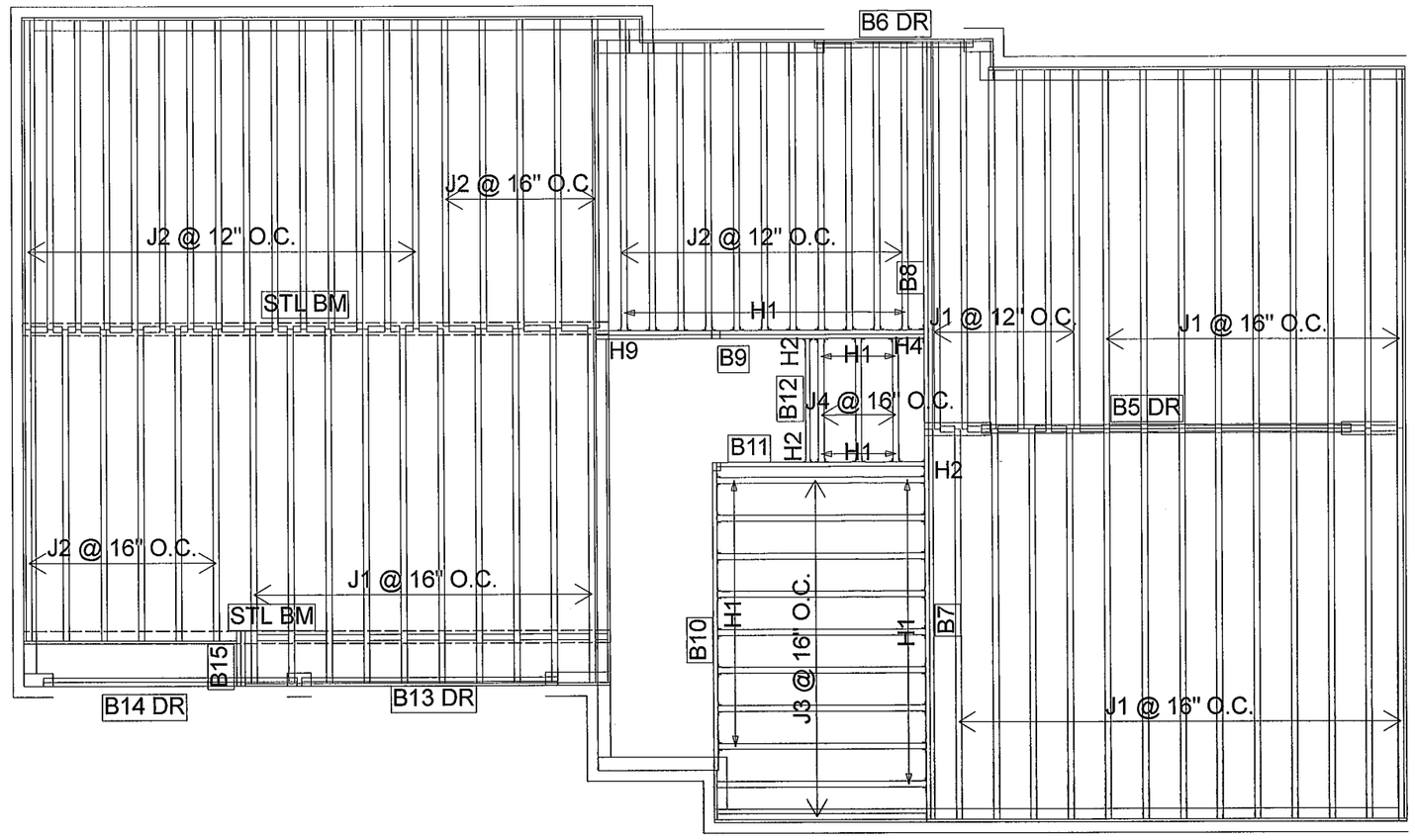


Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	38
J2	12-00-00	9 1/2" NI-40x	1	37
J3	8-00-00	9 1/2" NI-40x	1	10
J4	6-00-00	9 1/2" NI-40x	1	3
B7	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B10	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B9	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B13 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B14 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B12	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6 DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B15	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5 DR	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
11	H1	IUS2.56/9.5
23	H1	IUS2.56/9.5
1	H2	HUS1.81/10
2	H2	HUS1.81/10
1	H4	HGUS410

TAMARACK LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED: MAY 2018

BUILDER: BAYVIEW WELLINGTON

SITE: PASSAGE ON THE CANAL

MODEL: SD-1-B34 THE HUDSON 4

ELEVATION: A

LOT:

CITY: ST.CATERINES

SALESMAN: M D
DESIGNER: AJ
REVISION:

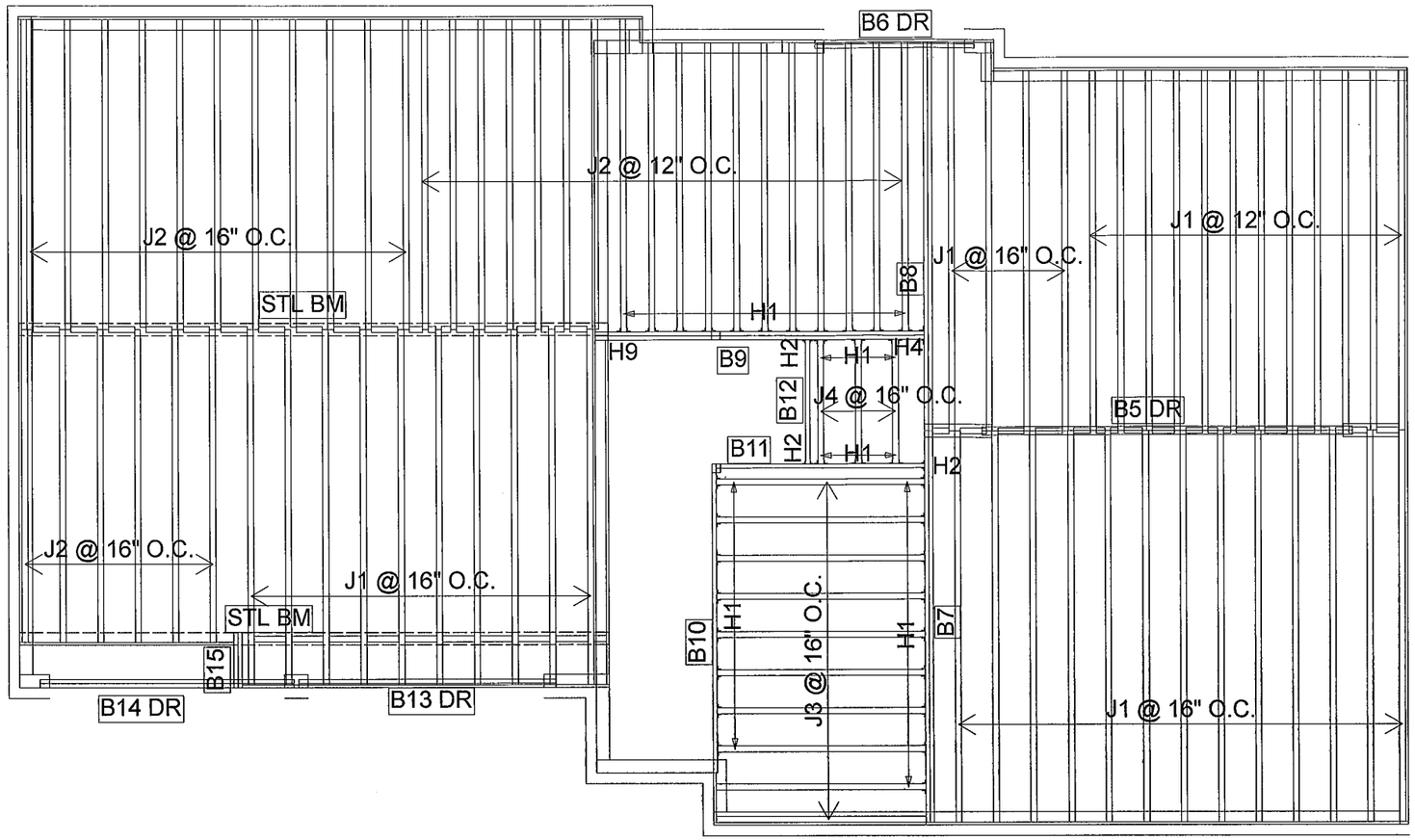
NOTES:
REFER TO THE NORDIC **INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION. **SQUASH BLOCKS** OF 2x4, 2x6, 2x8 #2 S.P.F. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER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

LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILED AREAS: 20 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2019-01-30

2nd FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	39
J2	12-00-00	9 1/2" NI-40x	1	35
J3	8-00-00	9 1/2" NI-40x	1	10
J4	6-00-00	9 1/2" NI-40x	1	3
B7	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B10	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B9	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B13 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B14 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B12	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6 DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B15	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5 DR	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
11	H1	IUS2.56/9.5
23	H1	IUS2.56/9.5
1	H2	HUS1.81/10
2	H2	HUS1.81/10
1	H4	HGUS410

TAMARACK LUMBER INC
ALPA LUMBER GROUP

FROM PLAN DATED: MAY 2018

BUILDER: BAYVIEW WELLINGTON

SITE: PASSAGE ON THE CANAL

MODEL: SD-1-B34 THE HUDSON 4

ELEVATION: A

LOT:

CITY: ST.CATERINES

SALESMAN: M D
DESIGNER: AJ
REVISION:

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

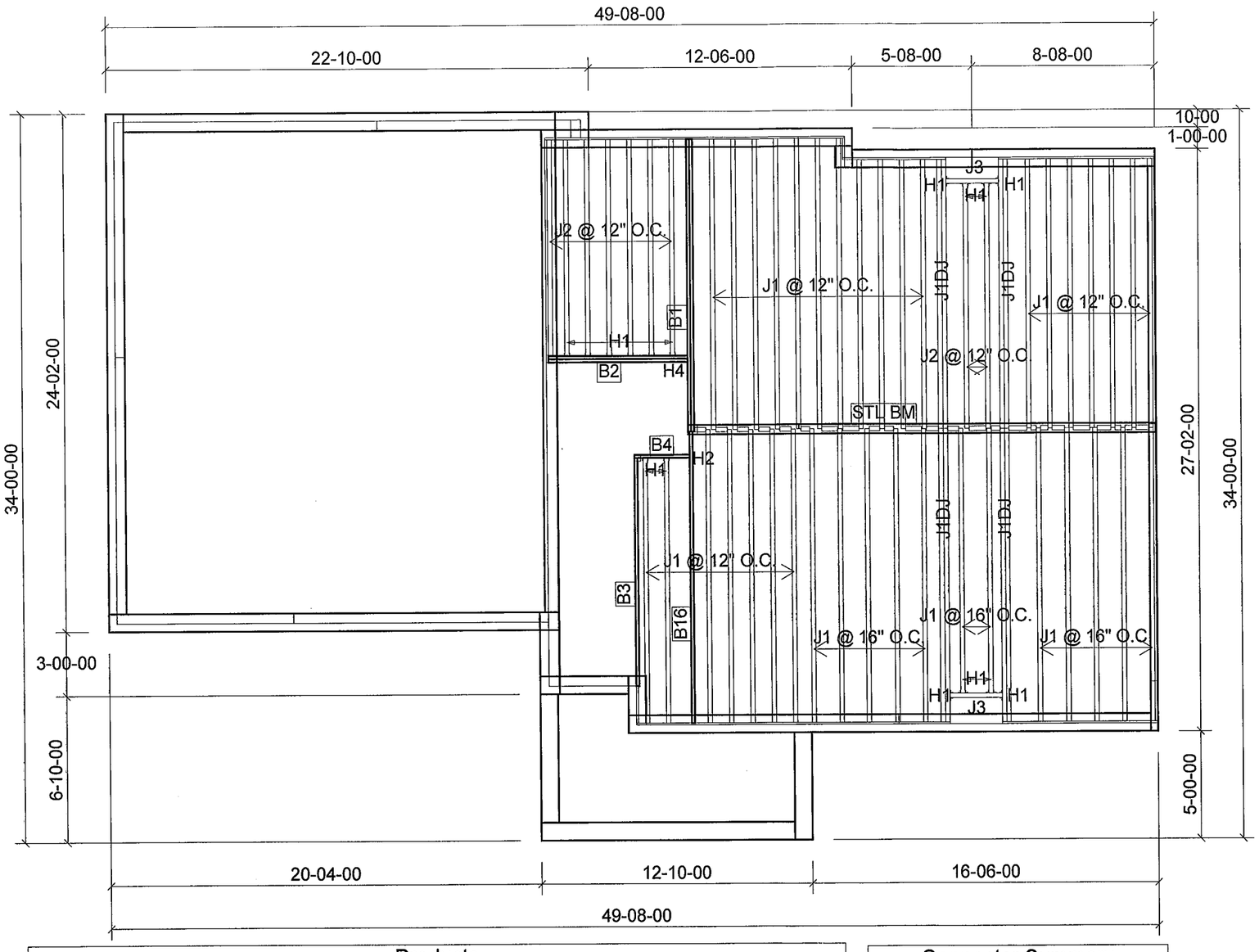
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILED AREAS: 20 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2019-01-30

2nd FLOOR

OPTION 3 BEDROOM



Products				
PlotID	Length	Product	Plies	Net Qty
J1	14-00-00	9 1/2" NI-40x	1	37
J1DJ	14-00-00	9 1/2" NI-40x	2	8
J2	12-00-00	9 1/2" NI-40x	1	9
J3	4-00-00	9 1/2" NI-40x	1	2
B16	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B1	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B3	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B2	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B4	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
2	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
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1	H4	HGUS410

TAMARACK LUMBER INC
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FROM PLAN DATED: MAY 2018

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DESIGNER: AJ
REVISION:

NOTES:
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SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS.
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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/ft
TILED AREAS: 20 lb/ft

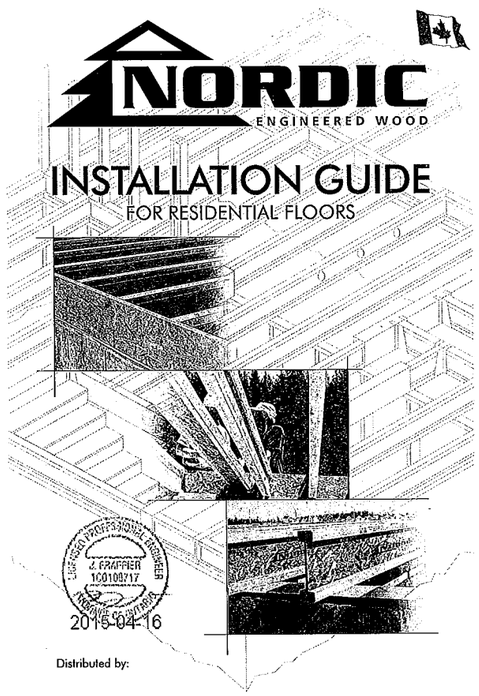
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 10/27/2018

1st FLOOR

NORDIC
ENGINEERED WOOD

INSTALLATION GUIDE
FOR RESIDENTIAL FLOORS



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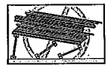
N-C30 / November 2014

SAFETY AND CONSTRUCTION PRECAUTIONS

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



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

WARNING

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

Avoid Accidents by Following these Important Guidelines:

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

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

MAXIMUM FLOOR SPANS

1. Maximum **clear** spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGSB-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the used of gypsum and/or a row of blocking at mid-span.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
6. Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
7. SI units conversion: 1 inch = 25.4 mm
   1 foot = 0.305 m

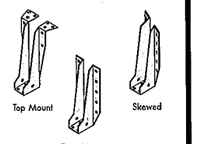
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS
SIMPLE AND MULTIPLE SPANS

Joist Depth	Joist Series	Simple spans On centre spacing				Multiple spans On centre spacing			
		12"	16"	19.2	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2	13'-9"	13'-5	16'-3"	15'-4	14'-10	14'-7
	NI-40x	16'-1"	15'-2"	14'-8"	14'-9"	17'-5"	16'-5"	15'-10"	15'-5"
	NI-60	16'-3"	15'-4"	14'-10"	14'-11"	17'-7"	16'-7"	16'-0"	16'-1"
	NI-70	17'-1"	16'-1"	15'-6"	15'-7"	18'-7"	17'-4"	16'-9"	16'-10"
	NI-80	17'-2"	16'-3"	15'-8"	15'-9"	18'-10"	17'-6"	16'-11"	17'-0"
11-7/8"	NI-20	16'-11"	16'-0"	15'-5	15'-6"	18'-4	17'-3"	16'-8	16'-7"
	NI-40x	18'-1	17'-0"	16'-5	16'-6"	20'-0	18'-6"	17'-9	17'-7"
	NI-60	18'-4"	17'-3"	16'-7"	16'-9"	20'-3"	18'-9"	18'-0"	18'-1"
	NI-70	19'-6"	18'-0"	17'-4"	17'-5"	21'-6"	19'-11"	19'-0"	19'-1"
	NI-80	19'-9"	18'-3"	17'-6"	17'-7"	21'-9"	20'-2"	19'-3"	19'-4"
	NI-90	20'-2"	18'-7	17'-10	17'-11"	22'-3"	20'-7	19'-8"	19'-9
	NI-90x	20'-4"	18'-9	17'-11"	18'-0	22'-5"	20'-9"	19'-10"	19'-11"
14"	NI-40x	20'-1"	18'-7"	17'-10"	17'-11"	22'-2"	20'-6"	19'-8"	19'-4"
	NI-60	20'-5"	18'-11"	18'-1"	18'-2"	22'-7"	20'-11"	20'-0"	20'-1"
	NI-70	21'-7"	20'-0"	19'-1"	19'-2"	23'-10"	22'-1"	21'-1"	21'-2"
	NI-80	21'-11"	20'-3"	19'-4"	19'-5"	24'-3"	22'-5"	21'-5	21'-6"
	NI-90	22'-5	20'-8"	19'-9	19'-10"	24'-9	22'-10"	21'-10"	21'-10"
	NI-90x	22'-7"	20'-11"	19'-11"	20'-0"	25'-0"	23'-1"	22'-0"	22'-2"
16"	NI-60	22'-3"	20'-8"	19'-9"	19'-10"	24'-7"	22'-9"	21'-9"	21'-10"
	NI-70	23'-6"	21'-9"	20'-9"	20'-10"	26'-0"	24'-0"	22'-11"	23'-0"
	NI-80	23'-11	22'-1"	21'-1"	21'-2"	26'-5"	24'-5"	23'-3"	23'-4"
	NI-90	24'-5"	22'-6	21'-5"	21'-6	26'-11"	24'-10"	23'-9"	23'-9
	NI-90x	24'-8"	22'-9"	21'-9"	21'-10"	27'-3"	25'-2"	24'-0"	24'-1"

CCMC EVALUATION REPORT 13032-R

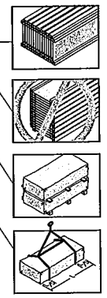
I-JOIST HANGERS

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



STORAGE AND HANDLING GUIDELINES

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



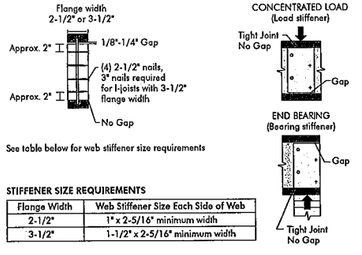
WEB STIFFENERS

RECOMMENDATIONS:

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

SI units conversion: 1 inch = 25.4 mm

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS

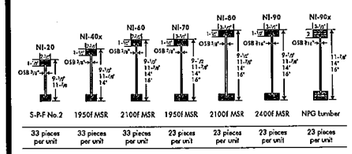


See table below for web stiffener size requirements

STIFFENER SIZE REQUIREMENTS

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

NORDIC I-JOIST SERIES



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

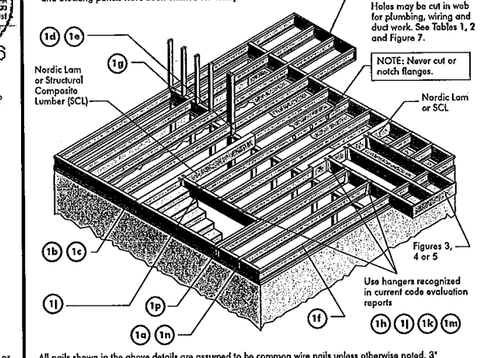
Nordic Engineered Wood I-joists use only finger-jointed black spruce lumber in their flanges, ensuring consistent quality, superior strength and longer span carrying capacity.

INSTALLING NORDIC I-JOISTS

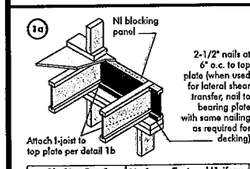
1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, see I-joist supplier.
2. Except for cutting to length, I-joist flanges should **never** be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true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

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

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

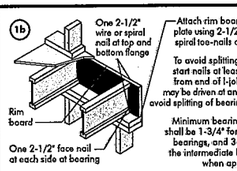


All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for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



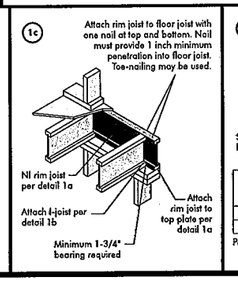
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

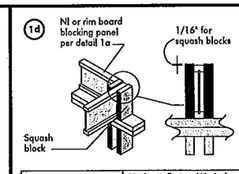
*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.



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

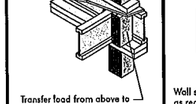
*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

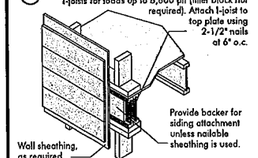


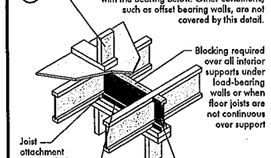


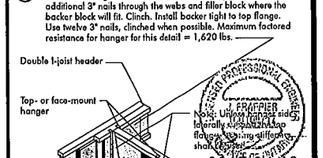
Pair of Squash Blocks	Maximum Factored Vertical per Pair of Squash Blocks (lbs)	
	3-1/2" wide	5-1/2" wide
2x Lumber	5,500	8,500
1-1/8" Rim Board Plus	4,200	6,600

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







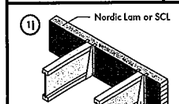


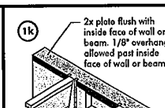
For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

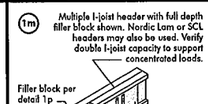
BACKER BLOCKS (Blocks must be long enough to permit required nailing without splitting)

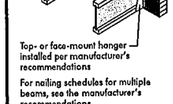
Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-O325 or CAN/CSA-O437 Standard.
** For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".





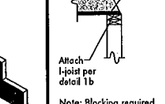


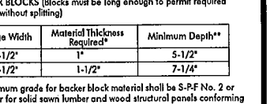


Notes:
1. Support back of I-joist web during nailing to prevent damage to web/flange connection.
2. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
3. Filler block is required between joists for full length of span.
4. Nail joists together with two rows of 3"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

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

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





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

CONSTRUCTION DETAILS FOR RESIDENTIAL FLOORS

N-C303 / April 2014

NORDIC ENGINEERED WOOD

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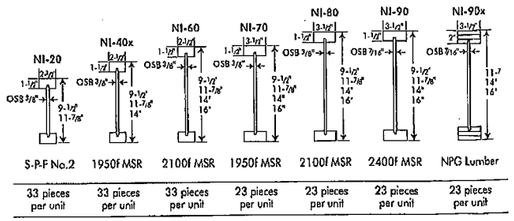
Refer to the *Installation Guide for Residential Floors* for additional information.
CCMC EVALUATION REPORT 13032-R



WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

1. The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
2. I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
3. Whenever possible, field-cut holes should be centred on the middle of the web.
4. The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.
5. The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
6. Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole *(or twice the length of the longest side of the longest rectangular hole or duct chase opening)* and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
7. A knockout is **not** considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
8. Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.
9. A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
10. All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
11. Limit three maximum size holes per span, of which one may be a duct chase opening.
12. A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

TABLE 1

LOCATION OF CIRCULAR HOLES IN JOIST WEBS

Simple or Multiple Span for Dead Loads up to 15 psf and Live Loads up to 40 psf

Joist Depth	Joist Series	Minimum Distance from Inside Face of Any Support to Centre of Hole (ft - in.) Round Hole Diameter (in.) 2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4
9-1/2"	NI-20	0'-7"	1'-6"	2'-10"	4'-3"	5'-8"	6'-0"	---	---	---	---	---	---	---	---	---
	NI-40x	0'-7"	1'-6"	3'-0"	4'-4"	6'-0"	6'-4"	---	---	---	---	---	---	---	---	---
	NI-60	1'-3"	2'-6"	4'-0"	5'-4"	7'-0"	7'-5"	---	---	---	---	---	---	---	---	---
	NI-70	2'-0"	3'-4"	4'-9"	6'-3"	8'-0"	8'-4"	---	---	---	---	---	---	---	---	---
	NI-80	2'-3"	3'-6"	5'-0"	6'-6"	8'-2"	8'-8"	---	---	---	---	---	---	---	---	---
11-7/8"	NI-20	0'-7"	0'-8"	1'-0"	2'-4"	3'-8"	4'-0"	5'-0"	6'-6"	7'-9"	---	---	---	---	---	---
	NI-40x	0'-7"	0'-8"	1'-3"	2'-8"	4'-0"	4'-4"	5'-5"	7'-0"	8'-4"	---	---	---	---	---	---
	NI-60	0'-7"	1'-8"	3'-0"	4'-3"	5'-9"	6'-0"	7'-3"	8'-10"	10'-0"	---	---	---	---	---	---
	NI-70	1'-3"	2'-5"	4'-0"	5'-4"	6'-9"	7'-2"	8'-4"	10'-0"	11'-2"	---	---	---	---	---	---
	NI-80	1'-6"	2'-10"	4'-2"	5'-6"	7'-0"	7'-5"	8'-6"	10'-3"	11'-4"	---	---	---	---	---	---
	NI-90	0'-7"	0'-8"	1'-5"	3'-2"	4'-10"	5'-4"	6'-9"	8'-9"	10'-2"	---	---	---	---	---	---
	NI-90x	0'-7"	0'-8"	0'-9"	2'-5"	4'-4"	4'-9"	6'-3"	---	---	---	---	---	---	---	---
14"	NI-40x	0'-7"	0'-8"	0'-8"	1'-0"	2'-4"	2'-5"	3'-9"	5'-2"	6'-0"	6'-6"	8'-3"	10'-2"	---	---	---
	NI-60	0'-7"	0'-8"	1'-8"	3'-0"	4'-3"	4'-8"	5'-8"	7'-2"	8'-0"	8'-8"	10'-4"	11'-9"	---	---	---
	NI-70	0'-8"	1'-10"	3'-0"	4'-5"	5'-10"	6'-2"	7'-3"	8'-9"	9'-9"	10'-4"	12'-0"	13'-5"	---	---	---
	NI-80	0'-10"	2'-0"	3'-4"	4'-9"	6'-2"	6'-5"	7'-6"	9'-0"	10'-0"	10'-8"	12'-4"	13'-9"	---	---	---
	NI-90	0'-7"	0'-8"	0'-10"	2'-5"	4'-0"	4'-5"	5'-9"	7'-5"	8'-8"	9'-4"	11'-4"	12'-11"	---	---	---
	NI-90x	0'-7"	0'-8"	0'-8"	2'-0"	3'-9"	4'-2"	5'-5"	7'-0"	8'-5"	9'-2"	---	---	---	---	---
16"	NI-60	0'-7"	0'-8"	0'-8"	1'-6"	2'-10"	3'-0"	4'-2"	5'-6"	6'-4"	7'-0"	8'-5"	9'-8"	10'-2"	12'-2"	13'-9"
	NI-70	0'-7"	1'-0"	2'-3"	3'-6"	4'-10"	5'-3"	6'-3"	7'-8"	8'-6"	9'-2"	10'-8"	12'-0"	12'-4"	14'-0"	15'-6"
	NI-80	0'-7"	1'-3"	2'-6"	3'-10"	5'-3"	5'-6"	6'-6"	8'-0"	9'-0"	9'-5"	11'-0"	12'-3"	12'-9"	14'-5"	16'-0"
	NI-90	0'-7"	0'-8"	0'-8"	1'-9"	3'-3"	3'-8"	4'-9"	6'-5"	7'-5"	8'-0"	9'-10"	11'-3"	11'-9"	13'-9"	15'-4"
	NI-90x	0'-7"	0'-8"	0'-9"	2'-0"	3'-6"	4'-0"	5'-0"	6'-9"	7'-9"	8'-4"	10'-2"	11'-6"	12'-0"	---	---

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

TABLE 2

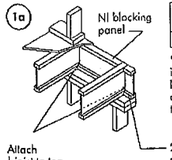
DUCT CHASE OPENING SIZES AND LOCATIONS

Simple Span Only

Joist Depth	Joist Series	Minimum distance from inside face of supports to centre of opening (ft - in.) Duct Chase Length (in.) 8	10	12	14	16	18	20	22	24
9-1/2"	NI-20	4'-1"	4'-5"	4'-10"	5'-4"	5'-8"	6'-1"	6'-6"	7'-1"	7'-5"
	NI-40x	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"
	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8'-3"	8'-8"
	NI-70	5'-1"	5'-5"	5'-10"	6'-3"	6'-7"	7'-1"	7'-6"	8'-1"	8'-4"
	NI-80	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"
11-7/8"	NI-20	5'-9"	6'-2"	6'-6"	7'-1"	7'-5"	7'-9"	8'-3"	8'-9"	9'-4"
	NI-40x	6'-8"	7'-2"	7'-6"	8'-1"	8'-6"	9'-1"	9'-6"	10'-1"	10'-9"
	NI-60	7'-3"	7'-8"	8'-0"	8'-6"	9'-0"	9'-3"	9'-9"	10'-3"	11'-0"
	NI-70	7'-1"	7'-4"	7'-9"	8'-3"	8'-7"	9'-1"	9'-6"	10'-1"	10'-4"
	NI-80	7'-2"	7'-7"	8'-0"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-8"
	NI-90	7'-6"	7'-11"	8'-4"	8'-9"	9'-2"	9'-7"	10'-1"	10'-7"	10'-11"
	NI-90x	7'-7"	8'-1"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-8"	11'-2"
14"	NI-40x	8'-1"	8'-7"	9'-0"	9'-6"	10'-1"	10'-7"	11'-2"	12'-0"	12'-8"
	NI-60	8'-9"	9'-3"	9'-8"	10'-1"	10'-6"	11'-1"	11'-6"	13'-3"	13'-0"
	NI-70	8'-7"	9'-1"	9'-5"	9'-10"	10'-4"	10'-8"	11'-2"	11'-7"	12'-3"
	NI-80	9'-0"	9'-3"	9'-9"	10'-1"	10'-7"	11'-1"	11'-6"	12'-1"	12'-8"
	NI-90	9'-2"	9'-8"	10'-0"	10'-6"	10'-11"	11'-5"	11'-9"	12'-4"	12'-11"
	NI-90x	9'-4"	9'-9"	10'-3"	10'-7"	11'-1"	11'-7"	12'-1"	12'-7"	13'-2"
16"	NI-60	10'-3"	10'-8"	11'-2"	11'-6"	12'-1"	12'-6"	13'-2"	14'-1"	14'-10"
	NI-70	10'-1"	10'-5"	11'-0"	11'-4"	11'-10"	12'-3"	12'-8"	13'-3"	14'-0"
	NI-80	10'-4"	10'-9"	11'-3"	11'-9"	12'-1"	12'-7"	13'-1"	13'-8"	14'-4"
	NI-90	10'-9"	11'-2"	11'-8"	12'-0"	12'-6"	13'-0"	13'-6"	14'-2"	14'-10"
	NI-90x	11'-1"	11'-5"	11'-10"	12'-4"	12'-10"	13'-2"	13'-9"	14'-4"	15'-2"

1. Above table may be used for I-joist spacing of 24 inches on centre or less.
2. Duct chase opening location distance is measured from inside face of supports to centre of opening.
3. The above table is based on simple-span joists only. For other applications, contact your local distributor.
4. Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480.
5. The above table is based on the I-joists being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

(1a)

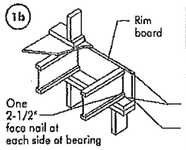


Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

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

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

(1b)



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

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

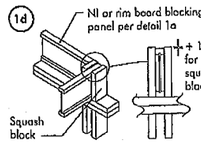
One 2-1/2" wire or spiral nail at top and bottom flange

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

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

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

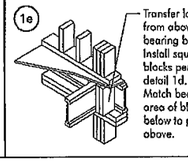
(1d)



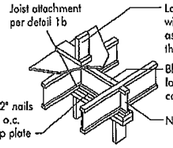
Pair of Squash Blocks	Maximum Factored Vertical Load per Pair of Squash Blocks (lbs) 3-1/2" wide	5-1/2" wide
2x Lumber	5,500	8,500
1-1/8" Rim Board Plus	4,300	6,600

Provide lateral bracing per detail 1a or 1b

(1e)



(1g)



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

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

NI blocking panel per detail 1a

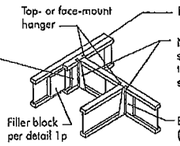
(1h)

Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double I-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 twelve 3" nails, clinched when possible. Maximum factored resistance for hanger for this detail = 1,620 lbs.

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

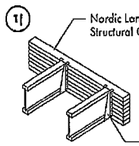
Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-O325 or CAN/CSA-O437 Standard.
**For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".



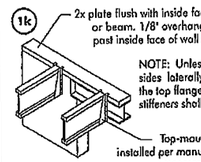
For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

(1f)

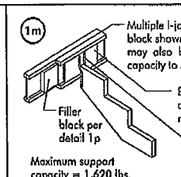


NOTE: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

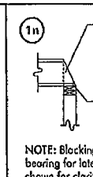
(1k)



(1m)

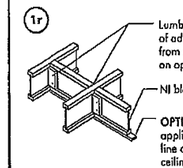


(1n)

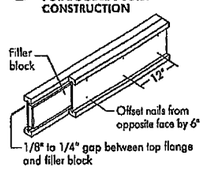


NOTE: Blocking required at bearing for lateral support, not shown for clarity.

(1r)



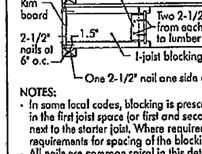
(1p) **FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION**



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

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

(1s)

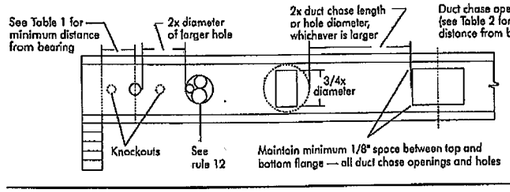


NOTES:
- In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.
- All nails are common spiral in this detail.

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

FIGURE 7

FIELD-CUT HOLE LOCATOR



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

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

Holes in webs should be cut with a sharp saw.

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

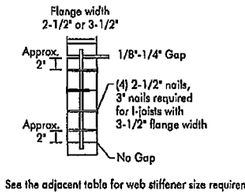
WEB STIFFENERS

RECOMMENDATIONS:

- A *bearing stiffener* is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found of the *I-joist Construction Guide* (C101).The gap between the stiffener and the flange is at the top.
- A *bearing stiffener* is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
- A *load stiffener* is required at locations where a factored concentrated load greater than 2,270 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

FIGURE 2

WEB STIFFENER INSTALLATION DETAILS



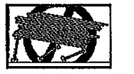
See the adjacent table for web stiffener size requirements

STIFFENER SIZE REQUIREMENTS

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

SAFETY AND CONSTRUCTION PRECAUTIONS

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



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

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

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

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

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

CHANTIERS CHIBOUGAMAU

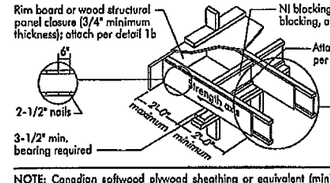
PRODUCT WARRANTY

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

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

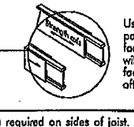
CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

(4a) Method 1 — SHEATHING REINFORCEMENT ONE SIDE



Method 2 — SHEATHING REINFORCEMENT TWO SIDES

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



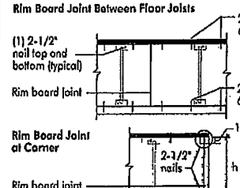
Use nailing pattern shown for Method 1 with opposite face nailing offset by 3".

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

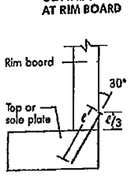
RIM BOARD INSTALLATION DETAILS

(8a) ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

Rim Board Joint Between Floor Joists



(8b) TOE-NAIL CONNECTION AT RIM BOARD



NORDIC STRUCTURES

COMPANY	PROJECT
J9 1ST FLOOR Oct. 23, 2018 15:10	J1 2ND FLOOR J1 2ND FLOOR

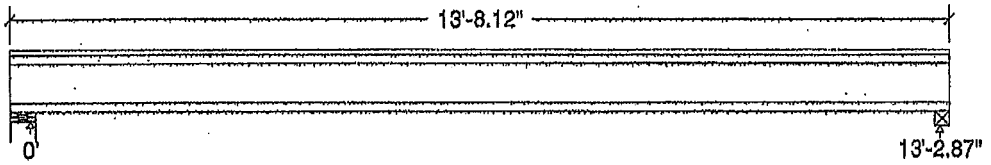
Design Check Calculation Sheet

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	177		177
Live	353		353
Factored:			
Total	750		750
Bearing:			
Resistance			
Joist	1893		1869
Support	7735		4043
Des ratio			
Joist	0.40		0.40
Support	0.10		0.19
Load case	#2		#2
Length	4-3/8		2-5/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		1.00
fcp sup	769		769
Kzcp sup	1.15		1.00

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Oct 10 18
E. FOK
PROVINCE OF ONTARIO

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

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

Supports: 1 - Lumber Wall, No.1/No.2; 2 - Lumber Beam, No.1/No.2;
Total length: 13'-8.12"; Clear span: 13'-1.11"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

Limit States Design using CSA-O86-09 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 750	Vr = 1895	lbs	Vf/Vr = 0.40
Moment(+)	Mf = 2483	Mr = 4824	lbs-ft	Mf/Mr = 0.51
Perm. Defl'n	0.08 = < L/999	0.44 = L/360	in	0.18
Live Defl'n	0.16 = L/990	0.33 = L/480	in	0.48
Total Defl'n	0.24 = L/660	0.66 = L/240	in	0.36
Bare Defl'n	0.19 = L/828	0.44 = L/360	in	0.43
Vibration	Lmax = 13'-2.9	Lv = 15'-9.3	ft	0.84
Defl'n	= 0.030	= 0.051	in	0.58

P6 of 6

DWG NO. TAM 2197-19 H
STRUCTURAL
COMPONENT ONLY

T-19023B3

Additional Data:

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

CRITICAL LOAD COMBINATIONS:

```
Shear     : LC #2  = 1.25D + 1.5L
Moment(+) : LC #2  = 1.25D + 1.5L
Deflection: LC #1  = 1.0D  (permanent)
            LC #2  = 1.0D + 1.0L  (live)
            LC #2  = 1.0D + 1.0L  (total)
            LC #2  = 1.0D + 1.0L  (bare joist)
Bearing   : Support 1 - LC #2 = 1.25D + 1.5L
            Support 2 - LC #2 = 1.25D + 1.5L
Load Types: D=dead  W=wind  S=snow  H=earth,groundwater  E=earthquake
            L=live(use,occupancy)  Ls=live(storage,equipment)  f=fire
All Load Combinations (LCs) are listed in the Analysis output
```

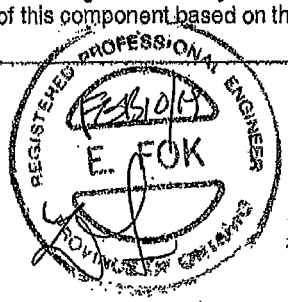
CALCULATIONS:

```
Deflection:  EIeff =    268e06 lb-in2  K=  4.94e06 lbs
"Live" deflection = Deflection from all non-dead loads (live, wind, snow…)
```

CONFORMS TO OBC 2012

Design Notes:

1. WoodWorks analysis and design are in accordance with the 2010 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-09 Engineering Design in Wood standard, which includes Update No.1
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



DWG NO. TAM2197-18
STRUCTURAL
COMPONENT ONLY

T-19022836

Boise Cascade

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

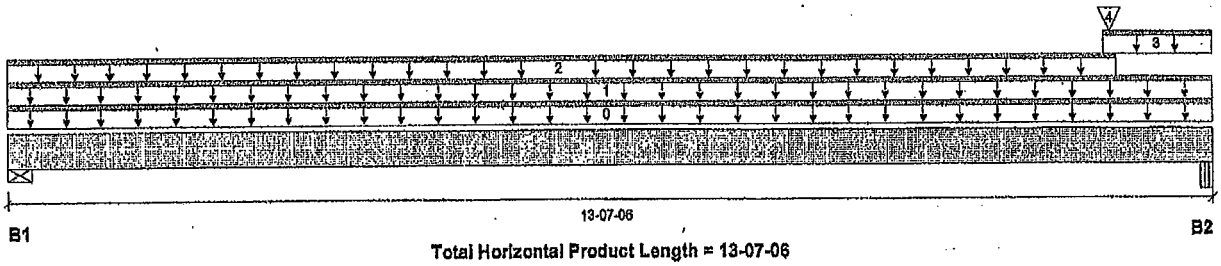
PASSED

1ST FLOOR FRAMING\Flush Beams\B16(I2204)

BC CALC® Member Report — Dry | 1 span | No cant. — January 29, 2019 13:45:29

Build 6475

Job name:		File name:	SD1-B34 EL A SUNKEN.mmdl
Address:		Description:	1ST FLOOR FRAMING\Flush Beams\B16(I2204)
City, Province, Postal Code:	ST....NES	Specifier:	
Customer:		Designer:	AJ
Code reports:	CCMC 12472-R	Company:	



Total Horizontal Product Length = 13-07-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	291 / 0	182 / 0		
B2, 1-5/8"	483 / 0	308 / 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	13-07-06	Top		5			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	13-07-06	Top	16	8			n\a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	12-06-06	Top	24	12			n\a
3	STAIR	Unf. Lin. (lb/ft)	L	12-04-10	13-07-06	Top	120	60			n\a
4	B4(I2133)	Conc. Pt. (lbs)	L	12-05-08	12-05-08	Top	101	88			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2,217 ft-lbs	11,610 ft-lbs	19.1%	1	07-03-09
End Shear	824 lbs	5,785 lbs	14.3%	1	12-08-04
Total Load Deflection	L/784 (0.203")	n\a	30.6%	4	06-11-06
Live Load Deflection	L/999 (0.124")	n\a	n\a	5	06-11-06
Max Defl.	0.203"	n\a	n\a	4	06-11-06
Span / Depth	16.7				

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Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4-3/8" x 1-3/4"	663 lbs	20.3%	7.1%	Unspecified
B2	Beam	1-5/8" x 1-3/4"	1,110 lbs	91.4%	32.0%	Unspecified

Notes

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

CONFORMS TO OBC 2012

Disclosure

DWG NO. TAM 2200 - 18H
STRUCTURAL
COMPONENT ONLY

T-190238

Boise Cascade

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

PASSED

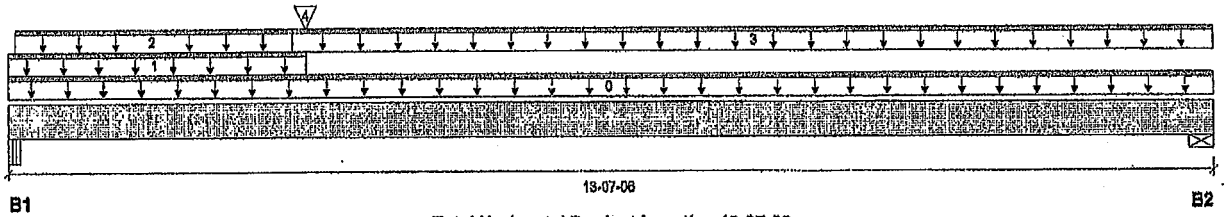
1ST FLOOR FRAMING\Flush Beams\B1(I2217)

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

Dry | 1 span | No cant.

January 29, 2019 13:45:29

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 1ST FLOOR FRAMING\Flush Beams\B1(I2217)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 13-07-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-5/8"	538 / 0	357 / 0		
B2, 4-3/8"	233 / 0	189 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.66	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-07-06	Top		10			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-04-12	Top	120	60			n\a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-01-00	03-03-00	Top	25	12			n\a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	03-03-00	13-07-06	Top	27	14			n\a
4	B2(I1580)	Conc. Pt. (lbs)	L	03-04-12	03-04-12	Top		30			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2,262 ft-lbs	23,220 ft-lbs	9.7%	1	05-02-14
End Shear	908 lbs	11,571 lbs	7.8%	1	01-01-02
Total Load Deflection	L/999 (0.101")	n\a	n\a	4	06-06-02
Live Load Deflection	L/999 (0.057")	n\a	n\a	5	06-06-02
Max Defl.	0.101"	n\a	n\a	4	06-06-02
Span / Depth	16.5				

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FOK 10/19
E. FOK
PROVINCE OF ONTARIO

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	3-5/8" x 3-1/2"	1,262 lbs	23.1%	8.1%	Unspecified
B2	Wall/Plate	4-3/8" x 3-1/2"	586 lbs	9.0%	3.1%	Unspecified

Notes

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

CONFORMS TO OBC 2012

F6 12

DWG NO. YAM 2199 - 18H
STRUCTURAL
COMPONENT ONLY

T-190385

Boise Cascade

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

PASSED

1ST FLOOR FRAMING\Flush Beams\B1(I2217)

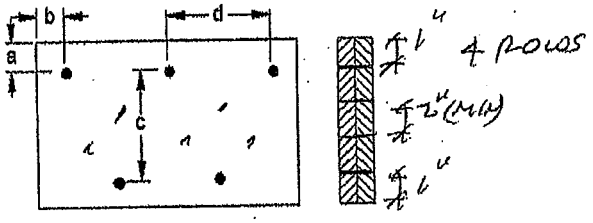
Dry | 1 span | No cant.

January 29, 2019 13:45:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 1ST FLOOR FRAMING\Flush Beams\B1(I2217)
Specifier:
Designer: AJ
Company:

Connection Diagram: Full Length of Member



a minimum = 3" c = 7-1/2"
b minimum = 3" d = 12"

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
3½" ARDOX SPIRAL

Disclosure

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DWG NO. TAM 2199-18H POR
STRUCTURAL
COMPONENT ONLY

T-1902385

Boise Cascade

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

PASSED

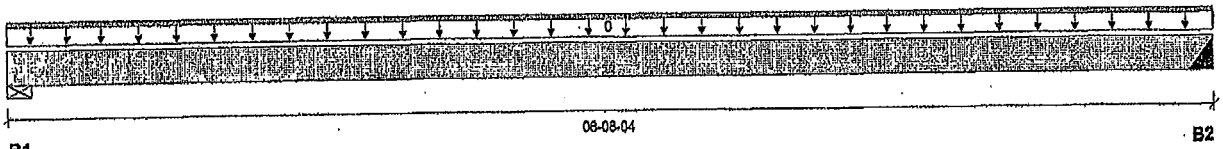
1ST FLOOR FRAMING\Dropped Beams\B2(I1580)

Dry | 1 span | No cant.

January 29, 2019 13:45:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 1ST FLOOR FRAMING\Dropped Beams\B2(I1580)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 06-08-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"		33 / 0		
B2, 3"		31 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-08-04	Top		10			00-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	63 ft-lbs	14,343 ft-lbs	0.4%	0	03-05-06
End Shear	30 lbs	7,521 lbs	0.4%	0	01-03-00
Total Load Deflection	L/999 (0.001")	n\a	n\a	1	03-05-06
Max Defl.	0.001"	n\a	n\a	1	03-05-06
Span / Depth	7.7				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	46 lbs	0.9%	0.3%	Unspecified
B2	Hanger	3" x 3-1/2"	44 lbs	n\a	0.5%	HGUS410

REGISTERED PROFESSIONAL ENGINEER
FEB 10/19
E. FOK
PROVINCE OF ONTARIO

Cautions

Header for the hanger HGUS410 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.
Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Calculations assume unbraced length of Top: 06-02-12, Bottom: 06-02-12.
Hanger Manufacturer: Unassigned
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.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Member has no side loads.

DWG NO. TAM2198-18H Rev 2
STRUCTURAL
COMPONENT ONLY

T: 902386

Boise Cascade

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

PASSED

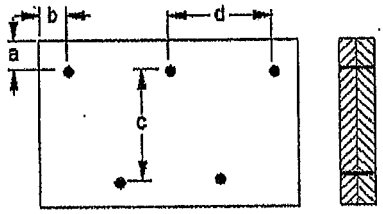
1ST FLOOR FRAMING\Dropped Beams\B2(I1580)

BC CALC® Member Report — Dry | 1 span | No cant. — January 29, 2019 13:45:29

Build 6475

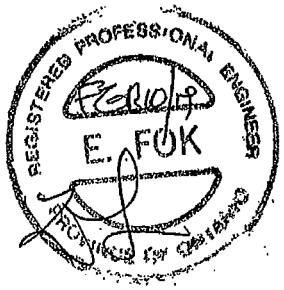
Job name:		File name:	SD1-B34 EL A SUNKEN.mmdl
Address:		Description:	1ST FLOOR FRAMING\Dropped Beams\B2(I1580)
City, Province, Postal Code:	ST....NES	Specifier:	
Customer:		Designer:	AJ
Code reports:	CCMC 12472-R	Company:	

Connection Diagram: Full Length of Member



a minimum = 2" c = 5-1/2"
b minimum = 3" d = [redacted] 6"

Member has no side loads.
Connectors are: [redacted] Nails
3½" 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.

DWG NO. YAM 2198-18H
STRUCTURAL
COMPONENT ONLY

T. 19023866

Boise Cascade

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

PASSED

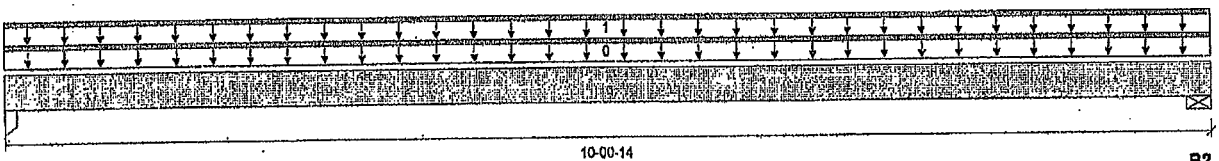
1ST FLOOR FRAMING\Flush Beams\B17L(I2191)

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

Dry | 1 span | No cant.

January 29, 2019 13:45:29

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 1ST FLOOR FRAMING\Flush Beams\B17L(I2191)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 10-00-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	69 / 0	58 / 0		
B2, 4-3/8"	70 / 0	59 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-00-14	Top		5			00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-00-14	Top	14	7			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	401 ft-lbs	11,610 ft-lbs	3.5%	1	05-00-00
End Shear	138 lbs	5,785 lbs	2.4%	1	01-01-00
Total Load Deflection	L/999 (0.019")	n\a	n\a	4	05-00-00
Live Load Deflection	L/999 (0.01")	n\a	n\a	5	05-00-00
Max Defl.	0.019"	n\a	n\a	4	05-00-00
Span / Depth	12.1				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	3-1/2" x 1-3/4"	176 lbs	4.4%	2.4%	Unspecified
B2	Wall/Plate	4-3/8" x 1-3/4"	179 lbs	5.5%	1.9%	Unspecified

REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF ONTARIO

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

CONFORMS TO OBC 2012

DWG NO. TAM2201-18H
STRUCTURAL
COMPONENT ONLY

Disclosure

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T-L9023871

Boise Cascade

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

PASSED

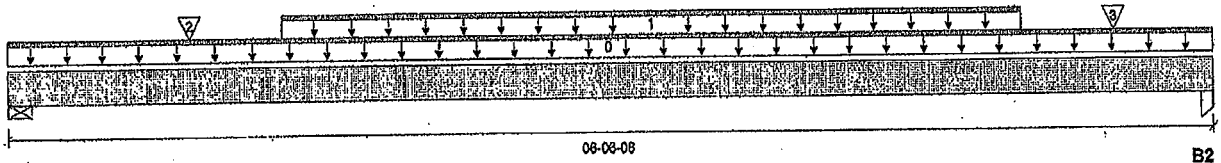
1ST FLOOR FRAMING\Flush Beams\B18L(I2121)

Dry | 1 span | No cant.

January 29, 2019 13:45:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 1ST FLOOR FRAMING\Flush Beams\B18L(I2121)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 06-06-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	571 / 0	318 / 0		
B2, 1-3/4"	589 / 0	324 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-06-08	Top		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-06-00	05-06-00	Top	202	101			n\a
2	J3(I2174)	Conc. Pt. (lbs)	L	01-00-00	01-00-00	Top	182	91			n\a
3	J3(I2190)	Conc. Pt. (lbs)	L	06-00-00	06-00-00	Top	170	86			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2,011 ft-lbs	23,220 ft-lbs	8.7%	1	03-00-00
End Shear	1,117 lbs	11,571 lbs	9.7%	1	01-03-00
Total Load Deflection	L/999 (0.019")	n\a	n\a	4	03-05-04
Live Load Deflection	L/999 (0.012")	n\a	n\a	5	03-05-04
Max Defl.	0.019"	n\a	n\a	4	03-05-04
Span / Depth	7.7				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	1,255 lbs	15.3%	5.3%	Unspecified
B2	Column	1-3/4" x 3-1/2"	1,289 lbs	32.4%	17.3%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume 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.

CONFORMS TO OBC 2012

DWG NO. TAM22202-18H
STRUCTURAL
COMPONENT ONLY

T-192388

Boise Cascade

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

PASSED

1ST FLOOR FRAMING\Flush Beams\B18L(i2121)

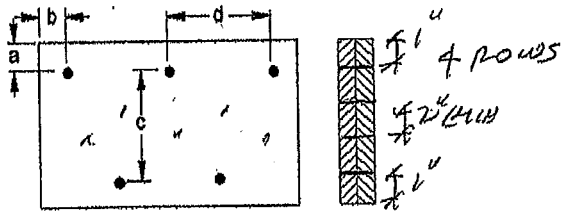
Dry | 1 span | No cant.

January 29, 2019 13:45:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 1ST FLOOR FRAMING\Flush Beams\B18L(i2121)
Specifier:
Designer: AJ
Company:

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"
c = 7-1/2"
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.
Connectors are: 1 ..... Nails

3½" ARDOX SPIRAL

REGISTERED PROFESSIONAL ENGINEER
FEB 10/19
E. FOK
PROVINCE OF ONTARIO

Disclosure

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DWG NO. FAM 220-18
STRUCTURAL
COMPONENT ONLY

T-19023881

Boise Cascade

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

PASSED

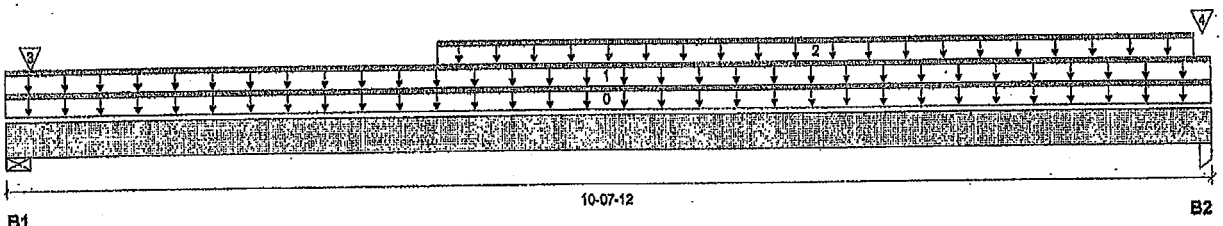
1ST FLOOR FRAMING\Flush Beams\B3(I1836)

Dry | 1 span | No cant.

January 29, 2019 13:46:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 1ST FLOOR FRAMING\Flush Beams\B3(I1836)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 10-07-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	624 / 0	732 / 0		
B2, 1-3/4"	462 / 0	738 / 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	10-07-12	Top		5			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-07-12	Top	10	5			n\a
2	WALL	Unf. Lin. (lb/ft)	L	03-10-00	10-06-00	Top		60			n\a
3	E9(I527)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	567	544			n\a
4	PBO3(I545)	Conc. Pt. (lbs)	L	10-06-14	10-06-14	Top	408	420			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1,030 ft-lbs	7,546 ft-lbs	13.7%	0	05-11-05
End Shear	366 lbs	3,761 lbs	9.7%	0	09-08-08
Total Load Deflection	L/999 (0.063")	n\a	n\a	4	05-06-15
Live Load Deflection	L/999 (0.01")	n\a	n\a	5	05-05-13
Max Defl.	0.063"	n\a	n\a	4	05-06-15
Span / Depth	12.8				

REGISTERED PROFESSIONAL ENGINEER
FEB 10 19
E. KOK
PROVINCE OF ONTARIO

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 1-3/4"	1,852 lbs	45.0%	15.8%	Unspecified
B2	Column	1-3/4" x 1-3/4"	1,615 lbs	81.2%	43.2%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume 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

CONFORMS TO OBC 2012

Disclosure

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

DWG NO. TAM 2203-18H
STRUCTURAL
COMPONENT ONLY

T-2902389

Boise Cascade

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

PASSED

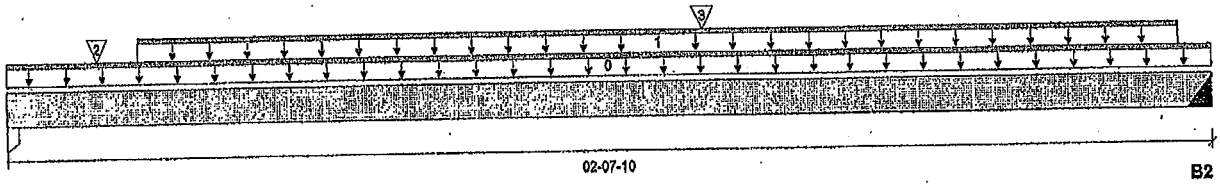
1ST FLOOR FRAMING\Flush Beams\B4(I2133)

Dry | 1 span | No cant.

January 29, 2019 13:46:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 1ST FLOOR FRAMING\Flush Beams\B4(I2133)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 02-07-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,100 / 0	1,052 / 0		
B2, 2"	176 / 0	165 / 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	02-07-10	Top		5			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-03-08	02-06-12	Top		60			n\a
2	-	Conc. Pt. (lbs)	L	00-02-06	00-02-06	Top	1,006	933			n\a
3	J1(I2143)	Conc. Pt. (lbs)	L	01-06-04	01-06-04	Top	271	135			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	430 ft-lbs	11,610 ft-lbs	3.7%	1	01-06-04
End Shear	398 lbs	5,785 lbs	6.9%	1	01-08-02
Total Load Deflection	L/999 (0.001")	n\a	n\a	4	01-04-10
Live Load Deflection	L/999 (0.001")	n\a	n\a	5	01-04-10
Max Defl.	0.001"	n\a	n\a	4	01-04-10
Span / Depth	2.9				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	3-1/2" x 1-3/4"	2,965 lbs	74.5%	39.7%	Unspecified
B2	Hanger	2" x 1-3/4"	470 lbs	n\a	11.0%	HUS1.81/10

REGISTERED PROFESSIONAL ENGINEER
FEB 10/19
E. FOK
PROVINCE OF ONTARIO

Cautions

Header for the hanger HUS1.81/10 at B2 is a Single 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.
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 unbraced length of Top: 00-00-00, Bottom: 00-00-00.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

DWG NO. YAM 2209-18H
STRUCTURAL
COMPONENT ONLY

T-190239 0

Disclosure

Boise Cascade

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

PASSED

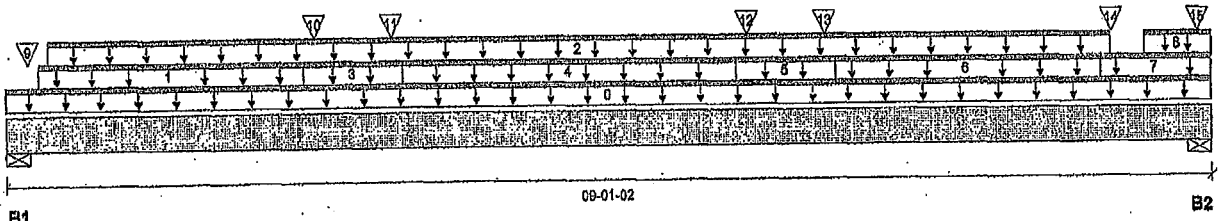
2ND FLOOR FRAMING\Dropped Beams\B13 DR(I1699)

Dry | 1 span | No cant.

January 29, 2019 13:46:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 2ND FLOOR FRAMING\Dro...d Beams\B13 DR(I1699)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 09-01-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1,202 / 0	1,010 / 0	290 / 0	
B2, 5-1/8"	1,453 / 0	1,152 / 0	289 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-01-02	Top		10			00-00-00
1	R1(I1859)	Unf. Lin. (lb/ft)	L	00-03-00	02-03-00	Top		41			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-03-14	08-03-14	Top	262	126			n\a
3	R1(I1859)	Unf. Lin. (lb/ft)	L	02-03-00	03-00-00	Top		81			n\a
4	R1(I1859)	Unf. Lin. (lb/ft)	L	03-00-00	05-06-00	Top		41			n\a
5	R1(I1859)	Unf. Lin. (lb/ft)	L	05-06-00	06-03-00	Top		81			n\a
6	R1(I1859)	Unf. Lin. (lb/ft)	L	06-03-00	08-03-00	Top		41			n\a
7	R1(I1859)	Unf. Lin. (lb/ft)	L	08-03-00	09-01-02	Top		81			n\a
8	R1(I1859)	Unf. Lin. (lb/ft)	L	08-07-00	09-01-02	Top			63		n\a
9	R1(I1859)	Conc. Pt. (lbs)	L	00-02-00	00-02-00	Top	45	61	86		n\a
10	R1(I1859)	Conc. Pt. (lbs)	L	02-04-00	02-04-00	Top	43	59	82		n\a
11	R1(I1859)	Conc. Pt. (lbs)	L	02-11-00	02-11-00	Top	53	72	100		n\a
12	R1(I1859)	Conc. Pt. (lbs)	L	05-07-00	05-07-00	Top	51	70	98		n\a
13	R1(I1859)	Conc. Pt. (lbs)	L	06-02-00	06-02-00	Top	45	61	86		n\a
14	R1(I1859)	Conc. Pt. (lbs)	L	08-04-00	08-04-00	Top	43	59	82		n\a
15	J1(I1663)	Conc. Pt. (lbs)	L	08-11-14	08-11-14	Top	336	168			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	6,892 ft-lbs	23,220 ft-lbs	29.7%	1	04-11-14
End Shear	2,941 lbs	11,571 lbs	25.4%	1	07-10-08
Total Load Deflection	L/766 (0.132")	n\a	31.3%	35	04-05-14
Live Load Deflection	L/999 (0.079")	n\a	n\a	51	04-05-14
Max Defl.	0.132"	n\a	n\a	35	04-05-14
Span / Depth	10.7				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4" x 3-1/2"	3,355 lbs	36.9%	19.6%	Unspecified
B2	Wall/Plate	5-1/8" x 3-1/2"	3,908 lbs	33.5%	17.9%	Unspecified

P6/2

DWG NO. TAN2205-18H
STRUCTURAL
COMPONENT ONLY

T-190239 1

Boise Cascade

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

PASSED

2ND FLOOR FRAMING\Dropped Beams\B13 DR(I1699)

Dry | 1 span | No cant.

January 29, 2019 13:45:29

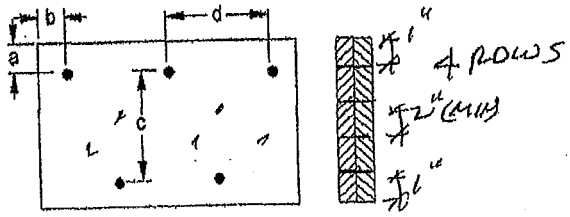
BC CALC® Member Report
Build 6476
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 2ND FLOOR FRAMING\Dro...d Beams\B13 DR(I1699)
Specifier:
Designer: AJ
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 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.
Member has no side loads.

Connection Diagram: Full Length of Member



a minimum = 3"
b minimum = 3"
c = 3-1/2"
d = 12"

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: 3½" - Nails
3½" ARDOX SPIRAL

REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF ONTARIO

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.

DWG NO. TAM22205-18H
STRUCTURAL
COMPONENT ONLY

T-19023916

Boise Cascade

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

PASSED

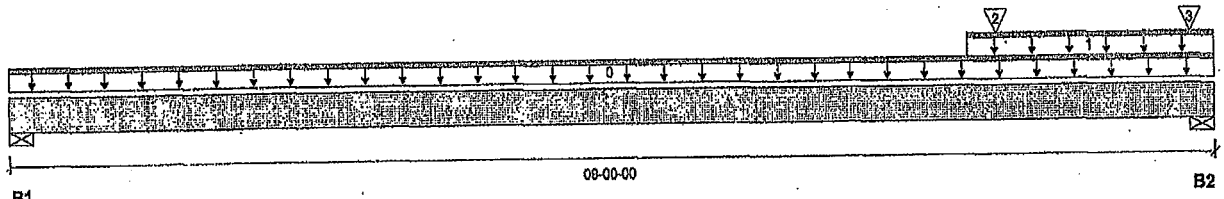
2ND FLOOR FRAMING\Dropped Beams\B14 DR(I1702)

Dry | 1 span | No cant.

January 29, 2019 13:45:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 2ND FLOOR FRAMING\Dro...d Beams\B14 DR(I1702)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 09-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	55 / 0	101 / 0	13 / 0	
B2, 4"	673 / 0	608 / 0	122 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-00-00	Top		10			00-00-00
1	R1(I1859)	Unf. Lin. (lb/ft)	L	07-02-00	09-00-00	Top	33	113	63		n\a
2	-	Conc. Pt. (lbs)	L	07-04-10	07-04-10	Top	331	247	20		n\a
3	J1(I1682)	Conc. Pt. (lbs)	L	08-09-14	08-09-14	Top	336	168			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1,197 ft-lbs	20,210 ft-lbs	5.9%	1	07-00-04
End Shear	879 lbs	11,571 lbs	7.6%	1	07-10-08
Total Load Deflection	L/999 (0.018")	n\a	n\a	35	04-11-15
Live Load Deflection	L/999 (0.009")	n\a	n\a	51	05-01-01
Max Defl.	0.018"	n\a	n\a	35	04-11-15
Span / Depth	10.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4" x 3-1/2"	221 lbs	2.4%	1.3%	Unspecified
B2	Wall/Plate	4" x 3-1/2"	1,892 lbs	20.8%	11.1%	Unspecified

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FEB 10/19
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Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 06-06-08, Bottom: 06-06-08.
CONFORMS TO OBC 2012
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Unbalanced snow loads determined from building geometry were used in selected product's verification.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
Member has no side loads.

DWG NO. TAM2206-18H
STRUCTURAL
COMPONENT ONLY

T-902892

Boise Cascade

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

PASSED

2ND FLOOR FRAMING\Dropped Beams\B14 DR(i1702)

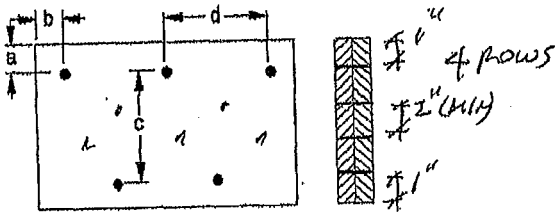
Dry | 1 span | No cant.

January 29, 2019 13:45:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 2ND FLOOR FRAMING\Dro...d Beams\B14 DR(i1702)
Specifier:
Designer: AJ
Company:

Connection Diagram: Full Length of Member



a minimum = 4"
b minimum = 3"
c = 7-1/2"
d = 8"

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
3½" ARDOX SPIRAL

REGISTERED PROFESSIONAL ENGINEER
Feb 6/19
E. FOK
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Disclosure

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DWG NO. TAM2206-18H
STRUCTURAL
COMPONENT ONLY

T-9023926

Boise Cascade

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

PASSED

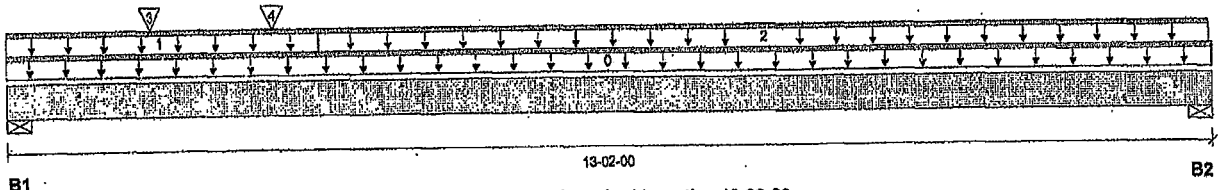
2ND FLOOR FRAMING\Dropped Beams\B5 DR(I2122)

Dry | 1 span | No cant.

January 29, 2019 13:45:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 2ND FLOOR FRAMING\Dro...ed Beams\B5 DR(I2122)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 13-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	3,502 / 0	1,867 / 0		
B2, 4"	3,466 / 0	1,850 / 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	13-02-00	Top		18			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	03-05-02	Top	327	163			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	03-05-02	13-01-08	Top	539	269			n\a
3	J1(I2198)	Conc. Pt. (lbs)	L	01-07-02	01-07-02	Top	331	165			n\a
4	J1(I2123)	Conc. Pt. (lbs)	L	02-11-02	02-11-02	Top	289	145			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	22,366 ft-lbs	55,212 ft-lbs	40.5%	1	06-11-02
End Shear	6,434 lbs	21,696 lbs	29.7%	1	11-10-02
Total Load Deflection	L/489 (0.31")	n\a	49.1%	4	06-08-02
Live Load Deflection	L/750 (0.202")	n\a	48.0%	5	06-08-02
Max Defl.	0.31"	n\a	n\a	4	06-08-02
Span / Depth	12.8				

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FEB 08
E. FOK

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4" x 5-1/4"	7,586 lbs	55.6%	29.6%	Unspecified
B2	Wall/Plate	4" x 5-1/4"	7,512 lbs	55.1%	29.3%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 00-03-09, Bottom: 00-03-09.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
Nailing schedule applies to both sides of the member.
Member has no side loads.

CONFORMS TO OBC 2012

p6 of 12

DWG NO. TAM2007-18H
STRUCTURAL
COMPONENT ONLY

T-1902393

Boise Cascade

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

PASSED

2ND FLOOR FRAMING\Dropped Beams\B5 DR(I2122)

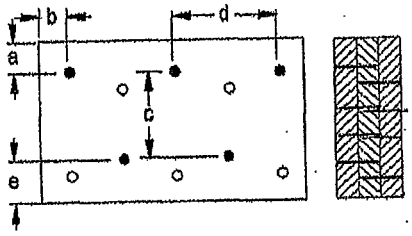
Dry | 1 span | No cant.

January 29, 2019 13:45:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 2ND FLOOR FRAMING\Dro...ed Beams\B5 DR(I2122)
Specifier:
Designer: AJ
Company:

Connection Diagram: Full Length of Member



4 rows

a minimum = 1"
b minimum = 3"
c = 6-7/8"
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.
Member has no side loads.
Connectors are: Nails
3½" ARDOX SPIRAL

REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF ONTARIO

Disclosure

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DWG NO. TAM 25007 rev 1 RH
STRUCTURAL
COMPONENT ONLY

T: 19023 3/4

Boise Cascade

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

PASSED

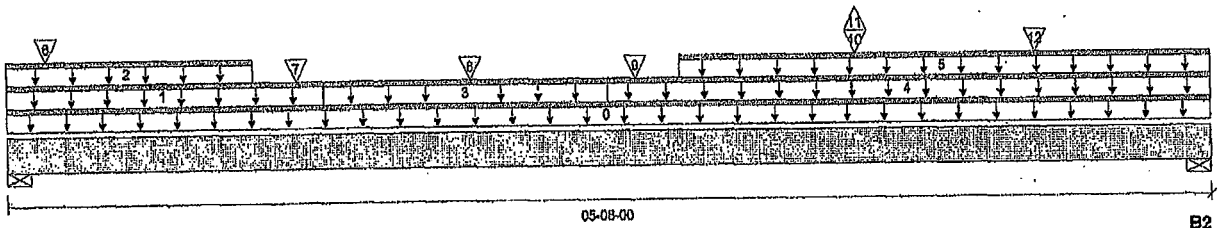
2ND FLOOR FRAMING\Dropped Beams\B6 DR(I2186)

Dry | 1 span | No cant.

January 29, 2019 13:45:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 2ND FLOOR FRAMING\Dro...ed Beams\B6 DR(I2186)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 05-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1,325 / 1	1,160 / 0	1,128 / 0	
B2, 4"	1,149 / 3	1,008 / 0	627 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-08-00	Top		10			00-00-00
1	R1(I2141)	Unf. Lin. (lb/ft)	L	00-00-00	01-06-00	Top		81			n\a
2	R1(I2141)	Unf. Lin. (lb/ft)	L	00-00-00	01-02-00	Top	121	110	253		n\a
3	R1(I2141)	Unf. Lin. (lb/ft)	L	01-06-00	02-10-00	Top		41			n\a
4	R1(I2141)	Unf. Lin. (lb/ft)	L	02-10-00	05-08-00	Top		81			n\a
5	R1(I2141)	Unf. Lin. (lb/ft)	L	03-02-00	05-08-00	Top	33	30	63		n\a
6	J2(I1797)	Conc. Pt. (lbs)	L	00-02-04	00-02-04	Top	208	104			n\a
7	-	Conc. Pt. (lbs)	L	01-04-08	01-04-08	Top	551	431	655		n\a
8	J2(I1797)	Conc. Pt. (lbs)	L	02-02-04	02-02-04	Top	208	104			n\a
9	-	Conc. Pt. (lbs)	L	02-11-09	02-11-09	Top	527	417	647		n\a
10	B8(I1675)	Conc. Pt. (lbs)	L	04-00-00	04-00-00	Top	458	300			n\a
11	B8(I1675)	Conc. Pt. (lbs)	L	04-00-00	04-00-00	Top	-4				n\a
12	J1(I1964)	Conc. Pt. (lbs)	L	04-10-02	04-10-02	Top	298	149			n\a

REGISTERED PROFESSIONAL ENGINEER
FEB 10 '19
E. TOK
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Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5,488 ft-lbs	23,220 ft-lbs	23.6%	1	02-11-00
End Shear	3,352 lbs	11,571 lbs	29.0%	1	01-01-08
Total Load Deflection	L/999 (0.039")	n\a	n\a	58	02-10-00
Live Load Deflection	L/999 (0.026")	n\a	n\a	85	02-10-00
Max Defl.	0.039"	n\a	n\a	58	02-10-00
Span / Depth	6.5				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4" x 3-1/2"	4,665 lbs	50.2%	26.7%	Unspecified
B2	Wall/Plate	4" x 3-1/2"	3,610 lbs	39.7%	21.1%	Unspecified

DWG NO. TAM 2108-18H
STRUCTURAL
COMPONENT ONLY

Boise Cascade

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

PASSED

2ND FLOOR FRAMING\Dropped Beams\B6 DR(I2186)

Dry | 1 span | No cant.

January 29, 2019 13:45:29

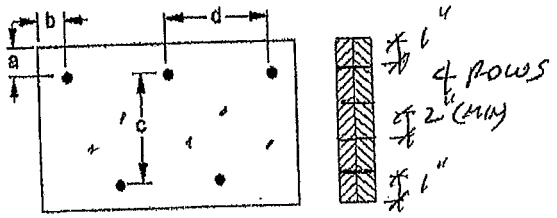
BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 2ND FLOOR FRAMING\Dro...ed Beams\B6 DR(I2186)
Specifier:
Designer: AJ
Company:

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.
Resistance Factor phi has been applied to all presented results per CSA O86. 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.
Member has no side loads.

Connection Diagram: Full Length of Member



a minimum = 2" c = 7-1/2" 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.
Member has no side loads.
Connectors are: Nails
3½" ARBOX SPIRAL

REGISTERED PROFESSIONAL ENGINEER
FEB 10 19
E. FOK
PROVINCE OF ONTARIO

Disclosure

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DWG NO. TAM 2006-18H Rev
STRUCTURAL
COMPONENT ONLY

T: 19023940(M)

Boise Cascade

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

PASSED

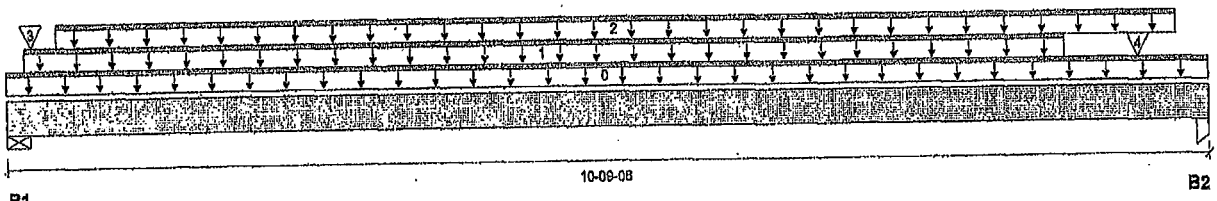
2ND FLOOR FRAMING\Flush Beams\B10(I1826)

Dry | 1 span | No cant.

January 29, 2019 13:45:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B10(I1826)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 10-09-08

Reaction Summary (Down / Uplift) (lbs)

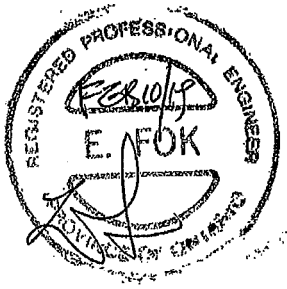
Bearing	Live	Dead	Snow	Wind
B1, 6-1/2"	818 / 0	774 / 0		
B2, 3-1/2"	773 / 0	714 / 0		

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	10-09-08	Top		5			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-02-00	09-06-00	Top	154	77			n\a
2	WALL	Unf. Lin. (lb/ft)	L	00-05-08	10-06-00	Top		60			n\a
3	E27(I1077)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top		37			n\a
4	J3(I1860)	Conc. Pt. (lbs)	L	10-02-00	10-02-00	Top	149	75			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5,255 ft-lbs	11,610 ft-lbs	45.3%	1	06-04-00
End Shear	1,851 lbs	5,785 lbs	32.0%	1	01-03-00
Total Load Deflection	L/429 (0.284")	n\a	56.0%	4	05-06-00
Live Load Deflection	L/824 (0.148")	n\a	43.7%	5	05-06-00
Max Defl.	0.284"	n\a	n\a	4	05-06-00
Span / Depth	12.8				



Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 1-3/4"	2,195 lbs	53.4%	18.7%	Unspecified
B2	Column	3-1/2" x 1-3/4"	2,051 lbs	51.5%	27.4%	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

CONFORMS TO OBC 2012

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.

DWG NO. TAM 2009-18H
STRUCTURAL
COMPONENT ONLY

T-190395

Boise Cascade

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

PASSED

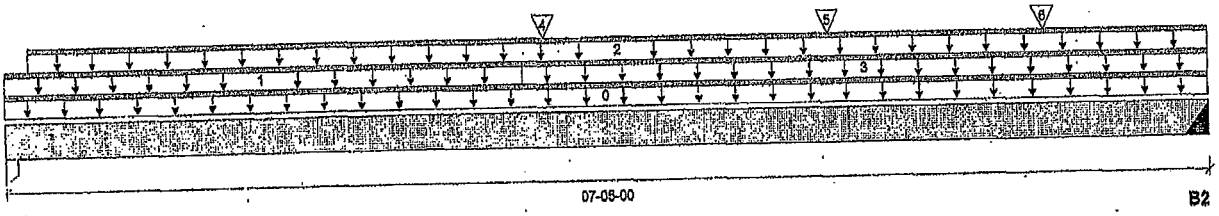
2ND FLOOR FRAMING\Flush Beams\B11(I1833)

Dry | 1 span | No cant.

January 29, 2019 13:45:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B11(I1833)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 07-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	442 / 0	458 / 0		
B2, 2"	503 / 0	498 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-05-00	Top		5			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-02-04	Top	13	6			n\a
2	WALL	Unf. Lin. (lb/ft)	L	00-01-12	07-05-00	Top		60			n\a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	03-02-04	07-05-00	Top	11	6			n\a
4	-	Conc. Pt. (lbs)	L	03-03-14	03-03-14	Top	626	324			n\a
5	J4(I1857)	Conc. Pt. (lbs)	L	05-00-12	05-00-12	Top	119	60			n\a
6	J4(I1874)	Conc. Pt. (lbs)	L	06-04-12	06-04-12	Top	112	56			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3,389 ft-lbs	11,610 ft-lbs	29.2%	1	03-03-02
End Shear	1,276 lbs	5,785 lbs	22.1%	1	06-05-08
Total Load Deflection	L/999 (0.082")	n\a	n\a	4	03-08-12
Live Load Deflection	L/999 (0.044")	n\a	n\a	5	03-07-05
Max Defl.	0.082"	n\a	n\a	4	03-08-12
Span / Depth	9.1				

REGISTERED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO
E. POK

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	1-3/4" x 1-3/4"	1,236 lbs	62.1%	33.1%	Unspecified
B2	Hanger	2" x 1-3/4"	1,377 lbs	n\a	32.2%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.
Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

DWG NO. YAM2240-18M
STRUCTURAL
COMPONENT ONLY

T-19023916

Boise Cascade

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

PASSED

2ND FLOOR FRAMING\Flush Beams\B11(i1833)

Dry | 1 span | No cant.

January 29, 2019 13:45:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B11(i1833)
Specifier:
Designer: AJ
Company:

Notes

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

REGISTERED PROFESSIONAL ENGINEER
Feb 6/19
E. FOK
PROVINCE OF ONTARIO

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.

DWG NO. YAM 2210-18H
STRUCTURAL
COMPONENT ONLY

T: 19023967

Boise Cascade

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

PASSED

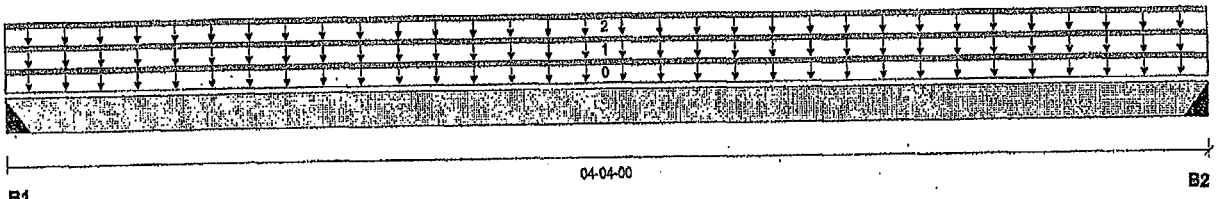
2ND FLOOR FRAMING\Flush Beams\B12(I1793)

Dry | 1 span | No cant.

January 29, 2019 13:45:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B12(I1793)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 04-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	543 / 0	282 / 0		
B2, 2"	543 / 0	282 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-04-00	Top		5			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	04-04-00	Top	240	120			n\a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-04-00	Top	11	5			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1,146 ft-lbs	11,610 ft-lbs	9.9%	1	02-02-00
End Shear	651 lbs	5,765 lbs	11.3%	1	00-11-08
Total Load Deflection	L/999 (0.01")	n\a	n\a	4	02-02-00
Live Load Deflection	L/999 (0.007")	n\a	n\a	5	02-02-00
Max Defl.	0.01"	n\a	n\a	4	02-02-00
Span / Depth	5.2				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	2" x 1-3/4"	1,168 lbs	n\a	27.4%	HUS1.81/10
B2	Hanger	2" x 1-3/4"	1,168 lbs	n\a	27.4%	HUS1.81/10

REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF ONTARIO

Cautions

Header for the hanger HUS1.81/10 at B1 is a Single 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.
Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.
Header for the hanger HUS1.81/10 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
CONFORMS TO OBC 2012
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

DWG NO. TAN 2211-18H
STRUCTURAL
COMPONENT ONLY

Disclosure

T-190297

Boise Cascade

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

PASSED

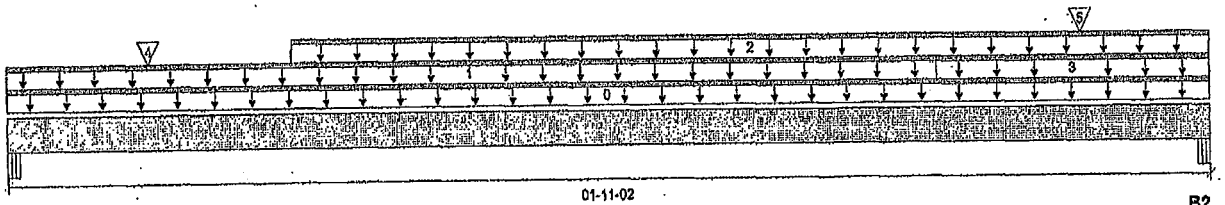
2ND FLOOR FRAMING\Flush Beams\B15(I1781)

Dry | 1 span | No cant.

January 29, 2019 13:45:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B15(I1781)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 01-11-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	21 / 0	83 / 0	18 / 0	
B2, 5-1/4"	72 / 0	153 / 0	116 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-11-02	Top		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-05-14	Top	12	6			n\a
2	E17(I1086)	Unf. Lin. (lb/ft)	L	00-05-08	01-11-02	Top		81			n\a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-05-14	01-11-02	Top	9	5			n\a
4	E33(I1347)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	10	32	18		n\a
5	E17(I1086)	Conc. Pt. (lbs)	L	01-08-10	01-08-10	Top	61	55	116		n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	28 ft-lbs	15,093 ft-lbs	0.2%	0	00-10-13
End Shear	47 lbs	7,521 lbs	0.6%	0	01-01-00
Span / Depth	1.7				

Bearing Supports		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	3-1/2" x 3-1/2"	116 lbs	1.7%	1.2%	Unspecified
B2	Beam	5-1/4" x 3-1/2"	438 lbs	5.6%	2.0%	Unspecified

REGISTERED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO
E. FOK

Notes

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Unbalanced snow loads determined from building geometry were used in selected product's verification.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
Member has no side loads.

CONFORMS TO OBC 2012

p6 of 12

DWG NO. TAM2212-18H
STRUCTURAL
COMPONENT ONLY

T-19023918

Boise Cascade

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

PASSED

2ND FLOOR FRAMING\Flush Beams\B15(I1781)

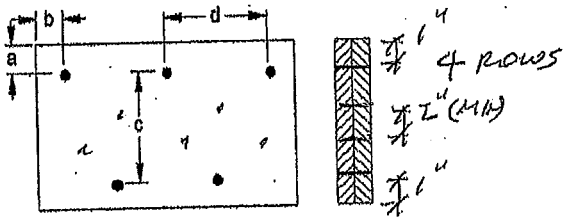
Dry | 1 span | No cant.

January 29, 2019 13:45:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B15(I1781)
Specifier:
Designer: AJ
Company:

Connection Diagram: Full Length of Member



a minimum = 1"
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: 3½" ARDOX SPIRAL Nails

REGISTERED PROFESSIONAL ENGINEER
FEB 01 19
E. FOK
PROVINCE OF ONTARIO

Disclosure

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DWG NO. TAM 2212-19H
STRUCTURAL
COMPONENT ONLY

T-19023981

Boise Cascade

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

PASSED

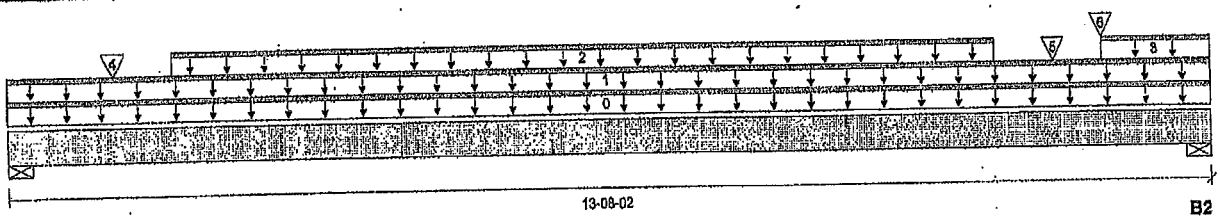
2ND FLOOR FRAMING\Flush Beams\B7(i1847)

Dry | 1 span | No cant.

January 29, 2019 13:45:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B7(i1847)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 13-08-02

Reaction Summary (Down / Uplift) (lbs)

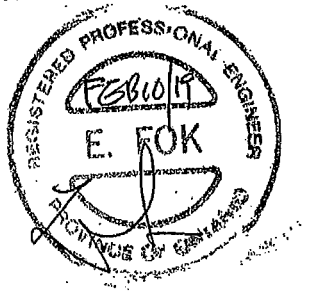
Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	1,131 / 0	651 / 0		
B2, 2-3/4"	1,452 / 0	1,015 / 0		

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	13-08-02	Top		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	13-08-02	Top	21	10			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-10-14	11-02-14	Top	154	77			n\a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	12-05-08	13-08-02	Top	23				n\a
4	J3(i1890)	Conc. Pt. (lbs)	L	01-02-14	01-02-14	Top	184	92			n\a
5	J3(i1860)	Conc. Pt. (lbs)	L	11-10-14	11-10-14	Top	146	73			n\a
6	B11(i1833)	Conc. Pt. (lbs)	L	12-05-08	12-05-08	Top	497	492			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	8,937 ft-lbs	23,220 ft-lbs	38.5%	1	06-06-14
End Shear	3,339 lbs	11,571 lbs	28.9%	1	12-07-14
Total Load Deflection	L/393 (0.404")	n\a	61.1%	4	06-10-14
Live Load Deflection	L/624 (0.254")	n\a	57.7%	5	06-10-14
Max Defl.	0.404"	n\a	n\a	4	06-10-14
Span / Depth	16.7				



Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4-3/8" x 3-1/2"	2,611 lbs	38.4%	13.4%	Unspecified
B2	Wall/Plate	2-3/4" x 3-1/2"	3,447 lbs	83.8%	29.4%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

CONFORMS TO OBC 2012

P6 1/2

DWG NO. TAM2213-18H
STRUCTURAL
COMPONENT ONLY

T-19023999

Boise Cascade

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

PASSED

2ND FLOOR FRAMING\Flush Beams\B7(I1847)

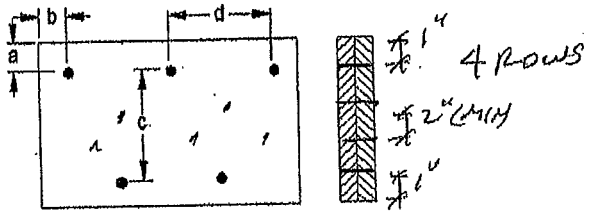
Dry | 1 span | No cant.

January 29, 2019 13:45:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B7(I1847)
Specifier:
Designer: AJ
Company:

Connection Diagram: Full Length of Member



a minimum = 1"
b minimum = 3"
c = 7-1/2"
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.
Connectors are: ... Nails

3½" ARDOX SPIRAL

REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF BRITISH COLUMBIA

Disclosure

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

DWG NO. TAM2215-18H
STRUCTURAL
COMPONENT ONLY

T: 9023996

Boise Cascade

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

PASSED

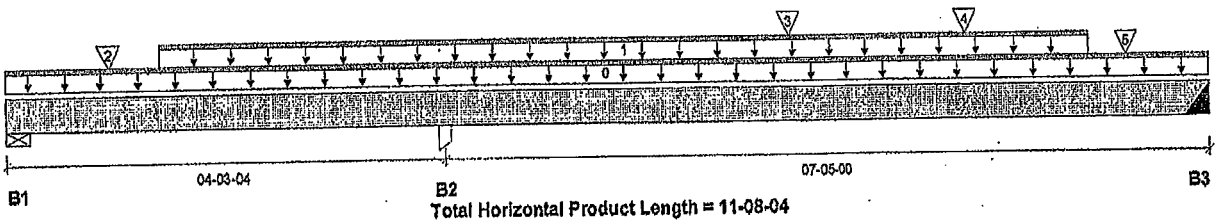
2ND FLOOR FRAMING\Flush Beams\B9(I1830)

Dry | 2 spans | No cant.

January 29, 2019 13:46:39

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B9(I1830)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 11-08-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	318 / 401	0 / 33		
B2, 3-1/2"	2,200 / 0	1,184 / 0		
B3, 3"	992 / 18	520 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-08-04	Top		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-06-04	10-06-04	Top	206	103			n\a
2	J2(I1927)	Conc. Pt. (lbs)	L	01-00-04	01-00-04	Top	159	80			n\a
3	-	Conc. Pt. (lbs)	L	07-07-02	07-07-02	Top	628	325			n\a
4	J4(I1843)	Conc. Pt. (lbs)	L	09-04-00	09-04-00	Top	123	62			n\a
5	-	Conc. Pt. (lbs)	L	10-10-10	10-10-10	Top	302	151			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3,872 ft-lbs	23,220 ft-lbs	16.7%	3	08-00-04
Neg. Moment	-3,656 ft-lbs	-23,220 ft-lbs	15.7%	1	04-03-04
End Shear	1,932 lbs	11,571 lbs	16.7%	3	10-07-12
Cont. Shear	2,747 lbs	11,571 lbs	23.7%	1	05-02-08
Total Load Deflection	L/999 (0.043")	n\a	n\a	10	08-01-12
Live Load Deflection	L/999 (0.029")	n\a	n\a	13	08-01-12
Total Neg. Defl.	L/999 (-0.007")	n\a	n\a	10	02-08-08
Max Defl.	0.043"	n\a	n\a	10	08-01-12
Span / Depth	9.1				

REGISTERED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO
E. FOK
Feb 4/19

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	447 lbs	5.4%	1.9%	Unspecified
B1	Uplift		643 lbs			
B2	Column	3-1/2" x 3-1/2"	4,779 lbs	60.1%	32.0%	Unspecified
B3	Hanger	3" x 3-1/2"	2,138 lbs	n\a	16.7%	HGUS410

Cautions

Uplift of 643 lbs found at span 1 - Left.) — (SIMPSON I-H2.5A Ref. B1)
Header for the hanger HGUS410 at B3 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.
Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

p6 of 12

DWG NO. TAM 22[illegible]H
STRUCTURAL
COMPONENT ONLY

T-1902400

Boise Cascade

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

PASSED

2ND FLOOR FRAMING\Flush Beams\B9(I1830)

Dry | 2 spans | No cant.

January 29, 2019 13:46:39

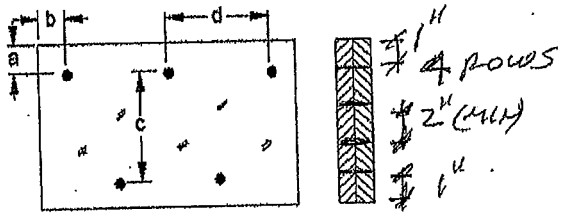
BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B9(I1830)
Specifier:
Designer: AJ
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.
Hanger Manufacturer: Unassigned
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.
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.

Connection Diagram: Full Length of Member



a minimum = 1"
b minimum = 3"
c = 9-1/2"
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.
Connectors are: Nails
3½" ARDOX SPIRAL

REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF ONTARIO

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®,

DWG NO. TAM 22-24-18H
STRUCTURAL
COMPONENT ONLY

T-19024006 (V)

Boise Cascade

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

PASSED

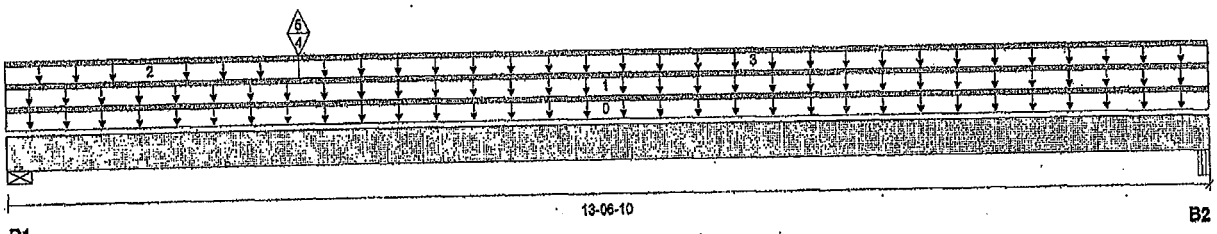
2ND FLOOR FRAMING\Flush Beams\B8(I1675)

Dry | 1 span | No cant.

January 29, 2019 13:46:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B8(I1675)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 13-06-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/4"	969 / 12	568 / 0		
B2, 2-3/8"	454 / 4	298 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-06-10	Top		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	13-06-10	Top	17	8			n\a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-04-00	Top	23	12			n\a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	03-04-00	13-06-10	Top	16	8			n\a
4	B9(I1687)	Conc. Pt. (lbs)	L	03-04-00	03-04-00	Top	950	499			n\a
5	B9(I1687)	Conc. Pt. (lbs)	L	03-04-00	03-04-00	Top	-16				n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	6,311 ft-lbs	23,220 ft-lbs	27.2%	1	03-04-00
End Shear	2,064 lbs	11,571 lbs	17.8%	1	01-00-04
Total Load Deflection	L/645 (0.247")	n\a	37.2%	6	06-02-10
Live Load Deflection	L/1,034 (0.154")	n\a	34.8%	8	06-02-10
Max Defl.	0.247"	n\a	n\a	6	06-02-10
Span / Depth	16.7				

REGISTERED PROFESSIONAL ENGINEER
FEB 10 19
E. FOK
PROVINCE OF ONTARIO

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	2-3/4" x 3-1/2"	2,163 lbs	52.6%	18.4%	Unspecified
B2	Beam	2-3/8" x 3-1/2"	1,052 lbs	14.6%	10.4%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.
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.
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. YAM 2215-19 H
STRUCTURAL
COMPONENT ONLY

Boise Cascade

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

PASSED

2ND FLOOR FRAMING\Flush Beams\B8(I1675)

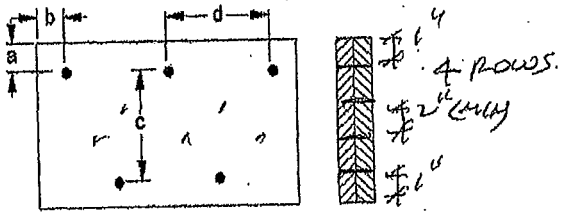
Dry | 1 span | No cant.

January 29, 2019 13:45:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B8(I1675)
Specifier:
Designer: AJ
Company:

Connection Diagram: Full Length of Member



a minimum = 1"
b minimum = 3"
c = 3-1/2"
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.
Connectors are: 1 Nails

3½" ARDOX SPINAL

REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF ONTARIO

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.

PGM

DWG NO. YAM 22.5-18H
STRUCTURAL
COMPONENT ONLY

T-19024001(M)

Boise Cascade

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

PASSED

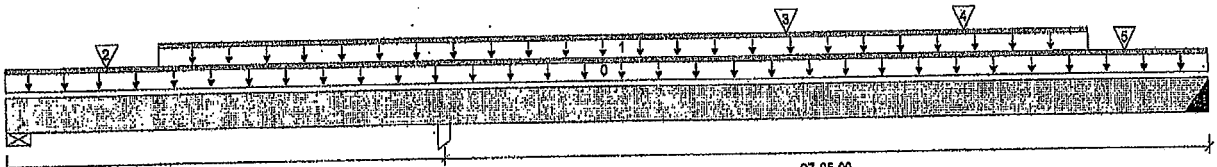
2ND FLOOR FRAMING\Flush Beams\B9(I1687)

Dry | 2 spans | No cant.

January 29, 2019 13:45:29

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B9(I1687)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 11-08-04

Reaction Summary (Down / Uplift) (lbs)

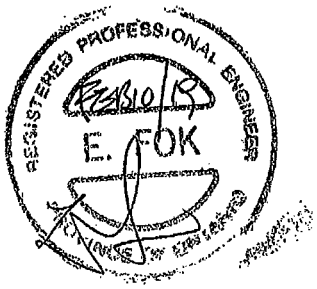
Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	318 / 401	0 / 33		
B2, 3-1/2"	2,200 / 0	1,184 / 0		
B3, 3"	992 / 18	520 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-08-04	Top		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-06-04	10-06-04	Top	206	103			n\a
2	J2(I1690)	Conc. Pt. (lbs)	L	01-00-04	01-00-04	Top	169	80			n\a
3	-	Conc. Pt. (lbs)	L	07-07-02	07-07-02	Top	628	325			n\a
4	J4(I1857)	Conc. Pt. (lbs)	L	09-04-00	09-04-00	Top	123	62			n\a
5	-	Conc. Pt. (lbs)	L	10-10-10	10-10-10	Top	302	151			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3,872 ft-lbs	23,220 ft-lbs	16.7%	3	08-00-04
Neg. Moment	-3,656 ft-lbs	-23,220 ft-lbs	15.7%	1	04-03-04
End Shear	1,932 lbs	11,571 lbs	16.7%	3	10-07-12
Cont. Shear	2,747 lbs	11,571 lbs	23.7%	1	05-02-08
Total Load Deflection	L/999 (0.043")	n\a	n\a	10	08-01-12
Live Load Deflection	L/999 (0.029")	n\a	n\a	13	08-01-12
Total Neg. Defl.	L/999 (-0.007")	n\a	n\a	10	02-08-08
Max Defl.	0.043"	n\a	n\a	10	08-01-12
Span / Depth	9.1				



Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	447 lbs	5.4%	1.9%	Unspecified
B1	Uplift		643 lbs			
B2	Column	3-1/2" x 3-1/2"	4,779 lbs	60.1%	32.0%	Unspecified
B3	Hanger	3" x 3-1/2"	2,138 lbs	n\a	16.7%	HGUS410

Cautions

Uplift of 643 lbs found at span 1 - Left.) – (SIMPSON 1-1/2-STRONG-TIE)
Header for the hanger HGUS410 at B3 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.
Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

pb 1/2

DWG NO. TAM 2216-18/1
STRUCTURAL
COMPONENT ONLY

T. 19/02/02

Boise Cascade

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

PASSED

2ND FLOOR FRAMING\Flush Beams\B9(I1687)

Dry | 2 spans | No cant.

January 29, 2019 13:45:29

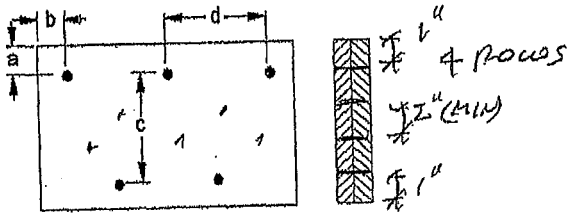
BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A SUNKEN.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B9(I1687)
Specifier:
Designer: AJ
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.
Hanger Manufacturer: Unassigned
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.
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.

Connection Diagram: Full Length of Member



a minimum = 3" c = 8-1/2" 6"
b minimum = 3" 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.
Connectors are: 1 ... Nails

3½" ARDOX SPIRAL

REGISTERED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO
FEB 10/19
E. FOK

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®,

DWG NO. TAM 2216-184
STRUCTURAL
COMPONENT ONLY

T-19 Feb 2019

Boise Cascade

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

PASSED

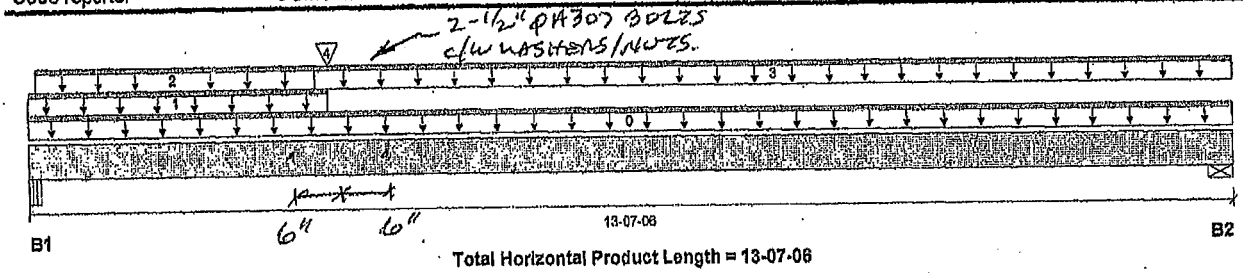
1ST FLOOR FRAMING\Flush Beams\B1(I2079)

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

Dry | 1 span | No cant.

January 29, 2019 13:46:39

File name: SD1-B34 EL A.mmdl
Description: 1ST FLOOR FRAMING\Flush Beams\B1(I2079)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 13-07-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-5/8"	2,101 / 0	1,218 / 0		
B2, 4-3/8"	790 / 0	493 / 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	13-07-06	Top		10			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-04-12	Top	120	60			n\a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-01-00	03-03-00	Top	25	12			n\a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	03-03-00	13-07-06	Top	39	19			n\a
4	B2(I2069)	Conc. Pt. (lbs)	L	03-04-12	03-04-12	Top	2,004	1,136			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	12,934 ft-lbs	23,220 ft-lbs	55.7%	1	03-04-12
End Shear	4,329 lbs	11,571 lbs	37.4%	1	01-01-02
Total Load Deflection	L/341 (0.46")	n\a	70.3%	4	06-01-01
Live Load Deflection	L/544 (0.288")	n\a	66.2%	5	06-01-01
Max Defl.	0.46"	n\a	n\a	4	06-01-01
Span / Depth	16.5				

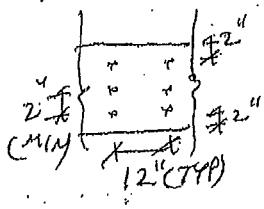
REGISTERED PROFESSIONAL ENGINEER
FEB 6/19
E. FOK
PROVINCE OF ONTARIO

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	3-5/8" x 3-1/2"	4,674 lbs	86.2%	30.2%	Unspecified
B2	Wall/Plate	4-3/8" x 3-1/2"	1,801 lbs	27.5%	9.6%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
CONFORMS TO OBC 2012
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
Concentrated side-load exceeds allowable magnitude for connection design. Please consult a technical representative or Professional Engineer for the design of the connection. OK WITH NAILING + BOLTING.



PROVIDE 3 ROWS OF 3½" ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING, MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

DWG NO. TAM 2217-18H
STRUCTURAL COMPONENT ONLY

T-19024 03

Disclosure

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Boise Cascade

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

PASSED

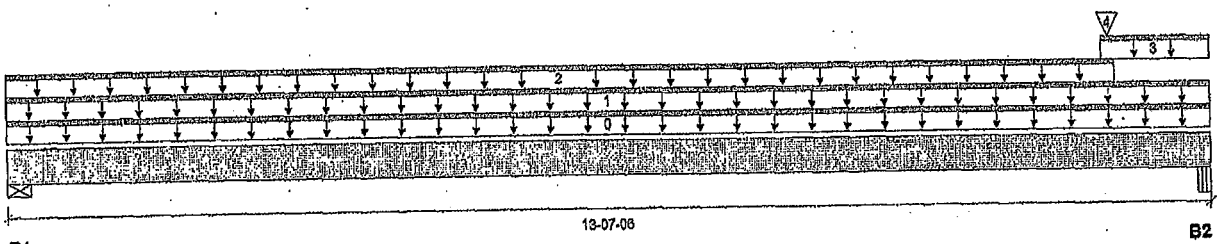
1ST FLOOR FRAMING\Flush Beams\B16(I2082)

Dry | 1 span | No cant.

January 29, 2019 13:46:39

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 1ST FLOOR FRAMING\Flush Beams\B16(I2082)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 13-07-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	291 / 0	182 / 0		
B2, 1-5/8"	483 / 0	306 / 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	13-07-06	Top		5			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	13-07-06	Top	16	8			n\a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	12-06-06	Top	24	12			n\a
3	STAIR	Unf. Lin. (lb/ft)	L	12-04-10	13-07-06	Top	120	60			n\a
4	B4(I2046)	Conc. Pt. (lbs)	L	12-05-08	12-05-08	Top	101	88			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2,217 ft-lbs	11,810 ft-lbs	19.1%	1	07-03-09
End Shear	824 lbs	5,785 lbs	14.3%	1	12-08-04
Total Load Deflection	L/784 (0.203")	n\a	30.6%	4	06-11-06
Live Load Deflection	L/999 (0.124")	n\a	n\a	5	06-11-06
Max Defl.	0.203"	n\a	n\a	4	06-11-06
Span / Depth	16.7				

REGISTERED PROFESSIONAL ENGINEER
E. FOK

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4-3/8" x 1-3/4"	663 lbs	20.3%	7.1%	Unspecified
B2	Beam	1-5/8" x 1-3/4"	1,110 lbs	91.4%	32.0%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
CONFORMS TO BBC 2012
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

Disclosure

DWG NO. TAM 2216-18H
STRUCTURAL
COMPONENT ONLY

T-19024004

Boise Cascade

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

PASSED

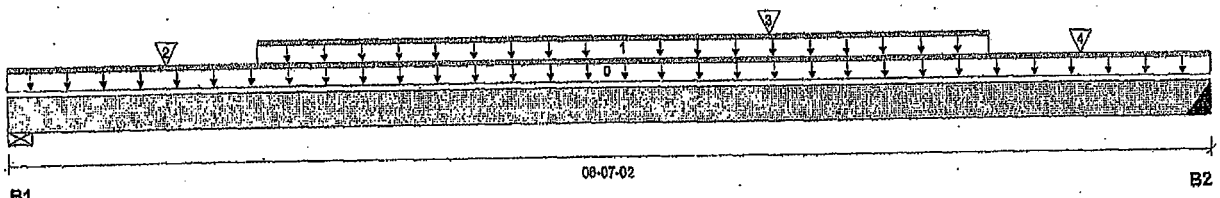
1ST FLOOR FRAMING\Flush Beams\B2(I2069)

Dry | 1 span | No cant.

January 29, 2019 13:46:39

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 1ST FLOOR FRAMING\Flush Beams\B2(I2069)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 06-07-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	1,449 / 0	820 / 0		
B2, 2"	2,023 / 0	1,147 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.66	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-07-02	Top		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-04-10	05-04-10	Top	207	104			n\a
2	J2(I2086)	Conc. Pt. (lbs)	L	00-10-10	00-10-10	Top	185	92			n\a
3	PBO4(I553)	Conc. Pt. (lbs)	L	04-02-02	04-02-02	Top	2,267	1,300			n\a
4	J2(I2000)	Conc. Pt. (lbs)	L	05-10-10	05-10-10	Top	192	96			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	9,290 ft-lbs	23,220 ft-lbs	40.0%	1	04-02-02
End Shear	4,328 lbs	11,571 lbs	37.4%	1	05-07-10
Total Load Deflection	L/999 (0.077")	n\a	n\a	4	03-06-02
Live Load Deflection	L/999 (0.049")	n\a	n\a	5	03-06-02
Max Defl.	0.077"	n\a	n\a	4	03-06-02
Span / Depth	7.8				

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Feb 10/19
E. FOK
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Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4-3/8" x 3-1/2"	3,199 lbs	48.9%	17.1%	Unspecified
B2	Hanger	2" x 3-1/2"	4,469 lbs	n\a	52.3%	HGUS410

Cautions

Header for the hanger HGUS410 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.
Hanger model HGUS410 and seat length were input by the user. 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
CONFORMS TO OBC 2012
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.

p6 of 11

DWG NO. TAM2219-18M
STRUCTURAL
COMPONENT ONLY

T-19024805

Boise Cascade

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

PASSED

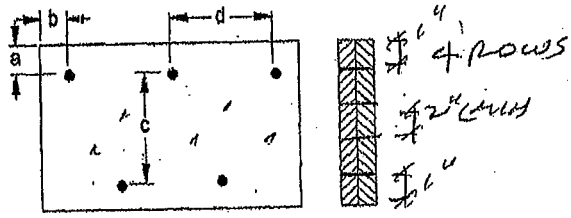
1ST FLOOR FRAMING\Flush Beams\B2(I2069)

BC CALC® Member Report
Dry | 1 span | No cant.
January 29, 2019 13:46:39

Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 1ST FLOOR FRAMING\Flush Beams\B2(I2069)
Specifier:
Designer: AJ
Company:

Connection Diagram: Full Length of Member



a minimum = 1"
b minimum = 3"
c = 7-1/2"
d = 26"

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: 7 : Nails

3½" ARDOX SPIRAL

REGISTERED PROFESSIONAL ENGINEER
E. FOK
TORONTO ONTARIO

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.

DWG NO. TAM2219-18H
STRUCTURAL
COMPONENT ONLY

T-19024056

Boise Cascade

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

PASSED

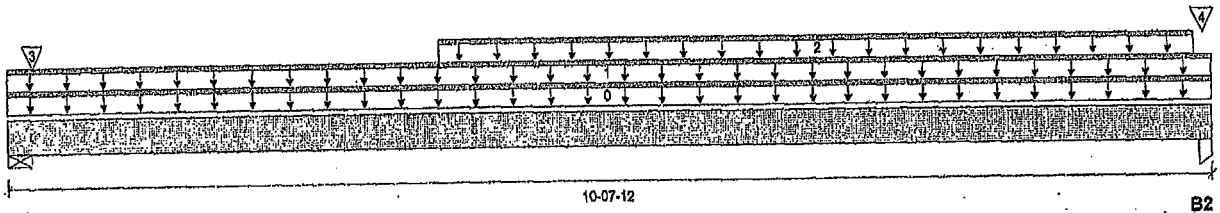
1ST FLOOR FRAMING\Flush Beams\B3(I1793)

Dry | 1 span | No cant.

January 29, 2019 13:46:39

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 1ST FLOOR FRAMING\Flush Beams\B3(I1793)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 10-07-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	624 / 0	732 / 0		
B2, 1-3/4"	462 / 0	738 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.66	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-07-12	Top		5			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-07-12	Top	10	5			n\a
2	WALL	Unf. Lin. (lb/ft)	L	03-10-00	10-06-00	Top		60			n\a
3	E9(I527)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	567	544			n\a
4	PBO3(I545)	Conc. Pt. (lbs)	L	10-06-14	10-06-14	Top	408	420			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1,030 ft-lbs	7,546 ft-lbs	13.7%	0	05-11-05
End Shear	366 lbs	3,761 lbs	9.7%	0	09-08-08
Total Load Deflection	L/999 (0.063")	n\a	n\a	4	05-06-15
Live Load Deflection	L/999 (0.01")	n\a	n\a	5	05-05-13
Max Defl.	0.063"	n\a	n\a	4	05-06-15
Span / Depth	12.8				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 1-3/4"	1,852 lbs	45.0%	15.8%	Unspecified
B2	Column	1-3/4" x 1-3/4"	1,615 lbs	81.2%	43.2%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume 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

CONFORMS TO OBC 2012

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PROVINCE OF ONTARIO
FEB 10/19
E. FOK

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.

DWG NO. TAM 2222184
STRUCTURAL
COMPONENT ONLY

T-1902406

Boise Cascade

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

PASSED

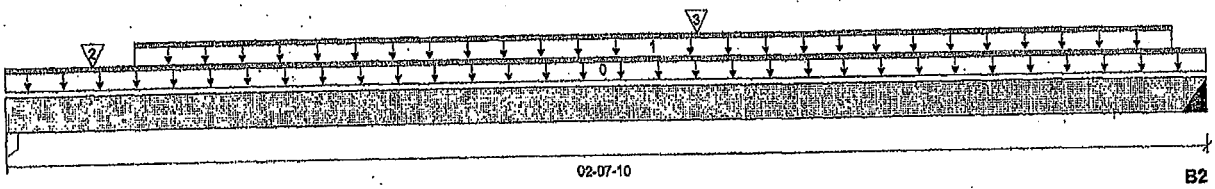
1ST FLOOR FRAMING\Flush Beams\B4(I2046)

Dry | 1 span | No cant.

January 29, 2019 13:46:39

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 1ST FLOOR FRAMING\Flush Beams\B4(I2046)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 02-07-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,100 / 0	1,052 / 0		
B2, 2"	176 / 0	165 / 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	02-07-10	Top		5			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-03-08	02-06-12	Top		60			n\a
2	-	Conc. Pt. (lbs)	L	00-02-06	00-02-06	Top	1,005	933			n\a
3	J1(I2016)	Conc. Pt. (lbs)	L	01-06-04	01-06-04	Top	271	136			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	430 ft-lbs	11,610 ft-lbs	3.7%	1	01-06-04
End Shear	398 lbs	6,785 lbs	6.9%	1	01-08-02
Total Load Deflection	L/999 (0.001")	n\a	n\a	4	01-04-10
Live Load Deflection	L/999 (0.001")	n\a	n\a	5	01-04-10
Max Defl.	0.001"	n\a	n\a	4	01-04-10
Span / Depth	2.9				

REGISTERED PROFESSIONAL ENGINEER
FEB 10/19
E. KOK
PROVINCE OF ONTARIO

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	3-1/2" x 1-3/4"	2,965 lbs	74.6%	39.7%	Unspecified
B2	Hanger	2" x 1-3/4"	470 lbs	n\a	11.0%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 at B2 is a Single 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.
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 unbraced length of Top: 00-00-00, Bottom: 00-00-00.
CONFORMS TO OBC 2012
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

DWG NO. TAM 222/-18H
STRUCTURAL
COMPONENT ONLY

Disclosure

T-19024 07

Boise Cascade

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

PASSED

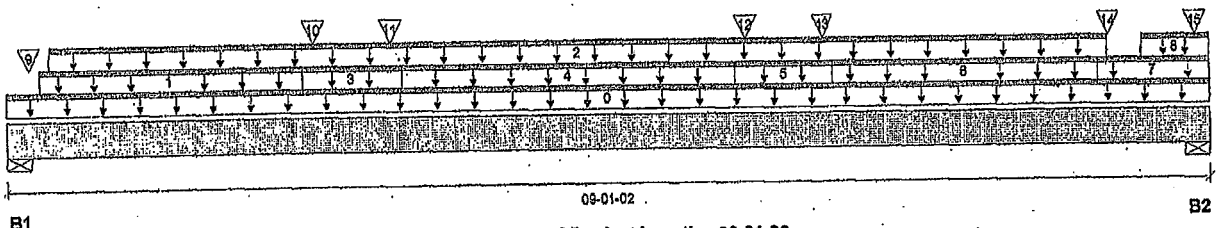
2ND FLOOR FRAMING\Dropped Beams\B13 DR(I1949)

Dry | 1 span | No cant.

January 29, 2019 13:46:39

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 2ND FLOOR FRAMING\Dro...d Beams\B13 DR(I1949)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 09-01-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1,202 / 0	1,010 / 0	290 / 0	
B2, 5-1/8"	1,453 / 0	1,152 / 0	289 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-01-02	Top		10			00-00-00
1	R1(I1966)	Unf. Lin. (lb/ft)	L	00-03-00	02-03-00	Top		41			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-03-14	08-03-14	Top	252	126			n\a
3	R1(I1966)	Unf. Lin. (lb/ft)	L	02-03-00	03-00-00	Top		81			n\a
4	R1(I1966)	Unf. Lin. (lb/ft)	L	03-00-00	05-06-00	Top		41			n\a
5	R1(I1966)	Unf. Lin. (lb/ft)	L	05-06-00	06-03-00	Top		81			n\a
6	R1(I1966)	Unf. Lin. (lb/ft)	L	06-03-00	08-03-00	Top		41			n\a
7	R1(I1966)	Unf. Lin. (lb/ft)	L	08-03-00	09-01-02	Top		81			n\a
8	R1(I1966)	Unf. Lin. (lb/ft)	L	08-07-00	09-01-02	Top			63		n\a
9	R1(I1966)	Conc. Pt. (lbs)	L	00-02-00	00-02-00	Top	45	61	86		n\a
10	R1(I1966)	Conc. Pt. (lbs)	L	02-04-00	02-04-00	Top	43	59	82		n\a
11	R1(I1966)	Conc. Pt. (lbs)	L	02-11-00	02-11-00	Top	53	72	102		n\a
12	R1(I1966)	Conc. Pt. (lbs)	L	05-07-00	05-07-00	Top	51	70	98		n\a
13	R1(I1966)	Conc. Pt. (lbs)	L	06-02-00	06-02-00	Top	45	61	86		n\a
14	R1(I1966)	Conc. Pt. (lbs)	L	08-04-00	08-04-00	Top	43	59	82		n\a
15	J1(I1869)	Conc. Pt. (lbs)	L	08-11-14	08-11-14	Top	336	168			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	6,892 ft-lbs	23,220 ft-lbs	29.7%	1	04-11-14
End Shear	2,941 lbs	11,571 lbs	25.4%	1	07-10-08
Total Load Deflection	L/766 (0.132")	n\a	31.3%	35	04-05-14
Live Load Deflection	L/999 (0.079")	n\a	n\a	51	04-05-14
Max Defl.	0.132"	n\a	n\a	35	04-05-14
Span / Depth	10.7				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4" x 3-1/2"	3,355 lbs	36.9%	19.6%	Unspecified
B2	Wall/Plate	5-1/8" x 3-1/2"	3,908 lbs	33.5%	17.9%	Unspecified

REGISTERED PROFESSIONAL ENGINEER
Feb 10/19
E. FOK

P6 "2

DWG NO. TAW2222-1811
STRUCTURAL
COMPONENT ONLY

T-190210

Boise Cascade

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

PASSED

2ND FLOOR FRAMING\Dropped Beams\B13 DR(I1949)

Dry | 1 span | No cant.

January 29, 2019 13:46:39

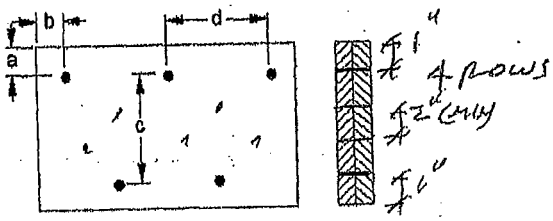
BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 2ND FLOOR FRAMING\Dro...d Beams\B13 DR(I1949)
Specifier:
Designer: AJ
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 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.
Member has no side loads.

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"
c = 7-1/2"
d = 12"

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: 1 Nails

3½" ARDOX SPIRAL

REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF ONTARIO
Feb 01 19

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.

DWG NO. TAM 2222-19H
STRUCTURAL
COMPONENT ONLY

T-19m0086

Boise Cascade

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

PASSED

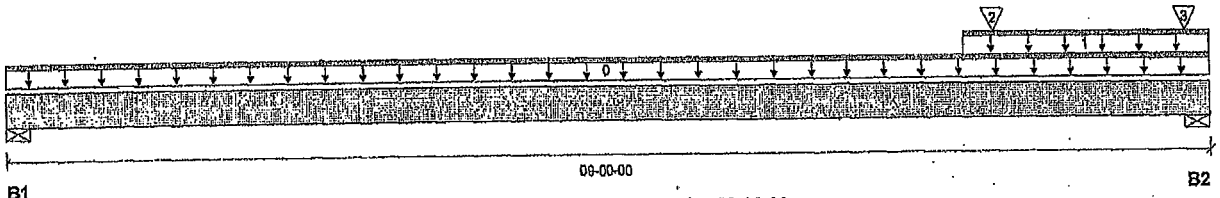
2ND FLOOR FRAMING\Dropped Beams\B14 DR(I1882)

Dry | 1 span | No cant.

January 29, 2019 13:46:39

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 2ND FLOOR FRAMING\Dro...d Beams\B14 DR(I1882)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 09-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	55 / 0	101 / 0	13 / 0	
B2, 4"	673 / 0	608 / 0	122 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-00-00	Top		10			00-00-00
1	R1(I1966)	Unf. Lin. (lb/ft)	L	07-02-00	09-00-00	Top	33	113	63		n\a
2	-	Conc. Pt. (lbs)	L	07-04-10	07-04-10	Top	331	247	20		n\a
3	J1(I1835)	Conc. Pt. (lbs)	L	08-09-14	08-09-14	Top	336	168			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1,197 ft-lbs	20,210 ft-lbs	5.9%	1	07-00-04
End Shear	879 lbs	11,571 lbs	7.6%	1	07-10-08
Total Load Deflection	L/999 (0.018")	n\a	n\a	35	04-11-15
Live Load Deflection	L/999 (0.009")	n\a	n\a	51	05-01-01
Max Defl.	0.018"	n\a	n\a	35	04-11-15
Span / Depth	10.7				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4" x 3-1/2"	221 lbs	2.4%	1.3%	Unspecified
B2	Wall/Plate	4" x 3-1/2"	1,892 lbs	20.8%	11.1%	Unspecified

REGISTERED PROFESSIONAL ENGINEERS
Feb 10/19
E. FOK
PROVINCE OF ONTARIO

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: 06-06-08, Bottom: 06-06-08.
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.
Member has no side loads.

P6 1/2

DWG NO. TAM2222-18
STRUCTURAL
COMPONENT ONLY

T. Vasedog

Boise Cascade

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

PASSED

2ND FLOOR FRAMING\Dropped Beams\B14 DR(I1882)

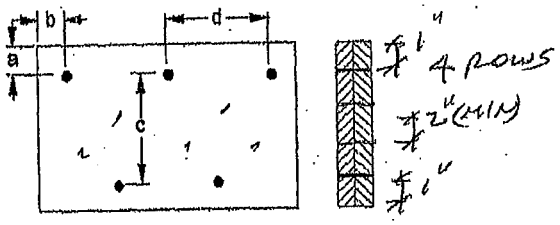
Dry | 1 span | No cant.

January 29, 2019 13:46:39

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 2ND FLOOR FRAMING\Dro...d Beams\B14 DR(I1882)
Specifier:
Designer: AJ
Company:

Connection Diagram: Full Length of Member



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

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: ... 1 ... Nails

3½" ARDOX SPIRAL

REGISTERED PROFESSIONAL ENGINEER
Feb 10/19
E. FOK
PROVINCE OF ONTARIO

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.

DWG NO. TAM 2222-18H
STRUCTURAL
COMPONENT ONLY

T-19022409(-1)

Boise Cascade

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

PASSED

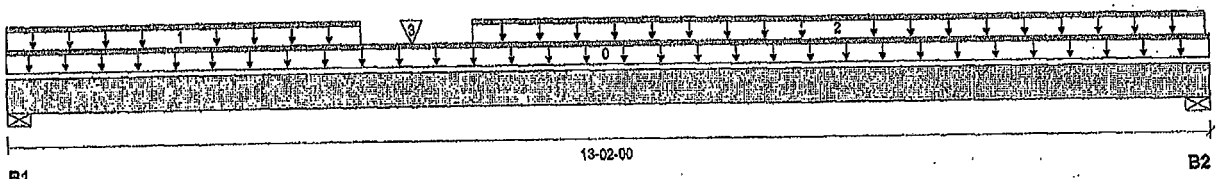
2ND FLOOR FRAMING\Dropped Beams\B5 DR(I2092)

Dry | 1 span | No cant.

January 29, 2019 13:46:39

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 2ND FLOOR FRAMING\Dro...ed Beams\B5 DR(I2092)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 13-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	3,603 / 0	1,867 / 0		
B2, 4"	3,390 / 0	1,810 / 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	13-02-00	Top		18			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	03-10-12	Top	534	267			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	05-01-08	13-01-08	Top	519	259			n\a
3	-	Conc. Pt. (lbs)	L	04-05-08	04-05-08	Top	658	329			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	22,399 ft-lbs	55,212 ft-lbs	40.6%	1	07-01-08
End Shear	6,405 lbs	21,696 lbs	29.5%	1	11-10-02
Total Load Deflection	L/488 (0.31")	n\a	49.2%	4	06-07-08
Live Load Deflection	L/749 (0.202")	n\a	48.1%	5	06-07-08
Max Defl.	0.31"	n\a	n\a	4	06-07-08
Span / Depth	12.8				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4" x 5-1/4"	7,589 lbs	55.6%	29.6%	Unspecified
B2	Wall/Plate	4" x 5-1/4"	7,347 lbs	53.9%	28.7%	Unspecified

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Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 00-04-03, Bottom: 00-04-03.
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.
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.

pg 9

DWG NO. TAM 2224-18H
STRUCTURAL
COMPONENT ONLY

T-19029 10

Boise Cascade

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

PASSED

2ND FLOOR FRAMING\Dropped Beams\B5 DR(I2092)

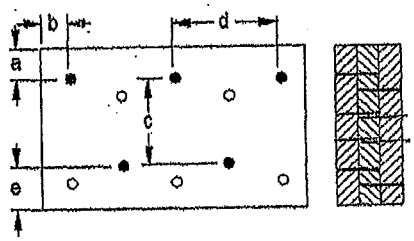
Dry | 1 span | No cant.

January 29, 2019 13:46:39

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 2ND FLOOR FRAMING\Dro...ed Beams\B5 DR(I2092)
Specifier:
Designer: AJ
Company:

Connection Diagram: Full Length of Member



4 ROWS

a minimum = 2"
b minimum = 3"
c = 6-7/8"
d = 20"
e minimum = 2"

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.
Nailing schedule applies to both sides of the member.
Member has no side loads.
Connectors are: 1 " Nails
3½" ARDOX SPIRAL

REGISTERED PROFESSIONAL ENGINEER
E. FOK

Disclosure

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DWG NO. TAM 2224-18H
STRUCTURAL
COMPONENT ONLY

Boise Cascade

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

PASSED

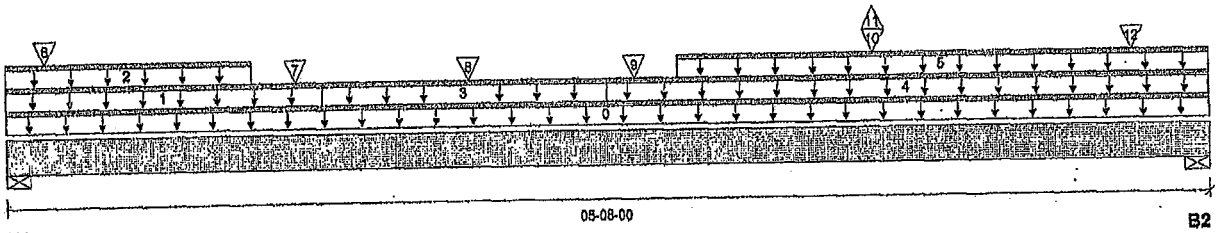
2ND FLOOR FRAMING\Dropped Beams\B6 DR(I2062)

Dry | 1 span | No cant.

January 29, 2019 13:46:39

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 2ND FLOOR FRAMING\Dro...ed Beams\B6 DR(I2062)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 05-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1,315 / 1	1,155 / 0	1,128 / 0	
B2, 4"	1,203 / 3	1,034 / 0	627 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-08-00	Top		10			00-00-00
1	R1(I1879)	Unf. Lin. (lb/ft)	L	00-00-00	01-06-00	Top		81			n\a
2	R1(I1879)	Unf. Lin. (lb/ft)	L	00-00-00	01-02-00	Top	121	110	253		n\a
3	R1(I1879)	Unf. Lin. (lb/ft)	L	01-06-00	02-10-00	Top		41			n\a
4	R1(I1879)	Unf. Lin. (lb/ft)	L	02-10-00	05-08-00	Top		81			n\a
6	R1(I1879)	Unf. Lin. (lb/ft)	L	03-02-00	05-08-00	Top	33	30	63		n\a
6	J2(I1947)	Conc. Pt. (lbs)	L	00-02-04	00-02-04	Top	208	104			n\a
7	-	Conc. Pt. (lbs)	L	01-04-08	01-04-08	Top	551	431	655		n\a
8	J2(I1947)	Conc. Pt. (lbs)	L	02-02-04	02-02-04	Top	208	104			n\a
9	-	Conc. Pt. (lbs)	L	02-11-09	02-11-09	Top	527	417	647		n\a
10	-	Conc. Pt. (lbs)	L	04-01-02	04-01-02	Top	565	353			n\a
11	-	Conc. Pt. (lbs)	L	04-01-02	04-01-02	Top	-4				n\a
12	J1(I1989)	Conc. Pt. (lbs)	L	05-03-12	05-03-12	Top	232	116			n\a

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Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5,431 ft-lbs	23,220 ft-lbs	23.4%	1	02-11-00
End Shear	3,330 lbs	11,571 lbs	28.8%	1	01-01-08
Total Load Deflection	L/999 (0.039")	n\a	n\a	58	02-10-00
Live Load Deflection	L/999 (0.026")	n\a	n\a	85	02-10-00
Max Defl.	0.039"	n\a	n\a	58	02-10-00
Span / Depth	6.5				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4" x 3-1/2"	4,543 lbs	60.0%	26.6%	Unspecified
B2	Wall/Plate	4" x 3-1/2"	3,724 lbs	40.9%	21.8%	Unspecified

p6 of 6

DWG NO. TAM 222518H
STRUCTURAL
COMPONENT ONLY

T-19024[illegible]

Boise Cascade

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

PASSED

2ND FLOOR FRAMING\Dropped Beams\B6 DR(I2062)

Dry | 1 span | No cant.

January 29, 2019 13:46:39

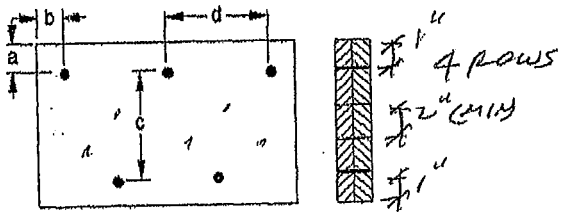
BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 2ND FLOOR FRAMING\Dro...ed Beams\B6 DR(I2062)
Specifier:
Designer: AJ
Company:

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.
Resistance Factor phi has been applied to all presented results per CSA O86. 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.
Member has no side loads.

Connection Diagram: Full Length of Member



REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF ONTARIO

a minimum = 0" c = 3-1/2"
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.
Member has no side loads.
Connectors are: 1 - 3" .. Nails

3½" ARDOX SPIRAL

Disclosure

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DWG NO. TAM 2225-18H
STRUCTURAL
COMPONENT ONLY

T-19028(1)(2)

Boise Cascade

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

PASSED

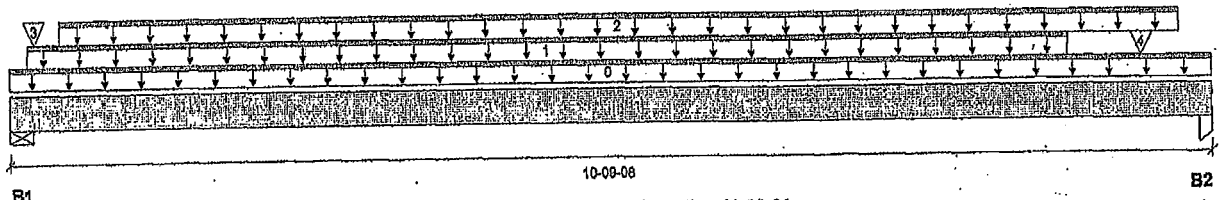
2ND FLOOR FRAMING\Flush Beams\B10(I1845)

Dry | 1 span | No cant.

January 29, 2019 13:46:39

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B10(I1845)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 10-09-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	818 / 0	774 / 0		
B2, 3-1/2"	773 / 0	714 / 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	10-09-08	Top		5			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-02-00	09-06-00	Top	154	77			n\a
2	WALL	Unf. Lin. (lb/ft)	L	00-05-08	10-06-00	Top		60			n\a
3	E27(I1077)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top		37			n\a
4	J3(I1890)	Conc. Pt. (lbs)	L	10-02-00	10-02-00	Top	149	75			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5,255 ft-lbs	11,610 ft-lbs	45.3%	1	05-04-00
End Shear	1,851 lbs	5,765 lbs	32.0%	1	01-03-00
Total Load Deflection	L/429 (0.284")	n\a	56.0%	4	05-06-00
Live Load Deflection	L/824 (0.148")	n\a	43.7%	5	05-06-00
Max Defl.	0.284"	n\a	n\a	4	05-06-00
Span / Depth	12.8				

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FEB 10/19
E. FOK
PROVINCE OF ONTARIO

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 1-3/4"	2,195 lbs	53.4%	18.7%	Unspecified
B2	Column	3-1/2" x 1-3/4"	2,051 lbs	51.5%	27.4%	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

CONFORMS TO OBC 2012

DWG NO. TAM 22261 8H
STRUCTURAL
COMPONENT ONLY

T-Shorin

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Boise Cascade

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

PASSED

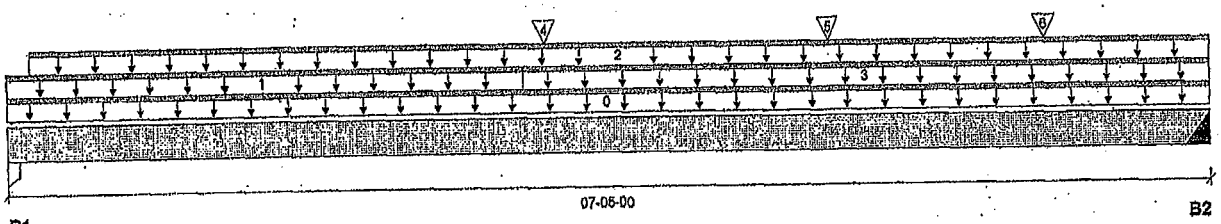
2ND FLOOR FRAMING\Flush Beams\B11(I1986)

Dry | 1 span | No cant.

January 29, 2019 13:46:39

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B11(I1986)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 07-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	442 / 0	458 / 0		
B2, 2"	603 / 0	498 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.85	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-05-00	Top		5			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-02-04	Top	13	6			n\a
2	WALL	Unf. Lin. (lb/ft)	L	00-01-12	07-05-00	Top		60			n\a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	03-02-04	07-05-00	Top	11	6			n\a
4	-	Conc. Pt. (lbs)	L	03-03-14	03-03-14	Top	626	324			n\a
5	J4(I1843)	Conc. Pt. (lbs)	L	05-00-12	05-00-12	Top	119	60			n\a
6	J4(I1906)	Conc. Pt. (lbs)	L	06-04-12	06-04-12	Top	112	56			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3,389 ft-lbs	11,610 ft-lbs	29.2%	1	03-03-02
End Shear	1,276 lbs	5,785 lbs	22.1%	1	06-05-08
Total Load Deflection	L/999 (0.082")	n\a	n\a	4	03-08-12
Live Load Deflection	L/999 (0.044")	n\a	n\a	5	03-07-05
Max Defl.	0.082"	n\a	n\a	4	03-08-12
Span / Depth	9.1				

REGISTERED PROFESSIONAL ENGINEER
Feb 10/19
E. FOK
PROVINCE OF ONTARIO

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	1-3/4" x 1-3/4"	1,236 lbs	62.1%	33.1%	Unspecified
B2	Hanger	2" x 1-3/4"	1,377 lbs	n\a	32.2%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.
Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

p6 "2

DWG NO. TAM2227-18H
STRUCTURAL
COMPONENT ONLY

T-19024P13

Boise Cascade

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

PASSED

2ND FLOOR FRAMING\Flush Beams\B11(I1986)

Dry | 1 span | No cant.

January 29, 2019 13:46:39

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B11(I1986)
Specifier:
Designer: AJ
Company:

Notes

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

REGISTERED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO
FEB 12 19
E. TOK

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DWG NO. TAM 2227-18H
STRUCTURAL
COMPONENT ONLY

T-19024B13(2)

Boise Cascade

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

PASSED

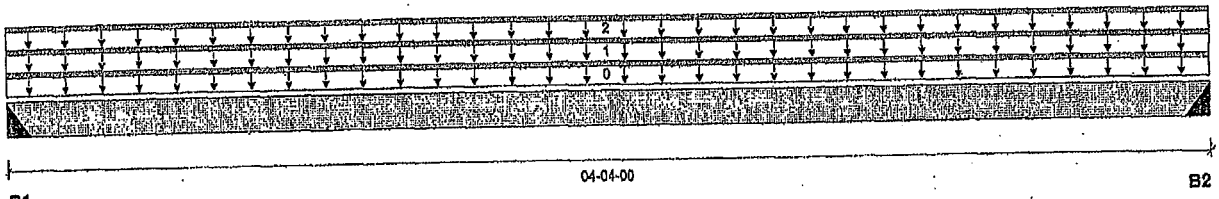
2ND FLOOR FRAMING\Flush Beams\B12(i1912)

Dry | 1 span | No cant.

January 29, 2019 13:46:39

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B12(i1912)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 04-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	543 / 0	282 / 0		
B2, 2"	543 / 0	282 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-04-00	Top		5			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	04-04-00	Top	240	120			n\a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-04-00	Top	11	5			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1,146 ft-lbs	11,610 ft-lbs	9.9%	1	02-02-00
End Shear	651 lbs	5,785 lbs	11.3%	1	00-11-08
Total Load Deflection	L/999 (0.01")	n\a	n\a	4	02-02-00
Live Load Deflection	L/999 (0.007")	n\a	n\a	5	02-02-00
Max Defl.	0.01"	n\a	n\a	4	02-02-00
Span / Depth	5.2				

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Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger	2" x 1-3/4"	1,168 lbs	n\a	27.4%	HUS1.81/10
B2	Hanger	2" x 1-3/4"	1,168 lbs	n\a	27.4%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 at B1 is a Single 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.
Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.
Header for the hanger HUS1.81/10 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Hanger Manufacturer: Unassigned
CONFORMS TO OBC 2012
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

Disclosure

DWG NO. TAM 222-19H
STRUCTURAL
COMPONENT ONLY

T-19024H

Boise Cascade

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

PASSED

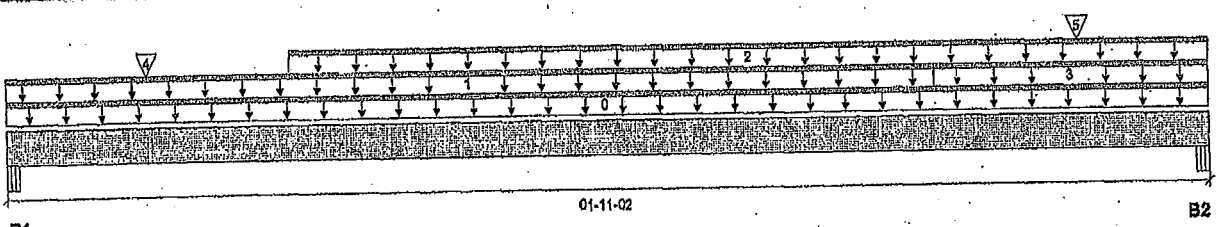
2ND FLOOR FRAMING\Flush Beams\B15(I1897)

Dry | 1 span | No cant.

January 29, 2019 13:46:39

BC CALC® Member Report
Build 6476
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B15(I1897)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 01-11-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	21 / 0	83 / 0	18 / 0	
B2, 5-1/4"	72 / 0	153 / 0	116 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-11-02	Top		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-05-14	Top	12	6			n\a
2	E17(I1086)	Unf. Lin. (lb/ft)	L	00-05-08	01-11-02	Top		81			n\a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-05-14	01-11-02	Top	9	5			n\a
4	E33(I1347)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	10	32	18		n\a
5	E17(I1086)	Conc. Pt. (lbs)	L	01-08-10	01-08-10	Top	61	55	116		n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	28 ft-lbs	15,093 ft-lbs	0.2%	0	00-10-13
End Shear	47 lbs	7,621 lbs	0.6%	0	01-01-00
Span / Depth	1.7				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	3-1/2" x 3-1/2"	116 lbs	1.7%	1.2%	Unspecified
B2	Beam	5-1/4" x 3-1/2"	438 lbs	5.6%	2.0%	Unspecified

REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF ONTARIO

Notes

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Unbalanced snow loads determined from building geometry were used in selected product's verification.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
Member has no side loads.

CONFORMS TO OBC 2012

DWG NO. TAM 2222-18H
STRUCTURAL
COMPONENT ONLY

T-19024IS

Boise Cascade

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

PASSED

2ND FLOOR FRAMING\Flush Beams\B15(I1897)

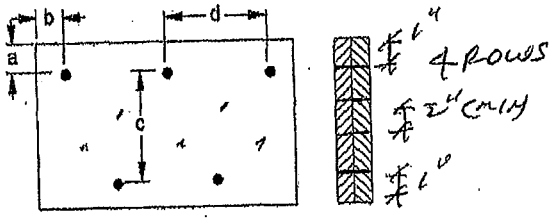
Dry | 1 span | No cant.

January 29, 2019 13:46:39

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B15(I1897)
Specifier:
Designer: AJ
Company:

Connection Diagram: Full Length of Member



a minimum = 2"
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: 1 Nails
3½" ARDOX SPIRAL

REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF ONTARIO
FEB 10/19

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.

DWG NO. TAM 22-29-18H
STRUCTURAL
COMPONENT ONLY

T-19024915(1)

Boise Cascade

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

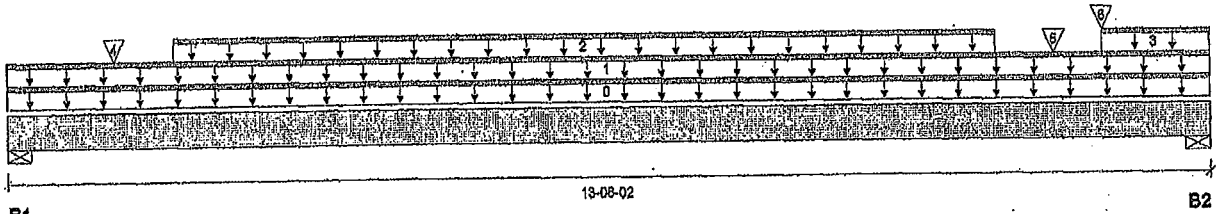
PASSED

2ND FLOOR FRAMING\Flush Beams\B7(I1926)

BC CALC® Member Report — Dry | 1 span | No cant. — January 29, 2019 13:46:39

Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B7(I1926)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 13-08-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	1,131 / 0	651 / 0		
B2, 2-3/4"	1,452 / 0	1,015 / 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	13-08-02	Top		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	13-08-02	Top	21	10			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-10-14	11-02-14	Top	154	77			n\a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	12-05-08	13-08-02	Top	23				n\a
4	J3(I1983)	Conc. Pt. (lbs)	L	01-02-14	01-02-14	Top	184	92			n\a
5	J3(I1890)	Conc. Pt. (lbs)	L	11-10-14	11-10-14	Top	146	73			n\a
6	B11(I1986)	Conc. Pt. (lbs)	L	12-05-08	12-05-08	Top	497	492			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	8,937 ft-lbs	23,220 ft-lbs	38.5%	1	06-06-14
End Shear	3,339 lbs	11,571 lbs	28.9%	1	12-07-14
Total Load Deflection	L/393 (0.404")	n\a	61.1%	4	06-10-14
Live Load Deflection	L/624 (0.254")	n\a	57.7%	5	06-10-14
Max Defl.	0.404"	n\a	n\a	4	06-10-14
Span / Depth	16.7				

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E. FOK
PROVINCE OF ONTARIO

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4-3/8" x 3-1/2"	2,611 lbs	38.4%	13.4%	Unspecified
B2	Wall/Plate	2-3/4" x 3-1/2"	3,447 lbs	83.8%	29.4%	Unspecified

Notes

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

P6 4/2

DWG NO. TAM-2232184
STRUCTURAL
COMPONENT ONLY

T-190416

Boise Cascade

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

PASSED

2ND FLOOR FRAMING\Flush Beams\B7(i1926)

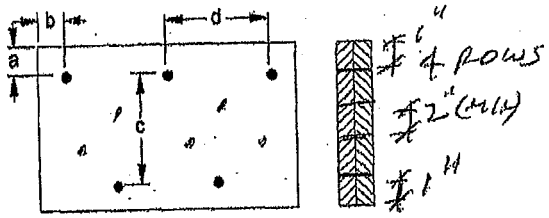
Dry | 1 span | No cant.

January 29, 2019 13:46:39

BC CALC® Member Report
Build 6476
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B7(i1926)
Specifier:
Designer: AJ
Company:

Connection Diagram: Full Length of Member



a minimum = 1" c = 7-1/2"
b minimum = 3" 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.
Connectors are: 3½" Nails
3½" ARDOX SPINAL

REGISTERED PROFESSIONAL ENGINEER
E. FOK
PROVINCE OF ONTARIO

Disclosure

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DWG NO. TAM2-2-39-18H
STRUCTURAL
COMPONENT ONLY

T-19022916 (1)

Boise Cascade

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

PASSED

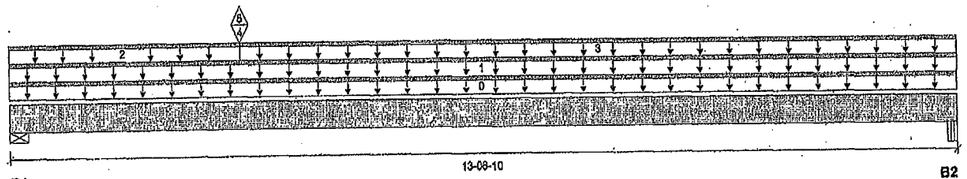
2ND FLOOR FRAMING\Flush Beams\B8(I1868)

Dry | 1 span | No cant.

January 29, 2019 13:46:39

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B8(I1868)
Specifier:
Designer: AJ
Company:



Total Horizontal Product Length = 13-06-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/4"	897 / 12	532 / 0		
B2, 2-3/8"	382 / 4	262 / 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	13-06-10	Top		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	13-06-10	Top	6	3			n\a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-04-00	Top	23	12			n\a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	03-04-00	13-06-10	Top	16	8			n\a
4	B9(I1830)	Conc. Pt. (lbs)	L	03-04-00	03-04-00	Top	950	499			n\a
5	B9(I1830)	Conc. Pt. (lbs)	L	03-04-00	03-04-00	Top	-16				n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5,950 ft-lbs	23,220 ft-lbs	25.6%	1	03-04-00
End Shear	1,941 lbs	11,571 lbs	16.8%	1	01-00-04
Total Load Deflection	L/707 (0.225")	n\a	33.9%	6	06-02-10
Live Load Deflection	L/1,142 (0.139")	n\a	31.5%	8	06-02-10
Max Defl.	0.225"	n\a	n\a	6	06-02-10
Span / Depth	16.7				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	2-3/4" x 3-1/2"	2,010 lbs	48.9%	17.1%	Unspecified
B2	Beam	2-3/8" x 3-1/2"	900 lbs	12.4%	8.9%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

CONFORMS TO OBC 2012

REGISTERED PROFESSIONAL ENGINEER
FEB 10/19
E. FOK
PROVINCE OF ONTARIO

pg

DWG NO. TAM-22-3418H
STRUCTURAL
COMPONENT ONLY

T-19024F17

Boise Cascade

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

PASSED

2ND FLOOR FRAMING\Flush Beams\B8(I1868)

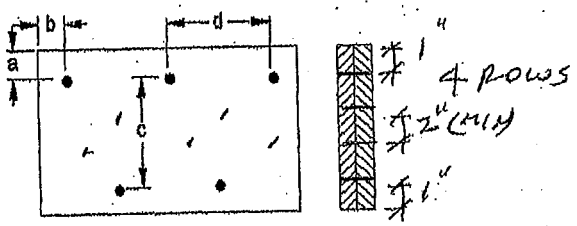
Dry | 1 span | No cant.

January 29, 2019 13:46:39

BC CALC® Member Report
Build 6475
Job name:
Address:
City, Province, Postal Code: ST....NES
Customer:
Code reports: CCMC 12472-R

File name: SD1-B34 EL A.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B8(I1868)
Specifier:
Designer: AJ
Company:

Connection Diagram: Full Length of Member



a minimum = 1"
b minimum = 3"
c = 7-1/2"
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.
Connectors are: Nails

3½" ARDOX SPIRAL

REGISTERED PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
FEB 10/19
E. FOK

Disclosure

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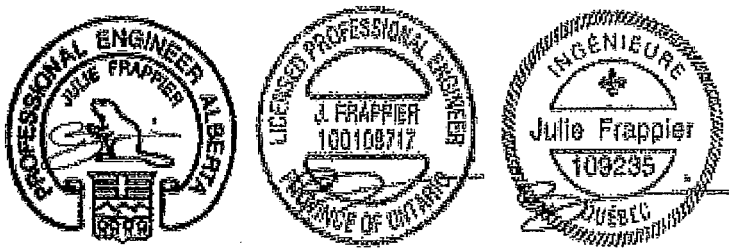
P6 2

DWG NO. TAM 2223-18H
STRUCTURAL
COMPONENT ONLY

T-1902417(L)

NORDIC ENGINEERED WOOD



Maximum Floor Spans

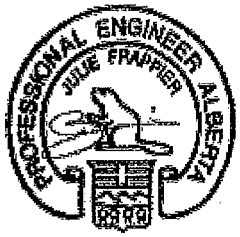
Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing

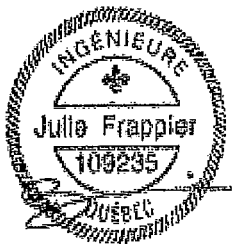
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"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

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

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

NORDIC ENGINEERED WOOD





Maximum Floor Spans

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

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

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

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

Maximum Floor Spans

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

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

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

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

NORDIC ENGINEERED WOOD

Maximum Floor Spans

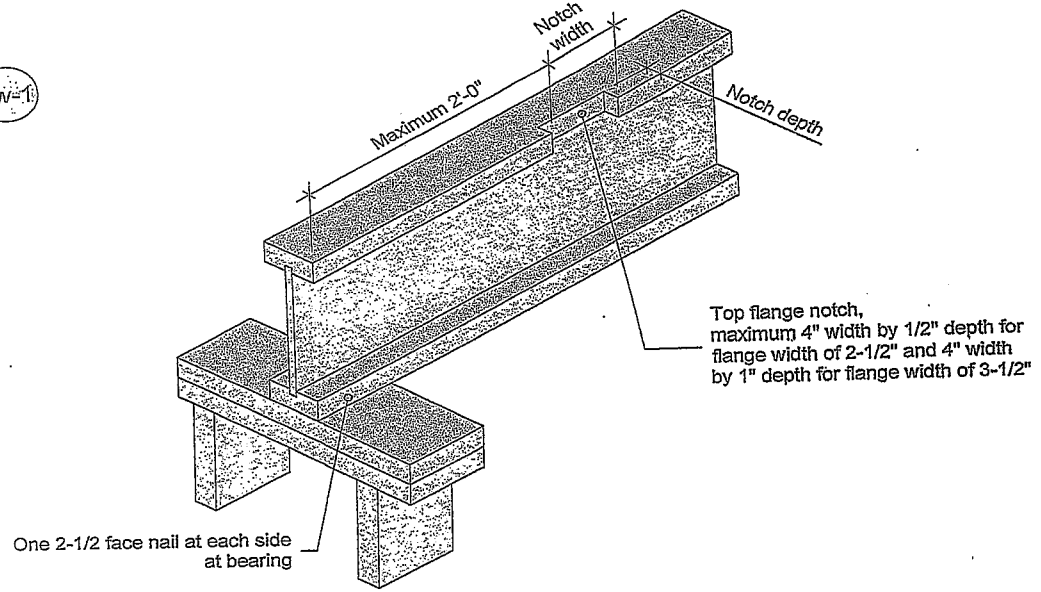
Live Load = 40 psf, Dead Load = 30 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing

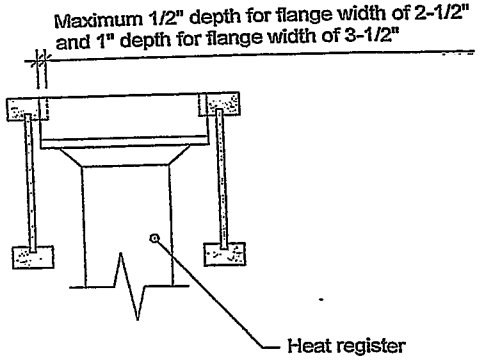
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"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

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

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

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
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TITLE: Notch in I-joist for Heat Register

DOCUMENT: -

CATEGORY: I-joist - Typical Floor Framing and Construction Details

DATE: 2018-04-10

NUMBER: 1W-1

Construction Detail
Limit States Design

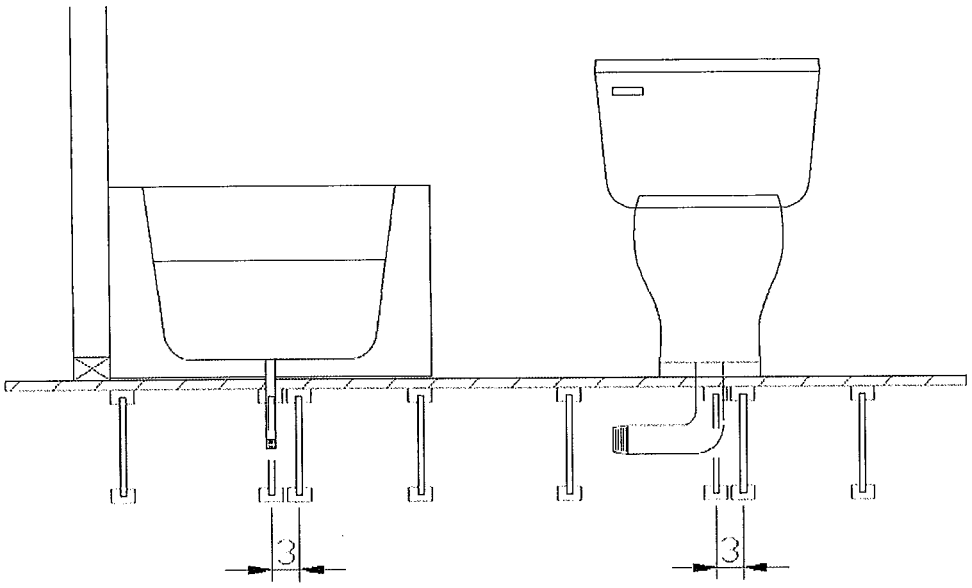
Allowance for Piping (Installation Notes)

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

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

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

ALLOWANCE FOR PIPING



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

Revised April 12, 2012