

FROM PLAN DATED:

BUILDER: GREENPARK HOMES

SITE: RUSSELL GARDENS PH 3

MODEL: MOUNTAINASH 4

ELEVATION: 3

LOT: 227

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 RE-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 TIL APPLICATION AS PER O.B.C 9.30.6.

LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

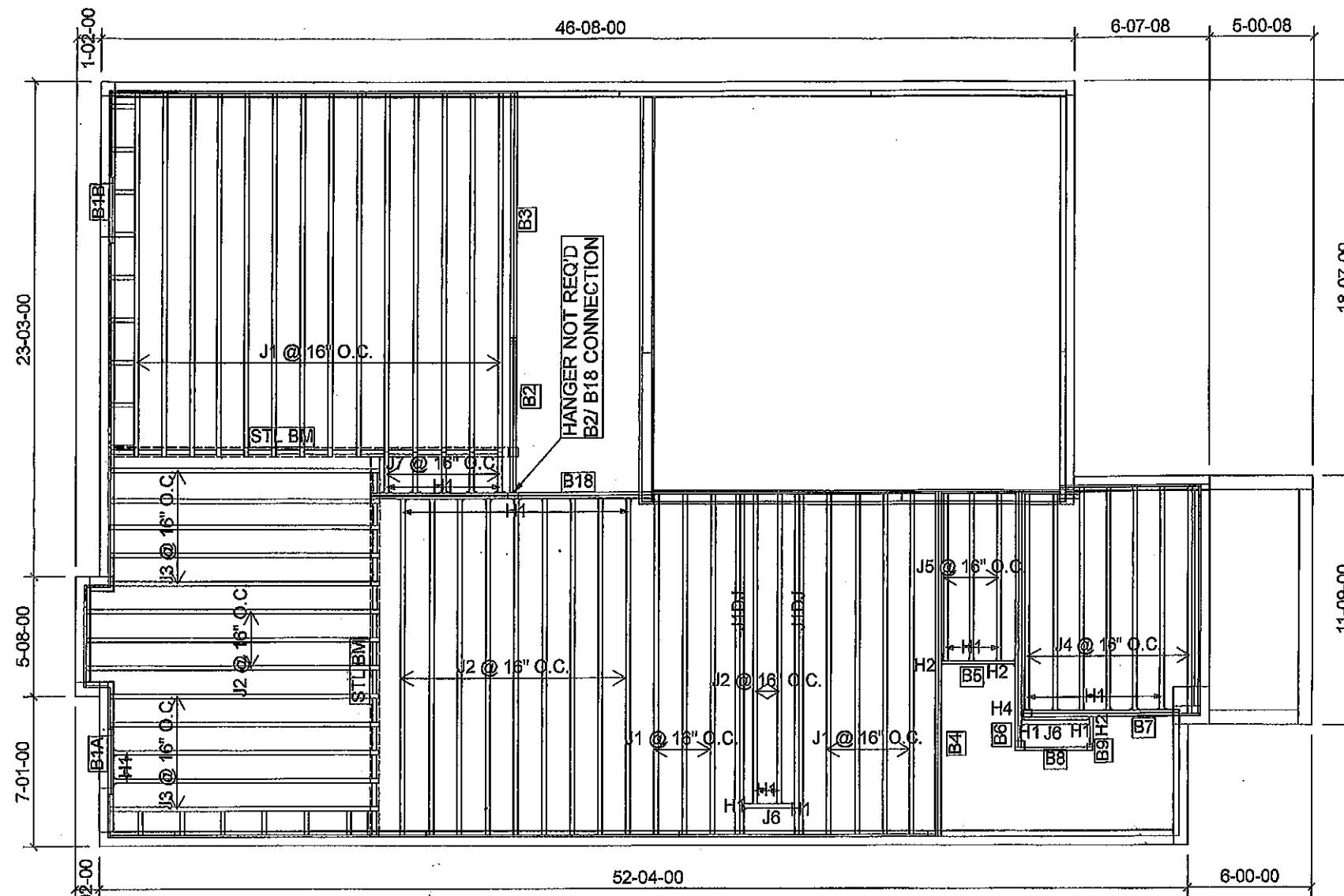
DEAD LOAD: 20.0 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2020-04-16

1st FLOOR

DECK CONDITION



Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1	18-00-00	11 7/8" NI-40x	1	21	MFD
J1DJ	18-00-00	11 7/8" NI-40x	2	4	MFD
J2	16-00-00	11 7/8" NI-40x	1	14	MFD
J3	14-00-00	11 7/8" NI-40x	1	10	MFD
J4	12-00-00	11 7/8" NI-40x	1	7	MFD
J5	8-00-00	11 7/8" NI-40x	1	3	MFD
J6	4-00-00	11 7/8" NI-40x	1	2	MFD
J7	2-00-00	11 7/8" NI-40x	1	5	MFD
B4	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B18	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B6	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B3	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B2	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B7	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B5	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	MFD
B8	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	MFD
B1A	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B1B	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B9	2-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	MFD

Connector Summary		
Qty	Manuf	Product
4	H1	IUS2.56/11.88
23	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
3	H2	HUS1.81/10
1	H4	HGUS410

CITY OF HAMILTON
Building Division

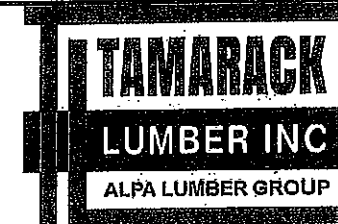
Permit No. 21-105985

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

FOR CHIEF BUILDING OFFICIAL DATE FEB. 23/21



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LOADING:

DESIGN LOADS: L/480.000

LIVE LOAD: 40.0 lb/ft²

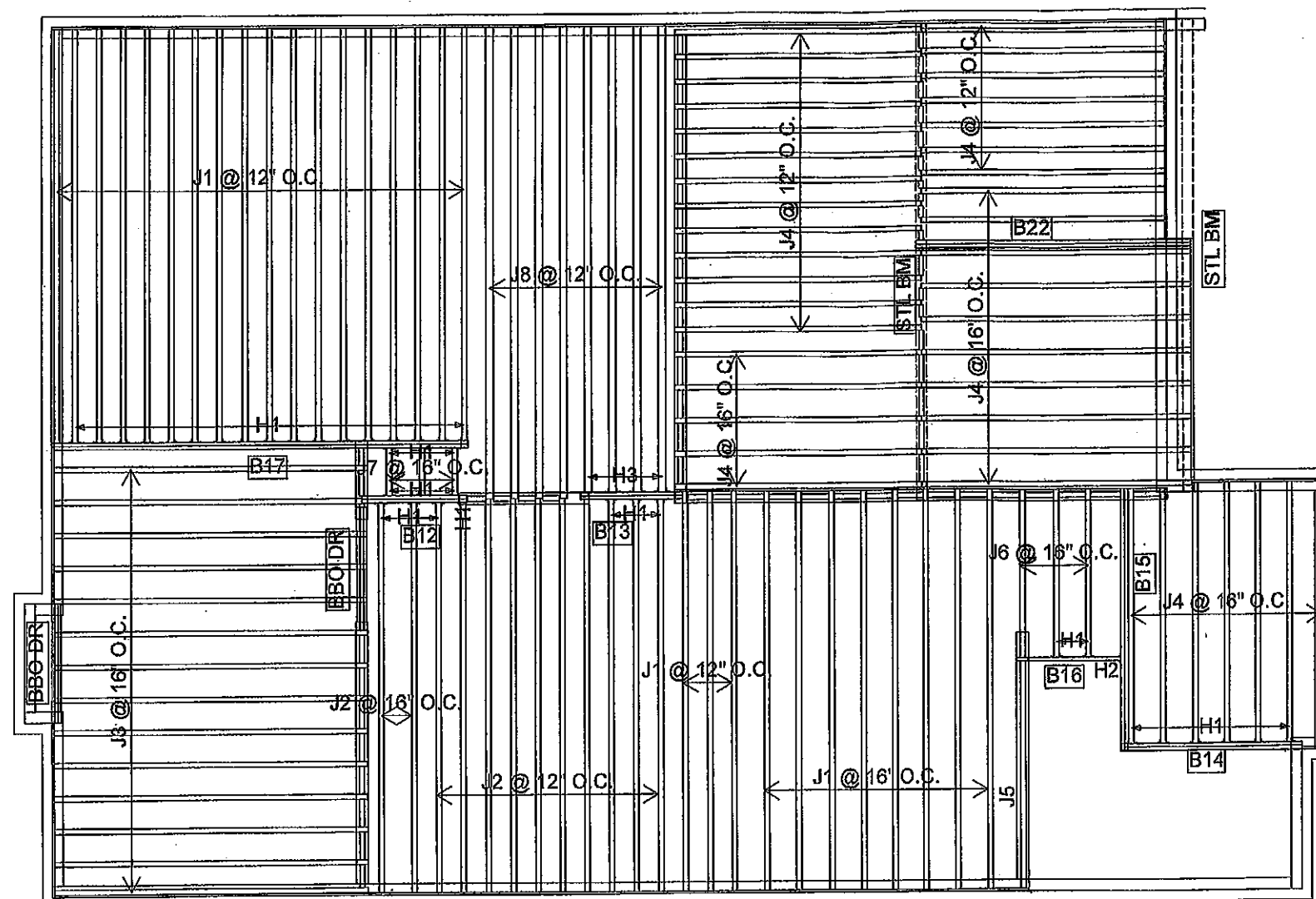
DEAD LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2020-02-18

2nd FLOOR

OPTION 5 BEDROOM



Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1	18-00-00	11 7/8" NI-40x	1	29	MFD
J2	16-00-00	11 7/8" NI-40x	1	12	MFD
J3	14-00-00	11 7/8" NI-40x	1	14	MFD
J4	12-00-00	11 7/8" NI-40x	1	42	MFD
J5	10-00-00	11 7/8" NI-40x	1	1	MFD
J6	8-00-00	11 7/8" NI-40x	1	3	MFD
J7	2-00-00	11 7/8" NI-40x	1	3	MFD
J8	20-00-00	11 7/8" NI-80	1	8	MFD
B17	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B15	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	MFD
B22	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B14	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B16	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	MFD
B12	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B13	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD

Connector Summary		
Qty	Manuf	Product
2	H1	IUS2.56/11.88
36	H1	IUS2.56/11.88
1	H2	HUS1.81/10
4	H3	IUS3.56/11.88

CITY OF HAMILTON

Building Division

Permit No. 21-105985

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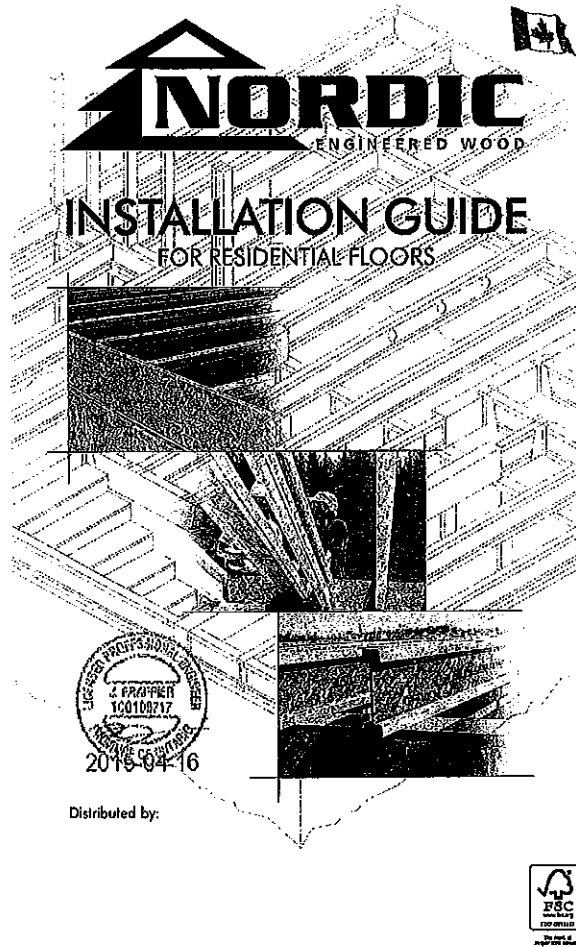
THE OWNER AND/OR CONTRACTOR SHALL COMPLY WITH THE ONTARIO BUILDING CODE AND ALL OTHER APPLICABLE LAW

These drawings and/or specifications have been reviewed by

FOR CHIEF BUILDING OFFICIAL

FEB. 23/21

DATE



SAFETY AND CONSTRUCTION PRECAUTIONS



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

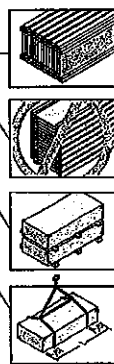


Never stack building materials over unfastened I-joists. Once sheathed, do not over-stress I-joist with concentrated loads from building materials.

Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joist, 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 flatwise.
5. Protect I-joists from weather, and use spacers to separate bundles.
6. Bundled units should be kept intact until time of installation.
7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joist and injury to your work crew.
 - Pick I-joists in bundles as shipped by the supplier.
 - Orient the bundles so that the webs of the I-joists are vertical.
 - Pick the bundles at the 5th points, using a spreader bar if necessary.
8. Do not handle I-joists in a horizontal orientation.
9. NEVER USE OR TRY TO REPAIR A DAMAGED I-JOIST.



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 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of 1/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGS-571.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum on/for a row of blocking at mid-span.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
6. Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
7. SI units conversion: 1 inch = 25.4 mm, 1 foot = 0.305 m

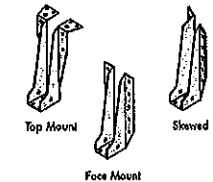
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS

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"	NL-20	15'1"	14'2"	13'5"	12'5"	16'4"	15'4"	14'0"	13'2"
	NL-20	16'1"	15'2"	14'5"	13'5"	17'5"	16'5"	15'10"	14'5"
	NL-20	16'3"	15'4"	14'10"	14'11"	17'7"	16'7"	15'4"	14'1"
	NL-20	17'1"	16'1"	15'6"	15'7"	18'7"	17'4"	16'9"	16'10"
11-3/8"	NL-20	17'3"	16'3"	15'8"	15'9"	18'10"	17'6"	16'11"	17'0"
	NL-20	18'1"	17'0"	16'5"	15'6"	19'4"	18'0"	17'5"	16'7"
	NL-20	18'4"	17'3"	16'7"	16'8"	20'5"	19'1"	18'6"	17'8"
	NL-20	19'4"	18'2"	17'4"	17'5"	21'6"	20'1"	19'6"	19'1"
14"	NL-20	19'9"	18'7"	17'10"	17'11"	21'9"	20'2"	19'3"	19'4"
	NL-20	20'2"	19'7"	17'10"	17'11"	22'3"	20'7"	19'8"	19'9"
	NL-20	20'4"	19'9"	18'9"	18'9"	22'5"	20'9"	19'10"	19'11"
	NL-20	20'1"	19'7"	17'10"	17'11"	22'3"	20'6"	19'8"	19'4"
16"	NL-20	20'5"	19'11"	18'1"	18'2"	22'7"	20'11"	20'0"	20'1"
	NL-20	21'7"	20'4"	19'1"	19'2"	23'10"	21'1"	20'11"	21'2"
	NL-20	21'11"	20'9"	19'4"	19'5"	24'3"	21'5"	21'3"	21'6"
	NL-20	22'5"	20'9"	19'9"	19'10"	24'9"	21'10"	21'10"	21'10"
18"	NL-20	22'7"	21'11"	19'11"	20'0"	25'0"	21'11"	22'0"	22'2"
	NL-20	23'9"	22'6"	20'6"	20'7"	26'1"	22'2"	22'1"	22'2"
	NL-20	23'4"	22'11"	21'5"	21'6"	26'5"	22'6"	22'5"	22'6"
	NL-20	24'9"	22'6"	21'5"	21'6"	26'11"	22'10"	22'9"	22'9"

CEMC EVALUATION REPORT 11072-R

I-JOIST HANGERS

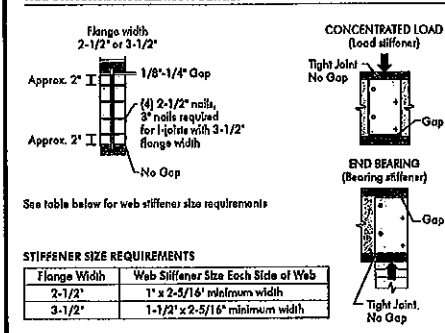
1. Hangers shown illustrate the three most commonly used metal hangers to support I-joists.
2. All nailing must meet the hanger manufacturer's recommendations.
3. Hangers should be selected based on the joist depth, flange width and load capacity based on the maximum spans.
4. Web stiffeners are required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



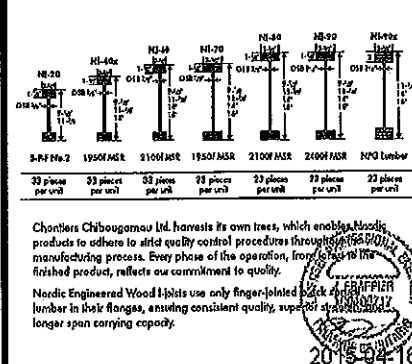
WEB STIFFENERS

- RECOMMENDATIONS:**
- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the I-joist Configuration Guide (C101). The gap between the stiffener and the flange is at the top.
 - A bearing stiffener is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
 - A load stiffener is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.
- SI units conversion: 1 inch = 25.4 mm

FIGURE 2 WEB STIFFENER INSTALLATION DETAILS



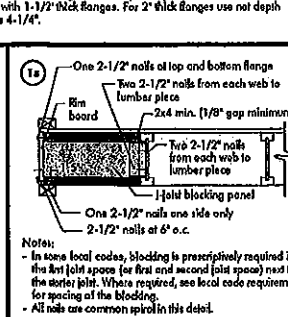
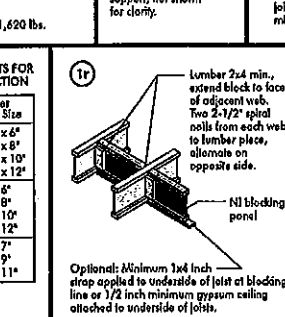
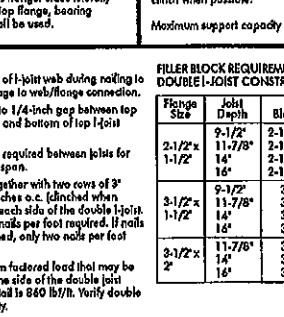
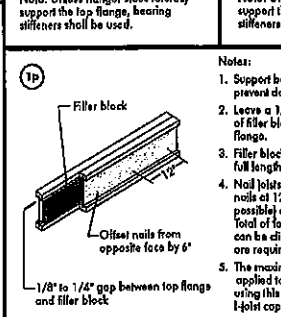
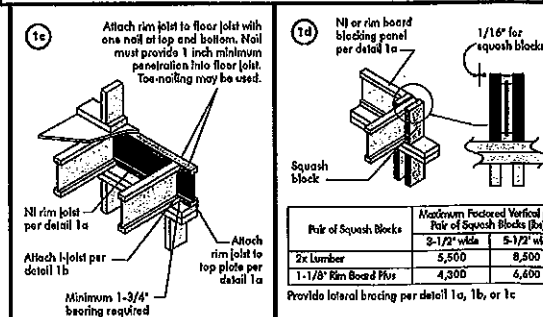
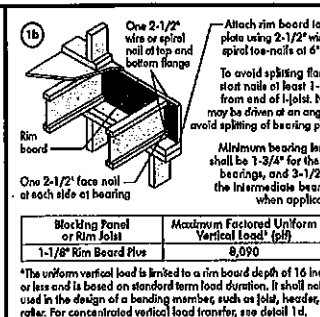
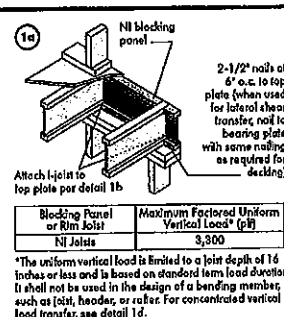
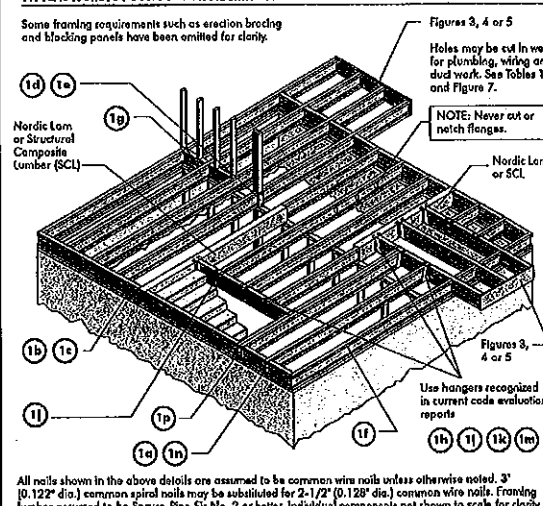
NORDIC I-JOIST SERIES



INSTALLING NORDIC I-JOISTS

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

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



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

Labels and Callouts:

- Confirer extension supporting uniform floor loads only
- Rim board or wood structural panel closure; attach per detail 1b
- Attach I-joists to plate at all supports per detail 1b
- t-joint, or rim board
- 3-1/2" min. bearing required

CAUTION: Confirers formed this way must be carefully detailed to prevent moisture intrusion into the structure and potential decay of unreinforced I-joist extensions.

Note: This detail is applicable to cantilevers supporting a maximum specified uniform live load of 60 psf.

Full depth backer block with 1/8" gap between block and top flange of I-joint. See detail 11b. Nail with 2 rows of 3" nails at 6" o.c. and clinch.

2x8 min. Nail to backer block and joint with 2 rows of 3" nails at 6" o.c. and clinch. (Cantilever nails may be used to attach backer block if length of nail is sufficient to allow clinching)

Cantilever extension supporting uniform floor loads only

Lumber or wood structural panel closure

3-1/2" min. bearing required

I-joint, or rim board

Attach I-joints to plate at all supports per detail 1b

1/4" x 4" min.

a max. depth of 1/4" x 4" min. of cantilever

Note: This detail is applicable to cantilevers supporting a maximum specified uniform live load of 60 psf.

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE

Rim board or wood structural panel (thickness) attach per detail 1b

2x4 minimum

3/4" minimum

2-1/2" nails

3-1/2" min. bearing required

NI blocking panel or rim board blocking, attach per detail 1g

Attach I-Joint to plate per detail 1b

- Use same installation Method 1 but reinforce both sides of joint with sheathing.
- Use nailing pattern shown for Method 1 with opposite face nailing offset by 3".

Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joint. Do not exceed the full height of the joint. Nail with 2-1/2" nails at 6" o.c. top and bottom flanges. Install with face grain horizontal. Attach I-joint to plate on all supports per detail B1. Verify reinforced I-joint capacity.

Min board, or wood structure panel closure (3/4" minimum thickness), attach per detail 1b

Attach I-joints to top plate of all supports per detail 1b, 3-1/2" min. bearing required

Block I-joints together with filer blocks for the full length of the reinforcement. For beam spans wider than 3 inches, place an additional row of 3" nails along the centerline of the reinforcing panel from each side. Clinch when possible.

Face nail two rows of 3" nails at 12" o.c. each side through one I-joint web and the filer block to other I-joint web. Offset nails from opposite faces by 6". Clinch if possible (four nails per foot required, except two nails per foot required if clinched).

blocking, attach per detail 1g

12" SHEATHING REINFORCEMENT

Provides full depth blocking between joists over support (not shown)

Notes: Plywood sheathing required sheathing or equivalent (minimum thickness 3/4") required on both sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with faces grain horizontal. Attach 1/4" plate at all supports per detail 18. Vary reinforced 1 joist capacity.

12" minimum length of sheathing reinforcement

Nail reinforcement to ledger and bottom joist flange with 2-1/2" nails at 6" o.c. (offset opposite face nailing by 90° when reinforcement on both sides of joist)

1 1/2" max.

3/4" min.

PROFESSIONAL

Technical drawing of a roof edge detail. The drawing shows a cross-section of a roof structure. A horizontal line represents the roof surface, with a vertical line indicating the edge. Below the roof surface, a horizontal line represents the joist. A vertical line represents the sheathing. The drawing is labeled with dimensions and notes. The dimensions are: 20' (horizontal distance from the edge to the center of the joist), 5" max. (vertical distance from the joist to the sheathing), and 1/2" (thickness of the sheathing). The notes are: "Rin board or wood structural panel closure (3/4\"

Vertical solid sawn blocks
(2x6 S-P F No. 2 or better) nailed
through joist web and web of girder
using 2-1/2" nails.
Alternate for opposite side.

Hanger may be
used in lieu of
solid sawn block

Notes:
• Verify girder joist capacity if the back span
exceeds the joist spacing.
• Consult the manufacturer's design manual for required

See table below for NI reinforcement requirements at cantilever.

Roof truss span

2'-0" maximum cantilever

Girder truss

Roof truss span

2'-0" maximum cantilever

Jack truss

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	ROOF LOADING (UNFAC. DEAD)																	
		$U = 30 \text{ psf}, DL = 15 \text{ psf}$						$U = 40 \text{ psf}, DL = 15 \text{ psf}$						$U = 50 \text{ psf}, DL = 15 \text{ psf}$					
		JOIST SPACING (in.)						JOIST SPACING (in.)						JOIST SPACING (in.)					
		12	16	19.2	24		12	16	19.2	24		12	16	19.2	24				
9-1/2"	24	N	N	N	1	2	N	1	2	X	N	N	2	X	X	X	X		
	28	N	N	1	X	N	N	1	2	X	N	2	2	X	X	X	X		
	30	N	N	1	1	X	N	N	2	X	N	1	2	X	X	X	X		
	32	N	N	1	2	X	N	2	X	X	N	1	2	X	X	X	X		
	34	N	N	1	2	X	N	2	X	X	N	1	2	X	X	X	X		
	36	N	N	1	2	X	N	2	X	X	N	1	2	X	X	X	X		
11-7/8"	24	N	N	N	1	1	N	N	1	2	N	N	1	2	X	X	X		
	28	N	N	N	1	1	N	N	1	2	N	N	1	2	X	X	X		
	30	N	N	N	1	1	N	N	1	2	N	N	1	2	X	X	X		
	32	N	N	N	1	1	N	N	1	2	N	N	1	2	X	X	X		
	34	N	N	N	1	2	N	N	1	2	N	N	1	2	X	X	X		
	36	N	N	1	2	N	N	1	2	X	N	2	2	X	X	X			
14"	24	N	N	N	N	N	N	N	N	1	N	N	N	N	N	1	1		
	28	N	N	N	N	N	N	N	N	1	N	N	N	N	N	1	2		
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	N	1	2		
	32	N	N	N	N	N	N	N	N	1	N	N	N	N	N	1	2		
	34	N	N	N	N	1	N	N	N	1	N	N	N	N	1	2	2		
	36	N	N	N	N	1	N	N	N	1	2	N	N	1	1	1	X		
16"	24	N	N	N	N	1	N	N	1	2	N	N	1	2	N	1	2		
	28	N	N	N	N	N	N	N	N	N	N	N	N	N	N	1	1		
	30	N	N	N	N	N	N	N	N	1	N	N	N	N	N	1	1		
	32	N	N	N	N	N	N	N	N	1	N	N	N	N	1	1	2		
	34	N	N	N	N	N	N	N	1	N	N	N	N	1	1	2	2		
	36	N	N	N	N	1	N	N	N	1	N	N	1	N	1	2	2		

1. **N** reinforced with 3/4" wood structural planks on one side only.
2. **M** reinforced with 3/4" wood structural plank on both sides, or double 1/2" **N**, or a **T** deeper joist or closer spacing.
3. Minimum design load shall be 15 psf for **N** and 30 psf for double **M** and 30 psf for **T** joist wood. Wall load is based on 80 psf maximum wind window or door opening.

See table below for Ni reinforcement requirements at

JOIST DEPTH [in.]	ROOF TRUSS SPAN [ft]	ROOF LOADING (INFRACTION)													
		U = 30 psf, D1 = 15 psf						U = 40 psf, D1 = 15 psf							
		JOIST SPACING [in.]						JOIST SPACING [in.]							
		12	16	19.2	24	24	12	16	19.2	24	24	12	16	19.2	24
9-1/2"	24	N	N	X	X	X	N	2	X	X	X	X	X	X	X
	26	N	N	X	X	X	N	2	X	X	X	X	X	X	X
	30	N	N	X	X	X	N	2	X	X	X	X	X	X	X
	32	N	N	X	X	X	N	2	X	X	X	X	X	X	X
	34	N	N	X	X	X	N	2	X	X	X	X	X	X	X
	36	N	N	X	X	X	N	2	X	X	X	X	X	X	X
11-7/8"	24	N	N	2	2	X	N	1	X	X	X	2	X	X	X
	26	N	N	2	2	X	N	1	X	X	X	2	X	X	X
	30	N	N	2	2	X	N	1	X	X	X	2	X	X	X
	32	N	N	2	2	X	N	1	X	X	X	2	X	X	X
	34	N	N	2	2	X	N	2	2	X	X	2	X	X	X
	36	N	N	2	2	X	N	2	2	X	X	2	X	X	X
14"	24	N	N	1	2	X	N	2	2	X	X	1	1	X	X
	26	N	N	1	2	X	N	2	2	X	X	1	1	X	X
	30	N	N	2	2	X	N	2	2	X	X	2	2	X	X
	32	N	N	2	2	X	N	2	2	X	X	2	2	X	X
	34	N	N	2	2	X	N	2	2	X	X	2	2	X	X
	36	N	N	2	2	X	N	2	2	X	X	2	2	X	X
16"	24	N	N	1	2	X	N	2	2	X	X	N	2	2	X
	26	N	N	1	2	X	N	2	2	X	X	N	2	2	X
	30	N	N	2	2	X	N	2	2	X	X	2	2	X	X
	32	N	N	2	2	X	N	2	2	X	X	2	2	X	X
	34	N	N	2	2	X	N	2	2	X	X	2	2	X	X
	36	N	N	2	2	X	N	2	2	X	X	2	2	X	X

1. **NI reinforced with 3/4" wood structural**
 panels on one side only.
2. **NI reinforced with 3/4" wood structural**
 panels on both sides, or double lap.
3. **NI** - Try a deeper lap or closer spacing.
4. **NI** - Try a different design. For example:
 dead load, 55 psf floor total load, and 80 psf
 live load. Wall panel is based on 3'0"

openings appear less than 6"0" o.c.,
 the design is acceptable. If the
 openings exceed the spacing of the cripple
 studs, the design is not acceptable.

3. **Table applies for spans 12" to 24"** o.c. that
 the floor span requires for a design live
 load of 120 psf and dead load of 15 psf.
 If a five foot deflection limit of 1/480, Use
 12" o.c. requirements for lesser spacing.

ridge beam, the Roof Truss Span column
 above is equivalent to the Ridge Beam
 column. The Ridge Beam column is
 equivalent to the Ridge Beam.
 When the roof is framed using a ridge beam,
 the Roof Truss Span is equivalent to the
 Ridge Beam. The Ridge Beam is
 equivalent to the Ridge Beam or 8'0"
 spans is used.

3. **Confirmed joints supporting greater loads or**

1. The distance between the inside edge of the support and the centreline of any holes or duct chase opening should be in compliance with the requirements of Tables 1 and 2, respectively.
2. I-joint top and bottom flanges must NEVER be cut, notched, or otherwise modified.
3. Whenever possible, field-out holes should be centered in the middle of the web.
4. The maximum static hole or the maximum depth of a duct chase opening that can be cut into a I-joint web shall equal the clear distance between the flanges of the I-joint minus 1/4 inch. A minimum of 1/4 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joint flange.
5. The sides of square holes or longer sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at their location.
6. Where more than one hole is necessary, the distances between adjacent hole edges should be at least 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 such 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 nonstress section of 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 sawn-like manner in accordance with the restrictions laid 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. Groups of round holes of approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

[illegible]

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

The above table is based on the holes used at their maximum span. If the holes are placed at less than their full maximum span (see Maximum Span Table), the minimum distance from the centerline of the hole to the face of any support is given. Or when closer holes may be reduced or allowed.

Produced = $\frac{1}{2} \times \text{span} \times D$

Where:

- D_{red} = Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span application
- D_{hole} = Distance shall not be less than 6 inches from the face of the support to edge of the hole.
- D_{meas} = The actual measured span distance between the inside faces of supports [E]
- S_{AF} = 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 D_{red} is greater than 1, use 1 in the above calculation for factor.

See Table 1 for minimum distance from bearing

2x diameter of larger hole

2x duct chase length or hole diameter, whichever is larger

Duct chase open (see Table 2 for minimum distance from bearing)

1/4x diameter

Knockouts

See rule 12

Maintain minimum 1/8" space between top and bottom flange — all duct chase openings and holes

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.

Jost Depth	Jost Series	Minimum distance from inside face of any support to centre of opening (in)									
		8	10	12	14	16	18	20	22	24	26
8/12	N-20	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	N-26	0.3	0.3	0.4	0.5	0.7	0.9	1.3	1.5	1.7	2.0
	N-30	0.5	0.5	0.6	0.8	1.0	1.3	1.7	2.0	2.3	2.7
	N-36	0.7	0.7	0.9	1.1	1.4	1.7	2.1	2.4	2.8	3.2
	N-40	0.9	0.9	1.1	1.3	1.6	1.9	2.2	2.5	2.9	3.3
11-7/8	N-20	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	N-26	0.4	0.4	0.5	0.6	0.8	1.0	1.3	1.5	1.7	2.0
	N-30	0.6	0.6	0.7	0.9	1.1	1.4	1.7	2.0	2.3	2.7
	N-36	0.8	0.8	1.0	1.2	1.5	1.8	2.1	2.4	2.8	3.2
	N-40	1.0	1.0	1.2	1.4	1.7	2.0	2.3	2.7	3.0	3.4
14C	N-20	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	N-26	0.4	0.4	0.5	0.6	0.8	1.0	1.3	1.5	1.7	2.0
	N-30	0.6	0.6	0.7	0.9	1.1	1.4	1.7	2.0	2.3	2.7
	N-36	0.8	0.8	1.0	1.2	1.5	1.8	2.1	2.4	2.8	3.2
	N-40	1.0	1.0	1.2	1.4	1.7	2.0	2.3	2.7	3.0	3.4
16	N-20	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	N-26	0.4	0.4	0.5	0.6	0.8	1.0	1.3	1.5	1.7	2.0
	N-30	0.6	0.6	0.7	0.9	1.1	1.4	1.7	2.0	2.3	2.7
	N-36	0.8	0.8	1.0	1.2	1.5	1.8	2.1	2.4	2.8	3.2
	N-40	1.0	1.0	1.2	1.4	1.7	2.0	2.3	2.7	3.0	3.4

1. Above table may be used for 1-1/2 inch spacing of 24 inches on center or less.
2. Use above spacing location distance if measured from inside face of supports to center of opening.
3. The above table is based on simple-span joists only. For other applications, consult your local distributor.
4. Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 p.s.f.

1. Wipe any mud, dirt, water, or ice from I-joint flanges before gluing.
2. Snap a chalk line across the I-joints 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 of a row, 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-joint. Apply glue in a winding pattern on wide areas, such as with double I-joints.
6. Apply two lines of glue on I-joints 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 tapping the next row in place. Glue may be continuous or spaced, but avoid excesses - by applying a thinner line (1/8-inch) than used on I-joint flanges.
8. Tap the second row of panels into place, using a block to protect groove edges.
9. Stagger end joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&G edges, is recommended. (Use a spacer tool or on 2-1/2" common nail to assure accurate and consistent spacing.)
10. Complete all nailing of each panel before glue sets. Check the manufacturer's recommendations for nailing. (Watch for nail spacing and glue setting.) Use 2" ring- or screw-shank nails for I-joints, 3-inch thick-rib or less, and 2-1/2" ring- or screw-shank nails for wider panels. Space nails per 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 panels.

Maximum Joint Spacing (in.)	Minimum Panel Thickness (in.)	Roof Size and Type Common Pitch or Spinal Duct	Range Factors Roofs, or Scares	Staples	Maximum Spacing of Fasteners Edges	Internal 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 framing.
3. Flooring screws shall not be less than 1/8-inch in diameter.
4. Special conditions may impose heavy traffic and concentrated loads that require construction in excess of the minimums shown.
5. Use only adhesives conforming to CAN/CGSB-71.26 Standard, Adhesives for Field-Gluing Plywood to Lumber Framing for Floor System, applied in accordance with the manufacturer's recommendations. OSB panels with sealed surfaces and edges are to be used, use only solvent-based glues; check with manufacturer.

Ref.: NRC-CNRC, National Building Code of Canada 2010, Table 9.23.3.

Floor sheathing must be fully 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.

9a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

Rim board joint between floor joists Rim board joint at corner

Characteristics: *Chlorogenicum* germinates slowly, its seedlings with a very specific coloration. Nicotinic products are first from a manufacturing defect in the natural red color of the skin.

Preparation: *Chlorogenicum* is common and easy to produce, when cultured in accordance with our handling and cultivation instructions, will not cause any adverse reactions in the skin of the patient.

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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.
- 1-joint top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- Whenever possible, field-cut holes should be centered on the middle of the web.
- The maximum size hole or the maximum depth of a duct chase opening that can be cut into a 1-joint web shall equal the clear distance between the flanges of the 1-joint 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 1-joint flange.

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

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

TABLE 1
LOCATION OF CANTILEVER HOLES IN JOIST WEBS

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

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

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

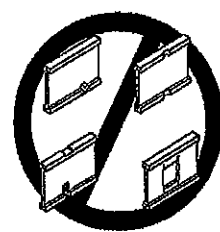
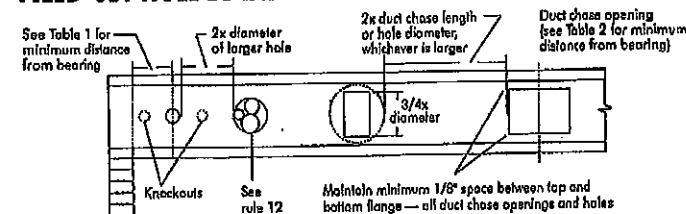
TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS

Simple Span Only

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

- Above table may be used for 1-joint 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 joist 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 1-joints being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

FIGURE 7
FIELD-CUT HOLE LOCATOR



Knockouts are predrilled 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 1-joint. Where possible, it is preferable to use knockouts instead of field-cut holes.

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

Holes in webs should be cut with a sharp saw.

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

SAFETY AND CONSTRUCTION PRECAUTIONS



Do not walk on 1-joints until fully sheathed and braced, or serious injuries can result.



Never stack building materials over unshathed 1-joints. Once sheathed, do not over-stress 1-joints with concentrated loads from building materials.

WARNING: 1-joints are not stable until completely installed, and will not carry any load until fully braced and sheathed.

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

- Brace and nail each 1-joint as it is installed, using hangers, blocking panels, rim board, and/or cross-bracing at joist ends. When 1-joints 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 1-joints. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent 1-joint rollover or buckling.
 - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each 1-joint. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two 1-joints.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of 1-joints at the end of the bay.
 - For cantilevered 1-joints, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bracing.
 - Install and fully nail permanent sheathing to each 1-joint before placing loads on the floor system. Then, stack building materials over beams or walls only.
 - Never install a damaged 1-joint.
- Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic 1-joints, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines carefully.

PRODUCT WARRANTY

Chantrelle Chibougman guarantees this, in accordance with our specifications, Nordic products are free from manufacturing defects in material and workmanship.

Furthermore, Chantrelle Chibougman 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 NI blocking panel

Blocking Panel or Rim Joist
NI Joists

Maximum Factored Uniform Vertical Load* (plf)

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.

Attach 1-joint to top plate per detail 1b

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

1b Rim board

Blocking Panel or Rim Joist
1-1/8" Rim Board Plus

Maximum Factored Uniform Vertical Load* (plf)

6,090

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

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

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

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

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

1d NI or rim board blocking panel per detail 1a

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

2x Lumber
1-1/8" Rim Board Plus
4,300

6,600

Provide lateral bracing per detail 1a or 1b

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

2-1/2" nails at 6" o.c. to top plate

NI blocking panel per detail 1a

1h Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double 1-joint, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch. 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-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-O325 or CAN/CSA-O437 Standard.
** For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".

1i Top- or face-mount hanger

Double 1-joint header

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

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

Filler block per detail 1p

For hanger capacity see hanger manufacturer's recommendations. Verify double 1-joint 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 slides 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 slides laterally support the top flange, bearing stiffeners shall be used.

Top-mount hanger installed per manufacturer's recommendations

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

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

Filler block per detail 1p

Maximum support capacity = 1,620 lbs.

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

Attach 1-joint per detail 1b

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

1r 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.

NI blocking panel

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

1p FILLER BLOCK REQUIREMENTS FOR DOUBLE 1-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 of 1-joint web during nailing to prevent damage to web/flange connection.
- Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top 1-joint flange.
- Filler block is required between joists for full length of span.
- Nail joist together with two rows of 3" nails at 12 inches o.c. (clinched when possible) on each side of the double 1-joint. 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 1-joint capacity.

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

1s One 2-1/2" nail at top and bottom flange

Rim board

2-1/2" nail (1/8" gap minimum)

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

1-joint blocking panel

One 2-1/2" nail one side only

NOTES:

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

All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.125" dia.) common spiral nails may be substituted for 2-1/2" (0.125" dia.) common wire nails. Framing lumber 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 1-joint properties table found in the 1-joint Construction Guide (C10). The gap between the stiffener and the flange is at the top.
- A bearing stiffener is required when the 1-joint is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
- A top 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)

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

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

Approx. 2" 1/8" to 1/4" Gap

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

No Gap

Tight Joint No Gap

Gap

Tight Joint No Gap

See the adjacent table for web stiffener size requirements

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE

Rim board or wood structural panel closure (3/4" minimum thickness); attach per detail 1b

NI blocking panel or rim board blocking, attach per detail 1g

Attach 1-joint to plate per detail 1b

2-1/2" nails

3-1/2" min. bearing required

Method 2 — SHEATHING REINFORCEMENT TWO SIDES

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

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

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

RIM BOARD INSTALLATION DETAILS

8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

Rim Board Joint Between Floor Joists

2-1/2" nails at 6" o.c. (typical)

Rim board joint

Rim board joint at corner

2-1/2" toe-nails at 6" o.c. (typical)

1-1/2"

8b TOE-NAIL CONNECTION AT RIM BOARD

Rim board

Top or sole plate

30°

2"

NORDIC STRUCTURES

COMPANY
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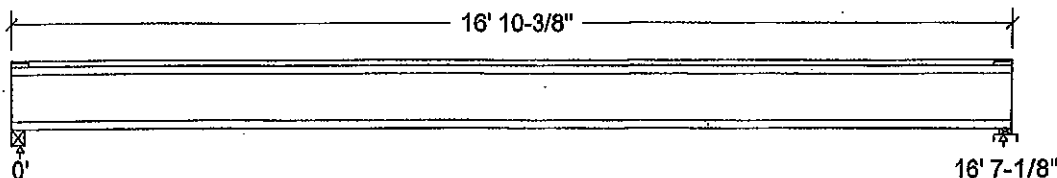
PROJECT
J1 1ST FLOOR.wwb

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):



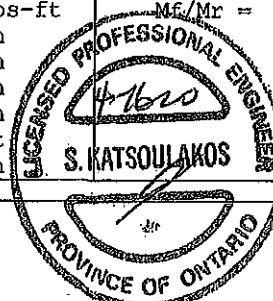
Unfactored:			
Dead	221		221
Live	442		442
Factored:			
Total	940		940
Bearing:			
Capacity			
Joist	2137		2102
Support	4036		3981
Des ratio			
Joist	0.44		0.45
Support	0.23		0.24
Load case	#2		#2
Length	2-5/8		2-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		1.00
fcp sup	769		769
Kzcp sup	1.00		1.09

Nordic 11-7/8" NI-40x Floor joist @ 16" o.c.

Supports: 1 - Lumber Beam, No.1/No.2; 2 - Lumber Sill plate, No.1/No.2;
Total length: 16' 10-3/8"; Clear span: 16' 5-3/8"; 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 = 940	Vr = 2336	lbs	Vf/Vr = 0.40
Moment(+)	Mf = 3901	Mr = 6255	lbs-ft	Mf/Mr = 0.62
Perm. Defl'n	0.11 = < L/999	0.55 = L/360	in	0.20
Live Defl'n	0.23 = L/879	0.41 = L/480	in	0.55
Total Defl'n	0.34 = L/586	0.83 = L/240	in	0.41
Bare Defl'n	0.27 = L/727	0.55 = L/360	in	0.49
Vibration	Lmax = 16'-7.1	Lv = 18'-1.3	ft	0.92
Defl'n	= 0.029	= 0.038	in	0.76



16' 4 1/2"
JWB NO. YAW 6035 #20
STRUCTURAL
COMPONENT ONLY

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	6255	1.00	1.00	-	1.000	-	-	-	#2
EI	371.1 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 = 459.76 lb-in² K= 6.18e06 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.



DWG NO. YAM 6035 -20
STRUCTURAL
COMPONENT ONLY

NORDIC STRUCTURES

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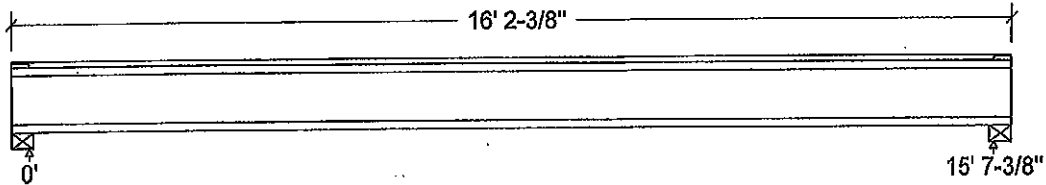
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J1 2ND FLOOR.wvb

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	208		208
Live	416		416
Factored:			
Total	885		885
Bearing:			
Capacity			
Joist	2336		2336
Support	6734		6734
Des ratio			
Joist	0.38		0.38
Support	0.13		0.13
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	1.00		1.00
fcp sup	769		769
Kzcp sup	1.00		1.00

Nordic 11-7/8" NI-40x Floor joist @ 16" o.c.

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

Total length: 16' 2-3/8"; Clear span: 15' 5-5/8"; 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 = 885	Vr = 2336	lbs	Vf/Vr = 0.38
Moment(+)	Mf = 3454	Mr = 6255	lbs-ft	Mf/Mr = 0.55
Perm. Defl'n	0.09 = < L/999	0.52 = L/360	in	0.18
Live Defl'n	0.18 = < L/999	0.39 = L/480	in	0.47
Total Defl'n	0.28 = L/676	0.78 = L/240	in	0.35
Bare Defl'n	0.22 = L/861	0.52 = L/360	in	0.42
Vibration	Lmax = 15'-7.4	Lv = 17'-8.1	ft	0.88
Defl'n	= 0.028	= 0.041	in	0.68



NO. YAM 6036-20
STRUCTURAL
COMPONENT ONLY

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	6255	1.00	1.00	-	1.000	-	-	-	#2
EI	371.1 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=fireLoad 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 = 447.63 lb-in² K= 6.18e06 lbs

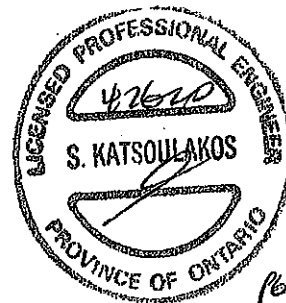
"Live" deflection is due to all non-dead loads (live, wind, snow...)

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.



OWC NO. YAM 6036 -20
STRUCTURAL
COMPONENT ONLY

NORDIC STRUCTURES

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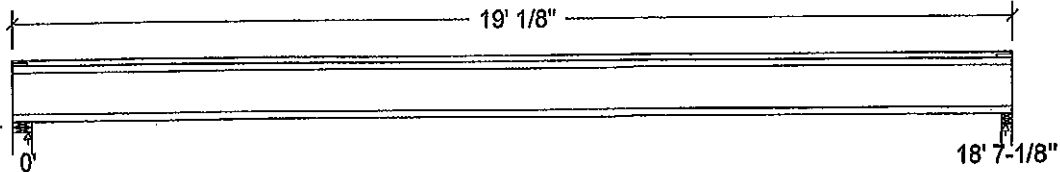
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J8 2ND FLOOR.wwb

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	186		186
Live	372		372
Factored:			
Total	790		790
Bearing:			
Capacity			
Joist	2336		2188
Support	10841		5573
Des ratio			
Joist	0.34		0.36
Support	0.07		0.14
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	-		-
fcp sup	769		769
Kzcp sup	-		-

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

Nordic 11-7/8" NI-80 Floor joist @ 12" o.c.

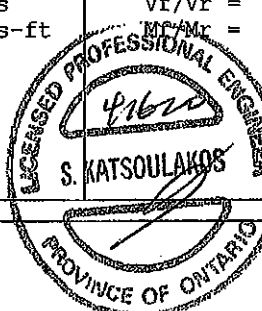
Supports: All - Lumber Wall, No.1/No.2

Total length: 19' 1/8"; Clear span: 18' 5-3/8"; 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 = 790	Vr = 2336	lbs	Vf/Vr = 0.34
Moment (+)	Mf = 3673	Mr = 11609	lbs-ft	Mf/Mr = 0.32
Perm. Defl'n	0.10 = < L/999	0.62 = L/360	in	0.16
Live Defl'n	0.20 = < L/999	0.46 = L/480	in	0.44
Total Defl'n	0.30 = L/735	0.93 = L/240	in	0.33
Bare Defl'n	0.22 = L/998	0.62 = L/360	in	0.36
Vibration	Lmax = 18'-7.1	Lv = 20'-5.8	ft	0.91
Defl'n	= 0.027	= 0.034	in	0.79



NO. 146037-20
STRUCTURAL
COMPONENT ONLY

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	11609	1.00	1.00	-	1.000	-	-	-	#2
EI	547.1 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_{teff} = 613.27 lb-in² K = 6.18e06 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 6037-20
STRUCTURAL
COMPONENT ONLY

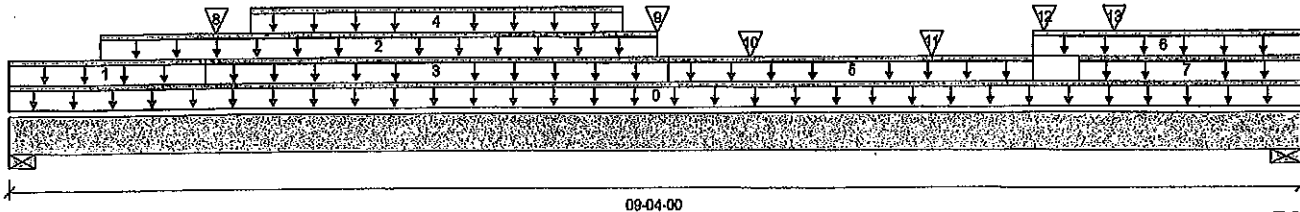
Build 7239
Job name:
File name: MOUNTAINASH 4 EL 1.mmdl

Address:
Description: 2ND FLR FRAMING\Dropped Beams\B19A DR(I2421)

City, Province, Postal Code: WATERDOWN

Specifier:
Customer:
Designer: AJ

Code reports: CCMC 12472-R

Company:

Total Horizontal Product Length = 09-04-00
Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	999 / 0	945 / 0	405 / 0	
B2, 5-1/2"	1034 / 0	996 / 0	444 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-04-00	Top		10			00-00-00
1	R1(I1840)	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top		41			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-08-00	04-08-00	Top	205	103			n/a
3	R1(I1840)	Unf. Lin. (lb/ft)	L	01-05-00	04-09-00	Top		81			n/a
4	R1(I1840)	Unf. Lin. (lb/ft)	L	01-09-00	04-05-00	Top	44	40	92		n/a
5	R1(I1840)	Unf. Lin. (lb/ft)	L	04-09-00	07-05-00	Top		41			n/a
6	R1(I1840)	Unf. Lin. (lb/ft)	L	07-05-00	09-04-00	Top		81			n/a
7	R1(I1840)	Unf. Lin. (lb/ft)	L	07-09-00	09-04-00	Top	44	40	92		n/a
8	R1(I1840)	Conc. Pt. (lbs)	L	01-06-00	01-06-00	Top	72	90	151		n/a
9	R1(I1840)	Conc. Pt. (lbs)	L	04-08-00	04-08-00	Top	75	93	156		n/a
10	J4(I1832)	Conc. Pt. (lbs)	L	05-04-00	05-04-00	Top	273	137			n/a
11	J4(I1774)	Conc. Pt. (lbs)	L	06-08-00	06-08-00	Top	273	137			n/a
12	R1(I1840)	Conc. Pt. (lbs)	L	07-06-00	07-06-00	Top	72	90	151		n/a
13	J4(I1726)	Conc. Pt. (lbs)	L	08-00-00	08-00-00	Top	253	126			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	7076 ft-lbs	23220 ft-lbs	30.5%	1	04-05-00
End Shear	3013 lbs	11571 lbs	26.0%	1	01-01-08
Total Load Deflection	L/721 (0.144")	n/a	33.3%	35	04-06-08
Live Load Deflection	L/999 (0.087")	n/a	n/a	51	04-06-08
Max Defl.	0.144"	n/a	n/a	35	04-06-08
Span / Depth	10.9				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	3084 lbs	16.5%	18.1%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	3240 lbs	12.6%	13.8%	Spruce-Pine-Fir


ENG. NO. TAM 6038-20
STRUCTURAL
COMPONENT ONLY



Boise Cascade



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

2ND FLR FRAMING\Dropped Beams\B19A DR(i2421) (Dropped Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 18, 2020 08:54:51

Build 7239

Job name:

File name: MOUNTAINASH 4 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B19A DR(i2421)

City, Province, Postal Code: WATERDOWN

Specifier:

Customer:

Designer: AJ

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.

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

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

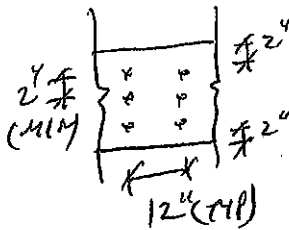
AMENDED 2020

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



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



DWG NO. YAM 6038-20
**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® ,



Bolsa Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Dropped Beams\B20A DR(i2266) (Dropped Beam)**

Dry | 1 span | No cant.

February 18, 2020 08:54:51

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

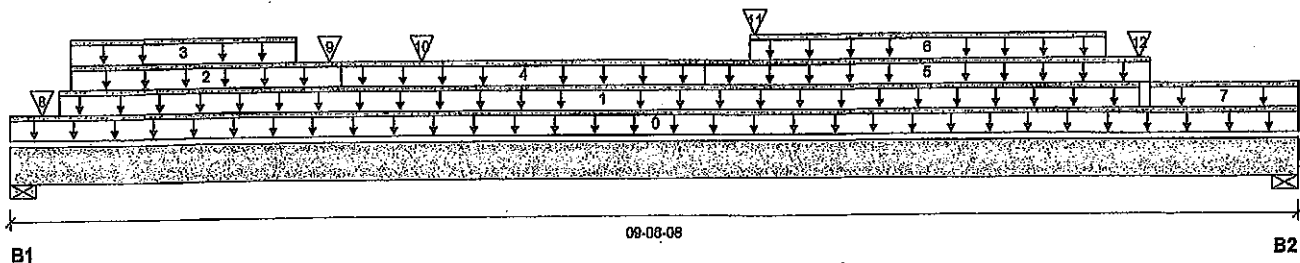
File name: MOUNTAINASH 4 EL 1.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B20A DR(i2266)

Specifier:

Designer: AJ

Company:

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

Bearing	Live	Dead	Snow	Wind
B1, 2"	1272 / 0	1070 / 0	399 / 0	
B2, 4"	1109 / 0	1043 / 0	462 / 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	09-06-08	Top		10			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-04-08	08-04-08	Top	102	52			n/a
2	R1(i1840)	Unf. Lin. (lb/ft)	L	00-05-08	02-05-08	Top		81			n/a
3	R1(i1840)	Unf. Lin. (lb/ft)	L	00-05-08	02-01-08	Top	44	40	92		n/a
4	R1(i1840)	Unf. Lin. (lb/ft)	L	02-05-08	05-01-08	Top		41			n/a
5	R1(i1840)	Unf. Lin. (lb/ft)	L	05-01-08	08-05-08	Top		81			n/a
6	R1(i1840)	Unf. Lin. (lb/ft)	L	05-05-08	08-01-08	Top	44	40	92		n/a
7	R1(i1840)	Unf. Lin. (lb/ft)	L	08-05-08	09-06-08	Top		41			n/a
8	-	Conc. Pt. (lbs)	L	00-02-14	00-02-14	Top	328	164			n/a
9	R1(i1840)	Conc. Pt. (lbs)	L	02-04-08	02-04-08	Top	75	93	156		n/a
10	J4(i1794)	Conc. Pt. (lbs)	L	03-00-08	03-00-08	Top	273	137			n/a
11	-	Conc. Pt. (lbs)	L	05-05-14	05-05-14	Top	345	227	151		n/a
12	-	Conc. Pt. (lbs)	L	08-04-08	08-04-08	Top	348	230	156		n/a

Controls Summary	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	7786 ft-lbs	23220 ft-lbs	33.5%	1	05-02-08
End Shear	3399 lbs	11571 lbs	29.4%	1	08-05-00
Total Load Deflection	L/814 (0.179")	n/a	39.1%	35	04-09-00
Live Load Deflection	L/999 (0.108")	n/a	n/a	51	04-09-00
Max Defl.	0.179"	n/a	n/a	35	04-09-00
Span / Depth	11.6				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2" x 3-1/2"	3645 lbs	39.0%	42.7%	Spruce-Pine-Fir
B2	Wall/Plate 4" x 3-1/2"	3430 lbs	18.4%	20.1%	Spruce-Pine-Fir



SWW NO. 1AM 6039 -20
STRUCTURAL
COMPONENT ONLY



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

PASSED

2ND FLR FRAMING\Dropped Beams\B20A DR(I2266) (Dropped Beam)

Dry | 1 span | No cant.

February 18, 2020 08:54:51

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 1.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B20A DR(I2266)

Specifier:

Designer: AJ

Company:

Notes

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

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

Calculations assume unbraced length of Top: 00-01-11, Bottom: 00-01-11.

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.

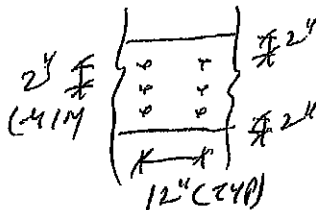
Unbalanced snow loads determined from building geometry were used in selected product's verification.

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



OWN NO. 6039-20
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®,

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

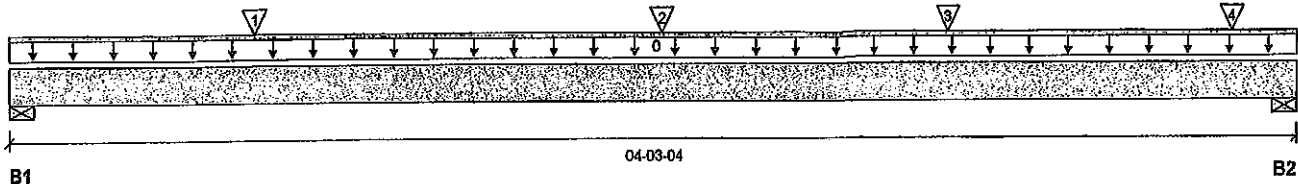
File name: MOUNTAINASH 4 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B12(i2257)

Specifier:

Designer: AJ

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/4"	602 / 0	326 / 0		
B2, 4"	903 / 0	477 / 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	04-03-04	Top		12			00-00-00
1	-	Conc. Pt. (lbs)	L	00-09-12	00-09-12	Top	382	191			n/a
2	-	Conc. Pt. (lbs)	L	02-01-13	02-01-13	Top	428	215			n/a
3	J2(i2353)	Conc. Pt. (lbs)	L	03-01-04	03-01-04	Top	317	158			n/a
4	-	Conc. Pt. (lbs)	L	04-00-10	04-00-10	Top	378	188			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1459 ft-lbs	35392 ft-lbs	4.1%	1	02-01-04
End Shear	1045 lbs	14464 lbs	7.2%	1	02-11-06
Total Load Deflection	L/999 (0.003")	n/a	n/a	4	02-01-04
Live Load Deflection	L/999 (0.002")	n/a	n/a	5	02-01-04
Max Defl.	0.003"	n/a	n/a	4	02-01-04
Span / Depth	3.9				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2-3/4" x 3-1/2"	1310 lbs	22.1%	11.2%	Spruce-Pine-Fir
B2	Wall/Plate 4" x 3-1/2"	1951 lbs	22.7%	11.4%	Spruce-Pine-Fir

Notes

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

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

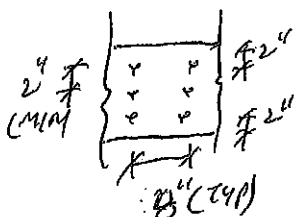
Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86. 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 3/4" ARDOX
SPIRAL NAILS @ 8" O/C FOR
MULTI-PLY NAILING. MAINTAIN
A MIN. 2" LUMBER EDGE/END
DISTANCE. DO NOT USE AIR NAILS



OWN NO. YAM 6040-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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

BC CALC® Member Report

Build 7239

Job name:

File name: MOUNTAINASH 4 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B13(12387)

City, Province, Postal Code: WATERDOWN

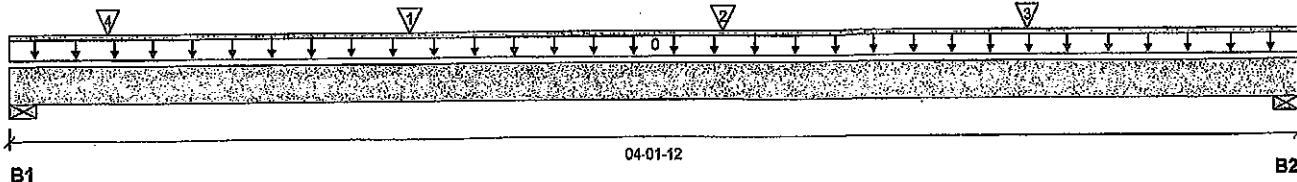
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 04-01-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1278 / 0	664 / 0		
B2, 3-3/4"	1032 / 0	541 / 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	04-01-12	Top	12				00-00-00
1	-	Conc. Pt. (lbs)	L	01-03-07	01-03-07	Top	694	347			n/a
2	-	Conc. Pt. (lbs)	L	02-03-07	02-03-07	Top	694	347			n/a
3	-	Conc. Pt. (lbs)	L	03-03-05	03-03-05	Top	545	273			n/a
4	J8(12418)	Conc. Pt. (lbs)	L	00-03-12	00-03-12	Top	376	188			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2393 ft-lbs	35392 ft-lbs	6.8%	1	02-03-00
End Shear	1870 lbs	14464 lbs	12.9%	1	01-03-14
Total Load Deflection	L/999 (0.004")	n/a	n/a	4	02-00-15
Live Load Deflection	L/999 (0.003")	n/a	n/a	5	02-00-15
Max Defl.	0.004"	n/a	n/a	4	02-00-15
Span / Depth	3.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	2747 lbs	31.9%	16.1%	Spruce-Pine-Fir
B2	Wall/Plate 3-3/4" x 3-1/2"	2224 lbs	27.5%	13.9%	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 member is fully braced.

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

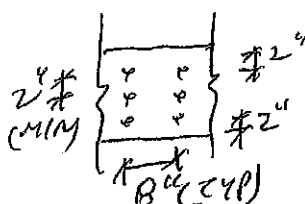
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

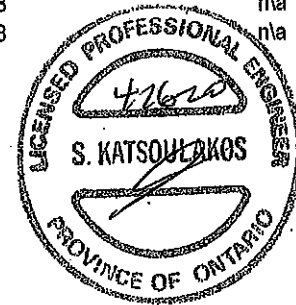
Importance Factor : Normal Part code : Part 9

CONFORMS TO CBC 2012

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



UWB NO. TAM 6041-20
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®.

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

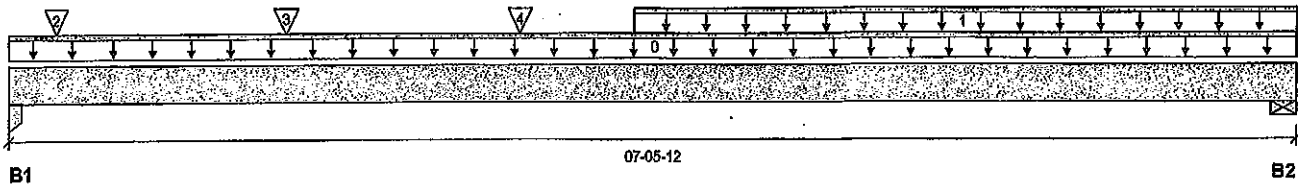
File name: MOUNTAINASH 4 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B14(i1719)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 07-05-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	748 / 0	417 / 0		
B2, 5-1/2"	893 / 0	492 / 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	07-05-12	Top	12				00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	03-07-06	07-05-12	Top	222	111			n/a
2	J4(i1797)	Conc. Pt. (lbs)	L	00-03-06	00-03-06	Top	206	103			n/a
3	J4(i1843)	Conc. Pt. (lbs)	L	01-07-06	01-07-06	Top	163	82			n/a
4	J4(i2389)	Conc. Pt. (lbs)	L	02-11-06	02-11-06	Top	413	206			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3010 ft-lbs	35392 ft-lbs	8.5%	1	02-11-06
End Shear	1337 lbs	14464 lbs	9.2%	1	06-00-06
Total Load Deflection	L/999 (0.019")	n/a	n/a	4	03-07-06
Live Load Deflection	L/999 (0.012")	n/a	n/a	5	03-07-06
Max Defl.	0.019"	n/a	n/a	4	03-07-06
Span / Depth	7.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 1-3/4" x 3-1/2"	1643 lbs	33.0%	22.0%	Unspecified
B2	Wall/Plate 5-1/2" x 3-1/2"	1955 lbs	16.5%	8.3%	Spruce-Pine-Fir

Notes

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

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

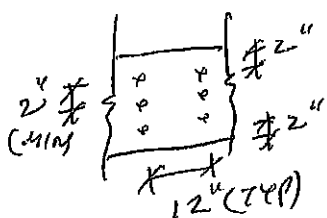
Calculations assume member is fully braced.

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

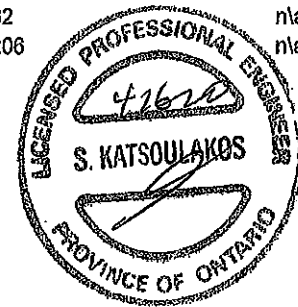
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9



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



**DWG NO. 7AM 6042-20
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®,

BC CALC® Member Report

Build 7239

Job name:

File name: MOUNTAINASH 4 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B15(i1830)

City, Province, Postal Code: WATERDOWN

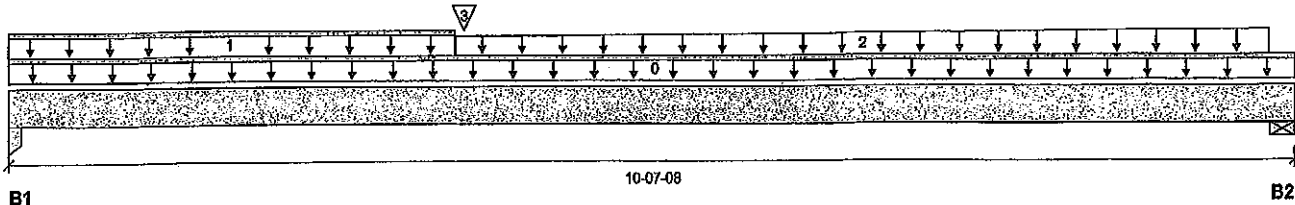
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 10-07-08

Reaction Summary (Down / Uplift) (lbs)

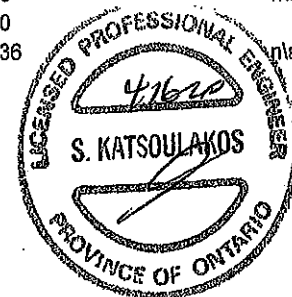
Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	501 / 0	290 / 0		
B2, 5-1/2"	394 / 0	234 / 0		

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	10-07-08	Top	1.00	0.66	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-08-00	Top	3				n/a
2	FC2 Floor Material	Trapezoidal (lb/ft)	L	03-08-00	10-04-12	Top	30	15			n/a
3	B16(i1764)	Conc. Pt. (lbs)	L	03-08-14	03-08-14	Top	40	20			n/a
							647	336			

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3813 ft-lbs	17696 ft-lbs	21.5%	1	03-08-14
End Shear	1096 lbs	7232 lbs	15.2%	1	01-03-06
Total Load Deflection	L/999 (0.085")	n/a	n/a	4	04-11-02
Live Load Deflection	L/999 (0.054")	n/a	n/a	5	04-11-02
Max Defl.	0.085"	n/a	n/a	4	04-11-02
Span / Depth	10.1				



OWN NO. 7AM6043-20

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®,

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	1113 lbs	22.4%	14.9%	Unspecified
B2	Wall/Plate 5-1/2" x 1-3/4"	883 lbs	14.9%	7.5%	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 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

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

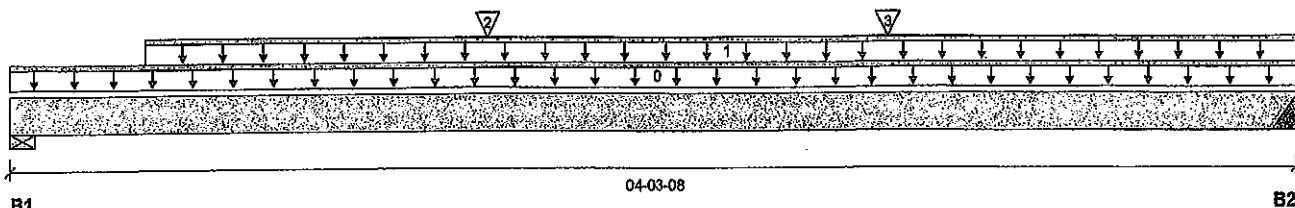
File name: MOUNTAINASH 4 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B16(i1764)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 04-03-08

Reaction Summary (Down / Uplift) (lbs)

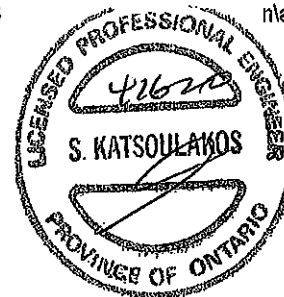
Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	632 / 0	330 / 0		
B2, 2"	664 / 0	345 / 0		

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	04-03-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-05-08	04-03-08	Top	240	120			n/a
2	J6(i1825)	Conc. Pt. (lbs)	L	01-07-00	01-07-00	Top	181	91			n/a
3	J6(i1743)	Conc. Pt. (lbs)	L	02-11-00	02-11-00	Top	191	96			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1419 ft-lbs	17696 ft-lbs	8.0%	1	02-04-00
End Shear	837 lbs	7232 lbs	11.6%	1	01-05-06
Total Load Deflection	L/999 (0.005")	n/a	n/a	4	02-03-08
Live Load Deflection	L/999 (0.004")	n/a	n/a	5	02-03-08
Max Defl.	0.005"	n/a	n/a	4	02-03-08
Span / Depth	3.8				


 DWG NO. 2AM6044 -20
STRUCTURAL
COMPONENT ONLY
Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	1361 lbs	23.0%	11.6%	Spruce-Pine-Fir
B2	Hanger 2" x 1-3/4"	1427 lbs	n/a	33.4%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 at B2 is a Single 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF. Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

Resistance Factor phi has been applied to all presented results per CSA O86. 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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BC CALC®, BC FRAMER®, AJST™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,



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

PASSED

2ND FLR FRAMING\Flush Beams\B17(I2170) (Flush Beam)

Dry | 2 spans | No cant.

February 18, 2020 08:54:51

BC CALCO® Member Report

Build 7239

Job name:

File name: MOUNTAINASH 4 EL 1.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B17(I2170)

City, Province, Postal Code: WATERDOWN

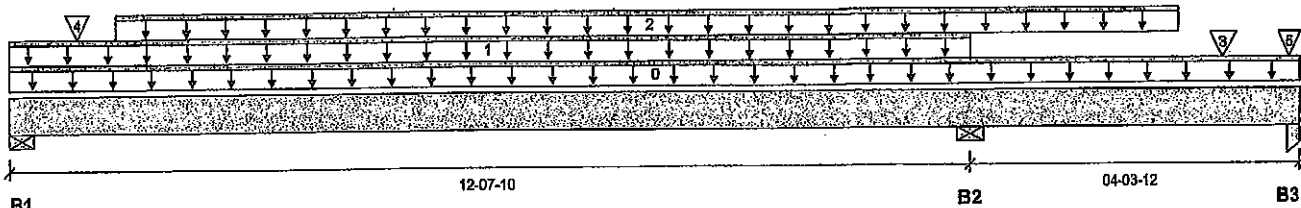
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 16-11-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	1695 / 16	908 / 0		
B2, 5-1/2"	4638 / 0	2482 / 0		
B3, 3-1/2"	939 / 1231	0 / 164		

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	16-11-06	Top	1.00	0.65	1.00	1.16	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	12-07-10	Top	19	9			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-04-14	15-04-14	Top	333	167			n/a
3	-	Conc. Pt. (lbs)	L	15-11-09	15-11-09	Top	377	158			n/a
4	J1(I2296)	Conc. Pt. (lbs)	L	00-10-14	00-10-14	Top	293	147			n/a
5	J1(I2172)	Conc. Pt. (lbs)	L	16-09-10	16-09-10	Top	316	158			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	9514 ft-lbs	35392 ft-lbs	26.9%	2	04-10-14
Neg. Moment	-11329 ft-lbs	-35392 ft-lbs	32.0%	1	12-07-10
End Shear	3318 lbs	14464 lbs	22.9%	2	01-04-04
Cont. Shear	5044 lbs	14464 lbs	34.9%	1	11-05-00
Total Load Deflection	L/934 (0.158")	n/a	25.7%	9	05-10-14
Live Load Deflection	L/999 (0.104")	n/a	n/a	12	05-10-14
Total Neg. Defl.	L/999 (-0.014")	n/a	n/a	9	14-04-02
Max Defl.	0.158"	n/a	n/a	9	05-10-14
Span / Depth	12.5				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 3-1/2"	3675 lbs	39.0%	19.7%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	10059 lbs	84.9%	42.8%	Spruce-Pine-Fir
B3	Column 3-1/2" x 3-1/2"	1282 lbs	12.7%	8.4%	Unspecified
B3	Uplift	2051 lbs			

Cautions

Uplift of 2051 lbs found at bearing B3. (Simpson 1-T522 @ S. B3).



OWG NO. YAM6045-20
STRUCTURAL
COMPONENT ONLY



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

PASSED

2ND FLR FRAMING\Flush Beams\B17(I2170) (Flush Beam)

Dry | 2 spans | No cant.

February 18, 2020 08:54:51

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 1.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B17(I2170)

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.

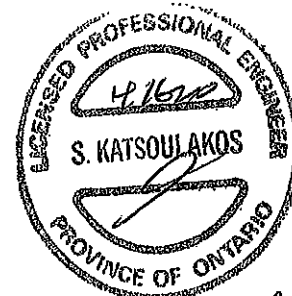
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020

2" #4 (min)



OWN NO. TAM 6045-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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BC CALC® Member Report

Build 7239

Job name:

File name: MOUNTAINASH 4 EL 1.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B18(I3879)

City, Province, Postal Code: WATERDOWN

Specifier:

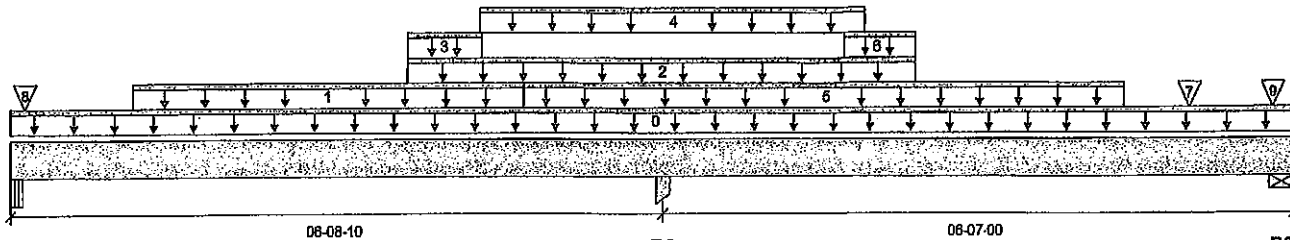
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 13-03-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	1388 / 344	605 / 0		
B2, 6"	7432 / 0	4243 / 0		
B3, 5-1/2"	2738 / 310	2808 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-03-10	Top		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-03-04	05-03-04	Top	363	182			n/a
2	5(I592)	Unf. Lin. (lb/ft)	L	04-01-02	09-04-02	Top		81			n/a
3	5(I592)	Unf. Lin. (lb/ft)	L	04-01-02	04-10-02	Top	1209	638			n/a
4	5(I592)	Unf. Lin. (lb/ft)	L	04-09-14	08-09-14	Top	698	349			n/a
5	Smoothed Load	Unf. Lin. (lb/ft)	L	05-03-04	11-08-08	Top	348	174			n/a
6	5(I592)	Unf. Lin. (lb/ft)	L	08-07-02	09-04-02	Top	2107	1087			n/a
7	J2(I3755)	Conc. Pt. (lbs)	L	12-02-08	12-02-08	Top	522	267			n/a
8	4(I589)	Conc. Pt. (lbs)	L	00-01-14	00-01-14	Top	178	118			n/a
9	1(I533)	Conc. Pt. (lbs)	L	13-00-14	13-00-14	Top	1208	2139			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	6231 ft-lbs	35392 ft-lbs	17.6%	3	09-04-02
Neg. Moment	-9047 ft-lbs	-35392 ft-lbs	25.6%	1	06-08-10
End Shear	2710 lbs	14464 lbs	18.7%	3	11-10-04
Cont. Shear	7571 lbs	14464 lbs	52.3%	1	07-11-08
Total Load Deflection	L/999 (0.027")	n/a	n/a	10	09-09-08
Live Load Deflection	L/999 (0.02")	n/a	n/a	13	09-09-08
Total Neg. Defl.	L/999 (-0.008")	n/a	n/a	10	04-10-02
Max Defl.	0.027"	n/a	n/a	10	09-09-08
Span / Depth	6.4				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	5-1/4" x 3-1/2"	2838 lbs	28.9%	12.7%	Unspecified
B2 Column	6" x 3-1/2"	16451 lbs	96.5%	64.2%	Unspecified
B3 Wall/Plate	5-1/2" x 3-1/2"	7617 lbs	64.3%	32.4%	Spruce-Pine-Fir



DWG NO. YAM 6046-20
STRUCTURAL
COMPONENT ONLY

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B18(13879)

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.

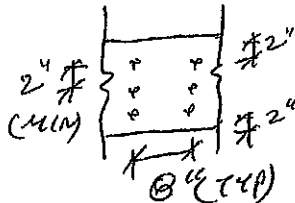
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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



DWG NO. TAM 6046-20
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 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B2\J3880) (Flush Beam)**

Dry | 2 spans | L cant.

February 18, 2020 08:54:51

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

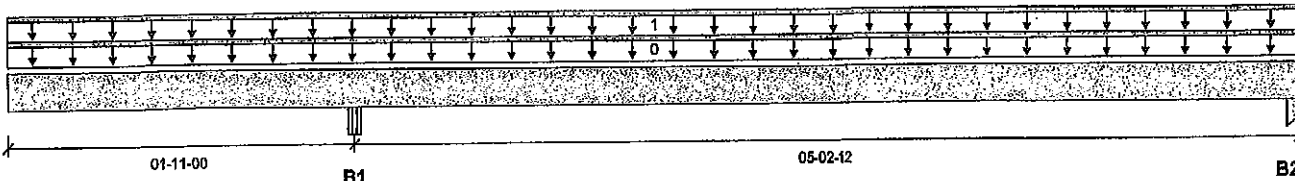
File name: MOUNTAINASH 4 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B2\J3880)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 07-01-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	90 / 0	103 / 0		
B2, 1-3/4"	49 / 7	49 / 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	07-01-12	Top	12				00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-01-12	Top	19	9			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	157 ft-lbs	35392 ft-lbs	0.4%	3	04-07-14
Neg. Moment	-100 ft-lbs	-35392 ft-lbs	0.3%	1	01-11-00
End Shear	73 lbs	14464 lbs	0.5%	3	06-00-02
Cont. Shear	94 lbs	14464 lbs	0.6%	1	03-01-08
Total Load Deflection	L/999 (0.001")	n/a	n/a	10	04-06-13
Live Load Deflection	2xL/1998 (-0")	n/a	n/a	13	00-00-00
Total Neg. Defl.	2xL/1998 (-0")	n/a	n/a	10	00-00-00
Max Defl.	0.001"	n/a	n/a	10	04-06-13
Span / Depth	5.2				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	5-1/4" x 3-1/2"	284 lbs	2.7%	1.2%	Unspecified
B2 Column	1-3/4" x 3-1/2"	135 lbs	2.7%	1.8%	Unspecified

Notes

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

Design meets User specified (2xL/360) Live load deflection criteria.

Calculations assume member is fully braced.

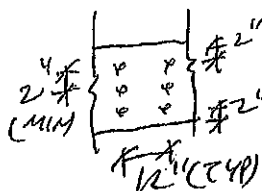
Resistance Factor phi has been applied to all presented results per CSA O86. **AMENDED 2020**

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

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

CONFORMS TO OBC 2012

PROVIDE 3 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



DWG NO. TAN 6047 -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®,



Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B3(13832) (Flush Beam)**

Dry | 1 span | No cant.

February 18, 2020 08:54:51

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

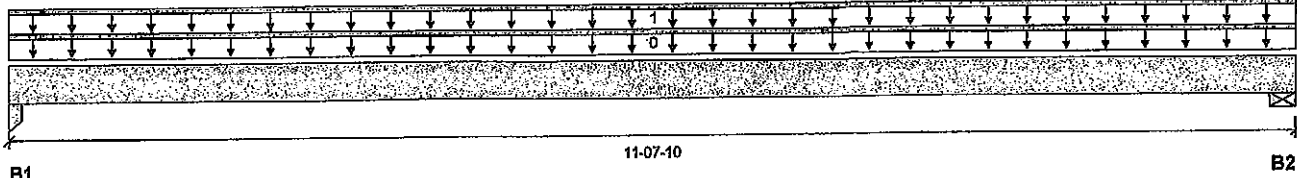
File name: MOUNTAINASH 4 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B3(13832)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 11-07-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	108 / 0	124 / 0		
B2, 1-7/8"	108 / 0	124 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-07-10	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-07-10	Top	19	9			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	894 ft-lbs	35392 ft-lbs	2.5%	1	05-09-12
End Shear	255 lbs	14464 lbs	1.8%	1	01-01-10
Total Load Deflection	L/999 (0.016")	n/a	n/a	4	05-09-12
Live Load Deflection	L/999 (0.007")	n/a	n/a	5	05-09-12
Max Defl.	0.016"	n/a	n/a	4	05-09-12
Span / Depth	11.6				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 1-3/4" x 3-1/2"	316 lbs	6.4%	4.2%	Unspecified
B2	Wall/Plate 1-7/8" x 3-1/2"	317 lbs	7.9%	4.0%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

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

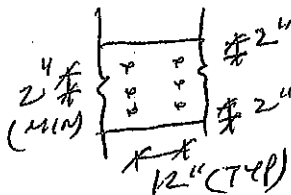
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO O86 2012

AMENDED 2020



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



UWS NO. TAM 604B *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 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

1ST FLR FRAMING\Flush Beams\B4(i3765) (Flush Beam)

Dry | 1 span | No cant.

February 18, 2020 08:54:51

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

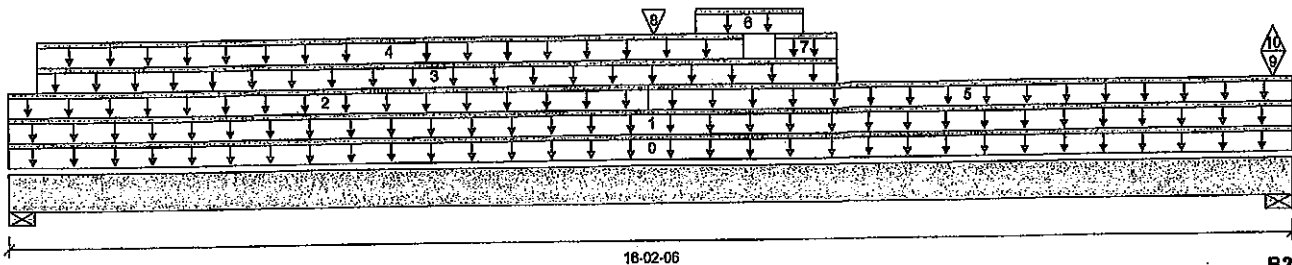
File name: MOUNTAINASH 4 EL. 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B4(i3765)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 16-02-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-7/8"	1167 / 0	1263 / 0		
B2, 5-1/2"	1277 / 5	1062 / 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	16-02-06	Top		12			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	16-02-06	Top	26	13			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-00-08	Top	6	3			n/a
3	6(i614)	Unf. Lin. (lb/ft)	L	00-04-06	10-04-10	Top		81			n/a
4	6(i614)	Unf. Lin. (lb/ft)	L	00-04-06	09-02-14	Top	35	23			n/a
5	FC1 Floor Material	Unf. Lin. (lb/ft)	L	08-00-08	16-02-06	Top	7	4			n/a
6	6(i614)	Unf. Lin. (lb/ft)	L	08-07-12	09-11-12	Top	487	254			n/a
7	6(i614)	Unf. Lin. (lb/ft)	L	09-07-10	10-04-10	Top	279	139			n/a
8	B5(i3861)	Conc. Pt. (lbs)	L	08-01-06	08-01-06	Top	709	365			n/a
9	2(i532)	Conc. Pt. (lbs)	L	15-11-10	15-11-10	Top	36	41			n/a
10	2(i532)	Conc. Pt. (lbs)	L	15-11-10	15-11-10	Top	-5				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	18495 ft-lbs	35392 ft-lbs	52.3%	1	08-01-06
End Shear	3234 lbs	14464 lbs	22.4%	1	01-01-12
Total Load Deflection	L/343 (0.549")	n/a	69.9%	6	08-00-08
Live Load Deflection	L/642 (0.294")	n/a	56.1%	8	08-01-06
Max Defl.	0.549"	n/a	n/a	6	08-00-08
Span / Depth	15.9				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 1-7/8" x 3-1/2"	3330 lbs	82.5%	41.6%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	3244 lbs	27.4%	13.8%	Spruce-Pine-Fir



DWG NO. TAM6049 -20
STRUCTURAL
COMPONENT ONLY



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

PASSED

1ST FLR FRAMING\Flush Beams\B4(13765) (Flush Beam)

Dry | 1 span | No cant.

February 18, 2020 08:54:51

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B4(13765)

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.

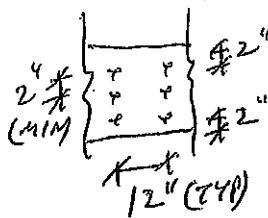
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO 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



DWG NO. TAM 6049-20

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®.

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

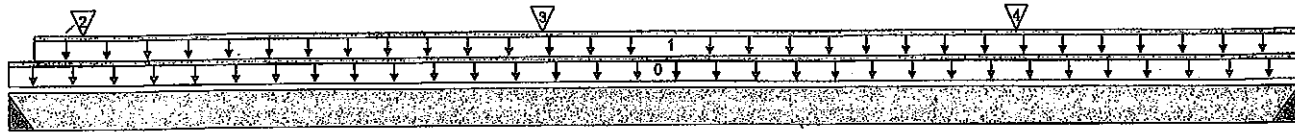
File name: MOUNTAINASH 4 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B5(I3861)

Specifier:

Designer: AJ

Company:



03-07-04

B1

B2

Total Horizontal Product Length = 03-07-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	699 / 0	360 / 0		
B2, 2"	663 / 0	343 / 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	03-07-04	Top	6				00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-14	03-07-04	Top	240	120			n/a
2	J5(I3844)	Conc. Pt. (lbs)	L	00-02-08	00-02-08	Top	129	64			n/a
3	J5(I3855)	Conc. Pt. (lbs)	L	01-05-12	01-05-12	Top	206	103			n/a
4	J5(I3872)	Conc. Pt. (lbs)	L	02-09-12	02-09-12	Top	180	90			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1204 ft-lbs	17696 ft-lbs	6.8%	1	01-07-03
End Shear	684 lbs	7232 lbs	9.5%	1	02-05-06
Total Load Deflection	L/999 (0.004")	n/a	n/a	4	01-09-12
Live Load Deflection	L/999 (0.002")	n/a	n/a	5	01-09-12
Max Defl.	0.004"	n/a	n/a	4	01-09-12
Span / Depth	3.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	1499 lbs	n/a	35.1%	HUS1.81/10
B2	Hanger 2" x 1-3/4"	1423 lbs	n/a	33.3%	HUS1.81/10

Cautions

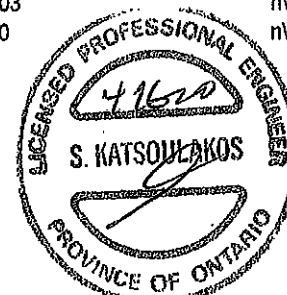
Header for the hanger HUS1.81/10 at B1 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF.
 Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.
 Header for the hanger HUS1.81/10 at B2 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF.

Notes

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

CONFORMS TO OBC 2012

AMENDED 2020



HWB NO. TAM 6050 -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®

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

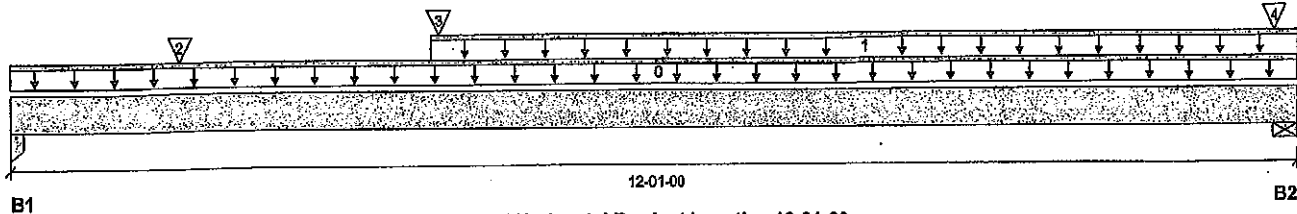
File name: MOUNTAINASH 4 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B6(13876)

Specifier:

Designer: AJ

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	2577 / 0	1554 / 0		
B2, 5-1/2"	772 / 0	520 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-01-00	Top	1.00	0.85	1.00	1.15	00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	03-11-02	12-01-00	Top	27	13			n/a
2	-	Conc. Pt. (lbs)	L	01-07-02	01-07-02	Top	2325	1374			n/a
3	B5(13861)	Conc. Pt. (lbs)	L	04-00-00	04-00-00	Top	654	338			n/a
4	2(1532)	Conc. Pt. (lbs)	L	11-10-04	11-10-04	Top	127	95			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	9181 ft-lbs	35392 ft-lbs	25.9%	1	04-00-00
End Shear	5775 lbs	14464 lbs	39.9%	1	01-03-06
Total Load Deflection	L/995 (0.138")	n/a	24.1%	4	05-04-03
Live Load Deflection	L/999 (0.086")	n/a	n/a	5	05-04-03
Max Defl.	0.138"	n/a	n/a	4	05-04-03
Span / Depth	11.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 3-1/2"	5808 lbs	58.4%	38.9%	Unspecified
B2	Wall/Plate 5-1/2" x 3-1/2"	1807 lbs	15.3%	7.7%	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

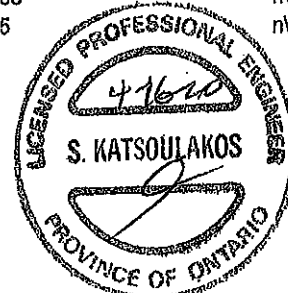
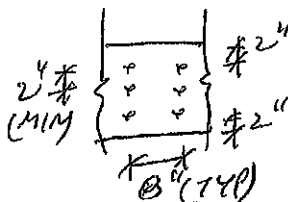
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code : Part 9

CONFORMS TO OBC 2012

PROVIDE 3 ROWS OF 3 1/2" ARDOX SPIRAL NAILS @ 8" O/C FOR MULTI-PLY NAILING, MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS



HWB NO. TAM 6051 -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®,

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

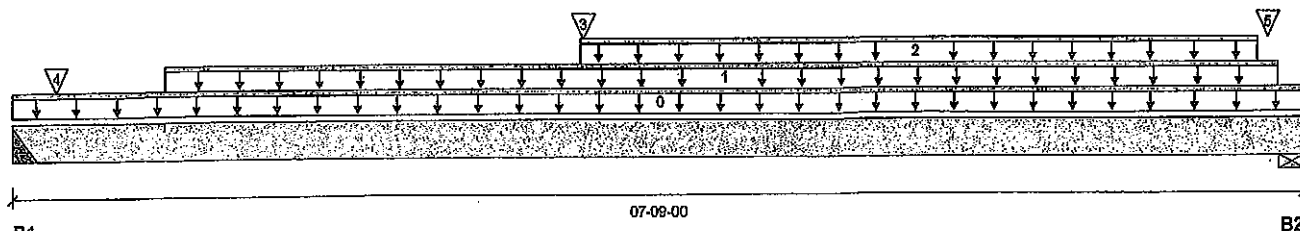
File name: MOUNTAINASH 4 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B7(i3864)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 07-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	2280 / 0	1354 / 0		
B2, 3-1/2"	1726 / 0	976 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.85	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-09-00	Top		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-11-00	07-07-00	Top	216	108			n/a
2	STAIR	Unf. Lin. (lb/ft)	L	03-04-11	07-05-08	Top	120	60			n/a
3	B9(i3871)	Conc. Pt. (lbs)	L	03-04-14	03-04-14	Top	63	36			n/a
4	-	Conc. Pt. (lbs)	L	00-03-04	00-03-04	Top	1439	884			n/a
5	E10(i425)	Conc. Pt. (lbs)	L	07-06-04	07-06-04	Top	545	338			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	4497 ft-lbs	35392 ft-lbs	12.7%	1	04-03-00
End Shear	2014 lbs	14464 lbs	13.9%	1	06-05-10
Total Load Deflection	L/999 (0.03")	n/a	n/a	4	03-11-08
Live Load Deflection	L/999 (0.019")	n/a	n/a	5	03-11-08
Max Defl.	0.03"	n/a	n/a	4	03-11-08
Span / Depth	7.3				

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Hanger	4" x 3-1/2"	5113 lbs	n/a	29.9%	HGUS410
B2 Wall/Plate	3-1/2" x 3-1/2"	3809 lbs	50.5%	25.5%	Spruce-Pine-Fir

Cautions

Header for the hanger HGUS410 at B1 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF.
Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



DWG NO. TAM 6052-20

**STRUCTURAL
COMPONENT ONLY**

**Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B8(I3867) (Flush Beam)**

Dry | 1 span | No cant.

February 18, 2020 08:54:51

BC CALC® Member Report

Build 7239

Job name:

File name: MOUNTAINASH 4 EL 1.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B8(I3867)

City, Province, Postal Code: WATERDOWN

Specifier:

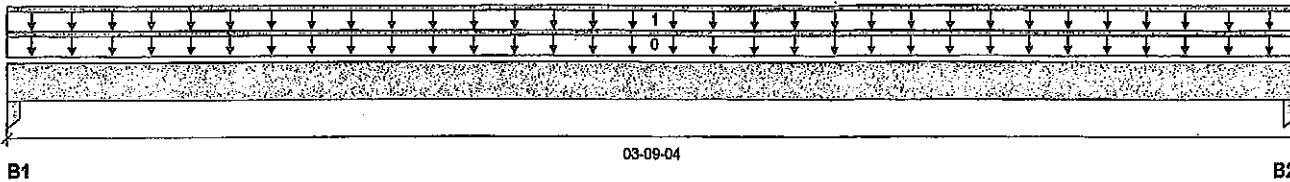
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 03-09-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	52 / 0	38 / 0		
B2, 3-1/2"	48 / 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	03-09-04	Top	6				00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-09-04	Top	27	13			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	80 ft-lbs	17696 ft-lbs	0.5%	1	01-11-08
End Shear	34 lbs	7232 lbs	0.5%	1	01-05-02
Total Load Deflection	L/999 (0")	n/a	n/a	4	01-11-08
Live Load Deflection	L/999 (0")	n/a	n/a	5	01-11-08
Max Defl.	0"	n/a	n/a	4	01-11-08
Span / Depth	3.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 5-1/4" x 1-3/4"	126 lbs	1.7%	1.1%	Unspecified
B2	Column 3-1/2" x 1-3/4"	116 lbs	2.3%	1.6%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

DWG NO. YAM6053 -20

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

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

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

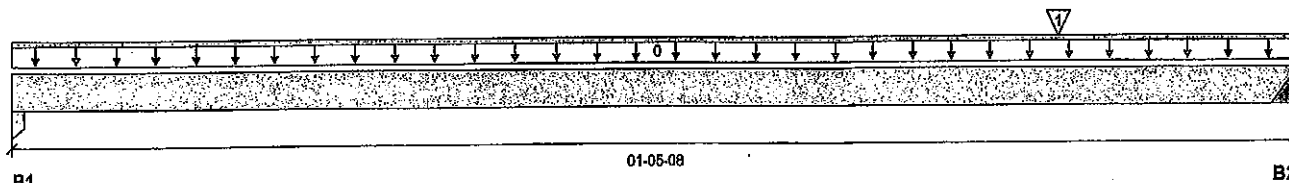
File name: MOUNTAINASH 4 EL 1.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B9(13871)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 01-05-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	8 / 0	8 / 0		
B2, 2"	55 / 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	01-05-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	J6(13869)	Conc. Pt. (lbs)	L	01-02-04	01-02-04	Top	63	32			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	20 ft-lbs	17696 ft-lbs	0.1%	1	01-02-04
End Shear	14 lbs	7232 lbs	0.2%	1	01-01-10
Span / Depth	1.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 1-3/4" x 1-3/4"	23 lbs	0.9%	0.6%	Unspecified
B2	Hanger 2" x 1-3/4"	123 lbs	n/a	2.9%	HUS1.81/10

Cautions

Header for the hanger HUS1.81/10 at B2 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF. Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

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 UBC 2012

AMENDED 2020



DWG NO. TAM 6054 -20
STRUCTURAL
COMPONENT ONLY

Disclosure

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2ND FLR FRAMING\Dropped Beams\B19 DR(i4489) (Dropped Beam)

Dry | 1 span | No cant.

February 18, 2020 09:06:05

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

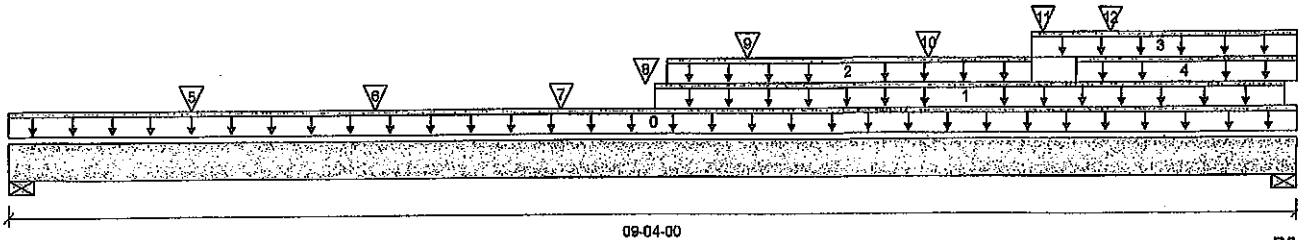
File name: MOUNTAINASH 4 EL 2.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B19 DR(i4489)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 09-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	1206 / 0	1090 / 0	524 / 0	
B2, 5-1/2"	1274 / 0	1230 / 0	780 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-04-00	Top		10			00-00-00
1	ROOF	Unf. Lin. (lb/ft)	L	04-08-00	09-02-14	Top	33	30	63		n/a
2	R1(i4465)	Unf. Lin. (lb/ft)	L	04-09-00	07-05-00	Top		41			n/a
3	R1(i4465)	Unf. Lin. (lb/ft)	L	07-05-00	09-04-00	Top		81			n/a
4	R1(i4465)	Unf. Lin. (lb/ft)	L	07-09-00	09-04-00	Top	44	40	92		n/a
5	J4(i4437)	Conc. Pt. (lbs)	L	01-04-00	01-04-00	Top	414	342	170		n/a
6	J4(i4460)	Conc. Pt. (lbs)	L	02-08-00	02-08-00	Top	394	331	127		n/a
7	J4(i4484)	Conc. Pt. (lbs)	L	04-00-00	04-00-00	Top	286	237	87		n/a
8	B21(i4467)	Conc. Pt. (lbs)	L	04-07-04	04-07-04	Top	282	331	197		n/a
9	J4(i4447)	Conc. Pt. (lbs)	L	05-04-00	05-04-00	Top	244	136	69		n/a
10	J4(i4129)	Conc. Pt. (lbs)	L	06-08-00	06-08-00	Top	273	137			n/a
11	R1(i4465)	Conc. Pt. (lbs)	L	07-06-00	07-06-00	Top	72	90	151		n/a
12	J4(i3973)	Conc. Pt. (lbs)	L	08-00-00	08-00-00	Top	286	156	69		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	9223 ft-lbs	23220 ft-lbs	39.7%	1	04-07-04
End Shear	3683 lbs	11571 lbs	31.8%	1	01-01-08
Total Load Deflection	L/561 (0.185")	n/a	42.8%	35	04-07-04
Live Load Deflection	L/999 (0.114")	n/a	n/a	51	04-07-04
Max Defl.	0.185"	n/a	n/a	35	04-07-04
Span / Depth	10.9				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	3696 lbs	32.5%	21.6%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	4227 lbs	16.5%	18.0%	Spruce-Pine-Fir



DWG NO. YAM 6055 -20
STRUCTURAL
COMPONENT ONLY



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Dropped Beams\B19 DR(I4489) (Dropped Beam)**

BC CALC® Member Report

Dry | 1 span | No cant.

February 18, 2020 09:06:05

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 2.mmdl

Description: 2ND FLR FRAMING\Dropped Beams\B19 DR(I4489)

Specifier:

Designer: AJ

Company:

Notes

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

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

Calculations assume unbraced length of Top: 01-01-08, Bottom: 01-01-08.

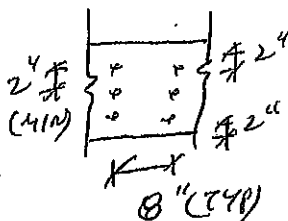
Resistance Factor phi has been applied to all presented results per CSA O86.

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



DWG NO. YAM 6055-20
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****2ND FLR FRAMING\Dropped Beams\B20 DR(I4444) (Dropped Beam)**

BC CALC® Member Report

Dry | 1 span | No cant.

February 18, 2020 09:06:05

Build 7239

Job name:

File name: MOUNTAINASH 4 EL. 2.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B20 DR(I4444)

City, Province, Postal Code: WATERDOWN

Specifier:

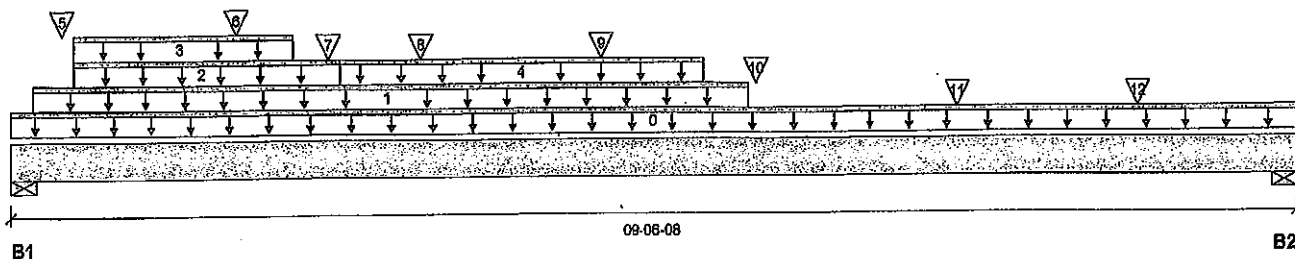
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 09-06-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	1316 / 0	1199 / 0	738 / 0	
B2, 4"	1285 / 0	1195 / 0	623 / 0	

Load Summary

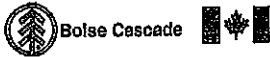
Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-06-08	Top		10			00-00-00
1	ROOF	Unf. Lin. (lb/ft)	L	00-02-00	05-05-08	Top	33	30	63		n/a
2	R1(I4438)	Unf. Lin. (lb/ft)	L	00-05-08	02-05-08	Top		81			n/a
3	R1(I4438)	Unf. Lin. (lb/ft)	L	00-05-08	02-01-08	Top	44	40	92		n/a
4	R1(I4438)	Unf. Lin. (lb/ft)	L	02-05-08	05-01-08	Top		41			n/a
5	J4(I4000)	Conc. Pt. (lbs)	L	00-04-08	00-04-08	Top	174	87			n/a
6	J4(I3957)	Conc. Pt. (lbs)	L	01-08-08	01-08-08	Top	303	165	69		n/a
7	R1(I4438)	Conc. Pt. (lbs)	L	02-04-08	02-04-08	Top	75	93	158		n/a
8	J4(I4129)	Conc. Pt. (lbs)	L	03-00-08	03-00-08	Top	273	137			n/a
9	J4(I4461)	Conc. Pt. (lbs)	L	04-04-08	04-04-08	Top	295	161	69		n/a
10	-	Conc. Pt. (lbs)	L	05-06-03	05-06-03	Top	430	478	260		n/a
11	J4(I4479)	Conc. Pt. (lbs)	L	07-00-08	07-00-08	Top	371	320	125		n/a
12	J4(I4471)	Conc. Pt. (lbs)	L	08-04-08	08-04-08	Top	427	362	195		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	9800 ft-lbs	23220 ft-lbs	42.2%	1	04-09-00
End Shear	4031 lbs	11571 lbs	34.8%	1	08-05-00
Total Load Deflection	L/482 (0.228")	n/a	49.8%	35	04-09-00
Live Load Deflection	L/777 (0.142")	n/a	46.3%	51	04-09-00
Max Defl.	0.228"	n/a	n/a	35	04-09-00
Span / Depth	11.6				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2" x 3-1/2"	4211 lbs	45.1%	49.3%	Spruce-Pine-Fir
B2	Wall/Plate 4" x 3-1/2"	4044 lbs	35.6%	23.7%	Spruce-Pine-Fir

DWG NO. TAM 6056 -20
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Dropped Beams\B20 DR(14444) (Dropped Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

February 18, 2020 09:06:05

Build 7239

Job name:

File name: MOUNTAINASH 4 EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Dropped Beams\B20 DR(14444)

City, Province, Postal Code: WATERDOWN

Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:

Notes

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

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

Calculations assume unbraced length of Top: 01-02-04, Bottom: 01-02-04.

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.

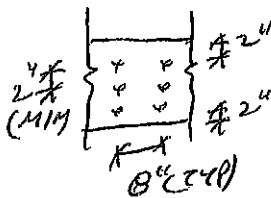
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

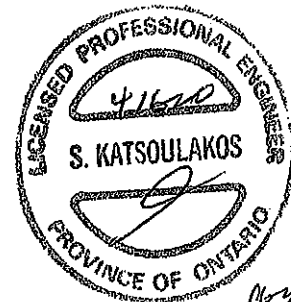
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



PROVIDE 3 ROWS OF 3 1/2" 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. TAM6056-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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



Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****2ND FLR FRAMING\Flush Beams\B21(I4467) (Flush Beam)****PASSED**

BC CALC® Member Report

Dry | 2 spans | No cant.

February 18, 2020 09:06:05

Build 7239

Job name:

File name: MOUNTAINASH 4 EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B21(I4467)

City, Province, Postal Code: WATERDOWN

Specifier:

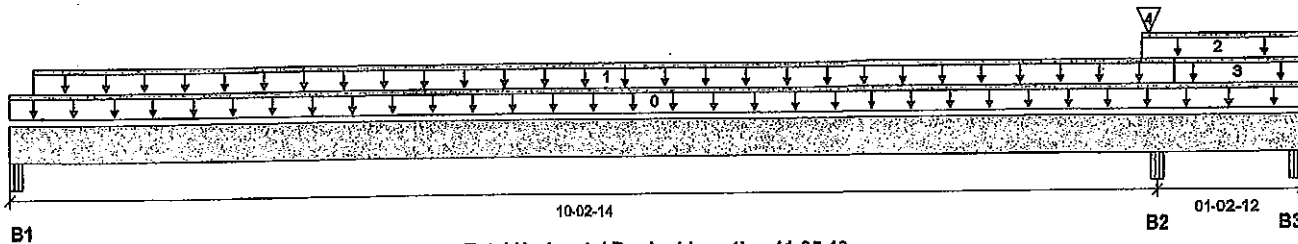
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 11-05-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	105 / 0	103 / 0	0 / 0	
B2, 3-1/2"	620 / 0	650 / 0	208 / 0	
B3, 5-1/4"	38 / 350	0 / 293	50 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-05-10	Top		12			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	10-04-10	Top	27	13			n/a
2	ROOF	Unf. Lin. (lb/ft)	L	10-01-02	11-05-10	Top	33	30	63		n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	10-04-10	11-05-10	Top	15	7			n/a
4	E21(I1667)	Conc. Pt. (lbs)	L	10-01-14	10-01-14	Top	81	136	169		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	517 ft-lbs	35392 ft-lbs	1.5%	44	04-02-04
Neg. Moment	-806 ft-lbs	-35392 ft-lbs	2.3%	1	10-02-14
End Shear	919 lbs	14464 lbs	6.4%	44	11-00-06
Cont. Shear	998 lbs	14464 lbs	6.9%	19	10-04-10
Total Load Deflection	L/999 (0.005")	n/a	n/a	107	04-08-00
Live Load Deflection	L/999 (0.003")	n/a	n/a	159	04-08-00
Total Neg. Defl.	L/999 (-0")	n/a	n/a	107	10-07-03
Max Defl.	0.005"	n/a	n/a	107	04-08-00
Span / Depth	10.0				

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Beam	5-1/4" x 3-1/2"	287 lbs	2.9%	1.3%	Unspecified
B2 Beam	3-1/2" x 3-1/2"	1948 lbs	13.0%	13.0%	VL 2.0 3100 SP
B3 Beam	5-1/4" x 3-1/2"	0 lbs	n/a	n/a	Unspecified
B3 Uplift		892 lbs			

Cautions

Uplift of 892 lbs found at bearing B3. (SIMPSON 2-HZ-5A @ 0.33)

DWG NO. TAM6057-20
STRUCTURAL
COMPONENT ONLY



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

PASSED

2ND FLR FRAMING\Flush Beams\B21(i4467) (Flush Beam)

Dry | 2 spans | No cant.

February 18, 2020 09:06:05

BC CALC® Member Report

Buld 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 2.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B21(i4467)

Specflier:

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.

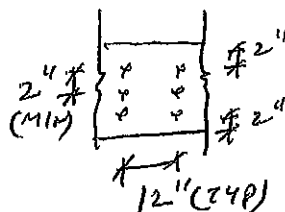
Unbalanced snow loads determined from building geometry were used in selected product's verification.

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



HWG NO. TAW 6057-20
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 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLR FRAMING\Flush Beams\B22(14454) (Flush Beam)**

Dry | 2 spans | No cant.

February 18, 2020 09:06:05

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

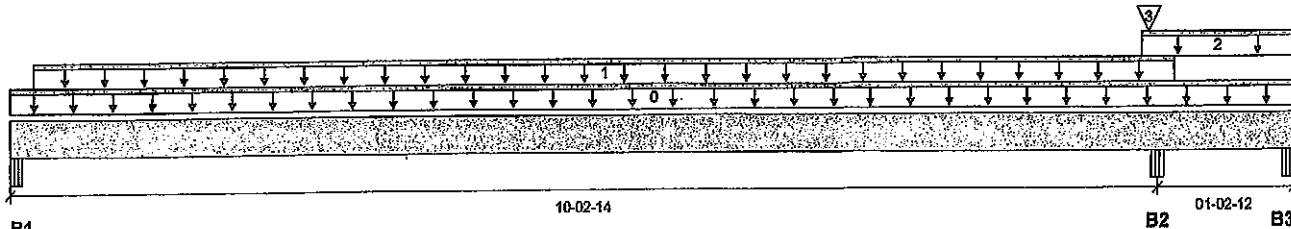
File name: MOUNTAINASH 4 EL 2.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B22(14454)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 11-05-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	211 / 0	156 / 0	0 / 0	
B2, 3-1/2"	1088 / 0	876 / 0	118 / 0	
B3, 5-1/4"	27 / 699	0 / 474	50 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-05-10	Top		12			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	10-04-10	Top	53	27			n/a
2	ROOF	Unf. Lin. (lb/ft)	L	10-01-02	11-05-10	Top	33	30	63		n/a
3	E19(11665)	Conc. Pt. (lbs)	L	10-01-14	10-01-14	Top	39	107	81		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	926 ft-lbs	35392 ft-lbs	2.6%	44	04-02-04
Neg. Moment	-1440 ft-lbs	-35392 ft-lbs	4.1%	1	10-02-14
End Shear	1664 lbs	14464 lbs	11.5%	44	11-00-06
Cont. Shear	1731 lbs	14464 lbs	12.0%	1	10-04-10
Total Load Deflection	L/999 (0.009")	n/a	n/a	107	04-08-00
Live Load Deflection	L/999 (0.005")	n/a	n/a	159	04-08-00
Total Neg. Defl.	L/999 (-0")	n/a	n/a	107	10-07-03
Max Defl.	0.009"	n/a	n/a	107	04-08-00
Span / Depth	10.0				

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Beam	5-1/4" x 3-1/2"	511 lbs	5.2%	2.3%	Unspecified
B2 Beam	3-1/2" x 3-1/2"	2845 lbs	19.0%	19.0%	VL 2.0 3100 SP
B3 Beam	5-1/4" x 3-1/2"	0 lbs	n/a	n/a	Unspecified
B3 Uplift		1641 lbs			

Cautions

Uplift of 1641 lbs found at bearing B3. (SIMPSON 2-H2-57 + 4-3/2" ANCHOR BOLTS TOE-NAILS @ ST. B3).



DWG NO. YAM6058-20

**STRUCTURAL
COMPONENT ONLY**



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B22(14454) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 2 spans | No cant.

February 18, 2020 09:06:05

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 2.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B22(14454)

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.

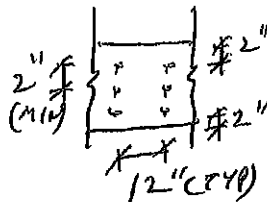
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

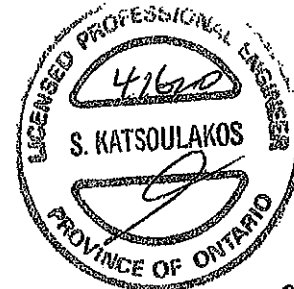
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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



NO. YAW 6058-20
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®,

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

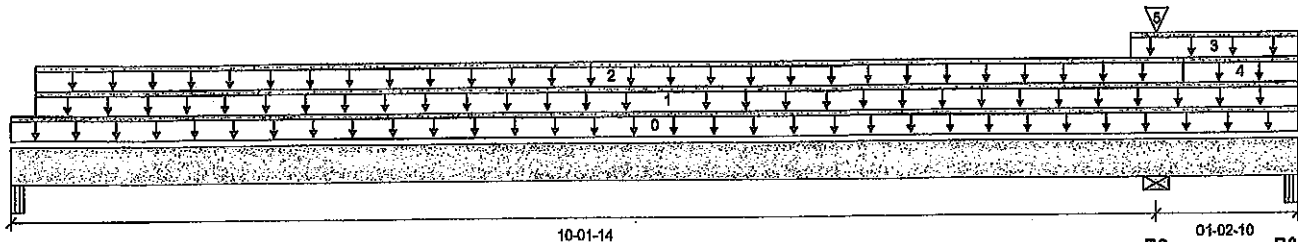
File name: MOUNTAINASH 4 EL 3 OPT.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B22(I4484)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 11-04-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	105 / 0	102 / 0	0 / 0	
B2, 5-1/2"	504 / 0	494 / 0	46 / 0	
B3, 4-1/8"	34 / 311	0 / 260	46 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-04-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	11-04-08	Top	7	4			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	10-04-10	Top	20	10			n/a
3	ROOF	Unf. Lin. (lb/ft)	L	09-11-02	11-04-08	Top	33	30	63		n/a
4	FC2 Floor Material	Unf. Lin. (lb/ft)	L	10-04-10	11-04-08	Top	6	3			n/a
5	E20(I1666)	Conc. Pt. (lbs)	L	10-01-14	10-01-14	Top		14			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	511 ft-lbs	35392 ft-lbs	1.4%	44	04-01-08
Neg. Moment	-788 ft-lbs	-35392 ft-lbs	2.2%	1	10-01-14
End Shear	813 lbs	14464 lbs	5.6%	44	11-00-08
Cont. Shear	886 lbs	14464 lbs	6.1%	1	10-04-10
Total Load Deflection	L/999 (0.005")	n/a	n/a	107	04-07-02
Live Load Deflection	L/999 (0.003")	n/a	n/a	159	04-07-02
Total Neg. Defl.	L/999 (-0")	n/a	n/a	107	10-06-09
Max Defl.	0.005"	n/a	n/a	107	04-07-02
Span / Depth	9.9				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	5-1/4" x 3-1/2"	285 lbs	2.9%	1.3%	Unspecified
B2 Wall/Plate	5-1/2" x 3-1/2"	1420 lbs	12.0%	6.0%	Spruce-Pine-Fir
B3 Beam	4-1/8" x 3-1/2"	0 lbs	n/a	n/a	Unspecified
B3 Uplift		792 lbs			

Cautions

Uplift of 792 lbs found at bearing B3. (SIMPSON 2-H2-57 @ B-33)



OWB NO. 146659-20
STRUCTURAL
COMPONENT ONLY



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

PASSED

2ND FLR FRAMING\Flush Beams\B22(14484) (Flush Beam)

Dry | 2 spans | No cant.

February 18, 2020 09:19:26

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

File name: MOUNTAINASH 4 EL 3 OPT.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B22(14484)

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.

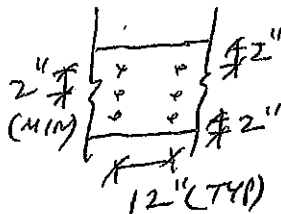
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO CBC 2012

AMENDED 2020



PROVIDE 3 ROWS OF 3/8" ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING, MAINTAIN A MIN. 2" LUMBER EDGE/END DISTANCE. DO NOT USE AIR NAILS



DOB NO. FAM 6059-20
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®.

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

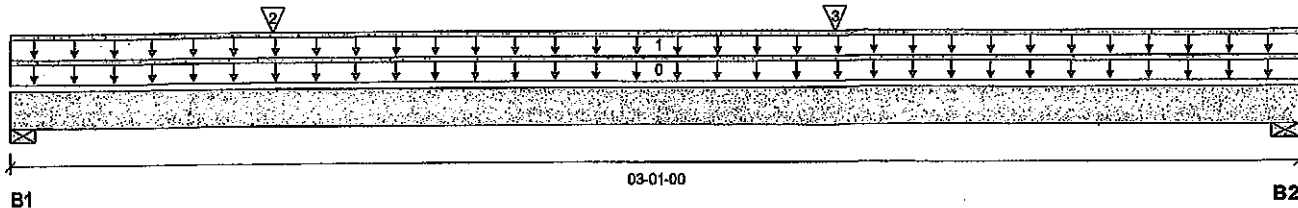
File name: MOUNTAINASH 4 EL 1 DECK CONDITION.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B1A(14890)

Specifier:

Designer: AJ

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	818 / 0	552 / 0		
B2, 3"	689 / 0	487 / 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	12	0.65	1.00	1.15	00-00-00
1	E1(1429)	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top	262	212			n/a
2	J3(14853)	Conc. Pt. (lbs)	L	00-07-08	00-07-08	Top	349	174			n/a
3	J3(14853)	Conc. Pt. (lbs)	L	01-11-08	01-11-08	Top	349	174			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1140 ft-lbs	35392 ft-lbs	3.2%	1	01-08-12.
End Shear	722 lbs	14464 lbs	5.0%	1	01-10-02
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	01-06-08
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	01-06-08
Max Defl.	0.001"	n/a	n/a	4	01-06-08
Span / Depth	2.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3" x 3-1/2"	1917 lbs	29.7%	15.0%	Spruce-Pine-Fir
B2	Wall/Plate 3" x 3-1/2"	1643 lbs	25.4%	12.8%	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.

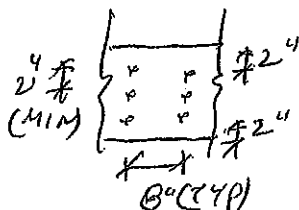
Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020

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

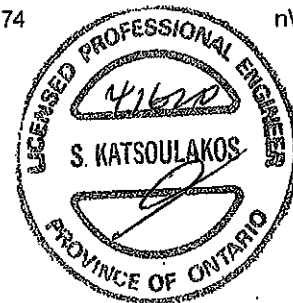
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012



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



ONE NO. 41620-20
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®

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLR FRAMING\Flush Beams\B1B(14889) (Flush Beam)**

Dry | 1 span | No cant.

April 16, 2020 07:54:23

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

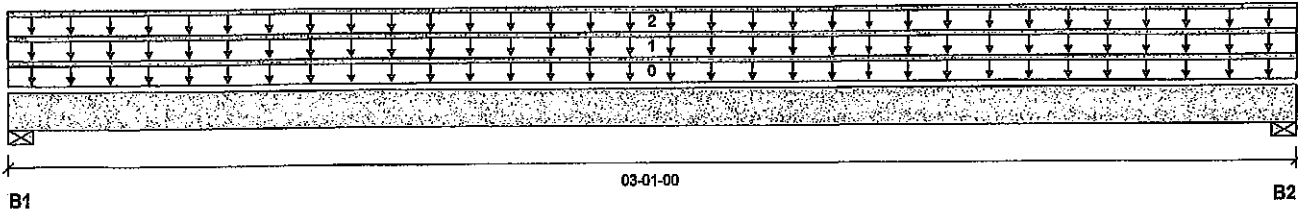
File name: MOUNTAINASH 4 EL 1 DECK CONDITION.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B1B(14889)

Specifier:

Designer: AJ

Company:

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

Bearing	Live	Dead	Snow	Wind
B1, 3"	79 / 0	192 / 0		
B2, 3"	79 / 0	192 / 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	12	0.65	1.00	1.15	00-00-00
1	E5(1427)	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top	25	99			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	160 ft-lbs	23005 ft-lbs	0.7%	0	01-06-08
End Shear	53 lbs	9401 lbs	0.6%	0	01-02-14
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	2.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3" x 3-1/2"	268 lbs	6.4%	3.2%	Spruce-Pine-Fir
B2	Wall/Plate 3" x 3-1/2"	268 lbs	6.4%	3.2%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

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

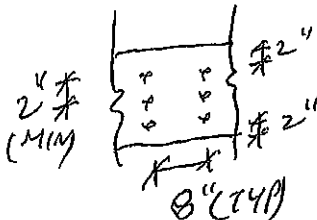
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO 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



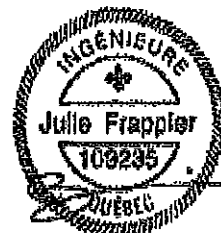
DESIGN NO. TAW 6061-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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

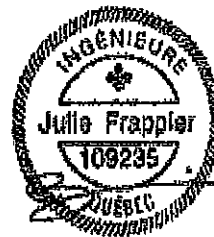


Maximum Floor Spans

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

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

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



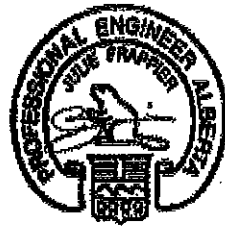
Maximum Floor Spans

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

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

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

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



Maximum Floor Spans

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

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

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



Maximum Floor Spans

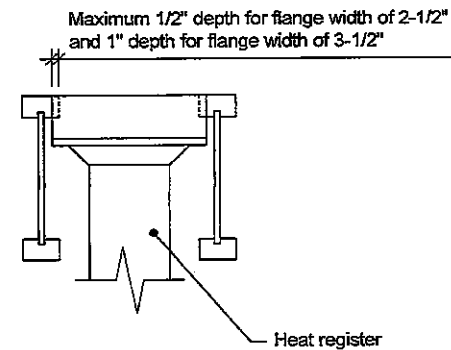
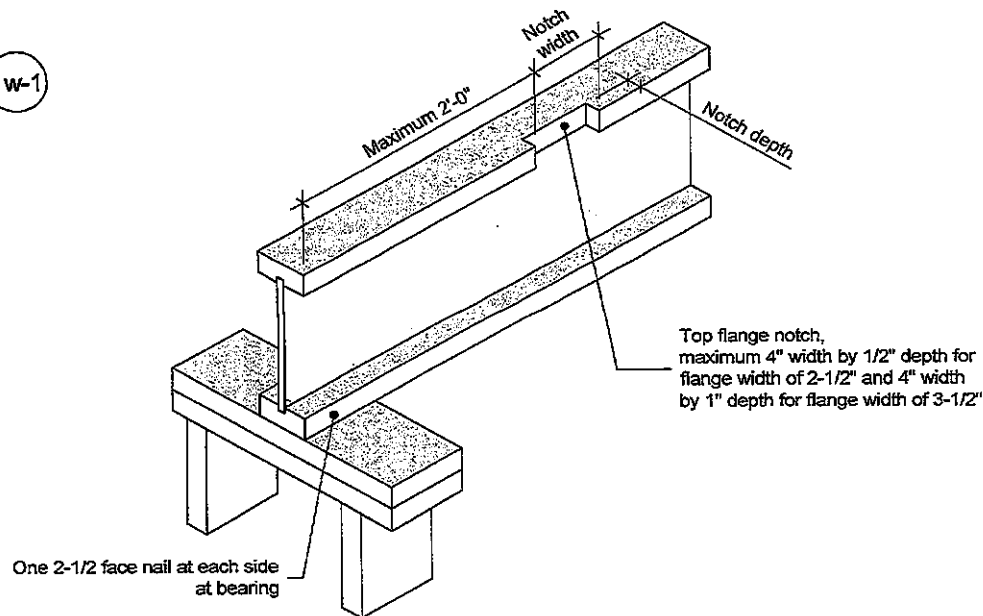
Live Load = 40 psf, Dead Load = 30 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing

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

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

- 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
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TITLE
Notch in I-joist for Heat Register

CATEGORY
I-joist - Typical Floor Framing and Construction Details

DOCUMENT

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DATE

2018-04-10

NUMBER

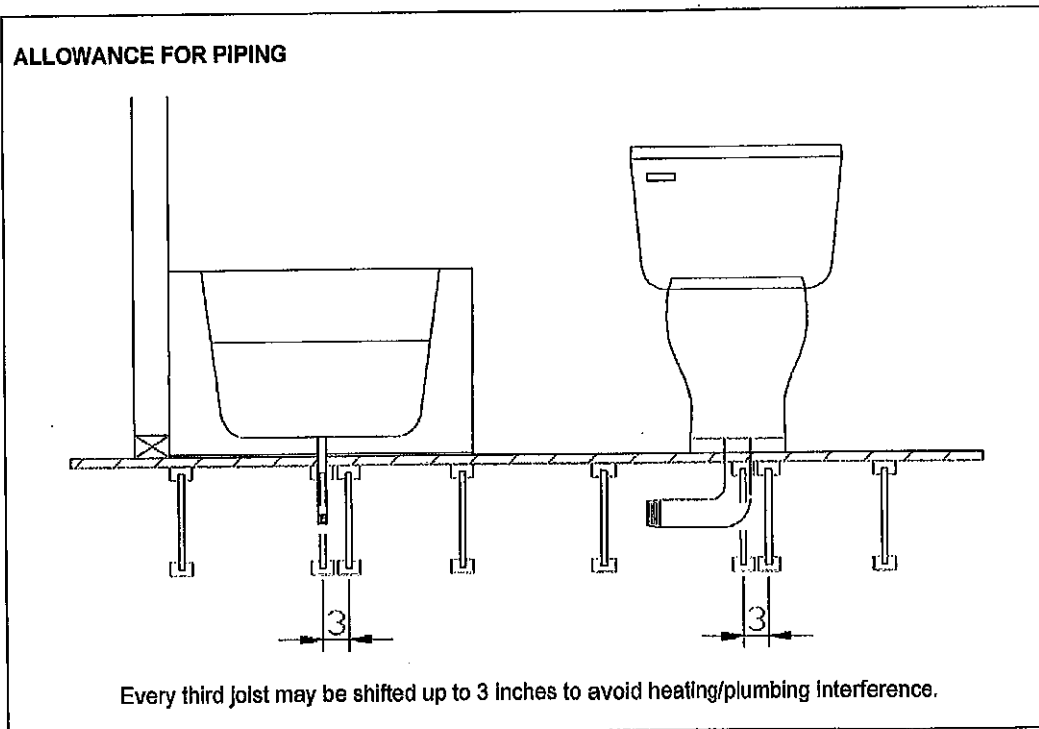
1W-1

Allowance for Piping (Installation Notes)

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

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

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



Revised April 12, 2012