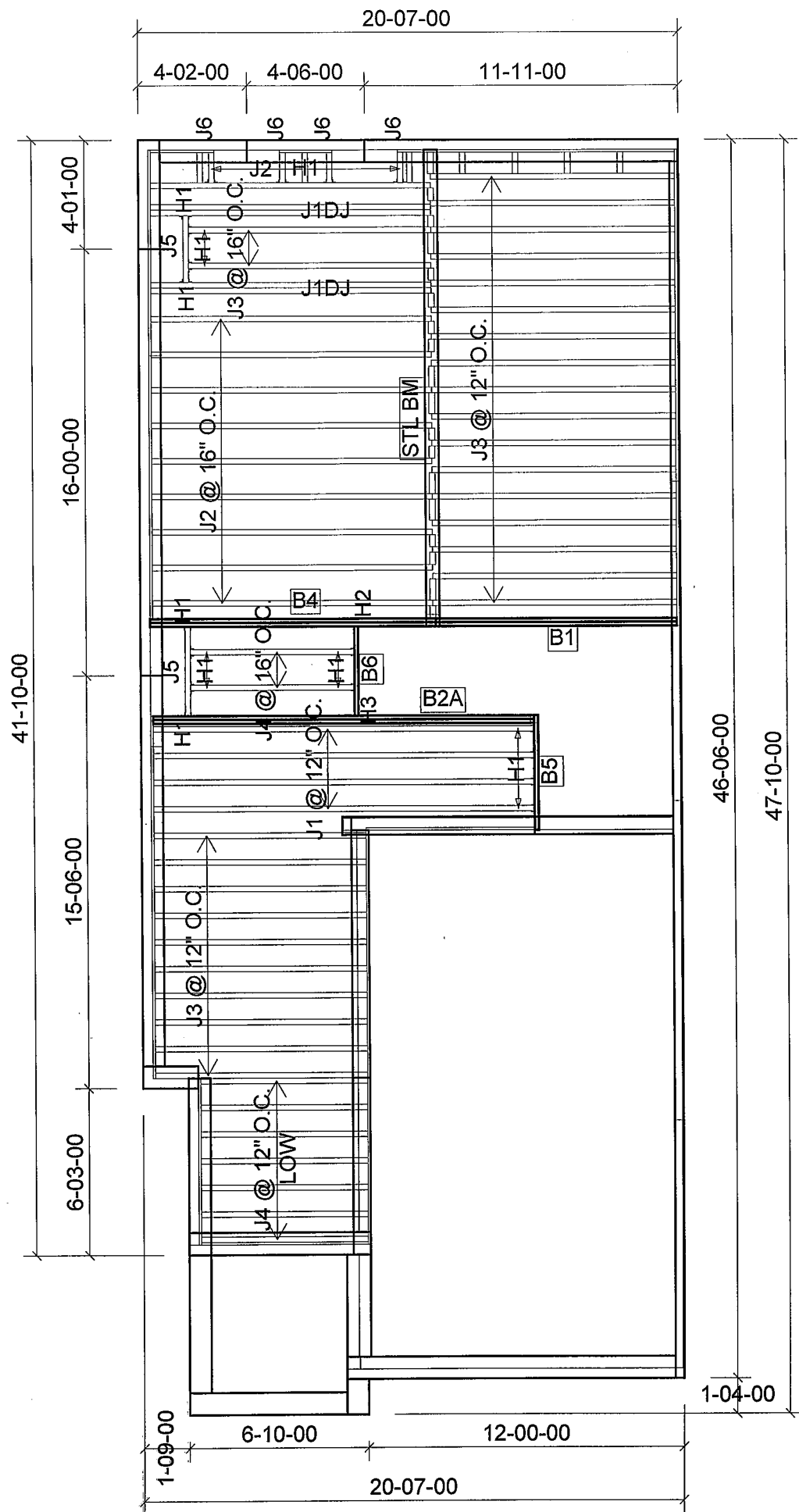
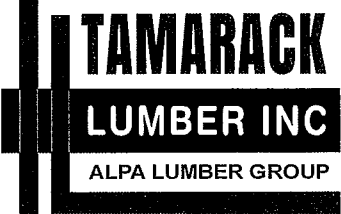




Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	4
J2	12-00-00	9 1/2" NI-40x	1	10
J1DJ	12-00-00	9 1/2" NI-40x	2	4
J3	10-00-00	9 1/2" NI-40x	1	29
J4	8-00-00	9 1/2" NI-40x	1	9
J5	4-00-00	9 1/2" NI-40x	1	2
J6	2-00-00	9 1/2" NI-40x	1	4
B2A	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B4	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B1	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B5	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
6	H1	IUS2.56/9.5
2	H1	IUS2.56/9.5
2	H1	IUS2.56/9.5
8	H1	IUS2.56/9.5
1	H2	HUS1.81/10
1	H3	L90



FROM PLAN DATED: MAY 2018

BUILDER: BAYVIEW WELLINGTON

SITE: TH-10E BLOCK34

MODEL: THE HUDSON 1

ELEVATION: A

LOT: 21

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

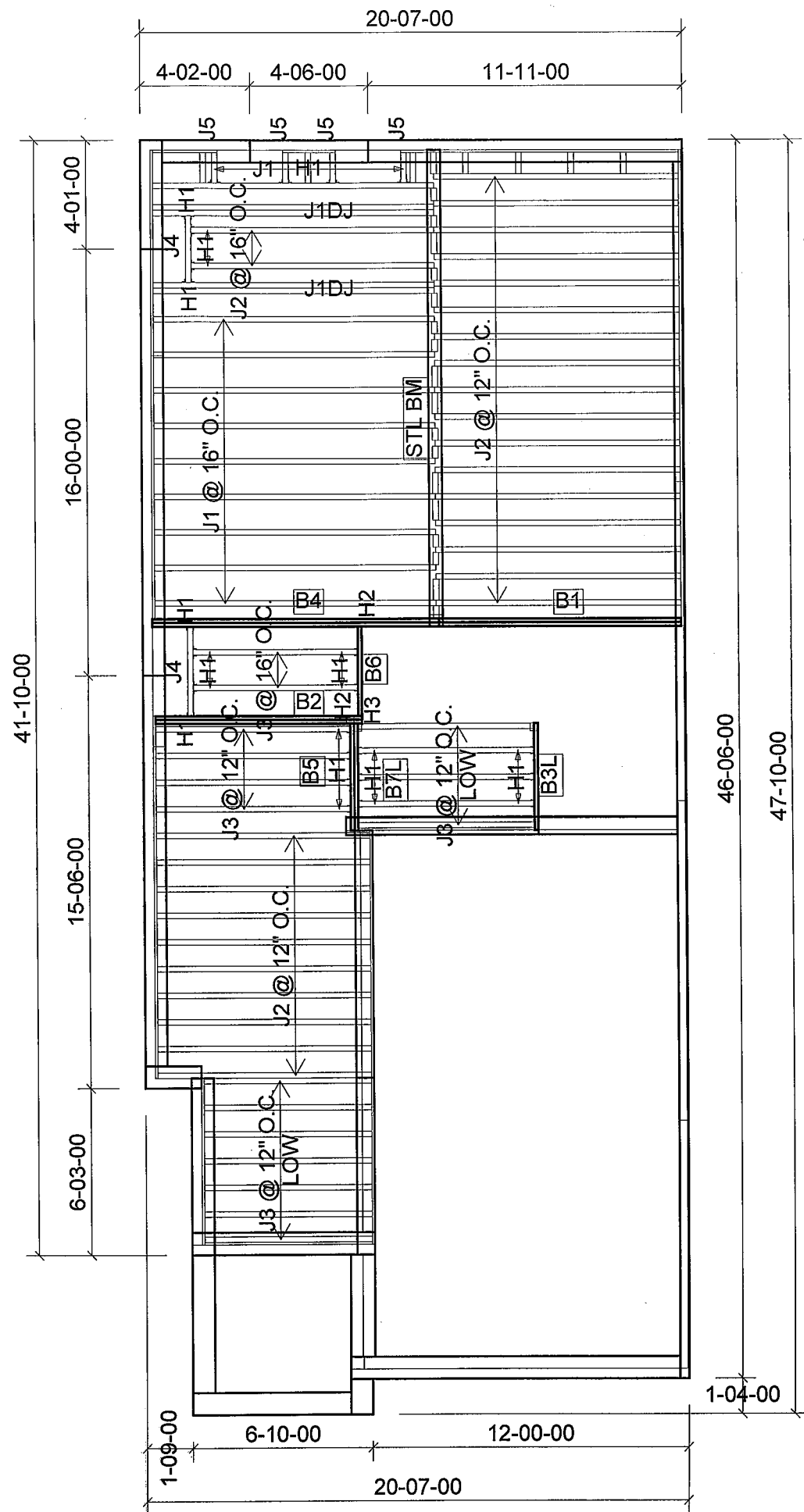
DEAD LOAD: 15.0 lb/ft

TILED AREAS: 20 lb/ft

SUBFLOOR: 3/4" GLUED AND NAILED

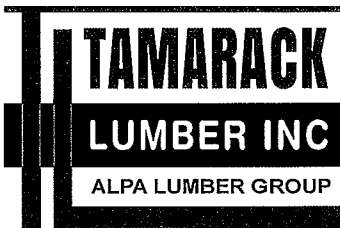
DATE: 10/30/2018

1st FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	12-00-00	9 1/2" NI-40x	1	10
J1DJ	12-00-00	9 1/2" NI-40x	2	4
J2	10-00-00	9 1/2" NI-40x	1	29
J3	8-00-00	9 1/2" NI-40x	1	18
J4	4-00-00	9 1/2" NI-40x	1	2
J5	2-00-00	9 1/2" NI-40x	1	4
B4	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B1	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B2	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B3L	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B7L	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B6	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
12	H1	IUS2.56/9.5
2	H1	IUS2.56/9.5
2	H1	IUS2.56/9.5
8	H1	IUS2.56/9.5
2	H2	HUS1.81/10
1	H3	L90



FROM PLAN DATED: MAY 2018

BUILDER: BAYVIEW WELLINGTON

SITE: TH-10E BLOCK34

MODEL: THE HUDSON 1

ELEVATION: A

LOT: 21

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

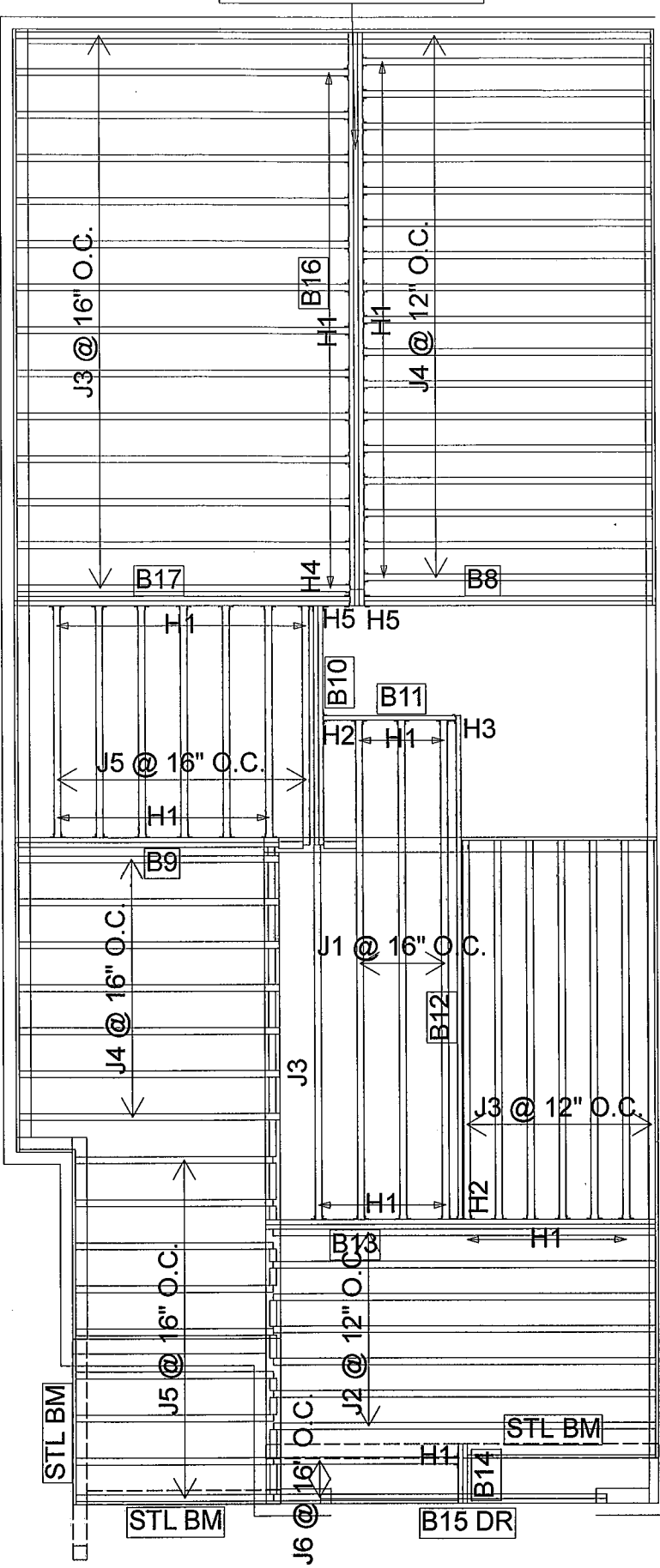
SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 10/30/2018

1st FLOOR

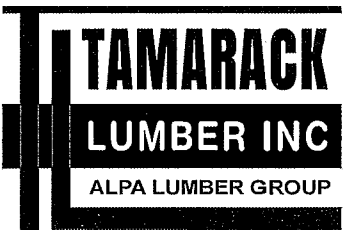
SUNKEN OPTION

3-PLY 14" LVL REQ'D
OR BEAM BY OTHER



Products				
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	3
J2	14-00-00	9 1/2" NI-40x	1	7
J3	12-00-00	9 1/2" NI-40x	1	22
J4	10-00-00	9 1/2" NI-40x	1	25
J5	8-00-00	9 1/2" NI-40x	1	16
J6	6-00-00	9 1/2" NI-40x	1	2
B12	16-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B13	14-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B17	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B15 DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B8	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B10	8-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B11	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B14	2-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B16	18-00-00	1-3/4" x 14" VERSA-LAM® 2.0 3100 SP	3	3

Connector Summary		
Qty	Manuf	Product
3	H1	IUS2.56/9.5
24	H1	IUS2.56/9.5
30	H1	IUS2.56/9.5
2	H2	HUS1.81/10
1	H3	L90
1	H4	HGUS410
2	H5	HUC410



FROM PLAN DATED: MAY 2018

BUILDER: BAYVIEW WELLINGTON

SITE: TH-10E BLOCK34

MODEL: THE HUDSON 1

ELEVATION: A

LOT: 21

CITY: ST. CATHERINES

SALESMAN: M D

DESIGNER: AJAJ

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/ft²

TILED AREAS: 20 lb/ft²

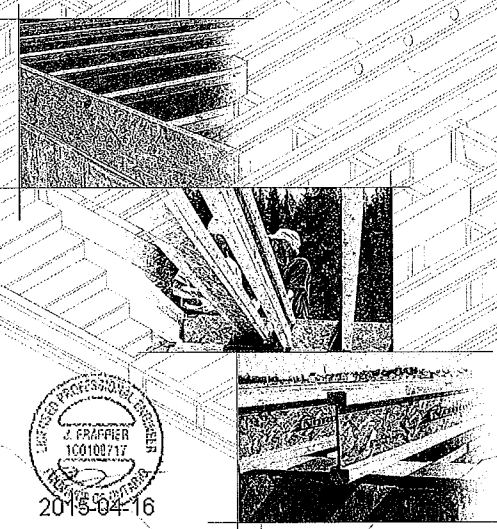
SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2019-01-29

2nd FLOOR



INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



Distributed by:

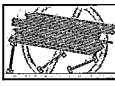


NC201 / November 2014

SAFETY AND CONSTRUCTION PRECAUTIONS



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



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

WARNING

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

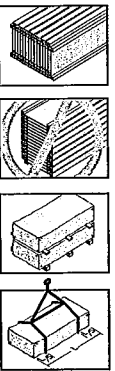
Avoid Accidents by Following these Important Guidelines:

1. Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging 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.
2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
 - 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. 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.
3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
5. Never install a damaged I-joist.

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

STORAGE AND HANDLING GUIDELINES

1. Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
2. Store, stack, and handle I-joists vertically and level only.
3. Always stack and handle I-joists in the upright position only.
4. Do not store I-joists in direct contact with the ground and/or flatwise.
5. Protect I-joists from weather, and use spacers to separate bundles.
6. Bundled units should be kept intact until time of installation.
7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-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.
8. Do not handle I-joists in a horizontal orientation.
9. NEVER USE OR TRY TO REPAIR A DAMAGED I-JOIST.



MAXIMUM FLOOR SPANS

1. Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 pcf and dead load of 15 pcf. The ultimate limit states are based on the factored loads of 1.5L + 1.2SD. 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 of mid-span.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
6. Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
7. SI units conversion: 1 inch = 25.4 mm
1 foot = 0.305 m

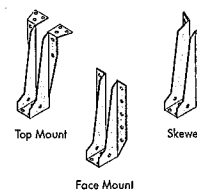
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS SIMPLE AND MULTIPLE SPANS

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'-5"	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"	16'-1"
	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'-6"	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'-4"	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"	21'-1"	21'-2"	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"	20'-0"	25'-0"	23'-1"	22'-0"	22'-2"
20"	NI-60	22'-9"	20'-8"	19'-9"	19'-10"	24'-7"	22'-9"	21'-9"	21'-10"
	NI-70	23'-4"	21'-9"	20'-9"	20'-10"	26'-0"	24'-0"	22'-11"	23'-0"
	NI-80	23'-11"	22'-1"	21'-1"	21'-2"	26'-5"	24'-5"	23'-3"	23'-4"
	NI-90	24'-5"	22'-6"	21'-5"	21'-6"	26'-11"	24'-10"	23'-9"	23'-9"
24"	NI-90x	24'-8"	22'-9"	21'-9"	21'-10"	27'-9"	25'-2"	24'-0"	24'-1"

CCMC EVALUATION REPORT 12032-R

I-JOIST HANGERS

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



WEB STIFFENERS

RECOMMENDATIONS:

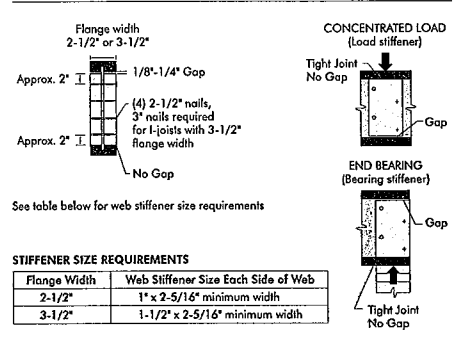
■ A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at the top.

■ 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.

SI units conversion: 1 inch = 25.4 mm

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS



See table below for web stiffener size requirements

STIFFENER SIZE REQUIREMENTS

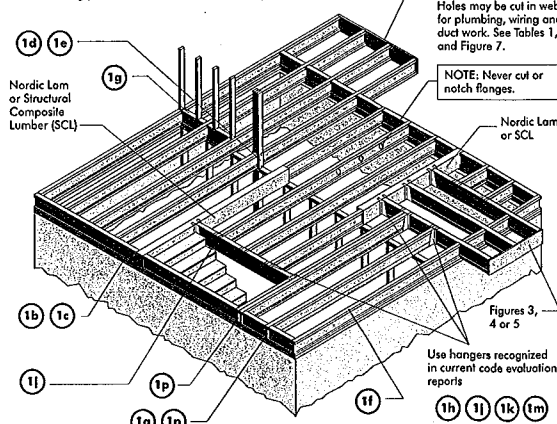
Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-5/16" minimum width
3-1/2"	1-1/2" x 2-5/16" minimum width

INSTALLING NORDIC I-JOISTS

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

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

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



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

1a Attach I-joist to top plate per detail 1b

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)

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 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 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 8-3/4" bearing required

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

1/16" for squash blocks

Pair of Squash Blocks

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

2x Lumber

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

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

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

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

Provide backer for sliding attachment unless nailable sheathing is used.

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

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 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.

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.

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.

1p Filler block

Offset nails from opposite face by 6"

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

Notes:

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

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

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

NI blocking panel

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

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

Rim board

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

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

One 2-1/2" nails one side only

2-1/2" nails at 6" o.c.

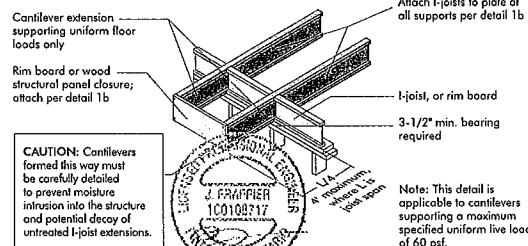
1-joist blocking panel

Notes:

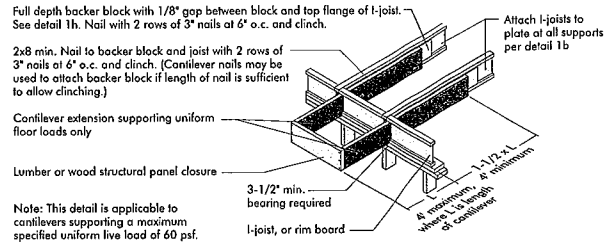
- In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.
- All nails are common spiral in this detail.

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

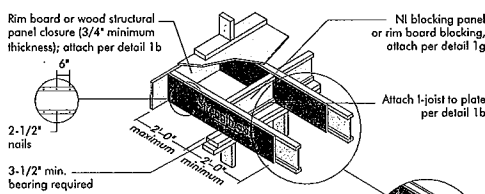


3b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE

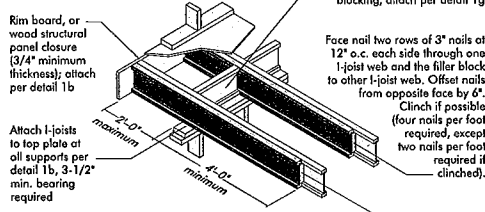


Method 2 — SHEATHING REINFORCEMENT TWO SIDES

- 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 inches.

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

4b Alternate Method 2 — DOUBLE I-JOIST



Block I-joists together with filler blocks for the full length of the reinforcement. For I-joist flange widths greater than 3 inches place an additional row of 3 inch nails along the centreline of the reinforcing panel from each side. Clinch when possible.

FIGURE 4 (continued)

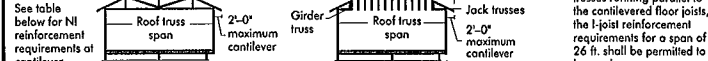


CANTILEVER REINFORCEMENT METHODS ALLOWED

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	N	1	N	N	N	1	N	N	N	1
	28	N	N	N	1	N	N	N	1	N	N	N	1
	30	N	N	N	1	N	N	N	1	N	N	N	1
	32	N	N	N	1	N	N	N	1	N	N	N	1
11-7/8"	26	N	N	N	1	N	N	N	1	N	N	N	1
	28	N	N	N	1	N	N	N	1	N	N	N	1
	30	N	N	N	1	N	N	N	1	N	N	N	1
	32	N	N	N	1	N	N	N	1	N	N	N	1
14"	26	N	N	N	1	N	N	N	1	N	N	N	1
	28	N	N	N	1	N	N	N	1	N	N	N	1
	30	N	N	N	1	N	N	N	1	N	N	N	1
	32	N	N	N	1	N	N	N	1	N	N	N	1
16"	26	N	N	N	1	N	N	N	1	N	N	N	1
	28	N	N	N	1	N	N	N	1	N	N	N	1
	30	N	N	N	1	N	N	N	1	N	N	N	1
	32	N	N	N	1	N	N	N	1	N	N	N	1

- N = No reinforcement required.
 - 1 = NI reinforced with 3/4 inch wood structural panel on one side only.
 - 2 = NI reinforced with 3/4 inch 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 total load, and 12 psf live load. Wall load is based on 3 inch maximum width window or door openings.

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	N	N	N	1	N	N	N	1	N	N	N	1
	28	N	N	N	1	N	N	N	1	N	N	N	1
	30	N	N	N	1	N	N	N	1	N	N	N	1
	32	N	N	N	1	N	N	N	1	N	N	N	1
11-7/8"	26	N	N	N	1	N	N	N	1	N	N	N	1
	28	N	N	N	1	N	N	N	1	N	N	N	1
	30	N	N	N	1	N	N	N	1	N	N	N	1
	32	N	N	N	1	N	N	N	1	N	N	N	1
14"	26	N	N	N	1	N	N	N	1	N	N	N	1
	28	N	N	N	1	N	N	N	1	N	N	N	1
	30	N	N	N	1	N	N	N	1	N	N	N	1
	32	N	N	N	1	N	N	N	1	N	N	N	1
16"	26	N	N	N	1	N	N	N	1	N	N	N	1
	28	N	N	N	1	N	N	N	1	N	N	N	1
	30	N	N	N	1	N	N	N	1	N	N	N	1
	32	N	N	N	1	N	N	N	1	N	N	N	1

- N = No reinforcement required.
 - 1 = NI reinforced with 3/4 inch wood structural panel on one side only.
 - 2 = NI reinforced with 3/4 inch 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 total load, and 12 psf live load. Wall load is based on 3 inch maximum width window or door openings.

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

Joist Depth (in.)	Joist Series	Minimum distance from inside face of any support to centre of hole (ft-in.)												Span adjustment Factor
		2	3	4	5	6	6 1/4	7	8	8 5/8	9	10	10 3/4	
9-1/2"	N-20	0.7	1.0	2.10	4.3	5.8	6.0	...	...	...	...	...	...	13.6
	N-40	0.7	1.0	3.0	4.3	6.0	6.0	...	...	...	...	...	...	14.1
	N-60	1.3	2.0	4.0	5.4	7.0	7.5	...	...	...	...	...	...	15.2
	N-70	2.0	3.4	4.9	6.3	8.0	8.4	...	...	...	...	...	...	15.9
11-7/8"	N-20	0.7	0.8	1.0	2.4	3.8	4.0	5.0	6.0	7.0	...	...	...	15.6
	N-40	0.7	0.8	1.3	2.4	4.0	4.0	5.0	6.0	7.0	8.0	...	...	16.0
	N-60	0.9	1.0	2.0	4.3	5.0	6.0	7.0	8.0	10.0	10.0	...	...	16.9
	N-70	1.3	2.0	4.0	5.4	6.9	7.2	8.4	10.0	11.2	...	...	...	17.5
14"	N-20	0.7	0.8	1.0	2.4	3.8	4.0	5.0	6.0	7.0	...	...	...	17.1
	N-40	0.7	0.8	1.3	2.4	4.0	4.0	5.0	6.0	7.0	8.0	...	...	17.5
	N-60	0.9	1.0	2.0	4.3	5.0	6.0	7.0	8.0	10.0	10.0	...	...	18.2
	N-70	1.3	2.0	4.0	5.4	6.9	7.2	8.4	10.0	11.2	...	...	...	19.5
16"	N-20	0.7	0.8	1.0	2.4	3.8	4.0	5.0	6.0	7.0	...	...	...	19.5
	N-40	0.7	0.8	1.3	2.4	4.0	4.0	5.0	6.0	7.0	8.0	...	...	19.9
	N-60	0.9	1.0	2.0	4.3	5.0	6.0	7.0	8.0	10.0	10.0	...	...	20.1
	N-70	1.3	2.0	4.0	5.4	6.9	7.2	8.4	10.0	11.2	...	...	...	21.2

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

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 Maximum Span Table), the minimum distance from the centreline of the hole to the face of any support (D) as given above may be reduced as follows:

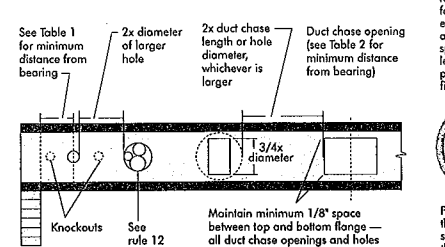
Reduced = $\frac{\text{Actual Span}}{\text{Full Span}} \times D$

Where:

- Reduced = Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span applications.
- Actual = The actual measured span distance between the inside faces of supports (S).
- Full Span = 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 $\frac{\text{Actual Span}}{\text{Full Span}}$ is greater than 1, use 1 in the above calculation for Reduced.

FIGURE 7 FIELD-CUT HOLE LOCATOR



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

Knockouts are prescored 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

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	4.10	5.4	5.8	6.1	6.4	7.1	7.5	7.8	8.1	
	N-40	5.3	5.8	6.0	6.5	6.10	7.2	7.8	8.2	8.4	8.6	8.8	
	N-60	6.0	7.2	7.7	8.4	8.10	9.4	10.4	10.8	11.2	11.4	11.6	
	N-70	6.1	7.5	8.0	8.4	8.10	9.4	10.4	10.8	11.2	11.4	11.6	
11-7/8"	N-20	5.9	6.2	6.6	7.1	7.5	7.9	8.3	8.9	9.4	9.8	10.1	
	N-40	6.3	6.6	7.0	7.4	7.8	8.2	8.6	9.0	9.4	9.8	10.1	
	N-60	7.1	7.4	7.8	8.2	8.6	9.0	9.4	9.8	10.2	10.6	10.9	
	N-70	7.4	7.7	8.0	8.4	8.8	9.2	9.6	10.0	10.4	10.8	11.1	
14"	N-20	6.7	7.0	7.4	7.8	8.2	8.6	9.0	9.4	9.8	10.2	10.6	
	N-40	7.1	7.4	7.8	8.2	8.6	9.0	9.4	9.8	10.2	10.6	11.0	
	N-60	7.4	7.7	8.0	8.4	8.8	9.2	9.6	10.0	10.4	10.8	11.2	
	N-70	7.7	8.0	8.4	8.8	9.2	9.6	10.0	10.4	10.8	11.2	11.6	
16"	N-20	7.4	7.7	8.0	8.4	8.8	9.2	9.6	10.0	10.4	10.8	11.2	
	N-40	7.7	8.0	8.4	8.8	9.2	9.6	10.0	10.4	10.8	11.2	11.6	
	N-60	8.0	8.4	8.8	9.2	9.6	10.0	10.4	10.8	11.2	11.6	12.0	
	N-70	8.4	8.8	9.2	9.6	10.0	10.4	10.8	11.2	11.6	12.0	12.4	

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

INSTALLING THE GLUED FLOOR SYSTEM

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

FASTENERS FOR SHEATHING AND SUBFLOORING⁽¹⁾

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

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

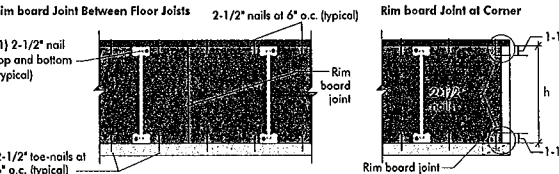
Ref.: NRC-NRC, National Building Code of Canada 2010, Table 9.23.3.5.

IMPORTANT NOTE:

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

RIM BOARD INSTALLATION DETAILS

8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT





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

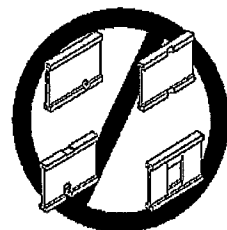
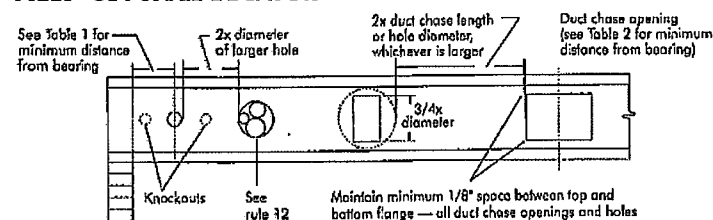
- A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
- All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
- Limit three maximum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

TABLE 1
LOCATION OF CIRCULAR HOLES IN JOIST WEBS
Simple or Multiple Span for Dead Loads up to 15 psf and Live Loads up to 40 psf

Joist Depth	Joist Series	Minimum Distance from Inside Face of Any Support to Centre of Hole (ft - in.)											
		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'-8"	2'-6"	4'-0"	5'-4"	7'-0"	7'-5"	---	---	---	---	---	---
	NI-70	2'-0"	3'-4"	4'-9"	6'-3"	8'-0"	8'-4"	---	---	---	---	---	---
	NI-80	2'-3"	3'-6"	5'-0"	6'-6"	8'-2"	8'-8"	---	---	---	---	---	---
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'-8"	3'-0"	4'-3"	5'-9"	6'-0"	7'-3"	8'-10"	10'-0"	---	---	---
	NI-70	1'-3"	2'-6"	4'-0"	5'-4"	6'-9"	7'-2"	8'-4"	10'-0"	11'-2"	---	---	---
	NI-80	1'-6"	2'-10"	4'-2"	5'-6"	7'-0"	7'-5"	8'-6"	10'-3"	11'-4"	---	---	---
14"	NI-20	0'-7"	0'-8"	1'-5"	3'-2"	4'-10"	5'-4"	6'-9"	8'-9"	10'-2"	---	---	---
	NI-40x	0'-7"	0'-8"	0'-9"	2'-5"	4'-4"	4'-9"	6'-3"	---	---	---	---	---
	NI-60	0'-7"	0'-8"	1'-8"	3'-0"	4'-3"	4'-8"	5'-8"	7'-2"	8'-0"	8'-8"	10'-4"	11'-9"
	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'-10"	2'-0"	3'-4"	4'-9"	6'-2"	6'-5"	7'-6"	9'-0"	10'-0"	10'-8"	12'-4"	13'-9"
16"	NI-20	0'-7"	0'-8"	1'-0"	2'-4"	3'-8"	4'-0"	5'-0"	6'-6"	7'-9"	---	---	---
	NI-40x	0'-7"	0'-8"	0'-8"	2'-0"	3'-5"	4'-2"	5'-3"	7'-3"	8'-5"	9'-2"	---	---
	NI-60	0'-7"	0'-8"	1'-6"	3'-0"	4'-3"	4'-8"	5'-8"	7'-2"	8'-0"	8'-8"	10'-4"	11'-9"
	NI-70	0'-7"	1'-0"	2'-3"	3'-8"	4'-10"	5'-3"	6'-3"	7'-8"	8'-6"	9'-2"	10'-8"	12'-3"
	NI-80	0'-7"	1'-3"	2'-6"	3'-10"	5'-3"	5'-6"	6'-6"	8'-0"	9'-0"	9'-5"	11'-0"	12'-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 at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

FIGURE 7
FIELD-CUT HOLE LOCATOR



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

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

Holes in webs should be cut with a sharp saw.

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

SAFETY AND CONSTRUCTION PRECAUTIONS



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



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

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

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

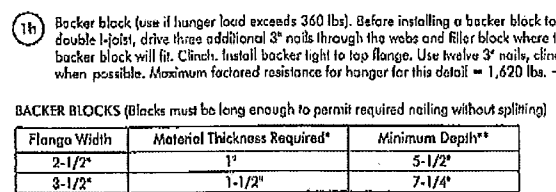
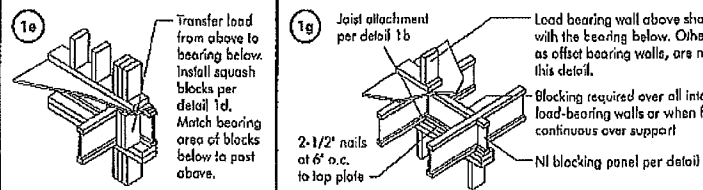
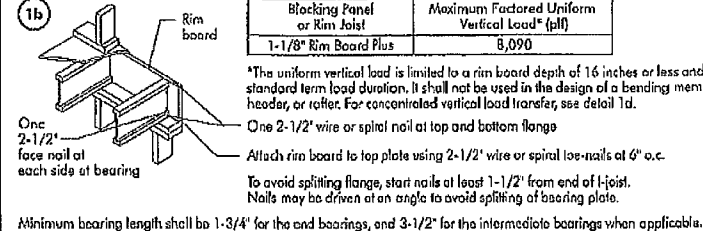
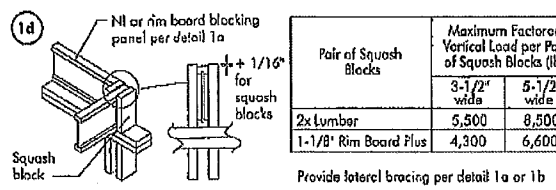
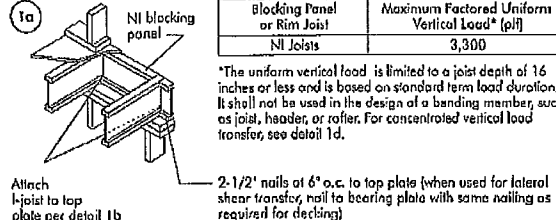
- Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends. When I-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
- When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

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

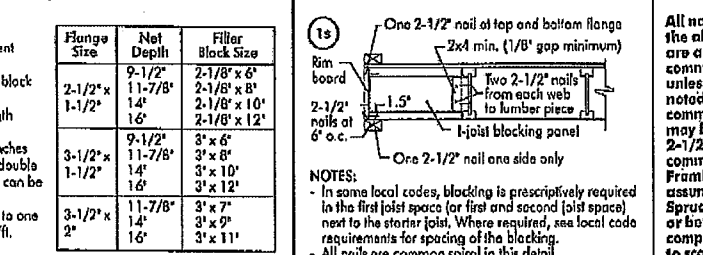
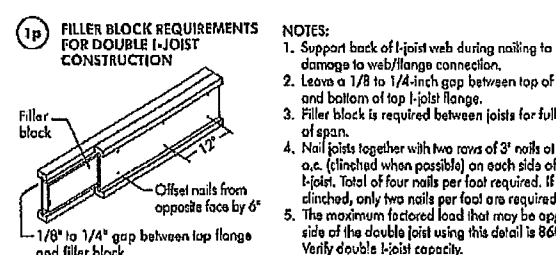
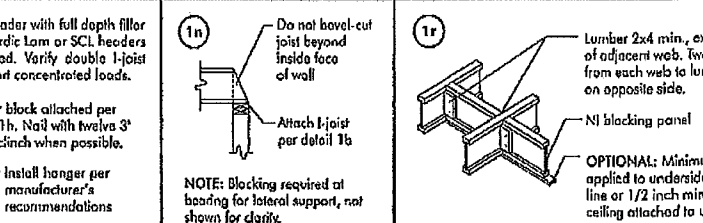
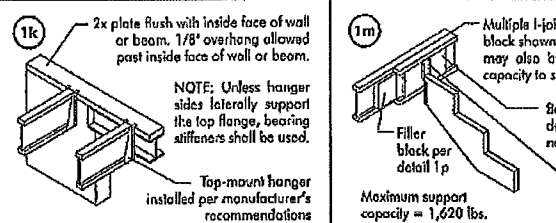
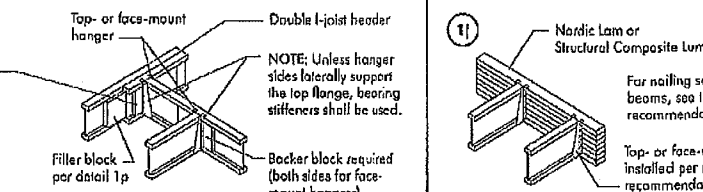
PRODUCT WARRANTY

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

Furthermore, Chentiers 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.



* 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-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".

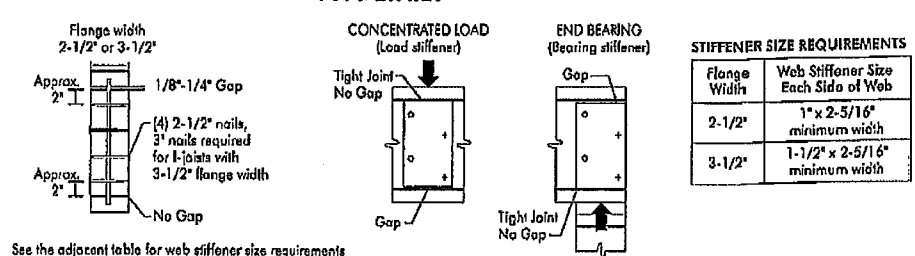


WEB STIFFENERS

RECOMMENDATIONS:

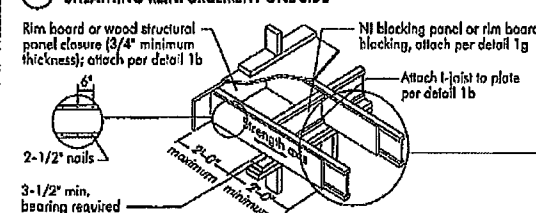
- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at the top.
- A bearing stiffener is required when the I-joist is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

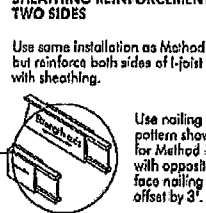


CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

Method 1 — SHEATHING REINFORCEMENT ONE SIDE



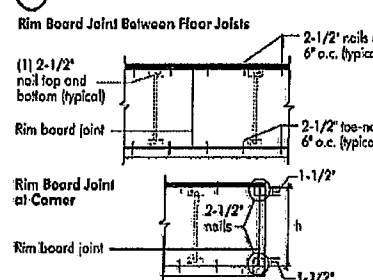
Method 2 — SHEATHING REINFORCEMENT TWO SIDES



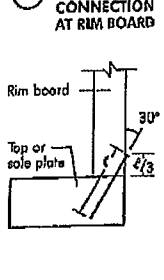
NOTE: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail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

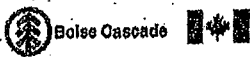
RIM BOARD INSTALLATION DETAILS

8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



8b TOE-NAIL CONNECTION AT RIM BOARD





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

PASSED

1ST FLOOR FRAMING\Flush Beams\B1(12586)

Dry | 1 span | No cant.

January 29, 2019 16:17:38

BC CALC® Member Report

Build 6476

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

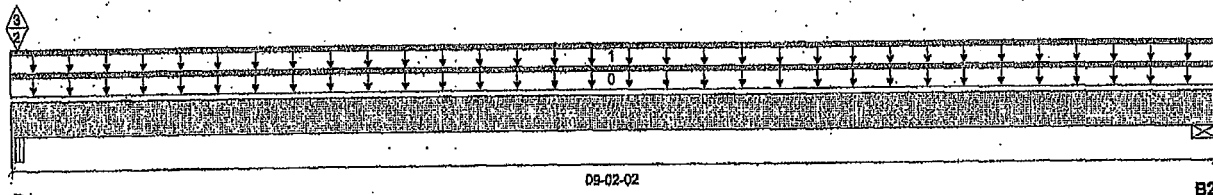
File name: TH 10E LOT21 SUNKEN.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B1(12586)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 09-02-02

Reaction Summary (Down / Uplift) (lbs)

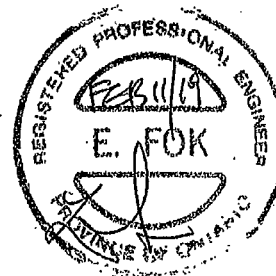
Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	922 / 21	874 / 0		
B2, 2-3/8"	81 / 0	85 / 0		

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	09-02-02	Top	1.00	0.66	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	09-02-02	Top	17	9			n/a
2	PBO6(1424)	Conc. Pt. (lbs)	L	00-00-11	00-00-11	Top	842	590			n/a
3	PBO6(1424)	Conc. Pt. (lbs)	L	00-00-11	00-00-11	Top	-21				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	494 ft-lbs	23,220 ft-lbs	2.1%	1	04-06-12
End Shear	178 lbs	11,571 lbs	1.5%	1	00-11-04
Total Load Deflection	L/999 (0.01")	n/a	n/a	6	04-06-12
Live Load Deflection	L/999 (0.005")	n/a	n/a	8	04-06-12
Max Defl.	0.01"	n/a	n/a	6	04-06-12
Span / Depth	11.3				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 1-3/4" x 3-1/2"	2,225 lbs	88.0%	29.8%	Unspecified
B2	Wall/Plate 2-3/8" x 3-1/2"	227 lbs	5.1%	2.2%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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.

Member has no side loads.

CONFORMS TO CBC 2012

DWG NO. TAM 232319H
STRUCTURAL
COMPONENT ONLY

T. 1902426



Boise Cascade

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****1ST FLOOR FRAMING\Flush Beams\B1(12586)**

Dry | 1 span | No cant.

PASSED

January 29, 2019 16:17:38

BC OALC® Member Report

Build 6476

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

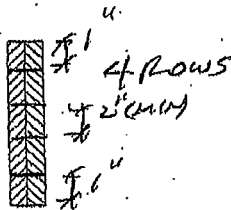
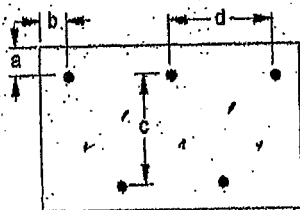
File name: TH-10E LOT21 SUNKEN.mxd

Description: 1ST FLOOR FRAMING\Flush Beams\B1(12586)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member

a minimum = 1"

b minimum = 3"

c = 1 1/2"

d = 4'

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

Member has no side loads.

Connectors are:

Nails

3 1/2" 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™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®.

DWG NO. YAM 2323-19H
STRUCTURAL
COMPONENT ONLY

T. 1904266



Boise Cascade



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B2(i2592)

Dry | 2 spans | R cant.

January 29, 2019 16:17:38

BC CALC® Member Report

Build 6476

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

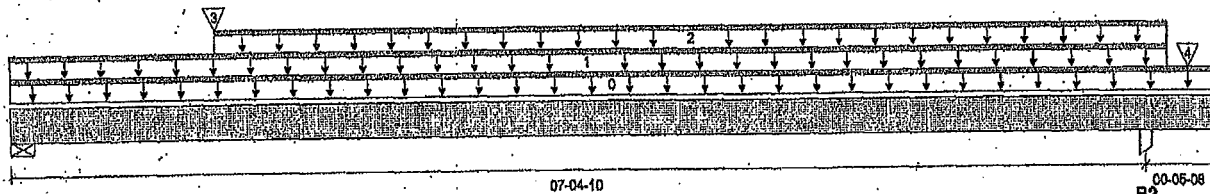
File name: TH 10E LOT21 SUNKEN.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B2(i2592)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 07-10-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	375 / 31	449 / 0		
B2, 3-1/2"	1,041 / 0	617 / 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	07-10-02	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-08-06	Top	7	4			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-04-02	07-06-06	Top	24	12			n/a
3	J4(i2643)	Conc. Pt. (lbs)	L	01-04-02	01-04-02	Top	326	445			n/a
4		Conc. Pt. (lbs)	L	07-08-00	07-08-00	Top	848	440			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,139 ft-lbs	23,220 ft-lbs	4.9%	2	01-07-15
Neg. Moment	-473 ft-lbs	-23,220 ft-lbs	2.0%	1	07-04-10
End Shear	1,078 lbs	11,571 lbs	9.3%	2	01-01-14
Cont. Shear	422 lbs	11,571 lbs	3.6%	1	06-05-06
Total Load Deflection	L/999 (0.014")	n/a	n/a	9	03-05-15
Live Load Deflection	L/999 (0.007")	n/a	n/a	12	03-06-15
Total Neg. Defl.	2xL/1,998 (-0.002")	n/a	n/a	9	07-10-02
Max Defl.	0.014"	n/a	n/a	9	03-05-15
Span / Depth	8.9				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 3-1/2"	1,124 lbs	13.7%	6.0%	Unspecified
B2	Column 3-1/2" x 3-1/2"	2,332 lbs	23.4%	15.6%	Unspecified

Notes

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

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

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

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

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

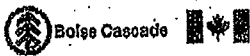
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

CONFORMS TO DBC 2012

DRY END, YAW 2324-18 H

STRUCTURAL COMPONENT ONLY

T. 1902437



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLOOR FRAMING\Flush Beams\B2(12592)

PASSED

January 29, 2019 16:17:38

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

File name: TH 10E LOT21 SUNKEN.mmdl

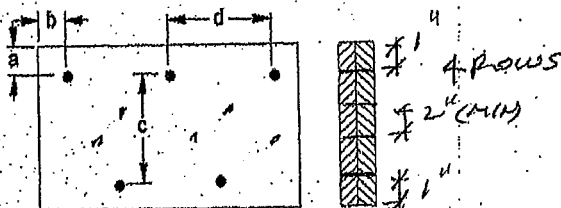
Description: 1ST FLOOR FRAMING\Flush Beams\B2(12592)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



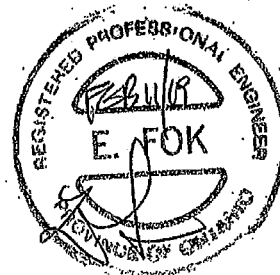
a minimum = 1"
b minimum = 3"

c = 1-1/2"
d = 4"

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

Connectors are: 1 Nails

3 1/2" ARDOX SPIRAL



Disclosure

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

T. (904376)



Boise Cascade



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

1ST FLOOR FRAMING\Flush Beams\B3L(I2040)

Dry | 1 span | No cant.

PASSED

January 29, 2019 16:17:38

BC CALCO® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

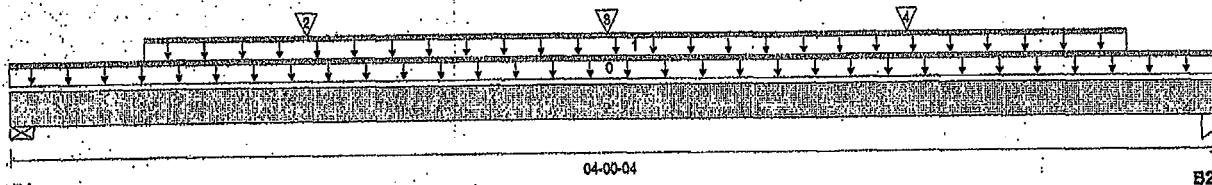
File name: TH 10E LOT21 SUNKEN.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B3L(I2040)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 04-00-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	407 / 0	213 / 0		
B2, 3-1/2"	393 / 0	206 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-00-04	Top	5				00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-05-08	03-08-12	Top	120	80			n/a
2	J3(I2303)	Conc. Pt. (lbs)	L	01-00-00	01-00-00	Top	126	63			n/a
3	J3(I2016)	Conc. Pt. (lbs)	L	02-00-00	02-00-00	Top	140	70			n/a
4	J3(I2360)	Conc. Pt. (lbs)	L	03-00-00	03-00-00	Top	141	71			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	824 ft-lbs	11,610 ft-lbs	7.1%	1	02-00-00
End Shear	616 lbs	5,785 lbs	10.6%	1	02-11-04
Total Load Deflection	L/999 (0.005")	n/a	n/a	4	02-01-01
Live Load Deflection	L/999 (0.003")	n/a	n/a	5	02-01-01
Max Defl.	0.005"	n/a	n/a	4	02-01-01
Span / Depth	4/3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	877 lbs	17.1%	7.5%	Unspecified
B2	Column 3-1/2" x 1-3/4"	847 lbs	17.0%	11.3%	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 Q86.
- BC CALCO® 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 UBC 2012

Disclosure

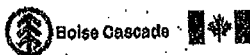
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BC CALCO®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

BWB NO. YAM 2325 - 18th

STRUCTURAL
COMPONENT ONLY

T. Groner



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B4(12575)

Dry | 1 span | No cant.

January 29, 2019 16:17:38

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

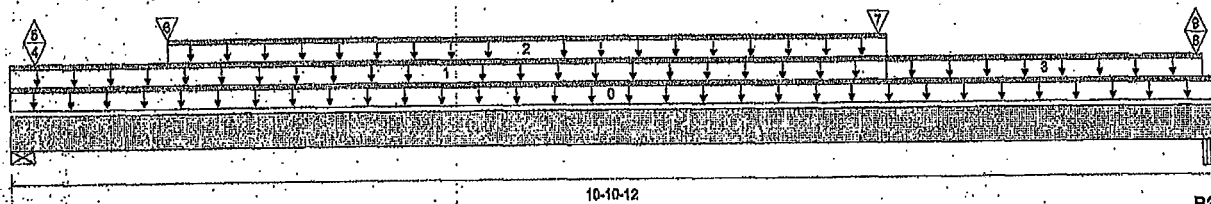
File name: TH 10E LOT21 SUNKEN.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B4(12575)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 10-10-12

Reaction Summary (Down / Uplift) (lbs)

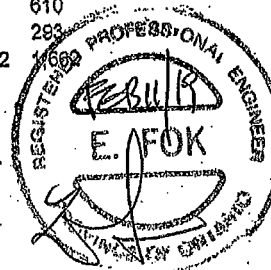
Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1,071 / 9	927 / 0		
B2, 4-1/4"	2,995 / 58	2,063 / 0		

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	10-10-12	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-11-04	Top	15	7			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-05-04	07-11-04	Top	22	11			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	07-11-04	10-09-08	Top	18				n/a
4	E3(1403)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	207	165			n/a
5	E3(1403)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	-9				n/a
6	J4(12643)	Conc. Pt. (lbs)	L	01-05-04	01-05-04	Top	609	610			n/a
7	B6(12644)	Conc. Pt. (lbs)	L	07-10-06	07-10-06	Top	569	283			n/a
8	PB06(1424)	Conc. Pt. (lbs)	L	10-08-13	10-08-13	Top	2,372				n/a
9	PB06(1424)	Conc. Pt. (lbs)	L	10-08-13	10-08-13	Top	-58				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3,747 ft-lbs	23,220 ft-lbs	16.1%	1	07-00-12
End Shear	2,195 lbs	11,571 lbs	19.0%	1	01-03-00
Total Load Deflection	L/999 (0.105")	n/a	n/a	6	05-06-10
Live Load Deflection	L/999 (0.062")	n/a	n/a	8	05-07-14
Max Defl.	0.105"	n/a	n/a	6	05-06-10
Span / Depth	12.9				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	2,765 lbs	26.9%	11.8%	Unspecified
B2	Beam 4-1/4" x 3-1/2"	7,071 lbs	89.0%	39.0%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA Q86. **CONFORMS TO OBC 2012**

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.

006 NO. TAM 2016-18 H
STRUCTURAL
COMPONENT ONLY

T. 1902429



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLOOR FRAMING\Flush Beams\B4(i2575)

PASSED

BC CALC® Member Report

Build 8475

Job name:

Address:

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

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant

January 29, 2019 16:17:38

File name: TH 10E LOT21 SUNKEN.mmdl

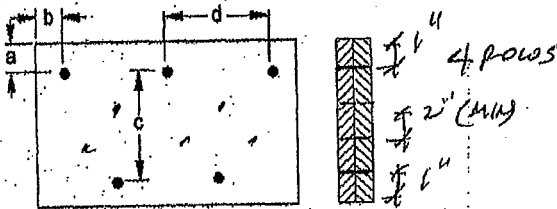
Description: 1ST FLOOR FRAMING\Flush Beams\B4(i2575)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member

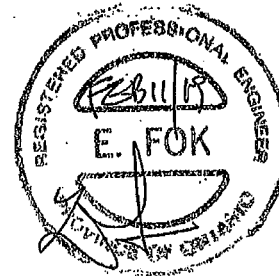


a minimum = 1"
b minimum = 3"

c = 1-1/2"
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: Nails

3 1/2" ARDOX SPIRAL



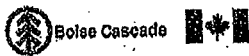
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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

STRUCTURAL
COMPONENT ONLY

T-1900023865



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLOOR FRAMING\Flush Beams\B5(12565)

PASSED

BC CALC® Member Report

Build 6475

Job name:

Address:

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

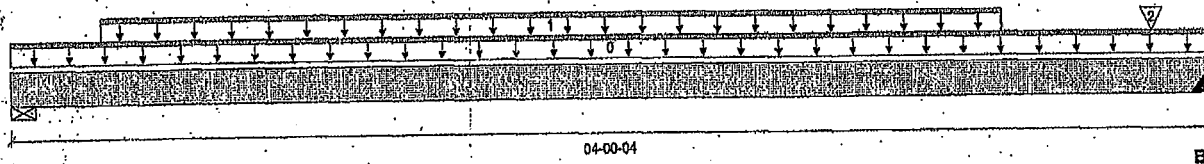
Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

January 29, 2019 16:17:38

File name: TH 10E LOT21 SUNKEN.mmdl
 Description: 1ST FLOOR FRAMING\Flush Beams\B5(12565)
 Specifier:
 Designer: -AJ
 Company:



Total Horizontal Product Length = 04-00-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	268 / 0	145 / 0		
B2, 2"	276 / 0	147 / 0		

Load Summary

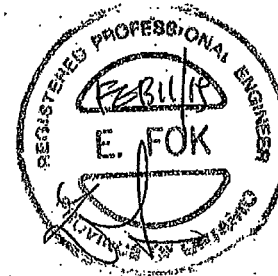
Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unif. Lin. (lb/ft)	L	00-00-00	04-00-04	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unif. Lin. (lb/ft)	L	00-03-12	03-03-12	Top	148	74			n/a
2	J3(12578)	Conc. Pt. (lbs)	L	03-09-12	03-09-12	Top	100	50			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	502 ft-lbs	11,610 ft-lbs	4.3%	1	01-09-12
End Shear	402 lbs	5,785 lbs	6.9%	1	01-03-00
Total Load Deflection	L/999 (0.003")	n/a	n/a	4	02-01-14
Live Load Deflection	L/999 (0.002")	n/a	n/a	5	02-01-14
Max Defl.	0.003"	n/a	n/a	4	02-01-14
Span / Depth	4.4				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	583 lbs	11.3%	5.0%	Unspecified
B2	Hanger 2" x 1-3/4"	597 lbs	n/a	14.0%	HUS1.81/10



Cautions

Header for the hanger HUS1.81/10 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

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

CONFORMS TO OBC 2012

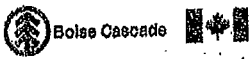
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BC CALC®, BC FRAMER®, AJST®, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

WOOD NO. TAM 2327-10
 STRUCTURAL
 COMPONENT ONLY

T. Grande



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLOOR FRAMING\Flush Beams\B6(12644)

PASSED

January 28, 2019 16:17:38

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports:

CCMC 12472-R

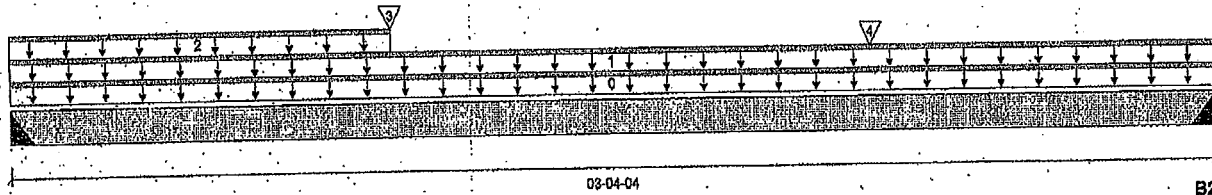
File name: TH 10E LOT21 SUNKEN.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B6(12644)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 03-04-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	569 / 0	292 / 0		
B2, 2"	669 / 0	293 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.86	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-04-04	Top		5			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-04-04	Top	240	120			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-00-12	Top	12	6			n/a
3	J3(12628)	Conc. Pt. (lbs)	L	01-00-12	01-00-12	Top	161	80			n/a
4	J3(12640)	Conc. Pt. (lbs)	L	02-04-12	02-04-12	Top	169	80			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	953 ft-lbs	11,810 ft-lbs	8.2%	1	01-07-12
End Shear	725 lbs	5,785 lbs	12.5%	1	02-04-12
Total Load Deflection	L/999 (0.005")	n/a	n/a	4	01-08-04
Live Load Deflection	L/999 (0.003")	n/a	n/a	5	01-08-04
Max Defl.	0.005"	n/a	n/a	4	01-08-04
Span / Depth	4.0				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	1,219 lbs	n/a	28.6%	L90
B2	Hanger 2" x 1-3/4"	1,220 lbs	n/a	28.6%	HUS1.81/10

Cautions

Header for the hanger L90 at B1 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model L90 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Header for the hanger HUS1.81/10 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF. Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

OWNED BY 2019
STRUCTURAL
COMPONENT ONLY

T. G. Moore



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLOOR FRAMING\Flush Beams\B6(12644)
Dry | 1 span | No cant.

PASSED

January 29, 2019 16:17:38

BC CALC® Member Report

Buld 6475

Job name:

Address:

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

Customer:

Code reports: CCMO 12472-R

File name: TH 10E LOT21 SUNKEN.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B6(12644)

Specifier:

Designer: AJ

Company:

Notes

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

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

Calculations assume member is fully braced.

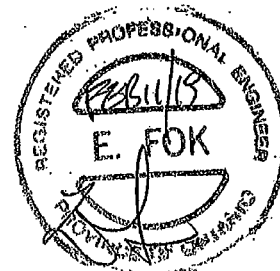
Hanger Manufacturer: Unassigned

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

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

Design based on Dry-Service Condition.

Importance Factor : Normal Part code : Part 9

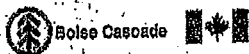


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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®
DWB NO. TAM 2320-181
STRUCTURAL
COMPONENT ONLY

T. (Goruppi) (v)



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLOOR FRAMING\Flush Beams\B7L(I2018)

PASSED

BC CALCO® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

January 29, 2019 16:17:38

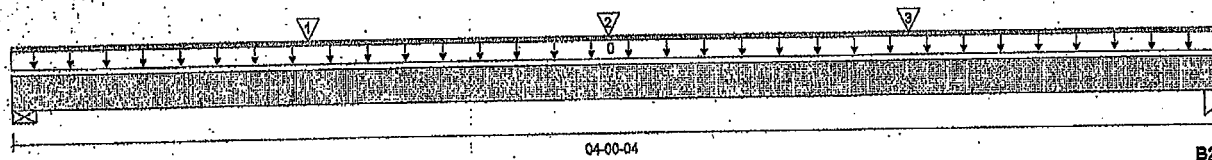
File name: TH 10E LOT21 SUNKEN.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B7L(I2018)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 04-00-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	210 / 0	115 / 0		
B2, 3-1/2"	197 / 0	108 / 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	04-00-04	Top		5			00-00-00
1	J3(I2303)	Conc. Pt. (lbs)	L	01-00-00	01-00-00	Top	126	63			n/a
2	J3(I2018)	Conc. Pt. (lbs)	L	02-00-00	02-00-00	Top	140	70			n/a
3	J3(I2360)	Conc. Pt. (lbs)	L	03-00-00	03-00-00	Top	141	71			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	458 ft-lbs	11,610 ft-lbs	3.9%	1	02-00-00
End Shear	400 lbs	5,785 lbs	6.9%	1	02-11-04
Total Load Deflection	L/999 (0.003")	n/a	n/a	4	02-01-01
Live Load Deflection	L/999 (0.002")	n/a	n/a	5	02-01-01
Max Defl.	0.003"	n/a	n/a	4	02-01-01
Span / Depth	4.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	460 lbs	6.9%	3.9%	Unspecified
B2	Column 3-1/2" x 1-3/4"	430 lbs	6.6%	5.8%	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 CALCO analysis is based on Canadian Limit States Design, as per NBC 2015 and CSA O86.
- Design based on Dry Service Condition.
- Importance Factor: Normal Part code: Part 9

CONFORMS TO CBC 2012

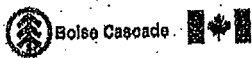
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BC CALCO®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

DOWN NO. TAW 2329-18H
**STRUCTURAL
 COMPONENT ONLY**

T. L. Cooper



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Dropped Beams\B15 DR(12166)

PASSED

BC CALC® Member Report

Build 6476

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

January 29, 2019 16:17:38

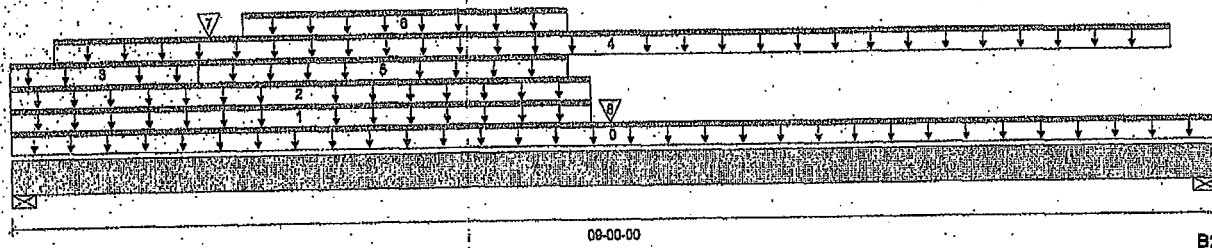
File name: TH 10E LOT21 SUNKEN.mmdl

Description: 2ND FLOOR FRAMING\Dro...d Beams\B15 DR(12166)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 09-00-00

Reaction Summary (Down / Uplift) (lbs)

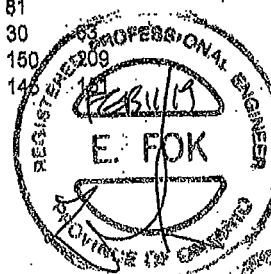
Bearing	Live	Dead	Snow	Wind
B1, 4"	433 / 0	727 / 0	821 / 0	
B2, 4"	252 / 0	378 / 0	416 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-00-00	Top	10				00-00-00
1	J6(12190)	Unf. Lin. (lb/ft)	L	00-00-00	04-04-00	Top	27	16			n/a
2	R1(12312)	Unf. Lin. (lb/ft)	L	00-00-00	04-04-00	Top	4	4			n/a
3	R1(12312)	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top		61			n/a
4	LOW ROOF	Unf. Lin. (lb/ft)	L	00-04-00	08-08-00	Top	33	30	63		n/a
5	R1(12312)	Unf. Lin. (lb/ft)	L	01-05-00	04-02-00	Top		81			n/a
6	R1(12312)	Unf. Lin. (lb/ft)	L	01-09-00	04-02-00	Top	33	30			n/a
7	R1(12312)	Conc. Pt. (lbs)	L	01-06-00	01-06-00	Top	110	150			n/a
8	R1(12312)	Conc. Pt. (lbs)	L	04-05-11	04-05-11	Top	87	14			n/a

Controls Summary

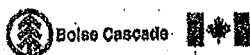
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4,195 ft-lbs	22,071 ft-lbs	18.0%	13	04-01-01
End Shear	1,980 lbs	11,571 lbs	17.1%	13	01-01-08
Total Load Deflection	L/999 (0.081")	n/a	n/a	35	04-04-00
Live Load Deflection	L/999 (0.06")	n/a	n/a	61	04-04-00
Max Defl.	0.081"	n/a	n/a	35	04-04-00
Span / Depth	10.7				



Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	2,274 lbs	20.0%	13.3%	Unspecified
B2	Wall/Plate 4" x 3-1/2"	1,360 lbs	11.8%	7.9%	Unspecified

OWB NO. YAW 2330.184
STRUCTURAL
COMPONENT ONLY

T. L. R. 443



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

2ND FLOOR FRAMING\Dropped Beams\B15 DR\12166

PASSED

January 29, 2019 16:17:38

BC CALCO Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

File name: TH 10E LOT21 SUNKEN.mmdl

Description: 2ND FLOOR FRAMING\Pro...d Beams\B15 DR\12166

Specifier:

Designer: AJ

Company:

Notes

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

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

Calculations assume unbraced length of Top: 04-00-08, Bottom: 04-00-08.

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

CONFORMS TO DBC 2012

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

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

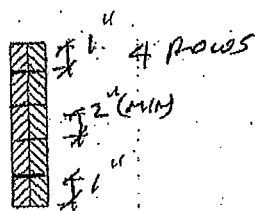
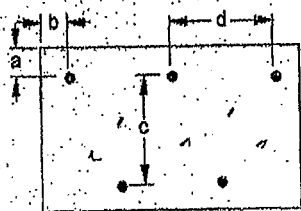
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

Member has no side loads.

Connection Diagram: Full Length of Member



a minimum = 1"

b minimum = 3"

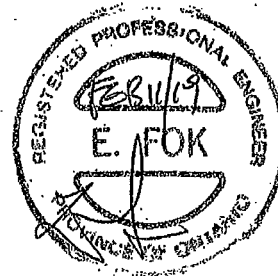
c = 7-1/2"

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.

Member has no side loads.

Connectors are: 3/4" ARDOX SPIRAL Nails



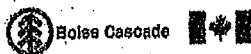
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BC CALCO®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

WWW.BC.CA 2330-1944
STRUCTURAL
COMPONENT ONLY

T. V. 20244365



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Flush Beams\B10\I2197

PASSED

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

January 29, 2019 16:17:38

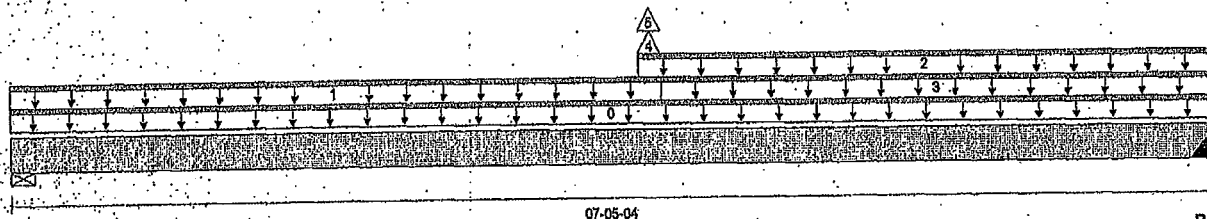
File name: TH 10E LOT21 SUNKEN.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B10\I2197

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 07-06-04

Reaction Summary (Down / Uplift) (lbs)

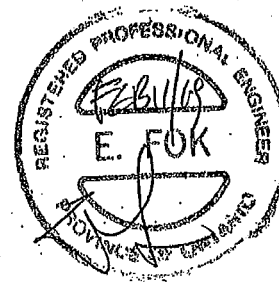
Bearing	Live	Dead	Snow	Wind
B1, 2-3/4"	165 / 98	122 / 0		
B2, 3"	130 / 112	216 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-06-04	Top		10			00-00-00
1	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-00-04	Top	33	17			n/a
2	WALL	Unf. Lin. (lb/ft)	L	03-10-09	07-06-04	Top		60			n/a
3	FC4 Floor Material	Unf. Lin. (lb/ft)	L	04-00-04	07-06-04	Top	11	5			n/a
4	B11(1998)	Conc. Pt. (lbs)	L	03-11-06	03-11-06	Top	124	-33			n/a
5	B11(1998)	Conc. Pt. (lbs)	L	03-11-06	03-11-06	Top	-210				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	867 ft-lbs	23,220 ft-lbs	3.7%	1	03-11-06
Neg. Moment	-324 ft-lbs	-23,220 ft-lbs	1.4%	4	03-11-06
End Shear	350 lbs	11,671 lbs	3.0%	1	06-04-12
Total Load Deflection	L/899 (0.011")	n/a	n/a	6	03-09-08
Live Load Deflection	L/999 (0.006")	n/a	n/a	8	03-08-07
Total Neg. Defl.	L/999 (-0.001")	n/a	n/a	7	03-06-05
Max Defl.	0.011"	n/a	n/a	6	03-09-08
Span / Depth	8.9				



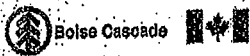
Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 2-3/4" x 3-1/2"	400 lbs	7.8%	3.4%	Unspecified
B2	Hanger 3" x 3-1/2"	465 lbs	n/a	3.6%	HGUS410

Cautions

Header, for the hanger HGUS410 at B2 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.
Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

DWG NO. TAM 2331-18H
STRUCTURAL
COMPONENT ONLY

T. Vasek



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Flush Beams\B10(I2197)

PASSED

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

January 29, 2019 16:17:38

File name: TH 10E LOT21 SUNKEN.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B10(I2197)

Specifier:

Designer: AJ

Company:

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

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

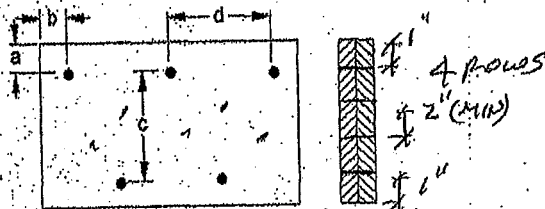
Design based on Dry Service Condition.

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

Connection Diagram: Full Length of Member



a minimum = 1"
b minimum = 3"

c = 7-1/2"
d = 12"

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

Connectors are: 1 Nails

3/4" ARDOX SPIRAL



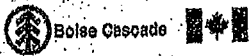
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OWNED BY 2331 118H
STRUCTURAL
COMPONENT ONLY

T. G. G. G.



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Flush Beams\B11(11998)

PASSED

BC CALCO Member Report
Build 6476

Dry | 1 span | No cant.

January 29, 2019 16:17:38

Job name:

File name: TH 10E LOT21 SUNKEN.mmd1

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B11(11998)

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

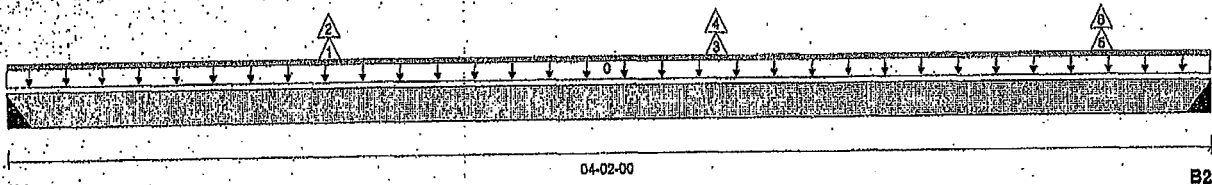
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

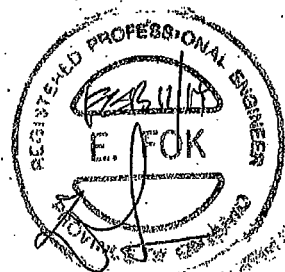
Bearing	Live	Dead	Snow	Wind
B1, 2"	123 / 209	0 / 32		
B2, 2"	156 / 268	0 / 42		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unif. Lin. (lb/ft)	L	00-00-00	04-02-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	J1(12382)	Conc. Pt. (lbs)	L	01-01-08	01-01-08	Top	102	-36			n/a
2	J1(12362)	Conc. Pt. (lbs)	L	01-01-08	01-01-08	Top	-175				n/a
3	J1(12293)	Conc. Pt. (lbs)	L	02-05-08	02-05-08	Top	105	-35			n/a
4	J1(12293)	Conc. Pt. (lbs)	L	02-05-08	02-05-08	Top	-175				n/a
5	J1(12177)	Conc. Pt. (lbs)	L	03-09-08	03-09-08	Top	72	-23			n/a
6	J1(12177)	Conc. Pt. (lbs)	L	03-09-08	03-09-08	Top	-117				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	192 ft-lbs	11,810 ft-lbs	1.7%	3	02-05-08
Neg. Moment	-441 ft-lbs	-11,810 ft-lbs	3.8%	2	02-05-08
End Shear	436 lbs	5,785 lbs	7.5%	2	03-02-08
Total Load Deflection	L/999 (0.001")	n/a	n/a	6	02-01-00
Live Load Deflection	L/999 (-0.003")	n/a	n/a	9	02-01-00
Total Neg. Defl.	L/999 (-0.003")	n/a	n/a	7	02-01-00
Max Defl.	-0.003"	n/a	n/a	7	02-01-00
Span / Depth	5.0				



Bearing Supports

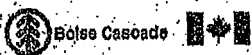
	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	2" x 1-3/4"	156 lbs	n/a	3.6%	HUS1.81/10
B1 Uplift		354 lbs			
B2 Hanger	2" x 1-3/4"	196 lbs	n/a	4.6%	L90
B2 Uplift		439 lbs			

Cautions

Uplift of 439 lbs found at span 1 - Right.
Hanger B2 cannot handle uplift of 439 lbs.
Header for the hanger HUS1.81/10 at B1 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.
Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.
Header for the hanger L90 at B2 is a Single 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.
Hanger model L90 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

OWNED BY 2332-184
STRUCTURAL
COMPONENT ONLY

T. L. 02/04/15



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B11(I1998)

Dry | 1 span | No cant.

January 29, 2019 16:17:38

BC CALC® Member Report

Build 6476

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

File name: TH 10E LOT21 SUNKEN.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B11(I1998)

Specifier:

Designer: AJ

Company:

Notes

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

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

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

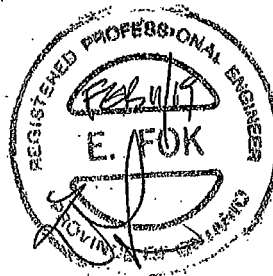
Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



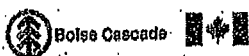
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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®

DWG NO. YAW 2332-184
STRUCTURAL
COMPONENT ONLY

T. V. Crepeau



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING Flush Beams B12(I2188)

PASSED

BC CALCO Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

Dry | 2 spans | R cant.

January 29, 2019 16:17:38

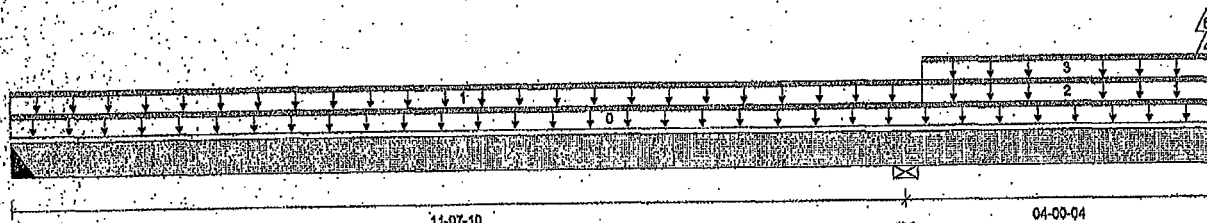
File name: TH 10E LOT21 SUNKEN.mmdl

Description: 2ND FLOOR FRAMING Flush Beams B12(I2188)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 15-07-14

Reaction Summary (Down / Uplift) (lbs)

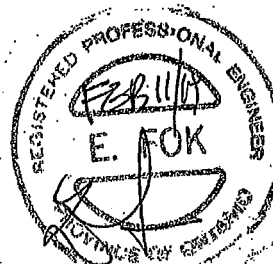
Bearing	Live	Dead	Snow	Wind
B1, 2"	166 / 144	32 / 0		
B2, 5-1/2"	874 / 346	328 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	15-07-14	Top		5			00-00-00
1	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-10-06	Top	13	7			n/a
2	STAIR	Unf. Lin. (lb/ft)	L	11-10-06	16-07-14	Top	120	60			n/a
3	FC4 Floor Material	Unf. Lin. (lb/ft)	L	11-10-06	16-07-14	Top	10	6			n/a
4	B11(I1998)	Conc. Pt. (lbs)	L	15-07-00	15-07-00	Top	168	-41			n/a
5	B11(I1998)	Conc. Pt. (lbs)	L	15-07-00	15-07-00	Top	-257				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,280 ft-lbs	11,610 ft-lbs	10.8%	7	09-02-03
Neg. Moment	-2,998 ft-lbs	-11,610 ft-lbs	25.8%	1	11-07-10
End Shear	257 lbs	5,785 lbs	4.4%	3	00-11-08
Cont. Shear	1,031 lbs	5,785 lbs	17.8%	1	12-07-14
Total Load Deflection	2xL/368 (0.262")	n/a	65.2%	13	15-07-14
Live Load Deflection	2xL/420 (0.23")	n/a	85.7%	17	15-07-14
Total Neg. Defl.	2xL/705 (-0.137")	n/a	34.1%	12	15-07-14
Max Defl.	-0.104"	n/a	n/a	13	06-11-15
Span / Depth	14.6				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Hanger	2" x 1-3/4"	290 lbs	n/a	6.8%	HUS1.81/10
B1 Uplift		187 lbs			
B2 Wall/Plate	5-1/2" x 1-3/4"	1,721 lbs	33.5%	14.7%	Unspecified
B2 Uplift		222 lbs			

Cautions

Uplift of 222 lbs found at span 1 - Right.
Uplift of 222 lbs found at span 2 - Left.
Header for the hanger HUS1.81/10 at B1 is a Double 1-3/4" x 9-1/2" VERSA-LAM® 1.7 2400 DF.
Header model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

DRW NO. TAN 233318H
STRUCTURAL
COMPONENT ONLY

T. 1902446

Т. Воробей



Boise Cascade



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

2ND FLOOR FRAMING\Flush Beams\B13(12390)

Dry | 1 span | No cant.

PASSED

January 29, 2019 16:17:38

BC CALCO Member Report

Build 6476

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

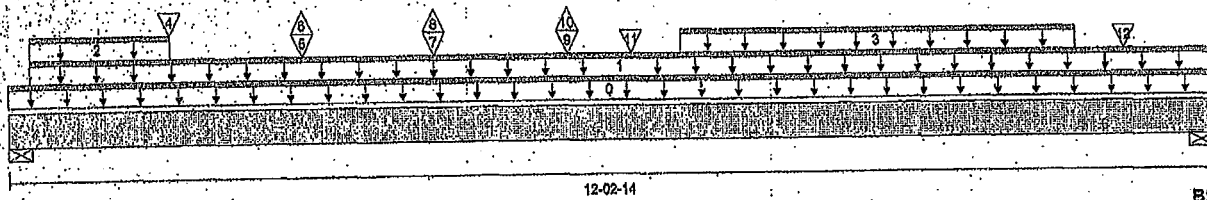
File name: TH 10E LOT21 SUNKEN.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B13(12390)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 12-02-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1,204 / 75	657 / 0		
B2, 2-3/8"	1,281 / 69	695 / 0		

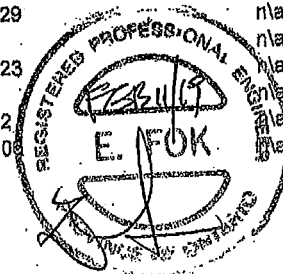
Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-02-14	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	12-02-14	Top	5	2			n/a
2	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-02-12	01-08-00	Top	27	14			n/a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	06-10-00	10-10-00	Top	235	118			n/a
4	J3(12174)	Conc. Pt. (lbs)	L	01-08-00	01-08-00	Top	307	153			n/a
5	J1(12362)	Conc. Pt. (lbs)	L	03-00-00	03-00-00	Top	260	129			n/a
6	J1(12362)	Conc. Pt. (lbs)	L	03-00-00	03-00-00	Top	-2				n/a
7	J1(12293)	Conc. Pt. (lbs)	L	04-04-00	04-04-00	Top	260	129			n/a
8	J1(12293)	Conc. Pt. (lbs)	L	04-04-00	04-04-00	Top	-2				n/a
9		Conc. Pt. (lbs)	L	05-08-04	05-08-04	Top	263	123			n/a
10		Conc. Pt. (lbs)	L	05-08-04	05-08-04	Top	-139				n/a
11	J3(12315)	Conc. Pt. (lbs)	L	06-04-00	06-04-00	Top	144	72			n/a
12	J3(12331)	Conc. Pt. (lbs)	L	11-04-00	11-04-00	Top	212	108			n/a

Controls Summary

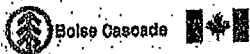
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	8,449 ft-lbs	23,220 ft-lbs	36.4%	1	06-04-00
End Shear	2,720 lbs	11,571 lbs	23.5%	1	11-03-00
Total Load Deflection	L/480 (0.293")	n/a	50.0%	6	06-04-00
Live Load Deflection	L/738 (0.19")	n/a	48.8%	8	06-04-00
Max Defl.	0.293"	n/a	n/a	6	06-04-00
Span / Depth	14.8				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	2,627 lbs	25.6%	11.2%	Unspecified
B2	Wall/Plate 2-3/8" x 3-1/2"	2,789 lbs	62.8%	27.5%	Unspecified



OWNED, TAW 233918H
STRUCTURAL
COMPONENT ONLY

T. V. 02/01/2019



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B13(I2390)

Dry | 1 span | No cant.

January 29, 2019 16:17:38

BC CALC® Member Report

Build 8475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

File name: TH.10E.LOT21.SUNKEN.rmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B13(I2390)

Specifier:

Designer: AJ

Company:

Notes

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

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

Calculations assume member is fully braced.

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

CONFORMS TO OBC 2012

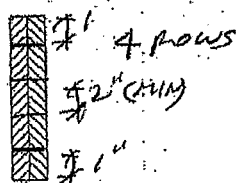
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

Connection Diagram: Full Length of Member



a minimum = 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: 1 Nail
3 1/2" ARDOX SPIRAL



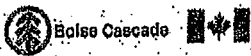
Disclosure

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

STRUCTURAL
COMPONENT ONLY

T. V. 1802407(w)



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Flush Beams\B14\I2003

PASSED

January 29, 2019 16:17:38

BC CALC® Member Report
Build 6476

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

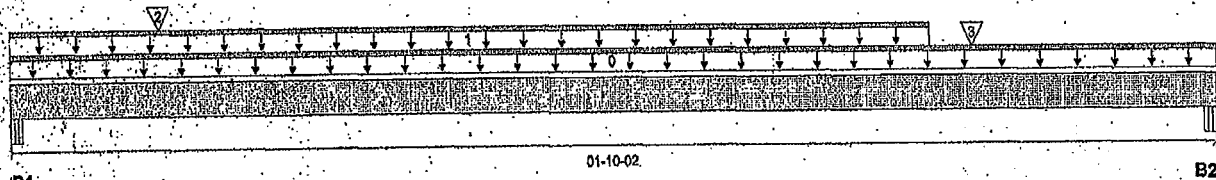
File name: TH 10E LOT21 SUNKEN.mmd\

Description: 2ND FLOOR FRAMING\Flush Beams\B14\I2003

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 01-10-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	95 / 0	157 / 0	154 / 0	
B2, 6-1/4"	201 / 0	224 / 0	149 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.66	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-10-02	Top		10			00-00-00
1	E17(I2428)	Unf. Lin. (lb/ft)	L	00-00-00	01-04-14	Top	77	151	147		n/a
2	E17(I2428)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	15	14	29		n/a
3		Conc. Pt. (lbs)	L	01-05-11	01-05-11	Top	170	136	67		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	111 ft-lbs	23,220 ft-lbs	0.5%	13	00-10-11
End Shear	123 lbs	11,571 lbs	1.1%	13	00-07-06
Total Load Deflection	L/999 (0")	n/a	n/a	35	00-10-06
Max Defl.	0"	n/a	n/a	35	00-10-06
Span / Depth	1.6				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Beam	3-1/2" x 3-1/2"	522 lbs	3.9%	3.5%	Unspecified
B2 Beam	5-1/4" x 3-1/2"	730 lbs	7.4%	3.3%	Unspecified

Notes

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

Calculations assume member is fully braced.

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

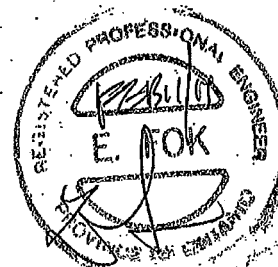
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

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

Design based on Dry Service Condition.

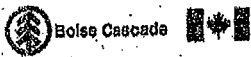
Importance Factor: Normal Part code: Part 9

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



OWNED, TAM 233519H
STRUCTURAL
COMPONENT ONLY

T. L. Gougeon



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Flush Beams\B14(I2003)

PASSED

January 29, 2019 16:17:38

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

File name: TH 10E LOT21 SUNKEN.mmdl

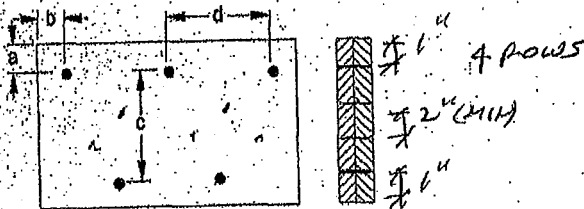
Description: 2ND FLOOR FRAMING\Flush Beams\B14(I2003)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



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

3/4" ARDOX SPIRAL



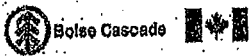
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STRUCTURAL
COMPONENT ONLY

T. 1902486



Triple 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Flush Beams\B16(12551)

PASSED

January 29, 2019 16:17:38

BC CALCO Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

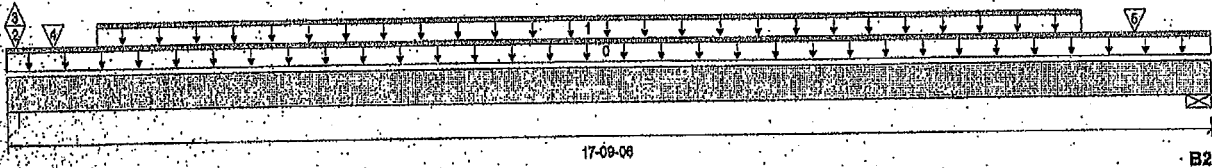
File name: TH:10E LOT21 SUNKEN.mmd

Description: 2ND FLOOR FRAMING\Flush Beams\B16(12551)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 17-09-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 6"	4,284 / 103	2,913 / 0		
B2, 4-3/8"	3,293 / 0	1,839 / 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	17-09-06	Top	21				00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-04-08	15-10-08	Top	409	205			n/a
2		Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	850	940			n/a
3		Conc. Pt. (lbs)	L	00-01-12	00-01-12	Top	-103				n/a
4		Conc. Pt. (lbs)	L	00-08-09	00-08-09	Top	363	245			n/a
5		Conc. Pt. (lbs)	L	16-08-01	16-08-01	Top	431	216			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	31,849 ft-lbs	76,349 ft-lbs	42.3%	1	08-10-08
End Shear	6,876 lbs	25,578 lbs	26.9%	1	01-08-00
Total Load Deflection	L/416 (0.491")	n/a	57.6%	6	08-10-08
Live Load Deflection	L/648 (0.316")	n/a	55.6%	8	08-10-08
Max Defl.	0.491"	n/a	n/a	6	08-10-08
Span / Depth	14.6				



Bearing Supports

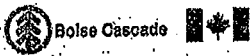
	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 6" x 5-1/4"	10,067 lbs	39.4%	26.2%	Unspecified
B2	Wall/Plate 4-3/8" x 6-1/4"	7,238 lbs	59.0%	25.8%	Unspecified

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. **CONFORMS TO OBC 2012**
- BC CALCO analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
- Design based on Dry Service Condition.
- Importance Factor: Normal Part code: Part 9
- Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
- Nailing schedule applies to both sides of the member.

DWG NO. TAM 233618H
STRUCTURAL
COMPONENT ONLY

T. V. Gougeon



Triple 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Flush Beams\B16(12551)
Dry | 1 span | No cant.

PASSED

January 29, 2019 16:17:38

BC CALCO® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

File name: TH:10E LOT21 SUNKEN.mmdl

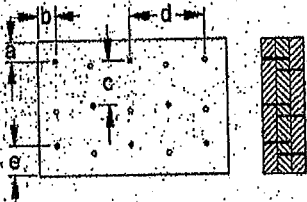
Description: 2ND FLOOR FRAMING\Flush Beams\B16(12551)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



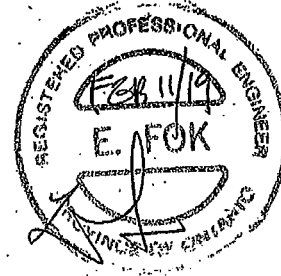
a minimum = 2"
b minimum = 3"

c = 4-1/2"
d = 6"
e minimum = 3"

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.
Nailing schedule applies to both sides of the member.

Connectors are: Nails

3 1/2" ARDOX SPIRAL



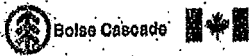
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DRWNO. 7AW 2336-18
STRUCTURAL
COMPONENT ONLY

T-19024496



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 2ND FLOOR FRAMING\Flush Beams\B17(12562)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

January 29, 2019 16:17:38

Buld 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

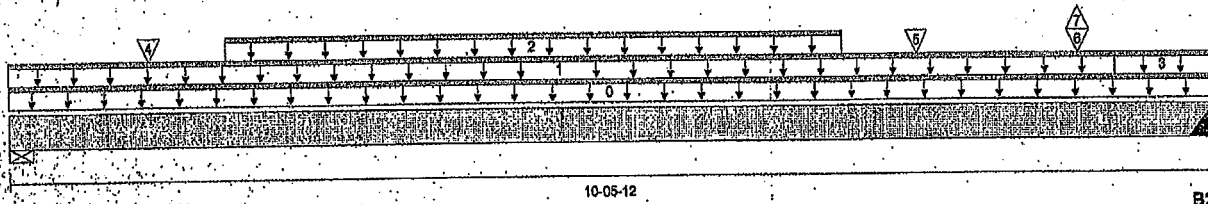
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Description: 2ND FLOOR FRAMING\Flush Beams\B17(12562)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 10-05-12

Reaction Summary (Down / Uplift) (lbs)

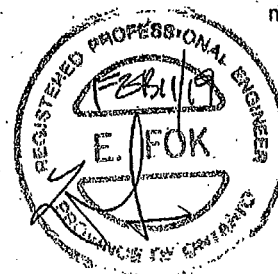
Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	742 / 10	438 / 0		
B2, 2-1/2"	773 / 102	617 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-05-12	Top		10			00-00-00
1	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	09-07-08	Top	8	4			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-10-14	07-02-14	Top	150	75			n/a
3	WALL	Unf. Lin. (lb/ft)	L	09-07-08	10-05-12	Top		44			n/a
4	J5(12679)	Conc. Pt. (lbs)	L	01-02-14	01-02-14	Top	185	93			n/a
5	J5(12313)	Conc. Pt. (lbs)	L	07-10-14	07-10-14	Top	187	94			n/a
6		Conc. Pt. (lbs)	L	09-03-08	09-03-08	Top	254	275			n/a
7		Conc. Pt. (lbs)	L	09-03-08	09-03-08	Top	-112				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4,522 ft-lbs	23,220 ft-lbs	19.5%	1	05-02-14
End Shear	1,903 lbs	11,671 lbs	16.4%	1	09-05-12
Total Load Deflection	L/999 (0.116")	n/a	n/a	6	05-04-14
Live Load Deflection	L/999 (0.072")	n/a	n/a	8	05-02-14
Max Defl.	0.116"	n/a	n/a	6	05-04-14
Span / Depth	12.7				



Bearing Supports

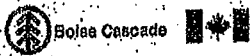
	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 3-1/2"	1,660 lbs	20.3%	8.9%	Unspecified
B2	Hanger 2-1/2" x 3-1/2"	1,931 lbs	n/a	18.1%	HUC410

Cautions

Header for the hanger HUC410 at B2 is a Triple 1-3/4" x 14" VERSA-LAM® 1.7 2400 DF. Hanger model HUC410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

DWG NO. YAW2337-18H
STRUCTURAL
COMPONENT ONLY

T. V. 201450



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Flush Beams\B17\12562

PASSED

January 29, 2019 16:17:38

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMO 12472-R

File name: TH:10E LOT21 SUNKEN.mmd

Description: 2ND FLOOR FRAMING\Flush Beams\B17\12562

Specifier:

Designer: AJ

Company:

Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

CONFORMS TO OBC 2012

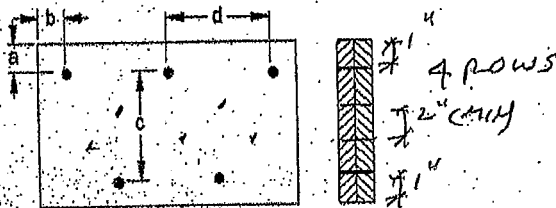
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

Connection Diagram: Full Length of Member



a minimum = 1"
b minimum = 3"

c = 7-1/2"
d = 8" @ 1"

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

Connectors are: Nails

3 1/2" ARDOX SPIRAL



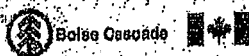
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BC CALC®, BC FRAMER®, AJST™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®

STRUCTURAL
COMPONENT ONLY

T. G. 02/25/2019



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

2ND FLOOR FRAMING\Flush Beams\B8(12547)

PASSED

BC CALC® Member Report

Dry | 1 span | No cant.

January 29, 2019 16:17:38

Build 6475

Job name:

File name: TH_10E LOT21 SUNKEN.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B8(12547)

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

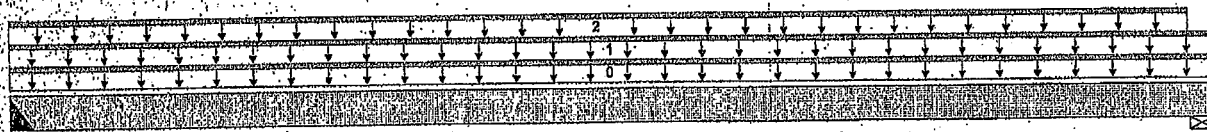
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



B1 Total Horizontal Product Length = 09-00-12 B2

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-1/2"	79 / 0	310 / 0		
B2, 2-3/8"	79 / 0	300 / 0		

Load Summary

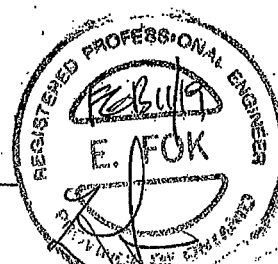
Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-00-12	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	09-00-12	Top	17	9			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-00-00	08-10-08	Top		50			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	923 ft-lbs	15,093 ft-lbs	6.1%	0	04-06-07
End Shear	339 lbs	7,621 lbs	4.5%	0	01-00-00
Total Load Deflection	L/999 (0.023")	n/a	n/a	4	04-06-07
Live Load Deflection	L/999 (0.005")	n/a	n/a	5	04-06-07
Max Defl.	0.023"	n/a	n/a	4	04-06-07
Span / Depth	11.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2-1/2" x 3-1/2"	435 lbs	n/a	6.3%	HUC410
B2	Wall/Plate 2-3/8" x 3-1/2"	420 lbs	14.5%	6.4%	Unspecified



Cautions

Header for the hanger HUC410 at B1 is a Triple 1-3/4" x 14" VERSA-LAM® 1.7 2400 DF.
Hanger model HUC410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

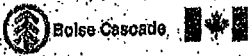
Notes

- Design meets Code minimum (L/240) Total load deflection criteria.
- Design meets Code minimum (L/360) Live load deflection criteria.
- Calculations assume member is fully braced.
- Hanger Manufacturer: Unassigned
- Resistance Factor phi has been applied to all presented results per CSA O86.
- BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.
- Design based on Dry Service Condition.
- Importance Factor: Normal Part code: Part 9
- Member has no side loads.

CONFORMS TO OBC 2012

DWG NO. TAM2338-18H
STRUCTURAL
COMPONENT ONLY

T. L. GORDON



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Flush Beams\B8(12547)

PASSED

BC CALC® Member Report

Build 6476

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

January 29, 2019 16:17:38

File name: TH 10E LOT21 SUNKEN.mmdl

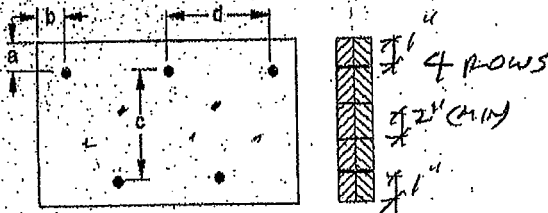
Description: 2ND FLOOR FRAMING\Flush Beams\B8(12547)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



a minimum = 1"
b minimum = 3"

c = 1 1/2"
d = 12"

Member has no side loads.

Connectors are: 1 Nails

3 1/2" ARDOX SPIRAL

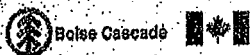


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DWG NO. TAW 2-338-18H
STRUCTURAL
COMPONENT ONLY

T-1902451(2)



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B9\I2681

Dry | 1 span | No cant.

January 29, 2019 16:17:38

BC CALC® Member Report

Build 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

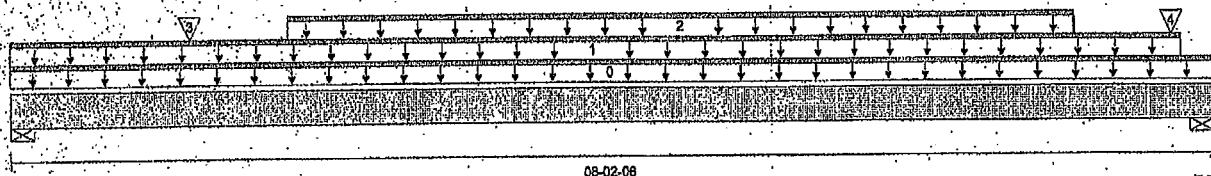
File name: TH 10E LOT21 SUNKEN.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B9\I2681

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 08-02-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	549 / 0	314 / 0		
B2, 5-1/2"	707 / 0	394 / 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	08-02-06	Top	10	0.65	1.00	1.16	00-00-00
1	FO4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-11-10	Top	10	5			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-10-14	07-02-14	Top	150	75			n/a
3	J5(I2679)	Conc. Pt. (lbs)	L	01-02-14	01-02-14	Top	185	93			n/a
4	J5(I2313)	Conc. Pt. (lbs)	L	07-10-14	07-10-14	Top	187	94			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,503 ft-lbs	23,220 ft-lbs	10.8%	1	03-10-14
End Shear	1,175 lbs	11,571 lbs	10.2%	1	01-01-14
Total Load Deflection	L/999 (0.035")	n/a	n/a	4	04-00-14
Live Load Deflection	L/999 (0.023")	n/a	n/a	5	04-00-14
Max Defl.	0.035"	n/a	n/a	4	04-00-14
Span / Depth	9.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 3-1/2"	1,216 lbs	14.9%	6.5%	Unspecified
B2	Wall/Plate 5-1/2" x 3-1/2"	1,552 lbs	15.1%	6.6%	Unspecified

Notes

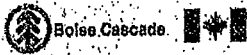
Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86. **CONFORMS TO OBC 2012**
 BC CALC® analysis is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



pg 1/2

DWG NO. TAM 2339-18H
 STRUCTURAL
 COMPONENT ONLY

T-1902452



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B9(12681)

Dry | 1 span | No cant.

January 29, 2019 16:17:38

BC CALC® Member Report

Build 6476

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

File name: TH 10E LOT21 SUNKEN.mmdl

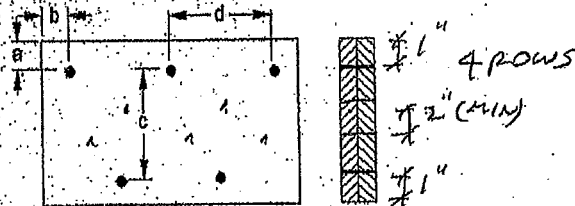
Description: 2ND FLOOR FRAMING\Flush Beams\B9(12681)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



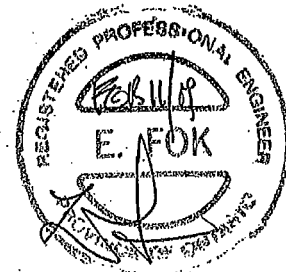
a minimum = 1"
b minimum = 3"

c = 7-1/2"
d = 12"

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

Connectors are: Nails

3/4" ARDOX SPIRAL

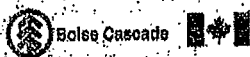


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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®
DWG NO. TAM 2339-18H
STRUCTURAL
COMPONENT ONLY

T. 19021526

**Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLOOR FRAMING\Flush Beams\B2A(12547)**

Dry | 1 span | No cant.

October 30, 2018 15:56:06

BC CALC® Member Report

Build: 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

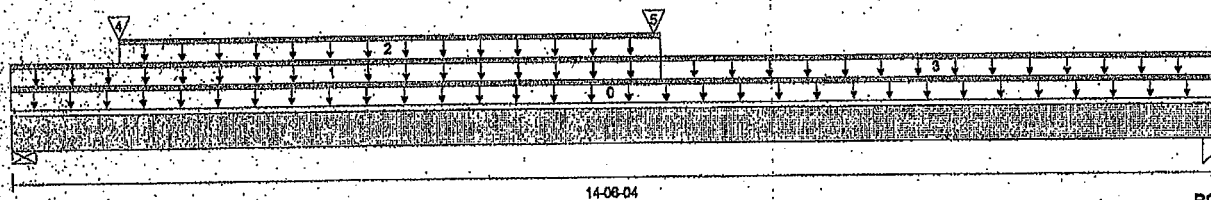
File name: TH-10E LOT21.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B2A(12547)

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 14-06-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4-3/8"	736 / 0	700 / 0		
B2, 1-3/4"	434 / 0	311 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	14-06-04	Top		10			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-10-02	Top	7	4			n/a
2	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-04-02	07-10-02	Top	24	12			n/a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	07-10-02	14-06-04	Top	10	5			n/a
4	J5(12545)	Conc. Pt. (lbs)	L	01-04-02	01-04-02	Top	321	438			n/a
5	B6(12577)	Conc. Pt. (lbs)	L	07-09-04	07-09-04	Top	561	289			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5,166 ft-lbs	23,220 ft-lbs	28.6%	1	07-09-04
End Shear	1,933 lbs	11,571 lbs	16.7%	1	01-01-14
Total Load Deflection	L/803 (0.281")	n/a	39.8%	4	07-04-07
Live Load Deflection	L/1,019 (0.166")	n/a	35.3%	5	07-04-07
Max Defl.	0.281"	n/a	n/a	4	07-04-07
Span / Depth	17.9				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4-3/8" x 3-1/2"	1,979 lbs	30.2%	10.6%	Unspecified
B2	Column 1-3/4" x 3-1/2"	1,038 lbs	26.1%	13.9%	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.

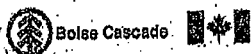
Importance Factor: Normal Part code: Part 9

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

OWEN, YAM 234218H
 STRUCTURAL
 COMPONENT ONLY

T-1902453



Double 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP
1ST FLOOR FRAMING\Flush Beams\B2A\12547

PASSED

October 30, 2018 15:56:06

BO CALC® Member Report

Build: 6475

Job name:

Address:

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

Customer:

Code reports: CCMC 12472-R

File name: TH 10E LOT21.mmdl

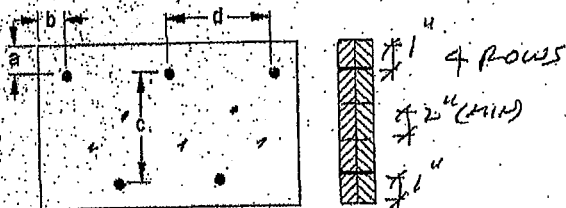
Description: 1ST FLOOR FRAMING\Flush Beams\B2A\12547

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



a minimum = 1"
b minimum = 3"

c = 1-1/2"
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: 3/4" ARDOX SPIRAL



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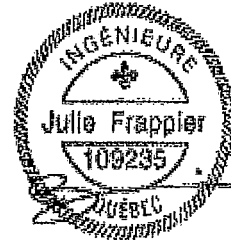
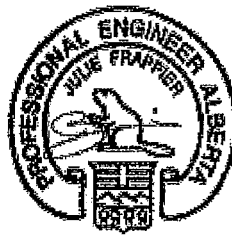
BO CALC®, BO FRAMER®, AJSTM, ALJJOIST®, BO RIM BOARD®, BCI®, BOISE GLULAM®, BO FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®

DWG NO. TAM 2340-18
STRUCTURAL
COMPONENT ONLY

T-1902453/25

Maximum Floor Spans

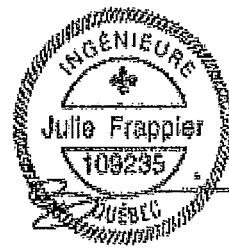
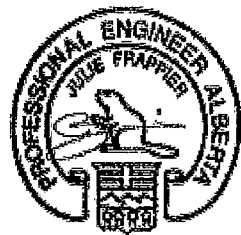
Live Load = 40 psf, Dead Load = 30 psf
Simple Spans, L/480 Deflection Limit
3/4" OSB G&N Sheathing



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

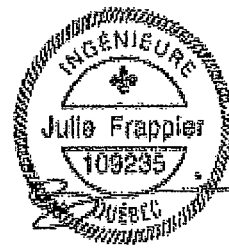
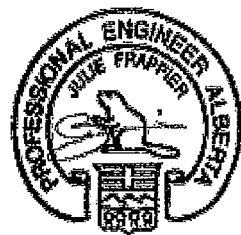
Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing

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

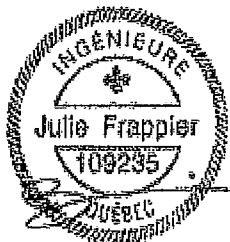
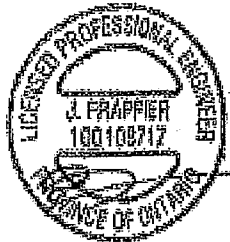
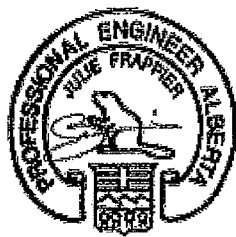


Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"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

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

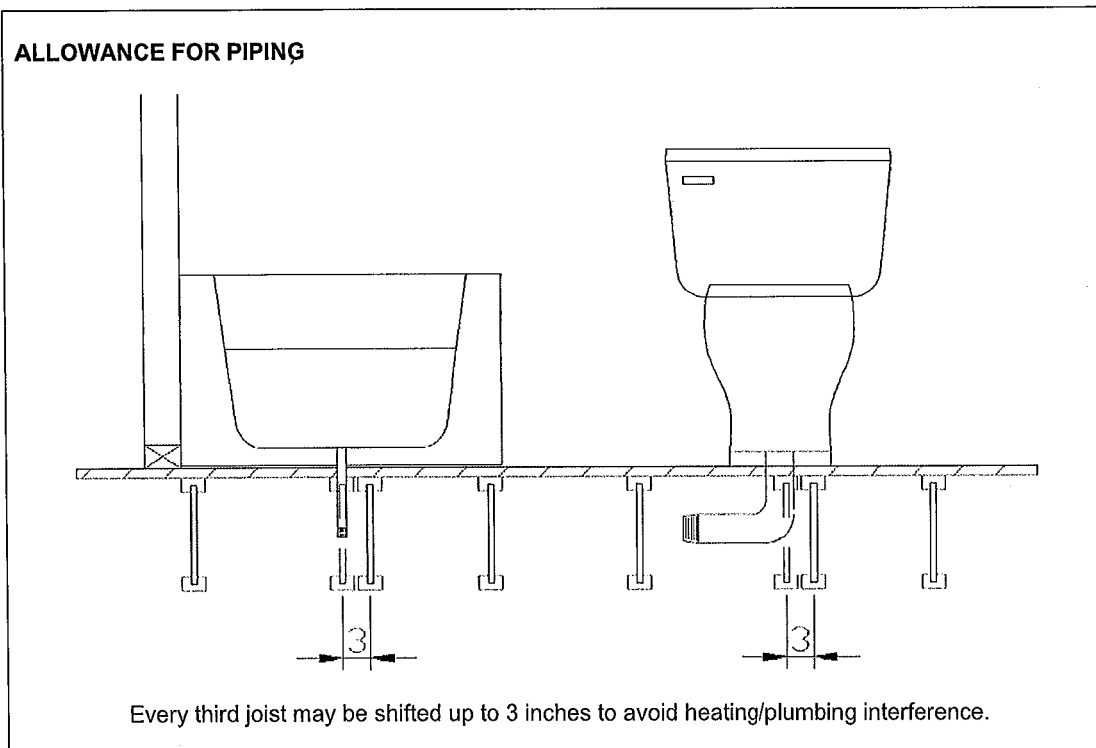
- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load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

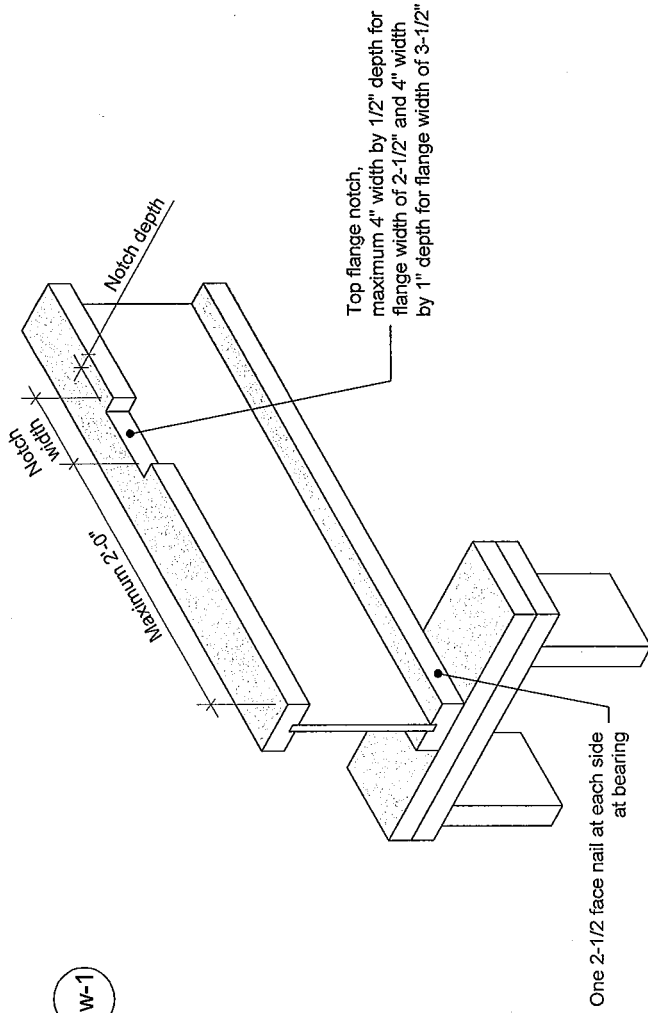
Installation of Nordic I-joists shall be as per *Nordic Joist Installation Guide for Residential Floors*. Refer to Tables 1 and 2 for maximum web hole and duct chase openings, respectively. These tables are based on the I-joists being used at their maximum spans. The minimum distance given may be reduced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

1W-1



Maximum 1/2" depth for flange width of 2-1/2"
and 1" depth for flange width of 3-1/2"

Heat register

Notes:

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

This document supersedes all previous versions. If the document has been in effect for more than one year, consult nordic.ca or contact Nordic Structures.
All nails shown in the details are assumed to be common nails unless otherwise noted. Nails shall have a diameter not less than 0.128 inch for 2-1/2-inch nails, or 0.144 inch for 3-inch nails. Individual components not shown to scale for clarity.

NORDIC STRUCTURES	T 514-871-8526 1 866 817-3418 nordic.ca	TITLE		DOCUMENT	
		Notch in I-joist for Heat Register		-	
		CATEGORY		DATE	NUMBER
		I-joist - Typical Floor Framing and Construction Details		2018-04-10	1W-1