

FROM PLAN DATED: SEPT 24 2018

BUILDER: GREENPARK HOMES

SITE: LAMBERTS LANE

MODEL: PRESTON 1

ELEVATION: 1

LOT: 21

CITY: CALEDON

SALESMAN: M D

DESIGNER: PL

REVISION:

NOTES:

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

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING CANT' OVER BRICK REQ. I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7, TABLES 1 & 2. **CERAMIC TILE** APPLICATION AS PER O.B.C 9.30.6.

LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

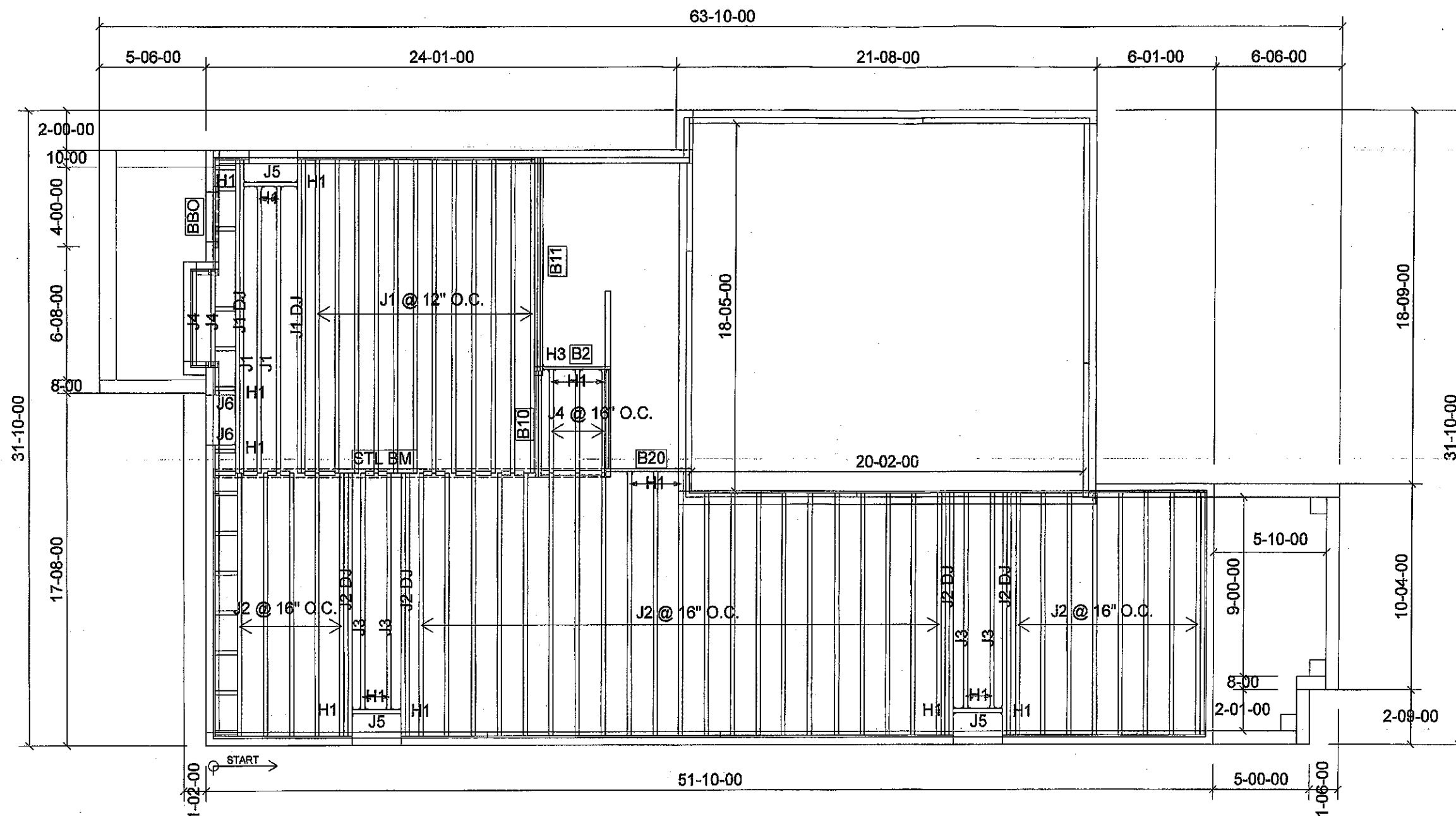
DEAD LOAD: 15.0 lb/ft²

TILED AREAS: 20 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

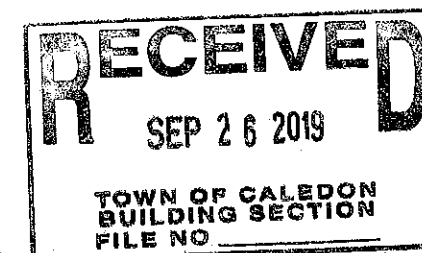
DATE: 2019-09-18

1st FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	14
J1 DJ	16-00-00	9 1/2" NI-40x	2	4
J2	14-00-00	9 1/2" NI-40x	1	34
J2 DJ	14-00-00	9 1/2" NI-40x	2	8
J3	12-00-00	9 1/2" NI-40x	1	4
J4	6-00-00	9 1/2" NI-40x	1	5
J5	4-00-00	9 1/2" NI-40x	1	3
J6	2-00-00	9 1/2" NI-40x	1	2
B11	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B10	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B2	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B20	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
3	H1	IUS2.56/9.5
8	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
3	H1	IUS2.56/11.88
1	H4	HUS1.81/10



FROM PLAN DATED: SEPT 24 2018

BUILDER: GREENPARK HOMES

SITE: LAMBERTS LANE

MODEL: PRESTON 1

ELEVATION: 1

LOT: 21

CITY: CALEDON

SALESMAN: M D

DESIGNER: PL

REVISION:

NOTES:

REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION. **SQUASH BLOCKS** OF 2x4, 2x6, 2x8 #2 S.P.F. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER BRICK** REQ. I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURE 7 TABLES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR **HOLES** INCLUDING **DUCT CHASE** AND **FIELD CUT OPENINGS** SEE FIGURE 7 TABLES 1 & 2 OF THE INSTALLATION GUIDE. **CERAMIC TILE** APPLICATION AS PER O.B.C. 9.30.6

LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 15.0 lb/ft²

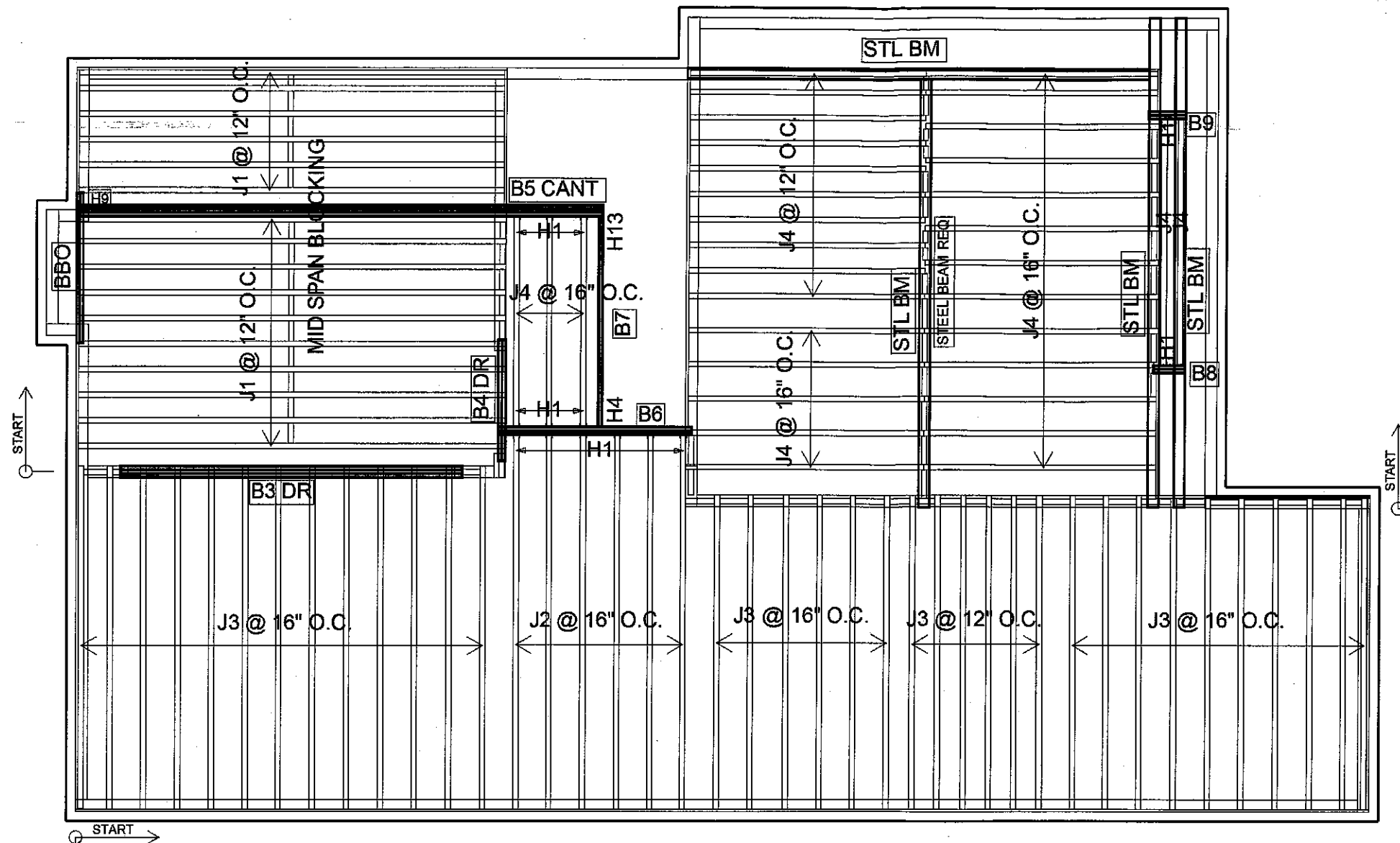
TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 11/9/2018

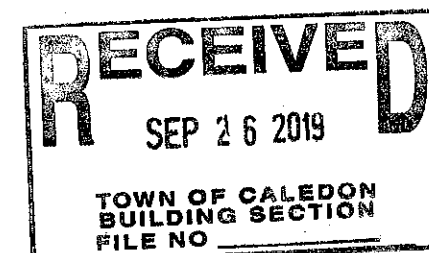
2nd FLOOR

STANDARD



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	9 1/2" NI-40x	1	16
J2	16-00-00	9 1/2" NI-40x	1	6
J3	14-00-00	9 1/2" NI-40x	1	35
J4	10-00-00	9 1/2" NI-40x	1	33
B5 CANT	22-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B3 DR	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3
B7	10-00-00	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	2	2
B4 DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
11	H1	IUS2.56/9.5
3	H1	IUS2.56/9.5
1	H4	HUS1.81/10
1	H13	LS90
1	H9	H2.5A*



NORDIC

ENGINEERED WOOD

INSTALLATION GUIDE

FOR RESIDENTIAL FLOORS

Distributed by:

2018-04-16

SAFETY AND CONSTRUCTION PRECAUTIONS

WARNING:
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:

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

Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic 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

- Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
- Store, stock, and handle joists vertically and level only.
- Always stack and handle joists in the upright position only.
- Do not store joists in direct contact with the ground and/or flammable.
- Protect joists from weather, and use spacers to separate bundles.
- Bundled units should be kept intact until time of installation.
- When handling joists with a crane on the job site, take a few simple precautions to prevent damage to the joists and injury to your work crew.
 - Pick joists in bundles as shipped by the supplier.
 - Orient the bundles so that the webs of the joists are vertical.
 - Pick the bundles at the 5th points, using a spreader bar if necessary.
- Do not handle joists in a horizontal orientation.
- NEVER USE OR TRY TO REPAIR A DAMAGED 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 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.

2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CCSS-7.1.26 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 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 C308-09 Standard, and NBC 2310.

7. SI units conversion: 1 inch = 25.4 mm
1 foot = 0.305 m

MAXIMUM FLOOR SPANS FOR NORDIC JOISTS

SIMPLE AND MULTIPLE SPANS

Joist Depth	Joist Series	Simple spans On center spacing				Multiple spans On center spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NL-20	15'1"	14'2"	13'9"	13'5"	16'3"	15'4"	14'10"	14'7"
	NL-40x	18'1"	15'2"	14'8"	14'9"	17'5"	16'5"	15'10"	15'2"
	NL-60	18'3"	15'4"	14'10"	14'11"	17'7"	16'7"	15'12"	15'3"
	NL-80	17'3"	16'3"	15'8"	15'7"	18'7"	17'4"	16'9"	16'10"
11-7/8"	NL-20	16'11"	15'0"	13'5"	13'2"	18'4"	17'5"	16'0"	15'7"
	NL-40x	19'1"	17'0"	16'5"	16'4"	20'0"	18'9"	17'9"	17'2"
	NL-60	18'4"	17'3"	16'7"	16'5"	20'3"	18'9"	18'0"	18'1"
	NL-80	19'6"	18'0"	17'4"	17'5"	21'6"	19'11"	19'0"	19'4"
14"	NL-20	19'9"	18'5"	17'6"	17'2"	21'9"	20'2"	19'5"	19'4"
	NL-40x	20'2"	18'7"	17'10"	17'11"	22'3"	20'7"	19'8"	19'9"
	NL-60	20'4"	18'9"	17'11"	18'0"	22'5"	20'9"	19'10"	19'11"
	NL-80	20'1"	18'7"	17'10"	17'11"	22'2"	20'5"	19'8"	19'4"
16"	NL-20	20'1"	18'7"	17'10"	17'11"	22'2"	20'5"	19'8"	19'4"
	NL-40x	20'5"	18'11"	18'1"	18'2"	22'7"	20'11"	20'0"	20'1"
	NL-60	21'7"	20'0"	19'1"	19'2"	23'10"	21'1"	21'1"	21'2"
	NL-80	21'11"	20'3"	19'4"	19'5"	24'3"	21'5"	21'5"	21'6"

I-JOIST HANGERS

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

WEB STIFFENERS

RECOMMENDATIONS:

- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the I-joist Construction Guide (C10). The gap between the stiffener and the flange is at the top.
- A bearing stiffener is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
- A load stiffener is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

SI units conversion: 1 inch = 25.4 mm

FIGURE 2 WEB STIFFENER INSTALLATION DETAILS

STIFFENER SIZE REQUIREMENTS

Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-3/16" minimum width
3-1/2"	1-1/2" x 2-5/16" minimum width

NORDIC I-JOIST SERIES

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

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

INSTALLING NORDIC I-JOISTS

- Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contact your supplier.
- Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.
- Install joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
- Joists must be anchored securely to supports before floor sheathing is attached, and supports for multiple-span joists must be level.
- Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
- When using hangers, seat joists firmly in hanger bottoms to minimize settlement.
- Leave a 1/16-inch gap between the I-joist and end a header.
- 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 joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the joist. Or, attach the load to blocking that has been securely fastened to the I-joist webs.
- Never install joists where they will be permanently exposed to weather, or where they will remain in direct contact with concrete or masonry.
- Restrain ends of floor joists to prevent racking. Use rim board, rim joists or I-joist blocking panels.
- For joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (cattle members) to transfer gravity loads through the floor system to the wall or foundation below.
- 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 depths selected.
- Provide permanent lateral support of the bottom flange of all I-joists at interior supports of multiple-span joists. Similarly, support the bottom flange of all cantilevered I-joists at the end support next to the cantilever extension. In the completed structure, the gypsum wallboard ceiling provides this lateral support. Until the final finished ceiling is applied, temporary bracing or struts must be used.
- 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.
- Nail spacing: Space nails installed to the flange's top face in accordance with the applicable building codes requirements or approved building plans.

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

Some framing requirements such as erection bracing and blocking panels have been omitted for clarity.

1a, 1b, 1c, 1d, 1e, 1f, 1g, 1h, 1i, 1j, 1k, 1l, 1m

1a: Attach joist to top plate per detail 1b.

1b: Attach rim joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

1c: Attach rim board to top plate using 2-1/2" wire or spiral toe-nails at 6" o.c.

1d: Attach rim board blocking panel per detail 1a.

1e: Attach rim joist to top plate per detail 1a.

1f: Attach rim joist to top plate per detail 1a.

1g: Attach rim joist to top plate per detail 1a.

1h: Attach rim joist to top plate per detail 1a.

1i: Attach rim joist to top plate per detail 1a.

1j: Attach rim joist to top plate per detail 1a.

1k: Attach rim joist to top plate per detail 1a.

1l: Attach rim joist to top plate per detail 1a.

1m: Attach rim joist to top plate per detail 1a.

FIGURE 2 WEB STIFFENER INSTALLATION DETAILS

2a: Transfer load from above to bearing below. Install squash blocks per detail 1d. Match bearing area of blocks below to post above.

2b: Wall sheathing, as required. Rim board may be used in lieu of joists. Backer is not required when rim board is used. Bracing per code shall be carried to the foundation.

2c: Load bearing wall above shall align vertically with the bearing below. Other conditions, such as offset bearing walls, are not covered by this detail.

2d: Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double joist, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch, install backer tight to top flange. Use twice 3" nails, clinched when possible. Maximum factored resistance for hanger for this detail = 1,620 lbs.

2e: Double I-joist header. Top- or face-mount hanger. Filler block per detail 1p. Backer block required (both sides for face-mount hangers).

2f: For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

2g: Backer blocks (Blocks must be long enough to permit required nailing without splitting).

2h: Filler block.

2i: Attach hanger per detail 1b.

2j: Note: Blocking required at bearing for lateral support, not shown for clarity.

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

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

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

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

Notes:

- Support back of joist web during nailing to prevent damage to web/flange connection.
- Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
- Filler block is required between joists for full length of span.
- Nail joists together with two rows of 3" nails at 12 inches o.c. (clinched when possible) on each side of the double joist. Total of four nails per foot required. If nails can be clinched, only two nails per foot are required.
- The maximum factored load that may be applied to one side of the double joist using this detail is 950 lbs/ft. Verify double I-joist capacity.

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER INC.
3269 NORTH SERVICE ROAD
BURLINGTON ONTARIO
Nov. 1, 2018 07:53

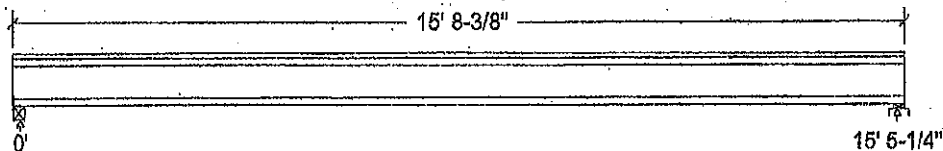
PROJECT
J1 1ST FLOOR

Design Check Calculation Sheet Nordic Size - 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	154		154
Live	309		309
Factored:			
Total	656		656
Bearing:			
Resistance			
Joist	1867		1865
Support	-		3659
Des ratio			
Joist	0.35		0.35
Support	-		0.18
Load case	#2		#2
Length	2-1/2		2-3/8
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

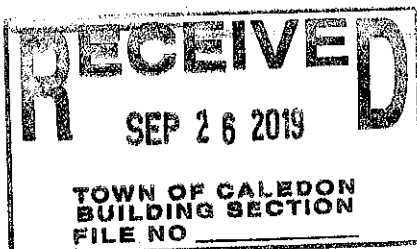


Nordic Joist 9-1/2" NI-40x Floor joist @ 12" o.c.

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

Total length: 15' 8-3/8"; Clear span: 15' 3-1/2"; 3/4" nailed and glued OSB sheathing

This section PASSES the design code check.



DWYNO, YAM 1907-1914
STRUCTURAL
COMPONENT ONLY

T-19011112

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 656	Vr = 1895	lbs	Vf/Vr = 0.35
Moment(+)	Mf = 2532	Mr = 4824	lbs-ft	Mf/Mr = 0.52
Perm. Defl'n	0.11 = < L/999	0.51 = L/360	in	0.21
Live Defl'n	0.22 = L/858	0.39 = L/480	in	0.56
Total Defl'n	0.32 = L/572	0.77 = L/240	in	0.42
Bare Defl'n	0.26 = L/719	0.51 = L/360	in	0.50
Vibration	Lmax = 15'-5.3	Lv = 17'-1.8	ft	0.90
Defl'n	= 0.030	= 0.042	in	0.72

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

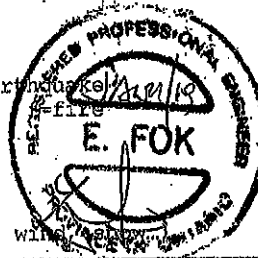
Load Types: D=dead W=wind S=snow R=earth, groundwater E=earthquake F=fire
 L=live (use, occupancy) Ls=live (storage, equipment)

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} = 265e06 lb-in² K= 4.94e06 lbs

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



Design Notes:

CONFORMS TO OBC 2012

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 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.

DWU 07. JAN 1907-19H
 STRUCTURAL
 COMPONENT ONLY

T. 19011126

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER INC.
3269 NORTH SERVICE ROAD
BURLINGTON ONTARIO
Nov. 1, 2018 07:55

PROJECT
J2 1ST FLOOR

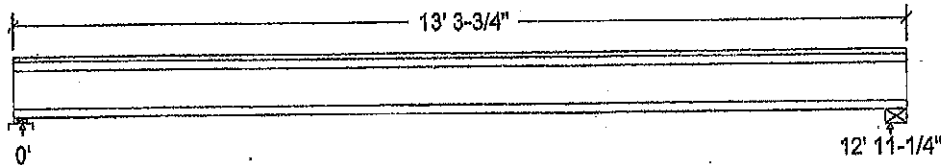
Design Check Calculation Sheet

Nordic Sizer - Canada 7.1

Loads:

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

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



Unfactored:			
Dead	172		172
Live	345		345
Factored:			
Total	733		733
Bearing:			
Resistance			1891
Joist	1865		-
Support	3971		-
Des ratio			0.39
Joist	0.39		-
Support	0.18		-
Load case	#2		#2
Length	2-3/8		3-7/8
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	1.09		-



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

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

Total length: 13' 3-3/4"; Clear span: 12' 9-1/2"; 3/4" nailed and glued OSB sheathing

This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 733	Vr = 1895	lbs	Vf/Vr = 0.39
Moment (+)	Mf = 2371	Mr = 4824	lbs-ft	Mf/Mr = 0.49
Perm. Defl'n	0.07 = < L/999	0.43 = L/360	in	0.17
Live Defl'n	0.14 = < L/999	0.32 = L/480	in	0.44
Total Defl'n	0.22 = L/720	0.65 = L/240	in	0.33
Bare Defl'n	0.18 = L/883	0.43 = L/360	in	0.41
Vibration	Imax = 12'-11.3	Lv = 16'-2.1	ft	0.80
Defl'n	= 0.026	= 0.053	in	0.49

OWNED, TAM 1900-18 1/2
STRUCTURAL
COMPONENT ONLY
T-1901113

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

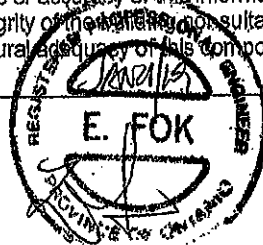
Load Types: D=dead W=wind S=snow H=earth, groundwater E=earthquake
L=live (use, occupancy) Ls=live (storage, equipment) f=fireLoad Patterns: s=S/2 L=L+Ls =no pattern load in this span
All Load Combinations (LCs) are listed in the Analysis output**CALCULATIONS:**Deflection: E_{ieff} = 276e06 lb-in² K= 4.94e06 lbs

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

Design Notes:

CONFORMS TO OBC 2012

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 or 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.



DWYND. YAM 1908-18/12
STRUCTURAL
COMPONENT ONLY

T-1901113/1

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER INC.
3269 NORTH SERVICE ROAD
BURLINGTON ONTARIO
Nov. 8, 2018 15:42

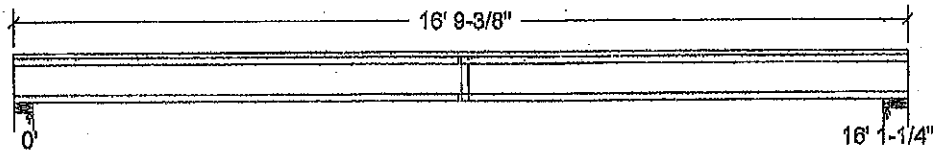
PROJECT
J1 2ND FLOOR

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	161		161
Live	322		322
Factored:			
Total	684		684
Bearing:			
Resistance			
Joist	1893		1893
Support	7744		9724
Des ratio			
Joist	0.36		0.36
Support	0.09		0.07
Load case	#2		#2
Length	4-3/8		5-1/2
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		1.00
fcp sup	769		769
Kzcp sup	1.15		1.15



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

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

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

Total length: 16' 9-3/8"; Clear span: 15' 11-1/2"; 5/8" nailed and glued OSB sheathing with 1 row of blocking and 1/2" gypsum ceiling

This section PASSES the design code check.

DWG NO. TAM 1909-194
STRUCTURAL
COMPONENT ONLY

T. GOLLICK

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 684	Vr = 1895	lbs	Vf/Vr = 0.36
Moment(+)	Mf = 2755	Mr = 4824	lbs-ft	Mf/Mr = 0.57
Perm. Defl'n	0.13 = < L/999	0.54 = L/360	in	0.24
Live Defl'n	0.26 = L/744	0.40 = L/480	in	0.64
Total Defl'n	0.39 = L/496	0.81 = L/240	in	0.48
Bare Defl'n	0.30 = L/638	0.54 = L/360	in	0.56
Vibration	Lmax = 16'-1.3	Lv = 18'-7.3	ft	0.87
Defl'n	= 0.027	= 0.040	in	0.67

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=ices

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

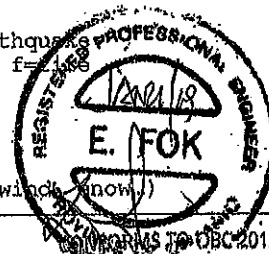
CALCULATIONS:

Deflection: E_Ieff = 258e06 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 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.



JWANG.TAM 1909-18H
 STRUCTURAL
 COMPONENT ONLY

T. L. GOWLING

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER INC.
3269 NORTH SERVICE ROAD
BURLINGTON ONTARIO
Nov. 1, 2018 08:00

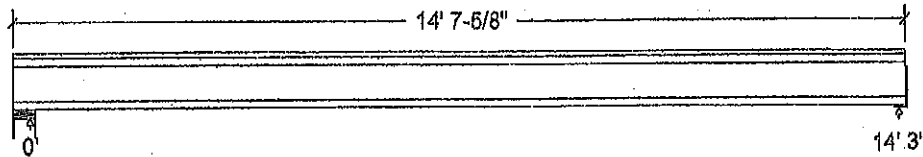
PROJECT
J2 2ND FLOOR

Design Check Calculation Sheet Nordic Sizer -- Canada 7.1

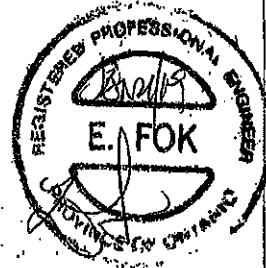
Loads:

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

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



Unfactored:			
Dead	190		190
Live	380		380
Factored:			
Total	807		807
Bearing:			
Resistance			
Joist	1893		1859
Support	7744		-
Des ratio			
Joist	0.43		0.43
Support	0.10		-
Load case	#2		#2
Length	4-3/8		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	1.15		-



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

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

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

Total length: 14' 7-5/8"; Clear span: 14' 1-1/4"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

DWNO, TAM 1910-18H
STRUCTURAL
COMPONENT ONLY

T-19011117

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$V_f = 807$	$V_r = 1895$	lbs	$V_f/V_r = 0.43$
Moment(+)	$M_f = 2877$	$M_r = 4824$	lbs-ft	$M_f/M_r = 0.60$
Perm. Defl'n	$0.11 = < L/999$	$0.47 = L/360$	in	0.22
Live Defl'n	$0.21 = L/809$	$0.36 = L/480$	in	0.59
Total Defl'n	$0.32 = L/539$	$0.71 = L/240$	in	0.44
Bare Defl'n	$0.25 = L/675$	$0.47 = L/360$	in	0.53
Vibration	$L_{max} = 14'-3$	$L_v = 15'-9.3$	ft	0.90
Defl'n	$= 0.034$	$= 0.047$	in	0.73

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
V_r	1895	1.00	1.00	-	-	-	-	-	#2
M_r	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

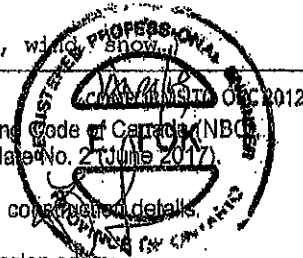
CALCULATIONS:

Deflection: $E I_{eff} = 268e06 \text{ lb-in}^2$ $K = 4.94e06 \text{ lbs}$

"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 connection details.
4. Nordic 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.



DWG NO. YAH1910-184
 STRUCTURAL
 COMPONENT ONLY

F. Fournier



Bolea Cascoade



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

1ST FLOOR FRAMING\Flush Beams\B11\16333

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

November 9, 2018 07:48:09

Build 6475

Job name:

File name: PRESTON 1.mxd

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B11\16333

City, Province, Postal Code: CALEDON

Specifier:

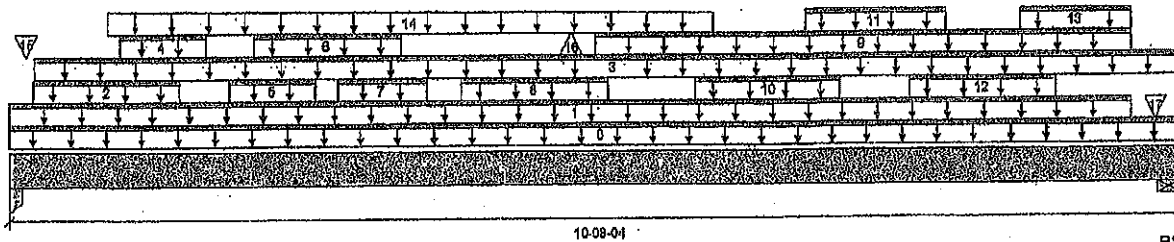
Customer:

Designer: PL

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 10-08-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-5/8"	3,271 / 0	2,575 / 0	0 / 1	
B2, 3-1/2"	2,565 / 0	2,248 / 0	0 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-08-04	Top		14			00-00-00
1	5(1282)	Unf. Lin. (lb/ft)	L	00-00-00	10-02-12	Top		81			n/a
2	5(1282)	Unf. Lin. (lb/ft)	L	00-02-08	01-06-08	Top	253	136			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	10-08-04	Top	11	5			n/a
4	5(1282)	Unf. Lin. (lb/ft)	L	00-11-12	01-09-04	Top		66			n/a
5	5(1282)	Unf. Lin. (lb/ft)	L	01-11-12	02-09-04	Top		65			n/a
6	5(1282)	Unf. Lin. (lb/ft)	L	02-02-08	03-06-08	Top	253				n/a
7	5(1282)	Unf. Lin. (lb/ft)	L	02-11-12	03-09-04	Top					n/a
8	5(1282)	Unf. Lin. (lb/ft)	L	04-00-14	05-04-14	Top	149				n/a
9	5(1282)	Unf. Lin. (lb/ft)	L	05-03-08	10-02-12	Top					n/a
10	5(1282)	Unf. Lin. (lb/ft)	L	06-02-08	07-06-08	Top	253	127			n/a
11	5(1282)	Unf. Lin. (lb/ft)	L	07-02-08	08-06-08	Top	253				n/a
12	5(1282)	Unf. Lin. (lb/ft)	L	08-02-08	09-06-08	Top	253				n/a
13	5(1282)	Unf. Lin. (lb/ft)	L	09-02-08	10-02-12	Top	286	133			n/a
14	5(1282)	Trapezoidal (lb/ft)	L	00-10-08		Top	186	101			n/a
					06-04-08		182	82			
15	B2(13970)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	543	279			n/a
16	5(1282)	Conc. Pt. (lbs)	L	05-00-14	05-00-14	Top	2,029	1,251	-1		n/a
17	E1(1272)	Conc. Pt. (lbs)	L	10-05-08	10-05-08	Top		77			n/a



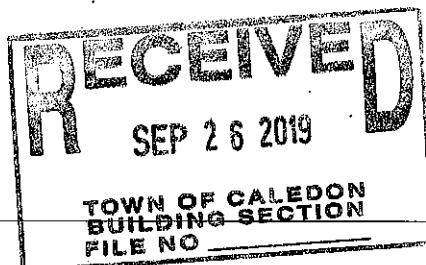
Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	23,159 ft-lbs	36,222 ft-lbs	63.9%	11	05-00-14
End Shear	6,502 lbs	17,356 lbs	37.5%	1	09-07-04
Total Load Deflection	L/322 (0.383")	n/a	74.4%	34	05-03-08
Live Load Deflection	L/582 (0.213")	n/a	61.9%	50	05-03-08
Max Defl.	0.383"	n/a	n/a	34	05-03-08
Span / Depth	13.0				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 2-5/8" x 5-1/4"	8,126 lbs	72.6%	48.3%	Unspecified
B2	Wall/Plate 3-1/2" x 5-1/4"	6,658 lbs	67.9%	29.7%	Unspecified

DWG NO. TAM 1911 v18H
STRUCTURAL
COMPONENT ONLY

T-1901116





Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLOOR FRAMING\Flush Beams\B11(16333)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

November 9, 2018 07:48:09

Build 6475

Job name:

File name: PRESTON 1.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B11(16333)

City, Province, Postal Code: CALEDON

Specifier:

Customer:

Designer: PL

Code reports: CCMC 12472-R

Company:

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.

CONFORMS TO OBC 2012

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

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

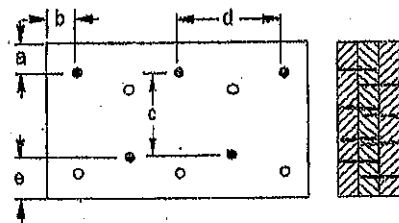
Design based on Dry Service Condition.

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.

Nailing schedule applies to both sides of the member.

Connection Diagram: Full Length of Member



a minimum = 1"

c = 6 1/2"

b minimum = 3"

d = 6"

e minimum = 2"

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.

Connectors are: Nails

3-1/2" ARDOX SPIRAL



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®.

DOWN NO. YAM 1921-18H
STRUCTURAL
COMPONENT ONLY

T-190111660



Boise Cascade



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B10\I6337

Dry | 1 span | No cant.

November 9, 2018 07:48:09

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

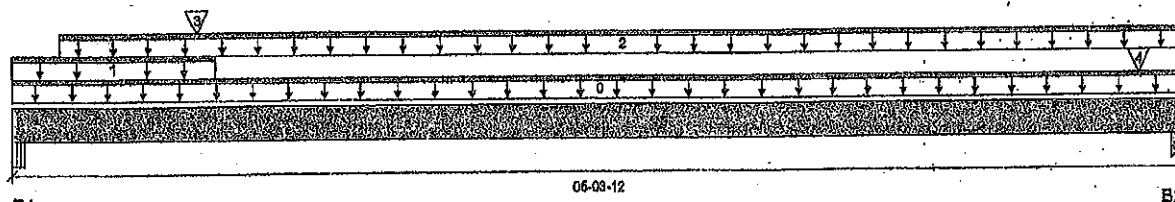
File name: PRESTON 1.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B10\I6337

Specifier:

Designer: PL

Company:



B1

05-03-12

B2

Total Horizontal Product Length = 05-03-12

Reaction Summary (Down / Uplift) (lbs)

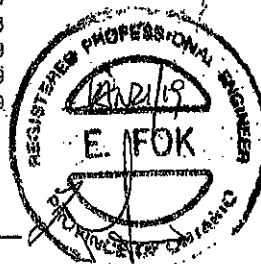
Bearing	Live	Dead	Snow	Wind
B1, 6"	1,771 / 0	1,043 / 0		
B2, 2-5/8"	1,529 / 0	936 / 0		

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	05-03-12	Top	10				00-00-00
1	8(1285)	Unf. Lin. (lb/ft)	L	00-00-00	00-11-00	Top	81				n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-08	05-03-12	Top	14	7			n/a
3	8(1285)	Conc. Pt. (lbs)	L	00-10-00	00-10-00	Top	1,880	1,009			n/a
4	5(1282)	Conc. Pt. (lbs)	L	05-01-06	05-01-06	Top	1,299	788			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,849 ft-lbs	23,220 ft-lbs	8.0%	1	00-10-00
End Shear	1,905 lbs	11,571 lbs	16.5%	1	01-02-08
Total Load Deflection	L/999 (0.008")	n/a	n/a	4	02-05-09
Live Load Deflection	L/999 (0.005")	n/a	n/a	6	02-05-09
Max Defl.	0.008"	n/a	n/a	4	02-05-09
Span / Depth	6.1				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 6" x 3-1/2"	3,980 lbs	42.4%	18.5%	Unspecified
B2	Column 2-5/8" x 3-1/2"	3,463 lbs	46.4%	30.9%	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. CONFORMS TO OBC 2012

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2016 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.

DWG NO. YAM 1712-18H
STRUCTURAL
COMPONENT ONLY

2-19-01-1117



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLOOR FRAMING\Flush Beams\B10\6337)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

November 9, 2018 07:48:09

Build 6475

Job name:

File name: PRESTON 1.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B10\6337)

City, Province, Postal Code: CALEDON

Specifier:

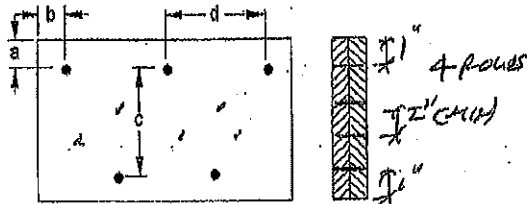
Customer:

Designer: PL

Code reports: CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



a minimum = 4"
b minimum = 3"

c = 3-1/2"
d = 4"

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.

Connectors are: Nails

3-1/2" ARDOX SPIRAL



Disclosure

Use of the Borlee 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 Borlee 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®, AJST®, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®

DWG NO. TAM 1912-18H
STRUCTURAL
COMPONENT ONLY

T-190111760



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

PASSED

BC CALCO® Member Report
Build 6476

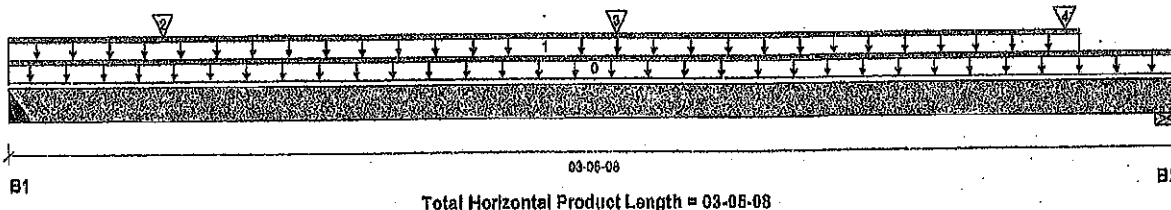
1ST FLOOR FRAMING\Flush Beams\B2(13970)

Dry | 1 span | No cant.

November 9, 2018 07:48:09

Job name:
Address:
City, Province, Postal Code: CALEDON
Customer:
Code reports: CCMC 12472-R

File name: PRESTON 1.mmdl
Description: 1ST FLOOR FRAMING\Flush Beams\B2(13970)
Specifier:
Designer: PL
Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	579 / 0	287 / 0		
B2, 3-1/2"	521 / 0	268 / 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	03-05-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	STAIRS	Unf. Lin. (lb/ft)	L	00-00-00	03-02-00	Top	240	120			n/a
2	J4(13989)	Conc. Pt. (lbs)	L	00-05-08	00-05-08	Top	107	53			n/a
3	J4(13998)	Conc. Pt. (lbs)	L	01-09-08	01-09-08	Top	142	71			n/a
4	J4(13931)	Conc. Pt. (lbs)	L	03-01-08	03-01-08	Top	89	44			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	863 ft-lbs	11,810 ft-lbs	7.4%	1	01-09-08
End Shear	533 lbs	5,786 lbs	9.2%	1	01-00-08
Total Load Deflection	L/999 (0.004")	n/a	n/a	4	01-08-08
Live Load Deflection	L/999 (0.003")	n/a	n/a	5	01-08-08
Max Defl.	0.004"	n/a	n/a	4	01-08-08
Span / Depth	3.8				

Bearing Supports

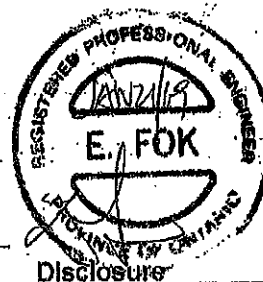
	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 3" x 1-3/4"	1,240 lbs	n/a	19.4%	HUS1.81/10
B2	Wall/Plate 3-1/2" x 1-3/4"	1,116 lbs	34.1%	14.9%	Unspecified

Cautions

Header for the hanger HUS1.81/10 at B1 is a Triple 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

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. CONFORMS TO OBC 2012
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



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

DRW NO. YAM 1913-184
STRUCTURAL
COMPONENT ONLY

T-1901118



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B1A\17062

Dry | 1 span | No cant.

January 15, 2019 09:23:34

BC CALCO® Member Report

Build 0476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

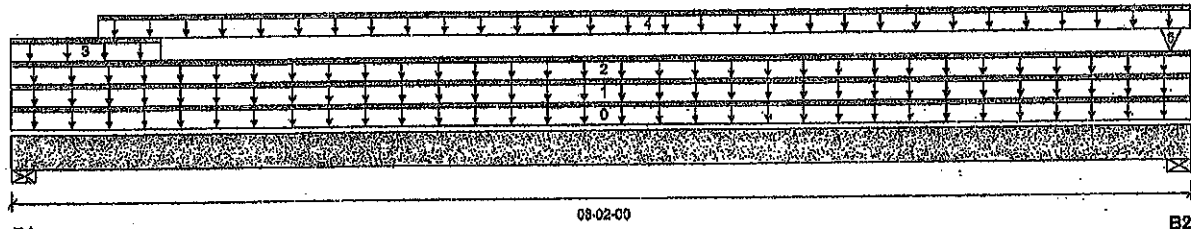
File name: PRESTON 1 ELEV 1 DECK.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B1A\17062

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 03-02-00

Reaction Summary (Down / Uplift) (lbs)

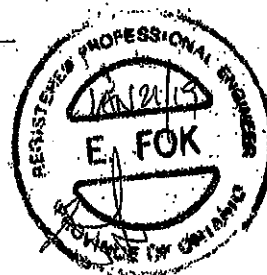
Bearing	Live	Dead	Snow	Wind
B1, 4"	848 / 0	853 / 0	231 / 0	
B2, 4"	858 / 0	858 / 0	231 / 0	

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	E12(1267)	Unf. Lin. (lb/ft)	L	00-00-00	03-02-00	Top	38	217	148		n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-02-00	Top	27	13			n/a
3	E12(1267)	Unf. Lin. (lb/ft)	L	00-00-00	00-04-12	Top	228	114			n/a
4	E12(1267)	Unf. Lin. (lb/ft)	L	00-02-12	03-02-00	Top	338	189			n/a
5	E12(1267)	Conc. Pt. (lbs)	L	03-01-06	03-01-06	Top	21				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,085 ft-lbs	23,220 ft-lbs	4.7%	1	01-07-02
End Shear	605 lbs	11,571 lbs	5.2%	1	01-01-08
Total Load Deflection	L/999 (0.002")	n/a	n/a	35	01-07-02
Live Load Deflection	L/999 (0.001")	n/a	n/a	51	01-07-02
Max Defl.	0.002"	n/a	n/a	35	01-07-02
Span / Depth	3.3				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	2,017 lbs	27.0%	11.8%	Unspecified
B2	Wall/Plate 4" x 3-1/2"	2,038 lbs	27.3%	11.9%	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. CONFORMS TO OBC 2012
 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
 Member has no side loads.

DWONG, YAM 1925-184
 STRUCTURAL
 COMPONENT ONLY

T-19011130



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B1A(I7062)

Dry | 1 span | No cant.

January 15, 2019 09:23:34

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

File name: PRESTON 1 ELEV 1 DECK.mmdl

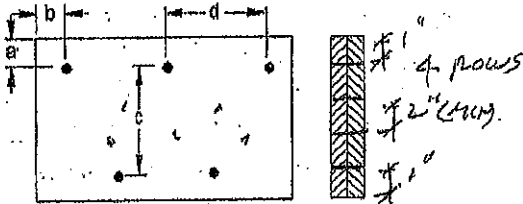
Description: 1ST FLOOR FRAMING\Flush Beams\B1A(I7062)

Specifier:

Designer: PL

Company:

Connection Diagram: Full Length of Member



a minimum = 1"

b minimum = 3"

c = 7-1/2"

d = 6"

Member has no side loads.

Connectors are: Nails

3-1/2" ARDOX SPIRAL



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

SHUN T. TAM 1925-18
STRUCTURAL
COMPONENT ONLY

T-19011130 (v1)



Bolsa Cascade



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

2ND FLOOR FRAMING Flush Beams B6 CANT (16382)

PASSED

BC CALC® Member Report

Dry | 2 spans | R cant.

November 9, 2018 07:48:09

Build 6476

Job name:

File name: PRESTON 1.mmdl

Address:

Description: 2ND FLOOR FRAMING Flush Beams B6 CANT (16382)

City, Province, Postal Code: CALEDON

Specifier:

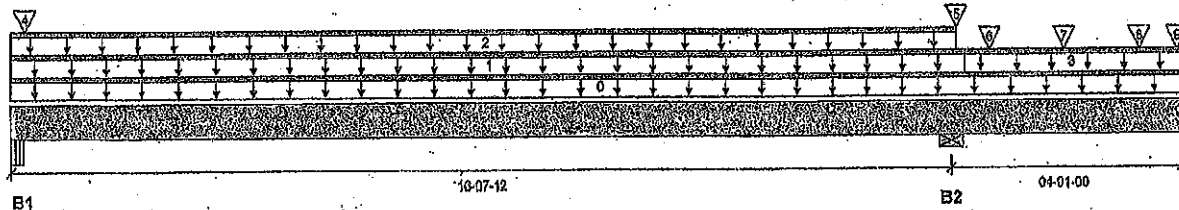
Customer:

Designer: PL

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 20-08-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-7/16"	208 / 216	158 / 0	64 / 0	
B2, 5-1/2"	2,032 / 0	1,253 / 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	20-08-12	Top	1.00	0.85	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	16-10-08	Top	18	8			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	16-08-12	Top	7	3			n/a
3	STAIRS	Unf. Lin. (lb/ft)	L	16-10-08	20-08-12	Top	240	120			n/a
4	E18(1984)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top		59	64		n/a
5	13(11409)	Conc. Pt. (lbs)	L	16-08-12	16-08-12	Top		28			n/a
6	J4(16394)	Conc. Pt. (lbs)	L	17-03-13	17-03-13	Top	202	101			n/a
7	J4(16392)	Conc. Pt. (lbs)	L	18-07-13	18-07-13	Top	243	121			n/a
8	J4(16407)	Conc. Pt. (lbs)	L	19-11-13	19-11-13	Top	189	95			n/a
9	B7(16481)	Conc. Pt. (lbs)	L	20-07-14	20-07-14	Top	68	5			n/a

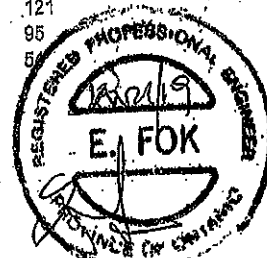
Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,158 ft-lbs	36,222 ft-lbs	3.2%	2	08-01-10
Neg. Moment	-7,735 ft-lbs	-36,222 ft-lbs	21.4%	1	16-07-12
End Shear	335 lbs	17,356 lbs	1.9%	2	01-01-15
Cont. Shear	2,940 lbs	17,356 lbs	16.9%	1	17-08-00
Total Load Deflection	2xL/338 (0.26")	n/a	71.1%	80	20-08-12
Live Load Deflection	2xL/457 (0.216")	n/a	78.8%	118	20-08-12
Total Neg. Defl.	L/1,200 (-0.163")	n/a	20.0%	80	10-02-08
Max Defl.	-0.163"	n/a	n/a	80	10-02-08
Span / Depth	20.6				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	4-7/16" x 5-1/4"	574 lbs	4.6%	2.0%	Unspecified
B1 Uplift		182 lbs			
B2 Wall/Plate	5-1/2" x 5-1/4"	4,816 lbs	29.9%	13.1%	Unspecified

Cautions

Uplift of 181 lbs found at span 1 - Left. (SIMPSON 1-12-57 @ ST. B1)



DWYNU, YAN 1914-1914
STRUCTURAL
COMPONENT ONLY

T-19011186



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B5 CANT (I6382)

Dry | 2 spans | R cant.

November 9, 2018 07:48:09

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

File name: PRESTON 1.mmdl

Description: 2ND FLOOR FRAMING\Flu...Beams\B5 CANT (I6382)

Specifier:

Designer: PL

Company:

Notes

Design meets User specified (2xL/240) Total load deflection criteria.

Design meets User specified (2xL/360) Live load deflection criteria.

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA 086. CONFORMS TO OBC 2012

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

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

Design based on Dry Service Condition.

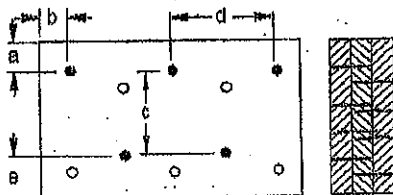
Importance Factor : Normal Part code : Part 9

Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.

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

Nailing schedule applies to both sides of the member.

Connection Diagram: Full Length of Member



4 ROWS

a minimum = 4"

b minimum = 3"

c = 6 1/2"

d = 12"

e minimum = 3"

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.

Connectors are: 1 Nails

3-1/2" ARDOX SPIRAL



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)232-0786 before installation.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, BC Floor/Value®, VERSA-LAM®, VERSA-RIM PLUS®.

OWNED BY 1914-1918
STRUCTURAL
COMPONENT ONLY

T-1901119



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

PASSED

2ND FLOOR FRAMING\Dropped Beams\B3 DR\6415

Dry | 1 span | No cant.

November 8, 2018 07:48:09

BC CALCO® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

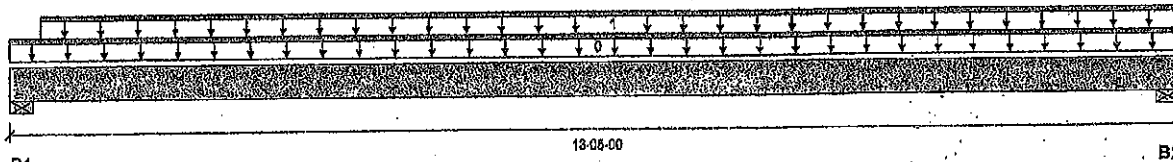
File name: PRESTON 1.mmdl

Description: 2ND FLOOR FRAMING\Dro...ed Beams\B3 DR\6415

Specifier:

Designer: PL

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,795 / 0	997 / 0		
B2, 3-1/2"	1,906 / 0	1,052 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-05-00	Top	14				00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-04-04	13-05-00	Top	266	133			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	12,797 ft-lbs	36,222 ft-lbs	35.3%	1	08-03-00
End Shear	3,751 lbs	17,356 lbs	21.6%	1	01-01-00
Total Load Deflection	L/428 (0.364")	n/a	86.1%	4	06-04-04
Live Load Deflection	L/664 (0.234")	n/a	64.2%	5	06-04-04
Max Defl.	0.364"	n/a	n/a	4	06-04-04
Span / Depth	16.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 5-1/4"	3,938 lbs	26.4%	17.6%	Unspecified
B2	Wall/Plate 3-1/2" x 5-1/4"	4,174 lbs	28.0%	18.6%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume unbraced length of Top: 00-05-02, Bottom: 00-05-02.
 Resistance Factor phi has been applied to all presented results per CSA O86. CONFORMS TO OBC 2012
 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.



OWNED BY TAM 1915 - 1914
 STRUCTURAL
 COMPONENT ONLY

T-19011120



Boise Cascade



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

2ND FLOOR FRAMING\Dropped Beams\B3 DR\B415

Dry | 1 span | No cant.

PASSED

November 9, 2018 07:48:09

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

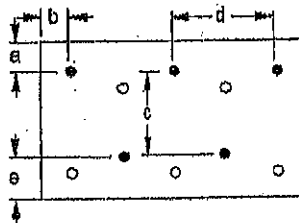
File name: PRESTON 1.mmdl

Description: 2ND FLOOR FRAMING\Dro...ed Beams\B3 DR\B415

Specifier:

Designer: PL

Company:

Connection Diagram: Full Length of Member

4 ROWS

a minimum = 4"

b minimum = 3"

c = 6 1/2"

d = 12"

e minimum = 2"

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.

Connectors are: 1 Nails

3-1/2" ARDOX SPIRAL

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®.

DWNG. TAM 12/15/18
STRUCTURAL
COMPONENT ONLY

T-19011120 (2)



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B7\16481

Dry | 1 span | No cant.

November 9, 2018 07:48:09

BC CALCO® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

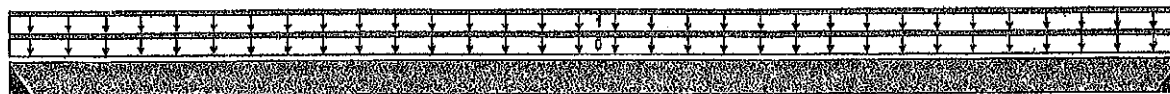
File name: PRESTON 1.mmdf

Description: 2ND FLOOR FRAMING\Flush Beams\B7\16481

Specifier:

Designer: PL

Company:



B1

08-02-12

B2

Total Horizontal Product Length = 08-02-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	62 / 0	51 / 0		
B2, 2"	61 / 0	50 / 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	08-02-12	Top	5				00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-02-12	Top	16	7			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	297 ft-lbs	11,810 ft-lbs	2.6%	1	04-01-14
End Shear	117 lbs	6,786 lbs	2.0%	1	01-00-08
Total Load Deflection	L/999 (0.01")	n/a	n/a	4	04-01-14
Live Load Deflection	L/999 (0.005")	n/a	n/a	5	04-01-14
Max Defl.	0.01"	n/a	n/a	4	04-01-14
Span / Depth	10.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	3" x 1-3/4"	167 lbs	n/a	2.4%	HUS1.81/10
B2 Hanger	2" x 1-3/4"	153 lbs	n/a	3.6%	LS90

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. Hanger has not been analyzed for adequate capacity.

Header for the hanger LS90 at B2 is a Triple 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model LS90 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

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. CONFORMS TO OBC 2012

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

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

OWNED BY TAM 19/10/18
STRUCTURAL
COMPONENT ONLY

T-19011121

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

BC CALC® Member Report

Dry | 1 span | No cant.

November 9, 2018 07:48:09

Build 6476

Job name:

File name: PRESTON 1.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B6\B6339

City, Province, Postal Code: CALEDON

Specifier:

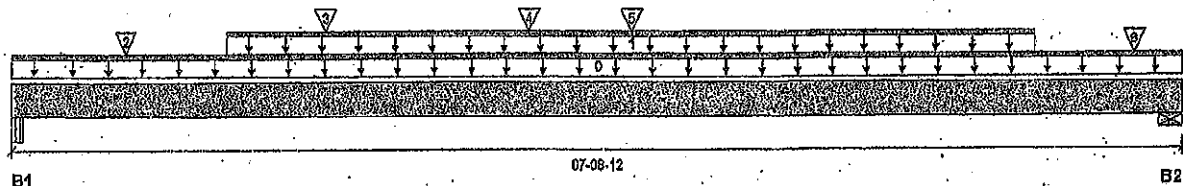
Customer:

Designer: PL

Code reports:

CGMC 12472-R

Company:

**Reaction Summary (Down / Uplift) (lbs)**

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,554 / 0	824 / 0		
B2, 2-3/4"	1,374 / 0	734 / 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	07-08-12	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-05-00	06-09-00	Top	295	147			n/a
2		Conc. Pt. (lbs)	L	00-08-16	00-08-16	Top	540	270			n/a
3	J4\B6392	Conc. Pt. (lbs)	L	02-00-13	02-00-13	Top	227	114			n/a
4	J4\B6407	Conc. Pt. (lbs)	L	03-04-13	03-04-13	Top	175	87			n/a
5	B7\B6481	Conc. Pt. (lbs)	L	04-00-14	04-00-14	Top	61	50			n/a
6	J2\B6346	Conc. Pt. (lbs)	L	07-05-00	07-05-00	Top	344	172			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	6,816 ft-lbs	23,220 ft-lbs	25.0%	1	03-05-00
End Shear	2,867 lbs	11,571 lbs	24.7%	1	01-01-00
Total Load Deflection	L/999 (0.077")	n/a	n/a	4	03-10-14
Live Load Deflection	L/999 (0.06")	n/a	n/a	5	03-10-14
Max Defl.	0.077"	n/a	n/a	4	03-10-14
Span / Depth	9.3				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 3-1/2" x 3-1/2"	3,361 lbs	25.2%	22.5%	Unspecified
B2	Wall/Plate 2-3/4" x 3-1/2"	2,978 lbs	57.9%	25.4%	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.

DRYWOOD LAM 1913 1184
STRUCTURAL 12/14
COMPONENT ONLY

T-19061122



Boise Cascade

**Double 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 9, 2018 07:48:09

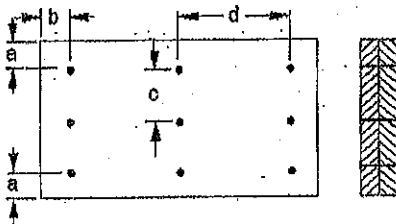
File name: PRESTON 1.mxd

Description: 2ND FLOOR FRAMING\Flush Beams\B6(16339)

Specifier:

Designer: PL

Company:

Connection Diagram: Full Length of Member

a minimum = 2"
b minimum = 3"
c = 2-3/4"
d = 2-3/4"

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.

Connectors are: *3* Nails

3-1/2" ARDOX SPIRAL

**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®,

**WOOD JOIST L917-1011
STRUCTURAL
COMPONENT ONLY**

T-19011111



Bulsec Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****2ND FLOOR FRAMING\Dropped Beams\B4 DR\18328****PASSED**

BC CALC® Member Report

Buld 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: COMG 12472-R

Dry | 1 span | No cant.

November 8, 2018 07:48:09

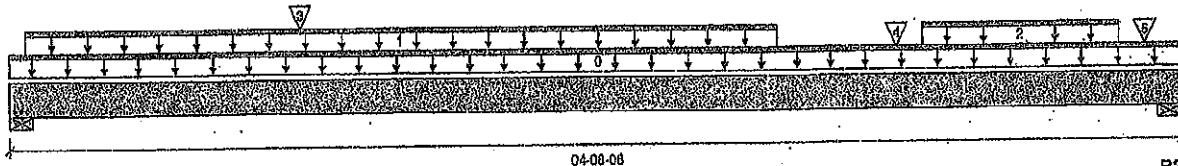
File name: PRESTON 1.mxd

Description: 2ND FLOOR FRAMING\Dro...ed Beams\B4 DR\18328

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 04-08-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,823 / 0	1,028 / 0		
B2, 6"	1,283 / 0	739 / 0		

Load Summary

Seq.	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-08-08	Top		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-12	03-00-12	Top	324	162			n/a
2	Bk1(18395)	Unf. Lin. (lb/ft)	L	03-08-00	04-05-08	Top		65			n/a
3	B6(18399)	Conc. Pt. (lbs)	L	01-02-00	01-02-00	Top	1,545	819			n/a
4	J1(18477)	Conc. Pt. (lbs)	L	03-06-12	03-06-12	Top	328	177			n/a
5	J1(18483)	Conc. Pt. (lbs)	L	04-06-12	04-06-12	Top	328	177			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3,525 ft-lbs	23,220 ft-lbs	15.2%	1	01-06-12
End Shear	3,703 lbs	11,571 lbs	32.0%	1	01-01-00
Total Load Deflection	L/999 (0.014")	n/a	n/a	4	02-02-04
Live Load Deflection	L/999 (0.009")	n/a	n/a	5	02-01-08
Max Defl.	0.014"	n/a	n/a	4	02-02-04
Span / Depth	5.2				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	4,187 lbs	41.9%	27.9%	Unspecified
B2	Wall/Plate 5" x 3-1/2"	2,817 lbs	19.8%	13.2%	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: 00-01-12, Bottom: 00-01-12.

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 OBC 2012.

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.

NO. 1918-184
STRUCTURAL
COMPONENT ONLY

T-1901023



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****2ND FLOOR FRAMING\Dropped Beams\B4 DR\16328**

Dry | 1 span | No cant.

PASSED

November 9, 2018 07:48:09

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

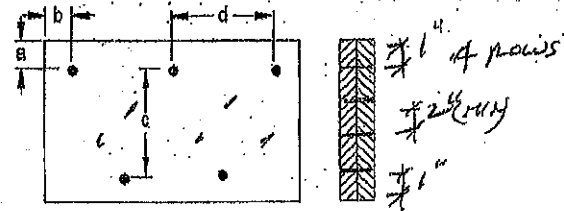
File name: PRESTON 1.mmdl

Description: 2ND FLOOR FRAMING\Dro...ed Beams\B4 DR\16328

Specifier:

Designer: PL

Company:

Connection Diagram: Full Length of Member

a minimum = 1"

b minimum = 3"

c = 1 1/2"

d = 6"

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.

Connectors are: 3-1/2" ARDOX SPIRAL

3-1/2" ARDOX SPIRAL

**Disclosure**

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

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

DWG NO. F41118
STRUCTURAL
COMPONENT ONLY

190.1128(N)



Bolted Cascade

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

PASSED

2ND FLOOR FRAMING\Flush Beams\B8(16285)

Dry | 1 span | No cant.

November 9, 2018 07:48:09

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

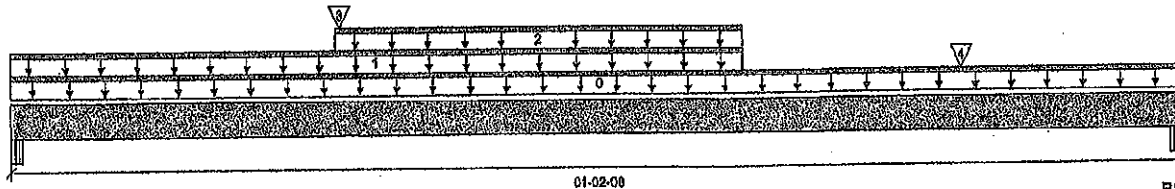
File name: PRESTON 1.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B8(16285)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 01-02-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-1/2"	249 / 0	355 / 0	777 / 0	
B2, 5"	144 / 0	208 / 0	418 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.85	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-02-08	Top		10			00-00-00
1	E23(1388)	Unf. Lin. (lb/ft)	L	00-00-00	00-09-00	Top		81			n/a
2	E23(1388)	Unf. Lin. (lb/ft)	L	00-04-00	00-09-00	Top	72	65	221		n/a
3	-	Conc. Pt. (lbs)	L	00-04-01	00-04-01	Top	328	409	1,000		n/a
4	E22(1389)	Conc. Pt. (lbs)	L	00-11-12	00-11-12	Top	33	53	101		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	343 ft-lbs	23,220 ft-lbs	1.6%	13	00-04-00
End Shear	225 lbs	11,671 lbs	1.9%	13	00-00-00
Span / Depth	0.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Beam	2-1/2" x 3-1/2"	1,859 lbs	98.8%	17.4%	Unspecified
B2 Beam	5" x 3-1/2"	1,031 lbs	11.0%	4.8%	Unspecified



Notes

Calculations assume member is fully braced.

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

CONFORMS TO OBC 2012

BC CALC® analysis is based on Canadian Limit States Design, as per NBC 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.

UWENO.YAM 1919-18H
STRUCTURAL
COMPONENT ONLY

T-19011124



Boise Cascade



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B8\16285

Dry | 1 span | No cant.

November 9, 2018 07:48:09

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

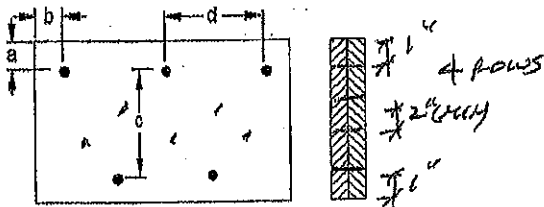
File name: PRESTON 1.mxd

Description: 2ND FLOOR FRAMING\Flush Beams\B8\16285

Specifier:

Designer: PL

Company:

Connection Diagram: Full Length of Member

a minimum = 1" ¹¹
 b minimum = 3"

c = 1 1/2" ¹¹
 d = 4" ¹¹

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.
 Connectors are: 1 Nails

3-1/2" ARDOX SPIRAL

**Disclosure**

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

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

DWG NO. TAM 1919-19H
 STRUCTURAL
 COMPONENT ONLY

T-1901112462



Boise Cascade



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B9\6298

November 9, 2018 07:48:09

BC CALCO Member Report

Build 8475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

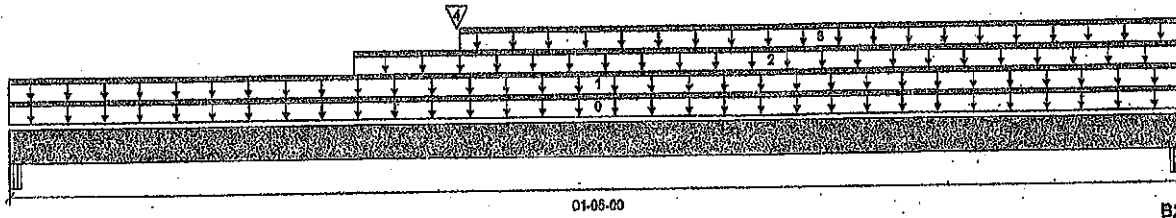
File name: PRESTON 1.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B9\6298

Specifier:

Designer: PL

Company:



B1

B2

Total Horizontal Product Length = 01-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 6"	269 / 0	394 / 0	788 / 0	
B2, 6"	165 / 0	239 / 0	436 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.85	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	10				00-00-00
1	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	33	30	34		n/a
2	E21(1383)	Unf. Lin. (lb/ft)	L	00-05-00	01-05-00	Top	81				n/a
3	E21(1383)	Unf. Lin. (lb/ft)	L	00-06-08	01-05-00	Top	72	65	221		n/a
4	-	Conc. Pt. (lbs)	L	00-06-07	00-06-07	Top	323	439	987		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	344 ft-lbs	23,220 ft-lbs	1.5%	13	00-06-08
End Shear	163 lbs	11,571 lbs	1.4%	13	00-02-08
Span / Depth	0.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 6" x 3-1/2"	1,951 lbs	20.9%	9.1%	Unspecified
B2	Beam 6" x 3-1/2"	1,117 lbs	12.0%	5.2%	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.

DRAWING: FAN 1920-184
STRUCTURAL
COMPONENT ONLY

T. Goulet



Boise Cascade



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

2ND FLOOR FRAMING\Flush Beams\B9(16298)

Dry | 1 span | No cant.

PASSED

November 9, 2018 07:48:09

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

File name: PRESTON 1.mxd

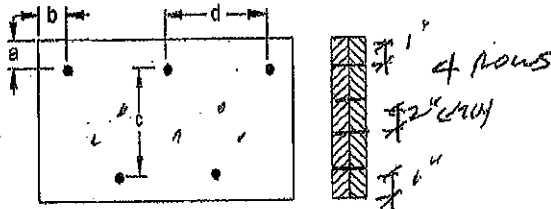
Description: 2ND FLOOR FRAMING\Flush Beams\B9(16298)

Specifier:

Designer: PL

Company:

Connection Diagram: Full Length of Member



a minimum = 1/4"
b minimum = 3"

c = 7-1/2"
d = 4"

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.

Connectors are: Nails

3-1/2" ARDOX SPIRAL



Disclosure

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

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

OWEN K. TAM 19/10/18
STRUCTURAL
COMPONENT ONLY

T-19011125(2)



Borser-Cascade



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

2ND FLOOR FRAMING\Dropped Beams\B12 DR\15622

PASSED

BC CALCO Member Report

Dry | 1 span | No cant.

November 9, 2018 08:08:41

Build 6475

Job name:

File name: PRESTON 1 OPT 5 BED.mmdl

Address:

Description: 2ND FLOOR FRAMING\Dro...d Beams\B12 DR\15622

City, Province, Postal Code: CALEDON

Specifier:

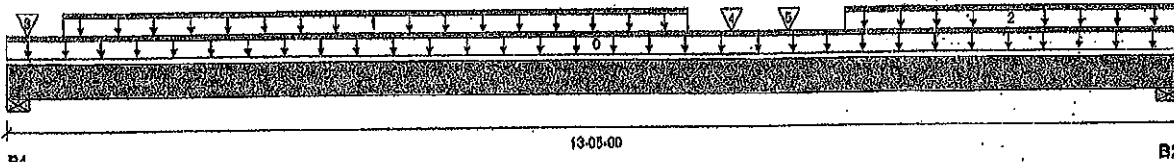
Customer:

Designer: PL

Code reports:

COMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

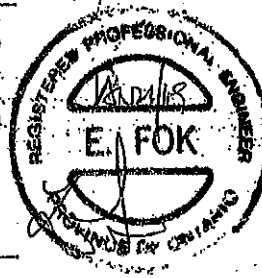
Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,926 / 0	1,060 / 0		
B2, 3-1/2"	1,904 / 0	1,049 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-05-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-07-12	07-09-00	Top	258	129			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	09-07-00	13-05-00	Top	272	136			n/a
3	J3(15675)	Conc. Pt. (lbs)	L	00-03-00	00-03-00	Top	258	129			n/a
4	J3(15654)	Conc. Pt. (lbs)	L	08-03-00	08-03-00	Top	215	107			n/a
5	J3(15659)	Conc. Pt. (lbs)	L	08-11-00	08-11-00	Top	258	129			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	12,746 ft-lbs	36,222 ft-lbs	35.2%	1	06-04-04
End Shear	3,642 lbs	17,356 lbs	21.0%	1	01-01-00
Total Load Deflection	L/428 (0.363")	n/a	58.0%	4	06-04-04
Live Load Deflection	L/865 (0.234")	n/a	54.2%	5	06-04-04
Max Defl.	0.363"	n/a	n/a	4	06-04-04
Span / Depth	18.4				



Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 5-1/4"	4,214 lbs	28.2%	18.8%	Unspecified
B2	Wall/Plate 3-1/2" x 5-1/4"	4,167 lbs	27.9%	18.6%	Unspecified

Notes

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

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

Calculations assume unbraced length of Top: 00-03-09, Bottom: 00-03-09.

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

CONFORMS TO OBC 2012

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.

OWNED, YAM 1/21/18
STRUCTURAL
COMPONENT ONLY

T-1901126



Boise Cascade



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

2ND FLOOR FRAMING\Dropped Beams\B12 DR\6622)

PASSED

BC CALC® Member Report

Buld 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

November 9, 2018 08:08:41

File name: PRESTON 1 OPT 5 BED.mmdl

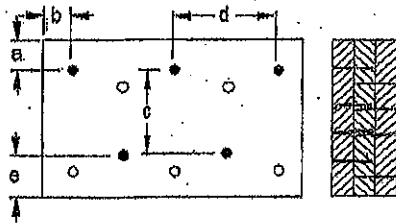
Description: 2ND FLOOR FRAMING\Dro...d Beams\B12 DR\6622)

Specifier:

Designer: PL

Company:

Connection Diagram: Full Length of Member



a minimum = 1"

c = 6 1/2"

b minimum = 3"

d = 8"

e minimum = 2"

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.

Connectors are: 3-1/2" ARDOX SPIRAL

3-1/2" ARDOX SPIRAL



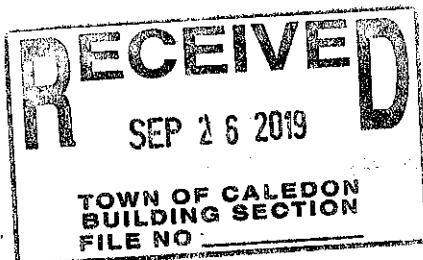
Disclosure

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™, BCIS®, BOISE GLULAM™, BC FloorVetue®, VERSA-LAM®, VERSA-RIM PLUS®.

DWG NO. TAW 2921-18
STRUCTURAL
COMPONENT ONLY

T-19011126(9)



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

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

November 9, 2016 08:08:41

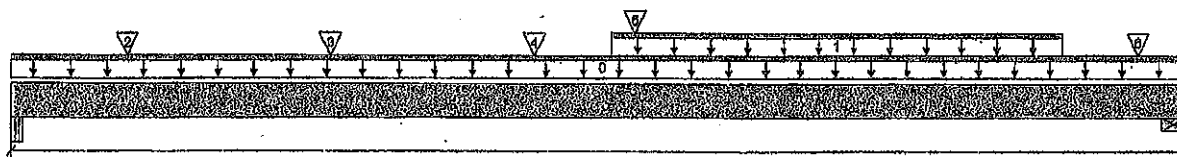
File name: PRESTON 1 OPT 6 BED.mindl

Description: 2ND FLOOR FRAMING\Flush Beams\B13\B703

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 07-08-12

Reaction Summary (Down / Uplift) (lbs)

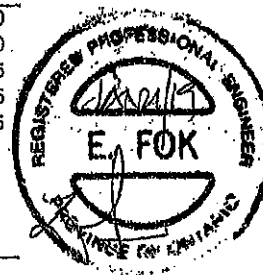
Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,655 / 0	824 / 0		
B2, 2-3/4"	1,340 / 0	717 / 0		

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	07-08-12	Top	10				00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	03-11-00	06-11-00	Top	288	148			n/a
2	-	Conc. Pt. (lbs)	L	00-09-00	00-09-00	Top	543	271			n/a
3	-	Conc. Pt. (lbs)	L	02-01-00	02-01-00	Top	617	309			n/a
4	-	Conc. Pt. (lbs)	L	03-05-00	03-05-00	Top	616	258			n/a
5	B7\B746	Conc. Pt. (lbs)	L	04-00-14	04-00-14	Top	60	50			n/a
6	J2\B667	Conc. Pt. (lbs)	L	07-06-00	07-06-00	Top	258	129			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5,824 ft-lbs	23,220 ft-lbs	25.1%	1	03-05-00
End Shear	2,864 lbs	11,571 lbs	24.7%	1	01-01-00
Total Load Deflection	L/999 (0.078")	n/a	n/a	4	03-09-15
Live Load Deflection	L/999 (0.061")	n/a	n/a	5	03-09-15
Max Defl.	0.078"	n/a	n/a	4	03-09-15
Span / Depth	9.3				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 3-1/2" x 3-1/2"	3,862 lbs	25.2%	22.5%	Unspecified
B2	Wall/Plate 2-3/4" x 3-1/2"	2,906 lbs	66.5%	24.7%	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.

CONFORMS TO OBC 2012

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

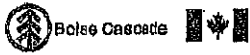
Design based on Dry Service Condition.

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.

DWNG.TAN 1922-194
STRUCTURAL
COMPONENT ONLY

T-19011127



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

PASSED

BC CALC® Member Report

2ND FLOOR FRAMING\Flush Beams\B13\15703

Dry | 1 span | No cant.

November 9, 2018 08:08:41

Build 6475

Job name:

File name: PRESTON 1 OPT 5 BED.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B13\15703

City, Province, Postal Code: CALEDON

Specifier:

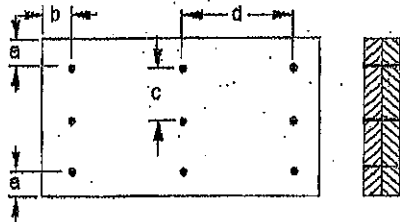
Customer:

Designer: PL

Code reports: CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 2-3/4" "

b minimum = 3"

d = 4"

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.

Connectors are: 3 Nails

3-1/2" ARDOX SPIRAL



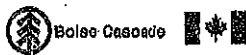
Disclosure

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.

HWBND.YAM 1/22/18
STRUCTURAL
COMPONENT ONLY

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

T-19011127(2)

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

BC CALC® Member Report

Dry | 1 span | No cant.

November 9, 2018 09:48

Build 6475

Job name:

File name: PRESTON 1 ELEV 2.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B14\I6380

City, Province, Postal Code: CALEDON

Specifier:

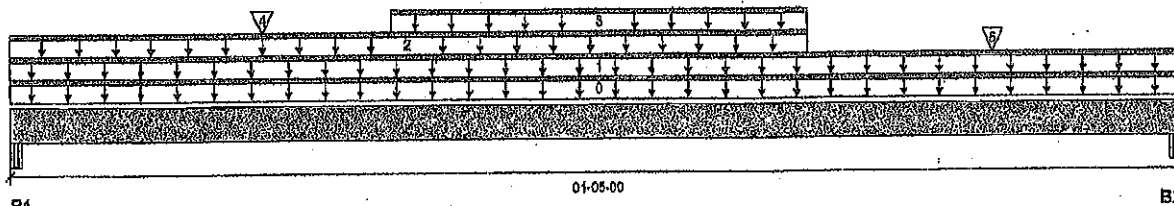
Customer:

Designer: PL

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 01-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 6"	237 / 0	278 / 0	399 / 0	
B2, 6"	88 / 0	114 / 0	145 / 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	01-06-00	Top	10				00-00-00
1	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	33	30	102		n/a
2	E23(I388)	Unf. Lin. (lb/ft)	L	00-00-00	00-11-08	Top		81			n/a
3	E23(I388)	Unf. Lin. (lb/ft)	L	00-06-08	00-11-08	Top	33	30	102		n/a
4		Conc. Pt. (lbs)	L	00-03-10	00-09-10	Top	245	206	301		n/a
5	E22(I389)	Conc. Pt. (lbs)	L	01-02-04	01-02-04	Top	15	37	47		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	67 ft-lbs	23,220 ft-lbs	0.3%	1	00-07-00
End Shear	131 lbs	11,571 lbs	1.1%	13	01-02-08
Span / Depth	0.9				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 6" x 3-1/2"	1,182 lbs	12.7%	6.6%	Unspecified
B2	Beam 6" x 3-1/2"	447 lbs	4.8%	2.1%	Unspecified

**Notes**

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86. CONFORMS TO OBC 2012

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.

OWNED, JAN 1923 - 18H
STRUCTURAL
COMPONENT ONLY

T-19011128



Boise Cascade



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B14\16380

Dry | 1 span | No cant.

November 9, 2018 08:09:48

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

File name: PRESTON 1 ELEV 2.mmdl

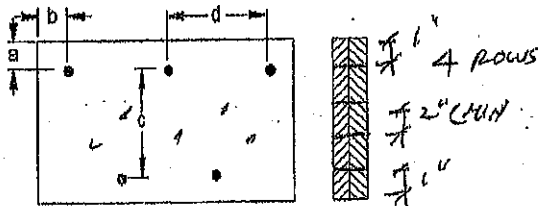
Description: 2ND FLOOR FRAMING\Flush Beams\B14\16380

Specifier:

Designer: PL

Company:

Connection Diagram: Full Length of Member

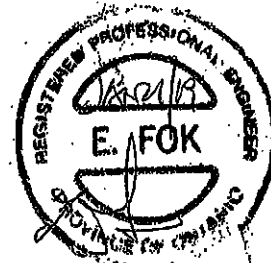


a minimum = 1"
b minimum = 3"

c = 1-1/2"
d = 4"

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.

Connectors are: 3-1/2" ARDOX SPIRAL



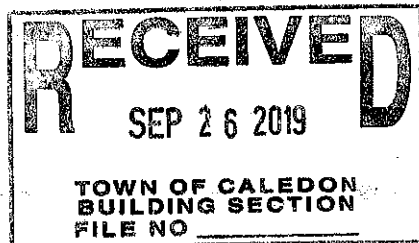
Disclosure

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

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

OWNED, TANK 1923-1924
STRUCTURAL
COMPONENT ONLY

T-190111286





Boise Cascade



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B15\16372

Dry | 1 span | No cant.

November 9, 2018 08:09:48

BC CALCO Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports:

CGMC 12472-R

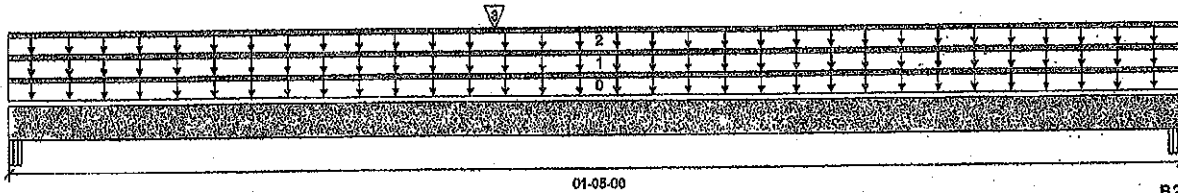
File name: PRESTON 1 ELEV 2.mxd

Description: 2ND FLOOR FRAMING\Flush Beams\B15\16372

Specifier:

Designer: PL

Company:



B1

01-05-00

B2

Total Horizontal Product Length = 01-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5"	118 / 0	147 / 0	140 / 0	
B2, 5"	72 / 0	125 / 0	140 / 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	01-05-00	Top	10	107	95		00-00-00
1	E29(1414)	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	33	30	102		n/a
2	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	127	64			n/a
3	J6(16277)	Conc. Pt. (lbs)	L	00-07-00	00-07-00	Top					n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	66 ft-lbs	23,220 ft-lbs	0.3%	1	00-07-00
End Shear	131 lbs	11,571 lbs	1.1%	23	01-02-08
Span / Depth	0.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	5" x 3-1/2"	609 lbs	6.5%	2.4%	Unspecified
B2 Beam	5" x 3-1/2"	437 lbs	4.7%	2.0%	Unspecified



Notes

Calculations assume member is fully braced.

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

CONFORMS TO OBC 2012

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.

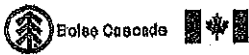
Design based on Dry Service Condition.

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.

DWG NO. 7AM 1924-184
STRUCTURAL
COMPONENT ONLY

T-192011129



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

PASSED

BC CALC® Member Report

2ND FLOOR FRAMING\Flush Beams\B15\16372

Dry | 1 span | No cant.

November 9, 2018 08:09:48

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

File name: PRESTON 1 ELEV 2.mmdl

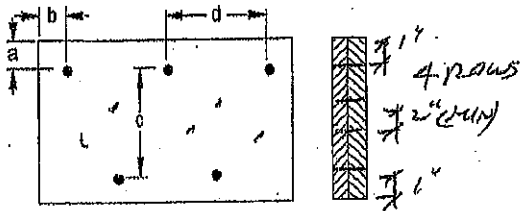
Description: 2ND FLOOR FRAMING\Flush Beams\B15\16372

Specifier:

Designer: PL

Company:

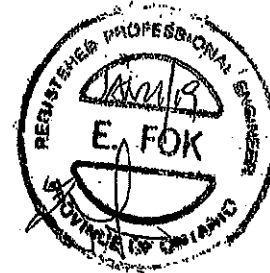
Connection Diagram: Full Length of Member



a minimum = 8"
b minimum = 3"
c = 1-1/2"
d = 4"

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.

Connectors are: Nails
3-1/2" ARDOX SPIRAL



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™, HALLJOIST®, BC RIM BOARD™, BCIO®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,
DWG NO. TAM 1924-19
STRUCTURAL
COMPONENT ONLY

T-1901112961



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B20\I7073

BC CALCO® Member Report

Dry | 1 span | No cant.

July 6, 2019 10:26:41

Buld 7118

Job name:

File name: PRESTON 1 STD.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B20\I7073

City, Province, Postal Code: CALEDON

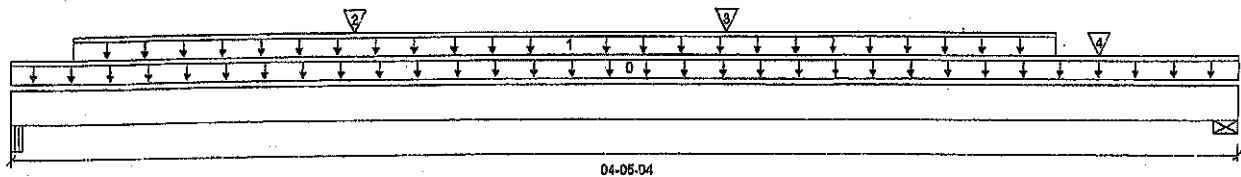
Specifier:

Customer:

Designer: PL

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 04-05-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/4"	907 / 0	467 / 0		
B2, 3-1/2"	1,036 / 0	544 / 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	04-05-04	Top	6				00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-02-12	03-09-04	Top	240	120			n/a
2	J2(I6650)	Conc. Pt. (lbs)	L	01-02-12	01-02-12	Top	354	177			n/a
3	J2(I6673)	Conc. Pt. (lbs)	L	02-06-12	02-06-12	Top	358	179			n/a
4	-	Conc. Pt. (lbs)	L	03-11-02	03-11-02	Top	370	197			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,199 ft-lbs	17,696 ft-lbs	12.4%	1	02-05-12
End Shear	1,606 lbs	7,232 lbs	22.2%	1	03-01-14
Total Load Deflection	L/999 (0.009")	n/a	n/a	4	02-02-04
Live Load Deflection	L/999 (0.006")	n/a	n/a	5	02-02-04
Max Defl.	0.009"	n/a	n/a	4	02-02-04
Span / Depth	4.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 2-3/4" x 1-3/4"	1,943 lbs	75.6%	33.1%	Unspecified
B2	Wall/Plate 3-1/2" x 1-3/4"	2,233 lbs	68.3%	29.9%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO
OBC 2012



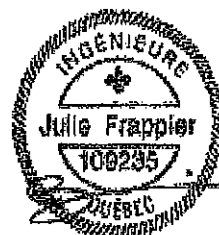
DESIGN CONFORMS TO OBC2012

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

ET0000638



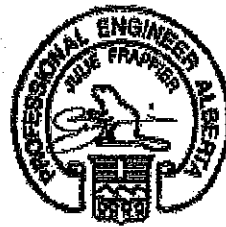
Maximum Floor Spans

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

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

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

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



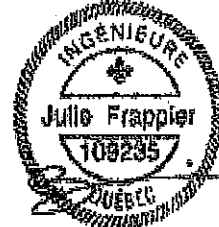
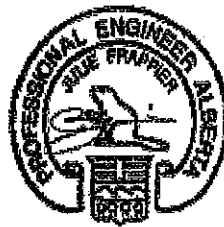
Maximum Floor Spans

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

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

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

- 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, NRC 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

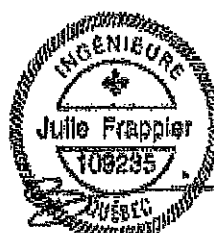
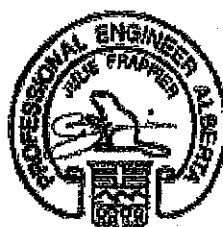
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"	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'-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 = 15 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing



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

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

- 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.



Construction Detail

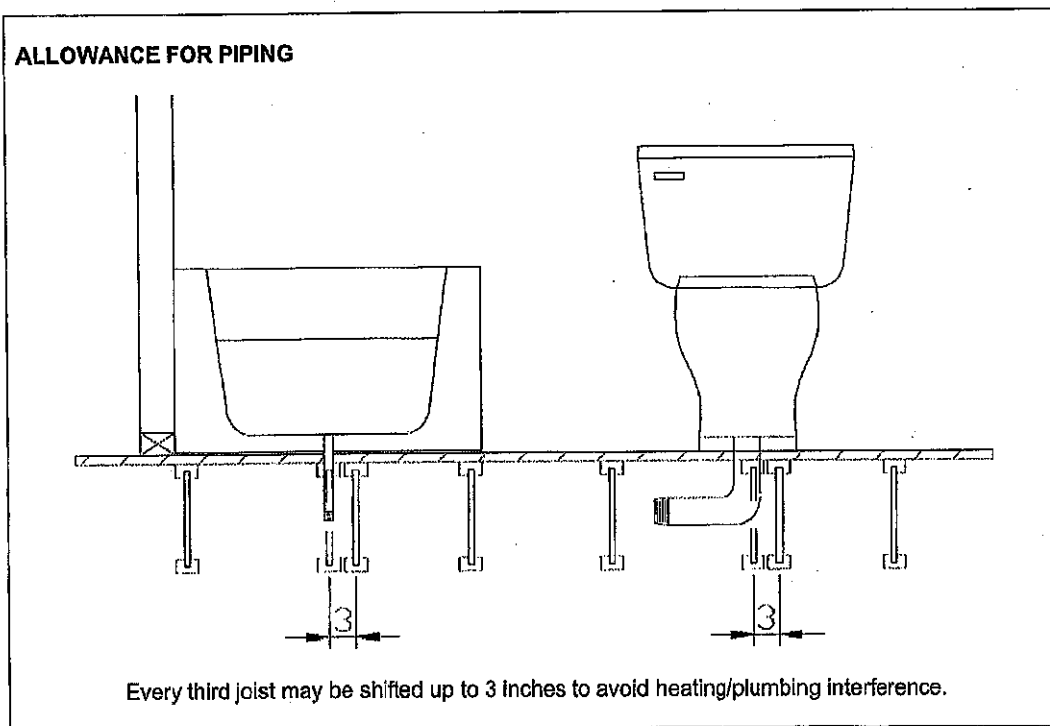
Limit States Design

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.

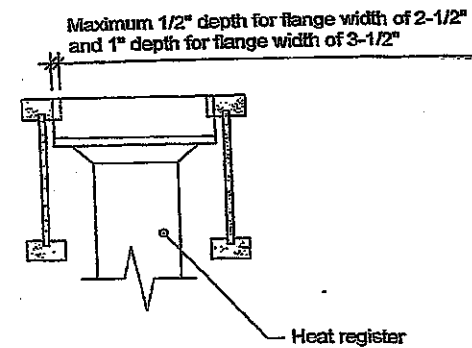
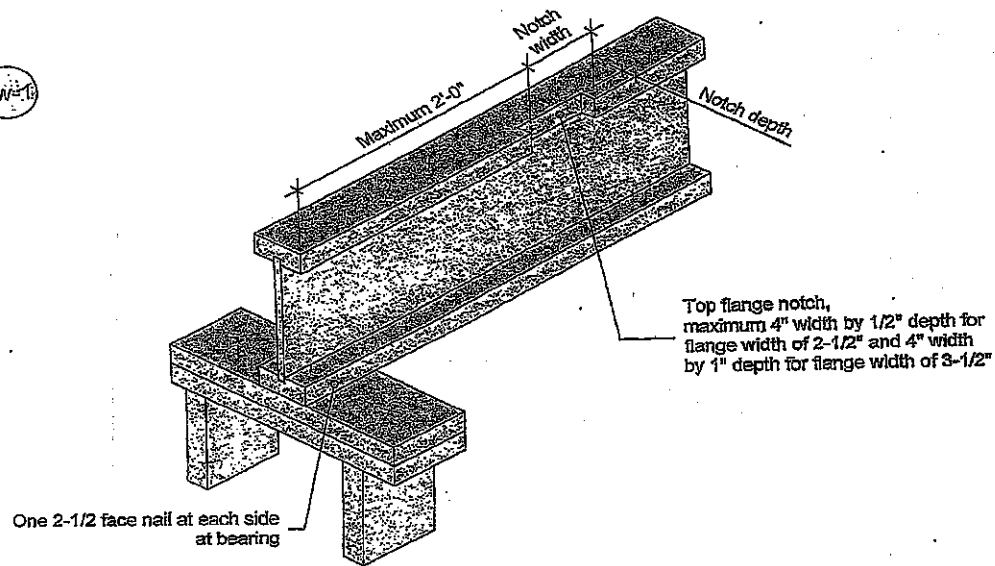
Installation of Nordic I-joists shall be as per *Nordic Joist Installation Guide for Residential Floors*. Refer to Tables 1 and 2 for maximum web hole and duct chase openings, respectively. These tables are based on the I-joists being used at their maximum spans. The minimum distance given may be reduced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

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