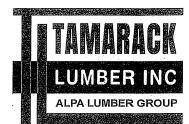


**		Products		
PlotID	Length	Product	Plies	Net Qty
J1	20-00-00	11 7/8" NI-40x	1	2
J1DJ	20-00-00	11 7/8" NI-40x	2	4
J2	10-00-00	11 7/8" NI-40x	1	3
J2DJ	10-00-00	11 7/8" NI-40x	2	2
<sup>-</sup> J3	6-00-00	11 7/8" NI-40x	1	8
J4	4-00-00	11 7/8" NI-40x	1	3
J5	2-00-00	11 7/8" NI-40x	1	4
J6	20-00-00	11 7/8" NI-80	1	15
B1	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B4	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B5	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
. <b>B</b> 7	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B10	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B8	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B9	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary							
Manuf	Product						
H1	IUS2.56/11.88						
H1	IUS2.56/11.88						
H1	IUS2.56/11.88						
H2	HUS1.81/10						
H2	HUS1.81/10						
	Manuf H1 H1 H1 H2						



## FROM PLAN DATED:

**BUILDER: ROYAL PINE HOMES** 

**SITE:** CENTREFIELD WEST GORMLEY

MODEL: 2010

**ELEVATION:** A,B

LOT:

**CITY: RICHMOND HILL** 

SALESMAN: MARIO DICIANO

DESIGNER: AJ REVISION:

NOTES:

REFER TO THE **NORDIC INSTALLATION**GUIDE FOR PROPER STORAGE AND

INSTALLATION.

SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2 S.P.F REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. MULTIPLE SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK REIJOIST BLOCKING ALONG BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIELD CUT OPENINGS SEE FIGURE 7, TABLES 1 & 2. CERAMIC TIL APPLICATION AS PER O.B.C 9.30.6.

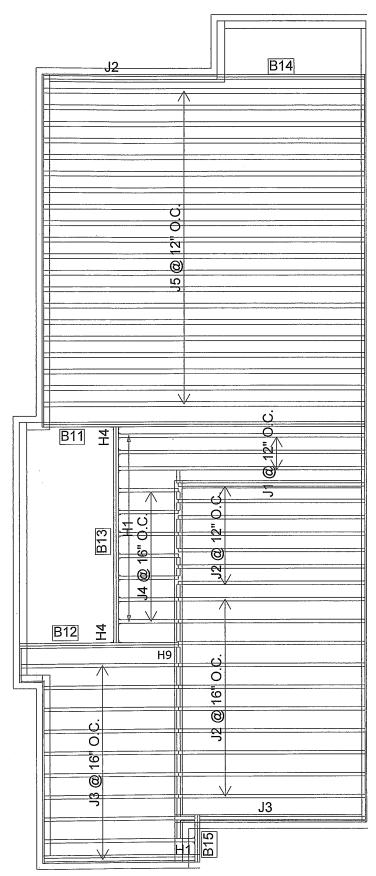
## LOADING:

DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft<sup>2</sup> DEAD LOAD: 20.0 lb/ft<sup>2</sup>

**SUBFLOOR: 3/4" GLUED AND NAILED** 

**DATE:** 2020-08-06

# 1st FLOOR



		Products		
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	11 7/8" NI-40x	1	3
J2	12-00-00	11 7/8" NI-40x	1	18
J3	10-00-00	11 7/8" NI-40x	1	11
J4	4-00-00	11 7/8" NI-40x	1	7
J5	20-00-00	11 7/8" NI-80	1	20
B11	20-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B13	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B12	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B14	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B15	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

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



FROM PLAN DATED:

**BUILDER: ROYAL PINE HOMES** 

SITE: CENTREFIELD WEST GORMLEY

MODEL: 2010

**ELEVATION:** A,B

LOT:

**CITY: RICHMOND HILL** 

SALESMAN: MARIO DICIANO

DESIGNER: AJ REVISION:

NOTES:

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

LOADING:

DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft<sup>2</sup> DEAD LOAD: 20.0 lb/ft<sup>2</sup>

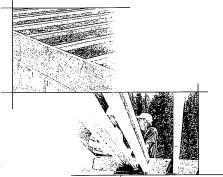
**SUBFLOOR:** 5/8" GLUED AND NAILED

**DATE:** 2020-07-27

2nd FLOOR

## INSTALLATION GUIDE

## FOR RESIDENTIAL FLOORS







Distributed by:

## SAFETY AND CONSTRUCTION PRECAUTIONS



Do not walk on I-joists until fully fastened and





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

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 1-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-indiging at joist ends. When 1-joists are applied continuous over interior supports and a load-bearing well 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 Ljoists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent l-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 Ljoist. Nail the bracing to a lateral restraint at the end of each boy. Lop ends of adjoining bracing over at least two Ljoists.

Or, sheathing (temporary or permonent) 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. 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 requi can result in serious accidents. Follow these installation guidelines carefully.

## MAXIMUM FLOOR SPANS

## Maximum clear spons applicable to simple-span or multiple-span residential floor construction with a design live load of 40 pt and dead load of 15 pt. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibrotion and a live load deflection limit of U480. For multiple-spon applications, or more of the adjacent span. ions, the end spons shall be 40%

2. Spans are based on a composite floor with glued-nailed oriented strand board (CSB) sheathing with a minimum thickness of 5/8 inch for a joist specing of 19.2 inches or less, or 3/4 inch for joist specing of 24 inches. Adhesive shall meet the requirements given in CGBS-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the used of gypsum and/or or own of blacking at mid-span.

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

S. 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.

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

## AXIMUM FLOOR SPANS FOR NORDIC I-JOISTS

5191677	937	13	0024	533	950	9.3	10020	500
NI-20	15'-1"	14'-2"	13'-9"	13'-5"	16'-3'	15'-4"	14'-10"	14'-7"
NI-40x	16-11	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'-1"
NI-70	17:11	16-1	15'-6"	15'-7"	18'-7"	17:-4"		16'-10'
NI-80	17'-3"	16'-3'	15'-8'	15'-9"	18'-10'	17-6		17'-0"
NI-20	16'-11"	16'-0'	15'-5"	15'-6"	18'-4"	17'-3"		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"
NI-70	19'-6"	18'-0"	17-4	17'-5"	21'-6"	19'-11'	19'-0'	19'-1"
NI-80	19'-9"	18'-3"	17'-6"	17'-7"	21'-9"	20:-2*		19'-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*
NI-40x	20'-1"	18'-7"	17'-10'	17'-11"	22'-2"	20'-6"		19'-4"
NI-60	20'-5"	18'-11"	18'-1"	18'-2'				20-1
NI-70	21'-7"	20'-0"	19-1	19-2				21'-2"
NI-80	21'-11"	20'-3"	19'-4"	19'-5"	24'-3"	22'-5"		21'-6"
NI-90	22'-5"	20'-8"	19'-9"	19-10	24'-9"			21'-10'
NI-90x	22'-7'	20'-11"	19'-11"	20'-0"	25'-0'			22'-2'
NI-60	22'-3"	20'-8"	19'-9"	19'-10'	24'-7"			21'-10'
NI-70	23'-6"			20'-10'				23'-0"
NI-80	23'-11"	22'-1"	21'-1"	21'-2"	26'-5"	24'-5"		23'-4"
NI-90	24'-5"	22'-6"	21'-5"	21'-6"	26'-11"	24'-10"		23'-9"
NI-90x	24'-8'	22'-9'	21'-9'	21'-10"	27'-3"	25'-2'	24'-0"	24'-1'
	NI-20 NI-40x NI-60 NI-70 NI-80 NI-20 NI-40x NI-60 NI-90x NI-40x NI-60 NI-70 NI-90x NI-	15-1   Ni-20   15-1   Ni-40k   16-1   Ni-60   16-1   Ni-60   16-1   Ni-80   17-3   Ni-20   16-1   Ni-80   17-3   Ni-80   18-4   Ni-80   19-9   20-2   Ni-90   20-2   Ni-9	152   152	15   1922   15   1922   18-9	15   102   23   23   103   23   10	15   1922   23   123	152   153   1542   253   1542   1543     NI-20   151-11   14-22   13-9"   131-5"   16-3"     NI-40   16-11   15-2"   14-8"   14-9"   17-5"   16-5"     NI-60   16-3"   15-4"   14-10"   14-11"   17-7"   16-7"     NI-70   17-11   16-11   15-6"   15-7"   18-7"   17-4"     NI-80   17-3"   16-3"   15-8"   15-7"   18-7"   17-4"     NI-80   17-3"   16-3"   15-8"   15-9"   18-10"   17-6"     NI-80   18-4"   17-3"   16-3"   16-5"   16-6"   20-0"     NI-60   18-4"   17-3"   16-3"   16-5"   16-6"   20-0"     NI-70   19-6"   18-0"   17-4"   17-5"   21-6"     NI-80   19-9"   18-3"   17-6"   17-7"   21-9"   20-2"     NI-80   19-9"   18-3"   17-6"   17-7"   21-9"   20-2"     NI-90   20-4"   18-9"   17-11"   18-0"   22-5"   20-7"     NI-80   21-7"   20-0"   19-1"   19-2"   23-10"   22-1"     NI-80   22-5"   20-8"   19-9"   19-10"   24-9"   22-15"     NI-90   22-5"   20-8"   19-9"   19-10"   24-9"   22-15"     NI-90   22-5"   20-8"   19-9"   19-10"   24-7"   22-9"     NI-90   22-5"   20-8"   19-9"   19-10"   24-7"   22-9"     NI-90   23-5"   20-8"   19-9"   19-10"   24-7"   24-9"     NI-90   23-5"   20-8"   20-9"   20-10"   26-5"   24-5"     NI-90   23-5"   20-8"   21-5"   21-5"   21-5"   24-5"   24-5"     NI-90   23-5"   20-8"   21-5"   21-5"   21-5"   24-5"   24-5"     NI-90   23-5"   20-8"   21-5"   21-5"   20-5"   24-5"   24-5"     NI-90   23-5"   20-8"   21-5"   21-	152   153   1542   243   154   1542   154   1542   1543   1542   1543   1544   14410   1641   1552   1448   1449   17.55   1645   1541   14410   1641   1545   15

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

(1n)

l-joist per detail 1b

over all interio

supports under load-bearing walls or when floor joists are not continuous over support

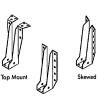
## CCMC EVALUATION REPORT 13032-

(1h)

Double I-joist header -

## I-JOIST HANGERS

- 2. All nailing must meet the hanger
- 3. Hangers should be selected based on the joist depth, flange width and load capacity based on the
- moximum spans. Web stiffeners are required when the sides of the hangers do not laterally brace the top flange of the 1-joist.



## STORAGE AND HANDLING GUIDELINES

- 1. Bundle wrap can be slippery when wet. Avoid walking on wrapped
- 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 1-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
- Pick I-joists in bundles as shipped by the supplier

9. NEVER USE OR TRY TO REPAIR A DAMAGED I-JOIST.

- Orient the hundles so that the webs of the Ligists 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

## WEB STIFFENERS

## RECOMMENDATIONS:

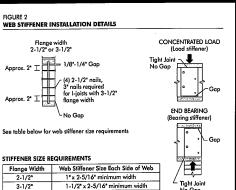
- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the l-joist properties table found of the l-joist Construction Guide (C101). The gap belv the stiffener and the flange is at the top.
- A bearing stiffener is required when the I-joist is supported 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 greate than 2,370 libs is applied to the top liange between supports, or in the cose of a carnillever, anywhere between the carnillever, and term load duration, and may be adjusted for other load durations as permit by the code. The gap between the siffener and the flange is at the bottom.

SI units conversion: 1 inch = 25.4 mm

— Nordic Lam or SCL

(lk)

1)



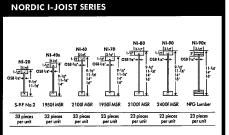
(19)

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

(Im)

Install hanger per \_\_/ manufacturer's

acker block attached per detail 1h. Nail with twelve 3\* nails, clinch when possible.



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

Nordic Engineered Wood I-joists use only finger-jointed back spruce lumber in their flanges, ensuring consistent quality, superior strength suin. longer span carrying capacity. 2015-04-16

Backer block (use if hanger load exceeds 360 lbs)
Before installing a backer block to a double 1-joist, drive three
additional 37 anils through the webs and filler block where the
backer block will fit. Clinch. Install backer tight to top flange.
Use twelve 37 anils, clinched when possible. Maximum factored
resistance for hanger for this detail = 1,620 lbs.

Note: Unless henges sides, logerally emphasized flougy supring stiffenan-shall be seen as the state of the seen as the state of the seen as the seen a

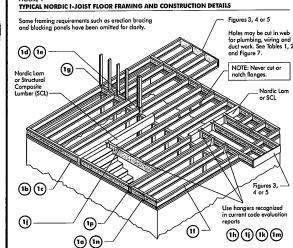
2015-04-16

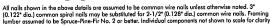
## INSTALLING NORDIC I-JOISTS

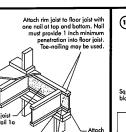
- 1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, continued
- 2. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched 3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
- Lipists must be anchored securely to supports before floor sheathing is attached, and supports for be level.
- 5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings 2015-04-16 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, outlo equipment and security cameros. Never suspend unusual or heavy loads from the I-plais's bottom flange. Whenever possible, suspend all concentrated loads from the top of the I-plais. Or, attach the load to blocking that has been securely fastened to the
- 9. Never install 1-joists where they will be permanently exposed to weather, or where they will remain in direct contact with
- 10. Restrain ends of floor joists to prevent rollover. Use rim board, rim joists or 1-joist blocking panels

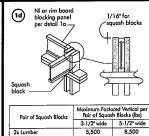
6" o.c. to to

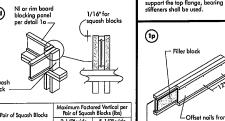
- 11. For Ligists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (cripple members) to transfer gravity loads through the floor system to the wall or foundation below.
- 12. Due to shrinkage, common framing lumber set an edge may never be used as 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 Lipists at interior supports of multiple-span joists. Similarly, support the bottom flange of all contilevered Lipists at the end support next to the confilever extension. In the completed structure, the gypsum valiboard 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. Noil spacing: Space noils installed to the flunge's top face in accordance with the applicable building code requi approved building plans.

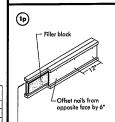












Top- or face-mount hanger installed per manufacturer's recommendations

For nailing schedules for multiple

lote: Unless hanger sides laterally



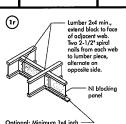
Top-mount hanger installed per

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

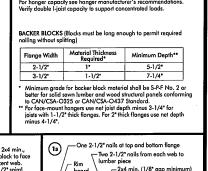
Use single I-joist for loads up to 3,300 plf, double I-joists for loads up to 6,600 plf (filler block not

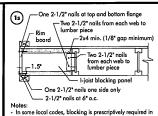
Rim board may be used in lieu of I-joists. Backer is not required when rim board is used. Bracing per code shall be carried to the foundation.

# 9-1/2" 2-1/8" x 6" 11-7/8" 2-1/8" x 8" 2-1/8" x 10" 2-1/8" x 12"



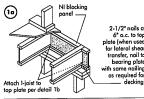
strap applied to underside of joist at blocking line or 1/2 inch minimum gypsum ceiling attached to underside of joists.



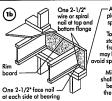


Notes:

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 requiremen for spacing of the blacking.
All nais are common spiral in this detail.



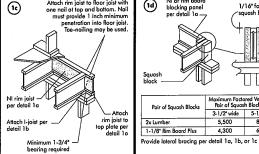
3,300 "The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duration it shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

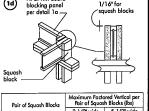


. PRATEIER

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

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 bused in the design of a bending member, such as joist, header, or rofter. For concentrated vertical load transfer, see detail 1d.





1-1/8' Rim Board Plus 4,300 6,600

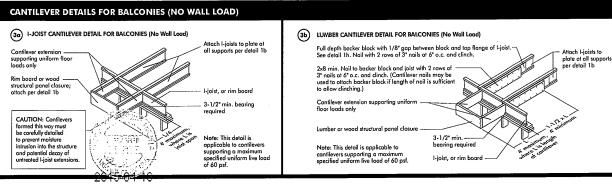
—1/8" to 1/4" gap between top flange and filler block

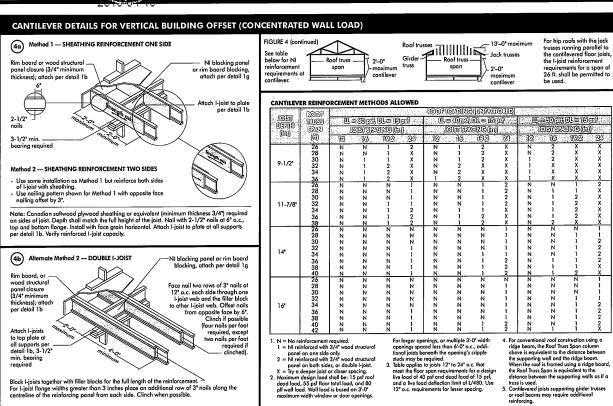
# Nall joists together with two rows of 3\* noils of 12 inches o.c. (clinched when possible) on each side of the double 1-joist. Total of four nails per foot required. If nails can be clinched, only two nails per foot ore required.

5. The maximum factored load that may be applied to one side of the double joist using this detail is 860 lbf/ft. Verify double I-joist capacity.

# FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION Flange Joist Filler Size Depth Block Size 2-1/2"× 1-1/2" 3-1/2\* × 11-7/8\* 1-1/2\* 14\* 16\* 3-1/2\* × 11-7/8\* 14\* 16\*

Maximum support capacity = 1,620 lbs.





## BRICK CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD) For hip roofs with the jack trusses running parallel to the contilevered floor joists, the I-joist reinforcement requirements for a span of 26 ft. shall be permitted to be used. Roof trusses Girder Roof truss 2'-0' Roof truss 2'-0' 12" minimum length of sheathing reinfe Roof truss — 2'-0" Provide full depth blocking between joists over support (not shown) maximum cantilever \_\_\_\_ and bottom joist flange with 2-1/2" nails at 6" Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall motath the full height of the joist. Nail with 2-1/2" noils at 6° o.c., top and bottom flonge. Install with face grain harizontal. Attach I-joist to plate at all supports per detail 1b. Verify reinforced I-joist capacity. o.c. (offset opposite face nailing by 3" when using reinforcement on both sides of 1-joist) BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED DEATH DEATH (D) 9-1/2 (5b) SET-BACK DETAIL CESE. 201204 11-7/8 Notes: - Provide full depth blocking Provide full depth blocking between joists over support (not shown for clarity) Attach I-joist to plate at all supports per detail 15. 3-1/2\* minimum I-joist bearing required. (5c) SET-BACK CONNECTION Nail joist end using 3" nails, toe-nail at top and bottom flanges. Vertical solid sawn blocks (2x6 S-P-F No. 2 or better) nailed through joist web and web of girder using 2-1/2" nails. Alternate for opposite side. Hanger may be used in lieu of solid sawn bloo N = No reinforcement required. 1 = NI reinforced with 3/4" wood structural panel on one side only. 2 = NI reinforced with 3/4" wood structural panel on both sides, or double 1-joist. X = Tip a deeper joist or class spacing. Maximum design load shall be: 15 psf roof. For larger openings, or multiple 3'-0" width openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between additional joists beneath the opening's crippte studs may be required. Table applies to joists 12 to 24 o.c. that meat he floor span requirements for a design live load of 40 psf and dead load of 15 psf, and olive load deflection limit of L/480. Use 12 o.c. requirements for lesser spacing. the supporting wall and the ridge beam. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a Notes: · Verify girder joist capacity if the back span

Maximum design food shall be: 15 pst root dead load, 55 pst floor total load, and 80 plf wall load. Wall load is based on 3.0° maximum width window or door openings.

exceeds the joist spacing.

Attach double I-joist per detail 1p, if required.

### 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.
- 2. 1-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- 3. Whenever possible, field-cut holes should be centred on the middle of the web.
- 4. The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. An aminimum 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.
- 6. Where more than one hole is necessary, the distance between adjacent hole where more mon the foles in element; if the distinct between object of the distinct of the distinct of the largest round hole or which the size of the largest square hole (or livice the length of the largest square) to the object in the largest round hole or which the size of the largest rectumplay in hole or duck chase opening) and each hole and duct of the largest rectumplay in hole or duck chase pening) and each hole and duct on 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 contilevered section of a joist. Holes of greater size may be permitted subject to realize the section of a joist.
- 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.
- 11. Limit three maximum size holes per span, of which one may be a duct chase
- 12. 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.

riON OF CIRCULAR HOLES IN JOIST WEBS le or Multiple Span for Dead Loads up to 15 psf and Live Loads up to 40 psf

-Halai	4-965	hips Minimum sharms izaman side taga, izany angga is tamis at hata pista.)								53300							
	Sorte							mahas	(lo ilia	aintavi	foil						38 J. Sondie
TOPH	200171007	- 2)	.3).	- 31	-5	. (3	Se 174	7	(9)	电等用	3)	0.0	10:02	30	19	WEEK.	E86.337
	NI-20	0'-7'	1'-6"	2:10'	4'-3'	5'-8"	6,0,						•••	•••			13'-6"
	NI-40x	0.7	1:-6"	3.0.	4-4	6:-0"	6'-4"					***	***		•••	***	14'-9"
9-1/2'	NI-60	1'-3"	2-6	4:-0"	5'-4"	7:0	7'-5"		***	***			•••	***	***	***	14'-11"
	NI-70	2'-0"	3'-4"	4'-9"	6'-3"	8-0*	8'-4"			•••	***	• • • •		•••			15-7*
	NI-80	2:-3:	3.6	5'-0"	6.6	8-2	8'-8'		•••			***		•••			15'-9"
	NI-20	0.7	0.8.	1.0.	2.4*	3-8.	4'-0"	2:0.	6.6.	7:-9"		•••	•••	***	•••		15'-6"
	NI-40x	0'-7"	0'-8"	1.3	2-8	4.0	4'-4"	5'-5'	7-01	8'-4"		***	***				16'-6"
	NI-60	0.7*	1.8	3.0	4'-3'	5-9-	9.0.	7:3	8-10	10.0		***	***	•••	•••	•••	16-9
11-7/8*	NI-70	1'-3"	2.6	4.0	5'-4"	6-9	7:-2	8'-4'	10:0.	11'-2"	***	***	***	***	•••		17-5
	NI-80	1'-6"	2-10	4:2	5-6	7.0	7:-5	8.6.	10-3	11'-4"	•••			***	•••		17-7
	NI-90	0.7*	0.8	1:5*	3-2	4'-10'	5'-4"	6-9	8-9	10-2		***		•••			17-11*
	NI-90x	0.7	0.8,	0-9	2-5	4-4*	4'-9'	6:3									18.0
	NI-40x	0.7*	0,8,	08.	10.	2-4*	2.9	3,-6,	5-2	6-0*	6'-6"	8:3.	10'-2"		•••	•••	17-11
	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"				18-2
14"	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"	***	•••		19-2"
	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'	***	***		19-5*
	NI-90	0.7	0.8	0:-10*	2:-5*	4.0	4.5	5-9	7-5	8-8	9'-4"	11'-4"	12-11	***	***	•••	19-9
	NI-90x	0-7*	0.8.	08,	5:0.	3-5.	4'-2"	5'-5'	7:-3*	8-5*	9:-2"				***		20:0
	NI-60	0.7	0.8.	0.8.	1'6'	2-10	3-2*	4'-2"	5'-6'	6-4*	7:-0"	8-5	9:8"	10:-2	12:2	13-9	19:10*
	Nt-70	0.7	1'-0"	2:-3:	3:6"	4-10	5:-3*	6'-3'	7:-81	8-6	9-2	10-8	12-0*	12'-4'	14:0	15-6*	20-10°
16"	NI-80	0.7	1:-3:	2-6*	3-10	5-3	5-6*	6'-6"	80.	9-0°	9-5*	11:0	12-3	12-9	14-5	16:0	21'-2"
	NI-90	0.7	0.8	0-8*	1'-9"	3.3	3,-8,	4'-9"	6'-5"	7'-5"	8:0,	9-10	11:31	11'-9"	13'-9"	15'-4"	21'-6*
	NI-90x	0.7	0.8	0.9*	2'.0'	3.6	4'-0"	5'0'	6-9	7'-9"	8:4"	10'-2"	11:6	12.0	***		21'-10"

Above table may be used for 1-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 bosed on the I-joists used at their maximum span. If the I-joists are placed at less than their full maximum span to the minimum distance from the centreline of the hole to the face of any support (D) as given above may be reduced as follows:

The uniform distance from the contretions on the minimum distance from the contretion of the minimum distance from the inside face of any support to centre of hole, reduced for less-than-maximum spon op distance shall not be less than 6 inches from the face of the support to edge of the hole.

SAF Spon Adjument Factor given in this table.

D The minimum distance from the inside face of any support to centre of hole from this table.

If Sacure is required from the inside face of any support to centre of hole from this table.

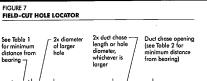
SAF Spon Adjument Factor given in this table.

If Sacure is greater than 1, use 1 in the above calculation for Sacure.

SAF

RIM BOARD INSTALLATION DETAILS

2015-04-16



T<sub>3/4x</sub> diameter

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 1-joist. Where possible, it is preferable to use knockouts instead of field-cut holes. 

Holes in webs should be cut with a sharp saw.

For rectangular holes, avoid over-cutting the corners, as this can cause unnecess the corners, as this can cause unnecessar 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.

Knockouts are prescored holes prov

# DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only 9-1/2" 11-7/8" 8'-1' 8'-9' 8'-7' 9'-0' 9'-2' 9'-4' 10'-3' 10'-1' 10'-9' 11'-1'

Above table may be used for I-joist spacing of 24 inches on center or less.

Dut chase opening location distance is measured from inside lace of supports to centre of opening.

The above table is based on simple-tap in joists only for other applications, contact your tood distributor.

Distances are based on uninformly loaded floor joists that meet the span requirements for a design live boad of 40 psf and does load of 13 psf, and of live load defection limit of 14400 for or later applications, contact your local distributor.

## INSTALLING THE GLUED FLOOR SYSTEM

8

1. Wipe any mud, dirt, water, or ice from 1-joist flanges before gluing.

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.

- 2. Snap a chalk line across the 1-joists four feet in from the wall for panel edge alignment and as a dary for spreading glue.
- 3. Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from
- 4. Lay the first panel with tongue side to the wall, and nail in place. This protects the tongue of the next panel from damage when tapped into place with a block and sledgehammer.
- 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.
- 6. 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 beying 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.
- 8. Tap 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 2-1/2\* common
- 2. Complete all nailing of each panel before glue sets. Check the manufacturer's recommendations for cure time. (Worm weather accelerates glue setting.) Use 2" ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the glue bond. 10. Complete all nailing of each panel before glue sets. Check the manufac

## FASTENERS FOR SHEATHING AND SUBFLOORING(1)

Wedness Octo	Militagaa	(3) (2) (3)	Managhand it	mo 🛴	Mediner ditt	ල්ලය්ල ධ්යාප
Simo	Tilling	Spielker	OFERENCE OF	Siplis	Riba	(1000m) 800020b
16	5/8	2*	1-3/4*	2'	6*	12'
20	5/8	2'	1-3/4*	2'	6*	12*
24	3/4	2*	1-3/4"	2'	6.	12"

- 2. Stoples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown
- 3. Flooring screws shall not be less than 1/8-inch in diameter
- 4. Special conditions may impose heavy traffic and concentrated loads that require construction in excess
- Use only adhesives conforming to CAN/CGSB-71.26 Standard, Adhesives for Field-Gluing Plywood to Lumber Froming for Floor System, applied in accordance with the manufacturer's recommendations. If OSB panels with sealed surfaces and degles are to be used, use only solvent-based glues; check with

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

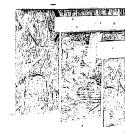
truss is used.

5. Cantilevered joists supporting girder trusses or

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 Joint Between Floor Joists 2-1/2\* nails at 6\* o.c. (typical) Rim board Joint at Come (1) 2-1/2" nail 2-1/2 noils 2-1/2\* toe-nails at (8c) 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL 8b TOE-NAIL CONNECTION AT RIM BOARD Rim board -Floor sheathing extending at least 3" pas $\ell$ $\overline{\ell_{/3}}$ 2' min. 1-5/8" min. 5" max. Deck iois ER ANDER 2x ledger board (preservative-treated); must be greater than or equal to the depth of the deck joist





05B 7/16"→

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NPG Lumbe

23 pieces

I-joist to top

2-1/2"

NI or rim board blocking

(1d)



FSC www.hsc.org

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:

0'-8" 1'-8" 2'-6" 2'-10' 0'-8" 1'-3" 3'-0" 4'-0" 4'-2" 1'-5"

- 1. 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
- I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
   Whenever possible, field-cut holes should be centred on the middle of the web.
- 4. The maximum size hole or the maximum death of a duct chase agening 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.

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

2'-10" 4'-3" 5'-8" 6'-0" 3'-0" 4'-4" 6'-0" 6'-4" 4'-0" 5'-4" 7'-0" 7'-5" 4'-9" 6'-3" 8'-0" 8'-4"

Minimum Distance from Inside Face of Any Support to Centre of Hole (ft - in.) Round Hole Diameter (in.)

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

6-1/4 7 8 8-5/8 9 10 10-3/4 11 12 12-3/4

- 5. The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.

  6. Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole or the state of the largest and the largest permitted that the size of the largest rectangular hole or the state of the largest permitted that the size of the largest permitted the size of the largest permitted that the si
- aduct 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 knackout 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 ise openings.
- 8. 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

1950f MSR

- 10. All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as
- round hole circumscribed around them.

OSB 3/8°→

S-P-F No.2

33 pieces

## **DUCT CHASE OPENING SIZES AND LOCATIONS**

2100f MSR 1950f MSR 2100f MSR

23 pieces

Simple Span Only

		Minimum distance from inside face of supports to centre of opening (ft -								
Joist Depth	Joist Series				Duct Ch	ase Leng	jth (in.)			
Бери	Jelles	8	10	12	14	16	18	20	22	24
	NI-20	4'-1"	4'-5"	4'-10"	5'-4"	5'-8"	6'-1"	6'-6"	7'-1"	7'-5"
	NI-40x	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"
9-1/2"	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8'-3"	8'-9"
–	NI-70	5'-1"	5'-5"	5'-10"	6'-3"	6'-7"	7'-1"	7'-6"	8'-1"	8'-4"
	NI-80	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"
	NI-20	5'-9"	6'-2"	6'-6"	7'-1"	7'-5"	7'-9"	8'-3"	8'-9"	9'-4"
	NI-40x	6'-8"	7'-2"	7'-6"	8'-1"	8'-6"	9'-1"	9'-6"	10'-1"	10'-9"
	NI-60	7'-3"	7'-8"	8'-0"	8'-6"	9'-0"	9'-3"	9'-9"	10'-3"	11'-0"
11-7/8"	NI-70	7'-1"	· 7'-4"	7'-9"	8'-3"	8'-7"	9'-1"	9'-6"	10'-1"	10'-4"
	NI-80	7'-2"	7'-7"	8'-0"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-8"
	NI-90	7'-6"	7'-11"	8'-4"	8'-9"	9'-2"	9'-7"	10'-1"	10'-7"	10'-11'
	NI-90x	7'-7"	8'-1"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-8"	11'-2"
	NI-40x	8'-1"	8'-7"	9'-0"	9'-6"	10'-1"	10'-7"	11'-2"	12'-0"	12'-8"
-	NI-60	8'-9"	9'-3"	9'-8°	10'-1"	10'-6"	11'-1"	11'-6"	13'-3"	13'-0"
14º	NI-70	8'-7"	9'-1"	9'-5"	9'-10"	10'-4"	10'-8"	11'-2"	11'-7"	12'-3"
14"	NI-80	9'-0"	9'-3"	9'-9"	10'-1"	10'-7"	11'-1"	11'-6"	12'-1"	12'-6"
- 1	NI-90	9'-2°	9'-8"	10'-0"	10'-6"	10'-11"		11'-9"	12'-4"	12'-11"
	NI-90x	9'-4"	9'-9"	10'-3"	10'-7"	11'-1"	11'-7"	12'-1"	12'-7"	13'-2"
	NI-60	10'-3"	10'-8"	11'-2"	11'-6"	12'-1"	12'-6"	13'-2"	14'-1"	14'-10"
- 1	NI-70	10'-1"	10'-5"	11'-0"	11'-4"	11'-10"		12'-8"	13'-3"	14'-0"
16"	NI-80	10'-4"	10'-9"	11'-3"	11'-9"	12'-1"	12'-7"	13'-1"	13'-8"	14'-4"
	NI-90	10'-9"	11'-2"	11'-8"	12'-0"	12'-6"	13'-0"	13'-6"	14'-2"	14'-10"
	NILON-	11'-1"	11'-5"	11'-10"	19'-4"	12'-10"	1.3'-2"	13'-9"	14'-4"	15'-2"

## 9. A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.

23 pieces

OSB 716"->

23 pieces

- 11. Limit three maximum size holes per span, of which one may be
- a duct chase opening.

  12. A group of round holes at approximately the same local shall be permitted if they meet the requirements for a single

- Above table may be used for I-laist spacing of 24 inches on centre or less.
   Duct chase opening location distance is measured from inside face of supports to centre of opening.
   The above table is based on simple-span joists only. For other applications, contact your local distributor.
   Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480.
   The above table is based on the 1-joists being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

# 1p FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST

For 2" thick flanges use net depth minus 4-1/4"

- 2x plate flush with inside face of wall

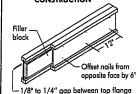
or beam. 1/8" overhang allowed

past inside face of wall or beam

NOTE: Unless hanger

sides laterally support

installed per manufacturer's



side of the double joist using this detail is 860 lbf/ft.

Verify double 1-joist capacity.

## board 2-1/2"face nail at each side at bearing

Vertical Load\* (plf)

3,300

Maximum Factored

Vertical Load per Pair of Squash Blocks (lbs

5,500 8,500

3-1/2"

1-1/8" Rim Board Plus 4,300 6,600

Provide lateral bracing per detail 1a or 1b

5-1/2"

7-1/4"

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

2-1/2" nails at 6" o.c. to top plate (when used for lateral

shear transfer, nail to bearing plate with same nailing as required for decking)

Pair of Squash

Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double I-joist, drive three additional 3° pails through the control of the state of t

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

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.

Flange Width Material Thickness Required\* Minimum Depth\*\*

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

possible. Maximum factored resistance for hanger for this detail = 1,620 lbs.

Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and

(1m)

— Filler

detail 1

capacity = 1,620 lbs.

Vertical Load\* (plf) or Rim loist 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 or standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

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

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

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

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



Top- or face-mount

For hanger capacity see hanger manufacturer'

Filler block

Multiple I-joist header with full death filler

black shown. Nordic Lam or SCL headers

Backer block attached pe

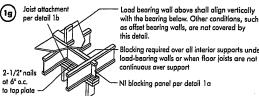
detail 1h. Nail with twelve 3'

Install hanger per

recommendation

may also be used. Verify double I-jois

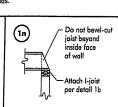
from above to install squash blocks per detail 1d. area of blacks below to post



as offset bearing walls, are not covered by A Blocking required over all interior supports under load-bearing walls or when floor joists are not

Double I-joist heade Nordic Lam or Structural Composite Lumber (SCL) NOTE: Unless hange ides laterally suppor or nailing schedules for multiple the top flance, bearing beams, see the manufacturer's Top- or face-mount hanger installed per manufacturer's (both sides for face.

NOTE: Unless hanger sides laterally support the top flange,



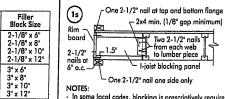
ations. Verify double I-joist capacity to support

NOTE: Blocking required at bearing for lateral support, not

mount hangers)

Lumber 2v4 min extend black to face of adjacent web. Two 2-1/2" spiral nails from each web to lumber piece, alternate on opposite side. OPTIONAL: Minimum 1x4 inch strap applied to underside of joist at blacking line or 1/2 inch minimun ceiling attached to underside of joists.





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 All nails are common spiral in this detail.

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

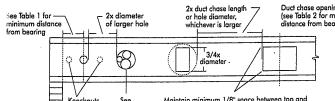
## FIGURE 7

NI-40x NI-60

9-1/2"

11-7/8"

## FIELD-CUT HOLE LOCATOR



rule 12

SAFETY AND CONSTRUCTION PRECAUTIONS



Knackouts are prescored hales 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.

ever 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 her good method to minimize damage to the I-joist.

PRODUCT WARRANTY

Chantiers Chibougamau guarantees that, in accordance with

ur specifications, Nordic products are free from manufacturing

Furthermore, Chantiers Chibougamau warrants that our products,

en utilized in accordance with our handling and installation instructions

will meet or exceed our specifications for the lifetime of the structure.

defects in material and workmanship.

## **WEB STIFFENERS**

## RECOMMENDATIONS:

3-1/2" min

- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the Ljoist properties table found of the Ljoist Construction Guide (C101). The gap between the stiffener and the flange is at
- A bearing stiffener is required when the 1-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 land stiffener is required at locations where a factored concentrated A laad stiffener is required at locations where a tactored concentrated load greater than 2,370 bis is applied to the top flange between supports, or in lhe 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.

## **WEB STIFFENER INSTALLATION DETAILS**

Net Depth

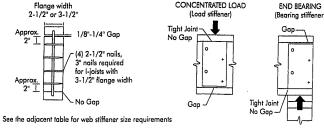
11-7/8"

9-1/2"

11-7/8"

11-7/8" 14" 16"

3" x 9" 3" x 11"

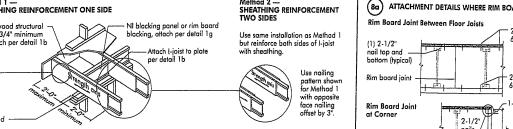


STIFFENER SIZE REQUIREMENTS Each Side of Web 1" x 2-5/16" 2-1/2" 1-1/2" x 2-5/16" 3-1/2"

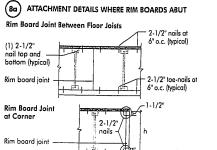


NOTE: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain harizontal. Attach

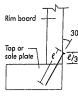
## CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET



## **RIM BOARD INSTALLATION DETAILS**



## 8b TOE-NAIL CONNECTION



Do not walk on I-joists until

over unsheathed I-joists. Once sheathed, do not over-stress from building materials.

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

bottom flange - all duct chase openings and holes

## AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

- Brace and nail each I-joist as it is installed, using hongers, 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
- 2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this hing 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 1-joist. Noil the bracing to a lateral restraint at the end of each bay, Lap ends of adjoining bracing over at least two 1-joists.

   Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of 1-joists at the end of the bay.

  3. For cantilevered 1-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.



**COMPANY**July 22, 2020 10:56

PROJECT J4 2ND FLOOR.wwb

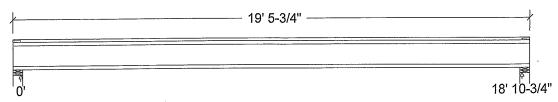
## **Design Check Calculation Sheet**

Nordic Sizer - Canada 7.2

## Loads:

Load	Type	Distribution	Pat-	Location	[ft]	Magnitud	de .	Unit
	1 1		tern	Start	End	Start	End	
Load1	Dead	Full Area				20.00		psf
Load2	Live	Full Area				40.00		psf

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



Unfactored: Dead Live	189 378		189 378
Factored: Total	803		803
Bearing:			
Capacity	0006		2336
Joist	2336		10841
Support	10841		10841
Des ratio			
Joist	0.34		0.34
Support	0.07		0.07
Load case	#2		#2
Length	4-3/8		4-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No	•	No
KD	1.00	•	1.00
KB support			-
fcp sup	769		769
Kzcp sup	-		_

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

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

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

Total length: 19' 5-3/4"; Clear span: 18' 9"; 5/8" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

S. KATSOULANOS

S. MATSOULANOS

S. MATSOULANOS

S. MATSOULANOS

S. MATSOULANOS

OWO NO. TAW 91/2-21 STRUCTURAL COMPONENT ONLY J4 2ND FLOOR.wwb

## Nordic Sizer - Canada 7.2

Page 2

## Limit States Design using CSA 086-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 803	Vr = 2336	lbs	Vf/Vr = 0.34
Moment(+)	Mf = 3793	Mr = 11609	lbs-ft	Mf/Mr = 0.33
Perm. Defl'n	0.11 = < L/999	0.63 = L/360	in	0.17
Live Defl'n	0.21 = < L/999	0.47 = L/480	in	0.45
Total Defl'n	0.32 = L/703	0.94 = L/240	in	0.34
Bare Defl'n	0.24 = L/954	0.63 = L/360	in	0.38
Vibration	Lmax = 18'-10.8	Lv = 20'-5.8	ft	0.92
Defl'n	= 0.027	= 0.033	in	0.82

## **Additional Data:**

FACTORS:	f/E	KD	KH	KZ	$_{ m KL}$	KT	KS	KN	LC#
Vr			1.00		_			_	#2
Mr+	11609			_	1.000			-	#2
	547.1 m			-	-	_		· -	#2

## **CRITICAL LOAD COMBINATIONS:**

Shear : LC #2 = 1.25D + 1.5L Moment(+) : LC #2 = 1.25D + 1.5L Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

Load Patterns: s=S/2 L=L+Ls \_=no pattern load in this span All Load Combinations (LCs) are listed in the Analysis output

## **CALCULATIONS:**

 $EIeff = 613.27 lb-in^2 K = 6.18e06 lbs$ 

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

CONFORMS TO OBE 2012

## Design Notes:

AMENDED 2020

- 1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
- 2. Please verify that the default deflection limits are appropriate for your application.
- 3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
- 4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
- 5. Joists shall be laterally supported at supports and continuously along the compression edge.
- 6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



porq

TWO NO. TAM 9//2-21
STRUCTURAL
COMPONENT ONLY



**COMPANY**July 22, 2020 08:23

**PROJECT**J5 1ST FLOOR.wwb

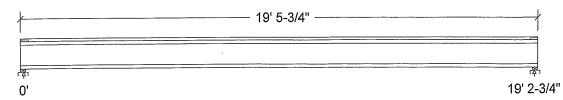
## **Design Check Calculation Sheet**

Nordic Sizer - Canada 7.2

## Loads:

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

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



Unfactored: Dead Live	192 385	192 385
Factored: Total	817	817
Bearing: Capacity		0100
Joist	2188	2188
Support	5573	5573
Des ratio		
Joist	0.37	0.37
Support	0.15	0.15
Load case	#2	#2
Length	2-3/8	2-3/8
Min req'd	1-3/4	1-3/4
Stiffener	No	No
KD	1.00	1.00
KB support	1.00	1.00
fcp sup	769	769
Kzcp sup	1.09	1,09

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

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

Total length: 19' 5-3/4"; Clear span: 19' 1"; 3/4" nailed and glued OSB sheathing

This section PASSES the design code check.

S. KATSOULAKOS

S. WATSOULAKOS

S. WATSOULAKOS

po 14

OWO NO. TAM 9//3 -21 STRUCTURAL COMPONENT ONLY

## WoodWorks® Sizer

## for NORDIC STRUCTURES

## J5 1ST FLOOR.wwb

## Nordic Sizer – Canada 7.2

## Page 2

## Limit States Design using CSA 086-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 817	Vr = 2336	lbs	Vf/Vr = 0.35
Moment(+)	Mf = 3928	Mr = 11609	lbs-ft	Mf/Mr = 0.34
Perm. Defl'n	0.11 = < L/999	0.64 = L/360	in	0.18
Live Defl'n	0.23 = < L/999	0.48 = L/480	in	0.47
Total Defl'n	0.34 = L/682	0.96 = L/240	in	0.35
Bare Defl'n	0.25 = L/909	0.64 = L/360	in	0.40
Vibration	Lmax = 19'-2.8	Lv = 21'-2.7	ft	0.91
Defl'n	= 0.026	= 0.033	in	0.78

## **Additional Data:**

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
	2336	1.00	1.00	_	_	-		_	#2
Mr+	11609		1.00	-	1.000	-	-	-	#2
EI	547.1 m	million	_	-		_	-	***	#2

## CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L Moment(+) : LC #2 = 1.25D + 1.5L Deflection: LC #1 = 1.0D (permanent)

LC #2 = 1.0D + 1.0L (live) LC #2 = 1.0D + 1.0L (total) LC #2 = 1.0D + 1.0L (bare joist) : Support 1 - LC #2 = 1.25D + 1.5L

Support 2 - LC #2 = 1.25D + 1.5LLoad Types: D=dead W=wind S=snow H=earth,groundwater E=earthquake L=live(use,occupancy) Ls=live(storage,equipment) f=fire

Load Patterns: s=S/2 L=L+Ls \_=no pattern load in this span All Load Combinations (LCs) are listed in the Analysis output

## CALCULATIONS:

 $EIeff = 625.37 lb-in^2 K = 6.18e06 lbs$ 

"Live" deflection is due to all non-dead loads (live, wind, snow...) GANGGRMS TO OBG 2012

## Design Notes:

AMENDED 2020

- 1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).
- 2. Please verify that the default deflection limits are appropriate for your application.
- 3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.
- 4. Nordic I-joists are listed in CCMC evaluation report 13032-R.
- 5. Joists shall be laterally supported at supports and continuously along the compression edge.
- 6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



13-21

OWO NO. TAM 9/13 -21 STRUCTURAL COMPONENT ONLY





PASSED

July 27, 2020 08:27:40

## 1ST FLR FRAMING\Flush Beams\B1(i670) (Flush Beam)

**BC CALC® Member Report** 

**Build 7493** 

Job name: Address:

City, Province, Postal Code: RICHMOND HILL

Customer: Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

File name: Description: 1ST FLR FRAMING\Flush Beams\B1(i670)

UNIT 2010 EL A, B. mmdl

Specifier:

Designer: Company:

19-05-12 B2 В1

Total Horizontal Product Length = 19-05-12

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 2-3/8"	397 / 0	319/0
B2 2-3/8"	325 / 0	283 / 0

Lo	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	19-05-12	Тор		12			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	, L	00-00-00	19-05-12	Тор	15	8			n\a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-01-06	Top	21	11			n\a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	10-01-06	19-05-12	Тор	6	3			n\a
4	B3(i674)	Conc. Pt. (lbs)	L	10-00-08	10-00-08	Тор	152	83			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5155 ft-lbs	35392 ft-lbs	14.6%	1	10-00-08
End Shear	883 lbs	14464 lbs	6.1%	1	01-02-04
Total Load Deflection	L/971 (0.237")	n\a	24.7%	4	09-09-02
Live Load Deflection	L/1747 (0.132")	n\a	20.6%	5	09-09-02
Max Defl.	0.237"	n\a	n\a	4	09-09-02
Span / Depth	19.4				

Bearin	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	2-3/8" x 3-1/2"	993 lbs	19.4%	9.8%	Spruce-Pine-Fir
B2	Wall/Plate	2-3/8" x 3-1/2"	842 lbs	16.5%	8.3%	Spruce-Pine-Fir

## Notes

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

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

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

AMENDED 2020

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

JONNOE OF

OWO NO. TAN 9/14 -21 STRUCTURAL COMPONENT ONLY





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

PASSED

## 1ST FLR FRAMING\Flush Beams\B1(i670) (Flush Beam)

Dry | 1 span | No cant.

July 27, 2020 08:27:40

**Build 7493** 

Job name:

Customer:

Code reports:

Address:

City, Province, Postal Code: RICHMOND HILL

File name:

UNIT 2010 EL A, B. mmdl

Description: 1ST FLR FRAMING\Flush Beams\B1(i670)

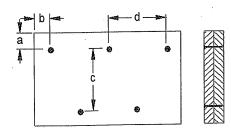
Specifier:

Company:

Designer: ΑJ

CCMC 12472-R

## Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 7-7/8" d = 24 8 11

Calculated Side Load = 165.9 lb/ft Connectors are: '

DÓX SPIRAL

. Nails



OWO NO. TAM 9/14 -21 STRUCTURAL COMPONENT ONLY

## Disclosure

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





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

PASSED

## 1ST FLR FRAMING\Flush Beams\B10(i496) (Flush Beam)

Dry | 1 span | No cant.

July 27, 2020 08:27:40

**Build 7493** 

Job name: Address:

File name: Description: UNIT 2010 EL A, B. mmdl

1ST FLR FRAMING\Flush Beams\B10(i496)

Specifier: City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports:

CCMC 12472-R

Designer: ΑJ Company:

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## Total Horizontal Product Length = 03-08-10

Summary (Down / Unlift) (lbs)

Reaction Su	Illinary (Down / O			
Bearing	Live	Dead	Snow	Wind
B1. 2"	387 / 0	205 / 0		
B2 2"	349 / 0	186 / 0		

1.0	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-08-10	Тор		6			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-08-10	Top	120	60			n\a
2	J2(i149)	Conc. Pt. (lbs)	L	00-01-10	00-01-10	Тор	68	34			n\a
2	J2(i143)	Conc. Pt. (lbs)	L	01-05-10	01-05-10	Тор	117	59	arti	Name of the last o	n\a
3	, ,	Conc. Pt. (lbs)	Ī	02-09-10	02-09-10	Top	105	53	THE PERSON NAMED IN	ofedd	IONG, n\a
4	J2(i174)	00110.1 t. (100)	-			•				THE REAL PROPERTY.	

Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	669 ft-lbs	17696 ft-lbs	3.8%	1	01-08-01
End Shear	399 lbs	7232 lbs	5.5%	1	02-06-12
Total Load Deflection	L/999 (0.002")	n\a	n\a	4	01-10-02
Live Load Deflection	L/999 (0.001")	n\a	n\a	5	01-10-02
Max Defl.	0.002"	n\a	n\a	4	01-10-02
Span / Depth	3.5				

	Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
-	B1	Hanger	2" x 1-3/4"	837 lbs	n\a	19.6%	HUS1.81/10
	B2	Hanger	2" x 1-3/4"	757 lbs	n\a	17.7%	HUS1.81/10

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 11-7/8" LVL Beam.

Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Header for the hanger HUS1.81/10 is a Double 1-3/4" x 11-7/8" LVL Beam.

## 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 AMENDED 2020



SWG NO. TAM 2115 -26 STRUCTURAL COMPONENT ONLY

## Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in CONFORMS TO OBG 2012 accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.





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

PASSED

## 1ST FLR FRAMING\Flush Beams\B2(i705) (Flush Beam)

Dry | 1 span | No cant.

July 27, 2020 08:27:40

**Build 7493** 

Job name:

Address: City, Province, Postal Code: RICHMOND HILL

Customer: Code reports:

CCMC 12472-R

UNIT 2010 EL A,B.mmdl

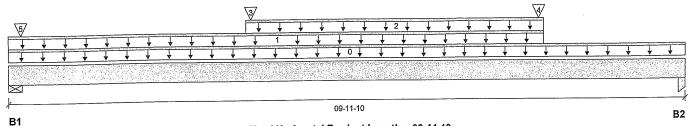
File name: 1ST FLR FRAMING\Flush Beams\B2(i705) Description:

Wind

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 09-11-10

Reaction Summary (Down / Uplift) (Ibs)

Bearing	Live	Dead	Snow
B1, 2-3/8"	1902 / 0	1537 / 0	
B2 1-3/4"	483 / 0	315 / 0	

	ad Cummany						Live	Dead	Snow	Wind	Tributary
	ad Summary  Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
nay O	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-11-10	Тор		12			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-10-04	Top	5	3			n\a
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	03-05-08	07-10-04	Top	21	11			n\a
2		Conc. Pt. (lbs)	L	03-06-06	03-06-06	Тор	348	186			n\a
3	B8(i146)	Conc. Pt. (lbs)	ī	07-09-06	07-09-06	qoT	348	186			n\a
4	B10(i496)	Conc. Pt. (lbs)	ī	00-02-03	00-02-03	Top	1515	1273			· n\a
5	F4(i127)	COHO. P.L. (IDS)	_	00 02 00	00 02 00	٠٠٦	1010	•			

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2853 ft-lbs	35392 ft-lbs	8.1%	, 1	03-09-09
End Shear	1080 lbs	14464 lbs	7.5%	1	08-10-00
Total Load Deflection	L/999 (0.036")	n\a	n\a	4	04-11-15
Live Load Deflection	L/999 (0.022")	n\a	n\a	5	04-11-15
Max Defl.	0.036"	n\a	n\a	4	04-11-15
Span / Depth	9.9				

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Wall/Plate B2 Column	2-3/8" x 3-1/2" 1-3/4" x 3-1/2"	4775 lbs 1117 lbs	93.4% 22.5%	47.1% 15.0%	Spruce-Pine-Fir Unspecified

## Notes

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

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

CONVORMS TO UBC 2012

Calculations assume member is fully braced.

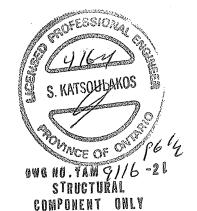
Resistance Factor phi has been applied to all presented results per CSA O86.

AMENDED 2020

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9







PASSED

## 1ST FLR FRAMING\Flush Beams\B2(i705) (Flush Beam)

Dry | 1 span | No cant.

July 27, 2020 08:27:40

**BC CALC® Member Report Build 7493** 

Job name:

Customer:

Code reports:

Address:

City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

File name: UNIT 2010 EL A, B. mmdl

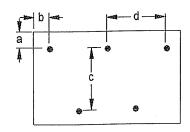
Description: 1ST FLR FRAMING\Flush Beams\B2(i705)

Specifier:

Designer:

Company:

## Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 7-7/8" d = 22 8 1

Calculated Side Load = 377.3 lb/ft / Nails Connectors are: 16d

ARDOX SPIRAL



0W0 NO. TAW9116 STRUCTUŘÁL COMPONENT ONLY

## Disclosure

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PASSED

1ST FLR FRAMING\Flush Beams\B3(i674) (Flush Beam)

Dry | 1 span | No cant.

July 27, 2020 08:27:40

**Build 7493** 

Job name:

Address:

**BC CALC® Member Report** 

City, Province, Postal Code: RICHMOND HILL

Customer: Code reports:

CCMC 12472-R

File name:

UNIT 2010 EL A,B.mmdl

Description: 1ST FLR FRAMING\Flush Beams\B3(i674)

Wind

AMENDED 2020

Specifier:

Designer:

Company:

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1																																			_
																(	02-08	3-00																	_
B1																																			В

## Total Horizontal Product Length = 02-08-00

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 3-1/2"	240 / 0	128 / 0
B2. 2"	172 / 0	93 / 0

اما	ad Summary						Live	Dead	Snow	Wind	Tributary
	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	02-08-00	Тор		6			00-00-00
1	J1(i675)	Conc. Pt. (lbs)	L	00-05-00	00-05-00	Top	169	84			n\a
2	J1(i688)	Conc. Pt. (lbs)	L	01-09-00	01-09-00	Тор	243	121			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	301 ft-lbs	17696 ft-lbs	1.7%	1	01-09-00
End Shear	241 lbs	7232 lbs	3.3%	1.	01-06-02
Total Load Deflection	L/999 (0")	n\a	n\a	4	01-05-07
Live Load Deflection	L/999 (0")	n\a	n\a	5	01-05-07
Max Defl.	0"	n\a	n\a	4	01-05-07
Span / Depth	2.4				

Bearing	ı Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material _
B1	Column	3-1/2" x 1-3/4"	520 lbs	10.4%	7.0%	Unspecified
B2	Hanger	2" x 1-3/4"	375 lbs	n\a	8.8%	HUS1.81/10

## DWG NO. TAN P/17 -21 STRUCTURAL COMPONENT ONLY

POWNCE OF OR

## Cautions

Header for the hanger HUS1.81/10 is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

## **Notes**

Design meets Codé 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

## Disclosure

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PASSED

July 27, 2020 08:27:40

## 1ST FLR FRAMING\Flush Beams\B4(i712) (Flush Beam)

**BC CALC® Member Report** 

**Build 7493** 

Job name:

Address:

CCMC 12472-R

City, Province, Postal Code: RICHMOND HILL Customer:

Code reports:

Dry | 1 span | No cant.

File name:

UNIT 2010 EL A,B.mmdl

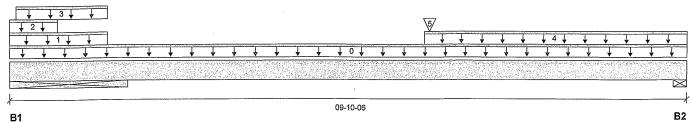
Description: 1ST FLR FRAMING\Flush Beams\B4(i712)

Wind

Specifier:

Designer:

Company:



Total Horizontal Product Length = 09-10-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	
B1, 20-1/2"	192 / 0	418 / 0		
B2 4-3/8"	260 / 0	187 / 0		

Loa	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	_	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-10-06	Тор		12			00-00-00
1	E2(i125)	Unf. Lin. (lb/ft)	L	00-00-00	01-05-00	Top		92			n\a
2	E2(i125)	Unf. Lin. (lb/ft)	L	00-00-00	00-08-04	Тор		12			n\a
3	E2(i125)	Unf. Lin. (lb/ft)	L	00-01-02	01-05-00	Top	20	94			n\a
4	FC1 Floor Material	Unf. Lin. (lb/ft)	L	05-11-10	09-10-06	Top	27	13			n\a
5	B9(i680)	Conc. Pt. (lbs)	L	06-00-08	06-00-08	Тор	320	171			n\a

•		Factored	Demand/		
Controls Summary	<b>Factored Demand</b>	Resistance	Resistance	Case	Location
Pos. Moment	1676 ft-lbs	32585 ft-lbs	5.1%	1	06-00-08
End Shear	527 lbs	14464 lbs	3.6%	1	08-06-02
Total Load Deflection	L/999 (0.011")	n\a	n\a	4	05-09-03
Live Load Deflection	L/999 (0.007")	n\a	n\a	5	05-09-03
Max Defl.	0.011"	n\a	n\a	4	05-09-03
Span / Depth	8.0				
Dist. Load (B1)	277.34 lb/ft	37469.25 lb/ft	0.7%		
Conc. Load (B1)	1 lbs	10929 lbs	n\a		

	Bearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material	
•	B1	Wall/Plate	20-1/2" x 3-1/2"	585 lbs	2.0%	1.0%	Spruce-Pine-Fir	-
	B2	Wall/Plate	4-3/8" x 3-1/2"	624 lbs	6.6%	3.3%	Spruce-Pine-Fir	

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

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

CONFORMS TO OBC 2012

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

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

AMENDED 2020

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



STRUCTURAL COMPONENT ONLY





PASSED

## 1ST FLR FRAMING\Flush Beams\B4(i712) (Flush Beam)

Dry | 1 span | No cant.

July 27, 2020 08:27:40

**BC CALC® Member Report** 

**Build 7493** Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer:

Code reports:

CCMC 12472-R

File name:

UNIT 2010 EL A, B. mmdl

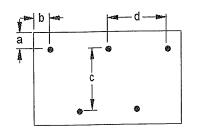
Description: 1ST FLR FRAMING\Flush Beams\B4(i712)

Specifier:

Designer:

Company:

## Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 7-7/8" d = 20 G

Calculated Side Load = 346.9 lb/ft Connectors are: 16d A ... Nails

> 312" ARDOX SPIRAL



OWO NO. TAMPI STRUCTURAL COMPONENT ONLY

## **Disclosure**

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Guide and applicable building codes. To obtain Installation Guide or ask questions, please call (800)232-0788 before installation.





PASSED

July 27, 2020 08:27:40

## 1ST FLR FRAMING\Flush Beams\B5(i681) (Flush Beam)

Dry | 1 span | No cant. **BC CALC® Member Report** 

**Build 7493** Job name:

Address:

File name:

UNIT 2010 EL A.B.mmdl

1ST FLR FRAMING\Flush Beams\B5(i681) Description:

Wind

City, Province, Postal Code: RICHMOND HILL

Specifier: Designer: ΑJ

Customer: Code reports:

CCMC 12472-R

Company:

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**************************************		: 10 F				10.4							di di	NELOWN PROPERTY	LEVS.									1963 4.28						Veril Andrea

## Total Horizontal Product Length = 05-09-00

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 1-3/4"	312 / 0	180 / 0
B2, 4-3/8"	258 / 0	151 / 0

l o:	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-09-00	Top		6			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-10-04	Top	29	14			n\a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	01-10-04	05-09-00	Тор	53	27			n\a
3	B9(i680)	Conc. Pt. (lbs)	L	01-11-02	01-11-02	Тор	309	166		POFESS	n/a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1151 ft-lbs	17696 ft-lbs	6.5%	1	01-11-02
End Shear	615 lbs	7232 lbs	8.5%	1	01-01-10
Total Load Deflection	L/999 (0.008")	n\a	n\a	4	02-07-07
Live Load Deflection	L/999 (0.005")	n\a	n\a	5	02-07-07
Max Defl.	0.008"	n\a	n\a	4	02-07-07
Span / Depth	5.4				

Rearing	ı Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	1-3/4" x 1-3/4"	694 lbs	27.9%	18.6%	Unspecified
B2	Wall/Plate	4-3/8" x 1-3/4"	576 lbs	12.2%	6.2%	Spruce-Pine-Fir

## Notes

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

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

CONFORMS TO OBE 2012

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86. AMENDED 2020 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86. Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



## STRUCTURAL COMPONENT ONLY

## Disclosure

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PASSED

## 1ST FLR FRAMING\Flush Beams\B6(i707) (Flush Beam)

Dry | 1 span | No cant.

July 27, 2020 08:27:40

**BC CALC® Member Report Build 7493** 

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer: Code reports:

CCMC 12472-R

File name:

UNIT 2010 EL A.B.mmdl

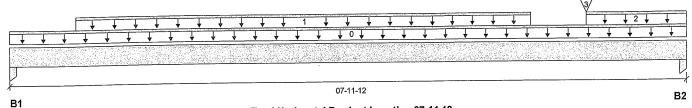
1ST FLR FRAMING\Flush Beams\B6(i707) Description:

Wind

Specifier:

Designer: ΑJ

Company:



## Total Horizontal Product Length = 07-11-12

Snow

Reaction Summary (Down / Uplift) (lbs)

Dead Live Bearing 211/0 372 / 0 B1, 3-1/2" 231/0 413 / 0 B2, 3-1/2"

ا ما	ad Cummory						Live	Dead	Snow	Wind	Tributary
LO:	ad Summary Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
∩	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-11-12	Тор		6			00-00-00
4	Smoothed Load	Unf. Lin. (lb/ft)	L	00-09-06	06-01-06	Top	116	58			n\a
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	06-09-06	07-11-12	Top	40	20			n\a
. 2		Conc. Pt. (lbs)	ī	06-09-06	06-09-06	Top	120	60		- Artista State St	n∖a
3	J2(i723)	COIIC. 1 t. (103)	_	00 00 00		1-			. selle	e C C C C	870

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1800 ft-lbs	17696 ft-lbs	10.2%	1	04-01-06
End Shear	852 lbs	7232 lbs	11.8%	1	06-08-06
Total Load Deflection	L/999 (0.026")	n\a	n\a	4	04-00-06
Live Load Deflection	L/999 (0.017")	n\a	n\a	5	04-00-06
Max Defl.	0.026"	n\a	n\a	4	04-00-06
Span / Depth	7.6				

Bearing	y Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	3-1/2" x 1-3/4"	822 lbs	16.5%	11.0%	Unspecified
B2		3-1/2" x 1-3/4"	908 lbs	18.3%	12.2%	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.

AMENDED 2020 Resistance Factor phi has been applied to all presented results per CSA O86. BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition. Importance Factor: Normal Part code: Part 9

Disclosure Use of the Boise Cascade Software is

subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input CONFORMS TO ORC 2012 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.

POWNICE OF GOIN

OWB NO. TAN 9/20-21 STRUCTURAL COMPONENT ONLY





PASSED

July 27, 2020 08:27:40

## 1ST FLR FRAMING\Flush Beams\B7(i683) (Flush Beam)

**BC CALC® Member Report** 

**Build 7493** 

Job name:

Customer:

Code reports:

**Load Summary** 

Address:

City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

Dry | 1 span | No cant.

File name:

UNIT 2010 EL A,B.mmdl

1ST FLR FRAMING\Flush Beams\B7(i683) Description:

Wind

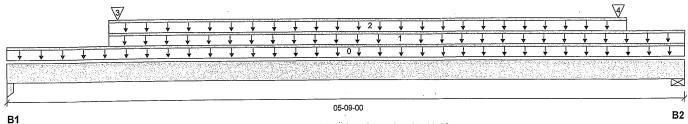
Live

Dead

Specifier:

Designer: AJ

Company:



Total Horizontal Product Length = 05-09-00

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	
B1, 1-3/4"	399 / 0	227 / 0	
B2 / 3/8"	507 / 0	285 / 0	

Tag	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-09-00	Top		6			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-10-04	05-09-00	Top	22	11			n\a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-10-04	05-03-00	Top	4	2			n\a
3	B8(i146)	Conc. Pt. (lbs)	L	00-11-02	00-11-02	Top	388	206	·		n\a
4	B10(i496)	Conc. Pt. (lbs)	L	05-02-02	05-02-02	Тор	388	206	A STATE OF	ALON COMPANY	n\a
	,	, ,	Factored	Dem					181	416	nla Y
Co	ntrols Summary	Factored Demand	Resistance	Resi	stance	Case	Location			CONT. CHARLES	. AVOC

Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	748 ft-lbs	17696 ft-lbs	4.2%	1	01-04-11
End Shear	697 lbs	7232 lbs	9.6%	1	01-01-10
Total Load Deflection	L/999 (0.006")	n\a	n\a	4	02-07-15
Live Load Deflection	L/999 (0.004")	n\a	n\a	5	02-07-15
Max Defl.	0.006"	n\a	n\a	4	02-07-15
Span / Depth	5.4				

Bearing	ı Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	1-3/4" x 1-3/4"	882 lbs	35.5%	23.6%	Unspecified
B2	Wall/Plate	4-3/8" x 1-3/4"	1116 lbs	23.7%	12.0%	Spruce-Pine-Fir

## **Notes**

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

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

Calculations assume member is fully braced.

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

AMENDED 2020

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

POWNICE OF ONLY OWO NO. TAM 9/21-26 STRUCTURAL COMPONENT ONLY **Disclosure** 

Wind

Snow

**Tributary** 

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 CONFORMS TO THE 2012 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.





PASSED

1ST FLR FRAMING\Flush Beams\B8(i146) (Flush Beam)

**BC CALC® Member Report** 

**Build 7493** 

Job name: Address:

Dry | 1 span | No cant.

July 27, 2020 08:27:40

City, Province, Postal Code: RICHMOND HILL

Customer:

CCMC 12472-R Code reports:

UNIT 2010 EL A,B.mmdl File name:

1ST FLR FRAMING\Flush Beams\B8(i146) Description:

Wind

Specifier:

Designer: ΑJ

Company:

	W						▼ '	* 1	,	<b>*</b>	<b>∀</b> ₹	, ,	1 1	<b>→</b>	. ↓	. ♦	¥	<del>↓</del>	₩	<b>↓</b> ↓	<b>+</b>	<u> </u>	<del>+</del> +	+	<u> </u>
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*	* *			V	V	· · · · · · · · · · · · · · · · · · ·	V	Circomodiós	200000000000000000000000000000000000000	588855555	101433-0123-	ere de la composición dela composición de la composición de la composición dela composición dela composición dela composición de la composición de la composición de la composición dela composición de la composición de la composición dela composición del	Asamanari	H1U-2005394	nasa Silata	930m457365	ALESSO.	1025 (14)	F555530	NA 2346.	g të 6, kë 73	(4.00 fre. 60 EA)	00.00000000	772553454	i i prografija
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		Maria					7 4 V4c				4-36-6			SERVE.		146.		4. W.				Principle in	10000		

## Total Horizontal Product Length = 03-08-10

Snow

Reaction Summary (Down / Uplift) (lbs)

Live Bearing 205/0 387 / 0 B1, 2" 186 / 0 349 / 0 B2, 2"

Load Sumr	marv/						Live	Dead	Snow	Wind	Tributary
Tag Description	-	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0 Self-Wei		Unf. Lin. (lb/ft)	L	00-00-00	03-08-10	Тор		6			00-00-00
1 STAIR	9	Unf. Lin. (lb/ft)	L	00-00-00	03-08-10	Тор	120	60			n\a
2 J2(i149)		Conc. Pt. (lbs)	L	00-01-10	00-01-10	Top	68	34			n\a
3 J2(i143)		Conc. Pt. (lbs)	L	01-05-10	01-05-10	Тор	117	59			n\a
3 J2(1143) 4 J2(i174)		Conc. Pt. (lbs)	L	02-09-10	02-09-10	Тор	105	53	di	or S. S. S.	n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	669 ft-lbs	17696 ft-lbs	3.8%	1	01-08-01
End Shear	399 lbs	7232 lbs	5.5%	1	02-06-12
Total Load Deflection	L/999 (0.002")	n\a	n\a	4	01-10-02
Live Load Deflection	L/999 (0.001")	n\a	n\a	5	01-10-02
Max Defl.	0.002"	n\a	n\a	4	01-10-02
Span / Depth	3.5				

Bearing	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material	
B1	Hanger	2" x 1-3/4"	837 lbs	n\a	19.6%	HUS1.81/10	
B2	Hanger	2" x 1-3/4"	757 lbs	n\a	17.7%	HUS1.81/10	

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 11-7/8" LVL Beam.

Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Header for the hanger HUS1.81/10 is a Double 1-3/4" x 11-7/8" LVL Beam.

## Notes

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

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

CONFORMS TO OBE 2012 Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

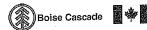
Importance Factor: Normal Part code: Part 9

## OWG NO. TAM 9/22-21 STRUCTURAL COMPONENT ONLY

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## **Disclosure**

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PASSED

July 27, 2020 08:27:40

## 1ST FLR FRAMING\Flush Beams\B9(i680) (Flush Beam)

**BC CALC® Member Report** 

**Build 7493** Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer: Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

UNIT 2010 EL A,B.mmdl File name:

1ST FLR FRAMING\Flush Beams\B9(i680) Description:

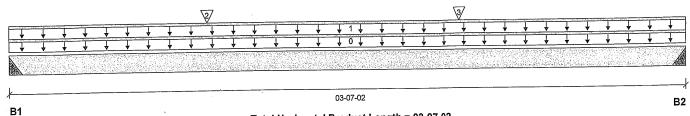
Wind

AMENDED 2020

Specifier:

Designer:

Company:



## Total Horizontal Product Length = 03-07-02

Snow

Reaction Summary (Down / Uplift) (lbs)

Live 171 / 0 320 / 0 B1, 2" 165 / 0 309 / 0 B2, 2"

Live Dead Snow Wind	Tributary
Load Summary Tag Description Load Type Ref. Start End Loc. 1.00 0.65 1.00 1.15	
Tag         Description         Load type         Ref.         Start         End         2005         Hos         Set           0         Self-Weight         Unf. Lin. (lb/ft)         L         00-00-00         03-07-02         Top         6	00-00-00
1 00 00 00 03 07 02 Top 120 60	n\a
1 STAIR 011 Lin (1974) 1 01 00 08 100 18 Top 100 50	n\a
2 J3(1669) Coric. Ft. (103)	n\a
3 J3(i716) Conc. Pt. (lbs) L 02-04-08 02-04-08 Top 98 49	Market .

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	592 ft-lbs	17696 ft-lbs	3.3%	. 1	01-10-02
End Shear	367 lbs	7232 lbs	5.1%	1	02-05-04
—,,,,,	L/999 (0.002")	n\a	n\a	4	01-09-10
Total Load Deflection	L/999 (0.002 )	n\a	n\a	5	01-09-10
Live Load Deflection Max Defl.	0.002"	n\a	n\a	4	01-09-10
Span / Depth	3.4				-

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Hanger 2	2" x 1-3/4"	694 lbs	n\a	16.3%	HUS1.81/10
	2" x 1-3/4"	670 lbs	n\a	15.7%	HUS1.81/10

## Cautions

Header for the hanger HUS1.81/10 is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Header for the hanger HUS1.81/10 is a Single 1-3/4" x 11-7/8" LVL Beam.

## Notes

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

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

Calculations assume member is fully braced.

CONFORMS TO OBC 2012

Hanger Manufacturer: Unassigned

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

UNG NO. TAM 9/23 -21 STRUCTURAL COMPONENT ONLY

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Passed

July 27, 2020 08:27:40

## 2ND FLR FRAMING\Flush Beams\B11(i701) (Flush Beam)

**BC CALC® Member Report** 

**Build 7493** 

Job name:

Customer:

Code reports:

Address: City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

Dry | 1 span | No cant.

UNIT 2010 EL A,B.mmdl File name:

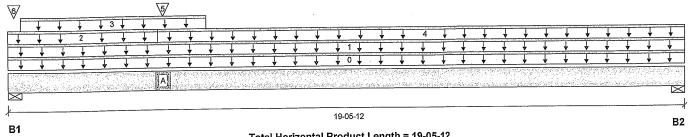
Wind

Description: 2ND FLR FRAMING\Flush Beams\B11(i701)

Specifier:

Designer: ΑJ

Company:



## Total Horizontal Product Length = 19-05-12

Reaction Summary (Down / Uplift) (lbs)

Snow Live 1233 / 0 1501 / 0 B1, 4-3/8" 521/0 686 / 0 B2, 2-3/8"

100	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag	Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	19-05-12	Top		12			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	19-05-12	Top	25	12			n\a
,	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-03-06	Top	6				n\a
2	WALL	Unf. Lin. (lb/ft)	L	00-04-06	05-07-13	Top		60			n\a
3	FC2 Floor Material	Unf. Lin. (lb/ft)	L	04-03-06	19-05-12	Тор	14	7			n\a
4		Conc. Pt. (lbs)	ī	04-05-02	04-05-02	Top	1475	816			n\a
5	B13(i664)	- '	ı	00-02-03	00-02-03	•		30			n\a
6	E27(i316)	Conc. Pt. (lbs)	L	00-02-00	00-02-00	TOP		00			

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	14092 ft-lbs	35392 ft-lbs	39.8%	.1	04-05-02
End Shear	3573 lbs	14464 lbs	24.7%	1	01-04-04
Total Load Deflection	L/381 (0.599")	n\a	62.9%	4	09-00-02
Live Load Deflection	L/662 (0.345")	n\a	54.4%	5	09-00-02
Max Defl.	0.599"	n\a	n\a	4	09-00-02
Span / Depth	19.2				

Rearin	g Supports	Dim (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	4-3/8" x 3-1/2"	3793 lbs	40.3%	20.3%	Spruce-Pine-Fir
B2	Wall/Plate	2-3/8" x 3-1/2"	1681 lbs	32.9%	16.6%	Spruce-Pine-Fir

## Notes

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

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

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

AMENDED 2020

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



STRUCTURAL COMPONENT ONLY





PASSED

2ND FLR FRAMING\Flush Beams\B11(i701) (Flush Beam)

Dry | 1 span | No cant.

July 27, 2020 08:27:40

**BC CALC® Member Report Build 7493** 

Job name:

Customer:

Code reports:

Address:

City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

UNIT 2010 EL A,B.mmdl File name:

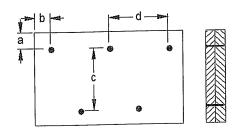
2ND FLR FRAMING\Flush Beams\B11(i701) Description:

Specifier:

Designer: ΑJ

Company:

## Connection Diagram: Full Length of Member



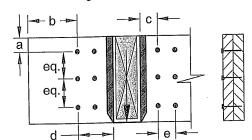
a minimum = 2" b minimum = 3"

c = 7-7/8" d = 20 8 4

Connectors are AKDUX SPI

**Connection Diagrams: Concentrated Side Loads** 

Applies to load tag(s): 6 Connection Tag: A



a minimum = 2"

b minimum = 4"

c minimum = 4"

d maximum = 12"

e minimum = 4"

Connectors are:

Nails

ARDOX SPIRAL



OWE NO. TAM 9/24 -28 STRUCTURAL COMPONENT ONLY

## **Disclosure**

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

PASSED

## 2ND FLR FRAMING\Flush Beams\B12(i686) (Flush Beam)

Dry | 1 span | No cant.

July 27, 2020 08:27:40

**Build 7493** 

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Customer: Code reports:

CCMC 12472-R

File name:

UNIT 2010 EL A,B.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B12(i686)

Wind

Specifier:

Designer:

Company:

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													A												⁻₽
<u> </u>									09-08-	12															
1									09-00-	12															В

Total Horizontal Product Length = 09-08-12

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 5-1/2"	406 / 0	1678 / 0
B2 2-3/4"	593 / 0	685 / 0

	1.0						Live	Dead	Snow	Wind	Tributary
LO3 Tag	ad Summary Description	Load Type	Ref.	Start	End	Loc.	1:00	0.65	1.00	1.15	
nay	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-08-12	Тор		12			00-00-00
4	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-09-08	Top	28	14			n\a
١		Unf. Lin. (lb/ft)	į.	00-05-08	09-08-12	Тор		60			n\a
2	WALL	Unf. Lin. (lb/ft)	ī	05-09-08	09-08-12	Top	53	27			n\a
3	FC2 Floor Material	• •	-	05-11-04	05-11-04	Тор	630	392			n\a
4,	B13(i664)	Conc. Pt. (lbs)	ا ا	00-02-12	00-02-12		000	1113			n\a
5	E26(i312)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	1 Op		1110			11.5

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	4872 ft-lbs	35392 ft-lbs	13.8%	1	05-11-04
End Shear	1498 lbs	14464 lbs	10.4%	1	08-06-02
Total Load Deflection	L/999 (0.048")	n\a	n\a	4	05-01-06
Live Load Deflection	L/999 (0.023")	n\a	n\a	5	05-03-00
Max Defl.	0.048"	n\a	n\a	4	05-01-06
Span / Depth	9.3				

Boarin	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1		5-1/2" x 3-1/2"	2349 lbs	30.5%	15.4%	Spruce-Pine-Fir
B2	VVall/1 late	2-3/4" x 3-1/2"	1746 lbs	29.5%	14.9%	Spruce-Pine-Fir

## Notes

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

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

CONVORMS TO OBC 2012

Calculations assume member is fully braced.

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

AMENDED 2020

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA 086.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



1012





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

PASSED

2ND FLR FRAMING\Flush Beams\B12(i686) (Flush Beam)

Dry | 1 span | No cant.

July 27, 2020 08:27:40

**Build 7493** 

Job name:

Customer:

Code reports:

Address:

City, Province, Postal Code: RICHMOND HILL

File name: Description: UNIT 2010 EL A,B.mmdl

2ND FLR FRAMING\Flush Beams\B12(i686)

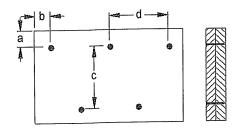
Specifier:

Designer: ΑJ

CCMC 12472-R

Company:

## Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

c = 7-7/8" d = 28 8 "

Connectors are: 0

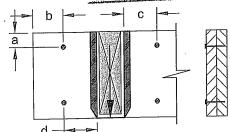
1

. . Nails

# Connection Diagrams: Concentrated Side Loads

Connection Tag: A

Applies to load tag(s): 5



a minimum = 2"

b minimum = 4"

c minimum = 4"

d maximum = 12"

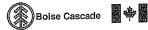
A Nails Connectors are: 16d

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.





City, Province, Postal Code: RICHMOND HILL

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

PASSED

## 2ND FLR FRAMING\Flush Beams\B13(i664) (Flush Beam)

**BC CALC® Member Report** 

**Build 7493** 

Job name: Address:

Dry | 1 span | No cant.

July 27, 2020 08:27:40

File name:

UNIT 2010 EL A, B. mmdl

Description:

2ND FLR FRAMING\Flush Beams\B13(i664)

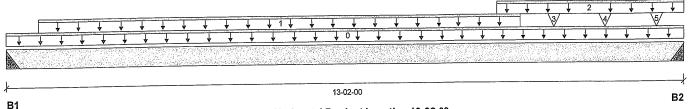
Specifier:

Designer: ΑJ

Customer: Code reports:

CCMC 12472-R

Company:



## Total Horizontal Product Length = 13-02-00

Reaction Summary (Down / Uplift) (lbs)

Wind Dead Bearing Live 384 / 0 614/0 B1, 4" 824 / 0 B2, 4" 1491/0

1	ad Cummoni						Live	Dead	Snow	Wind	Tributary
	ad Summary Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
nag O	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-02-00	Тор		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-07-08	09-11-08	Тор	82	41			n\a
1	STAIR	Unf. Lin. (lb/ft)	L	09-05-14	13-02-00	Top	120	60			n\a
2		Conc. Pt. (lbs)	L	10-07-08	10-07-08	Top	331	165			n\a
3	J1(i668)	Conc. Pt. (lbs)	1	11-07-08	11-07-08	Top	307	154			n\a
4	J1(i700)	•	ī	12-07-08	12-07-08	Top	259	130			n\a
5	J1(i735)	Conc. Pt. (lbs)	L-	12-01-00	12 07 00	. Op					

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5624 ft-lbs	35392 ft-lbs	15.9%	1	07-11-08
End Shear	2474 lbs	14464 lbs	17.1%	1	11-10-02
Total Load Deflection	L/999 (0.119")	n\a	n\a	4	06-09-08
	L/999 (0.075")	n\a	n\a	5	06-11-08
Live Load Deflection  Max Defl.	0.119"	n\a	n\a	4	06-09-08
Span / Depth	12.8				

, P	earing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	<b>Material</b>
- <u>=</u>	Y	4" × 3-1/2"	1402 lbs	n\a	8.2%	HGUS410
D	i iange		2000 lbs	nla	19.1%	HGUS410
В	2 Hanger	4" x 3-1/2"	3266 lbs	n\a	19.170	11000410

## **Cautions**

Header for the hanger HGUS410 is a Double 1-3/4" x 11-7/8" LVL Beam.

Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

## Notes

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

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

Calculations assume member is fully braced.

CONFORMS TO OBC 2012

Hanger Manufacturer: Unassigned

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

AMENDED 2020

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

Design based on Dry Service Condition. Importance Factor: Normal Part code: Part 9

146 NO. FAM9126 STRUCTURAL COMPONENT ONLY





PASSED

## 2ND FLR FRAMING\Flush Beams\B13(i664) (Flush Beam)

Dry | 1 span | No cant.

July 27, 2020 08:27:40

**BC CALC® Member Report** 

**Build 7493** Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

Code reports:

Customer:

CCMC 12472-R

File name:

UNIT 2010 EL A,B.mmdl

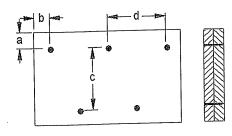
2ND FLR FRAMING\Flush Beams\B13(i664) Description:

Specifier:

Designer:

Company:

## Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8" d = 10 8

b minimum = 3"

Calculated Side Load = 677.9 lb/ft

Connectors are: 16d / Nails ARDOX SPIRAL



646 HO. TAM 9/26 STRUCTURAL COMPONENT ONLY

## Disclosure

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

PASSED

## 2ND FLR FRAMING\Flush Beams\B14(i797) (Flush Beam)

Dry | 1 span | No cant.

July 27, 2020 08:27:40

**Build 7493** 

Job name: Address:

UNIT 2010 EL A,B.mmdl File name:

2ND FLR FRAMING\Flush Beams\B14(i797) Description:

City, Province, Postal Code: RICHMOND HILL

Specifier:

Designer: ΑJ

Customer:

CCMC 12472-R

Company: Code reports:

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Total Horizontal Product Length = 08-10-14

ction Summary (Down / Unlift) (lhs)

Reaction 5un	Illiary (Down / O	pinty (ibs)			
Bearing	Live	Dead	Snow	Wind	
B1. 5-1/2"	169 / 0	493 / 0	182 / 0		
B2, 2-3/8"	237 / 0	583 / 0	356 / 0		

1.00	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
nag	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-10-14	Top		12			00-00-00
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-10-14	Top	20	10			n\a
2	E35(i415)	Unf. Lin. (lb/ft)	L	00-00-00	04-06-00	Top		61			n\a
2	E36(i430)	Unf. Lin. (lb/ft)	L	04-06-00	08-10-14	Top		81			n\a
3	E36(i430)	Unf. Lin. (lb/ft)	L	04-10-00	08-10-14	Top	33	30	78		n\a
4	- · · · · ·	Conc. Pt. (lbs)	Ī	04-07-00	04-07-00	Top	93	127	220		n\a
5	E36(i430)	0010.1 1. (100)	-	• . • . • .		•					

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3144 ft-lbs	35392 ft-lbs	8.9%	13	04-07-00
End Shear	1100 lbs	14464 lbs	7.6%	13	07-08-10
Total Load Deflection	L/999 (0.03")	n\a	n\a	35	04-08-08
Live Load Deflection	L/999 (0.015")	n\a	n\a	51	04-08-08
Max Defl.	0.03"	n\a	n\a	35	04-08-08
Span / Depth	8.5				

Rearing	supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	690 lbs	9.0%	4.5%	Spruce-Pine-Fir
B2		2-3/8" x 3-1/2"	1499 lbs	29.3%	14.8%	Spruce-Pine-Fir

## Notes

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

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

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

AMENDED 2020

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

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

verification.

Design based on Dry Service Condition. Importance Factor: Normal Part code: Part 9



OWO NO. TAM 9127 -21 STRUCTURAL COMPONENT ONLY





PASSED

2ND FLR FRAMING\Flush Beams\B14(i797) (Flush Beam)

Dry | 1 span | No cant.

July 27, 2020 08:27:40

**EC CALC® Member Report Build 7493** 

Job name:

Customer:

Code reports:

Address: City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

File name:

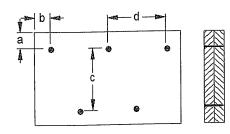
UNIT 2010 EL A,B.mmdl Description: 2ND FLR FRAMING\Flush Beams\B14(i797)

Specifier:

Designer: AJ

Company:

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

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

Connectors are:

. Nails

ARDOX SPIRAL

POMNICE OF ONLY DWG NO. TAM 212) STRUCTURAL COMPONENT ONLY

## Disclosure

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

PASSED

## 2ND FLR FRAMING\Flush Beams\B15(i804) (Flush Beam)

Dry | 1 span | No cant.

July 27, 2020 08:27:40

**Build 7493** 

Job name:

Address:

City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

Customer: Code reports:

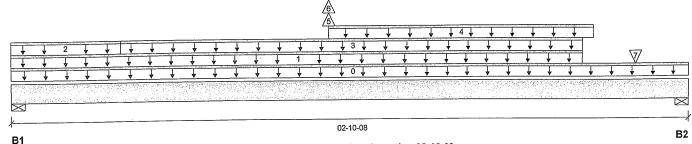
UNIT 2010 EL A,B.mmdl File name:

Description: 2ND FLR FRAMING\Flush Beams\B15(i804)

Specifier:

Designer:

Company:



## Total Horizontal Product Length = 02-10-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow
B1, 5-1/2"	92 / 193	115 / 0	188 / 0
B2 5-1/2"	116 / 159	137 / 0	224 / 0

10	ad Summary						Live	Dead	Snow	Wind	Tributary
Tag		Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	02-10-08	Top		12			00-00-00
1	E32(i318)	Unf. Lin. (lb/ft)	L	00-00-00	02-05-00	Тор		81			n\a
2	E32(i318)	Unf. Lin. (lb/ft)	L	00-00-00	00-05-08	Тор	33	30	78		n\a
3	E32(i318)	Unf. Lin. (lb/ft)	L	00-05-08	02-05-00	Тор	66	60	156		n\a
1	FC2 Floor Material	Unf. Lin. (lb/ft)	L	01-04-00	02-05-09	Тор	20	10			n\a
5	J3(i795)	Conc. Pt. (lbs)	L	01-04-00	01-04-00	Top	11	-171			n\a
6	J3(i795)	Conc. Pt. (lbs)	L	01-04-00	01-04-00	Тор	-352				n\a
7	E31(i317)	Conc. Pt. (lbs)	L	02-07-12	02-07-12	Тор	30	51	71		n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	190 ft-lbs	35392 ft-lbs	0.5%	25	01-07-09
Neg. Moment	-276 ft-lbs	-35392 ft-lbs	0.8%	22	01-04-00
End Shear	340 lbs	14464 lbs	2.4%	2	01-05-02
Total Load Deflection	L/999 (0")	n\a	n\a	58	01-05-06
Live Load Deflection	L/999 (-0")	n\a	n\a	84	01-04-13
Total Neg. Defl.	L/999 (-0")	n\a	n\a	57	01-04-09
Max Defl.	0"	n\a	n\a	58	01-05-06
Span / Depth	2.1				

Bearin	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	518 lbs	4.4%	2.2%	Spruce-Pine-Fir
B1	Uplift		187 lbs			
B2	Wall/Plate	5-1/2" x 3-1/2"	623 lbs	5.3%	2.7%	Spruce-Pine-Fir
B2	Uplift		114 lbs			

(SIMPSON 2-H2-5A @ O. BI). Uplift of 187 lbs found at bearing B1.



OWO NO. TAM 9128-21 STRUCTURAL COMPONENT ONLY





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

PASSED

## 2ND FLR FRAMING\Flush Beams\B15(i804) (Flush Beam)

Dry | 1 span | No cant.

July 27, 2020 08:27:40

**Build 7493** 

Job name:

Customer:

Code reports:

Address:

City, Province, Postal Code: RICHMOND HILL

CCMC 12472-R

File name:

UNIT 2010 EL A, B. mmdl

Description: 2ND FLR FRAMING\Flush Beams\B15(i804)

Specifier:

Designer:

Company:

## Notes

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

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

CONFORMS TO OBC 2012

Calculations assume member is fully braced.

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

AMENDED 2020

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

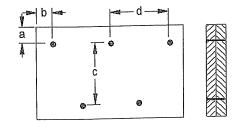
Unbalanced snow loads determined from building geometry were used in selected product's

verification.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

## Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 7-7/8" d = 23 8

Calculated Side Load = 370.9 lb/ft Connectors are: 16d And Nails

ARDOX SPIRAL



## Disclosure

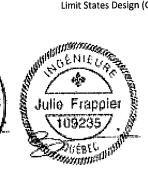
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Live Load = 40 psf, Dead Load = 15 psf Simple Spans, L/480 Deflection Limit 5/8" OSB G&N Sheathing







			Ва	are		1/2" Gypsum Ceiling					
Depth	Series		On Centr	e Spacing		On Centre Spacing					
осрен.	•••	12"	16"	19.2"	24"	12"	16"	19.2"	24"		
	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		
9-1/2"	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	N/A		
,-	N1-70	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		
	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		
11-7/8"	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A		
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A		
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A		
	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		
14"	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A		
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A		
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A		
	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		
16"	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		

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

<sup>1.</sup> 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.

<sup>2.</sup> 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. 3. Minimum bearing length shall be 1-3/4 inches for the end bearings.

<sup>4.</sup> Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.

<sup>5.</sup> 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.

<sup>6.</sup> 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.



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







			Ва	are			Gypsum Ceiling			
Depth	Series		On Centre Spacing				On Centre Spacing			
Берил	001100	12"	16"	19.2"	24"	12"	16"	19.2"	24"	
	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"	
9-1/2"	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"	16'-7"	15'-11"	15'-3"	
3 1/2	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"	
	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"	
11-7/8"	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"	
	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"	
14"	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"	
	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"	
16"	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"	

			pan Blocking an	and 1/2" Gypsum Ceiling					
Depth	Series		On Centr	e Spacing		On Centre Spacing	e Spacing		
Берин	0000	12"	16"	19.2"	24"	12"	16"	19.2"	24"
	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"
9-1/2"	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"
	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"
11-7/8"	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"
	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"
14"	NI-70	26'-1"	24'-3"	23'-2"	21'-10"	26'-8"	24'-11"	23'-9"	22'-4"
1-1	NI-80	26'-6"	24'-7"	23'-5"	22'-2"	27'-1"	25'-3"	24'-1"	22'-9"
	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"
16"	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"

<sup>1.</sup> 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.

<sup>2.</sup> 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.

<sup>3.</sup> Minimum bearing length shall be 1-3/4 inches for the end bearings.

<sup>4.</sup> Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.

<sup>5.</sup> 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.

<sup>6.</sup> 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.



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







			Ва	are			sum Ceiling		
Depth	Series		On Centr	e Spacing		A 15'-7" 14'-1" 13'-3" A 16'-7" 15'-7" 15'-1" A 16'-8" 15'-9" 15'-3" A 17'-5" 16'-5" 15'-10" A 17'-6" 16'-6" 16'-0" A 17'-6" 16'-6" 16'-11" A 19'-0" 17'-8" 17'-1" A 20'-1" 18'-7" 17'-9" A 20'-4" 18'-10" 17'-11" A 20'-10" 19'-3" 18'-5" A 20'-10" 19'-4" 18'-6" A 21'-2" 19'-7" 18'-9"			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	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"		N/A
9-1/2"	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
	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
11-7/8"	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"		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
14"	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
	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
16"	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

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

<sup>1.</sup> 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.

<sup>2.</sup> 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.

<sup>3.</sup> Minimum bearing length shall be 1-3/4 inches for the end bearings.

<sup>4.</sup> Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.

<sup>5.</sup> 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.

<sup>6.</sup> 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.



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







			Ba	are			um Ceiling		
Depth	Series		On Centr	e Spacing		On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	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"
9-1/2"	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"
	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"
4.4.7./0!!	NI-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	18'-9"	17'-11"	17'-1"
11-7/8"	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"
	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"
14"	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"
	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"
4.011	NI-70	25'-1"	23'-2"	22'-0"	20'-10"	25'-9"	23'-10"	22'-9"	21'-6"
16"	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 On Centre Spacing				Mid-Span Blocking and 1/2" Gypsum Ceiling On Centre Spacing			
		9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"
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"
	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"
44 7 (0)	NI-60	21'-9"	19'-8"	18'-5"	17'-1"	21'-9"	19'-8"	18'-5"	17'-1"
11-7/8"	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"
	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"
14"	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"
	NI-90x	27'-3"	25'-4"	24'-1"	22'-4"	27'-9"	25'-10"	24'-3"	22'-4"
16"	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"

<sup>1.</sup> 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.

<sup>2.</sup> 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.

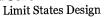
<sup>3.</sup> Minimum bearing length shall be 1-3/4 inches for the end bearings.

<sup>4.</sup> Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.

<sup>5.</sup> 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.

<sup>6.</sup> 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.

## **Construction Detail**



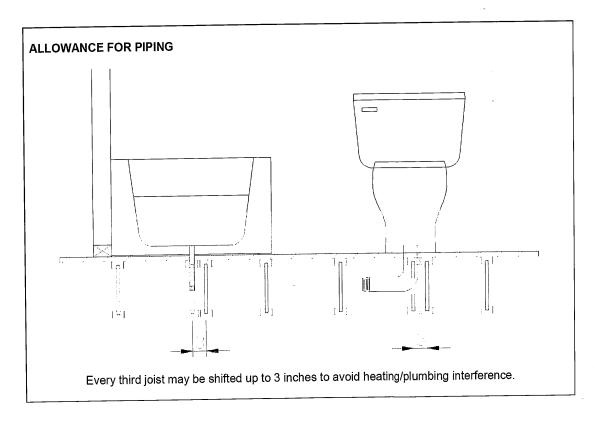


# Allowance for Piping (Installation Notes)

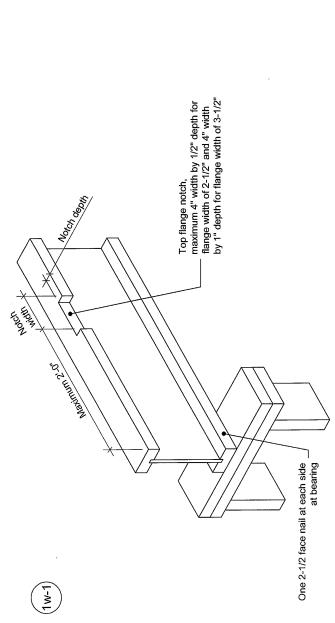
The floor layouts have usually not been checked for heating and/or plumbing interference. On-site adjustment of joists of up to 3 inches is permitted to avoid interferences. When moving a joist, the subfloor thickness shall be checked with code requirements when the joist spacing exceeds 19.2 inches.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



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

Blocking required at bearing for lateral support, not shown for clarity.
 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.
 This detail applies to simple-span joists and multiple-span joists where the notch is located at the end half-span.
 For other applications, 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. 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.

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Notch in I-joist for Heat Register	CATEGORY
T 514-871-8526	

	CATEGORY	I-joist - Typical Floor Framing and Construction Details
1 BEE 817-3419	10000	nordic.ca

NUMBER	1w-1	
DATE	2018-04-10	
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