

REVIEWED FOR COMPLIANCE WITH THE ONTARIO BUILDING CODE AND THE APPLICABLE ZONING BY-LAW

20.130063.000.00.CM

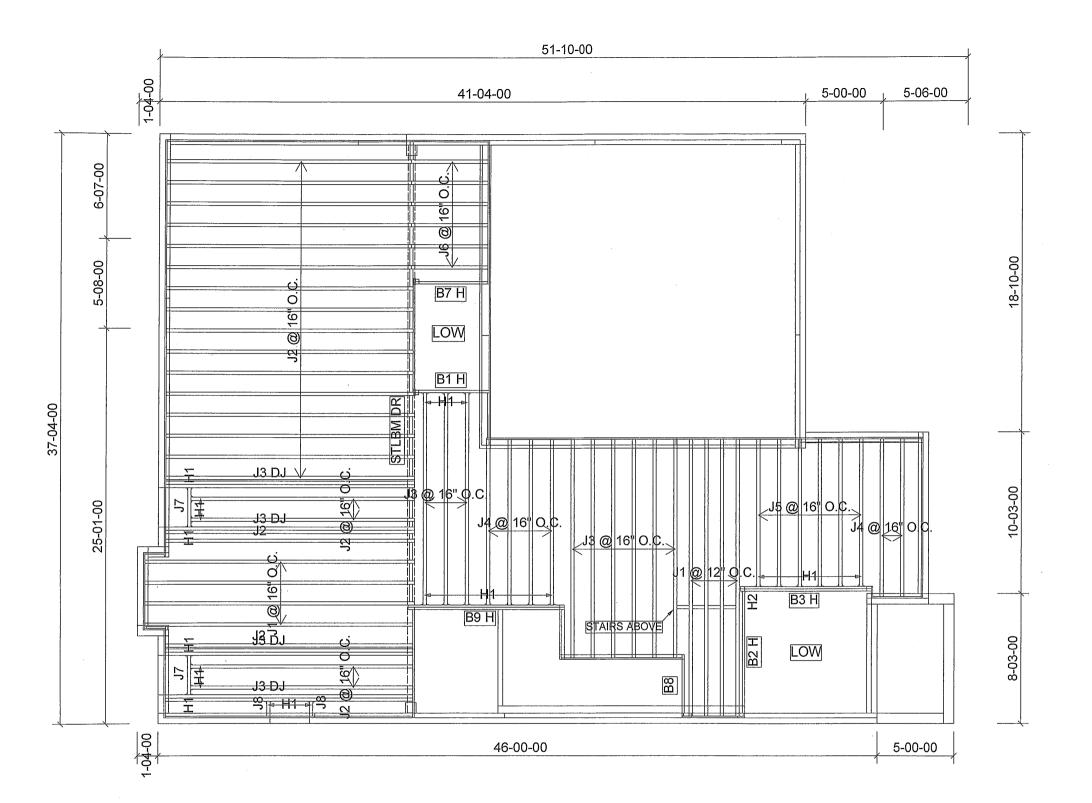
# LAMPONE INVESTMENT INCONSTRUCTION SHALL COMPLY WITH THE ONTARIO BUILDING CODE.

### **CITY OF MARKHAM**

## **FLOOR JOISTS SHOP DRAWINGS**

**MODEL NAME: KIMBERLY 5** 

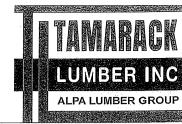
**ELEV 1, 2 & 3** 



Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1	18-00-00	11 7/8" NI-40x	1	8	MFD
J2	16-00-00	11 7/8" NI-40x	1	22	MFD
J3 DJ	16-00-00	11 7/8" NI-40x	2	8	MFD
J3	14-00-00	11 7/8" NI-40x	1	9	MFD
J4	12-00-00	11 7/8" NI-40x	1	6	MFD
J5	10-00-00	11 7/8" NI-40x	1	6	MFD
J6	6-00-00	11 7/8" NI-40x	1	6	MFD
J7	4-00-00	11 7/8" NI-40x	1	2	MFD
J8	2-00-00	11 7/8" NI-40x	1	2	MFD
B3 H	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD

		Products			
PlotID	Length	Product	Plies	Net Qty	Fab Type
B9 H	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B2 H	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	MFD
B1 H	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	MFD
B7 H	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	MFD
B8	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1	MFD

Connector Summary					
Qty	Manuf	Product			
3	H1	IUS2.56/11.88			
13	H1	IUS2.56/11.88			
6	H1	IUS2.56/11.88			
4	H1	IUS2.56/11.88			
1	H2	HUS1.81/10			



FROM PLAN DATED: JULY 2, 2020

**BUILDER: GREENPARK HOMES** 

**SITE:** LAMPONE INVESTMENTS

**MODEL:** KIMBERLY 5

**ELEVATION:** 1,2,3

LOT:

CITY: MARKHAM

**SALESMAN: MARIO DI CIANO** 

**DESIGNER:** L.D. **REVISION:** L.D.

#### NOTES:

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

INSTALLATION.

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

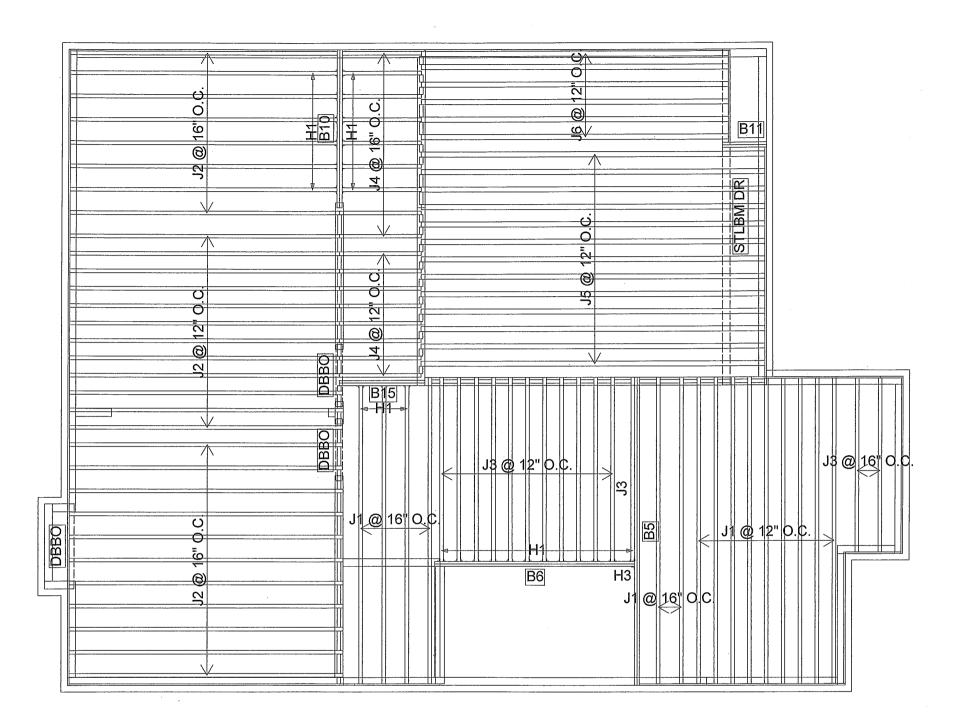
#### LOADING:

DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft<sup>2</sup> DEAD LOAD: 15.0 lb/ft<sup>2</sup> TILE LOAD: 20.0 lb/ft<sup>2</sup>

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

**DATE:** 2020-07-23

## 1st FLOOR



		Products			
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1	18-00-00	11 7/8" NI-40x	1	15	MFD
J2	16-00-00	11 7/8" NI-40x	1	31	MFD
J3	12-00-00	11 7/8" NI-40x	1	14	MFD
J4	6-00-00	11 7/8" NI-40x	1	17	MFD
J5	22-00-00	11 7/8" NI-80	1	13	MFD
J6	18-00-00	11 7/8" NI-80	1	6	MFD
B5	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B6	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B10	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B15	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD

Fab Type	Qty
MFD	27
MFD	1
MFD	
MFD	
MFD	
MFD	
MED	

Connector Summary

Manuf Product

НЗ

IUS2.56/11.88

HGUS410

		Products			
PlotID	Length	Product	Plies	Net Qty	Fab Type
B11	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD



FROM PLAN DATED: JULY 2, 2020

**BUILDER: GREENPARK HOMES** 

**SITE:** LAMPONE INVESTMENTS

**MODEL:** KIMBERLY 5

**ELEVATION: 1.2** 

LOT:

**CITY: MARKHAM** 

SALESMAN: MARIO DI CIANO

**DESIGNER:** L.D. **REVISION: L.D.** 

#### 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. MULTIPL 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 FIEL CUT OPENINGS SEE FIGURE 7 TABLES 1 8 OF THE INSTALLATION GUIDE. CERAMIC TI APPLICATION AS PER O.B.C. 9.30.6

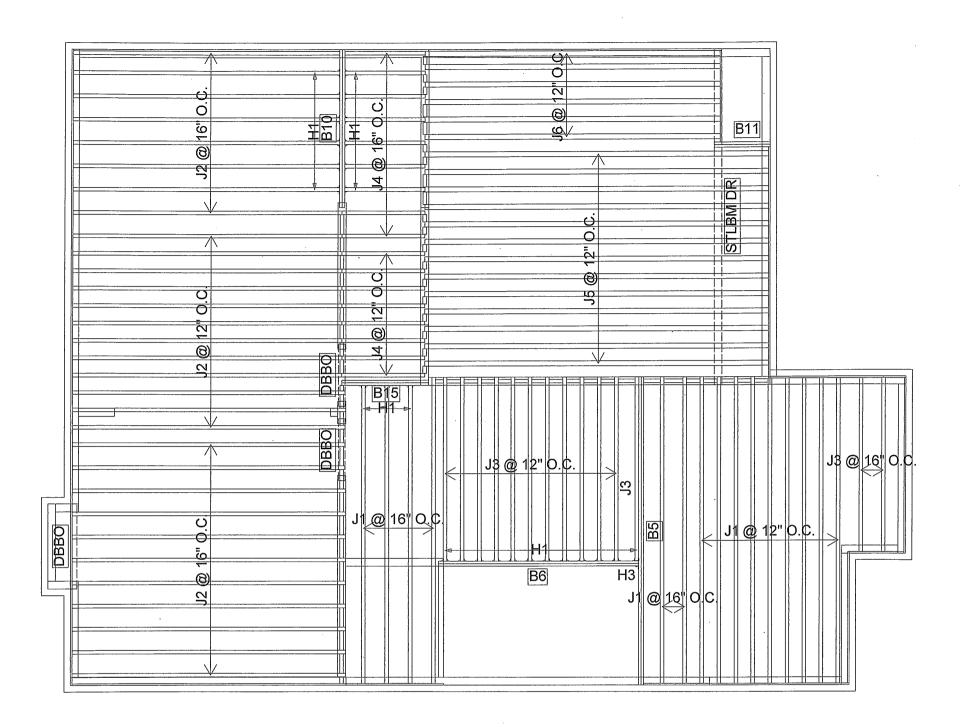
#### LOADING:

DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft<sup>2</sup> DEAD LOAD: 15.0 lb/ft2 TILE LOAD: 20.0 lb/ft<sup>2</sup>

SUBFLOOR: 5/8" GLUED AND NAILED

**DATE:** 2020-07-23

## 2nd FLOOR



Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1	18-00-00	11 7/8" NI-40x	1	15	MFD
J2	16-00-00	11 7/8" NI-40x	1	31	MFD
J3	12-00-00	11 7/8" NI-40x	1	14	MFD
J4	6-00-00	11 7/8" NI-40x	1	17	MFD
J5	22-00-00	11 7/8" NI-80	1	13	MFD
J6	18-00-00	11 7/8" NI-80	1	6	MFD
B5	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B6	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B10	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD
B15	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD

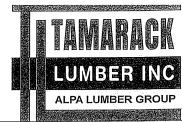
ab Type	1 1	Qty
ИFD		27
ИFD		1
/IFD		

Connector Summary Manuf Product

IUS2,56/11.88

HGUS410

		Products			
PlotID	Length	Product	Plies	Net Qty	Fab Type
B11	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD



FROM PLAN DATED: JULY 2, 2020

**BUILDER: GREENPARK HOMES** 

**SITE: LAMPONE INVESTMENTS** 

**MODEL:** KIMBERLY 5

**ELEVATION: 1.2** 

LOT:

**CITY: MARKHAM** 

SALESMAN: MARIO DI CIANO

**DESIGNER: L.D. REVISION:** L.D.

#### 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. MULTIPL **SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK REQ. I-JOIST BLOCKING ALON BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURE 7 TABLES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIEL CUT OPENINGS SEE FIGURE 7 TABLES 1 8 OF THE INSTALLATION GUIDE, CERAMIC TI APPLICATION AS PER O.B.C. 9.30.6

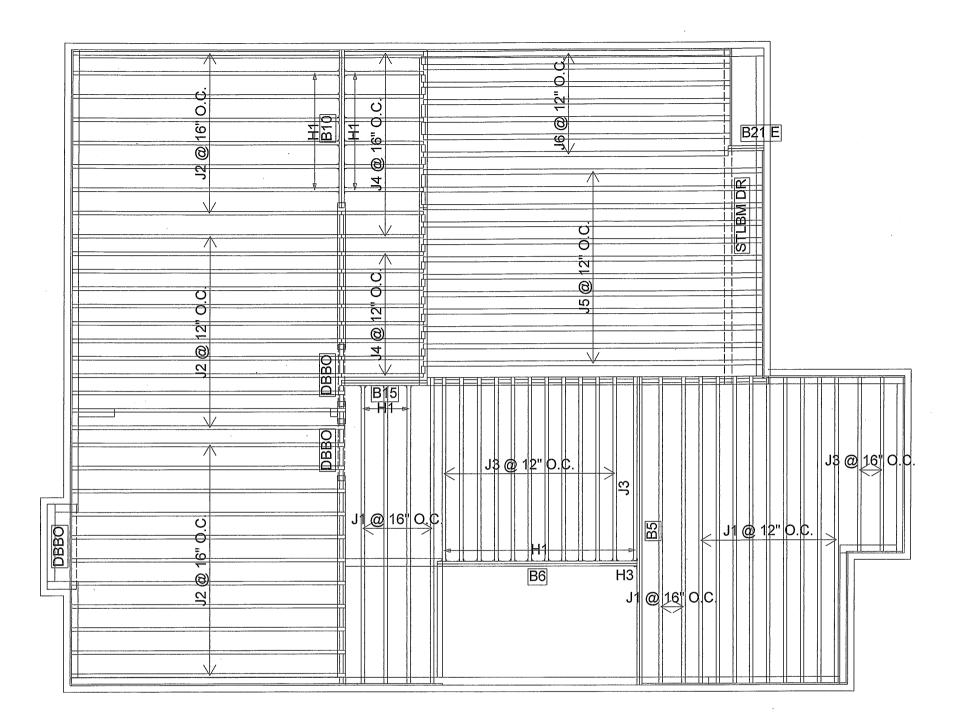
#### LOADING:

DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft<sup>2</sup> DEAD LOAD: 15.0 lb/ft<sup>2</sup> TILE LOAD: 20.0 lb/ft<sup>2</sup>

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

**DATE:** 2020-07-23

## 2nd FLOOR



1			Products				
ı	PlotID	Length	Product	Plies	Net Qty	Fab Type	
	J1	18-00-00	11 7/8" NI-40x	1	15	MFD	1
	J2	16-00-00	11 7/8" NI-40x	1	31	MFD	l
	J3	12-00-00	11 7/8" NI-40x	1	14	MFD	
	J4	6-00-00	11 7/8" NI-40x	1	17	MFD	١.
	J5	20-00-00	11 7/8" NI-80	1	12	MFD	
	J6	18-00-00	11 7/8" NI-80	1	7	MFD	
	B5	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD	
	B6	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD	
İ	B10	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD	İ
-	B15	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD	

ab Type	Qty
//FD	27
ЛFD	1
/IFD	
/IFD	
//FD	
//FD	
/IFD	

Connector Summary Manuf Product

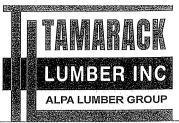
IUS2.56/11.88

HGUS410

H1

НЗ

		Products			
PlotID	Length	Product	Plies	Net Qty	Fab Type
B21 E	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2	MFD



FROM PLAN DATED: JULY 2, 2020

**BUILDER: GREENPARK HOMES** 

**SITE: LAMPONE INVESTMENTS** 

**MODEL:** KIMBERLY 5

**ELEVATION:** 3

LOT:

**CITY: MARKHAM** 

SALESMAN: MARIO DI CIANO

DESIGNER: L.D. REVISION: L.D.

#### 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. MULTIPL SQUASH BLOCKS REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. CANTILEVERED JOISTS INCLUDING CANT' OVER BRICK REQ. I-JOIST BLOCKING ALOI BEARING AND RIMBOARD CLOSURE AT ENDS. SEE FIGURE 7 TABLES 4 & 5 FOR REINFORCEMENT REQUIREMENTS. FOR HOLES INCLUDING DUCT CHASE AND FIEL **CUT OPENINGS** SEE FIGURE 7 TABLES 1 8 OF THE INSTALLATION GUIDE. CERAMIC T APPLICATION AS PER O.B.C. 9.30.6

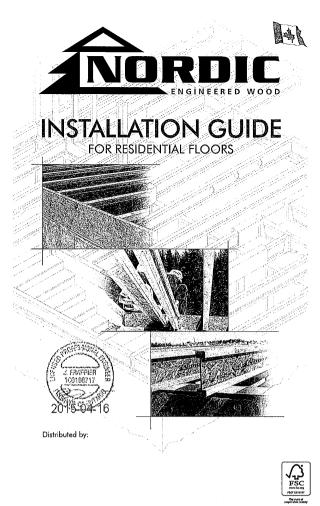
#### LOADING:

DESIGN LOADS: L/480.000 LIVE LOAD: 40.0 lb/ft<sup>2</sup> DEAD LOAD: 15.0 lb/ft<sup>2</sup> TILE LOAD: 20.0 lb/ft<sup>2</sup>

SUBFLOOR: 5/8" GLUED AND NAILED

**DATE:** 2020-07-23

## 2nd FLOOR



#### SAFETY AND CONSTRUCTION PRECAUTIONS

Do not walk on I-joists until fully fastened and braced, or serious inju-



Never stack building materials over unsheathed I-joists. Once sheathed, do not entrated loads from

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

Avoid Accidents by Following these Important Guidelines

- Brace and nail each l-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends. When l-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
- When the building is completed, the floor sheathing will provide lateral support for the top flonges of the I-joists. Until this sheathing is applied, temporary bracing, often colled 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. Nail the bracing to a lateral restraint at the end of each bay. Lop 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 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.
- 4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only. 5. Never install a damaged I-joist.

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

#### MAXIMUM FLOOR SPANS

- . Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 paf and dead load of 15 paf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The surriceability limit states include the consideration for floor vibration and a live load deflection limit of U/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Or more a me auguent span.

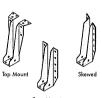
  Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/B inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements jeven in CGBS-71.26
  Standard. No concrate topping or bridging element was assumed. Increased spans may be achieved with the used of gypsum and/or a row 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.
- This span chart is based on uniform loads. For application
  with other than uniform loads, an engineering analysis m
  be required based on the use of the design properties.
- 6. Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
- 7. SI units conversion: 1 inch = 25.4 mm 1 foot = 0.305 m

#### MAXIMUM FLOOD SPANS FOR NORDIC 1. IOISTS SIMPLE AND MULTIPLE SPANS

	Joist		Simple	spans	40.0		Müllipl	(enpge			
Joist Depth			On centro	spacing		On centre spacing					
<b>10.45</b>		12"	16"	19.2	24	-125	16	192	24		
1. The 187	NI-20	15'-1"	14'-2	13'-9"	13'-5	16'-3"	15'-4	14'-10	14'-7		
	NI-40x	16'-1"	15'-2"	14'-8"	14'-9"	17'-5"	16'-5"	15'-10"	15'-5"		
9-1/2"	NI-60	16'-3'	15'-4"	14'-10"	14'-11'	17'-7"	16'-7"	16'-0"	16'-1'		
11912	NI-70	17'-1"	16'-1"	15'-6"	15'-7"	18'-7"	17'-4"	16'-9"	16'-10"		
A. 16	NI-80	17'-3"	16'-3°	15'-8"	15'-9"	18'-10'	17'-6"	16'-11"	17'-0"		
5 Day 12	NI-20	16'-11'	16'-0"	15'-5	15'-6"	18'-4	17'-3*	16'-8	16'-7'		
77.74	NI-40x	18'-1	17'-0"	16'-5	16'-6"	20'-0	18'-6"	17'-9	17'-7*		
- 100	NI-60	18'-4"	17'-3"	16'-7"	16'-9'	20-3	18'-9'	18'-0'	18'-1"		
11-7/8*	NI-70	19'-6"	18'-0"	17'-4"	17'-5'	21'-6"	19'-11"	19'-0"	19'-1"		
5	NI-80	19'-9"	18'-3"	17'-6"	17'-7'	21'-9"	20'-2"	19'-3"	19'-4"		
	NI-90	20'-2"	18'-7	17'-10	17'-11'	22'-3'	20'-7	19'-8'	19'-9		
50.00	NI-90x	20'-4"	18'-9	17'-11"	18'-0	22'-5"	20'-9	19'-10"	19'-11"		
1500000	NI-40x	20-1	18'-7"	17'-10"	17'-11'	22'-2'	20'-6"	19'8'	19'-4'		
	NI-60	20'-5"	18'-11"	18'-1"	18'-2'	22'-7'	20'-11"	20'-0"	20'-1"		
	NI-70	21'-7"	20'-0"	19'-1"	19'-2'	23'-10"	22'-1"	21'-1"	21'-2'		
14"	NI-80	21'-11'	20'-3"	19'-4"	19'-5'	24'-3"	22'-5"	21'-5"	21'-6"		
	NI-90	22'-5	20'-8"	19'-9	19'-10'	24'-9	22'-10"	21'-10'	21'-10"		
11 14 14 14	NI-90x	22'-7*	20'-11"	19'-11"	20'-0"	25'-0"	23'-1"	22'-0"	22'-2"		
	NI-60	22'-3"	20'-8"	19'-9"	19'-10"	24'-7"	22'-9"	21'-9'	21'-10'		
F 400, 444	NI-70	23'-6"	- 21'-9"	20'-9"	20'-10"	26'-0"	24'-0"	22'-11"	23'-0"		
16"	NI-80	23'-11	22'-1"	21'-1'	21'-2"	26'-5"	24'-5"	23'-3"	23'-4"		
	NI-90	24'-5"	22'-6	21'-5"	21'-6	26'-11'	24'-10'	23'-9"	23'-9		
50.000.002	NI-90x	24'-8'	22'-9"	21'-9"	21'-10'	27'-3"	25'-2"	24'-0"	24'-1"		

#### I-JOIST HANGERS

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



CCMC EVALUATION PERCET 12022.P

#### STORAGE AND HANDLING GUIDELINES

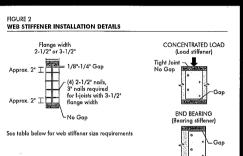
- 1. Bundle wrap can be slippery when wet. Avoid walking on wrapped
- 3. Always stack and handle I-joists in the upright position only.
- 4. Do not store 1-joists in direct contact with the ground and/or flatwise
- 5. Protect I-joists from weather, and use spacers to separate bundles.
- 6. Bundled units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

### **WEB STIFFENERS**

- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found of the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at the top.
- A bearing stiffener is required when The I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
- amoner and hange is a time top.

  \*\*A load stiffener is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a contilever, anywhere between the contilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitt by the code. The gap between the stiffener and the flange is at the bottom.

SI units conversion: 1 inch = 25.4 mn



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

required). Attach I-joist t

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.

(1k)

3-1/2" 1-1/2" x 2-5/16" minimum width

# NORDIC I-JOIST SERIES 33 pieces 33 pieces 33 pieces 23 pieces 24 pieces 24 pieces 24 pieces 24 pieces 24 pieces 24 pieces 24 pieces 24 pieces 24 pieces 24 pieces 24 pieces 24 pieces 24 pieces 24 pieces 24 pieces 24 pieces 24 pieces 24 pieces 24 pie

Chantiers Chibougamau Ltd. harvests its own trees, which enables. Nazdi products to adhere to strict quality control procedures through the strict quality control procedures through the strict to fine finished product, reflects our commitment to quality.

Nordic Engineered Wood Lipists use only finger-jointed acids of profile Field Iumber in their flanges, ensuring consistent quality, superior strategies and consistent quality, superior strategies and consistent quality. 2015-04-16

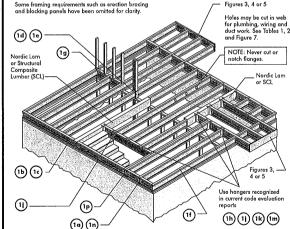
Backer block (use if hanger load exceeds 360 lbs) Before installing a backer block to a double l-joist, drive three

additional 3" nails through the webs and filler block where the backer block will fit. Clinch. Install backer tight to top flange. Use twelve 3" nails, clinched when possible. Maximum factored resistance for hanger for this detail = 1,620 lbs.

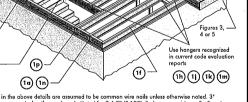
#### INSTALLING NORDIC I-JOISTS

- 1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contribution
- 2. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched. 3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
- 4. I-joists must be anchored securely to supports before floor sheathing is attached, and supports fo 5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearing
- 6. When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement.
- 7. Leave a 1/16-inch gap between the l-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 flatures, audio equipment and security carners. Never suspend unusual or heavy loads from the 1-joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the 1-joist. Or, attach the load to blocking that has been securely fostened to the 1-joist wash.
- 9. Never install I-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 I-joist blocking panels
- 11. For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (cripple members) to transfer gravity loads through the floor system to the wall or foundation below.
- 12. Due to shrinkage, common framing lumber set on edge may never be used as blocking or rim boards. I-joist blocking panels or other engineered wood products such as rim board must be cut to fit between the I-joists, and an I-joist-compatible depth selected.
- 13. Provide permanent lateral support of the bottom flange of all I-joists at interior supports of multiple-span joists. Similarly, support the bottom flange of all cantilevered I-joists at the end support next to the cantilever extension. In the completed structure, the gypsum wallboard ceiling provides this lateral support. Until the final finished ceiling is applied, temporary bracing or struts must be used.
- 15. Nail spacing: Space nails installed to the flange's top face in accordance with the applicable building code requi approved building plans.

#### TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS Figures 3, 4 or 5

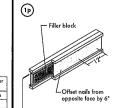


All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3\* (0.122\* dia.) common spiral nails may be substituted for 2-1/2\* (0.128\* dia.) common wire nails. Framing lumber assumed to be Spruce-fine-fir No. 2 or better. Individual components not shown to scale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



# Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used. 1/16" for uash blocks





Transfer load from above to bearing below. Install squas blocks per detail 1d. Match

bearing area of blocks below to post above.

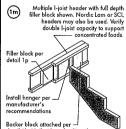
Top- or face-mount hanger installed per manufacturer's

r nailing schedules for multiple

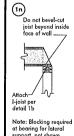
(1)

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 l-joist capacity.

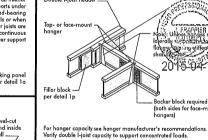
## aring wall above shall align vertically the bearing below. Other conditions, such as offset bearing walls, are not covered by this detail. (1g) NI blocking panel per detail 1o 2-1/2" nails of 6" o.c. to top plate







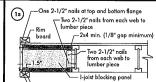
Note: Blocking required at bearing for lateral support, not shown for clarity.



BACKER BLOCKS (Blocks must be long enough to permit required

Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2*	1-1/2"	7-1/4"
Directions of	( ) 1 11 1	LI III COEN O

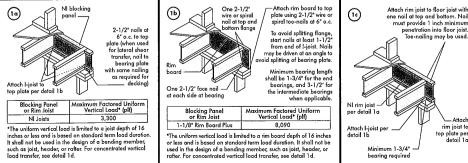
Minimum grade for backer block material shall be S-R-F No. 2 or better for solid som lumber and wood structural penels conformin to CAN/CSA-0325 or CAN/CSA-0437 Standard. For foce-mount hanges use net joint depth minus 3-1/4" for joints with 1-1/2" hick filonges. For 2" hick filonges use net depth



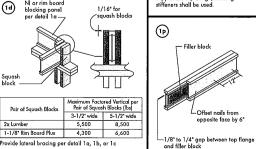
One 2-1/2" nails one side only — 2-1/2" nails at 6" o.c. Notes:

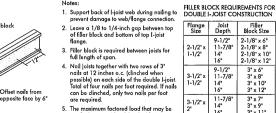
In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the storic joist. Where required, see local code requirement for spacing of the blocking.

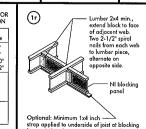
All nails are common spiral in this detail.



2015-04-16







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

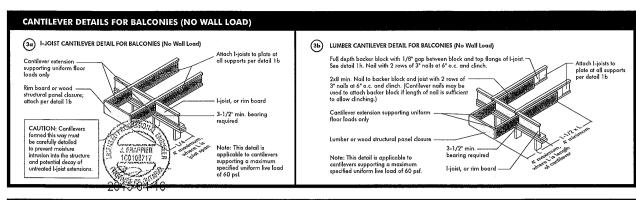
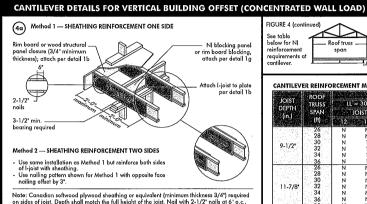
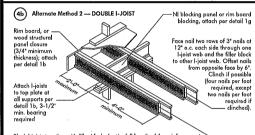


FIGURE 4 (continued)



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



Block I-joists together with filler blocks for the full length of the reinforcement.

For I-joist flange widths greater than 3 inches place an additional row of 3" nails along the centreline of the reinforcing panel from each side. Clinch when possible.

## Roof trusses | 13-0" maximum | 13-0" maximum | Jack trusses | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | 13-0" maximum | For hip roofs with the jack trusses running parallel to the cantilevered floor joists, the l-joist reinforcement requirements for a span of 26 ft. shall be permitted to be used. CANTILEVER REINFORCEMENT METHODS ALLOWED ROOF TRUSS SPAN (ff) JOIST SPACING (in.) 2 16 19.2 24 12 11-7/8

- 40 42
- 1. N = No reinforcement required.
  1 = NI reinforced with 3/4" wood structural ganel on one side only.
  2 = NI reinforced with 3/4" wood structural ganel on both sides, or double Lipiati.
  X = Try a deeper joist or claser spacing.
  2. Maximum design load shall be 15 pst root dead load, 55 pst floor total load, and 80 plf wall load. Woll load is based on 3'-0" maximum width window or door openings.

\_\_ Roof truss ....

span

GURE 5 (continued)

Hanger may be used in lieu of solid sawn block

4. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is formed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a trus is used.

5. Cantileversal joints supporting girder trusses or out beams may require additional swittering. For larger openings, or multiple 3°-0" width openings spaced less than 6°-0" o.c., additional joists beneath the opening's cripple studs may be required.

3. Table applies to joists 12" to 24" o.c. that
meet the floor span requirements for a de meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12° o.c. requirements for lesser spacing.

Girder Roof truss 22-0" maximum 22-0" maximu

requirements for a span of 26 ft. shall be permitted to

For hip roofs with the jack

### BRICK CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD) (5a) SHEATHING REINFORCEMENT Noti reinforcement to for and bottom joist flanges with 2-1/2" nails at 6" o.c. (offset opposite face nailing by 3" when using reinforcement on both Note: Canadian softwood Note: Canadian softwood phywood sheathing or equivalent (minimum thickness 3/4) required on sides of joist. Depth shall match the full height of the joist. Nall with 2-1/2° noils of 6° o.c., to pand bettern flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail 1b. Verify reinforced I-joist capacity. sides of I-joist) 100109717 (5b) SET-BACK DETAIL (A) (2) 201604 Rim board or wood structural panel closure (3/4" minimum thickness), attach per detail 1b. Provide full denth blocking Provide full depth blacking between joists over support (not shown for clarity) Attach I-joist to plate at all supports per detail 1b. 3-1/2" minimum I-joist bearing required. Attach ioists to 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.

vores: Verify girder joist capacity if the back span exceeds the joist spacing. Attach double I-joist per detail 1p, if required.

| LL = 30 psf, DL = 15 psf | LL = 40 psf, DL = 15 psf | LL = 50 psf, DL = 15 psf |
| JOIST SPACING (in.) | JOIST SPACING (in.) | JOIST SPACING (in.) | 12 | 16 | 19 2 | 24 | 12 | 16 | 19 2 | 24 | 12 | 16 | 19 2 | 2 TRUSS SPAN (ft) 11-7/8 For larger openings, or multiple 3'.0" width openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.

3. Table applies to joists 12" to 24" o.c. that meet N = No reinforcement required.
 N = NI reinforced with 3/4\* wood structural. 1 = NI reintorcad with 3/4" wood structural panel on one side only.
2 = NI reinforcad with 3/4" wood structural panel on obth sides, or double 1-joist.
X = I'ny a deeper joist or closer spacing.
2. Maximum design lood shall be is 15 psf root dead lood, 55 psf floor total lood, and 80 pff wall lood. Wall lood is based on 3 °C" maximum width window or door openings.

A. For conventional roof construction using a ridge barm, the Roof Trus Span column above is equivalent to the distance between the supporting will and the ridge barm.

When the root is framed using a ridge board, the Roof Trus Span is squivalent to the distance between the supporting will said for the said stance between the supporting wills as if a truss is used.

5. Contileved pidst supporting girler trusses or roof barms may require additional reinforcing. I daile appries to Joiss 12 10 24 o.c. mai mest the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.

#### **WEB HOLES**

#### RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- 2. I-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.
- 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 must 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.
- The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- 3/4 of the aldimeter of the maximum round note permitted or that location had Where more than one hole is necessary, the distance between adjacent hole adjaces 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 rectoringular hole or duct chose opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- 7. A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distand/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to
- 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.
- 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
- 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.

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

Joist	Joist		2007年	nimun	dista	nce fro	m ins	ide la	e of a	ıy sup	port to	centre	of ho	(ii)	0)	6600B	SECTION
					232		Ro	and he	le diar	neter		4		A 100	34.04		adjustm
4		2.5	級影響	42	5.5	. 6	6-1/4	学 和		845/8	9	图 0 %	10-3/4	数加克	<b>美国</b>	12-3/4	Facto
100	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
200	NI-70	2'-0'	3'-4"	4'-9"	6'-3"	8'-0"	8'-4"					***		***	***		15'-7"
10000	NI-80	2'-3'	3'-6	5'-0'	6'-6"	8'-2"	8'-8"		•••				***				15'-9"
1.100.00	NI-20	0-7	0.8	1'-0'	2'-4"	3'-8"	4'-0"	5'-0"	6.6	7-9				***		***	15'-6"
100	NI-40x	0-7	0'-8"	1'-3"	2'-8"	4'-0	4'-4"	5'-5"	7'-0"	8'-4"		***	***	***			16.6
- 1.40dha	NI-60	0.7	1'-8"	3-0	4'-3	5'-9	6,-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	844*	10'-0"	1142	***	•••					17-5
7 170 C	NI-80	1'-6"	2'-10"	4'-2"	5'-6"	7:-0	7'-5'	8'-6	10'-3"	11'4			•	•••		•	17-7
44.1.1.1	NI-90	0-7	0'-8"	1'-5	3'-2"	4'-10'	5'-4"	6-9	8-9	10-2							17:11
. 7.3	NI-90x	0'-7	0'-8"	0.9	2'-5"	4.4	4'-9'	6'-3"		***				***		***	18-0
2 10 000	NI-40x	0'-7"	0.8.	0.8.	1'-0"	2-4*	2'-9"	3'-9"	5'-2'	6'-0	6.6	8-3	10-2				17-11
A 1857	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	340	4'-5"	5'-10"	6'-2'	7:-3*	8-9	9-9	10'-4"	12-0	13'-5"	***	***		19-2
	NI-80	0-10.	240	3'-4"	4'-9"	6'-2"	6'-5	7'-6"	9'-0"	10-0	10.8.	12-4	13-9	•••	***		19-5
3,75,45	NI-90	0-7*	0.8.	0-10	2'-5"	4'-0"	4'-5	5'-9"	7'-5"	8'-8"	94	11'-4"	12-11	•••			19-9
	NI-90x	0-7*	0'-8"	0'-8"	2'-0"	3'-9"	4'-2"	5-5*	7'-3*	8'-5"	9-2				***		20-0
537.00	NI-60	0'-7*	0.8.	0.8	16.	2'-10	3-2	4-2	5-6	6'-4"	7'-0"	8'-5"	9-8	10-2	12'-2"	13'-9	19-10
10.11	NI-70	0-7	1'-0	2'-3"	3'-6"	4'-10"	5'-3"	6,-3,	7'-8	8'-6"	9-2	10'-8"	12'-0"	124	14'-0"	15'-6"	20-10
16"	NI-80	0'-7"	1'-3	2-6"	3'-10"	5'-3"	5'-6"	6'-6"	8'-0"	9'-0"	9'-5'	11'-0"	12:-3	12-9	14'-5"	16.0	21'-2
409 P. O.	NI-90	0-7	0.8.	0.8	1'-9"	3-3	31-8	4-9	6'-5"	7'-5"	8-0	9-10-	11,-3,	11-9	13'-9"	15'-4"	21'-6
3 - 6 750	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 I-joist spacing of 24 inches on centre or less.

Hole location distance is measured from inside face of supports to centre of hole.

Distances in this chart are based on uniformly loaded joists.

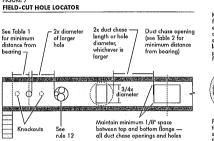
The above table is based on the I-joists used at their maximum span. If the I-joists are placed at less than their full maximum span (s the minimum distance from the centreline of the hole to the face of any support (D) as given above may be reduced as follows: D<sub>reduced</sub> = L<sub>actual</sub> x D

d = Distance from the inside face of any support to centre of hole, reduced for less-than-maximudistance shall not be less than 6 inches from the face of the support to edge of the hole.

The actual measured span distance between the inside faces of supports (\$\bar{h}\$! = Span Adjustment Factor given in this table.

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

If \( \frac{1}{264tual} \) is greater than 1, use 1 in the above calculation for \( \frac{1}{264tual} \) is greater than 1, use 1 in the above calculation for \( \frac{1}{264tual} \) is greater than 1. D<sub>reduced</sub> =



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

Knockouts are prescored holes provided for the contractor's convenience to instal 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 proferable to your knockouts instant of



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

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

		Minimu	ım distan	ce from i				o centre c	fopenin		
Joist Depth	Joist Series			<b>F</b>	Duct c	rase lenç	th (in.)	<b>***</b>			
		8	LO.	112	<b>19</b> 4	D 16	18	20	22	24	
11000	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"	
A. 10. 11. 11. 11.	NI-70	5'-1"	5'-5"	5'-10"	6'-3"	6'-7'	7'-1"	7'-6"	8'-1"	8'-4"	
and the second	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	
110 2837	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"	91-3	9'-8"	10'-2"	10'-8'	
100	NI-90	7'-6"	7'-11'	8'-4"	8'-9"	9'-2"	9'-7"	10-1	10'-7"	10'-1	
	NI-90x	7:-7	8'-1"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-8"	111-2	
	NI-40x	8'-1"	8'-7"	9'-0"	9'-6"	10-1	10'-7'	11'-2"	12'-0"	12'-8	
(b) 25 (c) 45°	NI-60	8'-9	9'-3"	9'-8"	10'-1"	10'-6"	11'-1'	11'-6"	13'-3"	13'-0'	
14"	NI-70	8'-7"	9'-1"	9'-5"	9'-10	10'-4"	10'-8"	11'-2	114-74	12'-3'	
	NI-80	9-0	9'-3'	91.9*	10-1-	10-7	111-11	11'-6'	12'-1"	12'-6'	
45 Miles	NI-90	9'-2"	9'-8"	10'-0"	10-6*	10'-11"	11'-5"	11'-9'	12'-4"	12'-1'	
	NI-90x	9'-4"	91-9	10-3*	10.7	1111	111-71	12'-1:	12'-7	13'-2'	
And the state of	NI-60	10'-3"	10'-8	11'-2"	11'-6"	12'-1	12'-6"	13'-2'	14'-1	14'-10	
	NI-70	10-1	10'-5"	11-0-	11:4"	111-10	12'-3"	12'-8"	13'-3"	14'-0"	
16	NI-80	10-4	10'-9"	111-3*	111.9*	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	
114 114 114	NI-90x	1151	111-51	11:10	12'.4"	12'-10"	13'-2	13'-9'	14'-4"	15-2	

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\$2.

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Above table may be used for I-joint spacing al 24 inches on carre or less.
 Dud chase opening localised missions is measured from inside dace al supports to centre of opening.
 The above table is brased on simple-parap noist only for other applications, contact your local distributor.
 Brased on the other of the control of the property of the control of the property of the date of the

#### INSTALLING THE GLUED FLOOR SYSTEM

- 1. Wipe any mud. dirt. water, or ice from l-joist flanges before aluing.
- 2. Snap a chalk line across the 1-joists four feet in from the wall for panel edge alignment and as a boundary for spreading glue.
- 3. Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from 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.
- 7. After the first row of panels is in place, spread glue in the groove of one or two panels at a time before laying the next row. Clue line may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) than used on 1-joint 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 nail to assure accurate and consistent spacing.)
- 10. Complete all nailing of each panel before glue sets. Check the manufacturer's re for cure time. (Warm weather accelerates glue setting.) Use 2° ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2° ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the

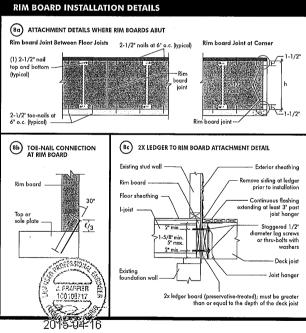
#### FASTENERS FOR SHEATHING AND SUBFLOORING(1)

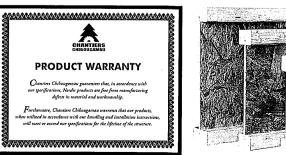
Joist	Panel	Common Z	Ring Thread		THE PERSON NAMED IN	leners
Spacing (in.)	Thickness (in.)	Wire ar Spiral Nails	Nails or Screws	Staples	Edges	Interm. Supports
16	5/8	2*	1-3/4"	2*	6*	12*
20	5/8	2*	1-3/4"	2"	6*	12"
24	3/4	2"	1-3/4"	2'	6,	12*

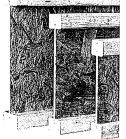
- Fasteners of sheathing and subflooring shall conform to the above table.
- 2. Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown
- 3. Flooring screws shall not be less than 1/8-inch in diameter.
- 4. Special conditions may impose heavy traffic and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

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

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





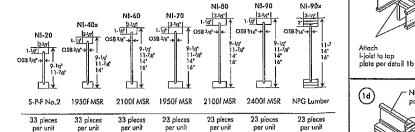


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Refer to the Installation Guide for Residential Floors for additional information. CCMC EVALUATION REPORT 13032-R



#### **WEB HOLE SPECIFICATIONS**

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- 1. The distance between the inside edge of the support and the centreline of any hale or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.

  1. I-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 chose opening that
- can be cut into an I-joist web shall equal the clear distance between the flance of the Lipist minus 1/4 inch. A minimum of 1/8 inch should always be mainteined between the talget of the highest men and the talget of the highest men and the mainteined between the talget 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

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

  Where more than one hole is necessary, the distance between adjacent hale edges shall exceed twice the diameter of the largest round hale or twice the size of the largest
- shall exceed two 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 rectangulor hole or duct chose opening) and each hole and duct chose opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.

  7. A knockout is not considered a hole, may be utilized anywhere it accurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct
- 8. Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joist. Hales of greater size may be permitted subject to verification.
- 9. A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.

  10. All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as
- illustrated in Figure 7. 11. Limit three maximum size holes per span, of which one may be
- a duct chase opening.

  12. A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

Simple Span Only

			M	inimun	n Distar	ice fro	m Inside	e Face	of Any	Support	to Cer	ntre of	Hole (ft -	in.)		
Joist Depth	Joist Series						Rou	nd Hole	a Diam	eter (in.	)					
ocp	delles	2	3	4	5	6	6-1/4	`7	8	8-5/8	9	10	10-3/4	11	12	12-3/4
	NI-20	0'-7"	1'-6"	2'-10"	4'-3"	5'-8"	6'-0"									
	NI-40x	0'-7"	1'-6"	3'-0"	4'-4"	6'-0"	6'-4"								•••	
-1/2"	NI-60	1'-3"	21-6"	4'-0"	5'-4"	7'-0"	7'-5"									
	NI-70	2'-0"	3'-4"	4'-9"	6'-3"	8'-0"	8'-4"								•••	
	NI-80	2'-3"	3'-6"	5'-0"	6'-6"	8'-2"	8'-8"									***
	NI-20	0'-7"	0'-8"	1'-0"	2'-4"	3'-8"	4'-0"	5'-0"	6'-6"	7'-9"		~~~				
	NI-40x	0'-7"	0'-8"	1'-3"	2'-8"	4'-0"	4'-4"	5'-5"	7'-0"	8'-4"						
	NI-60	0'-7"	1'-8"	3'-0"	4'-3"	5'-9"	6'-0"	7'-3"	8'-10"	10'-0"				•••	***	***
1-7/8*	NI-70	1'-3"	2'-6"	4'-0"	5'-4"	6-9"	7'-2*	8'-4'	10'-0°	11'-2"						
	NI-80	1'-6°	2'-10"	4'-2"	5'-6"	7'-0"	7'-5'	8'-6"	10-3*	11'-4"			***			
	NI-90	0'-7"	0'-8"	1'-5"	3'-2"	4-10"		6'-9"	8'-9"	10'-2"						***
	NI-90x	0'-7"	0'-8"	0'-9"	2'-5"	4-4"	4'-9"	6'-3"		•••						
	NI-40x	0'-7"	0,-8.	0'-8"	1'-0"	2'-4"	2'-9"	3'-9"	5'-2"	6'-0°	6'-6"	8,-3,	10'-2"			
	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"			
4"	NI-70	0'-8"	1'-10"	3"-0"	4'-5"	5-10		7'-3"	8'-9"	9·-9·	10:-44		13'-5"			•••
-	NJ-80	0'-10"	2'-0"	3'-4"	4'-9"	6'-2"	6'-5"	7-6	9'-0"	10'-0"	10'-8"		13'-9"			
	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"			•••
	NI-90x	0'-7"	0'-8"	0'-8"	2'-0"	3'-9"	4'-2'	5'-5"	7'-3"	8'-5"	9'-2"					
	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'		
	NI-70	0'-7"	1'-0"	2'-3"	3'-6"	4'-10'	5'-3"	6'-3"	7'-8"	8'-6"	9'-2"	10'-8"	12'-0"	12'-4"		15'-6"
6°	NI-80	0'-7"	11-3"	2-6"	3'-10"	5'-3"	5'-6"	6'-6"	8'-0"	9'-0"	9-5	11'-0"	12'-3"	12'-9"		16'-0"
-	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'-3'		13'-9"	15'-4"
	NI-90x	0'-7"	0'-8"	0'-9"	2'-0"	3'-6*	4"-0"	5'-0"	6'-9"	7'-9"	8'-4"	10'-2"	17'-6"	12'-0"		

- 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 based on the 1-joist being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

FIELD-CUT HOLE LOCATOR

Debiu	Series !									
	1 - 1 - 1	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"	51-91	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	51.31	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'	71-74	8'-0"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-8"
	NI-90	7'-6"	7-111	8'-4"	8'-9"	9'-2"	9'-7°	10'-1"	10-7	10'-31"
	NI-90x	7'-7*	8'-1"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-8"	111-21
	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"
14	NI-70	8'-7"	91-11	9'-5"	9'-10"	10'-4*	10'-8"	11'-2"	11'-7"	12'-3'
14"	NI-80	9'-0"	91-3×	9'-9"	10'-1"	10'-7"	11415	11'-6"	12'-1"	12'-6"
	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
	NI-70	10-1	10'-5"	11'-0"	11-4	11'-10'	12'-3"	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"	14410
- (	NI-90x	17-1	11'-5"	11'-10'	12'-4"	12'-10'	13'-2"	13'-9"	14-4	15'-2"

- Above table may be used for I-joist spacing of 24 inches an 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 five load of 40 pst and dead load of 15 pst, and a live load deflection limit of 1/480.

  The above table is based on the 1-joist being used of their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

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

2	1	Minimum distance from inside face of supports to centre of opening (ft								
Joist Depth	Joist Series				Duct Ch	ase Leng	th (in.)			
Dopin	00,100	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'
1	NI-70	5'-1"	5'-5"	5'-10"	6'-3"	6'-7"	7'-1"	7'-6"	8'-1"	8'-4"
	NI-80	51-31	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"	74111	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"
14*	NI-70	8'-7"	91-11	9'-5"	9'-10"	10'-4*	10-8*	11-2	11'-7"	12'-3'
14	NI-80	9'-0"	91-3×	9'-9"	10'-1"	10'-7"	77475	11'-6"	12'-1"	12'-6"
	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"
	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°	14410
	NI-90x	17-11	11'-5"	11410	12'-4"	12'-10'	' 13'-2"	13'-9"	14-4	15'-2"

### block - Offset nails from apposite face by 6° -1/8" to 1/4" gap between top flange and filler block

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST

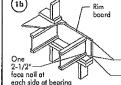
#### Flonge Size Net Depth Filler Block Size Support back of I-joist web during nailing to prevent 1. Support states or Figure was outing naturing to prevent damage to web/flange connection. 2. Leave a 1/8 to 1/4-inch gap between top of filler black and bottom of top I-joist flange. 3. Filler black is required between joists for full length 2-1/2° x 2-1/8" × 8" 11-7/8° 1-1/2"

4. Nail joists together with two rows of 3" nails of 12 inches
o.c. (clinched when possible) on each side of the double

capacity = 1.620 lbs

- I-joist, Total of four nails per foot required. If nails can be clinched, only two nails per foot are required.

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



Maximum Factored Uniform Vertical Load\* (plf) 1-1/8" Rim Board Plus 8.090 The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on

standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter, For concentrated vertical load transfer, see detail 1d.

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

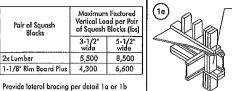
- Attach rim board to top plate using 2-1/2" wire or spiral toe-nails at 6" o.c.

To avoid splitting flange, start nails at least 1-1/2" from end of l-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.

- Backer black required

(both sides for face-



Maximum Factored Uniform

Vertical Load\* (plf)

3 300

3-1/2"

4,300

5.1/2"

7-1/4\*

\*The uniform vertical load is limited to a joist death 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

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)

Blocking Panel or Rim Joist

NI Joists

transfer, see detail 1d.

NI or rim board blocking

Moterial Thickness Required\*

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

rood structural panels confarming to CAN/CSA-O325 or CAN/CSA-O437 Standard. or face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges.

panel per detail la

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 hange

sides laterally support

the top flange, bearing

installed per manufacturer's

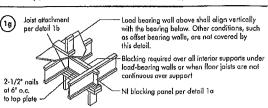
(1d)

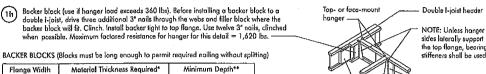
Flance Width

2-1/2\*

3-1/2\*

from above to bearing belo Install squast Match bearing area of blocks below to nost





Filler block

Multiple I-joist header with full depth filler

block shown, Nordic Lam or SCL headers may also be used. Verify double 1-jois

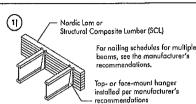
Backer block attached per

detail 1h. Nail with twelve 3" nails, clinch when possible.

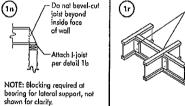
Install hanger per

manufacturer's

For hanger capacity see hanger manufacturer's ndations. Verify double I-joist capacity to suppor



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



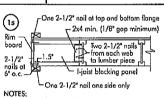
Lumber 2x4 min., extend block to face of adjacent web. Two 2-1/2" spiral nails from each web to lumber piece, alternate on opposite side.

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

Ali nails shown in the above details

are assumed to be

mon wire noil



In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist, Where required, see local code requirements for spacing of the blocking.

All nails are common spiral in this detail. noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) assumed to be Spruce-Pine-Fir No. 2 or better. Individual

#### Knockouts are prescored hales provided for the contractor's convenience to

## 2x duct chase lengt Duct chase opening (see Table 2 for minimur Maintain minimum 1/8" space between top and bottom flange — all duct chase openings and holes



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 assible, it is areferable to use knockauts instead of field-cut hales.

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

Holes in webs should be cut with a sharp saw

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

#### **WEB STIFFENERS**

3-1/2" min

#### RECOMMENDATIONS:

- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found of the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at
- A bearing stiffener is required when the I-joist is supported in a honge and the sides of the hanger do not extend up to, and support, the lop flange. The gap between the stiffener and flange is at the top.
- A load stiffener is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flonge between supports, or in the case of a cantilever, anywhere between the contilever rip 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 flonge is at the bottom.

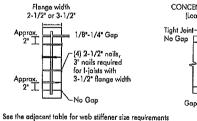
#### WEB STIFFENER INSTALLATION DETAILS

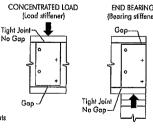
9-1/2"

11-7/8"

1-1/2°

3-1/2° x





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

#### SAFETY AND CONSTRUCTION PRECAUTIONS



FIGURE 7

Do not walk on t-joists until fully fastened and braced, or



Never stack building materials over unsheathed Linists, Once sheathed, do not over-st

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

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

- 1. Brace and noil each t-joist as it is installed, using hangers, blacking panels, rim board, and/or cross-bridging at joist ends. When t-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blacking will be required at the interior support.

  2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the t-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent t-joist rollover or buckling.

  I have not bearing as strute must be a March minimum, at least 8 feet less and account as a contract of the contra
- The property bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lop ends of adjoining bracing over at least two I-joists.
- Or, sheathing (temporary or permanent) can be noticed to the top flange of the first 4 feet of I-joists at the end of the boy.
- B. For contilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging. A. Install and fully nail permanent sheathing to each lipist before placing loads on the floor system. Then, stack building moterials over beams an walls only.

5. Never install a damaged l-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 occidents. Follow these installation guidelines carefully.

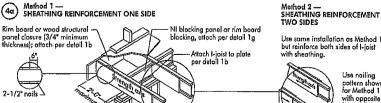


### PRODUCT WARRANTY

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

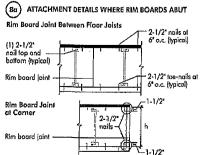
Furthermore, Chantiers Chibongaman warrants that our products, then utilized in accordance with our handling and installation instruction will meet or exceed our specifications for the lifetime of the structure.

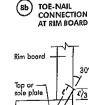
#### CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET



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

#### **RIM BOARD INSTALLATION DETAILS**









COMPANY June 2, 2020 15:55

PROJECT J1 - 1ST FLOOR

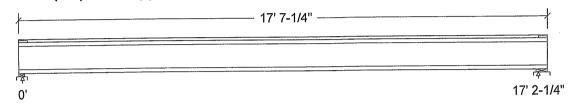
### **Design Check Calculation Sheet**

Nordic Sizer – Canada 7.2

#### Loads:

Load	Type	Distribution	Pat-	Location	[ft]	Magnitu	de	Unit
noda	-71-	l l	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	229	·	229
Live	458		458
Factored:			974
Total	974		974
Bearing:			
Capacity			233.6
Joist	2102		7744
Support	3981		//44
Des ratio			0.42
Joist	0.46		
Support	0.24		0.13
Load case	#2		#2
Length	2-3/8		4-3/8
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		1.15

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

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

Total length: 17' 7-1/4"; Clear span: 17' 1/2"; 3/4" nailed and glued OSB sheathing

This section PASSES the design code check.

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

Ellille Groced Boot	g.,			
Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 974	Vr = 2336	lbs	Vf/Vr = 0.42
Moment (+)	Mf = 4185	Mr = 6255	lbs-ft	ME/Mr = 0.67
Perm. Defl'n	$0.13 = \langle L/999 \rangle$	0.57 = L/360	in 🥒	0.23
Live Defl'n	0.26 = L/798	0.43 = L/480	in 🎣	90.60 90.45 6.55
Total Defl'n	0.39 = L/532	0.86 = L/240	in /5/	gnoro 6.45
Bare Defl'n	0.31 = L/659	0.57 = L/360	in 🔊	<b>@.</b> 55
Vibration	$L_{max} = 17'-2.3$	Lv = 18'-1.3	ft   Q ,	KATSOULAROS \$ 95
Defl'n	= 0.031	= 0.037	in 2	0.85
BCII II	<u> </u>		B .	II I

inu no . Tan 11133 - 20 STRUCTURAL

COMPONENT ONLY

POVINCE OF ONITS

### WoodWorks® Sizer

#### for NORDIC STRUCTURES

#### J1 - 1ST FLOOR

#### Nordic Sizer - Canada 7.2

Page 2

L										
Additiona	l Data:							727	T 0 !!	
FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#	
Vr	2336	1.00	1.00	-		-	-	-	#2	
	6255		1.00		1.000	-	_	_	#2	
EI	371.1 m		-	_	_	_	-	-	#2	
CRITICAL L			3:							
CINITIOAL	. T.C. #2	- 1 25	5D + 1.5	Г.						
Shear	: LC #2									
Moment(+	) : LC #2	= 1.25	DD + 1.5.	L					•	
Deflecti	on: LC #1	= 1.01	) (perm	anent)						
	LC #2	= 1.01	0 + 1.0L	(live	)					
	T.C. #2	= 1.01	0 + 1.0L	(tota	1)					
	TC #2	= 1.01	0 + 1.01	(bare	ioist)					
<u></u>		. I.OI	rc #2 =	1 25D +	1.5T					
Bearing	: Suppo	ort 2 - I	LC π2 -	1 25D .	1 51.					
i		ort 2 - 1	LC #2 -	1.230	T • OTI	~ d + o :	v E-oar	+hauska		
Load Typ	es: D=dea	ad W=wir	nd S=sn	ow н≕e	arth,grou	mawate	r r-ear	f fina		
	L=liv	re(use,oo	ccupancy	) Ls=l	ive(stora	.ge,equ:	ipment)	r=rre		
Load Pat	torns s=	=S/2 L=1	L+Ls =	no patt	ern load	in this	s span			
711 7030	d Combinat	ions (Id	Cs) are	listed	in the An	alysis	output			
		(= (	,			_				
CALCULAT	ION2:			-00 lba						
Eleff =	459.76 lk	o-in^2 I	K= 6.18	ene ins	/	73	uind an	05.7: 1	CONFORMS TO	086 2012
"Live"	deflection	n is due	to all	non-dea	a roads (	TIVE,	wina, sn			
									AMENDED	2020
1										•

#### **Design Notes:**

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

OVINCE OF ONTES

unu no. tan 1/133 =20 STRUCTURAL COMPONENT ONLY



COMPANY June 3, 2020 15:03 **PROJECT** J5 - 2ND FLOOR

### **Design Check Calculation Sheet**

Nordic Sizer - Canada 7.2

#### Loads:

-								
	Load	Type	Distribution	Pat-	Location [ft	Magnitude	Unit	
Ì	поас	1110		tern	Start End	Start End	-	
	T	Dead	Full Area	No		20.00	psf	
	Load1	Live	Full Area	Yes		40.00	psf	
1	Load2	TTAE	LULL TILCU	100				-

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

<del> </del>	20' 1-1/8"	
0'		17' 8-1/2"19' 7-5/8"

Unfactored: Dead Live	137 274	604 1208	-348 38
Factored: Uplift Total	583	2566	1536
Bearing: Capacity Joist Support	2154 4520	5006 -	
Des ratio Joist Support Load case	0.27 0.13 #4	0.51	
Length Min req'd Stiffener	2 1-3/4 No	3-1/2 No 1.00	
KD KB support fcp sup Kzcp sup	1.00 - 769	- - -	

\*Minimum bearing length for joists is 1-1/2" for exterior supports

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

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

Supports: 1,3 - Lumber Wall, No.1/No.2; 2 - Steel Beam, W;

Total length: 20' 1-1/8"; Clear span: 17' 5-5/8", 1' 9-1/8"; 5/8" nailed and glued OSB sheathing

This section PASSES the design code check.

COUNCE OF STAN 11/34-20 COMPONENT ONLY

#### J5 - 2ND FLOOR

#### Nordic Sizer - Canada 7.2

Page 2

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 1644	Vr = 2336	lbs	Vf/Vr = 0.70
Moment(+)	Mf = 1998	Mr = 11609	lbs-ft	Mf/Mr = 0.17
Moment (-)	Mf = 3009	Mr = 11609	lbs-ft	Mf/Mr = 0.26
Perm. Defl'n	0.04 = < L/999	0.59 = L/360	in	0.07
Live Defl'n	0.08 = < L/999	0.44 = L/480	in	0.18
Total Defl'n	$0.12 = \langle L/999 \rangle$	0.89 = L/240	in	0.13
Bare Defl'n	$0.09 = \langle L/999 \rangle$	0.59 = L/360	in	0.15
Vibration	Lmax = 17'-8.5	Lv = 22'-0.6	ft	0.80
Defl'n	= 0.020	= 0.035	in	0.58

#### Additional Data:

Madiciona	n man for contra								0
FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
۷r	2336	1.00	1.00	-	_	-	-	-	#2
Mr+	11609	1.00	1.00		1.000		_		#4
Mr-	11609	1.00	1.00		1.000	-	-	_	#2
CT	547 1 m		_		_	_	_	_	#4

#### **CRITICAL LOAD COMBINATIONS:**

```
Shear : LC \#2 = 1.25D + 1.5L
```

Moment(+): LC #4 = 1.25D + 1.5L (pattern: L\_)

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

Deflection: LC #1 = 1.0D (permanent)

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

Bearing : Support 1 - LC #4 = 1.25D + 1.5LSupport 2 - LC #2 = 1.25D + 1.5L

Support 3 - LC #1 = 1.4D

Support 3 - LC #4 = 1.25D + 1.5L (pattern: L\_)

Load Types: D=dead W=wind S=snow H=earth, groundwater E=earthquake L=live(use, occupancy) Ls=live(storage, equipment) f=fire

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

#### CALCULATIONS:

EIeff = 613.27 lb-in^2 K= 6.18e06 lbs "Live" deflection is due to all non-dead loads (live, wind, snow...)

CONFORMS TO OBC 2012

AMENDED 2020

#### **Design Notes:**

1. WoodWorks analysis and design are in accordance with the 2015 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-14 Engineering Design in Wood standard, Update No. 2 (June 2017).

2. Please verify that the default deflection limits are appropriate for your application.

3. Refer to Nordic Structures technical documentation for installation guidelines and construction details.

4. Nordic I-joists are listed in CCMC evaluation report 13032-R.

5. Joists shall be laterally supported at supports and continuously along the compression edge.

6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.







PASSED

#### 1ST FLR FRAMING\Flush Beams\B3 H(i24999) (Flush Beam)

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

July 23, 2020 17:25:04

**Build 7493** 

Job name: Address:

City, Province, Postal Code: MARKHAM

File name:

KIMBERLY 5 - EL 1,2.mmdl

1ST FLR FRAMING\Flush Beams\B3 H(i24999) Description:

Specifier:

Designer:

L.D.

Wind

Customer: Code reports:

CCMC 12472-R

Company:

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<del>↑                                    </del>	<del>*</del> *	<u> </u>	♦	▼	*	Ψ	<u> </u>	▼		<u> </u>		V	V .	V	**************************************	V	en setting s		etaen see		0.020 005	200.34	C451 J C 420	Westwarens	
A region of a state of demonstration of the state of the state of	<b>医医发生性性</b> 管							14.50						7.107											3.
			40.00	Sendalar Sendalar						neesta Eestad				100 mg				1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	344 <u>x</u>			100	W. K.	<u> </u>	3
T														**************************************	6 33 <u>(24)</u>				- 1944 <u>X</u>		<u> </u>		94 3 A		2

Total Horizontal Product Length = 08-06-00

Snow

Reaction Summary (Down / Uplift) (lbs)

Dead Bearing Live 1635 / 0 890 / 0 B1, 3-1/2" 466 / 0 B2, 3-1/2" 830 / 0

١.	ad Cumman/						Live	Dead	Snow	Wind	Tributary
	ad Summary 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	08-06-00	Тор		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-06-00	08-06-00	Тор	194	97			n\a
2	B2 H(i25027)	Conc. Pt. (lbs)	L	00-02-10	00-02-10	Top	909	476			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3490 ft-lbs	35392 ft-lbs	9.9%	1	03-10-00
End Shear	1524 lbs	14464 lbs	10.5%	1	01-03-06
Total Load Deflection	L/999 (0.029")	n\a	n\a	4	04-03-00
Live Load Deflection	L/999 (0.019")	n\a	n\a	5	04-03-00
Max Defl.	0.029"	n\a	n\a	4	04-03-00
Span / Depth	8.1				

Bearing	y Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	3-1/2" x 3-1/2"	3566 lbs	35.8%	23.9%	Unspecified
B2	Column	3-1/2" x 3-1/2"	1827 lbs	18.4%	12.2%	Unspecified

#### **Cautions**

Concentrated side load(s) 1 are closer than 18" from end of member. Please consult a technical representative or Professional of Record.

#### Notes

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

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

canforms to obc 2012

Calculations assume member is fully braced.

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

AMENDED 2020

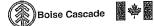
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

OVINCE OF OUTP

144 NO. TAN 11135-20 STRUCTURAL COMPONENT ONLY





### Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B3 H(i24999) (Flush Beam)

PASSED

Dry | 1 span | No cant.

July 23, 2020 17:25:04

**BC CALC® Member Report** 

**Build 7493** Job name:

Address:

City, Province, Postal Code: MARKHAM

Customer:

Code reports:

CCMC 12472-R

File name:

KIMBERLY 5 - EL 1,2.mmdl

Description:

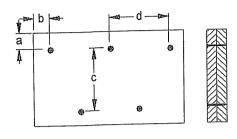
1ST FLR FRAMING\Flush Beams\B3 H(i24999)

Specifier:

Designer:

L.D. Company:

## Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

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

Calculated Side Load = 556.8 lb/ft Connectors are: 16d 🦙 Nails

312" ARDOX SPIKAL



888 NO. TAN [1135-20 STRUCTURAL COMPONENT ONLY

#### Disclosure

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

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





### Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B9 H(i24993) (Flush Beam)

PASSED

**BC CALC® Member Report** 

**Build 7493** 

Dry | 1 span | No cant.

July 23, 2020 17:25:04

Job name:

Address: City, Province, Postal Code: MARKHAM

Customer: Code reports:

CCMC 12472-R

File name:

KIMBERLY 5 - EL 1,2.mmdl

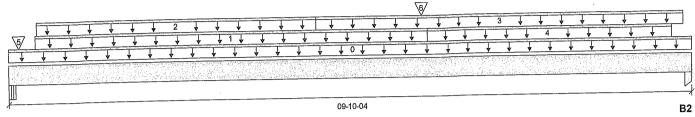
Description: 1ST FLR FRAMING\Flush Beams\B9 H(i24993)

Specifier:

L.D. Designer:

Wind

Company:



В1

### Total Horizontal Product Length = 09-10-04

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 4-7/8"	2380 / 0	1651 / 0
B2. 3-1/2"	2919 / 0	1698 / 0

							Live	Dead	Snow	Wind	Tributary
	ad Summary	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
Tag	Description	Unf. Lin. (lb/ft)	1	00-00-00	09-10-04	Top		12			00-00-00
0	Self-Weight		1	00-04-08	05-11-12			81			n\a
1	39(i19912)	Unf. Lin. (lb/ft)	L		04-04-12	-	281	140			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-04-12		1	216	108			n\a
3	Smoothed Load	Unf. Lin. (lb/ft)	L	04-04-12	09-08-12						n\a
4	STAIRS	Unf. Lin. (lb/ft)	L	05-11-12	09-06-12	Top	240	120			
4	<del>-</del>	Conc. Pt. (lbs)	L	00-01-12	00-01-12	Тор	244	180			n\a
5	42(i19915)		ī	05-10-12	05-10-12	Top	1913	1028			n∖a
6	39(i19912)	Conc. Pt. (lbs)	1	00 10 12	•• ••						

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
	17316 ft-lbs	35392 ft-lbs	48.9%	1	05-10-12
Pos. Moment	5673 lbs	14464 lbs	39.2%	1	08-06-14
End Shear		n\a	38.0%	4	05-02-00
Total Load Deflection	L/631 (0.177")	n\a n\a	n\a	5	05-02-00
Live Load Deflection	L/999 (0.109")		n\a	4	05-02-00
Max Defl.	0.177"	n\a	ma	-1	00 02 00
Span / Depth	9.4				

D.	earing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
_		4-7/8" x 3-1/2"	5633 lbs	61.8%	27.1%	Unspecified
B1				65.3%	43.5%	Unspecified
B2	<u>Column</u>	3-1/2" x 3-1/2"	6500 lbs	00.570	40.070	O no poomo a

Notes

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

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

Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00. Resistance Factor phi has been applied to all presented results per CSA O86.

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



STRUCTURAL COMPONENT ONLY





### Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B9 H(i24993) (Flush Beam) Dry | 1 span | No cant.

PASSED

July 23, 2020 17:25:04

**BC CALC® Member Report** 

**Build 7493** 

Job name:

Address: City, Province, Postal Code: MARKHAM

Code reports:

Customer:

File name:

KIMBERLY 5 - EL 1,2.mmdl

Description:

1ST FLR FRAMING\Flush Beams\B9 H(i24993)

Specifier:

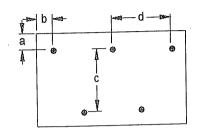
Designer:

L.D.

Company:

### Connection Diagram: Full Length of Member

CCMC 12472-R



a minimum = 2" b minimum = 3"

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

Calculated Side Load = 798.3 lb/ft Connectors are: 16d

ARDOX SPIKAL



BWG NO. TAM 11136-20 STRUCTURAL COMPONENT ONLY

#### Disclosure

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

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### Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B2 H(i25027) (Flush Beam)

PASSED

July 23, 2020 17:25:04

**BC CALC® Member Report** 

**Build 7493** 

Job name:

Address:

City, Province, Postal Code: MARKHAM

Customer:

CCMC 12472-R Code reports:

Dry | 1 span | No cant.

KIMBERLY 5 - EL 1,2.mmdl File name:

Description:

1ST FLR FRAMING\Flush Beams\B2 H(i25027)

Specifier: Designer:

L.D.

Company:

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1														_					- 1 -	at				ماء	. 07	, 00	^^												

Total Horizontal Product Length = 07-09-00

Snow

Reaction Summary (Down / Uplift) (lbs)

Dead Live 882 / 0 465 / 0 B1, 5-1/2" 940 / 0. 492 / 0 B2. 3"

	ad Cummomi						Live	Dead	Snow	Wind	Tributary
LO:	ad Summary Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
1 ay	Self-Weight	Unf. Lin. (lb/ft)	Ŀ	00-00-00	07-09-00	Тор		6			00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-09-00	Top	9	5			n\a
2	STAIRS	Unf. Lin. (lb/ft)	L	00-05-08	07-09-00	Тор	240	120		nderfor "	n\a

Controls Summary	Factored Demand	Factored Resistance	Demand <i>l</i> Resistance	Case	Location
Pos. Moment	3447 ft-lbs	17696 ft-lbs	19.5%	1	03-11-12
End Shear	1360 lbs	7232 lbs	18.8%	1	01-05-06
Total Load Deflection	L/999 (0.046")	n\a	n\a	4	03-11-12
Live Load Deflection	L/999 (0.03")	n\a	n\a	5	03-11-12
Max Defl.	0.046"	n\a	n\a	4	03-11-12
Span / Depth	7.2				

Rearing	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 1-3/4"	1903 lbs	32.1%	16.2%	Spruce-Pine-Fir
B2	Hanger	3" x 1-3/4"	2025 lbs	n\a	31.6%	HUS1.81/10

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.

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

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

Calculations assume member is fully braced.

CONFORMS TO OBC 2012 Hanger Manufacturer: Unassigned AMENDED 2020

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9



OVINCE OF ONIE

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

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1ST FLR FRAMING\Flush Beams\B1 H(i25008) (Flush Beam)

Dry | 1 span | No cant.

July 23, 2020 17:25:04

PASSED

**Build 7493** 

Job name:

Address:

City, Province, Postal Code: MARKHAM

**BC CALC® Member Report** 

Customer:

CCMC 12472-R Code reports:

File name:

KIMBERLY 5 - EL 1,2.mmdl

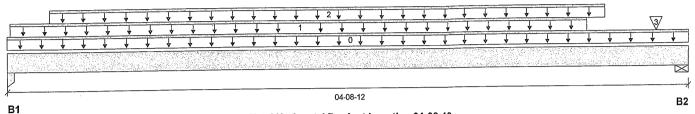
1ST FLR FRAMING\Flush Beams\B1 H(i25008) Description:

Wind

Specifier:

Designer: L.D.

Company:



#### Total Horizontal Product Length = 04-08-12

Snow

Reaction Summary (Down / Uplift) (lbs)

Live Dead 1097 / 0 561/0 B1, 3-1/2" 517 / 0 981/0 B2, 5-1/2"

	ad Cummanı						Live	Dead	Snow	Wind	Tributary
LO Tag	ad Summary Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
<u> 1 ag</u>	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-08-12	Тор		6			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-04	04-00-04	Top	276	138			n\a
2	STAIRS	Unf. Lin. (lb/ft)	Ĺ	00-03-08	04-01-12	Тор	240	120			n\a
2			ī	04-06-00	04-06-00	•	48	36		- HARRIST MERCENSIA	n\a
3	37(i19675)	Conc. Pt. (lbs)	L	04-00-00	04-00-00	тор	70	00	A CONTRACTOR OF THE PARTY OF TH	E E S S I	

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2394 ft-lbs	17696 ft-lbs	13.5%	1	02-00-04
End Shear	1931 lbs	7232 lbs	26.7%	1	03-03-06
Total Load Deflection	L/999 (0.01")	n\a	n\a	4	02-03-01
Live Load Deflection	L/999 (0.007")	n\a	n\a	5	02-03-01
Max Defl.	0.01"	n\a	n\a	4	02-03-01
Span / Depth	4.1				

Rearin	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	3-1/2" x 1-3/4"	2347 lbs	47.2%	31.4%	Unspecified
B2	Wall/Plate	5-1/2" x 1-3/4"	2117 lbs	35.7%	18.0%	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.

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



#### OWS NO. TAM 11138-20 STRUCTURAL COMPONENT ONLY Disclosure

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### Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B7 H(i24951) (Flush Beam)

PASSED

**BC CALC® Member Report** 

Dry | 1 span | No cant.

July 23, 2020 17:25:04

**Build 7493** 

Job name:

Customer:

Code reports:

Address: City, Province, Postal Code: MARKHAM

CCMC 12472-R

Description: Specifier:

File name:

L.D.

Wind

KIMBERLY 5 - EL 1,2.mmdl

1ST FLR FRAMING\Flush Beams\B7 H(i24951)

Designer: Company:

04-07-10 B2

В1

#### Total Horizontal Product Length = 04-07-10

Snow

Reaction Summary (Down / Uplift) (Ibs)

Bearing	Live	Dead
B1, 3-1/2"	47 / 0	37 / 0
B2. 4-3/8"	49 / 0	39 / 0

_							Live	Dead	Snow	Wind	Tributary
	ad Summary	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	·
Tag	Description		1	00-00-00		Top		6			00-00-00
0	Self-Weight	Unf. Lin. (lb/ft)	L			1		40			nla
1	EC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-06	04-07-10	Тор	21	10			n\a

Controls Summary	Factored Demand	Factored Resistance	Resistance	Case	Location
	109 ft-lbs	17696 ft-lbs	0.6%	1	02-03-06
Pos. Moment	52 lbs	7232 lbs	0.7%	1	01-03-06
End Shear	L/999 (0")	n\a	n\a	4	02-03-06
Total Load Deflection	L/999 (0")	n\a	n\a	5	02-03-06
Live Load Deflection  Max Defl.	0" L/999 (0 )	n\a	n\a	4	02-03-06
Span / Depth	4.1				

Dogrine	Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Column	3-1/2" x 1-3/4"	117 lbs	2.3%	1.6%	Unspecified
B2		4-3/8" x 1-3/4"	122 lbs	2.6%	1.3%	Spruce-Pine-Fir



DWS NO. TAM 1/139-20 STRUCTURAL COMPONENT ONLY

#### 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

#### **Disclosure**

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

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





### Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1ST FLR FRAMING\Flush Beams\B8(i25020) (Flush Beam)

PASSED

July 23, 2020 17:25:04

**BC CALC® Member Report** 

**Build 7493** 

Job name:

Customer:

Code reports:

Address: City, Province, Postal Code: MARKHAM

CCMC 12472-R

Dry | 1 span | No cant.

File name:

KIMBERLY 5 - EL 1,2.mmdl

Wind

1ST FLR FRAMING\Flush Beams\B8(i25020) Description:

Specifier:

Designer: L.D.

Company:

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J				20.0		03-08-	-08				Stantys Versing			26 (A)							

Total Horizontal Product Length = 03-08-08

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 3-1/2"	17 / 0	19 / 0
B2, 5-1/2"	22/0	23 / 0

	! O						Live	Dead	Snow	Wind	Tributary
	ad Summary	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
	Description Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-08-08	Тор		6		•	00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-03-08	03-08-08	Top	11	6			n\a

Controls Summary	Factored Demand	Factored Resistance	Resistance	Case	Location
Pos. Moment	37 ft-lbs	17696 ft-lbs	0.2%	1	01-09-04
End Shear	15 lbs	7232 lbs	0.2%	1	01-03-06
	L/999 (0")	n\a	n\a	4	01-09-04
Total Load Deflection	L/999 (0")	n\a	n\a	5	01-09-04
Live Load Deflection		n\a	n\a	4	01-09-04
Max Defl.	0"	ma	ma	•	0.000.
Span / Depth	3.1				•

Roarin	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	3-1/2" x 1-3/4"	49 lbs	1.3%	0.7%	Spruce-Pine-Fir
B2	Wall/Plate	5-1/2" x 1-3/4"	61 lbs	1.0%	0.5%	Spruce-Pine-Fir

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



OWS NO. FAM ///40-20 STRUCTURAL COMPONENT ONLY

#### Disclosure

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> BC CALC®, BC FRAMER® , AJS  $^{\text{TM}}$ ALLJOIST®, BC RIM BOARD $^{\mathsf{TM}}$ , BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,





City, Province, Postal Code: MARKHAM

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

PASSED

#### 2ND FLR FRAMING\Flush Beams\B10(i24994) (Flush Beam)

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

July 23, 2020 17:25:04

**Build 7493** 

Job name: Address:

KIMBERLY 5 - EL 1,2.mmdl

File name: Description: 2ND FLR FRAMING\Flush Beams\B10(i24994)

Wind

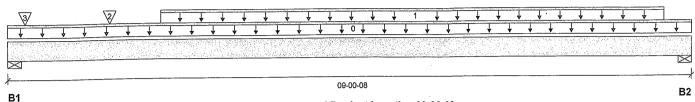
Specifier:

Designer: L.D.

Customer: Code reports:

CCMC 12472-R

Company:



#### Total Horizontal Product Length = 09-00-08

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 5-1/2"	1552 / 0	856 / 0
B2. 3-1/2"	1631 / 0	870 / 0

۱۵	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	09-00-08	Тор		12			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	02-00-00	08-08-00	Top	403	202			n\a
2	-	Conc. Pt. (lbs)	L	01-04-00	01-04-00	Top	498	248			n\a
3	E26(i46)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Тор		24			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	7680 ft-lbs	35392 ft-lbs	21.7%	1	04-00-00
End Shear	3238 lbs	14464 lbs	22.4%	1	07-09-02
Total Load Deflection	L/999 (0.071")	n\a	n\a	4	04-07-00
Live Load Deflection	L/999 (0.047")	n\a	n\a	5	04-07-00
Max Defl.	0.071"	n\a	n\a	4	04-07-00
Span / Depth	8.5				

Rearin	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate	5-1/2" x 3-1/2"	3398 lbs	28.7%	14.5%	Spruce-Pine-Fir
B2	Wall/Plate	3-1/2" x 3-1/2"	3534 lbs	46.9%	23.6%	Spruce-Pine-Fir

#### **Notes**

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

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

Calculations assume member is fully braced.

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

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

CONFORMS TO OBC 2012 NOVINCE OF ONLE

> UVB NO. TAM 1/14/-20 STRUCTURAL COMPONENT ONLY





### Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B10(i24994) (Flush Beam)

PASSED

**BC CALC® Member Report** 

**Build 7493** 

Job name:

Address:

City, Province, Postal Code: MARKHAM

Customer:

Code reports:

Dry | 1 span | No cant.

KIMBERLY 5 - EL 1,2.mmdl

File name: Description:

Specifier:

Designer:

Company:

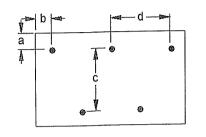
July 23, 2020 17:25:04

2ND FLR FRAMING\Flush Beams\B10(i24994)

L.D.

### Connection Diagram: Full Length of Member

CCMC 12472-R

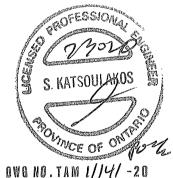


a minimum = 2" b minimum = 3"

c = 7-7/8" d = 100 d

Calculated Side Load = 874.0 lb/ft Connectors are: 16d

312" ARDOX SPIRAL



STRUCTURAL COMPONENT ONLY

#### **Disclosure**

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PASSED

July 23, 2020 17:25:04

#### 2ND FLR FRAMING\Flush Beams\B15(i25204) (Flush Beam)

**BC CALC® Member Report** 

**Build 7493** 

Job name:

Address:

City, Province, Postal Code: MARKHAM Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

KIMBERLY 5 - EL 1,2.mmdl

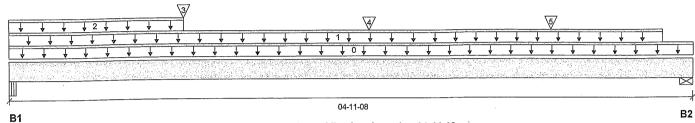
File name: Description: 2ND FLR FRAMING\Flush Beams\B15(i25204)

Wind

Specifier:

Designer. L.D.

Company:



#### Total Horizontal Product Length = 04-11-08

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead		
B1, 2-1/4"	639 / 0	348 / 0		
B2 5-1/2"	781 / 0	422 / 0		

l o:	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	04-11-08	Тор		12			00-00-00
1	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-08-12	Тор	9	4			n\a
2	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-03-00	Тор	23	11			n\a
3	J1(i25305)	Conc. Pt. (lbs)	L	01-03-00	01-03-00	Top	431	216			n\a
1	J1(i25229)	Conc. Pt. (lbs)	L	02-07-00	02-07-00	Тор	460	230			n\a
5	J1(i25237)	Conc. Pt. (lbs)	L	03-11-00	03-11-00	Тор	460	230			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1976 ft-lbs	35392 ft-lbs	5.6%	1	02-07-00
End Shear	1298 lbs	14464 lbs	9.0%	1	01-02-02
Total Load Deflection	L/999 (0.005")	n\a	n\a	4	02-04-08
Live Load Deflection	L/999 (0:003")	n\a	n\a	5	02-04-08
Max Defl.	0.005"	n\a	n\a	4	02-04-08
Span / Depth	4.5				

Bearii	ng Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	2-1/4" x 3-1/2"	1394 lbs	33.2%	14.5%	Unspecified
B2	Wall/Plate	5-1/2" x 3-1/2"	1700 lbs	14.4%	7.2%	Spruce-Pine-Fir

#### **Notes**

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

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

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

CONFORMS TO OBE 2012 POVINCE OF OTHER

> OWG NO. TAN 1114 STRUCTURAL CONFONENT ONLY





### Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B15(i25204) (Flush Beam)

PASSED

July 23, 2020 17:25:04

**BC CALC® Member Report** 

**Build 7493** 

Job name:

Address:

City, Province, Postal Code: MARKHAM

Customer: Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

File name:

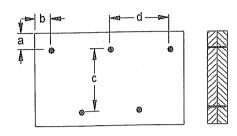
KIMBERLY 5 - EL 1,2.mmdl 2ND FLR FRAMING\Flush Beams\B15(i25204) Description:

Specifier:

L.D. Designer:

Company:

### Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 7-7/8", d = **38**"

Calculated Side Load = 488.8 lb/ft

Connectors are:

Nails

ARDOX SPIRAL

OVINCE OF ONLY

OWS NO. TAM 11/420 STRUCTURAL COMPONENT ONLY

#### Disclosure

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

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PASSED

2ND FLR FRAMING\Flush Beams\B11(i24985) (Flush Beam)

Dry | 1 span | No cant.

July 23, 2020 17:25:04

**Build 7493** 

Job name:

Address:

City, Province, Postal Code: MARKHAM

**BC CALC® Member Report** 

Customer: Code reports:

CCMC 12472-R

File name:

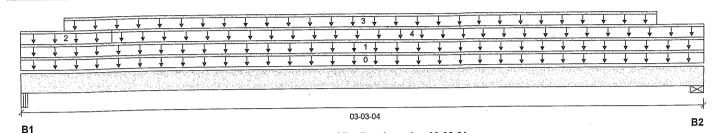
KIMBERLY 5 - EL 1,2.mmdl

2ND FLR FRAMING\Flush Beams\B11(i24985)

Description: Specifier:

Designer: L.D.

Company:



um / Halift\ (lbs)

Total Horizontal Product Length = 03-03-04

Reaction Summary (Down / Opind) (105)										
Bearing	Live	Dead	Snow	Wind						
B1. 5-1/4"	23 / 0	534 / 0	595 / 0							
B2, 5-1/2"	22 / 0	536 / 0	595 / 0							

	ad Cummany						Live	Dead	Snow	Wind	Tributary
Load Summary 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	03-03-04	Тор		12			00-00-00
1	E25(i49)	Unf. Lin. (lb/ft)	L	00-00-00	03-03-04	Top		81			n\a
2	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	00-05-04	Тор	16				n\a
2	E25(i49)	Unf. Lin. (lb/ft)	L	00-02-08	03-00-08	Top		262	420		n\a
ე ⊿	FC4 Floor Material	Unf. Lin. (lb/ft)	Ĺ	00-05-04	03-03-04	Тор	13	7			n\a

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	856 ft-lbs	35392 ft-lbs	2.4%	13	01-07-08
End Shear	217 lbs	14464 lbs	1.5%	13	01-05-02
Total Load Deflection	L/999 (0.001")	n\a	n\a	35	01-07-08
Live Load Deflection	L/999 (0")	n\a	n\a	51	01-07-08
Max Defl.	0.001"	n\a	n\a	35	01-07-08
Span / Depth	2.5				

Roaring	g Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Beam	5-1/4" x 3-1/2"	1584 lbs	16.1%	7.1%	Unspecified
			1585 lbs	13.4%	6.7%	Spruce-Pine-Fir
B2	Wall/Plate	5-1/2" x 3-1/2"	1000 108	10.770	0.1 70	op. 400o

#### Notes

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

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

Calculations assume member is fully braced.

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

CONFORMS TO OBG 2012 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



ove no. TAN 11143-20 STRUCTURAL COMPONENT ONLY





### Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B11(i24985) (Flush Beam)

PASSED

July 23, 2020 17:25:04

**BC CALC® Member Report** 

**Build 7493** 

Job name:

Address:

City, Province, Postal Code: MARKHAM

Code reports:

Customer:

CCMC 12472-R

Dry | 1 span | No cant.

KIMBERLY 5 - EL 1,2.mmdl

L.D.

File name:

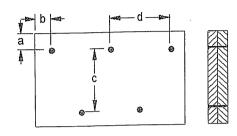
Description: 2ND FLR FRAMING\Flush Beams\B11(i24985)

Specifier:

Designer:

Company:

### Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3"

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

Connectors are:

A Action

Nails

ARDOX SPIKAL

DONINCE OF ONIT

OWS NO. TAN 1/143-20 STRUCTURAL

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

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PASSED

#### 2ND FLR FRAMING\Flush Beams\B5(i25303) (Flush Beam)

**BC CALC® Member Report** 

**Build 7493** 

Job name: Address:

Dry | 1 span | No cant.

July 23, 2020 17:25:04

File name:

KIMBERLY 5 - EL 1,2.mmdl

Description: 2ND FLR FRAMING\Flush Beams\B5(i25303)

Specifier:

L.D.

Designer: Company:

City, Province, Postal Code: MARKHAM

Customer: Code reports:

CCMC 12472-R

A 17-09-08 B2 **B1** 

#### Total Horizontal Product Length = 17-09-08

Reaction Sun					
Bearing	Live	Dead	Snow	Wind	
B1, 5-1/2"	1071 / 0	709 / 0			
B2, 5-1/2"	784 / 0	526 / 0			

Lo	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	17-09-08	Тор		12			00-00-00
1	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	06-10-08	Тор	27	14			n\a
2	FC4 Floor Material	Unf. Lin. (lb/ft)	L	06-10-08	17-06-12	Тор	31	15			n\a
3	B6(i25252)	Conc. Pt. (lbs)	L	07-00-04	07-00-04	Top	1335	737			n\a
4	E51(i2600)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top		24			n\a

		Factored	Demand/		
Controls Summary	Factored Demand	Resistance	Resistance	Case	Location
Pos. Moment	14504 ft-lbs	35392 ft-lbs	41.0%	1	07-00-04
End Shear	2356 lbs	14464 lbs	16.3%	1	01-05-06
Total Load Deflection	L/443 (0.461")	n\a	54.2%	4	08-05-12
Live Load Deflection	L/719 (0.284")	n\a	50.1%	5	08-05-12
Max Defl.	0.461"	n\a	n\a	4	08-05-12
Span / Depth	17.2				

Bearing Supports		Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material		
	B1	Wall/Plate	5-1/2" x 3-1/2"	2492 lbs	21.0%	10.6%	Spruce-Pine-Fir		
	B2	Wall/Plate	5-1/2" x 3-1/2"	1834 lbs	15.5%	7.8%	Spruce-Pine-Fir		

#### Notes

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

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

Calculations assume member is fully braced.

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

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBG 2012 OVINCE OF ON IS

> STRUCTURAL COMPONENT ONLY





2ND FLR FRAMING\Flush Beams\B5(i25303) (Flush Beam)

Dry | 1 span | No cant.

July 23, 2020 17:25:04

PASSED

**BC CALC® Member Report** Build 7493

Job name: Address:

City, Province, Postal Code: MARKHAM

Customer:

CCMC 12472-R Code reports:

File name:

KIMBERLY 5 - EL 1,2.mmdl

Description:

2ND FLR FRAMING\Flush Beams\B5(i25303)

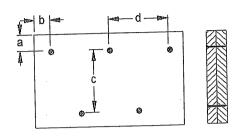
Specifier:

Designer:

Company:

L.D.

## Connection Diagram: Full Length of Member



a minimum = 2"

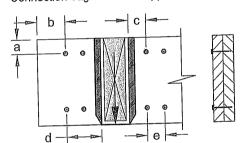
c = 7-7/8" d = 🕮 8"

b minimum = 3"

Connectors are: ARDOX SPIKAL

## Connection Diagrams: Concentrated Side Loads

Connection Tag: A Applies to load tag(s): 4



.: 1.

a minimum = 2"

b minimum = 4"

c minimum = 4"

d maximum = 12"

e minimum = 4"

Connectors are: 16d

ARDOX SPIRAL



DWG NO. TAN 1/144-20 STRUCTURAL COMPONENT ONLY

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July 23, 2020 17:25:04

2ND FLR FRAMING\Flush Beams\B6(i25252) (Flush Beam) Dry | 1 span | No cant.

**BC CALC® Member Report Build 7493** 

Job name: Address:

City, Province, Postal Code: MARKHAM

Customer:

Code reports:

CCMC 12472-R

File name:

KIMBERLY 5 - EL 1,2.mmdl

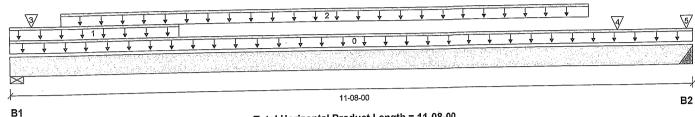
Description: 2ND FLR FRAMING\Flush Beams\B6(i25252)

Specifier:

L.D. Designer:

Wind

Company:



Total Horizontal Product Length = 11-08-00

Snow

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B1, 3-1/2"	1885 / 0	1012 / 0
B2, 4"	1363 / 0	752 / 0

							Live	Dead	Snow	Wind	Tributary
	ad Summary	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
Tag	Description	Unf. Lin. (lb/ft)	l I	00-00-00	11-08-00	Top		12			00-00-00
0	Self-Weight	• •	1	00-00-00	02-10-08	Top	240	120			n\a
1	STAIRS	Unf. Lin. (lb/ft)	L		09-10-08	Top	220	110			n\a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	00-10-08		1		91			n\a
3	J3(j25327)	Conc. Pt. (lbs)	L	00-04-08	00-04-08	Тор	183	* '			
4	J3(i25263)	Conc. Pt. (lbs)	L	10-04-08	10-04-08	Top	240	120			n∖a
4	,	Conc. Pt. (lbs)	ŧ	11-06-12	11-06-12	Top	155	78			n\a
5	J3(i25264)	CONC. Pt. (IDS)				•					

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
	8464 ft-lbs	35392 ft-lbs	23.9%	1	05-04-08
Pos. Moment	3064 lbs	14464 lbs	21.2%	1	01-03-06
End Shear		n\a	24.9%	4	05-09-00
Total Load Deflection	L/964 (0.139")		n\a	5	05-09-00
Live Load Deflection	L/999 (0.09")	n\a		_	05-09-00
Max Defl.	0.139"	n\a	n\a	4	05-09-00
Span / Depth	11.3				

Bearing S	unnorts	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Wa	all/Plate	3-1/2" x 3-1/2"	4092 lbs	54.3%	27.4%	Spruce-Pine-Fir
	anger	4" x 3-1/2"	2985 lbs	n\a	17.5%	HGUS410

#### 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.

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



STRUCTURAL COMPONENT ONLY





2ND FLR FRAMING\Flush Beams\B6(i25252) (Flush Beam)

Dry | 1 span | No cant.

July 23, 2020 17:25:04

PASSED

BC CALC® Member Report **Build 7493** 

Job name:

Address:

City, Province, Postal Code: MARKHAM

Customer:

Code reports:

CCMC 12472-R

File name:

KIMBERLY 5 - EL 1,2.mmdl

Description:

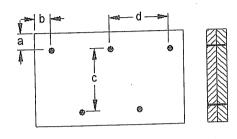
2ND FLR FRAMING\Flush Beams\B6(i25252)

Specifier:

Designer:

L.D. Company:

## Connection Diagram: Full Length of Member



a minimum = 2"

c = 7-7/8" (1 d = 🐿 8

b minimum = 3"

Calculated Side Load = 467.5 lb/ft

Connectors are: Connectors

Nails

3%" ARDOX SPIRAL



OWG NO. TAM 1/145-20 STRUCTURAL COMPONENT ONLY

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**BC CALC® Member Report** 



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

PASSED

2ND FLR FRAMING\Flush Beams\B21 E(i25376) (Flush Beam)

Dry | 1 span | No cant.

July 23, 2020 17:29:57

**Build 7493** 

Job name:

Address:

City, Province, Postal Code: MARKHAM

Customer:

CCMC 12472-R Code reports:

File name:

KIMBERLY 5 - EL 3.mmdl

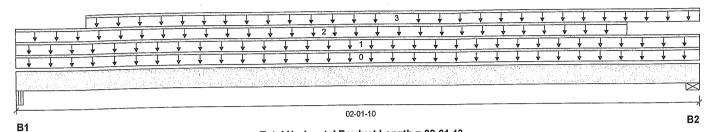
2ND FLR FRAMING\Flush Beams\B21 E(i25376) Description:

Wind

Specifier:

Designer: L.D.

Company:



own / Holift) (lbs)

Total Horizontal Product Length = 02-01-10

Reaction Sum	mary (Down / C		_	
Bearing	Live	Dead	Snow	
B1, 2-5/8"	21/0	347 / 0	398 / 0	
B2 5-1/2"	34 / 0	379 / 0	403 / 0	

	ad Cummont						Live	Dead	Snow	Wind	Tributary
	ad Summary Description	Load Type	Ref.	Start	End	Loc.	1.00	0.65	1.00	1.15	
_rag	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	02-01-10	Тор		12			00-00-00
1	E25(i49)	Unf. Lin. (lb/ft)	L	00-00-00	02-01-10	Top		81			n\a
1	E25(i49)	Unf. Lin. (lb/ft)	L	00-00-00	01-10-14	Top		262	420		n\a
2			1	00-02-10	02-01-10	Top	28	14			n\a
3	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	02-01-10	TOP	2.0	• •			

Controls Summary	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	351 ft-lbs	35392 ft-lbs	1.0%	13	00-11-06
End Shear	292 lbs	14464 lbs	2.0%	13	01-02-08
Total Load Deflection	L/999 (0")	n\a	n∖a	35	00-11-06
	L/999 (0")	n\a	n\a	51	00-11-06
Live Load Deflection Max Defl.	0"	n\a	n\a	35	00-11-06
Span / Depth	1.6				

Roarin	g Supports	Dim (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1		2-5/8" x 3-1/2"	1052 lbs	21.4%	9.4%	Unspecified
B2	Doam	5-1/2" x 3-1/2"	1111 lbs	9.4%	4.7%	Spruce-Pine-Fir

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

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

Calculations assume member is fully braced.

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

AMENDED 2020

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

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

verification.

Design based on Dry Service Condition. Importance Factor : Normal Part code : Part 9 CONFORMS TO OBC 2012 TO MICE OF ONE

> DWG NO. TAM 11146 -20 STRUCTURAL COMPONENT ONLY





### Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLR FRAMING\Flush Beams\B21 E(i25376) (Flush Beam)

PASSED

**BC CALC® Member Report** 

Dry | 1 span | No cant.

July 23, 2020 17:29:57

Build 7493

Job name:

Address: City, Province, Postal Code: MARKHAM

Customer:

Code reports:

CCMC 12472-R

File name:

KIMBERLY 5 - EL 3.mmdl

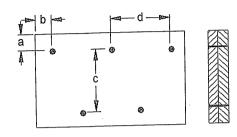
Description:

2ND FLR FRAMING\Flush Beams\B21 E(i25376)

Specifier:

Designer: Company: L.D.

Connection Diagram: Full Length of Member



a minimum = 2" b minimum = 3" c = 7-7/8" d = 8 8 11

Connectors are: 2

∴ Nails

ARDOX SPIRAL

POWNICE OF ON THE

076 NO. TAM 11146-20 STRUCTURAL COMPONENT ONLY

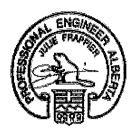
#### Disclosure

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

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



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







			Ва	are			1/2" Gyps	sum Ceiling	
Depth	Series		On Centr	e Spacing			On Cent	re Spacing	
		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
•	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"	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
4 411	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				Mid-Span Blocking	Mid-S	Mid-Span Blocking and 1/2" Gypsum Ceil		
Depth	Series		On Centr	e Spacing		On Centre Spacing			
- op-		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
	NI-60	21'-4"	19'-9"	18'-11"	N/A	21'-11"	20'-4"	19'-6"	N/A
11-7/8"	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
	N1-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
	N1-40x	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
	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	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 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		l	1/2" Gyps	sum Ceiling	
Depth	Series		On Centr	e Spacing			On Centi	re Spacing	
		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"
	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"
	N1-90x	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"

			Mid-Spar	n Blocking		Mid-S	pan Blocking an	id 1/2" Gypsum	Ceiling	
Depth	Series		On Centr	e Spacing		On Centre Spacing				
Deper		12"	16"	19.2"	24"	12".	16"	19.2"	24"	
	N1-20	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"	
	NI-60	22'-1"	20'-7"	19'-7"	18 <sup>′</sup> -4"	22'-8"	20'-10"	19'-8"	18'-4"	
11-7/8"	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"	
	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.

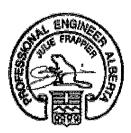
<sup>3.</sup> Minimum bearing length shall be 1-3/4 inches for the end bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.

<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		1/2" Gypsum Ceiling				
Depth	Series	On Centre Spacing				On Centre Spacing				
		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"	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	
	NI-70	17' <b>-1"</b>	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	
	N1-40x	18'-1"	17'-0"	16'-5"	N/A	18'-9"	17'-6"	16'-11"	N/A	
	N1-60	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 On Centre Spacing				Mid-Span Blocking and 1/2" Gypsum Ceiling On Centre Spacing				
Depth	Series									
		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"	N1-60	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	
11-7/8"	NI-60	21'-4"	19'-8"	18'-5"	N/A	21'-8"	19'-8"	18'-5"	N/A	
	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-4"	20'-0"	N/A	
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"	20'-5"	N/A	
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A	
	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	
16"	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	24'-10"	23'-4"	N/A	
	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A	
	NI-80	28'-2"	26'-1"	24'-10"	N/A	28'-10"	26'-9"	25'-6"	N/A	
	NI-90x	29'-0"	26'-10"	25'-7"	N/A	29'-7"	27'-5"	26'-2"	N/A	

<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 1/240.

<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 = 30 psf Simple Spans, L/480 Deflection Limit 3/4" OSB G&N Sheathing







		Bare				1/2" Gypsum Ceiling				
Depth	Series		On Centi	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"	
44 7/00	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"	N1-70	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"	
	N1-90x	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"	
1.511	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		Mid-Span Blocking On Centre Spacing				Mid-Span Blocking and 1/2" Gypsum Ceiling On Centre Spacing				
	Series									
		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'-9"	16'-1"	15'-1"	13'-11"	17'-9"	16'-1"	15'-1"	13'-11'	
9-1/2"	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'	
11-7/8"	NI-60	21'-9"	19'-8"	18'-5"	17'-1"	21'-9"	19'-8"	18'-5"	17'-1"	
	NI-70	23'-4"	21'-5"	20'-1"	18'-6"	23'-8"	21'-5"	20'-1"	18'-6"	
	NI-80	23'-7"	21'-10"	20'-5"	18'-11"	24'-1"	21'-10"	20'-5"	18'-11	
	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"	
L4"	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.

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.



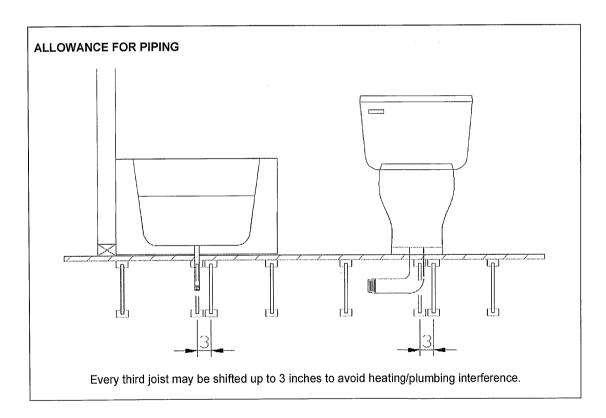
Limit States Design

# Allowance for Piping (Installation Notes)

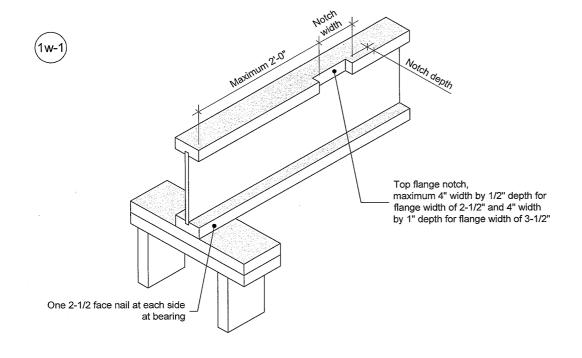
The floor layouts have usually not been checked for heating and/or plumbing interference. On-site adjustment of joists of up to 3 inches is permitted to avoid interferences. When moving a joist, the subfloor thickness shall be checked with code requirements when the joist spacing exceeds 19.2 inches. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.

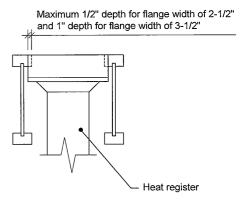
Installation of Nordic I-joists shall be as per *Nordic Joist Installation Guide for Residential Floors*. Refer to Tables 1 and 2 for maximum web hole and duct chase openings, respectively. These tables are based on the I-joists being used at their maximum spans. The minimum distance given may be reduced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



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#### Notes:

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

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

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



T 514-871-8526 1 866 817-3419

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