



FROM PLAN DATED: SEPT 28 2018

BUILDER: GREENPARK HOMES

SITE: LAMBERTS LANE

MODEL: KINMOUNT 11B

ELEVATION: 2

LOT: 49

CITY: CALEDON

SALESMAN: M D

DESIGNER: PL

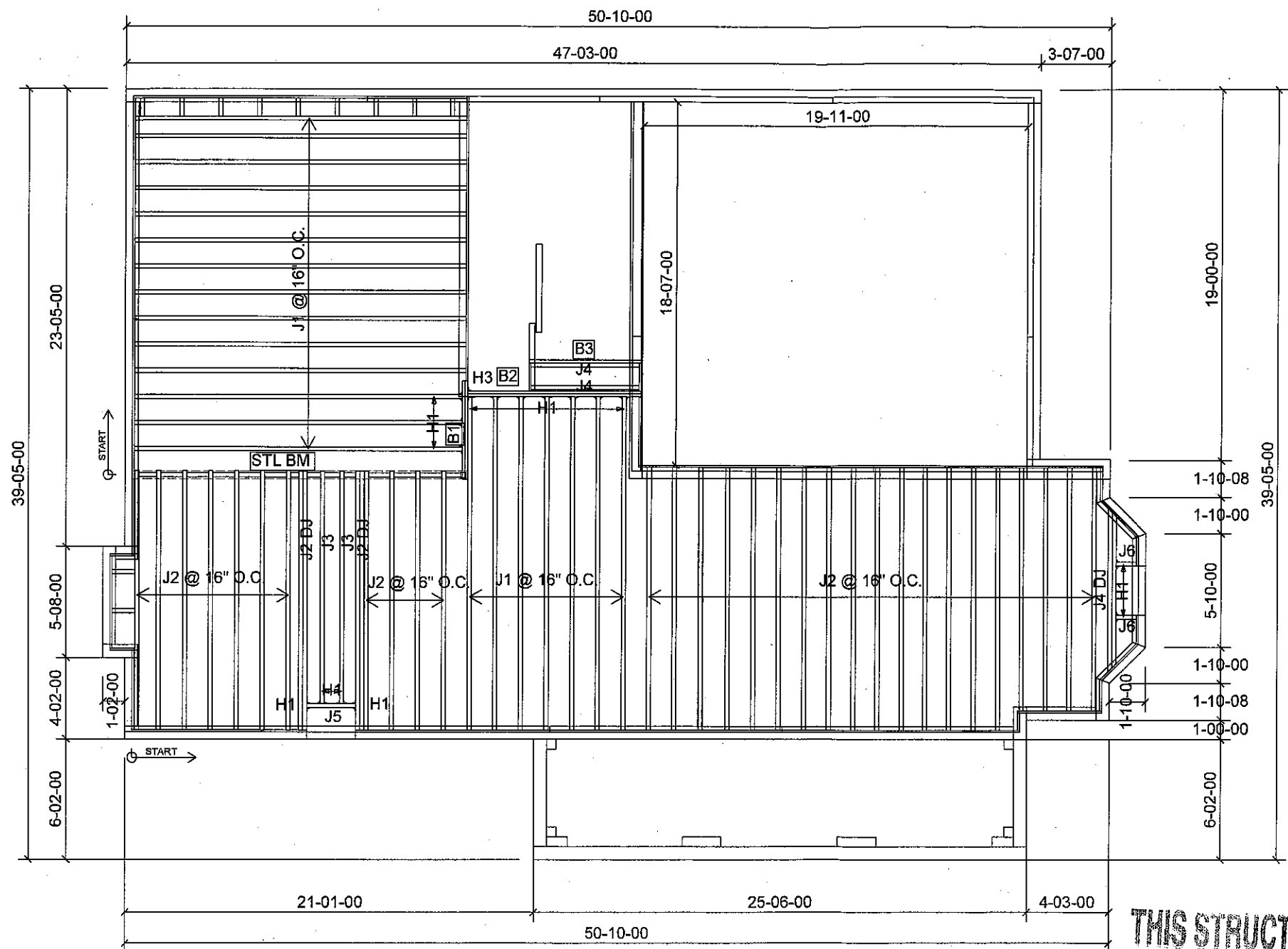
REVISION:

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

LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft²
TILED AREAS: 20 lb/ft²
SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2019-09-30

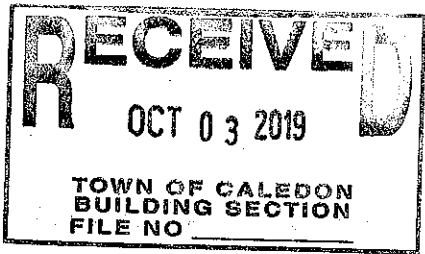
1st FLOOR

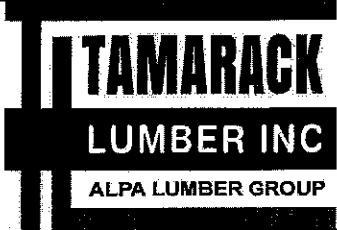


Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-40x	1	21
J2	14-00-00	11 7/8" NI-40x	1	30
J2 DJ	14-00-00	11 7/8" NI-40x	2	4
J3	12-00-00	11 7/8" NI-40x	1	2
J4 DJ	10-00-00	11 7/8" NI-40x	2	2
J4	6-00-00	11 7/8" NI-40x	1	2
J5	4-00-00	11 7/8" NI-40x	1	1
J6	2-00-00	11 7/8" NI-40x	1	2
B2	10-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	2	2
B3	6-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	1	1
B1	6-00-00	1-3/4" x 11-7/8" VERSA-LAM@ 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
10	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
1	H3	HGUS410

THIS STRUCTURE MUST BE
CONSTRUCTED TO MEET OR
EXCEED THE PROVISIONS OF
THE ONTARIO BUILDING CODE





FROM PLAN DATED: SEPT 28 2018

BUILDER: GREENPARK HOMES

SITE: LAMBERTS LANE

MODEL: KINMOUNT 11B

ELEVATION: 2

LOT: 49

CITY: CALEDON

SALESMAN: M D

DESIGNER: PL

REVISION:

NOTES:

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

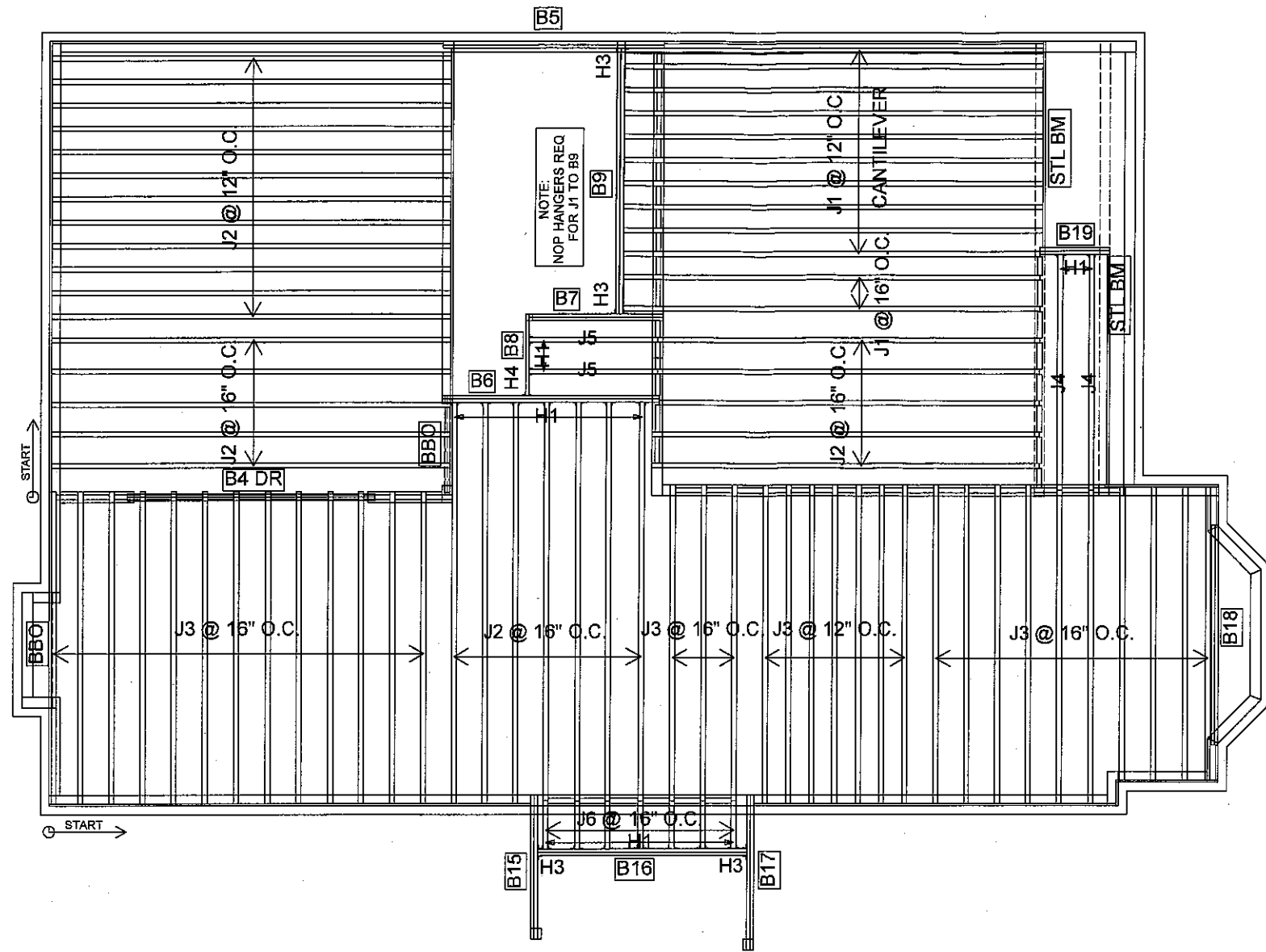
LOADING:

DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 20.0 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

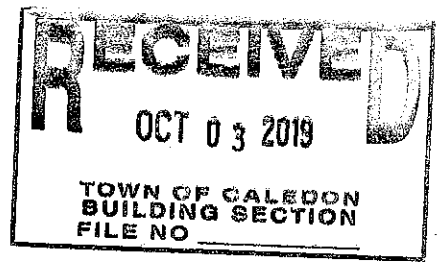
DATE: 2019-09-30

2nd FLOOR



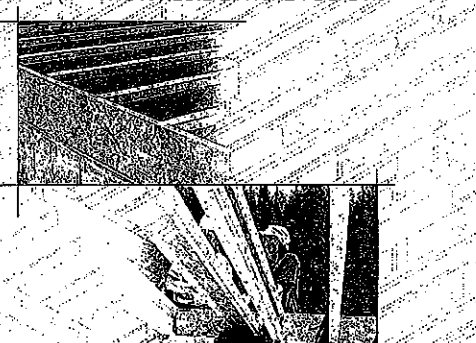
Products				
PlotID	Length	Product	Plies	Net Qty
J1	20-00-00	11 7/8" NI-40x	1	12
J2	18-00-00	11 7/8" NI-40x	1	29
J3	14-00-00	11 7/8" NI-40x	1	33
J4	12-00-00	11 7/8" NI-40x	1	2
J5	6-00-00	11 7/8" NI-40x	1	2
J6	4-00-00	11 7/8" NI-40x	1	7
B4 DR	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B9	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B16	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B18	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B5	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B15	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B17	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B7	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B8	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B19	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
2	H1	IUS2.56/11.88
16	H1	IUS2.56/11.88
4	H3	HGUS410
1	H4	HUS1.81/10





INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



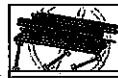
Distributed by:



SAFETY AND CONSTRUCTION PRECAUTIONS



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



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

WARNING

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

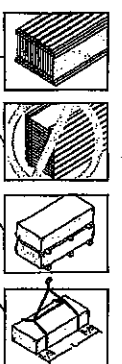
Avoid Accidents by Following these Important Guidelines:

1. Brace and nail each joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bracing at joist ends. When joists are applied continuously over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent 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 joist. Nail the bracing to a lateral material at the end of each bay. Lap ends of adjoining bracing over at least two joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of joists at the end of the bay.
3. For cantilevered joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bracing.
4. Install and fully nail permanent sheathing to each joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
5. Never install a damaged joist.

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

STORAGE AND HANDLING GUIDELINES

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



MAXIMUM FLOOR SPANS

1. Maximum clear spans applicable to single-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGS-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
4. Bearing stiffeners are not required when joists are used with the spans and spacing 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 live load design properties.
6. Tables are based on Limit States Design per CAN/CSA C08-09 Standard, and NBC 2010.
7. SI units conversion: 1 inch = 25.4 mm
1 foot = 0.305 m

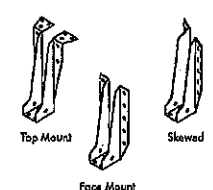
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS SIMPLE AND MULTIPLE SPANS

Joist Depth	Joist Species	Simple spans				Multiple spans			
		17'	18'	19'	20'	17'	18'	19'	20'
9-1/2"	NL-20	13'-1"	14'-2"	15'-9"	17'-5"	12'-9"	14'-0"	14'-10"	16'-7"
	NL-40	14'-1"	15'-2"	16'-9"	18'-5"	13'-9"	15'-0"	15'-10"	17'-7"
	NL-60	15'-3"	16'-4"	18'-10"	19'-11"	14'-11"	16'-0"	16'-9"	18'-11"
	NL-70	17'-1"	18'-1"	19'-6"	20'-7"	16'-9"	17'-4"	18'-9"	19'-10"
11-7/8"	NL-20	16'-1"	17'-0"	18'-5"	19'-6"	14'-4"	15'-5"	16'-8"	17'-9"
	NL-40	18'-1"	19'-0"	20'-5"	21'-6"	16'-4"	17'-5"	18'-8"	19'-9"
	NL-60	19'-6"	20'-7"	22'-2"	23'-3"	17'-9"	19'-0"	19'-11"	21'-2"
	NL-70	19'-6"	20'-7"	22'-2"	23'-3"	17'-9"	19'-0"	19'-11"	21'-2"
14"	NL-20	20'-6"	21'-7"	23'-2"	24'-3"	20'-6"	21'-7"	22'-8"	23'-9"
	NL-40	20'-6"	21'-7"	23'-2"	24'-3"	20'-6"	21'-7"	22'-8"	23'-9"
	NL-60	21'-7"	22'-8"	24'-3"	25'-4"	21'-7"	22'-8"	23'-9"	24'-10"
	NL-70	21'-7"	22'-8"	24'-3"	25'-4"	21'-7"	22'-8"	23'-9"	24'-10"
16"	NL-20	22'-8"	23'-9"	25'-4"	26'-5"	22'-8"	23'-9"	24'-10"	25'-11"
	NL-40	22'-8"	23'-9"	25'-4"	26'-5"	22'-8"	23'-9"	24'-10"	25'-11"
	NL-60	23'-9"	24'-10"	26'-5"	27'-6"	23'-9"	24'-10"	25'-11"	26'-12"
	NL-70	23'-9"	24'-10"	26'-5"	27'-6"	23'-9"	24'-10"	25'-11"	26'-12"

CEMC EVALUATION REPORT 13071-R

I-JOIST HANGERS

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



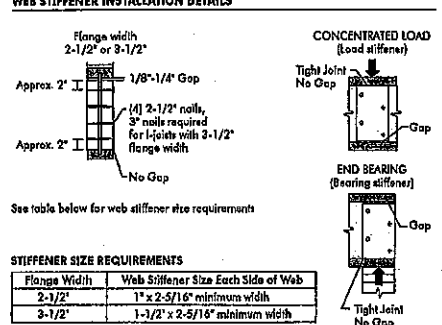
WEB STIFFENERS

RECOMMENDATIONS:

- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the joist properties table found in the joist Construction Guide (C011). The gap between the stiffener and the flange is at the top.
- A bearing stiffener is required when the 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

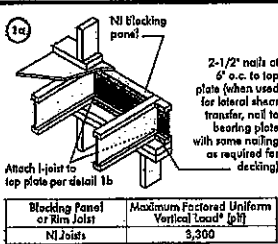


See table below for web stiffener size requirements

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

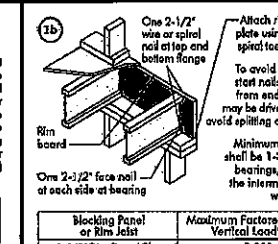
INSTALLING NORDIC I-JOISTS

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



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

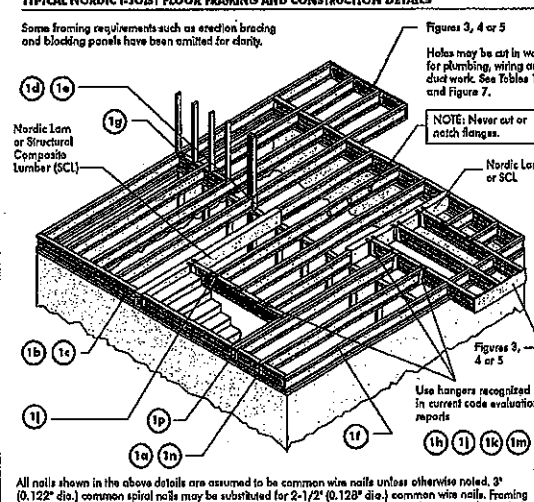
*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.



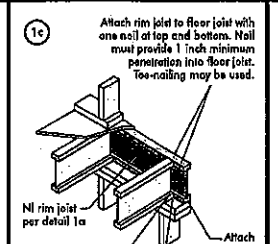
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

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

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

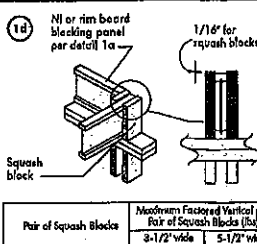


All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122") common joist nails may be substituted for 2-1/2" (0.128") common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.



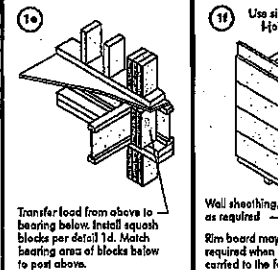
Pair of Squash Blocks	Maximum Factored Vertical per Pair of Squash Blocks (lb)
3-1/2" wide	5,550
5-1/2" wide	6,500

2x Lumber
1-1/8" Rim Board Plus
4,350
6,600
Provides lateral bracing per detail 1a, 1b, or 1c

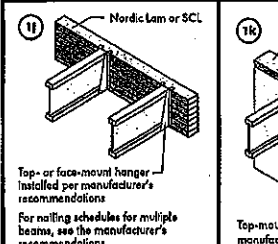


Pair of Squash Blocks	Maximum Factored Vertical per Pair of Squash Blocks (lb)
3-1/2" wide	5,550
5-1/2" wide	6,500

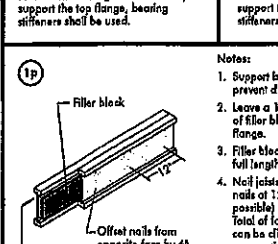
2x Lumber
1-1/8" Rim Board Plus
4,350
6,600
Provides lateral bracing per detail 1a, 1b, or 1c



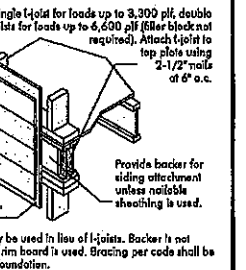
Transfer load from above to bearing below. Install squash blocks per detail 1d. Match bearing area of blocks below to post above.



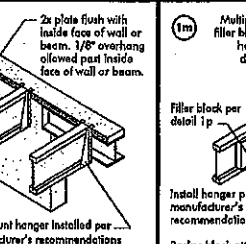
Top- or face-mount hanger installed per manufacturer's recommendations. For nailing schedules for multiple beams, see the manufacturer's recommendations.



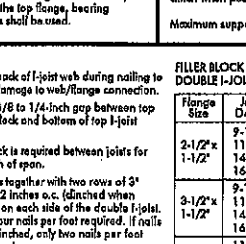
Notes:
1. Support back of I-joist web during nailing to prevent damage to web/flange connection.
2. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
3. Filler block is required between joists for full length of span.
4. Nail joists together with two rows of 5" nails at 12 inches o.c. (detached when possible) on each side of the double I-joist. Total of four nails per foot required. If nails can be driven, only two nails per foot are required.
5. The maximum factored load that may be applied to one side of the double joist using this detail is 840 lb/ft. Verify double I-joist capacity.



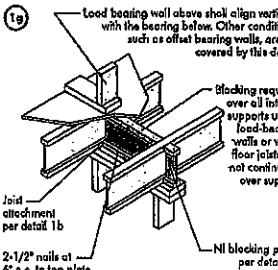
Use single I-joist for loads up to 3,300 plf; double I-joist for loads up to 6,600 plf (filler block not required). Attach joist to top plate using 2-1/2" nails at 6" o.c.



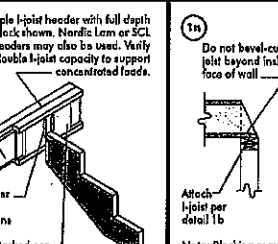
Provide backer for filling attached unless nailable sheathing is used.



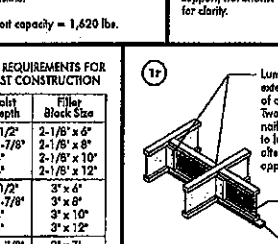
Wall sheathing, as required. Rim board may be used in lieu of joists. Backer is not required when rim board is used. Bracing per code shall be carried to the foundation.



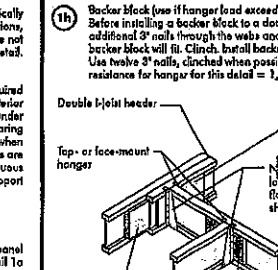
Load bearing wall above shall align vertically with the bearing below. Other conditions, such as offset bearing walls, are not covered by this detail.



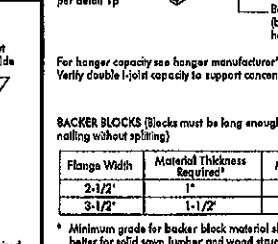
Blocking required over all interior supports under load-bearing walls or when floor joists are not continuous over support.



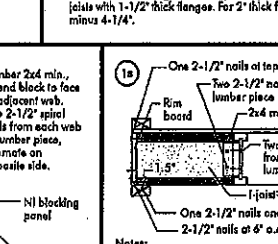
Multiple I-joist header with full depth filler block shown. Nordic Lem or SCL headers may also be used. Verify double I-joist capacity to support concentrated loads.



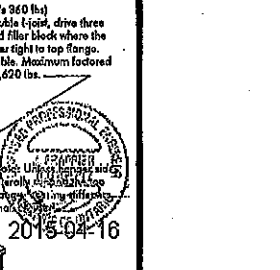
Do not bevel-cut joist beyond inside face of wall.



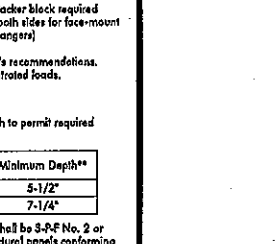
Attach I-joist per detail 1b.



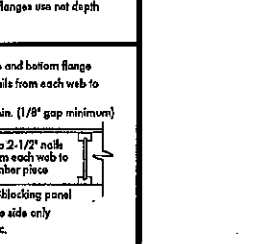
Notes:
1. Minimum grade for backer block material shall be 3-4" No. 2 or better for solid lumber and wood structural panels conforming to CAN/CSA-C08-09 or CAN/CSA-C08-10 Standard.
2. For face-mount hangers use nail joist depth minus 1-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use nail depth minus 4-1/4".



Backer block (see I-joist 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. Clinch install backer right to top flange. Use twelve 3" nails, clinched when possible. Maximum factored resistance for hanger for this detail = 1,620 lbs.



Double I-joist header. Top- or face-mount hanger. Filler block—per detail 1p. Backer block required (both sides for face-mount hanger).



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

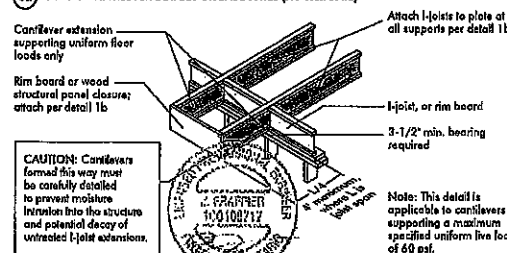
Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

* Minimum grade for backer block material shall be 3-4" No. 2 or better for solid lumber and wood structural panels conforming to CAN/CSA-C08-09 or CAN/CSA-C08-10 Standard.

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

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

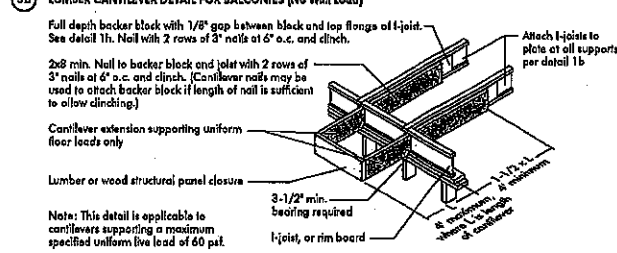
3a) I-JOIST CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



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

Attach I-joists to plate at all supports per detail 1b. 3-1/2\"/>

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

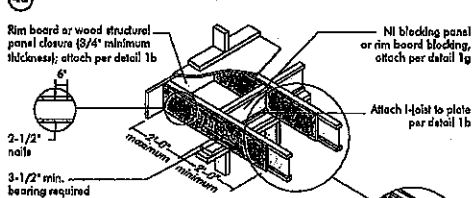


2x8 min. Nail to backer block and joist with 2 rows of 3\"/>

Attach I-joists to plate at all supports per detail 1b. 3-1/2\"/>

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

Method 1 — SHEATHING REINFORCEMENT ONE SIDE

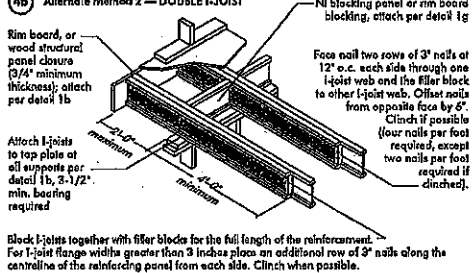


Method 2 — SHEATHING REINFORCEMENT TWO SIDES

- Use same installation as Method 1 but reinforce both sides of I-joist with sheathing.
- Use nailing pattern shown for Method 1 with opposite face nailing offset by 3\"/>

Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4\"/>

Method 2 — DOUBLE I-JOIST



Block I-joists together with filler blocks for the full length of the reinforcement. For I-joist flanges wider than 3 inches place an additional row of 3\"/>

FIGURE 4 (continued)



For hip roofs with the jack trusses running parallel to the cantilevered floor joist, the I-joist reinforcement requirements for a span of 26 ft. shall be permitted to be used.

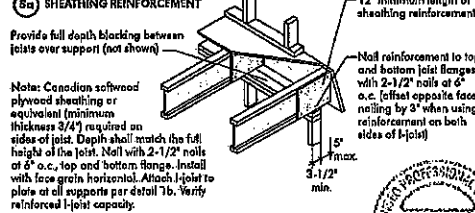
CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	JOIST SPACING (in.)	11 - 30 psf DL = 15 psf				11 - 40 psf DL = 15 psf				11 - 50 psf DL = 15 psf			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2"	24	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"	24	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"	24	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"	24	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

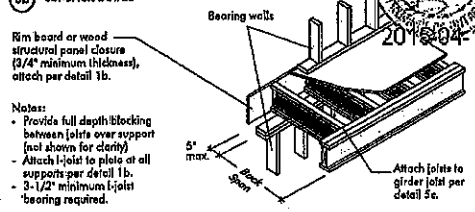
1. N = No reinforcement required.
2. N = NI reinforced with 3/4\"/>

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

3a) SHEATHING REINFORCEMENT



3b) SET-BACK DETAIL



3c) SET-BACK CONNECTION

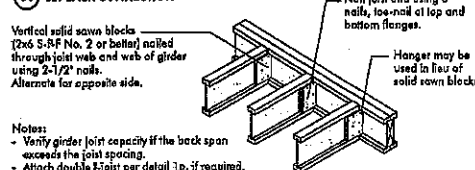


FIGURE 5 (continued)



For hip roofs with the jack trusses running parallel to the cantilevered floor joist, the I-joist reinforcement requirements for a span of 26 ft. shall be permitted to be used.

BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	JOIST SPACING (in.)	11 - 30 psf DL = 15 psf				11 - 40 psf DL = 15 psf				11 - 50 psf DL = 15 psf			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2"	24	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"	24	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"	24	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"	24	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. N = NI reinforced with 3/4\"/>

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- Whenever possible, field-cut holes should be centred on the middle of the web.
- The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.
- The sides of square holes or longest side 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 used and located in compliance with the requirements of Tables 1 and 2, respectively.
- 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 and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.
- A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
- All holes and duct chase openings shall be cut in a workmanlike manner in accordance with the restrictions listed above and as illustrated in Figure 7.
- Unid three maximum size holes per span, of which one may be a duct chase opening.
- A group of round holes of approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

TABLE 1 LOCATION OF CIRCULAR HOLES IN JOIST WEBS

Span (feet)	Joist Size	Minimum distance from inside face of any support to centre of hole (in.)											
		12	16	19.2	24	30	36	42	48	54	60	66	72
9-1/2"	N120	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N130	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N140	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N150	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
11-7/8"	N120	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N130	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N140	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N150	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
14"	N120	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N130	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N140	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N150	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
16"	N120	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N130	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N140	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N150	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4

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

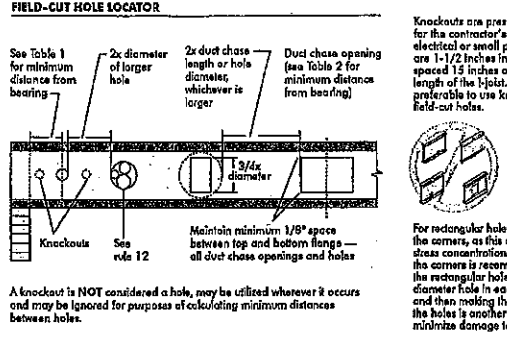
OPTIONAL:

The above table is based on the I-joist used at their minimum span. If the I-joist are placed at less than their full minimum span (see Manufacturer's literature for details), the minimum distance from the centreline of the hole to the face of any support (D) as given above may be reduced or follows:

Reduced = $\frac{D}{S} \times D$

Where:
D = Distance from the inside face of any support to centre of hole, reduced for less-than-minimum span application (see Manufacturer's literature for details).
S = The actual measured span distance between the inside faces of supports (ft).
SAF = Span Adjustment Factor given in this table.
D = The minimum distance from the inside face of any support to centre of hole from this table.
If reduced is greater than 1, use 1 in the above calculation for reduced.

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 (in.)	Joist Spacing (in.)	Minimum distance from inside face of any support to centre of opening (in.)											
		12	16	19.2	24	30	36	42	48	54	60	66	72
9-1/2"	N120	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N130	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N140	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N150	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
11-7/8"	N120	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N130	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N140	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N150	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
14"	N120	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N130	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N140	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N150	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
16"	N120	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N130	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N140	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4
	N150	9.2	12.4	15.6	18.8	22.0	25.2	28.4	31.6	34.8	38.0	41.2	44.4

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



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

WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

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

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

- A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
- All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
- Limit three maximum size holes per span, of which one may be a duct chase opening.
- A group of round holes 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 Distance from Inside Face of Any Support to Centre of Hole (ft - in.)											
		Round Hole Diameter (in.)											
9-1/2"	NI-20	0-7"	1-6"	2-10"	4-3"	5-8"	6-0"	---	---	---	---	---	---
	NI-40x	0-7"	1-6"	3-0"	4-4"	6-0"	6-4"	---	---	---	---	---	---
	NI-60	1-3"	2-6"	4-0"	5-4"	7-0"	7-5"	---	---	---	---	---	---
	NI-70	2-0"	3-4"	4-8"	6-3"	8-0"	8-4"	---	---	---	---	---	---
	NI-80	2-3"	3-6"	5-0"	6-6"	8-2"	8-8"	---	---	---	---	---	---
11-7/8"	NI-20	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---
	NI-40x	0-7"	0-8"	1-2"	2-8"	4-0"	4-4"	5-5"	7-0"	8-4"	---	---	---
	NI-60	0-7"	1-3"	2-6"	4-0"	5-4"	6-3"	8-0"	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"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---
	NI-40x	0-7"	0-8"	1-2"	2-8"	4-0"	4-4"	5-5"	7-0"	8-4"	---	---	---
	NI-60	0-7"	1-3"	2-6"	4-0"	5-4"	6-3"	8-0"	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"	---	---	---
16"	NI-20	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---
	NI-40x	0-7"	0-8"	1-2"	2-8"	4-0"	4-4"	5-5"	7-0"	8-4"	---	---	---
	NI-60	0-7"	1-3"	2-6"	4-0"	5-4"	6-3"	8-0"	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"	---	---	---

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

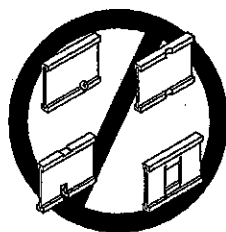
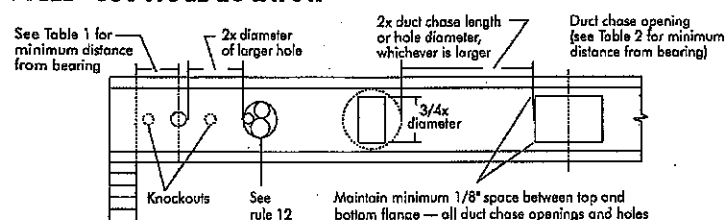
TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS

Simple Span Only

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

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

FIGURE 7
FIELD-CUT HOLE LOCATOR



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

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

Holes in webs should be cut with a sharp saw.

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

SAFETY AND CONSTRUCTION PRECAUTIONS



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



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

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

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

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

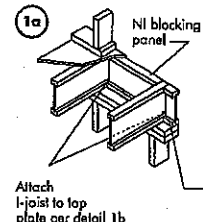
Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines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



PRODUCT WARRANTY

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

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

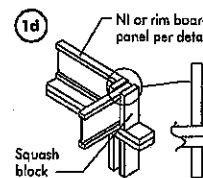


Blocking Panel or Rim Joist
NI Joists

Maximum Factored Uniform Vertical Load* (plf)
3,300

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

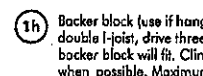
2-1/2" nails at 6" o.c. to top plate (when used for lateral shear transfer, nail to bearing plate with same nailing as required for decking)



Pair of Squash Blocks
2x Lumber

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

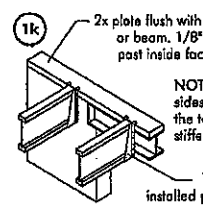
Provide lateral bracing per detail 1a or 1b



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

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

* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-O325 or CAN/CSA-O437 Standard.
** For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".



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

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

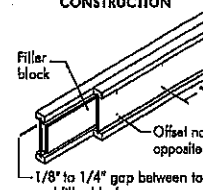
Top-mount hanger installed per manufacturer's recommendations



FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

Offset nails from opposite face by 6"

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



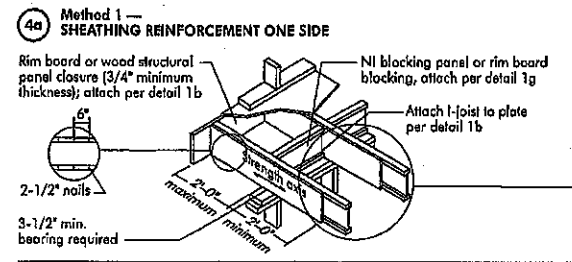
NOTES:
1. Support back of I-joist web during nailing to prevent damage to web/flange connection.
2. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
3. Filler block is required between joists for full length of span.
4. Nail joists together with two rows of 3"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

WEB STIFFENERS

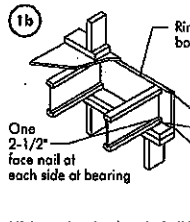
RECOMMENDATIONS:

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

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET



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 reinforced I-joist capacity. I-joist to plate at all supports per detail 1b. Verify reinforced I-joist capacity.



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

Maximum Factored Uniform Vertical Load* (plf)
8,090

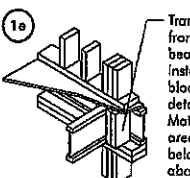
*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

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

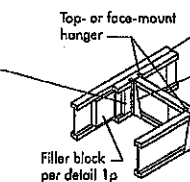
Attach rim board to top plate using 2-1/2" wire or spiral toe-nails at 6" o.c.

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

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

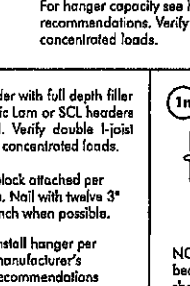


Transfer load from above to bearing below. Install squash blocks per detail 1d. Match bearing area of blocks below to post above.



Joist attachment per detail 1b

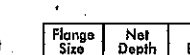
2-1/2" nails at 6" o.c. to top plate



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

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

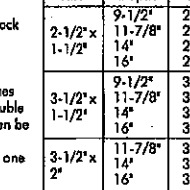
NI blocking panel per detail 1a



Nordic Lam or Structural Composite Lumber (SCL)

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

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



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

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

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS

Flange width	Net Depth	Filler Block Size	Rim board	One 2-1/2" nail at top and bottom flange	Two 2-1/2" nails from each web to lumber piece, alternate on opposite side
2-1/2" x 1-1/2"	9-1/2"	2-1/8" x 6"	2-1/2" x 1-1/2"	1-5"	1-5"
3-1/2" x 1-1/2"	9-1/2"	3" x 6"	3" x 10"	3" x 12"	3" x 12"
11-7/8" x 1-1/2"	11-7/8"	3" x 7"	3" x 9"	3" x 11"	3" x 11"

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



ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

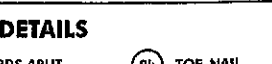
Rim Board Joint Between Floor Joists

(1) 2-1/2" nail top and bottom (typical)

Rim board joint

Rim Board Joint at Corner

Rim board joint



TOE-NAIL CONNECTION AT RIM BOARD

Rim board

Top or sole plate

30°



Boise Cascade



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

PASSED

1ST FLOOR FRAMING Flush Beams B2 (I3105)

Dry | 1 span | No cant.

November 12, 2018 14:25:00

BC CALG® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

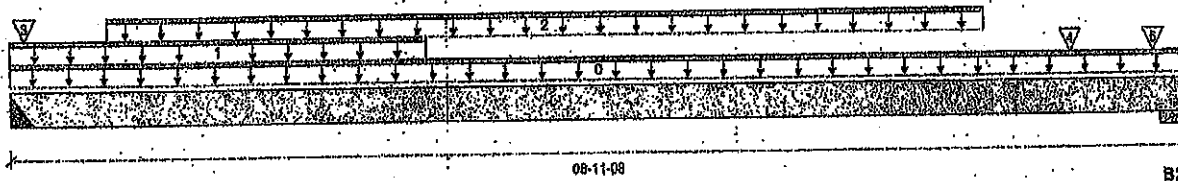
File name: KINMOUNT 11B.mmdl

Description: 1ST FLOOR FRAMING Flush Beams B2 (I3105)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 08-11-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	2,303 / 0	1,204 / 0		
B2, 6-1/2"	3,636 / 0	1,988 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-11-08	Top	12	120			00-00-00
1	STAIRS	Unf. Lin. (lb/ft)	L	00-00-00	03-02-00	Top	240	172			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-09-00	07-05-00	Top	346	172			n/a
3	J1 (I2919)	Conc. Pl. (lbs)	L	00-01-05	00-01-05	Top	382	191			n/a
4	J1 (I3109)	Conc. Pl. (lbs)	L	08-01-00	08-01-00	Top	429	214			n/a
6	5 (I382)	Conc. Pl. (lbs)	L	08-08-12	08-08-12	Top	2,027	1,131			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	7,730 ft-lbs	35,392 ft-lbs	21.8%	1	04-01-00
End Shear	3,454 lbs	14,464 lbs	23.9%	1	01-03-14
Total Load Deflection	L/999 (0.069")	n/a	n/a	4	04-04-00
Live Load Deflection	L/999 (0.045")	n/a	n/a	5	04-04-00
Max Defl.	0.069"	n/a	n/a	4	04-04-00
Span / Depth	8.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 4" x 3-1/2"	4,960 lbs	n/a	29.0%	HGUS410
B2	Wall/Plate 6-1/2" x 3-1/2"	7,939 lbs	96.5%	33.8%	Unspecified

Cautions

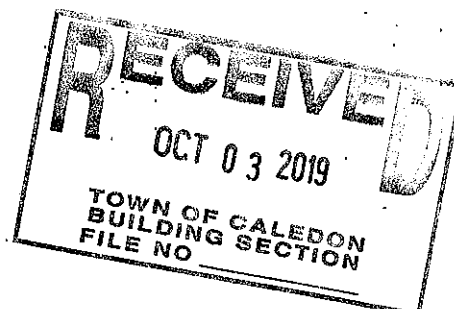
Header for the hanger HGUS410 at B1 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7, 2400 DF. Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



THIS STRUCTURE MUST BE
CONSTRUCTED TO MEET OR
EXCEED THE PROVISIONS OF
THE ONTARIO BUILDING CODE

DWG NO: TAM3424-18H
STRUCTURAL
COMPONENT ONLY
P666

T-1903178





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

PASSED

1ST FLOOR FRAMING\Flush Beams\B2\13106

Dry | 1 span | No cant.

November 12, 2018 14:25:00

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

File name: KINMOUNT-11B.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B2\13106

Specifier:

Designer: PL

Company:

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

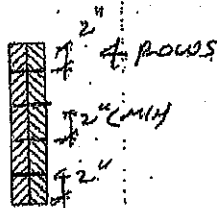
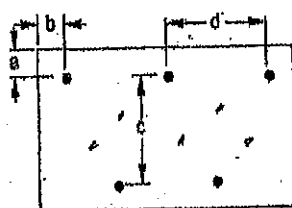
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

Connection Diagram: Full Length of Member



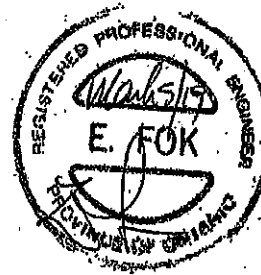
a minimum = 2"
b minimum = 3"

c = 7-7/8"
d = 8"

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

Connectors are: Nails

3 1/2" ARDOX SPIRAL



Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to ensure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

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

DWG NO. TAM 3424-18H
STRUCTURAL
COMPONENT ONLY

T-19031286



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B3\B3150

Dry | 1 span | No cant.

November 12, 2018 14:25:00

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

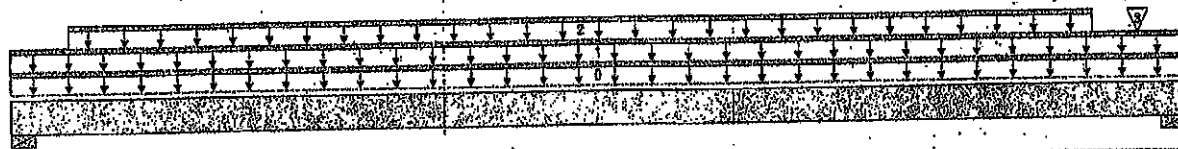
File name: KINMOUNT 11B.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B3\B3150

Specifier:

Designer: PL

Company:



B1

Total Horizontal Product Length = 05-08-08

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	620 / 0	327 / 0		
B2, 5-1/2"	675 / 0	368 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.88	Snow 1.00	Wind 1.18	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-08-08	Top	6	8			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-08-08	Top	5	3			n/a
2	STAIRS	Unf. Lin. (lb/ft)	L	00-03-08	05-04-00	Top	240	120			n/a
3	6(1362)	Conc. Pl. (lbs)	L	05-08-12	05-08-12	Top	54	41			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,762 ft-lbs	17,896 ft-lbs	10.0%	1	02-09-12
End Shear	809 lbs	7,232 lbs	11.2%	1	01-03-06
Total Load Deflection	L/999 (0.012")	n/a	n/a	4	02-09-12
Live Load Deflection	L/999 (0.008")	n/a	n/a	5	02-09-12
Max Defl.	0.012"	n/a	n/a	4	02-09-12
Span / Depth	5.2				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 1-3/4"	1,336 lbs	51.1%	17.9%	Unspecified
B2	Wall/Plate 5-1/2" x 1-3/4"	1,474 lbs	35.8%	12.6%	Unspecified

Notes

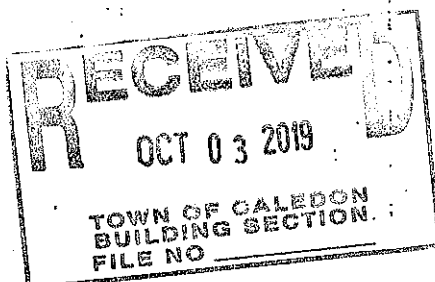
Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit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

CONFORMS TO OBC 2012

Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA).
 Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods.
 Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

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



DRQNU.TAM 3425-18H
 STRUCTURAL
 COMPONENT ONLY

T. 093179



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B1(12939)

Dry | 1 span | No cant.

November 12, 2018 14:25:00

BC CALCO® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

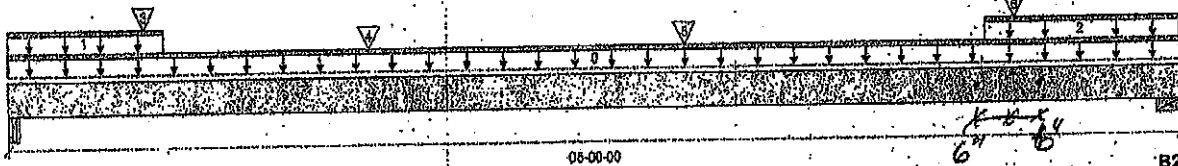
File name: KJNMOUNT 11B.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B1(12939)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 05-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 6"	1,021 / 0	620 / 0		
B2, 9-1/2"	5,768 / 0	3,146 / 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	06-00-00	Top	12	86			n/a
1	8(1385)	Unf. Lin. (lb/ft)	L	00-00-00	00-08-00	Top		81			n/a
2	11(1388)	Unf. Lin. (lb/ft)	L	04-02-00	05-00-00	Top					n/a
3	8(1385)	Conc. Pt. (lbs)	L	00-07-00	00-07-00	Top	508	283			n/a
4	J1(12923)	Conc. Pt. (lbs)	L	01-08-08	01-08-08	Top	420	210			n/a
5	J1(3226)	Conc. Pt. (lbs)	L	02-10-08	02-10-08	Top	454	227			n/a
6		Conc. Pt. (lbs)	L	04-03-08	04-03-08	Top	5,258	2,389			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,526 ft-lbs	35,392 ft-lbs	4.3%	1	02-10-08
End Shear	1,194 lbs	14,464 lbs	8.3%	1	01-04-14
Total Load Deflection	L/999 (0.003")	n/a	n/a	4	02-03-08
Live Load Deflection	L/999 (0.002")	n/a	n/a	5	02-03-08
Max Defl.	0.003"	n/a	n/a	4	02-03-08
Span / Depth	4.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	5" x 3-1/2"	2,306 lbs	30.8%	10.8%	Unspecified
B2 Wall/Plate	9-1/2" x 3-1/2"	12,680 lbs	88.6%	31.0%	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.

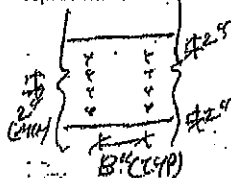
Resistance Factor phi has been applied to all presented results per CSA O86.

BC 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 0

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



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

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

T-190377



Boise Cascade



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

1ST FLOOR FRAMING (Flush Beams) B12 (13358)

Dry | 1 span | No cant.

PASSED

November 12, 2016 13:30:22

EC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

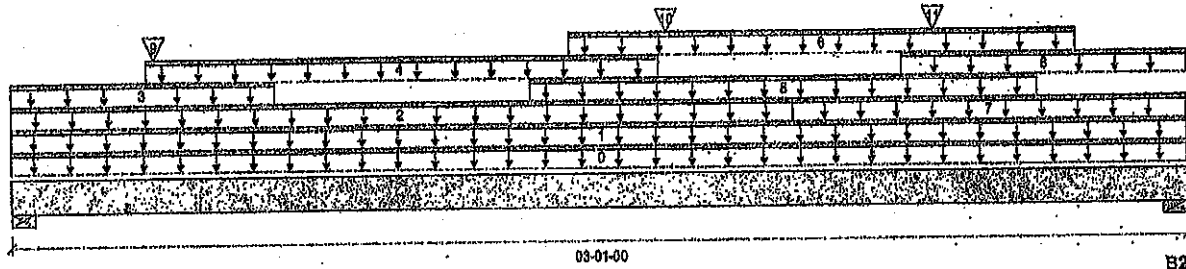
File name: KINMOUNT 11B OPT W.O.D..mmdl

Description: 1ST FLOOR FRAMING (Flush Beams) B12 (13358)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 93-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,266 / 0	883 / 0	110 / 0	
B2, 3-1/2"	1,139 / 0	932 / 0	369 / 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	E41 (13108)	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top		81			n/a
2	E41 (13108)	Unf. Lin. (lb/ft)	L	00-00-00	02-00-08	Top		41			n/a
3	E41 (13108)	Unf. Lin. (lb/ft)	L	00-00-00	00-08-04	Top	362	177			n/a
4	E41 (13108)	Unf. Lin. (lb/ft)	L	00-04-04	01-08-04	Top	269	130			n/a
5	E41 (13108)	Unf. Lin. (lb/ft)	L	01-04-04	02-08-04	Top	269	130			n/a
6	E41 (13108)	Unf. Lin. (lb/ft)	L	01-08-08	02-09-08	Top	68	131			n/a
7	E41 (13108)	Unf. Lin. (lb/ft)	L	02-00-08	03-01-00	Top		81			n/a
8	E41 (13108)	Unf. Lin. (lb/ft)	L	02-04-00	03-01-00	Top	248	160			n/a
9	J1 (13308)	Conc. Pt. (lbs)	L	00-04-08	00-04-08	Top	458	229			n/a
10	J1 (13330)	Conc. Pt. (lbs)	L	01-08-08	01-08-08	Top	350	175			n/a
11	J1 DJ (13304)	Conc. Pl. (lbs)	L	02-05-00	02-05-00	Top	378	189			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,823 ft-lbs	35,392 ft-lbs	5.2%	1	01-08-08
End Shear	1,805 lbs	14,464 lbs	12.5%	1	01-09-10
Total Load Deflection	L/999 (0.002")	n/a	n/a	35	01-08-14
Live Load Deflection	L/999 (0.001")	n/a	n/a	51	01-08-14
Max Defl.	0.002"	n/a	n/a	35	01-08-14
Span / Depth	2.7				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	3,112 lbs	69.5%	20.8%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	3,242 lbs	61.9%	21.7%	Unspecified

DWG NO. TAM 3435-18#
STRUCTURAL
COMPONENT ONLY

T-1903189



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
1ST FLOOR FRAMING (Flush Beams) B12 (I3356)

PASSED

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

November 12, 2018 13:30:22

File name: KINMOUNT 11B OPT W.O.D..mmdl

Description: 1ST FLOOR FRAMING (Flush Beams) B12 (I3356)

Specifier:

Designer: PL

Company:

Notes

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

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

Calculations assume member is fully braced.

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

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

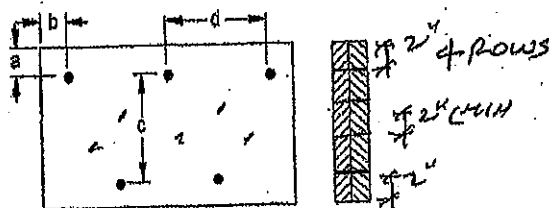
Unbalanced snow loads determined from building geometry were used in selected products verification.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

c = 7-7/8"
d = 4"

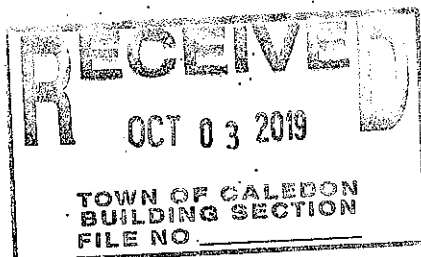
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Connectors are: Nails
3/4" ARDOX SPIRAL



Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.



OWNED BY 184
STRUCTURAL
COMPONENT ONLY
BC CALC®, BC FRAMER®, AJS™,
ALLJOIST®, BC RIM BOARD™, BCI®,
BOISE GLULAM™, BC FloorValue®,
VERSA-LAM®, VERSA-RIM PLUS®

184



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B13(I3480)

Dry | 1 span | No cant.

November 12, 2018 13:30:22

BC CALC® Member Report

Build 8476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

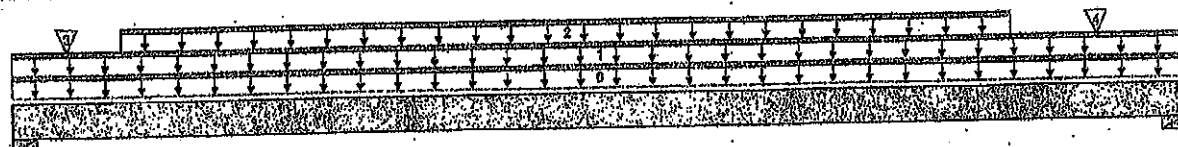
File name: KINMOUNT 11B OPT W.O.D..mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B13(I3480)

Specifier:

Designer: PL

Company:



B1 03-01-00 B2

Total Horizontal Product Length = 03-01-00.

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	124 / 0	309 / 0	188 / 0	
B2, 3-1/2"	135 / 0	351 / 0	180 / 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	0.85	1.00	1.15	00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top	10	5			n/a
2	E48(I3255)	Unf. Lin. (lb/ft)	L	00-03-08	02-07-08	Top		41			n/a
3	E12(I309)	Cono. Pt. (lbs)	L	00-01-12	00-01-12	Top	108	232	188		n/a
4	E47(I3254)	Cono. Pt. (lbs)	L	02-10-04	02-10-04	Top	119	280	180		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	89 ft-lbs	23,005 ft-lbs	0.3%	0	01-08-08
End Shear	89 lbs	9,401 lbs	0.7%	0	01-08-10
Total Load Deflection	L/999 (0")	n/a	n/a	35	01-08-08
Max Defl.	0"	n/a	n/a	35	01-08-08
Span / Depth	2.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	782 lbs	14.6%	5.1%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	843 lbs	16.2%	5.7%	Unspecified

Notes

Design meets Code minimum (L/240) Total 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 products verification.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

Member has no side loads.



OWGNO, TAM 3436-18H
STRUCTURAL
COMPONENT ONLY

T. 1903190



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
1ST FLOOR FRAMING\Flush Beams\B13\B3480

PASSED

November 12, 2018 13:30:22

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

File name: KINMOUNT 11B.OPT W.O.D..mmdl

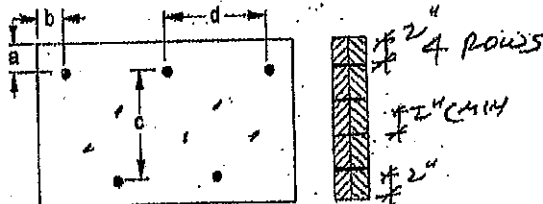
Description: 1ST FLOOR FRAMING\Flush Beams\B13\B3480

Specifier:

Designer: PL

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

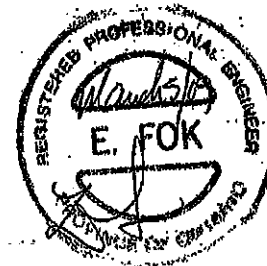
b minimum = 3"

d = 6"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
Member has no side loads.

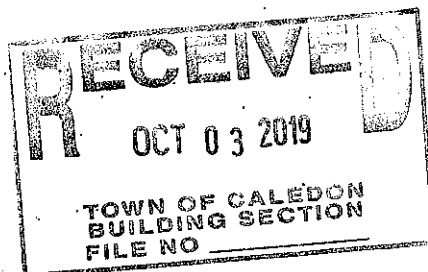
Connectors are: 2x4 Nails

3/4" ARDOX SPIRAL



Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0780 before installation.



OWN NO. TAM 3436-18H
STRUCTURAL
COMPONENT ONLY

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

T-19031906



Bolted Onload



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

1ST FLOOR FRAMING\Flush Beams\B20\I6367

Dry | 1 span | No cant.

PASSED

November 12, 2018 16:03:15

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports:

CCMO 12472-R

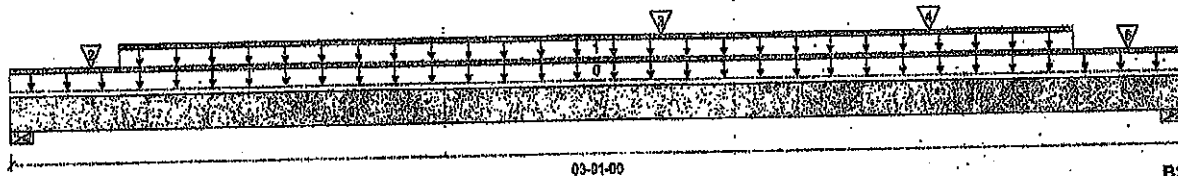
File name: KINMOUNT 11B ELEV 2 WOD.mmd

Description: 1ST FLOOR FRAMING\Flush Beams\B20\I6367

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 03-01-00

Reaction Summary (Down / Uplift) (lbs)

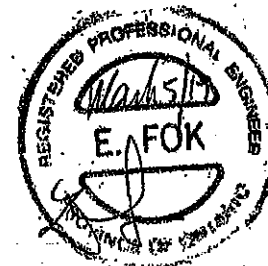
Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,392 / 0	924 / 0	125 / 0	
B2, 3-1/2"	1,232 / 0	946 / 0	353 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top	12				00-00-00
1	E48(I6081)	Unf. Lin. (lb/ft)	L	00-03-08	02-09-08	Top		41			n/a
2		Conc. Pt. (lbs)	L	00-02-10	00-02-10	Top	1,201	759	125		n/a
3	J1(I6273)	Conc. Pt. (lbs)	L	01-08-08	01-08-08	Top	350	175			n/a
4	J1 DJ(I6290)	Conc. Pt. (lbs)	L	02-06-00	02-06-00	Top	378	189			n/a
5	E49(I6107)	Conc. Pt. (lbs)	L	02-11-04	02-11-04	Top	689	605	353		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	796 ft-lbs	35,392 ft-lbs	2.2%	1	01-08-08
End Shear	667 lbs	14,464 lbs	4.6%	1	01-09-10
Total Load Deflection	L/999 (0.001")	n/a	n/a	35	01-07-03
Live Load Deflection	L/999 (0")	n/a	n/a	51	01-07-03
Max Defl.	0.001"	n/a	n/a	35	01-07-03
Span / Depth	2.7				



Bearing Supports

	Dtm. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	3,368 lbs	51.5%	22.5%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	3,983 lbs	51.7%	22.6%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

OWN NO. YMM 3433.18H
STRUCTURAL
COMPONENT ONLY

T. 1903187



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B20\16367

Dry | 1 span | No cant.

November 12, 2018 15:03:15

BC CALCO® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

File name: KINMOUNT 11B-ELEV 2 WOD.mmdl

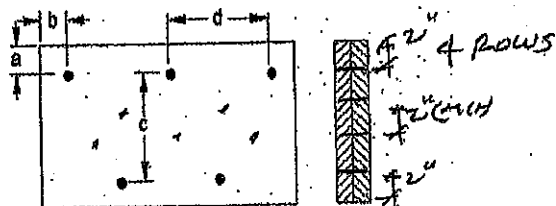
Description: 1ST FLOOR FRAMING\Flush Beams\B20\16367

Specifier:

Designer: PL

Company:

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

c = 7-7/8"
d = 4'

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

Connectors are: 1" Nails

3/8" ARDOL SPIRAL

THIS STRUCTURE MUST BE
CONSTRUCTED TO MEET OR
EXCEED THE PROVISIONS OF
THE ONTARIO BUILDING CODE

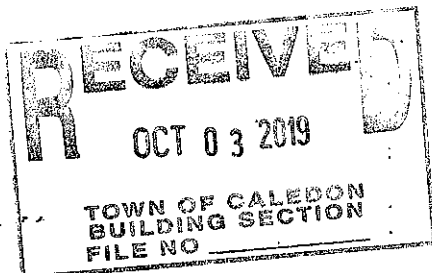


Disclosure

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

PLK



DWG NO. TAW 3433-18H
STRUCTURAL
COMPONENT ONLY

T-190318761



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B21(16277)

Dry | 1 span | No cant.

November 12, 2018 16:03:16

BC CALC® Member Report

Bulld 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

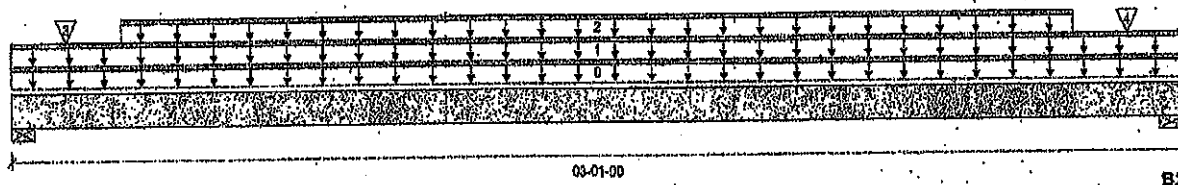
File name: KINMOUNT 11B ELEV 2 WOD.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B21(16277)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 03-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	126 / 0	342 / 0	165 / 0	
B2, 3-1/2"	141 / 0	343 / 0	211 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top		12			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-01-00	Top	10	5			n/a
2	E5D(5108)	Unf. Lin. (lb/ft)	L	00-03-08	02-09-08	Top		41			n/a
3	E12(308)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	110	264	165		n/a
4	E51(5109)	Conc. Pt. (lbs)	L	02-11-04	02-11-04	Top	125	285	211		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	70 ft-lbs	23,005 ft-lbs	0.3%	0	01-06-08
End Shear	21 lbs	9,401 lbs	0.2%	0	01-03-08
Total Load Deflection	L/990 (0")	n/a	n/a	35	01-08-08
Max Defl.	0"	n/a	n/a	35	01-08-08
Span / Depth	2.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	800 lbs	12.2%	6.4%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	885 lbs	13.6%	6.9%	Unspecified

Notes

Design meets Code minimum (L/240) Total 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. **CONFIRMS TO OBC 2012**

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

Member has no side loads.



OWNED BY 3434-18H
STRUCTURAL
COMPONENT ONLY

T-190188



Boise Cascade



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B21(16277)

Dry | 1 span | No cant.

November 12, 2019 15:03:15

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

File name: KINMOUNT 11B ELEV 2 WOD.mxd

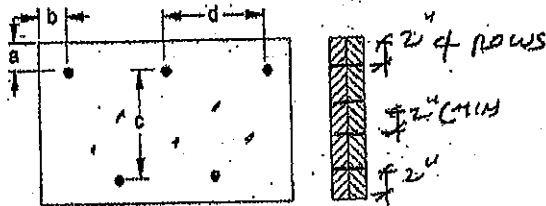
Description: 1ST FLOOR FRAMING\Flush Beams\B21(16277)

Specifier:

Designer: PL

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

b minimum = 3"

d = 4"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
Member has no side loads.

Connectors are: Nails

3 1/2" ARDOX SPIRAL



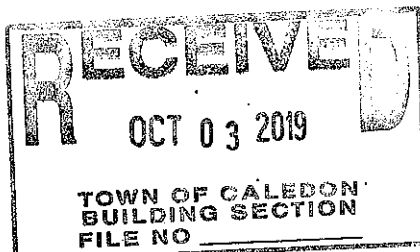
Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

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

p62h

T-190318861



DWG NO. YAM 3434-18H
STRUCTURAL
COMPONENT ONLY



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

2ND FLOOR FRAMING/Dropped Beams/B4 DR(I3197)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

November 12, 2018 14:25:00

Build 8475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CGMC 12472-R

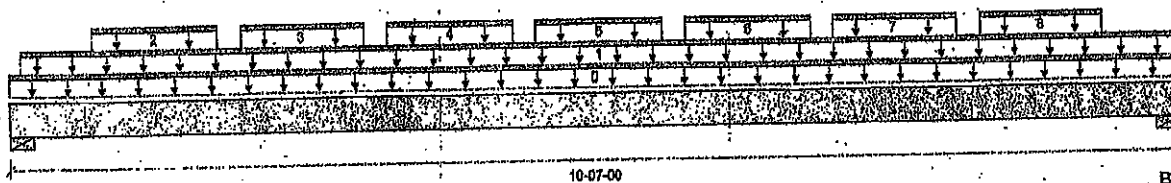
File name: KINMOUNT 118.mmdl

Description: 2ND FLOOR FRAMING/Dropped Beams/B4 DR(I3197)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 10-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,488 / 0	805 / 0		
B2, 3-1/2"	1,510 / 0	817 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-07-00	Top	1.00	0.85	1.00	1.16	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-01-04	10-06-12	Top	264	132			n/a
2	Bk1(I3262)	Unf. Lin. (lb/ft)	L	00-09-04	01-10-12	Top	27				n/a
3	Bk1(I3251)	Unf. Lin. (lb/ft)	L	02-01-04	03-02-12	Top	27				n/a
4	Bk1(I3139)	Unf. Lin. (lb/ft)	L	03-06-04	04-08-12	Top	27				n/a
5	Bk1(I3018)	Unf. Lin. (lb/ft)	L	04-08-04	05-10-12	Top	27				n/a
6	Bk1(I3117)	Unf. Lin. (lb/ft)	L	06-01-04	07-02-12	Top	27				n/a
7	Bk1(I3160)	Unf. Lin. (lb/ft)	L	07-05-04	08-08-12	Top	27				n/a
8	Bk1(I3271)	Unf. Lin. (lb/ft)	L	08-08-04	09-10-12	Top	27				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	7,830 ft-lbs	35,392 ft-lbs	22.1%	1	05-00-10
End Shear	2,748 lbs	14,464 lbs	19.0%	1	01-03-08
Total Load Deflection	L/999 (0.105")	n/a	n/a	4	05-04-00
Live Load Deflection	L/999 (0.088")	n/a	n/a	5	05-04-00
Max Defl.	0.106"	n/a	n/a	4	05-04-00
Span / Depth	10.2				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 3-1/2"	3,239 lbs	40.7%	21.7%	Unspecified
B2	Wall/Plate 3-1/2" x 3-1/2"	3,286 lbs	41.3%	22.0%	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: 00-01-15, Bottom: 00-01-15.
 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 NBC 2015 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
 Member has no side loads.

CONFORMS TO CBC 2012

DWG NO. TAM3426-18H
 STRUCTURAL
 COMPONENT ONLY

T. 193180



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Dropped Beams\B4 DR\13197
Dry | 1 span | No cant.

PASSED

November 12, 2018 14:25:00

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

File name: KINMOUNT 11B.mxd

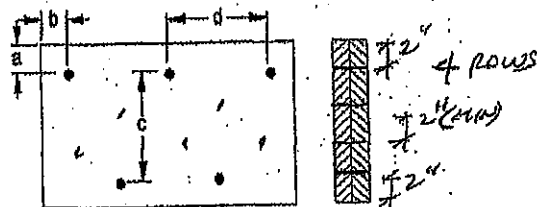
Description: 2ND FLOOR FRAMING\Dro...ed Beams\B4 DR\13197

Specifier:

Designer: PL

Company:

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"
c = 7-7/8"
d = 12"

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

Member has no side loads.
Connectors are: Nails

3 1/2" ARDOX SPIRAL



Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

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

DWG NO. YAW 3426-18H
STRUCTURAL
COMPONENT ONLY

10/2/18
T. 1903180 (M)



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

PASSED

2ND FLOOR FRAMING Flush Beams B9 (12890)

Dry | 1 span | No cant.

November 12, 2018 14:25:00

BC CALC® Member Report

Build 8476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

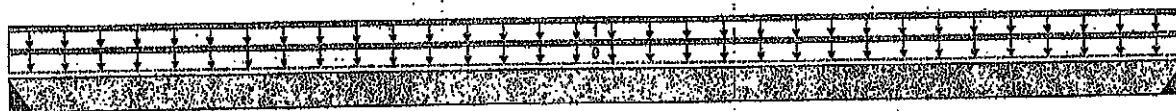
File name: KINMOUNT 11B.mmdl

Description: 2ND FLOOR FRAMING Flush Beams B9 (12890)

Specifier:

Designer: PL

Company:



B1 11-04-00 B2
Total Horizontal Product Length = 11-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"		408 / 0		
B2, 4"		408 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-04-00	Top		12			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	11-04-00	Top		80			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Class	Location
Pos. Moment	1,468 ft-lbs	23,005 ft-lbs	6.4%	0	05-08-00
End Shear	438 lbs	9,401 lbs	4.7%	0	01-09-14
Total Load Deflection	L/999 (0.023")	n/a	n/a	1	05-08-00
Max Defl.	0.023"	n/a	n/a	1	05-08-00
Span / Depth	10:9				

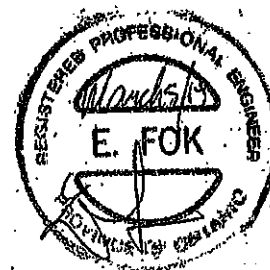
Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	4" x 3-1/2"	571 lbs	n/a	5.1%	HGUS410
B2 Hanger	4" x 3-1/2"	571 lbs	n/a	5.1%	HGUS410

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.
Calculations assume member is fully braced.
Hanger Manufacturer: Unassigned
Resistance Factor phi has been applied to all presented results per CSA O86. CONFORMS TO DBC 2012
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
Design based on Dry Service Condition.
Importance Factor: Normal Part code: Part 9
Member has no side loads.



DWG NO. TAM 3432-18H
STRUCTURAL
COMPONENT ONLY

T-1903186



Boise Cascade



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B9(12890)

Dry | 1 span | No cant.

November 12, 2018 14:25:00

BC CALCO® Member Report

Bulld 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: QCMC 12472-R

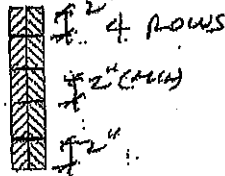
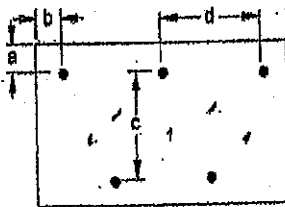
File name: KINMOUNT 11B.mmd

Description: 2ND FLOOR FRAMING\Flush Beams\B9(12890)

Specifier:

Designer: PL

Company:

Connection Diagram: Full Length of Member

a minimum = 2"
b minimum = 3"

c = 7-7/8"
d = 12"

Member has no side loads.

Connectors are: 1 Nails

3/2" ARBOX SPIRAL

Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current installation Guide and applicable building codes. To obtain installation Guide or ask questions, please call (800)232-0788 before installation.

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

OWNED BY 3432-18H
STRUCTURAL
COMPONENT ONLY

T-192186 (M)



Boise Cascade



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

2ND FLOOR FRAMING\Flush Beams\B10(12755)

PASSED

November 12, 2018 14:25:00

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

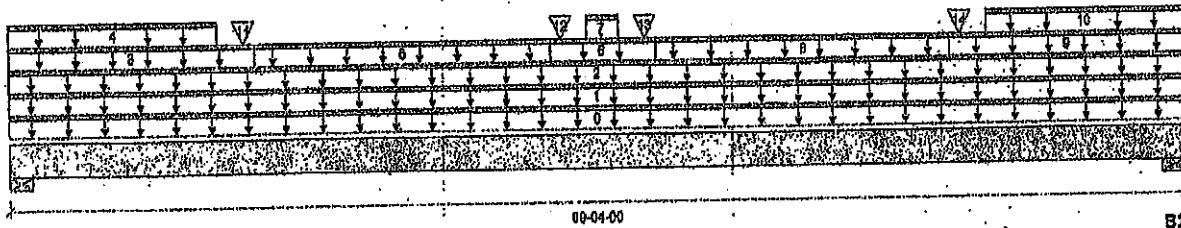
File name: KINMOUNT 11B.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B10(12755)

Specifier:

Designer: PL

Company:



B1

00-04-00

B2

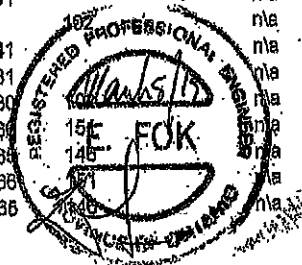
Total Horizontal Product Length = 09-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 6-7/8"	349 / 0	685 / 0	953 / 0	
B2, 6-7/8"	348 / 0	684 / 0	950 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.85	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-04-00	Top		12			00-00-00
1	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	09-04-00	Top	33	30	102		n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	09-04-00	Top	9	4			n/a
3	E36(11505)	Unf. Lin. (lb/ft)	L	00-00-00	01-11-08	Top		81			n/a
4	E36(11505)	Unf. Lin. (lb/ft)	L	00-00-00	01-08-00	Top	33	30	102		n/a
5	E36(11504)	Unf. Lin. (lb/ft)	L	01-11-08	04-03-08	Top		41			n/a
6	E34(11503)	Unf. Lin. (lb/ft)	L	04-03-08	05-01-08	Top		81			n/a
7	E34(11503)	Unf. Lin. (lb/ft)	L	04-07-00	04-10-00	Top	33				n/a
8	E33(11502)	Unf. Lin. (lb/ft)	L	05-01-08	07-05-08	Top		41			n/a
9	E28(11476)	Unf. Lin. (lb/ft)	L	07-05-08	09-04-00	Top		81			n/a
10	E28(11476)	Unf. Lin. (lb/ft)	L	07-09-00	09-04-00	Top	33	30			n/a
11	E36(11505)	Conc. Pt. (lbs)	L	01-10-08	01-10-08	Top	49	66	15		n/a
12	E34(11503)	Conc. Pt. (lbs)	L	04-04-08	04-04-08	Top	47	66	14		n/a
13	E34(11503)	Conc. Pt. (lbs)	L	05-00-08	05-00-08	Top	49	66			n/a
14	E28(11476)	Conc. Pt. (lbs)	L	07-06-08	07-06-08	Top	47	66			n/a

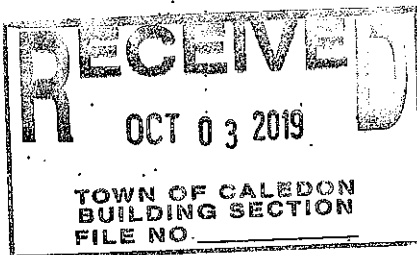


Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4,624 ft-lbs	38,392 ft-lbs	13.6%	13	04-08-08
End Shear	1,747 lbs	14,464 lbs	12.1%	13	01-08-12
Total Load Deflection	L/999 (0.045")	n/a	n/a	35	04-08-08
Live Load Deflection	L/999 (0.03")	n/a	n/a	51	04-08-08
Max Defl.	0.045"	n/a	n/a	35	04-08-08
Span / Depth	8.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 6-7/8" x 3-1/2"	2,636 lbs	25.6%	9.0%	Unspecified
B2	Wall/Plate 6-7/8" x 3-1/2"	2,628 lbs	25.6%	8.9%	Unspecified



DRG NO. TAN 3 927-18H
STRUCTURAL
COMPONENT ONLY

T-190318



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLOOR FRAMING Flush Beams B10(12755)

PASSED

November 12, 2018 14:25:00

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

File name: KINMOUNT 11B.mmdl

Description: 2ND FLOOR FRAMING Flush Beams B10(12755)

Specifier:

Designer: PL

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 ϕ has been applied to all presented results per CSA O86. **CONFORMS TO OBC 2012**

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

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

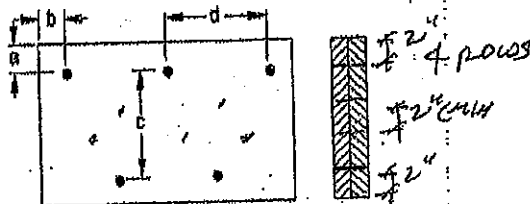
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

Member has no side loads.

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

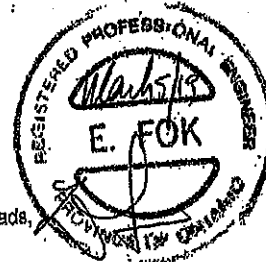
c = 7-7/8"
d = 12"

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

Member has no side loads.

Connectors are: Nails

3 1/2" ARDOX SPIRAL



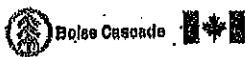
Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design principles 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™, BOI®, BOISE GLULAM™, BC FloorVault®, VERSA-LAM®, VERSA-RIM PLUS®

OWONG YAM 3427-1811
STRUCTURAL
COMPONENT ONLY

1903181(1)



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B8(13099)

Dry | 2 spans | L cant.

November 12, 2018 14:25:00

BC CALCO Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON.

Customer:

Code reports:

CCMC 12472-R

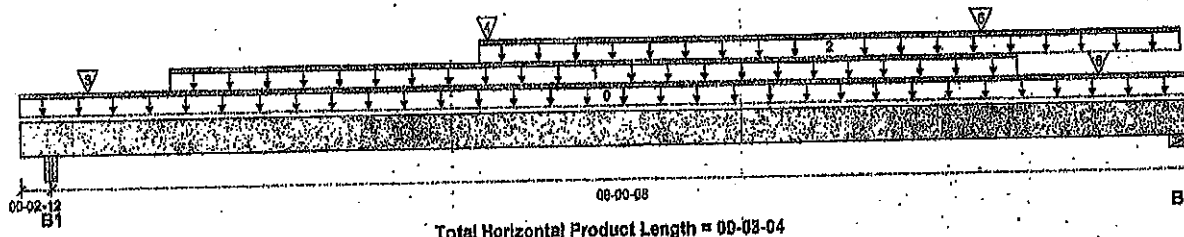
File name: KINMOUNT 11B.mmdl.

Description: 2ND FLOOR FRAMING\Flush Beams\B8(13099)

Specifier:

Designer: PL

Company:



Reaction Summary (Down / Uplift) (lbs)

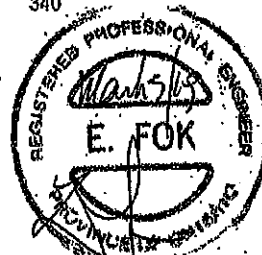
Bearing	Live	Dead	Snow	Wind
B1, 5"	1,897 / 0	928 / 0		
B2, 3-3/4"	1,924 / 0	1,052 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.85	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-03-04	Top		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-02-08	07-10-08	Top	342	171			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	03-07-08	09-02-04	Top	23	12			n/a
3	J2(13127)	Conc. Pt. (lbs)	L	00-06-08	00-06-08	Top	381	191			n/a
4	B8(13141)	Conc. Pt. (lbs)	L	03-08-08	03-08-08	Top	133	98			n/a
5	WALL	Conc. Pt. (lbs)	L	07-07-04	07-07-04	Top		27			n/a
6	J2(12970)	Conc. Pt. (lbs)	L	08-08-08	08-08-08	Top	680	340			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	8,309 ft-lbs	35,392 ft-lbs	23.8%	3	04-08-08
End Shear	3,328 lbs	14,464 lbs	23.0%	1	07-11-10
Cont. Shear	3,017 lbs	14,464 lbs	20.9%	1	01-04-02
Total Load Deflection	L/999 (0.083")	n/a	n/a	10	04-08-08
Live Load Deflection	L/999 (0.053")	n/a	n/a	13	04-08-08
Total Neg. Defl.	2xL/1,998 (-0.007")	n/a	n/a	10	00-00-00
Max Defl.	0.083"	n/a	n/a	10	04-08-08
Span / Depth	8.9				



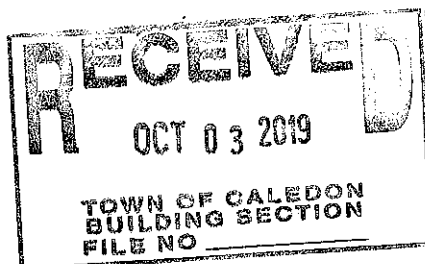
Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 8" x 3-1/2"	3,703 lbs	82.8%	28.9%	Unspecified
B2	Wall/Plate 3-3/4" x 3-1/2"	4,201 lbs	74.9%	28.2%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86. **CONFORMS TO OBC 2012**
 BC CALCO analysis is based on Canadian Limit States Design, as per NBC 2015 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code: Part 9
 Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

DWG NO. FAN 3429-18H
 STRUCTURAL
 COMPONENT ONLY
 10/12



T-1903183



Boise Cascade



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

2ND FLOOR FRAMING\Flush Beams\B6(13099)

Dry | 2 spans | L cant.

PASSED

November 12, 2018 14:25:00

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

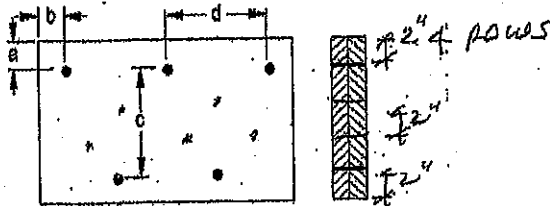
File name: KINMOUNT 11B.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B6(13099)

Specifier:

Designer: PL

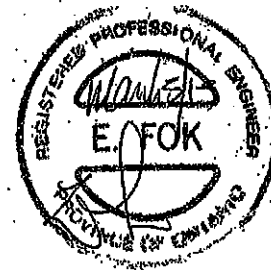
Company:

Connection Diagram: Full Length of Member a minimum = 2" c = 7-7/8" b minimum = 3" d = 6"

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

Connectors are: Nails

3/8" ARDOX SPIRAL

**Disclosure**

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current installation Guide and applicable building codes. To obtain installation Guide or ask questions, please call (800)232-0788 before installation.

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

MEMBER, 2018-2020
STRUCTURAL
COMPONENT ONLY

T-180318361



Boise Cascade



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

2ND FLOOR FRAMING/Flush Beams/B7(12881)

Dry | 1 span | No cant.

PASSED

November 12, 2018 14:25:00

BC CALCO Member Report

Build 8475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports:

CCMC 12472-R

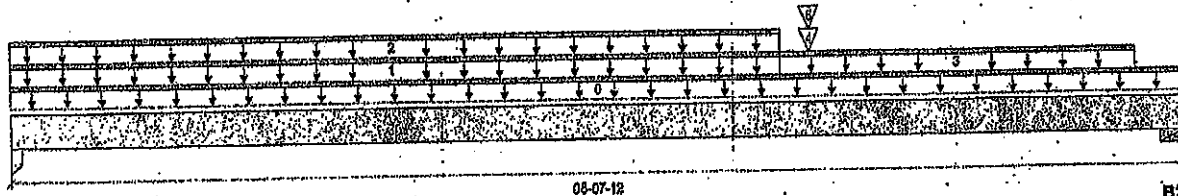
File name: KINMOUNT 11B.mmdl

Description: 2ND FLOOR FRAMING/Flush Beams/B7(12881)

Specifier:

Designer: PL

Company:



B1

Total Horizontal Product Length = 06-07-12

B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	843 / 0	471 / 0		
B2, 6-1/2"	370 / 0	532 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-07-12	Top		12			00-00-00
1	STAIRS	Unf. Lin. (lb/ft)	L	00-00-00	03-08-04	Top	240	120			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-08-04	Top	22	11			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	03-08-04	05-05-00	Top	27	13			n/a
4	B9(12880)	Conc. Pt. (lbs)	L	03-10-00	03-10-00	Top		408			n/a
6	WALL	Conc. Pt. (lbs)	L	03-10-00	03-10-00	Top		21			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,984 ft-lbs	35,392 ft-lbs	5.6%	1	02-08-12
End Shear	1,128 lbs	14,484 lbs	7.8%	1	04-02-08
Total Load Deflection	L/999 (0.007")	n/a	n/a	4	02-08-05
Live Load Deflection	L/999 (0.004")	n/a	n/a	5	02-06-14
Max Defl.	0.007"	n/a	n/a	4	02-08-05
Span / Depth	6.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 1-3/4" x 3-1/2"	1,554 lbs	39.1%	20.8%	Unspecified
B2	Wall/Plate 6-1/2" x 3-1/2"	1,219 lbs	14.8%	5.2%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

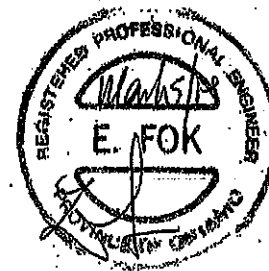
Resistance Factor phi has been applied to all presented results per CSA O86. CONFORMS TO OBC 2012

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

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



EWING, FAN 3430.184
STRUCTURAL
COMPONENT ONLY

T. 1903184



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B7\12881

Dry | 1 span | No cant.

November 12, 2018 14:25:00

BC CALC® Member Report

Build 8475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

File name: KINMOUNT 11B.mmdl

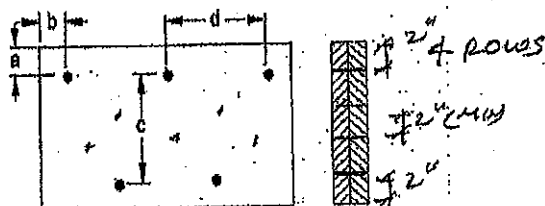
Description: 2ND FLOOR FRAMING\Flush Beams\B7\12881

Specifier:

Designer: PL

Company:

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

c = 7-7/8"
d = 8" B 4

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
Connectors are: 3/4" ARDUX SPIRAL



THIS STRUCTURE MUST BE
CONSTRUCTED TO MEET OR
EXCEED THE PROVISIONS OF
THE ONTARIO BUILDING CODE

Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

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

OWNED BY TAM 3430-184
STRUCTURAL
COMPONENT ONLY

T-190318p(v)



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B8(3141)

Dry | 1 span | No cant.

November 12, 2018 14:26:00

BC CALC® Member Report

Build 8475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

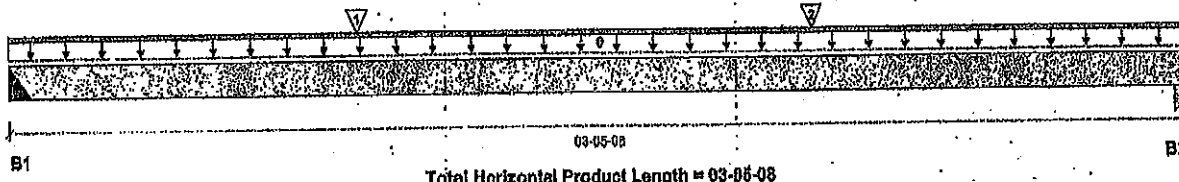
File name: KINMOUNT 11B.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B8(3141)

Specifier:

Designer: PL

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	140 / 0	101 / 0		
B2, 3-1/2"	134 / 0	98 / 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	03-05-08	Top	1.00	0.65	1.00	1.18	00-00-00
1	J5(2997)	Conc. Pt. (lbs)	L	01-00-04	01-00-04	Top	139	90			n/a
2	J5(3132)	Conc. Pt. (lbs)	L	02-04-04	02-04-04	Top	135	88			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	280 ft-lbs	17,696 ft-lbs	1.6%	1	01-11-11
End Shear	259 lbs	7,232 lbs	3.6%	1	02-02-02
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	01-08-08
Live Load Deflection	L/999 (0")	n/a	n/a	5	01-08-08
Max Defl.	0.001"	n/a	n/a	4	01-08-08
Span / Depth	3.1				

Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 3" x 1-3/4"	336 lbs	n/a	5.2%	HUS1.81/10
B2	Column 3-1/2" x 1-3/4"	324 lbs	8.1%	4.3%	Unspecified

Cautions

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

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

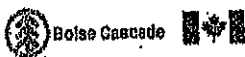
Disclosure

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®.

BYOND.TAM3431-18H
 STRUCTURAL
 COMPONENT ONLY

T-190185



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B11(I3145)

Dry | 1 span | No cant.

November 12, 2018 14:25:00

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code reports: CCMC 12472-R

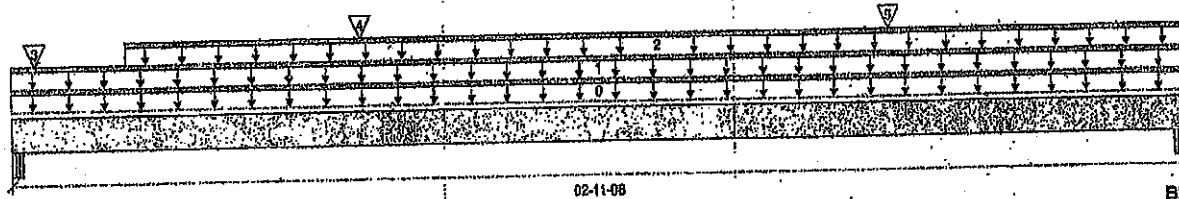
File name: KINMOUNT 11B.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B11(I3145)

Specifier:

Designer: PL

Company:



Total Horizontal Product Length = 02-11-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-1/2"	461 / 0	525 / 0	710 / 0	
B2, 5"	505 / 0	572 / 0	743 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.16	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	02-11-08	Top	33	30	102		00-00-00
1	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	02-11-08	Top	119	236	368		n/a
2	E23(I1471)	Unf. Lin. (lb/ft)	L	00-03-08	02-11-08	Top	55	95	169		n/a
3	E22(I1475)	Conc. Pl. (lbs)	L	00-00-12	00-00-12	Top	279	140			n/a
4	J4(I3203)	Conc. Pl. (lbs)	L	00-10-08	00-10-08	Top	217	109			n/a
5	J4(I3219)	Conc. Pl. (lbs)	L	02-02-08	02-02-08	Top					n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,140 ft-lbs	36,392 ft-lbs	3.2%	13	01-08-11
End Shear	1,321 lbs	14,464 lbs	9.1%	13	01-02-08
Total Load Deflection	L/999 (0.001")	n/a	n/a	35	01-04-08
Live Load Deflection	L/999 (0.001")	n/a	n/a	51	01-04-08
Max Defl.	0.001"	n/a	n/a	35	01-04-08
Span / Depth	2.5				

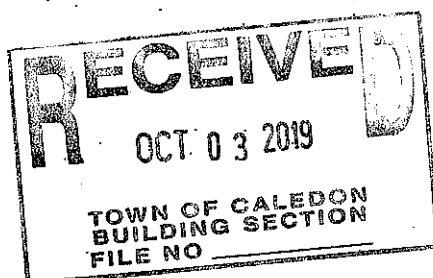


Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	2-1/2" x 3-1/2"	2,182 lbs	68.2%	20.4%	Unspecified
B2 Beam	5" x 3-1/2"	2,335 lbs	31.1%	10.9%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.
 Resistance Factor phi has been applied to all presented results per CSA O86. **CONFORMS TO DBC 2012**
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
 Unbalanced snow loads determined from building geometry were used in selected product's verification.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.



DWBN.YAM 342B-18H
 STRUCTURAL
 COMPONENT ONLY
 P676

T-1903182



Boise Cascade



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

2ND FLOOR FRAMING\Flush Beams\B11(13145)

Dry | 1' span | No cant.

PASSED

November 12, 2018 14:26:00

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: CALEDON

Customer:

Code report: CCMC 12472-R

File name: KINMOUNT 11B.mmdl

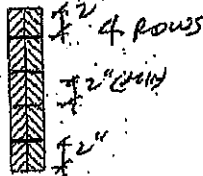
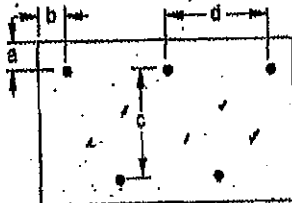
Description: 2ND FLOOR FRAMING\Flush Beams\B11(13145)

Specifier:

Designer: PL

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8"

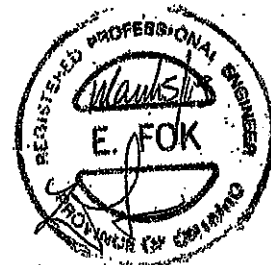
b minimum = 3"

d = 4"

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

Connectors are: 1 Nails

3/4" ARBOX SPIRAL



Disclosure

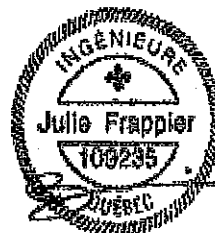
Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

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

UWENB.TAN342B-18H
STRUCTURAL
COMPONENT ONLY

PWA

T-190318/61



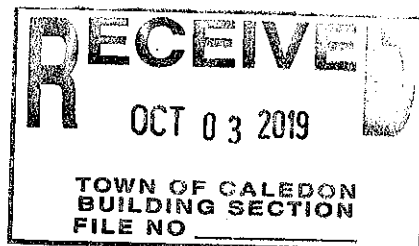
Maximum Floor Spans

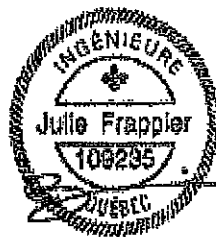
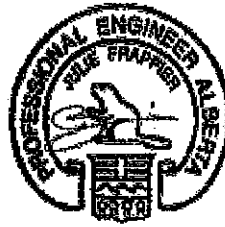
Live Load = 40 psf, Dead Load = 30 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing

Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16'-2"	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'-5"	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'-0"	21'-5"	20'-4"	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 1.5DL + 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.





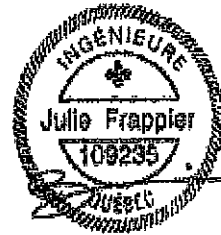
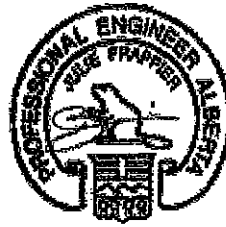
Maximum Floor Spans

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

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



Maximum Floor Spans

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

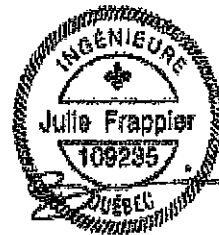
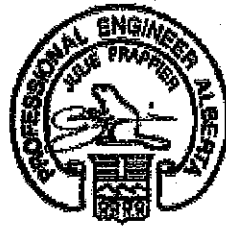
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"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

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

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

Maximum Floor Spans

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



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

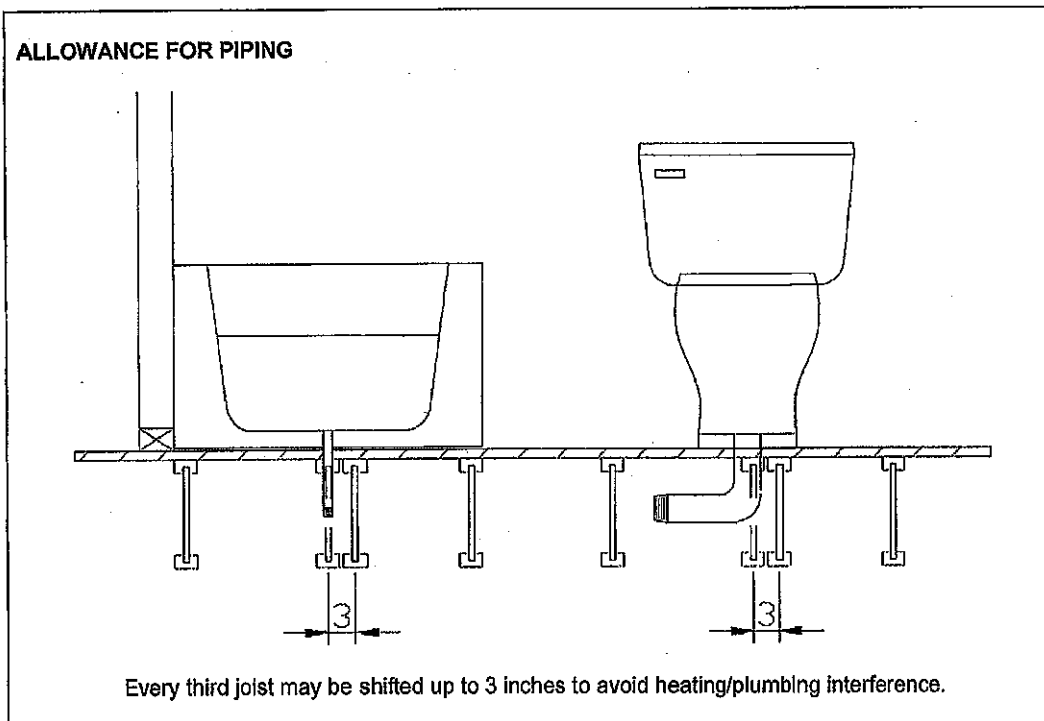
- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/480 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, N8C 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.

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.

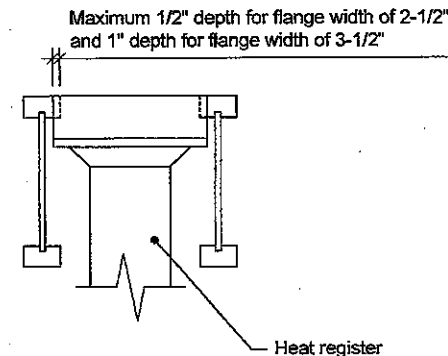
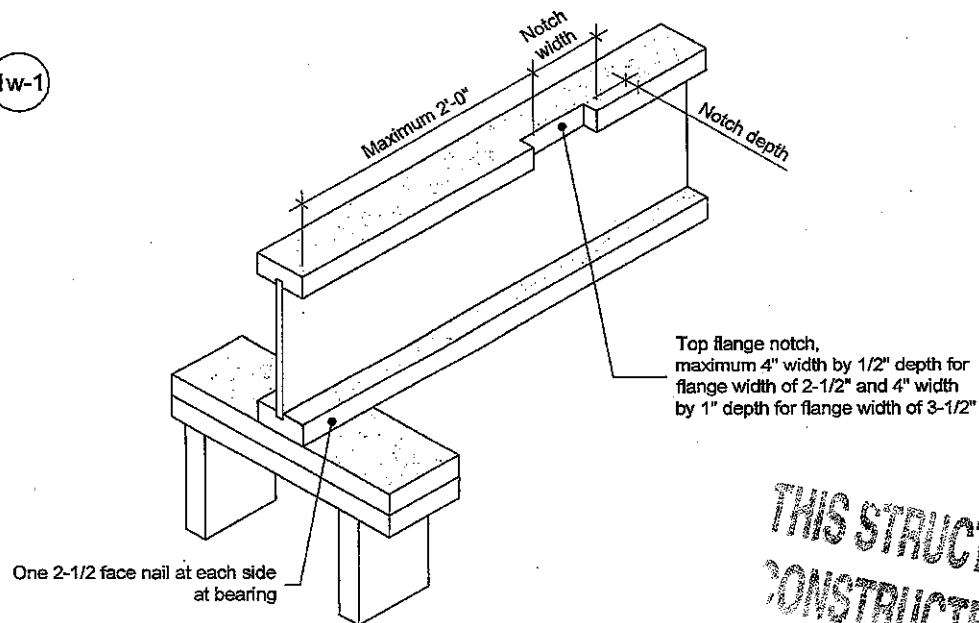
Installation of Nordic I-joists shall be as per *Nordic Joist Installation Guide for Residential Floors*. Refer to Tables 1 and 2 for maximum web hole and duct chase openings, respectively. These tables are based on the I-joists being used at their maximum spans. The minimum distance given may be reduced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

1w-1



**THIS STRUCTURE MUST BE
CONSTRUCTED TO MEET OR
EXCEED THE PROVISIONS OF
THE ONTARIO BUILDING CODE**

Notes:

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

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

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

**NORDIC
STRUCTURES**

T 514-871-8526
1 866 817-3418
nordic.ca

TITLE

Notch in I-joist for Heat Register

CATEGORY

I-joist - Typical Floor Framing and Construction Details

DOCUMENT

-

DATE

2018-04-10

NUMBER

1w-1