

FROM PLAN DATED: SEPT 2018

BUILDER: BAYVIEW WELLINGTON

SITE: GREEN VALLEY ESTATES

MODEL: S38-3 BAROSSA

ELEVATION: C

LOT: 183

CITY: BRADFORD

SALESMAN: M D

DESIGNER: CZ

REVISION: lbv

NOTES:

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

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

LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 15.0 lb/ft²

TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2018-10-25

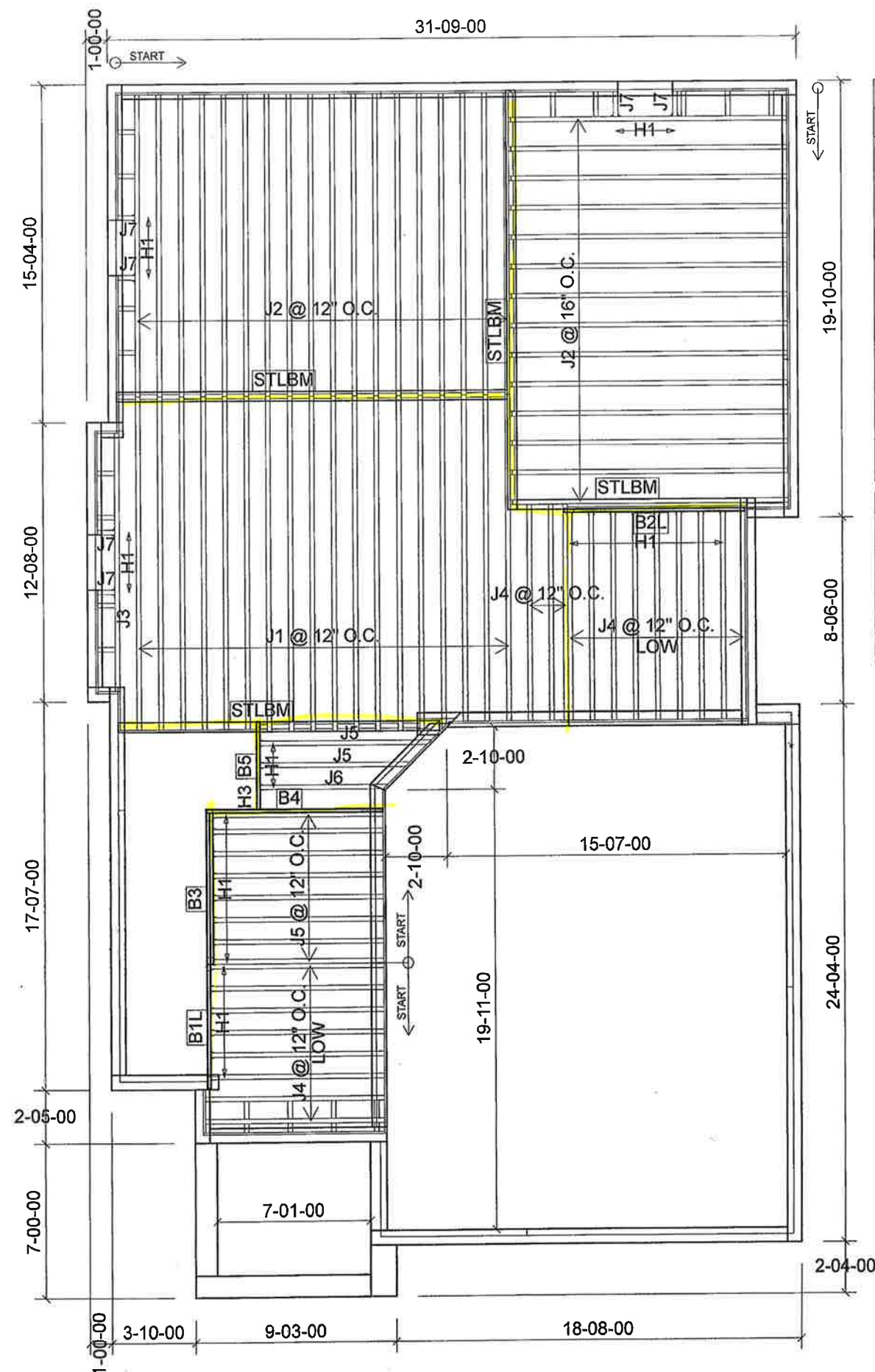
1st FLOOR

SITE COPY

Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	18
J2	14-00-00	9 1/2" NI-40x	1	32
J3	12-00-00	9 1/2" NI-40x	1	1
J4	10-00-00	9 1/2" NI-40x	1	20
J5	8-00-00	9 1/2" NI-40x	1	10
J6	6-00-00	9 1/2" NI-40x	1	1
J7	2-00-00	9 1/2" NI-40x	1	6
B2L	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B1L	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

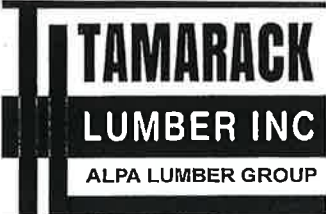
Connector Summary

Qty	Manuf	Product
17	H1	IUS2.56/9.5
8	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
1	H3	HUS1.81/10



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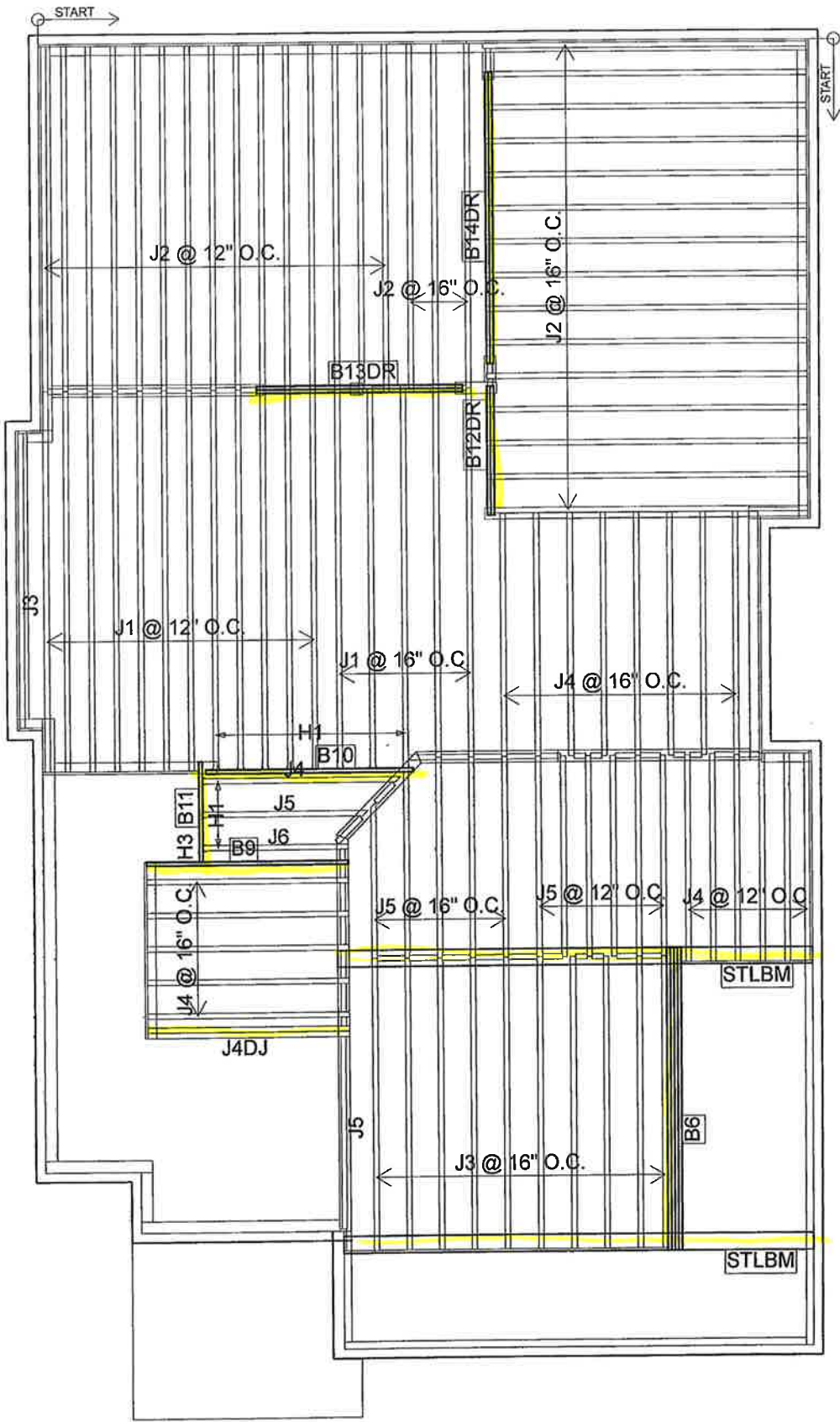
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILED AREAS: 20 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2018-10-29

2nd FLOOR

SITE COPY



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	17
J2	14-00-00	9 1/2" NI-40x	1	33
J3	12-00-00	9 1/2" NI-40x	1	11
J4	10-00-00	9 1/2" NI-40x	1	20
J4DJ	10-00-00	9 1/2" NI-40x	2	2
J5	8-00-00	9 1/2" NI-40x	1	13
J6	6-00-00	9 1/2" NI-40x	1	1
B14DR	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B6	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	4	4
B10	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B9	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B13DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

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



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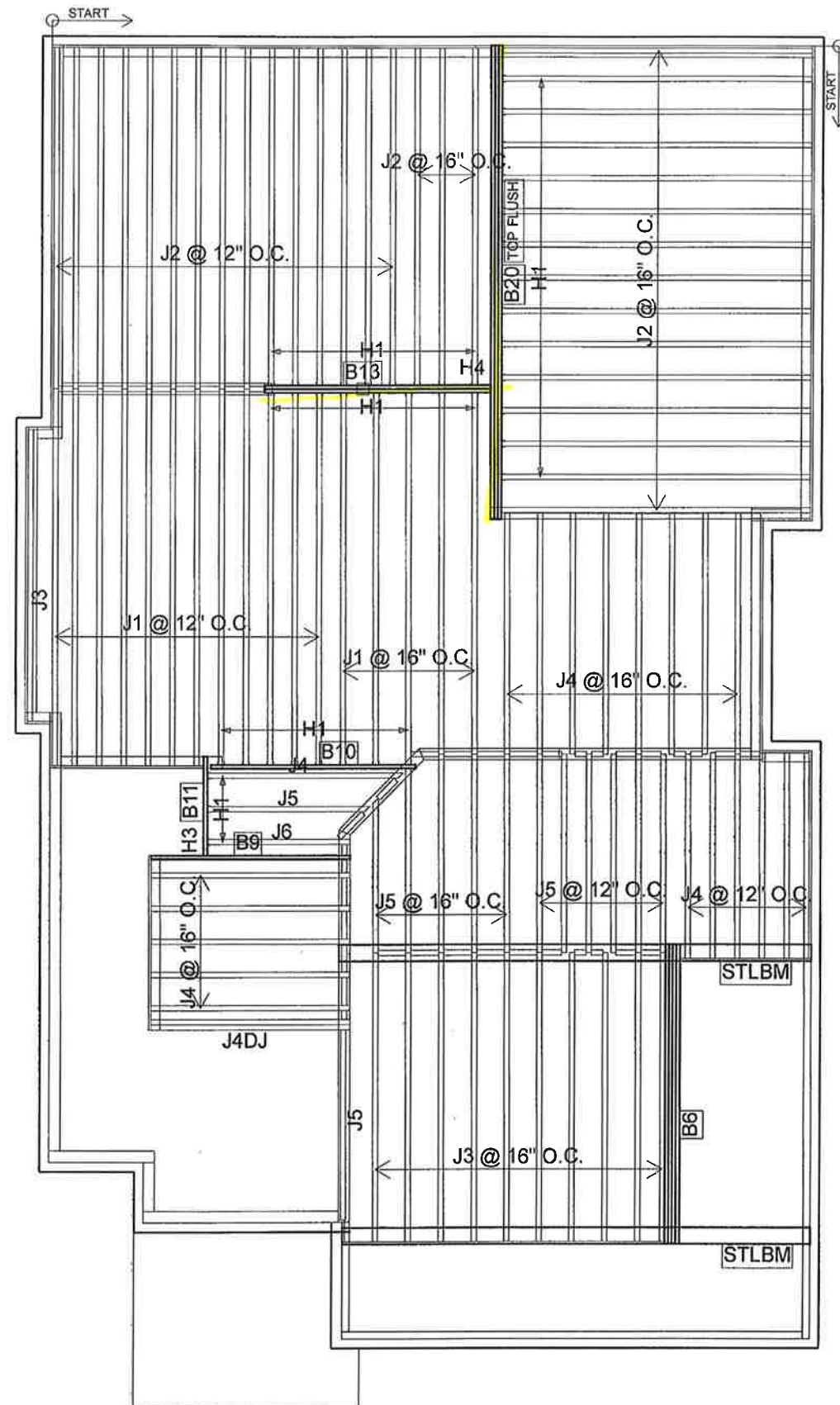
TILED AREAS: 20 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2018-10-29

2nd FLOOR

ALTERNATE

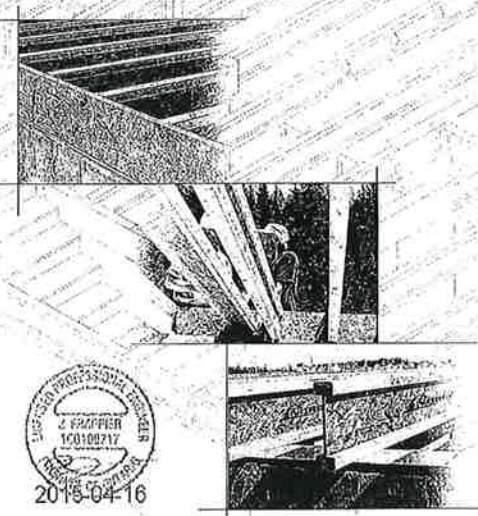


Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	17
J2	14-00-00	9 1/2" NI-40x	1	33
J3	12-00-00	9 1/2" NI-40x	1	11
J4	10-00-00	9 1/2" NI-40x	1	20
J4DJ	10-00-00	9 1/2" NI-40x	2	2
J5	8-00-00	9 1/2" NI-40x	1	13
J6	6-00-00	9 1/2" NI-40x	1	1
B6	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	4	4
B10	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B9	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B13	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B20	20-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	3	3

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

NORDIC ENGINEERED WOOD

INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



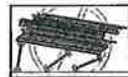
Distributed by:



SAFETY AND CONSTRUCTION PRECAUTIONS



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



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

WARNING

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

Avoid Accidents by Following these Important Guidelines:

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

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

STORAGE AND HANDLING GUIDELINES

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



MAXIMUM FLOOR SPANS

1. Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in C085-71.26 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 C084-09 Standard, and NBC 2010.
7. SI units conversion: 1 inch = 25.4 mm
1 foot = 0.305 m

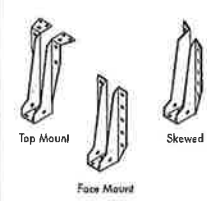
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS SIMPLE AND MULTIPLE SPANS

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

CCMC EVALUATION REPORT 13622-R

I-JOIST HANGERS

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



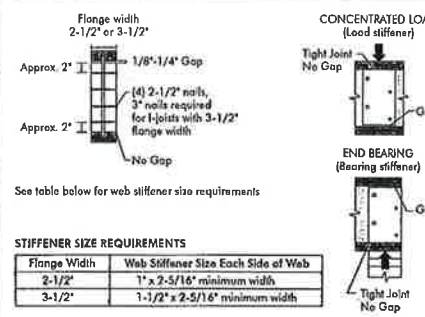
WEB STIFFENERS

RECOMMENDATIONS:

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

SI units conversion: 1 inch = 25.4 mm

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS



See table below for web stiffener size requirements

STIFFENER SIZE REQUIREMENTS

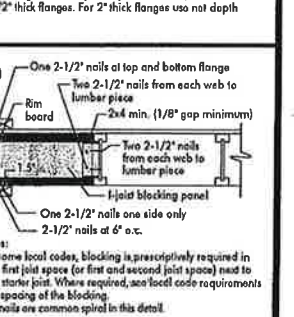
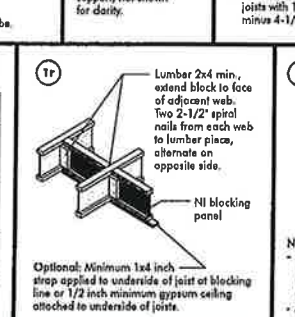
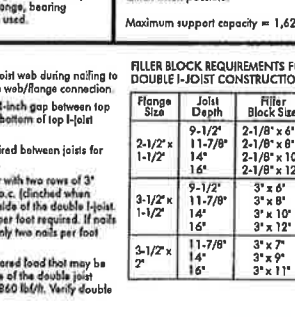
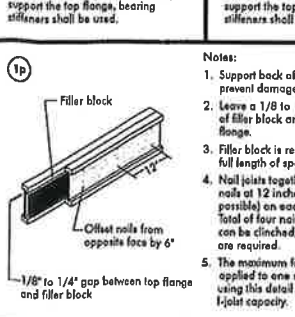
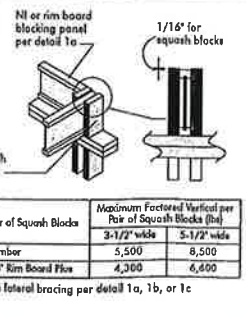
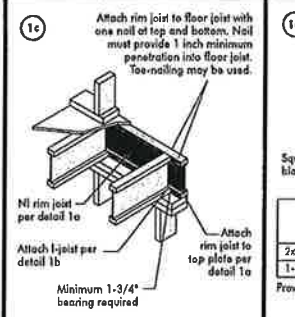
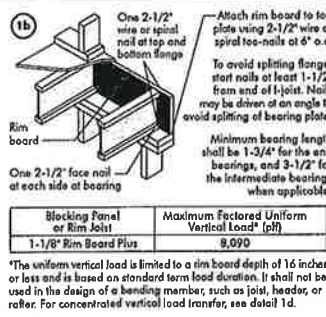
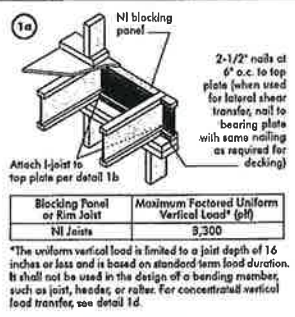
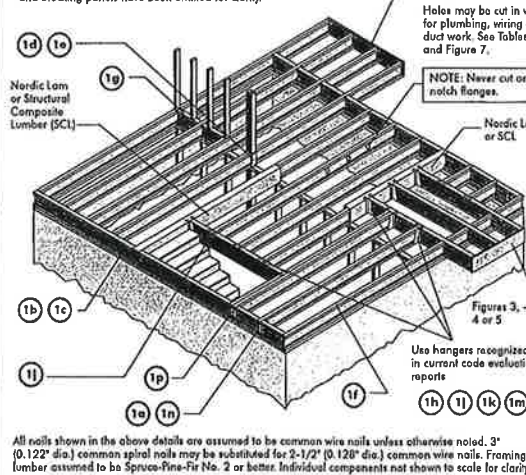
Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-5/16" minimum width
3-1/2"	1-1/2" x 2-5/16" minimum width

INSTALLING NORDIC I-JOISTS

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

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

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



*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.

*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.

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*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.

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*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.



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-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 longest 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 longest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- 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.

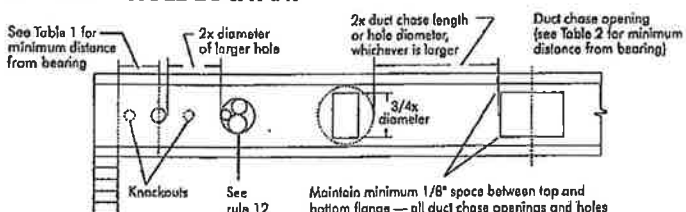
TABLE 1
LOCATION OF CIRCULAR HOLES IN JOIST WEBS

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.)											
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4
9-1/2"	NI-20	0-7"	1-6"	2-10"	4-3"	5-8"	6-3"	---	---	---	---	---	---
	NI-40x	0-7"	1-6"	3-0"	4-4"	6-0"	7-5"	---	---	---	---	---	---
	NI-60	1-3"	2-6"	4-0"	5-4"	7-0"	7-5"	---	---	---	---	---	---
	NI-70	2-0"	3-4"	4-9"	6-3"	8-0"	8-4"	---	---	---	---	---	---
	NI-80	2-3"	3-6"	5-0"	6-6"	8-2"	8-8"	---	---	---	---	---	---
11-7/8"	NI-20	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---
	NI-40x	0-7"	0-8"	1-3"	2-8"	4-0"	4-4"	5-5"	7-0"	8-4"	---	---	---
	NI-60	0-7"	1-8"	3-0"	4-3"	5-9"	6-0"	7-3"	8-10"	10-0"	---	---	---
	NI-70	1-3"	2-6"	4-0"	5-4"	6-9"	7-2"	8-4"	10-0"	11-2"	---	---	---
	NI-80	1-6"	2-10"	4-2"	5-6"	7-0"	7-5"	8-6"	10-3"	11-4"	---	---	---
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"	1-8"	3-0"	4-3"	4-8"	5-8"	7-2"	8-0"	8-8"	10-4"	11-9"
	NI-70	0-8"	1-10"	3-0"	4-5"	5-10"	6-2"	7-3"	8-9"	9-9"	10-4"	12-0"	13-5"
	NI-80	0-10"	2-0"	3-4"	4-9"	6-2"	6-8"	7-6"	9-0"	10-0"	10-8"	12-4"	13-9"
16"	NI-20	0-7"	0-8"	0-10"	2-3"	3-9"	4-3"	5-9"	7-3"	8-8"	9-4"	11-4"	12-11"
	NI-40x	0-7"	0-8"	0-8"	2-3"	3-9"	4-3"	5-9"	7-3"	8-8"	9-4"	11-4"	12-11"
	NI-60	0-7"	0-8"	0-8"	1-6"	2-10"	3-2"	4-2"	5-6"	6-4"	7-0"	8-5"	9-8"
	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-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 chart are based on uniformly loaded joists.
- The above table is based on the I-joists being used of 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 pre-drilled holes provided for the contractor's convenience to install electrical or small plumbing lines. They are 1-1/2 inches in diameter, and are spaced 15 inches on centre along the length of the I-joist. Where possible, it is preferable to use knockouts instead of field-cut holes.

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

Holes in webs should be cut with a sharp saw.

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

SAFETY AND CONSTRUCTION PRECAUTIONS



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



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

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

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

- Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-briding at joist ends. When I-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
- When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
 - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Top ends of adjoining bracing over at least two I-joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
- For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-briding.
- 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.

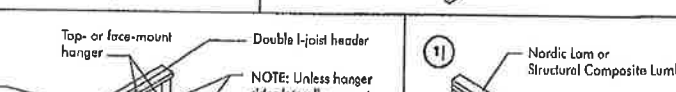
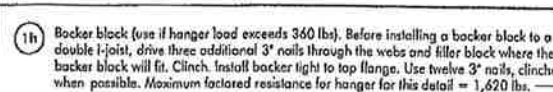
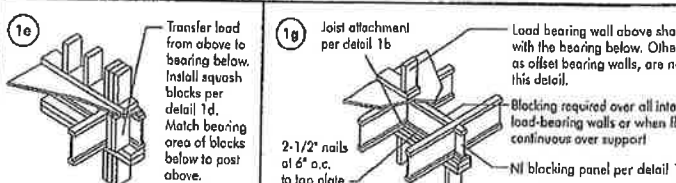
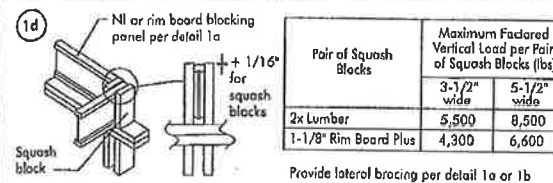
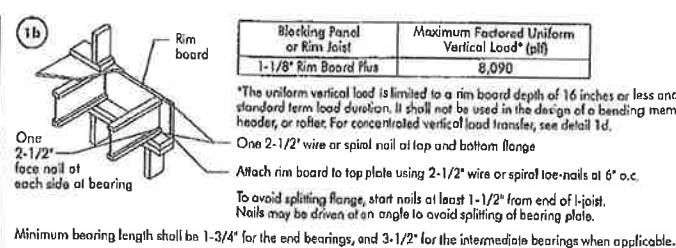
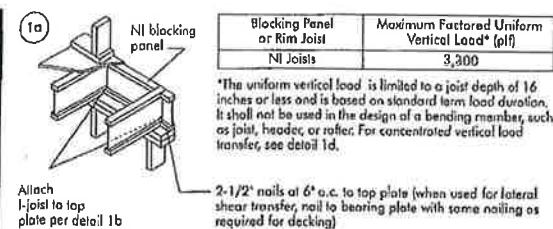


PRODUCT WARRANTY

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

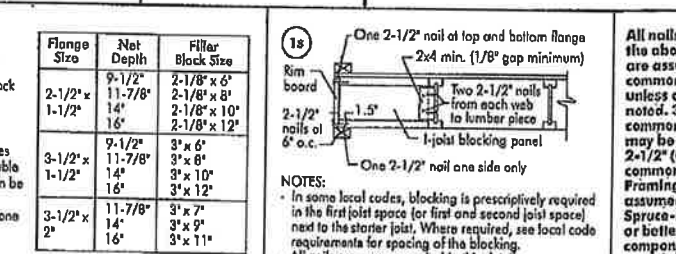
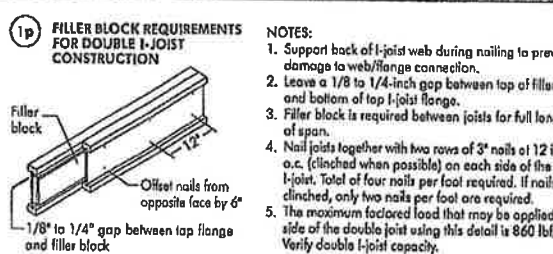
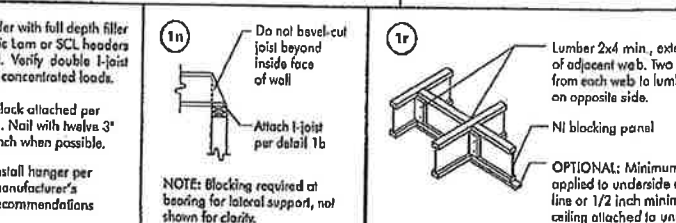
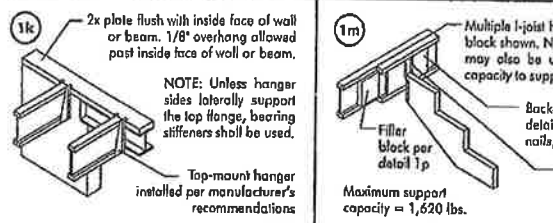
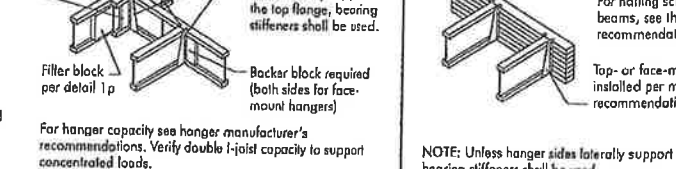
Furthermore, Charters Chibougannau warrants that our products, when utilized in accordance with our handling and installation instructions, will meet or exceed our specifications for the lifetime of the structure.

	NI-20	NI-40x	NI-60	NI-70	NI-80	NI-90	NI-90x
S-P-F No.2	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"
1950F MSR	33 pieces per unit	33 pieces per unit	33 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit
2100F MSR	33 pieces per unit	33 pieces per unit	33 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit
1950F MSR	33 pieces per unit	33 pieces per unit	33 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit
2100F MSR	33 pieces per unit	33 pieces per unit	33 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit
2400F MSR	33 pieces per unit	33 pieces per unit	33 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit
NPG Lumber	33 pieces per unit	33 pieces per unit	33 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit



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

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

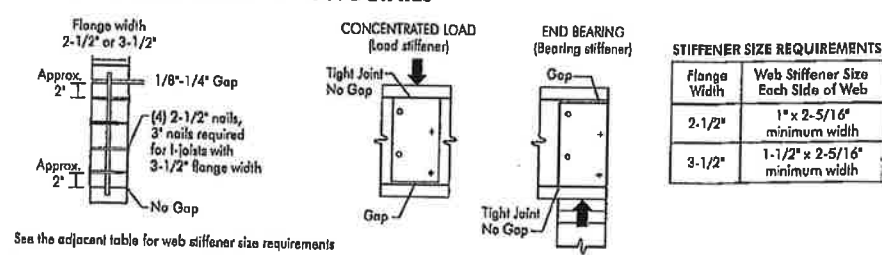


WEB STIFFENERS

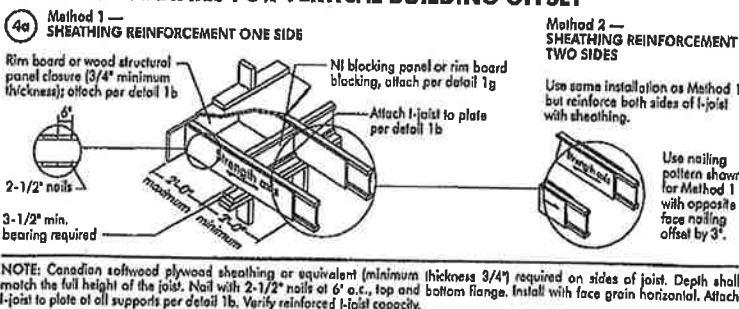
RECOMMENDATIONS:

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

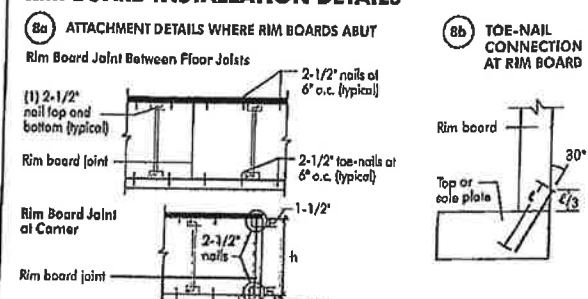
FIGURE 2
WEB STIFFENER INSTALLATION DETAILS



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET



RIM BOARD INSTALLATION DETAILS



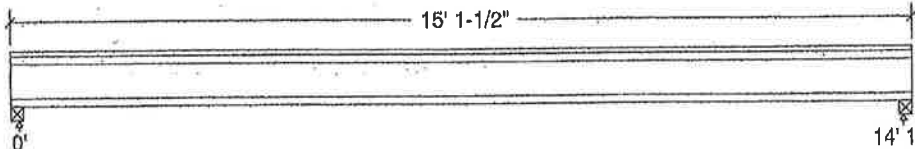
NORDIC STRUCTURES	COMPANY TAMARACK LUMBER BURLINGTON Oct. 25, 2018 16:03	PROJECT J1 GRD FLR
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Design Check Calculation Sheet
Nordic Sizer – Canada 7.1

Loads:

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

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



Unfactored:			
Dead	151		151
Live	303		302
Factored:			
Total	643		643
Bearing:			
Resistance			
Joist	1869		1869
Support	-		-
Des ratio			
Joist	0.34		0.34
Support	-		-
Load case	#2		#2
Length	2-5/8		2-5/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		-
fcp sup	-		-
Kzcp sup	-		-



Nordic Joist 9-1/2" NI-40x Floor joist @ 12" o.c.
Supports: All - Steel Beam, W
Total length: 15' 1-1/2"; Clear span: 14' 8-1/4"; 5/8" nailed and glued OSB sheathing
This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 630	Vr = 1895	lbs	Vf/Vr = 0.33
Moment (+)	Mf = 2338	Mr = 4824	lbs-ft	Mf/Mr = 0.48
Perm. Defl'n	0.10 = < L/999	0.49 = L/360	in	0.19
Live Defl'n	0.19 = L/936	0.37 = L/480	in	0.51
Total Defl'n	0.29 = L/624	0.74 = L/240	in	0.38
Bare Defl'n	0.22 = L/805	0.49 = L/360	in	0.45
Vibration	Lmax = 14'-10"	Lv = 16'-3.4"	ft	0.91
Defl'n	= 0.033	= 0.044	in	0.74

DWNB.TAM 9.5.2018 H 16'6"
STRUCTURAL
COMPONENT ONLY

SITE COPY

T-180226

Additional Data:

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

CRITICAL LOAD COMBINATIONS:

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

CALCULATIONS:

Deflection: E_{IEff} = 258e06 lb-in² K= 4.94e06 lbs
"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Design Notes:

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in 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 the component based on the design criteria and loadings shown.

CONFORMS TO OBC 2012



DWG NO. TAM 9587-18 H per
STRUCTURAL
COMPONENT ONLY

T. L8n7766n

NORDIC STRUCTURES		COMPANY TAMARACK LUMBER BURLINGTON Oct. 25, 2018 16:04		PROJECT J1 2ND FLR	
Design Check Calculation Sheet Nordic Sizer - Canada 7.1					
Loads:					
Load	Type	Distribution	Pat-tern	Location [ft] Start End	Magnitude Start End Unit
Load1	Dead	Full Area			20.00 psf
Load2	Live	Full Area			40.00 psf
Maximum Reactions (lbs), Bearing Resistances (lbs) and Bearing Lengths (ln) :					
15' 1-5/8" 0' 14' 10-3/4"					
Unfactored:					
Dead	201				203
Live	402				405
Factored:					
Total	855				861
Bearing:					
Resistance					
Joist	1859				1869
Support	-				6580
Des ratio					
Joist	0.46				0.46
Support	-				0.13
Load case	#2				#2
Length	2				2-5/8
Min req'd	1-3/4				1-3/4
Stiffener	No				No
KD	1.00				1.00
KB support	-				1.00
fcp sup	-				1088
Kzcp sup	-				1.15
REGISTERED PROFESSIONAL ENGINEER E. FOK PROVINCE OF ONTARIO					
Nordic Joist 9-1/2" NI-40x Floor Joist @ 16" o.c. Supports: 1 - Hanger; 2 - Nordic Lam Beam, 24F-1.9E; Total length: 15' 1-5/8"; Clear span: 14' 9"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling This section PASSES the design code check.					
Limit States Design using CSA O86-14 and Vibration Criterion:					
Criterion	Analysis Value	Design Value	Unit	Analysis/Design	
Shear	Vf = 844	Vr = 1895	lbs	Vf/Vr = 0.45	
Moment (+)	Mf = 3143	Mr = 4824	lbs-ft	Mf/Mr = 0.65	
Perm. Defl'n	0.12 = < L/999	0.50 = L/360	in	0.25	
Live Defl'n	0.25 = L/716	0.37 = L/480	in	0.67	
Total Defl'n	0.37 = L/477	0.74 = L/240	in	0.50	
Bare Defl'n	0.30 = L/596	0.50 = L/360	in	0.60	
Vibration	Lmax = 14'-10.8	Lv = 15'-9.3	ft	0.94	
Defl'n	= 0.037	= 0.044	in	0.83	

DWONG TAM 9508-184
STRUCTURAL
COMPONENT ONLY

T-682777

Additional Data:

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

CRITICAL LOAD COMBINATIONS:

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

CALCULATIONS:

Deflection: E_{ieff} = 268e06 lb-in² K= 4.94e06 lbs
 "Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Design Notes:

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

CONFORMS TO OBC 2012



UWB NO. 7AM 9500-104
 STRUCTURAL
 COMPONENT ONLY

T-181277261



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

PASSED

BC CALC® Member Report

1ST FLOOR FRAMING\Flush Beams\B1L(12599)

Dry | 1 span | No cant.

October 25, 2018 15:51:00

Build 6475

Job name:

File name: S38-3 BAROSSA 3 EL C LOT 183.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B1L(12599)

City, Province, Postal Code: BRA...RD

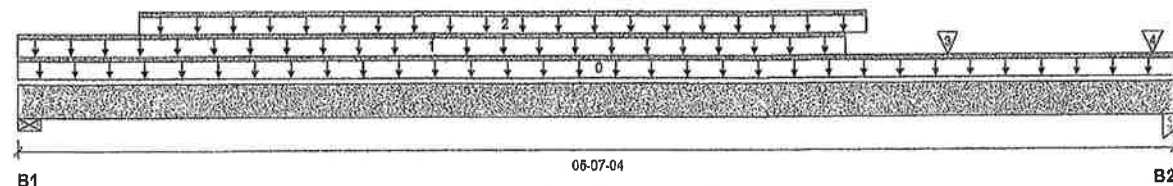
Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 6-1/2"	990 / 0	637 / 0		
B2, 3-1/2"	747 / 0	386 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-07-04	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	04-00-00	Top	180	87			n/a
2	STAIR	Unf. Lin. (lb/ft)	L	00-07-04	04-01-04	Top	240	120			n/a
3	J3(12554)	Conc. Pt. (lbs)	L	04-06-00	04-06-00	Top	189	84			n/a
4	J3(12571)	Conc. Pt. (lbs)	L	05-06-00	05-06-00	Top	88	44			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,344 ft-lbs	11,610 ft-lbs	20.2%	1	02-09-00
End Shear	1,773 lbs	6,785 lbs	30.6%	1	01-04-00
Total Load Deflection	L/999 (0.028")	n/a	n/a	4	02-10-08
Live Load Deflection	L/999 (0.019")	n/a	n/a	5	02-10-08
Max Defl.	0.028"	n/a	n/a	4	02-10-08
Span / Depth	6.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 6-1/2" x 1-3/4"	2,156 lbs	44.4%	15.5%	Unspecified
B2	Column 3-1/2" x 1-3/4"	1,604 lbs	40.3%	21.5%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012



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.

1000 NO. TAM 9509-1814
STRUCTURAL
COMPONENT ONLY

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

T-182728



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

PASSED

BC CALC® Member Report

Dry | 2 spans | L cant.

October 25, 2018 16:51:00

Build 6475

Job name:

File name: S38-3 BAROSSA 3 EL C LOT 183.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B2L\I2567

City, Province, Postal Code: BRA...RD

Specifier:

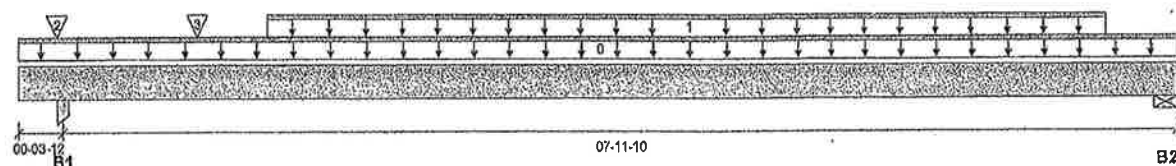
Customer:

Designer: CZ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 06-03-06

Reaction Summary (Down / Uplift) (lbs)

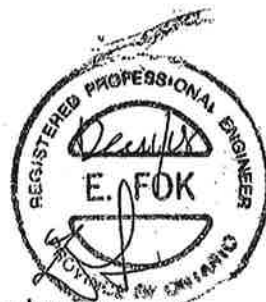
Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	767 / 0	405 / 0		
B2, 2-3/8"	662 / 1	351 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-03-06	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-09-04	07-09-04	Top	188	94			n/a
2	J3(I2587)	Conc. Pt. (lbs)	L	00-03-04	00-03-04	Top	104	52			n/a
3	J3(I2564)	Conc. Pt. (lbs)	L	01-03-04	01-03-04	Top	199	99			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3,146 ft-lbs	11,610 ft-lbs	27.1%	3	04-03-04
Neg. Moment	-9 ft-lbs	-11,610 ft-lbs	n/a	1	00-03-12
End Shear	1,426 lbs	5,785 lbs	24.6%	3	07-03-08
Cont. Shear	1,427 lbs	5,785 lbs	24.7%	1	01-03-00
Total Load Deflection	L/999 (0.097")	n/a	n/a	10	04-03-04
Live Load Deflection	L/999 (0.064")	n/a	n/a	13	04-03-04
Total Neg. Defl.	2xL/1,998 (-0.012")	n/a	n/a	10	00-00-00
Max Defl.	0.097"	n/a	n/a	10	04-03-04
Span / Depth	9.9				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	1,656 lbs	41.6%	22.2%	Unspecified
B2	Wall/Plate 2-3/8" x 1-3/4"	1,432 lbs	80.6%	28.2%	Unspecified

Notes

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

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

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

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

CONFORMS TO OBC 2012

Disclosure

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

NO. TAM 9590-18H
STRUCTURAL
COMPONENT ONLY

T. L. 11/19



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B3(12580)

BC CALC® Member Report

Dry | 1 span | No cant.

October 25, 2018 15:51:00

Build 6475

Job name:

File name: S38-3 BAROSSA 3 EL C LOT 183.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B3(12580)

City, Province, Postal Code: BRA...RD

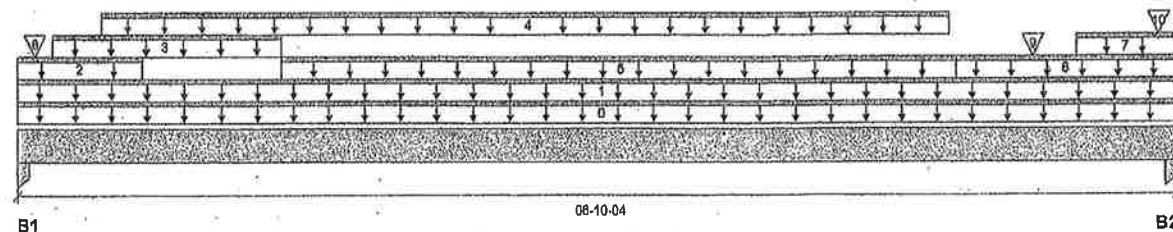
Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,128 / 0	994 / 0		
B2, 4-1/4"	1,634 / 0	1,100 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-10-04	Top		10			00-00-00
1	8(1779)	Unf. Lin. (lb/ft)	L	00-00-00	06-10-04	Top		81			n/a
2	8(1779)	Unf. Lin. (lb/ft)	L	00-00-00	00-08-14	Top	107	80			n/a
3	8(1779)	Unf. Lin. (lb/ft)	L	00-02-08	01-06-08	Top	135	88			n/a
4	Smoothed Load	Unf. Lin. (lb/ft)	L	00-06-00	05-06-00	Top	183	82			n/a
5	8(1779)	Unf. Lin. (lb/ft)	L	01-06-08	05-06-08	Top	188	84			n/a
6	8(1779)	Unf. Lin. (lb/ft)	L	05-06-08	06-10-04	Top	130	64			n/a
7	8(1779)	Unf. Lin. (lb/ft)	L	06-03-02	06-10-04	Top	742	406			n/a
8	J4(12563)	Conc. Pt. (lbs)	L	00-01-04	00-01-04	Top	82	143			n/a
9	J4(12547)	Conc. Pt. (lbs)	L	06-00-00	06-00-00	Top	143	71			n/a
10	J4(12615)	Conc. Pt. (lbs)	L	06-09-00	06-09-00	Top	79	39			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4,084 ft-lbs	23,220 ft-lbs	17.6%	1	03-03-12
End Shear	2,378 lbs	11,671 lbs	20.6%	1	05-08-08
Total Load Deflection	L/999 (0.043")	n/a	n/a	4	03-04-08
Live Load Deflection	L/999 (0.024")	n/a	n/a	5	03-04-08
Max Defl.	0.043"	n/a	n/a	4	03-04-08
Span / Depth	8.0				



Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 3-1/2"	2,935 lbs	36.9%	19.6%	Unspecified
B2	Column 4-1/4" x 3-1/2"	3,676 lbs	38.0%	20.3%	Unspecified

JWB NO. 7AM 9591-1814
STRUCTURAL
COMPONENT ONLY

T-18n780



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

PASSED

BC CALC® Member Report

1ST FLOOR FRAMING\Flush Beams\B3(12580)

Dry | 1 span | No cant.

October 25, 2018 16:51:00

Build 6475

Job name:

File name: S38-3 BAROSSA 3 EL C LOT 183.mmdf

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B3(12580)

City, Province, Postal Code: BRA...RD

Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:

Notes

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

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

Calculations assume member is fully braced.

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

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

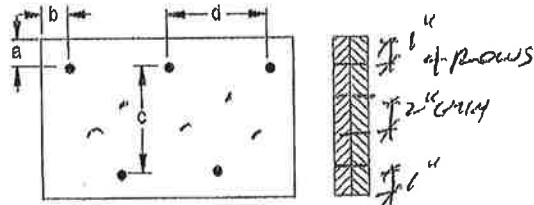
Design based on Dry Service Condition.

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

Connection Diagram: Full Length of Member

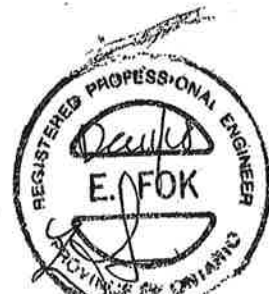


a minimum = 0.11"
b minimum = 3"
c = 1-1/2"
d = 6"

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

Connectors are: Nails

3 1/2" ARDOX SPIRAL



Disclosure

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JWB NO. TAM 9591-18 H
STRUCTURAL
COMPONENT ONLY

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

T. 1827806



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B4(12551)

BC CALC® Member Report

Dry | 1 span | No cant.

October 25, 2018 15:51:00

Build 6476

Job name:

File name: S38-3 BAROSSA 3 EL C LOT 183.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B4(12551)

City, Province, Postal Code: . BRA...RD

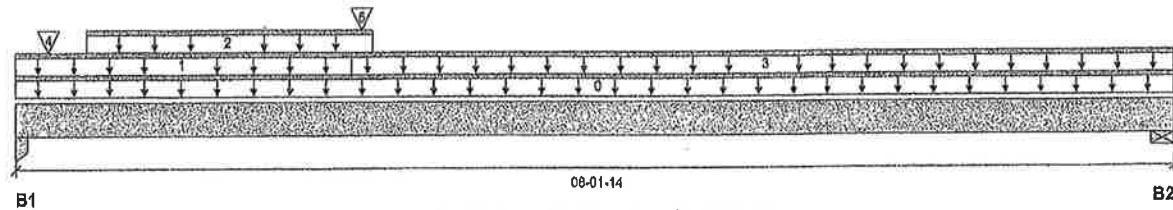
Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 08-01-14

Reaction Summary (Down / Uplift) (lbs)

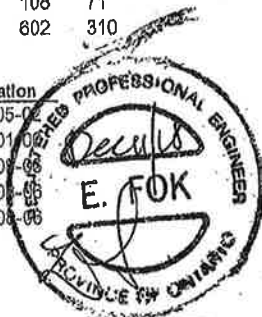
Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	596 / 0	441 / 0		
B2, 4-3/8"	270 / 0	178 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-01-14	Top	5	3			00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	02-04-04	Top	5	3			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-06-00	02-06-00	Top		60			n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	02-04-04	08-01-14	Top	25	12			n/a
4	8(1779)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	108	71			n/a
5	B5(12548)	Conc. Pt. (lbs)	L	02-05-02	02-05-02	Top	602	310			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,439 ft-lbs	11,610 ft-lbs	21.0%	1	02-05-02
End Shear	1,177 lbs	6,785 lbs	20.3%	1	01-01-00
Total Load Deflection	L/999 (0.06")	n/a	n/a	4	03-03-06
Live Load Deflection	L/999 (0.036")	n/a	n/a	5	03-03-06
Max Defl.	0.06"	n/a	n/a	4	03-03-06
Span / Depth	9.6				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	1,446 lbs	36.3%	19.3%	Unspecified
B2	Wall/Plate 4-3/8" x 1-3/4"	628 lbs	19.2%	6.7%	Unspecified

Disclosure

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Notes

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

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

Calculations assume member is fully braced.

CONFORMS TO OBC 2012

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

JWBND.TAM 9592-1864
STRUCTURAL
COMPONENT ONLY

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

T-182781



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

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

October 25, 2016 15:51:00

Build 6475

Job name:

File name: S38-3 BAROSSA 3 EL C LOT 183.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B5(12548)

City, Province, Postal Code: BRA...RD

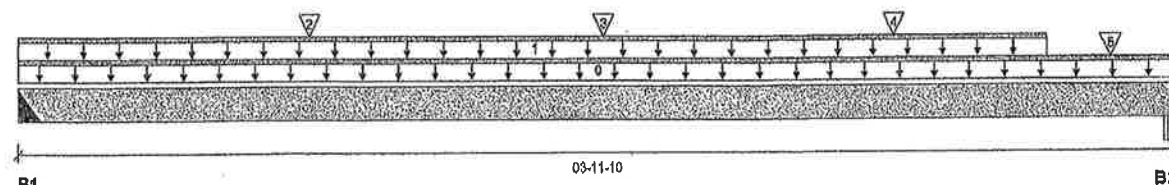
Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	818 / 0	318 / 0		
B2, 5-1/4"	757 / 0	403 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-11-10	Top	1.00	0.65	1.00	1.15	00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-06-06	Top	240	120			n/a
2	J5(12596)	Conc. Pt. (lbs)	L	01-00-00	01-00-00	Top	117	59			n/a
3	J4(12546)	Conc. Pt. (lbs)	L	02-00-00	02-00-00	Top	132	66			n/a
4	J4(12598)	Conc. Pt. (lbs)	L	03-00-00	03-00-00	Top	157	79			n/a
6	6(1773)	Conc. Pt. (lbs)	L	03-09-00	03-09-00	Top	118	73			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,232 ft-lbs	11,610 ft-lbs	10.6%	1	02-00-00
End Shear	844 lbs	5,766 lbs	14.6%	1	02-08-14
Total Load Deflection	L/999 (0.006")	n/a	n/a	4	01-10-08
Live Load Deflection	L/999 (0.005")	n/a	n/a	5	01-10-08
Max Defl.	0.008"	n/a	n/a	4	01-10-08
Span / Depth	4.4				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	1,324 lbs	n/a	31.0%	HUS1.81/10
B2	Beam 5-1/4" x 1-3/4"	1,639 lbs	41.8%	14.6%	Unspecified

Disclosure

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

Cautions

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

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

CONFORMS TO OBC 2012

JWB NO. TAM 9593-10 H
STRUCTURAL
COMPONENT ONLY

T-1812/82



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

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

October 25, 2018 15:51:00

Build 6475

Job name:

File name: S38-3 BAROSSA 3 EL C LOT 183.mmd

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B6(12561)

City, Province, Postal Code: BRA...RD

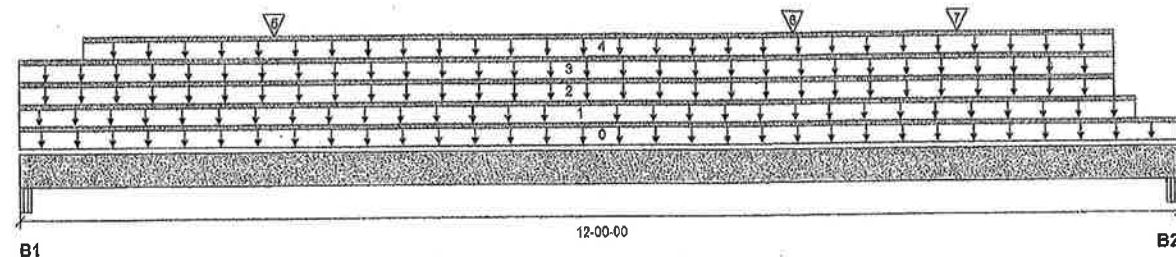
Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 8"	957 / 0	1,821 / 0	2,981 / 0	
B2, 8"	1,267 / 0	1,882 / 0	3,936 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-00-00	Top	19	100			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	11-06-12	Top	70	73	258		n/a
2	ROOF	Unf. Lin. (lb/ft)	L	00-00-00	11-04-00	Top	13	6			n/a
3	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-04-00	Top	33	30	99		n/a
4	LOW ROOF	Unf. Lin. (lb/ft)	L	00-08-00	11-04-00	Top	103	102	345		n/a
5	BM33	Conc. Pt. (lbs)	L	02-07-08	02-07-08	Top	463	41	1,387		n/a
6	T39	Conc. Pt. (lbs)	L	07-11-12	07-11-12	Top	358				n/a
7	T40	Conc. Pt. (lbs)	L	09-08-08	09-08-08	Top					n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	22,608 ft-lbs	48,297 ft-lbs	46.8%	13	07-03-11
End Shear	8,691 lbs	23,142 lbs	37.6%	13	10-06-08
Total Load Deflection	L/369 (0.351")	n/a	65.0%	35	06-01-11
Live Load Deflection	L/506 (0.256")	n/a	71.2%	51	06-01-11
Max Defl.	0.351"	n/a	n/a	35	06-01-11
Span / Depth	13.6				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 8" x 7"	7,464 lbs	31.2%	10.9%	Unspecified
B2	Beam 8" x 7"	9,499 lbs	39.7%	13.9%	Unspecified

JWONG.TAM 9594-18H
STRUCTURAL
COMPONENT ONLY

T-181283



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

PASSED

BC CALC® Member Report

2ND FLOOR FRAMING\Flush Beams\B6\12561

Dry | 1 span | No cant.

October 25, 2018 16:51:00

Build 6475

Job name:

File name: S38-3 BAROSSA 3 EL C LOT 183.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B6\12561

City, Province, Postal Code: BRA...RD

Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:

Notes

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

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

Calculations assume member is fully braced.

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

CONFORMS TO OBC 2012

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

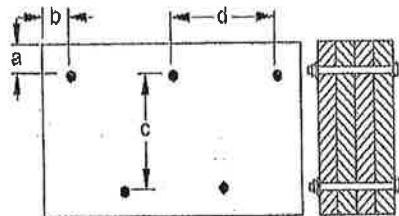
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Beams 7 inches wide will be assumed to be either top-loaded only, or equally loaded from each side.

Bolts are assumed to be Grade A307 or Grade 2 or higher.

Member has no side loads.

Connection Diagram: Full Length of Member



a minimum = 2 1/2"
b minimum = 2-1/2"
c = 4 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.

Beams 7 inches wide will be assumed to be either top-loaded only, or equally loaded from each side.

Bolts are assumed to be Grade A307 or Grade 2 or higher.

Member has no side loads.

Connectors are: 1/2 In. Staggered Through Bolt



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.

JWENDYAM 9594184
STRUCTURAL
COMPONENT ONLY

T. 18127836



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

PASSED

BC CALC® Member Report

2ND FLOOR FRAMING\Flush Beams\B9(12362)

Dry | 1 span | No cant.

October 25, 2018 15:51:00

Build 6475

Job name:

File name: S38-3 BAROSSA 3 EL C LOT 183.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B9(12362)

City, Province, Postal Code: BRA...RD

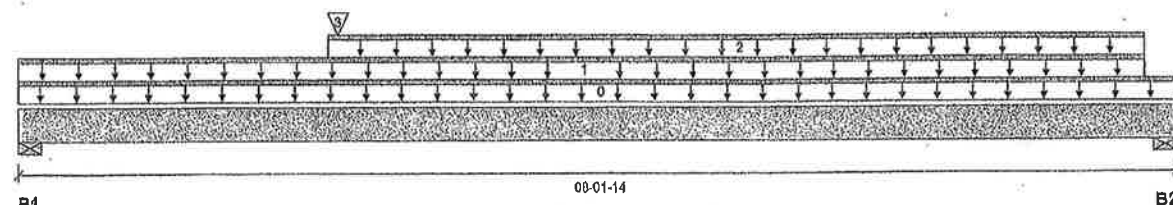
Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 08-01-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	641 / 0	296 / 0		
B2, 5-1/2"	259 / 0	152 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-01-14	Top	1.00	0.85	1.00	1.15	00-00-00
1	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-11-02	Top	14	7			n/a
2	FC4 Floor Material	Unf. Lin. (lb/ft)	L	02-01-14	07-11-02	Top	12	6			n/a
3	B11(12204)	Conc. Pl. (lbs)	L	02-02-12	02-02-12	Top	609	313			n/a

Controls Summary

Pos. Moment	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
End Shear	2,172 ft-lbs	11,610 ft-lbs	18.7%	1	02-02-12
Total Load Deflection	1,133 lbs	5,785 lbs	19.6%	1	01-01-14
Live Load Deflection	L/999 (0.051")	n/a	n/a	4	03-08-05
Max Defl.	L/999 (0.033")	n/a	n/a	5	03-08-05
Span / Depth	0.051"	n/a	n/a	4	03-08-05
	9.4				

Bearing Supports

Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Wall/Plate 4-3/8" x 1-3/4"	1,182 lbs	36.1%	12.7%	Unspecified
B2 Wall/Plate 5-1/2" x 1-3/4"	578 lbs	14.1%	4.9%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

JWD NO. 1AM 9545-18H
STRUCTURAL
COMPONENT ONLY



Disclosure

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

T. 1812784



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B10(12553)

Dry | 1 span | No cant.

October 25, 2018 15:51:00

BC CALC® Member Report

Buld 6475

Job name:

Address:

City, Province, Postal Code: BRA...RD

Customer:

Code reports: CCMC 12472-R

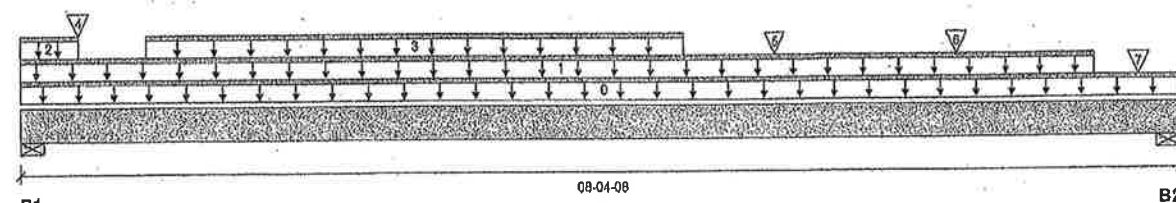
File name: S38-3 BAROSSA 3 EL C LOT 183.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B10(12553)

Specifier:

Designer: CZ

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-11/16"	1,302 / 0	902 / 0		
B2, 6-7/8"	1,424 / 0	828 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-04-08	Top	1.00	0.85	1.00	1.15	00-00-00
1	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-09-02	Top	7	4			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-00-00	00-05-00	Top		92			n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	00-11-00	04-09-00	Top	318	221			n/a
4	J1(12247)	Conc. Pt. (lbs)	L	00-05-00	00-05-00	Top	294	177			n/a
5	J1(12460)	Conc. Pt. (lbs)	L	05-05-00	05-05-00	Top	354	198			n/a
6	J1(12314)	Conc. Pt. (lbs)	L	06-09-00	06-09-00	Top	405	202			n/a
7	J1(12223)	Conc. Pt. (lbs)	L	08-01-00	08-01-00	Top	392	198			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5,137 ft-lbs	11,610 ft-lbs	44.2%	1	04-05-00
End Shear	2,348 lbs	5,785 lbs	40.6%	1	01-02-03
Total Load Deflection	L/608 (0.149")	n/a	39.5%	4	04-00-08
Live Load Deflection	L/999 (0.09")	n/a	n/a	5	04-00-08
Max Defl.	0.149"	n/a	n/a	4	04-00-08
Span / Depth	9.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-11/16" x 1-3/4"	3,081 lbs	87.4%	30.6%	Unspecified
B2	Wall/Plate 6-7/8" x 1-3/4"	3,171 lbs	61.4%	21.5%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

JWONG.TAM 9596-186
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®.

TU8285



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

PASSED

BC CALC® Member Report

2ND FLOOR FRAMING\Flush Beams\B11(12204)

Dry | 1 span | No cant.

October 25, 2018 15:51:00

Bulld 6475

Job name:

File name: S38-3 BAROSSA 3 EL C LOT 183.mxd

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B11(12204)

City, Province, Postal Code: BRA...RD

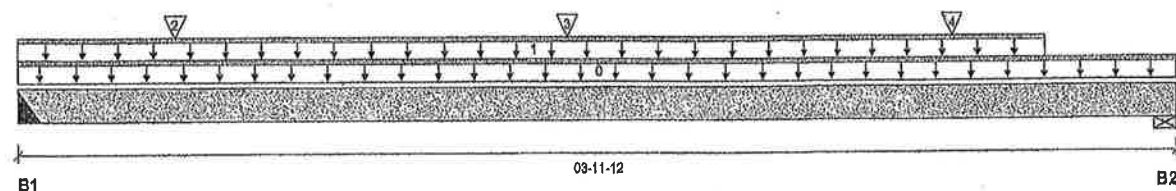
Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	624 / 0	321 / 0		
B2, 5-1/2"	657 / 0	343 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.05	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-11-12	Top		5			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-08-04	Top	240	120			n/a
2	J6(12240)	Conc. Pt. (lbs)	L	00-08-08	00-08-08	Top	110	55			n/a
3	J5(12442)	Conc. Pt. (lbs)	L	01-10-08	01-10-08	Top	132	66			n/a
4	J4(12441)	Conc. Pt. (lbs)	L	03-02-08	03-02-08	Top	190	95			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,161 ft-lbs	11,810 ft-lbs	9.9%	1	01-10-08
End Shear	746 lbs	6,785 lbs	12.0%	1	02-08-12
Total Load Deflection	L/999 (0.007")	n/a	n/a	4	01-10-08
Live Load Deflection	L/999 (0.005")	n/a	n/a	5	01-10-08
Max Defl.	0.007"	n/a	n/a	4	01-10-08
Span / Depth	4.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	1,337 lbs	n/a	31.3%	HUS1.81/10
B2	Wall/Plate 5-1/2" x 1-3/4"	1,414 lbs	34.4%	12.0%	Unspecified

Cautions

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

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.

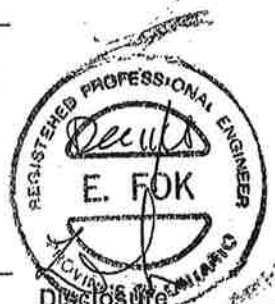
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

JWEND.TAM 9597184
STRUCTURAL
COMPONENT ONLY



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

T-1812786



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING/Dropped Beams/B12DR(12272)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

October 25, 2018 15:50:59

Build 6476

Job name:

File name: S38-3 BAROSSA 3 EL C LOT 183.mmdl

Address:

Description: 2ND FLOOR FRAMING/Dro...d Beams/B12DR(12272)

City, Province, Postal Code: BRA...RD

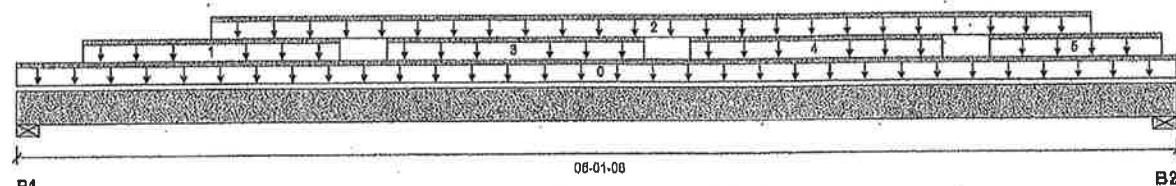
Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	476 / 0	262 / 0		
B2, 3-1/2"	605 / 0	326 / 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	05-01-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	Bk1(12326)	Unf. Lin. (lb/ft)	L	00-03-08	01-05-00	Top	18	9			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-10-04	04-09-00	Top	268	128			n/a
3	Bk1(12297)	Unf. Lin. (lb/ft)	L	01-07-08	02-09-00	Top	18	9			n/a
4	Bk1(12156)	Unf. Lin. (lb/ft)	L	02-11-08	04-01-00	Top	18	9			n/a
5	Bk1(12263)	Unf. Lin. (lb/ft)	L	04-03-08	05-00-12	Top	18	9			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,817 ft-lbs	23,220 ft-lbs	7.0%	1	02-10-04
End Shear	1,159 lbs	11,571 lbs	10.0%	1	04-00-08
Total Load Deflection	L/999 (0.009")	n/a	n/a	4	02-07-05
Live Load Deflection	L/999 (0.006")	n/a	n/a	5	02-07-05
Max Defl.	0.009"	n/a	n/a	4	02-07-05
Span / Depth	5.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	1,042 lbs	13.1%	7.0%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	1,316 lbs	16.5%	8.8%	Unspecified

Notes

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

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

Calculations assume unbraced length of Top: 00-02-14, Bottom: 00-02-14.

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.

Member has no side loads.



WONG, YAM 9598-184 P6 2
STRUCTURAL
COMPONENT ONLY

F-12287



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

PASSED

BC CALC® Member Report

2ND FLOOR FRAMING\Dropped Beams\B12DR\12272}

Dry | 1 span | No cant.

October 25, 2018 15:50:59

Build 0475

Job name:

File name: S38-3 BAROSSA 3 EL C LOT 183.mmdl

Address:

Description: 2ND FLOOR FRAMING\Dro...d Beams\B12DR\12272}

City, Province, Postal Code: BRA...RD

Specifier:

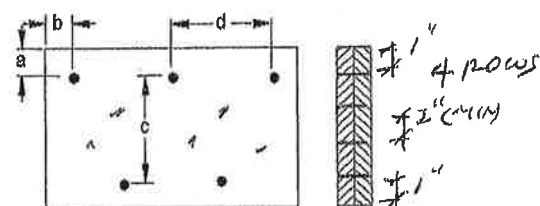
Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 1-1/2"

b minimum = 3"

d = 6"

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

Member has no side loads.

Connectors are: Nails

3/8" ARDOX SPINAL



Disclosure

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SWING LAM 9598.18H
STRUCTURAL
COMPONENT ONLY

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

T. 18028761



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Dropped Beams\B13DR(I2137)

PASSED

BC CALC® Member Report

Dry | 2 spans | No cant.

October 25, 2018 16:51:00

Build 0476

Job name:

Address:

City, Province, Postal Code: BRA...RD

Customer:

Code reports: CCMC 12472-R

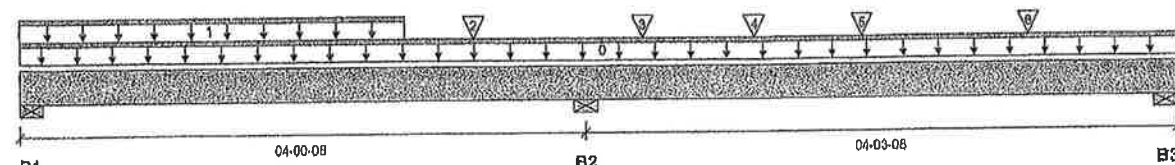
File name: S38-3 BAROSSA 3 EL C LOT 183.mmdt

Description: 2ND FLOOR FRAMING\Dro...d Beams\B13DR(I2137)

Specifier:

Designer: CZ

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,254 / 158	585 / 0		
B2, 6"	2,813 / 0	1,457 / 0		
B3, 3-1/2"	873 / 124	392 / 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	08-04-00	Top		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	02-09-00	Top	624	313			n/a
2		Conc. Pt. (lbs)	L	03-03-00	03-03-00	Top	623	312			n/a
3		Conc. Pt. (lbs)	L	04-05-06	04-05-06	Top	673	337			n/a
4	J2(I2197)	Conc. Pt. (lbs)	L	05-03-00	05-03-00	Top	269	135			n/a
5		Conc. Pt. (lbs)	L	06-00-10	06-00-10	Top	673	337			n/a
6		Conc. Pt. (lbs)	L	07-03-00	07-03-00	Top	703	352			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,816 ft-lbs	23,220 ft-lbs	7.8%	3	06-03-00
Neg. Moment	-2,379 ft-lbs	-23,220 ft-lbs	10.2%	1	04-00-08
End Shear	1,787 lbs	11,571 lbs	15.4%	3	07-03-00
Cont. Shear	2,243 lbs	11,571 lbs	19.4%	1	03-00-00
Total Load Deflection	L/999 (0.007")	n/a	n/a	10	06-03-00
Live Load Deflection	L/999 (0.005")	n/a	n/a	13	06-02-08
Total Neg. Defl.	L/999 (-0.001")	n/a	n/a	10	03-00-00
Max Defl.	0.007"	n/a	n/a	10	06-03-00
Span / Depth	5.1				



Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	2,587 lbs	32.6%	17.3%	Unspecified
B2	Wall/Plate 6" x 3-1/2"	6,040 lbs	44.3%	23.6%	Unspecified
B3	Wall/Plate 3-1/2" x 3-1/2"	1,800 lbs	22.6%	12.0%	Unspecified

JWB NO. TAM 9599-18H p6/E
STRUCTURAL
COMPONENT ONLY

T-1812288



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Dropped Beams\B13DR(I2137)

PASSED

BC CALC® Member Report

Dry | 2 spans | No cant.

October 25, 2018 15:51:00

Build 6476

Job name:

File name: S38-3 BAROSSA 3 EL C LOT 183.mmdl

Address:

Description: 2ND FLOOR FRAMING\Dro...d Beams\B13DR(I2137)

City, Province, Postal Code: BRA...RD

Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:

Notes

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

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

Calculations assume unbraced length of Top: 00-04-00, Bottom: 00-04-00.

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

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

Design based on Dry Service Condition.

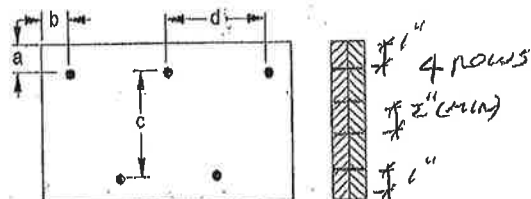
Importance Factor: Normal Part code: Part 9

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

Member has no side loads.

CONFORMS TO OBC 2012

Connection Diagram: Full Length of Member



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

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

Member has no side loads.

Connectors are: Nails

3/4" ARDOX SPIRAL



Disclosure of Limitations
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)232-0708 before installation.

JW AND TAM 9599-18
STRUCTURAL
COMPONENT ONLY

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

FL27886



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Dropped Beams\B14DR(I2386)

PASSED

BCALCO® Member Report

Dry | 1 span | No cant.

October 25, 2018 15:51:00

Build 6476

Job name:

File name: S38-3 BAROSSA 3 EL C LOT 183.mmdl

Address:

Description: 2ND FLOOR FRAMING\Dro...d Beams\B14DR(I2386)

City, Province, Postal Code: BRA...RD

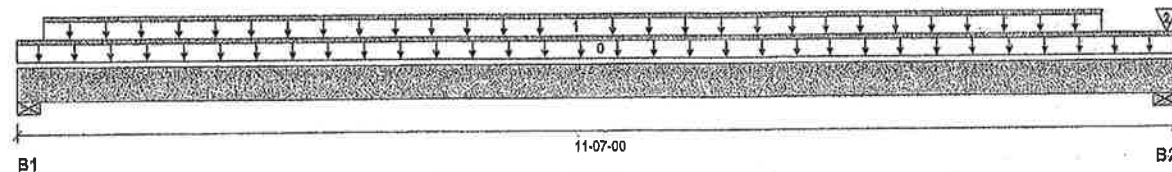
Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,498 / 0	801 / 0		
B2, 3-1/2"	1,862 / 0	884 / 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	11-07-00	Top		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-03-04	10-10-00	Top	254	128			n/a
2	J2(I2267)	Conc. Pt. (lbs)	L	11-06-00	11-06-00	Top	308	153			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	8,959 ft-lbs	23,220 ft-lbs	38.6%	1	08-02-00
End Shear	2,997 lbs	11,571 lbs	25.9%	1	01-01-00
Total Load Deflection	L/476 (0.281")	n/a	50.4%	4	06-00-12
Live Load Deflection	L/730 (0.183")	n/a	49.3%	5	06-00-12
Max Defl.	0.281"	n/a	n/a	4	06-00-12
Span / Depth	14.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	3,246 lbs	40.8%	21.7%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	3,598 lbs	46.2%	24.1%	Unspecified

Notes

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

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

Calculations assume unbraced length of Top: 00-02-08, Bottom: 00-02-08.

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads,

please consult a technical representative or professional of Record.

Member has no side loads.



3WQND.TAM 9600-18H
STRUCTURAL
CCMPCENT GRLV

T. L. 80289



Triple 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Flush Beams\B20\14199

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

October 29, 2018 08:50:54

Bulld 6475

Job name:

File name: S38-3 BAROSSA 3 EL. C ALTERNATE LOT 183.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B20\14199

City, Province, Postal Code: BRA...RD

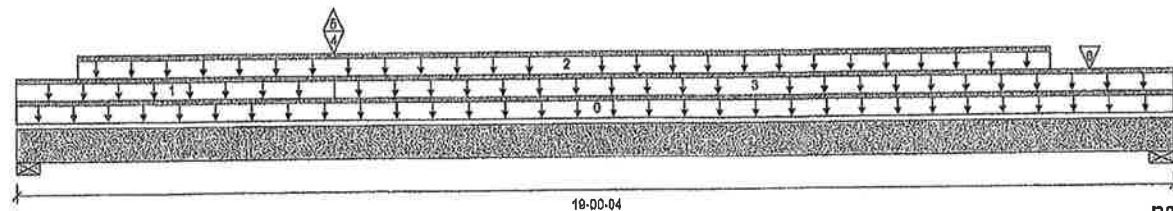
Specifier:

Customer:

Designer: GZ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 19-00-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	3,187 / 60	1,768 / 0		
B2, 5-1/2"	2,684 / 21	1,536 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.85	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	19-00-04	Top		21			00-00-00
1	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-02-12	Top	17	9			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-00-04	17-00-04	Top	253	126			n/a
3	FC4 Floor Material	Unf. Lin. (lb/ft)	L	05-02-12	19-00-04	Top	18	9			n/a
4	B13(13965)	Conc. Pt. (lbs)	L	05-02-12	05-02-12	Top	1,162	561			n/a
5	B13(13965)	Conc. Pt. (lbs)	L	05-02-12	05-02-12	Top	-81				n/a
6	J2(14086)	Conc. Pt. (lbs)	L	17-08-04	17-08-04	Top	312	156			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	31,224 ft-lbs	75,349 ft-lbs	41.4%	1	08-04-04
End Shear	6,857 lbs	25,678 lbs	26.8%	1	01-07-08
Total Load Deflection	L/395 (0.653")	n/a	60.7%	6	09-04-04
Live Load Deflection	L/616 (0.365")	n/a	58.5%	8	09-04-04
Max Defl.	0.553"	n/a	n/a	6	09-04-04
Span / Depth	15.6				



Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 5-1/4"	6,960 lbs	56.4%	19.8%	Unspecified
B2	Wall/Plate 5-1/2" x 5-1/4"	5,946 lbs	48.2%	16.9%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

BC 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.

CONFORMS TO OBC 2012

JWEND.TAM 9601-18 H
STRUCTURAL
COMPONENT ONLY

T-182790



Triple 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Flush Beams\B20\14199

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

October 29, 2018 08:50:54

Build 6476

Job name:

File name: S38-3 BAROSSA 3 EL C ALTERNATE LOT 183.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B20\14199

City, Province, Postal Code: BRA...RD

Specifier:

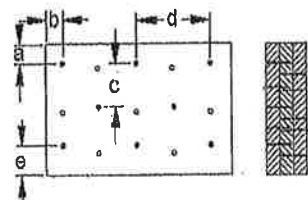
Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:

Connection Diagram: Full Length of Member



5 ROWS

a minimum = 8"

c = 1 1/2"

b minimum = 3"

d = 1/2"

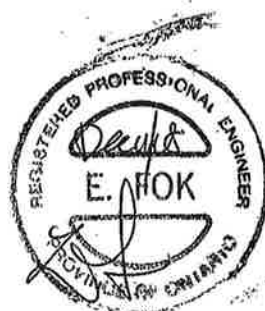
e minimum = 2"

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

Nailing schedule applies to both sides of the member.

Connectors are: 1 Nails

3/8" ARDOX SPIRAL



Disclosure

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3RD NO. TAM 9601-18 4
STRUCTURAL
COMPONENT ONLY

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

T-18079.61



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"	23'-1"	21'-10"	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'-11"	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"	18'-3"	15'-10"	21'-3"	19'-3"	17'-9"	15'-10"
	NI-60	21'-9"	19'-8"	18'-5"	17'-1"	21'-9"	19'-8"	18'-5"	17'-1"
	NI-70	23'-4"	21'-5"	20'-1"	18'-6"	23'-8"	21'-5"	20'-1"	18'-6"
	NI-80	23'-7"	21'-10"	20'-5"	18'-11"	24'-1"	21'-10"	20'-5"	18'-11"
14"	NI-90x	24'-3"	22'-6"	21'-3"	19'-7"	24'-8"	22'-7"	21'-3"	19'-7"
	NI-40x	24'-2"	21'-5"	19'-6"	17'-5"	24'-2"	21'-5"	19'-6"	17'-5"
	NI-60	24'-9"	22'-5"	21'-0"	19'-6"	24'-9"	22'-5"	21'-0"	19'-6"
	NI-70	26'-1"	24'-3"	22'-9"	21'-0"	26'-8"	24'-3"	22'-9"	21'-0"
	NI-80	26'-6"	24'-7"	23'-3"	21'-6"	27'-1"	24'-10"	23'-3"	21'-6"
16"	NI-90x	27'-3"	25'-4"	24'-1"	22'-4"	27'-9"	25'-10"	24'-3"	22'-4"
	NI-60	27'-3"	24'-11"	23'-5"	21'-7"	27'-6"	24'-11"	23'-5"	21'-7"
	NI-70	28'-8"	26'-8"	25'-3"	23'-4"	29'-3"	26'-11"	25'-3"	23'-4"
	NI-80	29'-1"	27'-0"	25'-9"	23'-10"	29'-8"	27'-6"	25'-10"	23'-10"
	NI-90x	29'-11"	27'-10"	26'-6"	24'-10"	30'-6"	28'-5"	26'-11"	24'-10"

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



Maximum Floor Spans

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

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

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

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



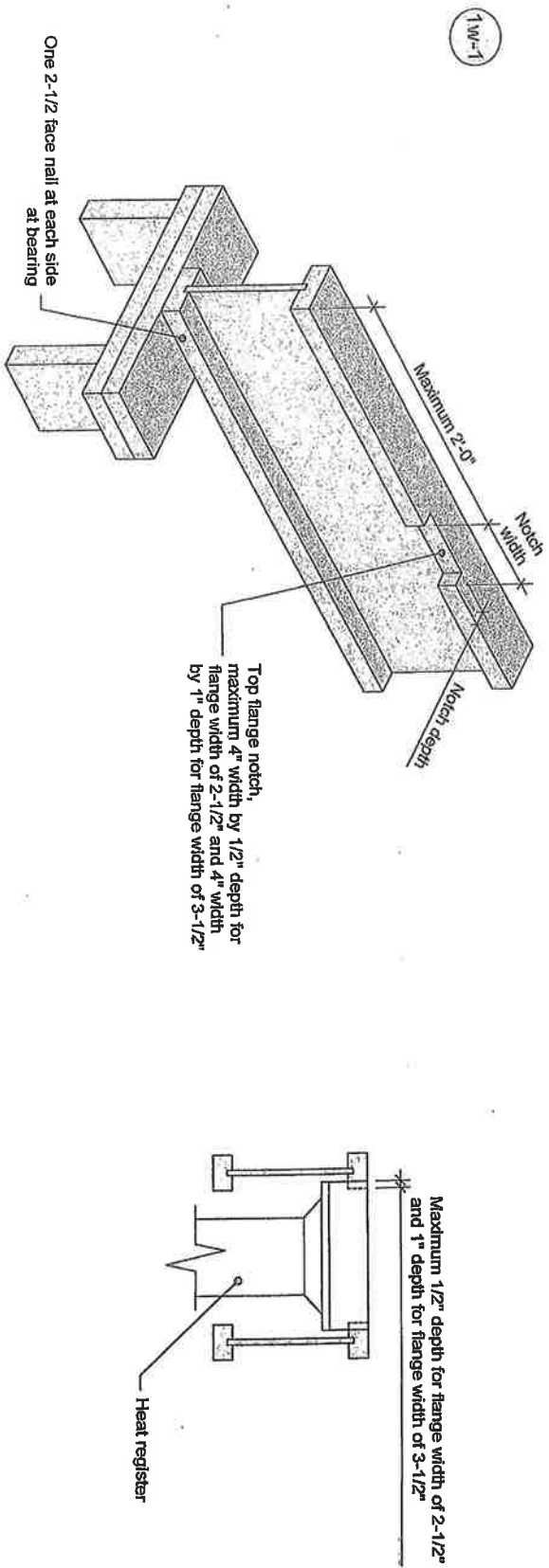
Maximum Floor Spans

Live Load = 40 psf, Dead Load = 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'-5"	19'-6"	N/A
	NI-60	24'-0"	22'-3"	21'-0"	N/A	24'-8"	22'-5"	21'-0"	N/A
	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-9"	N/A
	NI-80	25'-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A
16"	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	24'-10"	23'-4"	N/A
	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A
	NI-80	28'-2"	26'-1"	24'-10"	N/A	28'-10"	26'-9"	25'-6"	N/A
	NI-90x	29'-0"	26'-10"	25'-7"	N/A	29'-7"	27'-5"	26'-2"	N/A

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



- 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" and 4-inch width by 1-inch depth for flange width of 3'-1/2" inches.
 3. This detail applies to single-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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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

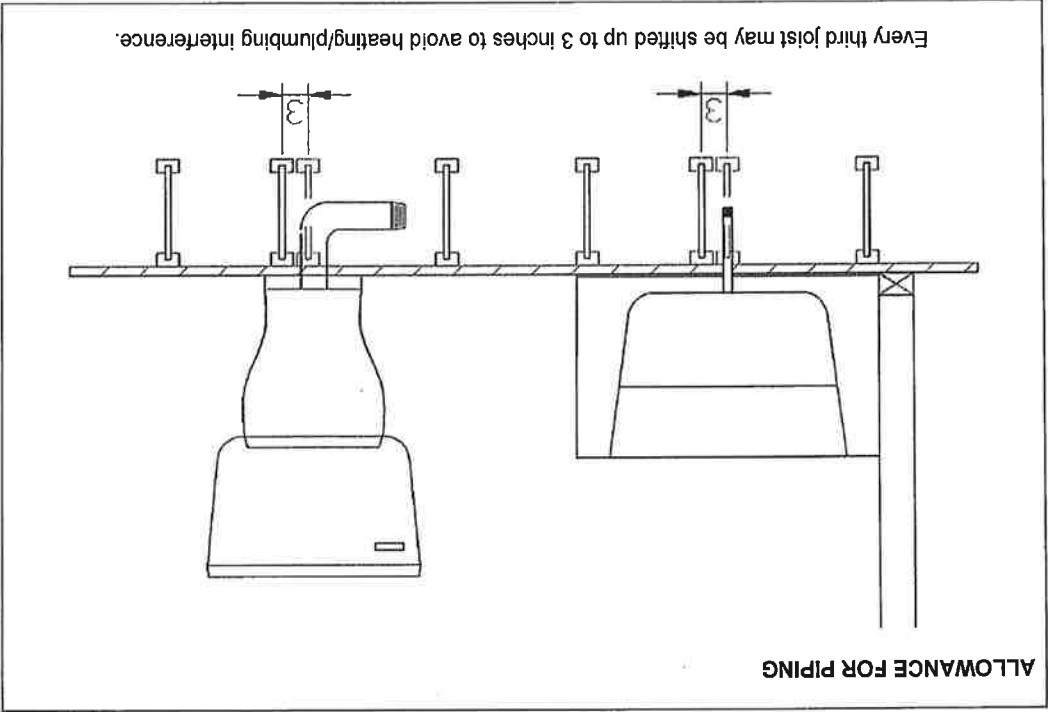


Allowance for Piping
(Installation Notes)

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