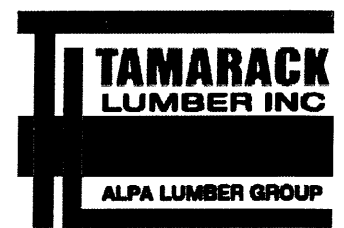


Products				
PlotID	Length	Product	Plies	Net Qty
J1	8-00-00	9 1/2" NI-40x	1	9
J2	16-00-00	11 7/8" NI-40x	1	9
J3	14-00-00	11 7/8" NI-40x	1	10
J3DJ	14-00-00	11 7/8" NI-40x	2	4
J4	12-00-00	11 7/8" NI-40x	1	37
J5	6-00-00	11 7/8" NI-40x	1	7
J6	4-00-00	11 7/8" NI-40x	1	2
J7	2-00-00	11 7/8" NI-40x	1	2
B7L	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B5	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
B1	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B3	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B6	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1

Connector Summary		
Qty	Manuf	Product
7	H1	IUS2.56/11.88
6	H1	IUS2.56/11.88
2	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88
1	H2	HUS1.81/10
9	H3	IUS2.56/9.5
1	H4	HGUS410
1	H4	HGUS410



FROM PLAN DATED: JAN 2018
BUILDER: BAYVIEW WELLINGTON
SITE: ALCONA SHORES
MODEL: TH-8C-BLK145
ELEVATION: A
LOT: BLOCK 145-5
CITY: INNISFIL
SALESMAN: M D
DESIGNER: CZ
REVISION:

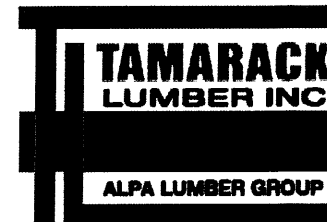
NOTES:
REFER TO THE NORDIC
INSTALLATION GUIDE FOR PROPER
STORAGE AND INSTALLATION.
SQUASH BLOCKS OF 2x4, 2x6, 2x8 #2
S.P.F REQ'D UNDER INTERIOR
UNIFORM LOAD BEARING WALLS.
MULTIPLE SQUASH BLOCKS REQ'D
UNDER CONCENTRATED LOADS. SEE
FIGURE 1. CANTILEVERED JOISTS
INCLUDING CANT' OVER BRICK REQ.
I-JOIST 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

20165
4954

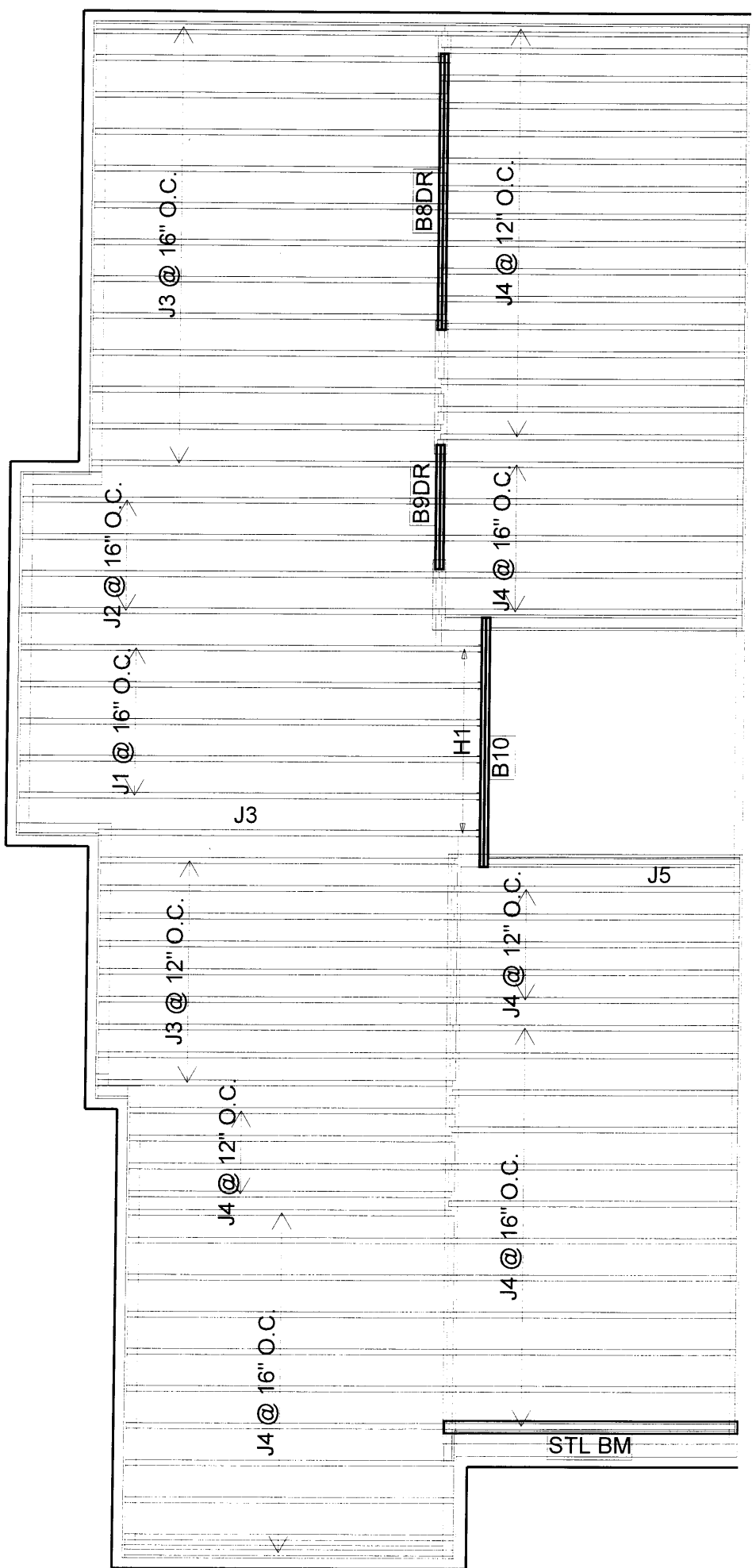


FROM PLAN DATED: JAN 2018
BUILDER: BAYVIEW WELLINGTON
SITE: ALCONA SHORES
MODEL: TH-8C-BLK145
ELEVATION: A
LOT: BLOCK 145-5
CITY: INNISFIL
SALESMAN: M D
DESIGNER: CZ
REVISION:

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	18-00-00	11 7/8" NI-40x	1	5
J2	16-00-00	11 7/8" NI-40x	1	4
J3	14-00-00	11 7/8" NI-40x	1	23
J4	12-00-00	11 7/8" NI-40x	1	53
J5	10-00-00	11 7/8" NI-40x	1	1
B8DR	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B9DR	6-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	2	2
B10	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2

Connector Summary		
Qty	Manuf	Product
6	H1	IUS2.56/11.88

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER
3269 NORTH SERVICE ROAD
BURLINGTON, ON
by CZ
Apr. 30, 2018 17:05

PROJECT
J2-1ST FL.wwb



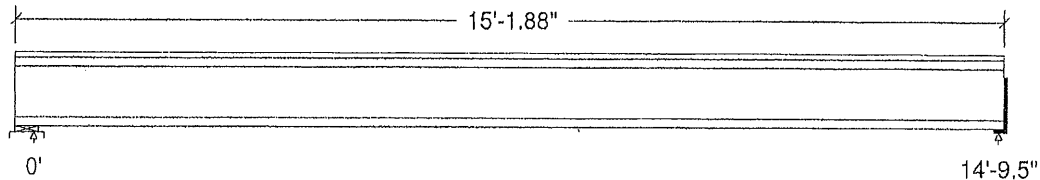
Design Check Calculation Sheet

Nordic Sizer -- Canada 7.0

Loads:

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

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



Unfactored:			
Dead	197		197
Live	394		394
Factored:			
Total	838		838
Bearing:			
Resistance			
Joist	2336		2012
Support	7735		-
Des ratio			
Joist	0.36		0.42
Support	0.11		-
Load case	#2		#2
Length	4-3/8		1-3/4
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		-
fcpx sup	769		-
Kzcp sup	1.15		-



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

Supports: 1 - Lumber Sill plate, No.1/No.2; 2 - Hanger;
Total length: 15'-1.88"; Clear span: 14'-7.73"; 3/4" nailed and glued OSB sheathing
This section PASSES the design code check.

DWG NO. TAM 4954-1814
STRUCTURAL
COMPONENT ONLY

T-180800



J2-1ST FL.wwb

Nordic Sizer – Canada 7.0

Page 2

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 838	Vr = 2336	lbs	Vf/Vr = 0.36
Moment(+)	Mf = 3100	Mr = 6255	lbs-ft	Mf/Mr = 0.50
Perm. Defl'n	0.07 = < L/999	0.49 = L/360	in	0.15
Live Defl'n	0.15 = < L/999	0.37 = L/480	in	0.40
Total Defl'n	0.22 = L/801	0.74 = L/240	in	0.30
Bare Defl'n	0.18 = < L/999	0.49 = L/360	in	0.36
Vibration	Lmax = 14'-9.5	Lv = 18'-1.3	ft	0.82
Defl'n	= 0.024	= 0.045	in	0.53

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	-	-	-	#2
EI	371.1 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 = 460e06 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. YAM 4954 - 1824
 STRUCTURAL
 COMPONENT ONLY

T-1808800(m)

NORDIC STRUCTURES

COMPANY
TAMARACK LUMBER
3269 NORTH SERVICE ROAD
BURLINGTON, ON
by CZ
Apr. 30, 2018 17:07

PROJECT
J1-2ND FL.wwb

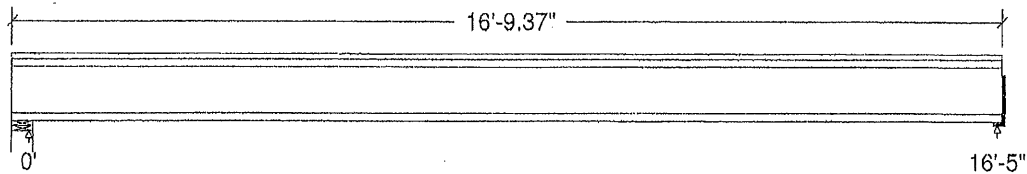


Design Check Calculation Sheet Nordic Sizer – Canada 7.0

Loads:

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

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



Unfactored:			
Dead	219		219
Live	438		438
Factored:			
Total	930		930
Bearing:			
Resistance			
Joist	2336		2012
Support	7735		-
Des ratio			
Joist	0.40		0.46
Support	0.12		-
Load case	#2		#2
Length	4-3/8		1-3/4
Min req'd	1-3/4		1-3/4
Stiffener	No		No
KD	1.00		1.00
KB support	1.00		-
fcp sup	769		-
Kzcp sup	1.15		-



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: 1 - Lumber Wall, No.1/No.2; 2 - Hanger;

Total length: 16'-9.37"; Clear span: 16'-3.22"; 3/4" nailed and glued OSB sheathing with 1/2" gypsum ceiling

This section PASSES the design-code check.

16' 9 3/4"
DWG NO. TAM4955 2/18/18
STRUCTURAL
COMPONENT ONLY

T-1808801



J1-2ND FL.wwb

Nordic Sizer – Canada 7.0

Page 2

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 930	Vr = 2336	lbs	Vf/Vr = 0.40
Moment(+)	Mf = 3818	Mr = 6255	lbs-ft	Mf/Mr = 0.61
Perm. Defl'n	0.11 = < L/999	0.55 = L/360	in	0.20
Live Defl'n	0.22 = L/905	0.41 = L/480	in	0.53
Total Defl'n	0.33 = L/603	0.82 = L/240	in	0.40
Bare Defl'n	0.26 = L/749	0.55 = L/360	in	0.48
Vibration	Lmax = 16'-5	Lv = 18'-8.4	ft	0.88
Defl'n	= 0.027	= 0.039	in	0.68

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	-	-	-	#2
EI	371.1 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} = 460e06 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.

1622
 DWG NO. YAW 4955 - 1814
 STRUCTURAL
 COMPONENT ONLY

T-1808801(v)

BC CALC® Member Report
Build 6475

Dry | 1 span | No cant.

August 1, 2018 14:41:12

Job name:

File name: TH-8C BLK145.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B1(i1109)

City, Province, Postal Code: INNISFIL

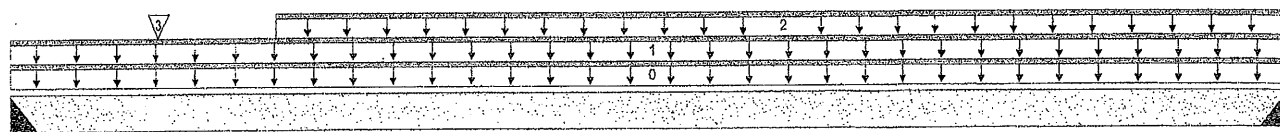
Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:



B1

08-04-12

B2

Total Horizontal Product Length = 08-04-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3"	1,943 / 0	1,022 / 0		
B2, 3"	2,278 / 0	1,189 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-04-12	Top		12			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	08-04-12	Top	240	120			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-08-12	08-04-12	Top	310	155			n/a
3	J5(i1194)	Conc. Pt. (lbs)	L	00-11-08	00-11-08	Top	129	65			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	9,263 ft-lbs	35,392 ft-lbs	26.2 %	1	04-00-12
End Shear	3,748 lbs	14,464 lbs	25.9 %	1	07-01-14
Total Load Deflection	L/999 (0.078")	n/a	n/a	4	04-02-12
Live Load Deflection	L/999 (0.051")	n/a	n/a	5	04-02-12
Max Defl.	0.078"	n/a	n/a	4	04-02-12
Span / Depth	8.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 3" x 3-1/2"	4,191 lbs	n/a	32.7 %	HGUS410
B2	Hanger 3" x 3-1/2"	4,903 lbs	n/a	38.3 %	HGUS410

Cautions

Header for the hanger HGUS410 at B1 is a Single 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF. Hanger model HGUS410 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Header for the hanger HGUS410 at B2 is a Double 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF.

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

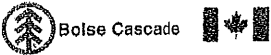
Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.

CONFORMS TO OBC 2012



DRW NO. TAM4956 #104
STRUCTURAL
COMPONENT ONLY

T-180802



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

1ST FLOOR FRAMING\Flush Beams\B1(i1109)

Dry | 1 span | No cant.

PASSED



August 1, 2018 14:41:12

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: INNISFIL

Customer:

Code reports: CCMC 12472-R

File name: TH-8C BLK145.mmdl

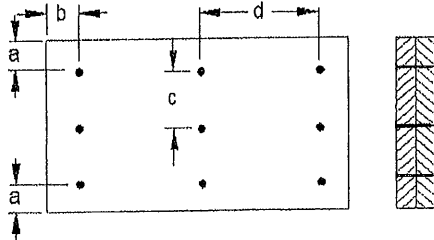
Description: 1ST FLOOR FRAMING\Flush Beams\B1(i1109)

Specifier:

Designer: CZ

Company:

Connection Diagram: Full Length of Member



a minimum = 2"
b minimum = 3"

c = 4"
d = 6"

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

Connectors are: Nails

3-1/2" ARDOX SPIRAL

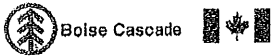


Disclosure

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

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

T-180802(n)



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

PASSED



1ST FLOOR FRAMING\Flush Beams\B2(i1097)

Dry | 1 span | No cant.

August 1, 2018 14:41:12

BC CALC® Member Report

Build 6475

Job name:

File name: TH-8C BLK145.mmdl

Address:

Description: 1ST FLOOR FRAMING\Flush Beams\B2(i1097)

City, Province, Postal Code: INNISFIL

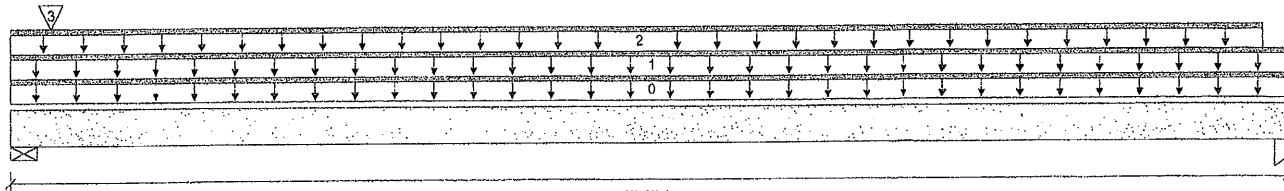
Specifier:

Customer:

Designer: CZ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 07-07-04

Reaction Summary (Down / Uplift) (lbs)

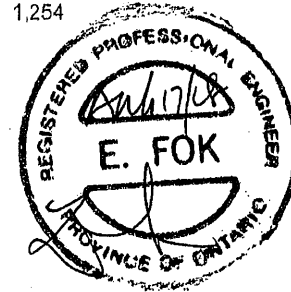
Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1,133 / 0	1,523 / 0		
B2, 5-1/4"	33 / 0	267 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-07-04	Top	1.00	0.85	1.00	1.15	00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	07-07-04	Top		60			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-05-08	Top	9	5			n/a
3	E6(i286)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	1,098	1,254			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	577 ft-lbs	11,502 ft-lbs	5.0 %	0	03-09-12
End Shear	234 lbs	4,701 lbs	5.0 %	0	01-05-06
Total Load Deflection	L/999 (0.008")	n/a	n/a	4	03-09-12
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	03-09-12
Max Defl.	0.008"	n/a	n/a	4	03-09-12
Span / Depth	6.9				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 1-3/4"	3,603 lbs	70.1 %	30.7 %	Unspecified
B2	Column 5-1/4" x 1-3/4"	374 lbs	7.7 %	5.1 %	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO CBC 2012

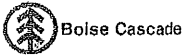
Disclosure

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

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

JOHN, YAM 4957-18H
STRUCTURAL
COMPONENT ONLY

T-1808803



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

PASSED



BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: INNISFIL

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

August 1, 2018 14:41:12

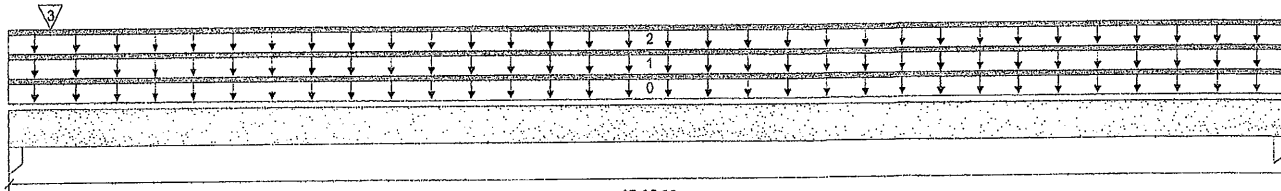
File name: TH-8C BLK145.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B3(i1121)

Specifier:

Designer: CZ

Company:



B1

Total Horizontal Product Length = 07-05-08

B2

Reaction Summary (Down / Uplift) (lbs)

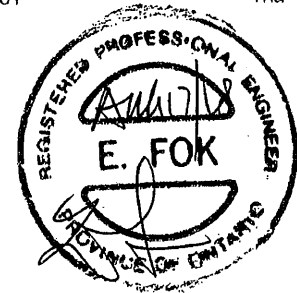
Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1,455 / 0	1,732 / 0		
B2, 3-1/2"	112 / 0	302 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	07-05-08	Top	6				00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	07-05-08	Top	60				n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	07-05-08	Top	29	15			n/a
3	E6(i286)	Conc. Pt. (lbs)	L	00-02-12	00-02-12	Top	1,346	1,431			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	691 ft-lbs	11,502 ft-lbs	6.0 %	0	03-08-12
End Shear	276 lbs	4,701 lbs	5.9 %	0	01-03-06
Total Load Deflection	L/999 (0.012")	n/a	n/a	4	03-08-12
Live Load Deflection	L/999 (0.003")	n/a	n/a	5	03-08-12
Max Defl.	0.012"	n/a	n/a	4	03-08-12
Span / Depth	7.1				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 3-1/2" x 1-3/4"	4,347 lbs	87.4 %	58.2 %	Unspecified
B2	Column 3-1/2" x 1-3/4"	423 lbs	13.1 %	8.7 %	Unspecified

Disclosure

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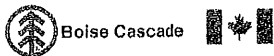
BC CALC®, BC FRAMER®, AJST™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

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

DRW NO. YAM 4950-18H
 STRUCTURAL
 COMPONENT ONLY

T-1808804



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

PASSED



BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: INNISFIL

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

August 1, 2018 14:41:12

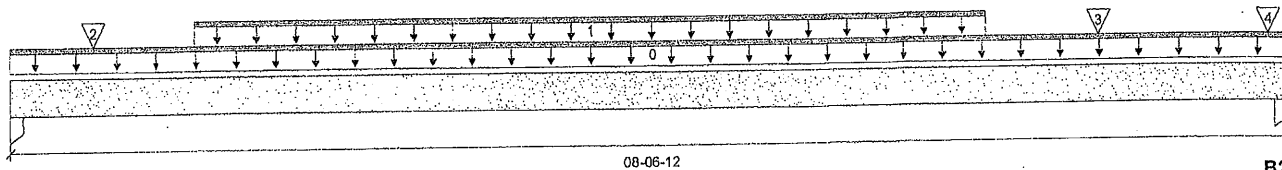
File name: TH-8C BLK145.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B4(i1110)

Specifier:

Designer: CZ

Company:



B1

B2

Total Horizontal Product Length = 08-06-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 1-3/4"	443 / 0	249 / 0		
B2, 3-1/2"	518 / 0	299 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-06-12	Top	6				00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-02-08	06-06-08	Top	106	53			n/a
2	J5(i1095)	Conc. Pt. (lbs)	L	00-06-08	00-06-08	Top	124	62			n/a
3	-	Conc. Pt. (lbs)	L	07-03-10	07-03-10	Top	147	89			n/a
4	J5(i1194)	Conc. Pt. (lbs)	L	08-05-04	08-05-04	Top	118	59			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,009 ft-lbs	17,696 ft-lbs	11.4 %	1	04-06-08
End Shear	869 lbs	7,232 lbs	12.0 %	1	07-03-06
Total Load Deflection	L/999 (0.035")	n/a	n/a	4	04-02-08
Live Load Deflection	L/999 (0.023")	n/a	n/a	5	04-02-08
Max Defl.	0.035"	n/a	n/a	4	04-02-08
Span / Depth	8.3				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 1-3/4" x 1-3/4"	975 lbs	39.2 %	26.1 %	Unspecified
B2	Column 3-1/2" x 1-3/4"	1,150 lbs	23.1 %	15.4 %	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

CONFORMS TO OBC 2012

Disclosure

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

DWYNO, TAM 4959 +181
STRUCTURAL
COMPONENT ONLY

T-180805

BC CALC® Member Report
Build 6475

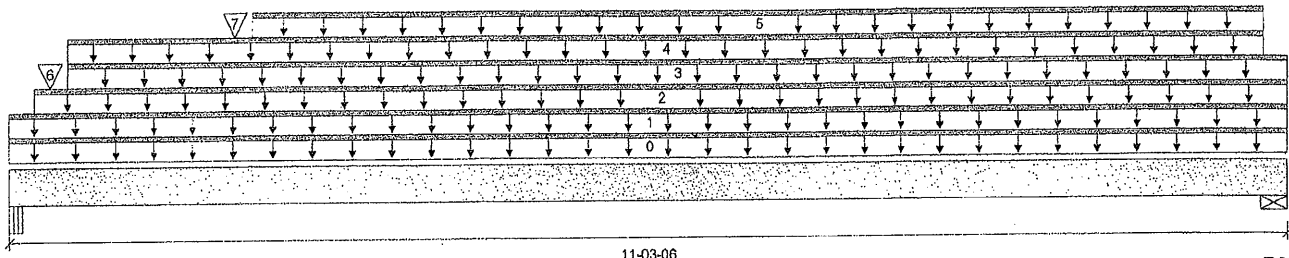
1ST FLOOR FRAMING\Flush Beams\B5(i1102)

Dry | 1 span | No cant.

August 1, 2018 14:41:12

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

File name: TH-8C BLK145.mmdl
Description: 1ST FLOOR FRAMING\Flush Beams\B5(i1102)
Specifier:
Designer: CZ
Company:



Total Horizontal Product Length = 11-03-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/4"	3,906 / 0	2,927 / 0		
B2, 2-3/8"	426 / 0	1,065 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-03-06	Top		12			00-00-00
1	WALL	Unf. Lin. (lb/ft)	L	00-00-00	11-03-06	Top		60			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-02-10	11-03-06	Top	17	9			n/a
3	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-06-00	11-03-06	Top	6				n/a
4	12(i41)	Unf. Lin. (lb/ft)	L	00-06-00	11-01-00	Top		81			n/a
5	12(i41)	Unf. Lin. (lb/ft)	L	02-01-08	11-01-00	Top	13	10			n/a
6	-	Conc. Pt. (lbs)	L	00-04-03	00-04-03	Top	2,410	1,279			n/a
7	12(i41)	Conc. Pt. (lbs)	L	01-11-12	01-11-12	Top	1,551	832			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	7,071 ft-lbs	35,392 ft-lbs	20.0 %	1	03-11-15
End Shear	4,131 lbs	14,464 lbs	28.6 %	1	01-05-02
Total Load Deflection	L/999 (0.113")	n/a	n/a	4	05-05-14
Live Load Deflection	L/999 (0.042")	n/a	n/a	5	05-02-14
Max Defl.	0.113"	n/a	n/a	4	05-05-14
Span / Depth	10.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Beam 5-1/4" x 3-1/2"	9,517 lbs	97.0 %	42.5 %	Unspecified
B2	Wall/Plate 2-3/8" x 3-1/2"	1,491 lbs	51.7 %	22.6 %	Unspecified

Notes

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

Concentrated side-load exceeds allowable magnitude for connection design. Please consult a technical representative or Professional Engineer for the design of the connection.

PROVIDE 4 ROWS OF 3-1/2" ARDOX SPIRAL NAILS @ 6" O/C FOR MULTI-PLY NAILING. MAINTAIN A MIN. 2" LUMBER EDGE / END DISTANCE. DO NOT USE AIR NAILS.

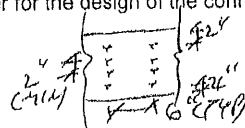
CONFORMS TO OBC 2012

Disclosure

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

DWG NO. YAM 4960-18H
STRUCTURAL
COMPONENT ONLY



T-1808806

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: INNISFIL

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

August 1, 2018 14:41:12

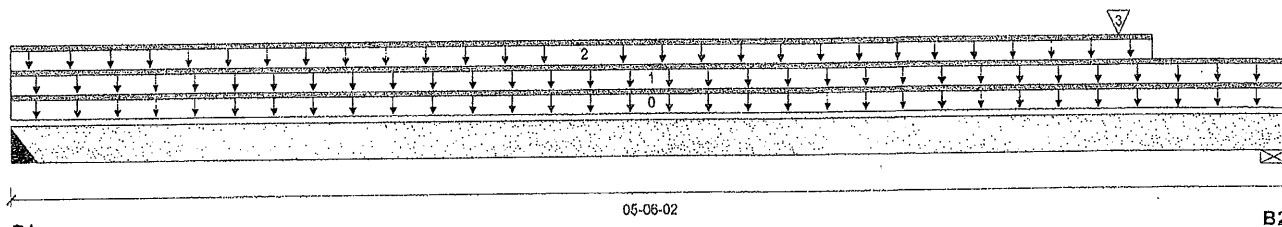
File name: TH-8C BLK145.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B6(i1151)

Specifier:

Designer: CZ

Company:



Total Horizontal Product Length = 05-06-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2"	173 / 0	105 / 0		
B2, 6-1/8"	1,906 / 0	1,019 / 0		

Load Summary

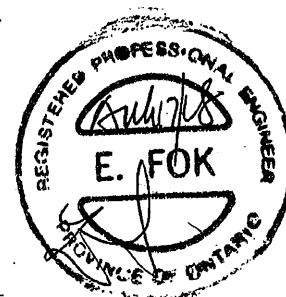
Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-06-02	Top	1.00	0.65	1.00	1.15	00-00-00
1	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	05-06-02	Top	4	2			n/a
2	FC1 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-11-04	Top	21	10			n/a
3	B1(i1109)	Conc. Pt. (lbs)	L	04-09-08	04-09-08	Top	1,950	1,026			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1,112 ft-lbs	17,696 ft-lbs	6.3 %	1	04-09-08
End Shear	783 lbs	7,232 lbs	10.8 %	1	04-00-02
Total Load Deflection	L/999 (0.006")	n/a	n/a	4	02-10-12
Live Load Deflection	L/999 (0.004")	n/a	n/a	5	02-10-12
Max Defl.	0.006"	n/a	n/a	4	02-10-12
Span / Depth	5.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Hanger 2" x 1-3/4"	391 lbs	n/a	9.2 %	HUS1.81/10
B2	Wall/Plate 6-1/8" x 1-3/4"	4,132 lbs	72.2 %	31.6 %	Unspecified


Disclosure

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

Cautions

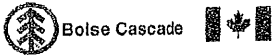
Header for the hanger HUS1.81/10 at B1 is a Single 1-3/4" x 11-7/8" VERSA-LAM® 1.7 2400 DF. Hanger model HUS1.81/10 and seat length were input by the user. Hanger has not been analyzed for adequate capacity.

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume member is fully braced.
 Hanger Manufacturer: Unassigned
 Resistance Factor phi has been applied to all presented results per CSA O86. **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

DESIGNED BY: YAM 496/1011
STRUCTURAL COMPONENT ONLY

T-1808807



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

PASSED



BC CALC® Member Report
Build 6475

Job name:

Address:

City, Province, Postal Code: INNISFIL

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

August 1, 2018 14:41:12

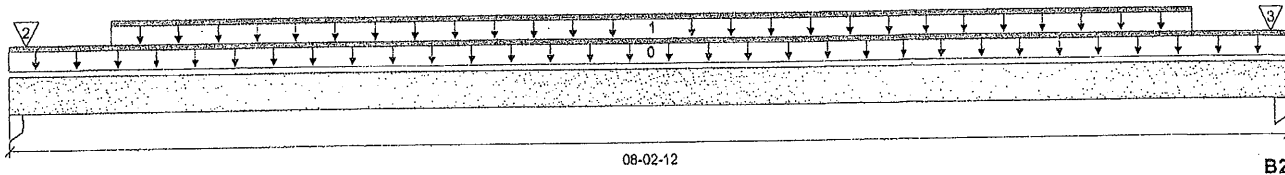
File name: TH-8C BLK145.mmdl

Description: 1ST FLOOR FRAMING\Flush Beams\B7L(i1214)

Specifier:

Designer: CZ

Company:



Total Horizontal Product Length = 08-02-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 2-3/8"	592 / 0	316 / 0		
B2, 2-3/8"	592 / 0	316 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-02-12	Top		5			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-07-08	07-07-08	Top	144	72			n/a
2	J1(i1559)	Conc. Pt. (lbs)	L	00-01-04	00-01-04	Top	88	44			n/a
3	J1(i1558)	Conc. Pt. (lbs)	L	08-01-08	08-01-08	Top	86	43			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,475 ft-lbs	11,610 ft-lbs	21.3 %	1	04-01-08
End Shear	1,093 lbs	5,785 lbs	18.9 %	1	07-02-14
Total Load Deflection	L/999 (0.079")	n/a	n/a	4	04-01-08
Live Load Deflection	L/999 (0.051")	n/a	n/a	5	04-01-08
Max Defl.	0.079"	n/a	n/a	4	04-01-08
Span / Depth	10.1				



Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Column 2-3/8" x 1-3/4"	1,284 lbs	38.0 %	25.3 %	Unspecified
B2	Column 2-3/8" x 1-3/4"	1,282 lbs	38.0 %	25.3 %	Unspecified

Notes

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

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

Calculations assume member is fully braced.

Resistance Factor phi has been applied to all presented results per CSA O86. **CONFORMS TO CBC 2014**

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

OWNED BY 4962-18H
STRUCTURAL
COMPONENT ONLY

T-188888

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: INNISFIL

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

August 1, 2018 14:41:12

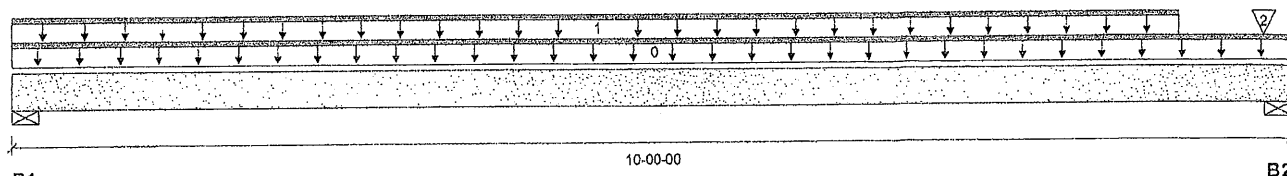
File name: TH-8C BLK145.mmdl

Description: 2ND FLOOR FRAMING\Dropped Beams\B8DR(i1322)

Specifier:

Designer: CZ

Company:



Total Horizontal Product Length = 10-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	2,477 / 0	1,291 / 0		
B2, 4"	2,352 / 0	1,228 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-00-00	Top	1.00	0.65	1.00	1.15	00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	09-01-08	Top	495	249			n/a
2	J3(i1314)	Conc. Pt. (lbs)	L	09-09-08	09-09-08	Top	308	154			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	11,240 ft-lbs	23,220 ft-lbs	48.4 %	1	05-01-08
End Shear	4,254 lbs	11,571 lbs	36.8 %	1	01-01-08
Total Load Deflection	L/444 (0.256")	n/a	54.1 %	4	04-11-08
Live Load Deflection	L/675 (0.168")	n/a	53.3 %	5	04-11-08
Max Defl.	0.256"	n/a	n/a	4	04-11-08
Span / Depth	11.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	5,330 lbs	46.9 %	31.2 %	Unspecified
B2	Wall/Plate 4" x 3-1/2"	5,062 lbs	44.5 %	29.6 %	Unspecified

Notes

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

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

Calculations assume unbraced length of Top: 00-02-12, Bottom: 00-02-12.

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.

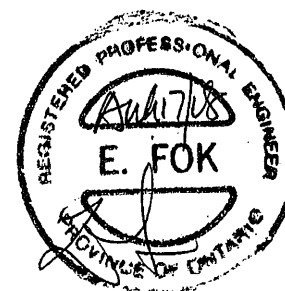
Design based on Dry Service Condition.

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.

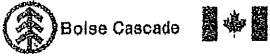
Member has no side loads.

CONFORMS TO OBC 2012



DWNU, YAM 4963-1811
STRUCTURAL
COMPONENT ONLY

T-1 80809



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

PASSED



BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: INNISFIL

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

August 1, 2018 14:41:12

File name: TH-8C BLK145.mmdl

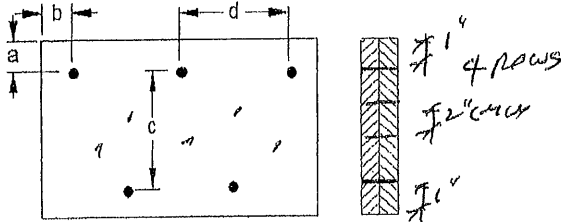
Description: 2ND FLOOR FRAMING\Dropped Beams\B8DR(i1322)

Specifier:

Designer: CZ

Company:

Connection Diagram: Full Length of Member



a minimum = 2"

b minimum = 3"

c = 1-1/2"

d = 6"

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

Member has no side loads.

Connectors are: Nails

7

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.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®
OWNED BY 4963 104
STRUCTURAL
COMPONENT ONLY

T-18088096

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: INNISFIL

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

August 1, 2018 14:41:12

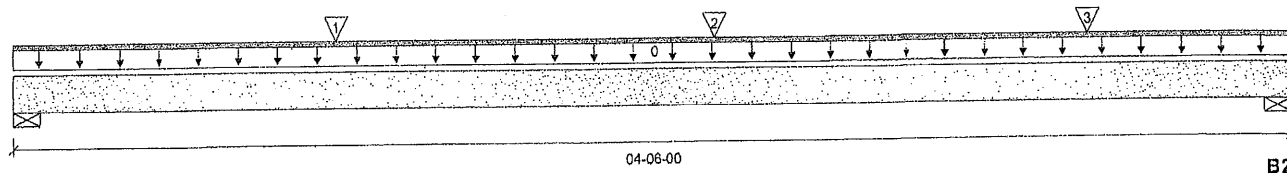
File name: TH-8C BLK145.mmdl

Description: 2ND FLOOR FRAMING\Dropped Beams\B9DR(i1306)

Specifier:

Designer: CZ

Company:



Total Horizontal Product Length = 04-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 4"	917 / 0	480 / 0		
B2, 4"	1,055 / 0	549 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-06-00	Top	100	0.65	1.00	1.15	00-00-00
1	-	Conc. Pt. (lbs)	L	01-01-08	01-01-08	Top	692	346			n/a
2	-	Conc. Pt. (lbs)	L	02-05-08	02-05-08	Top	691	345			n/a
3	-	Conc. Pt. (lbs)	L	03-09-08	03-09-08	Top	589	295			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2,323 ft-lbs	23,220 ft-lbs	10.0 %	1	02-05-08
End Shear	1,962 lbs	11,571 lbs	17.0 %	1	01-01-08
Total Load Deflection	L/999 (0.009")	n/a	n/a	4	02-03-00
Live Load Deflection	L/999 (0.006")	n/a	n/a	5	02-03-00
Max Defl.	0.009"	n/a	n/a	4	02-03-00
Span / Depth	5.0				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 4" x 3-1/2"	1,976 lbs	17.4 %	11.6 %	Unspecified
B2	Wall/Plate 4" x 3-1/2"	2,269 lbs	20.0 %	13.3 %	Unspecified


Notes

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

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

Calculations assume unbraced length of Top: 00-04-02, Bottom: 00-04-02.

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.

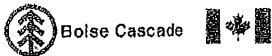
Importance Factor : Normal Part code : Part 9

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.

Member has no side loads.

DWG NO. YAM 4964-1014
 STRUCTURAL
 COMPONENT ONLY

T-1808810



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

2ND FLOOR FRAMING\Dropped Beams\B9DR(i1306)

Dry | 1 span | No cant.

PASSED



August 1, 2018 14:41:12

BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: INNISFIL

Customer:

Code reports: CCMC 12472-R

File name: TH-8C BLK145.mmdl

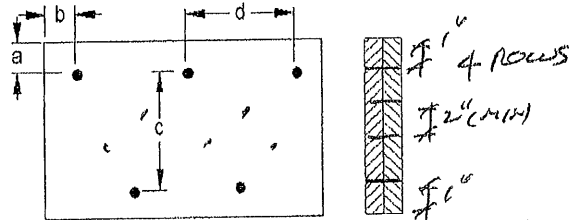
Description: 2ND FLOOR FRAMING\Dropped Beams\B9DR(i1306)

Specifier:

Designer: CZ

Company:

Connection Diagram: Full Length of Member



a minimum = 8"
b minimum = 3"

c = 1-1/2"
d = 6"

Connection design assumes point load is top-loaded. For connection design of side-loaded point loads, please consult a technical representative or professional of Record.
Member has no side loads.

Connectors are: 1 Nails

3-1/2" ARDOX SPIRAL



Disclosure

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DWG NO. TAM 4964-18H
STRUCTURAL
COMPONENT ONLY

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

T-1808810(2)

BC CALC® Member Report
Build 6475

Dry | 1 span | No cant.

August 1, 2018 14:41:12

Job name:

File name: TH-8C BLK145.mmdl

Address:

Description: 2ND FLOOR FRAMING\Flush Beams\B10(i1319)

City, Province, Postal Code: INNISFIL

Specifier:

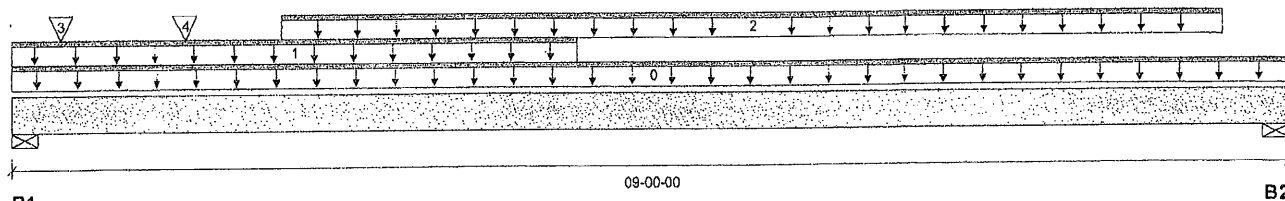
Customer:

Designer: CZ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 09-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	2,070 / 0	1,092 / 0		
B2, 5-1/2"	1,554 / 0	833 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	09-00-00	Top		12			00-00-00
1	STAIR	Unf. Lin. (lb/ft)	L	00-00-00	03-11-08	Top	240	120			n/a
2	Smoothed Load	Unf. Lin. (lb/ft)	L	01-10-08	08-06-08	Top	340	171			n/a
3	FC2 Floor Material	Conc. Pt. (lbs)	L	00-04-00	00-04-00	Top	85	42			n/a
4	J3(i1406)	Conc. Pt. (lbs)	L	01-02-08	01-02-08	Top	305	152			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	7,971 ft-lbs	35,392 ft-lbs	22.5 %	1	03-10-08
End Shear	3,372 lbs	14,464 lbs	23.3 %	1	01-05-06
Total Load Deflection	L/999 (0.069")	n/a	n/a	4	04-05-02
Live Load Deflection	L/999 (0.045")	n/a	n/a	5	04-05-02
Max Defl.	0.069"	n/a	n/a	4	04-05-02
Span / Depth	8.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 5-1/2" x 3-1/2"	4,469 lbs	43.5 %	19.0 %	Unspecified
B2	Wall/Plate 5-1/2" x 3-1/2"	3,373 lbs	32.8 %	14.4 %	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.

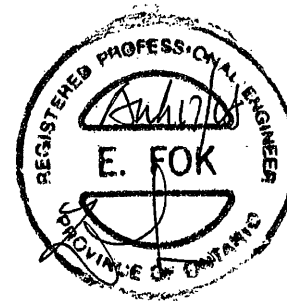
CONFORMS TO OBC 2012

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.



DWG NO. TAM 4965-18H
STRUCTURAL
COMPONENT ONLY

T-1808811



Boise Cascade



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

2ND FLOOR FRAMING\Flush Beams\B10(i1319)

Dry | 1 span | No cant.

PASSED

August 1, 2018 14:41:12



BC CALC® Member Report

Build 6475

Job name:

Address:

City, Province, Postal Code: INNISFIL

Customer:

Code reports: CCMC 12472-R

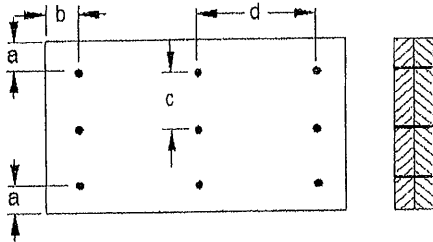
File name: TH-8C BLK145.mmdl

Description: 2ND FLOOR FRAMING\Flush Beams\B10(i1319)

Specifier:

Designer: CZ

Company:

Connection Diagram: Full Length of Member

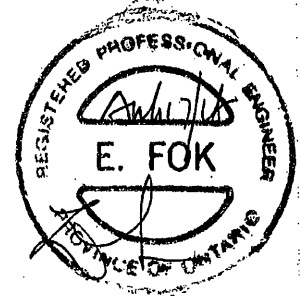
a minimum = 2"
b minimum = 3"

c = 4"
d = 6"

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

Connectors are: Nails

3-1/2" ARDOX SPIRAL

**Disclosure**

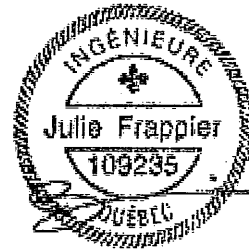
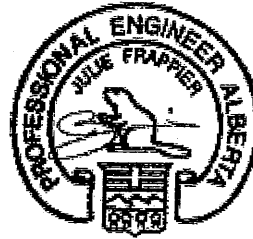
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STRUCTURAL COMPONENT ONLY

T-18088116

Maximum Floor Spans

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



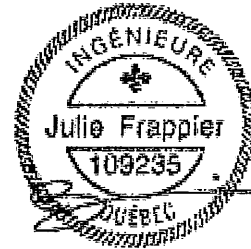
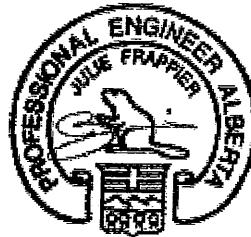
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"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

Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	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
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
14"	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
	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
16"	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	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



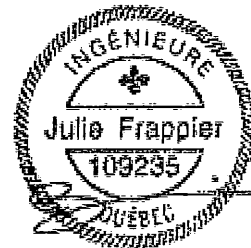
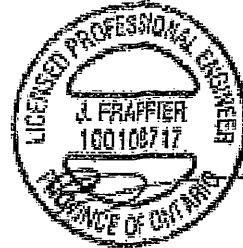
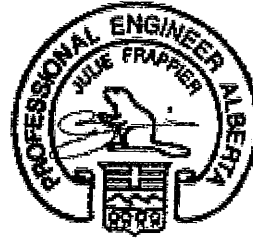
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-9"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"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

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

Maximum Floor Spans

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



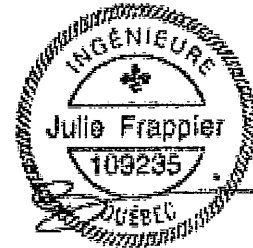
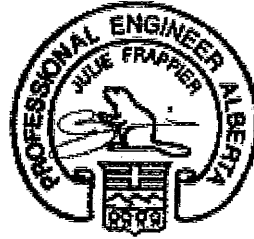
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"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

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

- 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



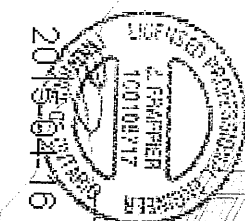
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16'-1"	15'-1"	13'-11"
	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"	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"

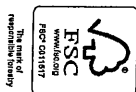
- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load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



N-C301 / November 2014

SAFETY AND CONSTRUCTION PRECAUTIONS

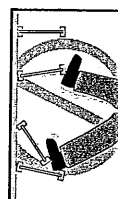
WARNING

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

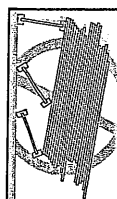
Avoid Accidents by Following these Important Guidelines:

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

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



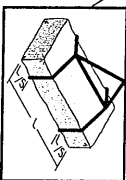
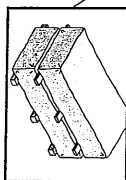
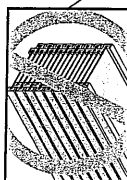
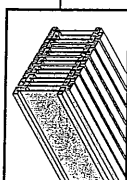
Do not walk on I-joists until fully fastened and braced, or serious injuries can result.



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

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 stock 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 floor 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

WEB STIFFENERS

RECOMMENDATIONS:

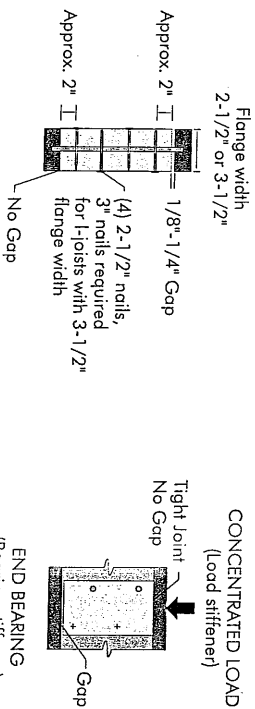
- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the Construction Guide (C101). The gap between the stiffener and the flange is at the top.
- A bearing stiffener is required when the I-joist is supported in a hanger, and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.
- A load stiffener is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

SI units conversion: 1 inch = 25.4 mm

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

Joist Depth	Joist Series	Simple spans				Multiple spans			
		12'	16'	19.2'	24'	12'	16'	19.2'	24'
9-1/2"	N1-20	15-1"	14-2"	13-9"	13-5"	16-3"	15-4"	14-10"	14-7"
	N1-40x	16-1"	15-2"	14-8"	14-1"	17-5"	16-5"	15-10"	15-5"
	N1-60x	16-3"	15-4"	14-10"	14-11"	17-7"	16-7"	16-0"	16-1"
	N1-70x	17-1"	16-1"	15-6"	15-7"	18-7"	17-4"	16-9"	16-10"
11-7/8"	N1-20	17-3"	16-3"	15-8"	15-9"	18-10"	17-6"	16-11"	17-0"
	N1-40x	18-1"	17-0"	16-5"	16-6"	18-4"	17-3"	16-8"	16-7"
	N1-60x	18-4"	17-3"	16-7"	16-9"	20-3"	18-9"	18-0"	18-1"
	N1-70x	19-6"	18-0"	17-4"	17-5"	21-6"	19-11"	19-0"	19-1"
14"	N1-80x	19-9"	18-3"	17-6"	17-7"	22-3"	20-2"	19-3"	19-4"
	N1-90x	20-2"	18-7"	17-10"	17-11"	22-9"	20-7"	19-8"	19-9"
	N1-90x	20-4"	18-9"	17-11"	18-0"	22-5"	20-9"	19-10"	19-11"
	N1-40x	20-1"	18-7"	17-10"	17-11"	22-2"	20-6"	19-8"	19-9"
16"	N1-60x	20-5"	18-1"	16-5"	16-6"	22-7"	20-11"	20-0"	20-1"
	N1-70x	21-7"	20-0"	19-1"	19-2"	23-10"	22-1"	21-1"	21-2"
	N1-80x	21-1"	20-3"	19-4"	19-5"	22-5"	21-5"	21-6"	21-6"
	N1-90x	22-5"	20-8"	19-9"	19-10"	24-9"	22-10"	21-10"	21-10"
18"	N1-90x	22-7"	20-11"	19-11"	20-0"	25-0"	23-1"	22-0"	22-2"
	N1-60x	23-3"	20-8"	19-9"	19-10"	24-7"	22-9"	21-10"	21-10"
	N1-80x	23-1"	22-1"	21-1"	21-2"	26-0"	24-10"	23-11"	23-0"
	N1-90x	24-5"	22-6"	21-5"	21-6"	26-5"	24-5"	23-3"	23-4"
24-8"	N1-90x	24-8"	22-9"	21-9"	21-10"	27-3"	25-2"	24-0"	24-1"

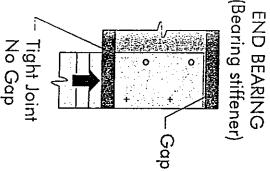
FIGURE 2
WEB STIFFENER INSTALLATION DETAILS



See table below for web stiffener size requirements

STIFFENER SIZE REQUIREMENTS

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



CCMC EVALUATION REPORT 13032-R

NORDIC I-JOIST SERIES

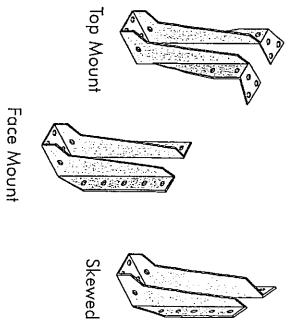
S-P-F No.2	1950F MSR	2100F MSR	1950I MSR	2100I MSR	2400I MSR	NPG Lumber
33 pieces per unit	33 pieces per unit	33 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit
N1-20	N1-40x	N1-60	N1-70	N1-80	N1-90	N1-90x
OSB 3/8"	OSB 3/8"	OSB 3/8"	OSB 3/8"	OSB 3/8"	OSB 3/8"	OSB 3/8"
1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"	1-1/2"
9-1/2"	9-1/2"	9-1/2"	9-1/2"	9-1/2"	9-1/2"	9-1/2"
11-7/8"	11-7/8"	11-7/8"	11-7/8"	11-7/8"	11-7/8"	11-7/8"
14"	14"	14"	14"	14"	14"	14"
16"	16"	16"	16"	16"	16"	16"
18"	18"	18"	18"	18"	18"	18"
20"	20"	20"	20"	20"	20"	20"
22"	22"	22"	22"	22"	22"	22"
24"	24"	24"	24"	24"	24"	24"
26"	26"	26"	26"	26"	26"	26"
28"	28"	28"	28"	28"	28"	28"
30"	30"	30"	30"	30"	30"	30"
32"	32"	32"	32"	32"	32"	32"
34"	34"	34"	34"	34"	34"	34"
36"	36"	36"	36"	36"	36"	36"
38"	38"	38"	38"	38"	38"	38"
40"	40"	40"	40"	40"	40"	40"
42"	42"	42"	42"	42"	42"	42"
44"	44"	44"	44"	44"	44"	44"
46"	46"	46"	46"	46"	46"	46"
48"	48"	48"	48"	48"	48"	48"
50"	50"	50"	50"	50"	50"	50"
52"	52"	52"	52"	52"	52"	52"
54"	54"	54"	54"	54"	54"	54"
56"	56"	56"	56"	56"	56"	56"
58"	58"	58"	58"	58"	58"	58"
60"	60"	60"	60"	60"	60"	60"
62"	62"	62"	62"	62"	62"	62"
64"	64"	64"	64"	64"	64"	64"
66"	66"	66"	66"	66"	66"	66"
68"	68"	68"	68"	68"	68"	68"
70"	70"	70"	70"	70"	70"	70"
72"	72"	72"	72"	72"	72"	72"
74"	74"	74"	74"	74"	74"	74"
76"	76"	76"	76"	76"	76"	76"
78"	78"	78"	78"	78"	78"	78"
80"	80"	80"	80"	80"	80"	80"
82"	82"	82"	82"	82"	82"	82"
84"	84"	84"	84"	84"	84"	84"
86"	86"	86"	86"	86"	86"	86"
88"	88"	88"	88"	88"	88"	88"
90"	90"	90"	90"	90"	90"	90"
92"	92"	92"	92"	92"	92"	92"
94"	94"	94"	94"	94"	94"	94"
96"	96"	96"	96"	96"	96"	96"
98"	98"	98"	98"	98"	98"	98"
100"	100"	100"	100"	100"	100"	100"

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

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

I-JOIST HANGERS

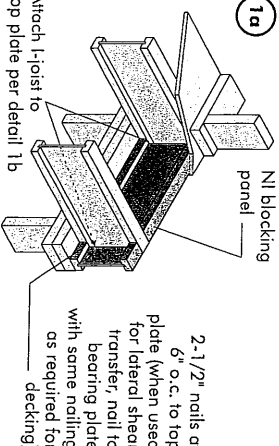
- Hangers shown illustrate the three most commonly used metal hangers to support I-joists.
- All nailing must meet the hanger manufacturer's recommendations.
- Hangers should be selected based on the joist depth, flange width and load capacity based on the maximum spans.
- Web stiffeners are required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



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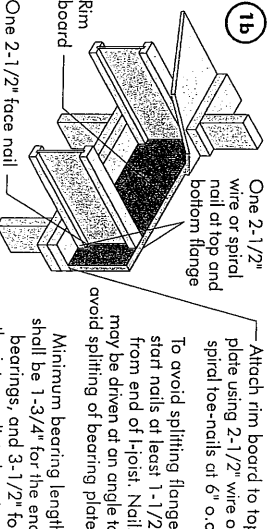


1. Before installing out floor system components, verify that I-joist flange widths match hanger widths. If not, contact the manufacturer for replacement parts.
2. Except for wiring to length, I-joist flanges should **never** be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges 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.



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

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

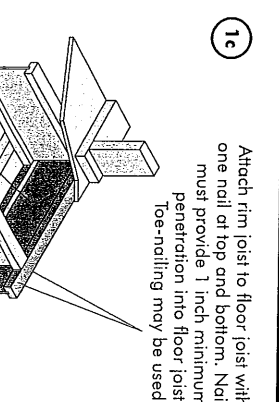
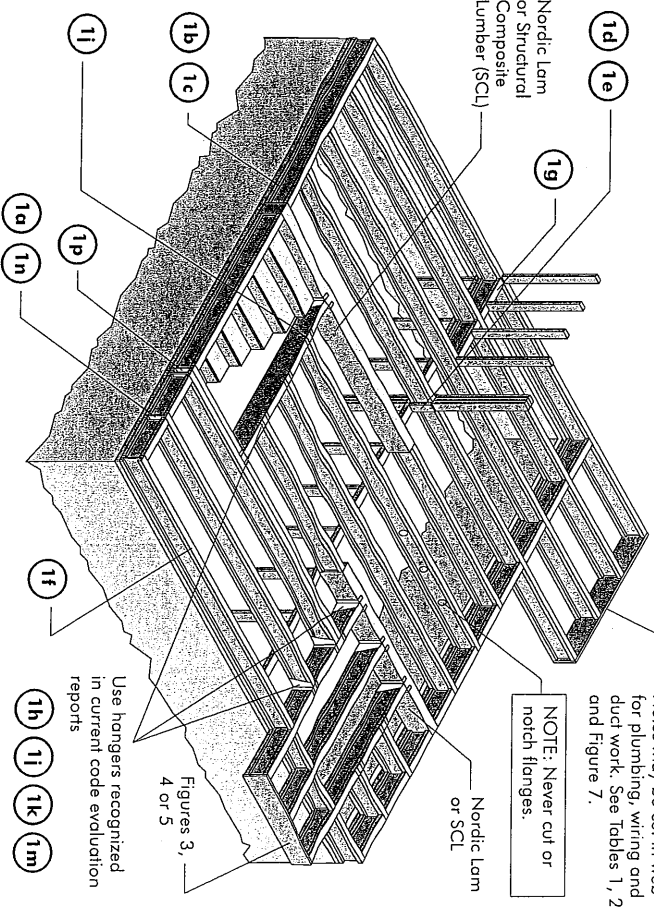


Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

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

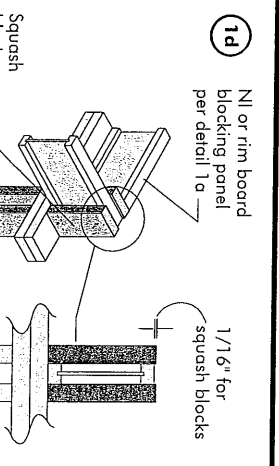
FIGURE 1
TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS

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



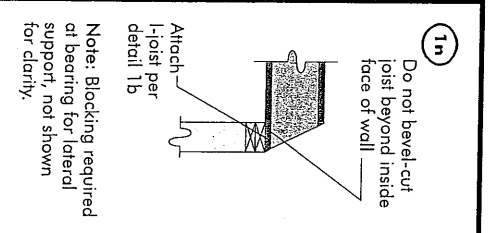
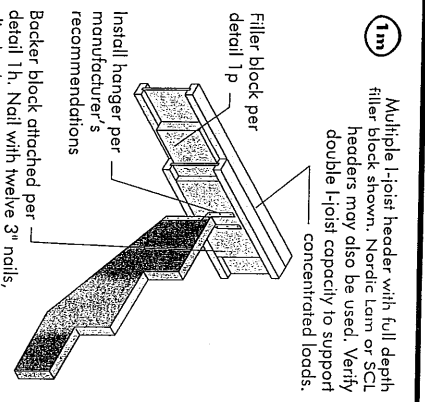
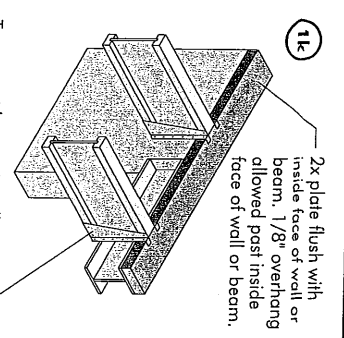
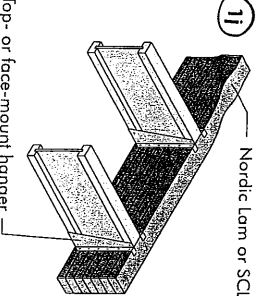
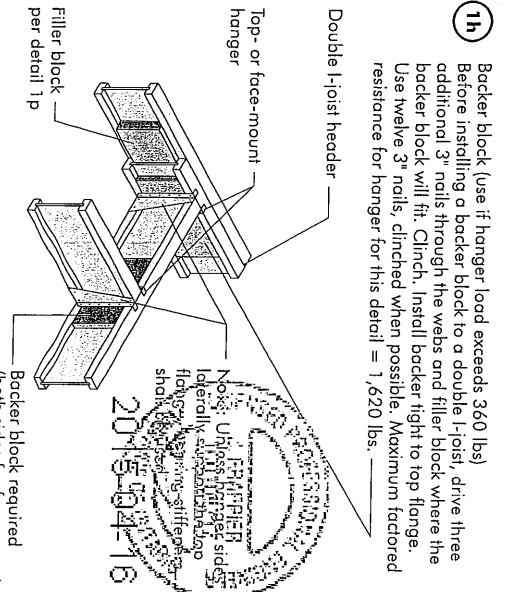
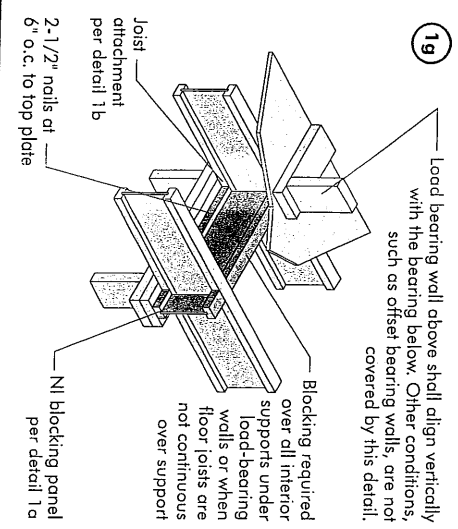
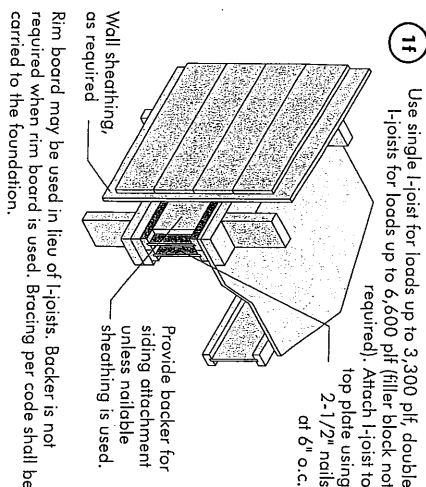
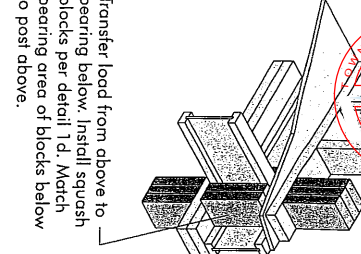
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI rim joist per detail 1a	3,300

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



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

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



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"

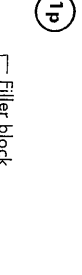
* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-Q325 or CAN/CSA-Q437 Standard.

** 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".

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

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

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

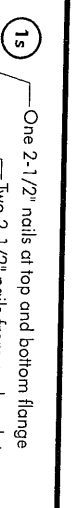


Notes:

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

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

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



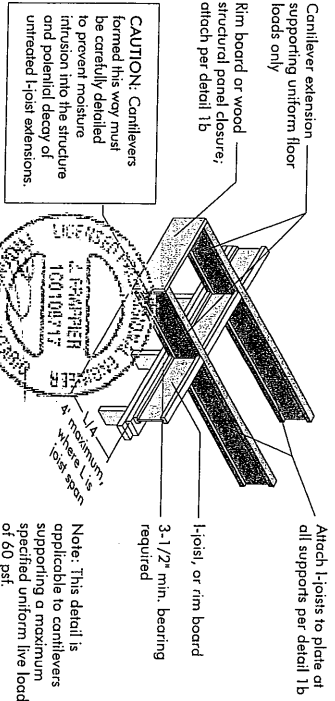
Optional: Minimum 1x4 inch strip applied to underside of joist at blocking line or 1/2 inch minimum gypsum ceiling attached to underside of joists.

Notes:

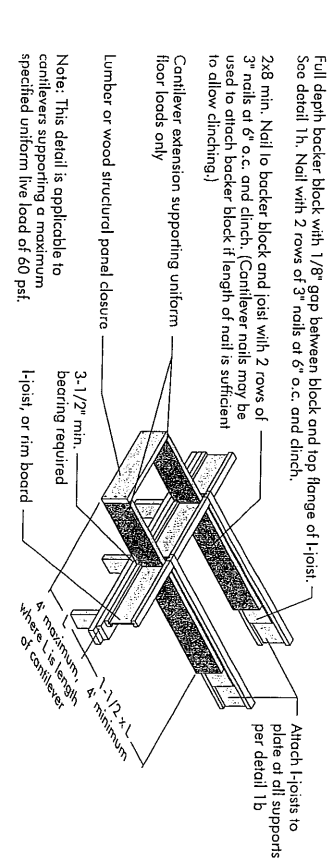
- In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.
- All nails are common spiral in this detail.

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

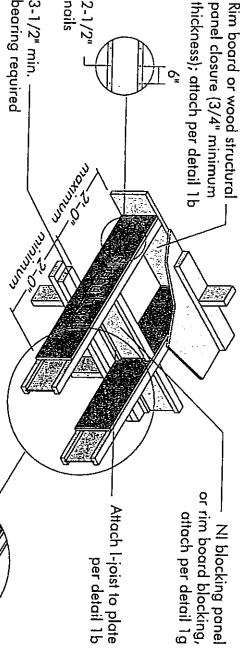


3b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE

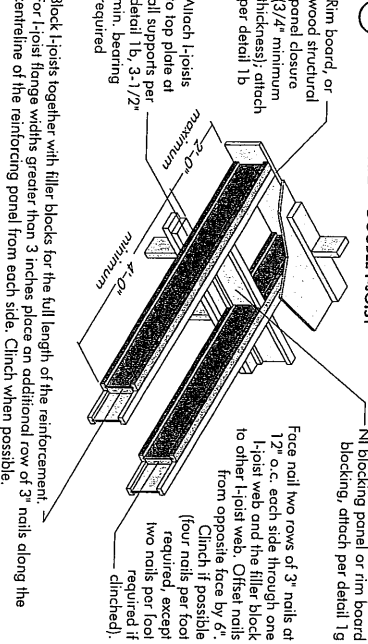


Method 2 — SHEATHING REINFORCEMENT TWO SIDES

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

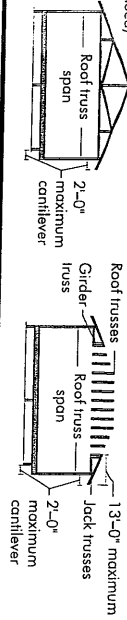
Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail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

4b Alternate Method 2 — DOUBLE I-JOIST



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

FIGURE 4 (continued)
See table below for NI reinforcement requirements of cantilever.



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 TRUSS SPAN (ft.)	ROOF LOADING (UNFACTORED)				JOIST SPACING (in.)			
		LL = 30 psf, DL = 15 psf	LL = 40 psf, DL = 15 psf	LL = 50 psf, DL = 15 psf	LL = 60 psf, DL = 15 psf	12	16	19.2	24
9-1/2"	26	N	N	N	N	N	N	N	N
	28	N	N	N	N	N	N	N	N
	30	N	N	N	N	N	N	N	N
	32	N	N	N	N	N	N	N	N
	34	N	N	N	N	N	N	N	N
11-7/8"	26	N	N	N	N	N	N	N	N
	28	N	N	N	N	N	N	N	N
	30	N	N	N	N	N	N	N	N
	32	N	N	N	N	N	N	N	N
	34	N	N	N	N	N	N	N	N
14"	26	N	N	N	N	N	N	N	N
	28	N	N	N	N	N	N	N	N
	30	N	N	N	N	N	N	N	N
	32	N	N	N	N	N	N	N	N
	34	N	N	N	N	N	N	N	N
16"	26	N	N	N	N	N	N	N	N
	28	N	N	N	N	N	N	N	N
	30	N	N	N	N	N	N	N	N
	32	N	N	N	N	N	N	N	N
	34	N	N	N	N	N	N	N	N

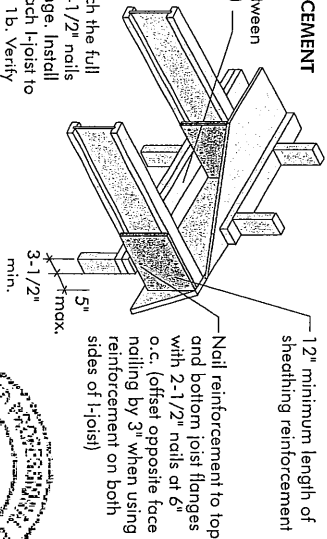
1. N = No reinforcement required.
2. N = NI reinforced with 3/4" wood structural panel on one side only.
3. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design dead load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 1/2" o.c. 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. The floor span requirements for a design dead load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 1/2" o.c. requirements for lesser spacing.

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

5a SHEATHING REINFORCEMENT

Provide full depth blocking between joists over support (not shown)

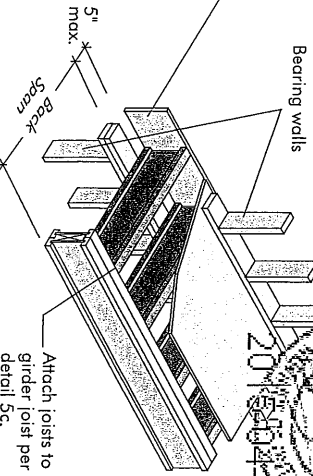
Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail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



5b SET-BACK DETAIL

Rim board or wood structural panel closure (3/4" minimum thickness), attach per detail 1b.

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

Vertical solid sawn blocks (2x6 S-P-F No. 2 or better) nailed through joist web and web of girder using 2-1/2" nails.

Alternate for opposite side.

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

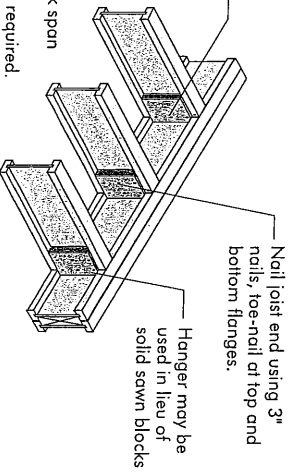
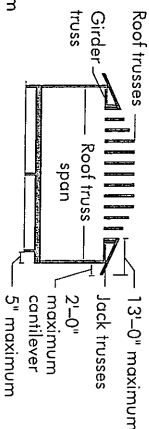
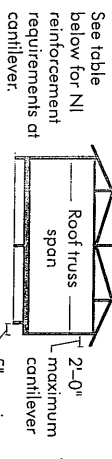


FIGURE 5 (continued)



BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	TRUSS SPAN (ft.)	ROOF LOADING (UNFACTORED)				ROOF LOADING (UNFACTORED)			
		LL = 30 psf, DL = 15 psf	LL = 40 psf, DL = 15 psf	LL = 50 psf, DL = 15 psf	LL = 60 psf, DL = 15 psf	LL = 30 psf, DL = 15 psf	LL = 40 psf, DL = 15 psf	LL = 50 psf, DL = 15 psf	LL = 60 psf, DL = 15 psf
		JOIST SPACING (in.)	JOIST SPACING (in.)	JOIST SPACING (in.)	JOIST SPACING (in.)	JOIST SPACING (in.)	JOIST SPACING (in.)	JOIST SPACING (in.)	JOIST SPACING (in.)
9-1/2"	26	1	X	X	X	X	X	X	X
	28	1	X	X	X	X	X	X	X
	30	2	X	X	X	X	X	X	X
	32	2	X	X	X	X	X	X	X
	34	2	X	X	X	X	X	X	X
11-7/8"	26	2	X	X	X	X	X	X	X
	28	N	2	X	X	X	X	X	X
	30	N	2	X	X	X	X	X	X
	32	1	2	X	X	X	X	X	X
	34	1	2	X	X	X	X	X	X
14"	26	1	X	X	X	X	X	X	X
	28	1	X	X	X	X	X	X	X
	30	1	2	X	X	X	X	X	X
	32	1	2	X	X	X	X	X	X
	34	1	2	X	X	X	X	X	X
16"	26	1	X	X	X	X	X	X	X
	28	N	1	2	X	X	X	X	X
	30	N	1	2	X	X	X	X	X
	32	N	1	2	X	X	X	X	X
	34	N	1	2	X	X	X	X	X

1. N = No reinforcement required.
1 = NI reinforced with 3/4" wood structural panel on one side only.
2 = NI reinforced with 3/4" wood structural panel on both sides, or double 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.
- 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.
- 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.
- For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting well 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.
- Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

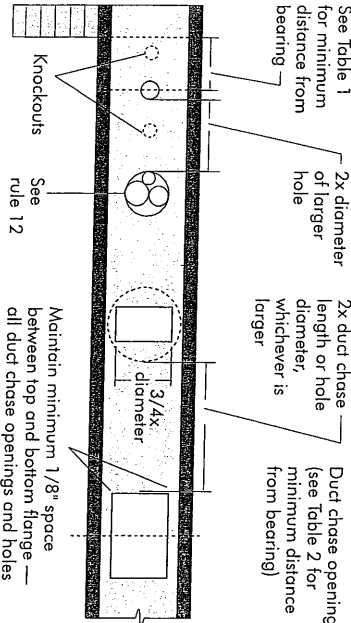
RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

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

- I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- When possible, field-cut holes should be centred on the middle of the web.
- The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.
- The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- A knockout is **not** considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.
- A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
- All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
- Limit three maximum size holes per span, of which one may be a duct chase opening.
- A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

FIGURE 7

FIELD-CUT HOLE LOCATOR



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

Holes in webs should be cut with a sharp saw.

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

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

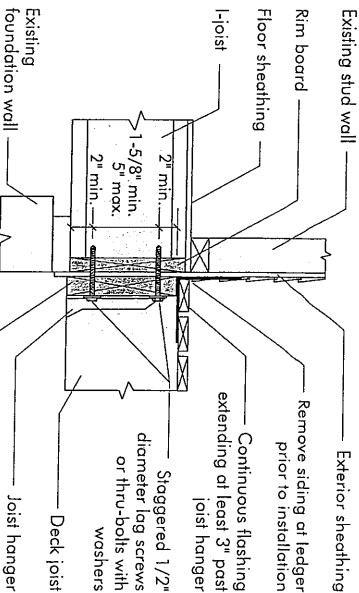
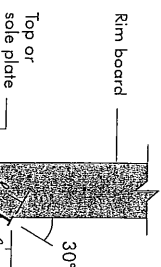
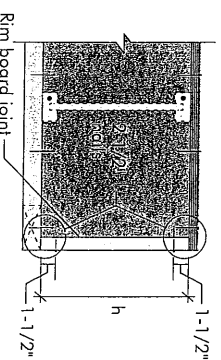
Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of hole (ft-in.)														Span adjustment Factor
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	
9-1/2	N-20	0-7	1-6	2-10	4-3	5-8	6-0	***	***	***	***	***	***	***	***	***
	N-40x	0-7	1-6	3-0	5-4	6-0	6-4	***	***	***	***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

Above table may be used for joist members of 4-lb/ft.

- ## FASTENERS FOR SHEATHING AND SUBFLOORING⁽¹⁾

1. Fasteners of sheathing and subflooring shall conform to the above table.
2. Stipples 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.

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.



2015-04-16



Furthermore, Chantiers Cibougamu 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.

