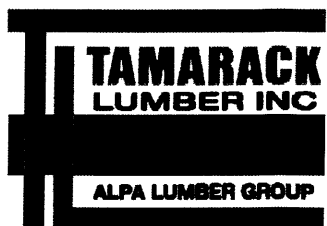


**Town of Innisfil Certified Model**

10/23/2018 3:23:50 PM kbayley

Products				
PlotID	Length	Product	Plies	Net Qty
J1	12-00-00	9 1/2" NI-40x	1	11
J2DJ	22-00-00	11 7/8" NI-40x	2	2
J2	8-00-00	11 7/8" NI-40x	1	10
J3	6-00-00	11 7/8" NI-40x	1	3
J4	2-00-00	11 7/8" NI-40x	1	4
J5	22-00-00	11 7/8" NI-80	1	21
B1	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B4	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B5	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

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



FROM PLAN DATED: JAN 2018

BUILDER: BAYVIEW WELLINGTON

SITE: ALCONA SHORES

MODEL: TH-4

ELEVATION: B

LOT:

CITY: INNISFIL

SALESMAN: M D

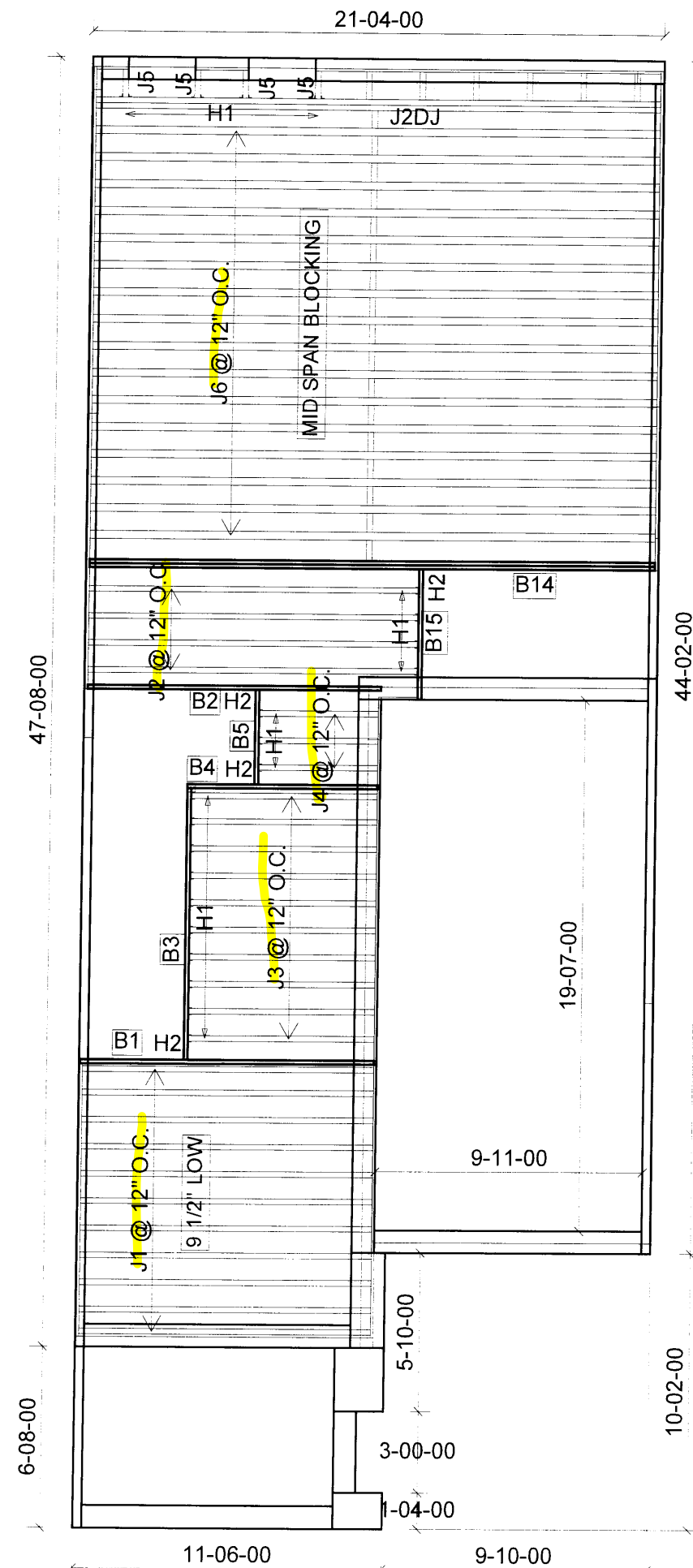
DESIGNER: cz

REVISION:

NOTES:  
REFER TO THE NORDIC  
INSTALLATION GUIDE FOR PROPER  
STORAGE AND INSTALLATION.  
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2  
S.P.F REQ'D UNDER INTERIOR  
UNIFORM LOAD BEARING WALLS.  
MULTIPLE SQUASH BLOCKS REQ'D  
UNDER CONCENTRATED LOADS. SEE  
FIGURE 1. CANTILEVERED JOISTS  
INCLUDING CANT' OVER BRICK REQ.  
I-JOIST BLOCKING ALONG BEARING  
AND RIMBOARD CLOSURE AT ENDS.  
SEE FIGURES 4 & 5 FOR  
REINFORCEMENT REQUIREMENTS.  
FOR HOLES INCLUDING DUCT  
CHASE AND FIELD CUT OPENINGS  
SEE FIGURE 7, TABLES 1 & 2.  
CERAMIC TILE APPLICATION AS PER  
O.B.C 9.30.6.  
LOADING:  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft<sup>2</sup>  
DEAD LOAD: 15.0 lb/ft  
TILED AREAS: 20 lb/ft  
SUBFLOOR: 3/4" GLUED AND NAILED

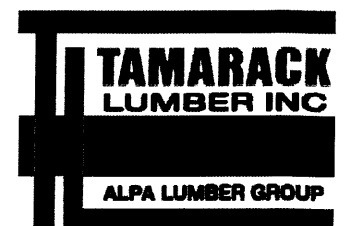
DATE: 31/07/2018

1st FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	12-00-00	9 1/2" NI-40x	1	11
J2DJ	22-00-00	11 7/8" NI-40x	2	2
J2	14-00-00	11 7/8" NI-40x	1	4
J3	8-00-00	11 7/8" NI-40x	1	10
J4	6-00-00	11 7/8" NI-40x	1	3
J5	2-00-00	11 7/8" NI-40x	1	4
J6	22-00-00	11 7/8" NI-80	1	16
B14	22-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B1	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B4	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B15	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B5	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

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



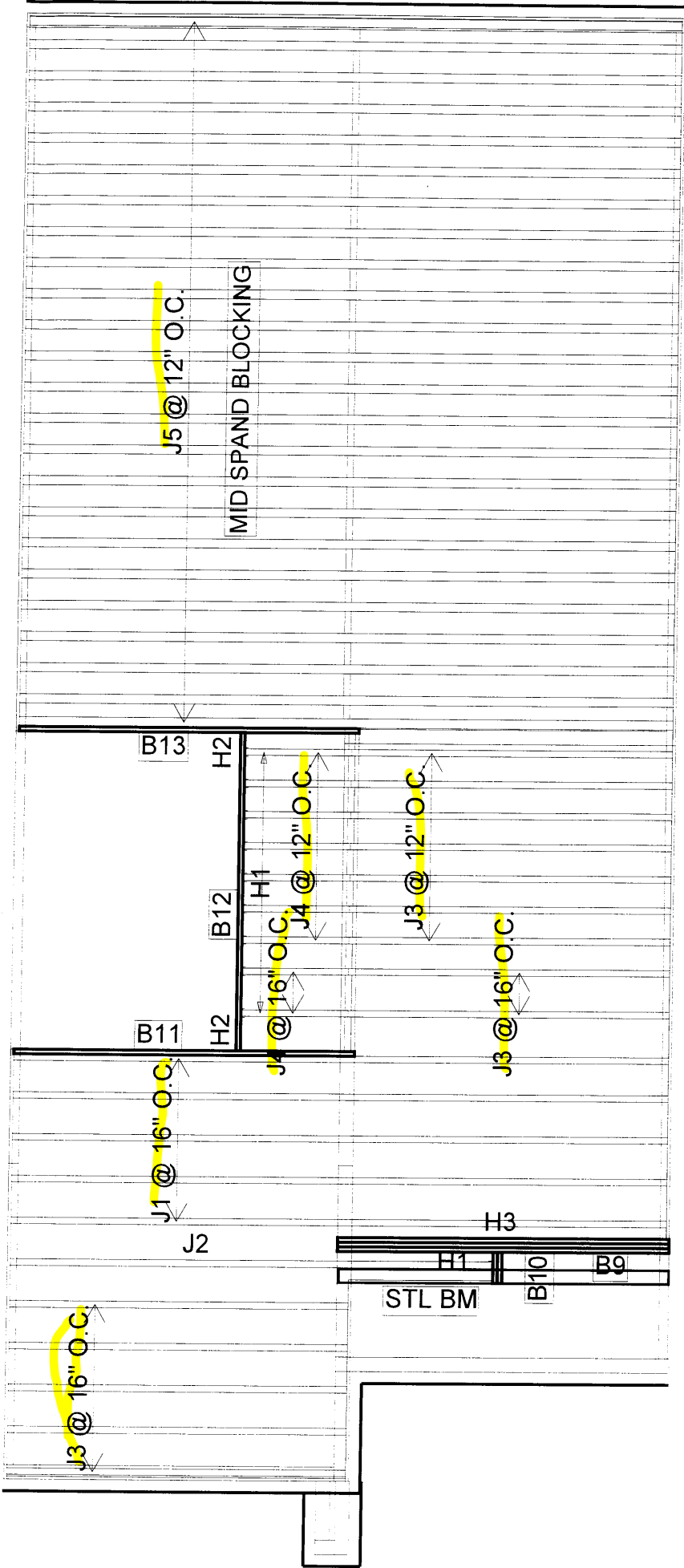
FROM PLAN DATED: JAN 2018  
BUILDER: BAYVIEW WELLINGTON  
SITE: ALCONA SHORES  
MODEL: TH-4  
ELEVATION: B  
LOT:  
CITY: INNISFIL  
SALESMAN: M D  
DESIGNER: cz  
REVISION:

NOTES:  
REFER TO THE NORDIC  
INSTALLATION GUIDE FOR PROPER  
STORAGE AND INSTALLATION.  
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2  
S.P.F REQ'D UNDER INTERIOR  
UNIFORM LOAD BEARING WALLS.  
MULTIPLE SQUASH BLOCKS REQ'D  
UNDER CONCENTRATED LOADS. SEE  
FIGURE 1. CANTILEVERED JOISTS  
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I-JOIST BLOCKING ALONG BEARING  
AND RIMBOARD CLOSURE AT ENDS.  
SEE FIGURES 4 & 5 FOR  
REINFORCEMENT REQUIREMENTS.  
FOR HOLES INCLUDING DUCT  
CHASE AND FIELD CUT OPENINGS  
SEE FIGURE 7, TABLES 1 & 2.  
CERAMIC TILE APPLICATION AS PER  
O.B.C 9.30.6.  
LOADING:  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft<sup>2</sup>  
DEAD LOAD: 15.0 lb/ft  
TILED AREAS: 20 lb/ft  
SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 31/07/2018

## 1st FLOOR

SUNKEN



Products				
PlotID	Length	Product	Plies	Net Qty
J1	22-00-00	11 7/8" NI-40x	1	5
J2	16-00-00	11 7/8" NI-40x	1	1
J3	12-00-00	11 7/8" NI-40x	1	14
J4	4-00-00	11 7/8" NI-40x	1	9
J5	22-00-00	11 7/8" NI-80	1	24
B11	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B12	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B13	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B9	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B10	2-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
9	H1	IUS2.56/11.88
1	H1	IUS2.56/11.88
2	H2	HUS1.81/10
1	H3	HGUS410



FROM PLAN DATED: JAN 2018  
BUILDER: BAYVIEW WELLINGTON  
SITE: ALCONA SHORES  
MODEL: TH-4  
ELEVATION: B  
LOT:  
CITY: INNISFIL  
SALESMAN: M D  
DESIGNER: cz  
REVISION:

NOTES:  
REFER TO THE NORDIC  
INSTALLATION GUIDE FOR PROPER  
STORAGE AND INSTALLATION.  
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2  
S.P.F. REQ'D UNDER INTERIOR  
UNIFORM LOAD BEARING WALLS.  
MULTIPLE SQUASH BLOCKS REQ'D  
UNDER CONCENTRATED LOADS. SEE  
FIGURE 1. CANTILEVERED JOISTS  
INCLUDING CANT' OVER BRICK REQ.  
I-JOIST BLOCKING ALONG BEARING  
AND RIMBOARD CLOSURE AT ENDS.  
SEE FIGURE 7 TABLES 4 & 5 FOR  
REINFORCEMENT REQUIREMENTS.  
FOR HOLES INCLUDING DUCT  
CHASE AND FIELD CUT OPENINGS  
SEE FIGURE 7 TABLES 1 & 2 OF THE  
INSTALLATION GUIDE. CERAMIC TILE  
APPLICATION AS PER O.B.C. 9.30.6  
LOADING:  
DESIGN LOADS: L/480.000  
LIVE LOAD: 40.0 lb/ft²  
DEAD LOAD: 15.0 lb/ft  
TILED AREAS: 20 lb/ft  
SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 31/07/2018

2nd FLOOR

# NORDIC STRUCTURES

**COMPANY**  
TAMARACK LUMBER  
3269 NORTH SERVICE ROAD  
BURLINGTON, ON  
by CZ  
Apr. 26, 2018 16:11

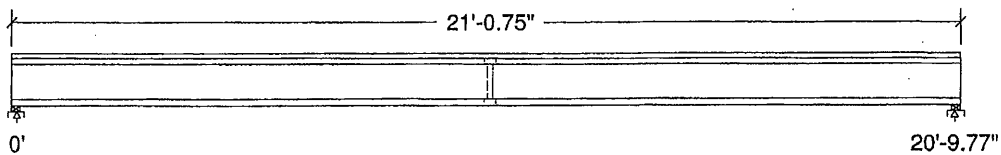
**PROJECT**  
J6-1ST FL.wwb

## Design Check Calculation Sheet Nordic Sizer – Canada 7.0

### Loads:

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

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



Unfactored:			
Dead	208		208
Live	416		416
Factored:			
Total	885		885
Bearing:			
Resistance			
Joist	2186		2186
Support	5559		5559
Des ratio			
Joist	0.40		0.40
Support	0.16		0.16
Load case	#2		#2
Length	2-3/8		2-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		1.00
fcp sup	769		769
Kzcp sup	1.09		1.09



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

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

Total length: 21'-0.75"; Clear span: 20'-7.99"; 3/4" nailed and glued OSB sheathing with 1 row of blocking

This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 885	Vr = 2336	lbs	Vf/Vr = 0.38
Moment(+)	Mf = 4603	Mr = 11609	lbs-ft	Mf/Mr = 0.40
Perm. Defl'n	0.15 = < L/999	0.69 = L/360	in	0.22
Live Defl'n	0.30 = L/822	0.52 = L/480	in	0.58
Total Defl'n	0.46 = L/548	1.04 = L/240	in	0.44
Bare Defl'n	0.34 = L/729	0.69 = L/360	in	0.49
Vibration	Lmax = 20'-9.8	Lv = 22'-6.2	ft	0.92
Defl'n	= 0.026	= 0.031	in	0.83

DWG NO. TAM 4318-84  
STRUCTURAL  
COMPONENT ONLY

T.18071395

**Additional Data:**

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

**CRITICAL LOAD COMBINATIONS:**

Shear : LC #2 = 1.25D + 1.5L

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

Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

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

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

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

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:**Deflection: E<sub>IEff</sub> = 625e06 lb-in<sup>2</sup> K= 6.18e06 lbs

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

**Design Notes:**

1. WoodWorks analysis and design are in accordance with the 2010 National Building Code of Canada (NBC), Division B, Part 4, and the CSA O86-09 Engineering Design in Wood standard, which includes Update No.1 **CONFORMS TO OBC 2012**
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.



DWG NO. TAM 4318-18H  
STRUCTURAL  
COMPONENT ONLY

T-1807139.5(2)

# NORDIC STRUCTURES

**COMPANY**  
TAMARACK LUMBER  
3269 NORTH SERVICE ROAD  
BURLINGTON, ON  
by CZ  
May 4, 2018 08:47

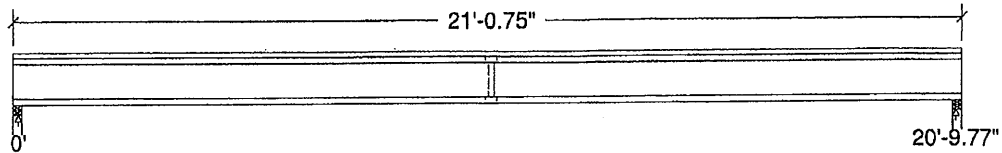
**PROJECT**  
J5-2ND FL.wwb

## Design Check Calculation Sheet Nordic Sizer – Canada 7.0

### Loads:

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

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



Unfactored:			
Dead	208		208
Live	416		416
Factored:			
Total	885		885
Bearing:			
Resistance			
Joist	2186		2186
Support	5559		5559
Des ratio			
Joist	0.40		0.40
Support	0.16		0.16
Load case	#2		#2
Length	2-3/8		2-3/8
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		1.00
fcp sup	769		769
Kzcp sup	1.09		1.09



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

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

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

Total length: 21'-0.75"; Clear span: 20'-7.99"; 3/4" nailed and glued OSB sheathing with 1 row of blocking and 1/2" gypsum ceiling

**This section PASSES the design code check.**

DWG NO. TAM 4319-18H  
STRUCTURAL  
COMPONENT ONLY

T-18071396

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 885	Vr = 2336	lbs	Vf/Vr = 0.38
Moment(+)	Mf = 4603	Mr = 11609	lbs-ft	Mf/Mr = 0.40
Perm. Defl'n	0.15 = < L/999	0.69 = L/360	in	0.22
Live Defl'n	0.30 = L/822	0.52 = L/480	in	0.58
Total Defl'n	0.46 = L/548	1.04 = L/240	in	0.44
Bare Defl'n	0.34 = L/729	0.69 = L/360	in	0.49
Vibration	Lmax = 20'-9.8	Lv = 24'-3.6	ft	0.86
Defl'n	= 0.022	= 0.031	in	0.70

**Additional Data:**

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

**CRITICAL LOAD COMBINATIONS:**

Shear : LC #2 = 1.25D + 1.5L

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

Deflection: LC #1 = 1.0D (permanent)

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

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

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

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

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

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

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

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:**Deflection: E<sub>IEff</sub> = 625e06 lb-in<sup>2</sup> K= 6.18e06 lbs

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

**Design Notes:**

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

**CONFORMS TO OBC 2012**

DWG NO. TAM 4319-84  
STRUCTURAL  
COMPONENT ONLY

T-18071396(2)



Boise Cascade



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

PASSED

BC CALC® Design Report

Build 6215

Job name:

Address:

City, Province, Postal Code: INNISFIL

Customer:

Code reports:

CCMC 12472-R

## 1ST FLOOR FRAMING\Flush Beams\B1(i693)

Dry | 1 span | No cant.

May 10, 2018 08:05:15

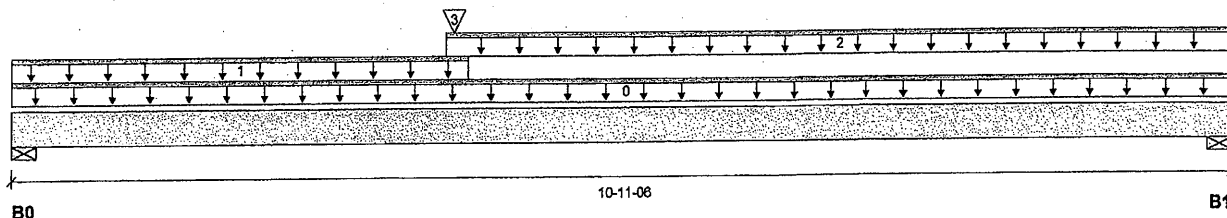
File name: TH-4.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B1(i693)

Specifier:

Designer: cz

Company:



Total Horizontal Product Length = 10-11-06

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	456 / 0	481 / 0		
B1, 4-3/8"	315 / 0	244 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-11-06		6			00-00-00
1	wall	Unf. Lin. (lb/ft)	L	00-00-00	04-00-14		60			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	03-10-08	10-11-06	17	9			n/a
3	B3(i650)	Conc. Pt. (lbs)	L	03-11-06	03-11-06	650	354			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4,135 ft-lbs	13,394 ft-lbs	30.9 %	1	03-11-06
End Shear	1,179 lbs	7,232 lbs	16.3 %	1	01-03-06
Total Load Deflection	L/999 (0.098")	n/a	n/a	4	05-01-05
Live Load Deflection	L/999 (0.055")	n/a	n/a	5	05-01-05
Max Defl.	0.098"	n/a	n/a	4	05-01-05
Span / Depth	10.5				

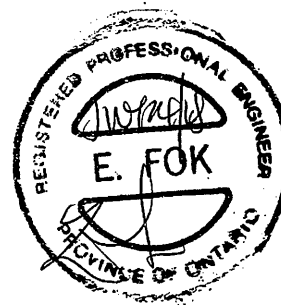
## Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 1-3/4"	1,285 lbs	39.3 %	17.2 %	Unspecified
B1	Wall/Plate 4-3/8" x 1-3/4"	777 lbs	19.0 %	8.3 %	Unspecified

## Notes

Design meets Code minimum (L/240) Total load deflection criteria.  
 Design meets Code minimum (L/360) Live load deflection criteria.  
 Calculations assume unbraced length of Top: 03-07-00, Bottom: 03-07-00.  
 Resistance Factor phi has been applied to all presented results per CSA O86.  
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.  
 Design based on Dry Service Condition.  
 Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012



## Disclosure

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

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

DWG NO. TAM 4320-18 H  
 STRUCTURAL  
 COMPONENT ONLY

T-18071397





Boise Cascade



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

PASSED

## 1ST FLOOR FRAMING\Flush Beams\B2(i573)

Dry | 1 span | No cant.

May 10, 2018 08:05:15

BC CALC® Design Report

Build 6215

Job name:

File name: TH-4.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B2(i573)

City, Province, Postal Code: INNISFIL

Specifier:

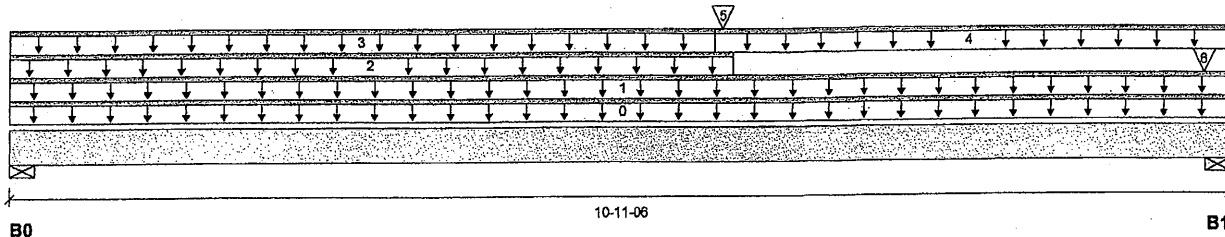
Customer:

Designer: cz

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 10-11-06

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

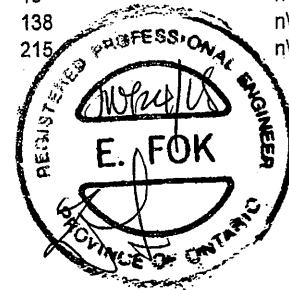
Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	204 / 0	411 / 0		
B1, 4-11/16"	476 / 0	521 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-11-06		6			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-11-06	13	6			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-00-00	06-05-05		60			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	06-03-06	3				n/a
4	FC1 Floor Material	Unf. Lin. (lb/ft)	L	06-03-06	10-11-06	21	10			n/a
5	B5(i661)	Conc. Pt. (lbs)	L	06-04-04	06-04-04	256	138			n/a
6	-	Conc. Pt. (lbs)	L	10-08-10	10-08-10	170	215			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,765 ft-lbs	17,696 ft-lbs	15.6 %	1	06-04-04
End Shear	733 lbs	7,232 lbs	10.1 %	1	09-06-13
Total Load Deflection	L/999 (0.076")	n/a	n/a	4	05-05-13
Live Load Deflection	L/999 (0.033")	n/a	n/a	5	05-07-12
Max Defl.	0.076"	n/a	n/a	4	05-05-13
Span / Depth	10.6				



## Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 2-3/8" x 1-3/4"	576 lbs	39.9 %	17.5 %	Unspecified
B1	Wall/Plate 4-11/16" x 1-3/4"	1,365 lbs	31.0 %	13.6 %	Unspecified

## Notes

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

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

Calculations assume member is fully braced.

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

## Disclosure

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

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

DWG NO. TAM 4321-1814  
STRUCTURAL  
COMPONENT ONLY

T-18071398



Boise Cascade



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

PASSED

## 1ST FLOOR FRAMING\Flush Beams\B3(i483)

Dry | 1 span | No cant.

April 25, 2018 17:11:05

BC CALC® Design Report

Build 6215

Job name:

File name: TH-4.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B3(i483)

City, Province, Postal Code: INNISFIL

Specifier:

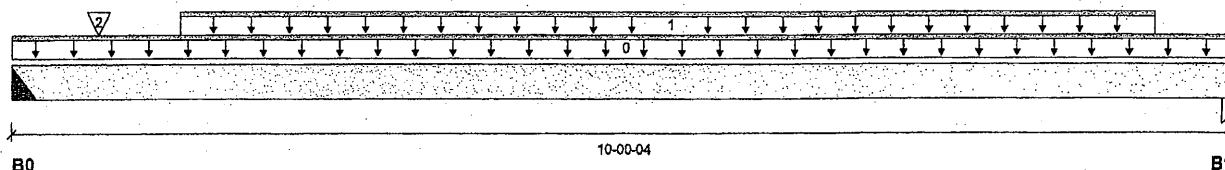
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 10-00-04

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

Bearing	Live	Dead	Snow	Wind
B0, 2"	658 / 0	358 / 0		
B1, 1-3/4"	610 / 0	334 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-00-04	6				00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-04-08	09-04-08	140	70			n/a
2	J3(i498)	Conc. Pt. (lbs)	L	00-08-08	00-08-08	152	76			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3,663 ft-lbs	17,696 ft-lbs	20.7 %	1	04-08-08
End Shear	1,324 lbs	7,232 lbs	18.3 %	1	08-10-10
Total Load Deflection	L/999 (0.092")	n/a	n/a	4	05-00-08
Live Load Deflection	L/999 (0.059")	n/a	n/a	5	05-00-08
Max Defl.	0.092"	n/a	n/a	4	05-00-08
Span / Depth	9.9				

## Bearing Supports

			Demand/Resistance Support	Demand/Resistance Member	Material	
Bearing Supports	Dim. (LxW)	Demand				
B0	Hanger	2" x 1-3/4"	1,435 lbs	n/a	33.6 %	HUS1.81/10
B1	Column	1-3/4" x 1-3/4"	1,332 lbs	66.9 %	35.6 %	Unspecified

## Cautions

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

## Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

## Disclosure

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

DWG NO. TAM 4322-18H  
STRUCTURAL  
COMPONENT ONLY

T.18071399





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

**PASSED**

## 1ST FLOOR FRAMING\Flush Beams\B4(i427)

Dry | 1 span | No cant.

April 25, 2018 17:11:05

BC CALC® Design Report

Build 6215

Job name:

Address:

City, Province, Postal Code: INNISFIL

Customer:

Code reports: CCMC 12472-R

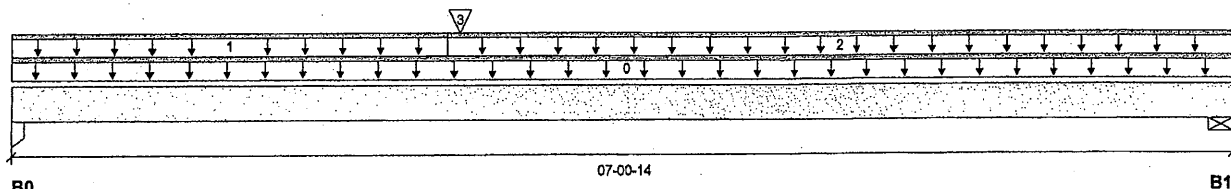
File name: TH-4.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B4(i427)

Specifier:

Designer:

Company:



Total Horizontal Product Length = 07-00-14

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	292 / 0	174 / 0		
B1, 4-3/8"	268 / 0	160 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-00-14		6			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	02-06-00	29	15			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	02-06-00	07-00-14	53	27			n/a
3	B5(i428)	Conc. Pt. (lbs)	L	02-06-14	02-06-14	244	133			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1,310 ft-lbs	17,696 ft-lbs	7.4 %	1	02-06-14
End Shear	567 lbs	7,232 lbs	7.8 %	1	01-03-06
Total Load Deflection	L/999 (0.013")	n/a	n/a	4	03-04-05
Live Load Deflection	L/999 (0.008")	n/a	n/a	5	03-04-05
Max Defl.	0.013"	n/a	n/a	4	03-04-05
Span / Depth	6.6				

			Demand/ Resistance Support	Demand/ Resistance Member	
Bearing Supports	Dim. (LxW)	Demand			Material
B0	Column	3-1/2" x 1-3/4"	657 lbs	16.5 %	8.8 %
B1	Wall/Plate	4-3/8" x 1-3/4"	602 lbs	18.4 %	6.4 %
					Unspecified
					Unspecified

### Notes

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

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

Calculations assume member is fully braced.

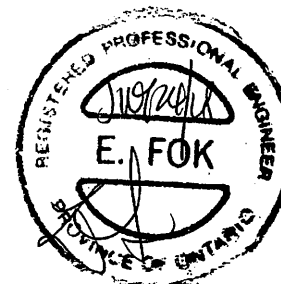
Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012



### Disclosure

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

DWG NO. TAM 4323-184  
STRUCTURAL  
COMPONENT ONLY

T'18071400



Boise Cascade



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

PASSED

## 1ST FLOOR FRAMING\Flush Beams\B5(i428)

Dry | 1 span | No cant.

April 25, 2018 17:11:05

BC CALC® Design Report

Build 6215

Job name:

File name: TH-4.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B5(i428)

City, Province, Postal Code: INNISFIL

Specifier:

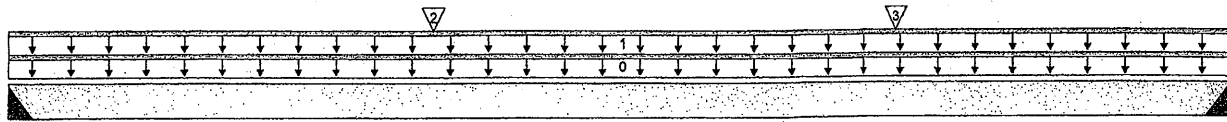
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:



B0 03-06-00 B1

Total Horizontal Product Length = 03-06-00

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

Bearing	Live	Dead	Snow	Wind
B0, 2"	244 / 0	133 / 0		
B1, 2"	256 / 0	139 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-06-00	6				00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-06-00	80	40			n/a
2	J4(i491)	Conc. Pt. (lbs)	L	01-02-08	01-02-08	116	58			n/a
3	J4(i489)	Conc. Pt. (lbs)	L	02-06-08	02-06-08	104	52			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	473 ft-lbs	17,696 ft-lbs	2.7 %	1	01-07-03
End Shear	326 lbs	7,232 lbs	4.5 %	1	01-01-14
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	01-08-14
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	01-08-14
Max Defl.	0.001"	n/a	n/a	4	01-08-14
Span / Depth	3.3				

## Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0 Hanger	2" x 1-3/4"	532 lbs	n/a	12.5 %	HUS1.81/10
B1 Hanger	2" x 1-3/4"	557 lbs	n/a	13.0 %	HUS1.81/10

## Cautions

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

## Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

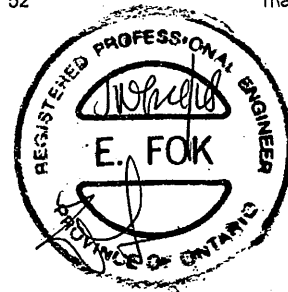
Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012



## Disclosure

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DWG NO. TAM 4324-18 H  
STRUCTURAL  
COMPONENT ONLY

T-18071401



Boise Cascade



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

PASSED

## 2ND FLOOR FRAMING\Flush Beams\B9(i691)

BC CALC® Design Report

Dry | 1 span | No cant.

May 10, 2018 08:04:35

Build 6215

Job name:

File name: TH-4.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B9(i691)

City, Province, Postal Code: INNISFIL

Specifier:

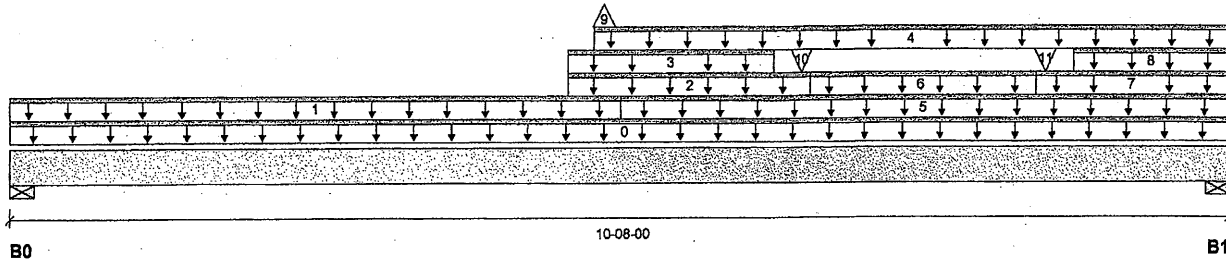
Customer:

Designer: cz

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 10-08-00

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

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	523 / 16	761 / 0	1,508 / 54	
B1, 3-1/2"	1,160 / 14	1,767 / 0	4,085 / 49	

## Load Summary

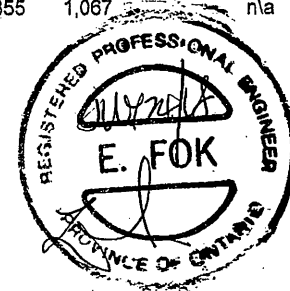
Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-08-00	18				00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-03-08	27	13			n/a
2	E23(i139)	Unf. Lin. (lb/ft)	L	04-10-00	06-11-08		81			n/a
3	E23(i139)	Unf. Lin. (lb/ft)	L	04-10-00	06-07-08	208	268	824		n/a
4	LOW ROOF	Unf. Lin. (lb/ft)	L	05-00-11	10-08-00	39	35	133		n/a
5	FC3 Floor Material	Unf. Lin. (lb/ft)	L	05-03-08	10-08-00	18	9			n/a
6	E24(i140)	Unf. Lin. (lb/ft)	L	08-11-08	08-11-08		61			n/a
7	E14(i130)	Unf. Lin. (lb/ft)	L	08-11-08	10-08-00		81			n/a
8	E14(i130)	Unf. Lin. (lb/ft)	L	09-03-08	10-08-00	208	268	824		n/a
9	B10(i667)	Conc. Pt. (lbs)	L	05-01-12	05-01-12	-30	-3	-103		n/a
10	E23(i139)	Conc. Pt. (lbs)	L	06-10-08	06-10-08	285	376	1,130		n/a
11	E14(i130)	Conc. Pt. (lbs)	L	09-00-08	09-00-08	269	355	1,067		n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	17,277 ft-lbs	55,212 ft-lbs	31.3 %	53	06-03-08
End Shear	6,249 lbs	21,696 lbs	28.8 %	53	09-04-10
Total Load Deflection	L/853 (0.141")	n/a	28.2 %	146	05-07-08
Live Load Deflection	L/999 (0.102")	n/a	n/a	198	05-09-08
Max Defl.	0.141"	n/a	n/a	146	05-07-08
Span / Depth	10.1				

## Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 5-1/2" x 5-1/4"	3,475 lbs	22.5 %	9.9 %	Unspecified
B1	Wall/Plate 3-1/2" x 5-1/4"	8,916 lbs	90.9 %	39.8 %	Unspecified



DWG NO. TAM 4325-18H  
STRUCTURAL  
COMPONENT ONLY

T-18071402



Boise Cascade

**Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****2ND FLOOR FRAMING\Flush Beams\B9(i691)****PASSED**

BC CALC® Design Report

Dry | 1 span | No cant.

May 10, 2018 08:04:35

Build 6215

Job name:

File name: TH-4.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B9(i691)

City, Province, Postal Code: INNISFIL

Specifier:

Customer:

Designer: cz

Code reports:

CCMC 12472-R

Company:

**Notes**

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

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

Calculations assume member is fully braced.

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

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

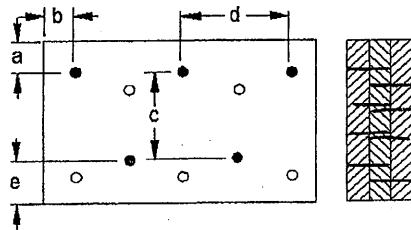
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

**CONFORMS TO OBC 2012**

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

Nailing schedule applies to both sides of the member.

**Connection Diagram**

a minimum = 1"

b minimum = 3"

c = 6-7/8"

d = 6"

e minimum = 2"

Calculated Side Load = 16.2 lb/ft

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

Nailing schedule applies to both sides of the member.

Connectors are:

Nails

**3-1/2" ARDOX SPIRAL****Disclosure**

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

DWG NO. TAM 4325-18H  
STRUCTURAL  
COMPONENT ONLY

T-18071402(2)



Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****2ND FLOOR FRAMING\Flush Beams\B10(i426)**

BC CALC® Design Report

Dry | 1 span | No cant.

April 25, 2018 17:11:05

Build 6215

Job name:

File name: TH-4.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B10(i426)

City, Province, Postal Code: INNISFIL

Specifier:

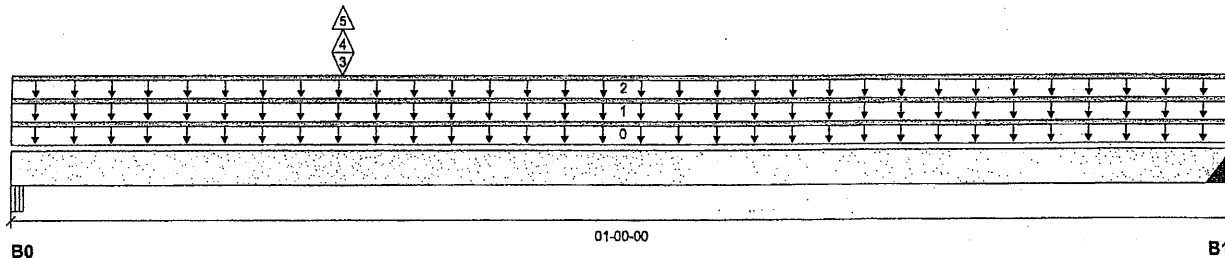
Customer:

Designer:

Code reports:

CCMC 12472-R

Company:

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

Bearing	Live	Dead	Snow	Wind
B0, 5-1/4"	178 / 56	175 / 0	504 / 0	
B1, 3"	58 / 51	53 / 0	100 / 0	

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	01-00-00		12			00-00-00
1	E15(i129)	Unf. Lin. (lb/ft)	L	00-00-00	01-00-00	33	111	114		n/a
2	LOW ROOF	Unf. Lin. (lb/ft)	L	00-00-00	01-00-00	39	35	133		n/a
3	-	Conc. Pt. (lbs)	L	00-03-04	00-03-04	164	94	357		n/a
4	-	Conc. Pt. (lbs)	L	00-03-04	00-03-04		-24			n/a
5	-	Conc. Pt. (lbs)	L	00-03-04	00-03-04	-107				n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	17 ft-lbs	35,392 ft-lbs	n/a	1	00-07-00
Neg. Moment	-16 ft-lbs	-35,392 ft-lbs	n/a	24	00-07-00
End Shear	74 lbs	14,464 lbs	0.5 %	45	00-09-00
Span / Depth	0.4				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Beam 5-1/4" x 3-1/2"	1,064 lbs	13.6 %	4.7 %	Unspecified
B1	Hanger 3" x 3-1/2"	246 lbs	n/a	1.9 %	HGUS410

**Cautions**

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



DWG NO. TAM 432618 H  
STRUCTURAL  
COMPONENT ONLY

7-18071403



Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****2ND FLOOR FRAMING\Flush Beams\B10(i426)**

Dry | 1 span | No cant.

**PASSED**

April 25, 2018 17:11:05

BC CALC® Design Report

Build 0215

Job name:

Address:

City, Province, Postal Code: INNISFIL

Customer:

Code reports: CCMC 12472-R

File name: TH-4.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B10(i426)

Specifier:

Designer:

Company:

**Notes**

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

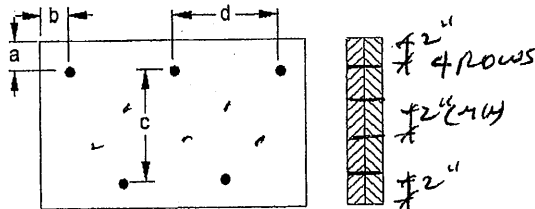
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

**CONFORMS TO OBC 2012**

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

**Connection Diagram**

a minimum = 2"

b minimum = 3"

c = 7-7/8"

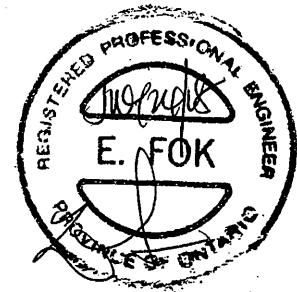
d = 4"

Calculated Side Load = 100.5 lb/ft

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

Connectors are:

Nails

**3-1/2" ARDOX SPIRAL****Disclosure**

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DWG NO. TAM 4326.18  
STRUCTURAL  
COMPONENT ONLY

T-18071403(2)





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

**PASSED**

## 2ND FLOOR FRAMING\Flush Beams\B11(i485)

Dry | 1 span | No cant.

May 10, 2018 08:05:44

BC CALC® Design Report

Build 6215

Job name:

Address:

City, Province, Postal Code: INNISFIL

Customer:

Code reports: CCMC 12472-R

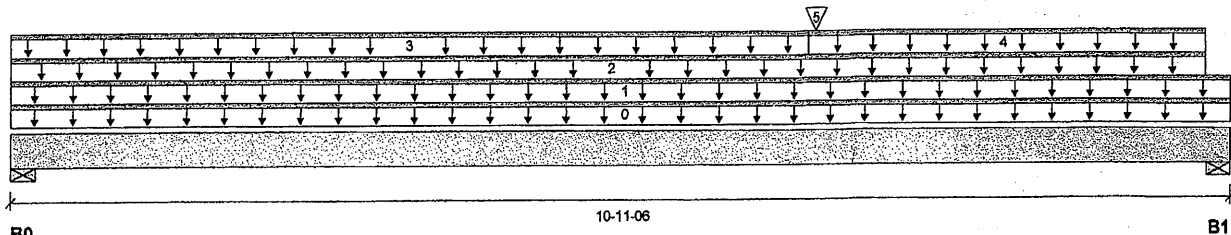
File name: TH-4.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B11(i485)

Specifier:

Designer: cz

Company:



Total Horizontal Product Length = 10-11-06

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

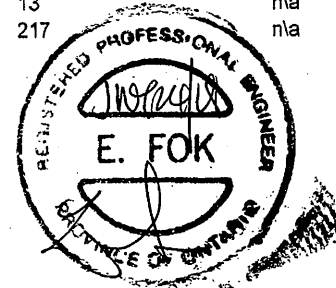
Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	168 / 0	447 / 0		
B1, 5-1/2"	355 / 0	569 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-11-06		6			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	10-11-06		60			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-08-10	4	2			n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-01-06	3				n/a
4	FC3 Floor Material	Unf. Lin. (lb/ft)	L	07-01-06	10-08-10	26	13			n/a
5	B12(i499)	Conc. Pt. (lbs)	L	07-02-04	07-02-04	372	217			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3,224 ft-lbs	17,696 ft-lbs	18.2 %	1	07-02-04
End Shear	1,049 lbs	7,232 lbs	14.5 %	1	09-06-00
Total Load Deflection	L/999 (0.087")	n/a	n/a	4	05-07-09
Live Load Deflection	L/999 (0.033")	n/a	n/a	5	05-09-13
Max Defl.	0.087"	n/a	n/a	4	05-07-09
Span / Depth	10.5				



### Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 2-3/8" x 1-3/4"	625 lbs	43.3 %	19.0 %	Unspecified
B1	Wall/Plate 5-1/2" x 1-3/4"	1,244 lbs	24.2 %	10.6 %	Unspecified

### Notes

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

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

Calculations assume member is fully braced.

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

### Disclosure

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DWG NO. TAM 4327-84  
STRUCTURAL  
COMPONENT ONLY

T-18071404



Boise Cascade



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

## 2ND FLOOR FRAMING\Flush Beams\B12(i695)

PASSED

May 10, 2018 08:06:24

BC CALC® Design Report

Build 6215

Job name:

Address:

City, Province, Postal Code: INNISFIL

Customer:

Code reports:

CCMC 12472-R

Dry | 1 span | No cant.

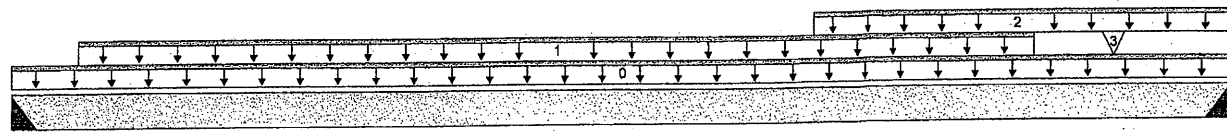
File name: TH-4.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B12(i695)

Specifier:

Designer: cz

Company:



B0

10-02-00

B1

Total Horizontal Product Length = 10-02-00

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

Bearing	Live	Dead	Snow	Wind
B0, 2"	464 / 0	263 / 0		
B1, 2"	1,035 / 0	549 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-02-00	6				00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-06-08	08-06-08	72	36			n/a
2	STAIR	Unf. Lin. (lb/ft)	L	06-08-00	10-02-00	240	120			n/a
3	J4(i495)	Conc. Pt. (lbs)	L	09-02-08	09-02-08	85	43			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3,734 ft-lbs	17,696 ft-lbs	21.1 %	1	06-06-08
End Shear	1,604 lbs	7,232 lbs	22.2 %	1	09-00-02
Total Load Deflection	L/999 (0.094")	n/a	n/a	4	05-04-08
Live Load Deflection	L/999 (0.061")	n/a	n/a	5	05-04-08
Max Defl.	0.094"	n/a	n/a	4	05-04-08
Span / Depth	10.1				

## Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Hanger 2" x 1-3/4"	1,024 lbs	n/a	24.0 %	HUS1.81/10
B1	Hanger 2" x 1-3/4"	2,239 lbs	n/a	52.4 %	HUS1.81/10

## Cautions

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

## Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

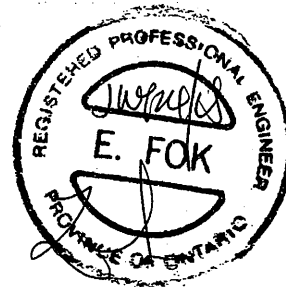
Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012



## Disclosure

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DWG NO. TAM 432B-18H  
STRUCTURAL  
COMPONENT ONLY

T-18074605



Boise Cascade



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

PASSED

## 2ND FLOOR FRAMING\Flush Beams\B13(i700)

Dry | 1 span | No cant.

May 10, 2018 08:06:24

BC CALC® Design Report

Build 6215

Job name:

File name: TH-4.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B13(i700)

City, Province, Postal Code: INNISFIL

Specifier:

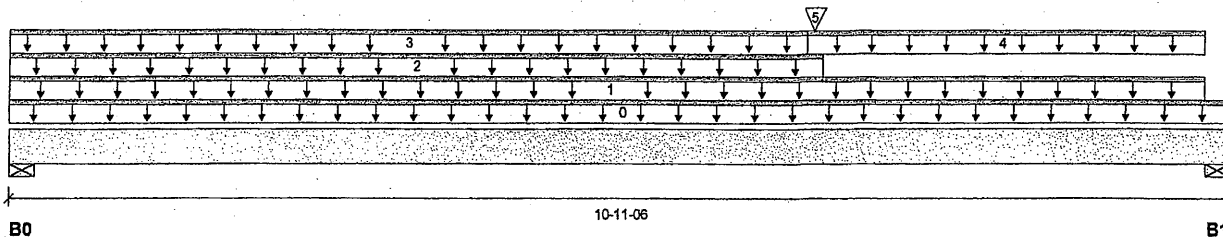
Customer:

Designer: cz

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 10-11-06

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

Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	384 / 0	524 / 0		
B1, 5-1/2"	793 / 0	597 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-11-06		6			00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-08-10	5	2			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-00-00	07-03-02		60			n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-01-06	3				n/a
4	FC3 Floor Material	Unf. Lin. (lb/ft)	L	07-01-06	10-08-10	21	10			n/a
5	B12(i695)	Conc. Pt. (lbs)	L	07-02-04	07-02-04	1,031	546			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	6,127 ft-lbs	17,696 ft-lbs	34.6 %	1	07-02-04
End Shear	1,859 lbs	7,232 lbs	25.7 %	1	09-06-00
Total Load Deflection	L/841 (0.149")	n/a	28.5 %	4	05-07-09
Live Load Deflection	L/999 (0.079")	n/a	n/a	5	05-09-13
Max Defl.	0.149"	n/a	n/a	4	05-07-09
Span / Depth	10.5				

## Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 2-3/8" x 1-3/4"	1,231 lbs	55.4 %	24.3 %	Unspecified
B1	Wall/Plate 5-1/2" x 1-3/4"	1,935 lbs	37.7 %	16.5 %	Unspecified

## Notes

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

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

Calculations assume member is fully braced.

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012

## Disclosure:

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

DWG NO. TAM 4329-184  
STRUCTURAL  
COMPONENT ONLY

T-18021406



Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****1ST FLOOR FRAMING\Flush Beams\B14(i589)**

BC CALC® Design Report

Dry | 1 span | No cant.

May 10, 2018 08:21:08

Build 6215

Job name:

File name: TH-4-sunken.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B14(i589)

City, Province, Postal Code: INNISFIL

Specifier:

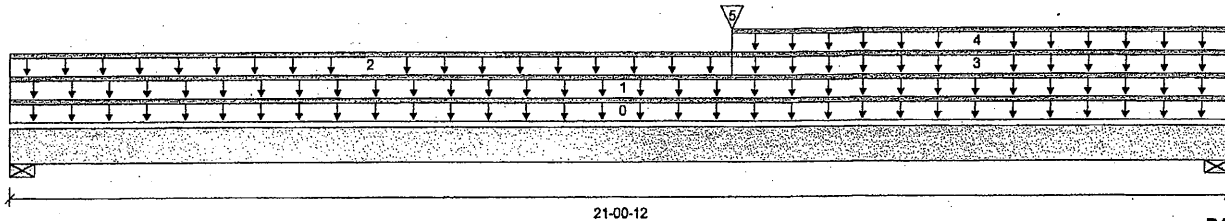
Customer:

Designer: cz

Code reports:

CCMC 12472-R

Company:



B0

21-00-12

B1

Total Horizontal Product Length = 21-00-12

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

Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	828 / 0	651 / 0		
B1, 2-3/8"	1,360 / 0	1,230 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	21-00-12		12			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	21-00-12	21	11			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	12-04-08	19	9			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	12-04-08	21-00-12	100	50			n/a
4	WALL	Unf. Lin. (lb/ft)	L	12-04-08	21-00-12		60			n/a
5	B15(i597)	Conc. Pt. (lbs)	L	12-04-08	12-04-08	643	334			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	17,505 ft-lbs	35,392 ft-lbs	49.5 %	1	12-04-08
End Shear	3,165 lbs	14,464 lbs	21.9 %	1	19-10-08
Total Load Deflection	L/276 (0.903")	n/a	86.9 %	4	11-00-07
Live Load Deflection	L/497 (0.502")	n/a	72.5 %	5	11-00-07
Max Defl.	0.903"	n/a	n/a	4	11-00-07
Span / Depth	21.0				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 2-3/8" x 3-1/2"	2,056 lbs	46.3 %	20.3 %	Unspecified
B1	Wall/Plate 2-3/8" x 3-1/2"	3,577 lbs	80.6 %	35.3 %	Unspecified

**Notes**

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

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

Calculations assume member is fully braced.

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

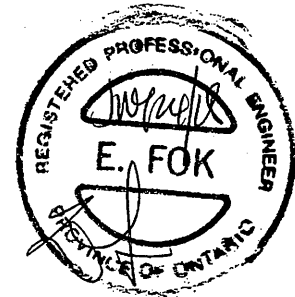
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

**CONFORMS TO OBC 2012**

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


 DWG NO. TAM 4330  
 STRUCTURAL  
 COMPONENT ONLY

T-18071407



Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED**BC CALC® Design Report  
Build 6215**1ST FLOOR FRAMING\Flush Beams\B14(i589)**

Dry | 1 span | No cant.

May 10, 2018 08:21:08

Job name:

File name: TH-4-sunken.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B14(i589)

City, Province, Postal Code: INNISFIL

Specifier:

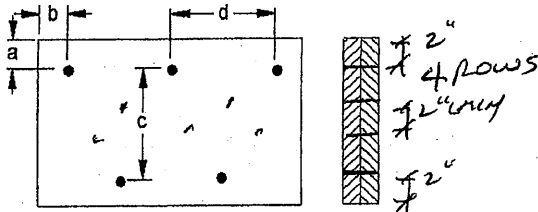
Customer:

Designer: cz

Code reports:

CCMC 12472-R

Company:

**Connection Diagram**a minimum = 2"  
b minimum = 3"c = 7-7/8"  
d = 8" B'

Calculated Side Load = 65.6 lb/ft

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

Connectors are: 3 Nails

**3-1/2" ARDOX SPIRAL****Disclosure**

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DWG NO. TAM 4330-18H  
STRUCTURAL  
COMPONENT ONLY

T-18071407(2)



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

**PASSED**

## 1ST FLOOR FRAMING\Flush Beams\B15(i538)

BC CALC® Design Report

Dry | 1 span | No cant.

May 4, 2018 08:48:08

Build 6215

Job name:

File name: TH-4-sunken.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B15(i538)

City, Province, Postal Code: INNISFIL

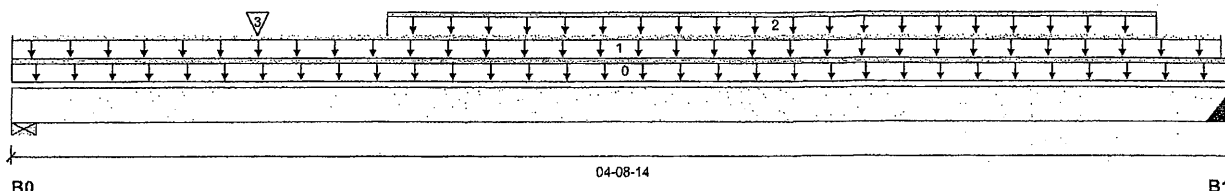
Specifier:

Customer:

Designer: cz

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 04-08-14

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

Bearing	Live	Dead	Snow	Wind
B0, 4-3/8"	666 / 0	347 / 0		
B1, 2"	656 / 0	340 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-08-14		6			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	04-08-06	80	40			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-05-06	04-05-06	244	122			n/a
3	J3(i551)	Conc. Pt. (lbs)	L	00-11-06	00-11-06	213	106			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,613 ft-lbs	17,696 ft-lbs	9.1 %	1	02-06-14
End Shear	1,024 lbs	7,232 lbs	14.2 %	1	03-07-00
Total Load Deflection	L/999 (0.008")	n/a	n/a	4	02-05-06
Live Load Deflection	L/999 (0.005")	n/a	n/a	5	02-05-06
Max Defl.	0.008"	n/a	n/a	4	02-05-06
Span / Depth	4.4				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 4-3/8" x 1-3/4"	1,433 lbs	35.0 %	15.3 %	Unspecified
B1	Hanger 2" x 1-3/4"	1,409 lbs	n/a	33.0 %	HUS1.81/10

### Cautions

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

### Notes

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

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

Calculations assume member is fully braced.

Hanger Manufacturer: Unassigned

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

**CONFORMS TO OBC 2012**



### Disclosure

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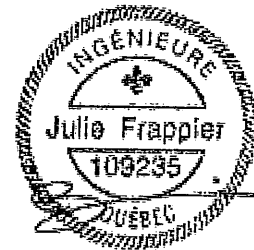
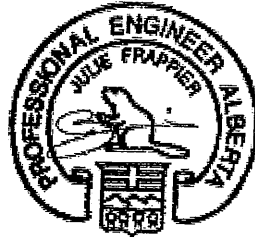
BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®.

DWG NO. TAM 4331-18H  
STRUCTURAL  
COMPONENT ONLY

718071408

## Maximum Floor Spans

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

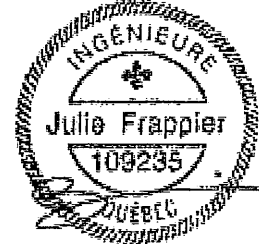
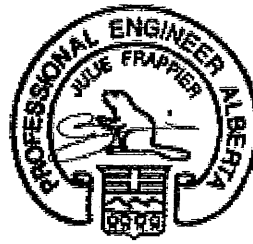


Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"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

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

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



## Maximum Floor Spans

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

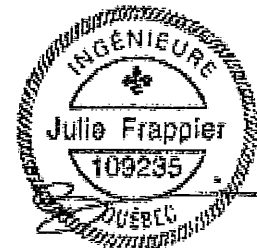
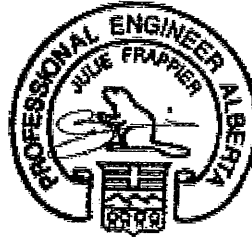
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"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

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

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





## Maximum Floor Spans

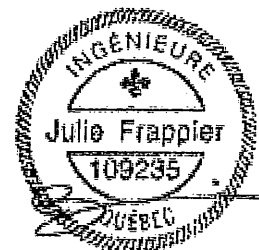
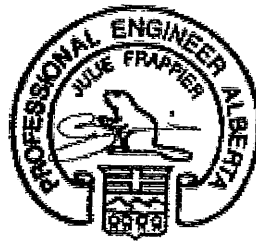
Live Load = 40 psf, Dead Load = 30 psf  
Simple Spans, L/480 Deflection Limit  
5/8" OSB G&N Sheathing

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

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

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



## Maximum Floor Spans

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

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

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

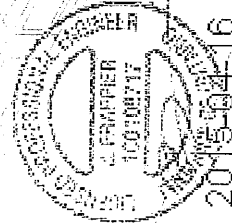
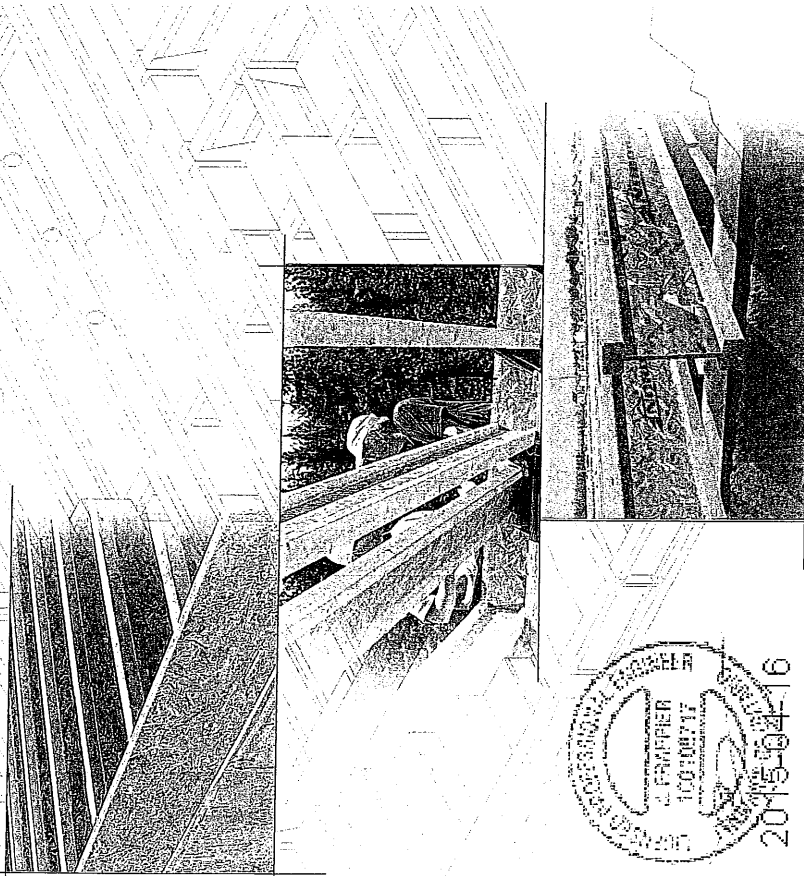
- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load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



# NORDIC

ENGINEERED WOOD

## INSTALLATION GUIDE FOR RESIDENTIAL FLOORS

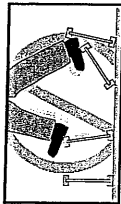


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### SAFETY AND CONSTRUCTION PRECAUTIONS

#### WARNING



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



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

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.

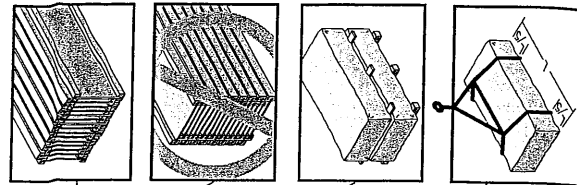
I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.

#### Avoid Accidents by Following these Important Guidelines:

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

### STORAGE AND HANDLING GUIDELINES

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



MAXIMUM FLOOR SPANS

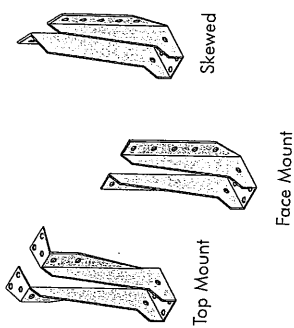
- 1. Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- 2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGBS-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
- 3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
- 4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- 5. This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
- 6. Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
- 7. SI units conversion: 1 inch = 25.4 mm  
1 foot = 0.305 m

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

Joist Depth	Joist Series	Simple spans		Multiple spans	
		On centre spacing	12'	On centre spacing	16'
9-1/2"	NI-20	15-1"	13-9"	16-3"	14-7"
	NI-40x	16-1"	14-8"	17-5"	15-10"
	NI-60	16-3"	15-4"	17-7"	15-5"
	NI-70	17-1"	16-1"	18-7"	16-1"
11-7/8"	NI-80	17-3"	15-8"	18-10"	16-10"
	NI-20	16-11"	15-5"	18-4"	17-0"
	NI-40x	18-1"	16-5"	20-0"	18-6"
	NI-60	18-4"	16-7"	20-3"	18-7"
14"	NI-70	19-4"	17-4"	21-6"	19-1"
	NI-80	19-9"	17-6"	21-9"	19-3"
	NI-90	20-2"	17-11"	22-3"	19-4"
	NI-90x	20-4"	18-9"	22-5"	19-8"
16"	NI-40x	20-1"	18-7"	22-2"	19-11"
	NI-60	20-5"	18-11"	22-7"	19-4"
	NI-70	21-7"	19-1"	23-10"	20-1"
	NI-80	21-11"	19-4"	24-3"	21-2"
16'	NI-90	22-5"	20-8"	24-9"	21-5"
	NI-90x	22-7"	20-11"	25-0"	21-10"
	NI-60	22-3"	20-8"	24-7"	22-2"
	NI-70	23-6"	21-9"	26-0"	22-9"
16'	NI-80	23-11"	22-1"	26-5"	23-0"
	NI-90	24-5"	22-6"	27-1"	23-3"
	NI-90x	24-8"	22-9"	27-3"	23-9"
	NI-90x	24-8"	22-9"	27-3"	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 manufacturer's recommendations.
- 3. Hangers should be selected based on the joist depth, flange width and load capacity based on the maximum spans.
- 4. Web stiffeners are required when the sides of the hangers do not laterally brace the top flange of the I-joist.



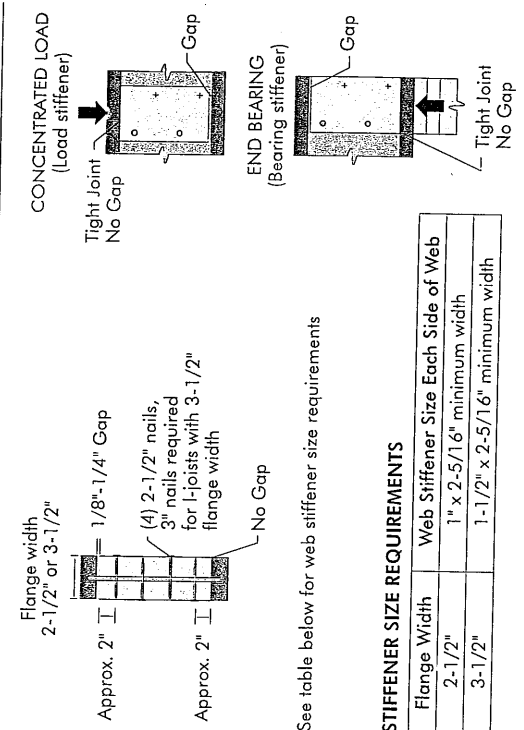
WEB STIFFENERS

RECOMMENDATIONS:

- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found 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.
  - A load stiffener is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.
- SI units conversion: 1 inch = 25.4 mm

FIGURE 2

WEB STIFFENER INSTALLATION DETAILS



STIFFENER SIZE REQUIREMENTS

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

See table below for web stiffener size requirements

NORDIC I-JOIST SERIES

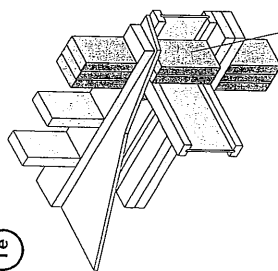
NI-20	NI-40x	NI-60	NI-70	NI-80	NI-90	NI-90x
1-1/2" B2x4	1-1/2" B2x4	1-1/2" B2x4	1-1/2" B2x4	1-1/2" B2x4	1-1/2" B2x4	1-1/2" B2x4
OSB 3/8"	OSB 3/8"	OSB 3/8"	OSB 3/8"	OSB 3/8"	OSB 3/8"	OSB 3/8"
9-1/2"	9-1/2"	9-1/2"	9-1/2"	9-1/2"	9-1/2"	9-1/2"
11-7/8"	11-7/8"	11-7/8"	11-7/8"	11-7/8"	11-7/8"	11-7/8"
14"	14"	14"	14"	14"	14"	14"
16"	16"	16"	16"	16"	16"	16"
S-P-F No.2	1950F MSR	2100F MSR	1950F MSR	2100F MSR	2400F MSR	NFG Lumber
33 pieces per unit	33 pieces per unit	33 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit

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

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

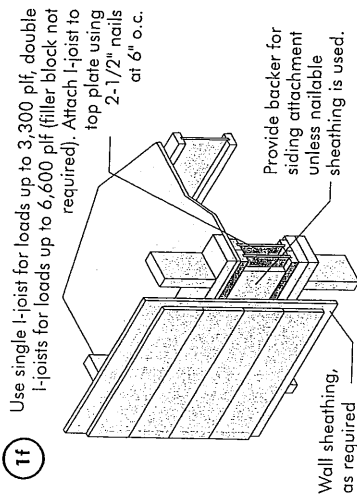


1e



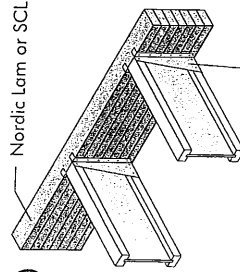
Transfer load from above to bearing below. Install squash blocks per detail 1d. Match bearing area of blocks below to post above.

1f



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

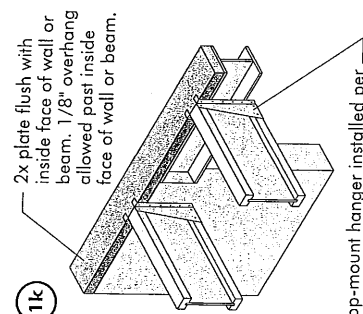
1j



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

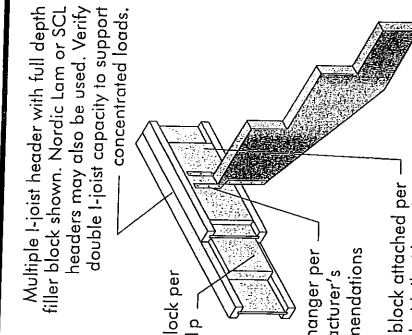
Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

1k



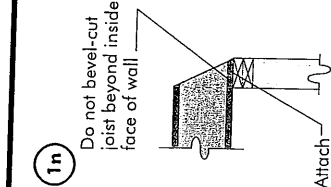
Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

1m



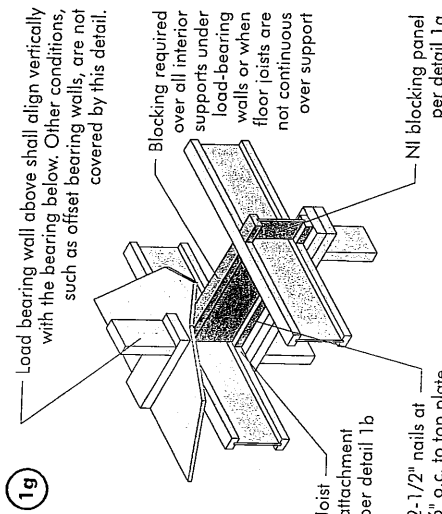
Maximum support capacity = 1,620 lbs.

1n



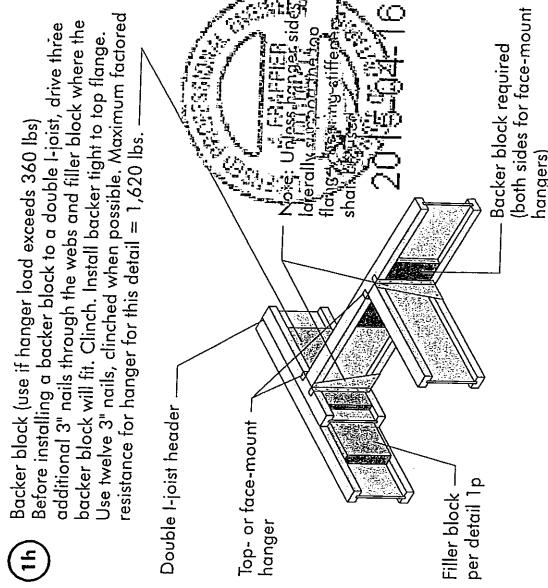
Note: Blocking required at bearing for lateral support, not shown for clarity.

1g



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

1h



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

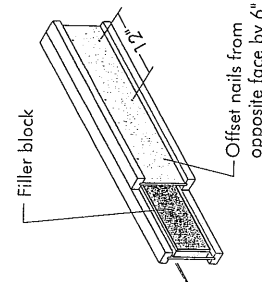
BACKER BLOCKS (Blocks must be long enough to permit required nailing without splitting)

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

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

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

1p



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

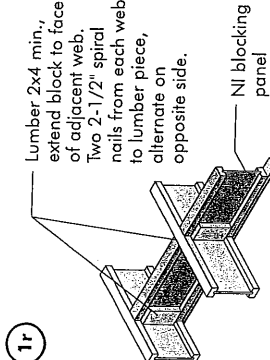
Notes:

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

### FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

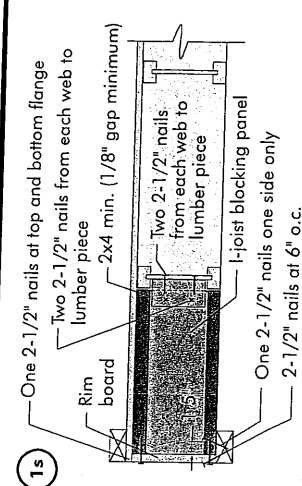
Flange Size	Joist Depth	Filler Block Size
2-1/2" x 1-1/2"	9-1/2" x 11-7/8" x 14" x 16"	2-1/8" x 6" x 8" x 10" x 12"
3-1/2" x 1-1/2"	9-1/2" x 11-7/8" x 14" x 16"	3" x 6" x 8" x 10" x 12"
3-1/2" x 2"	11-7/8" x 14" x 16"	3" x 7" x 9" x 11"

1r



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

1s



Notes:

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

# INSTALLING NORDIC I-JOISTS

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

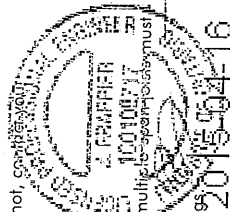
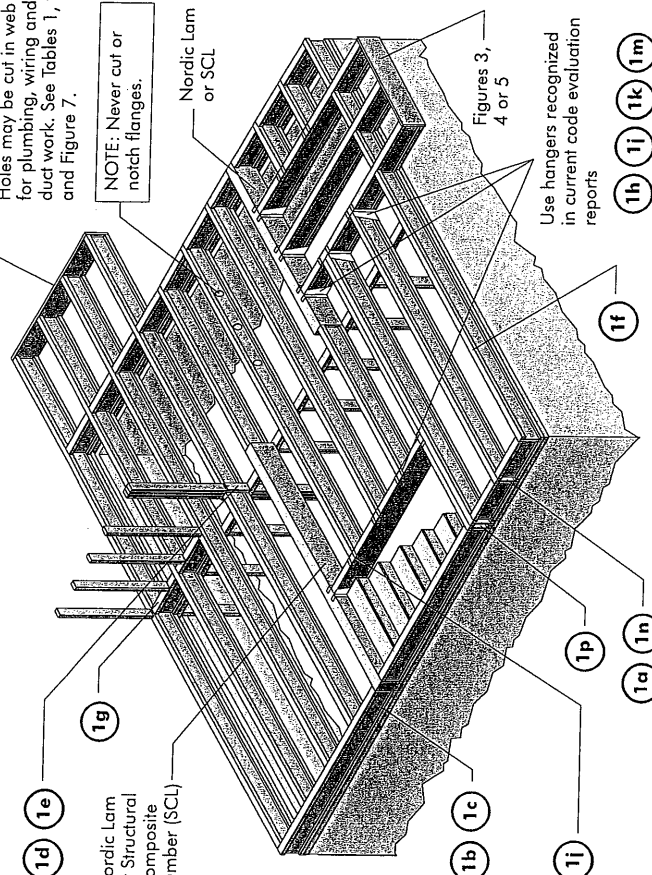


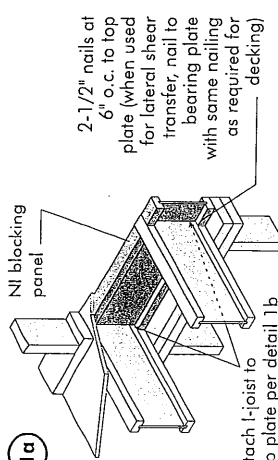
FIGURE 1

## TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS

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

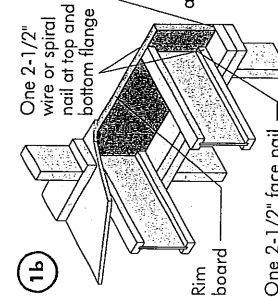


All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for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



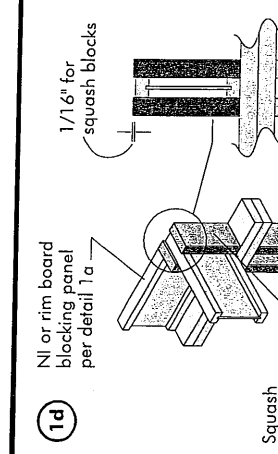
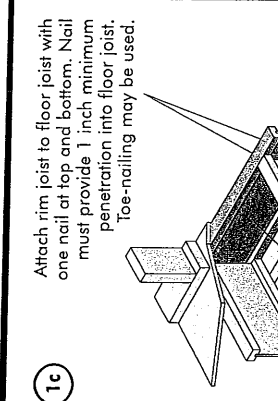
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

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



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

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



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

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

4a

4a



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

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

4b

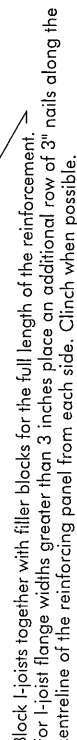


FIGURE 4 (continued)

See table  
below for N  
reinforcement  
requirements  
cantilever.

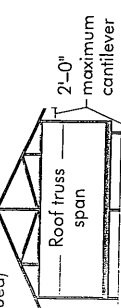


Diagram illustrating a roof truss system. The truss is labeled "Roof truss span". A dimension line indicates a "2'-0" maximum cantilever" extending from the main span.

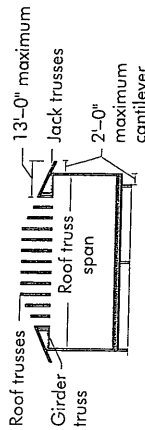


Diagram illustrating the components and dimensions of a roof truss system:

- Roof trusses**: The main structural members supporting the roof.
- Jack trusses**: Secondary trusses supporting the main roof trusses.
- Roof truss span**: The horizontal distance between the supports.
- Girder**: The horizontal support member.
- Truss**: The structural framework.
- Dimensions**:
  - 13'-0" maximum**: The maximum height of the roof truss.
  - 2'-0" maximum cantilever**: The maximum horizontal distance from the support to the end of the roof truss.

## CANTILEVER REINFORCEMENT METHODS ALLOWED

- N = No reinforcement required.
  - 1 = NI reinforced with 3/4" wood structural panel on one side only.
  - 2 = NI reinforced with 3/4" wood structural panel on both sides.
  - X = Try a deeper joist or closer spacing.
- Maximum design load shall be: 15 psf roof dead load, 55 psf floor live load, and 80 psf wall load. Wall load is based on 3'-0" maximum width window or door openings.
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 framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
  5. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

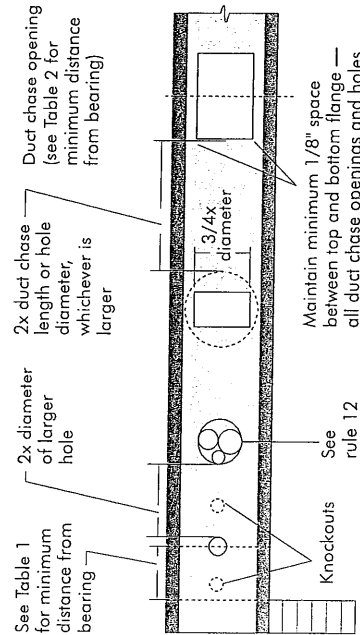


# WEB HOLES

## RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

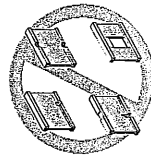
1. The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
2. I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
3. Whenever possible, field-cut holes should be centred on the middle of the web.
4. The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. 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.
5. The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
6. Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
7. A knockout is **not** considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
8. Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.
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.

FIGURE 7  
FIELD-CUT HOLE LOCATOR



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

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



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

Holes in webs should be cut with a sharp saw.

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

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

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of hole (ft-in.)														Span adjustment Factor
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	
9-1/2"	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"
	NI-60	1-3"	2-6"	4-0"	5-4"	7-0"	7-5"	---	---	---	---	---	---	---	---	14-11"
	NI-70	2-0"	3-4"	4-9"	6-3"	8-0"	8-4"	---	---	---	---	---	---	---	---	15-7"
11-7/8"	NI-80	2-3"	3-6"	5-0"	6-6"	8-2"	8-8"	---	---	---	---	---	---	---	---	15-9"
	NI-20	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---	---	---	15-6"
	NI-40x	0-7"	0-8"	1-3"	2-8"	4-3"	4-0"	5-5"	7-0"	8-4"	---	---	---	---	---	16-6"
	NI-60	0-7"	1-8"	3-0"	4-5"	5-9"	6-0"	7-3"	8-10"	10-0"	---	---	---	---	---	16-9"
14"	NI-70	1-3"	2-6"	4-0"	5-4"	6-9"	6-9"	7-2"	8-4"	10-0"	11-2"	---	---	---	---	17-5"
	NI-80	1-5"	2-10"	4-2"	5-6"	7-0"	7-5"	8-6"	10-3"	11-4"	---	---	---	---	---	17-5"
	NI-90	0-7"	0-8"	1-3"	3-2"	4-10"	5-4"	6-9"	8-9"	10-2"	---	---	---	---	---	17-7"
	NI-100x	0-7"	0-8"	0-9"	2-5"	4-4"	4-9"	6-3"	---	---	---	---	---	---	---	17-11"
16"	NI-100x	0-7"	0-8"	0-8"	1-0"	2-4"	2-9"	3-9"	5-2"	6-0"	6-6"	8-3"	10-2"	---	---	18-0"
	NI-60	0-7"	0-8"	1-8"	3-0"	4-3"	4-8"	5-8"	7-2"	8-0"	8-8"	10-4"	---	---	---	17-11"
	NI-70	0-8"	1-10"	3-0"	4-5"	5-10"	6-2"	7-3"	8-9"	9-9"	10-4"	11-9"	---	---	---	18-2"
	NI-80	0-10"	2-0"	3-4"	4-9"	6-2"	6-5"	7-6"	9-0"	10-4"	10-8"	12-4"	13-9"	---	---	19-2"
18-0"	NI-90	0-7"	0-8"	0-10"	2-5"	4-0"	4-5"	5-9"	7-5"	8-8"	9-1"	11-4"	12-11"	---	---	19-5"
	NI-100x	0-7"	0-8"	0-8"	2-0"	3-9"	4-2"	5-5"	7-3"	8-5"	9-2"	---	---	---	---	19-9"
	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"	---	20-0"
	NI-70	0-7"	1-0"	2-3"	3-6"	4-10"	5-3"	6-3"	7-8"	8-6"	9-2"	10-8"	12-4"	14-0"	---	19-10"
20-10"	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"	15-6"
	NI-90	0-7"	0-8"	1-9"	3-3"	3-8"	4-9"	6-0"	7-5"	8-4"	9-10"	11-3"	11-9"	13-9"	15-4"	21-2"
	NI-100x	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"
	NI-100x	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 12-1/2" joists.

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

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

3. Distances in this chart are based on uniformly loaded joists.

### OPTIONAL:

The above table is based on the I-joists used at their maximum span. If the I-joists are placed at less than their full maximum span (see Maximum Span Table for Series and Spacing) the minimum distance from the centreline of the hole to the face of any support (D) as given above may be reduced as follows:

$$\text{Reduced } L = \frac{L_{\text{actual}} \times D}{S_{\text{AF}}}$$

Where:

Reduced =

$L_{\text{actual}}$  =

$S_{\text{AF}}$  =

D =

Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span applications (ft).

The actual measured span distance between the inside faces of supports (ft).

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  $L_{\text{actual}}$  is greater than 1, use 1 in the above calculation for  $L_{\text{actual}}$ .

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

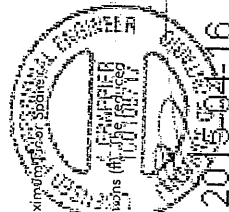
Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of opening (ft-in.)										
		8	10	12	14	16	18	20	22	24	26	28
9-1/2"	NI-20	4-11"	4-5"	4-10"	5-4"	5-8"	6-1"	6-6"	7-1"	7-5"	7-9"	8-3"
	NI-40x	4-11"	4-5"	4-10"	5-4"	5-8"	6-1"	6-6"	7-1"	7-5"	7-9"	8-3"
	NI-60	5-1"	5-5"	6-0"	6-5"	7-0"	7-5"	8-0"	8-5"	9-0"	9-5"	10-0"
	NI-70	5-1"	5-5"	6-0"	6-5"	7-0"	7-5"	8-0"	8-5"	9-0"	9-5"	10-0"
11-7/8"	NI-20	5-1"	5-5"	6-0"	6-5"	7-0"	7-5"	8-0"	8-5"	9-0"	9-5"	10-0"
	NI-40x	5-1"	5-5"	6-0"	6-5"	7-0"	7-5"	8-0"	8-5"	9-0"	9-5"	10-0"
	NI-60	6-1"	6-5"	7-0"	7-5"	8-0"	8-5"	9-0"	9-5"	10-0"	10-5"	11-0"
	NI-70	6-1"	6-5"	7-0"	7-5"	8-0"	8-5"	9-0"	9-5"	10-0"	10-5"	11-0"
14"	NI-20	5-9"	6-2"	6-6"	7-1"	7-5"	8-0"	8-5"	9-0"	9-5"	10-0"	10-5"
	NI-40x	5-9"	6-2"	6-6"	7-1"	7-5"	8-0"	8-5"	9-0"	9-5"	10-0"	10-5"
	NI-60	6-9"	7-2"	7-6"	8-1"	8-5"	9-0"	9-5"	10-0"	10-5"	11-0"	11-5"
	NI-70	6-9"	7-2"	7-6"	8-1"	8-5"	9-0"	9-5"	10-0"	10-5"	11-0"	11-5"
16"	NI-20	6-9"	7-2"	7-6"	8-1"	8-5"	9-0"	9-5"	10-0"	10-5"	11-0"	11-5"
	NI-40x	6-9"	7-2"	7-6"	8-1"	8-5"	9-0"	9-5"	10-0"	10-5"	11-0"	11-5"
	NI-60	7-9"	8-2"	8-6"	9-1"	9-5"	10-0"	10-5"	11-0"	11-5"	12-0"	12-5"
	NI-70	7-9"	8-2"	8-6"	9-1"	9-5"	10-0"	10-5"	11-0"	11-5"	12-0"	12-5"
18-0"	NI-20	7-9"	8-2"	8-6"	9-1"	9-5"	10-0"	10-5"	11-0"	11-5"	12-0"	12-5"
	NI-40x	7-9"	8-2"	8-6"	9-1"	9-5"	10-0"	10-5"	11-0"	11-5"	12-0"	12-5"
	NI-60	8-9"	9-2"	9-6"	10-1"	10-5"	11-0"	11-5"	12-0"	12-5"	13-0"	13-5"
	NI-70	8-9"	9-2"	9-6"	10-1"	10-5"	11-0"	11-5"	12-0"	12-5"	13-0"	13-5"
20-10"	NI-20	8-9"	9-2"	9-6"	10-1"	10-5"	11-0"	11-5"	12-0"	12-5"	13-0"	13-5"
	NI-40x	8-9"	9-2"	9-6"	10-1"	10-5"	11-0"	11-5"	12-0"	12-5"	13-0"	13-5"
	NI-60	9-9"	10-2"	10-6"	11-1"	11-5"	12-0"	12-5"	13-0"	13-5"	14-0"	14-5"
	NI-70	9-9"	10-2"	10-6"	11-1"	11-5"	12-0"	12-5"	13-0"	13-5"	14-0"	14-5"
21-6"	NI-20	9-9"	10-2"	10-6"	11-1"	11-5"	12-0"	12-5"	13-0"	13-5"	14-0"	14-5"
	NI-40x	9-9"	10-2"	10-6"	11-1"	11-5"	12-0"	12-5"	13-0"	13-5"	14-0"	14-5"
	NI-60	10-9"	11-2"	11-6"	12-1"	12-5"	13-0"	13-5"	14-0"	14-5"	15-0"	15-5"
	NI-70	10-9"	11-2"	11-6"	12-1"	12-5"	13-0"	13-5"	14-0"	14-5"	15-0"	15-5"
21-10"	NI-20	10-9"	11-2"	11-6"	12-1"	12-5"	13-0"	13-5"	14-0"	14-5"	15-0"	15-5"
	NI-40x	10-9"	11-2"	11-6"	12-1"	12-5"	13-0"	13-5"	14-0"	14-5"	15-0"	15-5"
	NI-60	11-9"	12-2"	12-6"	13-1"	13-5"	14-0"	14-5"	15-0"	15-5"	16-0"	16-5"
	NI-70	11-9"	12-2"	12-6"	13-1"	13-5"	14-0"	14-5"	15-0"	15-5"	16-0"	16-5"

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

2. Duct chase opening location distance is measured from inside face of supports to centre of opening.

3. The above table is based on simple-span joists only. For other applications, contact your local distributor.

4. Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. For other applications, contact your local distributor.





- 1 = No reinforcement required.  
 2 = NI reinforced with 3/4" wood structural panel on one side only.  
 3 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.  
 X = Try a deeper joist or closer spacing.  
 \* Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 psf wall load. Wall load is based on 3'-0" maximum width window or door openings.

# INSTALLING THE GLUED FLOOR SYSTEM

1. Wipe any mud, dirt, water, or ice from I-joist flanges before gluing.
2. Snap a chalk line across the I-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 the glue manufacturer.
4. Lay the first panel with tongue side to the wall, and nail in place. This protects the tongue of the next panel from damage when tapped into place with a block and sledgehammer.
5. 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. Glue line may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) than used on I-joist flanges.
8. Tap the second row of panels into place, using a block to protect groove edges.
9. 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 recommendations 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 glue bond.

## FASTENERS FOR SHEATHING AND SUBFLOORING(1)

Maximum Joist Spacing (in.)	Minimum Panel Thickness (in.)	Nail Size and Type			Maximum Spacing of Fasteners	
		Common Wire or Spiral Nails	Ring Thread 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"

1. 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 driven with the crown parallel to framing.
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 of the minimums shown.
5. Use only adhesives conforming to CAN/CSG-71.26 Standard, Adhesives for Field-Gluing Plywood to Lumber Framing for Floor System, applied in accordance with the manufacturer's recommendations. If OSB panels with sealed surfaces and edges are to be used, use only solvent-based glues; check with panel manufacturer.

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

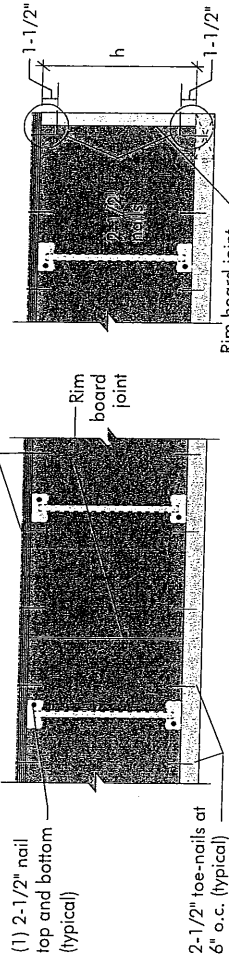
### IMPORTANT NOTE:

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 nailed only, I-joist spans must be verified with your local distributor.

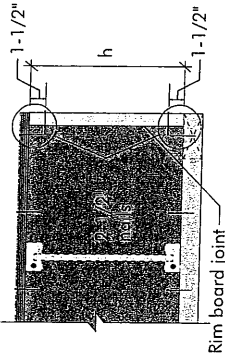
## RIM BOARD INSTALLATION DETAILS

### 8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

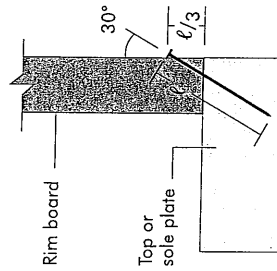
Rim board joint between floor joists 2-1/2" nails at 6" o.c. (typical)



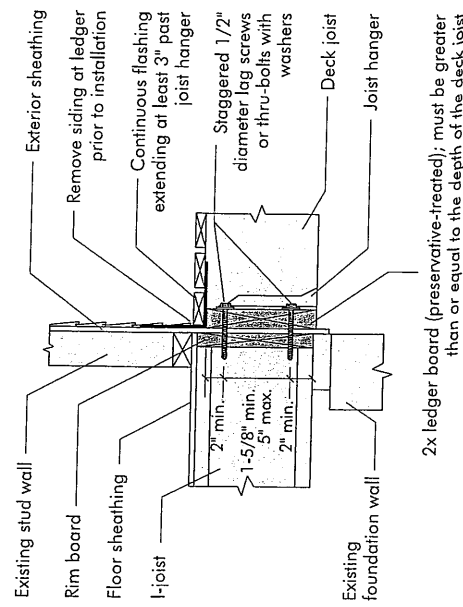
Rim board joint at corner




### 8b TOE-NAIL CONNECTION AT RIM BOARD



### 8c 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL





## PRODUCT WARRANTY

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

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

