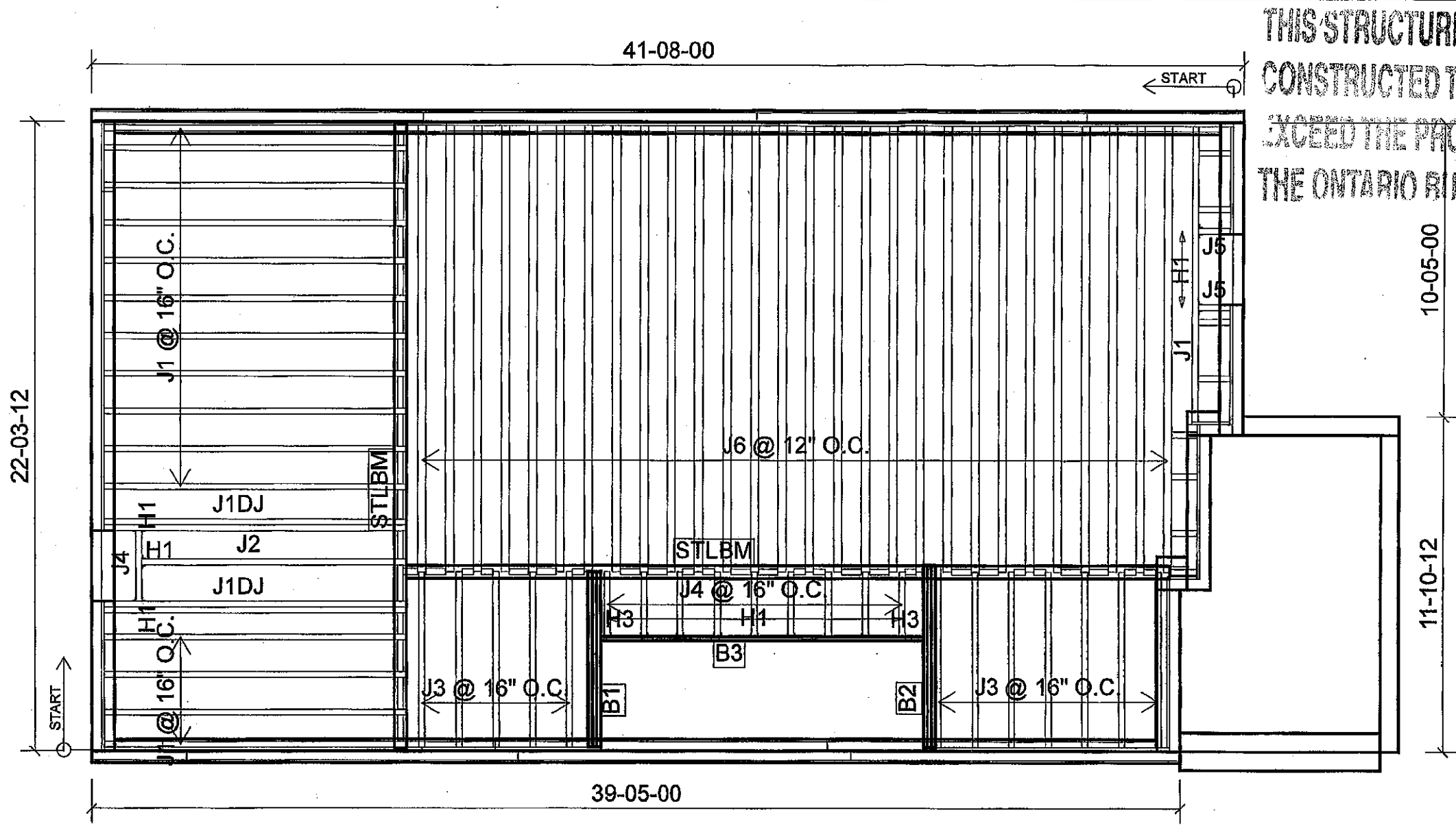
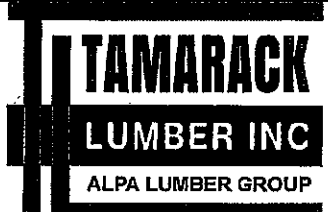




THIS STRUCTURE MUST BE
CONSTRUCTED TO MEET OR
EXCEED THE PROVISIONS OF
THE ONTARIO BUILDING CODE



FROM PLAN DATED: JULY 2018
BUILDER: GREEN PARK HOMES
SITE: LAMBERTS LANE
MODEL: HORIZON 1
ELEVATION:
LOT:
CITY: CALEDON
SALESMAN: M D
DESIGNER: LBV
REVISION:

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

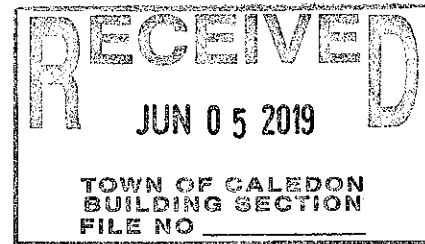
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILED AREAS: 20 lb/ft²
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2018-10-04

1st FLOOR

Products				
PlotID	Length	Product	Plies	Net Qty
J1	12-00-00	9 1/2" NI-40x	1	16
J1DJ	12-00-00	9 1/2" NI-40x	2	4
J2	10-00-00	9 1/2" NI-40x	1	1
J3	8-00-00	9 1/2" NI-40x	1	12
J4	4-00-00	9 1/2" NI-40x	1	10
J5	2-00-00	9 1/2" NI-40x	1	2
J6	16-00-00	9 1/2" NI-80	1	28
B3	12-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	1	1
B1	8-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	3	3
B2	8-00-00	1-3/4" x 9-1/2" VERSA-LAM@ 2.0 3100 SP	3	3

Connector Summary		
Qty	Manuf	Product
9	H1	IUS2.56/9.5
2	H1	IUS2.56/9.5
3	H1	IUS2.56/9.5
2	H3	HUS1.81/10



FROM PLAN DATED: JULY 2018

BUILDER: GREEN PARK HOMES

SITE: LAMBERTS LANE

MODEL: HORIZON 1

ELEVATION:

LOT:

CITY: CALEDON

SALESMAN: M D

DESIGNER: LBV

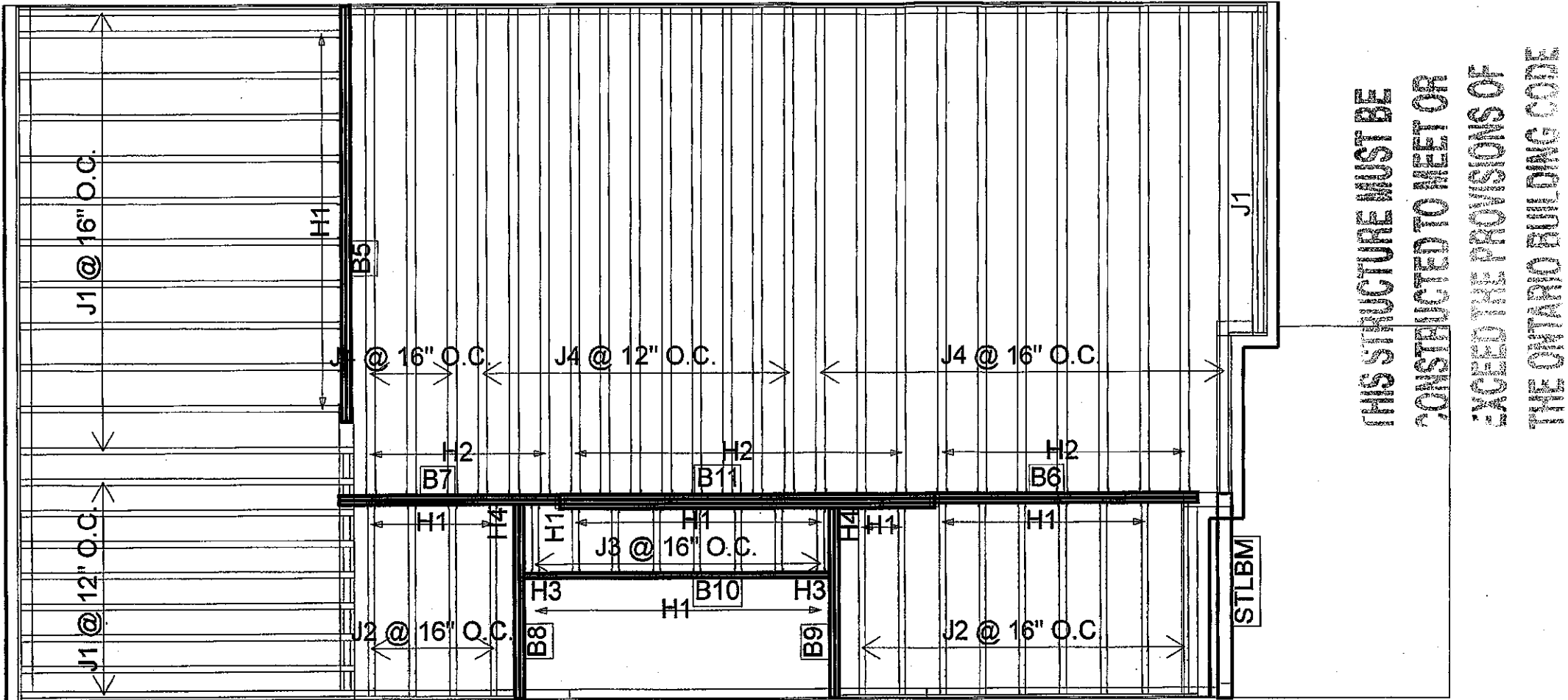
REVISION:

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

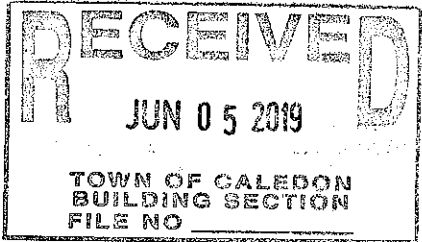
DATE: 2018-10-04

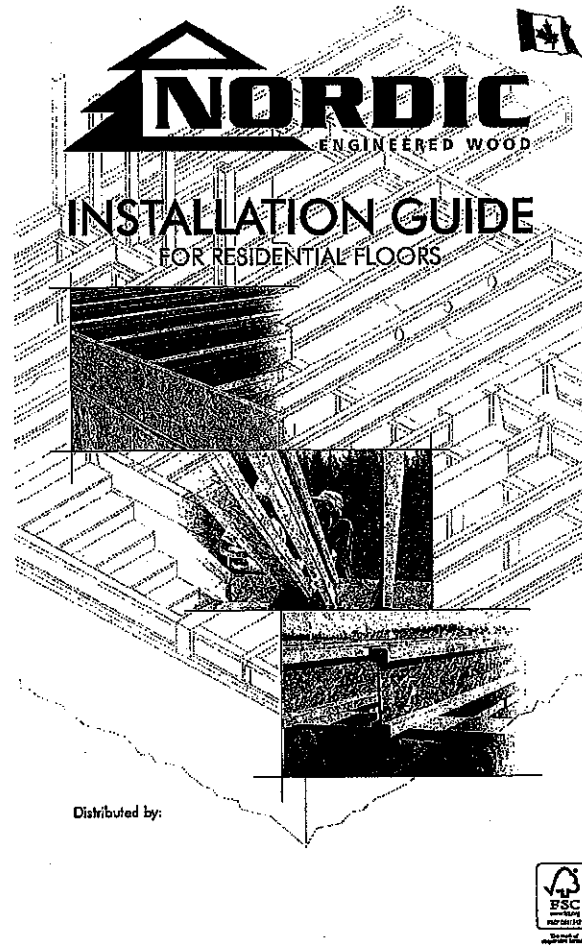
2nd FLOOR



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

Products					Connector Summary		
PlotID	Length	Product	Plies	Net Qty	Qty	Manuf	Product
J1	12-00-00	9 1/2" NI-40x	1	21	8	H1	IUS2.56/9.5
J2	8-00-00	9 1/2" NI-40x	1	13	21	H1	IUS2.56/9.5
J3	4-00-00	9 1/2" NI-40x	1	8	9	H1	IUS2.56/9.5
J4	16-00-00	9 1/2" NI-80	1	25	13	H2	IUS3.56/9.5
B5	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2	11	H2	IUS3.56/9.5
B11	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	3	3	2	H3	HUS1.81/10
B10	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1	1	H4	HGUS410
B6	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2	1	H4	HGUS410
B7	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2			
B8	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2			
B9	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2			





INSTALLATION GUIDE FOR RESIDENTIAL FLOORS

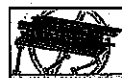
Distributed by:



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 unfastened 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.

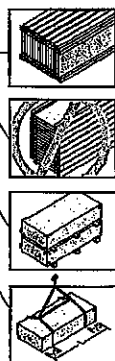
Avoid Accidents by Following these Important Guidelines:

- Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bracing at joist ends. When I-joists are applied continuously over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
- When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-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 center, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Top 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.
- For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bracing.
- Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
- Never install a damaged I-joist.

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

STORAGE AND HANDLING GUIDELINES

- Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
- Store, stack, and handle I-joists vertically and level only.
- Always stack and handle I-joists in the upright position only.
- Do not store I-joists in direct contact with the ground and/or flatwells.
- Protect I-joists from weather, and use spacers to separate bundles.
- Bundled units should be kept intact until time of installation.
- 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.
- Do not handle I-joists in a horizontal orientation.
- NEVER USE OR TRY TO REPAIR A DAMAGED I-JOIST.



MAXIMUM FLOOR SPANS

- Maximum clear spans applicable to single-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.5L + 1.2D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of 1/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- 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-71.24 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
- Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
- Tables are based on Limit States Design per CAN/CSA C08-09 Standard, and NBC 2010.
- SI units conversion: 1 inch = 25.4 mm
1 foot = 0.305 m

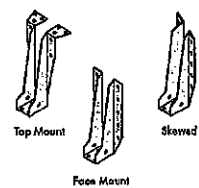
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS SIMPLE AND MULTIPLE SPANS

Joist Depth	Joist Series	Simple spans				Multiple spans			
		On center spacing				On center spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	N-20	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20L	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20S	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20T	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20B	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20C	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20D	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20E	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20F	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20G	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20H	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20I	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20J	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20K	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20L	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20M	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20N	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20O	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20P	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20Q	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20R	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20S	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20T	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20U	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20V	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20W	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20X	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20Y	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"
	N-20Z	18'-1"	14'-2"	13'-0"	12'-5"	16'-3"	15'-4"	14'-10"	14'-2"

CSA EVALUATION REPORT 1303-R

I-JOIST HANGERS

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

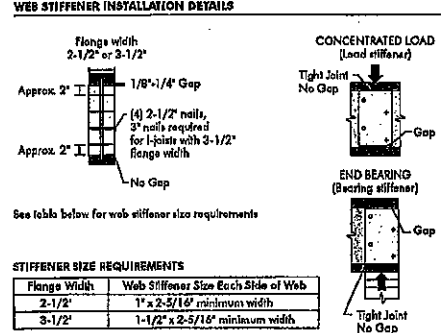


WEB STIFFENERS

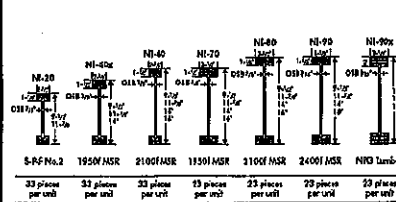
RECOMMENDATIONS:

- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in 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.

FIGURE 2 WEB STIFFENER INSTALLATION DETAILS



NORDIC I-JOIST SERIES



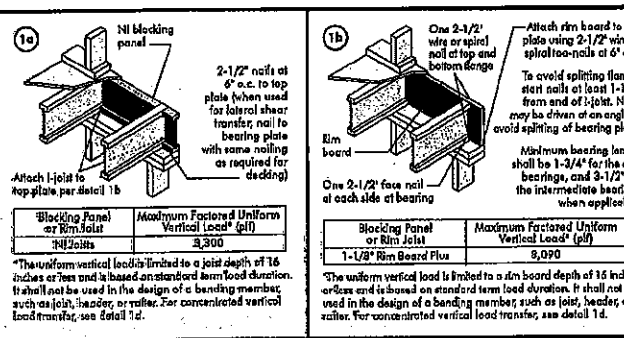
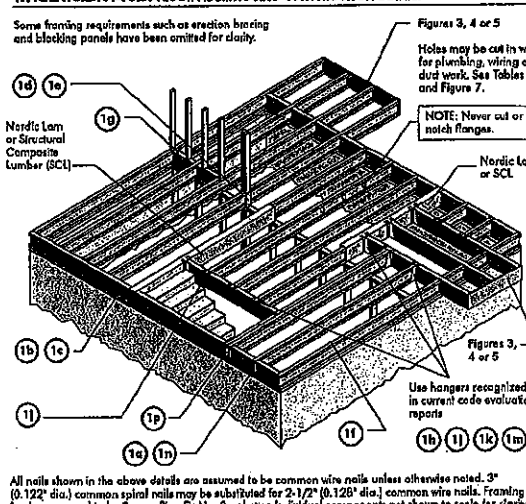
Chenier's Cylbomex Ltd. harvests its own trees, which enables Nordic products to adhere to strict quality control procedures throughout the manufacturing process. Every phase of the operation, from forest to the finished product, reflects our commitment to quality.

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

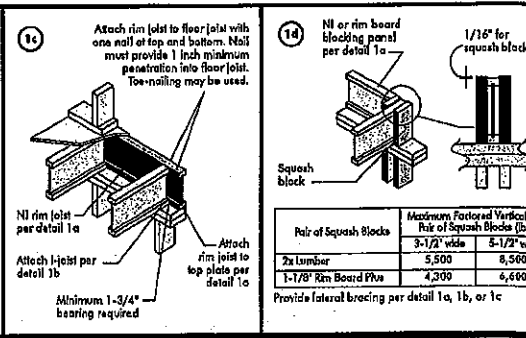
- Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contact your supplier.
- Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.
- Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical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

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



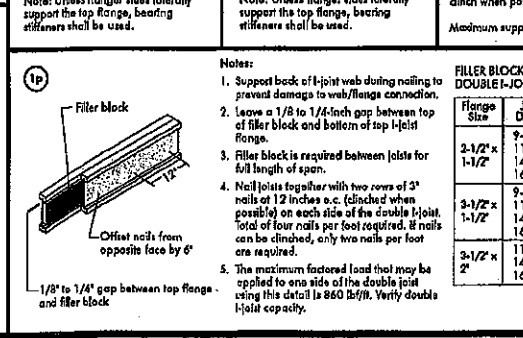
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
N-20 Joists	3,300
1-1/8" Rim Board Plus	5,000

*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.



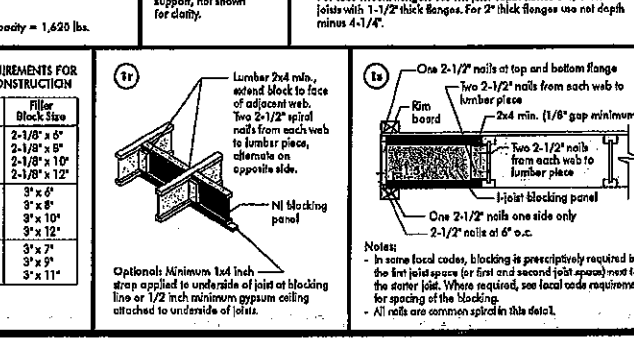
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
N-20 Joists	3,300
1-1/8" Rim Board Plus	5,000

*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.



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

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



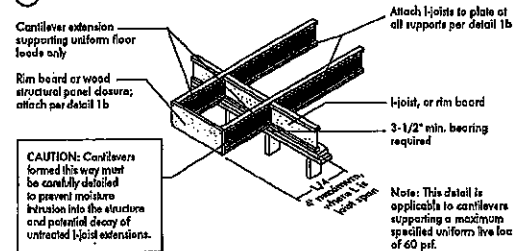
Flange Size	Joist Depth	Flange Size
2-1/2" x 1-1/2"	11-7/8"	2-1/8" x 5"
2-1/2" x 1-1/2"	14"	2-1/8" x 10"
2-1/2" x 2"	11-7/8"	3" x 6"
	14"	3" x 10"
	16"	3" x 12"
	11-7/8"	3" x 9"
	14"	3" x 9"
	16"	3" x 11"

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

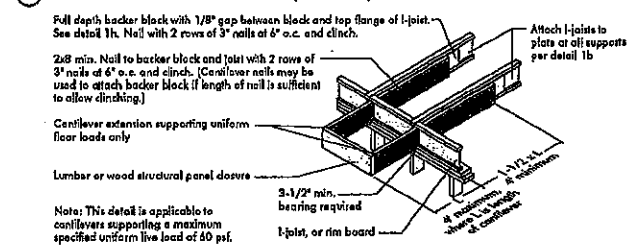
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JUN 05 2019
TOWN OF CALEDON
BUILDING SECTION
FILE NO.

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

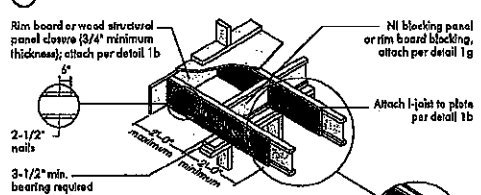


3b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)

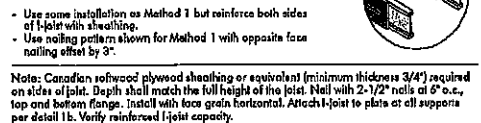


CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE



Method 2 — SHEATHING REINFORCEMENT TWO SIDES



4b Alternate Method 2 — DOUBLE I-JOIST

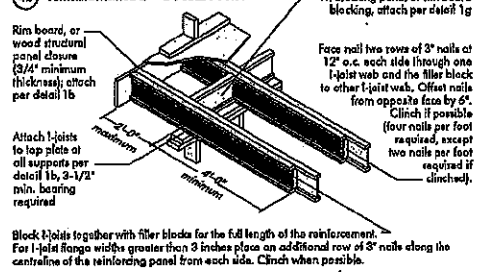


FIGURE 4 (continued)



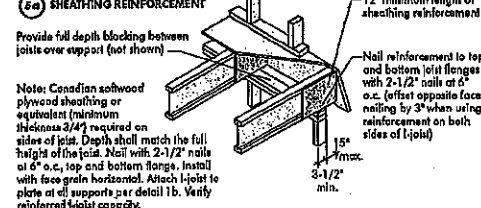
CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft.)	11 = 30 psf, DL = 15 psf				11 = 40 psf, DL = 15 psf				11 = 50 psf, DL = 15 psf			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2"	28	N	N	N	N	N	N	N	N	N	N	N	N
	30	N	N	N	N	N	N	N	N	N	N	N	N
	32	N	N	N	N	N	N	N	N	N	N	N	N
	34	N	N	N	N	N	N	N	N	N	N	N	N
11-7/8"	28	N	N	N	N	N	N	N	N	N	N	N	N
	30	N	N	N	N	N	N	N	N	N	N	N	N
	32	N	N	N	N	N	N	N	N	N	N	N	N
	34	N	N	N	N	N	N	N	N	N	N	N	N
14"	28	N	N	N	N	N	N	N	N	N	N	N	N
	30	N	N	N	N	N	N	N	N	N	N	N	N
	32	N	N	N	N	N	N	N	N	N	N	N	N
	34	N	N	N	N	N	N	N	N	N	N	N	N
16"	28	N	N	N	N	N	N	N	N	N	N	N	N
	30	N	N	N	N	N	N	N	N	N	N	N	N
	32	N	N	N	N	N	N	N	N	N	N	N	N
	34	N	N	N	N	N	N	N	N	N	N	N	N

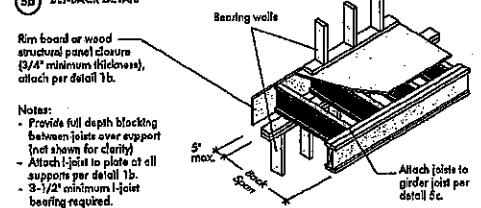
1. N = No reinforcement required.
2. N = NI reinforced with 3/4" wood structural panel on one side only.
3. N = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
4. X = Try a deeper joist or closer spacing.
5. Maximum design load shall be 15 psf roof dead load, 55 psf floor total load, and 80 psf live load. Wall load is based on 25" o.c. maximum window or door opening.
6. For larger openings, or multiple 3" o.c. width openings spaced less than 6" o.c., additional joists beneath the opening's edge studs may be required.
7. Table applies to joists 12" to 24" o.c. that meet the floor 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. Use 12" o.c. requirements for lesser spacing.
8. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge beam, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
9. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

BRICK CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

5a SHEATHING REINFORCEMENT



5b SET-BACK DETAIL



5c SET-BACK CONNECTION

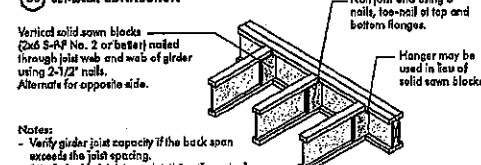


FIGURE 5 (continued)



BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft.)	11 = 30 psf, DL = 15 psf				11 = 40 psf, DL = 15 psf				11 = 50 psf, DL = 15 psf			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2"	28	N	N	N	N	N	N	N	N	N	N	N	N
	30	N	N	N	N	N	N	N	N	N	N	N	N
	32	N	N	N	N	N	N	N	N	N	N	N	N
	34	N	N	N	N	N	N	N	N	N	N	N	N
11-7/8"	28	N	N	N	N	N	N	N	N	N	N	N	N
	30	N	N	N	N	N	N	N	N	N	N	N	N
	32	N	N	N	N	N	N	N	N	N	N	N	N
	34	N	N	N	N	N	N	N	N	N	N	N	N
14"	28	N	N	N	N	N	N	N	N	N	N	N	N
	30	N	N	N	N	N	N	N	N	N	N	N	N
	32	N	N	N	N	N	N	N	N	N	N	N	N
	34	N	N	N	N	N	N	N	N	N	N	N	N
16"	28	N	N	N	N	N	N	N	N	N	N	N	N
	30	N	N	N	N	N	N	N	N	N	N	N	N
	32	N	N	N	N	N	N	N	N	N	N	N	N
	34	N	N	N	N	N	N	N	N	N	N	N	N

1. N = No reinforcement required.
2. N = NI reinforced with 3/4" wood structural panel on one side only.
3. N = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
4. X = Try a deeper joist or closer spacing.
5. Maximum design load shall be 15 psf roof dead load, 55 psf floor total load, and 80 psf live load. Wall load is based on 25" o.c. maximum window or door opening.
6. For larger openings, or multiple 3" o.c. width openings spaced less than 6" o.c., additional joists beneath the opening's edge studs may be required.
7. Table applies to joists 12" to 24" o.c. that meet the floor 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. Use 12" o.c. requirements for lesser spacing.
8. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge beam, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
9. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

1. The distance between the inside edge of the support and the centerline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
2. I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
3. Whenever possible, field-cut holes should be centered on the middle of the web.
4. The maximum size hole or the maximum depth of a duct chase opening shall 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 largest 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 holes shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (whichever is larger) and the length 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 shall be 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

Joist Depth	Joist Series	Minimum distance from inside face of any support to center of hole (in.)											Span adjustment factor
		1	2	3	4	5	6	7	8	9	10	11	
9-1/2"	28	12	16	19.2	24	28	32	36	40	44	48	52	1.0
	30	12	16	19.2	24	28	32	36	40	44	48	52	1.0
	32	12	16	19.2	24	28	32	36	40	44	48	52	1.0
	34	12	16	19.2	24	28	32	36	40	44	48	52	1.0
11-7/8"	28	12	16	19.2	24	28	32	36	40	44	48	52	1.0
	30	12	16	19.2	24	28	32	36	40	44	48	52	1.0
	32	12	16	19.2	24	28	32	36	40	44	48	52	1.0
	34	12	16	19.2	24	28	32	36	40	44	48	52	1.0
14"	28	12	16	19.2	24	28	32	36	40	44	48	52	1.0
	30	12	16	19.2	24	28	32	36	40	44	48	52	1.0
	32	12	16	19.2	24	28	32	36	40	44	48	52	1.0
	34	12	16	19.2	24	28	32	36	40	44	48	52	1.0
16"	28	12	16	19.2	24	28	32	36	40	44	48	52	1.0
	30	12	16	19.2	24	28	32	36	40	44	48	52	1.0
	32	12	16	19.2	24	28	32	36	40	44	48	52	1.0
	34	12	16	19.2	24	28	32	36	40	44	48	52	1.0

1. Above table may be used for I-joist spacing of 24 inches on center or less.
2. Hole location distance is measured from inside face of supports to center of hole.
3. Distances in this chart are based on uniformly loaded joists.

OPTIONAL:

The above table is based on the I-joists used at their maximum span. If the I-joists are placed at less than their full maximum span (see Maximum Floor Span), the minimum distance from the centerline of the hole to the face of any support [2] as given above may be reduced as follows:

Reduced = $\frac{\text{Actual Span}}{\text{Maximum Span}} \times D$

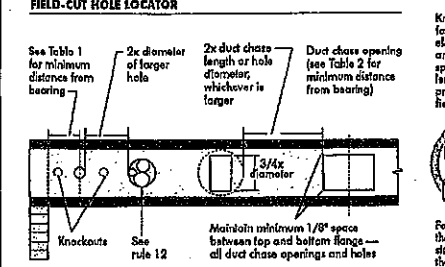
Where: Reduced = Distance from the inside face of any support to center of hole, reduced for less than maximum span applications [2]. The reduced distance shall not be less than 4 inches from the face of the support to edge of the hole.

Actual = The actual measured span distance between the inside faces of supports [2].

SAF = Span Adjustment Factor given in this table.

D = The minimum distance from the inside face of any support to center of hole from this table. If D is greater than 1, use 1 in the above calculation for Reduced.

FIGURE 7 FIELD-CUT HOLE LOCATOR



A knockout is NOT considered a hole, may be utilized wherever it occurs and may be ignored for purposes of calculating minimum distances between holes.

TABLE 2 DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only

Joist Depth	Joist Series	Minimum distance from inside face of any support to center of opening (in.)										
		1	2	3	4	5	6	7	8	9	10	11
9-1/2"	28	12	16	19.2	24	28	32	36	40	44	48	52
	30	12	16	19.2	24	28	32	36	40	44	48	52
	32	12	16	19.2	24	28	32	36	40	44	48	52
	34	12	16	19.2	24	28	32	36	40	44	48	52
11-7/8"	28	12	16	19.2	24	28	32	36	40	44	48	52
	30	12	16	19.2	24	28	32	36	40	44	48	52
	32	12	16	19.2	24	28	32	36	40	44	48	52
	34	12	16	19.2	24	28	32	36	40	44	48	52
14"	28	12	16	19.2	24	28	32	36	40	44	48	52
	30	12	16	19.2	24	28	32	36	40	44	48	52
	32	12	16	19.2	24	28	32	36	40	44	48	52
	34	12	16	19.2	24	28	32	36	40	44	48	52
16"	28	12	16	19.2	24	28	32	36	40	44	48	52
	30	12	16	19.2	24	28	32	36	40	44	48	52
	32	12	16	19.2	24	28	32	36	40	44	48	52
	34	12	16	19.2	24	28	32	36	40	44	48	52

1. Above table may be used for I-joist spacing of 24 inches on center or less.
2. Duct chase opening location distance is measured from inside face of supports to center of opening.
3. The above table is based on simple-span joists only. For other applications, consult 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. For other applications, consult your local distributor.

INSTALLING THE GLUED FLOOR SYSTEM

1. Wipe any mud, dirt, water, or ice from I-joist flanges before gluing.
2. Snap a chalk line across the I-joists four feet in from the wall for panel edge alignment and as a boundary for spreading glue.
3. Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from the glue manufacturer.
4. Lay the first panel with tongue side to the wall, and nail in place. This protects the tongue of the next panel from damage when stepped into place with a block and sledgehammer.
5. Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joist. Apply glue in a winding pattern on wide areas, such as with double I-joists.
6. Apply two lines of glue on I-joists where panel ends butt to ensure proper gluing of each end.
7. After the first row of panels is in place, spread glue in the groove of one or two panels at a time before laying the next row. Glue lines may be continuous or spaced, but avoid squeaks-out by applying a thinner line (1/8 inch) between end I-joist flanges.
8. Tap the second row of panels into place, using a block to protect groove edges.
9. Stagger and joint in place, spread glue in the groove of one or two panels at a time before laying the next row. Glue lines may be continuous or spaced, but avoid squeaks-out by applying a thinner line (1/8 inch) between end I-joist flanges.
10. Complete all nailing of each panel before glue sets. Check the manufacturer's recommendations for cure time. (Warm weather accelerates glue setting.) Use 2" ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the glue bond.

FASTENERS FOR SHEATHING AND SUBFLOORING(1)

Maximum Joist Spacing (in.)	Minimum Panel Thickness (in.)	Nail Size and Type			Maximum Spacing of Fasteners	
		Corrosion Resistant Wire or Steel Nails or Screws	Ring Thread Nails or Screws	Staples	Edges	Interior Support
16	5/8	2"	1-3/4"	2"	6"	12"
20	5/8	2"	1-3/4"	2"	6"	12"
24	3/4	2"	1-3/4"	2"	6"	12"

1. Fasteners of sheathing and subflooring shall conform to the above table.
2. Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to framing.
3. Flooring screws shall not be less than 1/8-inch in diameter.
4. Special conditions may impose heavy traffic and concentrated loads that require construction in excess of the minimums shown.
5. Use only adhesives conforming to CAN/CGSB-71.26 Standard, Adhesives for Field-Gluing Plywood to Lumber Framing for Floor System, applied in accordance with the manufacturer's recommendations. If OSB panels with sealed surfaces and edges are to be used, use only solvent-based glues; check with panel manufacturer.

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

NORDIC STRUCTURES

COMPANY
TAMABACK LUMBER
BURLINGTON
Oct. 4, 2018 13:19

PROJECT
J4 2ND FLR

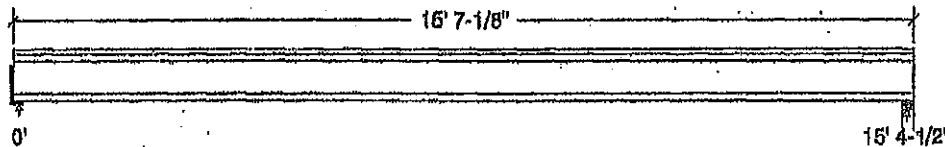
Design Check Calculation Sheet

Nordic Sizer - Canada 7.1

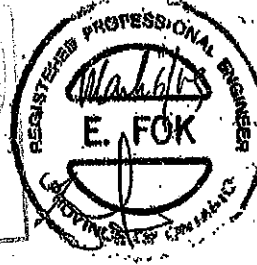
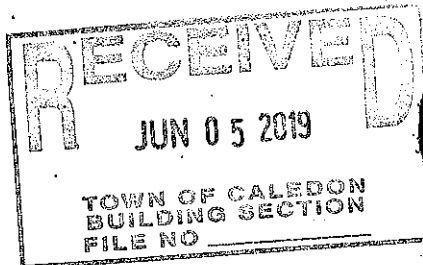
Loads:

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	207		208
Live	415		417
Factored:			
Total	882		885
Bearing:			
Resistance			
Joist	1893		1893
Support	-		5573
Des ratio			
Joist	0.47		0.47
Support	-		0.16
Load case	#2		#2
Length	2		2-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		1.00
Top sup	-		769
Ktop sup	-		1.09



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

Nordic 9-1/2" NI-80 Floor joist @ 16" o.c.

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

Total length: 15' 7-1/8"; Clear span: 15' 2-3/4"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$V_f = 871$	$V_r = 1895$	lbs	$V_f/V_r = 0.46$
Moment (+)	$M_f = 3349$	$M_r = 8958$	lbs-ft	$M_f/M_r = 0.37$
Perm. Defl'n	$0.10 = < L/999$	$0.51 = L/360$	in	0.20
Live Defl'n	$0.21 = L/887$	$0.38 = L/480$	in	0.54
Total Defl'n	$0.31 = L/591$	$0.77 = L/240$	in	0.41
Bare Defl'n	$0.24 = L/776$	$0.51 = L/360$	in	0.46
Vibration	$L_{max} = 15'-4.5$	$L_v = 16'-9.1$	ft	0.92
Defl'n	$= 0.032$	$= 0.042$	in	0.76

OWEN, TAM 2289-184
STRUCTURAL
CONCRETE ONLY

T-190303

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	1895	1.00	1.00	-	-	-	-	-	#2
Mrt	8958	1.00	1.00	-	1.000	-	-	-	#2
EI	324.1 million	-	-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

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

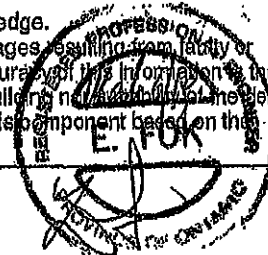
CALCULATIONS:

Deflection: E_{eff} = 378e06 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 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic Joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor a warranty of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



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

OWNED BY TAM 3249-184
 STRUCTURAL
 COMPONENT ONLY

T-190303161

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER
BURLINGTON
Oct. 4, 2018 13:19

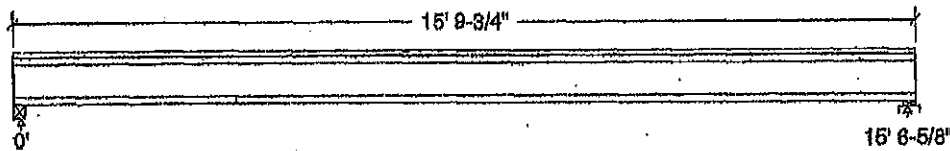
PROJECT
J6, GRD. FLR.

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	158		158
Live	316		316
Factored:			
Total	672		672
Bearing:			
Resistance			
Joist	1893		1893
Support	-		5573
Des ratio			
Joist	0.36		0.35
Support	-		0.12
Load case	#2		#2
Length	2-1/2		2-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		1.00
fcg sup	-		769
Kzup sup	-		1.09



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

Supports: 1 - Steel Beam, W; 2 - Lumber Sill plate, No.1/No.2;
Total length: 15' 9-3/4"; Clear span: 15' 4-7/8"; 5/8" nailed and glued OSB sheathing.
This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 661	Vr = 1895	lbs	Vf/Vr = 0.35
Moment (+)	Mf = 2570	Mr = 8958	lbs-ft	Mf/Mr = 0.29
Perm: Defl'n	0.08 = < L/999	0.52 = L/360	in	0.16
Live: Defl'n	0.17 = < L/999	0.39 = L/480	in	0.43
Total Defl'n	0.25 = < L/745	0.78 = L/240	in	0.32
Bare Defl'n	0.19 = < L/999	0.52 = L/360	in	0.36
Vibration	Lmax = 15'-6.6	Lv = 17'-5	ft	0.89
Defl'n	= 0.029	= 0.042	in	0.70

OWN NO. YAW 3250-184
STRUCTURAL
COMPONENT ONLY

T-1903032

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	1895	1.00	1.00	-	-	-	-	-	#2
Mx+	8958	1.00	1.00	-	1.000	-	-	-	#2
EI	324.1 million	-	-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

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

Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

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

Load Types: D=dead W=wind S=snow H=earth, groundwater E=earthquake

L=live (use, occupancy) Ls=live (storage, equipment) f=fire

Load Patterns: s=S/2 L=L+Ls _=no pattern load in this span

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

CALCULATIONS:Deflection: E_{eff} = 367e06 lb-in² K= 4.94e06 lbs

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

Design Notes:

CONFORMS TO NBC 2012

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



DWENH, YAM 2020/12/24
STRUCTURAL
COMPONENT ONLY

T-19030306



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

PASSED

1ST FLOOR FRAMING/Flush Beams/B3(14295)

Dry | 1 span | No cant.

October 4, 2018 13:21:09

BC CALC® Member Report:

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON.

Customer:

Code reports: CCMC 12472-R

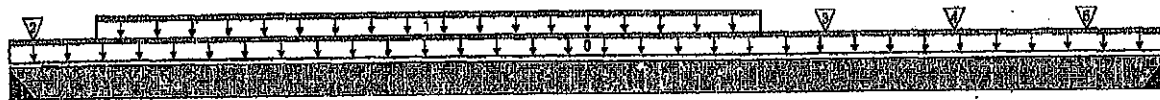
File name: HORIZON 1.mmdl

Description: 1ST FLOOR FRAMING/Flush Beams/B3(14295)

Specifier:

Designer: LSV

Company:



B1 11-08-04 B2
Total Horizontal Product Length = 11-08-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	332 / 0	198 / 0		
B2, 2"	518 / 0	286 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.85	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-08-04	Top		5			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-10-12	07-08-12	Top	49	25			n/a
2	J4(14402)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	43	22			n/a
3	J4(14367)	Conc. Pt. (lbs)	L	08-02-12	08-02-12	Top	133	67			n/a
4	J4(14374)	Conc. Pt. (lbs)	L	09-08-12	09-08-12	Top	184	92			n/a
5	J4(14293)	Conc. Pt. (lbs)	L	10-10-12	10-10-12	Top	160	80			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,437 ft-lbs	11,610 ft-lbs	21.0%	1	08-10-12
End Shear	1,050 lbs	5,785 lbs	18.2%	1	10-08-12
Total Load Deflection	L/838 (0.165")	n/a	28.7%	4	08-00-12
Live Load Deflection	L/999 (0.104")	n/a	n/a	5	06-00-12
Max Defl.	0.165"	n/a	n/a	4	08-00-12
Span / Depth	14.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	743 lbs	n/a	17.4%	HUS1.81/10
B2	Hanger 2" x 1-3/4"	1,128 lbs	n/a	26.4%	HUS1.81/10

Cautions

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

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBC 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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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)292-0788 before installation.

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

DWM NO. YAM 9253-186
STRUCTURAL
COMPONENT ONLY

T-1903035



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

PASSED

1ST FLOOR FRAMING/Flush Beams/B1(I4499)

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

File name: HORIZON 1.mmd

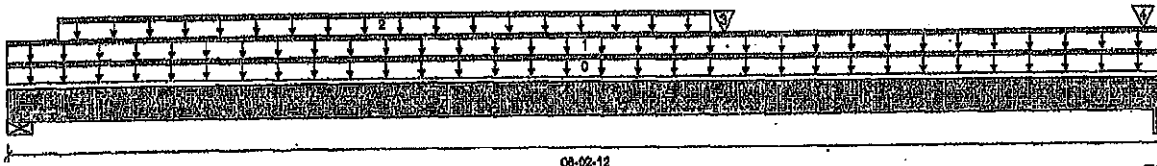
Description: 1ST FLOOR FRAMING/Flush Beams/B1(I4499)

Specifier:

Designer: LBV

Company:

October 4, 2018 13:21:09



Total Horizontal Product Length = 08-02-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	778 / 0	445 / 0		
B2, 2-3/4"	3,292 / 0	1,878 / 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	08-02-12	Top		14			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-02-12	Top	27	13			n/a
2	STAIR	Unf. Lin. (lb/ft)	L	00-03-08	03-09-06	Top	240	120			n/a
3	B3(I4295)	Conc. Pt. (lbs)	L	03-10-04	03-10-04	Top	334	197			n/a
4	PBO3(I1418)	Conc. Pt. (lbs)	L	08-01-07	08-01-07	Top	2,731	1,533			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,728 ft-lbs	36,222 ft-lbs	7.6%	1	03-02-01
End Shear	1,650 lbs	17,353 lbs	9.5%	1	00-11-14
Total Load Deflection	L/999 (0.016")	n/a	n/a	4	03-01-00
Live Load Deflection	L/999 (0.01")	n/a	n/a	5	03-01-00
Max Defl.	0.016"	n/a	n/a	4	03-01-00
Span / Depth	7.5				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2-3/8" x 6-1/4"	1,724 lbs	26.9%	11.3%	Unspecified
B2	Beam 2-3/4" x 5-1/4"	7,285 lbs	94.6%	41.4%	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. **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.



BWB NO. YAWB 251 - 184
STRUCTURAL
COMPONENT ONLY

T-1903033



Boise Cascade



Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 8P

1ST FLOOR FRAMING\Flush Beams\B1(14499)

Dry | 1 span | No cant.

PASSED

October 4, 2018 13:21:09

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

File name: HORIZON 1.mxd

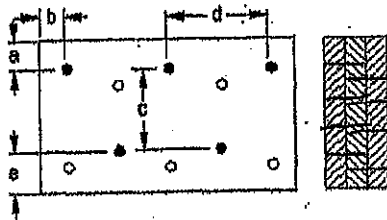
Description: 1ST FLOOR FRAMING\Flush Beams\B1(14499)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member



4 rows

a minimum = 4"
b minimum = 3"

c = 6 1/2"
d = 6"
e minimum = 2"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
Nailing schedule applies to both sides of the member.
Connectors are: Nails

3 1/2" ARDOX SPIRAL

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



Disclosure

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

STRUCTURAL
COMPONENT ONLY

100%

T-190803360



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B2(14476)

Dry | 1 span | No cant.

October 4, 2016 13:21:09

BC OALCO Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

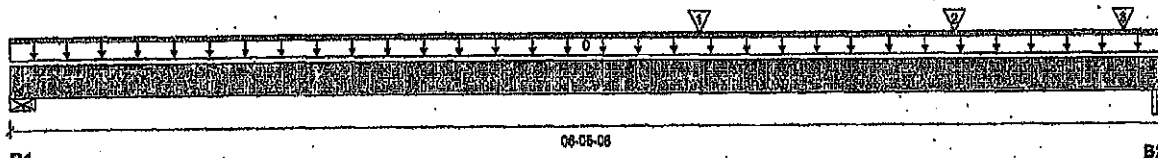
File name: HORIZON 1.mxd

Description: 1ST FLOOR FRAMING\Flush Beams\B2(14476)

Specifier:

Designer: LSV

Company:



Total Horizontal Product Length = 06-05-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	253 / 0	182 / 0		
B2, 5-1/2"	4,916 / 0	2,764 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-06-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	B3(14295)	Conc. Pt. (lbs)	L	03-10-04	03-10-04	Top	611	285			n/a
2	STAIR	Conc. Pt. (lbs)	L	05-03-06	05-03-06	Top	74	37			n/a
3	PBO2(1838)	Conc. Pt. (lbs)	L	08-02-12	08-02-12	Top	4,457	2,468			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,880 ft-lbs.	36,222 ft-lbs	5.2%	1	03-10-04
End Shear	957 lbs	17,356 lbs	5.5%	1	05-02-08
Total Load Deflection	L/999 (0.009")	n/a	n/a	4	03-03-01
Live Load Deflection	L/999 (0.006")	n/a	n/a	5	03-04-02
Max Defl.	0.009"	n/a	n/a	4	03-03-01
Span / Depth	7.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2-3/8" x 5-1/4"	808 lbs	9.1%	4.0%	Unspecified
B2	Beam 5-1/2" x 5-1/4"	10,829 lbs	70.2%	30.7%	Unspecified



Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

Nailing schedule applies to both sides of the member.

OWNING YAM 9252318H
STRUCTURAL
COMPONENT ONLY

T-1903024



Triple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLOOR FRAMING\Flush Beams\B2(14478)

PASSED

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cent.

October 4, 2018 13:21:09

File name: HORIZON 1.mmdl

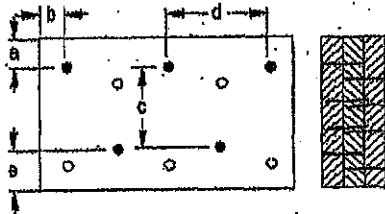
Description: 1ST FLOOR FRAMING\Flush Beams\B2(14478)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member



a minimum = 1"
b minimum = 3"

c = 1 1/2"
d = 6"
e minimum = 3"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
Nailing schedule applies to both sides of the member.
Connectors are: Nails

3/4" ARDOX SPIRAL



Disclosure

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

OWN NO. YAM 3252-18H
STRUCTURAL
COMPONENT ONLY

T-190303060



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

2ND FLOOR FRAMING\Flush Beams\B5(14195)

PASSED

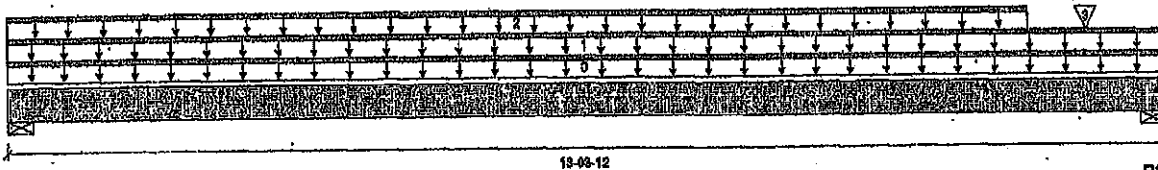
BC CALC® Member Report
Bulld 6476

Dry | 1 span | No cant.

October 4, 2018 13:21:09

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

File name: HORIZON 1.wmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B5(14195)
Specifier:
Designer: LBV
Company:



Total Horizontal Product Length = 13-03-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1,580 / 0	857 / 0		
B2, 3-1/2"	1,374 / 0	752 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-03-12	Top	10	8			00-00-00
1	FG2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	13-03-12	Top	16	8			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	11-09-00	Top	215	108			n/a
3	J1(14159)	Conc. Pt. (lbs)	L	12-05-00	12-05-00	Top	214	107			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	8,916 ft-lbs	23,220 ft-lbs	42.7%	1	07-01-00
End Shear	2,844 lbs	11,571 lbs	24.6%	1	12-02-12
Total Load Deflection	L/376 (0.405")	n/a	63.8%	4	06-09-00
Live Load Deflection	L/581 (0.262")	n/a	62.0%	5	06-09-00
Max Defl.	0.405"	n/a	n/a	4	06-09-00
Span / Depth	16.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	3,441 lbs	33.6%	14.7%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	3,001 lbs	45.9%	20.1%	Unspecified



Notes

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

OWNING FIRM 2155-184
STRUCTURAL
COMPONENT ONLY

T-190638



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Flush Beams\B5(14195)
Dry | 1 span | No cant.

PASSED

October 4, 2018 13:21:09

BC CALC® Member Report
Build 8476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

File name: HORIZON 1.mmdl

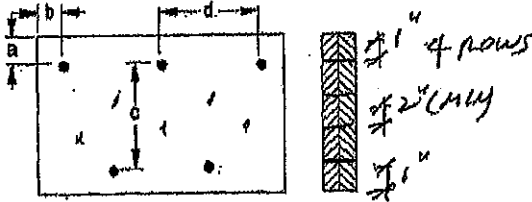
Description: 2ND FLOOR FRAMING\Flush Beams\B5(14195)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member



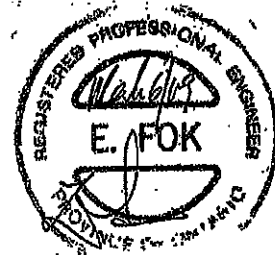
a minimum = 1 1/2"
b minimum = 3"

c = 1 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.
Connectors are: Nails

3/4" ARDOX SPIRAL

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



Disclosure

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OWNED BY 3258-184
STRUCTURAL
COMPONENT ONLY

T-190803860



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

PASSED

2ND FLOOR FRAMING Flush Beams B11(14486)

Dry | 1 span | No cant.

October 4, 2018 13:21:09

BC CALCO Member Report

Build 8475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

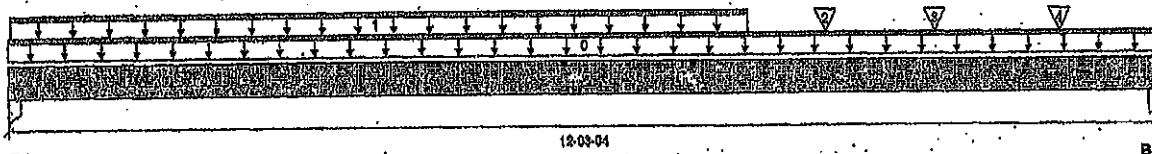
File name: HORIZON 1.mxd

Description: 2ND FLOOR FRAMING Flush Beams B11(14486)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 12-03-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	2,338 / 0	1,271 / 0		
B2, 1-3/4"	2,411 / 0	1,327 / 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	12-03-04	Top		14			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-04	07-10-04	Top	376	188			n/a
2	-	Conc. Pt. (lbs)	L	08-08-08	08-08-08	Top	594	342			n/a
3	-	Conc. Pt. (lbs)	L	09-10-04	09-10-04	Top	568	284			n/a
4	-	Conc. Pt. (lbs)	L	11-02-04	11-02-04	Top	591	295			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	15,836 ft-lbs	36,222 ft-lbs	43.7%	1	08-08-04
End Shear	5,261 lbs	17,356 lbs	30.3%	1	11-04-00
Total Load Deflection	L/367 (0.396")	n/a	66.4%	4	08-02-04
Live Load Deflection	L/568 (0.256")	n/a	63.4%	5	08-02-04
Max Defl.	0.396"	n/a	n/a	4	08-02-04
Span / Depth	15.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 1-3/4" x 6-1/4"	5,086 lbs	68.3%	45.4%	Unspecified
B2	Column 1-3/4" x 6-1/4"	5,275 lbs	70.7%	47.1%	Unspecified

Notes

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

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

Calculations assume 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 DBC 2012**

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9.

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

Nailing schedule applies to both sides of the member.



DWG NO. YAM 8255-12H
STRUCTURAL
COMPONENT ONLY

T-19102037



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B11(14486)

Dry | 1 span | No cant.

October 4, 2016 13:21:09

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

File name: HORIZON 1.mmdl

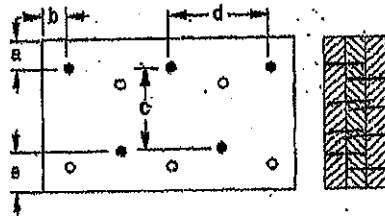
Description: 2ND FLOOR FRAMING\Flush Beams\B11(14486)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member

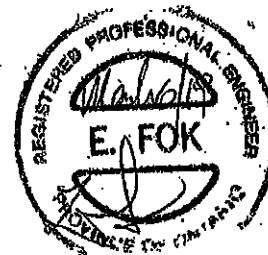


a minimum = 1"
b minimum = 3"

c = 4 1/2" //
d = 6
e minimum = 3"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
Nailing schedule applies to both sides of the member.
Connectors are: Nails

3/4" ARDOX SPIRAL



Disclosure

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

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

OWNED BY 3255-180
STRUCTURAL
COMPONENT ONLY

F190203760



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING/Flush Beams/B10(I4522)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

October 4, 2016 13:21:09

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CGMC 12472-R

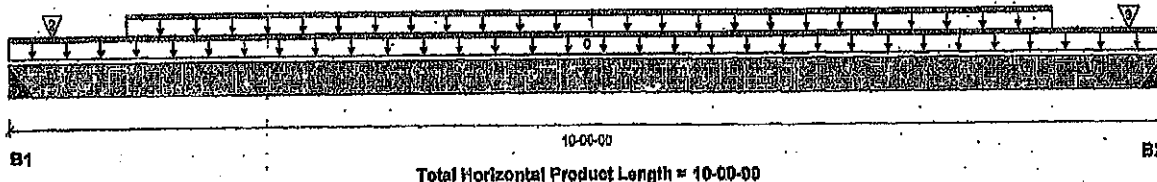
File name: HORIZON 1.mxd

Description: 2ND FLOOR FRAMING/Flush Beams/B10(I4522)

Specifier:

Designer: LBV

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	234 / 0	142 / 0		
B2, 2"	233 / 0	142 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-00-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-00-08	09-00-08	Top	47	24			n/a
2	J3(I4528)	Conc. Pt. (lbs)	L	00-04-08	00-04-08	Top	47	23			n/a
3	J3(I4182)	Conc. Pt. (lbs)	L	09-08-08	09-08-08	Top	42	21			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Poe. Moment	1,284 ft-lbs	11,610 ft-lbs	10.9%	1	04-04-08
End Shear	449 lbs	6,785 lbs	7.6%	1	00-11-08
Total Load Deflection	L/999 (0.032")	n/a	n/a	4	05-00-08
Live Load Deflection	L/899 (0.039")	n/a	n/a	5	05-00-08
Max Defl.	0.032"	n/a	n/a	4	05-00-08
Span / Depth	12.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	528 lbs	n/a	12.4%	HUS1.81/10
B2	Hanger 2" x 1-3/4"	527 lbs	n/a	12.3%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 at B1 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.
Hanger model HUS1.81/10 and seat length were input by the user. 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
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 NBC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor: Normal Part code: Part 9

CONFORMS TO QDC 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.

BC CALC®, BC FRAMER®, AJ6™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

DWONG, YAM 2016-10-13
STRUCTURAL
COMPONENT ONLY

T-190086



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Flush Beams\B6(14122)

PASSED

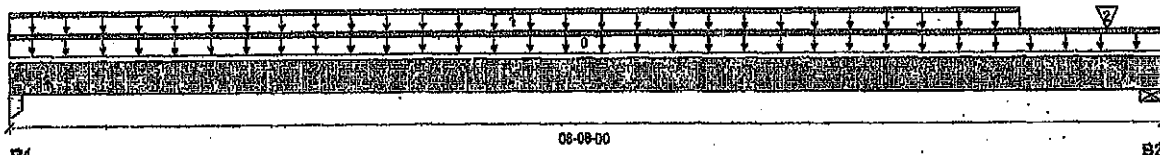
BC CALCO Member Report
Build 6476

Dry | 1 span | No cant.

October 4, 2018 13:21:09

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

File name: HORIZON 1.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B6(14122)
Specifier:
Designer: LBV
Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	2,028 / 0	1,050 / 0		
B2, 5-1/2"	1,921 / 0	1,002 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-08-00	Top	100	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	07-07-00	Top	486	232			n/a
2	J4(4240)	Conc. Pl. (lbs)	L	08-03-00	08-03-00	Top	407	204			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	8,018 ft-lbs	23,220 ft-lbs	34.5%	1	04-03-00
End Shear	3,255 lbs	11,671 lbs	28.1%	1	00-11-04
Total Load Deflection	L/733 (0.134")	n/a	32.8%	4	04-03-00
Live Load Deflection	L/999 (0.086")	n/a	n/a	5	04-03-00
Max Defl.	0.134"	n/a	n/a	4	04-03-00
Span / Depth	10.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 1-3/4" x 3-1/2"	4,351 lbs	87.5%	58.2%	Unspecified
B2	Wall/Plate 5-1/2" x 3-1/2"	4,133 lbs	40.2%	17.6%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.
Resistance Factor phi has been applied to all presented results per CSA Q86. **CONFORMS TO OBC 2012**
BC CALCO analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA Q86.
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.



DWANO, YAN 3/25/2018
STRUCTURAL
COMPONENT ONLY

T-1902039



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B6\14122

Dry | 1 span | No cant.

October 4, 2018 13:21:09

BC CALC® Member Report

Build 0475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

File name: HORIZON 1.mmdl

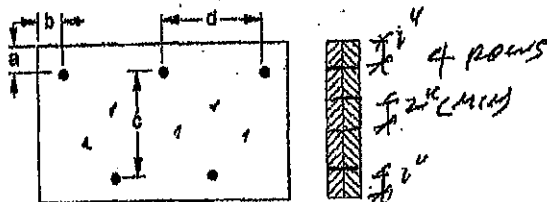
Description: 2ND FLOOR FRAMING\Flush Beams\B6\14122

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member



a minimum = 1/4"

b minimum = 3"

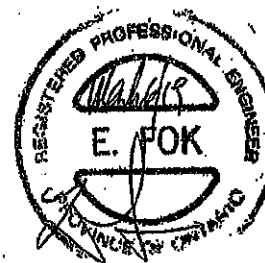
c = 1-1/2"

d = 4"

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

Connectors are: Nails

3/8" ARDUX 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) 232-0783 before installation.

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

WU HU, TAM 3252-184
STRUCTURAL
COMPONENT ONLY

T-1903039/05



BC CALCO Member Report



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

2ND FLOOR FRAMING Flush Beams B7 (I4463)

PASSED

October 4, 2018 13:21:09

BC CALCO Member Report

Build 8478

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reporter:

CCMC 12472-R

Dry | 1 span | No cant.

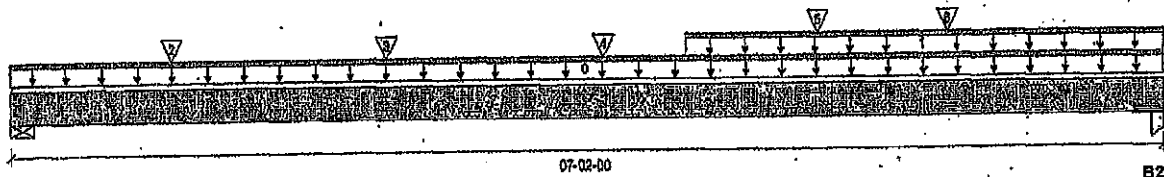
File name: HORIZON 1.mmd

Description: 2ND FLOOR FRAMING Flush Beams B7 (I4463)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 07-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1,481 / 0	784 / 0		
B2, 1-3/4"	1,759 / 0	949 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-02-00	Top	10				00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	04-02-04	07-02-00	Top	332	166			n/a
2	-	Conc. Pt. (lbs)	L	01-00-04	01-00-04	Top	504	252			n/a
3	-	Conc. Pt. (lbs)	L	02-04-04	02-04-04	Top	590	294			n/a
4	-	Conc. Pt. (lbs)	L	03-08-04	03-08-04	Top	537	268			n/a
5	J2(I4281)	Conc. Pt. (lbs)	L	05-00-04	05-00-04	Top	139	70			n/a
6	B8(I4527)	Conc. Pt. (lbs)	L	05-10-00	05-10-00	Top	478	283			n/a

Controls Summary

Pos. Moment	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
End Shear	5,933 ft-lbs	23,220 ft-lbs	25.6%	1	03-08-04
Total Load Deflection	3,409 lbs	11,571 lbs	29.5%	1	06-02-12
Live Load Deflection	L/899 (0.087")	n/a	n/a	4	03-09-12
Max Defl.	L/899 (0.044")	n/a	n/a	5	03-09-12
Span / Depth	0.067"	n/a	n/a	4	03-09-12

Bearing Supports

Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Wall/Plate 5-1/2" x 3-1/2"	3,203 lbs	31.2%	13.6%	Unspecified
B2 Column 1-3/4" x 3-1/2"	3,624 lbs	76.9%	51.2%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.
 Resistance Factor phi has been applied to all presented results per CSA O86. **CONFORMS TO NBC 2012**
 BC CALCO analysis is based on Canadian Limit States Design, as per NBC 2015 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.



DWG NO. YAM 315 B-18H
 STRUCTURAL
 COMPONENT ONLY

T-19080400



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

2ND FLOOR FRAMING/Flush Beams/B7(14463)

Dry | 1 span | No cant.

PASSED

October 4, 2018 13:21:09

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

File name: HORIZON 1.mmdl

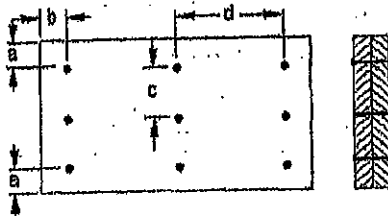
Description: 2ND FLOOR FRAMING/Flush Beams/B7(14463)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

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

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

3/4" ARDUX SPIRAL

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



Disclosure

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BC CALC®, BC FRAMER®, AJ6™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®.

STRUCTURAL
COMPONENT ONLY

T-19030060



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B8(14527)

Dry | 1 span | No cant.

October 4, 2018 13:21:09

BCALCO Member Report

Build 8476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports:

CCMC 12472-R

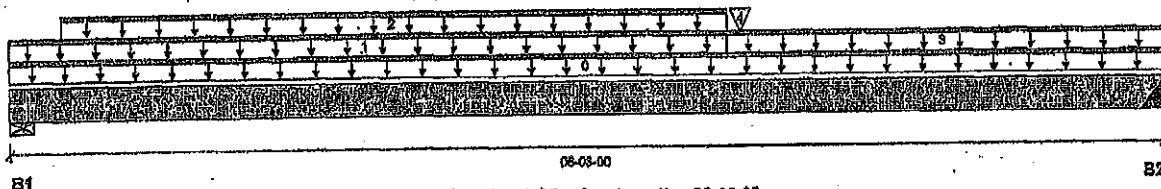
File name: HORIZON 1.mmd

Description: 2ND FLOOR FRAMING\Flush Beams\B8(14527)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 06-03-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	741 / 0	411 / 0		
B2, 2"	489 / 0	289 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-03-00	Top	1.00	0.55	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-10-08	Top	19	10			n/a
2	STAIR	Unf. Lin. (lb/ft)	L	00-03-08	03-10-08	Top	240	120			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	03-10-08	06-03-00	Top	27	13			n/a
4	B10(14522)	Conc. Pt. (lbs)	L	03-11-06	03-11-06	Top	233	141			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,403 ft-lbs	23,220 ft-lbs	10.3%	1	03-02-02
End Shear	1,184 lbs	11,571 lbs	10.1%	1	01-01-00
Total Load Deflection	L/999 (0.021")	n/a	n/a	4	03-02-02
Live Load Deflection	L/999 (0.013")	n/a	n/a	5	03-02-02
Max Defl.	0.021"	n/a	n/a	4	03-02-02
Span / Depth	7.5				



Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	1,625 lbs	24.8%	10.5%	Unspecified
B2	Hanger 2" x 3-1/2"	1,095 lbs	n/a	12.8%	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 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 OGC 2012**
 BCALCO 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.

OWN NO. TAM 3159-18H
 STRUCTURAL
 COMPONENT ONLY

T-190304



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

PASSED

2ND FLOOR FRAMING/Flush Beams/B9(I4525)

Dry | 1 span | No cant.

October 4, 2018 13:21:09

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: COMC 12472-R

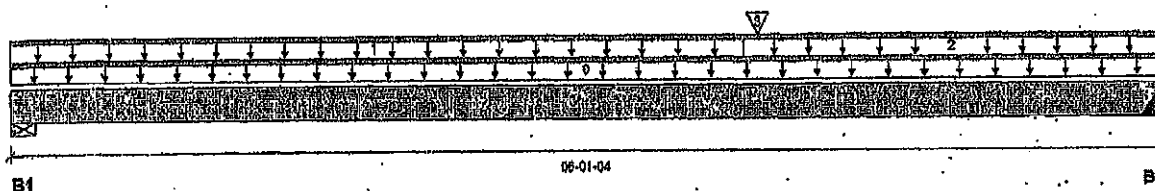
File name: HORIZON 1.mmdl

Description: 2ND FLOOR FRAMING/Flush Beams/B9(I4525)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 06-01-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	180 / 0	114 / 0		
B2, 2"	224 / 0	157 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-01-04	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-10-08	Top	21	10			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	03-10-08	08-01-04	Top	27	13			n/a
3	B10(I4522)	Conc. Pt. (lbs)	L	03-11-06	03-11-06	Top	294	143			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	933 ft-lbs	23,220 ft-lbs	4.0%	1	03-11-08
End Shear	487 lbs	11,671 lbs	4.0%	1	05-01-12
Total Load Deflection	L/999 (0.007")	n/a	n/a	4	03-03-03
Live Load Deflection	L/999 (0.004")	n/a	n/a	5	03-03-03
Max Defl.	0.007"	n/a	n/a	4	03-03-03
Span / Depth	7.3				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	989 lbs	5.6%	2.6%	Unspecified
B2	Hanger 2" x 3-1/2"	532 lbs	n/a	6.2%	HGUS410

Cautions

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

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Hanger Manufacturer: Unassigned
 Resistance Factor phi has been applied to all presented results per CSA O86. **CONFORMS TO OBC 2012**
 BC 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.

046 NO. YAM 2018 9-18 1/2
 STRUCTURAL
 COMPONENT ONLY

T-1903042



Boise Cascade



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

2ND FLOOR FRAMING\Flush Beams\B9\14525

Dry | 1 span | No cant.

PASSED

October 4, 2018 13:21:09

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

File name: HORIZON 1.mmdl

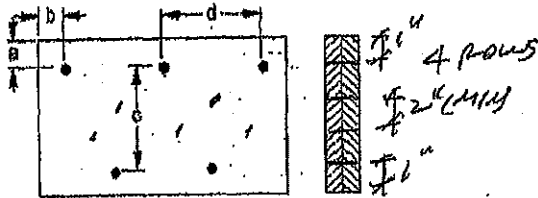
Description: 2ND FLOOR FRAMING\Flush Beams\B9\14525

Specifier:

Designer: LSV

Company:

Connection Diagram: Full Length of Member



a minimum = 1"
b minimum = 3"

c = 1 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.
Connectors are: Nails

3 1/2" ARDOX SPIRAL



Disclosure

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

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