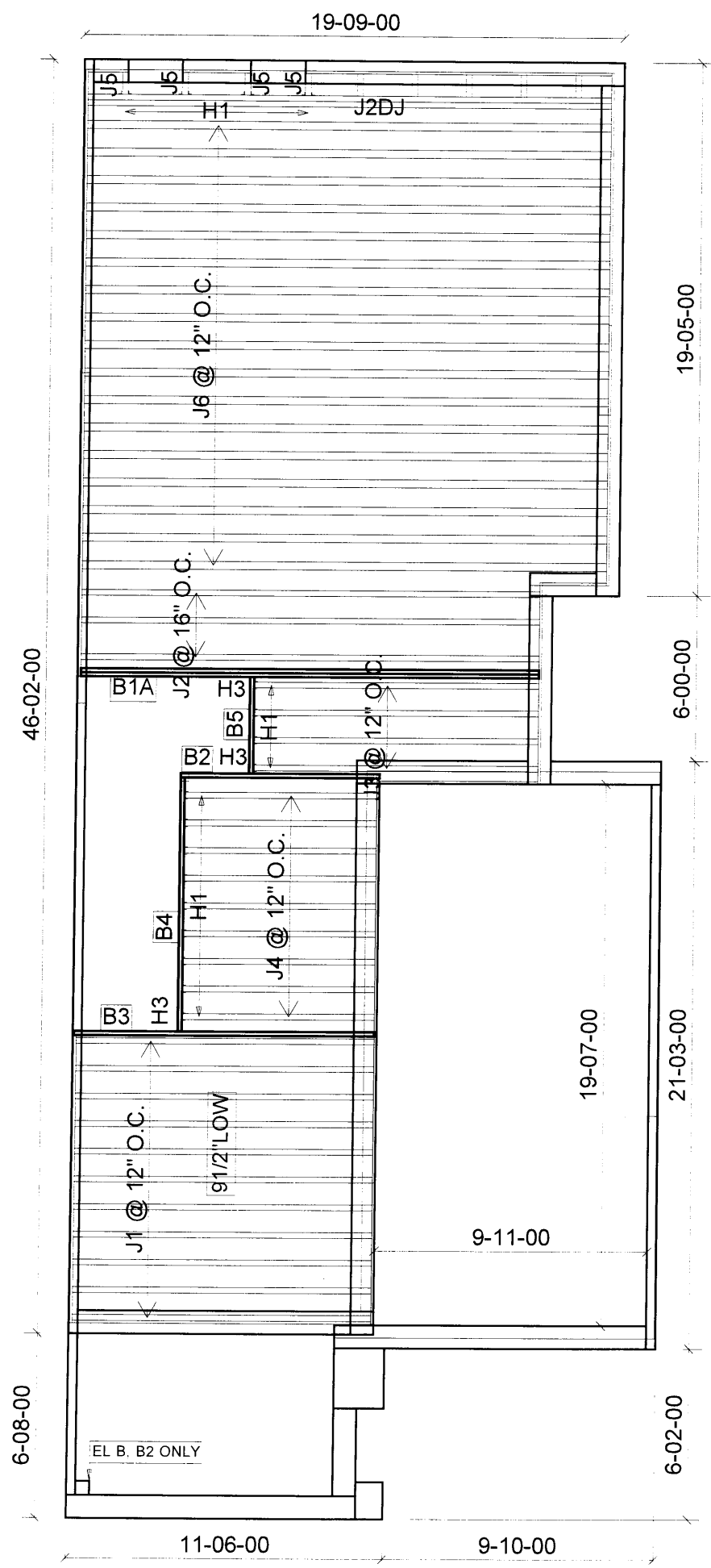


Town of Innisfil Certified Model

10/23/2018 1:43:38 PM kbayley



Products				
PlotID	Length	Product	Plies	Net Qty
J1	12-00-00	9 1/2" NI-40x	1	11
J2DJ	20-00-00	11 7/8" NI-40x	2	2
J2	18-00-00	11 7/8" NI-40x	1	3
J3	12-00-00	11 7/8" NI-40x	1	4
J4	8-00-00	11 7/8" NI-40x	1	9
J5	2-00-00	11 7/8" NI-40x	1	4
J6	20-00-00	11 7/8" NI-80	1	17
B1A	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B3	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B4	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	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

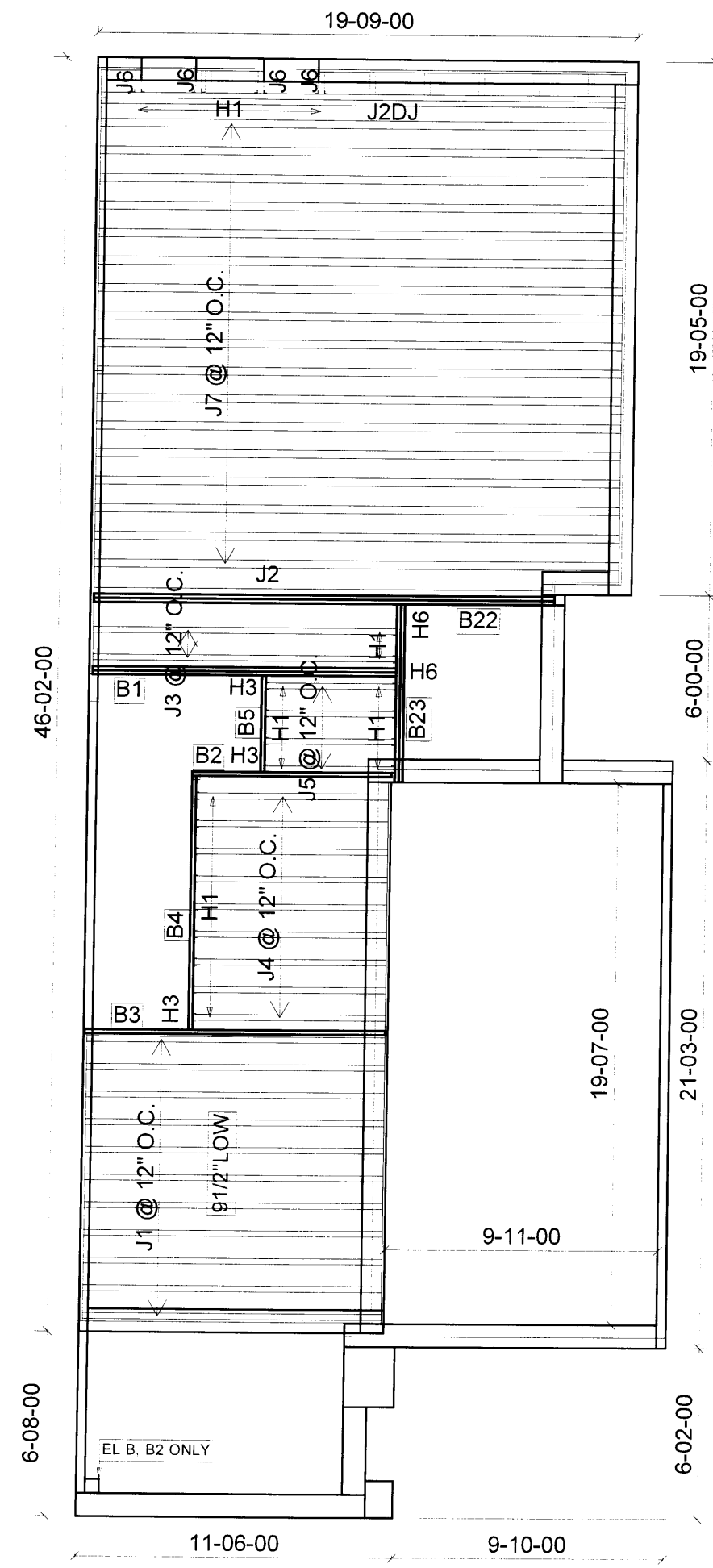
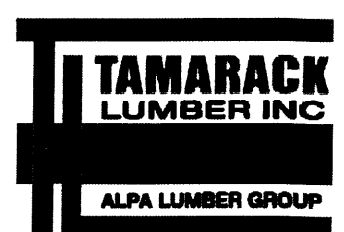
Connector Summary		
Qty	Manuf	Product
13	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88
2	H3	HUS1.81/10
1	H3	HUS1.81/10

FROM PLAN DATED: JAN 2018
 BUILDER: BAYVIEW WELLINGTON
 SITE: ALCONA SHORES
 MODEL: TH-2
 ELEVATION: A,A2,B,B2
 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/ft²
 DEAD LOAD: 15.0 lb/ft
 TILED AREAS: 20 lb/ft
 SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 01/08/2018

1st FLOOR



Products				
PlotID	Length	Product	Plies	Net Qty
J1	12-00-00	9 1/2" NI-40x	1	11
J2DJ	20-00-00	11 7/8" NI-40x	2	2
J2	18-00-00	11 7/8" NI-40x	1	1
J3	12-00-00	11 7/8" NI-40x	1	2
J4	8-00-00	11 7/8" NI-40x	1	9
J5	6-00-00	11 7/8" NI-40x	1	4
J6	2-00-00	11 7/8" NI-40x	1	4
J7	20-00-00	11 7/8" NI-80	1	17
B22	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B3	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B1	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B4	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B2	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B23	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
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
6	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88
2	H3	HUS1.81/10
1	H3	HUS1.81/10
2	H6	HGUS410

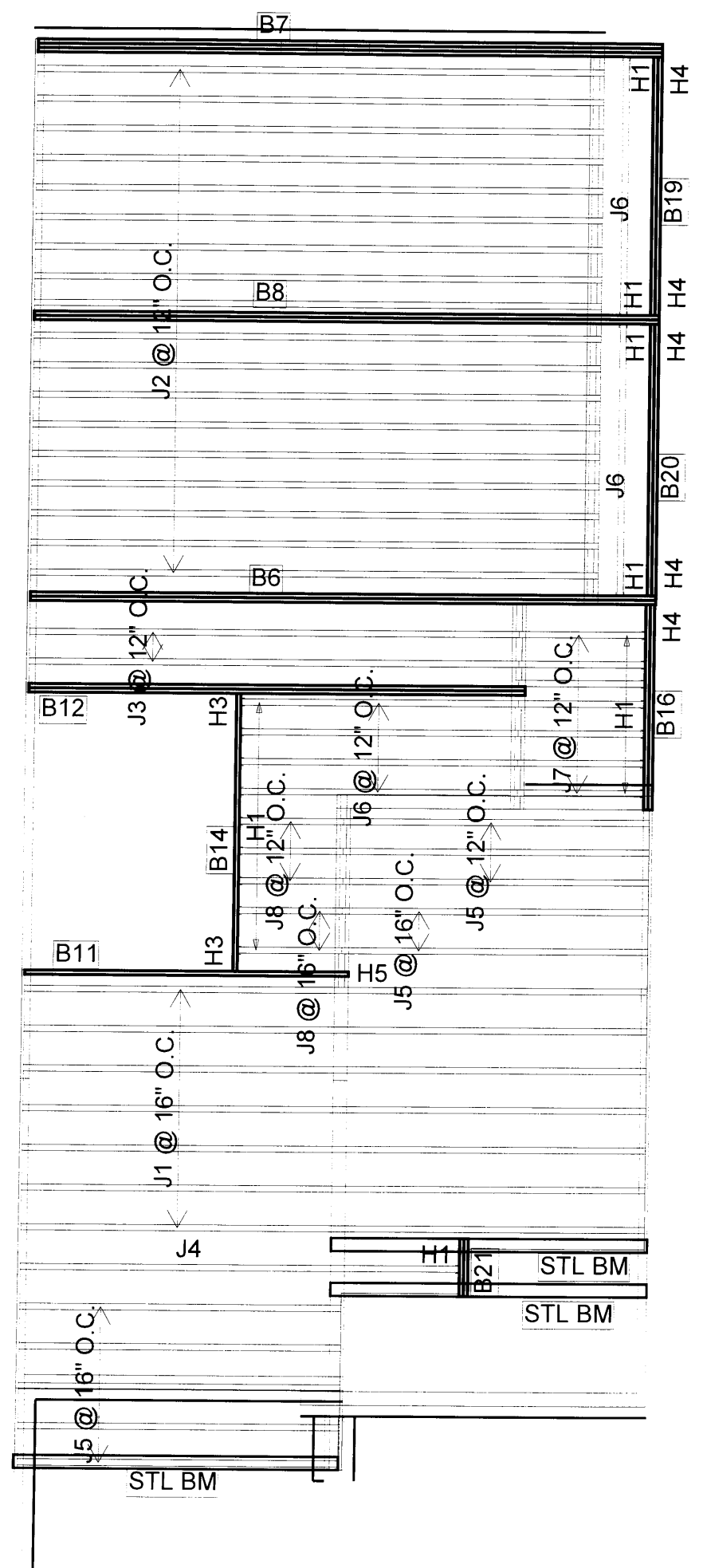
FROM PLAN DATED: JAN 2018
 BUILDER: BAYVIEW WELLINGTON
 SITE: ALCONA SHORES
 MODEL: TH-2
 ELEVATION: A,A2,B,B2
 LOT:
 CITY: INNISFIL
 SALESMAN: M D
 DESIGNER: CZ
 REVISION:

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/ft²
 DEAD LOAD: 15.0 lb/ft
 TILED AREAS: 20 lb/ft
 SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 01/08/2018

1st FLOOR

SUNKEN



Products				
PlotID	Length	Product	Plies	Net Qty
J1	22-00-00	11 7/8" NI-40x	1	7
J2	20-00-00	11 7/8" NI-40x	1	18
J3	18-00-00	11 7/8" NI-40x	1	2
J4	16-00-00	11 7/8" NI-40x	1	1
J5	12-00-00	11 7/8" NI-40x	1	10
J6	10-00-00	11 7/8" NI-40x	1	6
J7	6-00-00	11 7/8" NI-40x	1	7
J8	4-00-00	11 7/8" NI-40x	1	5
B6	22-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B8	22-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B7	22-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B12	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B11	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B14	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B19	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B20	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B16	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B21	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
11	H1	IUS2.56/11.88
1	H1	IUS2.56/11.88
1	H3	HUS1.81/10
1	H3	HUS1.81/10
4	H4	HUC410
1	H4	HUC410
1	H5	H2.5A*

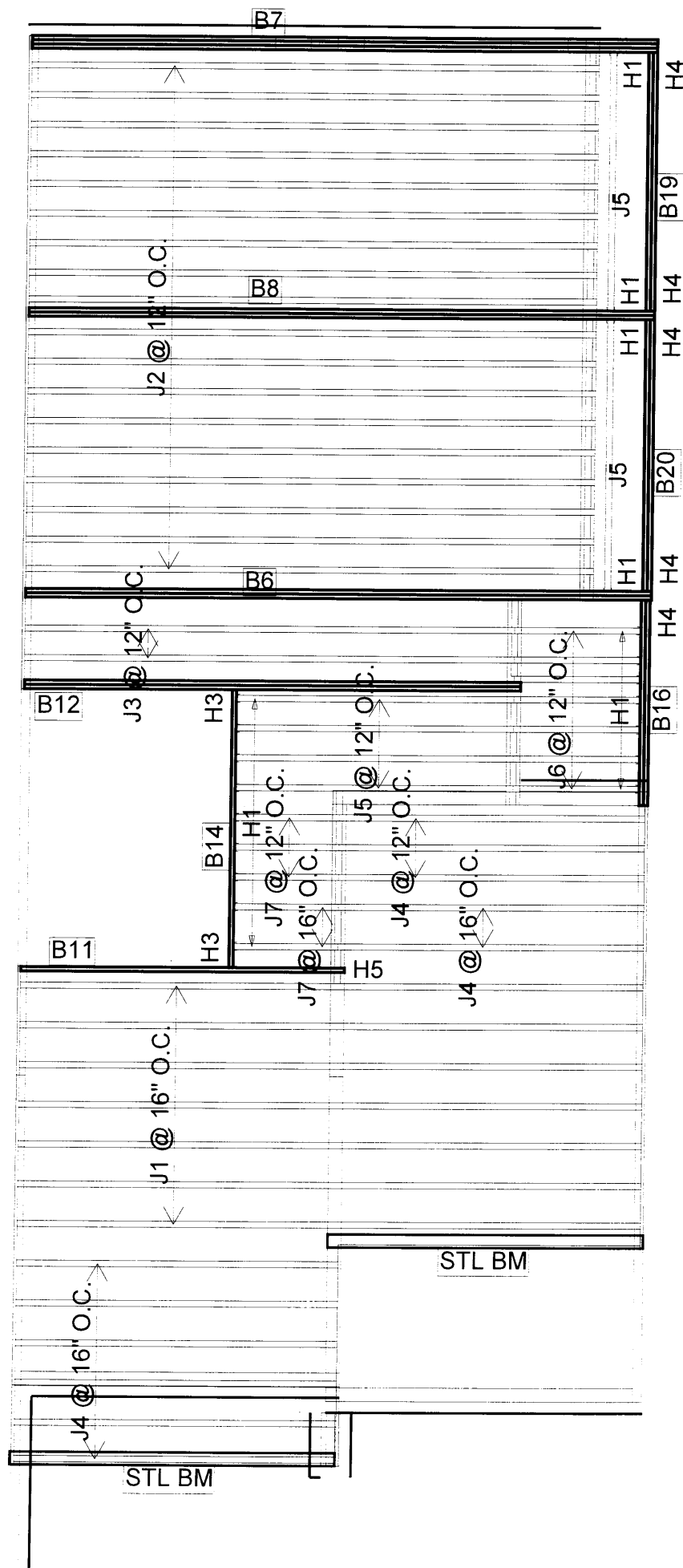
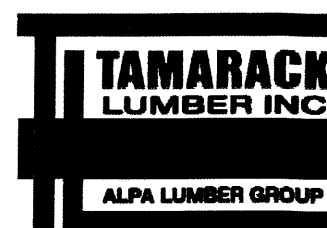
FROM PLAN DATED: JAN 2018
 BUILDER: BAYVIEW WELLINGTON
 SITE: ALCONA SHORES
 MODEL: TH-2
 ELEVATION: A2
 LOT:
 CITY: INNISFIL
 SALESMAN: M D
 DESIGNER: CZ
 REVISION:

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: 01/08/2018

2nd FLOOR



Products

PlotID	Length	Product	Plies	Net Qty
J1	22-00-00	11 7/8" NI-40x	1	7
J2	20-00-00	11 7/8" NI-40x	1	18
J3	18-00-00	11 7/8" NI-40x	1	2
J4	12-00-00	11 7/8" NI-40x	1	11
J5	10-00-00	11 7/8" NI-40x	1	6
J6	6-00-00	11 7/8" NI-40x	1	7
J7	4-00-00	11 7/8" NI-40x	1	5
B6	22-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B8	22-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B7	22-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B12	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B11	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B14	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B19	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B20	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B16	8-00-00	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
10	H1	IUS2.56/11.88
1	H1	IUS2.56/11.88
1	H3	HUS1.81/10
1	H3	HUS1.81/10
4	H4	HUC410
1	H4	HUC410
1	H5	H2.5A*

FROM PLAN DATED: JAN 2018

BUILDER: BAYVIEW WELLINGTON

SITE: ALCONA SHORES

MODEL: TH-2

ELEVATION: A,B,B2

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: 01/08/2018

2nd FLOOR

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER
3269 NORTH SERVICE ROAD
BURLINGTON, ON
by CZ
Apr. 20, 2018 17:20

PROJECT
J6-1ST FL.www

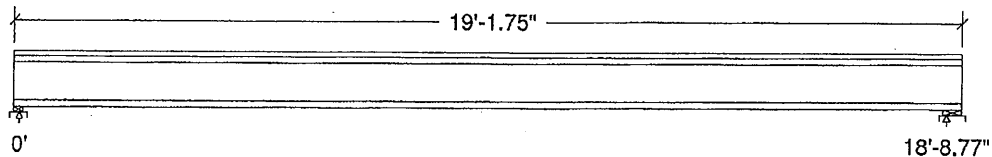
Design Check Calculation Sheet

Nordic Sizer – Canada 7.0

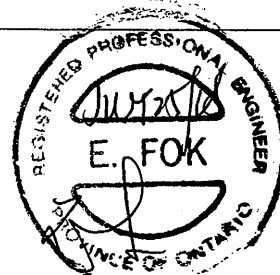
Loads:

Load	Type	Distribution	Pat-tern	Location [ft]		Magnitude		Unit
				Start	End	Start	End	
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	187			187
Live	375			375
Factored:				
Total	796			796
Bearing:				
Resistance				
Joist	2186			2336
Support	5559			10829
Des ratio				
Joist	0.36			0.34
Support	0.14			0.07
Load case	#2			#2
Length	2-3/8			4-3/8
Min req'd	1-3/4			1-3/4
Stiffener	No			No
KD	1.00			1.00
KB support	1.00			1.00
fcp sup	769			769
Kzcp sup	1.09			1.15



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

Supports: All - Lumber Sill plate, No.1/No.2
Total length: 19'-1.75"; Clear span: 18'-6.99"; 3/4" nailed and glued OSB sheathing
This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 796	Vr = 2336	lbs	Vf/Vr = 0.34
Moment(+)	Mf = 3728	Mr = 11609	lbs-ft	Mf/Mr = 0.32
Perm. Defl'n	0.10 = < L/999	0.62 = L/360	in	0.16
Live Defl'n	0.20 = < L/999	0.47 = L/480	in	0.44
Total Defl'n	0.31 = L/733	0.94 = L/240	in	0.33
Bare Defl'n	0.23 = L/978	0.62 = L/360	in	0.37
Vibration	Lmax = 18'-8.8	Lv = 21'-2.7	ft	0.88
Defl'n	= 0.025	= 0.034	in	0.74

DWG NO. TAM 4190-18H
STRUCTURAL
COMPONENT ONLY

T-18071584

J6-1ST FL.wwb

Nordic Sizer – Canada 7.0

Page 2

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_Ieff = 625e06 lb-in² K= 6.18e06 lbs

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

Design Notes:**CONFORMS TO OBC 2012**

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



DWG NO. TAM 4190 -18H
 STRUCTURAL
 COMPONENT ONLY

T-18071584(2)

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER
3269 NORTH SERVICE ROAD
BURLINGTON, ON
by CZ
May 9, 2018 17:01

PROJECT
J1-2ND FL.wwb

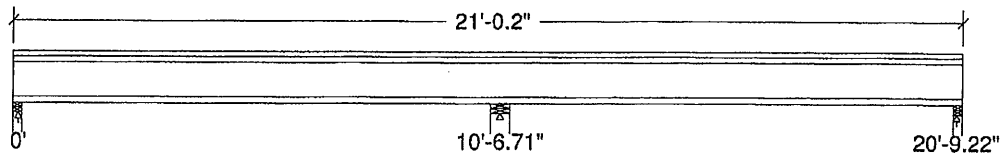
Design Check Calculation Sheet

Nordic Sizer – Canada 7.0

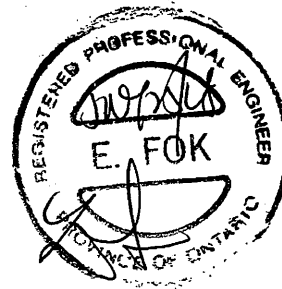
Loads:

Load	Type	Distribution	Pat-tern	Location [ft]		Magnitude		Unit
				Start	End	Start	End	
Load1	Dead	Full Area	No			20.00		psf
Load2	Live	Full Area	Yes			40.00		psf

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



Unfactored:					
Dead	107		346		101
Live	246		692		239
Factored:					
Total	502		1471		484
Bearing:					
Resistance					
Joist	2099		5373		2099
Support	3971		8840		3971
Des ratio					
Joist	0.24		0.27		0.23
Support	0.13		0.17		0.12
Load case	#4		#2		#5
Length	2-3/8		5		2-3/8
Min req'd	1-3/4		3-1/2		1-3/4
Stiffener	No		No		No
KD	1.00		1.00		1.00
KB support	1.00		1.00		1.00
fcp sup	769		769		769
Kzcp sup	1.09		1.15		1.09



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

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

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

Total length: 21'-0.2"; Clear span: 10'-3.32", 9'-11.12"; 3/4" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design code check.

DWG NO. TAM 4191-184
STRUCTURAL
COMPONENT ONLY

T.18071585

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 743	Vr = 2336	lbs	Vf/Vr = 0.32
Moment(+)	Mf = 1112	Mr = 6255	lbs-ft	Mf/Mr = 0.18
Moment(-)	Mf = 1529	Mr = 6255	lbs-ft	Mf/Mr = 0.24
Perm. Defl'n	0.01 = < L/999	0.35 = L/360	in	0.03
Live Defl'n	0.03 = < L/999	0.26 = L/480	in	0.12
Total Defl'n	0.04 = < L/999	0.53 = L/240	in	0.08
Bare Defl'n	0.04 = < L/999	0.35 = L/360	in	0.10
Vibration	Lmax = 10'-6.7	Lv = 20'-8.5	ft	0.51
Defl'n	= 0.009	= 0.069	in	0.13

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2336	1.00	1.00	-	-	-	-	-	#2
Mr+	6255	1.00	1.00	-	1.000	-	-	-	#4
Mr-	6255	1.00	1.00	-	1.000	-	-	-	#2
EI	371.1 million	-	-	-	-	-	-	-	#4

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L
 Moment(+) : LC #4 = 1.25D + 1.5L (pattern: L)
 Moment(-) : LC #2 = 1.25D + 1.5L
 Deflection: LC #1 = 1.0D (permanent)
 LC #4 = 1.0D + 1.0L (pattern: L) (live)
 LC #4 = 1.0D + 1.0L (pattern: L) (total)
 LC #4 = 1.0D + 1.0L (pattern: L) (bare joist)
 Bearing : Support 1 - LC #4 = 1.25D + 1.5L (pattern: L)
 Support 2 - LC #2 = 1.25D + 1.5L
 Support 3 - LC #5 = 1.25D + 1.5L (pattern: L)
 Load Types: D=dead W=wind S=snow H=earth, groundwater E=earthquake
 L=live (use, occupancy) Ls=live (storage, equipment) f=fire

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

CALCULATIONS:

Deflection: E_{ieff} = 460e06 lb-in² K= 6.18e06 lbs
 "Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

**Design Notes:**

- 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
- Please verify that the default deflection limits are appropriate for your application.
- Refer to Nordic Structures technical documentation for installation guidelines and construction details.
- Nordic I-joists are listed in CCMC evaluation report 13032-R.
- Joists shall be laterally supported at supports and continuously along the compression edge.
- 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 4191-1784
 STRUCTURAL
 COMPONENT ONLY

T-18071585(2)



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B1(i3159)

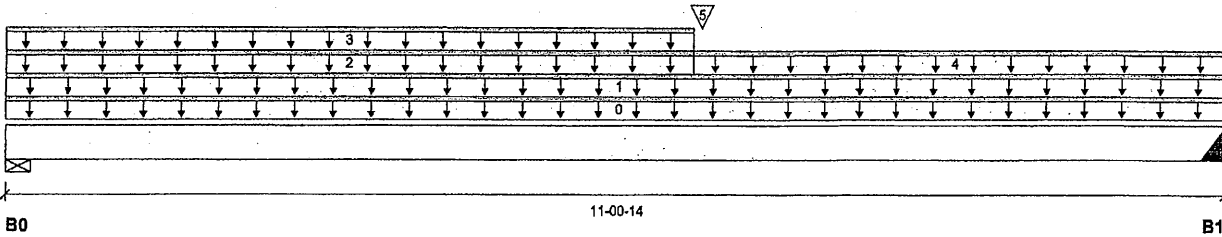
BC CALC® Design Report
Build 6215

Dry | 1 span | No cant.

May 4, 2018 15:35:03

Job name:
Address:
City, Province, Postal Code: INNISFIL
Customer:
Code reports: CCMC 12472-R

File name: TH-2-ELA2.mmdl
Description: 1ST FLOOR FRAMING\Flush Beams\B1(i3159)
Specifier:
Designer: CZ
Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	229 / 0	456 / 0		
B1, 2"	292 / 0	320 / 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	11-00-14	12				00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-00-14	11	6			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-00-00	06-02-06		60			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	06-02-06	6	3			n/a
4	FC1 Floor Material	Unf. Lin. (lb/ft)	L	06-02-06	11-00-14	15	8			n/a
5	B5(i3009)	Conc. Pt. (lbs)	L	06-03-04	06-03-04	285	153			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3,115 ft-lbs	35,392 ft-lbs	8.8 %	1	06-03-04
End Shear	504 lbs	9,401 lbs	5.4 %	0	01-02-04
Total Load Deflection	L/999 (0.045")	n/a	n/a	4	05-06-14
Live Load Deflection	L/999 (0.02")	n/a	n/a	5	05-08-12
Max Defl.	0.045"	n/a	n/a	4	05-06-14
Span / Depth	10.9				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 2-3/8" x 3-1/2"	638 lbs	22.1 %	9.7 %	Unspecified
B1	Hanger 2" x 3-1/2"	839 lbs	n/a	9.8 %	HGUS410

Cautions

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

DWG NO. TAM 4092-17814
STRUCTURAL
COMPONENT ONLY

T.18071586



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B1(i3159)

BC CALC® Design Report
Build 6215

Dry | 1 span | No cant.

May 4, 2018 15:35:03

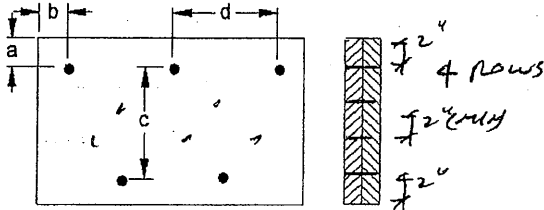
Job name:
Address:
City, Province, Postal Code: INNISFIL
Customer:
Code reports: CCMC 12472-R

File name: TH-2-ELA2.mmdl
Description: 1ST FLOOR FRAMING\Flush Beams\B1(i3159)
Specifier:
Designer: CZ
Company:

Notes

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

Connection Diagram



a minimum = 2" c = 7-7/8"
b minimum = 3" d = 12"

Calculated Side Load = 55.9 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: 3-1/2" ARDOX SPIRAL Nails

3-1/2" ARDOX SPIRAL



Disclosure

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

DWG NO. TAM 4192-17BH
STRUCTURAL
COMPONENT ONLY

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

T. 180 715 86(2)



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B1A(I2944)

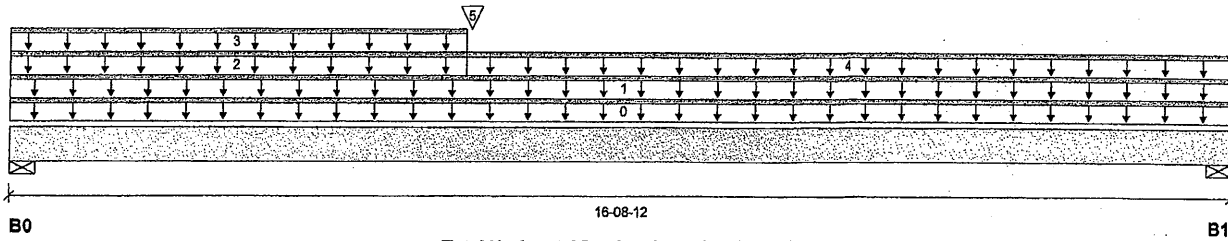
BC CALC® Design Report
Build 6215

Dry | 1 span | No cant.

April 20, 2018 16:56:38

Job name:
Address:
City, Province, Postal Code: INNISFIL
Customer:
Code reports: CCMC 12472-R

File name: TH-2.mmdl
Description: 1ST FLOOR FRAMING\Flush Beams\B1A(I2944)
Specifier:
Designer: CZ
Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	447 / 0	634 / 0		
B1, 4-3/8"	381 / 0	364 / 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	16-08-12		12			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	16-08-12	11	6			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-00-00	06-02-06		60			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	06-02-06	6	3			n/a
4	FC1 Floor Material	Unf. Lin. (lb/ft)	L	06-02-06	16-08-12	15	8			n/a
5	B5(I2721)	Conc. Pt. (lbs)	L	06-03-04	06-03-04	441	231			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	6,495 ft-lbs	35,392 ft-lbs	18.4 %	1	06-03-04
End Shear	1,313 lbs	14,464 lbs	9.1 %	1	01-02-04
Total Load Deflection	L/952 (0.205")	n/a	25.2 %	4	07-10-01
Live Load Deflection	L/999 (0.103")	n/a	n/a	5	07-11-12
Max Defl.	0.205"	n/a	n/a	4	07-10-01
Span / Depth	16.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 2-3/8" x 3-1/2"	1,463 lbs	33.0 %	14.4 %	Unspecified
B1	Wall/Plate 4-3/8" x 3-1/2"	1,025 lbs	12.5 %	5.5 %	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.
 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
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

CONFORMS TO OBC 2012



DWG NO. TAM 4193-12H
 STRUCTURAL
 COMPONENT ONLY

T-18071587



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B1A(i2944)

Dry | 1 span | No cant.

April 20, 2018 16:56:38

BC CALC® Design Report

Build 6215

Job name:

File name: TH-2.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B1A(i2944)

City, Province, Postal Code: INNISFIL

Specifier:

Customer:

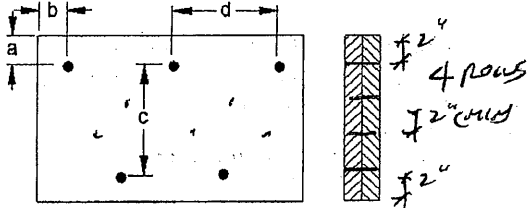
Designer: CZ

Code reports:

CCMC 12472-R

Company:

Connection Diagram



a minimum = 2"
b minimum = 3"

c = 7-7/8"
d = 12"

Calculated Side Load = 56.8 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 4193-1B4
STRUCTURAL COMPONENT ONLY

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

T-18071587(2)



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B2(i2715)

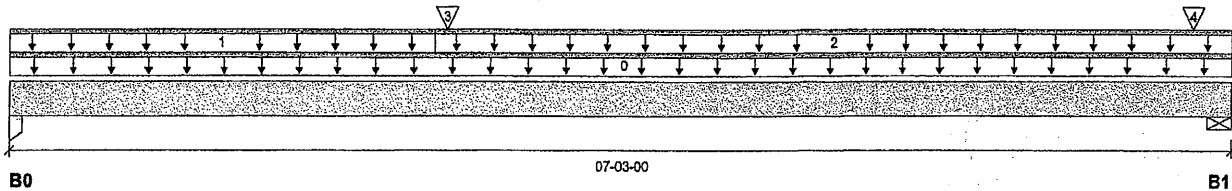
BC CALC® Design Report
Build 6215

Dry | 1 span | No cant.

April 20, 2018 16:10:08

Job name:
Address:
City, Province, Postal Code: INNISFIL
Customer:
Code reports: CCMC 12472-R

File name: TH-2.mmdl
Description: 1ST FLOOR FRAMING\Flush Beams\B2(i2715)
Specifier:
Designer:
Company:



Total Horizontal Product Length = 07-03-00

Reaction Summary (Down / Uplift) (lbs)

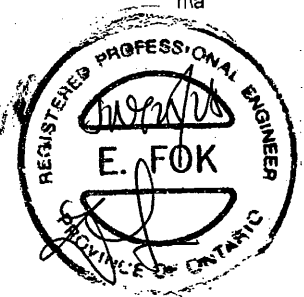
Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	413 / 0	235 / 0		
B1, 5-1/2"	277 / 0	202 / 0		

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	07-03-00	6				00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	02-06-00	22	11			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	02-06-00	07-03-00	27	13			n/a
3	B5(i2721)	Conc. Pt. (lbs)	L	02-06-14	02-06-14	507	265			n/a
4	3(i272)	Conc. Pt. (lbs)	L	07-00-04	07-00-04	37				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,960 ft-lbs	17,696 ft-lbs	11.1 %	1	02-06-14
End Shear	843 lbs	7,232 lbs	11.7 %	1	01-03-06
Total Load Deflection	L/999 (0.019")	n/a	n/a	4	03-04-09
Live Load Deflection	L/999 (0.012")	n/a	n/a	5	03-03-06
Max Defl.	0.019"	n/a	n/a	4	03-04-09
Span / Depth	6.7				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Column 3-1/2" x 1-3/4"	914 lbs	18.4 %	12.2 %	Unspecified
B1	Wall/Plate 5-1/2" x 1-3/4"	667 lbs	13.0 %	5.7 %	Unspecified

Disclosure

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Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume unbraced length of Top: 00-00-00, Bottom: 00-00-00.
Resistance Factor phi has been applied to all presented results per CSA O86.
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

DWG NO. TAM 4194-18 H
STRUCTURAL
COMPONENT ONLY

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

T-18071588



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B3(i3264)

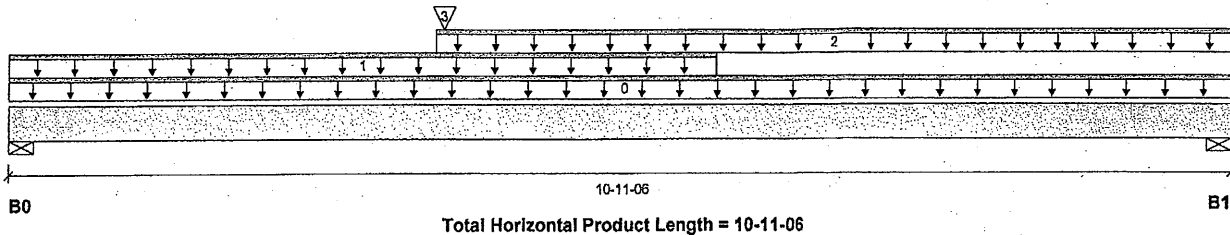
BC CALC® Design Report
Build 6215

Dry | 1 span | No cant.

May 11, 2018 13:58:46

Job name:
Address:
City, Province, Postal Code: INNISFIL
Customer:
Code reports: CCMC 12472-R

File name: TH-2-ELA2.mmdl
Description: 1ST FLOOR FRAMING\Flush Beams\B3(i3264)
Specifier:
Designer: CZ
Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	526 / 0	585 / 0		
B1, 4-3/8"	310 / 0	303 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Tributary
						1.00	0.65	1.00	1.15	
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	06-03-08		60			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	03-09-08	10-11-06	7	4			n/a
3	B4(i3236)	Conc. Pt. (lbs)	L	03-10-06	03-10-06	781	417			n/a

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4,915 ft-lbs	13,592 ft-lbs	36.2 %	1	03-10-06
End Shear	1,415 lbs	7,232 lbs	19.6 %	1	01-03-06
Total Load Deflection	L/999 (0.117")	n/a	n/a	4	05-00-15
Live Load Deflection	L/999 (0.061")	n/a	n/a	5	05-00-15
Max Defl.	0.117"	n/a	n/a	4	05-00-15
Span / Depth	10.5				

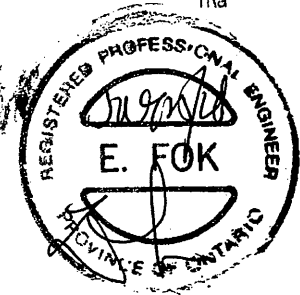
Bearing Supports

Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Wall/Plate 3-1/2" x 1-3/4"	1,521 lbs	46.5 %	20.4 %	Unspecified
B1 Wall/Plate 4-3/8" x 1-3/4"	844 lbs	20.7 %	9.0 %	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume unbraced length of Top: 03-06-00, Bottom: 03-06-00.
 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

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DWG NO. TAM 4195-18H
 STRUCTURAL
 COMPONENT ONLY

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

T-18071589



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B4(i2705)

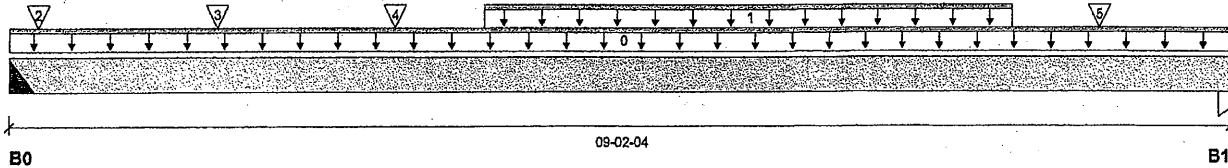
BC CALC® Design Report
Build 6215

Dry | 1 span | No cant.

April 20, 2018 16:10:08

Job name:
Address:
City, Province, Postal Code: INNISFIL
Customer:
Code reports: CCMC 12472-R

File name: TH-2.mmdl
Description: 1ST FLOOR FRAMING\Flush Beams\B4(i2705)
Specifier:
Designer:
Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2"	788 / 0	421 / 0		
B1, 1-3/4"	614 / 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	09-02-04		6			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	03-06-08	07-06-08	142	70			n/a
2	J5(i2698)	Conc. Pt. (lbs)	L	00-02-08	00-02-08	161	80			n/a
3	J5(i2742)	Conc. Pt. (lbs)	L	01-06-08	01-06-08	256	128			n/a
4	J5(i2755)	Conc. Pt. (lbs)	L	02-10-08	02-10-08	246	123			n/a
5	J5(i2727)	Conc. Pt. (lbs)	L	08-02-08	08-02-08	170	85			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3,428 ft-lbs	17,696 ft-lbs	19.4 %	1	04-02-08
End Shear	1,372 lbs	7,232 lbs	19.0 %	1	01-01-14
Total Load Deflection	L/999 (0.072")	n/a	n/a	4	04-06-08
Live Load Deflection	L/999 (0.047")	n/a	n/a	5	04-06-08
Max Defl.	0.072"	n/a	n/a	4	04-06-08
Span / Depth	9.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Hanger 2" x 1-3/4"	1,707 lbs	n/a	40.0 %	HUS1.81/10
B1	Column 1-3/4" x 1-3/4"	1,338 lbs	53.8 %	35.8 %	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. **CONFORMS TO OBC 2012**
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

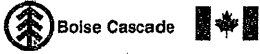


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DWG NO. TAM 4196-10H
STRUCTURAL COMPONENT ONLY
BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

T-18071590



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B5\i3276

BC CALC® Design Report

Dry | 1 span | No cant.

May 11, 2018 13:57:59

Build 0215

Job name:

File name: TH-2-ELA2.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B5\i3276

City, Province, Postal Code: INNISFIL

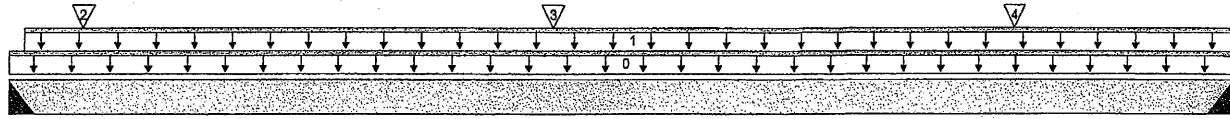
Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2"	581 / 0	301 / 0		
B1, 2"	570 / 0	296 / 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	00-00-08	03-06-00	240	120			n/a
2	J5(i3015)	Conc. Pt. (lbs)	L	00-02-08	00-02-08	81	40			n/a
3	J5(i2994)	Conc. Pt. (lbs)	L	01-06-08	01-06-08	134	67			n/a
4	J5(i2976)	Conc. Pt. (lbs)	L	02-10-08	02-10-08	106	53			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	981 ft-lbs	17,696 ft-lbs	5.5 %	1	01-06-08
End Shear	506 lbs	7,232 lbs	7.0 %	1	02-04-02
Total Load Deflection	L/999 (0.003")	n/a	n/a	4	01-08-15
Live Load Deflection	L/999 (0.002")	n/a	n/a	5	01-08-15
Max Defl.	0.003"	n/a	n/a	4	01-08-15
Span / Depth	3.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Hanger 2" x 1-3/4"	1,247 lbs	n/a	29.2 %	HUS1.81/10
B1	Hanger 2" x 1-3/4"	1,225 lbs	n/a	28.7 %	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



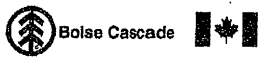
Disclosure

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

DWG NO. TAM 4(19) -18H
 STRUCTURAL COMPONENT ONLY

T-18071591



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

PASSED

BC CALC® Design Report
Build 6215

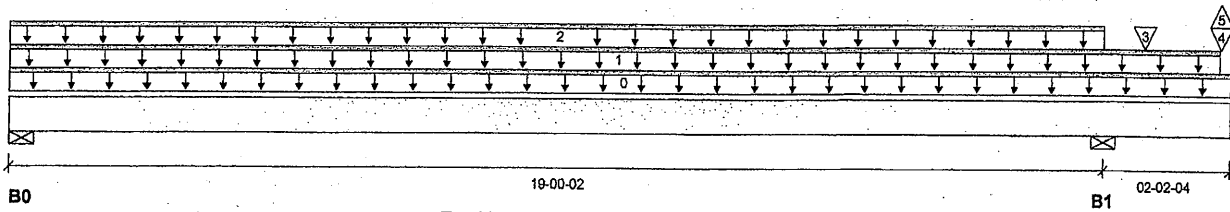
2ND FLOOR FRAMING\Flush Beams\B6(i3479)

Dry | 2 spans | R cant.

May 4, 2018 15:36:31

Job name:
Address:
City, Province, Postal Code: INNISFIL
Customer:
Code reports: CCMC 12472-R

File name: TH-2.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B6(i3479)
Specifier:
Designer: CZ
Company:



Total Horizontal Product Length = 21-02-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	389 / 83	188 / 0	0 / 100	
B1, 5-1/2"	1,393 / 60	1,618 / 0	1,029 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	21-02-06	1.00	0.65	1.00	1.15	
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	21-00-02	24	12			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	19-00-02	16	8			n/a
3	J6(i3384)	Conc. Pt. (lbs)	L	19-08-10	19-08-10	207	103			n/a
4	-	Conc. Pt. (lbs)	L	21-00-06	21-00-06	668	1,044	929		n/a
5	-	Conc. Pt. (lbs)	L	21-00-06	21-00-06	-54				n/a

TOP EDGE
LOADED
ONLY

Controls Summary

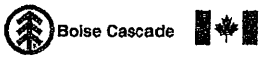
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3,235 ft-lbs	35,392 ft-lbs	9.1 %	43	08-02-00
Neg. Moment	-6,399 ft-lbs	-35,392 ft-lbs	18.1 %	49	19-00-02
End Shear	699 lbs	14,464 lbs	4.8 %	43	01-02-04
Cont. Shear	3,185 lbs	14,464 lbs	22.0 %	49	20-02-12
Total Load Deflection	L/1,772 (0.128")	n/a	13.5 %	102	08-10-11
Live Load Deflection	L/999 (0.121")	n/a	n/a	151	09-07-06
Total Neg. Defl.	L/999 (-0.11")	n/a	n/a	132	12-03-02
Max Defl.	0.128"	n/a	n/a	102	08-10-11
Span / Depth	19.1				



Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 2-3/8" x 3-1/2"	818 lbs	18.4 %	8.1 %	Unspecified
B1	Wall/Plate 5-1/2" x 3-1/2"	4,626 lbs	45.0 %	19.7 %	Unspecified

DWG NO. TAM 4198-124
STRUCTURAL
COMPONENT ONLY

T-18071592



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B6(i3479)

BC CALC® Design Report

Dry | 2 spans | R cant.

May 4, 2018 15:36:31

Build 6215

Job name:

File name: TH-2.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B6(i3479)

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.

CONFORMS TO OBC 2012

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.

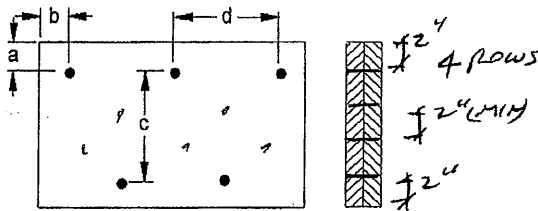
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

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

Connection Diagram



a minimum = 2"

c = 7-7/8"

b minimum = 3"

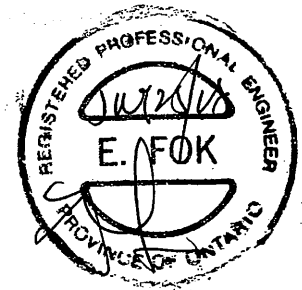
d = 12"

Calculated Side Load = 97.8 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: 1 Nails

3-1/2" ARDOX SPIRAL



Disclosure

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DWG NO. TAM 4198-17314
STRUCTURAL
COMPONENT ONLY

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

T-18071592(2)



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B7(i3481)

BC CALC® Design Report

Dry | 3 spans | R cant.

May 4, 2018 15:36:31

Build 6215

Job name:

File name: TH-2.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B7(i3481)

City, Province, Postal Code: INNISFIL

Specifier:

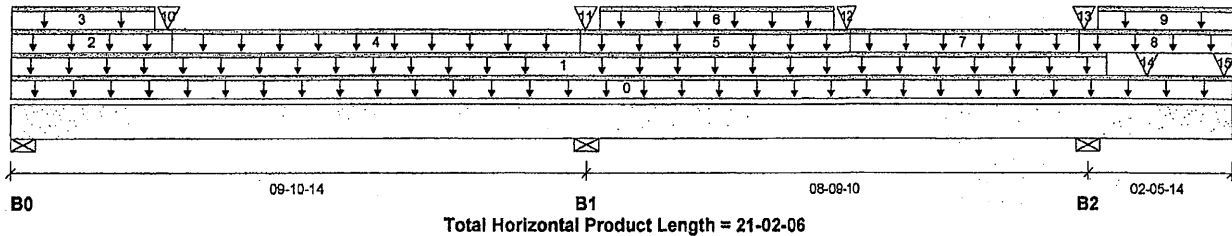
Customer:

Designer: CZ

Code reports:

CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

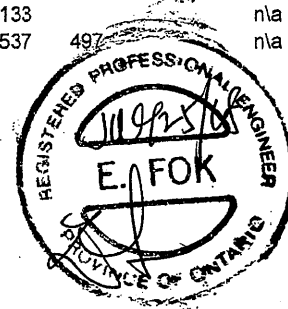
Bearing	Live	Dead	Snow	Wind
B0, 8-3/8"	1,336 / 125	1,877 / 0	6,415 / 0	
B1, 11-1/16"	2,751 / 0	3,906 / 0	13,602 / 0	
B2, 12-3/4"	2,396 / 0	3,472 / 0	9,528 / 0	

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	21-02-06	18				00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	19-00-05	20	10			n/a
2	E18(i1207)	Unf. Lin. (lb/ft)	L	00-00-00	02-09-06		81			n/a
3	E18(i1207)	Unf. Lin. (lb/ft)	L	00-00-00	02-05-06	239	304	1,329		n/a
4	E23(i1212)	Unf. Lin. (lb/ft)	L	02-09-06	09-09-06		61			n/a
5	E22(i1211)	Unf. Lin. (lb/ft)	L	09-09-06	14-06-06		81			n/a
6	E22(i1211)	Unf. Lin. (lb/ft)	L	10-01-06	14-02-06	239	304	1,329		n/a
7	E21(i1210)	Unf. Lin. (lb/ft)	L	14-06-06	18-06-06		61			n/a
8	E20(i1209)	Unf. Lin. (lb/ft)	L	18-06-06	21-02-06		81			n/a
9	E20(i1209)	Unf. Lin. (lb/ft)	L	18-10-06	21-02-06	239	304	1,329		n/a
10	E18(i1207)	Conc. Pt. (lbs)	L	02-08-06	02-08-06	919	1,192	5,110		n/a
11	E22(i1211)	Conc. Pt. (lbs)	L	09-10-06	09-10-06	913	1,185	5,079		n/a
12	E22(i1211)	Conc. Pt. (lbs)	L	14-05-06	14-05-06	562	729	3,128		n/a
13	E20(i1209)	Conc. Pt. (lbs)	L	18-07-06	18-07-06	553	717	3,074		n/a
14	J6(i3480)	Conc. Pt. (lbs)	L	19-08-10	19-08-10	266	133			n/a
15	B19(i3465)	Conc. Pt. (lbs)	L	21-00-10	21-00-10	286	537	497		n/a

Controls Summary

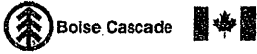
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	17,077 ft-lbs	55,212 ft-lbs	30.9 %	122	02-08-06
Neg. Moment	-16,796 ft-lbs	-55,212 ft-lbs	30.4 %	139	09-10-14
End Shear	8,184 lbs	21,696 lbs	37.7 %	122	01-08-04
Cont. Shear	8,898 lbs	21,696 lbs	41.0 %	139	11-04-04
Total Load Deflection	L/999 (0.068")	n/a	n/a	290	04-01-05
Live Load Deflection	L/999 (0.057")	n/a	n/a	410	14-03-14
Total Neg. Defl.	2xL/1,998 (-0.027")	n/a	n/a	306	21-02-06
Max Defl.	0.068"	n/a	n/a	290	04-01-05
Span / Depth	9.4				



Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 8-3/8" x 5-1/4"	12,637 lbs	53.8 %	23.6 %	Unspecified
B1	Wall/Plate 11-1/16" x 5-1/4"	26,662 lbs	86.0 %	37.6 %	Unspecified
B2	Wall/Plate 12-3/4" x 5-1/4"	19,830 lbs	55.4 %	24.2 %	Unspecified

DWG NO. TAM 4199-178H
STRUCTURAL COMPONENT ONLY

T-18071593



Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Flush Beams\B7(i3481)

PASSED

BC CALC® Design Report
 Build 6215
 Job name:
 Address:
 City, Province, Postal Code: INNISFIL
 Customer:
 Code reports: CCMC 12472-R

Dry | 3 spans | R cant.

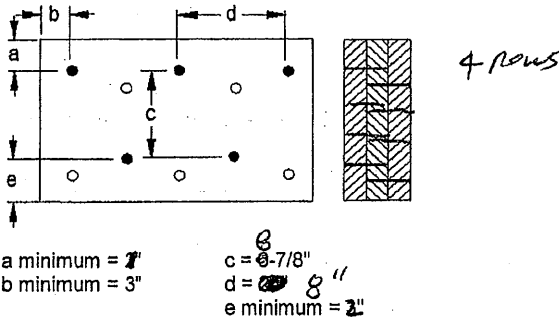
May 4, 2018 15:36:31

File name: TH-2.mmdl
 Description: 2ND FLOOR FRAMING\Flush Beams\B7(i3481)
 Specifier:
 Designer: CZ
 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. **CONFORMS TO OBC 2012**
 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
 Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
 Nailing schedule applies to both sides of the member.

Connection Diagram



Calculated Side Load = 100.2 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: 5 Nails
3-1/2" ARDOX SPIRAL

Disclosure

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DWG NO. TAM 4199-1734
 STRUCTURAL COMPONENT ONLY
 BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®

T-18071593(2)



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Flush Beams\B8(i3402)

PASSED

BC CALC® Design Report

Dry | 2 spans | R cant.

May 4, 2018 15:36:31

Build 6215

Job name:

File name: TH-2.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B8(i3402)

City, Province, Postal Code: INNISFIL

Specifier:

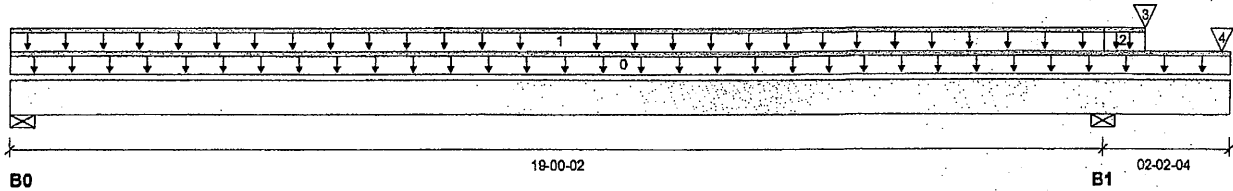
Customer:

Designer: CZ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 21-02-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	211 / 80	90 / 0	0 / 114	
B1, 5-1/2"	1,335 / 0	1,731 / 0	1,168 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Tributary
						1.00	0.65	1.00	1.15	
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	21-02-06		12			00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	19-00-03	22	11			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	19-00-03	19-08-10	27				n/a
3	-	Conc. Pt. (lbs)	L	19-08-10	19-08-10	448	224			n/a
4	-	Conc. Pt. (lbs)	L	21-00-10	21-00-10	(570)	1,122	1,054		n/a

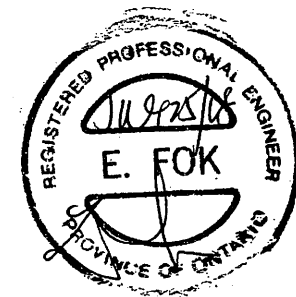
Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,427 ft-lbs	35,392 ft-lbs	4.0 %	32	06-10-12
Neg. Moment	-7,080 ft-lbs	-35,392 ft-lbs	20.0 %	37	19-00-02
End Shear	355 lbs	14,464 lbs	2.5 %	32	01-02-04
Cont. Shear	3,547 lbs	14,464 lbs	24.5 %	37	20-02-12
Total Load Deflection	2xL/1,998 (0.12")	n/a	n/a	103	21-02-06
Live Load Deflection	L/999 (-0.117")	n/a	n/a	141	11-00-09
Total Neg. Defl.	L/1,480 (-0.153")	n/a	16.2 %	103	11-08-05
Max Defl.	-0.153"	n/a	n/a	103	11-08-05
Span / Depth	19.1				

*TOP EDGE
LOADED.
ONLY*

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 2-3/8" x 3-1/2"	429 lbs	9.7 %	4.2 %	Unspecified
B0	Uplift	130 lbs			
B1	Wall/Plate 5-1/2" x 3-1/2"	4,750 lbs	46.2 %	20.2 %	Unspecified



Cautions

Uplift of 130 lbs found at span 1 - Left. *(SIMPSON 1-HZ-57 @ D. 30)*

p614

DWG NO. TAM 4200-178H
 STRUCTURAL COMPONENT ONLY

T-18071594



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B8(i3402)

BC CALC® Design Report

Dry | 2 spans | R cant.

May 4, 2018 15:36:31

Build 6215

Job name:

File name: TH-2.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B8(i3402)

City, Province, Postal Code: INNISFIL

Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:

Notes

Design meets User specified (2xL/240) Total load deflection criteria.

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

Calculations assume member is fully braced.

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

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

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

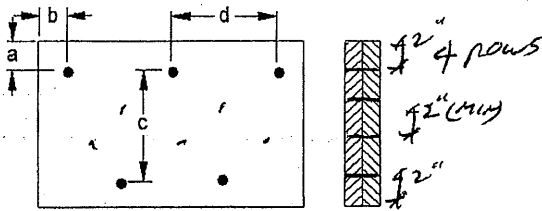
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

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

Connection Diagram



a minimum = 2"
b minimum = 3"

c = 7-7/8"
d = 12"

Calculated Side Load = 98.2 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.

Connectors are: 7 Nails
3-1/2" ARDOX SPIRAL



Disclosure

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DWG NO. TAM 4200
STRUCTURAL
COMPONENT ONLY

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

T-18071594(2)



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B11(i3490)

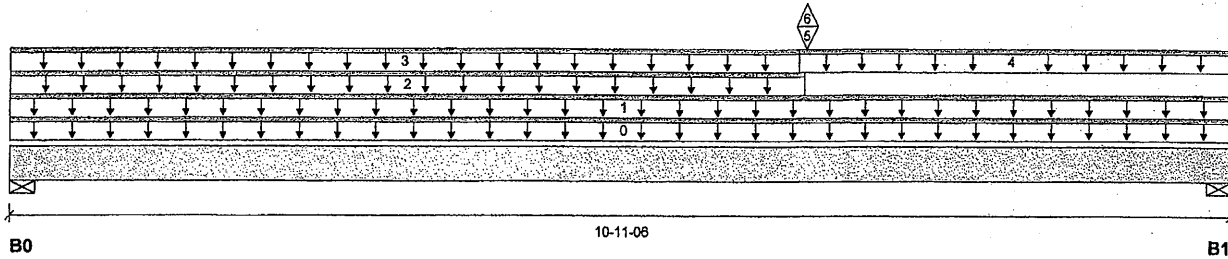
BC CALC® Design Report
Build 6215

Dry | 1 span | No cant.

May 11, 2018 14:08:26

Job name:
Address:
City, Province, Postal Code: INNISFIL
Customer:
Code reports: CCMC 12472-R

File name: TH-2.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B11(i3490)
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"	264 / 138	391 / 0		
B1, 5-1/2"	488 / 278	297 / 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	10-11-06		6			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-00-00	07-01-01		60			n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-00-06	3	1			n/a
4	FC3 Floor Material	Unf. Lin. (lb/ft)	L	07-00-06	10-11-06	16	8			n/a
5	B14(i3488)	Conc. Pt. (lbs)	L	07-01-04	07-01-04	549	96			n/a
6	B14(i3488)	Conc. Pt. (lbs)	L	07-01-04	07-01-04	-416				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3,335 ft-lbs	17,696 ft-lbs	18.8 %	1	07-01-04
Neg. Moment	-644 ft-lbs	-17,696 ft-lbs	3.6 %	4	07-01-04
End Shear	1,010 lbs	7,232 lbs	14.0 %	1	09-06-00
Total Load Deflection	L/999 (0.088")	n/a	n/a	6	05-06-13
Live Load Deflection	L/999 (0.048")	n/a	n/a	8	05-09-00
Max Defl.	0.088"	n/a	n/a	6	05-06-13
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"	885 lbs	39.9 %	17.4 %	Unspecified
B1	Wall/Plate 5-1/2" x 1-3/4"	1,103 lbs	21.5 %	9.4 %	Unspecified
B1	Uplift	150 lbs			

Cautions

Uplift of 150 lbs found at span 1 - Right. (SIMPSON 1-HLSA @ 1-5)



DWG NO. TAM 4201-1784
STRUCTURAL COMPONENT ONLY

7-18071595



Single 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Flush Beams\B11(i3490)

PASSED

BC CALC® Design Report
 Build 6215

Dry | 1 span | No cant.

May 11, 2018 14:08:26

Job name:
 Address:
 City, Province, Postal Code: INNISFIL
 Customer:
 Code reports: CCMC 12472-R

File name: TH-2.mmdl
 Description: 2ND FLOOR FRAMING\Flush Beams\B11(i3490)
 Specifier:
 Designer: CZ
 Company:

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86. **CONFORMS TO OBC 2012**
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9



Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA).
 Completeness and accuracy of Input 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.

POW
 DWG NO. TAM 4201-12H
 STRUCTURAL
 COMPONENT ONLY

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

T-18071595(2)



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B12(i3446)

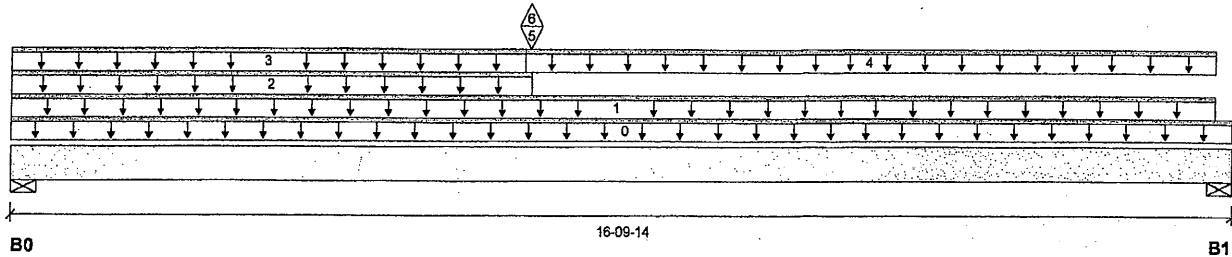
BC CALC® Design Report
Build 6215

Dry | 1 span | No cant.

May 4, 2018 15:36:31

Job name:
Address:
City, Province, Postal Code: INNISFIL
Customer:
Code reports: CCMC 12472-R

File name: TH-2.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B12(i3446)
Specifier:
Designer: CZ
Company:



Total Horizontal Product Length = 16-09-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	682 / 102	743 / 0		
B1, 5-1/2"	606 / 77	470 / 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	16-09-14		12			00-00-00
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	16-07-02	18	9			n/a
2	WALL	Unf. Lin. (lb/ft)	L	00-00-00	07-01-07		60			n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-00-06	6	3			n/a
4	FC3 Floor Material	Unf. Lin. (lb/ft)	L	07-00-06	16-07-02	15	8			n/a
5	B14(i3394)	Conc. Pt. (lbs)	L	07-01-04	07-01-04	802	340			n/a
6	B14(i3394)	Conc. Pt. (lbs)	L	07-01-04	07-01-04	-179				n/a

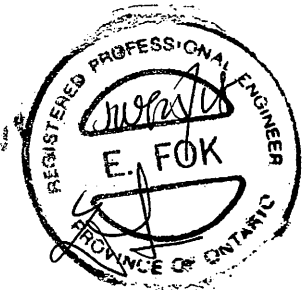
Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	10,052 ft-lbs	35,392 ft-lbs	28.4 %	1	07-01-04
End Shear	1,784 lbs	14,464 lbs	12.3 %	1	01-02-04
Total Load Deflection	L/638 (0.307")	n/a	37.6 %	6	08-00-02
Live Load Deflection	L/1,134 (0.172")	n/a	31.7 %	8	08-00-02
Max Defl.	0.307"	n/a	n/a	6	08-00-02
Span / Depth	16.5				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 2-3/8" x 3-1/2"	1,951 lbs	44.0 %	19.2 %	Unspecified
B1	Wall/Plate 5-1/2" x 3-1/2"	1,496 lbs	14.6 %	6.4 %	Unspecified

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 9
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.



CONFORMS TO OBC 2012

DWG NO. TAM 4202-17B H
STRUCTURAL COMPONENT ONLY

T-18071596



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B12(i3446)

Dry | 1 span | No cant.

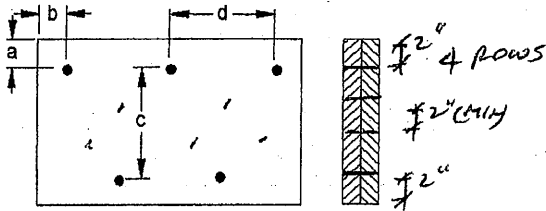
May 4, 2018 15:36:31

BC CALC® Design Report
Build 6215

Job name:
Address:
City, Province, Postal Code: INNISFIL
Customer:
Code reports: CCMC 12472-R

File name: TH-2.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B12(i3446)
Specifier:
Designer: CZ
Company:

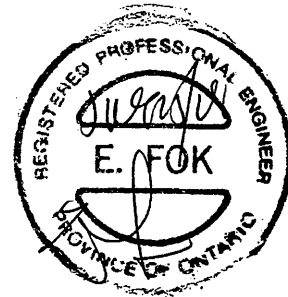
Connection Diagram



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

Calculated Side Load = 80.8 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 4202-18H
STRUCTURAL COMPONENT ONLY
BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC I®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®

T-18071596(2)



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B14(i3241)

BC CALC® Design Report

Dry | 1 span | No cant.

May 11, 2018 13:57:43

Build 6215

Job name:

File name: TH-2-ELA2.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B14(i3241)

City, Province, Postal Code: INNISFIL

Specifier:

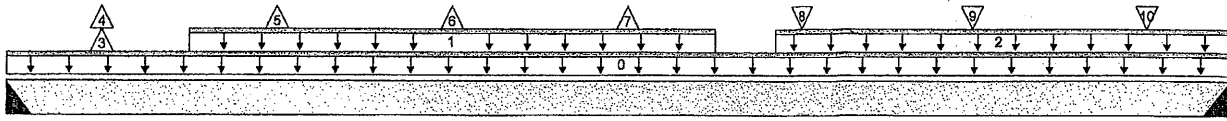
Customer:

Designer: CZ

Code reports:

CCMC 12472-R

Company:



B0

09-04-00

B1

Total Horizontal Product Length = 09-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2"	536 / 419	88 / 0		
B1, 2"	1,270 / 176	575 / 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	09-04-00		6			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-04-08	05-04-08	72				n/a
2	STAIR	Unf. Lin. (lb/ft)	L	05-10-00	09-04-00	240	120			n/a
3	J5(i2973)	Conc. Pt. (lbs)	L	00-08-08	00-08-08	76	-33			n/a
4	J5(i2973)	Conc. Pt. (lbs)	L	00-08-08	00-08-08	-145				n/a
5	J5(i3022)	Conc. Pt. (lbs)	L	02-00-08	02-00-08	-146	-25			n/a
6	J5(i3022)	Conc. Pt. (lbs)	L	03-04-08	03-04-08	-146	-25			n/a
7	J5(i3052)	Conc. Pt. (lbs)	L	04-08-08	04-08-08	-146	-25			n/a
8	J5(i3226)	Conc. Pt. (lbs)	L	06-00-08	06-00-08	216	106			n/a
9	J5(i3225)	Conc. Pt. (lbs)	L	07-04-08	07-04-08	216	106			n/a
10	J5(i3232)	Conc. Pt. (lbs)	L	08-08-08	08-08-08	170	83			n/a

Controls Summary

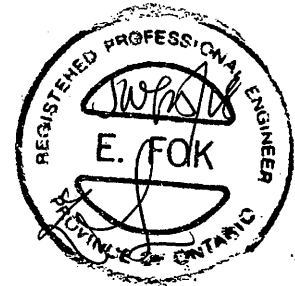
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3,995 ft-lbs	17,696 ft-lbs	22.6 %	1	06-00-08
Neg. Moment	-845 ft-lbs	-17,696 ft-lbs	4.8 %	4	03-04-08
End Shear	1,832 lbs	7,232 lbs	25.3 %	1	08-02-02
Total Load Deflection	L/999 (0.076")	n/a	n/a	6	04-11-14
Live Load Deflection	L/999 (0.057")	n/a	n/a	8	04-11-14
Total Neg. Defl.	L/999 (-0.005")	n/a	n/a	7	02-10-08
Max Defl.	0.076"	n/a	n/a	6	04-11-14
Span / Depth	9.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Hanger 2" x 1-3/4"	915 lbs	n/a	21.4 %	HUS1.81/10
B0	Uplift	549 lbs			
B1	Hanger 2" x 1-3/4"	2,623 lbs	n/a	61.4 %	HUS1.81/10

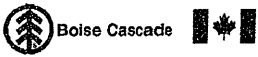
Cautions

Uplift of 549 lbs found at span 1 - Left.
 Hanger B0 cannot handle uplift of -549 lbs.) - (SIMPSON 1-HUS1.81/10 @ 0.30)
 Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



DWG NO. TAM 4203-18H
 STRUCTURAL COMPONENT ONLY

T-18071597



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B14(i3241)

Dry | 1 span | No cant.

May 11, 2018 13:57:43

BC CALC® Design Report

Build 6215

Job name:

File name: TH-2-ELA2.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B14(i3241)

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.

Hanger Manufacturer: Unassigned

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code : Part 9



Disclosure

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DWG NO. TAM 4203-18H
STRUCTURAL
COMPONENT ONLY

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

T. 18071597(2)



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B16(I3213)

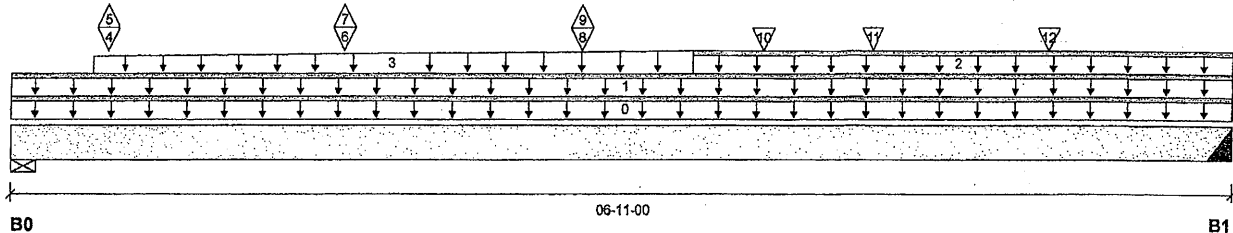
BC CALC® Design Report
Build 6215

Dry | 1 span | No cant.

May 11, 2018 13:59:15

Job name:
Address:
City, Province, Postal Code: INNISFIL
Customer:
Code reports: CCMC 12472-R

File name: TH-2-ELA2.mmdl
Description: 2ND FLOOR FRAMING\Flush Beams\B16(I3213)
Specifier:
Designer: CZ
Company:



Total Horizontal Product Length = 06-11-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	460 / 208	451 / 0	411 / 0	
B1, 2"	384 / 57	462 / 0	378 / 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	06-11-00		12			00-00-00
1	E24(i2431)	Unf. Lin. (lb/ft)	L	00-00-00	06-11-00	33	95	114		n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	03-10-00	06-11-00	8	4			n/a
3	FC3 Floor Material	Trapezoidal (lb/ft)	L	00-05-08	03-10-00	6	3			n/a
4	J5(i3226)	Conc. Pt. (lbs)	L	00-06-08	03-10-00		8			n/a
5	J5(i3226)	Conc. Pt. (lbs)	L	00-06-08	00-06-08	113	9			n/a
6	J5(i3225)	Conc. Pt. (lbs)	L	01-10-08	01-10-08	113	9			n/a
7	J5(i3225)	Conc. Pt. (lbs)	L	01-10-08	01-10-08	-95				n/a
8	J5(i3232)	Conc. Pt. (lbs)	L	03-02-08	03-02-08	100	12			n/a
9	J5(i3232)	Conc. Pt. (lbs)	L	03-02-08	03-02-08	-75				n/a
10	J8(i3209)	Conc. Pt. (lbs)	L	04-02-12	04-02-12	74	37			n/a
11	J8(i3220)	Conc. Pt. (lbs)	L	04-10-08	04-10-08	73	36			n/a
12	J8(i3219)	Conc. Pt. (lbs)	L	05-10-08	05-10-08	97	48			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,143 ft-lbs	35,392 ft-lbs	6.1 %	1	03-08-02
End Shear	1,022 lbs	14,464 lbs	7.1 %	1	05-09-02
Total Load Deflection	L/999 (0.012")	n/a	n/a	58	03-07-03
Live Load Deflection	L/999 (0.007")	n/a	n/a	85	03-07-03
Max Defl.	0.012"	n/a	n/a	58	03-07-03
Span / Depth	6.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 5-1/2" x 3-1/2"	1,459 lbs	14.2 %	6.2 %	Unspecified
B1	Hanger 2" x 3-1/2"	1,342 lbs	n/a	15.7 %	HUC410

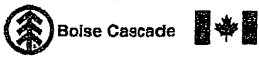
Cautions

Hanger model HUC410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.



DWG NO. TAM 4204-173H
STRUCTURAL
COMPONENT ONLY

T-18071398



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B16(i3213)

BC CALC® Design Report

Dry | 1 span | No cant.

May 11, 2018 13:59:15

Build 6215

Job name:

File name: TH-2-ELA2.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B16(i3213)

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.

Hanger Manufacturer: Unassigned

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

CONFORMS TO OBC 2012

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

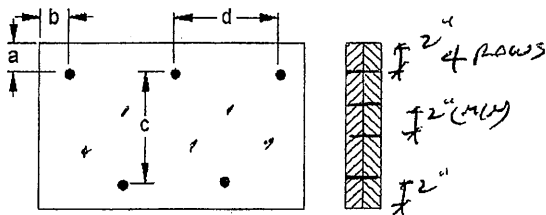
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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"

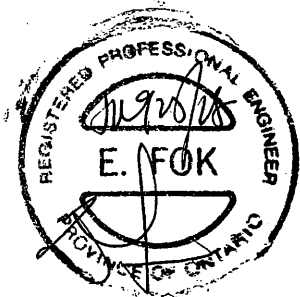
c = 7-7/8"
d = 12"

Calculated Side Load = 93.4 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



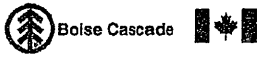
Disclosure

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DWG NO. TAM 4204-184
STRUCTURAL
COMPONENT ONLY

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC1®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®.

T-18071598(2)



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B19(i3465)

BC CALC® Design Report

Dry | 1 span | No cant.

May 4, 2018 15:36:31

Build 6215

Job name:

File name: TH-2.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B19(i3465)

City, Province, Postal Code: INNISFIL

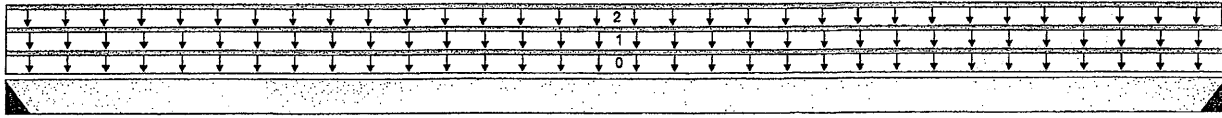
Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:



B0 08-09-00 B1
 Total Horizontal Product Length = 08-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2"	274 / 0	532 / 0	499 / 0	
B1, 2"	273 / 0	529 / 0	495 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-09-00	1.00	0.65	1.00	1.15	
1	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	08-09-00	30	15			n/a
2	E24(i2431)	Unf. Lin. (lb/ft)	L	00-00-00	08-08-10	33	95	114		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3,231 ft-lbs	35,392 ft-lbs	9.1 %	13	04-04-08
End Shear	1,140 lbs	14,464 lbs	7.9 %	13	01-01-14
Total Load Deflection	L/999 (0.033")	n/a	n/a	45	04-04-08
Live Load Deflection	L/999 (0.018")	n/a	n/a	61	04-04-08
Max Defl.	0.033"	n/a	n/a	45	04-04-08
Span / Depth	8.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Hanger 2" x 3-1/2"	1,550 lbs	n/a	18.2 %	HUC410
B1	Hanger 2" x 3-1/2"	1,541 lbs	n/a	18.0 %	HUC410

Cautions

Hanger model HUC410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

- Design meets Code minimum (L/240) Total load deflection criteria.
- Design meets Code minimum (L/360) Live load deflection criteria.
- Calculations assume member is fully braced.
- Hanger Manufacturer: Unassigned
- Resistance Factor phi has been applied to all presented results per CSA O86. **CONFORMS TO OBC 2012**
- 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
- Member has no side loads.



DWG NO. TAM 4209-18H
 STRUCTURAL COMPONENT ONLY

T-18071599



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B19(i3465)

Dry | 1 span | No cant.

May 4, 2018 15:36:31

BC CALC® Design Report

Build 6215

Job name:

File name: TH-2.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B19(i3465)

City, Province, Postal Code: INNISFIL

Specifier:

Customer:

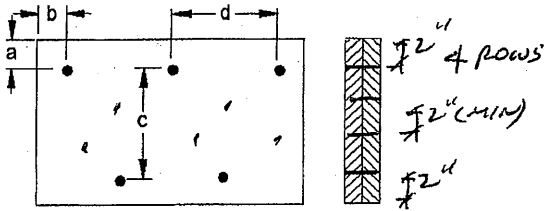
Designer: CZ

Code reports:

CCMC 12472-R

Company:

Connection Diagram



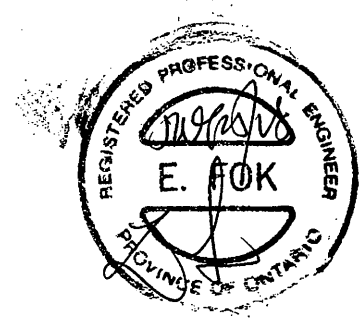
a minimum = 2"
b minimum = 3"

c = 7-7/8"
d = 12"

Member has no side loads.

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL



Disclosure

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

DWG NO. TAM 4205-13H
STRUCTURAL
COMPONENT ONLY

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

T.18071599(2)



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Flush Beams\B20(i3372)

PASSED

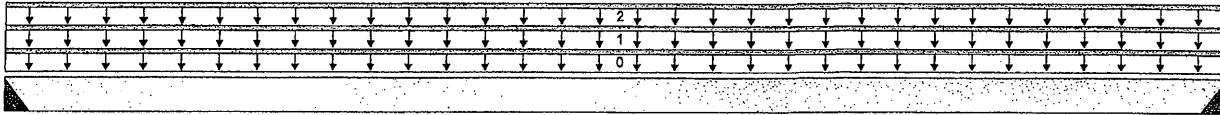
BC CALC® Design Report
 Build 6215

Dry | 1 span | No cant.

May 4, 2018 15:36:31

Job name:
 Address:
 City, Province, Postal Code: INNISFIL
 Customer:
 Code reports: CCMC 12472-R

File name: TH-2.mmdl
 Description: 2ND FLOOR FRAMING\Flush Beams\B20(i3372)
 Specifier:
 Designer: CZ
 Company:



B0 09-02-04 B1
 Total Horizontal Product Length = 09-02-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2"	287 / 0	559 / 0	524 / 0	
B1, 2"	287 / 0	559 / 0	524 / 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	09-02-04		12			00-00-00
1	E24(i2431)	Unf. Lin. (lb/ft)	L	00-00-00	09-02-04	33	95	114		n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	09-02-04	30	15			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3,571 ft-lbs	35,392 ft-lbs	10.1 %	13	04-07-02
End Shear	1,218 lbs	14,464 lbs	8.4 %	13	01-01-14
Total Load Deflection	L/999 (0.04")	n/a	n/a	45	04-07-02
Live Load Deflection	L/999 (0.022")	n/a	n/a	61	04-07-02
Max Defl.	0.04"	n/a	n/a	45	04-07-02
Span / Depth	9.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Hanger 2" x 3-1/2"	1,628 lbs	n/a	19.1 %	HUC410
B1	Hanger 2" x 3-1/2"	1,628 lbs	n/a	19.1 %	HUC410

Cautions

Hanger model HUC410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Hanger Manufacturer: Unassigned
 Resistance Factor phi has been applied to all presented results per CSA O86. **CONFORMS TO OBC 2012**
 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
 Member has no side loads.



DWG NO. TAM 4206-18 H
 STRUCTURAL COMPONENT ONLY

T-18071600



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B20(i3372)

BC CALC® Design Report

Dry | 1 span | No cant.

May 4, 2018 15:36:31

Build 6215

Job name:

File name: TH-2.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B20(i3372)

City, Province, Postal Code: INNISFIL

Specifier:

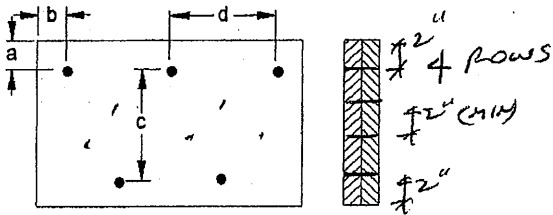
Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:

Connection Diagram



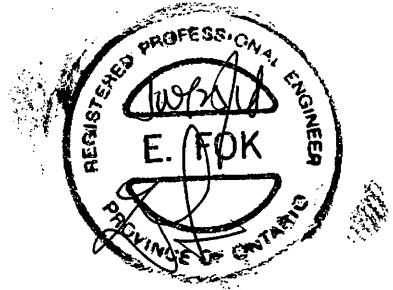
a minimum = 2"
b minimum = 3"

c = 7-7/8"
d = 12"

Member has no side loads.

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL



Disclosure

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DWG NO. TAM 4206
STRUCTURAL
COMPONENT ONLY

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC1®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®

T.18071600(2)



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

PASSED

2ND FLOOR FRAMING\Flush Beams\B21(i3071)

BC CALC® Design Report

Dry | 1 span | No cant.

May 4, 2018 15:26:05

Build 6215

Job name:

File name: TH-2-ELA2.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B21(i3071)

City, Province, Postal Code: INNISFIL

Specifier:

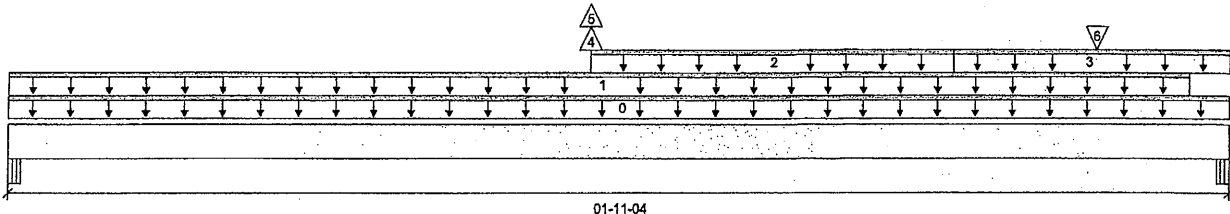
Customer:

Designer: CZ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 01-11-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/4"	52 / 72	80 / 0		
B1, 5-1/4"	49 / 60	103 / 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	01-11-04		12			00-00-00
1	E33(i2953)	Unf. Lin. (lb/ft)	L	00-00-00	01-10-08		81			n/a
2	FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-11-00	01-06-00	6				n/a
3	FC3 Floor Material	Unf. Lin. (lb/ft)	L	01-06-00	01-11-04	10	5			n/a
4	J4(i3064)	Conc. Pt. (lbs)	L	00-11-00	00-11-00	93	-20			n/a
5	J4(i3064)	Conc. Pt. (lbs)	L	00-11-00	00-11-00	-132				n/a
6	E34(i2951)	Conc. Pt. (lbs)	L	01-08-12	01-08-12		24			n/a

Controls Summary

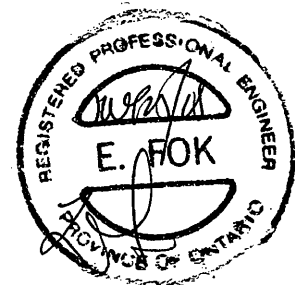
	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	55 ft-lbs	35,392 ft-lbs	0.2 %	1	00-11-00
Neg. Moment	-49 ft-lbs	-35,392 ft-lbs	0.1 %	4	00-11-00
End Shear	74 lbs	9,401 lbs	0.8 %	0	01-05-02
Span / Depth	1.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Beam 5-1/4" x 3-1/2"	177 lbs	1.8 %	0.8 %	Unspecified
B1	Beam 5-1/4" x 3-1/2"	145 lbs	2.3 %	1.0 %	Unspecified

Notes

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. **CONFORMS TO OBC 2012**
 Importance Factor: Normal Part code: Part 9
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.



DWG NO. TAM 4207-123 H
 STRUCTURAL COMPONENT ONLY

T. 18671601



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
2ND FLOOR FRAMING\Flush Beams\B21(i3071)

PASSED

BC CALC® Design Report
 Build 6215

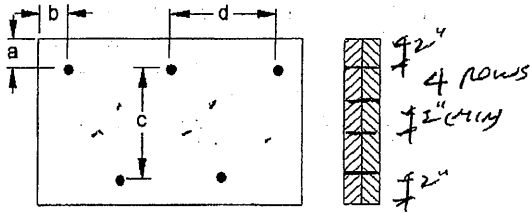
Dry | 1 span | No cant.

May 4, 2018 15:26:05

Job name:
 Address:
 City, Province, Postal Code: INNISFIL
 Customer:
 Code reports: CCMC 12472-R

File name: TH-2-ELA2.mmdl
 Description: 2ND FLOOR FRAMING\Flush Beams\B21(i3071)
 Specifier:
 Designer: CZ
 Company:

Connection Diagram



a minimum = 2" c = 7-7/8"
 b minimum = 3" d = 6"

Calculated Side Load = 43.1 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: 1" Nails

3-1/2" ARDOX SPIRAL



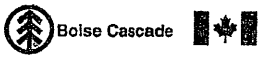
Disclosure

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DWG NO. TAM 4207
 STRUCTURAL COMPONENT ONLY

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC1®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

T.1807/601(2)



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B22(i3176)

BC CALC® Design Report

Dry | 1 span | No cant.

May 4, 2018 15:35:03

Build 6215

Job name:

File name: TH-2-ELA2.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B22(i3176)

City, Province, Postal Code: INNISFIL

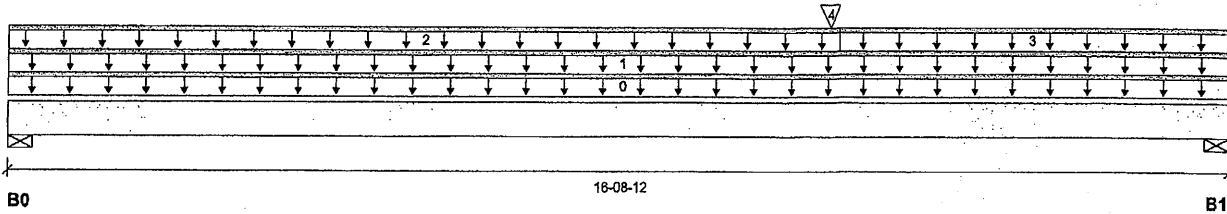
Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	359 / 0	324 / 0		
B1, 4-3/8"	555 / 0	474 / 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	16-08-12		12			00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	16-08-12	5	3			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-04-06	15	7			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	11-04-06	16-08-12	6	3			n/a
4	B23(i3195)	Conc. Pt. (lbs)	L	11-02-10	11-02-10	627	452			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	6,834 ft-lbs	35,392 ft-lbs	19.3 %	1	11-02-10
End Shear	1,372 lbs	14,464 lbs	9.5 %	1	15-04-08
Total Load Deflection	L/944 (0.207")	n/a	25.4 %	4	08-10-06
Live Load Deflection	L/999 (0.113")	n/a	n/a	5	08-10-06
Max Defl.	0.207"	n/a	n/a	4	08-10-06
Span / Depth	16.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 2-3/8" x 3-1/2"	943 lbs	21.3 %	9.3 %	Unspecified
B1	Wall/Plate 4-3/8" x 3-1/2"	1,425 lbs	17.4 %	7.6 %	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. **CONFORMS TO Q86 2012**
 Importance Factor : Normal Part code : Part 9
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.



DWG NO. TAM 4208-1814
 STRUCTURAL COMPONENT ONLY

T. 18071602



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B22(i3176)

Dry | 1 span | No cant.

May 4, 2018 15:35:03

BC CALC® Design Report
Build 6215

Job name:

File name: TH-2-ELA2.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B22(i3176)

City, Province, Postal Code: INNISFIL

Specifier:

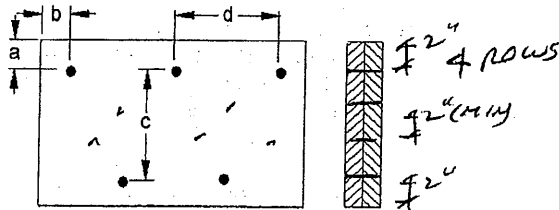
Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:

Connection Diagram



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

Calculated Side Load = 90.0 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 4208-1214
 STRUCTURAL
 COMPONENT ONLY

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

T. 18071602 (2)



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

PASSED

1ST FLOOR FRAMING\Flush Beams\B23(i3195)

BC CALC® Design Report

Dry | 1 span | No cant.

May 4, 2018 15:35:03

Build 6215

Job name:

File name: TH-2-ELA2.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B23(i3195)

City, Province, Postal Code: INNISFIL

Specifier:

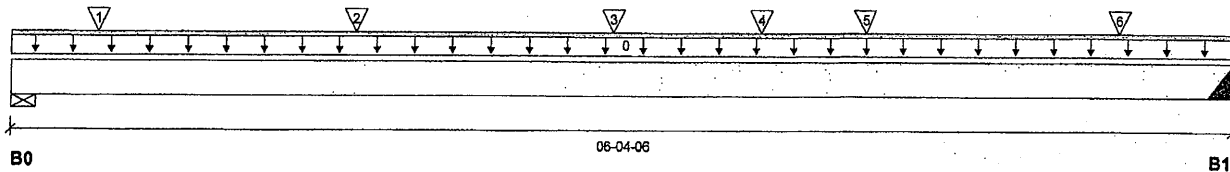
Customer:

Designer: CZ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 06-04-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4-3/8"	459 / 0	338 / 0		
B1, 2"	639 / 0	461 / 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	06-04-06		12			00-00-00
1	J5(i3015)	Conc. Pt. (lbs)	L	00-05-06	00-05-06	84	42			n/a
2	J5(i2994)	Conc. Pt. (lbs)	L	01-09-06	01-09-06	142	71			n/a
3	J5(i2976)	Conc. Pt. (lbs)	L	03-01-06	03-01-06	112	56			n/a
4	B1(i3159)	Conc. Pt. (lbs)	L	03-10-10	03-10-10	296	321			n/a
5	J3(i3182)	Conc. Pt. (lbs)	L	04-05-06	04-05-06	219	109			n/a
6	J3(i3173)	Conc. Pt. (lbs)	L	05-09-06	05-09-06	238	119			n/a

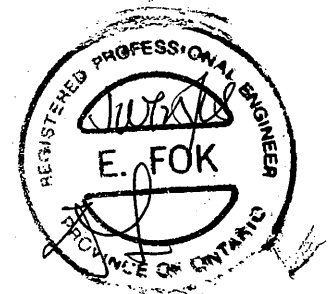
Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,379 ft-lbs	35,392 ft-lbs	6.7 %	1	03-10-10
End Shear	1,225 lbs	14,464 lbs	8.5 %	1	05-02-08
Total Load Deflection	L/999 (0.01")	n/a	n/a	4	03-04-14
Live Load Deflection	L/999 (0.006")	n/a	n/a	5	03-04-14
Max Defl.	0.01"	n/a	n/a	4	03-04-14
Span / Depth	6.0				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 4-3/8" x 3-1/2"	1,111 lbs	13.6 %	5.9 %	Unspecified
B1	Hanger 2" x 3-1/2"	1,535 lbs	n/a	18.0 %	HGUS410

Cautions

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



DWG NO. TAM 4209-120 H
STRUCTURAL COMPONENT ONLY

T-18071603



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP
1ST FLOOR FRAMING\Flush Beams\B23(i3195)

PASSED

BC CALC® Design Report
 Build 6215

Dry | 1 span | No cant.

May 4, 2018 15:35:03

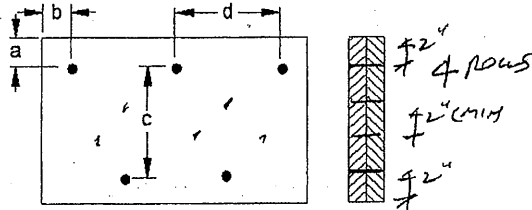
Job name:
 Address:
 City, Province, Postal Code: INNISFIL
 Customer:
 Code reports: CCMC 12472-R

File name: TH-2-ELA2.mmdl
 Description: 1ST FLOOR FRAMING\Flush Beams\B23(i3195)
 Specifier:
 Designer: CZ
 Company:

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Hanger Manufacturer: Unassigned
 Resistance Factor phi has been applied to all presented results per CSA O86. **CONFORMS TO OBC 2012**
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor: Normal Part code: Part 9
 Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

Connection Diagram



a minimum = 2" c = 7-7/8" 12"
 b minimum = 3" d = 12"

Calculated Side Load = 398.1 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: 16d Nails

3-1/2" ARDOX SPIRAL



Disclosure

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

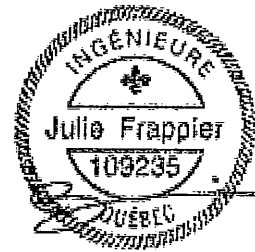
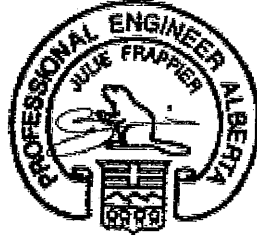
DWG NO. TAM 4209-12H
 STRUCTURAL
 COMPONENT ONLY

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

T-18071603(2)

Maximum Floor Spans

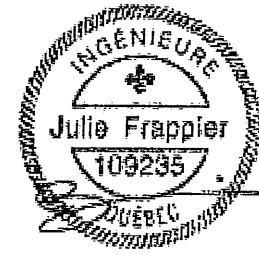
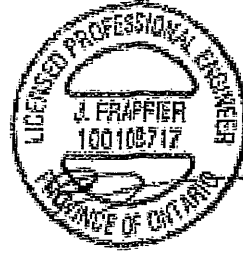
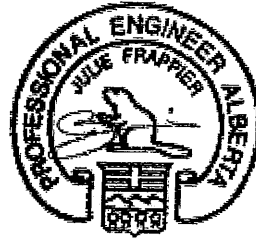
Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/480 Deflection Limit
5/8" OSB G&N Sheathing



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'-5"	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"

1. 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.

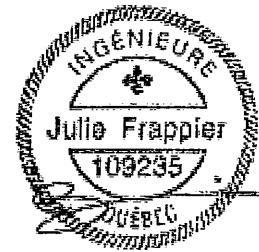
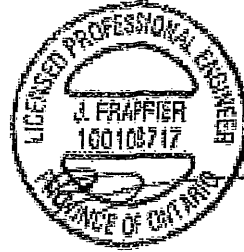
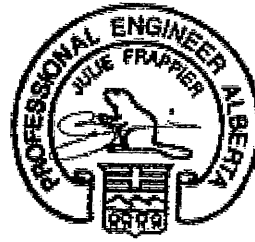
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.

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

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 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.

6. Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



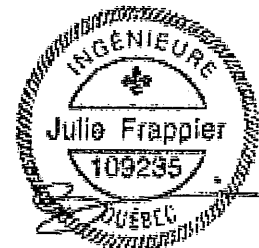
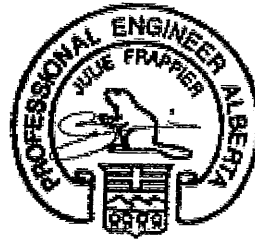
Maximum Floor Spans

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

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

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

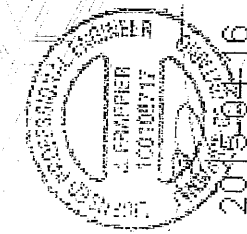
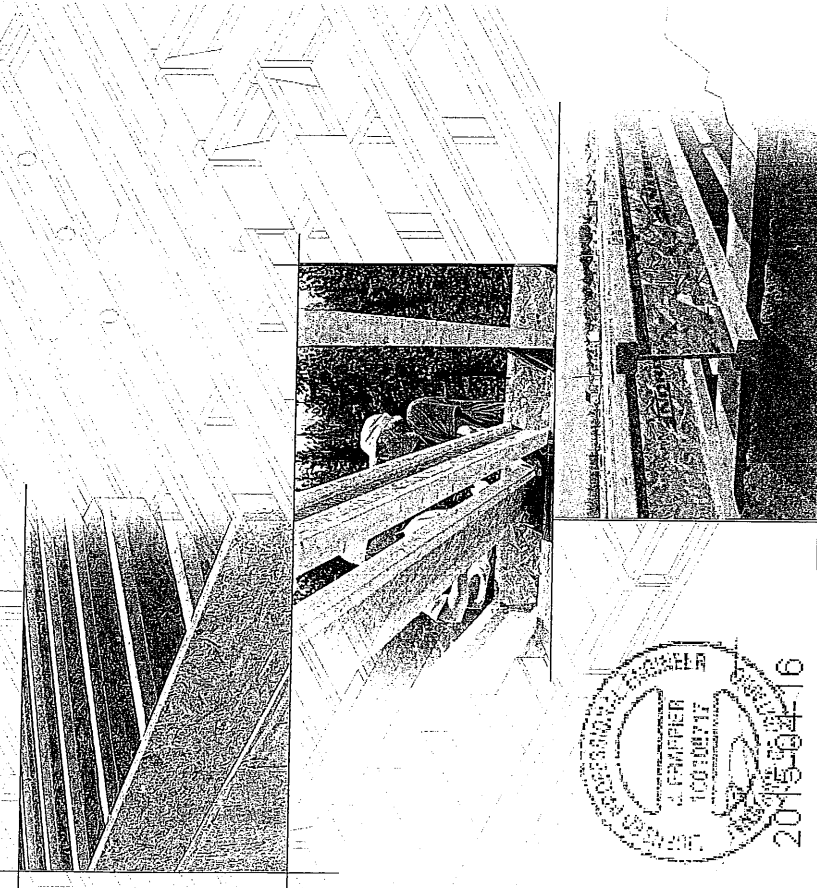
- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load 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



Distributed by:



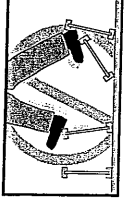
SAFETY AND CONSTRUCTION PRECAUTIONS

WARNING

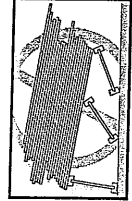
I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.

Avoid Accidents by Following these Important Guidelines:

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 cambrivered 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.



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

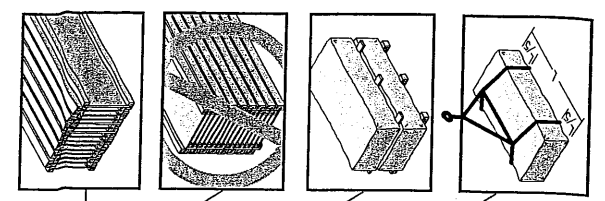


Never stack building materials over unsheathed I-joists. Once sheathed, do not over-stress I-joist with concentrated loads from building materials.

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.

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

- 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.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGS-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
- Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
- Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
- SI units conversion: 1 inch = 25.4 mm
1 foot = 0.305 m

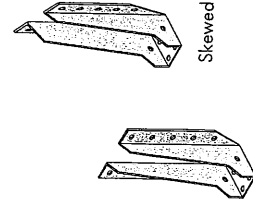
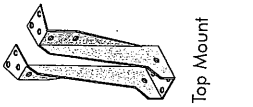
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS

Joist Depth	Joist Series	Simple spans			Multiple spans			
		On centre spacing	On centre spacing	On centre spacing	On centre spacing	On centre spacing	On centre spacing	
9-1/2"	NI-20	15-1"	14-2"	13-9"	16-3"	15-4"	14-10"	14-7"
	NI-40x	16-1"	15-2"	14-9"	17-5"	16-5"	15-10"	15-5"
	NI-60	16-3"	15-4"	14-10"	17-7"	16-7"	16-0"	16-1"
	NI-70	17-1"	16-1"	15-6"	18-7"	17-4"	16-9"	16-10"
	NI-80	17-3"	16-3"	15-8"	18-7"	17-6"	16-11"	17-0"
	NI-20	16-11"	16-0"	15-5"	18-4"	17-3"	16-8"	16-7"
	NI-40x	18-1"	17-0"	16-5"	20-0"	18-6"	17-9"	17-7"
	NI-60	18-4"	17-3"	16-7"	20-3"	18-9"	18-0"	18-1"
	NI-70	19-6"	18-0"	17-4"	21-6"	19-11"	19-0"	19-1"
	NI-80	19-9"	18-3"	17-6"	20-2"	19-3"	19-4"	19-4"
	NI-90	20-2"	18-7"	17-10"	22-3"	20-7"	19-8"	19-9"
	NI-50x	20-4"	18-9"	17-11"	22-5"	20-9"	19-10"	19-11"
14"	NI-40x	20-1"	18-7"	17-10"	22-2"	20-6"	19-8"	19-4"
	NI-60	20-5"	18-11"	18-1"	22-7"	20-11"	20-0"	20-1"
	NI-70	21-7"	20-0"	19-1"	23-10"	21-1"	21-1"	21-2"
	NI-80	21-11"	20-3"	19-4"	24-3"	22-5"	21-6"	21-6"
	NI-90	22-5"	20-8"	19-9"	24-9"	22-10"	21-10"	21-10"
	NI-50x	22-7"	20-11"	19-11"	25-0"	23-1"	22-0"	22-2"
	NI-60	22-3"	20-8"	19-9"	24-7"	22-9"	21-9"	21-10"
	NI-70	23-6"	21-9"	20-9"	26-0"	24-0"	22-11"	23-0"
	NI-80	23-11"	22-1"	21-1"	26-5"	24-5"	23-3"	23-4"
	NI-90	24-5"	22-6"	21-5"	26-11"	24-10"	23-9"	23-9"
	NI-50x	24-8"	22-9"	21-9"	27-3"	25-2"	24-0"	24-1"

CCMC EVALUATION REPORT 13032-R

I-JOIST HANGERS

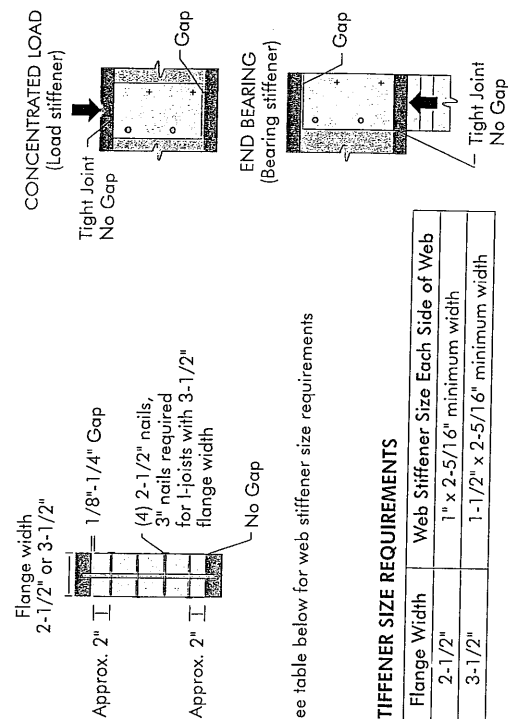
- Hangers shown illustrate the three most commonly used metal hangers to support I-joists.
- All nailing must meet the hanger manufacturer's recommendations.
- Hangers should be selected based on the joist depth, flange width and load capacity based on the maximum spans.
- Web stiffeners are required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



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 (C10). 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

WEB STIFFENER INSTALLATION DETAILS

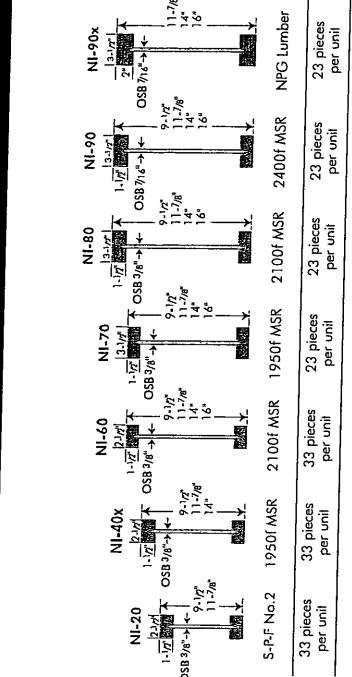


See table below for web stiffener size requirements

STIFFENER SIZE REQUIREMENTS

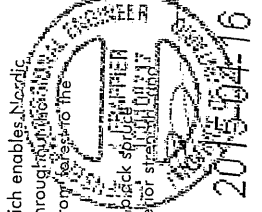
Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-5/16" minimum width
3-1/2"	1-1/2" x 2-5/16" minimum width

NORDIC I-JOIST SERIES

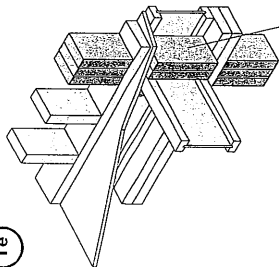


Chantiers Chibougamau Ltd. harvests its own trees, which enables Nordic products to adhere to strict quality control procedures through its own manufacturing process. Every phase of the operation, from forest to the finished product, reflects our commitment to quality.

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



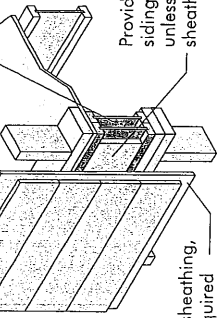
1e



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-joint for loads up to 3,300 pif, double I-joints for loads up to 6,600 pif (filler block not required). Attach I-joint to top plate using 2-1/2" nails at 6" o.c.

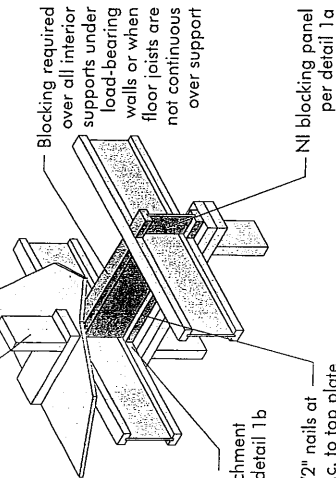


Provide backer for siding attachment unless available as required. Wall sheathing, as required.

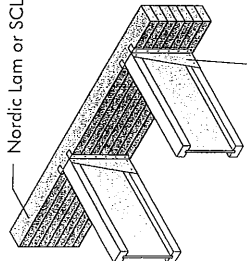
Rim board may be used in lieu of I-joints. Backer is not required when rim board is used. Bracing per code shall be carried to the foundation.

1g

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



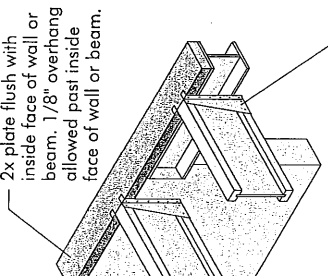
1i



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

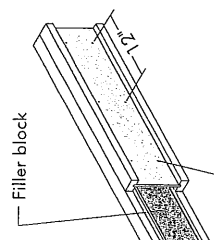
Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

1k



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

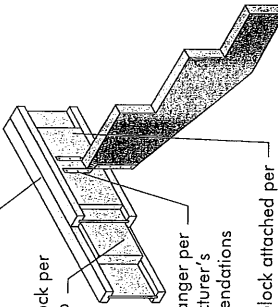
1p



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

1m

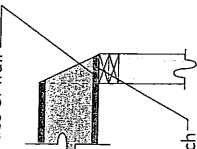
Multiple I-joint header with full depth filler block shown. Nordic Lam or SCL headers may also be used. Verify double I-joint capacity to support concentrated loads.



Maximum support capacity = 1,620 lbs.

1n

Do not bevel-cut joist beyond inside face of wall



1r

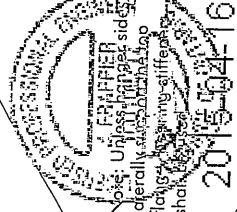
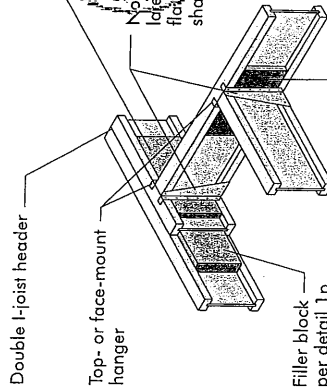
Lumber 2x4 min. extend block to face of adjacent web. Two 2-1/2" spiral nails from each web to lumber piece, alternate on opposite side.



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.

1h

Backer block (use if hanger load exceeds 360 lbs) Before installing a backer block to a double I-joint, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch. Install backer tight to top flange. Use twelve 3" nails, clinched when possible. Maximum factored resistance for hanger for this detail = 1,620 lbs.



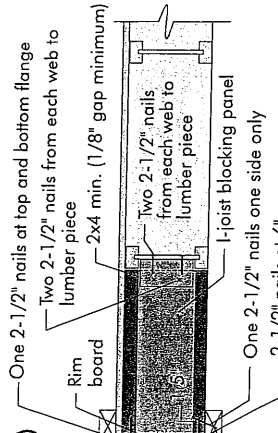
For hanger capacity see hanger manufacturer's recommendations. Verify double I-joint capacity to support concentrated loads.

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".

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.

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

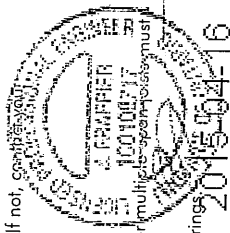
Flange Size	Joist Depth	Filler Block Size
2-1/2" x 1-1/2"	9-1/2"	2-1/8" x 6"
	11-7/8"	2-1/8" x 8"
	14"	2-1/8" x 10"
3-1/2" x 1-1/2"	9-1/2"	2-1/8" x 12"
	11-7/8"	3" x 6"
	14"	3" x 8"
3-1/2" x 2"	11-7/8"	3" x 10"
	14"	3" x 12"
	16"	3" x 7"
		3" x 9"
		3" x 11"

Notes:

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

INSTALLING NORDIC I-JOISTS

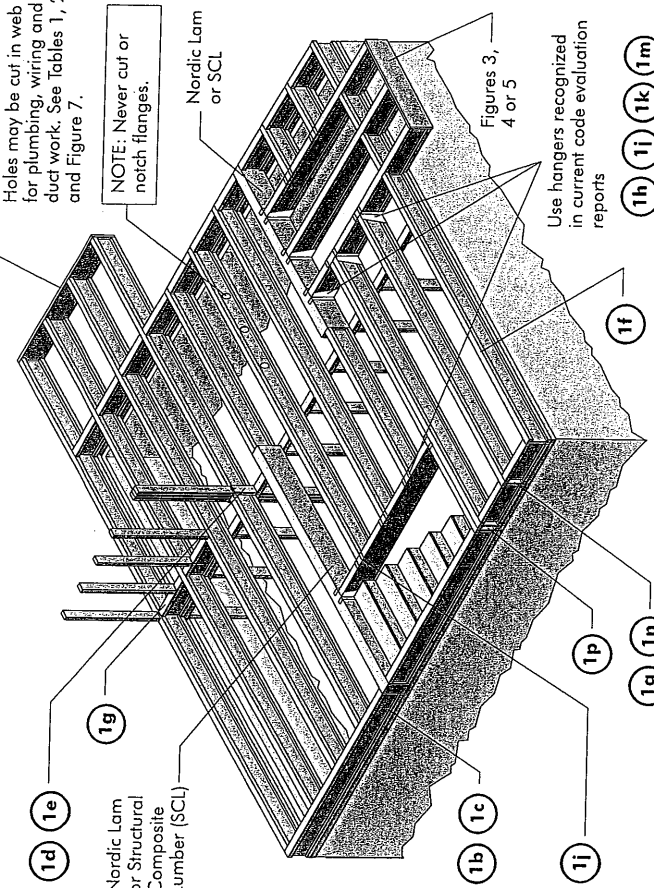
1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contact your supplier.
2. Except for cutting to length, I-joist flanges should **never** be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of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



2015-04-16

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.

1d

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

Pair of Squash Blocks	Maximum Factored Vertical per Pair of Squash Blocks (lbs)
3-1/2" wide	5,500
5-1/2" wide	8,500
1-1/8" Rim Board Plus	4,300
	6,600

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

1c

Attach rim joist to top plate per detail 1a. Attach I-joist per detail 1b. Minimum 1-3/4" bearing required.

1b

One 2-1/2" wire or spiral nail at top and bottom flange. Attach rim board to top plate using 2-1/2" wire or spiral toe-nails at 6" o.c. To avoid splitting flange, start nails at least 1-1/2" from end of I-joist. Nails may be driven at an angle to avoid splitting of bearing plate. Minimum bearing length shall be 1-3/4" for the end bearings, and 3-1/2" for the intermediate bearings when applicable.

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 1 1/2 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.

1a

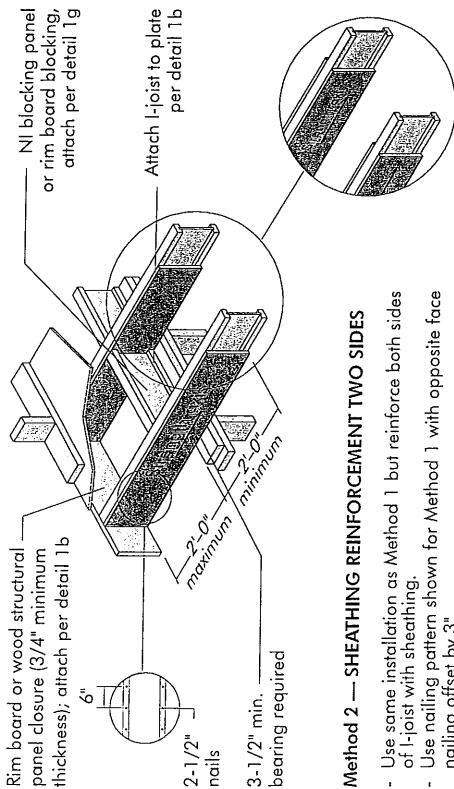
NI blocking panel. Attach I-joist to top plate per detail 1b. 2-1/2" nails at 6" o.c. to top plate (when used for lateral shear transfer, nail to bearing plate with same nailing as required for decking).

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

*The uniform vertical load is limited to a joist depth of 1 1/2 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.

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE



Method 2 — SHEATHING REINFORCEMENT TWO SIDES

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

Note: Canadian softwood 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 Alternate Method 2 — DOUBLE I-JOIST

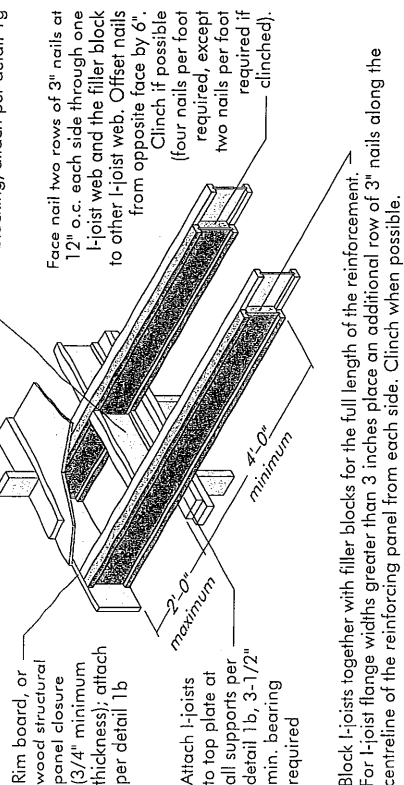
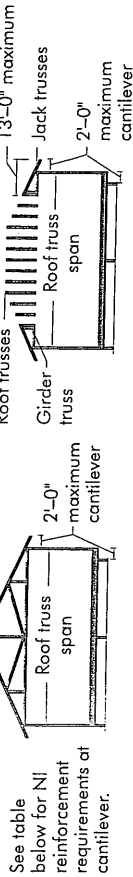


FIGURE 4 (continued)



For hip roofs with the jack trusses running parallel to the cantilevered floor joists, the I-joist reinforcement requirements for a span of 26 ft. shall be permitted to be used.

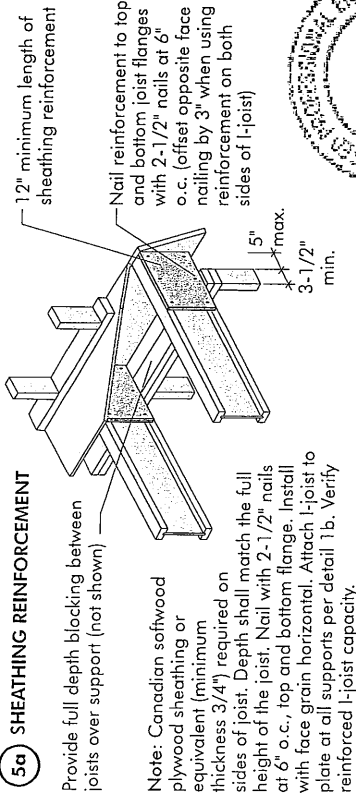
CANTILEVER REINFORCEMENT METHODS ALLOWED

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

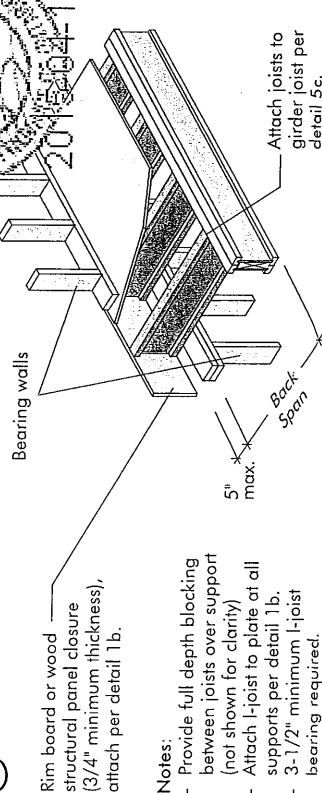
- 1. N = No reinforcement required.
- 2 = NI reinforced with 3/4" wood structural panel on one side only.
- 3 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
- X = Try a deeper joist or closer spacing.
- 2. Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 psf wall load. Wall load is based on 3'-0" maximum width window or door openings.
- 3. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
- 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.

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

5a) SHEATHING REINFORCEMENT



5b) SET-BACK DETAIL



- Notes:
- Provide full depth blocking between joists over support (not shown for clarity)
 - Attach I-joist to plate at all supports per detail 1b.
 - 3-1/2" minimum I-joist bearing required.

5c) SET-BACK CONNECTION

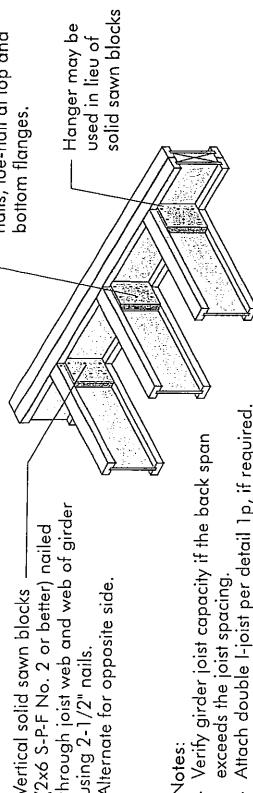
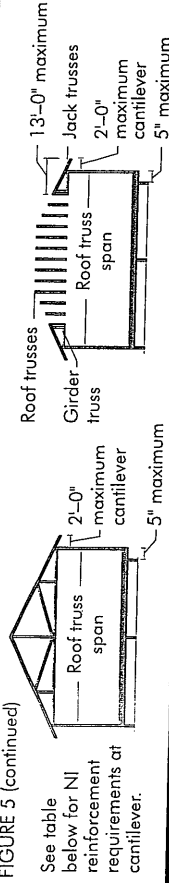


FIGURE 5 (Continued)



BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft.)				ROOF LOADING (UNFACTORED)								
	12	16	19.2	24	LL = 30 psf, DL = 15 psf	LL = 40 psf, DL = 15 psf	LL = 50 psf, DL = 15 psf	JOIST SPACING (in.)					
9-1/2"	1	X	X	X	X	X	X	2	12	16	19.2	24	
	1	X	X	X	X	X	X	X	2	12	16	19.2	24
	2	X	X	X	X	X	X	X	2	12	16	19.2	24
	2	X	X	X	X	X	X	X	2	12	16	19.2	24
11-7/8"	N	2	2	2	X	X	X	X	1	12	16	19.2	24
	N	2	2	2	X	X	X	X	1	12	16	19.2	24
	1	2	2	2	X	X	X	X	2	12	16	19.2	24
	1	2	2	2	X	X	X	X	2	12	16	19.2	24
14"	1	X	X	X	X	X	X	X	2	12	16	19.2	24
	N	1	1	1	X	X	X	X	2	12	16	19.2	24
	N	2	2	2	X	X	X	X	1	12	16	19.2	24
	N	2	2	2	X	X	X	X	1	12	16	19.2	24
1.6"	1	2	2	2	X	X	X	X	2	12	16	19.2	24
	N	1	1	1	X	X	X	X	2	12	16	19.2	24
	N	2	2	2	X	X	X	X	1	12	16	19.2	24
	N	2	2	2	X	X	X	X	1	12	16	19.2	24

1. N = No reinforcement required.
- 2 = NI reinforced with 3/4" wood structural panel on one side only.
- 2 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
- X = Try a deeper joist or closer spacing.
3. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
4. For larger openings, or multiple 3'-0" width openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
5. 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.
6. Camblevered joists supporting girder trusses or roof beams may require additional reinfocing.

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"

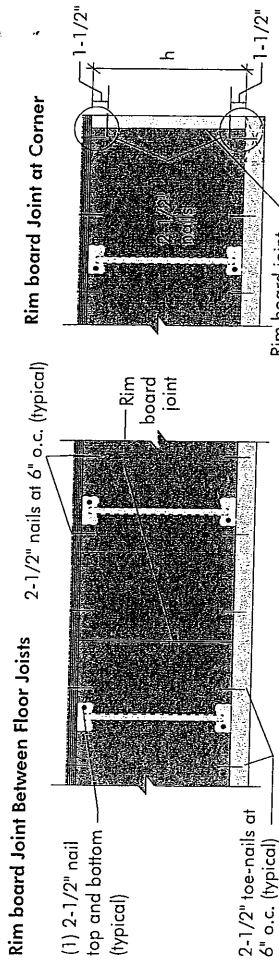
1. Fasteners of sheathing and subflooring shall conform to the above table.
2. Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to framing.
3. Flooring screws shall not be less than 1/8-inch in diameter.
4. Special conditions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

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

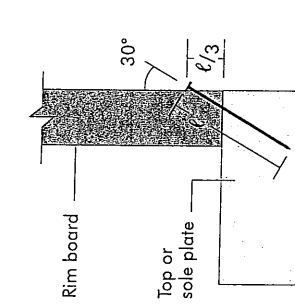
IMPORTANT NOTE: Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with your local distributor.

RIM BOARD INSTALLATION DETAILS

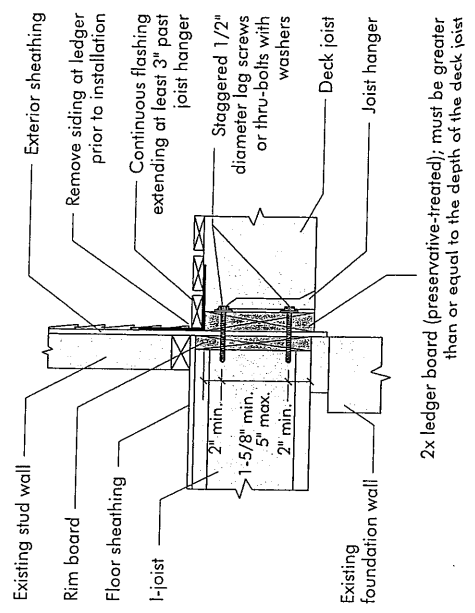
8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT




8b TOE-NAIL CONNECTION AT RIM BOARD



8c 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL





PRODUCT WARRANTY

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

Furthermore, Chantiers Chiroqueman 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.

