

FROM PLAN DATED:

BUILDER: GREEN PARK HOMES

SITE: RUSSELL GARDENS PH 3

MODEL: MOUNTAINASH 6

ELEVATION: 2

LOT: 244

CITY: WATERDOWN

SALESMAN: MARIO DICIANO

DESIGNER: AJ

REVISION:

NOTES:

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

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING CANT' OVER BRICK REQ. I-JOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE 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

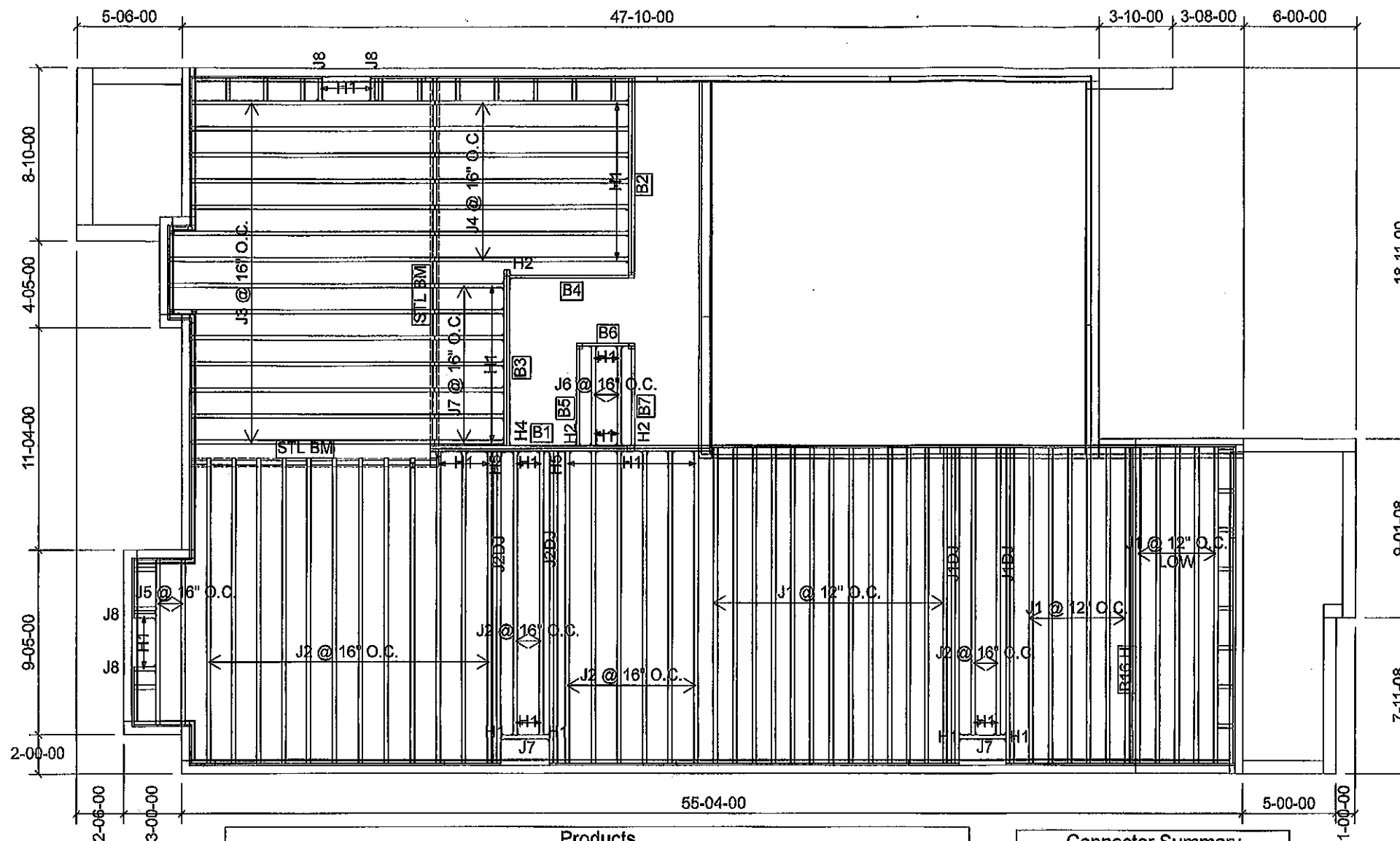
LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 9/18/20

1st FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	9 1/2" NI-40x	1	24
J1DJ	18-00-00	9 1/2" NI-40x	2	4
J2	16-00-00	9 1/2" NI-40x	1	22
J2DJ	16-00-00	9 1/2" NI-40x	2	4
J3	14-00-00	9 1/2" NI-40x	1	14
J4	12-00-00	9 1/2" NI-40x	1	7
J5	10-00-00	9 1/2" NI-40x	1	2
J6	6-00-00	9 1/2" NI-40x	1	2
J7	4-00-00	9 1/2" NI-40x	1	9
J8	2-00-00	9 1/2" NI-40x	1	4
B16 H	18-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B1	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B2	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B3	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B4	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B7	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
2	H1	IUS2.56/9.5
27	H1	IUS2.56/9.5
4	H1	IUS2.56/9.5
8	H1	IUS2.56/9.5
3	H2	HUS1.81/10
1	H4	HGUS410
2	H5	HU312-2

CITY OF HAMILTON
Building Division

Permit No. **2-105968**

THESE STAMPED DRAWINGS SHALL BE AVAILABLE ON SITE
THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH
THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW

These drawings and/or specifications have been reviewed by
MAR 30 2021

FOR CHIEF BUILDING OFFICIAL

DATE

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LOADING:

DESIGN LOADS: L/480.000

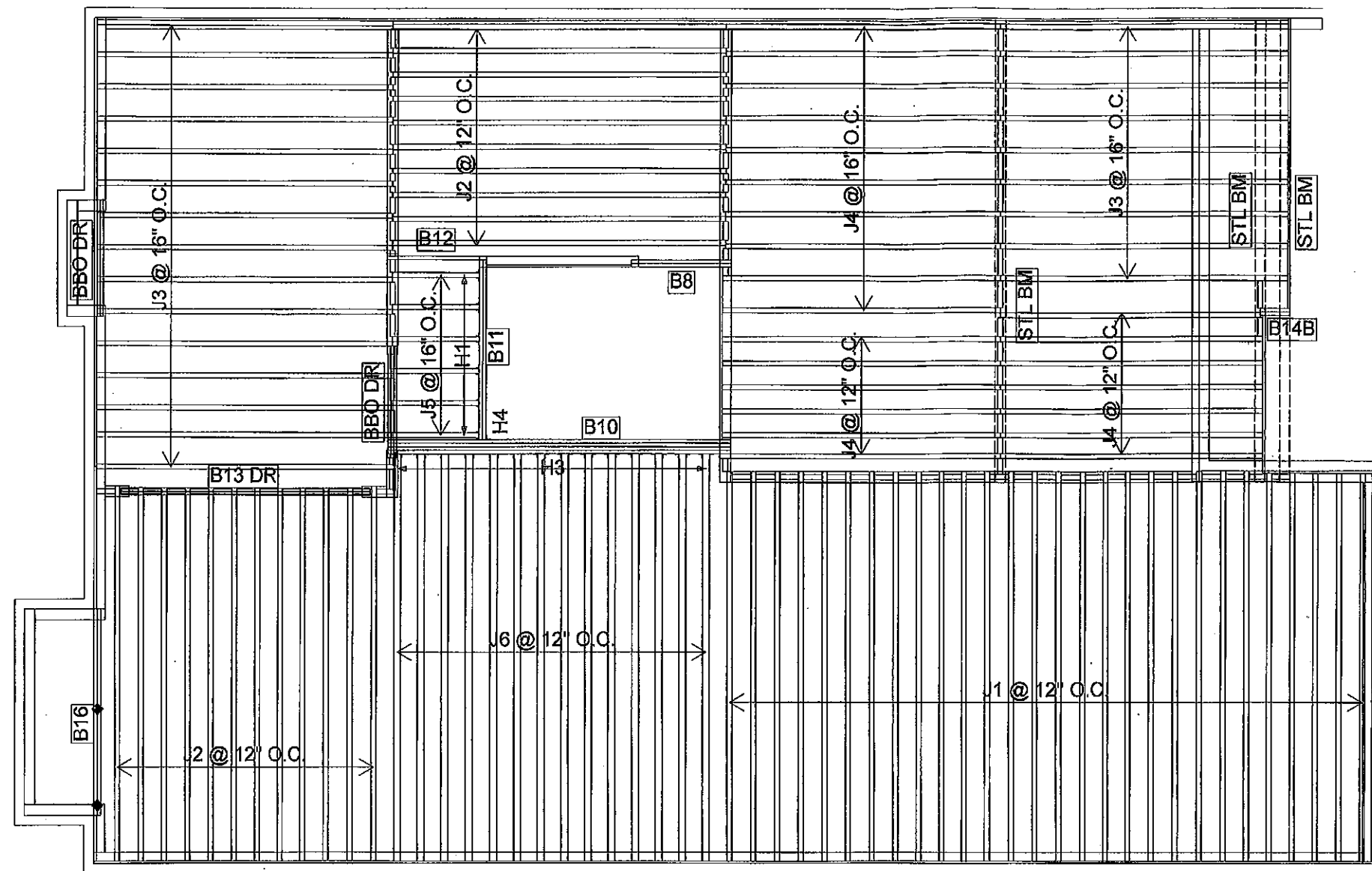
LIVE LOAD: 40.0 lb/ft²

DEAD LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

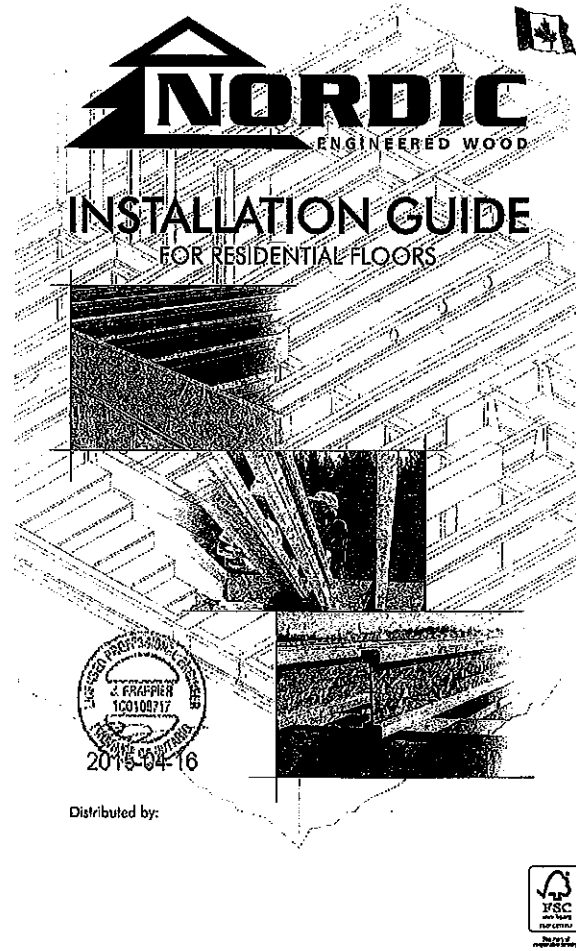
DATE: 2020-09-08

2nd FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	9 1/2" NI-40x	1	28
J2	16-00-00	9 1/2" NI-40x	1	22
J3	14-00-00	9 1/2" NI-40x	1	24
J4	12-00-00	9 1/2" NI-40x	1	23
J5	4-00-00	9 1/2" NI-40x	1	6
J6	18-00-00	9 1/2" NI-80	1	14
B10	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	4	4
B13 DR	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B16	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B12	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B8	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B14B	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
6	H1	IUS2.56/9.5
14	H3	IUS3.56/9.5
1	H4	HGUS410



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 unbraced 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.

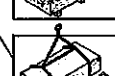
Avoid Accidents by Following these Important Guidelines:

1. Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bracing at joint ends. When I-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
 - a. 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. Lap ends of adjoining bracing over at least two I-joists.
 - b. 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-bracing.
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, stack, and handle I-joists vertically and level only.
3. Always stack and handle I-joists in the upright position only.
4. Do not store I-joists in direct contact with the ground and/or floorplate.
5. Protect I-joists from weather, and use spacers to separate bundles.
6. Bundled units should be kept intact until time of installation.
7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joists and injury to your work crew.
 - a. Pick I-joists in bundles as shipped by the supplier.
 - b. Orient the bundles so that the webs of the I-joists are vertical.
 - c. 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 single-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.5D + 1.25L. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGSB-21.26 Standard. No concrete topping or bridging material 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 C08-09 Standard, and NBC 2010.
7. SI unit conversion: 1 inch = 25.4 mm, 1 foot = 0.305 m

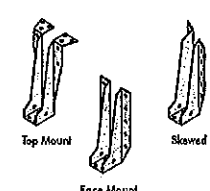
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS SINGLE AND MULTIPLE SPANS

Joist Depth	Joist Series	Simple spans				Multiple spans			
		On center spacing				On center spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	N1-20	15'1"	14'2"	13'9"	13'3"	10'3"	10'4"	10'10"	14'7"
	N1-20X	16'1"	15'2"	14'8"	14'9"	11'3"	11'3"	11'10"	15'5"
	N1-20L	16'0"	15'3"	15'4"	14'10"	11'2"	11'3"	11'9"	15'1"
	N1-20S	17'1"	16'1"	15'6"	15'7"	11'7"	11'7"	11'14"	16'10"
11-7/8"	N1-25	18'0"	17'3"	16'3"	15'9"	11'10"	11'6"	11'11"	17'0"
	N1-25X	18'11"	17'4"	16'4"	16'4"	12'4"	12'4"	12'10"	17'9"
	N1-25L	18'0"	17'4"	16'3"	16'3"	12'3"	12'4"	12'9"	17'5"
	N1-25S	19'0"	18'0"	17'0"	16'6"	12'9"	12'9"	12'16"	18'1"
14"	N1-30	20'0"	19'0"	18'0"	17'6"	13'0"	12'6"	13'1"	19'1"
	N1-30X	20'11"	19'1"	18'1"	18'1"	13'11"	13'11"	13'16"	19'11"
	N1-30L	20'0"	19'1"	18'0"	17'6"	13'0"	13'1"	13'6"	19'1"
	N1-30S	21'0"	20'0"	19'0"	18'6"	13'6"	13'6"	13'13"	20'1"
16"	N1-35	22'0"	21'0"	20'0"	19'6"	14'0"	13'6"	14'1"	21'10"
	N1-35X	22'11"	21'1"	20'1"	20'1"	14'11"	14'11"	14'16"	22'0"
	N1-35L	22'0"	21'1"	20'0"	19'6"	14'0"	14'1"	14'6"	21'10"
	N1-35S	23'0"	22'0"	21'0"	20'6"	14'6"	14'6"	14'13"	22'1"

CCMC EVALUATION REPORT 13013R

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 minimum 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:

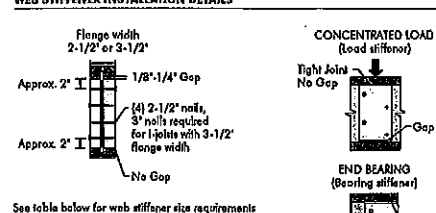
A bearing stiffener is required in all angled applications with factored reactions greater than shown in the I-joist properties table found in the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at the top.

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 the 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 unit conversion: 1 inch = 25.4 mm

FIGURE 2 WEB STIFFENER INSTALLATION DETAILS



STIFFENER SIZE REQUIREMENTS

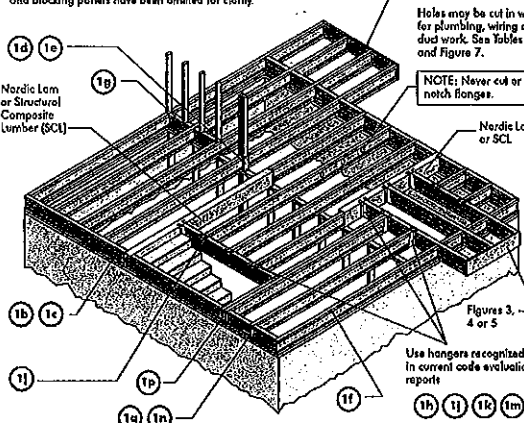
Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-5/16" minimum width
3-1/2"	1-1/2" x 2-5/16" minimum width

INSTALLING NORDIC I-JOISTS

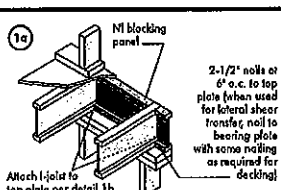
1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, supplier.
2. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.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

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

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

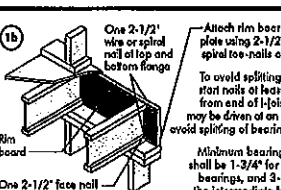


All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (10.22" dia.) common spiral nails may be substituted for 2-1/2" (6.35" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.



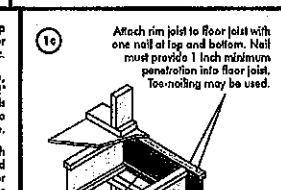
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
N1 Joist	3,300

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

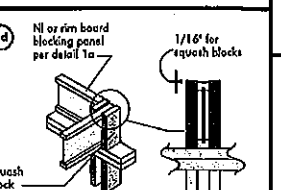


Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

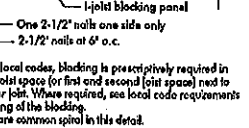
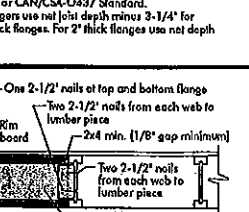
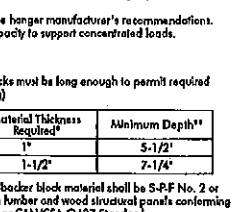
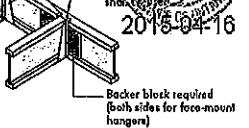
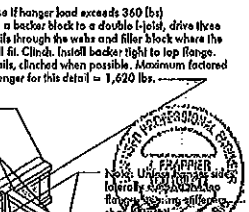
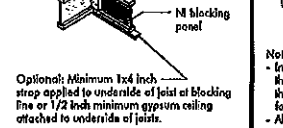
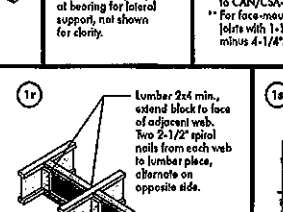
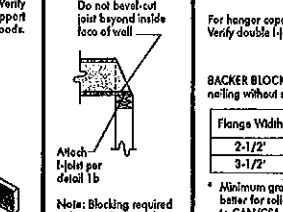
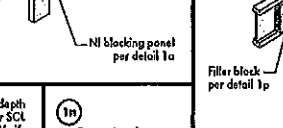
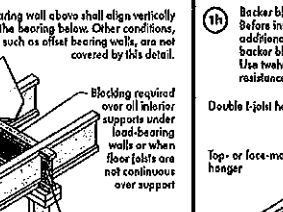
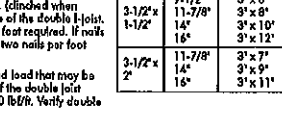
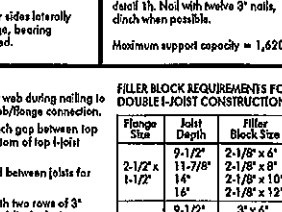
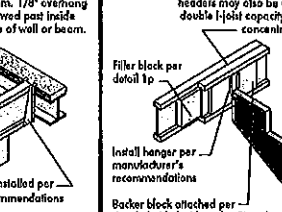
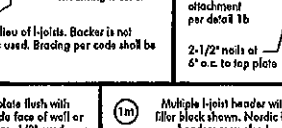
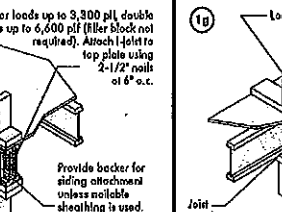
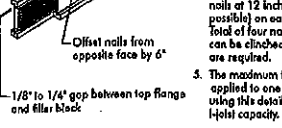
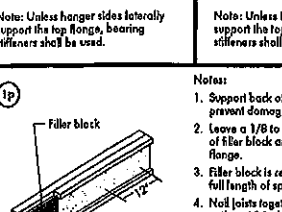
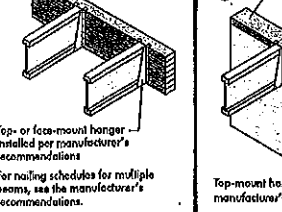
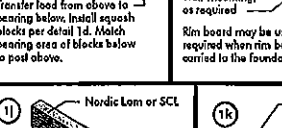
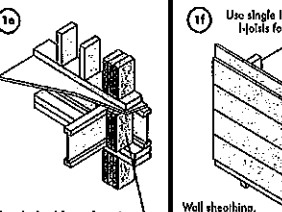
*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.



Pair of Squish Blocks	Maximum Factored Vertical per Pair of Squish Blocks (lbs)
3-1/2" wide	5,500
5-1/2" wide	8,500

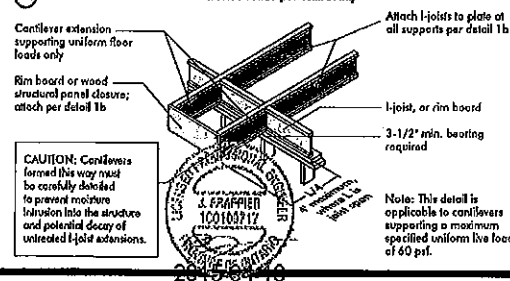


Pair of Squish Blocks	Maximum Factored Vertical per Pair of Squish Blocks (lbs)
3-1/2" wide	5,500
5-1/2" wide	8,500

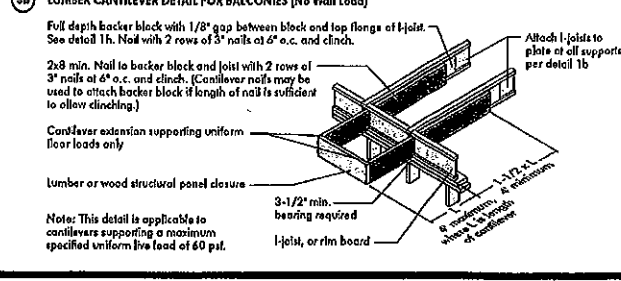


CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

5a I-JOIST CANTILEVER DETAIL FOR BALCONIES (No Wall Load)

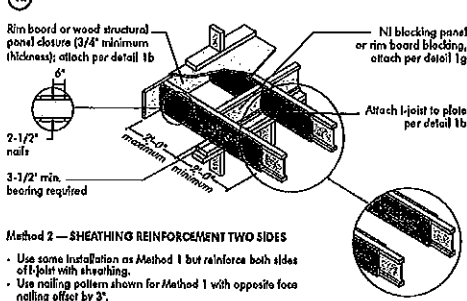


5b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)

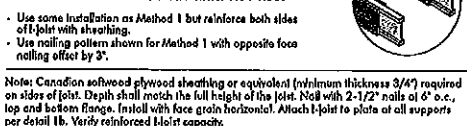


CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

6a Method 1 — SHEATHING REINFORCEMENT ONE SIDE



Method 2 — SHEATHING REINFORCEMENT TWO SIDES



6b Alternate Method 2 — DOUBLE I-JOIST

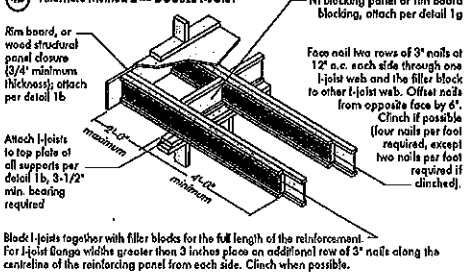
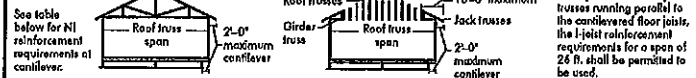


FIGURE 4 (continued)



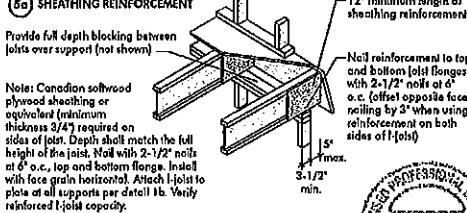
CANTILEVER REINFORCEMENT METHODS ALLOWED

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

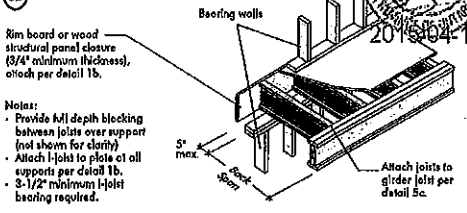
1. N = No reinforcement required.
2. N = Reinforced with 3/4" wood structural panel on one side only.
3. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
4. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge beam, the Roof Truss Span is equivalent to the distance between the supporting walls used as a truss is used.
5. Cantilevered joists supporting glider trusses or roof beams may require additional reinforcing.

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

6a SHEATHING REINFORCEMENT



6b SET-BACK DETAIL



6c SET-BACK CONNECTION

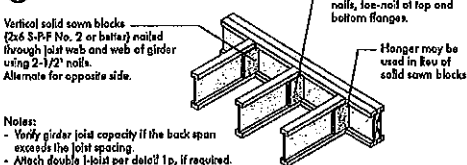


FIGURE 5 (continued)



BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

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

1. N = No reinforcement required.
2. N = Reinforced with 3/4" wood structural panel on one side only.
3. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
4. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge beam, the Roof Truss Span is equivalent to the distance between the supporting walls used as a truss is used.
5. Cantilevered joists supporting glider trusses or roof beams may require additional reinforcing.

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

1. The distance between the inside edge of the support and the cantilever of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
2. I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
3. Whenever possible, field-cut holes should be centered on the middle of the web.
4. The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.
5. The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
6. Where more than one hole is necessary, the distance between adjacent holes shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
7. A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
8. Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.
9. A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
10. All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
11. Limit three maximum size holes per span, of which one may be a duct chase opening.
12. A group of round holes 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 (0-in.)												Span (ft)
		Round hole diameter (in.)												
		2	4	6	8	10	12	14	16	18	20	22	24	
9-1/2"	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	16	12	12	12	12	12	12	12	12	12	12	12	12	12
	19.2	12	12	12	12	12	12	12	12	12	12	12	12	12
	24	12	12	12	12	12	12	12	12	12	12	12	12	12
11-7/8"	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	16	12	12	12	12	12	12	12	12	12	12	12	12	12
	19.2	12	12	12	12	12	12	12	12	12	12	12	12	12
	24	12	12	12	12	12	12	12	12	12	12	12	12	12
14"	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	16	12	12	12	12	12	12	12	12	12	12	12	12	12
	19.2	12	12	12	12	12	12	12	12	12	12	12	12	12
	24	12	12	12	12	12	12	12	12	12	12	12	12	12
16"	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	16	12	12	12	12	12	12	12	12	12	12	12	12	12
	19.2	12	12	12	12	12	12	12	12	12	12	12	12	12
	24	12	12	12	12	12	12	12	12	12	12	12	12	12

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

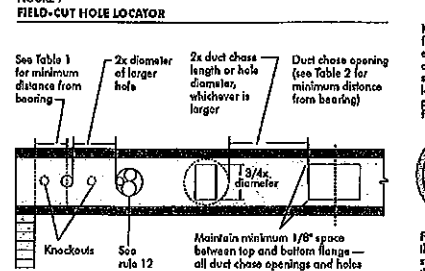
OPTIONAL:

The above table is based on the I-joists used at their maximum span. If the I-joists are placed at less than their full maximum span (see Manufacturer's literature), the minimum distance from the centre of the hole to the face of any support (B) as shown above may be reduced as follows:

Reduced = $\frac{L_{actual}}{L_{max}} \times B$

Where: L_{actual} = Distance from the inside face of any support to centre of hole, reduced for less than maximum span application.
 L_{max} = The actual measured span distance between the inside faces of supports (B).
 B = Span Adjustment Factor given in this table.
 D = The minimum distance from the inside face of any support to centre of hole from this table.
If L_{actual} is greater than 1, use 1 in the above calculation for L_{actual} .

FIGURE 7 FIELD-CUT HOLE LOCATOR



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

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

Joist Depth	Joist Spacing	Minimum distance from inside face of any support to centre of opening (0-in.)											
		2	4	6	8	10	12	14	16	18	20	22	24
9-1/2"	12	12	12	12	12	12	12	12	12	12	12	12	12
	16	12	12	12	12	12	12	12	12	12	12	12	12
	19.2	12	12	12	12	12	12	12	12	12	12	12	12
	24	12	12	12	12	12	12	12	12	12	12	12	12
11-7/8"	12	12	12	12	12	12	12	12	12	12	12	12	12
	16	12	12	12	12	12	12	12	12	12	12	12	12
	19.2	12	12	12	12	12	12	12	12	12	12	12	12
	24	12	12	12	12	12	12	12	12	12	12	12	12
14"	12	12	12	12	12	12	12	12	12	12	12	12	12
	16	12	12	12	12	12	12	12	12	12	12	12	12
	19.2	12	12	12	12	12	12	12	12	12	12	12	12
	24	12	12	12	12	12	12	12	12	12	12	12	12
16"	12	12	12	12	12	12	12	12	12	12	12	12	12
	16	12	12	12	12	12	12	12	12	12	12	12	12
	19.2	12	12	12	12	12	12	12	12	12	12	12	12
	24	12	12	12	12	12	12	12	12	12	12	12	12

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

INSTALLING THE GLEU FLOOR SYSTEM

1. Wipe any mud, dirt, water, or ice from I-joist flanges before gluing.
2. Snap a chalk line across the I-joists four feet in from the wall for panel edge alignment and as a boundary for spreading glue.
3. Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from the glue manufacturer.
4. Lay the first panel with tongue side to the wall, and nail in place. This protects the tongue of the next panel from damage when tapped into place with a block and sledgehammer.
5. Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joist. Apply glue in a winding pattern on wide areas, such as with double I-joists.
6. Apply two lines of glue on I-joist where panel ends butt to assure proper gluing of each end.
7. After the first row of panels is in place, spread glue in the groove of one or two panels at a time before laying the next row. Glue line may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) than used on I-joist flanges.
8. Top the second row of panels into place, using a block to protect groove edges.
9. Stagger and joints in each succeeding row of panels. A 1/8-inch space between all joints and 1/8-inch at all edges, including 180° edges, is recommended. (Use a spacer tool or on 2-1/2" common nail to assure accurate and consistent spacing.)
10. Complete full nailing of each panel before glue sets. Check the manufacturer's recommendations for cure time. Warm weather accelerates glue setting. Use 2" ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the glue bond.

FASTENERS FOR SHEATHING AND SUBFLOORING(1)

Maximum Joist Spacing (in.)	Minimum Panel Thickness (in.)	Common Wire or Spiral Nails	Ring Threaded Nails or Screws	Staples	Maximum Spacing of Fasteners (Edges, Interiors, Supports)
16	5/8	2"	1-3/4"	2"	6" 12"
20	5/8	2"	1-3/4"	2"	6" 12"
24	3/4	2"	1-3/4"	2"	6" 12"

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

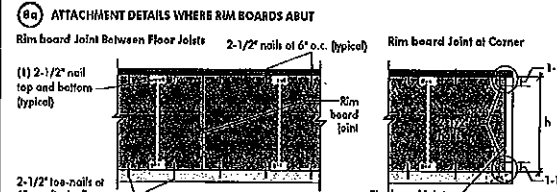
Ref.: NRC-CNRC, National Building Code of Canada 2010, Table 9.23.3.5.

IMPORTANT NOTE:

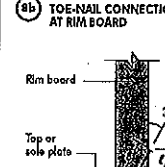
Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with your local distributor.

RIM BOARD INSTALLATION DETAILS

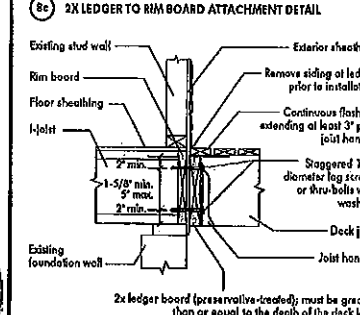
6a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



6b TOE-NAIL CONNECTION AT RIM BOARD



6c 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL



PRODUCT WARRANTY

Chemical Adhesives guarantees that, in accordance with our specifications, the glue products are free from manufacturing defects in material and workmanship.

Furthermore, Chemical Adhesives 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.



Refer to the Installation Guide for Residential Floors for additional information.
CGMC 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 shall 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 largest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.

- A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
- All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
- Install 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.)											
		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"	6-0"	---	---	---	---	---	---
	NI-40x	0-7"	1-6"	3-0"	4-4"	6-0"	6-4"	---	---	---	---	---	---
	NI-60	1-3"	2-6"	4-0"	5-4"	7-0"	7-3"	---	---	---	---	---	---
	NI-70	2-0"	3-4"	4-9"	6-3"	8-0"	8-4"	---	---	---	---	---	---
	NI-80	2-3"	3-6"	5-0"	6-4"	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"	2-6"	4-0"	4-4"	5-5"	7-0"	8-4"	---	---	---
	NI-60	0-7"	1-6"	3-0"	4-3"	5-9"	6-0"	7-3"	8-10"	10-0"	---	---	---
	NI-70	1-5"	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"	8-8"	10-3"	11-4"	---	---	---
14"	NI-20	0-7"	0-8"	1-5"	3-0"	4-10"	5-4"	6-9"	8-9"	10-2"	---	---	---
	NI-40x	0-7"	0-8"	1-5"	3-0"	4-10"	5-4"	6-9"	8-9"	10-2"	---	---	---
	NI-60	0-7"	0-8"	1-5"	3-0"	4-10"	5-4"	6-9"	8-9"	10-2"	---	---	---
	NI-70	0-7"	0-8"	1-5"	3-0"	4-10"	5-4"	6-9"	8-9"	10-2"	---	---	---
	NI-80	0-7"	0-8"	1-5"	3-0"	4-10"	5-4"	6-9"	8-9"	10-2"	---	---	---
16"	NI-20	0-7"	0-8"	1-5"	3-0"	4-10"	5-4"	6-9"	8-9"	10-2"	---	---	---
	NI-40x	0-7"	0-8"	1-5"	3-0"	4-10"	5-4"	6-9"	8-9"	10-2"	---	---	---
	NI-60	0-7"	0-8"	1-5"	3-0"	4-10"	5-4"	6-9"	8-9"	10-2"	---	---	---
	NI-70	0-7"	0-8"	1-5"	3-0"	4-10"	5-4"	6-9"	8-9"	10-2"	---	---	---
	NI-80	0-7"	0-8"	1-5"	3-0"	4-10"	5-4"	6-9"	8-9"	10-2"	---	---	---

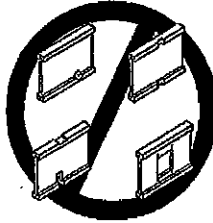
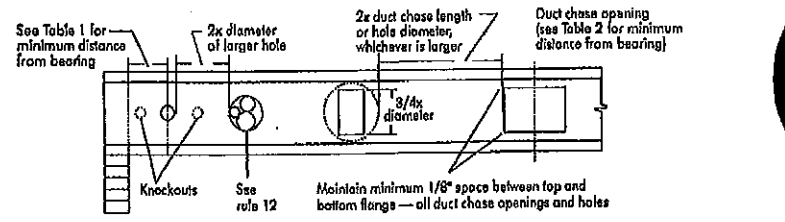
- Above table may be used for I-joist spacing of 24 inches on centre or less.
- Hole location distance is measured from inside face of supports to centre of hole.
- Distances in this chart are based on uniformly loaded joists.
- The above table is based on the I-joists being used at their maximum spans.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

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

Joist Depth	Joist Series	Minimum distance from inside face of supports to centre of opening (ft - in.)											
		8	10	12	14	16	18	20	22	24	26	28	30
9-1/2"	NI-20	4-1"	4-5"	4-10"	5-4"	5-8"	6-1"	6-5"	7-1"	7-6"	---	---	---
	NI-40x	5-3"	5-8"	6-0"	6-5"	6-10"	7-3"	7-8"	8-2"	8-6"	---	---	---
	NI-60	5-4"	5-9"	6-1"	6-6"	7-1"	7-5"	8-0"	8-4"	8-9"	---	---	---
	NI-70	5-1"	5-6"	5-10"	6-3"	6-7"	7-1"	7-6"	8-1"	8-4"	---	---	---
	NI-80	5-2"	5-7"	6-0"	6-5"	6-10"	7-3"	7-8"	8-2"	8-6"	---	---	---
11-7/8"	NI-20	5-9"	6-2"	6-6"	7-1"	7-5"	7-9"	8-3"	8-9"	9-4"	---	---	---
	NI-40x	6-8"	7-2"	7-6"	8-1"	8-5"	9-1"	9-6"	10-1"	10-9"	---	---	---
	NI-60	7-3"	7-6"	8-0"	8-6"	9-0"	9-3"	9-9"	10-3"	11-0"	---	---	---
	NI-70	7-1"	7-4"	7-9"	8-3"	8-7"	9-1"	9-6"	10-1"	10-9"	---	---	---
	NI-80	7-2"	7-5"	8-0"	8-5"	8-10"	9-3"	9-8"	10-2"	10-9"	---	---	---
14"	NI-20	7-6"	7-11"	8-4"	8-9"	9-2"	9-7"	10-1"	10-7"	10-11"	---	---	---
	NI-40x	7-7"	8-1"	8-5"	8-10"	9-4"	9-8"	10-2"	10-8"	11-2"	---	---	---
	NI-60	8-1"	8-7"	9-0"	9-6"	10-1"	10-7"	11-1"	11-6"	12-0"	---	---	---
	NI-70	8-9"	9-3"	9-8"	10-1"	10-6"	11-1"	11-6"	12-0"	12-6"	---	---	---
	NI-80	8-7"	9-1"	9-5"	9-10"	10-4"	10-8"	11-2"	11-7"	12-3"	---	---	---
16"	NI-20	9-0"	9-3"	9-9"	10-1"	10-7"	11-1"	11-6"	12-1"	12-6"	---	---	---
	NI-40x	9-2"	9-5"	10-0"	10-6"	11-0"	11-5"	11-9"	12-4"	12-11"	---	---	---
	NI-60	9-6"	10-0"	10-5"	11-0"	11-5"	12-0"	12-5"	13-0"	13-6"	---	---	---
	NI-70	10-3"	10-8"	11-2"	11-6"	12-1"	12-6"	13-1"	13-6"	14-1"	---	---	---
	NI-80	10-1"	10-5"	11-0"	11-4"	11-9"	12-4"	12-9"	13-4"	13-9"	---	---	---

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

**FIGURE 7
FIELD-CUT HOLE LOCATOR**



Knockouts are pre-scored 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 braced and sheathed, or serious injuries can result.



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

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

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

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

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

PRODUCT WARRANTY

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

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

1a Blocking panel or rim joist on I-joists

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

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

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

1b Rim board

One 2-1/2" face nail at each side of bearing

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

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

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

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

1d Squash block

NI or rim board blocking panel per detail 1a

2x Lumber

1-1/8" Rim Board Plus

Provide lateral bracing per detail 1a or 1b

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

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

1f Joist attachment per detail 1b

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

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

NI blocking panel per detail 1a

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

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

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

* Minimum grade for backer block material shall be S-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-C325 or CAN/CSA-O327 Standard.

** For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".

1i Top- or face-mount hanger

Double I-joist header

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

Backer block required (both sides for face-mount hangers)

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

1j Nordic Lom or Structural Composite Lumber (SCL)

For nailing schedules for multiple beams, see the manufacturer's recommendations.

Top- or face-mount hanger installed per manufacturer's recommendations

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

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

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

Top-mount hanger installed per manufacturer's recommendations

1m Multiple I-joist header with full depth filler block shown. Nordic Lom or SCL headers may also be used. Verify double I-joist capacity to support concentrated loads.

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

Filler block per detail 1p

Maximum support capacity = 1,620 lbs.

1n Do not bawl-cut joist beyond inside face of wall

Attach I-joist per detail 1b

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

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

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

1p Filler block requirements for double I-joist construction

Filler block

Offset nails from opposite face by 6"

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

NOTES:

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

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

1s One 2-1/2" nail at top and bottom flange (2x4 min. 1/8" gap minimum)

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

One 2-1/2" nail one side only

NOTES:

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

All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (1.22" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) framing wire nails. Common wire nails assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.

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 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**

CONCENTRATED LOAD (Load stiffener)

END BEARING (Bearing stiffener)

Flange width: 2-1/2" or 3-1/2"

Approx. 2" L

1/8" x 1/4" Gap

(4) 2-1/2" nails, 3" nails required for I-joists with 3-1/2" flange width

No Gap

See the adjacent table for web stiffener size requirements

NORDIC STRUCTURES

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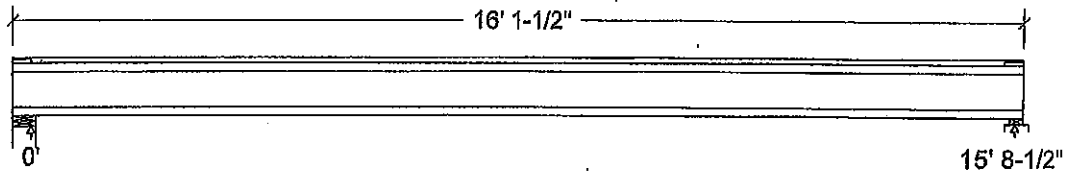
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J1 1ST FLOOR.wwb

Design Check Calculation Sheet Nordic Sizer – Canada 7.2

Loads:

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

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



Unfactored:			
Dead	157		157
Live	314		314
Factored:			
Total	668		668
Bearing:			
Capacity			
Joist	1893		1865
Support	7744		3971
Des ratio			
Joist	0.35		0.36
Support	0.09		0.17
Load case	#2		#2
Length	4-3/8		2-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		1.00
fcp sup	769		769
Kzcp sup	-		1.09

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

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

Supports: 1 - Lumber Wall, No.1/No.2; 2 - Lumber Sill plate, No.1/No.2;
Total length: 16' 1-1/2"; Clear span: 15' 6-3/4"; 3/4" nailed and glued OSB sheathing
This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 668	Vr = 1895	lbs	Vf/Vr = 0.35
Moment(+)	Mf = 2622	Mr = 4824	lbs-ft	Mf/Mr = 0.54
Perm. Defl'n	0.12 = < L/999	0.52 = L/360	in	0.22
Live Defl'n	0.23 = L/817	0.39 = L/480	in	0.59
Total Defl'n	0.35 = L/545	0.79 = L/240	in	0.44
Bare Defl'n	0.28 = L/684	0.52 = L/360	in	0.53
Vibration	Lmax = 15'-8.5	Lv = 17'-1.8	ft	0.92
Defl'n	= 0.031	= 0.041	in	0.76



NO. 6078-20
STRUCTURAL
COMPONENT ONLY

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:E_{ieff} = 265.29 lb-in² K= 4.94e06 lbs

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

CONFORMS TO OBC 2012

AMENDED 2020

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 component based on the design criteria and loadings shown.



QWB NO. YAM6076-20
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NORDIC STRUCTURES

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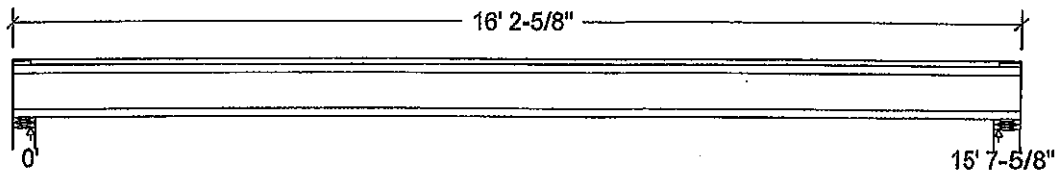
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J1 2ND FLOOR.wwb

Design Check Calculation Sheet Nordic Sizer - Canada 7.2

Loads:

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

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



Unfactored:			
Dead	156		156
Live	313		313
Factored:			
Total	664		664
Bearing:			
Capacity			
Joist	1893		1893
Support	7744		7744
Des ratio			
Joist	0.35		0.35
Support	0.09		0.09
Load case	#2		#2
Length	4-3/8		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		-
fcp sup	769		769
Kzcp sup	-		-

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

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

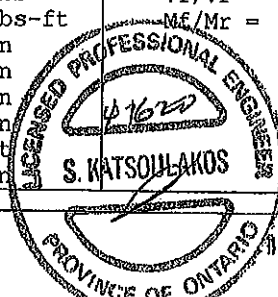
Supports: All - Lumber Wall, No.1/No.2

Total length: 16' 2-5/8"; Clear span: 15' 5-7/8"; 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 = 664	Vr = 1895	lbs	Vf/Vr = 0.35
Moment (+)	Mf = 2597	Mr = 4824	lbs-ft	Mf/Mr = 0.54
Perm. Defl'n	0.12 = < L/999	0.52 = L/360	in	0.22
Live Defl'n	0.23 = L/808	0.39 = L/480	in	0.59
Total Defl'n	0.35 = L/539	0.78 = L/240	in	0.45
Bare Defl'n	0.27 = L/694	0.52 = L/360	in	0.52
Vibration	Lmax = 15'-7.6	Lv = 16'-8.5	ft	0.94
Defl'n	= 0.034	= 0.041	in	0.81



DWG NO. YAM6079 -20
STRUCTURAL
ARCHITECT ONIV

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:E_{Ieff} = 258.29 lb-in² K = 4.94e06 lbs

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

CONFORMS TO OBC 2012

AMENDED 2020

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 component based on the design criteria and loadings shown.



096 NO. TAW 6079-20
STRUCTURAL
COMPONENT ONLY

NORDIC STRUCTURES

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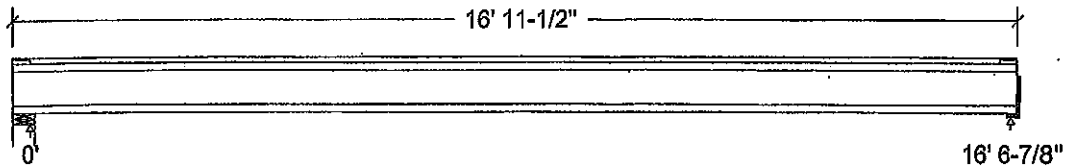
PROJECT
J6 2ND FLOOR.wwb

Design Check Calculation Sheet Nordic Sizer -- Canada 7.2

Loads:

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

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



Unfactored:			
Dead	166		166
Live	331		331
Factored:			
Total	704		704
Bearing:			
Capacity			
Joist	1893		1893
Support	10841		-
Des ratio			
Joist	0.37		0.37
Support	0.06		-
Load case	#2		#2
Length	4-3/8		2
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		-
fcp sup	769		-
Kzcp sup	-		-

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

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

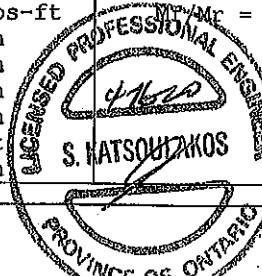
Supports: 1 - Lumber Wall, No.1/No.2; 2 - Hanger;

Total length: 16' 11-1/2"; Clear span: 16' 5-1/8"; 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 = 704	Vr = 1895	lbs	Vf/Vr = 0.37
Moment (+)	Mf = 2918	Mr = 8958	lbs-ft	Mf/Mr = 0.33
Perm. Defl'n	0.11 = < L/999	0.55 = L/360	in	0.19
Live Defl'n	0.21 = L/940	0.41 = L/480	in	0.51
Total Defl'n	0.32 = L/626	0.83 = L/240	in	0.38
Bare Defl'n	0.24 = L/841	0.55 = L/360	in	0.43
Vibration	Lmax = 16'-6.9	Lv = 17'-9.5	ft	0.93
Defl'n	= 0.031	= 0.038	in	0.80



OWN NO. 7AM 6020-20
STRUCTURAL
COMPONENT ONLY

Additional Data:

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

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

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

Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

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

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

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

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

CONFORMS TO OBC 2012

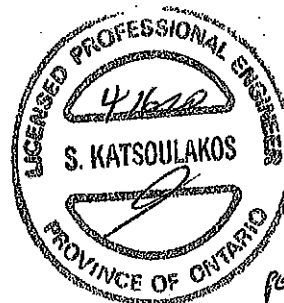
CALCULATIONS:E_Ieff = 367.27 lb-in² K= 4.94e06 lbs

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

AMENDED 2020

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 component based on the design criteria and loadings shown.



DWG NO. YAM 6080-28
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B17D(i3135) (Flush Beam)

PASSED

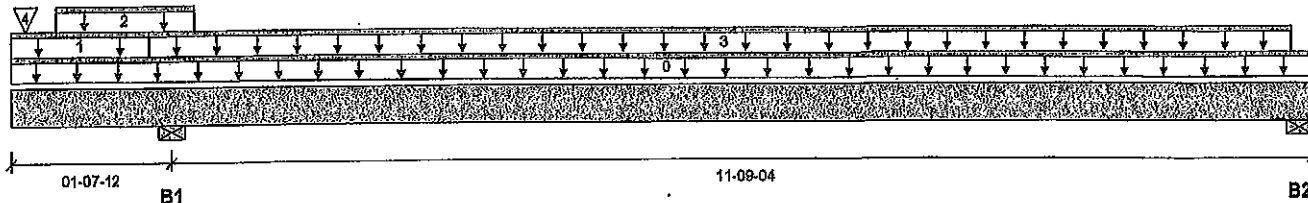
BC CALC® Member Report
 Build 7493

Dry | 2 spans | L cant.

November 25, 2020 08:03:28

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

File name: MOUNTAINASH 6 EL 3 LOT 12.mmdl
 Description: 2ND FLR FRAMING\Flush Beams\B17D(i3135)
 Specifier:
 Designer: AJ
 Company:



Total Horizontal Product Length = 13-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	179 / 0	884 / 0	367 / 0	
B2, 5-1/2"	117 / 6	38 / 0	0 / 43	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-05-00	Top		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	15	7			n/a
2	E30(i3261)	Unf. Lin. (lb/ft)	L	00-05-08	01-10-08	Top		81			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-05-00	13-02-04	Top	20	10			n/a
4	-	Conc. Pt. (lbs)	L	00-01-13	00-01-13	Top	33	550	324		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	419 ft-lbs	23220 ft-lbs	1.8%	36	08-10-13
Neg. Moment	-1265 ft-lbs	-15093 ft-lbs	8.4%	0	01-07-12
End Shear	165 lbs	11571 lbs	1.4%	33	12-02-00
Cont. Shear	1246 lbs	11571 lbs	10.8%	37	00-07-08
Total Load Deflection	2xL/1998 (0.029")	n/a	n/a	82	00-00-00
Live Load Deflection	L/999 (-0.016")	n/a	n/a	120	06-06-05
Total Neg. Defl.	L/999 (-0.028")	n/a	n/a	82	05-11-03
Max Defl.	-0.028"	n/a	n/a	82	05-11-03
Span / Depth	14.4				

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	1238 lbs	16.1%	8.1%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	223 lbs	1.9%	0.9%	Spruce-Pine-Fir

Cautions

Concentrated side load(s) 2 are closer than 18" from end of member. Please consult a technical representative or Professional of Record.



OWN NO. YAM16095-20
 STRUCTURAL
 COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B17D(I3135) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 2 spans | L cant.

November 25, 2020 08:03:28

Build 7493

Job name:

File name: MOUNTAINASH 6 EL 3 LOT 12.mxd

Address:

Description: 2ND FLR FRAMING\Flush Beams\B17D(I3135)

City, Province, Postal Code: WATERDOWN

Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:

Notes

Design meets User specified (2xL/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.

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

Design based on Dry Service Condition.

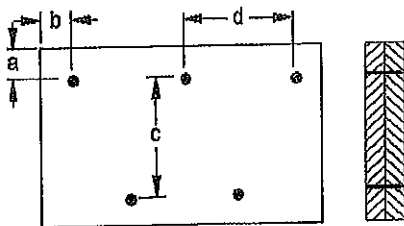
Importance Factor : Normal Part code : Part 9

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

CONFORMS TO 083.2.112

AMENDED 2020

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

c = 5-1/2"
d = 8"

Calculated Side Load = 227.3 lb/ft

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



ENG NO. TAM 16085-20
**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®,

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Flush Beams\B18D(I3150) (Flush Beam)**

Dry | 2 spans | L cant.

November 25, 2020 08:03:28

BC CALC® Member Report

Build 7493

Job name:

File name: MOUNTAINASH 6 EL 3 LOT 12.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B18D(I3150)

City, Province, Postal Code: WATERDOWN

Specifier:

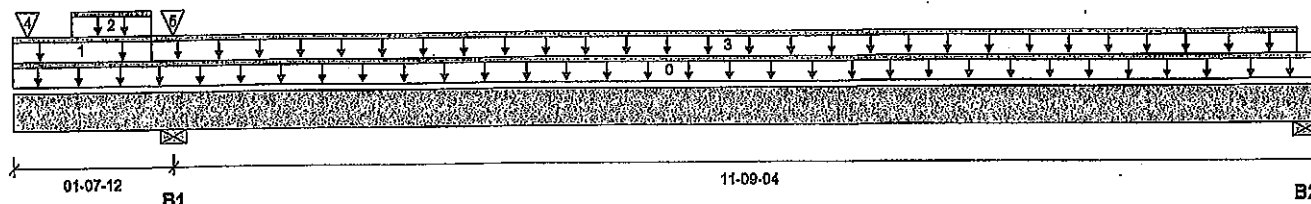
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 13-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	222 / 0	906 / 0	387 / 0	
B2, 5-1/2"	117 / 12	34 / 0	0 / 45	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-05-00	Top		10			00-00-00
1	E28(I3262)	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top		81			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-07-04	01-05-00	Top	10				n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-05-00	13-02-04	Top	20	10			n/a
4	-	Conc. Pt. (lbs)	L	00-01-13	00-01-13	Top	84	550	342		n/a
5	E23(I3255)	Conc. Pt. (lbs)	L	01-07-12	01-07-12	Top		24			n/a

Controls Summary

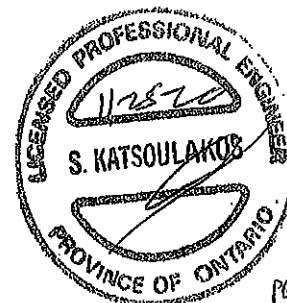
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	403 ft-lbs	23220 ft-lbs	1.7%	36	08-10-13
Neg. Moment	-2083 ft-lbs	-23220 ft-lbs	9.0%	37	01-07-12
End Shear	169 lbs	11571 lbs	1.4%	33	12-02-00
Cont. Shear	1356 lbs	11571 lbs	11.7%	37	00-07-08
Total Load Deflection	2xL/1998 (0.032")	n/a	n/a	82	00-00-00
Live Load Deflection	L/999 (-0.018")	n/a	n/a	120	06-06-05
Total Neg. Defl.	L/999 (-0.031")	n/a	n/a	82	06-01-00
Max Defl.	-0.031"	n/a	n/a	82	06-01-00
Span / Depth	14.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	1288 lbs	16.5%	8.3%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	218 lbs	1.8%	0.9%	Spruce-Pine-Fir

Cautions

Concentrated side load(s) 2 are closer than 18" from end of member. Please consult a technical representative or Professional of Record.



046 NO. 7AM 16096-20
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B18D(I3150) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

Dry | 2 spans | L cant.

November 25, 2020 08:03:28

File name: MOUNTAINASH 6 EL 3 LOT 12.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B18D(I3150)

Specifier:

Designer: AJ

Company:

Notes

Design meets User specified (2xL/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.

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

Design based on Dry Service Condition.

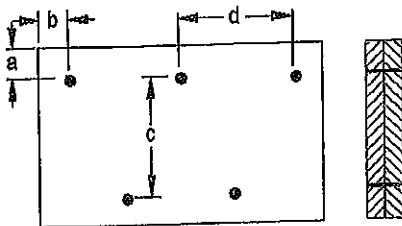
Importance Factor : Normal Part code : Part 9

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

CONFORMS TO OBC 2012

AMENDED 2020

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

c = 5-1/2"
d = 8"

Calculated Side Load = 231.8 lb/ft

Connectors are: Nails

3-1/2" ARDOX SPIRAL



HWG NO. TAM 16096-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B19D(i3184) (Flush Beam)

PASSED

BC CALCO® Member Report

Dry | 1 span | No cant.

November 25, 2020 08:03:28

Build 7493

Job name:

File name: MOUNTAINASH 6 EL 3 LOT 12.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B19D(i3184)

City, Province, Postal Code: WATERDOWN

Specifier:

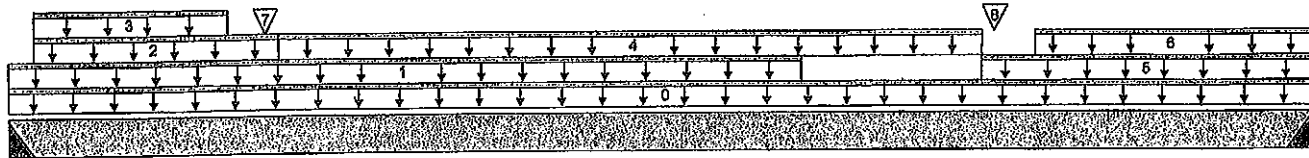
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



B1 08-08-00 B2

Total Horizontal Product Length = 08-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	78 / 0	528 / 0	301 / 0	
B2, 2"	33 / 0	523 / 0	311 / 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	08-08-00	Top		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	06-02-08	Top	22	11			n/a
2	E29(i3263)	Unf. Lin. (lb/ft)	L	00-02-00	01-09-08	Top		81			n/a
3	E29(i3263)	Unf. Lin. (lb/ft)	L	00-02-00	01-05-08	Top		28	72		n/a
4	E31(i3264)	Unf. Lin. (lb/ft)	L	01-09-08	06-05-08	Top		61			n/a
5	E32(i3265)	Unf. Lin. (lb/ft)	L	06-05-08	08-08-00	Top		81			n/a
6	E32(i3265)	Unf. Lin. (lb/ft)	L	06-09-08	08-08-00	Top		28	72		n/a
7	E29(i3263)	Conc. Pt. (lbs)	L	01-08-08	01-08-08	Top		115	193		n/a
8	E32(i3265)	Conc. Pt. (lbs)	L	06-06-08	06-06-08	Top		114	181		n/a

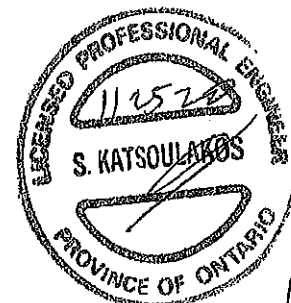
Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1364 ft-lbs	15093 ft-lbs	9.0%	0	04-04-04
End Shear	978 lbs	11571 lbs	8.5%	13	00-11-08
Total Load Deflection	L/999 (0.042")	n/a	n/a	35	04-04-04
Live Load Deflection	L/999 (0.016")	n/a	n/a	51	04-04-04
Max Defl.	0.042"	n/a	n/a	35	04-04-04
Span / Depth	10.7				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	2" x 3-1/2"	1189 lbs	n/a	13.9%	Hanger
B2 Hanger	2" x 3-1/2"	1154 lbs	n/a	13.5%	Hanger

Cautions

Hanger model Hanger was not found. Hanger has not been analyzed for adequate capacity.



SWG NO. TAM16097-20
STRUCTURAL
 COMMENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B19D(I3184) (Flush Beam)

PASSED

BC CALC® Member Report
Build 7493

Dry | 1 span | No cant.

November 25, 2020 08:03:28

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

File name: MOUNTAINASH 6 EL 3 LOT 12.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B19D(I3184)
Specifier:
Designer: AJ
Company:

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

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.

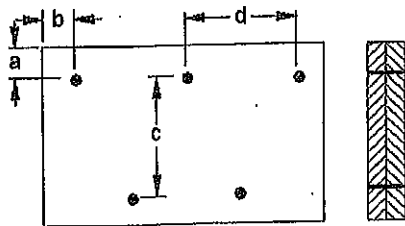
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

c = 5-1/2"
d = 2-1/2"

Connectors are: Nails

3-1/2" ARDOX SPIRAL



BWG NO. 4AM 16087-20
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®



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

PASSED

2ND FLR FRAMING\Flush Beams\B21(I2792) (Flush Beam)

Dry | 2 spans | L cant.

August 26, 2020 09:26:19

BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

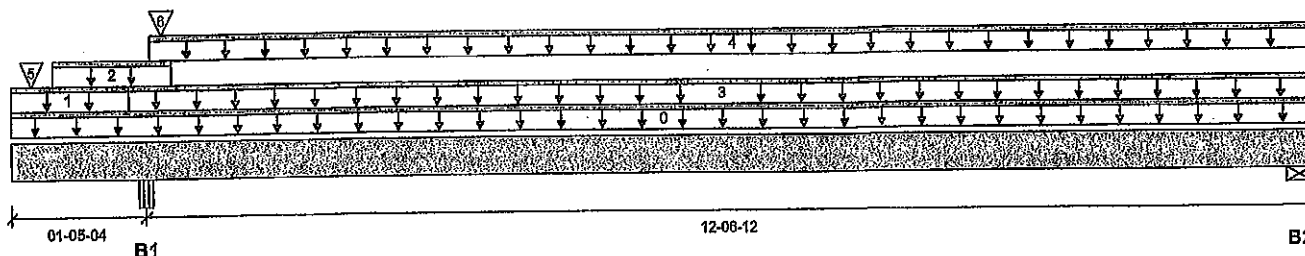
File name: MOUNTAINASH 6

Description: 2ND FLR FRAMING\Flush Beams\B21(I2792)

Specifier:

Designer: CH

Company:



Total Horizontal Product Length = 14-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-1/2"	278 / 0	799 / 0	805 / 0	
B2, 2-3/4"	255 / 2	171 / 0	0 / 12	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	14-00-00	Top		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-03-00	Top	20	10			n/a
2	E75(I1685)	Unf. Lin. (lb/ft)	L	00-05-08	01-08-08	Top		176	144		n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-03-00	14-00-00	Top	23	11			n/a
4	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-05-12	14-00-00	Top	17	9			n/a
5	E86(I1925)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top		95	67		n/a
6	E75(I1685)	Conc. Pt. (lbs)	L	01-07-04	01-07-04	Top		255	547		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1733 ft-lbs	23220 ft-lbs	7.5%	45	07-10-06
Neg. Moment	-520 ft-lbs	-23220 ft-lbs	2.2%	49	01-05-04
End Shear	497 lbs	11571 lbs	4.3%	45	12-11-12
Cont. Shear	572 lbs	11571 lbs	4.9%	1	02-05-00
Total Load Deflection	L/999 (0.067")	n/a	n/a	108	07-08-06
Live Load Deflection	L/999 (0.042")	n/a	n/a	160	07-08-06
Total Neg. Defl.	2xL/1998 (-0.023")	n/a	n/a	108	00-00-00
Max Defl.	0.067"	n/a	n/a	108	07-08-06
Span / Depth	15.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 4-1/2" x 3-1/2"	2485 lbs	29.5%	12.9%	Unspecified
B2	Wall/Plate 2-3/4" x 3-1/2"	596 lbs	10.1%	5.1%	Spruce-Pine-Fir



OWN NO. 74M12BES-20
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B21(12792) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 2 spans | L cant.

August 26, 2020 09:26:19

Build 7493

Job name:

File name: MOUNTAINASH 6

Address:

Description: 2ND FLR FRAMING\Flush Beams\B21(12792)

City, Province, Postal Code: HAMILTON

Specifier:

Customer:

Designer: CH

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.

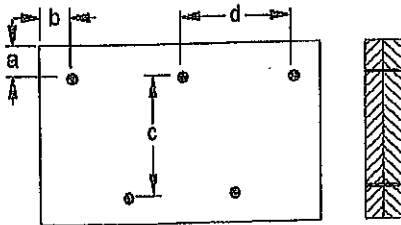
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

c = 5-1/2"
d = 2' 0"

Connectors are: Nails

3-1/2" ARDOX SPIRAL



BWG NO. YAM 12805-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B20(I3104) (Flush Beam)

PASSED

BC CALC® Member Report
Build 7493

Dry | 2 spans | L cant.

August 26, 2020 09:26:19

Job name:

File name: MOUNTAINASH 6

Address:

Description: 2ND FLR FRAMING\Flush Beams\B20(I3104)

City, Province, Postal Code: HAMILTON

Specifier:

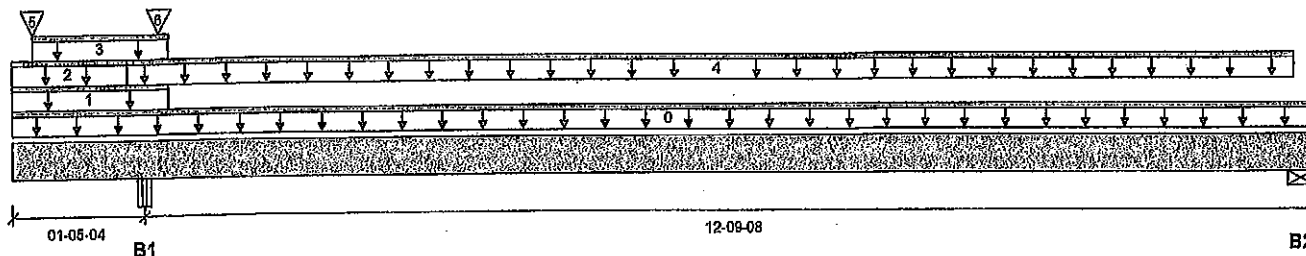
Customer:

Designer: CH

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 14-02-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-1/2"	139 / 0	702 / 0	782 / 0	
B2, 5-1/2"	127 / 1	113 / 0	0 / 10	

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	14-02-12	Top		10			00-00-00
1	E73(I1679)	Unf. Lin. (lb/ft)	L	00-00-00	01-08-08	Top		100			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-03-00	Top	8				n/a
3	E73(I1679)	Unf. Lin. (lb/ft)	L	00-02-12	01-08-08	Top		76	144		n/a
4	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-03-00	14-00-00	Top	20	10			n/a
5	E73(I1679)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top		7	13		n/a
6	E73(I1679)	Conc. Pt. (lbs)	L	01-07-04	01-07-04	Top		255	547		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	940 ft-lbs	23220 ft-lbs	4.1%	45	08-00-05
Neg. Moment	-417 ft-lbs	-23220 ft-lbs	1.8%	49	01-05-04
End Shear	273 lbs	11571 lbs	2.4%	43	12-11-12
Cont. Shear	342 lbs	11571 lbs	3.0%	1	02-05-00
Total Load Deflection	L/999 (0.036")	n/a	n/a	108	07-08-06
Live Load Deflection	L/999 (0.021")	n/a	n/a	160	07-08-06
Total Neg. Defl.	2xL/1998 (-0.012")	n/a	n/a	108	00-00-00
Max Defl.	0.036"	n/a	n/a	108	07-08-06
Span / Depth	15.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Beam	4-1/2" x 3-1/2"	2190 lbs	26.0%	11.4%	Unspecified
B2 Wall/Plate	5-1/2" x 3-1/2"	332 lbs	2.8%	1.4%	Spruce-Pine-Fir



SW & NO. YAM/2006-20
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B20(I3104) (Flush Beam)
Dry | 2 spans | L cant.

PASSED

August 26, 2020 09:26:19

BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

File name: MOUNTAINASH 6

Description: 2ND FLR FRAMING\Flush Beams\B20(I3104)

Specifier:

Designer: CH

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.

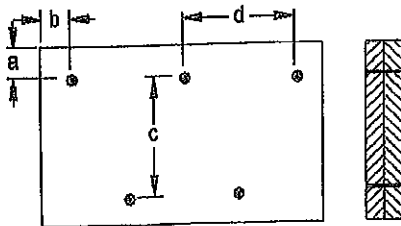
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

c = 5-1/2"
d = 3"

Connectors are: 1 Nails

3-1/2" ARDOX SPIRAL



DWG NO. TAM 12886-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLR FRAMING\Flush Beams\B16 H(6553) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

September 17, 2020 07:57:48

Build 7493

Job name:

File name: MOUNTAINASH 6

Address:

Description: 1ST FLR FRAMING\Flush Beams\B16 H(6553)

City, Province, Postal Code: WATERDOWN

Specifier:

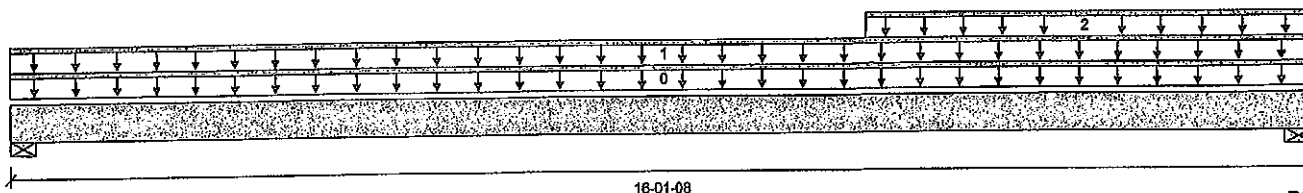
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 16-01-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-7/8"	110 / 0	94 / 0		
B2, 4-1/8"	124 / 0	101 / 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	16-01-08	Top		5			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	16-01-08	Top	14	7			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	10-06-14	16-01-08	Top	3	1			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1122 ft-lbs	11610 ft-lbs	9.7%	1	08-02-00
End Shear	266 lbs	5785 lbs	4.6%	1	14-11-14
Total Load Deflection	L/1302 (0.145")	n/a	18.4%	4	08-00-03
Live Load Deflection	L/999 (0.079")	n/a	n/a	5	08-00-03
Max Defl.	0.145"	n/a	n/a	4	08-00-03
Span / Depth	19.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 1-7/8" x 1-3/4"	283 lbs	14.0%	7.1%	Spruce-Pine-Fir
B2	Wall/Plate 4-1/8" x 1-3/4"	313 lbs	7.0%	3.6%	/Spruce-Pine-Fir

Notes

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

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

Calculations assume 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 2016 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



WWW.NBCC.YAM/2007-20

STRUCTURAL

COMPONENT ONLY

Disclosure

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



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

1ST FLR FRAMING\Flush Beams\B18(16765) (Flush Beam)

PASSED

BC CALCO® Member Report

Dry | 1 span | No cant.

September 17, 2020 07:57:48

Build 7493

Job name:

File name: MOUNTAINASH 6

Address:

Description: 1ST FLR FRAMING\Flush Beams\B18(16765)

City, Province, Postal Code: WATERDOWN

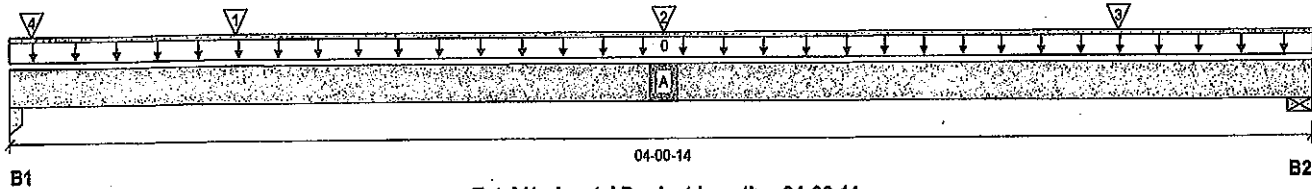
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 04-00-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	1009 / 0	535 / 0		
B2, 5-1/2"	1207 / 0	662 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-00-14	Top	1.00	0.65	1.00	1.15	00-00-00
1	J2(16650)	Conc. Pt. (lbs)	L	00-08-06	00-08-06	Top	690	345			n/a
2	J2(16682)	Conc. Pt. (lbs)	L	02-00-06	02-00-06	Top	751	375			n/a
3	-	Conc. Pt. (lbs)	L	03-05-10	03-05-10	Top	733	404			n/a
4	B7(16767)	Conc. Pt. (lbs)	L	00-00-14	00-00-14	Top	42	33			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2066 ft-lbs	23220 ft-lbs	8.9%	1	02-00-08
End Shear	1623 lbs	11571 lbs	14.0%	1	00-11-04
Total Load Deflection	L/999 (0.006")	n/a	n/a	4	01-10-12
Live Load Deflection	L/999 (0.004")	n/a	n/a	5	01-10-12
Max Defl.	0.006"	n/a	n/a	4	01-10-12
Span / Depth	4.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 1-3/4" x 3-1/2"	2182 lbs	54.8%	29.2%	Unspecified
B2	Wall/Plate 5-1/2" x 3-1/2"	2637 lbs	22.3%	11.2%	Spruce-Pine-Fir

Cautions

Concentrated side load(s) 2,4 are closer than 18" from end of member. Please consult a technical representative or Professional of Record. *OK*

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO ORC 2012

AMENDED 2020



DWG NO. 7411/2000-20
STRUCTURAL
COMPONENT ONLY



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

PASSED

1ST FLR FRAMING\Flush Beams\B18(i6765) (Flush Beam)

Dry | 1 span | No cant.

September 17, 2020 07:57:48

BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

File name: MOUNTAINASH 6

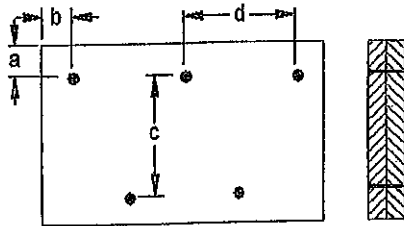
Description: 1ST FLR FRAMING\Flush Beams\B18(i6765)

Specfier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 5-1/2"

b minimum = 3"

d = 6"

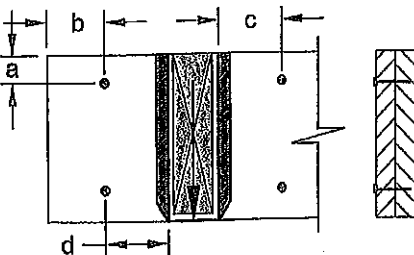
Calculated Side Load = 52.1 lb/ft

Connectors are: 1 Nails

3-1/2" ARDOX SPIRAL Connection Diagrams: Concentrated Side Loads

Connection Tag: A

Applies to load tag(s): 3



a minimum = 2"

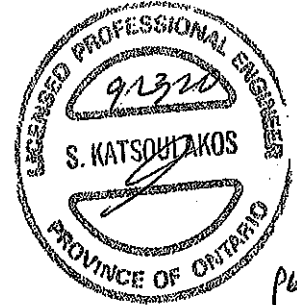
b minimum = 4"

c minimum = 4"

d maximum = 12"

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL



DWG NO. TAM 12000-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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



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

PASSED

1ST FLR FRAMING\Flush Beams\B1(i6766) (Flush Beam)

Dry | 1 span | No cant.

September 17, 2020 07:57:48

BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

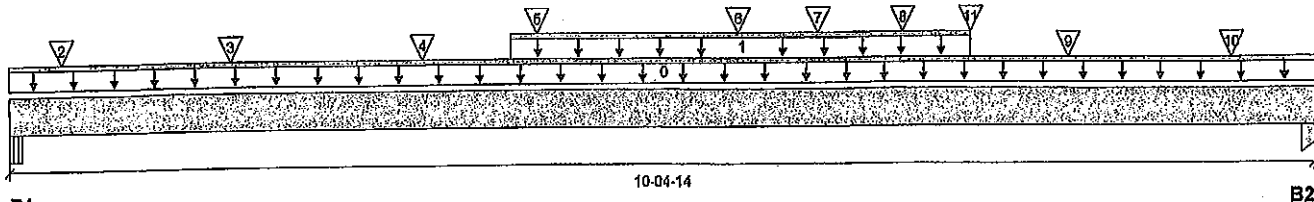
File name: MOUNTAINASH 6.

Description: 1ST FLR FRAMING\Flush Beams\B1(i6766)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 10-04-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	3601 / 0	1979 / 0		
B2, 2-3/4"	2544 / 0	1352 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-04-14	Top		10			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	03-11-12	07-07-12	Top	240	120			n/a
2	-	Conc. Pt. (lbs)	L	00-05-02	00-05-02	Top	1528	850			n/a
3	J2(i6759)	Conc. Pt. (lbs)	L	01-09-04	01-09-04	Top	431	215			n/a
4	-	Conc. Pt. (lbs)	L	03-03-06	03-03-06	Top	522	261			n/a
5	-	Conc. Pt. (lbs)	L	04-02-04	04-02-04	Top	707	415			n/a
6	J2(i6757)	Conc. Pt. (lbs)	L	05-09-04	05-09-04	Top	295	147			n/a
7	J2DJ(i6760)	Conc. Pt. (lbs)	L	06-04-12	06-04-12	Top	255	127			n/a
8	J2(i6756)	Conc. Pt. (lbs)	L	07-01-04	07-01-04	Top	332	166			n/a
9	-	Conc. Pt. (lbs)	L	08-05-04	08-05-04	Top	547	273			n/a
10	-	Conc. Pt. (lbs)	L	09-09-04	09-09-04	Top	568	284			n/a
11	B5(i6752)	Conc. Pt. (lbs)	L	07-07-12	07-07-12	Top		34			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	14154 ft-lbs	23220 ft-lbs	61.0%	1	05-07-04
End Shear	4906 lbs	11571 lbs	42.4%	1	09-04-10
Total Load Deflection	L/342 (0.345")	n/a	70.2%	4	05-03-04
Live Load Deflection	L/526 (0.225")	n/a	68.5%	5	05-03-04
Max Defl.	0.345"	n/a	n/a	4	05-03-04
Span / Depth	12.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 5-1/2" x 3-1/2"	7875 lbs	95.8%	33.5%	Unspecified
B2	Column 2-3/4" x 3-1/2"	5506 lbs	88.1%	46.9%	Unspecified

Cautions

Concentrated side load(s) 4 are closer than 18" from end of member. Please consult a technical representative or Professional of Record.



ENG NO. YAM12669-20
STRUCTURAL
COMPONENT ONLY



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

PASSED

1ST FLR FRAMING\Flush Beams\B1(16766) (Flush Beam)

Dry | 1 span | No cant.

September 17, 2020 07:57:48

BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

File name: MOUNTAINASH 6

Description: 1ST FLR FRAMING\Flush Beams\B1(16766)

Specifier:

Designer: AJ

Company:

Notes

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

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

Calculations assume member is fully braced.

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

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

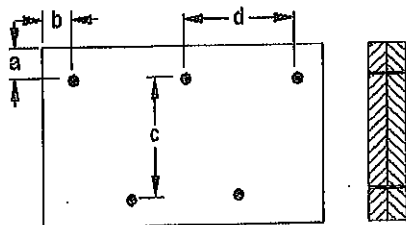
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO UBC 2012

AMENDED 2020

Connection Diagram: Full Length of Member



a minimum = 2"

c = 5-1/2"

b minimum = 3"

d = 6"

Calculated Side Load = 1012.3 lb/ft

Connectors are: Nails

3-1/2" ARDOX SPIRAL



9230
S. KATSOULAKOS
PROVINCE OF ONTARIO
10/2/20
896 NO. 7AM/2809-20
STRUCTURAL
CONSENT ONLY

Disclosure

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

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B17(I2700) (Flush Beam)**

Dry | 1 span | No cant.

August 26, 2020 09:26:19

BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

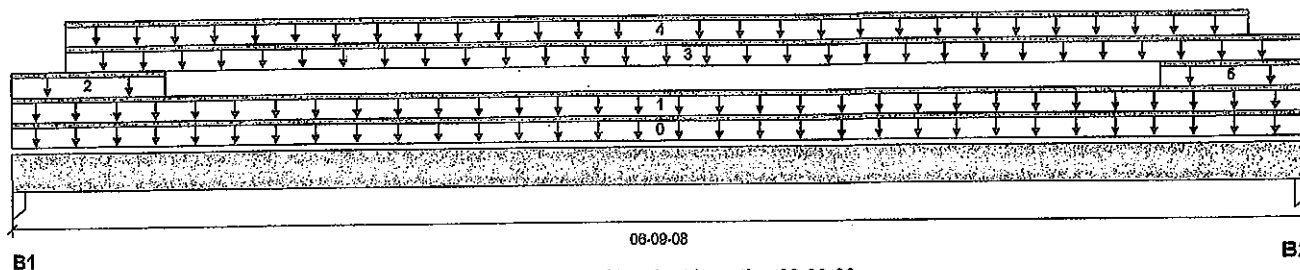
File name: MOUNTAINASH 6 EL 3

Description: 1ST FLR FRAMING\Flush Beams\B17(I2700)

Specifier:

Designer: CH

Company:



Total Horizontal Product Length = 06-09-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	538 / 0	1073 / 0		
B2, 3-1/2"	227 / 0	768 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-09-08	Top		10			00-00-00
1	5(I782)	Unf. Lin. (lb/ft)	L	00-00-00	06-09-08	Top		81			n/a
2	5(I782)	Unf. Lin. (lb/ft)	L	00-00-00	00-09-12	Top	481	612			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-03-08	06-09-08	Top	20	10			n/a
4	5(I782)	Unf. Lin. (lb/ft)	L	00-03-08	06-06-00	Top	31	80			n/a
5	5(I782)	Unf. Lin. (lb/ft)	L	06-00-08	06-09-08	Top	71	221			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1363 ft-lbs	15093 ft-lbs	9.0%	0	03-03-14
End Shear	1010 lbs	7621 lbs	13.4%	0	01-01-00
Total Load Deflection	L/999 (0.019")	n/a	n/a	4	03-04-12
Live Load Deflection	L/999 (0.004")	n/a	n/a	5	03-03-14
Max Defl.	0.019"	n/a	n/a	4	03-04-12
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"	1503 lbs	23.2%	15.5%	Unspecified
B2	Column 3-1/2" x 3-1/2"	1075 lbs	16.6%	11.1%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO ORC 2012

AMENDED 2020



NO. 12117 -20
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLR FRAMING\Flush Beams\B17(12700) (Flush Beam)

PASSED

BC CALC® Member Report

Buld 7493

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

August 26, 2020 09:26:19

File name: MOUNTAINASH 6 EL 3

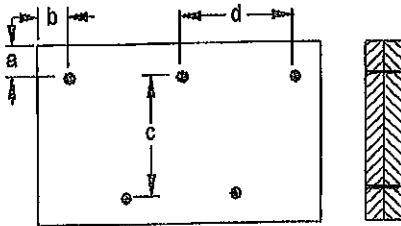
Description: 1ST FLR FRAMING\Flush Beams\B17(12700)

Specifier:

Designer: CH

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

b minimum = 3"

c = 5-1/2"

d = 8"

Connectors are: 1 Nails

3-1/2" ARDOX SPIRAL

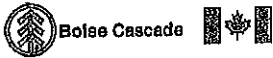


DWG NO. TAM 12117-20
STRUCTURAL
COMPONENT ONLY

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®,



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

2ND FLR FRAMING\Flush Beams\B18(12803) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

August 26, 2020 09:26:19

Build 7493

Job name:

File name: MOUNTAINASH 6 EL 3

Address:

Description: 2ND FLR FRAMING\Flush Beams\B18(12803)

City, Province, Postal Code: HAMILTON

Specfier:

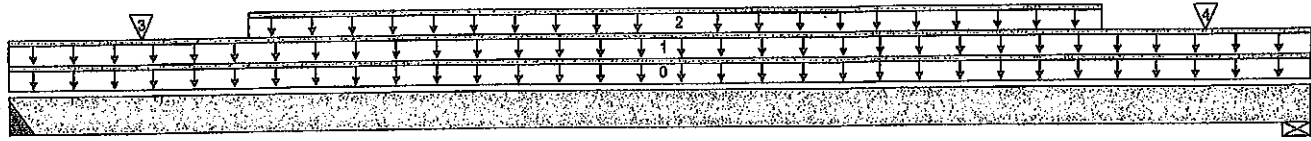
Customer:

Designer: CH

Code reports:

CCMC 12472-R

Company:



B1

08-01-08

B2

Total Horizontal Product Length = 08-01-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	310 / 0	440 / 0		
B2, 3-1/2"	307 / 0	435 / 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	08-01-08	Top		10			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	08-01-08	Top		60			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-06-00	06-10-00	Top	82	40			n/a
3	J6(12742)	Conc. Pt. (lbs)	L	00-10-00	00-10-00	Top	101	50			n/a
4	J6(12748)	Conc. Pt. (lbs)	L	07-06-00	07-06-00	Top	82	41			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1874 ft-lbs	23220 ft-lbs	8.1%	1	03-10-00
End Shear	839 lbs	11571 lbs	7.2%	1	01-01-08
Total Load Deflection	L/999 (0.029")	n/a	n/a	4	04-01-00
Live Load Deflection	L/999 (0.012")	n/a	n/a	5	04-01-00
Max Defl.	0.029"	n/a	n/a	4	04-01-00
Span / Depth	9.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 4" x 3-1/2"	1015 lbs	n/a	5.9%	HGUS410
B2	Wall/Plate 3-1/2" x 3-1/2"	1004 lbs	13.3%	6.7%	Spruce-Pine-Fir

Cautions

Header for the hanger HGUS410 is a Quadruple 1-3/4" x 9-1/2" LVL Beam.
Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

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

AMENDED 2020



ENG. NO. YAM12118-20
STRUCTURAL
COMPONENT ONLY



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

PASSED

2ND FLR FRAMING\Flush Beams\B18(i2803) (Flush Beam)

Dry | 1 span | No cant.

August 26, 2020 09:26:19

BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

File name: MOUNTAINASH 6 EL 3

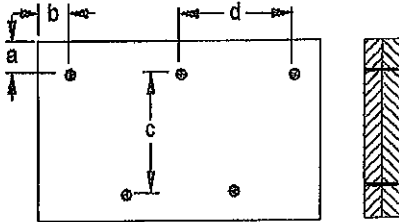
Description: 2ND FLR FRAMING\Flush Beams\B18(i2803)

Specifier:

Designer: CH

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 5-1/2"

b minimum = 3"

d = 2" 6"

Calculated Side Load = 232.3 lb/ft

Connectors are: 1 Nails

3-1/2" ARDOX SPIRAL



OWN NO. 12110-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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Boise Cascade

**Quadruple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Flush Beams\B19(I2627) (Flush Beam)**

Dry | 1 span | No cant.

August 26, 2020 09:26:19

BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

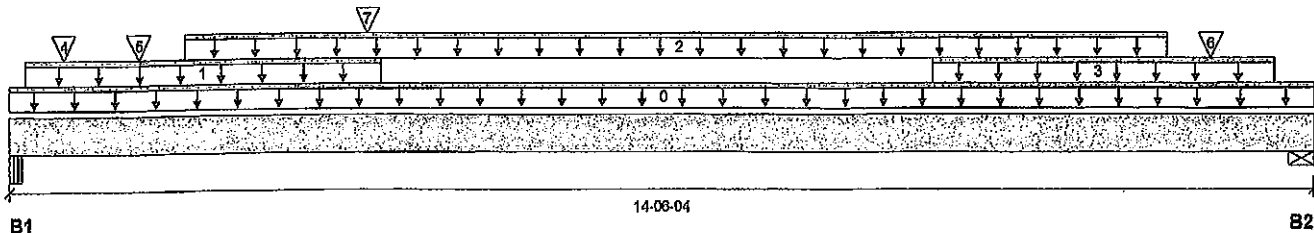
File name: MOUNTAINASH 6 EL 3

Description: 2ND FLR FRAMING\Flush Beams\B19(I2627)

Specflier:

Designer: CH

Company:



Total Horizontal Product Length = 14-06-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-1/2"	2856 / 0	1769 / 0		
B2, 5-1/2"	3171 / 0	1798 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	14-06-04	Top		19			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-04	04-01-04	Top	22	11			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-11-04	12-11-04	Top	342	170			n/a
3	STAIRS	Unf. Lin. (lb/ft)	L	10-03-04	14-00-12	Top	240	120			n/a
4	J7(I2837)	Conc. Pt. (lbs)	L	00-07-04	00-07-04	Top	324	162			n/a
5	J7(I2847)	Conc. Pt. (lbs)	L	01-05-04	01-05-04	Top	305	152			n/a
6	J7(I3121)	Conc. Pt. (lbs)	L	13-05-04	13-05-04	Top	325	162			n/a
7	B18(I2803)	Conc. Pt. (lbs)	L	03-11-08	03-11-08	Top	301	426			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	21829 ft-lbs	48297 ft-lbs	45.2%	1	07-05-04
End Shear	6416 lbs	23142 lbs	27.7%	1	13-03-04
Total Load Deflection	L/308 (0.542")	n/a	78.6%	4	07-02-04
Live Load Deflection	L/489 (0.339")	n/a	73.6%	5	07-02-04
Max Defl.	0.542"	n/a	n/a	4	07-02-04
Span / Depth	17.4				

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Beam	4-1/2" x 7"	6495 lbs	38.6%	16.9%	Unspecified
B2 Wall/Plate	5-1/2" x 7"	7004 lbs	29.6%	14.9%	Spruce-Pine-Fir

Notes

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

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

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

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 UBC 2012

AMENDED 2020

OWN NO. 7AM 12119-20
STRUCTURAL
COMPONENT ONLY



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

PASSED

2ND FLR FRAMING\Flush Beams\B19(i2627) (Flush Beam)

Dry | 1 span | No cant.

August 26, 2020 09:26:19

BC CALC® Member Report

Build 7493

Job name:

Address:

City, Province, Postal Code: HAMILTON

Customer:

Code reports: CCMC 12472-R

File name: MOUNTAINASH 6 EL 3

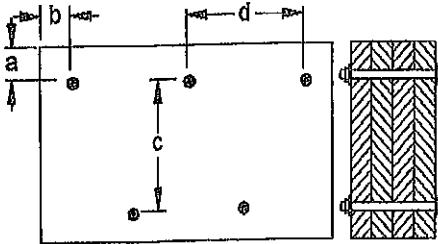
Description: 2ND FLR FRAMING\Flush Beams\B19(i2627)

Specifier:

Designer: CH

Company:

Connection Diagram: Full Length of Member



a minimum = 2-1/2" c = 4-1/2"
b minimum = 3-1/8" d = 18 1/2"

Calculated Side Load = 731.0 lb/ft

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

Connectors are: 5/8 in. Staggered Through Bolt



OWG NO. 7AM 12/19-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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

PASSED

2ND FLR FRAMING\Dropped Beams\B13 DR(I1726) (Dropped Beam)

Dry | 1 span | No cant.

February 10, 2020 11:38:52

BC CALC® Member Report

Buld 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

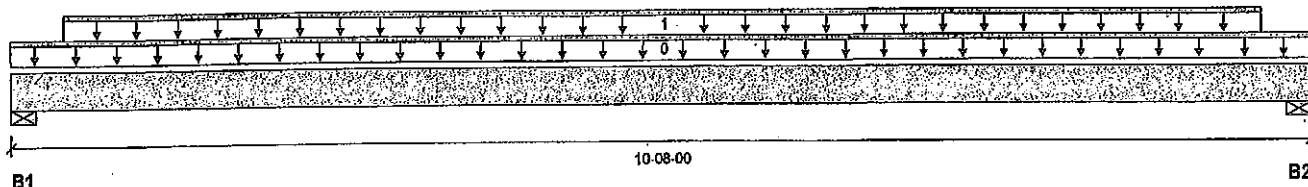
File name: MOUNTAINASH 6 EL 1.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B13 DR(I1726)

Specifier:

Designer:

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1619 / 0	861 / 0		
B2, 4"	1618 / 0	861 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-08-00	Top	1.00	0.85	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-05-04	10-02-12	Top	313	156			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	8926 ft-lbs	23220 ft-lbs	38.4%	1	05-08-12
End Shear	3236 lbs	11571 lbs	28.0%	1	01-01-08
Total Load Deflection	L/523 (0.232")	n/a	45.9%	4	04-11-04
Live Load Deflection	L/800 (0.152")	n/a	45.0%	5	04-11-04
Max Defl.	0.232"	n/a	n/a	4	04-11-04
Span / Depth	12.8				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	3504 lbs	18.8%	20.5%	Spruce-Pine-Fir
B2	Wall/Plate 4" x 3-1/2"	3503 lbs	18.8%	20.5%	Spruce-Pine-Fir

Notes

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

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

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

Resistance Factor phi has been applied to all presented results per CSA 086.

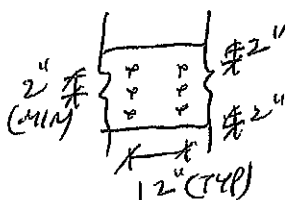
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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



OWN NO. TAM 6001 - 20
STRUCTURAL
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Quadruple 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP

PASSED

2ND FLR FRAMING\Flush Beams\B10(i2111) (Flush Beam)

Dry | 1 span | No cant.

February 10, 2020 11:38:52

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

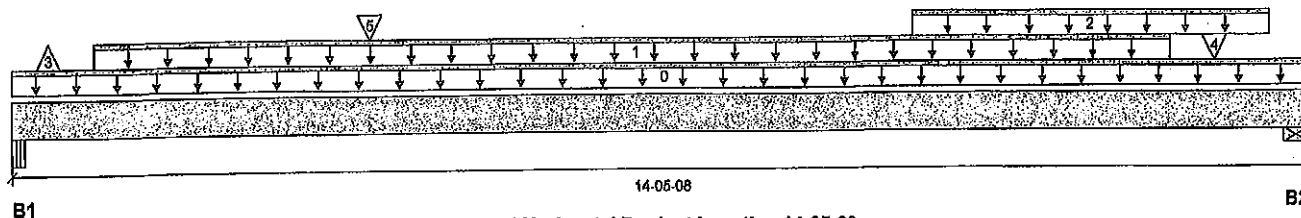
File name: MOUNTAINASH 6 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B10(i2111)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 14-05-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-1/2"	2574 / 597	1313 / 0		
B2, 5-1/2"	2883 / 0	1649 / 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	14-05-08	Top		19			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-11-00	12-11-00	Top	353	176			n/a
2	STAIR	Unf. Lin. (lb/ft)	L	10-00-00	14-00-00	Top	120	60			n/a
3	J6(i1586)	Conc. Pt. (lbs)	L	00-05-00	00-05-00	Top	-597	-282			n/a
4	J8(i2121)	Conc. Pt. (lbs)	L	13-05-00	13-05-00	Top	338	169			n/a
5	B11(i2153)	Conc. Pt. (lbs)	L	03-11-10	03-11-10	Top	305	406			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	21228 ft-lbs	48297 ft-lbs	44.0%	1	07-05-00
End Shear	5935 lbs	23142 lbs	25.6%	1	13-02-08
Total Load Deflection	L/317 (0.52")	n/a	75.6%	6	07-02-00
Live Load Deflection	L/508 (0.325")	n/a	70.9%	8	07-02-00
Max Defl.	0.52"	n/a	n/a	6	07-02-00
Span / Depth	17.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 4-1/2" x 7"	5502 lbs	28.4%	14.3%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 7"	6387 lbs	27.0%	13.6%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

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

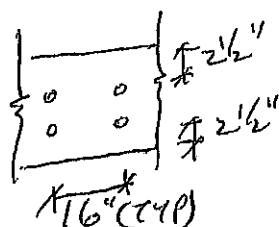
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

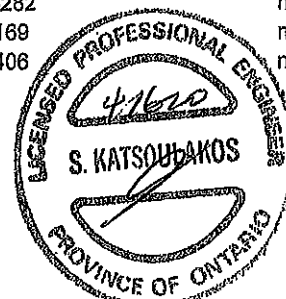
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



BOLT MULTI-PLY MEMBERS USING
2 ROWS 1/2" Ø A307 BOLTS
C/W WASHERS / NUTS @ 16" O.C.



DWG NO. TAM 6092-20

STRUCTURAL
COMPONENT ONLY
Disclosure

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



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

2ND FLR FRAMING\Flush Beams\B11(12153) (Flush Beam)

PASSED

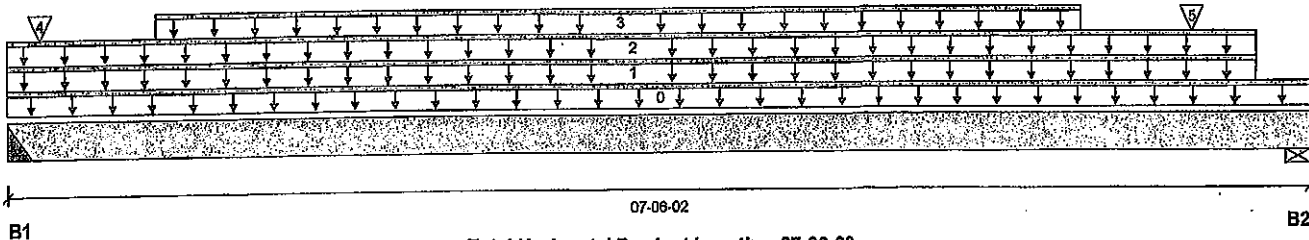
BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code:
Customer:
Code reports:

Dry | 1 span | No cant.

February 10, 2020 11:38:52

File name: MOUNTAINASH 6 EL 1.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B11(12153)
Specifier:
Designer:
Company:

CCMC 12472-R



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	307 / 0	409 / 0		
B2, 3-3/4"	290 / 0	393 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-08-02	Top	1.00	0.65	1.00	1.15	00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	07-02-06	Top		60			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-02-06	Top	6	3			n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	00-10-06	06-02-06	Top	76	38			n/a
4	J5(11619)	Conc. Pt. (lbs)	L	00-02-06	00-02-06	Top	70	35			n/a
5	J5(11506)	Conc. Pt. (lbs)	L	06-10-06	06-10-06	Top	77	39			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1645 ft-lbs	23220 ft-lbs	7.1%	1	03-11-06
End Shear	744 lbs	11571 lbs	6.4%	1	06-04-14
Total Load Deflection	L/999 (0.022")	n/a	n/a	4	03-08-06
Live Load Deflection	L/999 (0.009")	n/a	n/a	5	03-08-06
Max Defl.	0.022"	n/a	n/a	4	03-08-06
Span / Depth	9.0				

Bearing Supports

	Dlm. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	972 lbs	n/a	11.4%	Hanger
B2	Wall/Plate 3-3/4" x 3-1/2"	926 lbs	11.5%	5.8%	Spruce-Pine-Fir

Cautions

Hanger model Hanger was not found. Hanger has not been analyzed for adequate capacity.

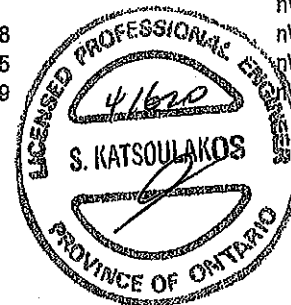
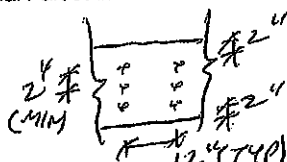
Notes

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

AMENDED 2020

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



DWG NO. YAN6083-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B12(I1651) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

February 10, 2020 11:38:52

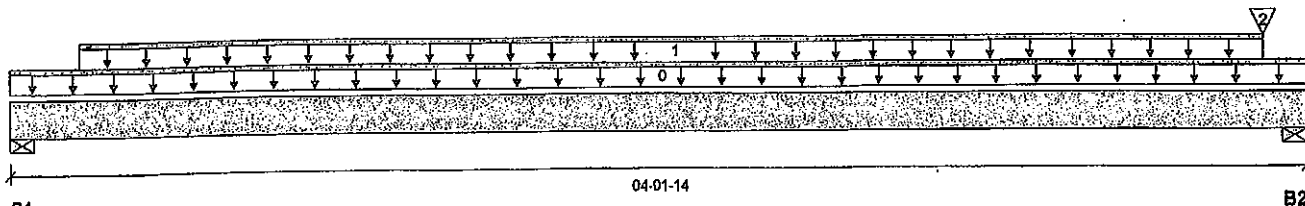
File name: MOUNTAINASH 6 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B12(I1651)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 04-01-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	52 / 0	38 / 0		
B2, 3-1/2"	51 / 0	35 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-01-14	Top	1.00	0.66	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	04-00-02	Top	27	13			n/a
2	FC2 Floor Material	Conc. Pt. (lbs)	L	04-00-02	04-00-02	Top	2	1			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	98 ft-lbs	11610 ft-lbs	0.8%	1	02-01-15
End Shear	57 lbs	5785 lbs	1.0%	1	01-03-00
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	02-01-15
Live Load Deflection	L/999 (0")	n/a	n/a	5	02-01-15
Max Defl.	0.001"	n/a	n/a	4	02-01-15
Span / Depth	4.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	123 lbs	2.1%	1.0%	Spruce-Pine-Fir
B2	Wall/Plate 3-1/2" x 1-3/4"	121 lbs	3.2%	1.6%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

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

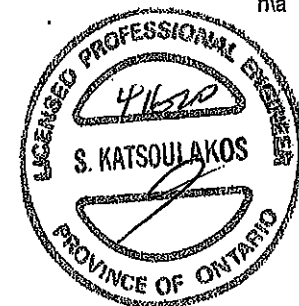
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



DWG NO. TAM 6084-20
STRUCTURAL COMPONENT ONLY

Disclosure

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



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

2ND FLR FRAMING\Flush Beams\B14(I2151) (Flush Beam)

PASSED

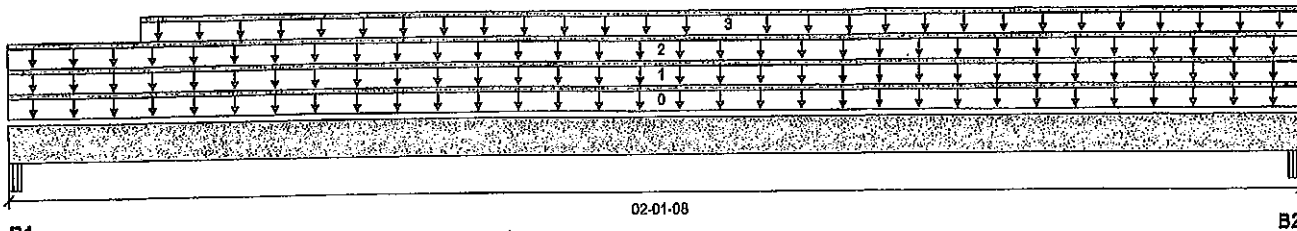
BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code:
Customer:
Code reports:

Dry | 1 span | No cant.

February 10, 2020 11:38:52

File name: MOUNTAINASH 6 EL 1.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B14(I2151)
Specifier:
Designer:
Company:

CCMC 12472-R



Total Horizontal Product Length = 02-01-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-5/8"	43 / 0	120 / 0	42 / 0	
B2, 4-1/8"	55 / 0	138 / 0	47 / 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	02-01-08	Top	10				00-00-00
1	SNOW	Unf. Lin. (lb/ft)	L	00-00-00	02-01-08	Top	22	20	42		n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-00-00	02-01-08	Top		80			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	02-01-08	Top	27	13			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	96 ft-lbs	23220 ft-lbs	0.4%	1	01-00-02
End Shear	2 lbs	7521 lbs	n/a	0	01-00-02
Total Load Deflection	L/999 (0")	n/a	n/a	35	01-00-02
Max Defl.	0"	n/a	n/a	35	01-00-02
Span / Depth	2.1				



OWG NO. TAM 6095-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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

Notes

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

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86. **AMENDED 2020**

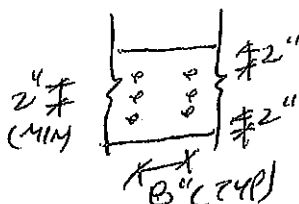
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

CONFORMS TO OBC 2012



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



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

2ND FLR FRAMING\Flush Beams\B16(I2154) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 10, 2020 11:38:52

Bulld 7239

Job name:

File name: MOUNTAINASH 6 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B16(I2154)

City, Province, Postal Code:

Specifier:

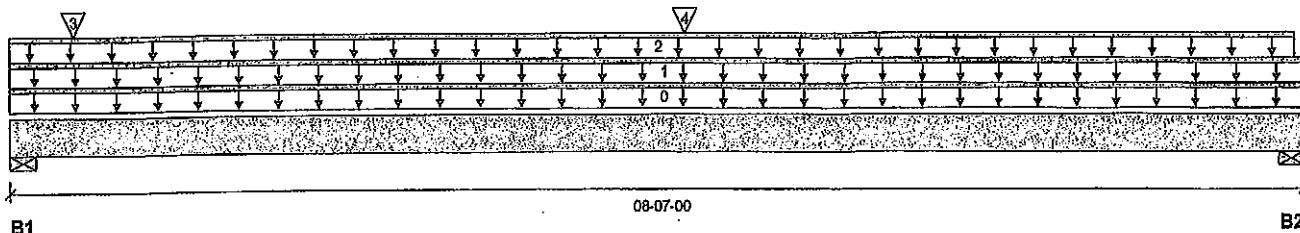
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 08-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	184 / 0	517 / 0	187 / 0	
B2, 5-1/2"	120 / 0	462 / 0	65 / 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	08-07-00	Top	1.00	0.85	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-07-00	Top	20	10			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-00-00	08-06-01	Top		80			n/a
3	WINDOW	Conc. Pt. (lbs)	L	00-05-00	00-05-00	Top	66	60	126		n/a
4	WINDOW	Conc. Pt. (lbs)	L	04-05-00	04-05-00	Top	66	60	126		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1221 ft-lbs	15093 ft-lbs	8.1%	0	04-05-00
End Shear	468 lbs	7521 lbs	6.2%	0	07-04-00
Total Load Deflection	L/899 (0.028")	n/a	n/a	35	04-03-13
Live Load Deflection	L/899 (0.01")	n/a	n/a	51	04-03-13
Max Defl.	0.028"	n/a	n/a	35	04-03-13
Span / Depth	9.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	723 lbs	9.4%	4.7%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	633 lbs	8.2%	4.1%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

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

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

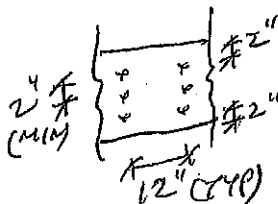
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

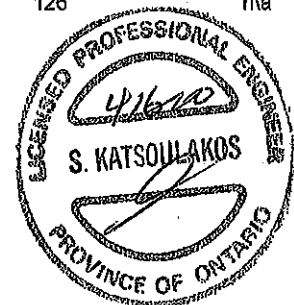
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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



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

DWG NO. TAM 6086-20

STRUCTURAL



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

2ND FLR FRAMING\Flush Beams\B8(12152) (Flush Beam)

PASSED

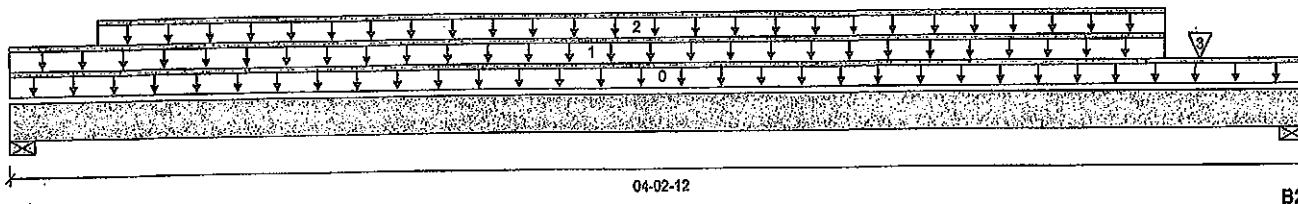
BC CALC® Member Report
Build 7239
Job name:
Address:
City, Province, Postal Code:
Customer:
Code reports:

Dry | 1 span | No cant.

February 10, 2020 11:38:52

File name: MOUNTAINASH 6 EL 1.mmdl
Description: 2ND FLR FRAMING\Flush Beams\B8(12152)
Specifier:
Designer:
Company:

CCMC 12472-R



Total Horizontal Product Length = 04-02-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	41 / 0	144 / 0		
B2, 5-1/2"	36 / 0	143 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-02-12	Top		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-09-04	Top	20	10			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-03-08	03-09-04	Top		80			n/a
3	FC2 Floor Material	Conc. Pt. (lbs)	L	03-10-10	03-10-10	Top	1				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	181 ft-lbs	15083 ft-lbs	1.2%	0	02-00-06
End Shear	106 lbs	7521 lbs	1.4%	0	01-01-00
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	02-00-06
Live Load Deflection	L/999 (0")	n/a	n/a	5	02-00-06
Max Defl.	0.001"	n/a	n/a	4	02-00-06
Span / Depth	4.6				

Bearing Supports

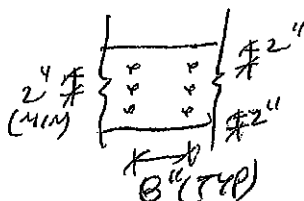
	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	202 lbs	4.1%	2.1%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	201 lbs	2.6%	1.3%	Spruce-Pine-Fir

Notes

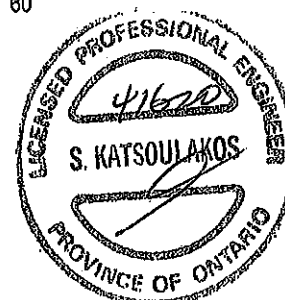
Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States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

CONFIRMS TO OBC 2012

AMENDED 2020



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



046 NO. YAW 6087-20
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®,



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

PASSED

1ST FLR FRAMING\Flush Beams\B1(I1955) (Flush Beam)

Dry | 2 spans | No cant.

February 10, 2020 11:38:52

BC CALC® Member Report

Buld 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

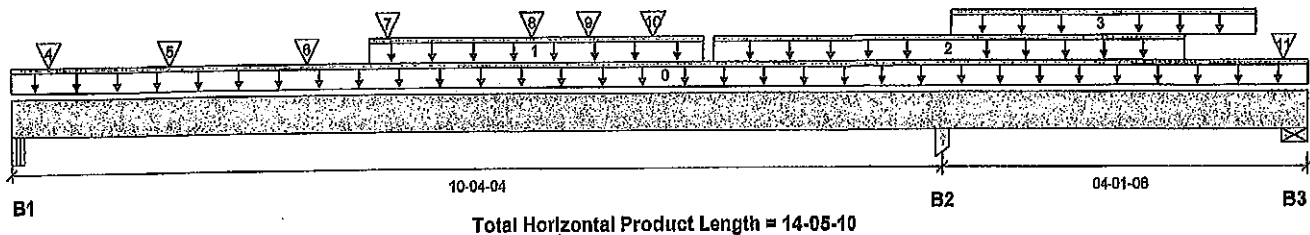
File name: MOUNTAINASH 6 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B1(I1955)

Specifier:

Designer:

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	3149 / 27	1723 / 0		
B2, 4-1/2"	5407 / 0	2876 / 0		
B3, 5-1/2"	4368 / 1288	3245 / 0		

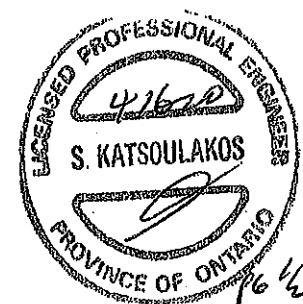
Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	14-05-10	Top	1.00	0.65	1.00	1.15	00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	03-11-10	07-07-10	Top	240	120			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	07-09-02	13-01-02	Top	323	161			n/a
3	STAIR	Unf. Lin. (lb/ft)	L	10-05-06	13-10-10	Top	240	120			n/a
4	J2(I2040)	Conc. Pt. (lbs)	L	00-05-02	00-05-02	Top	1454	789			n/a
5	J2(I2099)	Conc. Pt. (lbs)	L	01-09-02	01-09-02	Top	431	215			n/a
6	-	Conc. Pt. (lbs)	L	03-03-04	03-03-04	Top	522	261			n/a
7	-	Conc. Pt. (lbs)	L	04-02-02	04-02-02	Top	710	417			n/a
8	J2(I2016)	Conc. Pt. (lbs)	L	05-09-02	05-09-02	Top	295	147			n/a
9	J2DJ(I2081)	Conc. Pt. (lbs)	L	06-04-10	06-04-10	Top	255	127			n/a
10	J2(I1959)	Conc. Pt. (lbs)	L	07-01-02	07-01-02	Top	332	166			n/a
11	-	Conc. Pt. (lbs)	L	14-02-06	14-02-06	Top	3733	3598			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	9867 ft-lbs	23220 ft-lbs	42.5%	2	04-05-02
Neg. Moment	-10975 ft-lbs	-23220 ft-lbs	47.3%	1	10-04-04
End Shear	3496 lbs	11571 lbs	30.2%	2	01-02-12
Cont. Shear	5922 lbs	11571 lbs	51.2%	1	09-04-08
Total Load Deflection	L/584 (0.205")	n/a	41.1%	9	04-11-02
Live Load Deflection	L/886 (0.135")	n/a	40.7%	12	04-11-02
Total Neg. Defl.	L/999 (-0.021")	n/a	n/a	9	11-10-09
Max Defl.	0.205"	n/a	n/a	9	04-11-02
Span / Depth	12.6				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	5-1/4" x 3-1/2"	6878 lbs	70.1%	30.7%	Unspecified
B2 Column	4-1/2" x 3-1/2"	11705 lbs	91.5%	60.9%	Unspecified
B3 Wall/Plate	5-1/2" x 3-1/2"	10607 lbs	89.6%	45.2%	Spruce-Pine-Fir



SWG NO. TAM 6088 -20
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLR FRAMING\Flush Beams\B1(I1955) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 2 spans | No cant.

February 10, 2020 11:38:52

Build 7239

Job name:

File name: MOUNTAINASH 6 EL 1.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B1(I1955)

City, Province, Postal Code:

Specifier:

Customer:

Designer:

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.

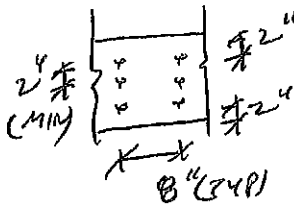
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

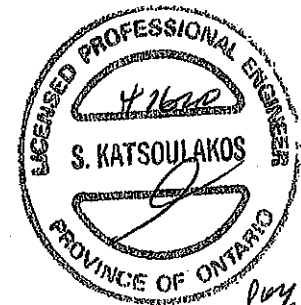
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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



ENG NO. TAM 6008-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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



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

PASSED

1ST FLR FRAMING\Flush Beams\B2(1994) (Flush Beam)

Dry | 1 span | No cant.

February 10, 2020 11:38:52

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

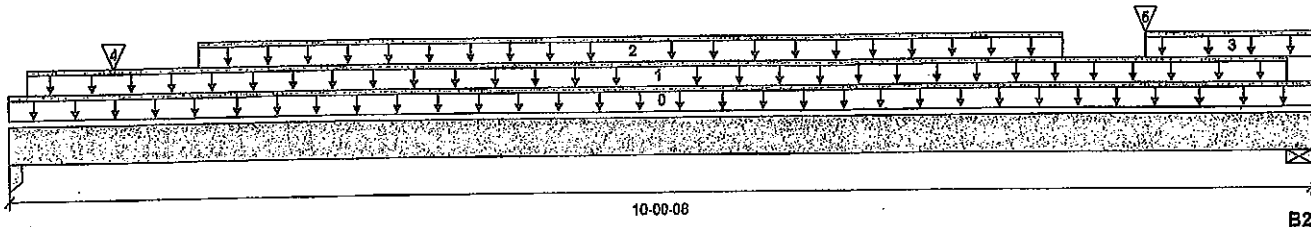
File name: MOUNTAINASH 6 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B2(1994)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 10-00-08

Reaction Summary (Down / Uplift) (lbs)

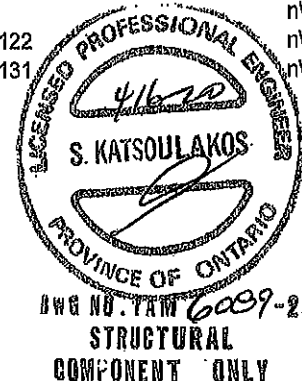
Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	985 / 0	834 / 0		
B2, 1-7/8"	942 / 0	810 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-00-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-01-12	09-10-02	Top		60			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-05-10	08-01-10	Top	210	104			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	08-09-10	10-00-08	Top	22				n/a
4	J4(1985)	Conc. Pt. (lbs)	L	00-09-10	00-09-10	Top	244	122			n/a
5	J4(1973)	Conc. Pt. (lbs)	L	08-09-10	08-09-10	Top	262	131			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pds. Moment	6498 ft-lbs	23220 ft-lbs	28.0%	1	04-09-10
End Shear	2370 lbs	11571 lbs	20.5%	1	09-01-02
Total Load Deflection	L/728 (0.163")	n/a	33.0%	4	05-00-10
Live Load Deflection	L/999 (0.089")	n/a	n/a	5	05-00-10
Max Defl.	0.163"	n/a	n/a	4	05-00-10
Span / Depth	12.5				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 1-3/4" x 3-1/2"	2520 lbs	50.7%	33.7%	Unspecified
B2	Wall/Plate 1-7/8" x 3-1/2"	2426 lbs	60.1%	30.3%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

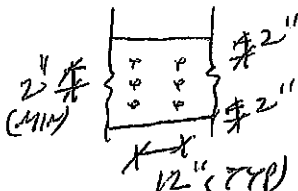
Resistance Factor phi has been applied to all presented results per CSA O86, AMENDED 2020

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



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

Disclosure

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

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B3(1931) (Flush Beam)**

Dry | 1 span | No cant.

February 10, 2020 11:38:52

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

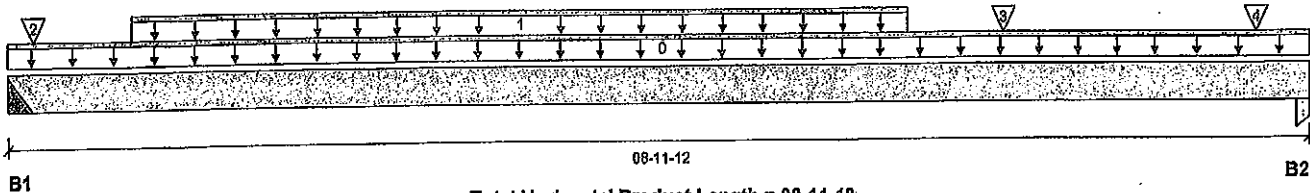
File name: MOUNTAINASH 6 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B3(1931)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 08-11-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	358 / 0	222 / 0		
B2, 3-1/2"	810 / 0	999 / 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	08-11-12	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-10-04	06-02-04	Top	80	40			n/a
2	J7(12069)	Conc. Pt. (lbs)	L	00-02-04	00-02-04	Top	67	34			n/a
3	J7(12079)	Conc. Pt. (lbs)	L	06-10-04	06-10-04	Top	108	54			n/a
4	-	Conc. Pt. (lbs)	L	08-07-07	08-07-07	Top	559	830			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1714 ft-lbs	23220 ft-lbs	7.4%	1	04-02-04
End Shear	706 lbs	11571 lbs	6.1%	1	07-10-12
Total Load Deflection	L/999 (0.032")	n/a	n/a	4	04-04-04
Live Load Deflection	L/999 (0.02")	n/a	n/a	5	04-04-04
Max Defl.	0.032"	n/a	n/a	4	04-04-04
Span / Depth	10.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 3-1/2"	813 lbs	n/a	9.5%	Hanger
B2	Column 3-1/2" x 3-1/2"	2463 lbs	24.8%	16.5%	Unspecified

Cautions

Hanger model Hanger was not found. Hanger has not been analyzed for adequate capacity.

Notes

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

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

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00. CONFORMS TO OBC 2012

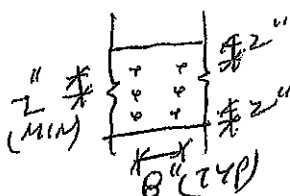
Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020

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



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



OWO NO. YAW 6090-20

**STRUCTURAL
COMPONENT ONLY****Disclosure**

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



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLR FRAMING\Flush Beams\B4(I2084) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 10, 2020 11:38:52

Build 7239

Job name:

File name: MOUNTAINASH 6 EL 1.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B4(I2084)

City, Province, Postal Code:

Specifier:

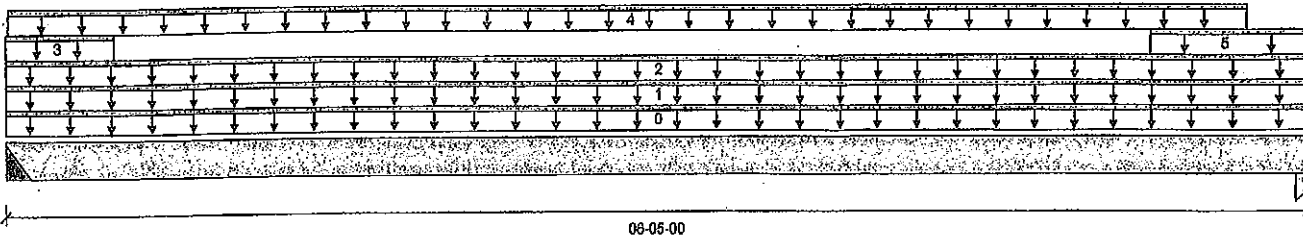
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



B1

Total Horizontal Product Length = 06-05-00

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	344 / 0	618 / 0		
B2, 3-1/2"	167 / 0	496 / 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	06-05-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	3(I760)	Unf. Lin. (lb/ft)	L	00-00-00	06-05-00	Top		81			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	06-05-00	Top	19	9			n/a
3	3(I760)	Unf. Lin. (lb/ft)	L	00-00-00	00-06-06	Top	427	536			n/a
4	3(I760)	Unf. Lin. (lb/ft)	L	00-00-02	06-01-08	Top	20	12			n/a
5	3(I760)	Unf. Lin. (lb/ft)	L	05-08-00	06-05-00	Top	53	192			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	748 ft-lbs	7546 ft-lbs	9.9%	0	03-01-12
End Shear	594 lbs	3761 lbs	15.8%	0	00-11-08
Total Load Deflection	L/999 (0.02")	n/a	n/a	4	03-01-12
Live Load Deflection	L/999 (0.006")	n/a	n/a	5	03-00-15
Max Defl.	0.02"	n/a	n/a	4	03-01-12
Span / Depth	7.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	865 lbs	n/a	31.2%	Hanger
B2	Column 3-1/2" x 1-3/4"	694 lbs	21.5%	14.3%	Unspecified

Cautions

Hanger model Hanger was not found. 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.

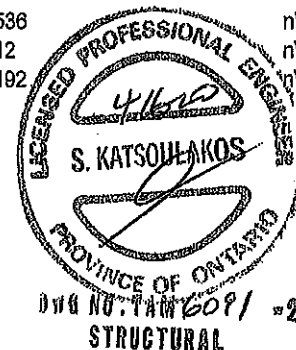
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



DISCLOSURE

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



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLR FRAMING\Flush Beams\B5(I2038) (Flush Beam)

PASSED

Dry | 1 span | No cant.

February 10, 2020 11:38:52

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

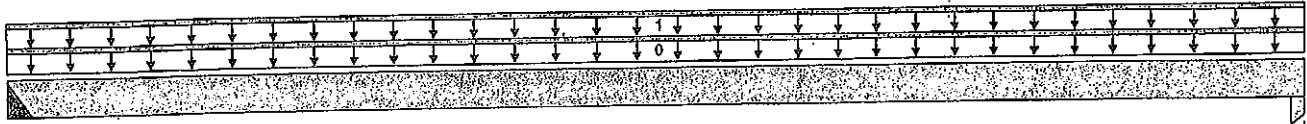
File name: MOUNTAINASH 6 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B5(I2038)

Specifier:

Designer:

Company:



05-01-02

B1

B2

Total Horizontal Product Length = 05-01-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	44 / 0	34 / 0		
B2, 1-3/4"	44 / 0	34 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-01-02	Top		5			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-01-02	Top	17	9			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	129 ft-lbs	11610 ft-lbs	1.1%	1	02-06-11
End Shear	68 lbs	5785 lbs	1.2%	1	00-11-08
Total Load Deflection	L/999 (0.002")	n/a	n/a	4	02-06-11
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	02-06-11
Max Defl.	0.002"	n/a	n/a	4	02-06-11
Span / Depth	6.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	109 lbs	n/a	2.6%	Hanger
B2	Column 1-3/4" x 1-3/4"	108 lbs	4.4%	2.9%	Unspecified

Cautions

Hanger model Hanger was not found. 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 OBB 2012

AMENDED 2020



OWN NO. TAM 6092-20
STRUCTURAL COMPONENT ONLY

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

PASSED

1ST FLR FRAMING\Flush Beams\B6(12036) (Flush Beam)

Dry | 1 span | No cant.

February 10, 2020 11:38:52

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code:

Customer:

Code reports:

CCMC 12472-R

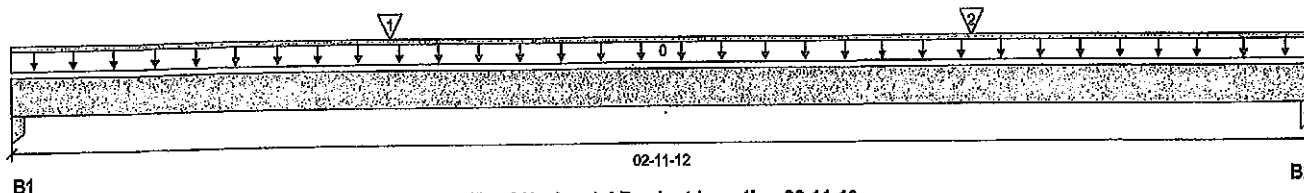
File name: MOUNTAINASH 6 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B6(12036)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 02-11-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	113 / 0	64 / 0		
B2, 3-1/2"	119 / 0	67 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	02-11-12	Top		5			00-00-00
1	J6(11935)	Conc. Pt. (lbs)	L	00-10-06	00-10-06	Top	118	59			n/a
2	J6(12002)	Conc. Pt. (lbs)	L	02-02-06	02-02-06	Top	114	57			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	157 ft-lbs	11610 ft-lbs	1.3%	1	00-10-11
End Shear	174 lbs	5785 lbs	3.0%	1	01-01-00
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	01-05-14
Live Load Deflection	L/999 (0")	n/a	n/a	5	01-05-14
Max Defl.	0.001"	n/a	n/a	4	01-05-14
Span / Depth	3.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	249 lbs	5.0%	3.3%	Unspecified
B2	Column 3-1/2" x 1-3/4"	261 lbs	5.3%	3.5%	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. **AMENDED 2020**

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



SWG NO. TAM 6093-20
STRUCTURAL
COMPONENT ONLY

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

PASSED

1ST FLR FRAMING\Flush Beams\B7(I2063) (Flush Beam)

Dry | 1 span | No cant.

February 10, 2020 11:38:52

BC CALC® Member Report

Build 7239

Job name:

File name: MOUNTAINASH 6 EL 1.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B7(I2063)

City, Province, Postal Code:

Specifier:

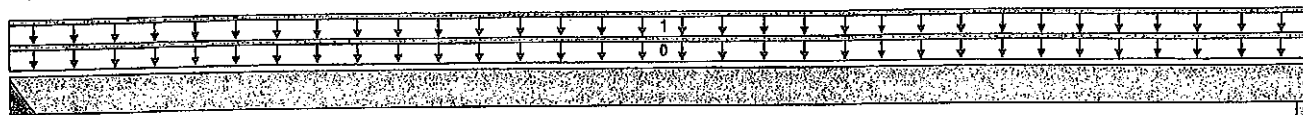
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



B1

05-01-02

B2

Total Horizontal Product Length = 05-01-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	40 / 0	32 / 0		
B2, 1-3/4"	40 / 0	32 / 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	05-01-02	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-01-02	Top	16	8			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	118 ft-lbs	11610 ft-lbs	1.0%	1	02-06-11
End Shear	63 lbs	5785 lbs	1.1%	1	00-11-08
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	02-06-11
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	02-06-11
Max Defl.	0.001"	n/a	n/a	4	02-06-11
Span / Depth	6.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	100 lbs	n/a	2.3%	Hanger
B2	Column 1-3/4" x 1-3/4"	99 lbs	4.0%	2.7%	Unspecified

Cautions

Hanger model Hanger was not found. 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

AMENDED 2020



NO. TAM 6094 -20
STRUCTURAL
COMPONENT ONLY

Disclosure

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

2ND FLR FRAMING\Flush Beams\B14B(12247) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 10, 2020 12:41:53

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

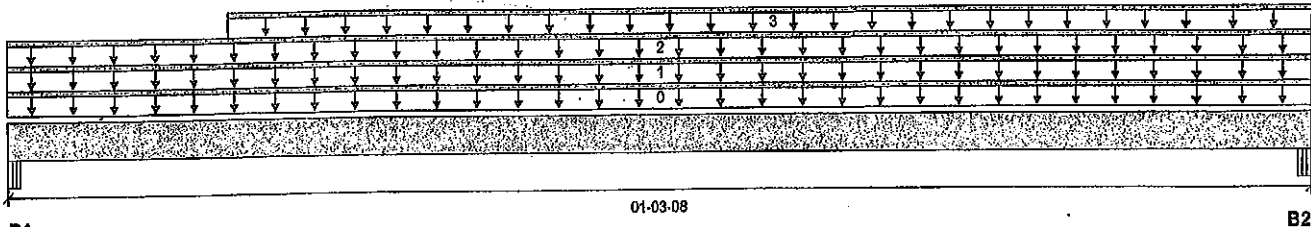
File name: MOUNTAINASH 6 EL 2.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B14B(12247)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 01-03-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-5/8"	12 / 0	59 / 0	23 / 0	
B2, 5-1/4"	17 / 0	83 / 0	32 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-03-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	SNOW	Unf. Lin. (lb/ft)	L	00-00-00	01-03-08	Top	22	20	42		n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-00-00	01-03-08	Top		80			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	01-03-08	Top	1				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	11 ft-lbs	15093 ft-lbs	n/a	0	00-06-07
End Shear	49 lbs	7521 lbs	0.6%	0	00-02-10
Span / Depth	1.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 2-5/8" x 3-1/2"	82 lbs	2.6%	1.1%	Unspecified
B2	Beam 5-1/4" x 3-1/2"	116 lbs	1.8%	0.8%	Unspecified

Notes

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.

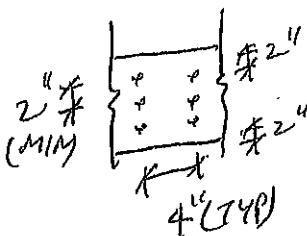
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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



OWN NO. TAIN 6095 -20
STRUCTURAL
COMPONENT ONLY

Disclosure

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



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

1ST FLR FRAMING\Flush Beams\B1A(12350) (Flush Beam)

PASSED

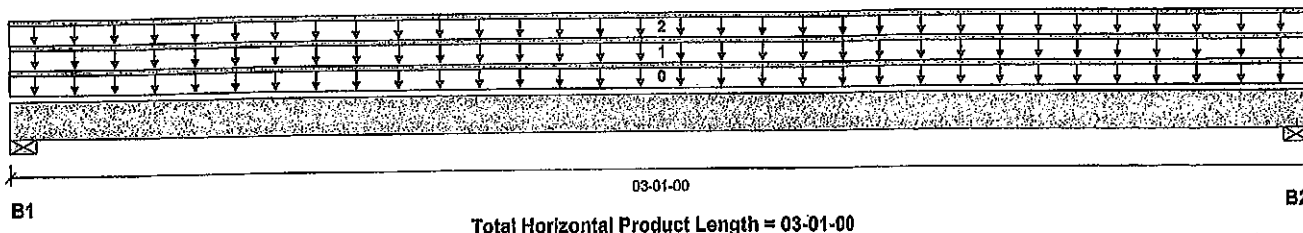
BC CALC® Member Report
Build 7239

Dry | 1 span | No cant.

April 16, 2020 08:43:03

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

File name: MOUNTAINASH 6 EL 1 DECK CONDITION.mmdl
Description: 1ST FLR FRAMING\Flush Beams\B1A(12350)
Specifier:
Designer: AJ
Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	41 / 0	160 / 0		
B2, 3"	41 / 0	160 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top		10			00-00-00
1	E3(i585)	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top		81			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top	27	13			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	133 ft-lbs	15093 ft-lbs	0.9%	0	01-06-08
End Shear	73 lbs	7521 lbs	1.0%	0	01-00-08
Total Load Deflection	L/999 (0")	n/a	n/a	4	01-06-08
Live Load Deflection	L/999 (0")	n/a	n/a	5	01-06-08
Max Defl.	0"	n/a	n/a	4	01-06-08
Span / Depth	3.4				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3" x 3-1/2"	224 lbs	5.3%	2.7%	Spruce-Pine-Fir
B2	Wall/Plate 3" x 3-1/2"	224 lbs	5.3%	2.7%	Spruce-Pine-Fir

Notes

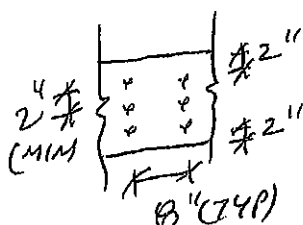
Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86. **AMENDED 2020**
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

Disclosure

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

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B1B(12351) (Flush Beam)**

Dry | 1 span | No cant.

April 16, 2020 08:43:03

BC CALC® Member Report

Build 7239

Job name:

File name: MOUNTAINASH 6 EL 1 DECK CONDITION.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B1B(12351)

City, Province, Postal Code: WATERDOWN

Specifier:

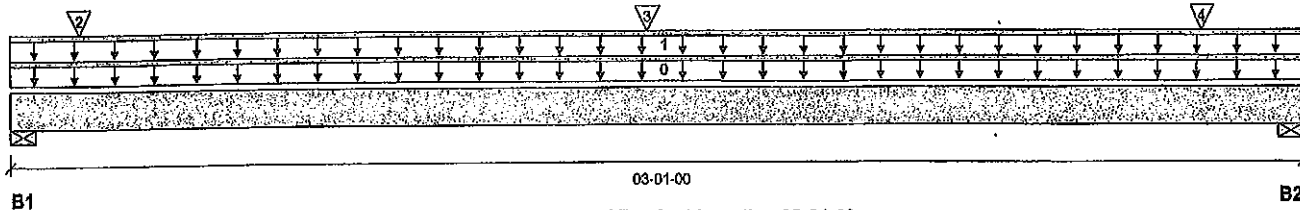
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 03-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	938 / 0	610 / 0		
B2, 3"	928 / 0	604 / 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	03-01-00	Top	100	10	1.00	1.15	00-00-00
1	E9(1588)	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top	270	216			n/a
2	J3(12302)	Conc. Pt. (lbs)	L	00-02-00	00-02-00	Top	345	173			n/a
3	J3(12284)	Conc. Pt. (lbs)	L	01-06-00	01-06-00	Top	345	173			n/a
4	J3(12227)	Conc. Pt. (lbs)	L	02-10-00	02-10-00	Top	345	173			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1125 ft-lbs	23220 ft-lbs	4.8%	1	01-06-00
End Shear	721 lbs	11571 lbs	6.2%	1	01-00-08
Total Load Deflection	L/999 (0.002")	n/a	n/a	4	01-06-07
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	01-06-07
Max Defl.	0.002"	n/a	n/a	4	01-06-07
Span / Depth	3.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3" x 3-1/2"	2170 lbs	33.6%	16.9%	Spruce-Pine-Fir
B2	Wall/Plate 3" x 3-1/2"	2147 lbs	33.2%	16.8%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86. **AMENDED 2020**

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

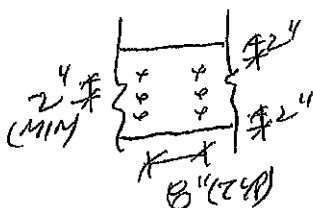
CONFORMS TO CBC 2012

DWG NO. TAM6097-20
STRUCTURAL COMPONENT ONLY

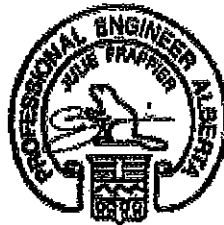
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PROVIDE 3 ROWS OF 3/4" ARDOX SPIRAL NAILS @ 8" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS



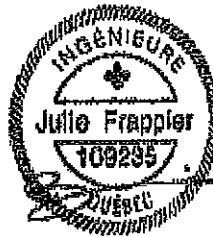
Maximum Floor Spans

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

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

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

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



Maximum Floor Spans

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

Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A
	NI-40x	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

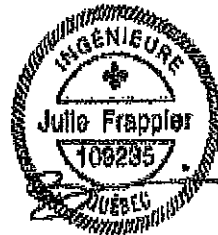
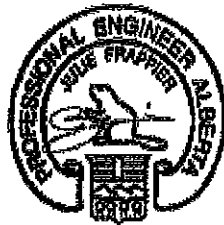
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"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

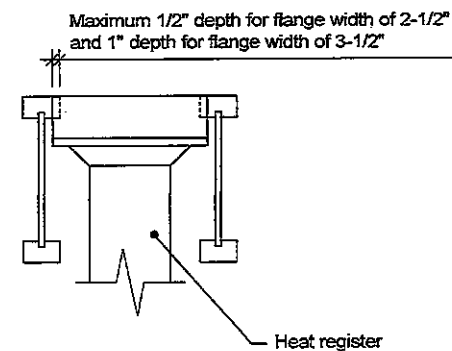
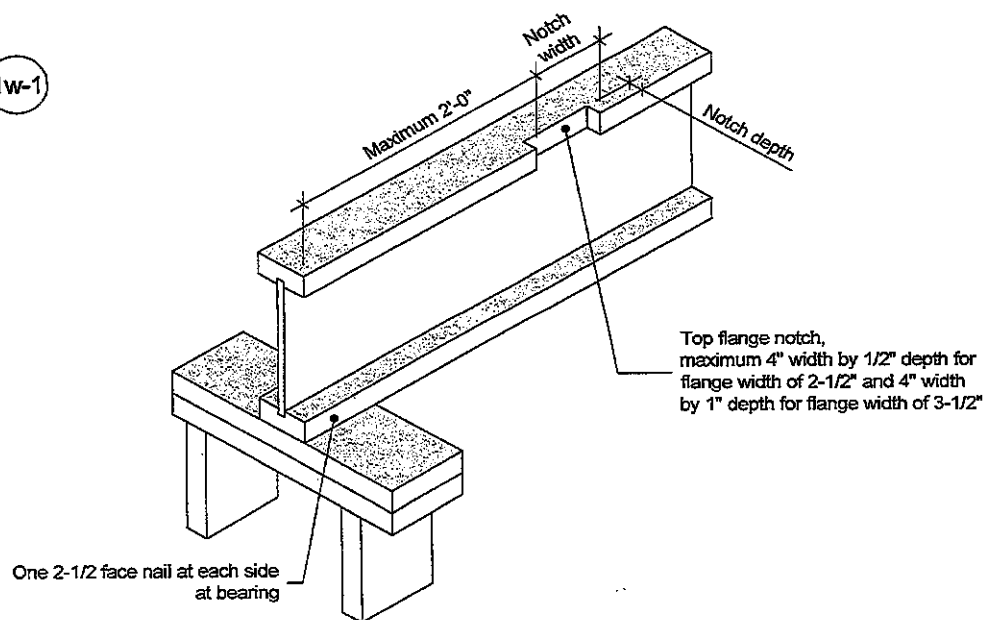


Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	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'-9"	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'-5"	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.

1w-1



Notes:

1. Blocking required at bearing for lateral support, not shown for clarity.
2. The maximum dimensions for a notch on the side of the top flange are 4-inch width by 1/2-inch depth for flange width of 2-1/2 inches, and 4-inch width by 1-inch depth for flange width of 3-1/2 inches.
3. This detail applies to simple-span joists and multiple-span joists where the notch is located at the end half-span.
4. For other applications, contact Nordic Structures.

This document supersedes all previous versions. If the document has been in effect for more than one year, consult nordic.ca or contact Nordic Structures.

All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.

NORDIC
STRUCTURES

T 514-871-8526
1 866 817-3418
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TITLE

Notch in I-joist for Heat Register

CATEGORY

I-joist - Typical Floor Framing and Construction Details

DOCUMENT

-

DATE

2018-04-10

NUMBER

1w-1



Construction Detail

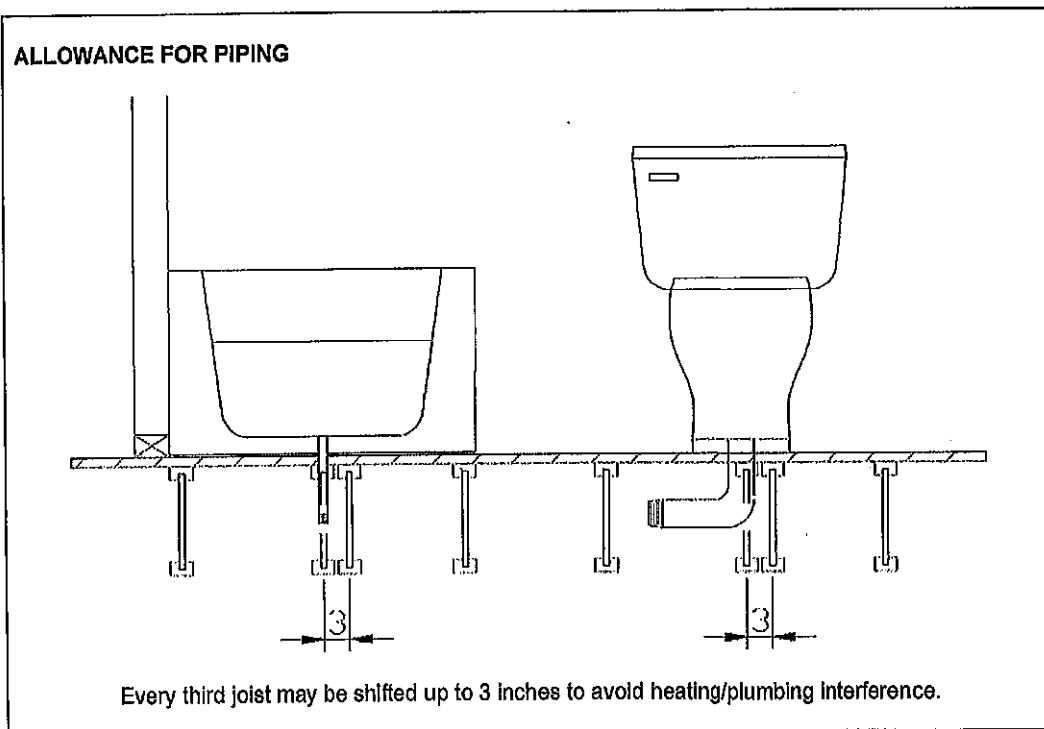
Limit States Design

Allowance for Piping (Installation Notes)

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

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

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



Revised April 12, 2012