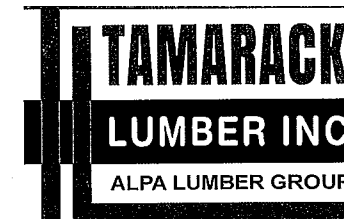


Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	5
J1DJ	16-00-00	9 1/2" NI-40x	2	4
J2	14-00-00	9 1/2" NI-40x	1	3
J3	12-00-00	9 1/2" NI-40x	1	30
J4	10-00-00	9 1/2" NI-40x	1	3
J6	8-00-00	9 1/2" NI-40x	1	2
J5	6-00-00	9 1/2" NI-40x	1	5
J6	4-00-00	9 1/2" NI-40x	1	6
J7	2-00-00	9 1/2" NI-40x	1	4
B1	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B2	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B7	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B10L	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B12L	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B4	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B9	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B11L	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B3	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B8	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
12	H1	IUS2.56/9.5
2	H1	IUS2.56/9.5
6	H1	IUS2.56/9.5
3	H2	HUS1.81/10
2	H2	HUS1.81/10

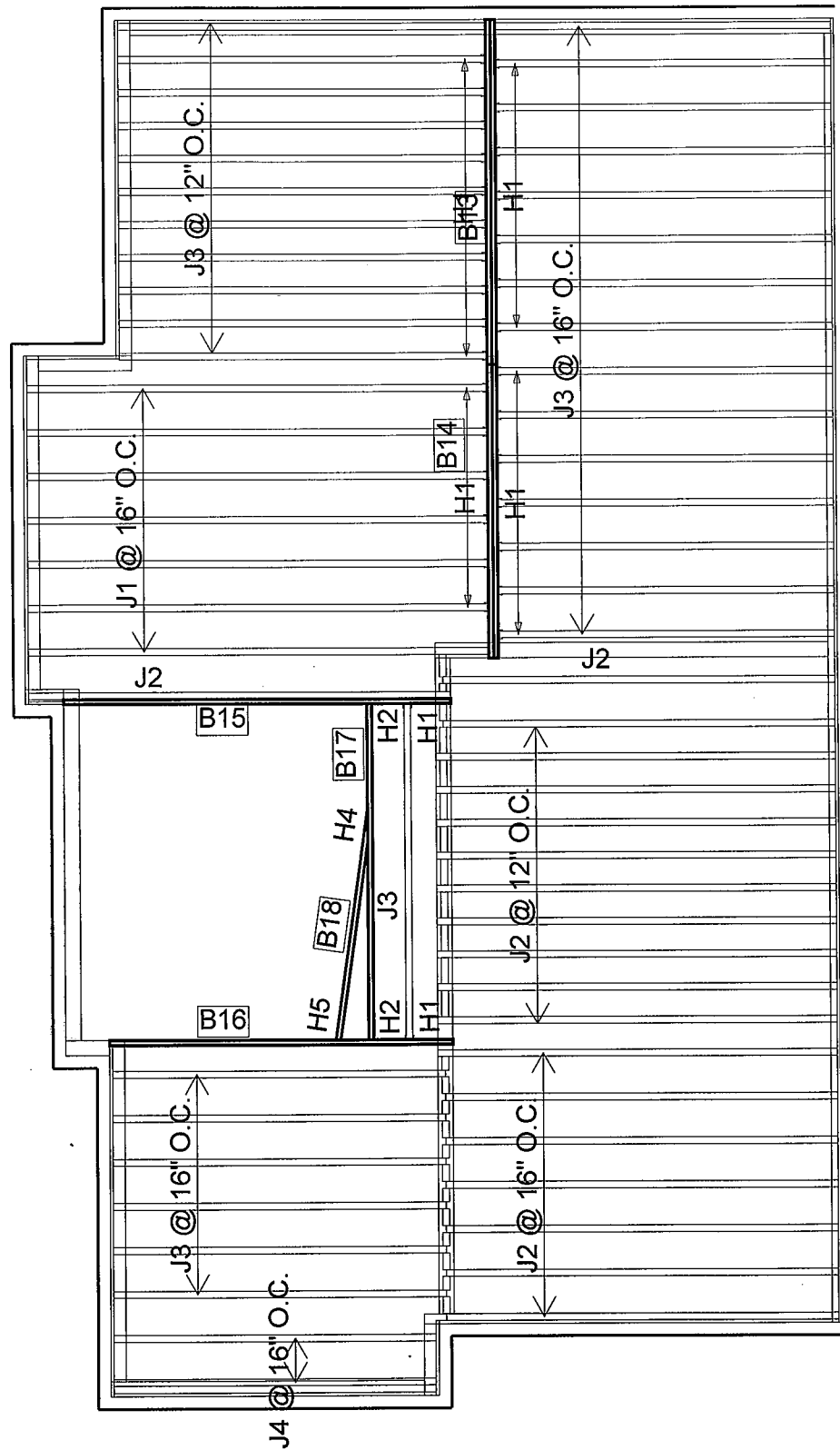


FROM PLAN DATED:
BUILDER: BAYVIEW WELLINGTON
SITE: PASSAGE ON THE CANAL
MODEL: TH8C
ELEVATION: B
LOT: 23
CITY: ST CATHERINES
SALESMAN: M D
DESIGNER: AJ
REVISION:

NOTES:
REFER TO THE NORDIC
INSTALLATION GUIDE FOR PROPER
STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2
S.P.F REQ'D UNDER INTERIOR
UNIFORM LOAD BEARING WALLS.
MULTIPLE SQUASH BLOCKS REQ'D
UNDER CONCENTRATED LOADS. SEE
FIGURE 1. CANTILEVERED JOISTS
INCLUDING CANT' OVER BRICK REQ.
I-JOIST BLOCKING ALONG BEARING
AND RIMBOARD CLOSURE AT ENDS.
SEE FIGURES 4 & 5 FOR
REINFORCEMENT REQUIREMENTS.
FOR HOLES INCLUDING DUCT
CHASE AND FIELD CUT OPENINGS
SEE FIGURE 7, TABLES 1 & 2.
CERAMIC TILE APPLICATION AS PER
O.B.C 9.30.6.
LOADING:
DESIGN LOADS: L/480.000
LIVE LOAD: 40.0 lb/ft²
DEAD LOAD: 15.0 lb/ft
TILED AREAS: 20 lb/ft
SUBFLOOR: 5/8" GLUED AND NAILED

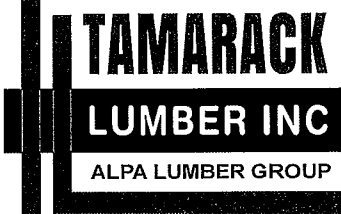
DATE: 10/26/2018

1st FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	7
J2	14-00-00	9 1/2" NI-40x	1	19
J3	12-00-00	9 1/2" NI-40x	1	33
J4	10-00-00	9 1/2" NI-40x	1	2
B15	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B16	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B17	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B13	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B14	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B18	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
2	H1	IUS2.56/9.5
30	H1	IUS2.56/9.5
2	H2	HUS1.81/10
1	H4	LS90
1	H5	LSSUI25



FROM PLAN DATED:

BUILDER: BAYVIEW WELLINGTON

SITE: PASSAGE ON THE CANAL

MODEL: TH8C

ELEVATION: B

LOT: 23

CITY: ST CATHERINES

SALESMAN: M D

DESIGNER: AJ


REVISION:

NOTES:
REFER TO THE NORDIC
INSTALLATION GUIDE FOR PROPER
STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2
S.P.F. REQ'D UNDER INTERIOR
UNIFORM LOAD BEARING WALLS.
MULTIPLE SQUASH BLOCKS REQ'D
UNDER CONCENTRATED LOADS. SEE
FIGURE 1. CANTILEVERED JOISTS
INCLUDING CANT' OVER BRICK REQ.
I-JOIST BLOCKING ALONG BEARING
AND RIMBOARD CLOSURE AT ENDS.
SEE 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: 15.0 lb/ft
TILED AREAS: 20 lb/ft

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 10/26/2018

2nd FLOOR

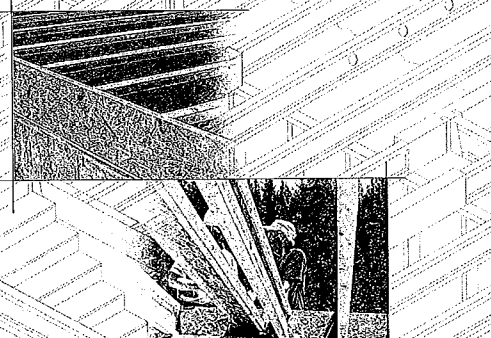
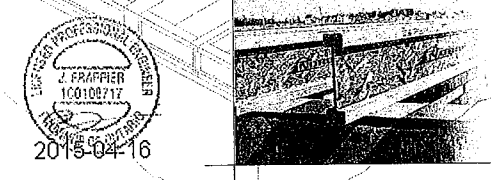



NORDIC

ENGINEERED WOOD

INSTALLATION GUIDE

FOR RESIDENTIAL FLOORS







2015-04-16

Distributed by:

SAFETY AND CONSTRUCTION PRECAUTIONS

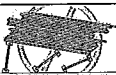


WARNING
I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.

Avoid Accidents by Following these Important Guidelines:

- Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-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.



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

STORAGE AND HANDLING GUIDELINES

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

MAXIMUM FLOOR SPANS

1. Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 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 I-joists are used with the spans and spacings given in this table, except as required for hangers.

5. This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the engineering properties.

6. Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.



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

Joist Depth	Joist Series	Simple spans On centre spacing				Multiple spans On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	13'-5"	16'-3"	15'-4"	14'-10"	14'-7"
	NI-40x	16'-1"	15'-2"	14'-8"	14'-9"	17'-5"	16'-5"	15'-10"	15'-5"
	NI-60	16'-3"	15'-4"	14'-10"	14'-11"	17'-7"	16'-7"	16'-0"	15'-5"
	NI-70	17'-1"	16'-1"	15'-6"	15'-7"	18'-7"	17'-4"	16'-9"	16'-10"
11-7/8"	NI-80	17'-3"	16'-3"	15'-8"	15'-9"	18'-10"	17'-6"	16'-11"	17'-0"
	NI-20	16'-11"	16'-0"	15'-5"	15'-6"	18'-4"	17'-3"	16'-8"	16'-7"
	NI-40x	18'-1"	17'-0"	16'-5"	16'-6"	20'-0"	18'-5"	17'-9"	17'-7"
	NI-60	18'-4"	17'-3"	16'-7"	16'-9"	20'-3"	18'-9"	18'-0"	18'-1"
14"	NI-70	19'-6"	18'-0"	17'-4"	17'-5"	21'-6"	19'-11"	19'-0"	19'-1"
	NI-80	19'-9"	18'-3"	17'-6"	17'-7"	21'-9"	20'-2"	19'-3"	19'-4"
	NI-90	20'-2"	18'-7"	17'-10"	17'-11"	22'-3"	20'-7"	19'-8"	19'-9"
	NI-90x	20'-4"	18'-9"	17'-11"	18'-0"	22'-5"	20'-9"	19'-10"	19'-11"
16"	NI-40x	20'-1"	18'-7"	17'-10"	17'-11"	22'-2"	20'-6"	19'-8"	19'-4"
	NI-60	20'-5"	18'-11"	18'-1"	18'-2"	22'-7"	20'-11"	20'-0"	20'-1"
	NI-70	21'-7"	20'-0"	19'-1"	19'-2"	23'-10"	22'-1"	21'-1"	21'-2"
	NI-80	21'-11"	20'-3"	19'-4"	19'-5"	24'-3"	22'-5"	21'-5"	21'-6"
18"	NI-90	22'-5"	20'-8"	19'-9"	19'-10"	24'-9"	22'-10"	21'-10"	21'-10"
	NI-90x	22'-7"	20'-11"	19'-11"	19'-12"	25'-0"	22'-11"	21'-11"	21'-11"
	NI-40x	22'-5"	20'-9"	19'-9"	19'-10"	24'-7"	22'-9"	21'-9"	21'-10"
	NI-60	23'-6"	21'-9"	20'-9"	20'-10"	26'-0"	24'-0"	22'-11"	23'-0"
20"	NI-70	23'-11"	22'-1"	21'-1"	21'-2"	26'-5"	24'-5"	23'-3"	23'-4"
	NI-80	24'-5"	22'-6"	21'-6"	21'-7"	27'-1"	24'-9"	23'-9"	23'-9"
	NI-90	24'-8"	22'-9"	21'-9"	21'-10"	27'-3"	25'-2"	24'-0"	24'-1"
	NI-90x	24'-8"	22'-9"	21'-9"	21'-10"	27'-3"	25'-2"	24'-0"	24'-1"

CCMC EVALUATION REPORT 13032-R

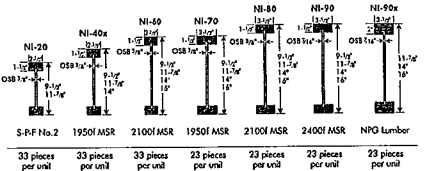
I-JOIST HANGERS

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

Face Mount

NORDIC I-JOIST SERIES



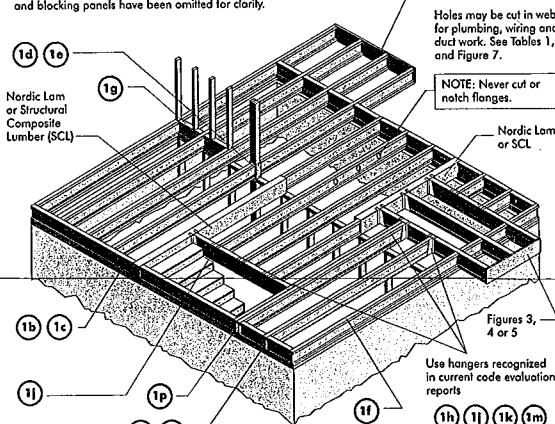
Chantiers Chibougamau Ltd. harvests its own trees, which enables Nordic products to adhere to strict quality control procedures throughout the manufacturing process. Every phase of the operation, from forest to the finished product, reflects our commitment to quality.

Nordic Engineered Wood I-joists use only finger-jointed black spruce lumber in their flanges, ensuring consistent quality, superior strength and longer span carrying capacity.

2015-04-16

INSTALLING NORDIC I-JOISTS

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



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

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

Figures 3, 4 or 5

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

NOTE: Never cut or notch flanges.

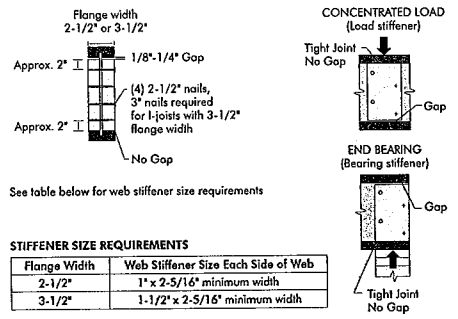
Nordic Lam or Structural Composite Lumber (SCL)

Nordic Lam or SCL

Figures 3, 4 or 5

Use hangers recognized in current code evaluation reports

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



**FIGURE 2
WEB STIFFENER INSTALLATION DETAILS**

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

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

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

CONCENTRATED LOAD (Load stiffener)

Tight Joint No Gap

END BEARING (Bearing stiffener)

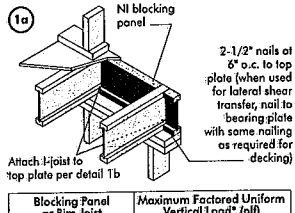
Tight Joint No Gap

See table below for web stiffener size requirements

STIFFENER SIZE REQUIREMENTS

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

SI units conversion: 1 inch = 25.4 mm



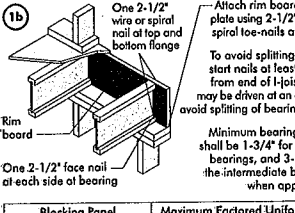
1a NI blocking panel

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

Attach I-joist to top plate per detail 1b

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

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



1b Rim board

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

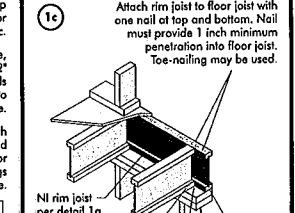
Attach rim board to top plate using 2-1/2" wire or spiral toe-nails at 6" o.c.

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

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

Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (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.



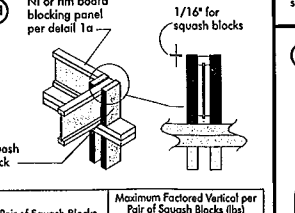
1c NI rim joist

Attach rim joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.

NI rim joist per detail 1a

Attach I-joist per detail 1b

Minimum 3-3/4" bearing required



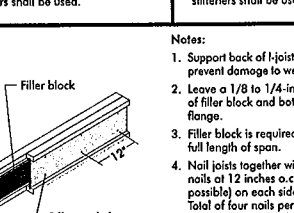
1d NI or rim board blocking panel

1/16" for squish blocks

Pair of Squash Blocks

Pair of Squash Blocks	Maximum Factored Uniform Vertical Load* (plf)
2x Lumber	5,500
1-1/8" Rim Board Plus	4,300

Provide lateral bracing per detail 1a, 1b, or 1c

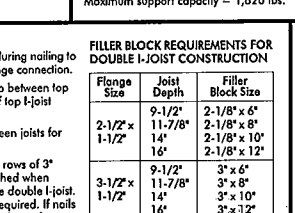


1e Top- or face-mount hanger

Installed per manufacturer's recommendations

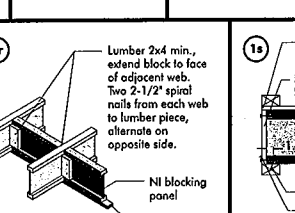
For nailing schedules for multiple beams, see the manufacturer's recommendations.

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



1f Wall sheathing, as required

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



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

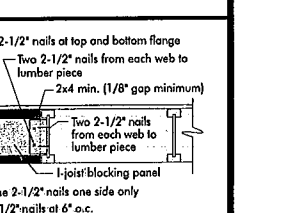
Blocking required over all interior supports under load-bearing walls or when floor joists are not continuous over support

NI blocking panel per detail 1a

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

Joist attachment per detail 1b

Maximum support capacity = 1,620 lbs.



1h Backer block (use if hanger load exceeds 360 lbs) Before installing a backer block to a double I-joist, drive three additional 3" nails through the webs and filler block where the backer block will fit. 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.

Double I-joist header

Top- or face-mount hanger

Filler block per detail 1p

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

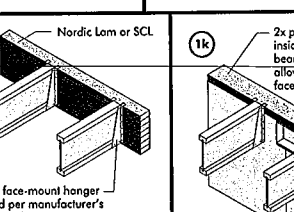
For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

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

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

* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-O325 or CAN/CSA-O437 Standard.

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



1i Filler block

Offset nails from opposite face by 6"

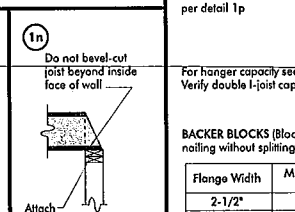
1/8" to 1/4" gap between top flange and filler block

Notes:

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

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

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

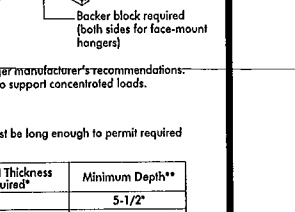


1j Top- or face-mount hanger

Installed per manufacturer's recommendations

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

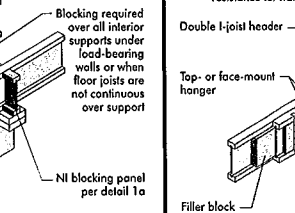
Maximum support capacity = 1,620 lbs.



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

Top-mount hanger installed per manufacturer's recommendations

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



1l Filler block

Offset nails from opposite face by 6"

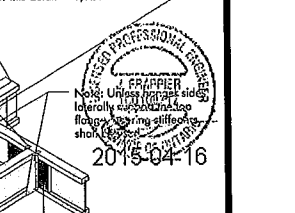
1/8" to 1/4" gap between top flange and filler block

Notes:

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

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

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



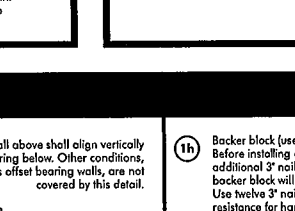
1m Multiple I-joist header with full depth filler block shown. Nordic Lam or SCL headers may also be used. Verify double I-joist capacity to support concentrated loads.

Filler block per detail 1p

Install hanger per manufacturer's recommendations

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

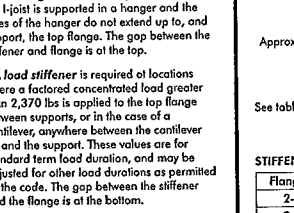
Maximum support capacity = 1,620 lbs.



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

Attach I-joist per detail 1b

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



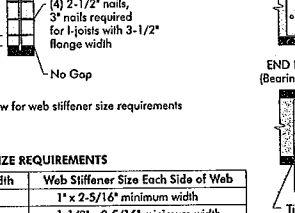
1o NI blocking panel

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

Attach I-joist to top plate per detail 1b

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

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



1p Filler block

Offset nails from opposite face by 6"

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

Notes:

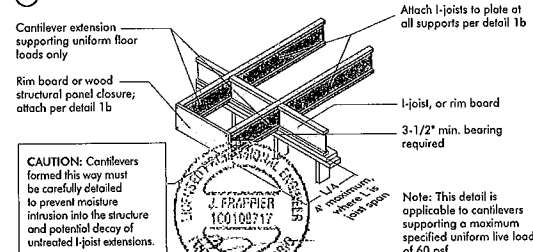
- Support back of I-joist webs during nailing to prevent damage to web/flange connection.
- Leave a 1/8 to 1/4 inch gap between top of filler block and bottom of top I-joist flange.
- Filler block is required between joists for full length of span.
- Nail joists together with two rows of 3" nails at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

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

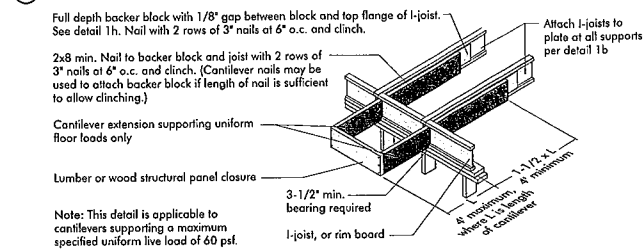
Flange Size	Joist Depth	Filler Block Size
2-1/2" x 1-1/2"	9-1/2"	2-1/8" x 6"
	11-7/8"	2-1/8" x 8"
	14"	2-1/8" x 10"
	16"	2-1/8" x 12"
3-1/2" x 1-1/2"	9-1/2"	3" x 6"
	11-7/8"	3" x 8"
	14"	3" x 10"
	16"	3" x 12"
3-1/2" x 2"	11-7/8"	3" x 7"
	14"	3" x 9"
	16"	3" x 11"

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

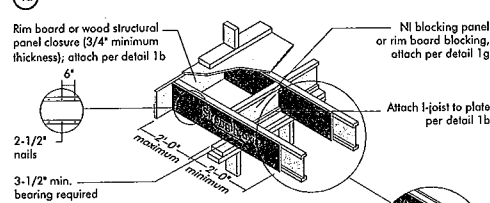


3b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)

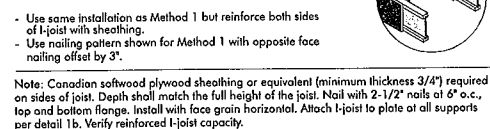


CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE



Method 2 — SHEATHING REINFORCEMENT TWO SIDES



4b Alternate Method 2 — DOUBLE I-JOIST

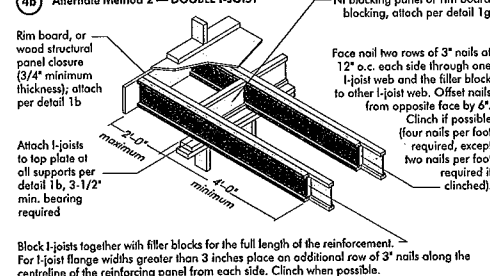
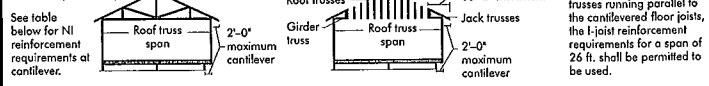


FIGURE 4 (continued)



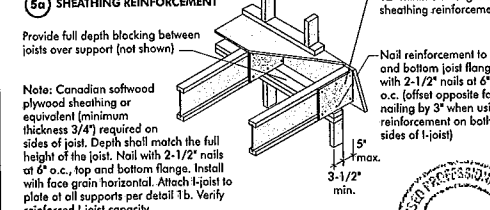
CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	LL = 30 psf, DL = 15 psf				LL = 40 psf, DL = 15 psf				LL = 50 psf, DL = 15 psf			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2"	26	N	N	1	2	N	1	2	X	N	2	X	X
	28	N	N	1	X	N	1	2	X	N	2	X	X
	30	N	N	1	X	N	1	2	X	N	2	X	X
	32	N	N	1	2	X	N	2	X	X	1	X	X
11-7/8"	26	N	N	1	2	N	1	2	X	N	2	X	X
	28	N	N	1	N	N	1	2	N	N	1	2	X
	30	N	N	1	N	N	1	2	N	N	1	2	X
	32	N	N	1	2	N	1	2	X	N	2	X	X
14"	26	N	N	1	2	N	1	2	X	N	2	X	X
	28	N	N	1	N	N	1	2	N	N	1	2	X
	30	N	N	1	N	N	1	2	N	N	1	2	X
	32	N	N	1	N	N	1	2	N	N	1	2	X
16"	26	N	N	1	N	N	1	2	N	N	1	2	X
	28	N	N	1	N	N	1	2	N	N	1	2	X
	30	N	N	1	N	N	1	2	N	N	1	2	X
	32	N	N	1	N	N	1	2	N	N	1	2	X

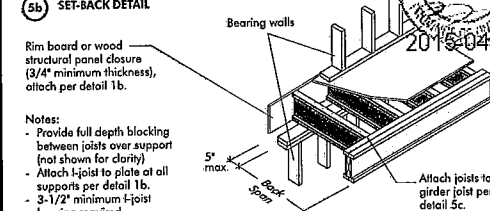
- N = No reinforcement required.
- N = NI reinforced with 3/4" wood structural panel on one side only.
- N = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
- X = Try a deeper joist or closer spacing.
- Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 psf wall load. Wall load is based on 3'-0" maximum width window or door openings.
- For larger openings, or multiple 3'-0" wide openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
3. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
- For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
5. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

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

5a SHEATHING REINFORCEMENT



5b SET-BACK DETAIL



5c SET-BACK CONNECTION

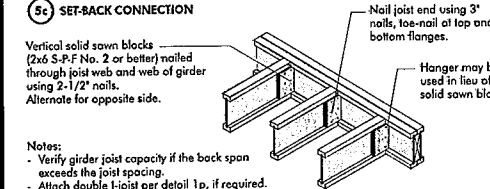
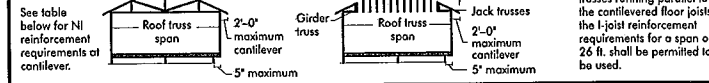


FIGURE 5 (continued)



BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	LL = 30 psf, DL = 15 psf				LL = 40 psf, DL = 15 psf				LL = 50 psf, DL = 15 psf			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2"	26	1	X	X	X	2	X	X	X	2	X	X	X
	28	1	X	X	X	2	X	X	X	2	X	X	X
	30	1	X	X	X	2	X	X	X	2	X	X	X
	32	2	X	X	X	2	X	X	X	2	X	X	X
11-7/8"	26	N	2	X	X	1	X	X	X	1	X	X	X
	28	N	2	X	X	1	X	X	X	1	X	X	X
	30	N	2	X	X	1	X	X	X	1	X	X	X
	32	N	2	X	X	1	X	X	X	1	X	X	X
14"	26	N	2	X	X	1	X	X	X	1	X	X	X
	28	N	2	X	X	1	X	X	X	1	X	X	X
	30	N	2	X	X	1	X	X	X	1	X	X	X
	32	N	2	X	X	1	X	X	X	1	X	X	X
16"	26	N	2	X	X	1	X	X	X	1	X	X	X
	28	N	2	X	X	1	X	X	X	1	X	X	X
	30	N	2	X	X	1	X	X	X	1	X	X	X
	32	N	2	X	X	1	X	X	X	1	X	X	X

- N = No reinforcement required.
- N = NI reinforced with 3/4" wood structural panel on one side only.
- N = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
- X = Try a deeper joist or closer spacing.
- Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 psf wall load. Wall load is based on 3'-0" maximum width window or door openings.
- For larger openings, or multiple 3'-0" wide openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
3. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
- For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
5. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

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 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 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 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

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.)														Span adjustment Factor
		Round hole diameter (in.)														
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4
9-1/2"	N-20	0.7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	N-40	0.7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	N-60	1.3	2.0	4.0	5.0	5.0	7.0	7.5	...	...	...	...	...	...	...	14.0
	N-80	2.0	3.0	4.0	5.0	5.0	8.0	8.0	...	...	...	...	...	...	...	15.0
11-7/8"	N-20	0.7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	N-40	0.7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	N-60	0.7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	N-80	1.3	2.0	4.0	5.0	5.0	7.0	7.5	8.0	10.0	11.0	...	...	...	...	17.0
14"	N-20	0.7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	N-40	0.7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	N-60	0.7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	N-80	1.3	2.0	4.0	5.0	5.0	7.0	7.5	8.0	10.0	11.0	...	...	...	...	17.0
16"	N-20	0.7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	N-40	0.7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	N-60	0.7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	N-80	1.3	2.0	4.0	5.0	5.0	7.0	7.5	8.0	10.0	11.0	...	...	...	...	17.0

- 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.

OPTIONAL:

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

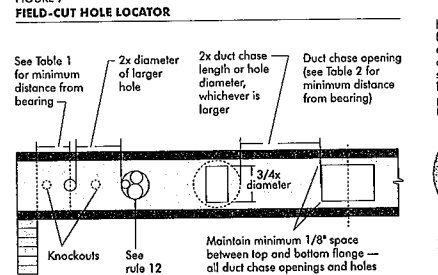
$$D_{reduced} = \frac{D_{actual} \times D}{D_{actual} \times D + x \times D}$$

Where:

- $D_{reduced}$ = Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span applications (ft-in.)
- D_{actual} = 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 $D_{reduced}$ is greater than 1, use 1 in the above calculation for $D_{reduced}$.

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.

Knockouts are predrilled holes provided for the contractor's convenience to install electrical or small plumbing lines. They are 1-1/2 inches in diameter, and are spaced 15 inches on centre along the length of the 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.

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

DUCT CHASE OPENING SIZES AND LOCATIONS – Simple Span Only												
Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of opening (ft-in.)										
		Duct chase length (in.)										
		8	10	12	14	16	18	20	22	24	26	28
9-1/2"	N-20	4.1	4.5	4.9	5.3	5.7	6.1	6.5	6.9	7.3	7.7	8.1
	N-40	4.1	4.5	4.9	5.3	5.7	6.1	6.5	6.9	7.3	7.7	8.1
	N-60	4.1	4.5	4.9	5.3	5.7	6.1	6.5	6.9	7.3	7.7	8.1
	N-80	4.1	4.5	4.9	5.3	5.7	6.1	6.5	6.9	7.3	7.7	8.1
11-7/8"	N-20	4.5	4.9	5.3	5.7	6.1	6.5	6.9	7.3	7.7	8.1	8.5
	N-40	4.5	4.9	5.3	5.7	6.1	6.5	6.9	7.3	7.7	8.1	8.5
	N-60	4.5	4.9	5.3	5.7	6.1	6.5	6.9	7.3	7.7	8.1	8.5
	N-80	4.5	4.9	5.3	5.7	6.1	6.5	6.9	7.3	7.7	8.1	8.5
14"	N-20	4.9	5.3	5.7	6.1	6.5	6.9	7.3	7.7	8.1	8.5	8.9
	N-40	4.9	5.3	5.7	6.1	6.5	6.9	7.3	7.7	8.1	8.5	8.9
	N-60	4.9	5.3	5.7	6.1	6.5	6.9	7.3	7.7	8.1	8.5	8.9
	N-80	4.9	5.3	5.7	6.1	6.5	6.9	7.3	7.7	8.1	8.5	8.9
16"	N-20	5.3	5.7	6.1	6.5	6.9	7.3	7.7	8.1	8.5	8.9	9.3
	N-40	5.3	5.7	6.1	6.5	6.9	7.3	7.7	8.1	8.5	8.9	9.3
	N-60	5.3	5.7	6.1	6.5	6.9	7.3	7.7	8.1	8.5	8.9	9.3
	N-80	5.3	5.7	6.1	6.5	6.9	7.3	7.7	8.1	8.5	8.9	9.3

- 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. For other applications, contact your local distributor.

INSTALLING THE GLUED FLOOR SYSTEM



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 centerline 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 centered on the middle of the web.
- The maximum size hole or the maximum depth of a duct chase opening that can be cut into 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 shall 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.)											
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4
9-1/2"	NI-20	0-7"	1-6"	2-10"	4-3"	5-8"	6-0"	---	---	---	---	---	---
	NI-40x	0-7"	1-6"	3-0"	4-4"	6-0"	6-4"	---	---	---	---	---	---
	NI-60	1-2"	2-6"	4-0"	5-4"	7-0"	7-5"	---	---	---	---	---	---
	NI-70	2-0"	3-4"	4-9"	6-3"	8-0"	8-4"	---	---	---	---	---	---
	NI-80	2-8"	3-6"	5-0"	6-6"	8-2"	8-8"	---	---	---	---	---	---
11-7/8"	NI-20	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---
	NI-40x	0-7"	0-8"	1-3"	2-8"	4-0"	4-4"	5-5"	7-0"	8-4"	---	---	---
	NI-60	0-7"	1-6"	3-0"	4-3"	5-9"	6-0"	7-3"	8-10"	10-0"	---	---	---
	NI-70	1-3"	2-6"	4-0"	5-4"	6-9"	7-2"	8-4"	10-0"	11-2"	---	---	---
	NI-80	1-6"	2-10"	4-2"	5-6"	7-0"	7-5"	8-6"	10-3"	11-4"	---	---	---
14"	NI-20	0-7"	0-8"	1-5"	3-2"	4-10"	5-4"	6-9"	8-9"	10-2"	---	---	---
	NI-40x	0-7"	0-8"	0-9"	2-5"	4-4"	4-9"	6-3"	---	---	---	---	---
	NI-60	0-7"	0-8"	0-8"	1-0"	2-4"	2-9"	3-9"	5-0"	6-6"	8-3"	10-2"	---
	NI-70	0-8"	0-8"	1-8"	3-0"	4-3"	4-8"	5-8"	7-2"	8-0"	9-8"	11-9"	---
	NI-80	0-8"	1-10"	3-0"	4-5"	5-10"	6-2"	7-3"	8-9"	9-9"	10-4"	12-0"	13-5"
16"	NI-20	0-7"	0-8"	0-8"	1-6"	2-10"	3-2"	4-2"	5-6"	6-4"	7-0"	8-5"	9-8"
	NI-40x	0-7"	0-8"	0-8"	1-0"	2-4"	2-9"	3-9"	5-0"	6-6"	8-3"	10-2"	12-8"
	NI-60	0-7"	0-8"	1-8"	3-0"	4-3"	4-8"	5-8"	7-2"	8-0"	9-8"	11-9"	13-5"
	NI-70	0-8"	1-10"	3-0"	4-5"	5-10"	6-2"	7-3"	8-9"	9-9"	10-4"	12-0"	13-5"
	NI-80	0-8"	1-10"	3-0"	4-5"	5-10"	6-2"	7-3"	8-9"	9-9"	10-4"	12-0"	13-5"

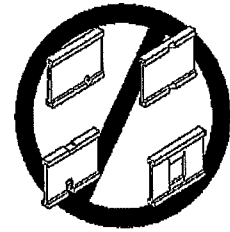
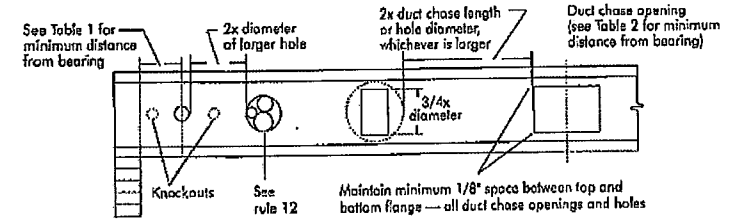
- Above table may be used for I-joist spacing of 24 inches on centre or less.
- Hole location distance is measured from inside face of supports to centre of hole.
- Distances in this chart are based on uniformly loaded joists.
- The above table is based on the I-joists being used of their maximum spans.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

TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS
Simple Span Only

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

- 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 of their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

FIGURE 7
FIELD-CUT HOLE LOCATOR



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

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

Holes in webs should be cut with a sharp saw.

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

SAFETY AND CONSTRUCTION PRECAUTIONS



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



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

- WARNING: I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.
- AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:
- Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-briding at joist ends. When I-joists are applied continuously over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
 - When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called stilt, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
 - Temporary bracing or stilts 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. Lap ends of adjoining bracing over at least two I-joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
 - For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-briding.
 - Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
 - Never install a damaged I-joist.
- Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines carefully.

CHANTIER CHIBOUGAMAU

PRODUCT WARRANTY

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

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

1a

NI blocking panel

Blocking Panel or Rim Joist

Maximum Factored Vertical Load* (plf)

NI Joists

3,300

*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a 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)

Attach I-joist to top plate per detail 1b

1d

NI or rim board blocking panel per detail 1a

Squash block

Pair of Squash Blocks

2x Lumber

1-1/8" Rim Board Plus

Maximum Factored Vertical Load per Pair of Squash Blocks (lbs)

3-1/2" wide	5-1/2" wide
5,500	8,500
4,300	6,600

Provide lateral bracing per detail 1a or 1b

1h

Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double I-joist, drive three additional 3" nails through the webs and filler block where the backer block will fit. 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.

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

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

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

1k

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

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

Top-mount hanger installed per manufacturer's recommendations

1m

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

Filler block per detail 1p

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

Install hanger per manufacturer's recommendations

Maximum support capacity = 1,620 lbs.

1p

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

Filler block

Offset nails from opposite face by 6"

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

NOTES:

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

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

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS

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

Approx. 2" I

1/8"-1/4" Gap

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

No Gap

CONCENTRATED LOAD (Load stiffener)

Tight Joint No Gap

END BEARING (Bearing stiffener)

Gap

Tight Joint No Gap

STIFFENER SIZE REQUIREMENTS

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

See the adjacent table for web stiffener size requirements

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

4a

Method 1 — SHEATHING REINFORCEMENT ONE SIDE

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

2-1/2" nails

3-1/2" min. bearing required

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

Attach I-joist to plate per detail 1b

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") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c. top and bottom flange. Install with face grain horizontal. Attach I-joist to plate of all supports per detail 1b. Verify reinforced I-joist capacity.

RIM BOARD INSTALLATION DETAILS

8a

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

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

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

1-1/2" nails

8b

TOE-NAIL CONNECTION AT RIM BOARD

Rim board

Top or sole plate

30°

2/3

NORDIC STRUCTURES

COMPANY
J9 1ST FLOOR
Oct. 26, 2018 08:17

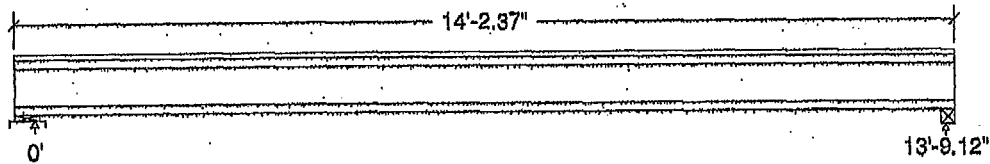
PROJECT
J1 1ST FLOOR
J1 1ST FLOOR

Design Check Calculation Sheet Nordic Sizer - Canada 7.1

Loads:

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

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



Unfactored:			
Dead	183		183
Live	367		367
Factored:			
Total	780		780
Bearing:			
Resistance			
Joist	1893		1869
Support	6734		-
Des ratio			
Joist	0.41		0.42
Support	0.12		-
Load case	#2		#2
Length	4-3/8		2-5/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		-
fcp sup	769		-
Kzcp sup	1.00		-



Nordic 9-1/2" NI-40x Floor Joist @ 16" o.c.

Supports: 1 - Lumber Sill plate, No.1/No.2; 2 - Steel Beam, W;
Total length: 14'-2.37"; Clear span: 13'-7.36"; 5/8" nailed and glued OSB sheathing
This section PASSES the design code check.

Limit States Design using CSA-O86-09 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 780	Vr = 1895	lbs	Vf/Vr = 0.41
Moment(+)	Mf = 2682	Mr = 4824	lbs-ft	Mf/Mr = 0.56
Perm. Defl'n	0.09 = < L/999	0.46 = L/360	in	0.20
Live Defl'n	0.19 = L/891	0.34 = L/480	in	0.54
Total Defl'n	0.28 = L/594	0.69 = L/240	in	0.40
Bare Defl'n	0.22 = L/744	0.46 = L/360	in	0.48
Vibration	Lmax = 13'-9.1	Lv = 15'-4.4	ft	0.90
Defl'n	= 0.034	= 0.049	in	0.70

DWG NO. TAN-22-7318A
STRUCTURAL
COMPONENT ONLY

T-1902340

Additional Data:

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

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L

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

Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

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

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

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

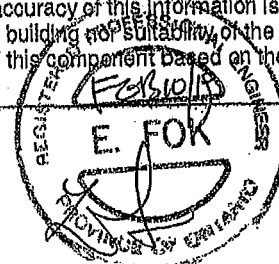
All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:Deflection: E_{eff} = 268e06 lb-in² K = 4.94e06 lbs

"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

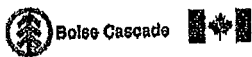
Design Notes:**CONFORMS TO OBC 2012**

1. WoodWorks analysis and design are in accordance with the 2010 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-09 Engineering Design in Wood standard, which includes Update No.1
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



OWN NO. YAM 22-73184
 STRUCTURAL
 COMPONENT ONLY

T-190234760



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B1(1698)

Dry | 1 span | No cant.

October 26, 2018 08:05:03

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: ST...NES

Customer:

Code reports: CCMC 12472-R

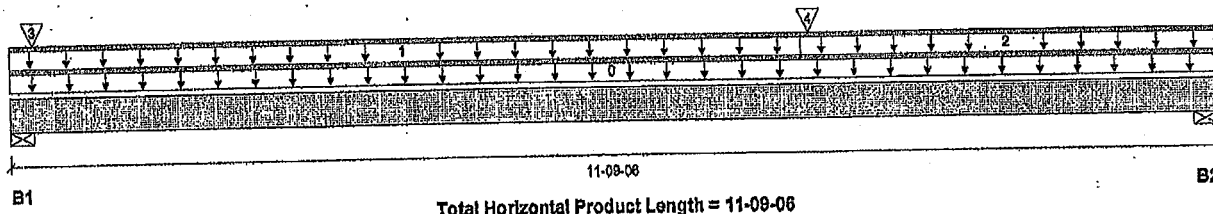
File name: TH8C.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B1(1698)

Specifier:

Designer:

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	672 / 0	1,537 / 0		
B2, 4-3/8"	511 / 0	289 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-09-06	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-08-08	Top	15	8			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	07-08-08	11-09-06	Top	39	19			n/a
3		Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	397	1,368			n/a
4	B8(1763)	Conc. Pt. (lbs)	L	07-09-06	07-09-06	Top	513	265			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3,469 ft-lbs	11,610 ft-lbs	29.9%	1	07-09-06
End Shear	1,026 lbs	5,785 lbs	17.7%	1	10-07-08
Total Load Deflection	L/736 (0.181")	n/a	32.6%	4	06-03-09
Live Load Deflection	L/999 (0.115")	n/a	n/a	5	06-04-12
Max Defl.	0.181"	n/a	n/a	4	06-03-09
Span / Depth	14.0				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	2,152 lbs	80.5%	28.2%	Unspecified
B2	Wall/Plate 4-3/8" x 1-3/4"	1,128 lbs	34.5%	12.1%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO CBC 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.

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OWNED BY TAM 2017-18
STRUCTURAL
COMPONENT ONLY

T-19023408



Boise Cascade



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B10L(1670)

Dry | 1 span | No cant.

October 26, 2018 08:05:03

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: ST ...NES

Customer:

Code reports: CCMC 12472-R

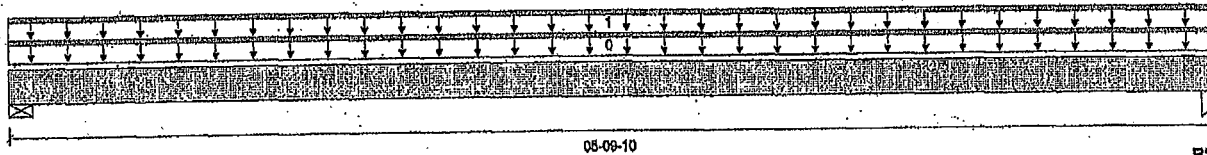
File name: TH8C.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B10L(1670)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 05-09-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	58 / 0	43 / 0		
B2, 1-3/4"	54 / 0	40 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-09-10	Top	1.00	0.85	1.00	1.15	00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-09-10	Top	19	10			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	171 ft-lbs	11,610 ft-lbs	1.6%	1	03-00-02
End Shear	87 lbs	5,785 lbs	1.5%	1	01-01-14
Total Load Deflection	L/999 (0.003")	n/a	n/a	4	03-00-02
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	03-00-02
Max Defl.	0.003"	n/a	n/a	4	03-00-02
Span / Depth	6.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 1-3/4"	141 lbs	4.3%	1.5%	Unspecified
B2	Column 1-3/4" x 1-3/4"	131 lbs	6.6%	3.5%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

Disclosure

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OWNED BY TAM 2275-18H
STRUCTURAL
COMPONENT ONLY

T-1902409



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B11L(I658)

Dry | 1 span | No cant.

October 26, 2018 08:05:03

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: ST ...NES

Customer:

Code reports: CCMC 12472-R

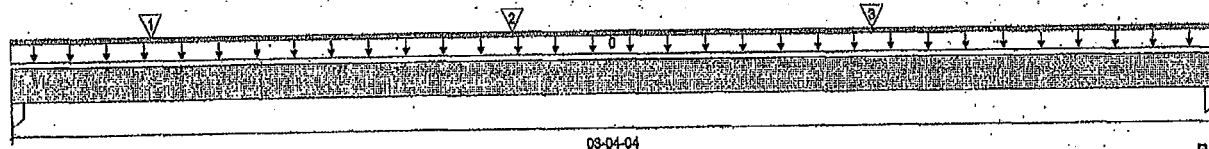
File name: TH8C.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B11L(I658)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 03-04-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	197 / 0	106 / 0		
B2, 3-1/2"	148 / 0	83 / 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	03-04-04	Top	1.00	0.65	1.00	1.15	00-00-00
1	J7(I735)	Conc. Pt. (lbs)	L	00-04-12	00-04-12	Top	116	58			n/a
2	J7(I802)	Conc. Pt. (lbs)	L	01-04-12	01-04-12	Top	116	58			n/a
3	J7(I881)	Conc. Pt. (lbs)	L	02-04-12	02-04-12	Top	113	57			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	310 ft-lbs	11,810 ft-lbs	2.7%	1	01-04-12
End Shear	281 lbs	5,785 lbs	4.9%	1	02-03-04
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	01-07-01
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	01-07-01
Max Defl.	0.001"	n/a	n/a	4	01-07-01
Span / Depth	3.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 1-3/4" x 1-3/4"	429 lbs	21.5%	11.5%	Unspecified
B2	Column 3-1/2" x 1-3/4"	325 lbs	8.2%	4.4%	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 DBC 2012

Disclosure

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 Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

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DWG NO. TAM 2276-184
 STRUCTURAL
 COMPONENT ONLY

T-1902350



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B12L(1520)

Dry | 1 span | No cant.

October 26, 2018 08:05:03

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: ST ...NES

Customer:

Code reports: CCMC 12472-R

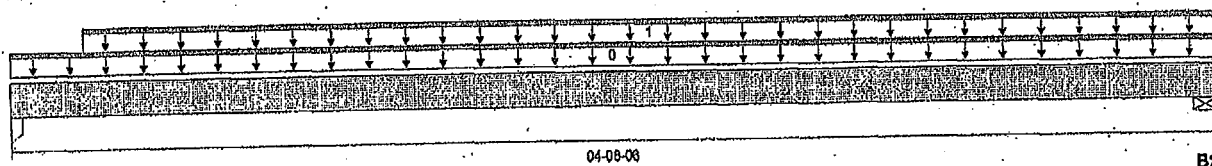
File name: TH8C.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B12L(1520)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 04-08-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	24 / 0	23 / 0		
B2, 4-3/8"	29 / 0	26 / 0		

Load Summary

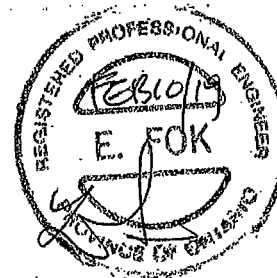
Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-08-06	Top	1.00	0.65	1.00	1.15	00-00-00
1	FG1 Floor Material	Unf. Lin. (lb/ft)	L	00-03-08	04-08-06	Top	12	6			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	69 ft-lbs	11,610 ft-lbs	0.6%	1	02-03-12
End Shear	30 lbs	5,785 lbs	0.7%	1	01-01-00
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	02-03-12
Live Load Deflection	L/999 (0")	n/a	n/a	5	02-03-12
Max Defl.	0.001"	n/a	n/a	4	02-03-12
Span / Depth	5.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	66 lbs	1.7%	0.9%	Unspecified
B2	Wall/Plate 4-3/8" x 1-3/4"	76 lbs	2.3%	0.8%	Unspecified



Notes

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

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

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA Q86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA Q86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO CBC 2012

Disclosure

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Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0768 before installation.

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DWG NO. YAM 2277-184
STRUCTURAL
COMPONENT ONLY

T-1902351



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B2(i847)

Dry | 1 span | No cant.

October 26, 2018 08:05:03

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: ST...NES

Customer:

Code reports: CCMC 12472-R

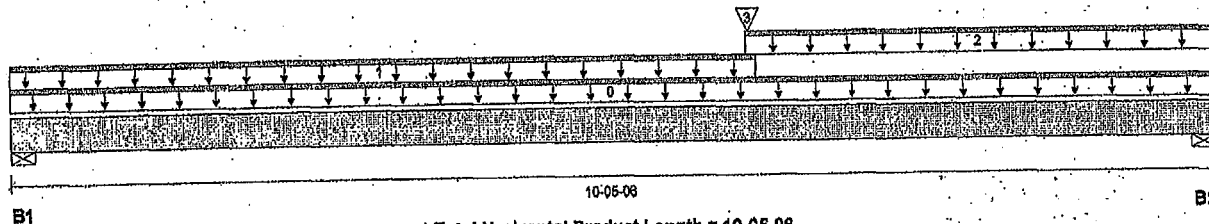
File name: TH8C.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B2(i847)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 10-06-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	327 / 0	496 / 0		
B2, 4-3/8"	582 / 0	464 / 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	10-05-06	Top		10			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	06-05-09	Top		60			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	06-04-08	10-05-08	Top	27	13			n/a
3		Conc. Pt. (lbs)	L	06-04-12	06-04-12	Top	800	417			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4,825 ft-lbs	21,027 ft-lbs	22.9%	1	06-06-06
End Shear	1,374 lbs	11,571 lbs	11.9%	1	09-03-08
Total Load Deflection	L/999 (0.101")	n/a	n/a	4	05-06-01
Live Load Deflection	L/999 (0.053")	n/a	n/a	5	05-07-14
Max Defl.	0.101"	n/a	n/a	4	05-06-01
Span / Depth	12.3				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	1,110 lbs	8.9%	4.7%	Unspecified
B2	Wall/Plate 4-3/8" x 3-1/2"	1,453 lbs	22.2%	7.8%	Unspecified

Notes

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

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

Calculations assume unbraced length of Top: 05-07-00, Bottom: 05-07-00.

Resistance Factor phi has been applied to all presented results per CSA Q86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA Q86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

CONFORMS TO OBC 2012

DWG NO. YAM 2208-18H
STRUCTURAL
COMPONENT ONLY

T-1802352



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B2(1847)

Dry | 1 span | No cant.

October 26, 2018 08:05:03

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: ST ...NES

Customer:

Code reports: CCMC 12472-R

File name: TH8C.mmd

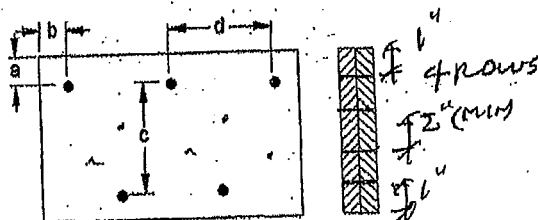
Description: 1ST FLOOR FRAMING\Flush Beams\B2(1847)

Specifier:

Designer:

Company:

Connection Diagram: Full Length of Member



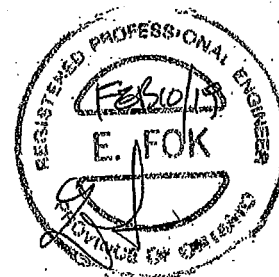
a minimum = 1"
b minimum = 3"

c = 7 1/2"
d = 6"

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

Connectors are:

3 1/2" ARDOX SPIRAL



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OWEN, TAM 2278 2181
STRUCTURAL
COMPONENT ONLY

T-1902352(L)



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B3(1828)

Dry | 1 span | No cant.

October 26, 2018 08:05:03

BC CALC® Member Report

Build 6476

Job name:

File name: TH8C.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B3(1828)

City, Province, Postal Code: ST...NES

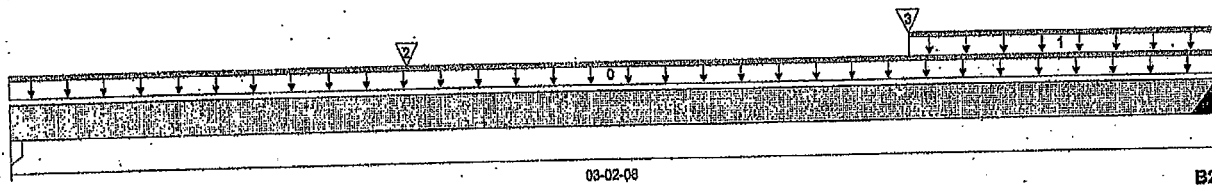
Specifier:

Customer:

Designer:

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 03-02-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	96 / 0	58 / 0		
B2, 2"	116 / 0	65 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-02-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	02-04-12	03-02-08	Top	13	7			n/a
2	J7(1774)	Conc. Pt. (lbs)	L	01-00-12	01-00-12	Top	108	54			n/a
3	J7(1771)	Conc. Pt. (lbs)	L	02-04-12	02-04-12	Top	93	46			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	205 ft-lbs	11,610 ft-lbs	1.8%	1	01-00-12
End Shear	209 lbs	5,785 lbs	3.6%	1	02-03-00
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	01-07-00
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	01-07-00
Max Defl.	0.001"	n/a	n/a	4	01-07-00
Span / Depth	3.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 1-3/4" x 1-3/4"	213 lbs	10.7%	5.7%	Unspecified
B2	Hanger 2" x 1-3/4"	255 lbs	n/a	6.0%	Hanger

Cautions

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

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Hanger Manufacturer: Unassigned
 Resistance Factor phi has been applied to all presented results per CSA Q86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA Q86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9

CONFORMS TO QBC 2012

Disclosure

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 Installation of Bolsa 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®.

BWB NO. YAW 2259-18H
 STRUCTURAL
 COMPONENT ONLY

T-19023053



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B4\I695)

Dry | 1 span | No cant.

October 26, 2018 08:05:03

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: ST...NES

Customer:

Code reports: CCMC 12472-R

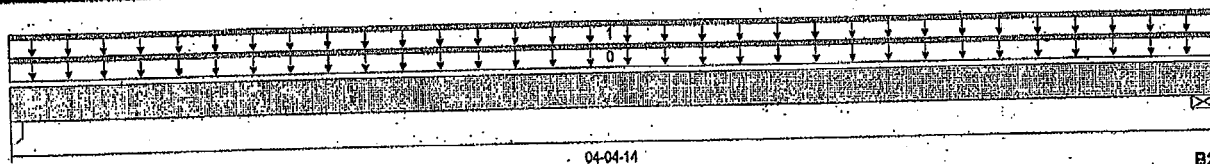
File name: TH8C.mmd\

Description: 1ST FLOOR FRAMING\Flush Beams\B4\I695)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 04-04-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	62 / 0	37 / 0		
B2, 4-3/8"	64 / 0	38 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-04-14	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-04-14	Top	24	12			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	108 ft-lbs	11,610 ft-lbs	0.9%	1	02-02-00
End Shear	82 lbs	6,786 lbs	1.1%	1	01-01-00
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	02-02-00
Live Load Deflection	L/999 (0")	n/a	n/a	5	02-02-00
Max Defl.	0.001"	n/a	n/a	4	02-02-00
Span / Depth	4.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	124 lbs	3.1%	1.7%	Unspecified
B2	Wall/Plate 4-3/8" x 1-3/4"	126 lbs	3.9%	1.4%	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

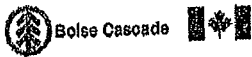
Disclosure

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

BWB NO. 1111 220218H
STRUCTURAL
COMPONENT ONLY

T-1902354



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B5(1708)

October 26, 2018 08:05:03

BC CALCO® Member Report

Build 8475

Job name:

Address:

City, Province, Postal Code: ST...NES

Customer:

Code reports: CCMC 12472-R

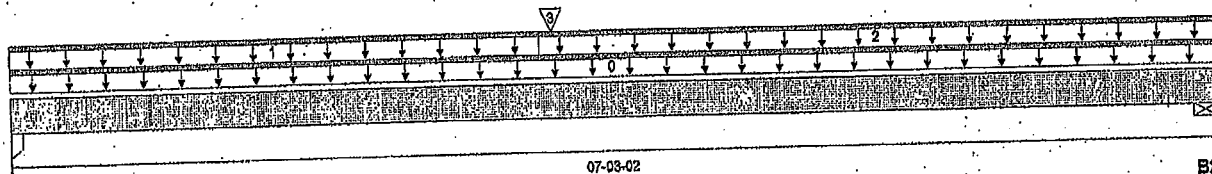
File name: TH8C.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B5(1708)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 07-03-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	350 / 0	197 / 0		
B2, 4-3/8"	352 / 0	198 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-03-02	Top	14	7			n/a
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-02-04	Top	33	17			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	03-02-04	07-03-02	Top	622	270			n/a
3	B8(1763)	Conc. Pt. (lbs)	L	03-03-02	03-03-02	Top					n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,258 ft-lbs	11,610 ft-lbs	19.4%	1	03-03-02
End Shear	737 lbs	5,785 lbs	12.7%	1	00-11-04
Total Load Deflection	L/999 (0.045")	n/a	n/a	4	03-05-04
Live Load Deflection	L/999 (0.029")	n/a	n/a	5	03-05-04
Max Defl.	0.045"	n/a	n/a	4	03-05-04
Span / Depth	8.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 1-3/4" x 1-3/4"	770 lbs	38.7%	20.6%	Unspecified
B2	Wall/Plate 4-3/8" x 1-3/4"	776 lbs	23.7%	8.3%	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 9

CONFORMS TO OBC 2012

Disclosure

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 Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

BC CALCO®, BC FRAMER®, A1ST™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®.

DWG NO. YAM1281-TH
 STRUCTURAL
 COMPONENT ONLY

T-1902355



Boise Cascade



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B6\B36

Dry | 1 span | No cant.

October 26, 2018 08:05:03

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: ST ...NES

Customer:

Code reports: CCMC 12472-R

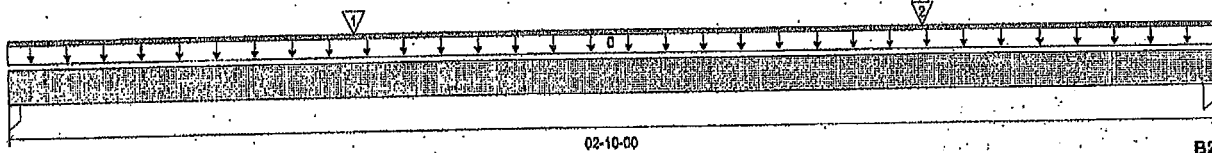
File name: TH8C.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B6\B36

Specifier:

Designer:

Company:



Total Horizontal Product Length = 02-10-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	144 / 0	78 / 0		
B2, 3-1/2"	166 / 0	91 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	02-10-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	J6(1734)	Conc. Pt. (lbs)	L	00-09-12	00-09-12	Top	165	82			n/a
2	J6(1687)	Conc. Pt. (lbs)	L	02-01-12	02-01-12	Top	145	73			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	226 ft-lbs	11,610 ft-lbs	1.9%	1	00-09-12
End Shear	252 lbs	6,785 lbs	4.4%	1	00-11-04
Total Load Deflection	L/899 (0.001")	n/a	n/a	4	01-03-13
Live Load Deflection	L/899 (0")	n/a	n/a	5	01-03-13
Max Defl.	0.001"	n/a	n/a	4	01-03-13
Span / Depth	3.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 1-3/4" x 1-3/4"	313 lbs	15.7%	8.4%	Unspecified
B2	Column 3-1/2" x 1-3/4"	363 lbs	9.1%	4.9%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO QBC 2012

Disclosure

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BY WHU, TAM 220218H
STRUCTURAL
COMPONENT ONLY

T-1902356



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

PASSED

1ST FLOOR FRAMING/Flush Beams/B7(I701)

Dry | 1 span | No cant.

October 28, 2018 08:05:03

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: ST...NES

Customer:

Code reports: CCMC 12472-R

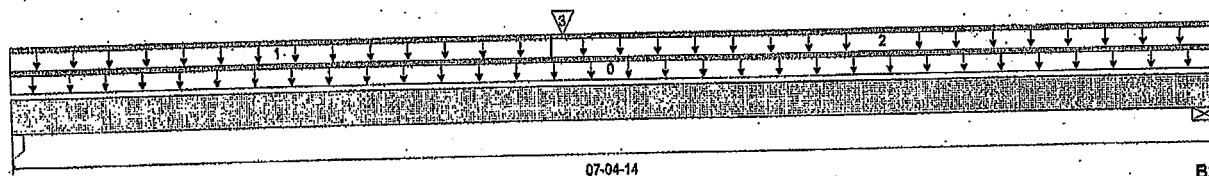
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Description: 1ST FLOOR FRAMING/Flush Beams/B7(I701)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 07-04-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	434 / 0	240 / 0		
B2, 4-3/8"	444 / 0	244 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-04-14	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	03-04-00	Top	19	10			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	03-04-00	07-04-14	Top	47	23			n/a
3	B9(863)	Conc. Pt. (lbs)	L	03-04-14	03-04-14	Top	624	322			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,753 ft-lbs	11,610 ft-lbs	23.7%	1	03-04-14
End Shear	901 lbs	5,785 lbs	15.6%	1	01-01-00
Total Load Deflection	L/999 (0.055")	n/a	n/a	4	03-07-00
Live Load Deflection	L/999 (0.036")	n/a	n/a	6	03-07-00
Max Defl.	0.055"	n/a	n/a	4	03-07-00
Span / Depth	8.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	952 lbs	23.9%	12.7%	Unspecified
B2	Wall/Plate 4-3/8" x 1-3/4"	871 lbs	29.7%	10.4%	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

QQNFORMS TO OBG 2012

Disclosure

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 Installation of Boise Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.

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STRUCTURAL
COMPONENT ONLY

T-1902357



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B8(1763)

Dry | 1 span | No cant.

October 26, 2018 08:05:03

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: ST ...NES

Customer:

Code reports: CCMC 12472-R

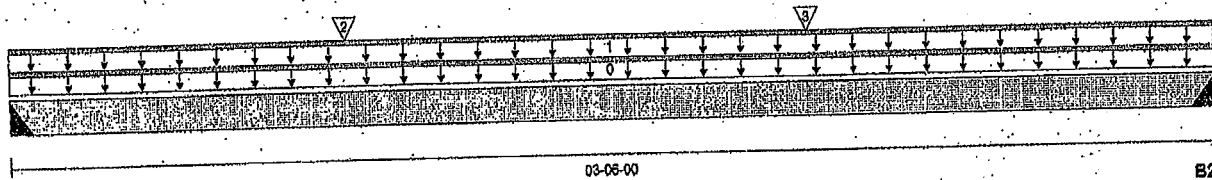
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Description: 1ST FLOOR FRAMING\Flush Beams\B8(1763)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 03-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	522 / 0	270 / 0		
B2, 2"	513 / 0	265 / 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	03-06-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-06-00	Top	240	120			n/a
2	J8(1780)	Conc. Pt. (lbs)	L	00-11-12	00-11-12	Top	93	47			n/a
3	J8(1860)	Conc. Pt. (lbs)	L	02-03-12	02-03-12	Top	102	51			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	903 ft-lbs	11,610 ft-lbs	7.8%	1	01-08-04
End Shear	625 lbs	5,785 lbs	10.8%	1	00-11-08
Total Load Deflection	L/999 (0.005")	n/a	n/a	4	01-09-04
Live Load Deflection	L/999 (0.003")	n/a	n/a	5	01-09-04
Max Defl.	0.005"	n/a	n/a	4	01-09-04
Span / Depth	4.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	2" x 1-3/4"	1,120 lbs	n/a	26.2%	Hanger
B2 Hanger	2" x 1-3/4"	1,101 lbs	n/a	25.8%	Hanger

Cautions

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

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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OWNED BY 2284-18H
STRUCTURAL
COMPONENT ONLY

T-1902358



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B9(1863)

Dry | 1 span | No cant.

October 26, 2018 08:06:03

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: ST ...NES

Customer:

Code reports: CCMC 12472-R

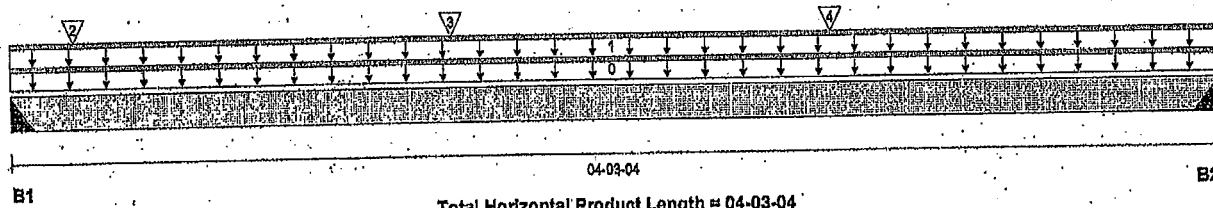
File name: TH8C.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B9(1863)

Specifier:

Designer:

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	678 / 0	349 / 0		
B2, 2"	627 / 0	323 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-06-00	04-03-04	Top	6				00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	04-03-04	Top	240	120			n/a
2	J8(1751)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	67	33			n/a
3	J8(1863)	Conc. Pt. (lbs)	L	01-06-12	01-06-12	Top	104	62			n/a
4	J8(1866)	Conc. Pt. (lbs)	L	02-10-12	02-10-12	Top	109	64			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,381 ft-lbs	11,610 ft-lbs	11.9%	1	02-01-04
End Shear	860 lbs	5,785 lbs	14.7%	1	03-03-12
Total Load Deflection	L/999 (0.012")	n/a	n/a	4	02-01-12
Live Load Deflection	L/999 (0.008")	n/a	n/a	5	02-01-12
Max Defl.	0.012"	n/a	n/a	4	02-01-12
Span / Depth	5.1				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	1,463 lbs	n/a	34.0%	Hanger
B2	Hanger 2" x 1-3/4"	1,344 lbs	n/a	31.5%	Hanger

Cautions

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

Notes

- Design meets Code minimum (L/240) Total load deflection criteria.
- Design meets Code minimum (L/360) Live load deflection criteria.
- Calculations assume member is fully braced.
- Hanger Manufacturer: Unassigned
- Resistance Factor phi has been applied to all presented results per CSA Q86.
- BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA Q86.
- Design based on Dry Service Condition.
- Importance Factor: Normal Part code: Part 9

CONFORMS TO QBC 2012

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

OWNED BY 2205-184
STRUCTURAL
COMPONENT ONLY

T-1902359



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B13(I710)

Dry | 1 span | No cant.

October 26, 2018 08:05:03

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: ST...NES

Customer:

Code reports: CCMC 12472-R

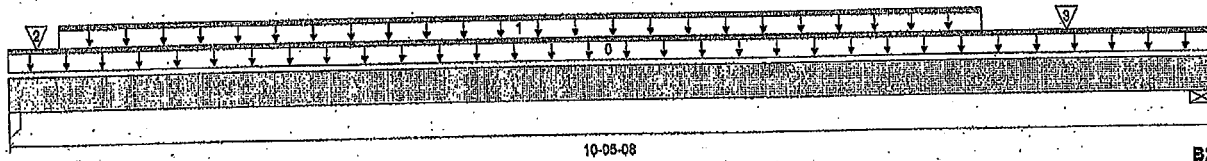
File name: TH8C.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B13(I710)

Specifier:

Designer:

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	2,185 / 0	1,143 / 0		
B2, 5-1/2"	2,005 / 0	1,055 / 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	10-05-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-05-08	08-05-08	Top	435	218			n/a
2	J3(I697)	Conc. Pt. (lbs)	L	00-03-02	00-03-02	Top	223	111			n/a
3	-	Conc. Pt. (lbs)	L	09-02-04	09-02-04	Top	485	242			n/a

Controls Summary

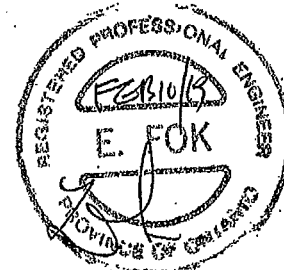
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	11,468 ft-lbs	23,220 ft-lbs	49.5%	1	05-01-08
End Shear	4,279 lbs	11,571 lbs	37.0%	1	09-02-08
Total Load Deflection	L/419 (0.283")	n/a	57.3%	4	05-01-08
Live Load Deflection	L/637 (0.186")	n/a	56.5%	5	05-01-08
Max Defl.	0.283"	n/a	n/a	4	05-01-08
Span / Depth	12.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3" x 3-1/2"	4,706 lbs	68.0%	36.7%	Unspecified
B2	Wall/Plate 5-1/2" x 3-1/2"	4,326 lbs	52.6%	18.4%	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.



CONFORMS TO UBC 2012

DWG NO. YAM 2206-18H
 STRUCTURAL
 COMPONENT ONLY

T-1902860



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B13(I710)

Dry | 1 span | No cant.

October 26, 2018 08:05:03

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: ST ...NES

Customer:

Code reports: CCMC 12472-R

File name: TH8C.mmdl

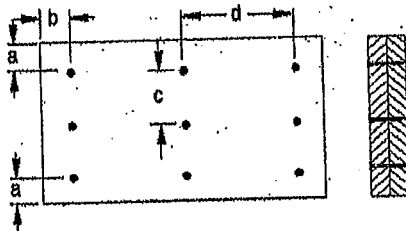
Description: 2ND FLOOR FRAMING\Flush Beams\B13(I710)

Specifier:

Designer:

Company:

Connection Diagram: Full Length of Member

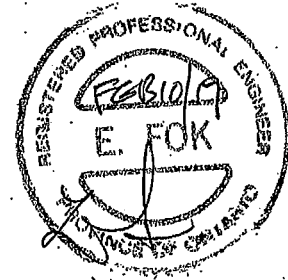


a minimum = 2"
b minimum = 3"

c = 2-3/4"
d = 6"

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

3 1/2" ARDUX 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. TAW 2206-18H
STRUCTURAL
COMPONENT ONLY

T-1902360(1)



Boise Cascade

Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP**PASSED****2ND FLOOR FRAMING Flush Beams B14(I754)**

Dry | 1 span | No cant.

October 26, 2018 08:05:03

BC CALCO® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: ST. J. NES

Customer:

Code reports: CCMC 12472-R

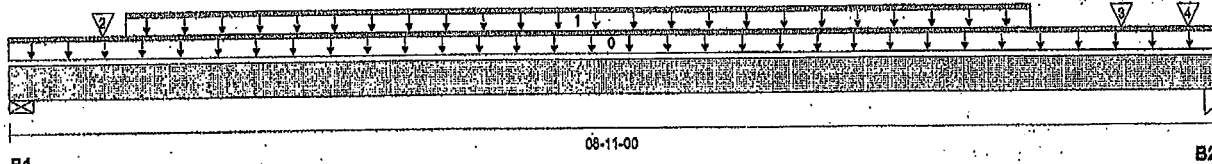
File name: TH8C.mmdl

Description: 2ND FLOOR FRAMING Flush Beams B14(I754)

Specifier:

Designer:

Company:

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

Bearing	Live	Dead	Snow	Wind
B1, 6-1/2"	1,991 / 0	1,039 / 0		
B2, 3"	2,179 / 0	1,132 / 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	08-11-00	Top	1.00	0.66	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-10-08	07-06-08	Top	492	246			n/a
2	J3(I823)	Conc. Pt. (lbs)	L	00-08-08	00-08-08	Top	285	142			n/a
3	J1(I827)	Conc. Pt. (lbs)	L	08-02-08	08-02-08	Top	326	163			n/a
4	J3(I675)	Conc. Pt. (lbs)	L	08-08-08	08-08-08	Top	279	140			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	9,151 ft-lbs	23,220 ft-lbs	39.4%	1	04-08-08
End Shear	3,866 lbs	11,571 lbs	33.3%	1	01-03-00
Total Load Deflection	L/620 (0.161")	n/a	38.7%	4	04-07-00
Live Load Deflection	L/999 (0.106")	n/a	n/a	5	04-07-00
Max Defl.	0.161"	n/a	n/a	4	04-07-00
Span / Depth	10.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 6-1/2" x 3-1/2"	4,285 lbs	52.1%	18.2%	Unspecified
B2	Column 3" x 3-1/2"	4,683 lbs	68.7%	36.6%	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 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.

CONFORMS TO CBC 2012

NO. 22877-134
STRUCTURAL
COMPONENT ONLY

T-1902361



Boise Cascade



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B14(I754)

Dry | 1 span | No cant.

October 26, 2018 08:05:03

BC CALC® Member Report

Build 6476

Job name:

Address:

City, Province, Postal Code: ST ...NES

Customer:

Code reports: CCMC 12472-R

File name: TH8C.mmdl

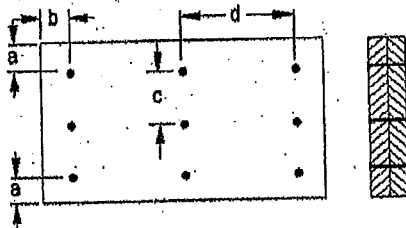
Description: 2ND FLOOR FRAMING\Flush Beams\B14(I754)

Specifier:

Designer:

Company:

Connection Diagram: Full Length of Member



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

3 1/2" ARDOX SPIRAL



Disclosure

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STRUCTURAL
COMPONENT ONLY

T-190236161



Boise Cascade



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B15\I671

Dry | 1 span | No cant.

October 26, 2018 08:05:03

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: ST...NES

Customer:

Code reports: CCMC 12472-R

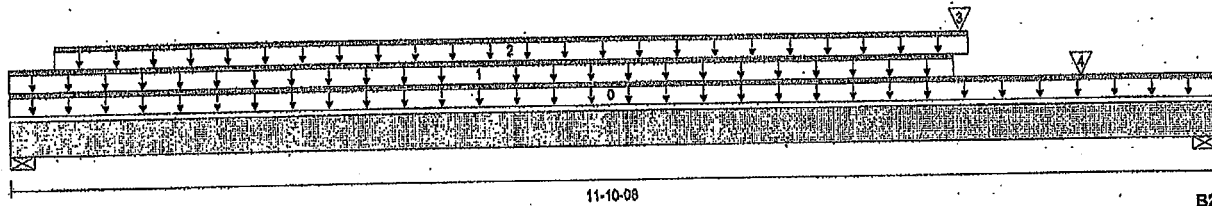
File name: TH8C.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B15\I671

Specifier:

Designer:

Company:



Total Horizontal Product Length = 11-10-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	222 / 0	464 / 0		
B2, 5-1/2"	1,025 / 0	791 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-10-08	Top	5	3			00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	09-03-08	Top	5	3			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-05-08	09-05-08	Top		60			n/a
3	B17\I668	Conc. Pt. (lbs)	L	09-04-08	09-04-08	Top	859	465			n/a
4	J3\I680	Conc. Pt. (lbs)	L	10-06-08	10-06-08	Top	329	164			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4,475 ft-lbs	11,610 ft-lbs	38.5%	1	09-04-08
End Shear	2,511 lbs	5,785 lbs	43.4%	1	10-07-08
Total Load Deflection	L/513 (0.259")	n/a	46.8%	4	08-04-13
Live Load Deflection	L/999 (0.117")	n/a	n/a	6	08-07-13
Max Defl.	0.259"	n/a	n/a	4	08-04-13
Span / Depth	14.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	649 lbs	24.3%	8.5%	Unspecified
B2	Wall/Plate 5-1/2" x 1-3/4"	2,526 lbs	61.4%	21.5%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO QBC 2012

Disclosure

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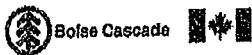
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BC CALC®, BC FRAMER®, AJST™, ALLJOIST®, BC RIM BOARD™, BCi®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®

DWG NO. TAW 2286.18H

STRUCTURAL
COMPONENT ONLY

T-190262



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B16(I809)

Dry | 1 span | No cant.

October 26, 2018 08:05:03

BC CALC® Member Report

Bulld 8475

Job name:

Address:

City, Province, Postal Code: ST...NES

Customer:

Code reports: CCMC 12472-R

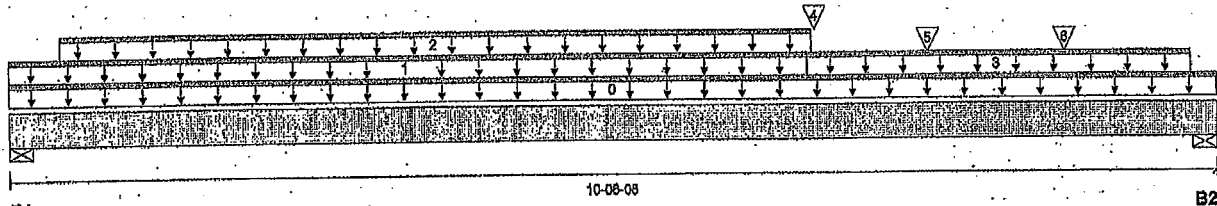
File name: TH8C.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B16(I809)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 10-06-08

Reaction Summary (Down / Uplift) (lbs)

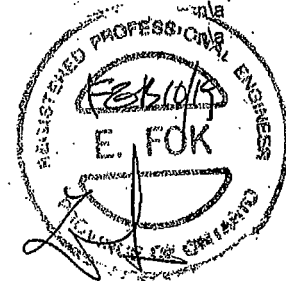
Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	230 / 0	410 / 0		
B2, 5-1/2"	703 / 0	647 / 0		

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	10-06-08	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	06-11-08	Top	21	10			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-06-08	06-11-15	Top		60			n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	06-11-08	10-03-12	Top	19	10			n/a
4	B16(I709)	Conc. Pt. (lbs)	L	07-00-04	07-00-04	Top	45	36			n/a
5	B17(I668)	Conc. Pt. (lbs)	L	08-00-06	08-00-06	Top	345	206			n/a
6	J3(I660)	Conc. Pt. (lbs)	L	09-02-08	09-02-08	Top	327	164			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,836 ft-lbs	11,610 ft-lbs	24.4%	1	07-00-04
End Shear	1,678 lbs	5,785 lbs	29.0%	1	09-03-08
Total Load Deflection	L/839 (0.14")	n/a	28.6%	6	05-06-06
Live Load Deflection	L/999 (0.083")	n/a	n/a	8	05-08-08
Max Defl.	0.14"	n/a	n/a	6	05-06-06
Span / Depth	12.3				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	574 lbs	21.5%	7.5%	Unspecified
B2	Wall/Plate 5-1/2" x 1-3/4"	1,738 lbs	42.3%	14.8%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO UBC 2012

Disclosure

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BC CALC®, BC FRAMER®, AJ5™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

DESIGNED BY YAM 2208-18H
STRUCTURAL
COMPONENT ONLY

T-1902363



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B17(1668)

Dry | 1 span | No cant.

October 26, 2018 08:05:03

BC CALC® Member Report

Buld 6475

Job name:

Address:

City, Province, Postal Code: ST...NES

Customer:

Code reports: CCMC 12472-R

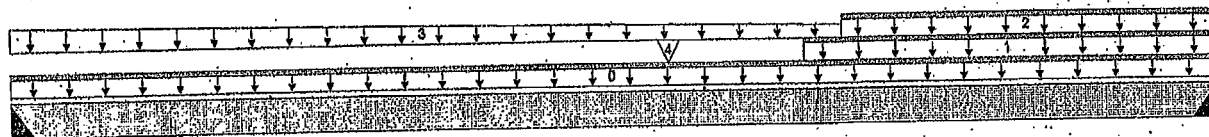
File name: TH8C.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B17(1668)

Specifier:

Designer:

Company:



10-02-08

B2

B1

Total Horizontal Product Length = 10-02-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	337 / 0	202 / 0		
B2, 2"	885 / 0	467 / 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	10-02-08	Top	1.00	0.66	1.00	1.15	00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	06-08-08	10-02-08	Top	240	120			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	07-00-04	10-02-08	Top	25	13			n/a
3	FC3 Floor Material	Trapezoidal (lb/ft)	L	00-00-00	07-00-04	Top	45	23			n/a
4	B18(1709)	Conc. Pt. (lbs)	L	05-06-14	05-06-14	Top	26	13			n/a
							36	37			

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,915 ft-lbs	11,610 ft-lbs	25.1%	1	06-11-04
End Shear	1,336 lbs	5,785 lbs	23.1%	1	09-03-00
Total Load Deflection	L/856 (0.14")	n/a	28.0%	4	05-05-02
Live Load Deflection	L/990 (0.089")	n/a	n/a	5	05-05-02
Max Defl.	0.14"	n/a	n/a	4	05-05-02
Span / Depth	12.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	757 lbs	n/a	17.7%	Hanger
B2	Hanger 2" x 1-3/4"	1,881 lbs	n/a	44.1%	Hanger

Cautions

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

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO CBC 2012

ONE NO. 229018H
STRUCTURAL
COMPONENT ONLY

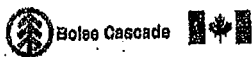


Disclosure

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

T-1902364



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B18(I709)

Dry | 1 span | No cant.

October 26, 2018 08:05:03

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: ST...NES

Customer:

Code reports: CCMC 12472-R

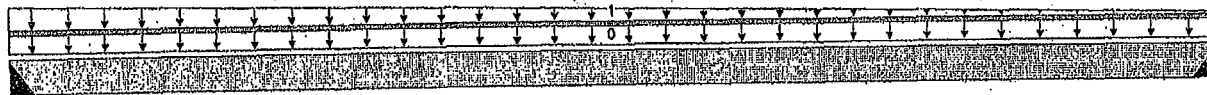
File name: TH8C.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B18(I709)

Specifier:

Designer:

Company:



B1

06-06-13

B2

Total Horizontal Product Length = 06-06-13

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	4970	4070		
B2, 2"	2670	2970		

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	06-06-13	Top		6			00-00-00
1	FC3 Floor Material	Trapezoidal (lb/ft)	L	00-00-00	06-06-13	Top	21	11			n/a
							2	1			

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	155 ft-lbs	11,610 ft-lbs	1.3%	1	02-11-01
End Shear	110 lbs	5,785 lbs	1.9%	1	00-11-08
Total Load Deflection	L/999 (0.003")	n/a	n/a	4	03-02-09
Live Load Deflection	L/999 (0.002")	n/a	n/a	5	03-02-09
Max Defl.	0.003"	n/a	n/a	4	03-02-09
Span / Depth	8.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	124 lbs	n/a	2.9%	Hanger
B2	Hanger 2" x 1-3/4"	76 lbs	n/a	1.8%	Hanger

Cautions

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

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 00-06-04, Bottom: 00-06-04.
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

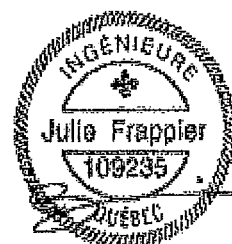
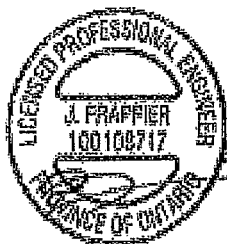
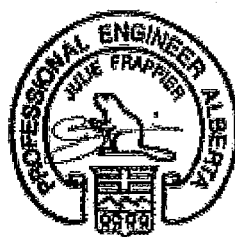
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BC CALC®, BC FRAMER®, AJST™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

DWAND.YAM 2291-18H
STRUCTURAL
COMPONENT ONLY

T-1902365



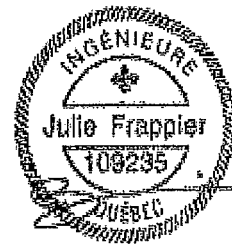
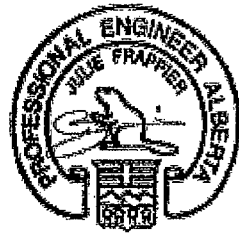
Maximum Floor Spans

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

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

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

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



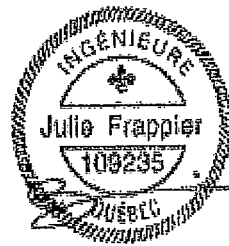
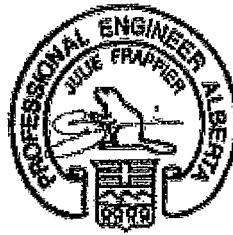
Maximum Floor Spans

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

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

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

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



Maximum Floor Spans

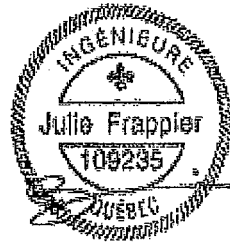
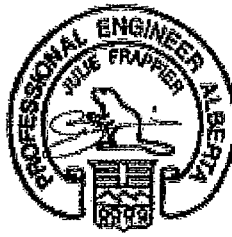
Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing

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

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

Maximum Floor Spans

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



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

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

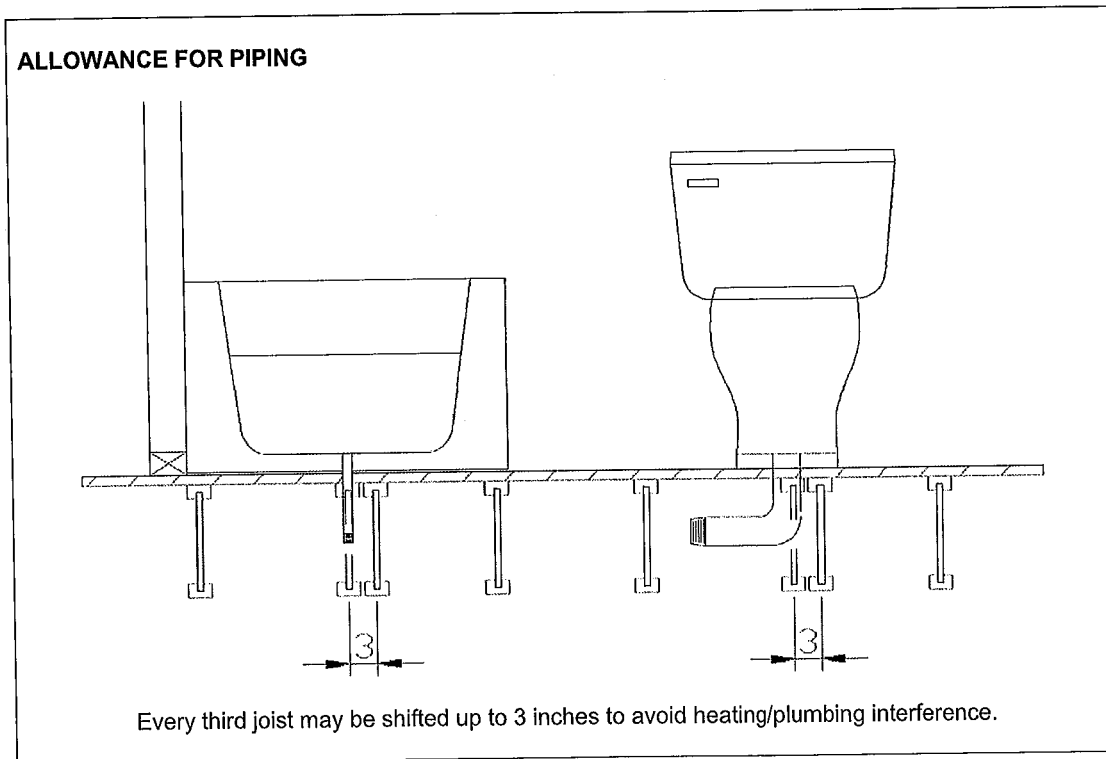
- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load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

Allowance for Piping (Installation Notes)

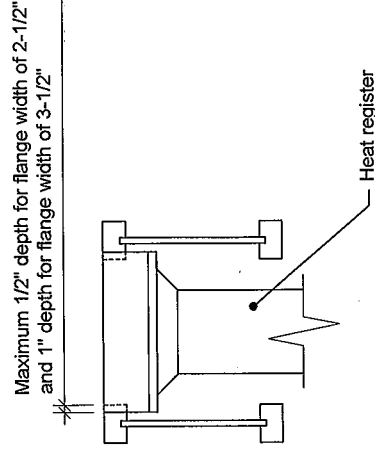
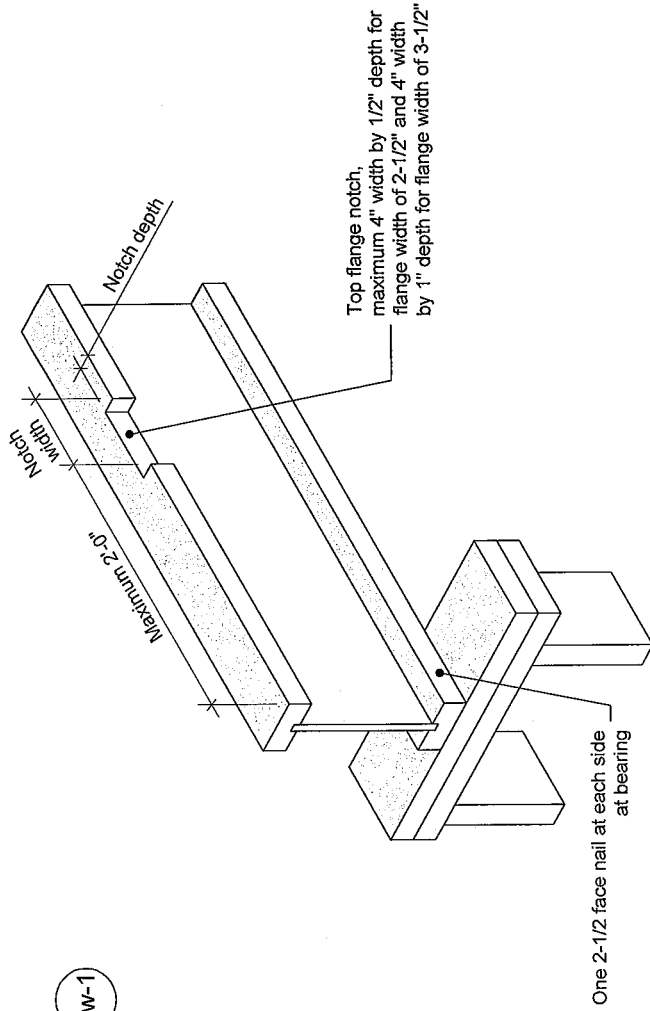
The floor layouts have usually not been checked for heating and/or plumbing interference. On-site adjustment of joists of up to 3 inches is permitted to avoid interferences. When moving a joist, the subfloor thickness shall be checked with code requirements when the joist spacing exceeds 19.2 inches. 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



- 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		DOCUMENT	
T 514-871-8526 1 866 817-3418 nordic.ca		-	
I-joist - Typical Floor Framing and Construction Details		DATE	NUMBER
		2018-04-10	1W-1