

FROM PLAN DATED: JAN 2018

BUILDER: GREENYORK HOMES

SITE: BALTINO

MODEL: AVIGNON 3

ELEVATION:

LOT:

CITY: KING

SALESMAN: RICK DICIANO

DESIGNER: LBV

REVISION:

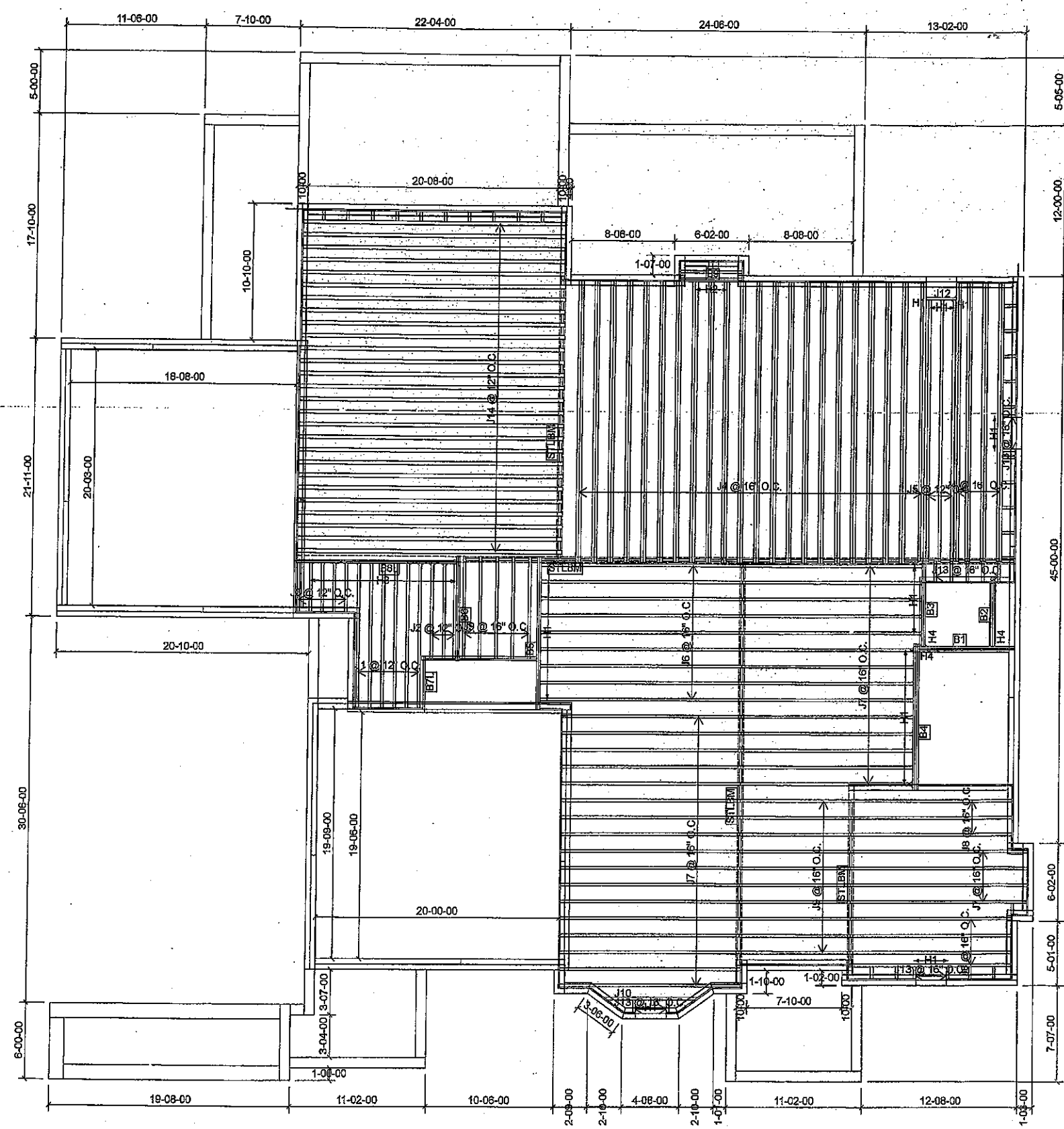
NOTES:
REFER TO THE NORDIC INSTALLATION GUIDE FOR PROPER STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK REQ. I-JOIST 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/720.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 20.0 lb/ft²
TILE LOAD: 25.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2019-09-23

1st FLOOR



Products				
PlotID	Length	Product	Piles	Net Qty
J1	12-00-00	9 1/2" NI-40x	1	6
J2	8-00-00	9 1/2" NI-40x	1	3
J3	4-00-00	9 1/2" NI-40x	1	5
J4	24-00-00	14" NI-40x	2	52
J5	22-00-00	14" NI-40x	1	3
J6	18-00-00	14" NI-40x	1	9
J7	16-00-00	14" NI-40x	1	35
J8	14-00-00	14" NI-40x	1	7
J9	10-00-00	14" NI-40x	1	15
J10	8-00-00	14" NI-40x	1	1
J11	6-00-00	14" NI-40x	1	1
J12	4-00-00	14" NI-40x	1	1
J13	2-00-00	14" NI-40x	1	11
J14	22-00-00	14" NI-80	1	27
B8L	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B7L	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5	14-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	2	2
B4	12-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	3	3
B6	10-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	2	2
B1	8-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	2	2
B3	8-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	2	2
B2	6-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	2	2
B9	6-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
14	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88
9	H1	IUS2.56/11.88
7	H1	IUS2.56/11.88
3	H2	HU314-2
13	H3	IUS2.56/9.5
2	H4	HGUS410
1	H4	HGUS410

CITY OF RICHMOND HILL
BUILDING SERVICES DIVISION

MAY 25 2020
RECEIVED
Per: _____

SITE



FROM PLAN DATED: JAN 2018

BUILDER: GREENYORK HOMES

SITE: BALTIMO

MODEL: AVIGNON 3

ELEVATION:

LOT:

CITY: KING

SALESMAN: RICK DICIANO

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/720.000

LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 20.0 lb/ft²

TILE LOAD: 25.0 lb/ft²

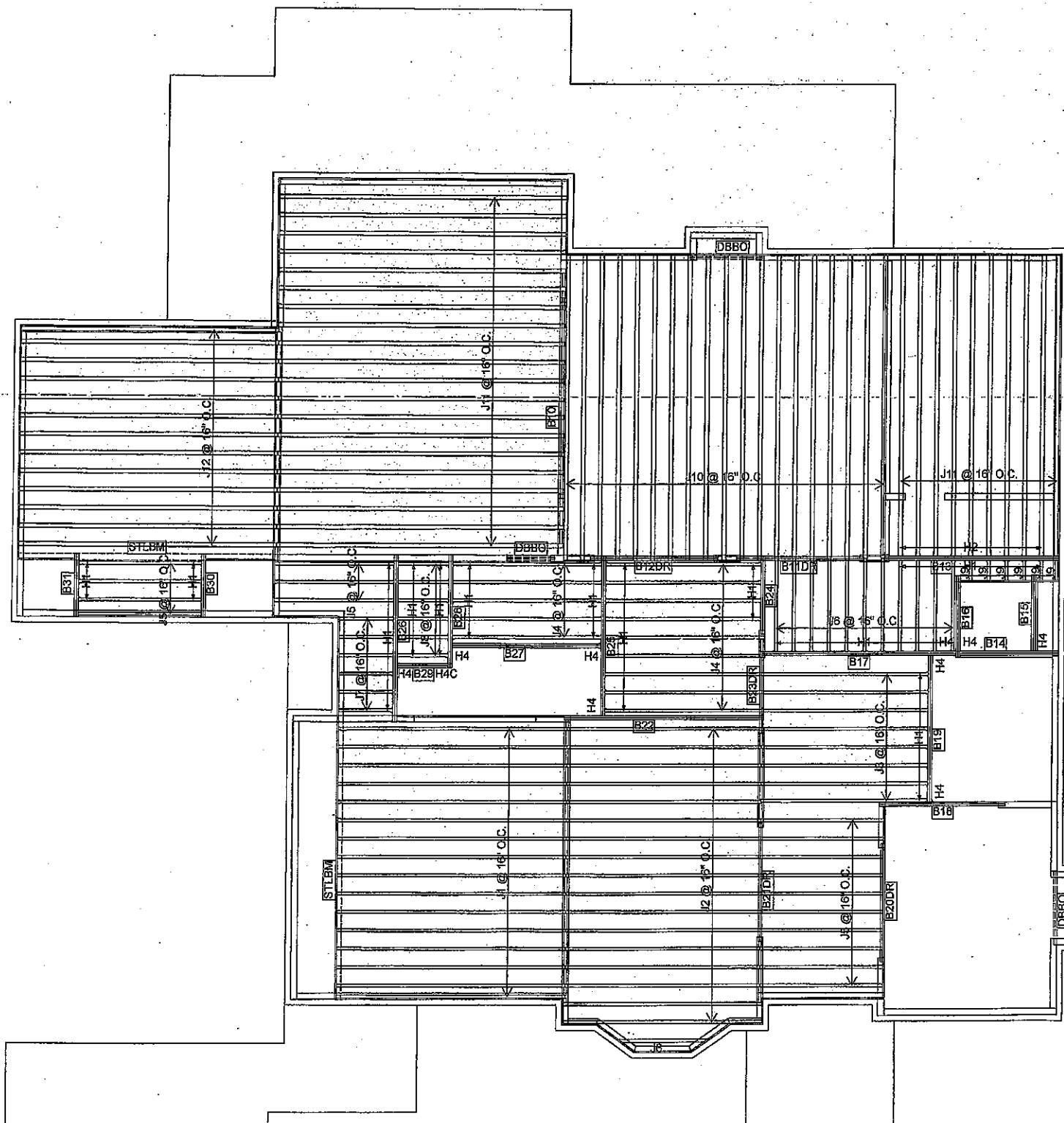
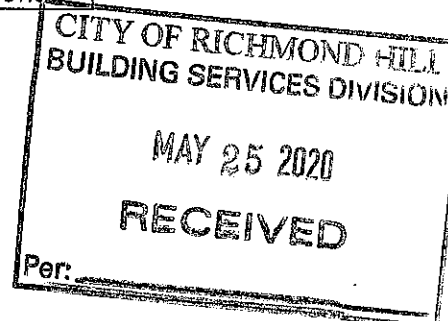
SUBFLOOR: 3/4" GLUED AND NAILED

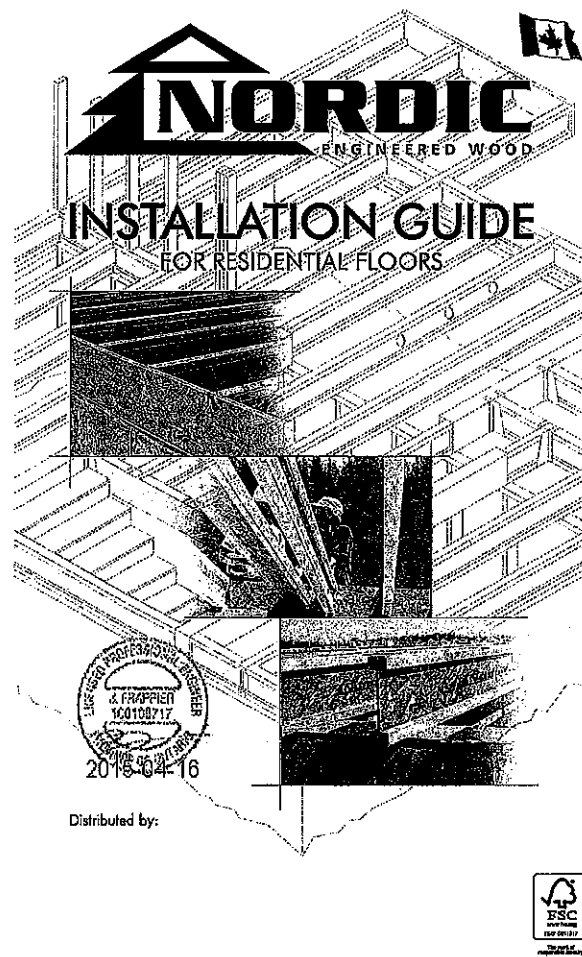
DATE: 2019-09-23

2nd FLOOR

Products				
PlotID	Length	Product	Piles	Net Qty
J1	18-00-00	14" NI-40x	1	16
J2	16-00-00	14" NI-40x	1	17
J3	14-00-00	14" NI-40x	1	8
J4	12-00-00	14" NI-40x	1	14
J5	10-00-00	14" NI-40x	1	17
J6	8-00-00	14" NI-40x	1	12
J7	6-00-00	14" NI-40x	1	6
J8	4-00-00	14" NI-40x	1	6
J9	2-00-00	14" NI-40x	1	6
J10	24-00-00	14" NI-80	1	19
J11	22-00-00	14" NI-80	1	30
J12	20-00-00	14" NI-80	1	13
B11DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B20DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B21DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B23DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B10	16-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B17	16-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	2	2
B22	16-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	2	2
B13	14-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	2	2
B26	14-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	2	2
B19	12-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	2	2
B25	12-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	2	2
B27	12-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	2	2
B18	10-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	2	2
B28	10-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	2	2
B14	8-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	2	2
B15	6-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	2	2
B16	6-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	2	2
B24	6-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	2	2
B30	6-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	2	2
B31	6-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	2	2
B29	4-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
78	H1	IUS2.56/11.88
9	H2	IUS3.56/11.88
1	H4C	HUC410
9	H4	HGUS410





SAFETY AND CONSTRUCTION PRECAUTIONS

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 of 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 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.
 - On 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 flatwise.
- 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

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 1/480. 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 CGS-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.

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

4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.

5. This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.

6. Tables are based on Limit States Design per CAN/CSA C86-09 Standard, and NEC 2010.

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

MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS

Joist Depth	Joist Series	Simple spans				Multiple spans			
		On centre spacing	12"	16"	19.2"	On centre spacing	12"	16"	19.2"
1-1/2"	NI-20	15'1"	14'2"	13'9"	13'5"	16'3"	15'4"	14'10"	14'7"
	NI-20B	16'1"	15'2"	14'8"	14'9"	17'5"	16'5"	15'10"	15'5"
	NI-20C	16'3"	15'4"	14'10"	14'11"	17'7"	16'7"	15'11"	15'6"
	NI-20D	17'1"	16'1"	15'6"	15'7"	18'7"	17'4"	16'9"	16'10"
1-7/8"	NI-20	16'11"	15'0"	14'5"	14'3"	18'4"	17'3"	16'8"	16'7"
	NI-20B	18'1"	17'0"	16'5"	16'4"	20'0"	18'4"	17'9"	17'7"
	NI-20C	18'4"	17'3"	16'7"	16'9"	20'3"	18'9"	18'0"	18'1"
	NI-20D	19'4"	18'0"	17'4"	17'5"	21'6"	19'11"	19'0"	19'1"
2"	NI-20	19'2"	18'3"	17'6"	17'7"	21'9"	20'2"	19'3"	19'4"
	NI-20B	20'2"	18'7"	17'10"	17'11"	22'3"	20'7"	19'8"	19'9"
	NI-20C	20'4"	18'9"	17'11"	18'0"	22'5"	20'9"	19'10"	19'11"
	NI-20D	21'1"	19'1"	18'1"	18'2"	23'0"	21'1"	20'2"	20'3"
2-1/2"	NI-20	20'5"	19'1"	18'1"	18'2"	22'7"	20'11"	20'0"	20'1"
	NI-20B	21'1"	19'5"	18'5"	18'6"	23'0"	21'4"	21'1"	21'2"
	NI-20C	21'1"	19'5"	18'5"	18'6"	23'0"	21'4"	21'1"	21'2"
	NI-20D	22'2"	20'11"	19'11"	20'0"	23'9"	22'0"	21'9"	21'10"
3"	NI-20	22'3"	20'9"	19'9"	19'10"	24'7"	22'9"	21'9"	21'10"
	NI-20B	23'4"	21'9"	20'9"	20'10"	25'0"	23'4"	22'11"	23'0"
	NI-20C	23'4"	21'9"	20'9"	20'10"	25'0"	23'4"	22'11"	23'0"
	NI-20D	24'5"	22'6"	21'6"	21'7"	26'11"	24'10"	23'9"	23'9"
3-1/2"	NI-20	24'8"	22'9"	21'9"	21'10"	27'3"	25'2"	24'0"	24'1"
	NI-20B	25'9"	23'9"	22'9"	22'10"	28'4"	26'3"	25'0"	25'1"
	NI-20C	25'9"	23'9"	22'9"	22'10"	28'4"	26'3"	25'0"	25'1"
	NI-20D	27'0"	24'10"	23'10"	23'11"	29'5"	27'4"	26'1"	26'2"

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

SI units conversion: 1 inch = 25.4 mm

FIGURE 2 WEB STIFFENER INSTALLATION DETAILS

STIFFENER SIZE REQUIREMENTS

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

NORDIC I-JOIST SERIES

Charlene Chibougoum Ltd. harvests its own trees, which enables it to produce products to adhere to strict quality control procedures throughout the manufacturing process. Every phase of the operation, from the selection of the raw material to the finished product, reflects our commitment to quality.

Nordic Engineered Wood I-joists use only finger-jointed, kiln-dried 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 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 spans 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 rollovers. Use rim board, rim joists or I-joist blocking panels.
- For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squish blocks (triple members) to transfer gravity loads through the floor system to the wall or foundation below.
- Due to shrinkage, common framing lumber set on edge may never be used as blocking or rim boards. I-joist blocking panels or other engineered wood products – such as rim board – must be cut to fit between the I-joists, and 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

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

Notes:

- Figures 3, 4 or 5
- Holes may be cut in web for plumbing, wiring and duct work. See Tables 1, 2 and Figure 7.
- NOTE: Never cut or notch flange.
- Nordic Lam or Structural Composite Lumber (SCL)
- Nordic Lam or SCL
- Figures 3, 4 or 5
- Use hangers recognized in current code evaluation reports.
- 1a, 1b, 1c, 1d, 1e, 1f, 1g, 1h, 1i, 1j, 1k, 1l, 1m, 1n, 1o, 1p, 1q, 1r, 1s, 1t, 1u, 1v, 1w, 1x, 1y, 1z

All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (102.27 mm) dia. common spiral nails may be substituted for 2-1/2" (63.5 mm) dia. common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.

1a

Transfer load from above to bearing below. Install squish blocks per detail 1d. Match bearing area of blocks below to post above.

1b

Wall sheathing, as required.

1c

Rim board may be used in lieu of I-joists. Backer is not required when rim board is used. Bracing per code shall be carried to the foundation.

1d

2x plate flush with inside face of wall or beam. 1/8" overhang allowed past inside face of wall or beam.

1e

Multiple I-joist header with full depth filler block shown. Nordic Lam or SCL headers may also be used. Verify double I-joist capacity to support concentrated loads.

1f

Filler block per detail 1p.

1g

Install hanger per manufacturer's recommendations.

1h

Backer block attached per detail 1h. Nail with twelve 3" nails, clinch when possible.

1i

Maximum support capacity = 1,620 lbs.

1j

Do not bevel-cut joist beyond inside face of wall.

1k

Attach I-joist per detail 1b.

1l

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

1m

Notes:

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

1n

Filler block

1o

Offset nails from opposite face by 6"

1p

1/8" to 1/4" gap between top flange and filler block

1q

Filler block

1r

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

1s

One 2-1/2" nails at top and bottom flange

1t

Two 2-1/2" nails from each web to lumber piece

1u

2x4 min. (1/8" gap minimum)

1v

I-joist blocking panel

1w

One 2-1/2" nails one side only

1x

Two 2-1/2" nails at 6" o.c.

1y

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 the spacing of the blocking.
- All nails are common spiral in this detail.

1z

Notes:

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

TABLE 1: Blocking Panel or Rim Joist

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.

TABLE 2: Blocking Panel or Rim Joist

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.

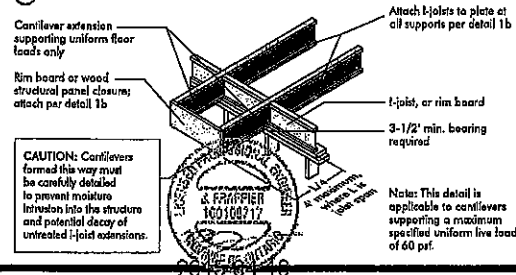
TABLE 3: Pair of Squish Blocks

Pair of Squish Blocks	Maximum Factored Uniform Vertical Load* (plf)
2x Lumber	5,500
1-1/8" Rim Board Plus	4,500
2x Lumber	8,500
1-1/8" Rim Board Plus	6,600

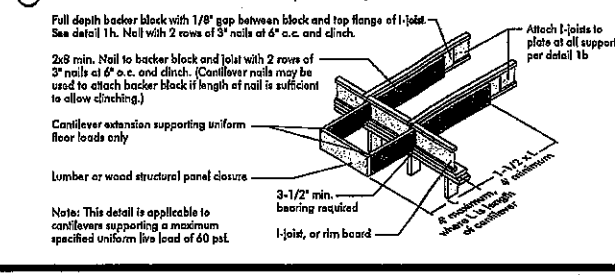
Provide lateral bracing per detail 1a, 1b, or 1c

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

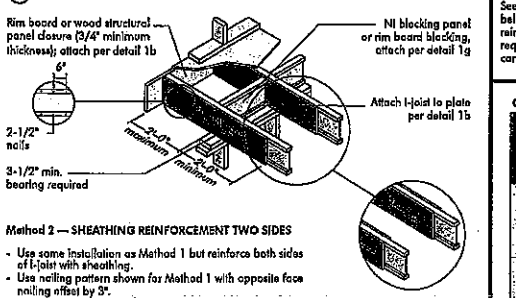


3b) LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a) Method 1 — SHEATHING REINFORCEMENT ONE SIDE



4b) Alternate Method 2 — DOUBLE I-JOIST

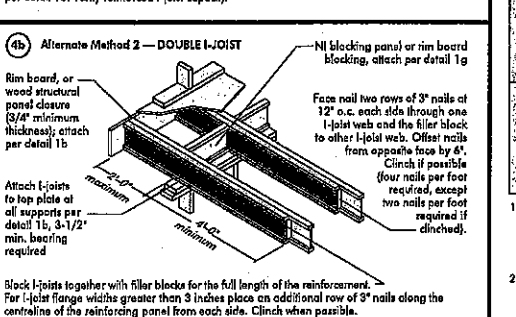


FIGURE 4 (continued)



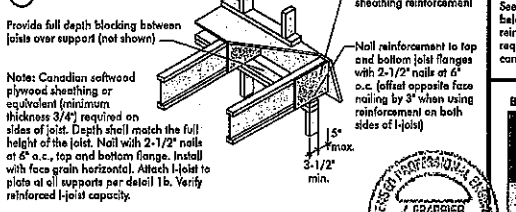
CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	LL = 30 psf, DL = 15 psf				LL = 40 psf, DL = 15 psf				LL = 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
11 7/8	28	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
16	28	N	N	N	N	N	N	N	N	N	N	N	N
18	28	N	N	N	N	N	N	N	N	N	N	N	N
20	28	N	N	N	N	N	N	N	N	N	N	N	N
22	28	N	N	N	N	N	N	N	N	N	N	N	N
24	28	N	N	N	N	N	N	N	N	N	N	N	N
26	28	N	N	N	N	N	N	N	N	N	N	N	N
28	28	N	N	N	N	N	N	N	N	N	N	N	N
30	28	N	N	N	N	N	N	N	N	N	N	N	N
32	28	N	N	N	N	N	N	N	N	N	N	N	N
34	28	N	N	N	N	N	N	N	N	N	N	N	N
36	28	N	N	N	N	N	N	N	N	N	N	N	N
38	28	N	N	N	N	N	N	N	N	N	N	N	N
40	28	N	N	N	N	N	N	N	N	N	N	N	N

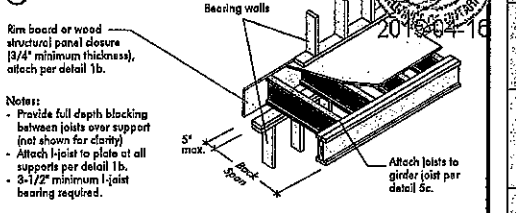
- N = No reinforcement required.
- Ni reinforced with 3/4" wood structural panel on one side or 3/4" wood structural panel on both sides, or double I-joist.
- Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
- 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 it is used.
- Conditioned 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

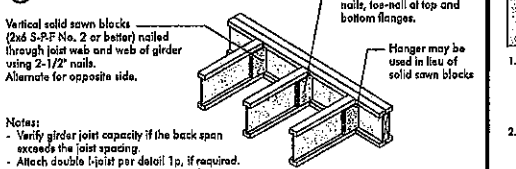
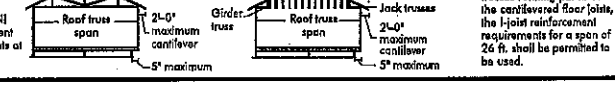


FIGURE 5 (continued)



BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	LL = 30 psf, DL = 15 psf				LL = 40 psf, DL = 15 psf				LL = 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
11 7/8	28	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
16	28	N	N	N	N	N	N	N	N	N	N	N	N
18	28	N	N	N	N	N	N	N	N	N	N	N	N
20	28	N	N	N	N	N	N	N	N	N	N	N	N
22	28	N	N	N	N	N	N	N	N	N	N	N	N
24	28	N	N	N	N	N	N	N	N	N	N	N	N
26	28	N	N	N	N	N	N	N	N	N	N	N	N
28	28	N	N	N	N	N	N	N	N	N	N	N	N
30	28	N	N	N	N	N	N	N	N	N	N	N	N
32	28	N	N	N	N	N	N	N	N	N	N	N	N
34	28	N	N	N	N	N	N	N	N	N	N	N	N
36	28	N	N	N	N	N	N	N	N	N	N	N	N
38	28	N	N	N	N	N	N	N	N	N	N	N	N
40	28	N	N	N	N	N	N	N	N	N	N	N	N

- N = No reinforcement required.
- Ni reinforced with 3/4" wood structural panel on one side or 3/4" wood structural panel on both sides, or double I-joist.
- 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.
- 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 it is used.
- Conditioned joists supporting girder trusses or roof beams may require additional reinforcing.

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- 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.
- I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- Whenever possible, field-cut holes should be centred on the middle of the web.
- 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.
- The sides of square holes or longer sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the largest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.
- A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
- All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
- Limit three maximum size holes per span, of which one may be a duct chase opening.
- 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 (in.)	Joist Series	Minimum distance from inside face of any support to centre of hole (ft-in.)												Span Adjustment Factor
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	
9 1/2	N100	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3
11 7/8	N120	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3
14	N140	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3
16	N160	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3
18	N180	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3
20	N200	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3
22	N220	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3
24	N240	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3
26	N260	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3
28	N280	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3
30	N300	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	4.3

- Above table may be used for I-joist spacing of 24 inches on centre or less.
 - Hole location distance is measured from inside face of supports to centre of hole.
 - Distances in this table 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, the minimum distance from the centre of the hole to the face of any support (B) as given above may be reduced as follows:
- Reduced = $\frac{L_{actual}}{L_{max}} \times B$
- Where:
Reduced = Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span application.
L_{actual} = The actual measured span distance between the inside faces of supports (ft).
L_{max} = Span Adjustment Factor given in this table.
B = The minimum distance from the inside face of any support to centre of hole from this table.
If L_{actual} is greater than 1, use 1 in the above calculation for L_{actual}.

FIGURE 7 FIELD-CUT HOLE LOCATOR

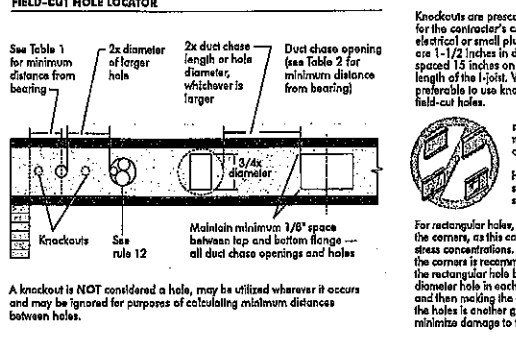


TABLE 2 DUCT CHASE OPENING SIZES AND LOCATIONS—Simple Span Only

DUCT CHASE OPENINGS IN JOIST FLOORS													
Joist Depth (in.)	Joist Series	Minimum distance from inside face of any support to centre of opening (ft-in.)											
		Duct chase length (in.)											
		8	10	12	14	16	18	20	22	24	26	28	30
9 1/2	N100	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N120	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N140	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N160	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N180	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
11 7/8	N200	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N220	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N240	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N260	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N280	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
14	N300	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N320	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N340	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N360	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N380	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
16	N400	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N420	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N440	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N460	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N480	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
18	N500	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N520	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N540	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N560	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N580	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
20	N600	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N620	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N640	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N660	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N680	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
22	N700	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N720	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N740	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N760	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N780	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
24	N800	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N820	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N840	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N860	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N880	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
26	N900	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N920	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N940	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N960	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N980	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
28	N1000	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N1020	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N1040	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N1060	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N1080	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
30	N1100	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N1120	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N1140	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N1160	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0
	N1180	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0

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

INSTALLING THE GLUED FLOOR SYSTEM

- Wipe any mud, dirt, water, or ice from I-joist flanges before gluing.
- 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.
- Spread only enough glue to lay one or two panels of a time, or follow specific recommendations from the glue manufacturer.
- 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 lapped into place with a block and sledgehammer.
- 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.
- Apply two lines of glue on I-joists where panel ends butt to ensure proper gluing of each end.
- After the first row of panels is in place, spread glue in the groove of one or two panels of a time before laying the next row. Glue line may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) than used on I-joist flanges.
- Tap the second row of panels into place, using a block to protect groove edges.
- Stagger end joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&G edges, is recommended. (Use a spacer rod or an 2-1/2" common nail to assure accurate and consistent spacing.)
- 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 (in.)	Internal Supports
		Common Wire or Spiral Nails	Ring Thread Nails or Screws	Staples		
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"

- Fasteners of sheathing and subflooring shall conform to the above table.
- 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.
- Flooring screws shall not be less than 1/8-inch in diameter.
- Special conditions may impose heavy traffic and concentrated loads that require construction in excess of the minimum shown.
- 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



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

WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- I-joint top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- Whenever possible, field-cut holes should be centred on the middle of the web.
- The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joint web shall equal the clear distance between the flanges of the I-joint minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joint flange.

- The sides of square holes or longest sides of rectangular holes shall not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the largest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.

- A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
- All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
- Limit three maximum size holes per span, of which one may be a duct chase opening.
- A group of round holes of approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

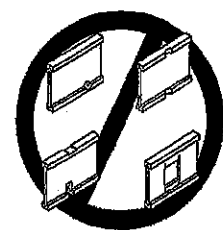
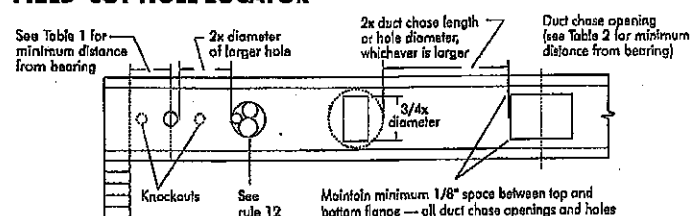
TABLE 1
LOCATION OF CIRCULAR HOLES IN JOIST WEBS

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

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

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

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-joint. Where possible, it is preferable to use knockouts instead of field-cut holes.

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

Holes in webs should be cut with a sharp saw.

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

SAFETY AND CONSTRUCTION PRECAUTIONS



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



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

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

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

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

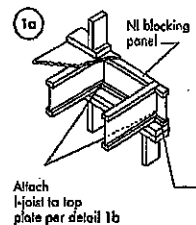
Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joints, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines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



PRODUCT WARRANTY

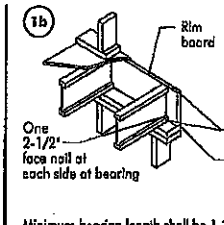
Changshun Changshun guarantees that, in accordance with our specifications, Nordic products are free from manufacturing defects in material and workmanship.

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



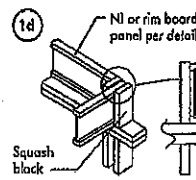
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (psf)
NI Joists	3,300

*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.



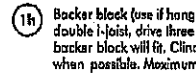
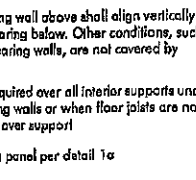
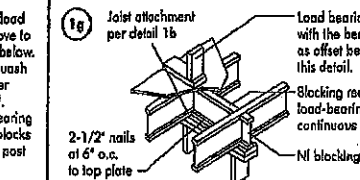
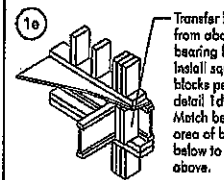
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (psf)
1-1/8" Rim Board Plus	8,090

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

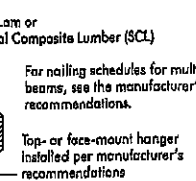
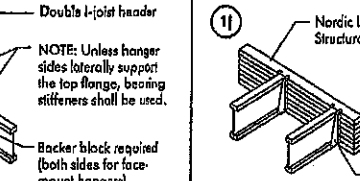
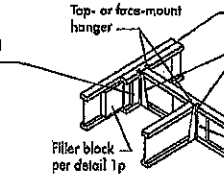
Provide lateral bracing per detail 1a or 1b.



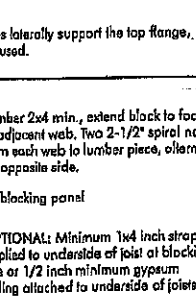
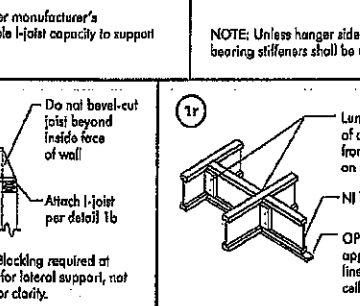
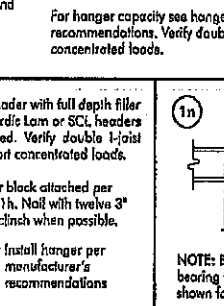
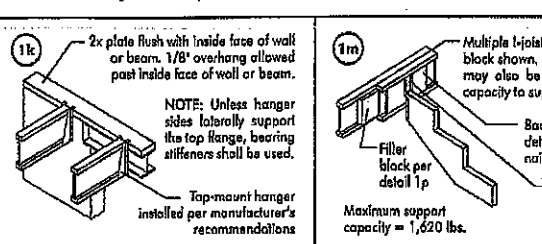
Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double I-joint, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch, install backer right to top flange. Use twelve 3" nails, clinched when possible. Maximum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

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

* Minimum grade for backer block material shall be S-PF No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-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".

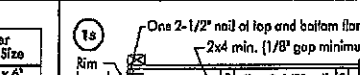


BACKER BLOCKS (Blocks must be long enough to permit required nailing without splitting)



NOTES:
1. Support back of I-joint 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-joint 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-joint. 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 I-joint using this detail is 860 lb/ft. Verify double I-joint capacity.

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



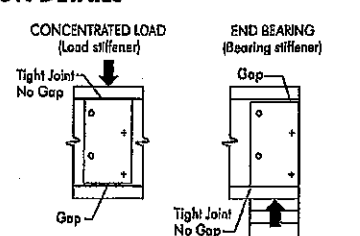
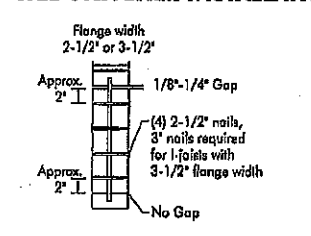
NOTE: In some local codes, blocking is prescriptively required in the first joist space (for first and second joist space) and to the starter joist. Where required, see local code requirements for spacing of the blocking.
All nails are common spiral in this detail.

WEB STIFFENERS

RECOMMENDATIONS:

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

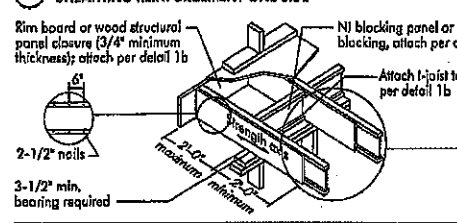
FIGURE 2
WEB STIFFENER INSTALLATION DETAILS



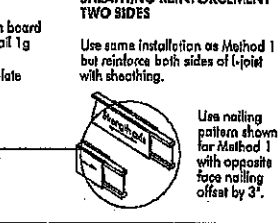
Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-5/16" minimum width
3-1/2"	1-1/2" x 2-5/16" minimum width

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

Method 1 — SHEATHING REINFORCEMENT ONE SIDE



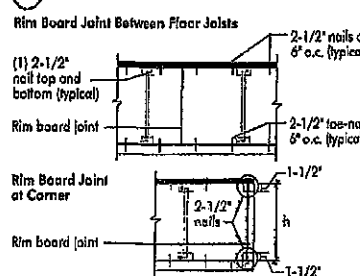
Method 2 — SHEATHING REINFORCEMENT TWO SIDES



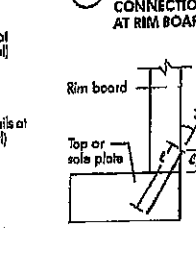
NOTE: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joint to plate of all supports per detail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

RIM BOARD INSTALLATION DETAILS

8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



8b TOE-NAIL CONNECTION AT RIM BOARD



NORDIC STRUCTURES

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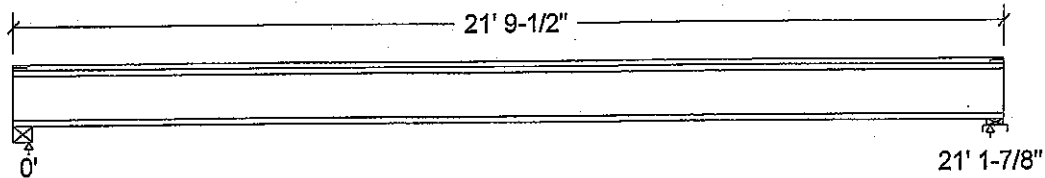
PROJECT
J14 GRD FLR

Design Check Calculation Sheet Nordic Sizer - Canada 7.2

Loads:

Load	Type	Distribution	Pat- tern	Location [ft] Start End	Magnitude Start End	Unit
Load1	Dead	Full Area			25.00	psf
Load2	Live	Full Area			40.00	psf

Maximum Reactions (lbs) and Support Bearing (in):



Unfactored:			
Dead	264		264
Live	423		423
Factored:			
Total	965		965
Bearing:			
Capacity			
Joist	2446		2446
Support	-		10829
Des ratio			
Joist	0.39		0.39
Support	-		0.09
Load case	#2		#2
Length	5		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		1.00
fcp sup	-		769
Kzcp sup	-		1.15

Nordic Joist 14" NI-80 Floor joist @ 12" o.c.

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

Total length: 21' 9-1/2"; Clear span: 21' 1/8"; 3/4" nailed and glued OSB sheathing with 1/2" gypsum ceiling

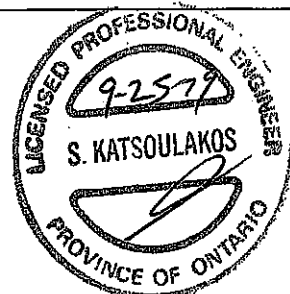
This section PASSES the design code check.

CITY OF RICHMOND HILL
BUILDING SERVICES DIVISION

MAY 25 2020

RECEIVED

Per: _____



DWG NO. TAM 3052-19
STRUCTURAL
COMPONENT ONLY

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$V_f = 965$	$V_r = 2731$	lbs	$V_f/V_r = 0.35$
Moment(+)	$M_f = 5105$	$M_r = 13980$	lbs-ft	$M_f/M_r = 0.37$
Perm. Defl'n	$0.14 = < L/999$	$0.71 = L/360$	in	0.20
Live Defl'n	$0.23 = < L/999$	$0.35 = L/720$	in	0.65
Total Defl'n	$0.37 = L/685$	$1.06 = L/240$	in	0.35
Bare Defl'n	$0.25 = L/998$	$0.71 = L/360$	in	0.36
Vibration	$L_{max} = 21'-1.9$	$L_v = 24'-1.9$	ft	0.88
Defl'n	$= 0.022$	$= 0.031$	in	0.72

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
V_r	2731	1.00	1.00	-	-	-	-	-	#2
M_r	13980	1.00	1.00	-	1.000	-	-	-	#2
EI	802.1 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:

$EI_{eff} = 909.19 \text{ lb-in}^2$ $K = 7.28e06 \text{ lbs}$
 "Live" deflection is due to all non-dead loads (live, wind, snow...)

Design Notes:**CONFORMS TO OBC 2012**

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building 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. TAW 305 2-19
 STRUCTURAL
 COMPONENT ONLY

NORDIC STRUCTURES

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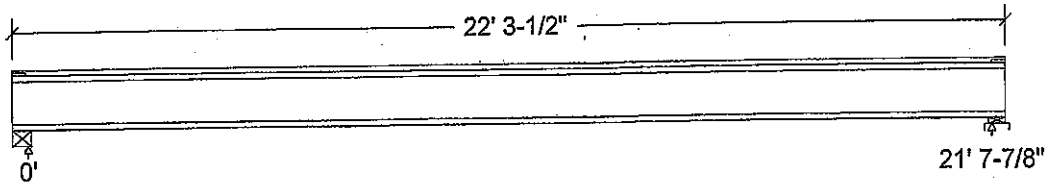
PROJECT
J4 GRD FLR

Design Check Calculation Sheet Nordic Sizer - Canada 7.2

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start End	Magnitude Start End	Unit
Load1	Dead	Full Area			25.00	psf
Load2	Live	Full Area			40.00	psf

Maximum Reactions (lbs) and Support Bearing (in):



Unfactored:			
Dead	361		361
Live	578		578
Factored:			
Total	1317		1317
Bearing:			
Capacity			
Joist	4892		4892
Support	-		15470
Des ratio			
Joist	0.27		0.27
Support	-		0.09
Load case	#2		#2
Length	5		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		1.00
fcp sup	-		769
Kzcp sup	-		1.15

Nordic Joist 14" NI-40x 2-ply Floor joist @ 16" o.c.

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

Total length: 22' 3-1/2"; Clear span: 21' 6-1/8"; 3/4" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 1317	Vr = 5463	lbs	Vf/Vr = 0.24
Moment (+)	Mf = 7133	Mr = 15068	lbs-ft	Mf/Mr = 0.47
Perm. Defl'n	0.15 = < L/999	0.72 = L/360	in	0.20
Live Defl'n	0.24 = < L/999	0.36 = L/720	in	0.65
Total Defl'n	0.38 = L/677	1.08 = L/240	in	0.35
Bare Defl'n	0.26 = L/980	0.72 = L/360	in	0.37
Vibration	Lmax = 21'-7.9	Lv = 24'-2.8	ft	0.89
Defl'n	= 0.023	= 0.031	in	0.76



NO. TAM 3053-19
STRUCTURAL
COMPONENT ONLY

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2731	1.00	1.00	-	-	-	-	-	#2
Mr+	7534	1.00	1.00	-	1.000	-	-	-	#2
EI	540.1 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:E_Ieff = 612.45 lb-in²/ply K= 7.28e06 lbs/ply

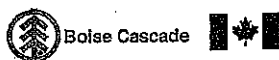
"Live" deflection is due to all non-dead loads (live, wind, snow...)

Design Notes:**CONFORMS TO OBC 2012**

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building 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. TAM 3053-19
 STRUCTURAL
 COMPONENT ONLY



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

PASSED

1ST FLR FRAMING\Flush Beams\B8L(i4121)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

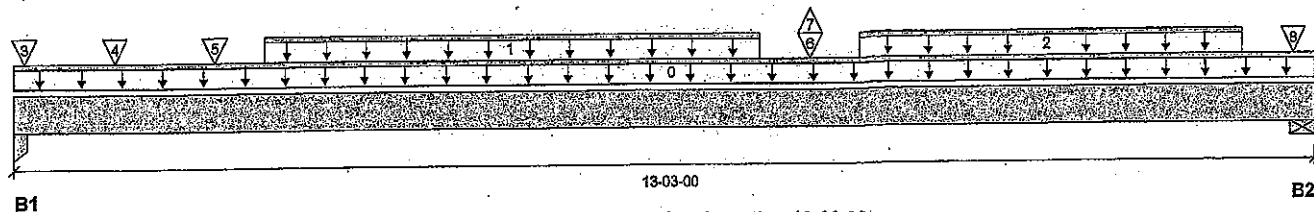
File name: AVIGNON 3.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B8L(i4121)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 13-03-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,146 / 2	605 / 0		
B2, 5-1/2"	802 / 2	464 / 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	13-03-00	Top		5			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	02-06-00	07-06-00	Top	228	114			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	08-06-00	12-06-00	Top	78	39			n/a
3	J2(i1871)	Conc. Pt. (lbs)	L	00-01-04	00-01-04	Top	77	38			n/a
4	J2(i1867)	Conc. Pt. (lbs)	L	01-00-00	01-00-00	Top	154	77			n/a
5	J2(i1854)	Conc. Pt. (lbs)	L	02-00-00	02-00-00	Top	153	77			n/a
6	J1(i3914)	Conc. Pt. (lbs)	L	08-00-00	08-00-00	Top	70	34			n/a
7	J1(i3914)	Conc. Pt. (lbs)	L	08-00-00	08-00-00	Top	-4				n/a
8	E42(i1058)	Conc. Pt. (lbs)	L	13-00-04	13-00-04	Top	43	52			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	7,412 ft-lbs	11,610 ft-lbs	63.8%	1	06-00-00
End Shear	2,271 lbs	5,785 lbs	39.2%	1	01-01-00
Total Load Deflection	L/263 (0.576")	n/a	91.3%	6	06-03-00
Live Load Deflection	L/402 (0.377")	n/a	89.5%	8	06-03-00
Max Defl.	0.576"	n/a	n/a	6	06-03-00
Span / Depth	15.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	2,475 lbs	62.2%	33.1%	Unspecified
B2	Wall/Plate 5-1/2" x 1-3/4"	1,783 lbs	30.1%	15.2%	Spruce-Pine-Fir

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.

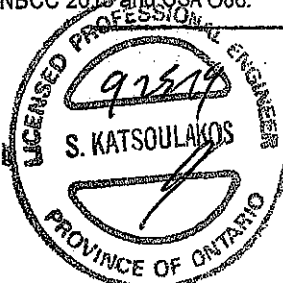
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO CBC 2012

DWYND. TAN 3054-11
STRUCTURAL
COMPONENT ONLY



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®.



Boise Cascade



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

1ST FLR FRAMING\Flush Beams\B7L(14215)

Dry | 1 span | No cant.

PASSED

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports:

CCMC 12472-R

File name: AVIGNON 3.mmdl

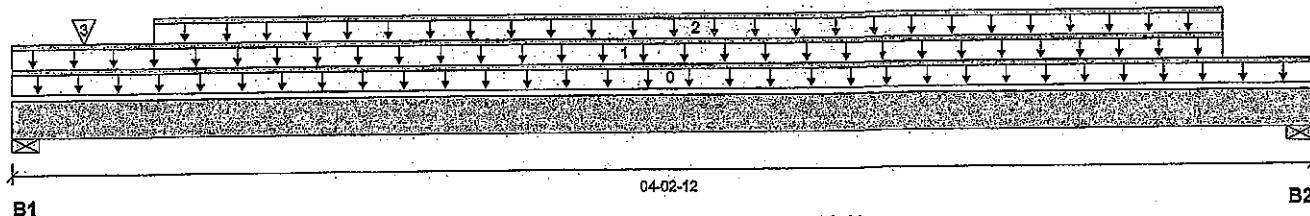
Description: 1ST FLR FRAMING\Flush Beams\B7L(14215)

Specifier:

Designer: LBV

Company:

September 20, 2019 14:07:55



Total Horizontal Product Length = 04-02-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	443 / 0	247 / 0		
B2, 3-1/2"	437 / 0	228 / 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	04-02-12	Top	5				00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-11-04	Top	10	5			n/a
2	STAIR	Unf. Lin. (lb/ft)	L	00-05-08	03-11-04	Top	240	120			n/a
3	E37(1053)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	17				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	871 ft-lbs	11,610 ft-lbs	7.5%	1	02-02-06
End Shear	509 lbs	5,785 lbs	8.8%	1	01-03-00
Total Load Deflection	L/999 (0.006")	n/a	n/a	4	02-02-06
Live Load Deflection	L/999 (0.004")	n/a	n/a	5	02-02-06
Max Defl.	0.006"	n/a	n/a	4	02-02-06
Span / Depth	4.6				

Bearing Supports	Dlm. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	973 lbs	16.4%	8.3%	Spruce-Pine-Fir
B2	Wall/Plate 3-1/2" x 1-3/4"	941 lbs	25.0%	12.6%	Spruce-Pine-Fir

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**
 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



09680.TAM 3055 P.10
 STRUCTURAL
 COMPONENT ONLY

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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®,



Boise Cascade

**Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B5(14442)**

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

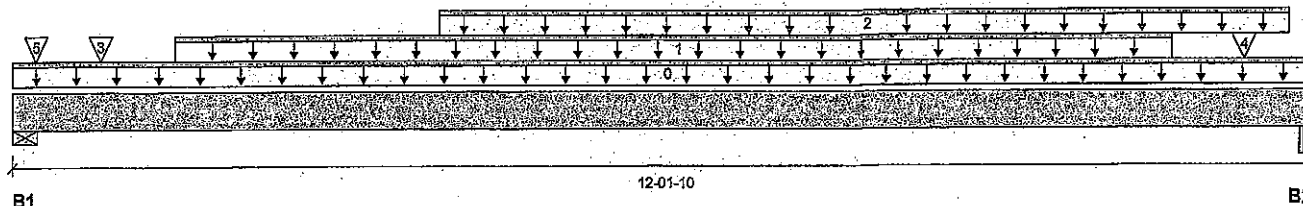
File name: AVIGNON 3.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B5(14442)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 12-01-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	2,026 / 0	1,126 / 0		
B2, 5-1/4"	1,982 / 0	1,079 / 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	12-01-10	Top		14			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-06-00	10-10-00	Top	336	168			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	03-11-04	11-11-00	Top	16	8			n/a
3	J6(12108)	Conc. Pt. (lbs)	L	00-10-00	00-10-00	Top	435	218			n/a
4	J6(12116)	Conc. Pt. (lbs)	L	11-06-00	11-06-00	Top	294	147			n/a
5	E39(11055)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top		27			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	12,351 ft-lbs	48,300 ft-lbs	25.6%	1	06-02-00
End Shear	3,747 lbs	17,052 lbs	22.0%	1	01-07-08
Total Load Deflection	L/1,084 (0.126")	n/a	22.1%	4	06-00-00
Live Load Deflection	L/999 (0.082")	n/a	n/a	5	06-00-00
Max Defl.	0.126"	n/a	n/a	4	06-00-00
Span / Depth	9.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	4,446 lbs	37.5%	18.9%	Spruce-Pine-Fir
B2	Beam 5-1/4" x 3-1/2"	4,321 lbs	55.0%	19.3%	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

DESIGNED, DRAWN, & CHECKED BY
STRUCTURAL
 COMPONENT ONLY



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B5(i4442)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

File name: AVIGNON 3.mmdl

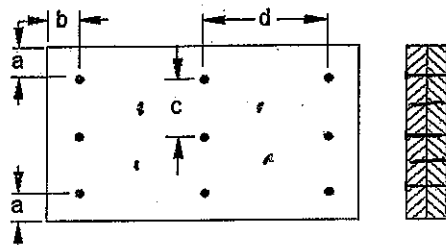
Description: 1ST FLR FRAMING\Flush Beams\B5(i4442)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 5"

b minimum = 3"

d = 12"

Calculated Side Load = 678.1 lb/ft

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

Connectors are: 1 Nails

3 1/2" ARDOX SPIRAL

Disclosure

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DWG NO. TAM 3056-18
STRUCTURAL
COMPONENT ONLY

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



Boise Cascade



Triple 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

1ST FLR FRAMING\Flush Beams\B4(i4547)

Dry | 2 spans | R cant.

PASSED

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

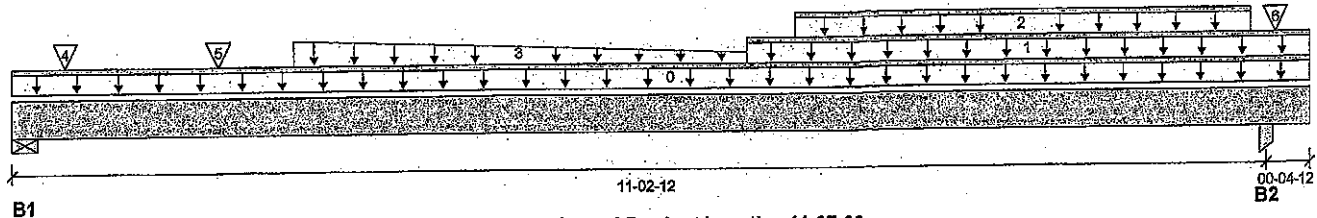
File name: AVIGNON 3.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B4(i4547)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 11-07-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	3,324 / 0	4,432 / 0	4,861 / 0	
B2, 5-1/2"	6,258 / 0	4,162 / 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	11-07-08	Top		21			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	06-05-12	11-07-08	Top	306	152			n/a
2	STAIR	Unf. Lin. (lb/ft)	L	06-11-00	11-01-00	Top	240	120			n/a
3	Smoothed Load	Trapezoidal (lb/ft)	L	02-05-12	06-05-12	Top	567	283			n/a
							241	120			
4	J7(i4537)	Conc. Pt. (lbs)	L	00-05-12	00-05-12	Top	(1,176	3,235	4,861	TOP EDGE LOADS ONLY	n/a
5	J7(i4526)	Conc. Pt. (lbs)	L	01-09-12	01-09-12	Top	685	343			n/a
6	B1(i4553)	Conc. Pt. (lbs)	L	11-03-12	11-03-12	Top	3,524	2,673			n/a

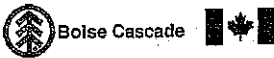
Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	13,843 ft-lbs	75,349 ft-lbs	18.4%	2	05-09-12
End Shear	4,666 lbs	25,578 lbs	18.2%	1	01-07-08
Cont. Shear	4,443 lbs	25,578 lbs	17.4%	1	09-10-00
Total Load Deflection	L/999 (0.088")	n/a	n/a	79	05-09-12
Live Load Deflection	L/999 (0.057")	n/a	n/a	117	05-09-12
Total Neg. Defl.	2xL/1,998 (-0.01")	n/a	n/a	79	11-07-08
Max Defl.	0.088"	n/a	n/a	79	05-09-12
Span / Depth	9.3				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 5-1/4"	16,156 lbs	90.9%	45.9%	Spruce-Pine-Fir
B2	Column 5-1/2" x 5-1/4"	14,590 lbs	77.8%	41.4%	Unspecified



DRW NO. TAM 3057-19
STRUCTURAL
COMPONENT ONLY



Triple 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B4(14547)

Dry | 2 spans | R cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

File name: AVIGNON 3.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B4(14547)

Specifier:

Designer: LBV

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.

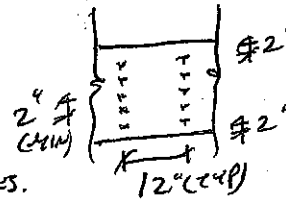
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

Concentrated side-load exceeds allowable magnitude for connection design. Please consult a technical representative or Professional Engineer for the design of the connection.

PROVIDE 5 ROWS OF 3 1/2" ARDOX
SPIRAL NAILS @ 12" O/C FOR
MULTI-PLY NAILING. MAINTAIN
A MIN. 2" LUMBER EDGE/END
DISTANCE. DO NOT USE AIR NAILS
STAGGER NAILS 6" BETWEEN PLYS.



Disclosure

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DRWD NO. TAN 3057-19
STRUCTURAL
COMPONENT ONLY

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



Boise Cascade

**Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B6(i4366)**

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

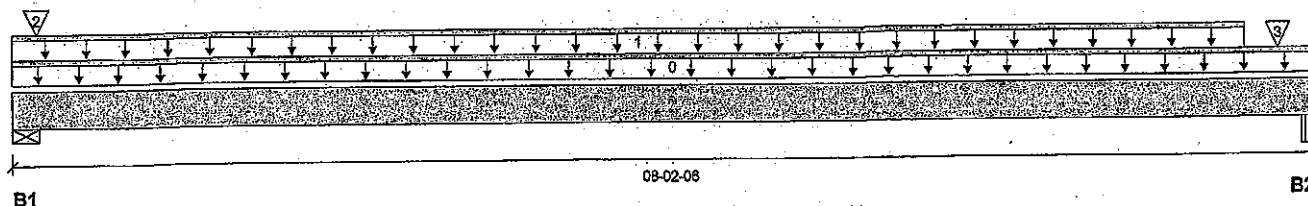
File name: AVIGNON 3.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B6(i4366)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 08-02-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	964 / 0	772 / 0		
B2, 5-1/4"	467 / 0	351 / 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	08-02-06	Top		14			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-09-02	Top	6	3			n/a
2	PBO4(i1204)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	941	703			n/a
3	-	Conc. Pt. (lbs)	L	07-11-09	07-11-09	Top	441	278			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	173 ft-lbs	31,395 ft-lbs	0.5%	0	04-00-05
End Shear	61 lbs	11,084 lbs	0.6%	0	01-05-08
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	04-00-05
Live Load Deflection	L/999 (0")	n/a	n/a	5	04-00-05
Max Defl.	0.001"	n/a	n/a	4	04-00-05
Span / Depth	6.5				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	2,412 lbs	32.0%	16.1%	Spruce-Pine-Fir
B2	Beam 5-1/4" x 3-1/2"	1,140 lbs	14.5%	5.1%	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. **CONFORMS TO DBC 2012**

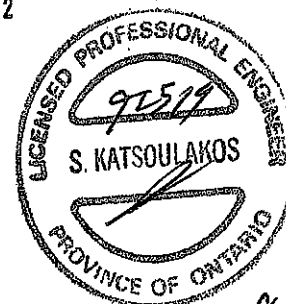
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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.

Member has no side loads.



DWG NO. TAM 3048-19
 STRUCTURAL
 COMPONENT ONLY



Boise Cascade



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B6(14366)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

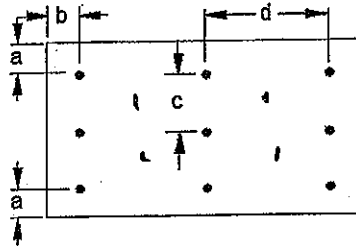
File name: AVIGNON 3.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B6(14366)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member

5 ROWS

a minimum = 2"

c = 5"

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.

Member has no side loads.

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL

Disclosure

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DWG NO. TAM 3058-13
STRUCTURAL
COMPONENT ONLY

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



Boise Cascade



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

PASSED

2ND FLR FRAMING\Dropped Beams\B12DR\I4424)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

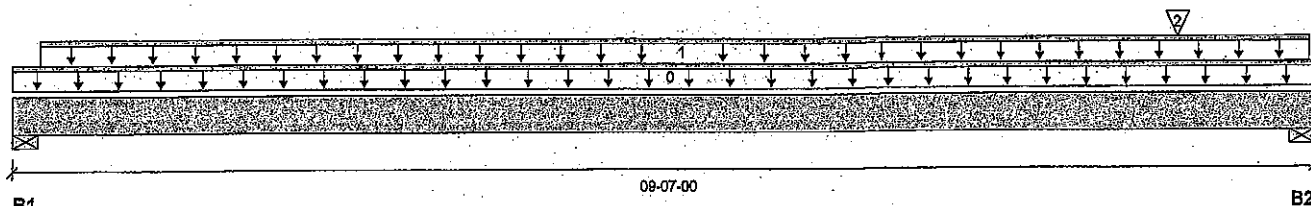
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B12DR\I4424)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 09-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	2,217 / 0	1,167 / 0		
B2, 3-1/2"	4,318 / 0	2,315 / 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	09-07-00	Top		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-02-08	09-06-08	Top	436	218			n/a
2	B25(I4425)	Conc. Pt. (lbs)	L	08-06-12	08-06-12	Top	2,458	1,348			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	12,151 ft-lbs	23,220 ft-lbs	52.3%	1	04-10-08
End Shear	8,348 lbs	11,571 lbs	72.1%	1	08-06-00
Total Load Deflection	L/416 (0.263")	n/a	57.6%	4	04-11-08
Live Load Deflection	L/636 (0.172")	n/a	56.6%	5	04-11-08
Max Defl.	0.263"	n/a	n/a	4	04-11-08
Span / Depth	11.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	4,784 lbs	29.3%	32.0%	Spruce-Pine-Fir
B2	Wall/Plate 3-1/2" x 3-1/2"	9,371 lbs	57.3%	62.7%	Spruce-Pine-Fir

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: 00-00-04, Bottom: 00-00-04.

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.

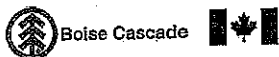
Importance Factor : Normal Part code : Part 9

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.

Member has no side loads.



92519
S. KATSOULAKOS
PROVINCE OF ONTARIO
16 1/2
DWG NO. TAM 3064-19
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Dropped Beams\B12DR(i4424)

PASSED

BC CALC® Member Report
Build 7118

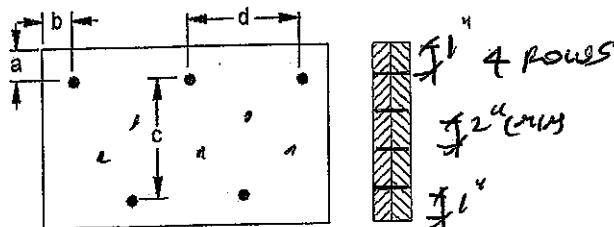
Dry | 1 span | No cant.

September 20, 2019 14:07:55

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

File name: AVIGNON 3.mmdl
Description: 2ND FLR FRAMING\Dropped Beams\B12DR(i4424)
Specifier:
Designer: LBV
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.

Member has no side loads.

Connectors are: 16d Spiral 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.



DWG NO. TAM 3064-15
STRUCTURAL
COMPONENT ONLY

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



Boise Cascade

**Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B1(i4553)**

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

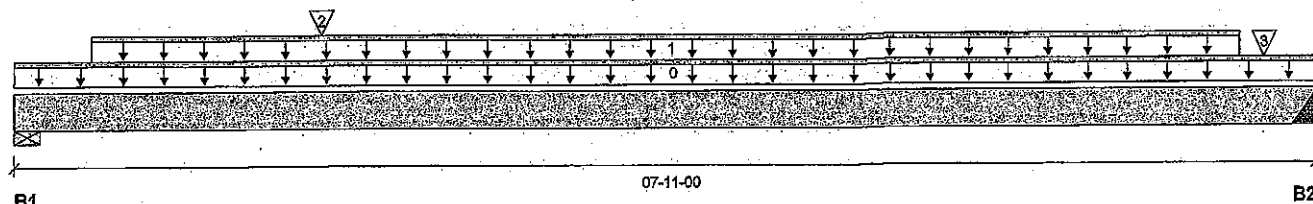
File name: AVIGNON 3.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B1(i4553)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 07-11-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5"	0 / 0	538 / 0		
B2, 4"	3,686 / 0	2,788 / 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	07-11-00	Top		14			00-00-00
1	14(i1076)	Unf. Lin. (lb/ft)	L	00-05-08	07-05-04	Top		82			n/a
2	B2(i4395)	Conc. Pt. (lbs)	L	01-10-00	01-10-00	Top		242			n/a
3	-	Conc. Pt. (lbs)	L	07-07-00	07-07-00	Top	3,677	2,398			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,158 ft-lbs	31,395 ft-lbs	3.7%	0	03-05-12
End Shear	722 lbs	11,084 lbs	6.5%	0	01-07-00
Total Load Deflection	L/999 (0.005")	n/a	n/a	4	03-10-15
Max Defl.	0.005"	n/a	n/a	4	03-10-15
Span / Depth	6.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5" x 3-1/2"	754 lbs	10.8%	5.4%	Spruce-Pine-Fir
B2	Hanger 4" x 3-1/2"	9,013 lbs	n/a	52.8%	HGUS414

Cautions

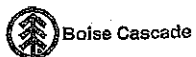
Header for the hanger HGUS414 at B2 is a Double 1-3/4" x 14" VERSA-LAM® 1.7 2400 DF.
Hanger model HGUS414 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Calculations assume unbraced length of Top: 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
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.



HWB NO. TAN 3059 -18
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B1(i4553)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

File name: AVIGNON 3.mmdl

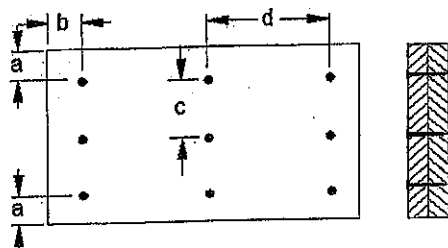
Description: 1ST FLR FRAMING\Flush Beams\B1(i4553)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

c = 5"
d = 6"

Calculated Side Load = 257.6 lb/ft

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

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04080.TAM 3059-18
STRUCTURAL
COMPONENT ONLY

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



Boise Cascade



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B3(i4455)

Dry | 2 spans | No cant.

September 20, 2019 14:07:56

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

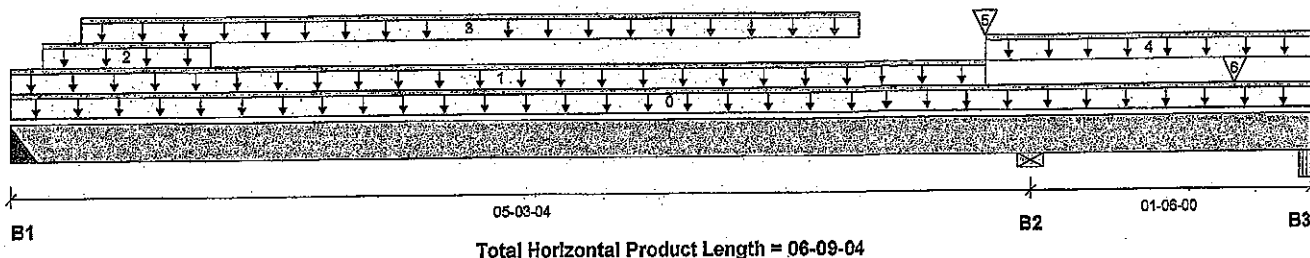
File name: AVIGNON 3.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B3(i4455)

Specifier:

Designer: LBV

Company:

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

Bearing	Live	Dead	Snow	Wind
B1, 4"	583 / 2	507 / 0		
B2, 5-1/2"	1,684 / 0	1,351 / 0		
B3, 2-5/8"	217 / 560	0 / 336		

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	06-09-04	Top		14			00-00-00
1	15(i1078)	Unf. Lin. (lb/ft)	L	00-00-00	05-00-08	Top		81			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-00	01-00-04	Top	25				n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	00-04-04	04-04-04	Top	298	150			n/a
4	FC2 Floor Material	Unf. Lin. (lb/ft)	L	05-00-08	06-09-04	Top	18	9			n/a
5	-	Conc. Pt. (lbs)	L	05-00-07	05-00-07	Top	406	265			n/a
6	J7(i2349)	Conc. Pt. (lbs)	L	06-04-04	06-04-04	Top	257	129			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1,640 ft-lbs	48,300 ft-lbs	3.4%	2	02-04-04
Neg. Moment	-1,913 ft-lbs	-48,300 ft-lbs	4.0%	1	05-03-04
End Shear	1,100 lbs	17,052 lbs	6.4%	2	05-04-10
Cont. Shear	1,556 lbs	17,052 lbs	9.1%	1	03-10-08
Total Load Deflection	L/999 (0.003")	n/a	n/a	9	02-06-04
Live Load Deflection	L/999 (0.001")	n/a	n/a	12	02-06-04
Total Neg. Defl.	L/999 (-0")	n/a	n/a	9	05-10-00
Max Defl.	0.003"	n/a	n/a	9	02-06-04
Span / Depth	4.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger 4" x 3-1/2"	1,508 lbs	n/a	8.8%	HGUS414
B2	Wall/Plate 5-1/2" x 3-1/2"	4,216 lbs	35.6%	18.0%	Spruce-Pine-Fir
B3	Beam 2-5/8" x 3-1/2"	22 lbs	0.6%	0.2%	Unspecified
B3	Uplift	1,261 lbs			

Cautions

Uplift of 1,261 lbs found at bearing B3. (SIMPSON 2-HZ-5A E.G. 93)

Header for the hanger HGUS414 at B1 is a Double 1-3/4" x 14" VERSA-LAM® 1.7 2400 DF.

Hanger model HGUS414 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



DWONG.TAM 3060-19
STRUCTURAL
COMPONENT ONLY



Boise Cascade



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B3(I4455)

Dry | 2 spans | No cant.

September 20, 2019 14:07:56

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

File name: AVIGNON 3.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B3(I4455)

Specifier:

Designer: LBV

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

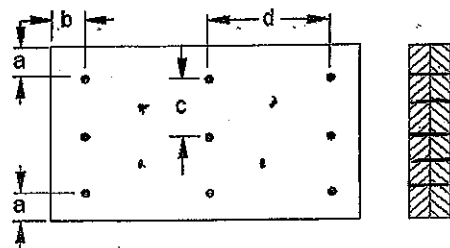
Resistance Factor phi has been applied to all presented results per CSA O86.

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 UBC 2012**Connection Diagram: Full Length of Member**

a minimum = 2"

c = 5"

b minimum = 3"

d = 12"

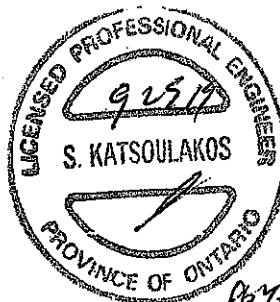
Calculated Side Load = 587.2 lb/ft

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: 16d 1 Nails

3 1/2" ARDOX SPIRAL**Disclosure**

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DRONG TAM 3060-19
STRUCTURAL
COMPONENT ONLY

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



Boise Cascade



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B2(i4395)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

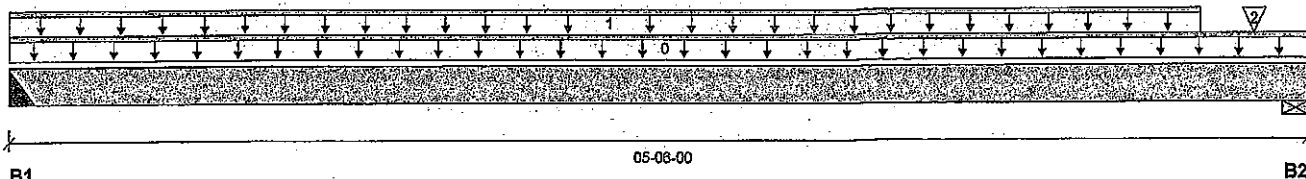
File name: AV\IGNON 3.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B2(i4395)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 05-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"		257 / 0		
B2, 5-1/2"	12 / 0	270 / 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	05-06-00	Top		14			00-00-00
1	17(i1079)	Unf. Lin. (lb/ft)	L	00-00-00	05-00-08	Top		82			n/a
2	16(i1077)	Conc. Pt. (lbs)	L	05-03-04	05-03-04	Top	12	38			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	391 ft-lbs	31,395 ft-lbs	1.2%	0	02-08-04
End Shear	159 lbs	11,084 lbs	1.4%	0	01-06-00
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	02-08-04
Max Defl.	0.001"	n/a	n/a	4	02-08-04
Span / Depth	4.1				

Bearing Supports

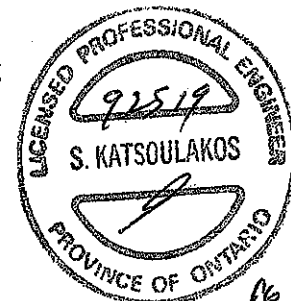
	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Hanger 4" x 3-1/2"	360 lbs	n/a	3.2%	HGUS414
B2	Wall/Plate 5-1/2" x 3-1/2"	378 lbs	4.9%	2.5%	Spruce-Pine-Fir

Cautions

Header for the hanger HGUS414 at B1 is a Double 1-3/4" x 14" VERSA-LAM® 1.7 2400 DF.
Hanger model HGUS414 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: 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 UBC 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.
Member has no side loads.



DWG NO. TAM 3061-19
STRUCTURAL
COMPONENT ONLY



Boise Cascade



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B2(i4395)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

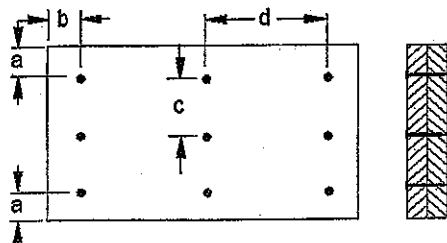
File name: AVIGNON 3.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B2(i4395)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member

a minimum = 2"

c = 5"

b minimum = 3"

d = 8"

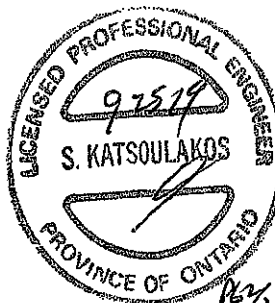
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Member has no side loads.

Connectors are: 16d 1 Nails

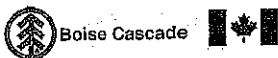
3 1/2" ARDOX SPIRAL**Disclosure**

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JOHN TAW 3061-19
STRUCTURAL
COMPONENT ONLY

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



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B9(i4416)

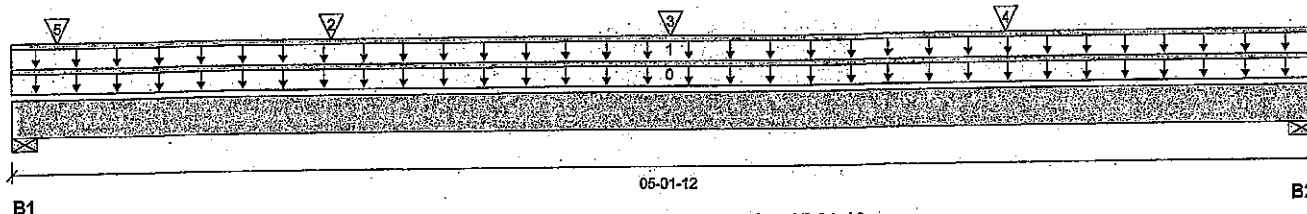
Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report
Build 7118

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

File name: AVIGNON 3.mmdl
Description: 1ST FLR FRAMING\Flush Beams\B9(i4416)
Specifier:
Designer: LBV
Company:



Total Horizontal Product Length = 05-01-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-7/8"	1,947 / 0	1,077 / 0		
B2, 3-7/8"	916 / 0	494 / 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	05-01-12	Top		14			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-01-12	Top	13	6			n/a
2	J4(i4427)	Conc. Pt. (lbs)	L	01-02-14	01-02-14	Top	544	270			n/a
3	J4(i4397)	Conc. Pt. (lbs)	L	02-06-14	02-06-14	Top	593	296			n/a
4	J4(i2410)	Conc. Pt. (lbs)	L	03-10-14	03-10-14	Top	595	298			n/a
5	E22(i731)	Conc. Pt. (lbs)	L	00-02-03	00-02-03	Top	1,060	599			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2,763 ft-lbs	48,300 ft-lbs	5.7%	1	02-06-14
End Shear	1,653 lbs	17,052 lbs	9.7%	1	03-07-14
Total Load Deflection	L/999 (0.004")	n/a	n/a	4	02-06-14
Live Load Deflection	L/999 (0.003")	n/a	n/a	5	02-06-14
Max Defl.	0.004"	n/a	n/a	4	02-06-14
Span / Depth	4.0				

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 3-7/8" x 3-1/2"	4,268 lbs	51.2%	25.8%	Spruce-Pine-Fir
B2	Wall/Plate 3-7/8" x 3-1/2"	1,992 lbs	23.9%	12.0%	Spruce-Pine-Fir

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.

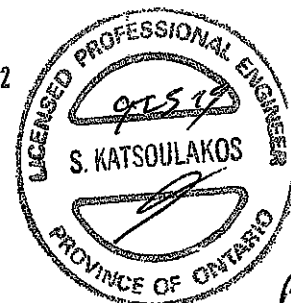
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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



AWONG.TAM 3062-19
STRUCTURAL
COMPONENT ONLY



Boise Cascade



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

1ST FLR FRAMING\Flush Beams\B9(14416)

Dry | 1 span | No cant.

PASSED

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

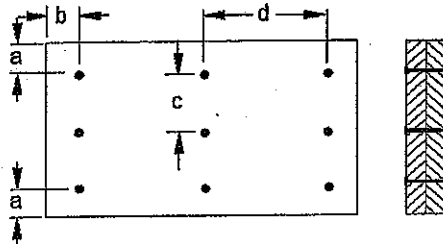
File name: AVIGNON 3.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B9(14416)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member

a minimum = 2"
b minimum = 3"

c = 5"
d = 8"

Calculated Side Load = 714.8 lb/ft

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: 1/2" x 3" Nails

3 1/2" ARDOX SPIRAL**Disclosure**

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DWG NO. TAM 3062-19
STRUCTURAL
COMPONENT ONLY

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



Boise Cascade



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

PASSED

2ND FLR FRAMING\Dropped Beams\B11DR(i4475)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

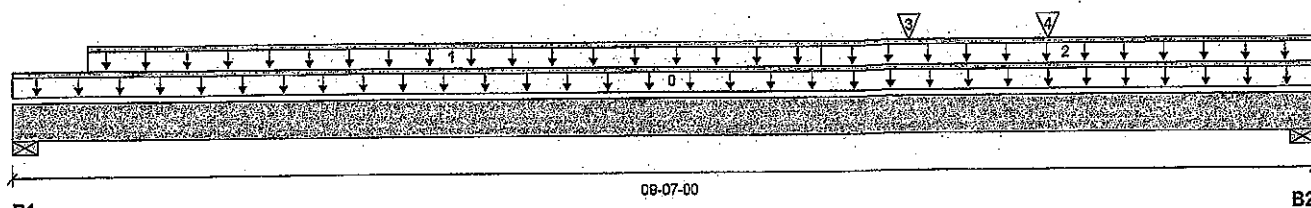
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B11DR(i4475)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 09-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	2,531 / 0	1,318 / 0		
B2, 3-1/2"	3,144 / 0	1,649 / 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	09-07-00	Top		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-06-08	05-10-08	Top	574	286			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	05-10-08	09-07-00	Top	472	236			n/a
3	J6(i4430)	Conc. Pt. (lbs)	L	06-06-08	06-06-08	Top	165	82			n/a
4	B24(i4447)	Conc. Pt. (lbs)	L	07-07-00	07-07-00	Top	701	391			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	13,944 ft-lbs	23,220 ft-lbs	60.1%	1	05-02-08
End Shear	5,655 lbs	11,571 lbs	48.9%	1	08-06-00
Total Load Deflection	L/371 (0.295")	n/a	64.6%	4	04-10-08
Live Load Deflection	L/565 (0.194")	n/a	63.7%	5	04-10-08
Max Defl.	0.295"	n/a	n/a	4	04-10-08
Span / Depth	11.5				

Bearing Supports

	Dlm. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	5,445 lbs	33.3%	36.4%	Spruce-Pine-Fir
B2	Wall/Plate 3-1/2" x 3-1/2"	6,777 lbs	41.5%	45.3%	Spruce-Pine-Fir

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: 00-00-14, Bottom: 00-00-14.

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

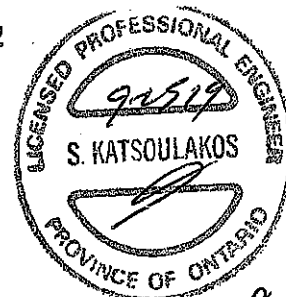
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

Member has no side loads.

CONFORMS TO OBC 2012
 92519
 S. KATSOULAKOS
 LICENSED PROFESSIONAL ENGINEER
 PROVINCE OF ONTARIO
 P6 1/2
 2ND FLR TAM 3063-19
 STRUCTURAL
 COMPONENT ONLY



Boise Cascade



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

2ND FLR FRAMING\Dropped Beams\B11DR(i4475)

Dry | 1 span | No cant.

PASSED

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

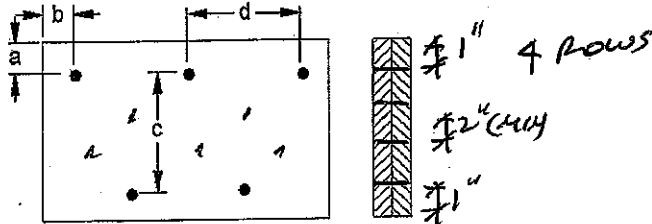
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B11DR(i4475)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member

a minimum = 1/2"
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: 16d Nails

3 1/2" ARDOX SPIRAL

Disclosure

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OWNED, TAM 3063-18
STRUCTURAL
COMPONENT ONLY

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



Boise Cascade



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

PASSED

2ND FLR FRAMING\Dropped Beams\B21DR(i4561)

Dry | 1 span | No cant.

September 23, 2019 15:45:23

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

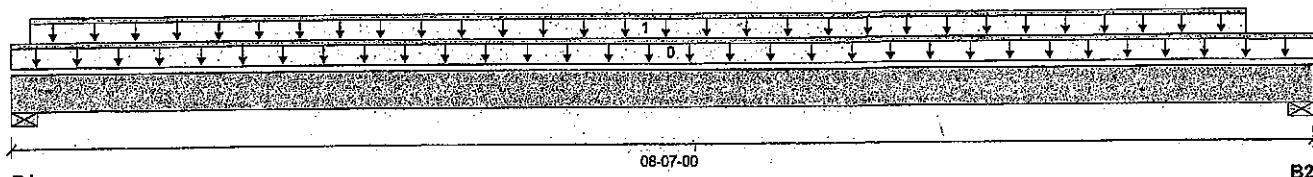
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B21DR(i4561)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 08-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,977 / 0	1,031 / 0		
B2, 3-1/2"	1,817 / 0	951 / 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	08-07-00	Top		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-01-08	08-01-08	Top	474	238			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	8,503 ft-lbs	23,220 ft-lbs	36.6%	1	04-09-08
End Shear	3,902 lbs	11,571 lbs	33.7%	1	07-06-00
Total Load Deflection	L/683 (0.143")	n/a	35.1%	4	04-03-08
Live Load Deflection	L/999 (0.094")	n/a	n/a	5	04-03-08
Max Defl.	0.143"	n/a	n/a	4	04-03-08
Span / Depth	10.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	4,254 lbs	26.0%	28.5%	Spruce-Pine-Fir
B2	Wall/Plate 3-1/2" x 3-1/2"	3,915 lbs	24.0%	26.2%	Spruce-Pine-Fir

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: 00-04-02, Bottom: 00-04-02.

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

CONFORMS TO DBC 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.

Member has no side loads.



AVIGNON.TAM 3066-19
STRUCTURAL
COMPONENT ONLY

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

File name: AVIGNON 3.mmdl

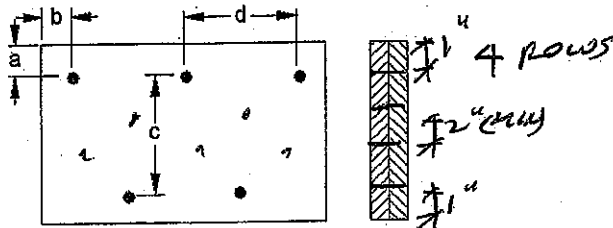
Description: 2ND FLR FRAMING\Dropped Beams\B21DR(I4561)

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.
Member has no side loads.

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL

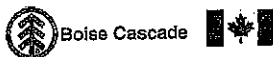
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HOWARD TAN 3066-19
STRUCTURAL
COMPONENT ONLY

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



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

PASSED

2ND FLR FRAMING\Dropped Beams\B20DR(I4117)

Dry | 1 span | No caft.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

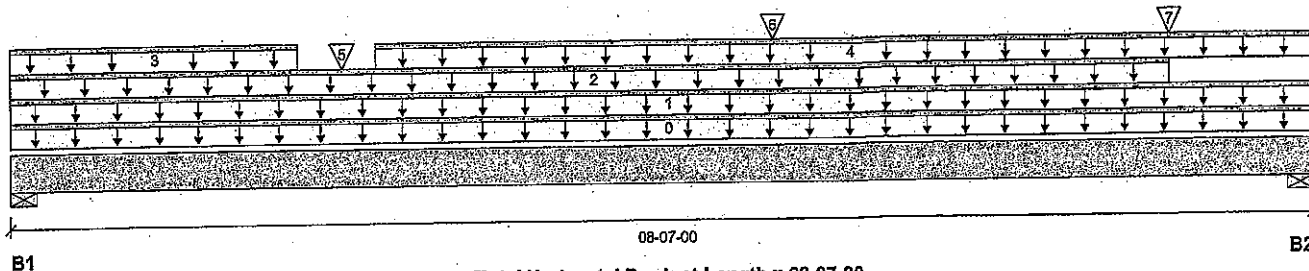
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B20DR(I4117)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 08-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	759 / 0	1,703 / 0	2,389 / 0	
B2, 3-1/2"	761 / 0	1,618 / 0	2,172 / 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	08-07-00	Top		10			00-00-00
1	R1(I4068)	Unf. Lin. (lb/ft)	L	00-00-00	08-07-00	Top		105	152		n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	07-07-08	Top	100	50			n/a
3	R1(I4068)	Unf. Lin. (lb/ft)	L	00-00-00	01-10-08	Top		32	105		n/a
4	R1(I4068)	Unf. Lin. (lb/ft)	L	02-04-08	08-07-00	Top		151	308		n/a
5	-	Conc. Pt. (lbs)	L	02-01-14	02-01-14	Top	252	707	1,147		n/a
6	J5(I4092)	Conc. Pt. (lbs)	L	04-11-08	04-11-08	Top	254	127			n/a
7	J5(I4021)	Conc. Pt. (lbs)	L	07-07-08	07-07-08	Top	254	127			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	12,773 ft-lbs	23,220 ft-lbs	55.0%	13	03-10-08
End Shear	5,790 lbs	11,571 lbs	50.0%	13	01-01-00
Total Load Deflection	L/423 (0.23")	n/a	56.7%	35	04-02-08
Live Load Deflection	L/654 (0.149")	n/a	55.0%	51	04-02-08
Max Defl.	0.23"	n/a	n/a	35	04-02-08
Span / Depth	10.3				

			Demand/Resistance Support	Demand/Resistance Member	
Bearing Supports	Dim. (LxW)	Demand			Material
B1	Wall/Plate	3-1/2" x 3-1/2"	6,471 lbs	39.6%	43.3%
B2	Wall/Plate	3-1/2" x 3-1/2"	6,042 lbs	37.0%	40.4%
					Spruce-Pine-Fir
					Spruce-Pine-Fir



DWG NO. TAM3065-19
STRUCTURAL
COMPONENT ONLY



Boise Cascade



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

PASSED

2ND FLR FRAMING\Dropped Beams\B20DR(I4117)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B20DR(I4117)

Specifier:

Designer: LBV

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 UBC 2012

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

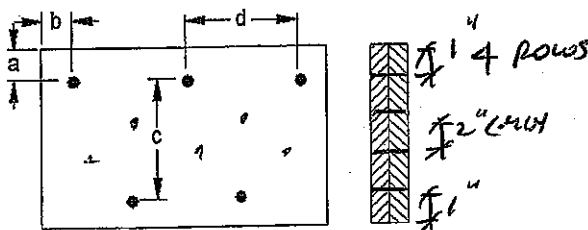
Unbalanced snow loads determined from building geometry were used in selected product's verification.

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 = 1/2"

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.

Member has no side loads.

Connectors are: 16d 3 1/2" Nails

3 1/2" ARDOX SPIRAL**Disclosure**

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BOISE CASCADE
STRUCTURAL
COMPONENT ONLY

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



Boise Cascade



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

PASSED

2ND FLR FRAMING\Dropped Beams\B23DR(14406)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

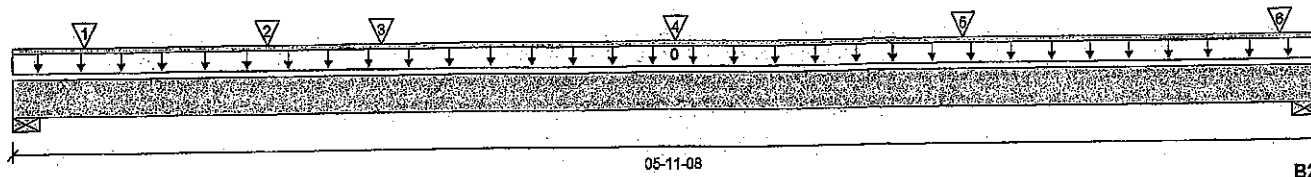
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B23DR(14406)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 05-11-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/4"	1,965 / 0	1,118 / 0		
B2, 5-1/2"	2,818 / 0	1,569 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-11-08	Top		10			00-00-00
1	-	Conc. Pt. (lbs)	L	00-03-12	00-03-12	Top	650	325			n/a
2	B22(14372)	Conc. Pt. (lbs)	L	01-01-08	01-01-08	Top	486	369			n/a
3	-	Conc. Pt. (lbs)	L	01-07-12	01-07-12	Top	558	279			n/a
4	-	Conc. Pt. (lbs)	L	02-11-12	02-11-12	Top	654	327			n/a
5	-	Conc. Pt. (lbs)	L	04-03-12	04-03-12	Top	675	338			n/a
6	-	Conc. Pt. (lbs)	L	05-09-06	05-09-06	Top	1,760	992			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3,998 ft-lbs	23,220 ft-lbs	17.2%	1	02-11-12
End Shear	2,855 lbs	11,571 lbs	24.7%	1	01-02-04
Total Load Deflection	L/999 (0.027")	n/a	n/a	4	02-10-12
Live Load Deflection	L/999 (0.017")	n/a	n/a	5	02-10-12
Max Defl.	0.027"	n/a	n/a	4	02-10-12
Span / Depth	6.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/4" x 3-1/2"	4,345 lbs	19.6%	21.4%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	6,189 lbs	24.1%	26.4%	Spruce-Pine-Fir

Notes

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

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

Calculations assume unbraced length of Top: 00-02-09, Bottom: 00-02-09.

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

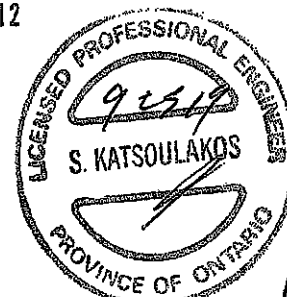
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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.

Member has no side loads.

CONFORMS TO DBC 2012

AWONG.TAM 3067-19
STRUCTURAL
COMPONENT ONLY



Boise Cascade



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

2ND FLR FRAMING\Dropped Beams\B23DR(i4406)

Dry | 1 span | No cant.

PASSED

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

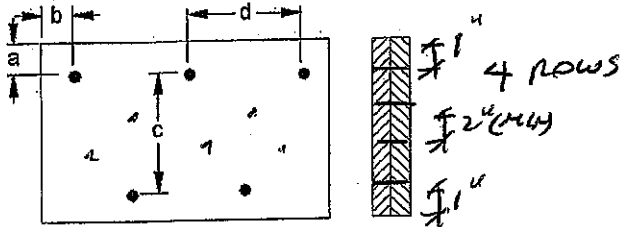
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B23DR(i4406)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member

a minimum = 2"

b minimum = 3"

c = 7-1/2"

d = 6"

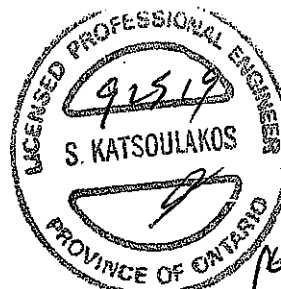
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Member has no side loads.

Connectors are: 16d 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.



DWGNO. TAM 3067-10
STRUCTURAL
COMPONENT ONLY

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



BOLSE CASCADE



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

PASSED

2ND FLR FRAMING\Dropped Beams\B10(i5736)

Dry | 1 span | No cant.

September 23, 2019 15:45:37

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

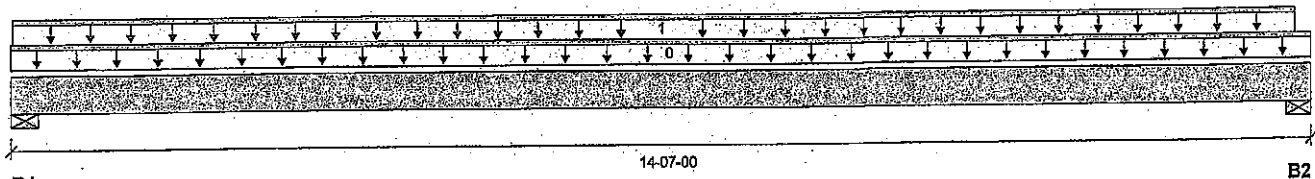
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B10(i5736)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 14-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	3,210 / 0	1,736 / 0		
B2, 3-1/2"	3,131 / 0	1,698 / 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	14-07-00	Top		18			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-04	14-04-12	Top	436	218			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	23,649 ft-lbs	55,212 ft-lbs	42.8%	1	07-02-08
End Shear	6,046 lbs	21,696 lbs	27.9%	1	01-03-06
Total Load Deflection	L/415 (0.408")	n/a	57.8%	4	07-04-04
Live Load Deflection	L/640 (0.265")	n/a	56.2%	5	07-04-04
Max Defl.	0.408"	n/a	n/a	4	07-04-04
Span / Depth	14.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 3-1/2" x 5-1/4"	6,985 lbs	28.5%	31.2%	Spruce-Pine-Fir
B2	Wall/Plate 3-1/2" x 5-1/4"	6,818 lbs	27.8%	30.4%	Spruce-Pine-Fir

Notes

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

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

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

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

CONFORMS TO OBC 2012

BC 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

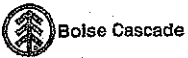
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Nailing schedule applies to both sides of the member.

Member has no side loads.



OWNED BY TAM 3068-19
STRUCTURAL
COMPONENT ONLY



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

PASSED

2ND FLR FRAMING\Dropped Beams\B10(I5736)

Dry | 1 span | No cant.

September 23, 2019 15:45:37

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

File name: AVIGNON 3.mmdl

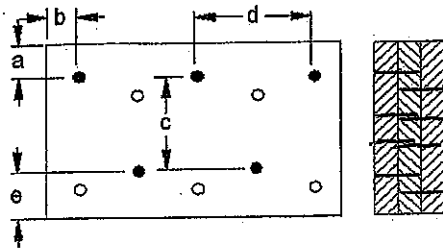
Description: 2ND FLR FRAMING\Dropped Beams\B10(I5736)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member



4 ROWS

a minimum = 2"
b minimum = 3"

c = 6-7/8" u
d = 12"
e minimum = 2"

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

Nailing schedule applies to both sides of the member.

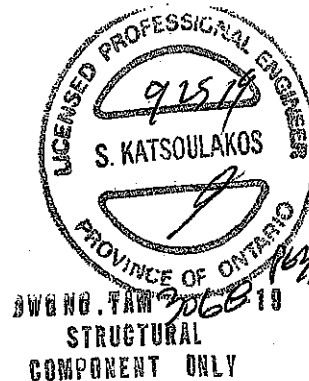
Member has no side loads.

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL

Disclosure

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

BC CALCO® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

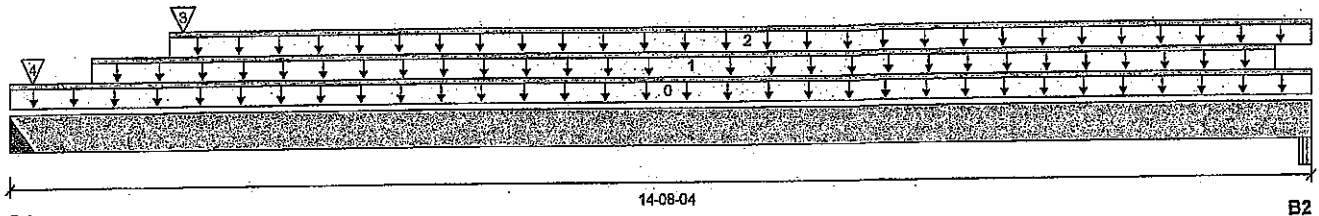
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B17(i4413)

Specifier:

Designer: LBV

Company:



B1 14-08-04 B2

Total Horizontal Product Length = 14-08-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	3,006 / 0	1,674 / 0		
B2, 1-3/4"	1,407 / 0	813 / 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	14-08-04	Top		14			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-11-04	14-03-04	Top	140	70			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	01-09-04	14-08-04	Top	30	15			n/a
3	B19(i4314)	Conc. Pt. (lbs)	L	01-11-00	01-11-00	Top	2,025	1,087			n/a
4	J6(i4084)	Conc. Pt. (lbs)	L	00-03-04	00-03-04	Top	134	67			n/a

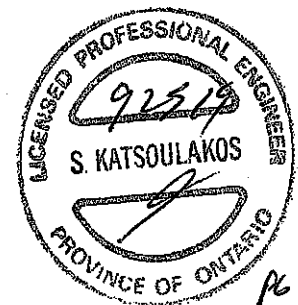
Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	13,566 ft-lbs	48,300 ft-lbs	28.1%	1	05-07-04
End Shear	6,290 lbs	17,052 lbs	36.9%	1	01-06-00
Total Load Deflection	L/754 (0.228")	n/a	31.8%	4	07-03-04
Live Load Deflection	L/1,183 (0.145")	n/a	30.4%	5	07-03-04
Max Defl.	0.228"	n/a	n/a	4	07-03-04
Span / Depth	12.3				

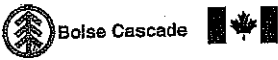
Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	4" x 3-1/2"	6,601 lbs	n/a	38.6%	HGUS414
B2 Beam	1-3/4" x 3-1/2"	3,127 lbs	41.8%	41.8%	VL 2.0 3100 SP

Cautions

Header for the hanger HGUS414 at B1 is a Double 1-3/4" x 14" VERSA-LAM® 1.7 2400 DF.
Hanger model HGUS414 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



DUWU.TAM 3069-10
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B17\I4413)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B17\I4413)

Specifier:

Designer: LBV

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**

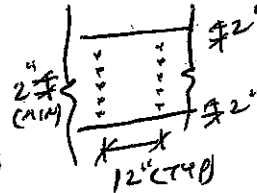
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Concentrated side-load exceeds allowable magnitude for connection design. Please consult a technical representative or Professional Engineer for the design of the connection.

PROVIDES ROWS OF 3 1/2" ARDOX
SPIRAL NAILS @ 12" O/C FOR
MULTI-PLY NAILING. MAINTAIN
A MIN. 2" LUMBER EDGE/END
DISTANCE. DO NOT USE AIR NAILS



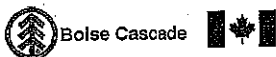
Disclosure

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BOISE CASCADE
STRUCTURAL
COMPONENT ONLY

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



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B22(i4372)

BC CALC® Member Report

Dry | 1 span | No cant.

September 20, 2019 14:07:55

Build 7118

Job name:

File name: AVIGNON 3.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B22(i4372)

City, Province, Postal Code: KING

Specifier:

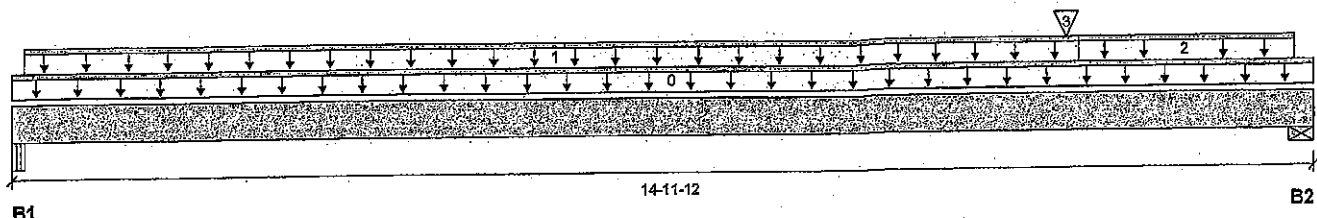
Customer:

Designer: LBV

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 14-11-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	503 / 0	379 / 0		
B2, 5-1/2"	1,652 / 0	1,037 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	14-11-12	Top	14				00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-01-12	12-02-12	Top	27	13			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	12-02-12	14-09-00	Top	19	10			n/a
3	B25(i4425)	Conc. Pt. (lbs)	L	12-01-00	12-01-00	Top	1,784	1,018			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	9,219 ft-lbs	48,300 ft-lbs	19.1%	1	12-01-00
End Shear	3,688 lbs	17,052 lbs	21.6%	1	13-04-04
Total Load Deflection	L/1,358 (0.127")	n/a	17.7%	4	08-01-03
Live Load Deflection	L/999 (0.076")	n/a	n/a	5	08-01-03
Max Defl.	0.127"	n/a	n/a	4	08-01-03
Span / Depth	12.3				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	3-1/2" x 3-1/2"	1,228 lbs	8.2%	8.2%	VL 2.0 3100 SP
B2 Wall/Plate	5-1/2" x 3-1/2"	3,774 lbs	31.9%	16.1%	Spruce-Pine-Fir

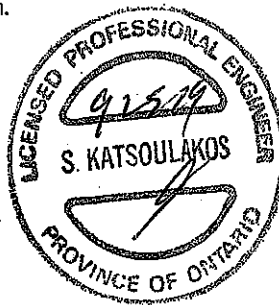
Notes

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
 Concentrated side-load exceeds allowable magnitude for connection design. Please consult a technical representative or Professional Engineer for the design of the connection.

CONFORMS TO DBC 2012

PROVIDE 4 ROWS OF 3/4" ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

DRYING TANK 3070 - 10
 STRUCTURAL
 COMPONENT ONLY



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



BOLSCASCAD



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B13(i4066)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

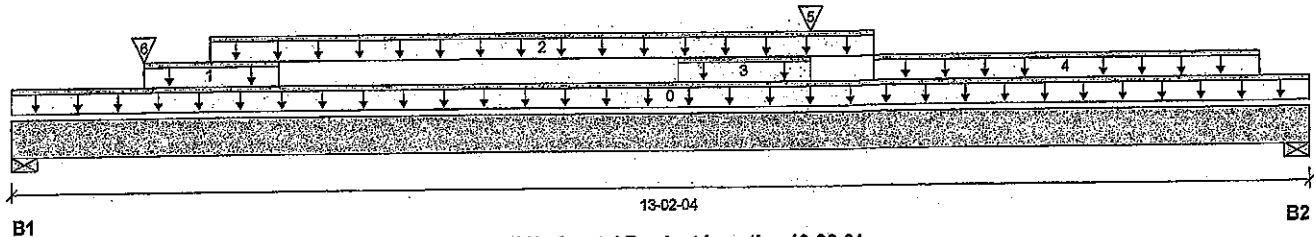
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B13(i4066)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 13-02-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	2,905 / 0	1,545 / 0		
B2, 4"	3,245 / 0	1,713 / 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	13-02-04	Top		14			00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	01-04-00	02-08-00	Top	51	25			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	02-00-00	08-08-00	Top	439	219			n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	06-08-00	08-00-00	Top	51	25			n/a
4	Smoothed Load	Unf. Lin. (lb/ft)	L	08-08-00	12-08-00	Top	577	288			n/a
5	J6(i4084)	Conc. Pt. (lbs)	L	08-00-00	08-00-00	Top	118	59			n/a
6	J11(i4048)	Conc. Pt. (lbs)	L	01-04-00	01-04-00	Top	532	266			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	21,730 ft-lbs	48,300 ft-lbs	45.0%	1	06-08-00
End Shear	6,544 lbs	17,052 lbs	38.4%	1	11-08-04
Total Load Deflection	L/556 (0.27")	n/a	43.1%	4	06-08-00
Live Load Deflection	L/849 (0.177")	n/a	42.4%	5	06-08-00
Max Defl.	0.27"	n/a	n/a	4	06-08-00
Span / Depth	10.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	6,289 lbs	53.1%	26.8%	Spruce-Pine-Fir
B2	Wall/Plate 4" x 3-1/2"	7,008 lbs	81.4%	41.0%	Spruce-Pine-Fir

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 2012DWG NO. TAM 3071-19
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B13(i4066)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

File name: AVIGNON 3.mmdl

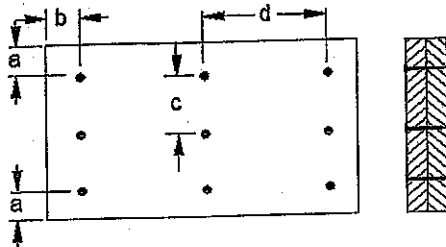
Description: 2ND FLR FRAMING\Flush Beams\B13(i4066)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

c = 5"
d = 6"

Calculated Side Load = 839.5 lb/ft

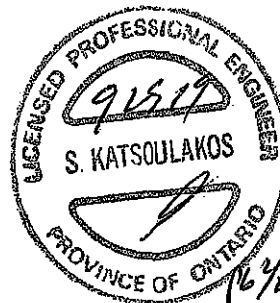
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Connectors are: 16d 1 Nails

3 1/2" ARDOX SPIRAL

Disclosure

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DRG NO. TAM 3071-10
STRUCTURAL
COMPONENT ONLY

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



BOLSE CASCADE



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B26(i3792)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

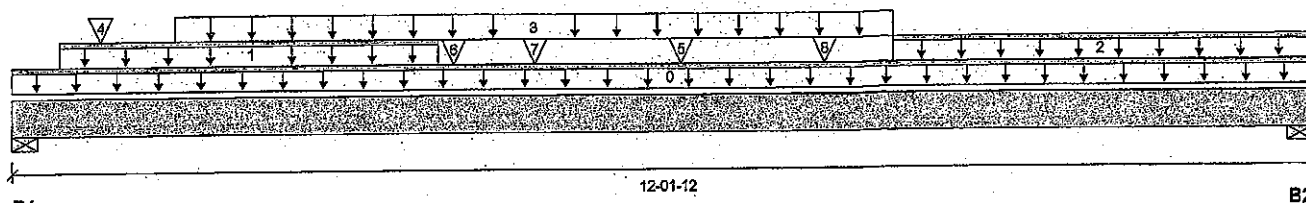
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B26(i3792)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 12-01-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1,480 / 0	847 / 0		
B2, 5-1/2"	1,430 / 0	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	12-01-12	Top		14			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-05-08	03-11-04	Top	240	120			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	08-02-00	12-01-12	Top	264	132			n/a
3	Smoothed Load	Trapezoidal (lb/ft)	L	01-06-00		Top	84	44			n/a
					08-02-00		84	40			
4	J7(i3759)	Conc. Pt. (lbs)	L	00-10-00	00-10-00	Top	113	57			n/a
5	J7(i3937)	Conc. Pt. (lbs)	L	06-02-00	06-02-00	Top	109	55			n/a
6	B29(i3808)	Conc. Pt. (lbs)	L	04-01-00	04-01-00	Top	34	44			n/a
7	J8(i3932)	Conc. Pt. (lbs)	L	04-10-00	04-10-00	Top	89	45			n/a
8	J8(i3991)	Conc. Pt. (lbs)	L	07-06-00	07-06-00	Top	110	55			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	7,759 ft-lbs	48,300 ft-lbs	16.1%	1	06-02-00
End Shear	2,503 lbs	17,052 lbs	14.7%	1	10-06-04
Total Load Deflection	L/999 (0.082")	n/a	n/a	4	06-00-00
Live Load Deflection	L/999 (0.052")	n/a	n/a	5	06-00-00
Max Defl.	0.082"	n/a	n/a	4	06-00-00
Span / Depth	9.7				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	3,279 lbs	27.7%	14.0%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	3,157 lbs	26.7%	13.4%	Spruce-Pine-Fir

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.

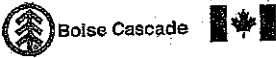
Importance based on Dry Service Condition.

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. TAM 3072-19
**STRUCTURAL
 COMPONENT ONLY**



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B26(13792)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

File name: AVIGNON 3.mmdl

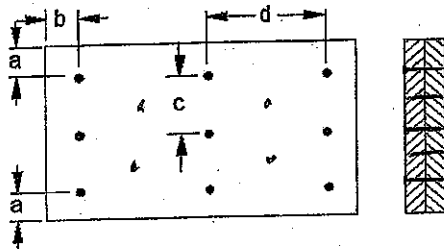
Description: 2ND FLR FRAMING\Flush Beams\B26(13792)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member



5 rows

a minimum = 2"
b minimum = 3"

c = 5"
d = 12"

Calculated Side Load = 243.5 lb/ft

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

Connectors are: 3 1/2" ARDOX SPIRAL Nails

Disclosure

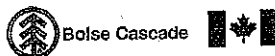
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DWG NO. TAN 3072-19

STRUCTURAL
COMPONENT ONLY

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



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B19(14314)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

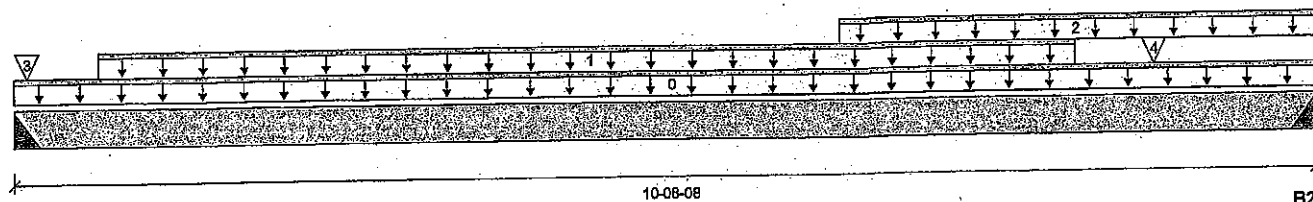
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B19(14314)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 10-08-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1,655 / 0	904 / 0		
B2, 4"	2,040 / 0	1,095 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-08-08	Top		14			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-08-04	08-08-04	Top	260	130			n/a
2	STAIR	Unf. Lin. (lb/ft)	L	06-08-08	10-08-08	Top	240	120			n/a
3	J3(14316)	Conc. Pt. (lbs)	L	00-01-04	00-01-04	Top	277	139			n/a
4	J3(14049)	Conc. Pt. (lbs)	L	09-04-04	09-04-04	Top	372	186			n/a

Controls Summary

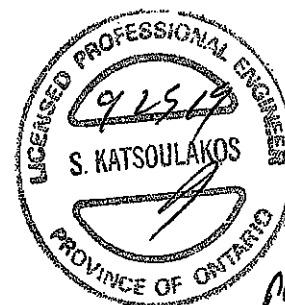
	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	9,291 ft-lbs	48,300 ft-lbs	19.2%	1	05-04-04
End Shear	3,538 lbs	17,052 lbs	20.7%	1	09-02-08
Total Load Deflection	L/999 (0.077")	n/a	n/a	4	05-06-04
Live Load Deflection	L/999 (0.05")	n/a	n/a	5	05-06-04
Max Defl.	0.077"	n/a	n/a	4	05-06-04
Span / Depth	8.7				

Bearing Supports

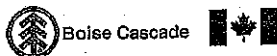
	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Hanger	4" x 3-1/2"	3,613 lbs	n/a	21.2%	HGUS414
B2 Hanger	4" x 3-1/2"	4,429 lbs	n/a	25.9%	HGUS414

Cautions

Header for the hanger HGUS414 at B1 is a Double 1-3/4" x 14" VERSA-LAM® 1.7 2400 DF.
Hanger model HGUS414 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.
Header for the hanger HGUS414 at B2 is a Double 1-3/4" x 14" VERSA-LAM® 1.7 2400 DF.



AWARD, TAM 3073-18
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B19(i4314)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B19(i4314)

Specifier:

Designer: LBV

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 CBC 2012

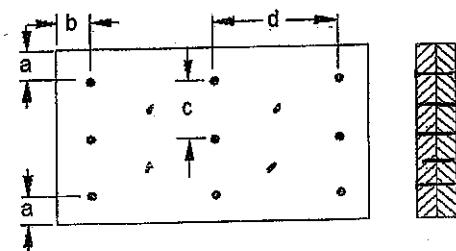
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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



S. ROWS

a minimum = 2"
b minimum = 3"
c = 5"
d = 12"

Calculated Side Load = 542.7 lb/ft

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: 16d Nails

3 1/2" ARDOX SPIRAL

Disclosure

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DRWING.TAM 3073-10
STRUCTURAL
COMPONENT ONLY

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



Boise Cascade



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B25(i4425)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

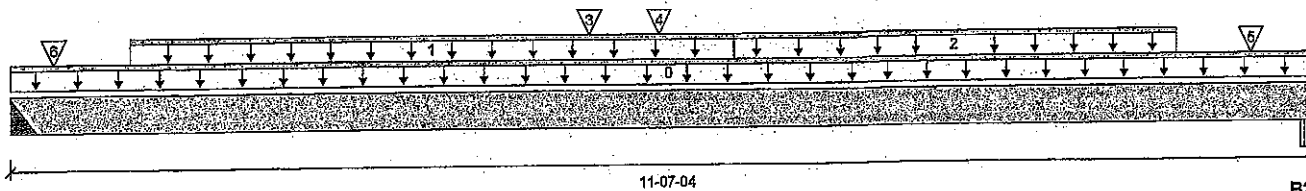
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B25(i4425)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 11-07-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1,824 / 0	1,040 / 0		
B2, 3-1/2"	2,418 / 0	1,327 / 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	11-07-04	Top		14			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-00-08	06-04-08	Top	244	122			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	06-04-08	10-04-08	Top	470	235			n/a
3	B27(i3928)	Conc. Pt. (lbs)	L	05-01-04	05-01-04	Top	84	122			n/a
4	J4(i4253)	Conc. Pt. (lbs)	L	05-08-08	05-08-08	Top	237	119			n/a
5	-	Conc. Pt. (lbs)	L	11-00-08	11-00-08	Top	505	253			n/a
6	J4(i4196)	Conc. Pt. (lbs)	L	00-04-08	00-04-08	Top	228	114			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	13,273 ft-lbs	48,300 ft-lbs	27.5%	1	05-08-08
End Shear	4,435 lbs	17,052 lbs	26.0%	1	10-01-12
Total Load Deflection	L/1,041 (0.128")	n/a	23.1%	4	05-10-08
Live Load Deflection	L/999 (0.082")	n/a	n/a	5	05-10-08
Max Defl.	0.128"	n/a	n/a	4	05-10-08
Span / Depth	9.5				

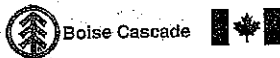
Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	4" x 3-1/2"	4,035 lbs	n/a	23.6%	HGUS414
B2 Beam	3-1/2" x 3-1/2"	5,286 lbs	35.4%	35.4%	VL 2.0 3100 SP

Cautions

Header for the hanger HGUS414 at B1 is a Double 1-3/4" x 14" VERSA-LAM® 1.7 2400 DF.
 Hanger model HGUS414 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



OWNED, FAN 3074-18
 STRUCTURAL
 COMPONENT ONLY



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B25(i4425)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B25(i4425)

Specifier:

Designer: LBV

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

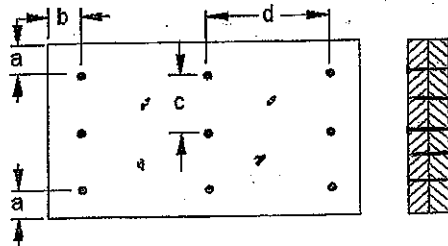
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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



5 rows

a minimum = 2"
b minimum = 3"

c = 5"
d = 12"

Calculated Side Load = 502.5 lb/ft

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: 16d Nails

3 1/2" ARDOX SPIRAL

Disclosure

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STRUCTURAL
COMPONENT ONLY

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

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

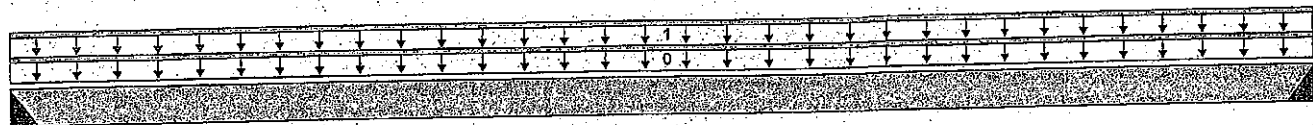
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B27(i3928)

Specifier:

Designer: LBV

Company:



B1

Total Horizontal Product Length = 11-02-08

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	84 / 0	122 / 0		
B2, 4"	84 / 0	122 / 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	11-02-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-02-08	Top	15	7			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	706 ft-lbs	48,300 ft-lbs	1.5%	1	05-07-04
End Shear	204 lbs	17,052 lbs	1.2%	1	01-06-00
Total Load Deflection	L/999 (0.007")	n/a	n/a	4	05-07-04
Live Load Deflection	L/999 (0.003")	n/a	n/a	5	05-07-04
Max Defl.	0.007"	n/a	n/a	4	05-07-04
Span / Depth	9.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	4" x 3-1/2"	278 lbs	n/a	1.6%	HGUS414
B2 Hanger	4" x 3-1/2"	278 lbs	n/a	1.6%	HGUS414

Cautions

Header for the hanger HGUS414 at B1 is a Double 1-3/4" x 14" VERSA-LAM® 1.7 2400 DF.
Hanger model HGUS414 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.
Header for the hanger HGUS414 at B2 is a Double 1-3/4" x 14" VERSA-LAM® 1.7 2400 DF.

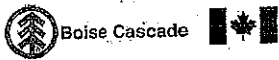
Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9
Member has no side loads.

CONFORMS TO OBC 2012



AVIGNON.TAM 3075-19
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B27(i3928)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

File name: AVIGNON 3.mmdl

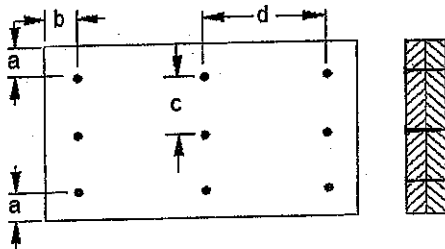
Description: 2ND FLR FRAMING\Flush Beams\B27(i3928)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

c = 5"
d = 12"

Member has no side loads.

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL

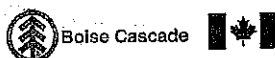
Disclosure

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

DWG NO. TAM 3075-10
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B18(i4326)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

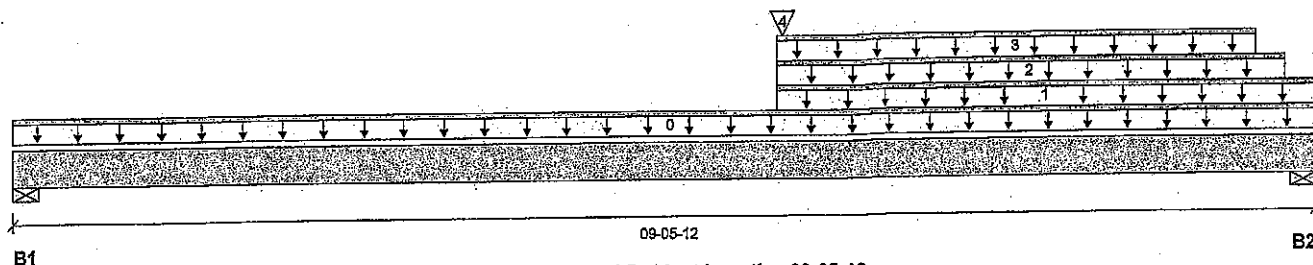
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B18(i4326)

Specifier:

Designer: LBV

Company:



Reaction Summary (Down / Uplift) (lbs)

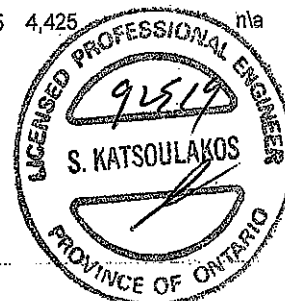
Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	667 / 0	1,616 / 0	2,239 / 0	
B2, 5-1/2"	1,033 / 0	2,915 / 0	4,289 / 0	

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	09-05-12	Top	1.00	0.65	1.00	1.15	00-00-00
1	29(i3746)	Unf. Lin. (lb/ft)	L	05-06-00	09-05-12	Top		21			n/a
2	29(i3746)	Unf. Lin. (lb/ft)	L	05-06-00	09-03-00	Top		281	561		n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	05-06-00	09-00-07	Top	8				n/a
4	-	Conc. Pt. (lbs)	L	05-06-08	05-06-08	Top	1,670	3,245	4,425		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	30,597 ft-lbs	40,224 ft-lbs	76.1%	13	05-06-00
End Shear	9,356 lbs	17,052 lbs	54.9%	13	07-10-04
Total Load Deflection	L/658 (0.158")	n/a	36.5%	35	05-00-03
Live Load Deflection	L/999 (0.103")	n/a	n/a	51	05-00-03
Max Defl.	0.158"	n/a	n/a	35	05-00-03
Span / Depth	7.4				



Bearing Supports	Dlm. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	6,046 lbs	51.1%	25.7%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	11,111 lbs	93.8%	47.3%	Spruce-Pine-Fir

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: 05-00-08, Bottom: 05-00-08. **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.

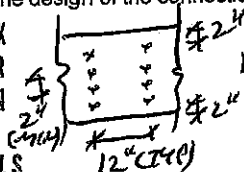
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Concentrated side-load exceeds allowable magnitude for connection design. Please consult a technical representative or Professional Engineer for the design of the connection.

PROVIDE 4 ROWS OF 3 1/2" 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 3076-18
STRUCTURAL COMPONENT ONLY

Disclosure

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

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

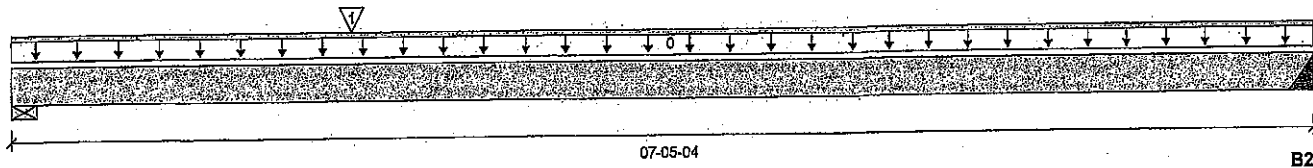
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B14\14194

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 07-05-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"		82 / 0		
B2, 4"		60 / 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	07-05-04	Top		14			00-00-00
1	B15(13902)	Conc. Pt. (lbs)	L	01-11-00	01-11-00	Top		36			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	155 ft-lbs	28,874 ft-lbs	0.5%	0	03-02-13
End Shear	82 lbs	11,084 lbs	0.7%	0	01-07-08
Total Load Deflection	L/999 (0.001")	n/a	n/a	1	03-08-02
Max Defl.	0.001"	n/a	n/a	1	03-08-02
Span / Depth	5.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	114 lbs	1.5%	0.7%	Spruce-Pine-Fir
B2	Hanger 4" x 3-1/2"	84 lbs	n/a	0.8%	HGUS414

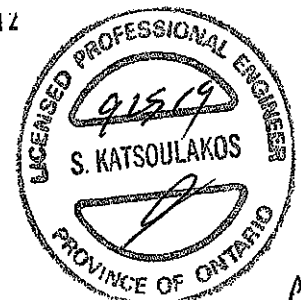
Cautions

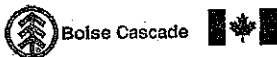
Header for the hanger HGUS414 at B2 is a Double 1-3/4" x 14" VERSA-LAM® 1.7 2400 DF. Hanger model HGUS414 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Calculations assume unbraced length of Top: 05-04-08, Bottom: 05-04-08.
 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
 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 UBC 2012


 DWG NO. TAM 307818
 STRUCTURAL
 COMPONENT ONLY



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B14(I4194)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

File name: AVIGNON 3.mmdl

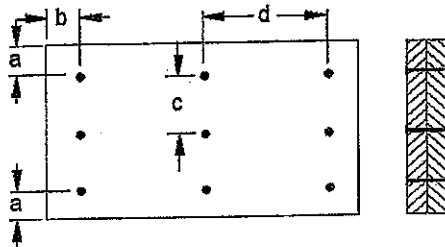
Description: 2ND FLR FRAMING\Flush Beams\B14(I4194)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

c = 5"
d = 6"

Calculated Side Load = 6.8 lb/ft

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

Connectors are: 3/4" ARDOX SPIRAL

Disclosure

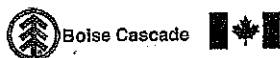
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91319
S. KATSOUKAKOS
PROVINCE OF ONTARIO
JWG NO. 3578-19

STRUCTURAL
COMPONENT ONLY

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



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B15(i3902)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

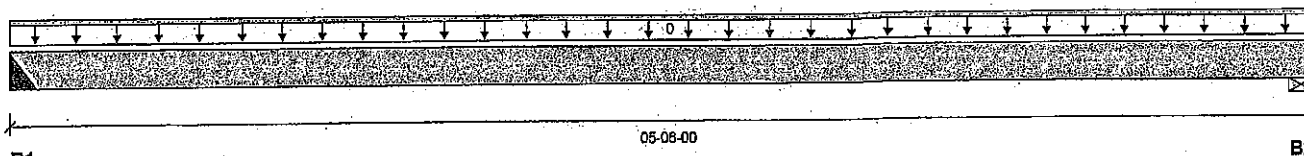
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B15(i3902)

Specifier:

Designer: LBV

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"		38 / 0		
B2, 5-1/2"		40 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-06-00	Top	1.00	0.65	1.00	1.15	00-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	58 ft-lbs	29,177 ft-lbs	0.2%	0	02-08-04
End Shear	24 lbs	11,084 lbs	0.2%	0	01-06-00
Total Load Deflection	L/999 (0")	n/a	n/a	1	02-08-04
Max Defl.	0"	n/a	n/a	1	02-08-04
Span / Depth	4.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 4" x 3-1/2"	53 lbs	n/a	0.5%	HGUS414
B2	Wall/Plate 5-1/2" x 3-1/2"	56 lbs	0.7%	0.4%	Spruce-Pine-Fir

Cautions

Header for the hanger HGUS414 at B1 is a Double 1-3/4" x 14" VERSA-LAM® 1.7 2400 DF.
Hanger model HGUS414 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: 05-00-08, Bottom: 05-00-08.
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. TAM 3079-19
STRUCTURAL
COMPONENT ONLY



Boise Cascade



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B15(I3902)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

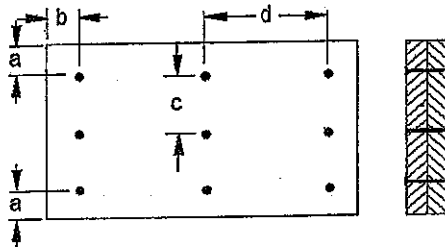
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B15(I3902)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member

a minimum = 2"
b minimum = 3"

c = 5"
d = 6"

Member has no side loads.

Connectors are: 16d 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.



DWG NO. TAM 3079-19

STRUCTURAL
COMPONENT ONLY

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

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

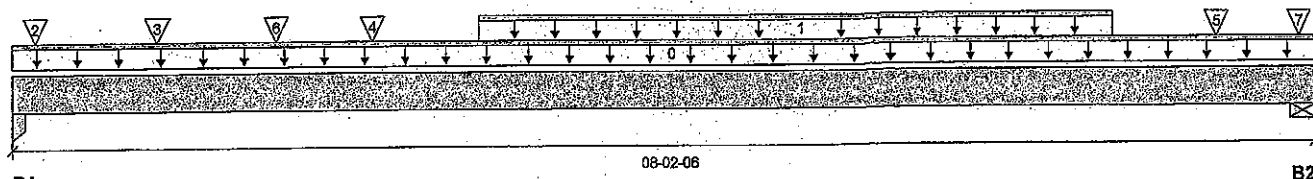
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B28(i4450)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 08-02-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	950 / 0	624 / 0		
B2, 5-3/8"	1,271 / 0	709 / 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	08-02-06	Top		14			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	02-10-12	06-10-12	Top	313	156			n/a
2	B29(i3808)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	40	47			n/a
3	J8(i3932)	Conc. Pt. (lbs)	L	00-10-12	00-10-12	Top	95	47			n/a
4	-	Conc. Pt. (lbs)	L	02-02-12	02-02-12	Top	347	174			n/a
5	-	Conc. Pt. (lbs)	L	07-06-12	07-06-12	Top	359	180			n/a
6	B27(i3928)	Conc. Pt. (lbs)	L	01-07-08	01-07-08	Top	84	122			n/a
7	FC3 Floor Material	Conc. Pt. (lbs)	L	08-01-01	08-01-01	Top	38	19			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4,749 ft-lbs	48,300 ft-lbs	9.8%	1	03-06-12
End Shear	2,044 lbs	17,052 lbs	12.0%	1	06-07-00
Total Load Deflection	L/999 (0.022")	n/a	n/a	4	04-00-12
Live Load Deflection	L/999 (0.014")	n/a	n/a	5	04-00-12
Max Defl.	0.022"	n/a	n/a	4	04-00-12
Span / Depth	6.5				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Column	3-1/2" x 3-1/2"	2,205 lbs	27.7%	14.8%	Unspecified
B2 Wall/Plate	5-3/8" x 3-1/2"	2,794 lbs	24.1%	12.2%	Spruce-Pine-Fir

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. TAM 3077-18
 STRUCTURAL
 COMPONENT ONLY



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B28(i4450)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

File name: AVIGNON 3.mmd\

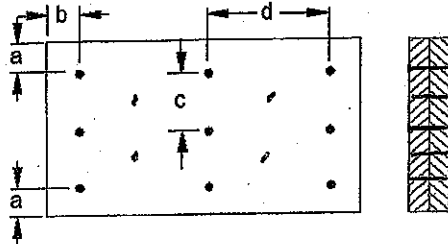
Description: 2ND FLR FRAMING\Flush Beams\B28(i4450)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 5"

b minimum = 3"

d = 8"

Calculated Side Load = 398.6 lb/ft

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: 100% 16d Nails

3 1/2" ARDOX SPIRAL

Disclosure

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DWG NO. TAW 3077-19
STRUCTURAL
COMPONENT ONLY

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



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING/Flush Beams/B16(I4386)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

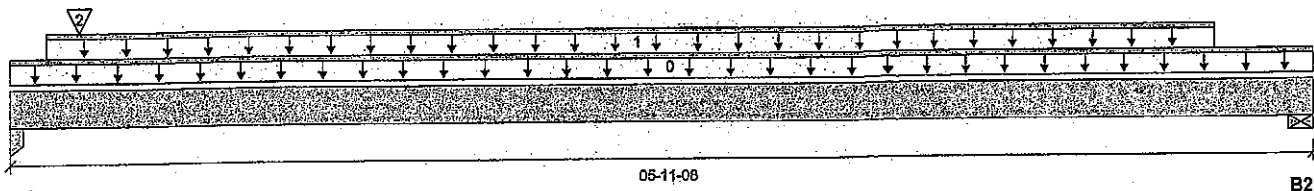
File name: AVIGNON 3.rmdl

Description: 2ND FLR FRAMING/Flush Beams/B16(I4386)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 05-11-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	3,001 / 0	1,769 / 0		
B2, 5-1/2"	32 / 0	58 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-11-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-02-00	05-08-00	Top	11	6			n/a
2	-	Conc. Pt. (lbs)	L	00-03-12	00-03-12	Top	2,969	1,711			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	93 ft-lbs	31,395 ft-lbs	0.3%	0	02-11-12
End Shear	38 lbs	11,084 lbs	0.3%	0	01-07-08
Total Load Deflection	L/999 (0")	n/a	n/a	4	02-11-12
Live Load Deflection	L/999 (0")	n/a	n/a	5	02-11-12
Max Defl.	0"	n/a	n/a	4	02-11-12
Span / Depth	4.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 5-1/2" x 3-1/2"	6,712 lbs	53.7%	28.6%	Unspecified
B2	Wall/Plate 5-1/2" x 3-1/2"	82 lbs	1.1%	0.5%	Spruce-Pine-Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume unbraced length of Top: 00-02-00, Bottom: 00-02-00. **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.

PROVIDE 4 ROWS OF 3/4" ARDOX SPIRAL NAILS @ 8" O/C FOR MULTI-PLY NAILING, MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS

DWG NO. TAN 200-10
 STRUCTURAL
 COMPONENT ONLY



Disclosure

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



Boise Cascade



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B24(i4447)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

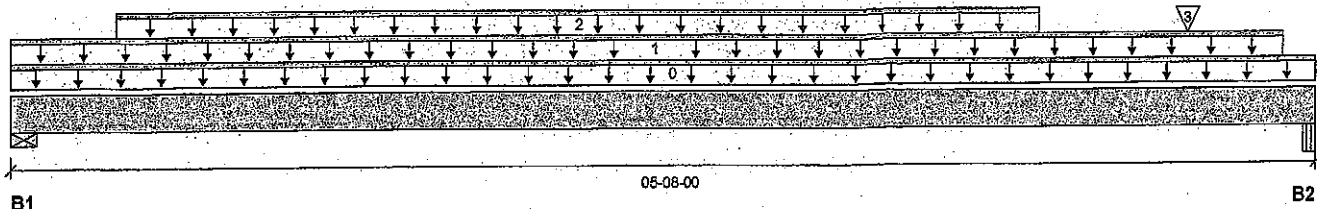
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B24(i4447)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 05-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	627 / 0	355 / 0		
B2, 3-1/2"	702 / 0	392 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-08-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-06-04	Top	21	10			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-05-04	04-05-04	Top	239	120			n/a
3	J4(i4385)	Conc. Pt. (lbs)	L	05-01-04	05-01-04	Top	256	128			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,967 ft-lbs	48,300 ft-lbs	4.1%	1	02-05-04
End Shear	1,087 lbs	17,052 lbs	6.4%	1	01-05-08
Total Load Deflection	L/999 (0.004")	n/a	n/a	4	02-10-04
Live Load Deflection	L/999 (0.003")	n/a	n/a	5	02-10-04
Max Defl.	0.004"	n/a	n/a	4	02-10-04
Span / Depth	4.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	1,384 lbs	18.4%	9.3%	Spruce-Pine-Fir
B2	Beam 3-1/2" x 3-1/2"	1,542 lbs	10.3%	10.3%	VL 2.0 3100 SP

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.

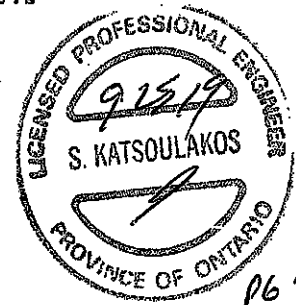
CONFORMS TO OBC 2012

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

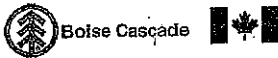
Design based on Dry Service Condition.

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.



DWONG.TAM 3081-19
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B24(i4447)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

File name: AVIGNON 3.mmdl

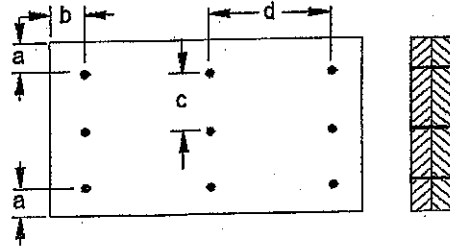
Description: 2ND FLR FRAMING\Flush Beams\B24(i4447)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 5"

b minimum = 3"

d = 6"

Calculated Side Load = 455.2 lb/ft

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: 16d Nails

3 1/2" ARDOX SPIRAL

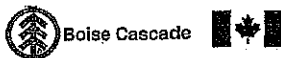
Disclosure

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.



DWIGHT TAM 3081-19
STRUCTURAL
COMPONENT ONLY

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



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B30(i3990)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

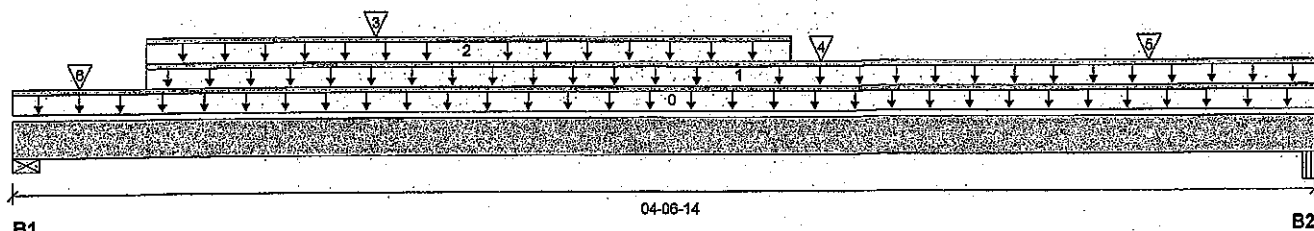
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B30(i3990)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 04-06-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	310 / 0	469 / 0	282 / 0	
B2, 5-1/2"	448 / 0	1,368 / 0	1,958 / 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	04-06-14	Top		14			00-00-00
1	E58(i1208)	Unf. Lin. (lb/ft)	L	00-05-08	04-06-14	Top		81			n/a
2	E58(i1208)	Unf. Lin. (lb/ft)	L	00-05-08	02-08-04	Top		28	88		n/a
3	J5(i4071)	Conc. Pt. (lbs)	L	01-03-00	01-03-00	Top	235	117			n/a
4	-	Conc. Pt. (lbs)	L	02-09-08	02-09-08	Top	262	316	389		n/a
5	-	Conc. Pt. (lbs)	L	03-11-12	03-11-12	Top	258	912	1,635		n/a
6	E57(i1211)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top		30			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,567 ft-lbs	48,300 ft-lbs	3.2%	13	02-07-00
End Shear	1,119 lbs	17,052 lbs	6.6%	13	02-11-06
Total Load Deflection	L/999 (0.002")	n/a	n/a	35	02-04-02
Live Load Deflection	L/999 (0.001")	n/a	n/a	51	02-04-02
Max Defl.	0.002"	n/a	n/a	35	02-04-02
Span / Depth	3.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	1,334 lbs	11.3%	5.7%	Spruce-Pine-Fir
B2	Beam 5-1/2" x 3-1/2"	5,095 lbs	62.0%	21.7%	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 Q86.

CONFORMS TO OBC 2012

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA Q86.

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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



DWG NO. TAM308218
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B30(i3990)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

File name: AVIGNON 3.mmdl

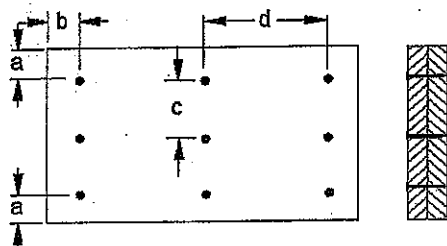
Description: 2ND FLR FRAMING\Flush Beams\B30(i3990)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

b minimum = 3"

c = 5"

d = 6"

Calculated Side Load = 350.7 lb/ft

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

Connectors are: 1 Nails

3/4" ARDOX SPIRAL

Disclosure

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AVIGNON TAM 300219
STRUCTURAL
COMPONENT ONLY

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

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

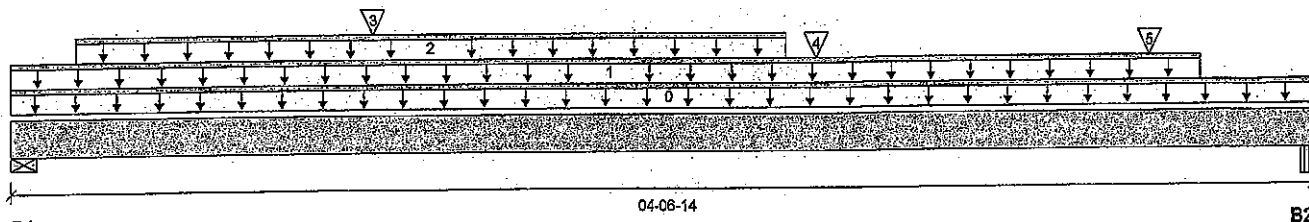
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B31(i4016)

Specifier:

Designer: LBV

Company:



Total Horizontal Product Length = 04-06-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	310 / 0	483 / 0	283 / 0	
B2, 5-1/2"	448 / 0	1,368 / 0	1,958 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.55	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-06-14	Top		14			00-00-00
1	E56(i1215)	Unf. Lin. (lb/ft)	L	00-00-00	04-02-00	Top		81			n/a
2	E56(i1215)	Unf. Lin. (lb/ft)	L	00-02-12	02-08-04	Top		28	88		n/a
3	J5(i4071)	Conc. Pt. (lbs)	L	01-03-00	01-03-00	Top	235	117			n/a
4	-	Conc. Pt. (lbs)	L	02-09-08	02-09-08	Top	262	316	389		n/a
5	-	Conc. Pt. (lbs)	L	03-11-13	03-11-13	Top	258	945	1,635		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,569 ft-lbs	48,300 ft-lbs	3.2%	13	02-07-00
End Shear	1,120 lbs	17,052 lbs	6.6%	13	02-11-06
Total Load Deflection	L/999 (0.002")	n/a	n/a	35	02-04-02
Live Load Deflection	L/999 (0.001")	n/a	n/a	51	02-04-02
Max Defl.	0.002"	n/a	n/a	35	02-04-02
Span / Depth	3.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	1,351 lbs	11.4%	5.8%	Spruce-Pine-Fir
B2	Beam 5-1/2" x 3-1/2"	5,094 lbs	61.9%	21.7%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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



DWG NO. TAM3083-19
STRUCTURAL
COMPONENT ONLY



Boise Cascade



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B31(I4016)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

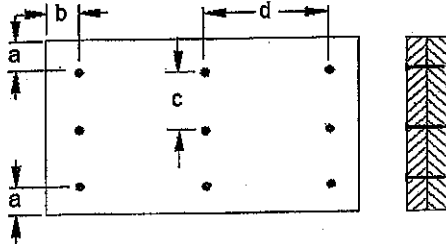
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B31(I4016)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member

a minimum = 2"

b minimum = 3"

c = 5"

d = 6"

Calculated Side Load = 353.2 lb/ft

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. 3/4" x 1 1/2" Nails

3/4" ARDUX SPIRAL

Disclosure

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AWG NO. TAN 3083-19
STRUCTURAL
COMPONENT ONLY

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



Boise Cascade



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B29(i3808)

Dry | 1 span | No cant.

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

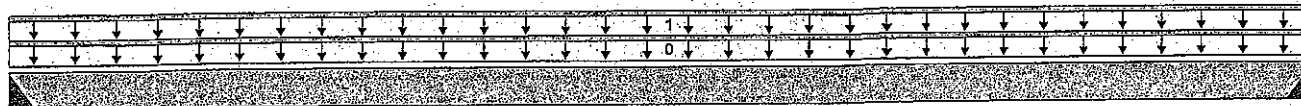
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B29(i3808)

Specifier:

Designer: LBV

Company:



B1

03-10-00

B2

Total Horizontal Product Length = 03-10-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	34 / 0	44 / 0		
B2, 4"	34 / 0	44 / 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	03-10-00	Top		14			00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-10-00	Top	18	9			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	76 ft-lbs	48,300 ft-lbs	0.2%	1	01-11-00
End Shear	23 lbs	17,052 lbs	0.1%	1	01-06-00
Total Load Deflection	L/999 (0")	n/a	n/a	4	01-11-00
Max Defl.	0"	n/a	n/a	4	01-11-00
Span / Depth	2.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Hanger	4" x 3-1/2"	107 lbs	n/a	0.6%	HUC416
B2 Hanger	4" x 3-1/2"	107 lbs	n/a	0.6%	HGUS414

Cautions

Header for the hanger HUC416 at B1 is a Double 1-3/4" x 14" VERSA-LAM® 1.7 2400 DF.

Hanger model HUC416 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Header for the hanger HGUS414 at B2 is a Double 1-3/4" x 14" VERSA-LAM® 1.7 2400 DF.

Hanger model HGUS414 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 member is fully braced.

Hanger Manufacturer: Unassigned

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

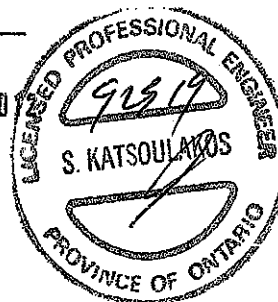
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Member has no side loads.

CONFORMS TO CBC 2015



DWG NO. TAM 3084-10
STRUCTURAL
COMPONENT ONLY

p6 1/2



Boise Cascade



Double 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

2ND FLR FRAMING\Flush Beams\B29(i3808)

Dry | 1 span | No cant.

PASSED

September 20, 2019 14:07:55

BC CALC® Member Report

Build 7118

Job name:

Address:

City, Province, Postal Code: KING

Customer:

Code reports: CCMC 12472-R

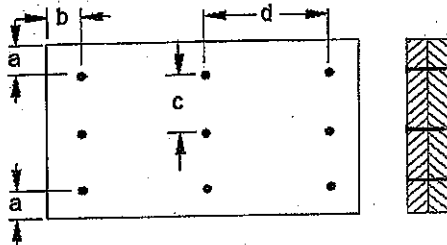
File name: AVIGNON 3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B29(i3808)

Specifier:

Designer: LBV

Company:

Connection Diagram: Full Length of Member

a minimum = 2"
b minimum = 3"

c = 5"
d = 8"

Member has no side loads.

Connectors are: 16d Nails

3 1/2" ARDUX SPIRAL**Disclosure**

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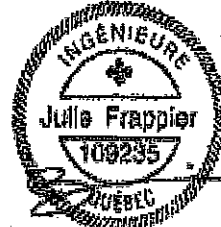
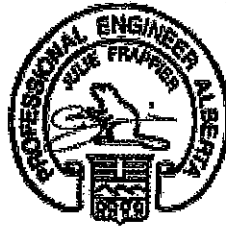


AVIGNON 3.mmdl
2019.08.04
STRUCTURAL
COMPONENT ONLY

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

Maximum Floor Spans

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



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

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

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



Maximum Floor Spans

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

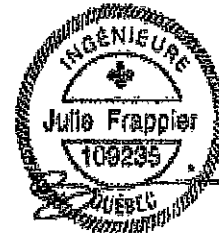
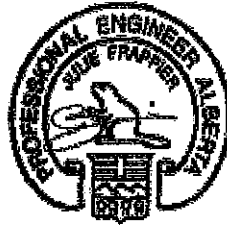
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A
	NI-40x	15'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"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

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

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

Maximum Floor Spans

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



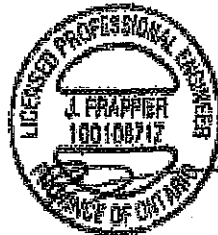
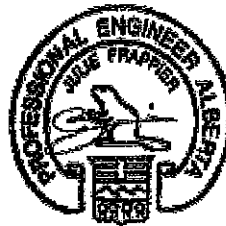
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O85-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.

Maximum Floor Spans

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

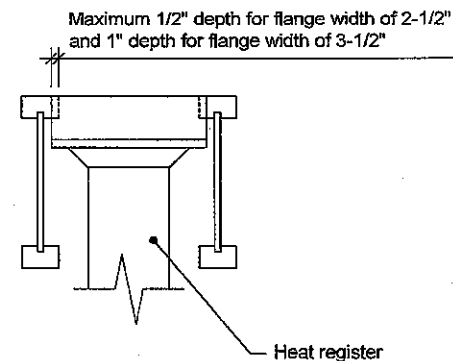
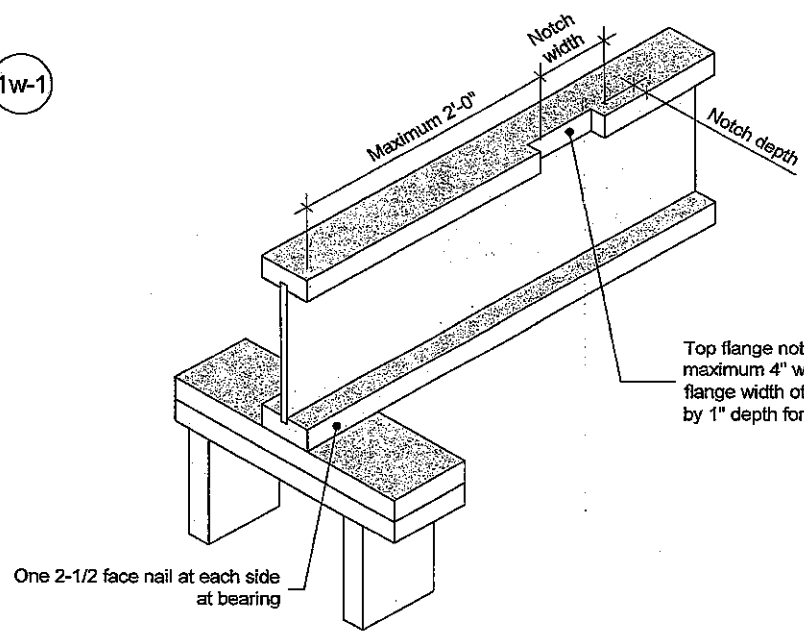


Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"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

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

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

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.

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STRUCTURES**

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TITLE

Notch in I-joist for Heat Register

CATEGORY

I-joist - Typical Floor Framing and Construction Details

DOCUMENT

-

DATE

2018-04-10

NUMBER

1w-1



Construction Detail

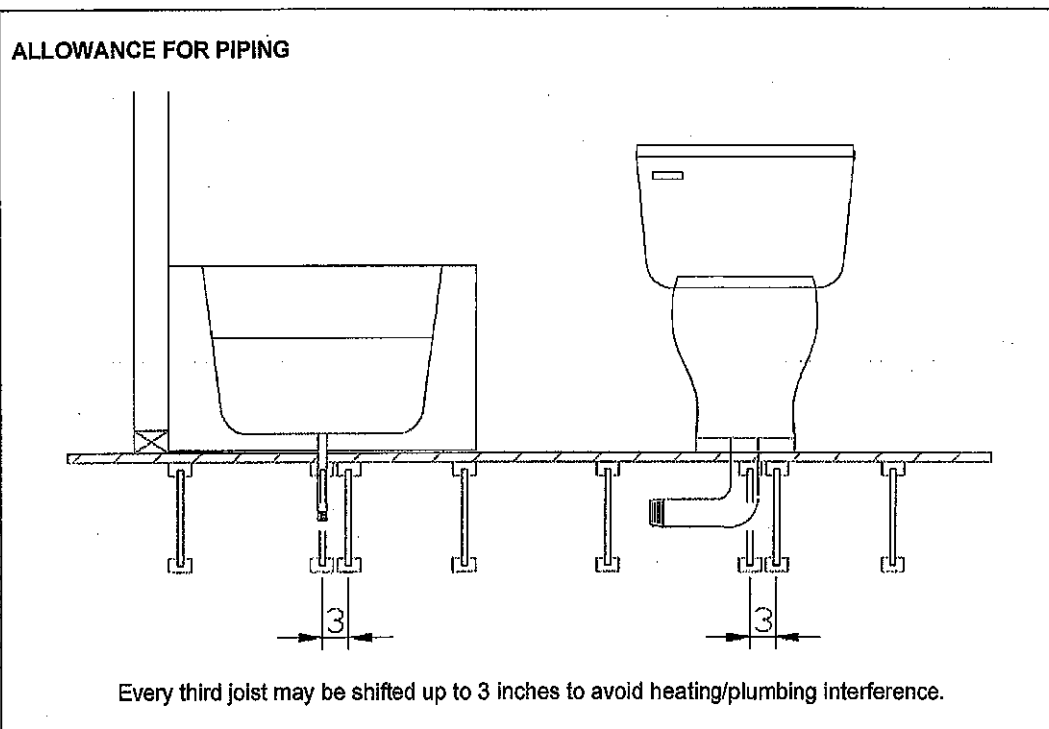
Limit States Design

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.



Revised April 12, 2012