

FROM PLAN DATED:

BUILDER: GREENPARK HOMES

SITE: RUSSELL GARDENS PH 3

MODEL: MOUNTAINASH 11S

ELEVATION: 3

LOT: 98

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

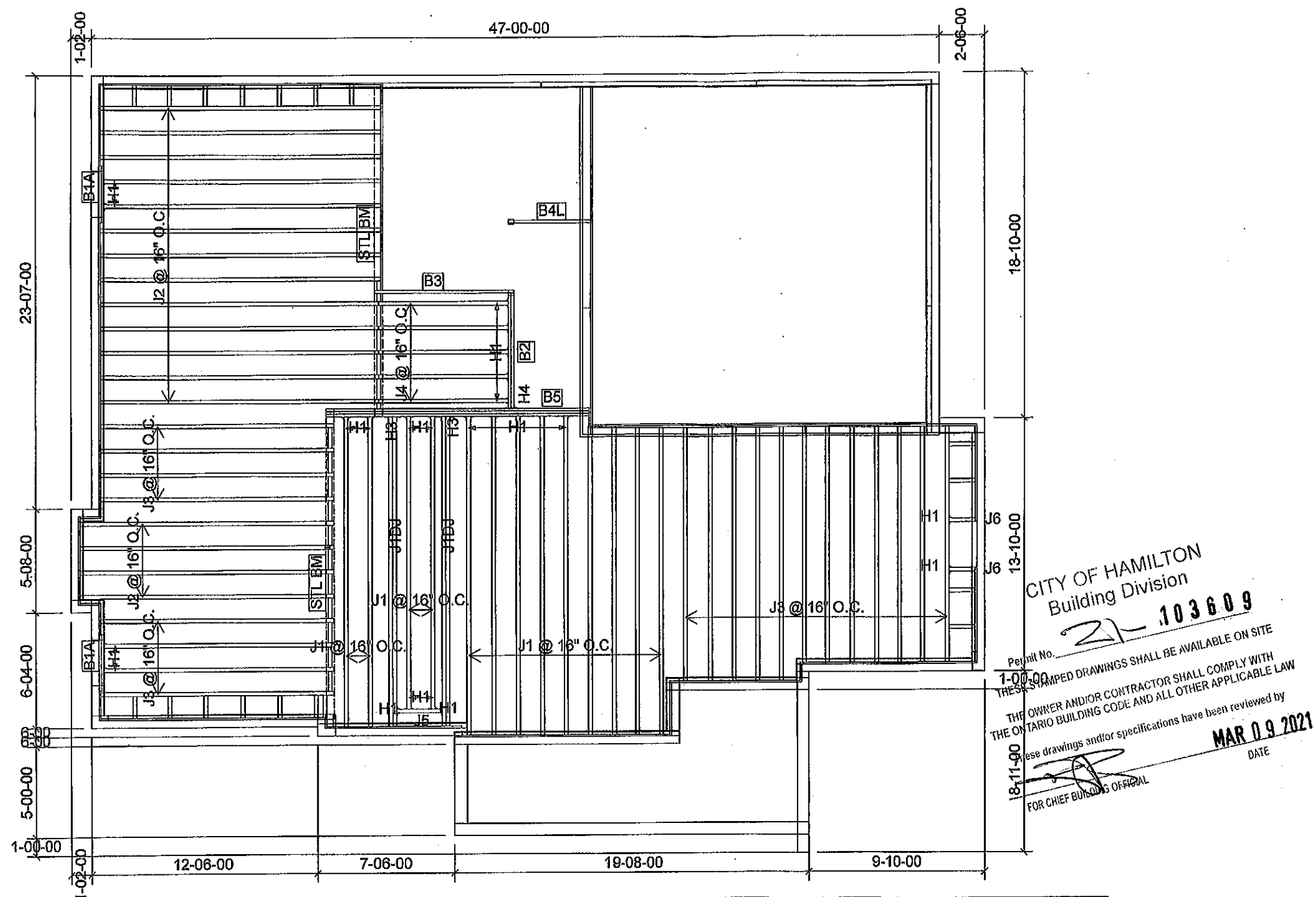
DEAD LOAD: 20.0 lb/ft²

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	13	MFD
J1DJ	18-00-00	11 7/8" NI-40x	2	4	MFD
J2	16-00-00	11 7/8" NI-40x	1	17	MFD
J3	14-00-00	11 7/8" NI-40x	1	20	MFD
J4	8-00-00	11 7/8" NI-40x	1	5	MFD
J5	4-00-00	11 7/8" NI-40x	1	1	MFD
J6	2-00-00	11 7/8" NI-40x	1	2	MFD
B5	16-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3	MFD
B3	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	MFD
B2	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B4L	6-00-00	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	4	MFD

Connector Summary		
Qty	Manuf	Product
9	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
9	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88
2	H3	HU312-2
1	H4	HGUS410

CITY OF HAMILTON
Building Division
Permit No. 21-103609
1-00-00
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
MAR 09 2021
DATE

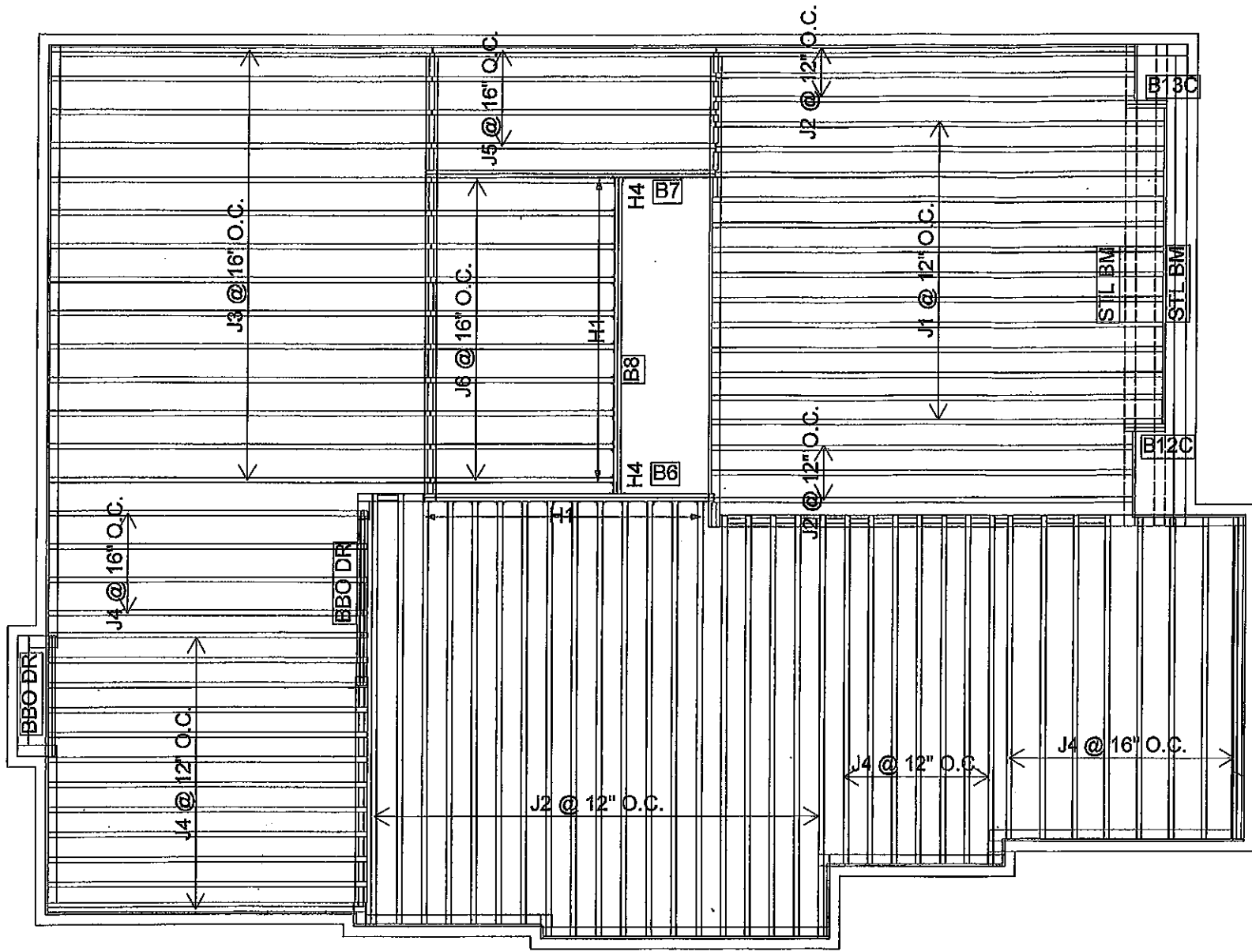


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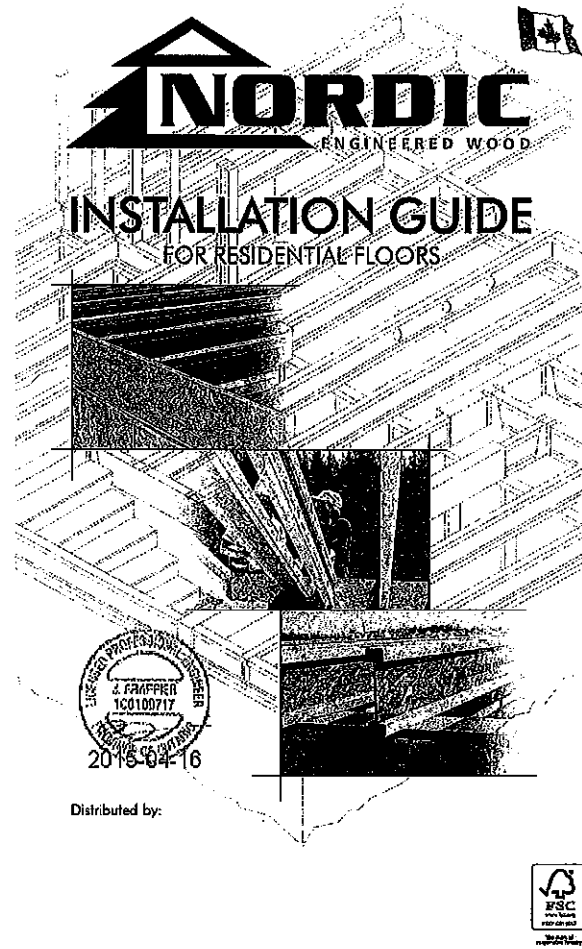
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 20.0 lb/ft²
SUBFLOOR: 5/8" GLUED AND NAILED
DATE: 2020-04-16

2nd FLOOR



Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1	20-00-00	11 7/8" NI-40x	1	13	MFD
J2	18-00-00	11 7/8" NI-40x	1	25	MFD
J3	16-00-00	11 7/8" NI-40x	1	14	MFD
J4	14-00-00	11 7/8" NI-40x	1	31	MFD
J5	12-00-00	11 7/8" NI-40x	1	4	MFD
J6	8-00-00	11 7/8" NI-40x	1	10	MFD
B8	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B6	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B7	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B12C	2-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B13C	2-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD

Connector Summary		
Qty	Manuf	Product
22	H1	IUS2.56/11.88
2	H4	HGUS410



SAFETY AND CONSTRUCTION PRECAUTIONS

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

Avoid Accidents by Following these Important Guidelines:

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

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

STORAGE AND HANDLING GUIDELINES

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

MAXIMUM FLOOR SPANS

1. Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 16 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end span shall be 40% or more of the adjacent span.

2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGSB 7.1.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.

3. Minimum bearing length shall be 1-3/4 inches for the end bearing, 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 NRC 2310.

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

Joist Depth	Joist Series	Simple spans				Multiple spans			
		On centre spacing	12"	16"	19.2"	On centre spacing	12"	16"	19.2"
9-1/2"	N1-20	15'1"	14'2"	13'9"	13'5"	16'3"	15'4"	14'10"	14'7"
	N1-22	16'1"	15'2"	14'8"	14'4"	17'5"	16'5"	15'10"	15'5"
	N1-24	16'2"	15'4"	14'10"	14'11"	17'7"	16'7"	15'12"	15'7"
	N1-26	17'1"	16'1"	15'6"	15'2"	18'7"	17'4"	16'5"	16'10"
11-7/8"	N1-20	17'3"	16'3"	15'8"	15'5"	18'10"	17'6"	16'11"	17'0"
	N1-22	18'1"	17'0"	16'5"	16'1"	20'0"	18'4"	17'9"	17'5"
	N1-24	18'4"	17'3"	16'7"	16'3"	20'3"	18'9"	18'0"	18'1"
	N1-26	19'0"	18'0"	17'4"	17'5"	21'4"	19'11"	19'0"	19'1"
14"	N1-20	19'9"	18'9"	18'3"	17'9"	21'9"	20'2"	19'3"	19'4"
	N1-22	20'2"	19'2"	18'7"	18'11"	22'3"	20'7"	19'8"	19'9"
	N1-24	20'4"	19'4"	18'9"	18'0"	22'5"	20'9"	19'10"	19'11"
	N1-26	21'1"	20'1"	19'5"	19'11"	23'0"	21'4"	20'5"	20'6"
16"	N1-20	22'3"	21'3"	20'7"	20'10"	24'7"	22'9"	21'9"	21'10"
	N1-22	22'6"	21'6"	21'0"	20'10"	24'9"	23'1"	22'10"	22'11"
	N1-24	22'8"	21'8"	21'2"	21'11"	25'0"	23'2"	22'11"	22'12"
	N1-26	23'5"	22'4"	21'8"	21'6"	25'11"	24'10"	23'9"	23'9"

I-JOIST HANGERS

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

WEB STIFFENERS

RECOMMENDATIONS:

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

SI units conversion: 1 inch = 25.4 mm

FIGURE 2 WEB STIFFENER INSTALLATION DETAILS

See table below for web stiffener size requirements

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

NORDIC I-JOIST SERIES

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

Nordic Engineered Wood I-joists use only finger-jointed lumber. The finger joints are located in the flanges, ensuring consistent quality, superior strength and longer span carrying capacity.

INSTALLING NORDIC I-JOISTS

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

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

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

FIGURES 2, 4 or 5
Holes may be cut in web for plumbing, wiring and duct work. See Tables 1, 2 and Figure 7.

NOTE: Never cut or notch flanges.

FIGURES 3, 4 or 5
Use hangers recognized in current code evaluation reports.

All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.

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

1b Use single I-joist for loads up to 3,300 lbs. Double I-joists for loads up to 6,600 lbs (filler block not required). Attach I-joist to top plate using 2-1/2" nails at 6" o.c.

1c Load bearing wall above shall align vertically with the bearing below. Other conditions, such as offset bearing walls, are not covered by this detail.

1d Blocking required over all interior supports under load-bearing walls or when floor joists are not continuous over support.

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

1f Double I-joist header.

1g Top- or face-mount hanger.

1h Filler block per detail 1p.

1i Backer block required (both sides for face-mount hangers).

1j For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

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

1l Top-mount hanger installed per manufacturer's recommendations.

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

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

1o Attach I-joist per detail 1b.

1p Filler block.

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

1r One 2-1/2" nails at top and bottom flange. Two 2-1/2" nails from each web to lumber piece. One 2-1/2" nails one side only. 2-1/2" nails at 6" o.c.

Notes:

- Support back of I-joist web during nailing to prevent damage to web/flange connection.
- Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
- Filler block is required between joists for full length of span.
- Nail joists together with two rows of 3" nails at 12 inches o.c. (clinched when possible) on each side of the double I-joist. Total of four nails per foot required. If nails can be attached, 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 lbs/ft. Verify double I-joist capacity.

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

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

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 term lumber and wood structural panels conforming to CAN/CSA O86-09 or CAN/CSA O407 Standard.

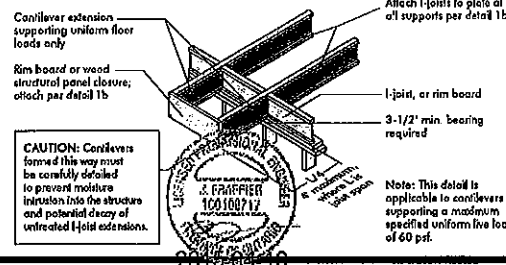
** For face-mount hangers use not joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use not depth minus 4-1/4".

Notes:

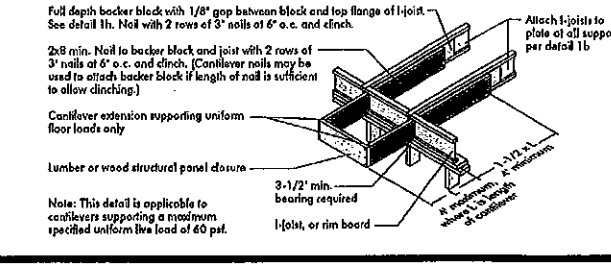
- In some local codes, blocking is prescriptively required in the first joist space (for first and second joist space) next to the exterior joist. Where required, see local code requirements for spacing of the blocking.
- All nails are common spiral in this detail.

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

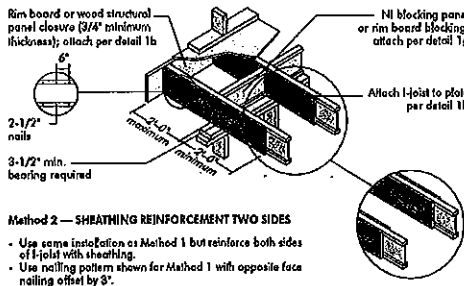


3b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE



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

4b Alternative Method 2 — DOUBLE-IJOIST

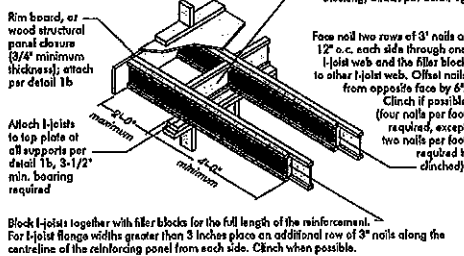
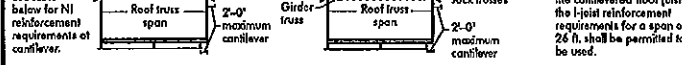


FIGURE 4 (continued)



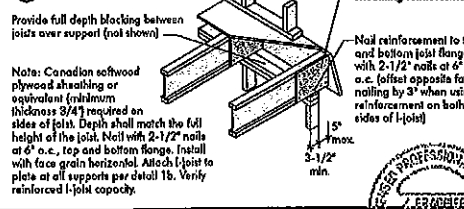
CANTILEVER REINFORCEMENT METHODS ALLOWED

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

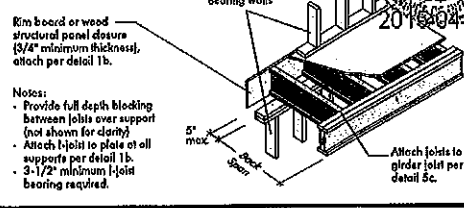
1. N = No reinforcement required.
2. 1 = NI reinforced with 3/4" wood structural panel on one side only.
3. 2 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
4. For larger openings, or multiple 3/4" width openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
5. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
6. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge beam, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
7. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

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

5a SHEATHING REINFORCEMENT



5b SET-BACK DETAIL



5c SET-BACK CONNECTION

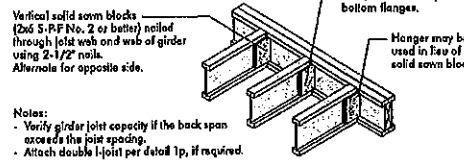
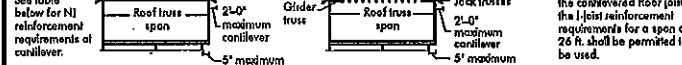


FIGURE 5 (continued)



BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

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

1. N = No reinforcement required.
2. 1 = NI reinforced with 3/4" wood structural panel on one side only.
3. 2 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
4. For larger openings, or multiple 3/4" width openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
5. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
6. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge beam, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
7. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS

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

TABLE 1 LOCATION OF CIRCULAR HOLES IN JOIST WEBS

Simple or Multiple Span for Dead Loads up to 15 psf and Live Loads up to 40 psf															
Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of hole (in.)												Span adjustment Factor	
		Round hole diameter (in.)													
		2	3	4	5	6	7	8	9	10	10-3/4	11	12	12-3/8"	
9-1/2"	N-20	0.7	1.5	2.10	2.4	2.8	3.2	3.6	4.0	4.4	4.8	5.2	5.6	6.0	6.4
	N-22	0.7	1.5	2.10	2.4	2.8	3.2	3.6	4.0	4.4	4.8	5.2	5.6	6.0	6.4
	N-24	0.7	1.5	2.10	2.4	2.8	3.2	3.6	4.0	4.4	4.8	5.2	5.6	6.0	6.4
	N-26	0.7	1.5	2.10	2.4	2.8	3.2	3.6	4.0	4.4	4.8	5.2	5.6	6.0	6.4
	N-28	0.7	1.5	2.10	2.4	2.8	3.2	3.6	4.0	4.4	4.8	5.2	5.6	6.0	6.4
	N-30	0.7	1.5	2.10	2.4	2.8	3.2	3.6	4.0	4.4	4.8	5.2	5.6	6.0	6.4
	N-32	0.7	1.5	2.10	2.4	2.8	3.2	3.6	4.0	4.4	4.8	5.2	5.6	6.0	6.4
	N-34	0.7	1.5	2.10	2.4	2.8	3.2	3.6	4.0	4.4	4.8	5.2	5.6	6.0	6.4
11-7/8"	N-20	0.7	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2
	N-22	0.7	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2
	N-24	0.7	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2
	N-26	0.7	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2
	N-28	0.7	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2
	N-30	0.7	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2
	N-32	0.7	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2
	N-34	0.7	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0	3.2
14"	N-20	0.7	0.8	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
	N-22	0.7	0.8	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
	N-24	0.7	0.8	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
	N-26	0.7	0.8	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
	N-28	0.7	0.8	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
	N-30	0.7	0.8	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
	N-32	0.7	0.8	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
	N-34	0.7	0.8	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
16"	N-20	0.7	0.8	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
	N-22	0.7	0.8	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
	N-24	0.7	0.8	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
	N-26	0.7	0.8	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
	N-28	0.7	0.8	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
	N-30	0.7	0.8	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
	N-32	0.7	0.8	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
	N-34	0.7	0.8	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0

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

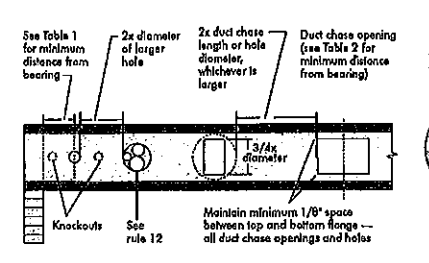
OPTIONAL:

The above table is based on the I-joists used at their maximum span. If the I-joists are placed at less than their full maximum span (see Manufacturer's Span Adjustment Factor given in 8th table), the minimum distance from the centre of the hole to the face of any support (D) as given above may be reduced as follows:

$$D_{reduced} = D \times \frac{S_{actual}}{S_{max}}$$

Where: $D_{reduced}$ = Distance from the inside face of any support to centre of hole, reduced for less than maximum span applied. Distance shall not be less than 6 inches from the face of the support to edge of the hole.
 D = The actual measured span distance between the inside faces of supports (ft.)
 S_{actual} = Span Adjustment Factor given in 8th table.
 S_{max} = The maximum distance from the inside face of any support to centre of hole from this table.
 If L_{actual} is greater than 1, use 1 in the above calculation for S_{actual} .

FIGURE 7 FIELD-CUT HOLE LOCATOR



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

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

Joist Depth	Joist Series	Minimum Distance from inside face of any support to centre of opening (in.)											
		2	3	4	5	6	7	8	9	10	11	12	12-5/8"
9-1/2"	28	12	12	12	12	12	12	12	12	12	12	12	12
	30	12	12	12	12	12	12	12	12	12	12	12	12
	32	12	12	12	12	12	12	12	12	12	12	12	12
	34	12	12	12	12	12	12	12	12	12	12	12	12
11-7/8"	28	12	12	12	12	12	12	12	12	12	12	12	12
	30	12	12	12	12	12	12	12	12	12	12	12	12
	32	12	12	12	12	12	12	12	12	12	12	12	12
	34	12	12	12	12	12	12	12	12	12	12	12	12
14"	28	12	12	12	12	12	12	12	12	12	12	12	12
	30	12	12	12	12	12	12	12	12	12	12	12	12
	32	12	12	12	12	12	12	12	12	12	12	12	12
	34	12	12	12	12	12	12	12	12	12	12	12	12
16"	28	12	12	12	12	12	12	12	12	12	12	12	12
	30	12	12	12	12	12	12	12	12	12	12	12	12
	32	12	12	12	12	12	12	12	12	12	12	12	12
	34	12	12	12	12	12	12	12	12	12	12	12	12

1. Above table may be used for joist spacing of 24 inches on centre or less.
2. Duct chase opening location distance is measured from inside face of supports to centre of opening.
3. The above table is based on simple-span joists only. For other applications, consult your local distributor.
4. Distances in this table are based on uniformly loaded floor joists. Do not use open truss joists for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. For other applications, consult your local distributor.

INSTALLING THE GLUED FLOOR SYSTEM

1. Wipe any mud, dirt, water, or ice from I-joist flanges before gluing.
2. Snap a chalk line across the I-joists four feet in from the wall for panel edge alignment and as a boundary for spreading glue.
3. Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from the glue manufacturer.
4. Lay the first panel with tongue side to the wall, and nail in place. This protects the tongue of the next panel from damage when lapped into place with a block and sledgehammer.
5. Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joist. Apply glue in a winding pattern on void areas, such as web with double I-joists.
6. Apply two lines of glue on I-joists where panel ends butt to assure proper gluing of each end.
7. After the first row of panels is in place, spread glue in the groove of one or two panels at a time before laying the next row. Glue line must be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) than used on I-joist flanges.
8. Top the second row of panels into place, using a block to protect groove edges.
9. Stagger and joints in each succeeding row of panels. A 1/8-inch space between all joints and 1/8-inch at all edges, including T&G edges, is recommended. (Use a spacer tool or an 1/8-inch common nail to assure accurate and consistent spacing.)
10. Complete all nailing of each panel before glue sets. Check the manufacturer's recommendations for cure time. Warm weather accelerates glue setting. Use 2" ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the glue bond.

FASTENERS FOR SHEATHING AND SUBFLOORING(1)

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

1. Fasteners of sheathing and subflooring shall conform to the above table.
2. Staples shall not be less than 1/16-inch in diameter or thickness,



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

WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

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

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

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

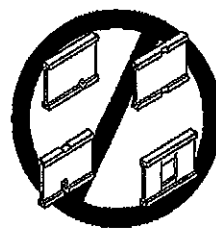
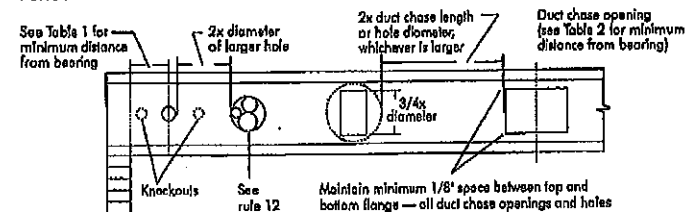
- Above table may be used for I-joint spacing of 24 inches on centre or less.
- Hole location distance is measured from inside face of supports to centre of hole.
- Distances in this chart are based on uniformly loaded joists.
- The above table is based on the I-joints being used of their maximum spans. 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.)											
		8	10	12	14	16	18	20	22	24	26	28	30
9-1/2"	NI-20	4-1"	4-5"	4-10"	5-4"	5-8"	6-1"	6-6"	7-1"	7-5"	---	---	---
	NI-40x	5-3"	5-8"	6-0"	6-4"	6-10"	7-3"	7-8"	8-2"	8-6"	---	---	---
	NI-60	5-4"	5-9"	6-2"	6-7"	7-1"	7-5"	8-0"	8-3"	8-9"	---	---	---
	NI-70	5-1"	5-5"	5-10"	6-3"	6-7"	7-1"	7-5"	8-1"	8-4"	---	---	---
	NI-80	5-2"	5-6"	6-0"	6-5"	6-10"	7-3"	7-8"	8-2"	8-6"	---	---	---
11-7/8"	NI-20	5-5"	6-2"	6-6"	7-1"	7-5"	7-9"	8-3"	8-9"	9-4"	---	---	---
	NI-40x	6-8"	7-2"	7-6"	8-1"	8-4"	8-9"	9-3"	9-6"	10-1"	---	---	---
	NI-60	7-5"	7-8"	8-0"	8-6"	9-0"	9-3"	9-6"	10-1"	10-5"	---	---	---
	NI-70	7-1"	7-4"	7-9"	8-3"	8-7"	9-1"	9-6"	10-1"	10-4"	---	---	---
	NI-80	7-2"	7-7"	8-0"	8-5"	8-10"	9-3"	9-8"	10-2"	10-8"	---	---	---
14"	NI-20	7-6"	7-11"	8-4"	8-9"	9-2"	9-7"	10-1"	10-5"	10-11"	---	---	---
	NI-40x	7-7"	8-1"	8-5"	8-10"	9-4"	9-8"	10-2"	10-6"	11-2"	---	---	---
	NI-60	8-1"	8-7"	9-0"	9-4"	10-1"	10-5"	11-1"	11-5"	12-0"	---	---	---
	NI-70	8-7"	9-1"	9-5"	9-10"	10-4"	10-8"	11-2"	11-7"	12-3"	---	---	---
	NI-80	9-0"	9-3"	9-9"	10-1"	10-7"	11-1"	11-6"	12-1"	12-6"	---	---	---
16"	NI-20	9-2"	9-8"	10-0"	10-6"	10-11"	11-5"	11-9"	12-4"	12-11"	---	---	---
	NI-40x	9-3"	9-9"	10-3"	10-7"	11-1"	11-7"	12-1"	12-7"	13-2"	---	---	---
	NI-60	10-3"	10-8"	11-2"	11-6"	12-1"	12-6"	13-2"	14-1"	14-10"	---	---	---
	NI-70	10-1"	10-5"	11-0"	11-4"	11-10"	12-3"	12-8"	13-3"	14-0"	---	---	---
	NI-80	10-4"	10-9"	11-3"	11-8"	12-3"	12-8"	13-3"	13-8"	14-3"	---	---	---

- Above table may be used for I-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 floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480.
- The above table is based on the I-joints being used of their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

FIGURE 7
FIELD-CUT HOLE LOCATOR



Knockouts are pre-scored holes provided for the contractor's convenience to install electrical or small plumbing lines. They are 1-1/2 inches in diameter, and are spaced 15 inches on centre along the length of the I-joint. Where possible, it is preferable to use knockouts instead of field-cut holes.

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

Holes in webs should be cut with a sharp saw.

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

SAFETY AND CONSTRUCTION PRECAUTIONS



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



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

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

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

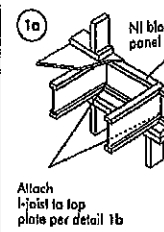
- Brace and nail each I-joint as it is installed, using hangers, blocking panels, rim board, and/or cross-bracing at joint ends. When I-joints are applied continuously over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
 - When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



PRODUCT WARRANTY

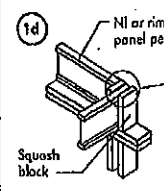
Chantiers Chibonganus warrants that, in accordance with our specifications, Nordic products are free from manufacturing defects in material and workmanship.

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



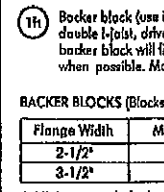
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

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



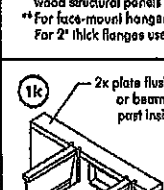
Pair of Squash Blocks	Maximum Factored Vertical Load per Pair of Squash Blocks (lbs)
2x Lumber	5,500
1-1/8" Rim Board Plus	4,800

Provide lateral bracing per detail 1a or 1b

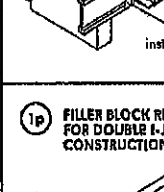


Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

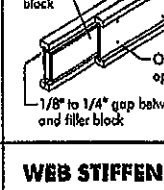
* Minimum grade for blocking block material shall be S-PF No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-O322 or CAN/CSA-O437 Standard.
** For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".



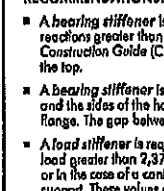
Flange Width	Net Depth	Filler Block Size
2-1/2" x 1-1/2"	9-1/2"	2-1/8" x 6"
	11-7/8"	2-1/8" x 8"
	14"	2-1/8" x 10"
	16"	2-1/8" x 12"
3-1/2" x 1-1/2"	9-1/2"	3" x 6"
	11-7/8"	3" x 8"
	14"	3" x 10"
	16"	3" x 12"
3-1/2" x 2"	11-7/8"	3" x 7"
	14"	3" x 9"
	16"	3" x 11"



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



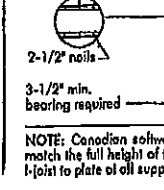
Flange Width	Net Depth	Filler Block Size
2-1/2" x 1-1/2"	9-1/2"	2-1/8" x 6"
	11-7/8"	2-1/8" x 8"
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3-1/2" x 2"	11-7/8"	3" x 7"
	14"	3" x 9"
	16"	3" x 11"



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NORDIC STRUCTURES

COMPANY
Apr. 9, 2020 10:36

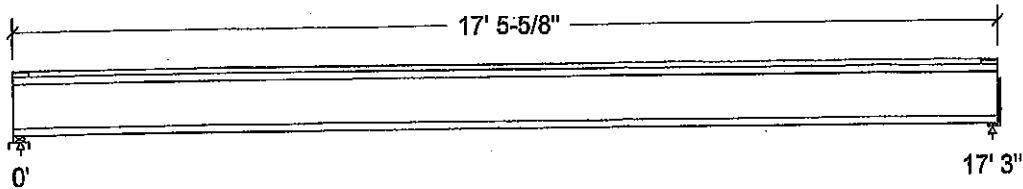
PROJECT
J1 1ST FLOOR.wwb

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	230		230
Live	460		460
Factored:			
Total	978		978
Bearing:			
Capacity			
Joist	2101		2048
Support	3971		-
Des ratio			
Joist	0.47		0.48
Support	0.25		-
Load case	#2		#2
Length	2-3/8		2
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		-
fcp sup	769		-
Kzcp sup	1.09		-

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

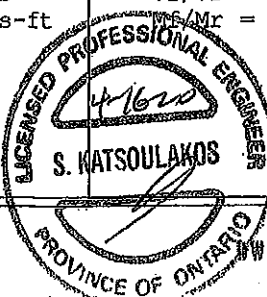
Supports: 1 - Lumber Sill plate, No.1/No.2; 2 - Hanger;

Total length: 17' 5-5/8"; Clear span: 17' 1-1/4"; 3/4" nailed and glued OSB sheathing

This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 978	Vr = 2336	lbs	Vf/Vr = 0.42
Moment (+)	Mf = 4216	Mr = 6255	lbs-ft	Mf/Mr = 0.67
Perm. Defl'n	0.13 = < L/999	0.57 = L/360	in	0.23
Live Defl'n	0.26 = L/790	0.43 = L/480	in	0.61
Total Defl'n	0.39 = L/526	0.86 = L/240	in	0.46
Bare Defl'n	0.32 = L/652	0.57 = L/360	in	0.55
Vibration	Lmax = 17'-3	Lv = 18'-1.3	ft	0.95
Defl'n	= 0.031	= 0.036	in	0.86



NO. TAM5951-20
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:EI_{eff} = 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 5951 -20
STRUCTURAL
COMPONENT ONLY

NORDIC STRUCTURES

COMPANY
Apr. 16, 2020 10:50

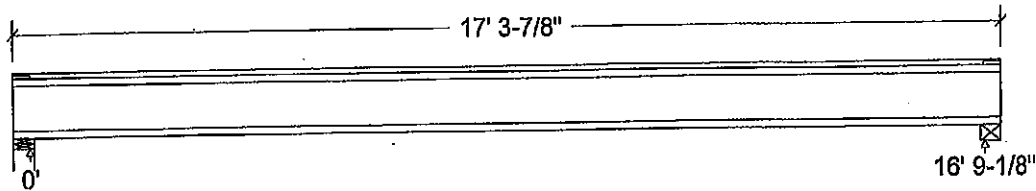
PROJECT
J1 2ND FLOOR.wwb

Design Check Calculation Sheet Nordic Sizer - Canada 7.2

Loads:

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

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



Unfactored:			
Dead	168		168
Live	335		335
Factored:			
Total	712		712
Bearing:			
Capacity			
Joist	2336		2336
Support	7735		-
Des ratio			
Joist	0.30		0.30
Support	0.09		-
Load case	#2		#2
Length	4-3/8		4-1/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	-		-
fcp sup	769		-
Kzcp sup	-		-

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

Nordic 11-7/8" NI-40x Floor joist @ 12" o.c.

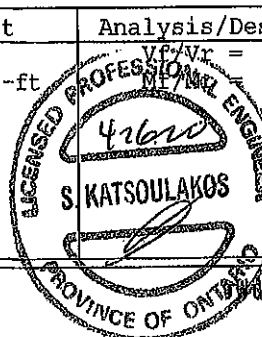
Supports: 1 - Lumber Wall, No.1/No.2; 2 - Steel Beam, W;

Total length: 17' 3-7/8"; Clear span: 16' 7-3/8"; 5/8" nailed and glued OSB sheathing

This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 712	Vr = 2336	lbs	Vf/Vr = 0.30
Moment(+)	Mf = 2985	Mr = 6255	lbs-ft	Mf/Mr = 0.48
Perm. Defl'n	0.09 = < L/999	0.56 = L/360	in	0.17
Live Defl'n	0.19 = < L/999	0.42 = L/480	in	0.44
Total Defl'n	0.28 = L/721	0.84 = L/240	in	0.33
Bare Defl'n	0.21 = L/943	0.56 = L/360	in	0.38
Vibration	Lmax = 16'-9.1	Lv = 18'-3.6	ft	0.92
Defl'n	= 0.029	= 0.038	in	0.76



NO. TAM 5982 -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
ET	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 = 432.91 lb-in² K= 6.18e06 lbs

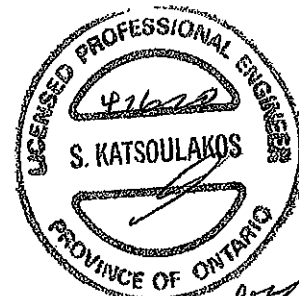
"Live" deflection is due to all non-dead loads (live, wind, snow...)

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.



BWG NO. YAM 5952-20
STRUCTURAL
COMPONENT ONLY

NORDIC STRUCTURES

COMPANY
Apr. 9, 2020 10:35

PROJECT
J1 2ND FLOOR EL 3 ABOVE GARAGE.wwb

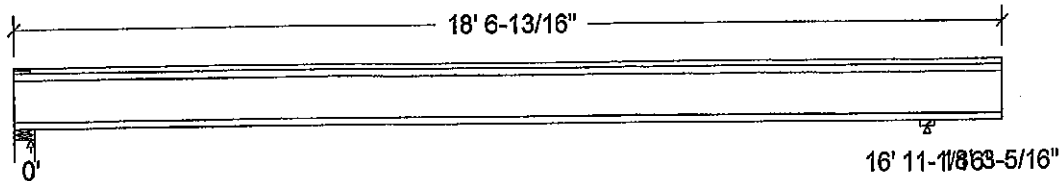
Design Check Calculation Sheet

Nordic Sizer – Canada 7.2

Loads:

Load	Type	Distribution	Pat-tern	Location [ft] Start End	Magnitude Start End	Unit
Load1	Dead	Full Area	No		20.00	psf
Load2	Live	Full Area	Yes		40.00	psf

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



Unfactored:			
Dead	168		197
Live	338		395
Factored:			
Total	718		839
Bearing:			
Capacity			
Joist	2336		4734
Support	7744		-
Des ratio			
Joist	0.31		0.18
Support	0.09		-
Load case	#4		#2
Length	4-3/8		3-1/2
Min req'd	1-3/4		3-1/2
Stiffener	No		No
KD	1.00		1.00
KB support	-		-
fcp sup	769		-
Kzcp sup	-		-

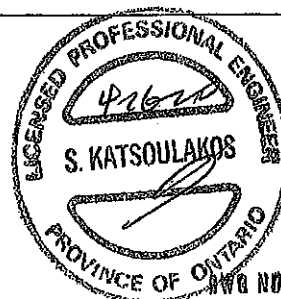
Bearing for wall supports is perpendicular-to-grain bearing on top plate. No stud design included.

Nordic 11-7/8" NI-40x Floor joist @ 12" o.c.

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

Total length: 18' 6-13/16"; Clear span: 16' 8-7/16", 1' 2-1/2"; 5/8" nailed and glued OSB sheathing

This section PASSES the design code check.



pg 1/2
NO. YAM 5953 -20
STRUCTURAL
COMPONENT ONLY

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	$V_f = 724$	$V_r = 2336$	lbs	$V_f/V_r = 0.31$
Moment (+)	$M_f = 3031$	$M_r = 6255$	lbs-ft	$M_f/M_r = 0.48$
Moment (-)	$M_f = 78$	$M_r = 4065$	lbs-ft	$M_f/M_r = 0.02$
Deflection:				
Interior Perm	$0.09 = < L/999$	$0.56 = L/360$	in	0.17
Live	$0.19 = < L/999$	$0.42 = L/480$	in	0.46
Total	$0.29 = L/706$	$0.85 = L/240$	in	0.34
Cantil. Perm	$-0.02 = L/765$	$0.09 = L/180$	in	0.24
Live	$-0.04 = L/372$	$0.07 = L/240$	in	0.64
Total	$-0.06 = L/250$	$0.14 = L/120$	in	0.48
Bare Defl'n	$-0.05 = L/319$	$0.09 = L/180$	in	0.56
Vibration	$L_{max} = 16'-11.1$	$L_v = 18'-3.6$	ft	0.92
Defl'n	$= 0.029$	$= 0.037$	in	0.79

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	-	-	-	#4
Mr-	6255	0.65	1.00	-	1.000	-	-	-	#5
EI	371.1 million	-	-	-	-	-	-	-	#4

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

Moment (+) : LC #4 = 1.25D + 1.5L (pattern: L₁)Moment (-) : LC #5 = 1.25D + 1.5L (pattern: L₁)

Deflection: LC #1 = 1.0D (permanent)

LC #4 = 1.0D + 1.0L (pattern: L₁) (live)LC #4 = 1.0D + 1.0L (pattern: L₁) (total)LC #4 = 1.0D + 1.0L (pattern: L₁) (bare joist)Bearing : Support 1 - LC #4 = 1.25D + 1.5L (pattern: L₁)

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

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

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

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

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

CALCULATIONS:

 $EI_{eff} = 432.91 \text{ lb-in}^2$ $K = 6.18e06 \text{ lbs}$

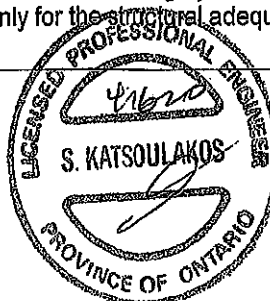
"Live" deflection is due to all non-dead loads (live, wind, snow...)

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.



NO. 5953 -20
STRUCTURAL
COMPONENT ONLY



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

1ST FLR FRAMING\Dropped Beams\B4L(I547) (Dropped Beam)

PASSED

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

April 16, 2020 10:41:05

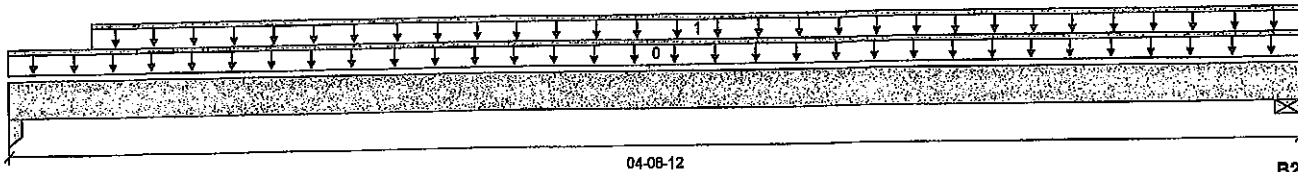
File name: MOUNTAINASH 11S.mmdl

Description: 1ST FLR FRAMING\Dropped Beams\B4L(I547)

Specifier:

Designer: AJ

Company:



B1

Total Horizontal Product Length = 04-06-12

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	458 / 0	242 / 0		
B2, 5-1/2"	567 / 0	298 / 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	04-06-12	Top	1.00	0.85	1.00	1.15	00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-03-08	04-06-12	Top	240	120			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1002 ft-lbs	12053 ft-lbs	8.3%	1	02-02-08
End Shear	474 lbs	7232 lbs	6.6%	1	01-03-08
Total Load Deflection	L/999 (0.004")	n/a	n/a	4	02-02-08
Live Load Deflection	L/999 (0.003")	n/a	n/a	5	02-02-08
Max Defl.	0.004"	n/a	n/a	4	02-02-08
Span / Depth	4.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	989 lbs	24.9%	13.2%	Unspecified
B2	Wall/Plate 5-1/2" x 1-3/4"	1223 lbs	20.7%	10.4%	Spruce-Pine-Fir

Notes

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

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

Calculations assume unbraced length of Top: 04-01-04, Bottom: 04-01-04. **CONFORMS TO OBC 2012**

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86. **AMENDED 2020**

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9



DWG NO. FAM5954-20

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®, 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

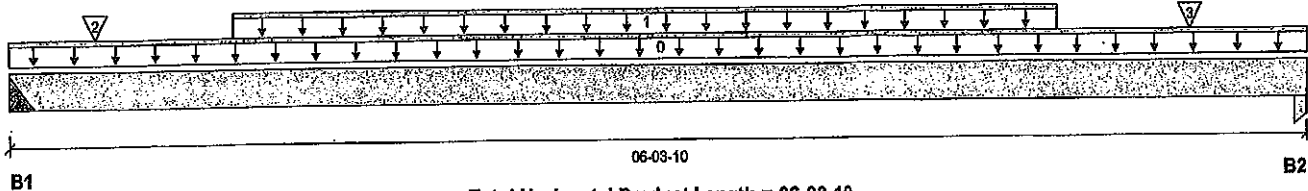
File name: MOUNTAINASH 11S.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B2(I2561)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 06-03-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	488 / 0	272 / 0		
B2, 1-3/4"	417 / 0	244 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-03-10	Top	12	73	148	145	149
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-01-00	05-01-00	Top	148	73	145	149	n/a
2	J5(I2568)	Conc. Pt. (lbs)	L	00-05-00	00-05-00	Top	145	72	149	74	n/a
3	J5(I2567)	Conc. Pt. (lbs)	L	05-09-00	05-09-00	Top	149	74			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1438 ft-lbs	35392 ft-lbs	4.1%	1	03-01-00
End Shear	727 lbs	14464 lbs	5.0%	1	05-02-00
Total Load Deflection	L/999 (0.006")	n/a	n/a	4	03-03-00
Live Load Deflection	L/999 (0.004")	n/a	n/a	5	03-03-00
Max Defl.	0.006"	n/a	n/a	4	03-03-00
Span / Depth	6.0				

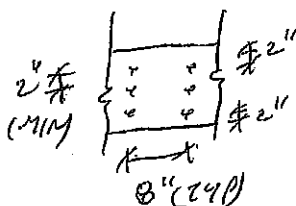
Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	4" x 3-1/2"	1042 lbs	n/a	6.1%	HGUS410
B2 Column	1-3/4" x 3-1/2"	930 lbs	23.4%	12.4%	Unspecified

Cautions

Header for the hanger HGUS410 at B1 is a Triple 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.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor: Normal Part code : Part 9



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



ENG NO. TAM 5935 -20

STRUCTURAL COMPONENT ONLY

Disclosure

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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™, BCIM®, 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

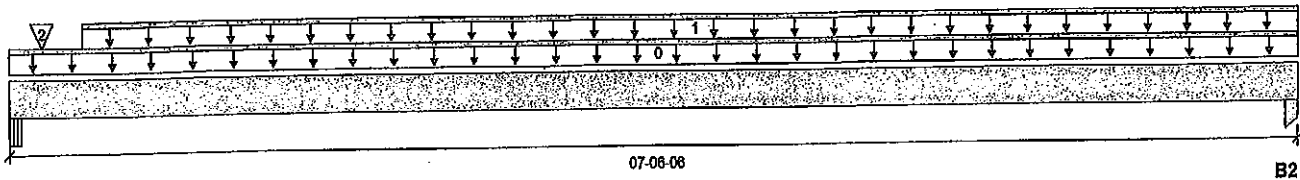
File name: MOUNTAINASH 11S.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B3(I2550)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 07-06-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	114 / 0	92 / 0		
B2, 3-1/2"	52 / 0	48 / 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	07-06-06	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-05-04	07-06-06	Top	14	7			n/a
2	3(I583)	Conc. Pt. (lbs)	L	00-02-06	00-02-06	Top	66	45			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	223 ft-lbs	17696 ft-lbs	1.3%	1	03-10-01
End Shear	90 lbs	7232 lbs	1.2%	1	01-05-02
Total Load Deflection	L/999 (0.003")	n/a	n/a	4	03-10-01
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	03-10-01
Max Defl.	0.003"	n/a	n/a	4	03-10-01
Span / Depth	7.0				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	5-1/4" x 1-3/4"	286 lbs	7.3%	2.6%	Unspecified
B2 Column	3-1/2" x 1-3/4"	137 lbs	3.5%	1.8%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012
AMENDED 2020

 DWG NO. YAW 5956-20
**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®,



Bolse Cascade

**Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****1ST FLR FRAMING\Flush Beams\B5(12549) (Flush Beam)**

Dry | 1 span | No cant.

PASSED

April 16, 2020 10:41:05

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

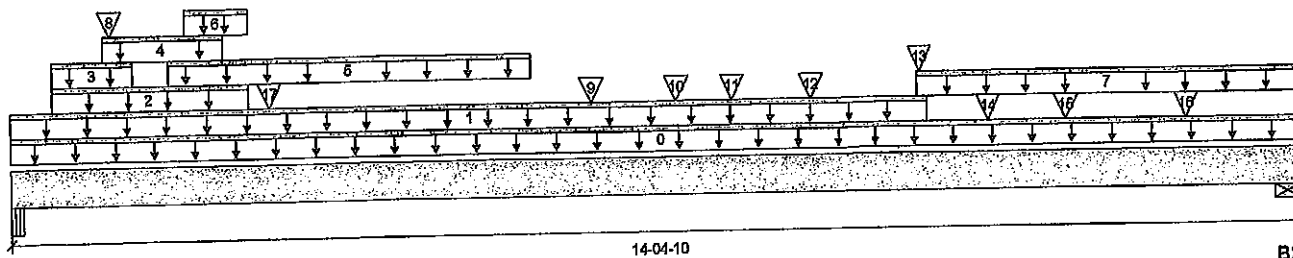
File name: MOUNTAINASH 11S.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B5(12549)

Specifier:

Designer: AJ

Company:



B1

Total Horizontal Product Length = 14-04-10

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	5574 / 0	3170 / 0		
B2, 4-3/8"	4174 / 0	2278 / 0		

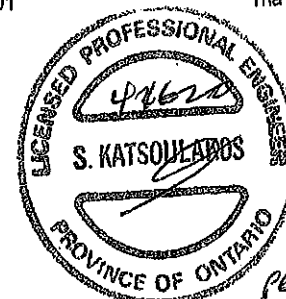
Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	14-04-10	Top	18				00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-02-08	Top	13	6			n/a
2	4(1564)	Unf. Lin. (lb/ft)	L	00-05-10	02-07-12	Top		65			n/a
3	4(1564)	Unf. Lin. (lb/ft)	L	00-05-10	01-04-06	Top	282	141			n/a
4	4(1564)	Unf. Lin. (lb/ft)	L	01-00-06	02-04-06	Top	260	130			n/a
5	Smoothed Load	Unf. Lin. (lb/ft)	L	01-09-04	05-09-04	Top	357	178			n/a
6	4(1564)	Unf. Lin. (lb/ft)	L	01-11-07	02-07-12	Top	387	209			n/a
7	STAIR	Unf. Lin. (lb/ft)	L	10-00-15	14-04-10	Top	240	120			n/a
8	J1(12547)	Conc. Pt. (lbs)	L	01-01-04	01-01-04	Top	384	192			n/a
9	J1(12549)	Conc. Pt. (lbs)	L	06-05-04	06-05-04	Top	401	201			n/a
10	J1(12528)	Conc. Pt. (lbs)	L	07-04-04	07-04-04	Top	275	137			n/a
11	J1DJ(12536)	Conc. Pt. (lbs)	L	07-11-12	07-11-12	Top	296	148			n/a
12	J1(12480)	Conc. Pt. (lbs)	L	08-10-04	08-10-04	Top	363	182			n/a
13	-	Conc. Pt. (lbs)	L	10-01-06	10-01-06	Top	779	426			n/a
14	J1DJ(12546)	Conc. Pt. (lbs)	L	10-10-12	10-10-12	Top	314	157			n/a
15	J1(12566)	Conc. Pt. (lbs)	L	11-09-04	11-09-04	Top	394	197			n/a
16	J1(12569)	Conc. Pt. (lbs)	L	13-01-04	13-01-04	Top	453	226			n/a
17	3(1563)	Conc. Pt. (lbs)	L	02-10-08	02-10-08	Top	2549	1401			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	31407 ft-lbs	55212 ft-lbs	56.9%	1	06-05-04
End Shear	11988 lbs	21696 lbs	55.2%	1	01-05-06
Total Load Deflection	L/308 (0.533")	n/a	78.0%	4	06-10-12
Live Load Deflection	L/478 (0.344")	n/a	75.3%	5	06-10-12
Max Defl.	0.533"	n/a	n/a	4	06-10-12
Span / Depth	13.8				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 5-1/2" x 5-1/4"	12323 lbs	99.9%	35.0%	Unspecified
B2	Wall/Plate 4-3/8" x 5-1/4"	9108 lbs	64.5%	32.5%	Spruce-Pine-Fir



DWG NO. YAM 5957-20
STRUCTURAL
COMPONENT ONLY



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

PASSED

1ST FLR FRAMING\Flush Beams\B5(I2549) (Flush Beam)

Dry | 1 span | No cant.

April 16, 2020 10:41:05

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

File name: MOUNTAINASH 11S.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B5(I2549)

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.

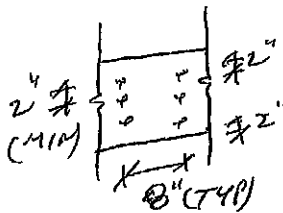
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



PROVIDE 3 ROWS OF 3 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 SPACER NAILS 4" BETWEEN PLYS.



DWG NO. YAW 5957-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC I®, 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

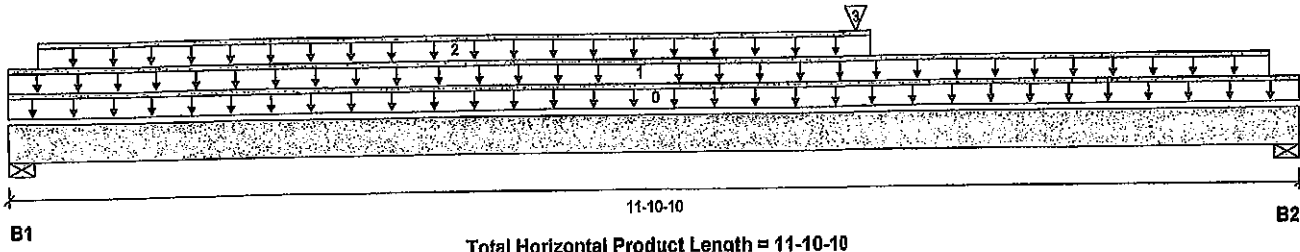
File name: MOUNTAINASH 11S.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B6(12557)

Specifier:

Designer: AJ

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 6-1/8"	2617 / 0	1409 / 0		
B2, 5-1/2"	2647 / 0	1449 / 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	11-10-10	Top	1.00	0.85	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	11-07-04	Top	362	182			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-03-06	07-11-02	Top	14	7			n/a
3	B8(11958)	Conc. Pt. (lbs)	L	07-09-06	07-09-06	Top	952	553			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	16243 ft-lbs	35392 ft-lbs	45.9%	1	07-01-04
End Shear	5258 lbs	14464 lbs	36.4%	1	10-05-04
Total Load Deflection	L/521 (0.254")	n/a	46.1%	4	06-01-04
Live Load Deflection	L/806 (0.164")	n/a	44.7%	5	06-01-04
Max Defl.	0.254"	n/a	n/a	4	06-01-04
Span / Depth	11.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 6-1/8" x 3-1/2"	5686 lbs	43.1%	21.7%	Spruce-Pine-Fir
B2	Wall/Plate 5-1/2" x 3-1/2"	5782 lbs	48.8%	24.6%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

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

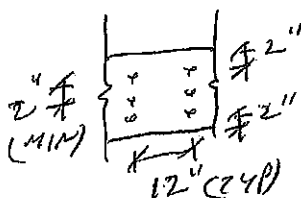
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

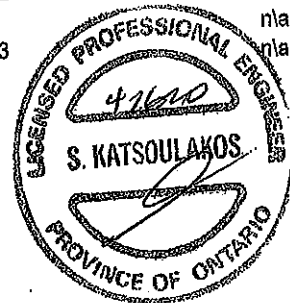
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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. YAW 588-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC1®, 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\B7(1976) (Flush Beam)**

Dry | 1 span | No cant.

April 16, 2020 10:41:05

BC CALCO® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

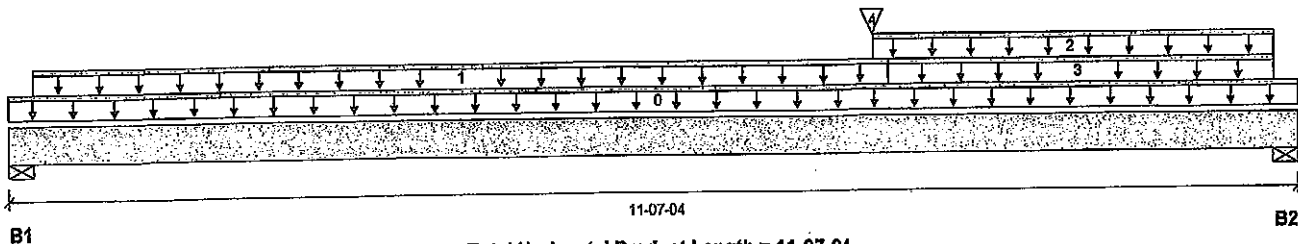
File name: MOUNTAINASH 11S.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B7(1976)

Specifier:

Designer: AJ

Company:

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

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	634 / 0	414 / 0		
B2, 2-3/4"	1524 / 0	881 / 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	11-07-04	Top	12	12			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	07-10-08	Top	27	14			n/a
2	STAIR	Unf. Lin. (lb/ft)	L	07-08-14	11-04-08	Top	240	120			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	07-10-08	11-04-08	Top	25	12			n/a
4	B8(1958)	Conc. Pt. (lbs)	L	07-08-12	07-08-12	Top	991	572			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	8707 ft-lbs	35392 ft-lbs	24.6%	1	07-08-12
End Shear	2811 lbs	14464 lbs	19.4%	1	10-04-10
Total Load Deflection	L/999 (0.116")	n/a	n/a	4	06-04-04
Live Load Deflection	L/999 (0.072")	n/a	n/a	5	06-04-04
Max Defl.	0.116"	n/a	n/a	4	06-04-04
Span / Depth	11.2				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	1469 lbs	12.4%	6.3%	Spruce-Pine-Fir
B2	Wall/Plate 2-3/4" x 3-1/2"	3387 lbs	57.2%	28.8%	Spruce-Pine-Fir

Notes

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

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

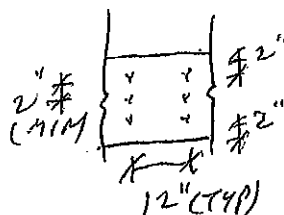
Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO 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



DWG NO. YAM 5959-20
STRUCTURAL
COMPONENT ONLY

Disclosure

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BC CALCO®, BC FRAMER®, AJST™, 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

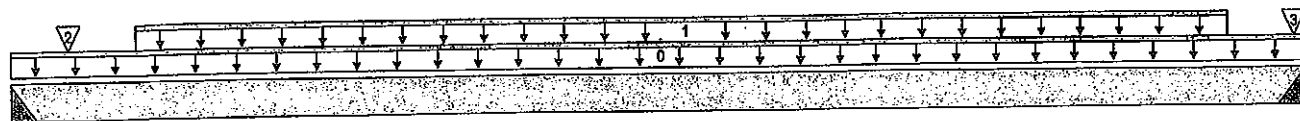
File name: MOUNTAINASH 11S.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B8(1958)

Specifier:

Designer: AJ

Company:



12-07-12
B1 B2
Total Horizontal Product Length = 12-07-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	954 / 0	554 / 0		
B2, 4"	989 / 0	571 / 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	12-07-12	Top	12	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-02-12	11-10-12	Top	156	78			n/a
2	J5(i2091)	Conc. Pt. (lbs)	L	00-06-12	00-06-12	Top	159	80			n/a
3	J5(i2201)	Conc. Pt. (lbs)	L	12-06-08	12-06-08	Top	122	61			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	6340 ft-lbs	35392 ft-lbs	17.9%	1	05-10-12
End Shear	1917 lbs	14464 lbs	13.3%	1	11-03-14
Total Load Deflection	L/999 (0.121")	n/a	n/a	4	06-04-12
Live Load Deflection	L/999 (0.077")	n/a	n/a	5	06-04-12
Max Defl.	0.121"	n/a	n/a	4	06-04-12
Span / Depth	12.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	4" x 3-1/2"	2123 lbs	n/a	12.4%	HGUS410
B2 Hanger	4" x 3-1/2"	2197 lbs	n/a	12.9%	HGUS410

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.
Header for the hanger HGUS410 at B2 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF.

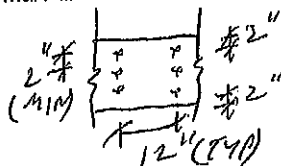
Notes

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

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 5960-20
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®,



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B12B(i2889) (Flush Beam)

PASSED

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

Dry | 2 spans | R cant.

April 16, 2020 10:43:17

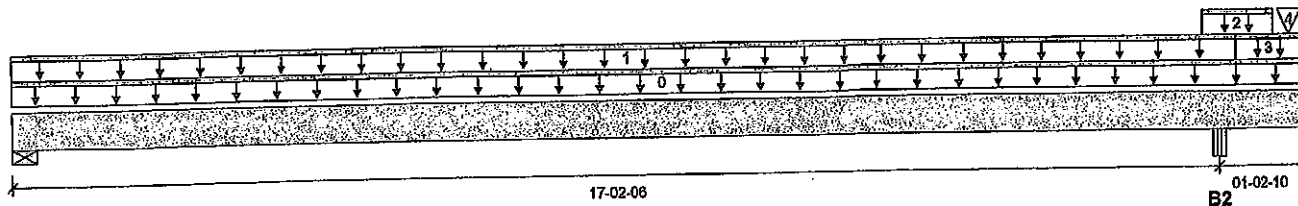
File name: MOUNTAINASH 11S EL 2.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B12B(i2889)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 18-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	235 / 1	218 / 0	0 / 1	
B2, 5-1/4"	257 / 0	366 / 0	25 / 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	18-05-00	Top		12			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	17-05-00	Top	27	13			n/a
2	E27(i2584)	Unf. Lin. (lb/ft)	L	16-11-08	17-11-08	Top		81			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	17-05-00	18-05-00	Top	11	6			n/a
4	E31(i2587)	Conc. Pt. (lbs)	L	18-02-04	18-02-04	Top	12	42	24		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2527 ft-lbs	35392 ft-lbs	7.1%	32	08-08-01
Neg. Moment	-110 ft-lbs	-23005 ft-lbs	0.5%	0	17-02-06
End Shear	527 lbs	14464 lbs	3.6%	2	01-04-04
Cont. Shear	533 lbs	14464 lbs	3.7%	1	15-11-14
Total Load Deflection	L/999 (0.096")	n/a	n/a	79	08-08-01
Live Load Deflection	L/999 (0.05")	n/a	n/a	117	08-08-01
Total Neg. Defl.	2xL/1998 (-0.022")	n/a	n/a	79	18-05-00
Max Defl.	0.096"	n/a	n/a	79	08-08-01
Span / Depth	17.1				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 3-1/2"	626 lbs	6.6%	3.3%	Spruce-Pine-Fir
B2	Beam 5-1/4" x 3-1/2"	869 lbs	8.9%	3.9%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

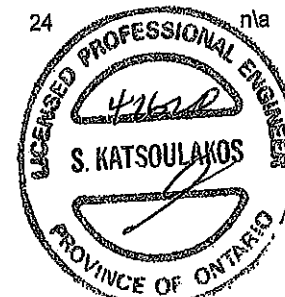
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

CONFORMS TO OBC 2012

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



DWG NO. YAM 5961 -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 2ND FLR FRAMING\Flush Beams\B13B(12890) (Flush Beam)

PASSED

April 16, 2020 10:43:17

BC CALC® Member Report

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

Dry | 2 spans | R cant.

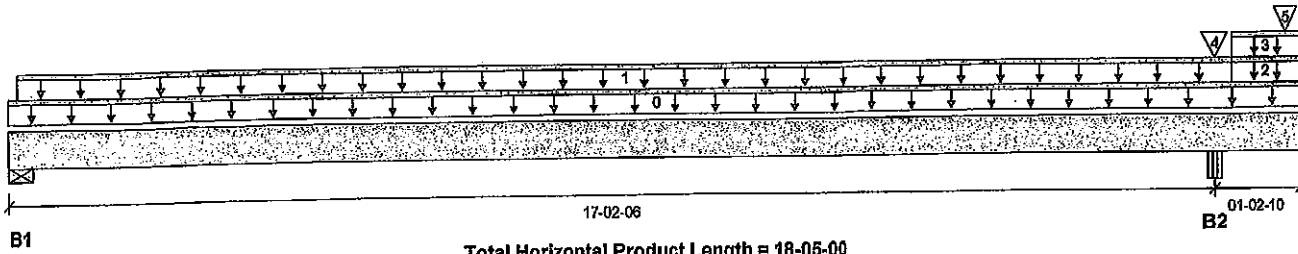
File name: MOUNTAINASH 11S EL 2.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B13B(12890)

Specifier:

Designer: AJ

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	172 / 2	186 / 0	0 / 2	
B2, 5-1/4"	206 / 0	348 / 0	31 / 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	18-05-00	Top	12				00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-01-10	17-05-00	Top	20	10			n/a
2	E25(12585)	Unf. Lin. (lb/ft)	L	17-05-00	18-05-00	Top	81				n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	17-05-00	18-05-00	Top	16	8			n/a
4	E24(12582)	Conc. Pt. (lbs)	L	17-02-04	17-02-04	Top	37				
5	E25(12585)	Conc. Pt. (lbs)	L	18-02-04	18-02-04	Top	15	14			

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1999 ft-lbs	35392 ft-lbs	5.6%	32	08-08-01
Neg. Moment	-122 ft-lbs	-23005 ft-lbs	0.5%	0	17-02-06
End Shear	419 lbs	14464 lbs	2.9%	32	01-04-04
Cont. Shear	427 lbs	14464 lbs	3.0%	1	15-11-14
Total Load Deflection	L/999 (0.076")	n/a	n/a	79	08-08-01
Live Load Deflection	L/999 (0.038")	n/a	n/a	117	08-08-01
Total Neg. Defl.	2xL/1998 (-0.017")	n/a	n/a	79	18-05-00
Max Defl.	0.076"	n/a	n/a	79	08-08-01
Span / Depth	17.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 3-1/2"	491 lbs	5.2%	2.6%	Spruce-Pine-Fir
B2	Beam 5-1/4" x 3-1/2"	774 lbs	7.9%	3.5%	Unspecified

Notes

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

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

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

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

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

CONFORMS TO OBC 2012

AMENDED 2020

PROVIDE 3 ROWS OF 3/2" ARDOX SPIRAL NAILS @ 12" O/C FOR MULTI-PLY NAILING, MAINTAIN A MIN. 2" LUMBER EDGE/END



DWG NO. 7AW 5962-20

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

2ND FLR FRAMING\Flush Beams\B14B(I2891) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 2 spans | L cant.

April 16, 2020 10:43:17

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports:

CCMC 12472-R

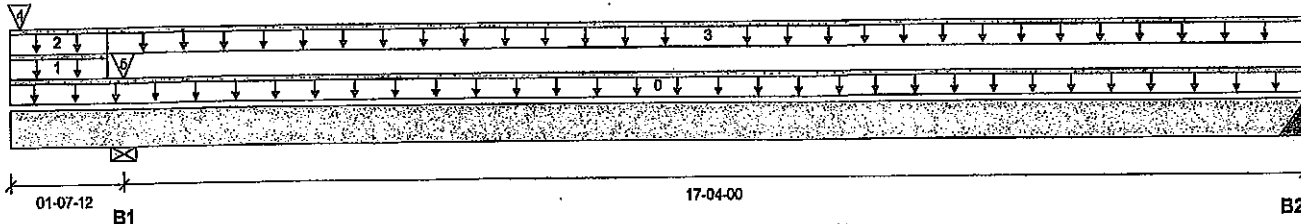
File name: MOUNTAINASH 11S EL 2.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B14B(I2891)

Specifier:

Designer: AJ

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	621 / 0	1128 / 0	452 / 0	
B2, 4"	352 / 18	223 / 0	0 / 31	

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	18-11-12	Top		12			00-00-00
1	E36(I2912)	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	33	111	63		n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top	23	12			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-05-00	18-11-12	Top	40	20			n/a
4	-	Conc. Pt. (lbs)	L	00-01-13	00-01-13	Top	158	547	302		n/a
5	E36(I2915)	Conc. Pt. (lbs)	L	01-07-12	01-07-12	Top	15	51	29		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3043 ft-lbs	35392 ft-lbs	8.6%	33	10-11-07
Neg. Moment	-2363 ft-lbs	-35392 ft-lbs	6.7%	37	01-07-12
End Shear	675 lbs	14464 lbs	4.7%	33	17-07-14
Cont. Shear	1431 lbs	14464 lbs	9.9%	37	00-05-02
Total Load Deflection	L/999 (0.109")	n/a	n/a	80	10-05-14
Live Load Deflection	L/999 (0.078")	n/a	n/a	118	10-03-02
Total Neg. Defl.	2xL/1998 (-0.025")	n/a	n/a	80	00-00-00
Max Defl.	0.109"	n/a	n/a	80	10-05-14
Span / Depth	17.2				

			Demand/ Resistance Support	Demand/ Resistance Member	Material	
Bearing Supports	Dim. (LxW)	Demand				
B1	Wall/Plate	5-1/2" x 3-1/2"	2793 lbs	23.6%	11.9%	Spruce-Pine-Fir
B2	Hanger	4" x 3-1/2"	807 lbs	n/a	4.7%	HGUS410

Cautions

Header for the hanger HGUS410 at B2 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.



ENG NO. YAM5963 -20
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B14B(12891) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 2 spans | L cant.

April 16, 2020 10:43:17

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

File name: MOUNTAINASH 11S EL 2.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B14B(12891)

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.

CONFORMS TO OBC 2012

Hanger Manufacturer: Unassigned

AMENDED 2020

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

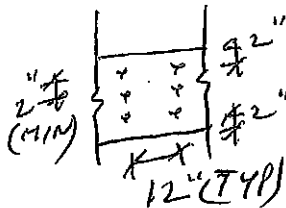
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code : Part 9

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



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 5963-20
**STRUCTURAL
COMPONENT ONLY**

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



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B15B(i2901) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | L cant.

April 16, 2020 10:43:17

Build 7239

Job name:

File name: MOUNTAINASH 11S EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B15B(i2901)

City, Province, Postal Code: WATERDOWN

Specifier:

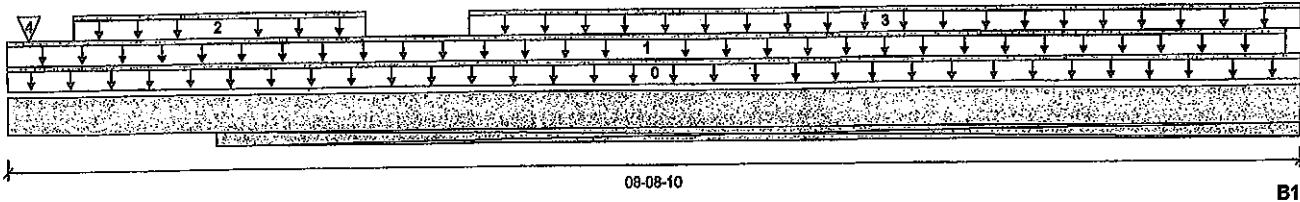
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 08-08-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 87-5/8"	1792 / 0	1702 / 0	472 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-08-10	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-07-06	Top	4	2			n/a
2	E33(i2914)	Unf. Lin. (lb/ft)	L	00-05-08	02-05-00	Top	33	111	63		n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	03-01-06	08-08-10	Top	267	133			n/a
4	-	Conc. Pt. (lbs)	L	00-01-14	00-01-14	Top	183	611	349		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Neg. Moment	-2013 ft-lbs	-35392 ft-lbs	5.7%	13	01-05-00
End Shear	1745 lbs	14464 lbs	12.1%	13	00-05-02
Total Load Deflection	2xL/1998 (0.002")	n/a	n/a	35	00-00-00
Live Load Deflection	2xL/1998 (0.001")	n/a	n/a	51	00-00-00
Span / Depth	1.4				
Dist. Load (B1)	284.36 lb/ft	57645.00 lb/ft	0.5%		

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 87-5/8" x 3-1/2"	5288 lbs	2.8%	1.4%	Spruce-Pine-Fir

Notes

Design meets User specified (2xL/240) Total load deflection criteria.

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

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

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

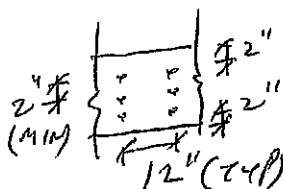
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

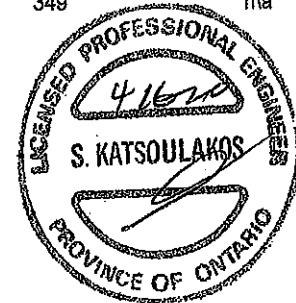
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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



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



UWB NO. TAW 5964-20
STRUCTURAL
COMPONENT ONLY

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

BC CALC® Member Report

Dry | 1 span | No cant.

April 16, 2020 10:43:17

Build 7239

Job name:

File name: MOUNTAINASH 11S EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B16B(i2911)

City, Province, Postal Code: WATERDOWN

Specifier:

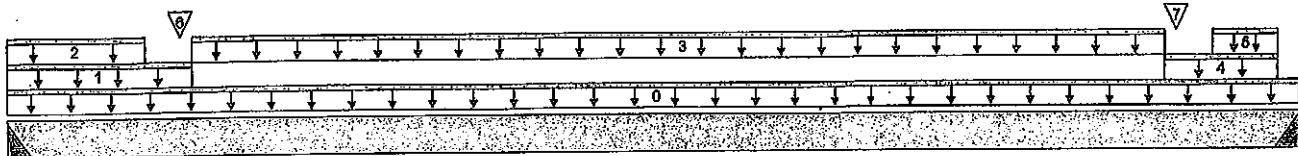
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



09-03-08

B1

B2

Total Horizontal Product Length = 09-03-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	154 / 0	580 / 0	293 / 0	
B2, 2"	147 / 0	539 / 0	282 / 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	09-03-08	Top		12			00-00-00
1	E34(i2913)	Unf. Lin. (lb/ft)	L	00-00-00	01-04-00	Top		81			n/a
2	E34(i2913)	Unf. Lin. (lb/ft)	L	00-00-00	01-00-00	Top	33	30	63		n/a
3	E37(i2916)	Unf. Lin. (lb/ft)	L	01-04-00	08-04-00	Top		61			n/a
4	E38(i2917)	Unf. Lin. (lb/ft)	L	08-04-00	09-01-08	Top		81			n/a
5	E38(i2917)	Unf. Lin. (lb/ft)	L	08-08-00	09-01-08	Top	33	30	63		n/a
6	E34(i2913)	Conc. Pt. (lbs)	L	01-03-00	01-03-00	Top	127	173	242		n/a
7	E38(i2917)	Conc. Pt. (lbs)	L	08-05-00	08-05-00	Top	126	172	241		n/a

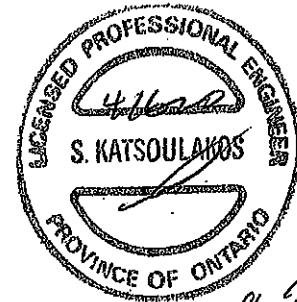
Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1312 ft-lbs	23005 ft-lbs	5.7%	0	04-06-04
End Shear	1131 lbs	14464 lbs	7.8%	13	01-01-14
Total Load Deflection	L/999 (0.022")	n/a	n/a	35	04-07-09
Live Load Deflection	L/999 (0.007")	n/a	n/a	51	04-06-04
Max Defl.	0.022"	n/a	n/a	35	04-07-09
Span / Depth	9.2				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	2" x 3-1/2"	1293 lbs	n/a	15.1%	HUC412
B2 Hanger	2" x 3-1/2"	1245 lbs	n/a	14.6%	HUC412

Cautions

Header for the hanger HUC412 at B1 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF.
Hanger model HUC412 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.
Header for the hanger HUC412 at B2 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF.



DWG NO. YAM5965-20
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B16B(12911) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

April 16, 2020 10:43:17

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports: CCMC 12472-R

File name: MOUNTAINASH 11S EL 2.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B16B(12911)

Specifier:

Designer: AJ

Company:

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

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

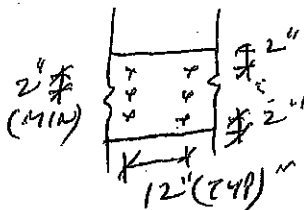
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

AMENDED 2020



**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**



ENG. NO. YAM 5965-20
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

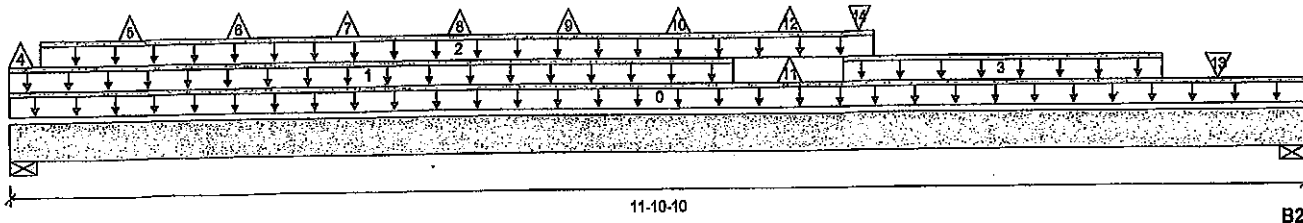
File name: MOUNTAINASH 11S EL 2.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B6B(i2862)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 11-10-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 6-1/8"	2639 / 23	1428 / 0	0 / 13	
B2, 5-1/2"	2656 / 17	1477 / 0	0 / 20	

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	11-10-10	Top		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	06-07-04	Top	374	186			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-03-06	07-11-02	Top	14	7			n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	07-07-04	10-07-04	Top	354	177			n/a
4	J1(i2836)	Conc. Pt. (lbs)	L	00-01-04	00-01-04	Top	-3				n/a
5	J1(i2798)	Conc. Pt. (lbs)	L	01-01-04	01-01-04	Top	-3				n/a
6	J1(i2852)	Conc. Pt. (lbs)	L	02-01-04	02-01-04	Top	-3				n/a
7	J1(i2872)	Conc. Pt. (lbs)	L	03-01-04	03-01-04	Top	-3				n/a
8	J1(i2813)	Conc. Pt. (lbs)	L	04-01-04	04-01-04	Top	-3				n/a
9	J1(i2775)	Conc. Pt. (lbs)	L	05-01-04	05-01-04	Top	-3				n/a
10	J1(i2844)	Conc. Pt. (lbs)	L	06-01-04	06-01-04	Top	-3				n/a
11	B14B(i2891)	Conc. Pt. (lbs)	L	07-01-06	07-01-06	Top	352	222	-33		n/a
12	B14B(i2891)	Conc. Pt. (lbs)	L	07-01-06	07-01-06	Top	-19				n/a
13	J2(i2880)	Conc. Pt. (lbs)	L	11-01-04	11-01-04	Top	339	170			n/a
14	B8(i2821)	Conc. Pt. (lbs)	L	07-09-06	07-09-06	Top	952	553			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	16456 ft-lbs	35392 ft-lbs	46.5%	21	07-01-08
End Shear	5307 lbs	14464 lbs	36.7%	21	10-06-04
Total Load Deflection	L/515 (0.257")	n/a	46.6%	56	06-01-04
Live Load Deflection	L/801 (0.165")	n/a	44.9%	83	06-01-04
Max Defl.	0.257"	n/a	n/a	56	06-01-04
Span / Depth	11.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	6-1/8" x 3-1/2"	5744 lbs	43.5%	22.0%	Spruce-Pine-Fir
B2	5-1/2" x 3-1/2"	5831 lbs	49.2%	24.8%	Spruce-Pine-Fir



OWN NO. YAW 5966-20
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLR FRAMING\Flush Beams\B6B(I2862) (Flush Beam)

PASSED

April 16, 2020 10:43:17

BC CALC® Member Report

Dry | 1 span | No cant.

Build 7239

Job name:

File name: MOUNTAINASH 11S EL 2.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B6B(I2862)

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 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.

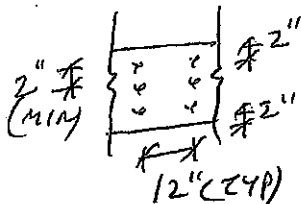
Unbalanced snow loads determined from building geometry were used in selected products verification.

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



ENG NO. YAW 5966-20
STRUCTURAL
COMPONENT ONLY

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



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B12C(i3117) (Flush Beam)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

April 16, 2020 10:45:01

Build 7239

Job name:

Address:

City, Province, Postal Code: WATERDOWN

Customer:

Code reports:

CCMC 12472-R

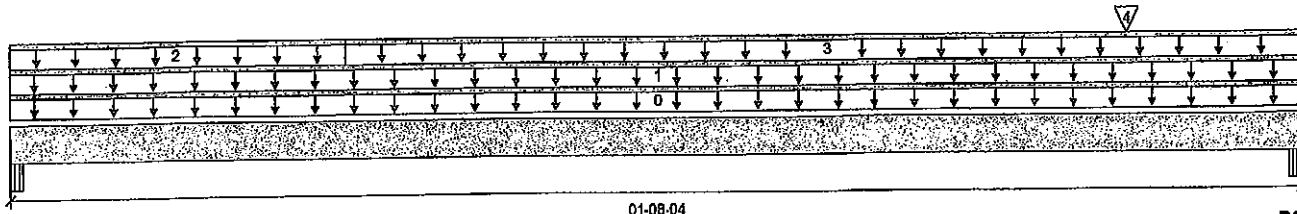
File name: MOUNTAINASH 11S EL.3.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B12C(i3117)

Specifier:

Designer: AJ

Company:



B1

01-08-04

B2

Total Horizontal Product Length = 01-08-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	33 / 0	106 / 0	53 / 0	
B2, 5-1/4"	48 / 0	142 / 0	76 / 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	01-08-04	Top		12			00-00-00
1	E27(i2584)	Unf. Lin. (lb/ft)	L	00-00-00	01-08-04	Top	33	111	63		n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	00-05-04	Top	5				n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-05-04	01-08-04	Top	8	4			n/a
4	-	Conc. Pt. (lbs)	L	01-05-08	01-05-08	Top	13	35	23		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	32 ft-lbs	35392 ft-lbs	n/a	13	00-10-02
End Shear	119 lbs	14464 lbs	0.8%	13	00-05-04
Span / Depth	0.9				

Bearing Supports

	Dlm. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	5-1/4" x 3-1/2"	246 lbs	2.5%	1.1%	Unspecified
B2 Beam	5-1/4" x 3-1/2"	339 lbs	3.5%	1.5%	Unspecified

Notes

Calculations assume member is fully braced.

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

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

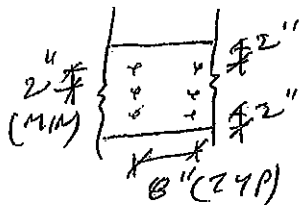
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

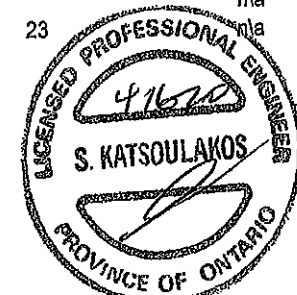
Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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



OWB NO. TAM 3967-20

STRUCTURAL

COMPONENT ONLY

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

BC CALC® Member Report

Dry | 1 span | No cant.

April 16, 2020 10:45:01

Build 7239

Job name:

File name: MOUNTAINASH 11S EL 3.mmdl

Address:

Description: 2ND FLR FRAMING\Flush Beams\B13C(I3160)

City, Province, Postal Code: WATERDOWN

Specifier:

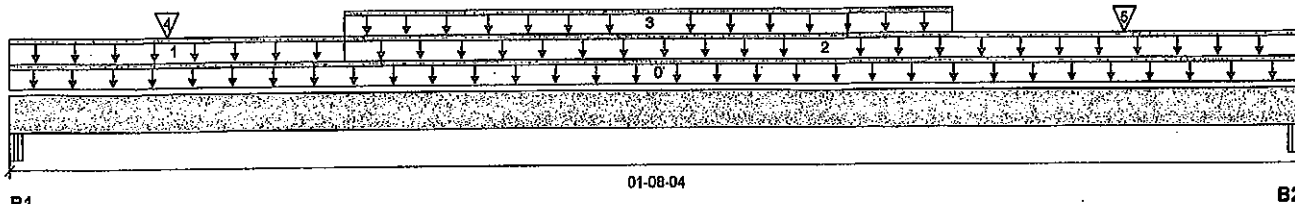
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	43 / 0	113 / 0	53 / 0	
B2, 5-1/4"	61 / 0	135 / 0	87 / 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	01-08-04	Top	12				00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	00-05-04	Top	20	10			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-05-04	01-08-04	Top	18	9			n/a
3	E25(I2585)	Unf. Lin. (lb/ft)	L	00-05-04	01-02-12	Top	33	111	63		n/a
4	E24(I2582)	Conc. Pt. (lbs)	L	00-02-08	00-02-08	Top	14	50	28		n/a
5	E26(I2583)	Conc. Pt. (lbs)	L	01-05-08	01-05-08	Top	33	74	63		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	33 ft-lbs	35392 ft-lbs	n/a	13	00-10-01
End Shear	126 lbs	14464 lbs	0.9%	13	00-05-04
Span / Depth	0.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	5-1/4" x 3-1/2"	285 lbs	2.7%	1.2%	Unspecified
B2 Beam	5-1/4" x 3-1/2"	360 lbs	3.7%	1.6%	Unspecified

Notes

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

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

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

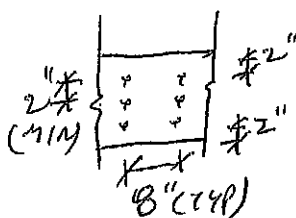
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

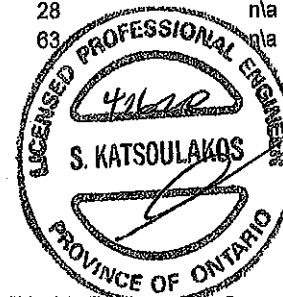
Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

AMENDED 2020



PROVIDE 3 ROWS OF 3/2" 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. TAM 3968-20
STRUCTURAL
COMPONENT ONLY

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Build 7239

Job name:

File name: MOUNTAINASH 11S EL 1 DECK CONDITION.mmdl

Address:

Description: 1ST FLR FRAMING\Flush Beams\B1A(I2508)

City, Province, Postal Code: WATERDOWN

Specifier:

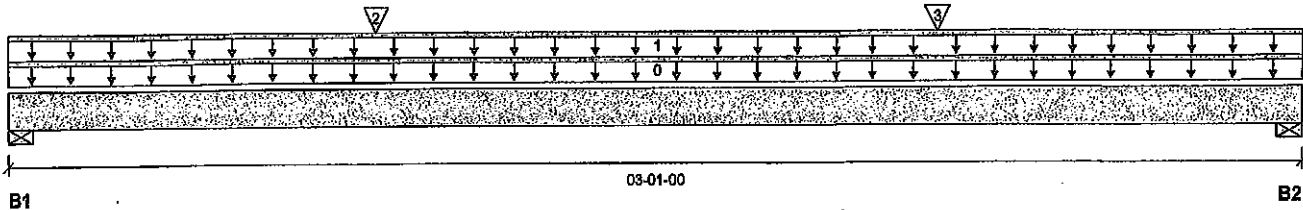
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 03-01-00

Reaction Summary (Down / Uplift) (lbs)

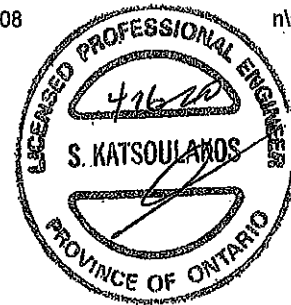
Bearing	Live	Dead	Snow	Wind
B1, 3"	897 / 0	592 / 0		
B2, 3"	896 / 0	591 / 0		

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	1.00	0.65	1.00	1.15	00-00-00
1	E5(I390)	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top	312	236			n/a
2	J2(I2536)	Conc. Pt. (lbs)	L	00-10-08	00-10-08	Top	416	208			n/a
3	J2(I2487)	Conc. Pt. (lbs)	L	02-02-08	02-02-08	Top	416	208			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1322 ft-lbs	35392 ft-lbs	3.7%	1	01-06-08
End Shear	1549 lbs	14464 lbs	10.7%	1	01-02-14
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"	2084 lbs	32.3%	16.3%	Spruce-Pine-Fir
B2	Wall/Plate 3" x 3-1/2"	2083 lbs	32.2%	16.3%	Spruce-Pine-Fir

Notes

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

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

Calculations assume member is fully braced.

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

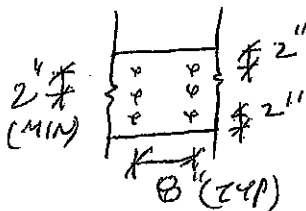
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

AMENDED 2020



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

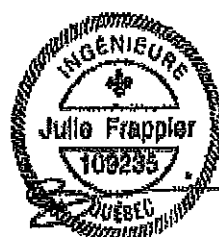
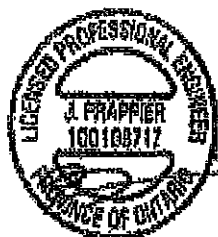
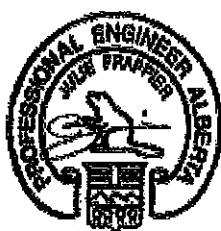
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Maximum Floor Spans

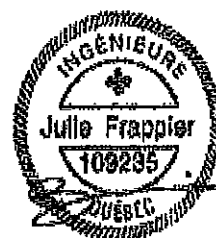
Live Load = 40 psf, Dead Load = 30 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing



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

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

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



Maximum Floor Spans

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

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

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

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



Maximum Floor Spans

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

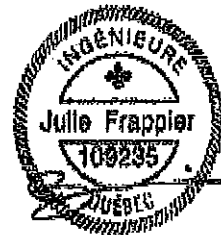
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"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

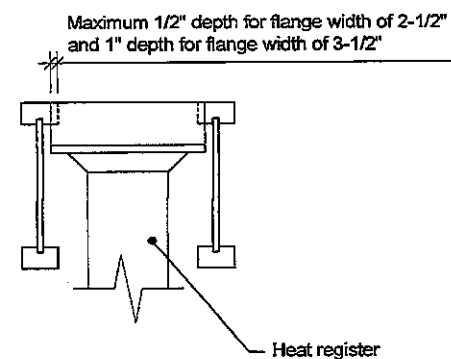
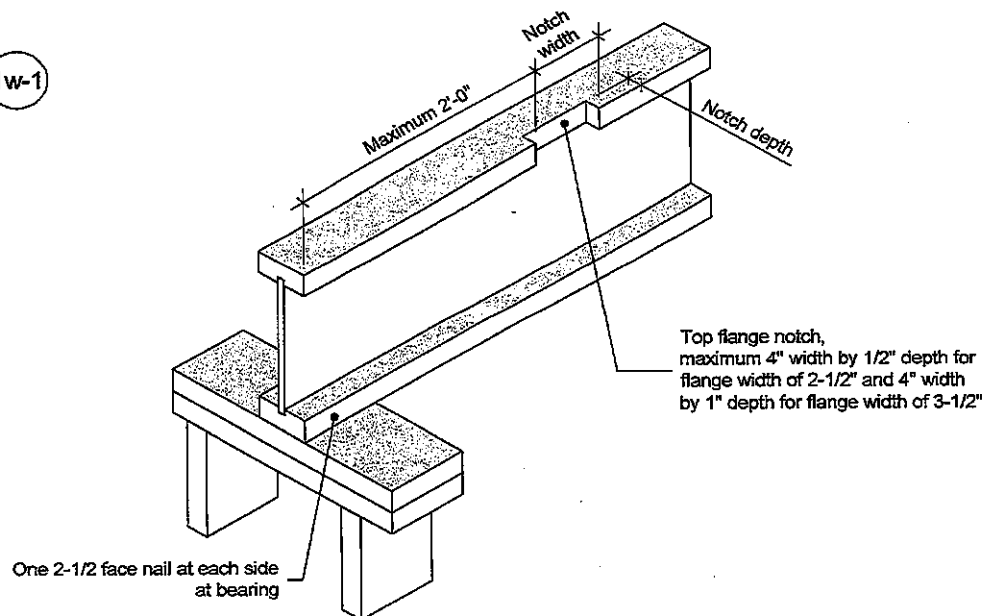


Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"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

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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

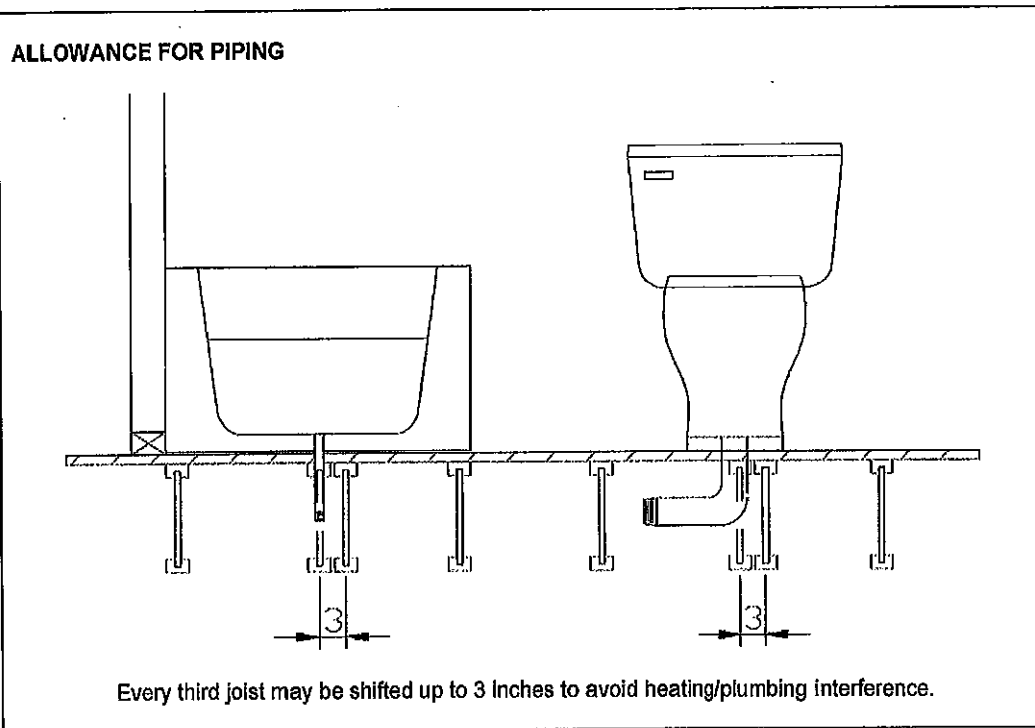
1W-1

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