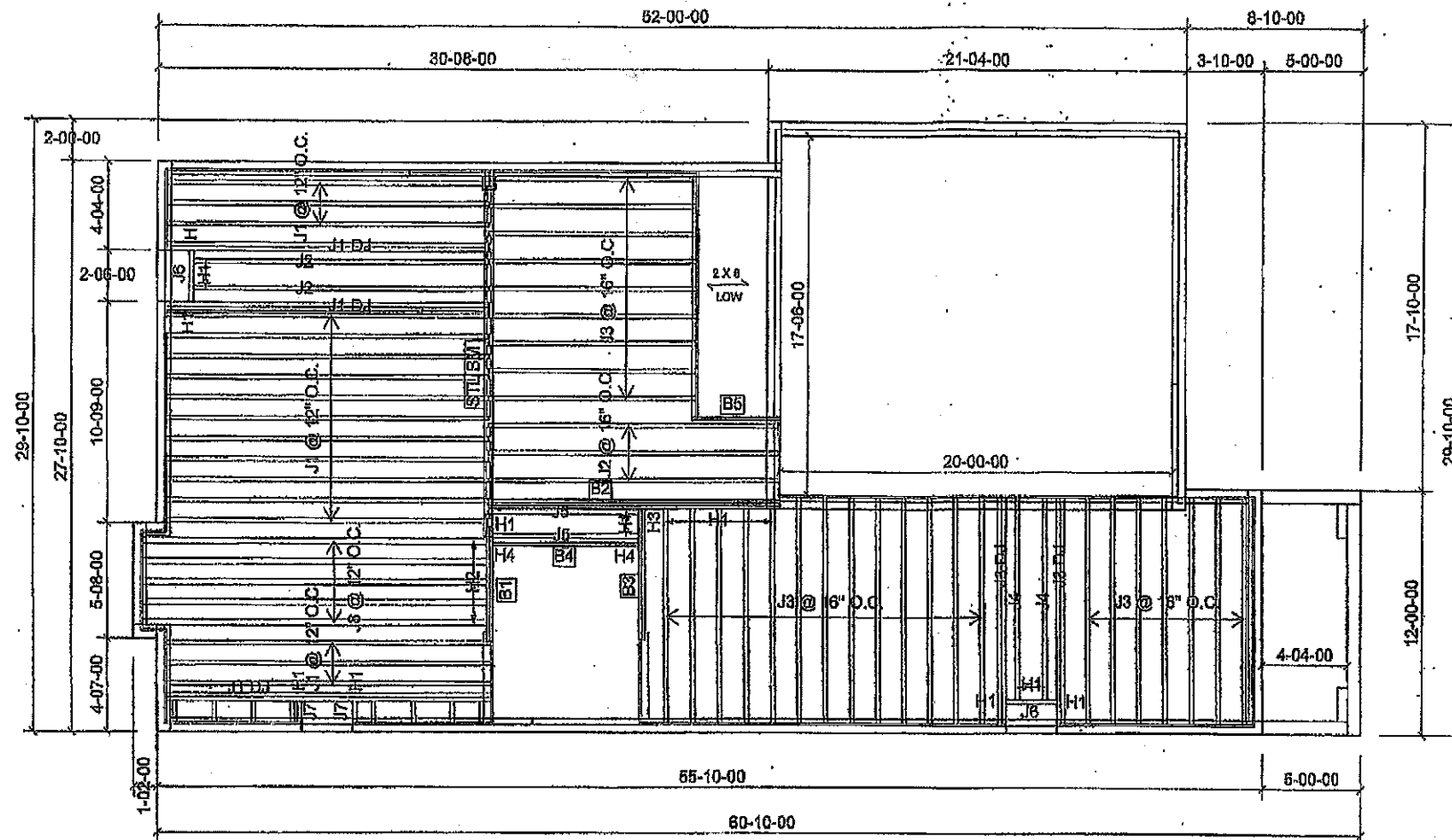
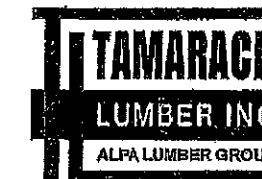




Products				
PlotID	Length	Product	Piles	Net Qty
J1	18-00-00	9 1/2" NI-40x	1	17
J1 DJ	18-00-00	9 1/2" NI-40x	2	6
J2	16-00-00	9 1/2" NI-40x	1	5
J3	12-00-00	9 1/2" NI-40x	1	29
J3 DJ	12-00-00	9 1/2" NI-40x	2	4
J4	10-00-00	9 1/2" NI-40x	1	2
J5	8-00-00	9 1/2" NI-40x	1	2
J6	4-00-00	9 1/2" NI-40x	1	2
J7	2-00-00	9 1/2" NI-40x	1	2
J8	18-00-00	9 1/2" NI-80	1	5
B2	16-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	3	3
B4	8-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B3	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	1	1
B1	8-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
3	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
5	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
5	H2	IUS3.56/9.5
1	H3	HGUS410
2	H4	HUS1.81/10



FROM PLAN DATED: OCT 15 2018

BUILDER: GREEN PARK HOMES

SITE: LAMBERT LANE

MODEL: BARTON 3

ELEVATION: 2

LOT: 35

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. 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

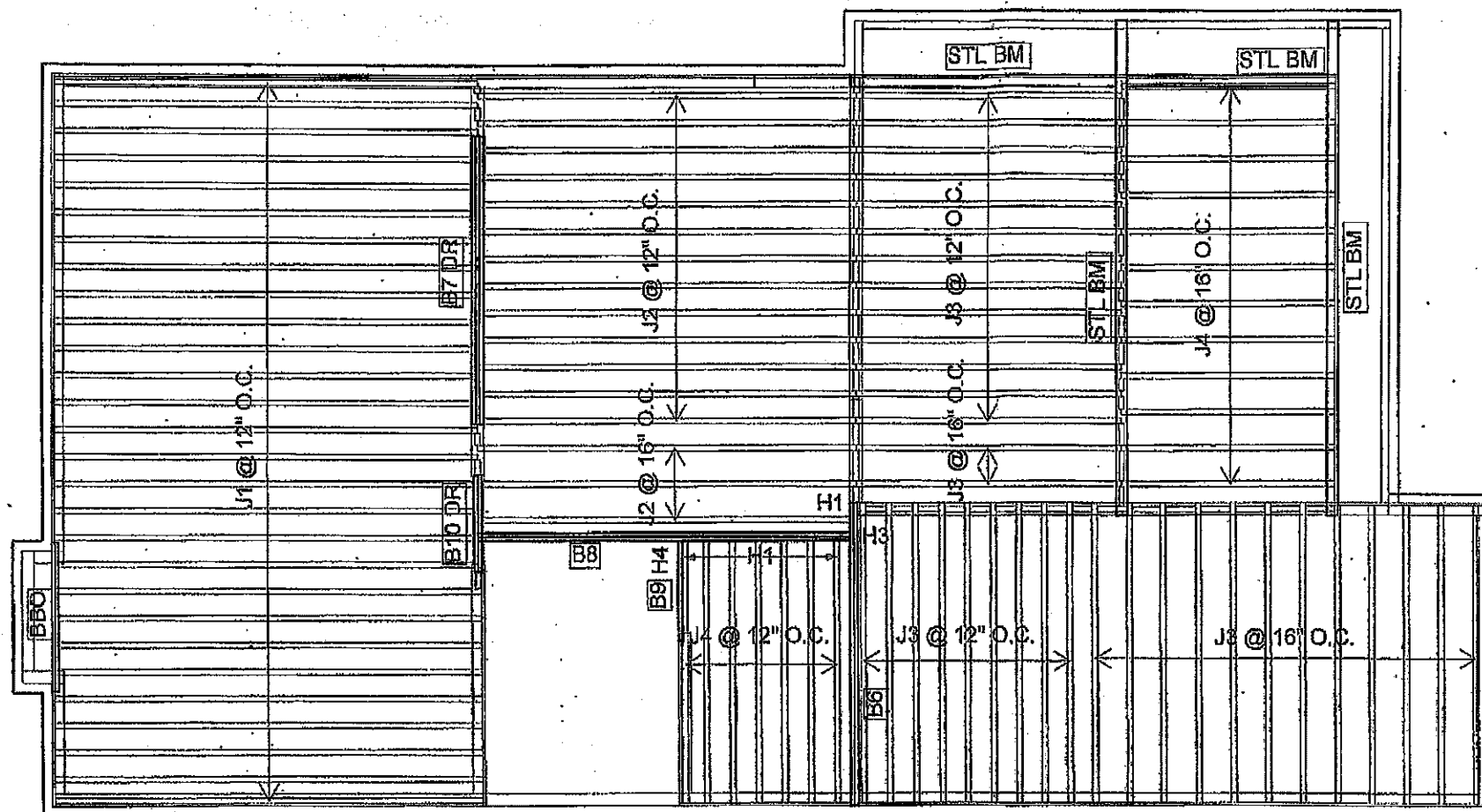
DATE: 11/14/2018

1st FLOOR

AUG 23 2018

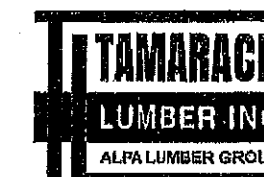
TOWN OF CALEDON
BUILDING DEPARTMENT
FILE NO.

APPLICANT COPY



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	9 1/2" NI-40x	1	28
J2	16-00-00	9 1/2" NI-40x	1	16
J3	12-00-00	9 1/2" NI-40x	1	36
J4	10-00-00	9 1/2" NI-40x	1	19
B8	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B7 DR	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B9	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B10 DR	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
8	H1	IUS2.56/9.5
1	H3	HGUS410
1	H4	HUS1.81/10



FROM PLAN DATED: OCT 15 2018

BUILDER: GREEN PARK HOMES

SITE: LAMBERT LANE

MODEL: BARTON 3

ELEVATION: 2

LOT: 35

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. 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

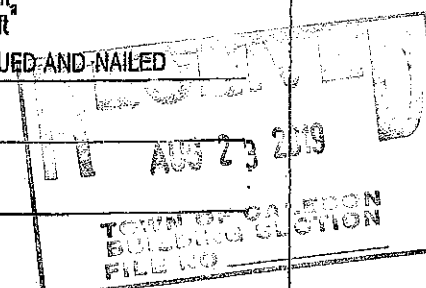
DEAD LOAD: 15.0 lb/ft²

TILED AREAS: 20 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 11/14/2018

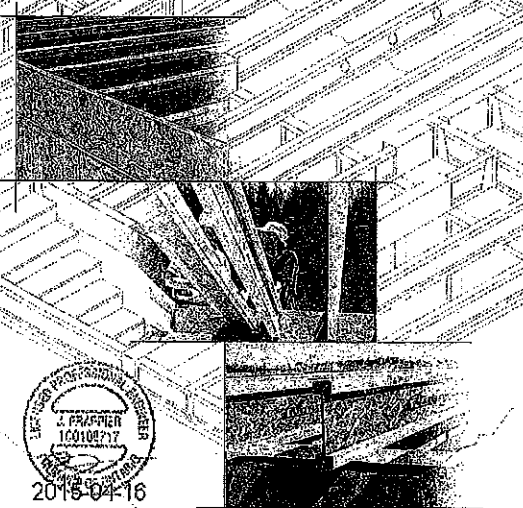
2nd FLOOR



NORDIC

ENGINEERED WOOD

INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



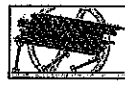
Distributed by:

N-001 / November 2014

SAFETY AND CONSTRUCTION PRECAUTIONS



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



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

WARNING

I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.

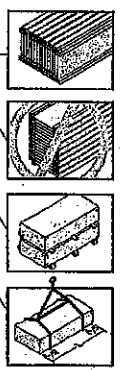
Avoid Accidents by Following these Important Guidelines:

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

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

STORAGE AND HANDLING GUIDELINES

1. Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
2. Store, stack, and handle I-joists vertically and level only.
3. Always stack and handle I-joists in the upright position only.
4. Do not store I-joists in direct contact with the ground and/or flatwise.
5. Protect I-joists from weather, and use spacers to separate bundles.
6. Bundled joists should be kept intact until time of installation.
7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joists and injury to your work crew.
8. Pick I-joists in bundles as shipped by the supplier.
9. Orient the bundles so that the webs of the I-joists are vertical.
10. Pick the bundles at the 5th points, using a spreader bar if necessary.
11. Do not handle I-joists in a horizontal orientation.
12. NEVER USE OR TRY TO REPAIR A DAMAGED I-JOIST.



MAXIMUM FLOOR SPANS

1. Maximum clear spans applicable to single-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.5DL + 1.75L. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGC-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
6. Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NRC 2010.
7. SI units conversion: 1 inch = 25.4 mm, 1 foot = 0.305 m.

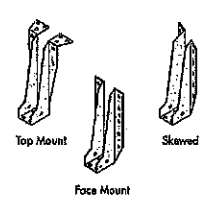
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS

Joist Depth	Joist Series	Simple spans			Multiple spans		
		On center spacing			On center spacing		
		12"	19.2"	24"	12"	19.2"	24"
1-1/2"	N-40	15'1"	14'2"	13'4"	12'7"	11'4"	10'7"
	N-40+	16'1"	15'2"	14'4"	13'7"	12'4"	11'7"
	N-50	17'1"	16'1"	15'4"	14'7"	13'4"	12'7"
2"	N-40	18'1"	17'2"	16'4"	15'7"	14'4"	13'7"
	N-40+	19'1"	18'2"	17'4"	16'7"	15'4"	14'7"
	N-50	20'1"	19'2"	18'4"	17'7"	16'4"	15'7"
2-1/2"	N-40	20'2"	19'3"	18'5"	17'8"	16'5"	15'8"
	N-40+	21'2"	20'3"	19'5"	18'8"	17'5"	16'8"
	N-50	22'2"	21'3"	20'5"	19'8"	18'5"	17'8"
3"	N-40	21'1"	20'2"	19'4"	17'7"	16'4"	15'7"
	N-40+	22'1"	21'2"	20'4"	18'7"	17'4"	16'7"
	N-50	23'1"	22'2"	21'4"	19'7"	18'4"	17'7"
4"	N-40	22'1"	21'2"	20'4"	17'7"	16'4"	15'7"
	N-40+	23'1"	22'2"	21'4"	18'7"	17'4"	16'7"
	N-50	24'1"	23'2"	22'4"	19'7"	18'4"	17'7"

CCMC EVALUATION REPORT 13033-R

I-JOIST HANGERS

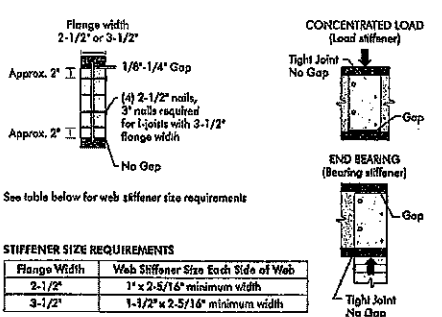
1. Hangers shown illustrate the three most commonly used metal hangers to support I-joists.
2. All nailing must meet the hanger manufacturer's recommendations.
3. Hangers should be selected based on the joist depth, flange width and load capacity based on the maximum spans.
4. Web stiffeners are required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



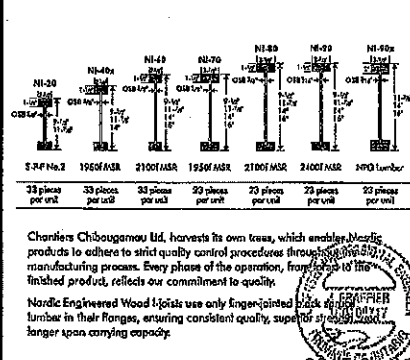
WEB STIFFENERS

- RECOMMENDATIONS:**
- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found at the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at the top.
 - A bearing stiffener is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
 - A load stiffener is required at locations where a factored concentrated load greater than 2,370 lb is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.
- SI units conversion: 1 inch = 25.4 mm

FIGURE 2 WEB STIFFENER INSTALLATION DETAILS



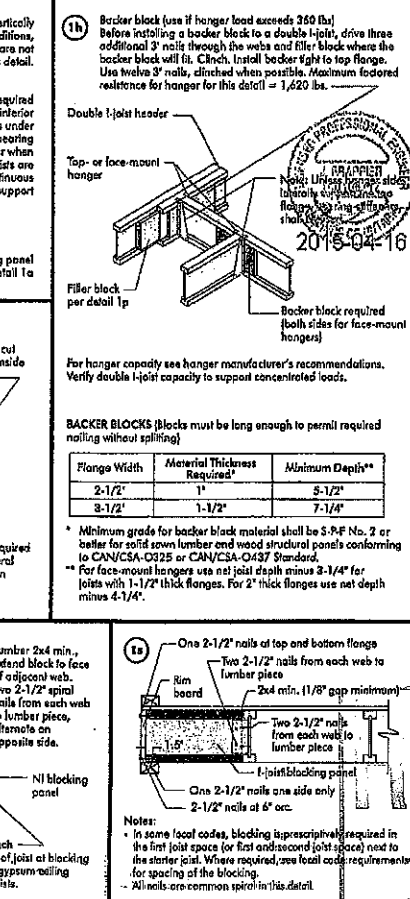
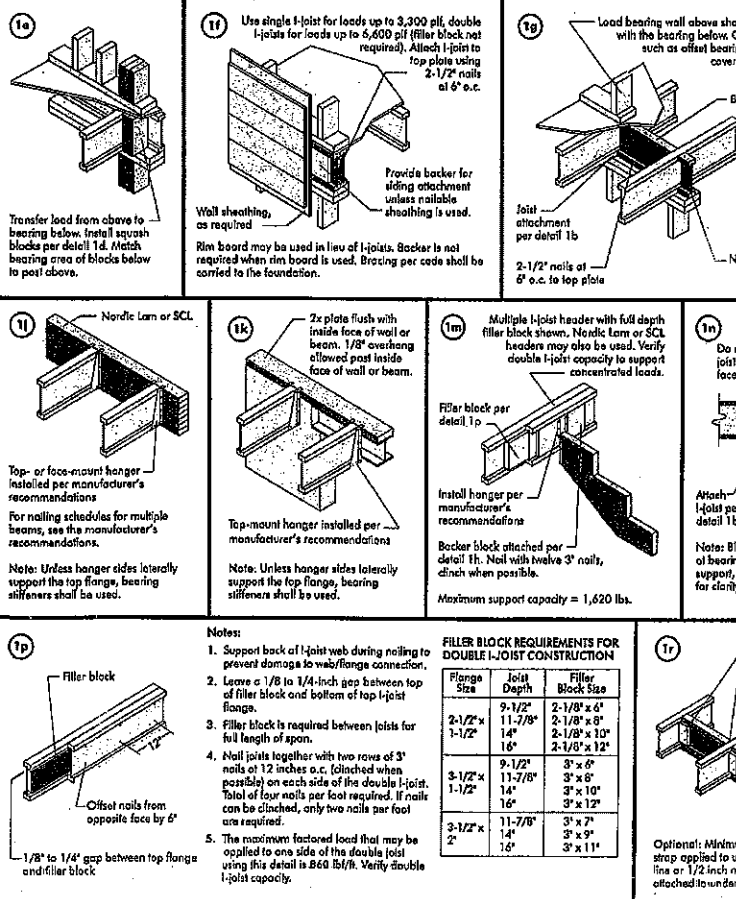
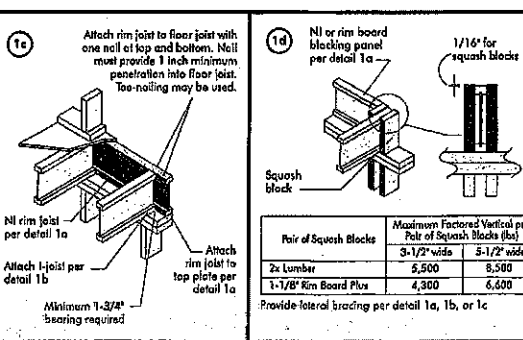
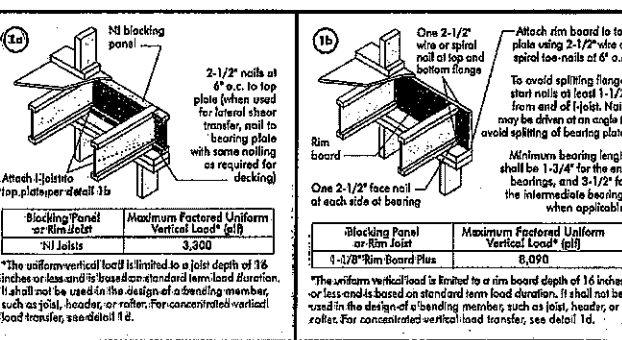
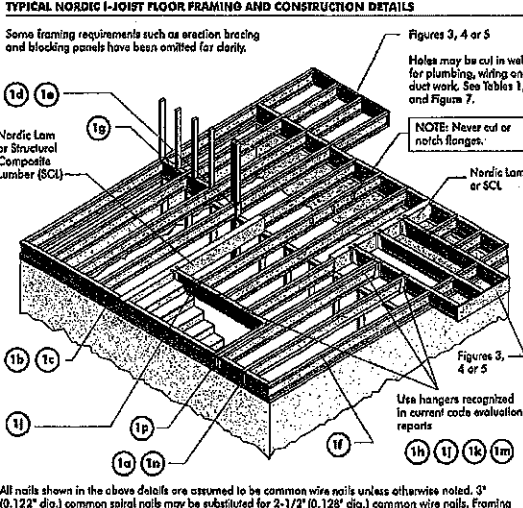
NORDIC I-JOIST SERIES



INSTALLING NORDIC I-JOISTS

1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contact supplier.
2. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
4. I-joists must be anchored securely to supports before floor sheathing is attached, and supports for multiple-span applications must be level.
5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
6. When using hangers, seal I-joists firmly in hanger bottoms to minimize settlement.
7. Leave a 1/16-inch gap between the I-joist end and a header.
8. Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include track lighting fixtures, audio equipment and security cameras. Never suspend unusual or heavy loads from the I-joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the I-joist. Or, attach the load to blocking that has been securely fastened to the I-joist webs.
9. Never install I-joists where they will be permanently exposed to weather, or where they will remain in direct contact with concrete or masonry.
10. Restrain ends of floor joists to prevent rollover. Use rim board, rim joist or I-joist blocking panels.
11. For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (zipple members) to transfer gravity loads through the floor system to the wall or foundation below.
12. Due to shrinkage, common framing lumber set on edge may never be used as blocking or rim boards. I-joist blocking panels or other engineered wood products—such as rim board—must be cut to fit between the I-joists, and on I-joist-compatible depth selected.
13. Provide permanent lateral support of the bottom flange of all I-joists of interior supports of multiple-span joists. Similarly, support the bottom flange of all cantilevered I-joists at the end support next to the cantilever extension. In the completed structure, the gypsum wallboard ceiling provides this lateral support. Until the final finished ceiling is applied, temporary bracing or struts must be used.
14. If square-edge panels are used, edges must be supported between I-joists with 2x4 blocking. Glue panels to blocking to minimize squeaks. Blocking is not required under structural finish flooring, such as wood strip flooring, or if a separate underlayment layer is installed.
15. Nail loadings: Space nails installed to the flange's top face in accordance with the applicable building code requirements or approved building plans.

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



OWN OF GALETON BUILDING SECTION

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER INC.
3269 NORTH SERVICE ROAD
BURLINGTON ONTARIO
Nov. 14, 2018 11:53

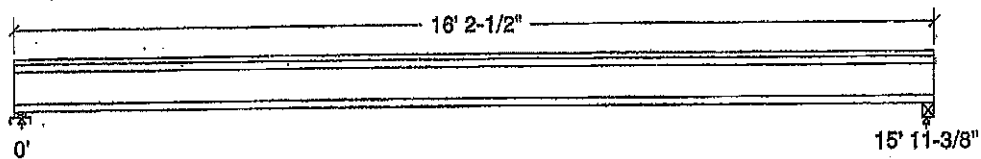
PROJECT
J1 1ST FLOOR

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	159		159
Live	319		319
Factored:			
Total	678		678
Bearing:			
Resistance			1867
Joist	1865		-
Support	3651		-
Des ratio			0.36
Joist	0.36		-
Support	0.19		-
Load case	#2		#2
Length	2-3/8		2-1/2
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	1.00		-



DESIGN CONFORMS TO OBC2012

Nordic Joist 9-1/2" NI-40x Floor joist @ 12" o.c.

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

Total length: 16' 2-1/2"; Clear span: 15' 9-5/8"; 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 = 678	Vr = 1895	lbs	Vf/Vr = 0.36
Moment (+)	Mf = 2702	Mr = 4824	lbs-ft	Mf/Mr = 0.56
Perm. Defl'n	0.12 = < L/999	0.53 = L/360	in	0.23
Live Defl'n	0.24 = L/783	0.40 = L/480	in	0.61
Total Defl'n	0.37 = L/522	0.80 = L/240	in	0.46
Bare Defl'n	0.29 = L/656	0.53 = L/360	in	0.55
Vibration	Lmax = 15'-11.4	Lv = 17'-1.8	ft	0.93
Defl'n	= 0.032	= 0.040	in	0.79

AUG 23 2019
ET0000341

TOWN OF CALEDON
BUILDING SECTION
FILE NO.

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	1895	1.00	1.00	-	-	-	-	-	#2
Mr+	4824	1.00	1.00	-	1.000	-	-	-	#2
EI	218.1 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

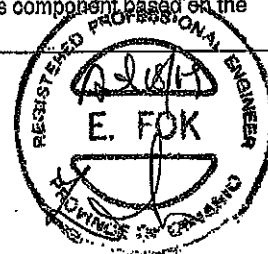
All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:Deflection: $EI_{eff} = 265e06 \text{ lb-in}^2$ $K = 4.94e06 \text{ lbs}$

"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 GCMC 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.



DESIGN CONFORMS TO OBC2012

ET0000342

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER INC.
3269 NORTH SERVICE ROAD
BURLINGTON ONTARIO
Nov. 14, 2018 11:54

PROJECT
J8 1ST FLOOR

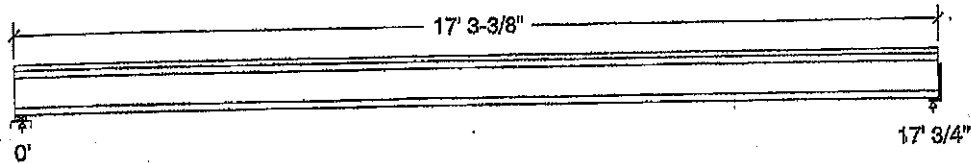
Design Check Calculation Sheet

Nordic Sizer - Canada 7.1

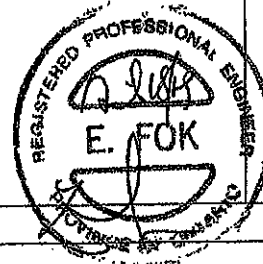
Loads:

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	171			171
Live	341			341
Factored:				
Total	725			725
Bearing:				
Resistance				1893
Joist	1893			-
Support	5112			-
Des ratio				0.38
Joist	0.38			-
Support	0.14			-
Load case	#2			#2
Length	2-3/8			2
Min req'd	1-3/4			1-3/4
Stiffener	No			No
KD	1.00			1.00
KB support	1.00			-
fcp sup	769			-
Kzcp sup	1.00			-



Nordic Joist 9-1/2" NI-80 Floor Joist @ 12" o.c.

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

Total length: 17' 3-3/8"; Clear span: 16' 11"; 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 = 725	Vr = 1895	lbs	Vf/Vr = 0.38
Moment (+)	Mf = 3093	Mr = 8958	lbs-ft	Mf/Mr = 0.35
Perm. Defl'n	0.12 = < L/999	0.57 = L/360	in	0.20
Live Defl'n	0.23 = L/884	0.43 = L/480	in	0.54
Total Defl'n	0.35 = L/589	0.85 = L/240	in	0.41
Bare Defl'n	0.26 = L/776	0.57 = L/360	in	0.46
Vibration	Lmax = 17'-0.8	Lv = 18'-4.9	ft	0.93
Defl'n	= 0.030	= 0.037	in	0.80

ET0000343

AUG 23 2019

TOWN OF COLETON
BUILDING DEPARTMENT

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	1895	1.00	1.00	-	-	-	-	-	#2
Mr+	8958	1.00	1.00	-	1.000	-	-	-	#2
EI	324.1 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 = 375e06 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.



DESIGN CONFORMS TO OBC2012

ET0000344

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER INC.
3269 NORTH SERVICE ROAD
BURLINGTON ONTARIO
Nov. 14, 2018 11:57

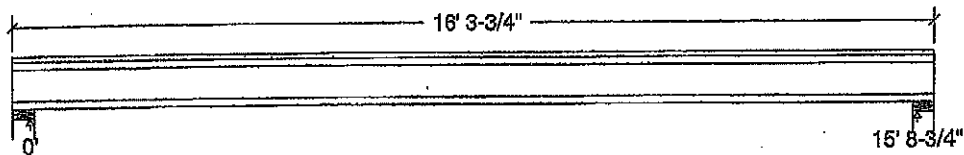
PROJECT
J1 2ND FLOOR

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	157				157
Live	315				315
Factored:					
Total	668				668
Bearing:					
Resistance					
Joist	1893				1893
Support	7744				7744
Des ratio					
Joist	0.35				0.35
Support	0.09				0.09
Load case	#2				#2
Length	4-3/8				4-3/8
Min req'd	1-3/4				1-3/4
Stiffener	No				No
KD	1.00				1.00
KB support	1.00				1.00
fcp sup	769				769
Kzop sup	1.15				1.15



DESIGN CONFORMS TO OBC2012



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

Nordic Joist 9-1/2" NL-40x Floor Joist @ 12" o.c.

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

Total length: 16' 3-3/4"; Clear span: 15' 7"; 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 = 668	Vr = 1895	lbs	VE/Vr = 0.35
Moment (+)	Mf = 2628	Mr = 4824	lbs-ft	ME/Mr = 0.54
Perm. Defl'n	0.12 = < L/999	0.52 = L/360	in	0.23
Live Defl'n	0.24 = L/795	0.39 = L/480	in	0.60
Total Defl'n	0.36 = L/530	0.79 = L/240	in	0.45
Bare Defl'n	0.28 = L/682	0.52 = L/360	in	0.53
Vibration	Lmax = 15'-8.8	Lv = 16'-8.5	ft	0.94
Defl'n	= 0.034	= 0.041	in	0.83

ET0000345

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	1895	1.00	1.00	-	-	-	-	-	#2
Mr+	4824	1.00	1.00	-	1.000	-	-	-	#2
EI	218.1 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

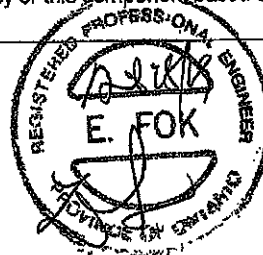
All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:Deflection: $EI_{eff} = 258e06 \text{ lb-in}^2$ $K = 4.94e06 \text{ lbs}$

"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.



DESIGN CONFORMS TO OBC2012

7ET0000346



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B2(14327)

Dry | 1 span | No cant.

November 14, 2018 13:31:34

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports:

CCMC 12472-R

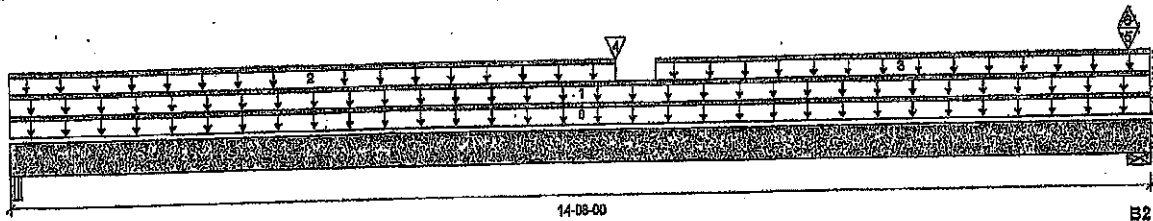
File name: BARTON 3.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B2(14327)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 14-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-1/2"	959 / 0	643 / 0		
B2, 3-1/2"	3,336 / 2	2,398 / 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	14-08-00	Top		14			n/a
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	14-08-00	Top	23	12			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-09-04	Top	8	4			n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	08-03-08	14-08-00	Top	228	118			n/a
4	B3(14398)	Conc. Pt. (lbs)	L	07-09-04	07-09-04	Top	980	610			n/a
5	6(1420)	Conc. Pt. (lbs)	L	14-04-11	14-04-11	Top	1,462	1,269			n/a
6	6(1420)	Conc. Pt. (lbs)	L	14-04-11	14-04-11	Top	-2				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	14,549 ft-lbs	36,222 ft-lbs	40.2%	1	07-09-04
End Shear	3,547 lbs	17,356 lbs	20.4%	1	13-07-00
Total Load Deflection	L/379 (0.452")	n/a	63.3%	6	07-08-14
Live Load Deflection	L/817 (0.278")	n/a	58.3%	8	07-08-14
Max Defl.	0.452"	n/a	n/a	6	07-08-14
Span / Depth	18.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 2-1/2" x 5-1/4"	2,241 lbs	32.0%	14.0%	Unspecified
B2	Wall/Plate 3-1/2" x 5-1/4"	8,002 lbs	81.6%	35.7%	Unspecified

Notes

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

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

Nailing schedule applies to both sides of the member.

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



DESIGN CONFORMS TO OBC2012

ET0000347



Boise Cascade



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

PASSED

1ST FLOOR FRAMING Flush Beams B4 (4210)

Dry | 1 span | No cant.

November 14, 2018 13:31:34

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

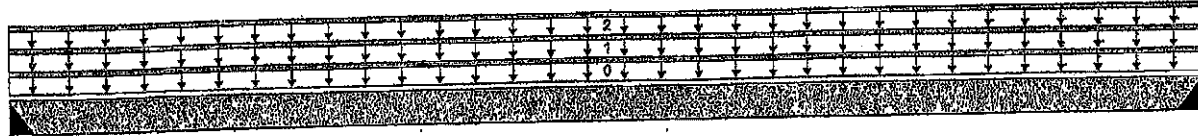
File name: BARTON 3.mmdl

Description: 1ST FLOOR FRAMING Flush Beams B4 (4210)

Specifier:

Designer: PL

Company:



07-05-00

B2

B1

Total Horizontal Product Length = 07-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	915 / 0	476 / 0		
B2, 3"	915 / 0	476 / 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	STAIRS	Unf. Lin. (lb/ft)	L	00-00-00	07-05-00	Top	240	120			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-05-00	Top	10	5			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3,248 ft-lbs	11,610 ft-lbs	28.0%	1	03-08-00
End Shear	1,409 lbs	5,785 lbs	24.3%	1	01-00-08
Total Load Deflection	L/999 (0.082")	n/a	n/a	4	03-08-00
Live Load Deflection	L/999 (0.054")	n/a	n/a	5	03-08-00
Max Defl.	0.082"	n/a	n/a	4	03-08-00
Span / Depth	8.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	3" x 1-3/4"	1,967 lbs	n/a	30.7%	HUS1.81/10
B2 Hanger	3" x 1-3/4"	1,967 lbs	n/a	30.7%	HUS1.81/10

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. †

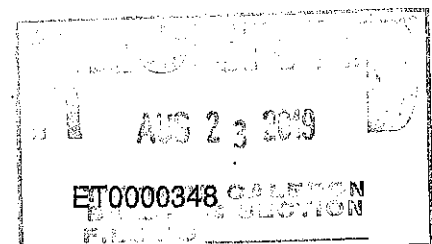
Header for the hanger HUS1.81/10 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.

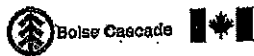
Notes

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



DESIGN CONFORMS TO OBC2012





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

PASSED

1ST FLOOR FRAMING\Flush Beams\B3(14396)

Dry | 1 span | No cant

November 14, 2018 13:31:34

BC CALCO® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

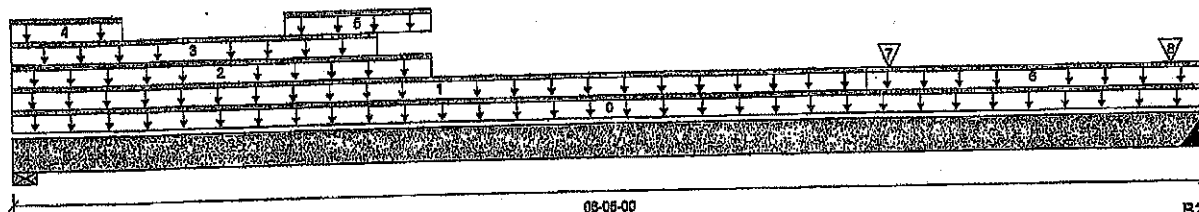
File name: BARTON 3.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B3(14396)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 06-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	435 / 0	819 / 0		
B2, 4"	1,024 / 0	636 / 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	06-05-00	Top	10				00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-07-02	Top	27	13			n/a
2	10(1497)	Unf. Lin. (lb/ft)	L	00-00-00	02-03-00	Top		81			n/a
3	10(1497)	Unf. Lin. (lb/ft)	L	00-00-00	01-11-08	Top		70			n/a
4	10(1497)	Unf. Lin. (lb/ft)	L	00-00-00	00-07-02	Top	26				n/a
5	10(1497)	Unf. Lin. (lb/ft)	L	01-05-08	02-03-00	Top	122	221			n/a
6	FC1 Floor Material	Unf. Lin. (lb/ft)	L	04-07-02	06-05-00	Top	24	12			n/a
7	-	Conc. Pt. (lbs)	L	04-08-09	04-08-09	Top	1,046	541			n/a
8	J5(14243)	Conc. Pt. (lbs)	L	06-02-14	06-02-14	Top	122	61			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,861 ft-lbs	23,220 ft-lbs	12.3%	1	04-08-00
End Shear	2,001 lbs	11,571 lbs	17.3%	1	05-03-08
Total Load Deflection	L/999 (0.023")	n/a	n/a	4	03-04-08
Live Load Deflection	L/999 (0.013")	n/a	n/a	5	03-05-15
Max Defl.	0.023"	n/a	n/a	4	03-04-03
Span / Depth	7.4				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	1,426 lbs	19.1%	8.3%	Unspecified
B2	Hanger 4" x 3-1/2"	2,331 lbs	n/a	13.6%	HGUS410

Cautions

Header for the hanger HGUS410 at B2 is a Triple 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.
Hanger model HGUS410 and seat length were input by the user.

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



DESIGN CONFORMS TO OBC2012

ET0000349



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B5\I4426

Dry | 1 span | No cant.

November 14, 2018 13:31:34

BC CALC® Member Report

Buld 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

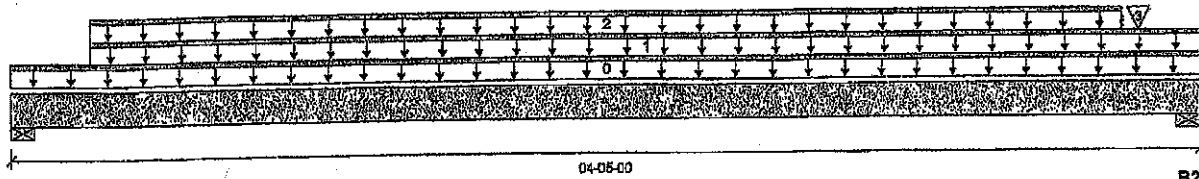
File name: BARTON 3.mmdf

Description: 1ST FLOOR FRAMING\Flush Beams\B5\I4426

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 04-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	247 / 0	134 / 0		
B2, 3-1/2"	250 / 0	147 / 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	04-06-00	Top	1.00	0.85	1.00	1.15	00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-03-08	04-06-00	Top	9	4			n/a
2	STAIRS	Unf. Lin. (lb/ft)	L	00-03-08	04-01-08	Top	120	60			n/a
3	7(I423)	Conc. Pt. (lbs)	L	04-02-04	04-02-04	Top		12			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	548 ft-lbs	11,810 ft-lbs	4.7%	1	02-02-08
End Shear	315 lbs	5,785 lbs	5.4%	1	01-01-00
Total Load Deflection	1/999 (0.004")	n/a	n/a	4	02-02-08
Live Load Deflection	1/999 (0.003")	n/a	n/a	5	02-02-08
Max Defl.	0.004"	n/a	n/a	4	02-02-08
Span / Depth	5.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 1-3/4"	539 lbs	16.5%	7.2%	Unspecified
B2	Wall/Plate 3-1/2" x 1-3/4"	559 lbs	17.1%	7.5%	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



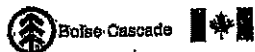
DESIGN CONFORMS TO OBC2012

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®

ET0000350



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B1(14331)

Dry | 1 span | No cant.

November 14, 2018 13:31:34

BC CALCO® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMG 12472-R

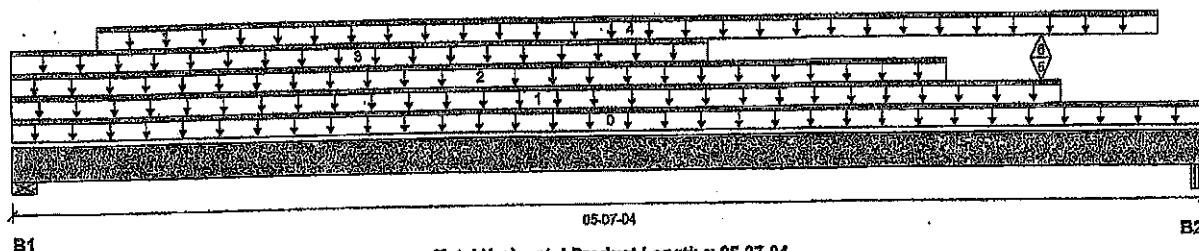
File name: BARTON 3.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B1(14331)

Specifier:

Designer: PL

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	1,943 / 0	1,440 / 0		
B2, 5-3/4"	4,000 / 1	2,803 / 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	05-07-04	Top		10			00-00-00
1	17(13754)	Unf. Lin. (lb/ft)	L	00-00-00	04-11-04	Top		81			n/a
2	17(13754)	Unf. Lin. (lb/ft)	L	00-00-00	04-04-12	Top	331	166			n/a
3	17(13754)	Unf. Lin. (lb/ft)	L	00-00-00	03-03-01	Top		79			n/a
4	Smoothed Load	Unf. Lin. (lb/ft)	L	00-04-12	05-04-12	Top	354	178			n/a
5	-	Conc. Pt. (lbs)	L	04-10-02	04-10-02	Top	2,705	1,685			n/a
6	-	Conc. Pt. (lbs)	L	04-10-02	04-10-02	Top	-1				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5,823 ft-lbs	23,220 ft-lbs	25.1%	1	02-10-12
End Shear	4,751 lbs	11,571 lbs	41.1%	1	04-04-00
Total Load Deflection	L/999 (0.035")	n/a	n/a	6	02-10-00
Live Load Deflection	L/999 (0.021")	n/a	n/a	8	02-10-00
Max Defl.	0.035"	n/a	n/a	6	02-10-00
Span / Depth	6.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/4" x 3-1/2"	4,714 lbs	48.0%	21.0%	Unspecified
B2	Beam 6-3/4" x 3-1/2"	9,253 lbs	85.8%	37.5%	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 CALCO® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

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



DESIGN CONFORMS TO OBC2012

ET0000351



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B8(14314)

Dry | 1 span | No cant.

November 14, 2018 13:31:34

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: GCMC 12472-R

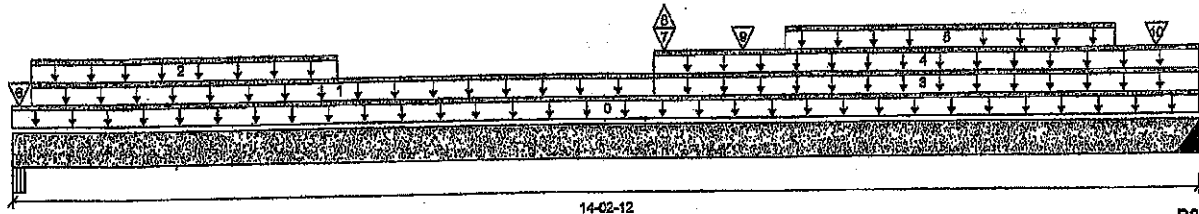
File name: BARTON 3.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B8(14314)

Specifier:

Designer: PL

Company:



B1

14-02-12

B2

Total Horizontal Product Length = 14-02-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	1,101 / 1	785 / 0		
B2, 4"	1,147 / 2	1,043 / 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	14-02-12	Top		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	07-07-12	Top	15	8			n/a
2	STAIRS	Unf. Lin. (lb/ft)	L	00-02-12	03-10-12	Top	240	120			n/a
3	20(14400)	Unf. Lin. (lb/ft)	L	07-07-12	14-02-12	Top		65			n/a
4	FC2 Floor Material	Unf. Lin. (lb/ft)	L	07-07-12	14-02-12	Top	13	6			n/a
5	Smoothed Load	Unf. Lin. (lb/ft)	L	09-02-10	13-02-10	Top	196	98			n/a
6	18(14252)	Conc. Pt. (lbs)	L	00-01-00	00-01-00	Top		19			n/a
7	-	Conc. Pt. (lbs)	L	07-09-04	07-09-04	Top	36	144			n/a
8	-	Conc. Pt. (lbs)	L	07-09-04	07-09-04	Top	-3				n/a
9	J4(13966)	Conc. Pt. (lbs)	L	08-08-10	08-08-10	Top	179	89			n/a
10	J4(14000)	Conc. Pt. (lbs)	L	13-08-10	13-08-10	Top	162	81			n/a

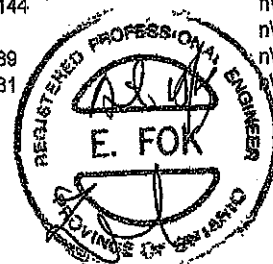
Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	8,153 ft-lbs	23,220 ft-lbs	35.1%	1	08-08-10
End Shear	2,623 lbs	11,571 lbs	22.7%	1	13-01-04
Total Load Deflection	L/406 (0.411")	n/a	59.2%	6	07-02-02
Live Load Deflection	L/768 (0.217")	n/a	46.9%	8	07-02-02
Max Defl.	0.411"	n/a	n/a	6	07-02-02
Span / Depth	17.5				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	1-3/4" x 3-1/2"	2,632 lbs	39.4%	35.2%	Unspecified
B2 Hanger	4" x 3-1/2"	3,025 lbs	n/a	17.7%	HGUS410

Cautions

Header for the hanger HGUS410 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model HGUS410 and seat length were input by the user. Nail one ply to another with 3 1/2" spiral nails @ 12" o.c. staggered in 2 rows



DESIGN CONFORMS TO OBC2012

ET0000352



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLOOR FRAMING\Flush Beams\B6(14328)

PASSED

November 14, 2018 13:31:34

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

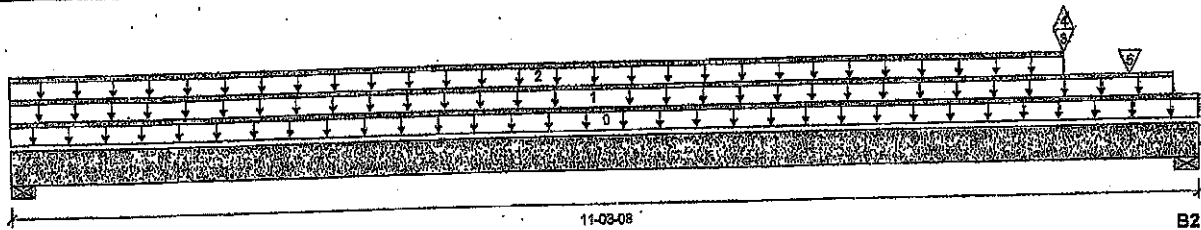
File name: BARTON 3.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B6(14328)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 11-03-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 6-1/2"	210 / 0	199 / 0		
B2, 5-1/2"	1,413 / 2	1,201 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.85	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-03-08	Top		10.			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-00-12	Top	7	3			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-00-08	Top	13	7			n/a
3	-	Conc. Pt. (lbs)	L	10-00-08	10-00-08	Top		1,126	1,043		n/a
4	-	Conc. Pt. (lbs)	L	10-00-08	10-00-08	Top		-2			n/a
5	J2(14272)	Conc. Pt. (lbs)	L	10-08-00	10-08-00	Top	289	144			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,692 ft-lbs	23,220 ft-lbs	11.6%	1	10-00-08
End Shear	3,106 lbs	11,571 lbs	26.8%	1	10-00-08
Total Load Deflection	L/999 (0.068")	n/a	n/a	6	06-02-05
Live Load Deflection	L/999 (0.035")	n/a	n/a	8	06-02-05
Max Defl.	0.068"	n/a	n/a	6	06-02-05
Span / Depth	13.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	564 lbs	5.5%	2.4%	Unspecified
B2	Wall/Plate 5-1/2" x 3-1/2"	3,620 lbs	35.2%	15.4%	Unspecified

Notes

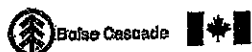
Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

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



DESIGN CONFORMS TO OBC2012

ET0000353



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

PASSED

2ND FLOOR FRAMING/Dropped Beams/B7 DR(I4441)

Dry | 1 span | No cant.

November 14, 2018 13:31:34

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

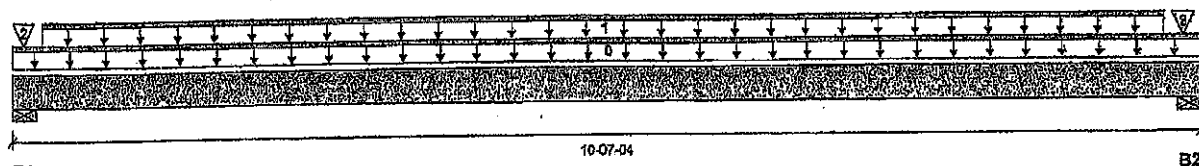
File name: BARTON 3.mmdl

Description: 2ND FLOOR FRAMING/Dro...ed Beams/B7 DR(I4441)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 10-07-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-3/4"	3,264 / 0	2,063 / 0		
B2, 3-1/2"	3,115 / 0	1,989 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-07-04	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-03-04	10-03-04	Top	609	369			n/a
2	J2(I4423)	Conc. Pt. (lbs)	L	00-01-04	00-01-04	Top	289	169			n/a
3	Bk1(I4406)	Conc. Pt. (lbs)	L	10-05-04	10-05-04	Top	40				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	17,874 ft-lbs	36,222 ft-lbs	49.3%	1	05-01-04
End Shear	6,482 lbs	17,368 lbs	37.3%	1	01-01-04
Total Load Deflection	L/388 (0.313")	n/a	61.8%	4	05-05-04
Live Load Deflection	L/632 (0.192")	n/a	56.9%	5	05-05-04
Max Defl.	0.313"	n/a	n/a	4	05-05-04
Span / Depth	12.8				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-3/4" x 5-1/4"	7,475 lbs	46.8%	31.1%	Unspecified
B2	Wall/Plate 3-1/2" x 5-1/4"	7,159 lbs	48.0%	31.9%	Unspecified

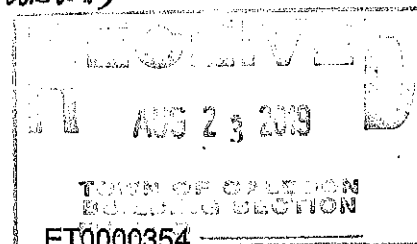
Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume unbraced length of Top: 00-02-12, Bottom: 00-02-12.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
 Nailing schedule applies to both sides of the member.
 Member has no side loads.

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



DESIGN CONFORMS TO OBC2012





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

PASSED

2ND FLOOR FRAMING\Flush Beams\B16(15577)

Dry | 1 span | No cant.

November 15, 2018 10:50:00

BC CALC® Member Report

Build 6476

Job name:

File name: BARTON 3.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B16(15577)

City, Province, Postal Code: CALEDON

Specifier:

Customer:

Designer: PL

Code reports:

CCMC 12472-R

Company:



08-01-00 B2

B1 Total Horizontal Product Length = 08-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	214 / 0	359 / 0	412 / 0	
B2, 4"	214 / 0	359 / 0	412 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-01-00	Top	10				00-00-00
1	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	08-01-00	Top	33	30	102		n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-01-00	Top	20	10			n/a
3	14(1787)	Unf. Lin. (lb/ft)	L	00-02-00	07-11-00	Top	41				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,269 ft-lbs	23,220 ft-lbs	9.8%	13	04-00-08
End Shear	931 lbs	11,571 lbs	8.0%	13	01-01-08
Total Load Deflection	1/999 (0.036")	n/a	n/a	35	04-00-08
Live Load Deflection	1/999 (0.023")	n/a	n/a	51	04-00-08
Max Defl.	0.036"	n/a	n/a	35	04-00-08
Span / Depth	9.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 4" x 3-1/2"	1,281 lbs	n/a	7.5%	HGUS410
B2	Hanger 4" x 3-1/2"	1,281 lbs	n/a	7.5%	HGUS410

Cautions

Header for the hanger HGUS410 at B1 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model HGUS410 and seat length were input by the user.

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

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



DESIGN CONFORMS TO OBC2012

ET0000355

**Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLOOR FRAMING/Flush Beams/B9(14395)**

BC CALCO® Member Report

Dry | 1 span | No cant.

November 14, 2018 13:31:34

Build 8476

Job name:

File name: BARTON 3.mmdl

Address:

Description: 2ND FLOOR FRAMING/Flush Beams/B9(14395)

City, Province, Postal Code: CALEDON

Specifier:

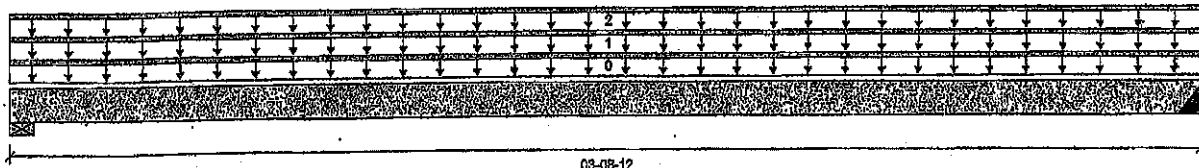
Customer:

Designer: PL

Code reports:

CCMC 12472-R

Company:



B1

Total Horizontal Product Length = 03-08-12

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	9 / 0	136 / 0		
B2, 3"	9 / 0	133 / 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	03-08-12	Top	1.00	0.65	1.00	1.15	00-00-00
1	19(14394)	Unf. Lin. (lb/ft)	L	00-00-00	03-08-12	Top		65			n/a
2	FG2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-08-12	Top	5	3			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	138 ft-lbs	7,548 ft-lbs	1.8%	0	01-10-10
End Shear	81 lbs	3,761 lbs	2.2%	0	01-01-00
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	01-10-10
Live Load Deflection	L/999 (0")	n/a	n/a	5	01-10-10
Max Defl.	0.001"	n/a	n/a	4	01-10-10
Span / Depth	4.2				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 1-3/4"	180 lbs	9.0%	3.9%	Unspecified
B2	Hanger 3" x 1-3/4"	186 lbs	n/a	4.5%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model HUS1.81/10 and seat length were input by the user.

Notes

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



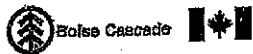
DESIGN CONFORMS TO OBC2012

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

ET0000356



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Dropped Beams\B10 DR\4257
 Dry | 1 span | No cant.

PASSED

November 14, 2018 13:31:34

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports:

CCMC 12472-R

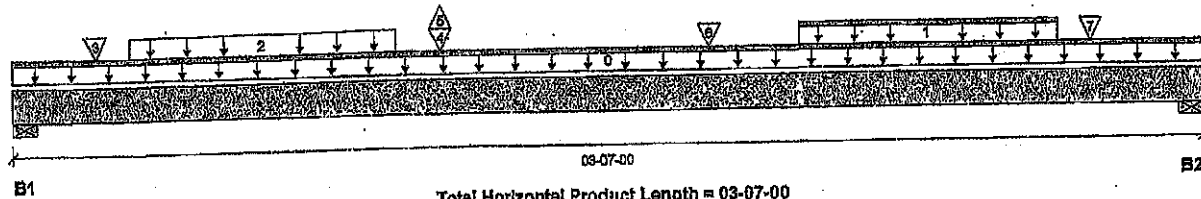
File name: BARTON 3.mxd

Description: 2ND FLOOR FRAMING\Dro...d Beams\B10 DR\4257

Specifier:

Designer: PL

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,562 / 1	1,077 / 0		
B2, 3-1/2"	1,539 / 0	983 / 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	03-07-00	Top	10				00-00-00
1	Bk1(4361)	Unf. Lin. (lb/ft)	L	02-04-04	03-01-12	Top	65				n/a
2	Bk1(4367)	Trapezoidal (lb/ft)	L	00-04-04	01-01-12	Top	34				n/a
							38				
3	J1(3854)	Conc. Pt. (lbs)	L	00-03-00	00-03-00	Top	322	161			n/a
4	-	Conc. Pt. (lbs)	L	01-03-05	01-03-05	Top	1,443	1,075			n/a
5	-	Conc. Pt. (lbs)	L	01-03-05	01-03-05	Top	-1				n/a
6	-	Conc. Pt. (lbs)	L	02-01-01	02-01-01	Top	812	330			n/a
7	-	Conc. Pt. (lbs)	L	03-03-00	03-03-00	Top	703	365			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3,112 ft-lbs	23,220 ft-lbs	13.4%	1	01-03-08
End Shear	2,982 lbs	11,571 lbs	25.8%	1	01-01-00
Total Load Deflection	L/999 (0.007")	n/a	n/a	6	01-08-10
Live Load Deflection	L/999 (0.004")	n/a	n/a	8	01-08-10
Max Defl.	0.007"	n/a	n/a	6	01-08-10
Span / Depth	3.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	3,680 lbs	37.1%	24.7%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	3,536 lbs	35.6%	23.7%	Unspecified

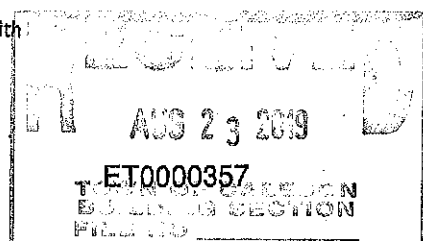
Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume unbraced length of Top: 00-02-12, Bottom: 00-02-12.
 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.
 Member has no side loads.

Nail one ply to another with
 3 1/2" spiral nails @ 6" 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\B15\15331

Dry | 1 span | No cant

November 15, 2018 10:50:00

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

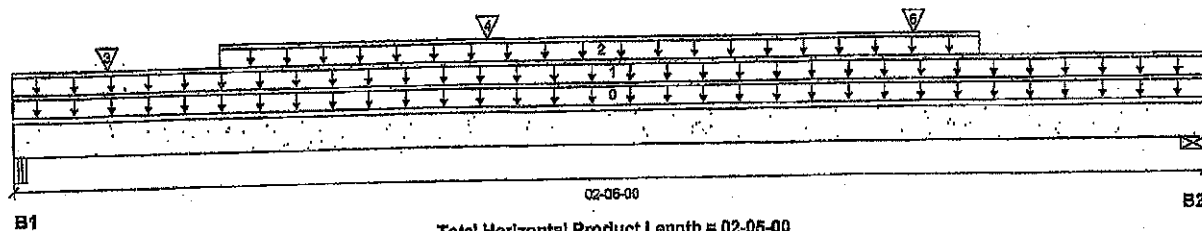
File name: BARTON 3.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B15\15331

Specifier:

Designer: PL

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5"	368 / 0	634 / 0	893 / 0	
B2, 3-1/2"	405 / 0	871 / 0	999 / 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	02-05-00	Top	10				00-00-00
1	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	02-05-00	Top	33	30	102		n/a
2	13(11788)	Unf. Lin. (lb/ft)	L	00-05-00	01-11-08	Top	33	111	102		n/a
3	E22(11780)	Conc. Pt. (lbs)	L	00-02-04	00-02-04	Top	120	207	477		n/a
4	J4(15485)	Conc. Pt. (lbs)	L	00-11-08	00-11-08	Top	149	75			n/a
5	-	Conc. Pt. (lbs)	L	01-09-14	01-09-14	Top	368	653	1,011		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	958 ft-lbs	23,220 ft-lbs	4.1%	13	01-09-12
End Shear	814 lbs	11,571 lbs	7.0%	13	01-04-00
Total Load Deflection	L/999 (0.001")	n/a	n/a	35	01-04-00
Live Load Deflection	L/999 (0.001")	n/a	n/a	51	01-04-00
Max Defl.	0.001"	n/a	n/a	35	01-04-00
Span / Depth	2.3				

Bearing Supports

	Dlm. (LxW)	Demand	Demand/Resistance Support.	Demand/Resistance Member	Material
B1	Beam 5" x 3-1/2"	2,374 lbs	25.4%	11.1%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	2,742 lbs	41.9%	18.3%	Unspecified

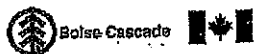
Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume unbraced length of Top: 00-05-08, Bottom: 00-05-08.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
 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

ET0000358



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B17(15506)

Dry [1 span] No cant.

November 15, 2018 10:50:00

BC CALCO® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports:

CCMC 12472-R

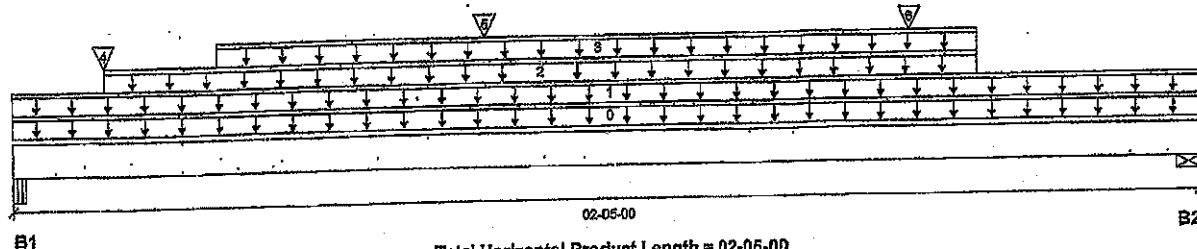
File name: BARTON 3.mxd

Description: 2ND FLOOR FRAMING\Flush Beams\B17(15506)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 02-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5"	375 / 0	516 / 0	815 / 0	
B2, 3-1/2"	408 / 0	671 / 0	1,000 / 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	02-05-00	Top	10				00-00-00
1	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	02-05-00	Top	33	30	102		n/a
2	15(1786)	Unf. Lin. (lb/ft)	L	00-02-04	01-11-08	Top	33	30	102		n/a
3	15(1786)	Unf. Lin. (lb/ft)	L	00-05-00	01-11-08	Top		81			n/a
4	15(1786)	Conc. Pt. (lbs)	L	00-02-04	00-02-04	Top	120	183	477		n/a
5	J4(15465)	Conc. Pt. (lbs)	L	00-11-08	00-11-08	Top	150	75			n/a
6		Conc. Pt. (lbs)	L	01-09-14	01-09-14	Top	368	653	1,011		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	957 ft-lbs	23,220 ft-lbs	4.1%	13	01-09-12
End Shear	818 lbs	11,571 lbs	7.1%	13	01-04-00
Total Load Deflection	L/999 (0.001")	n/a	n/a	35	01-04-00
Live Load Deflection	L/999 (0.001")	n/a	n/a	51	01-04-00
Max Defl.	0.001"	n/a	n/a	35	01-04-00
Span / Depth	2.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 5" x 3-1/2"	2,392 lbs	25.6%	11.2%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	2,746 lbs	42.0%	18.4%	Unspecified

Notes

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

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

Calculations assume unbraced length of Top: 00-05-08, Bottom: 00-05-08.

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

ET0000359



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B1A\I5795

Dry | 1 span | No cant.

April 12, 2019 11:53:12

BC CALCO® Member Report

Buld 0700

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

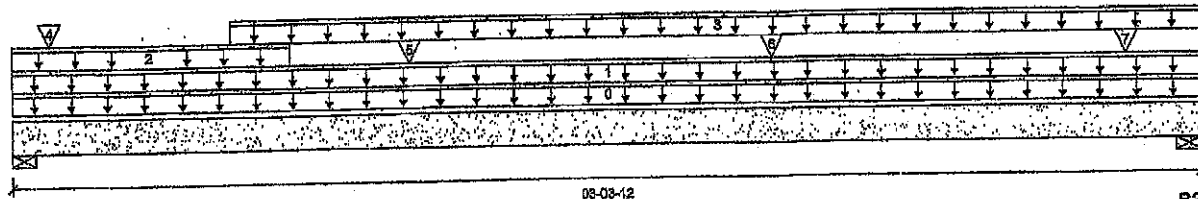
File name: BARTON 3 ELEV 1 DECK.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B1A\I5795

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 03-03-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1,199 / 0	750 / 0		
B2, 4"	1,195 / 0	747 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.85	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-03-12	Top		10			00-00-00
1	E8(I308)	Unf. Lin. (lb/ft)	L	00-00-00	03-03-12	Top		81			n/a
2	E8(I308)	Unf. Lin. (lb/ft)	L	00-00-00	00-09-04	Top	246	123			n/a
3	E8(I308)	Unf. Lin. (lb/ft)	L	00-07-04	03-03-12	Top	330	165			n/a
4	J1(I5708)	Conc. Pt. (lbs)	L	00-01-04	00-01-04	Top	327	164			n/a
5	J1(I5627)	Conc. Pt. (lbs)	L	01-01-04	01-01-04	Top	328	164			n/a
6	J1(I5626)	Conc. Pt. (lbs)	L	02-01-04	02-01-04	Top	328	164			n/a
7	J1(I5683)	Conc. Pt. (lbs)	L	03-01-04	03-01-04	Top	328	164			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,412 ft-lbs	23,220 ft-lbs	6.1%	1	01-08-02
End Shear	1,722 lbs	11,571 lbs	14.9%	1	01-01-08
Total Load Deflection	L/999 (0.003")	n/a	n/a	4	01-07-12
Live Load Deflection	L/999 (0.002")	n/a	n/a	5	01-07-12
Max Defl.	0.003"	n/a	n/a	4	01-07-12
Span / Depth	3.5				

Bearing Supports

	Dlm. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	2,737 lbs	36.6%	16.0%	Unspecified
B2	Wall/Plate 4" x 3-1/2"	2,726 lbs	36.5%	16.0%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

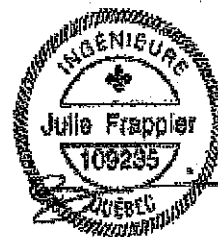
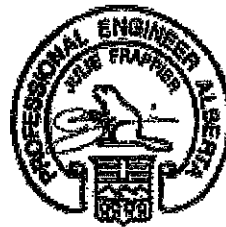
Importance Factor : Normal Part code : Part 9

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

Nail one ply to another with
3 1/2" spiral nails @ 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

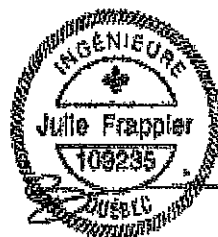
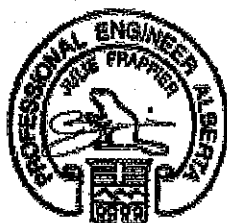
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16'-1"	15'-1"	13'-11"
	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"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

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

Maximum Floor Spans

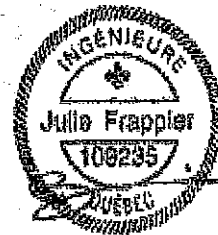
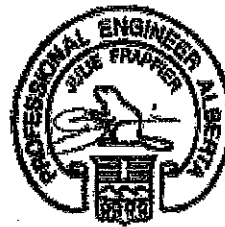
Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing



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'-5"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A
	NI-80	23'-11"	22'-1"	21'-1"	N/A	24'-8"	22'-10"	21'-9"	N/A
	NI-90x	24'-8"	22'-9"	21'-9"	N/A	25'-4"	23'-5"	22'-4"	N/A

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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of $1.50L + 1.25D$. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of $L/480$ and a total load deflection limit of $L/240$.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



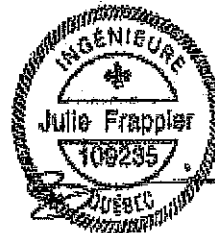
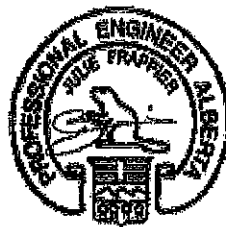
Maximum Floor Spans

Live Load = 40 psf, Dead Load = 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'-9"	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'-4"
	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"

1. Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of $1.50L + 1.25D$. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
6. Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



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'-3"	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'-4"	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

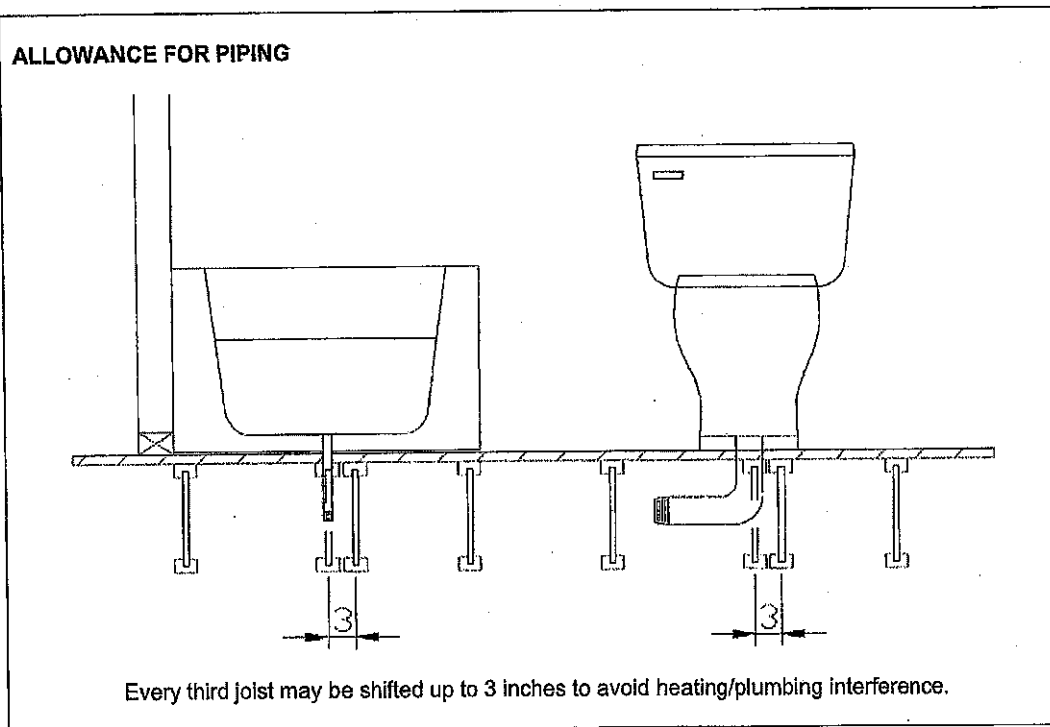
- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of $1.50L + 1.25D$. The serviceability limit states include the consideration for floor vibration, a live 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.

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.

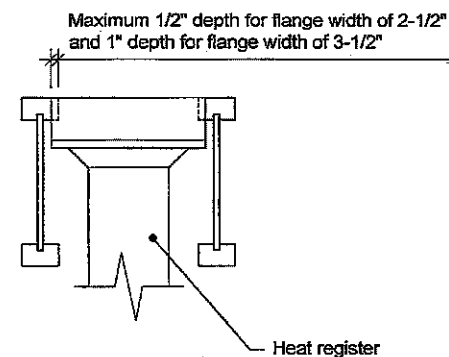
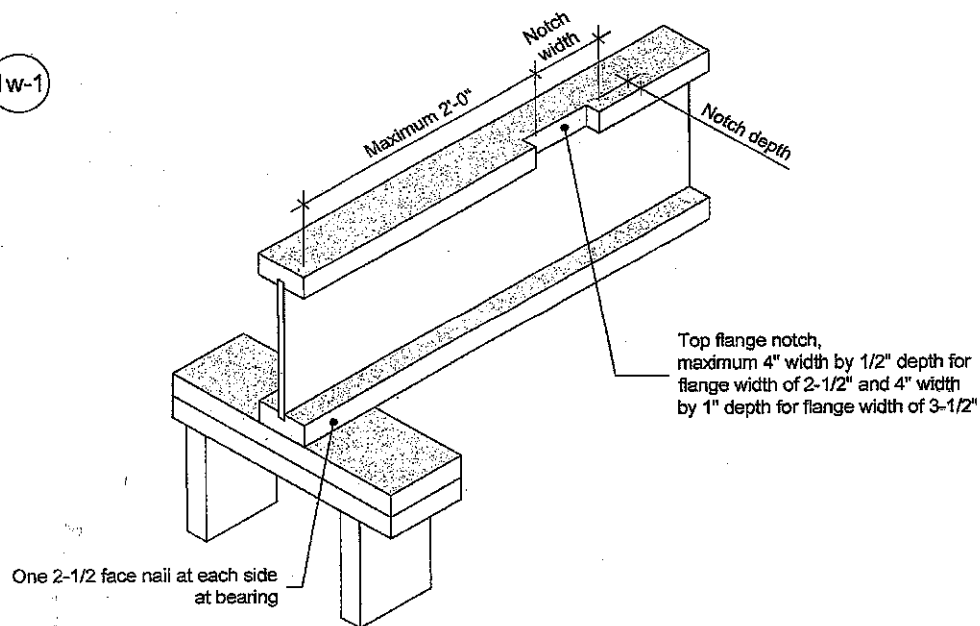
Installation of Nordic I-joists shall be as per *Nordic Joist Installation Guide for Residential Floors*. Refer to Tables 1 and 2 for maximum web hole and duct chase openings, respectively. These tables are based on the I-joists being used at their maximum spans. The minimum distance given may be reduced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

1w-1



Notes:

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

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

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

**NORDIC
STRUCTURES**

T 514-871-8526
1 866 817-3418

nordic.ca

TITLE

Notch in I-joist for Heat Register

CATEGORY

I-joist - Typical Floor Framing and Construction Details

DOCUMENT

DATE

2018-04-10

NUMBER

1w-1