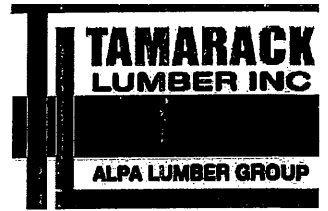


Products				
PlotID	Length	Product	Plies	Net Qty
J1	12-00-00	9 1/2" NI-40x	1	5
J2	10-00-00	9 1/2" NI-40x	1	7
J3	16-00-00	11 7/8" NI-40x	1	8
J3DJ	16-00-00	11 7/8" NI-40x	2	4
J4	14-00-00	11 7/8" NI-40x	1	14
J4DJ	14-00-00	11 7/8" NI-40x	2	8
J5	12-00-00	11 7/8" NI-40x	1	2
J6	4-00-00	11 7/8" NI-40x	1	3
B20L	12-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B28L	10-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B1	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3
B3	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B11	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	2	2

Connector Summary		
Qty	Manuf	Product
7	H1	IUS2.56/11.88
6	H1	IUS2.56/11.88
9	H1	IUS2.56/11.88
4	H1	IUS2.56/11.88
1	H2	HGUS410
1	H2	HGUS410
4	H3	HU312-2



FROM PLAN DATED: JUNE 2017

BUILDER: GREENPARK HOMES

SITE: RUSSELL GARDENS

MODEL: DEWBERRY 12

ELEVATION: 1

LOT:

CITY: WATERDOWN

SALESMAN: M D

DESIGNER: AJ

REVISION: lbv

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

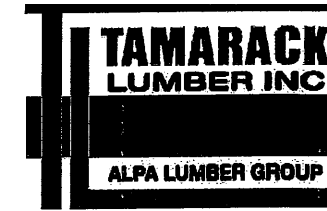
DEAD LOAD: 15.0 lb/ft²

TILED AREAS: 20 lb/ft²

SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2018-03-02

1st FLOOR



FROM PLAN DATED: JUNE 2017

BUILDER: GREENPARK HOMES

SITE: RUSSELL GARDENS

MODEL: DEWBERRY 12

ELEVATION: 1

LOT:

CITY: WATERDOWN

SALESMAN: M D

DESIGNER: AJ

REVISION: lbv

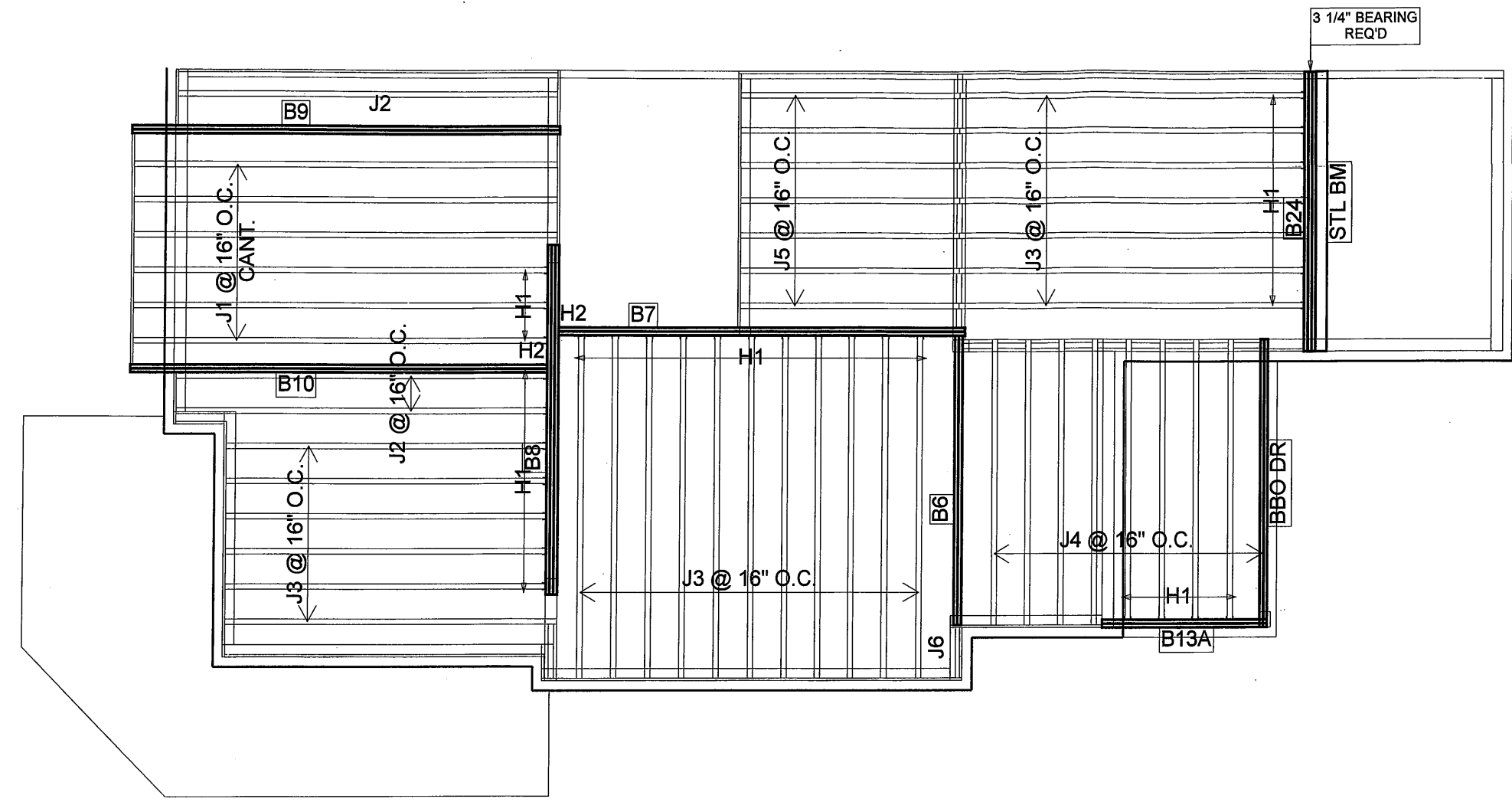
NOTES:
REFER TO THE NORDIC **INSTALLATION GUIDE** FOR PROPER STORAGE AND INSTALLATION. **SQUASH BLOCKS** OF 2x4, 2x6, 2x8 #2 S.P.F. REQ'D UNDER INTERIOR UNIFORM LOAD BEARING WALLS. **MULTIPLE SQUASH BLOCKS** REQ'D UNDER CONCENTRATED LOADS. SEE FIGURE 1. **CANTILEVERED JOISTS** INCLUDING **CANT' OVER 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/ft²
TILED AREAS: 20 lb/ft

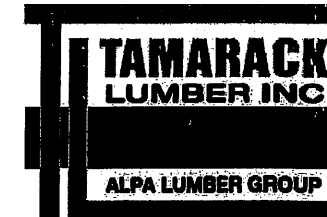
SUBFLOOR: 3/4" GLUED AND NAILED

DATE: 2018-03-02

2nd FLOOR



Products					Connector Summary		
PlotID	Length	Product	Plies	Net Qty	Qty	Manuf	Product
J1	18-00-00	11 7/8" NI-40x	1	6	15	H1	IUS2.56/11.88
J2	16-00-00	11 7/8" NI-40x	1	3	17	H1	IUS2.56/11.88
J3	14-00-00	11 7/8" NI-40x	1	24	2	H2	HGUS410
J4	12-00-00	11 7/8" NI-40x	1	9			
J5	10-00-00	11 7/8" NI-40x	1	7			
J6	2-00-00	11 7/8" NI-40x	1	1			
B10	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2			
B9	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2			
B7	16-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2			
B8	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3			
B6	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2			
B24	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3			
B13A	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2			



FROM PLAN DATED: JUNE 2017

BUILDER: GREENPARK HOMES

SITE: RUSSELL GARDENS

MODEL: DEWBERRY 12

ELEVATION: 1

LOT:

CITY: WATERDOWN

SALESMAN: M D

DESIGNER: AJ

REVISION: lbv

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

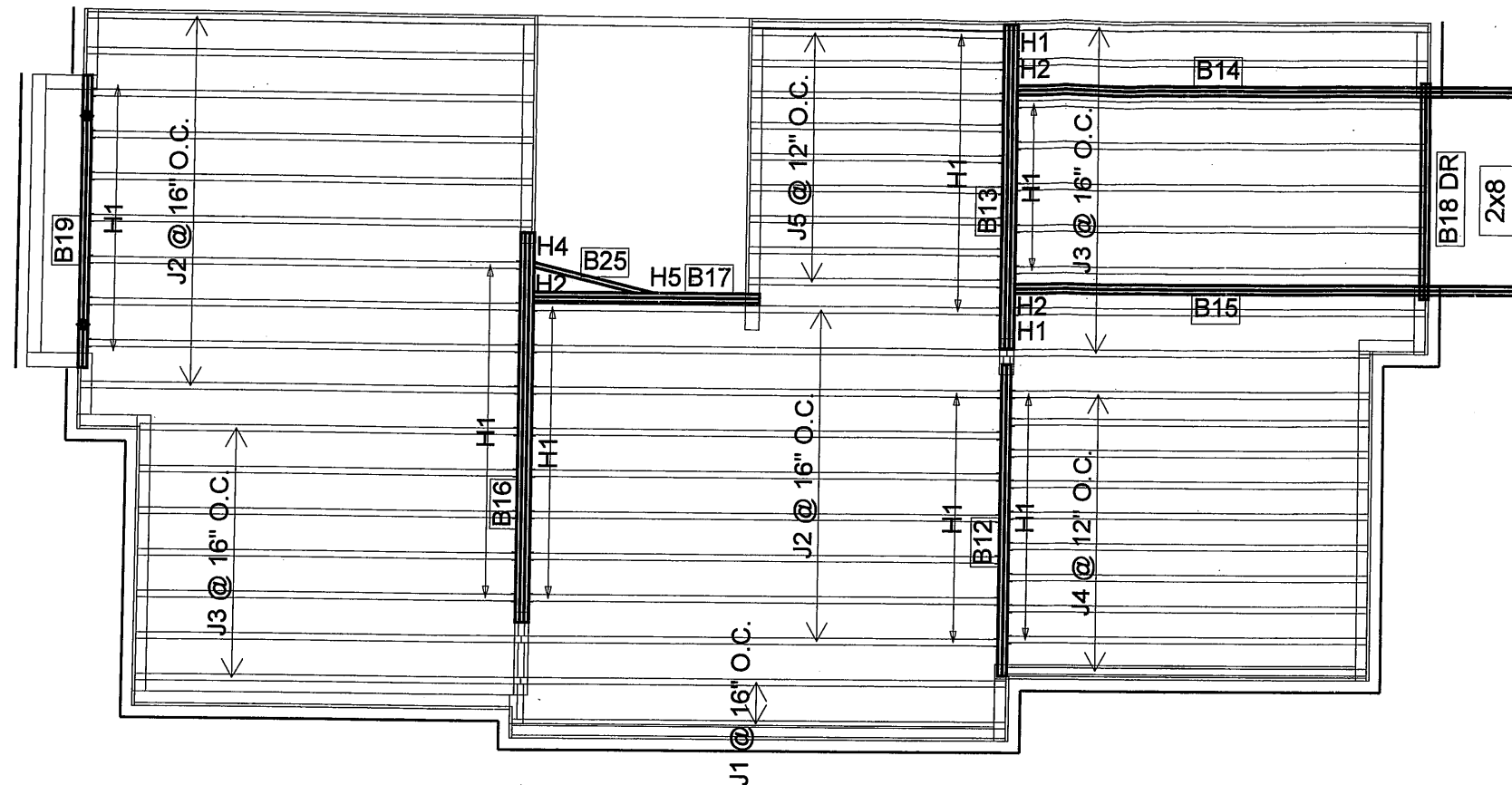
DEAD LOAD: 15.0 lb/ft²

TILED AREAS: 20 lb/ft²

SUBFLOOR: 5/8" GLUED AND NAILED

DATE: 2018-03-07

UPPER FLOOR



Products					Connector Summary		
PlotID	Length	Product	Plies	Net Qty	Qty	Manuf	Product
J1	18-00-00	11 7/8" NI-40x	1	2	23	H1	IUS2.56/11.88
J2	16-00-00	11 7/8" NI-40x	1	19	34	H1	IUS2.56/11.88
J3	14-00-00	11 7/8" NI-40x	1	16	3	H2	HGUS410
J4	12-00-00	11 7/8" NI-40x	1	10	1	H4	LSSUI25
J5	10-00-00	11 7/8" NI-40x	1	9	1	H5	LS90
B14	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2			
B15	18-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2			
B16	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3			
B12	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2			
B13	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	3	3			
B19	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2			
B17	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2			
B18 DR	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2			
B25	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1			



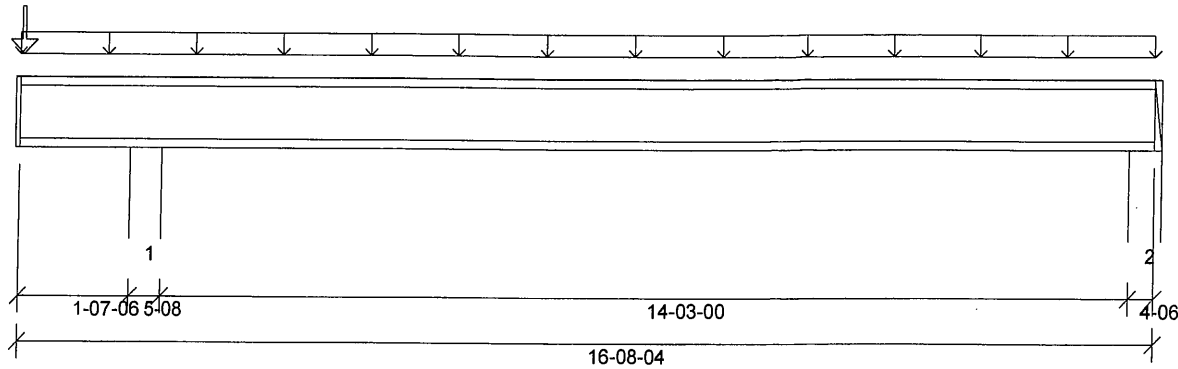
Customer:
Street 1:
City:
From Plan Date: **JUNE 2017**

Job Name: **DEWBERRY 12**
Level: **2ND FLOOR**
Label: **J1 - i3421**
Type: **FloorJoist**

1 Ply Member
11 7/8" NI-40x

Status:
**Design
Passed**

Graphical Illustration Not to Scale. Pitch: 0/12 Designed by: MiTek SAPPHIRE™ Structure Version 8.0.3.230.Update5 ReportVersion: 2016.08.17 07/11/2017 10:35



DESIGN INFORMATION

Building Code: NBCC 2010, Part9
Design Methodology: LSD
Service Condition: Dry
System Live Load: 40.0 psf
System Dead Load: 20.0 psf
System Spacing: 16" c.c
LL Deflection Limit: L/480,
TL Deflection Limit: L/240,

Floor Assembly Requirements:

Subfloor: name of the method and its
Connection: name of the method and its
Ceiling: None
Blocking: None
Bridging: None
Strapping: None

Lateral Restraint Requirements:

Top and bottom edges of member to be fully restrained laterally, or have the following maximum unbraced length:

Top: 0-00 Bottom: 14-03-00

Factored Resistance of Support Material:

- 534 psi Wall @ 1-10-02
- 534 psi Wall @ 16-04-14

ANALYSIS RESULTS

Design Criteria	Location	Load Combination	Design	Limit	Result
Max Factored Moment:	9-04-15	1.25D + 1.5L + 0.5S	2765 lb ft	5630 lb ft	Passed - 49%
Max Factored Shear:	2-00-15	1.25D + 1.5L + 0.5S	850 lb	2106 lb	Passed - 40%
Live Load (LL) Deflection:	9-01-15	L + 0.5S	0.136"	L/480	Passed - L/999
Total Load (TL) Deflection:	9-03-00	D + L + 0.5S	0.189"	L/240	Passed - L/905
Vibration Controlled Span:	-	-	14-03-00	18-00-07	Passed - 79%

SUPPORT AND REACTION INFORMATION

Support Location	Input Bearing Length	Controlling Load Combination	LDF	Factored Downward Reaction	Factored Uplift Reaction	Factored Resistance of Member	Factored Resistance of Support	Result
1-10-02	5-08	1.25D + 1.5L + 0.5S	1.00	1399 lb		5590 lb	7343 lb	Passed - 25%
16-04-14	4-06	1.25D + 1.5L + 0.5S	1.00	835 lb		2340 lb	5841 lb	Passed - 36%

SPECIFIED LOADS

Type	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)
Uniform	0-00	16-08-04	FC4 Floor Material	27.00 lb/ft	53.00 lb/ft	-
Point	0-09	0-09	-	148.00 lb	44.00 lb	104.00 lb

UNFACTORED REACTIONS

ID	Start Loc	End Loc	Source	Dead (D)	Live (L)	Snow (S)
1	1-07-06	2-00-14	E12(i194)	416.00 lb	548.00 lb	117.00 lb
2	16-03-14	16-08-04	6(i284)	182.00 lb	408.00/-12.00 lb	-13.00 lb

DESIGN NOTES

- The dead loads used in the design of this member were applied to the structure as sloped dead loads.
- Analysis and Design has been performed using precision loading from actual modeled conditions. Some loads may have been modified to simplify reporting.
- Tributary Loads have been generated based on actual spacing between members in the model which may differ from the default system spacing. The actual loads applied to the member are shown in the Specified Loads table.
- Design for vibration control is based on the concluding report: "Development of Design Procedures for Vibration Controlled Spans Using Engineered Wood Members," dated Sep-04-97
- Transfer reactions may differ from design results as allowed per building codes and standard load distribution practices.
- This report is based on modeled conditions input by the user. Actual field conditions may differ from those shown. These results should be reviewed by a qualified design professional.
- Review all loads and reactions to ensure that the member/bearing/connector/structure can resist adequately. Anchorage for uplift reactions to be specified by others. Installation of member as per manufacturer's instruction.
- The deflection at the cantilever for either live and/or total loads is less than 3/8" and therefore has been excluded from the deflection ratio considerations.

CONFORMS TO OBC 2012



DWB NO. TAM50140-17
STRUCTURAL
COMPONENT ONLY



Boise Cascade

Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B1(i2233)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

July 10, 2017 17:54:50

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports:

CCMC 12472-R

File Name: DEWBERRY 12.mmdl

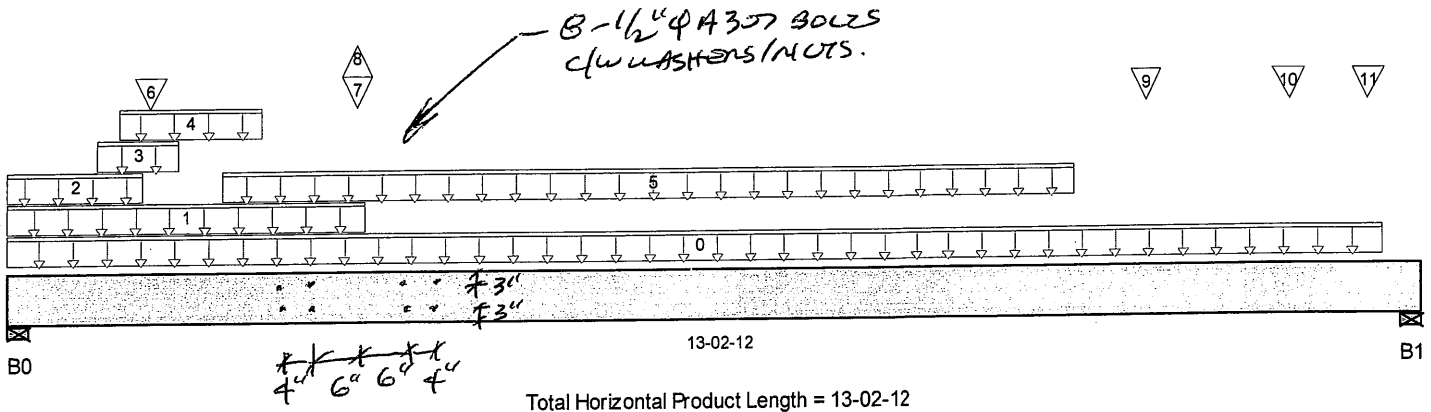
Description: Designs\Flush Beams\Basement\Flush Beams\B1(i2233)

Specifier:

Designer:

Company:

Misc:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 6-9/16"	8,061 / 37	4,891 / 0	0 / 8	
B1, 7-3/4"	5,130 / 11	2,842 / 0	0 / 2	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC 3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	12-10-08	23	11			n/a
1	8(i295)	Unf. Lin. (lb/ft)	L	00-00-00	03-04-00		81			n/a
2	8(i295)	Unf. Lin. (lb/ft)	L	00-00-00	01-03-04	105	80			n/a
3	8(i295)	Unf. Lin. (lb/ft)	L	00-10-00	01-07-04	628	395			n/a
4	8(i295)	Unf. Lin. (lb/ft)	L	01-00-08	02-04-08	548	314			n/a
5	Smoothed Load	Unf. Lin. (lb/ft)	L	02-00-00	10-00-00	259	130			n/a
6	J4(i2221)	Conc. Pt. (lbs)	L	01-04-00	01-04-00	291	146			n/a
7	8(i295)	Conc. Pt. (lbs)	L	03-03-00	03-03-00	6,449	3,558	-10		n/a
8	8(i295)	Conc. Pt. (lbs)	L	03-03-00	03-03-00	-48				n/a
9	J3(i2281)	Conc. Pt. (lbs)	L	10-08-00	10-08-00	399	199			n/a
10	J3(i2196)	Conc. Pt. (lbs)	L	12-00-00	12-00-00	399	199			n/a
11	B2(i2230)	Conc. Pt. (lbs)	L	12-08-12	12-08-12	1,718	902			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	40,853 ft-lbs	60,415 ft-lbs	67.6%	21	03-03-00
End Shear	17,212 lbs	21,696 lbs	79.3%	21	01-06-07
Total Load Defl.	L/317 (0.461")	0.608"	75.8%	56	06-00-00
Live Load Defl.	L/497 (0.294")	0.405"	72.4%	83	06-00-00
Max Defl.	0.461"	n/a	n/a	56	06-00-00
Span / Depth	12.3	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
------------------	--------------	--------	-----------------------------	----------------------------	----------





Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP Basement\Flush Beams\B1(i2233)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

July 10, 2017 17:54:50

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B1(i2233)

Specifier:

Designer:

Company:

Misc:

B0	Wall/Plate	6-9/16" x 5-1/4"	18,206 lbs	99.1%	43.4%	Unspecified
B1	Wall/Plate	7-3/4" x 5-1/4"	11,248 lbs	51.8%	22.7%	Unspecified

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

Notes

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

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

Calculations assume member is fully braced.

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

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

CONFORMS TO OBC 2012

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

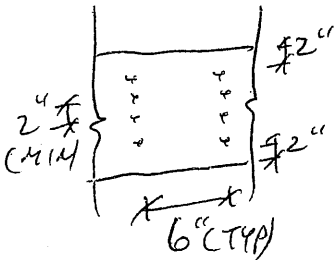
Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Connection Diagram

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

OK with
NAILING
+
BOLTING



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

+
BOLTS



10/2

DWB NO. TAM 50150-17
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

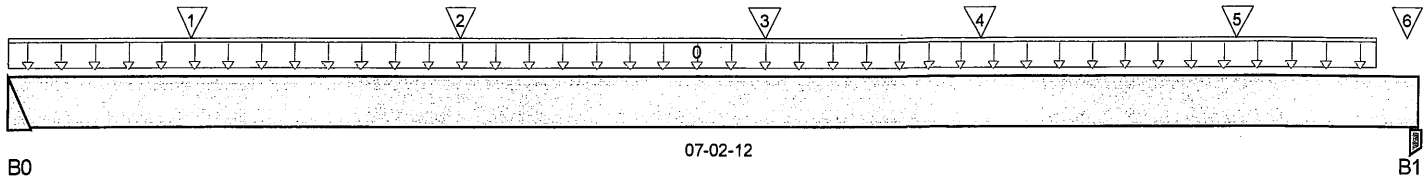
Description: Designs\Flush Beams\Basement\Flush Beams\B2(i2230)

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 07-02-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	1,740 / 0	913 / 0		
B1, 2-5/8"	2,983 / 0	1,609 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	User Load	Unf. Lin. (lb/ft)	L	00-00-00	07-00-02	240	120			n/a
1	J4DJ(i2251)	Conc. Pt. (lbs)	L	00-11-02	00-11-02	359	180			n/a
2	J5(i2185)	Conc. Pt. (lbs)	L	02-03-10	02-03-10	361	180			n/a
3	J4DJ(i2309)	Conc. Pt. (lbs)	L	03-10-02	03-10-02	377	188			n/a
4	J4(i2294)	Conc. Pt. (lbs)	L	04-11-10	04-11-10	332	166			n/a
5	J4(i2328)	Conc. Pt. (lbs)	L	06-03-10	06-03-10	360	180			n/a
6	PBO2(i386)	Conc. Pt. (lbs)	L	07-01-14	07-01-14	1,251	700			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	6,742 ft-lbs	38,727 ft-lbs	17.4%	1	03-10-02
End Shear	2,994 lbs	14,464 lbs	20.7%	1	06-00-04
Total Load Defl.	L/999 (0.042")	n/a	n/a	4	03-06-10
Live Load Defl.	L/999 (0.028")	n/a	n/a	5	03-06-10
Max Defl.	0.042"	n/a	n/a	4	03-06-10
Span / Depth	7	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 3-1/2"	3,751 lbs	n/a	43.9%	Hanger
B1 Post	2-5/8" x 3-1/2"	6,486 lbs	86.9%	57.9%	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 DBC 2012



pg 1/2

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B2(i2230

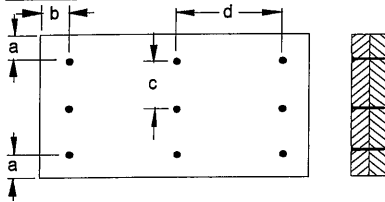
Specifier:

Designer:

Company:

Misc:

Connection Diagram



a minimum = 2" c = 3-15/16"
b minimum = 3" d = 6"

Calculated Side Load = 525.8 lb/ft

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

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

BC CALO®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.



DWB NO. TAM 50151-17
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

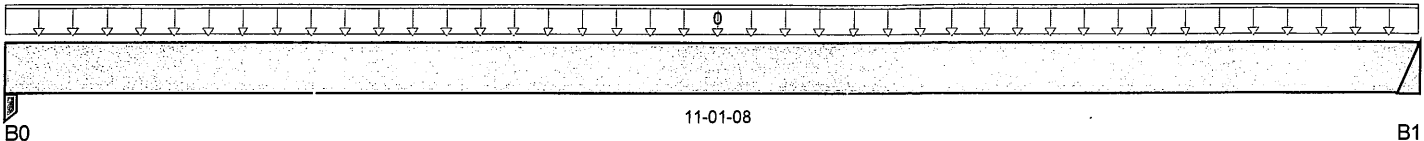
Description: Designs\Flush Beams\Basement\Flush Beams\B3(i2247)

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 11-01-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	113 / 0	124 / 0		
B1	110 / 0	121 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0 FC3 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-01-08	20	10			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	838 ft-lbs	38,727 ft-lbs	2.2%	1	05-07-08
End Shear	250 lbs	14,464 lbs	1.7%	1	01-03-06
Total Load Defl.	L/999 (0.013")	n/a	n/a	4	05-07-08
Live Load Defl.	L/999 (0.006")	n/a	n/a	5	05-07-08
Max Defl.	0.013"	n/a	n/a	4	05-07-08
Span / Depth	10.9	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	3-1/2" x 3-1/2"	324 lbs	3.3%	2.2%	Unspecified
B1 Hanger	2" x 3-1/2"	317 lbs	n/a	3.7%	Hanger

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


P614

 DWG NO. TAM 50152-17
 STRUCTURAL
 COMPONENT ONLY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B3(i2247

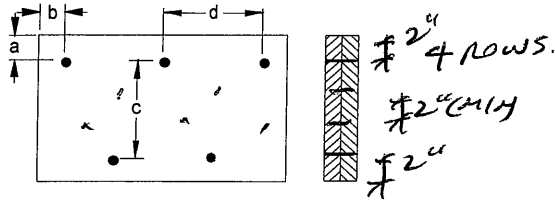
Specifier:

Designer:

Company:

Misc:

Connection Diagram



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

Member has no side loads.

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

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BC CALC® Design Report


Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

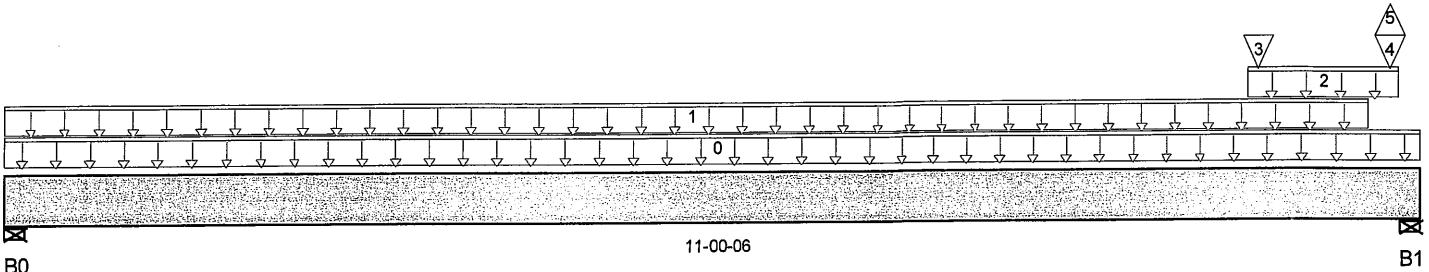
Description: Designs\Flush Beams\2ND FLOOR\Flush Beams\B6(i3727)

Specifier:

Designer: AJ

Company:

Misc:



Total Horizontal Product Length = 11-00-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4-3/8"	510 / 0	326 / 0		
B1, 7-1/2"	5,544 / 27	3,064 / 0	0 / 38	

Load Summary

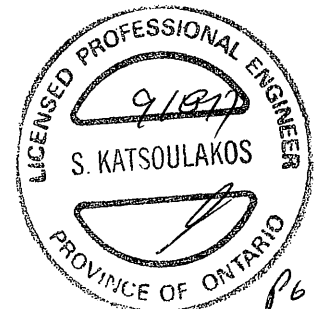
Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	11-00-06	30	15			n/a
1	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-07-10	28	14			n/a
2	13 (i946)	Unf. Lin. (lb/ft)	L	09-08-06	10-10-06	613	388			n/a
3	13 (i946)	Conc. Pt. (lbs)	L	09-09-06	09-09-06	2,636	1,379			n/a
4	13 (i946)	Conc. Pt. (lbs)	L	10-09-06	10-09-06	2,043	1,097	-38		n/a
5	13 (i946)	Conc. Pt. (lbs)	L	10-09-06	10-09-06	-27				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,597 ft-lbs	38,727 ft-lbs	11.9%	1	08-04-14
End Shear	4,729 lbs	14,464 lbs	32.7%	1	09-05-00
Total Load Defl.	L/999 (0.06")	n/a	n/a	56	05-10-11
Live Load Defl.	L/999 (0.037")	n/a	n/a	83	05-10-11
Max Defl.	0.06"	n/a	n/a	56	05-10-11
Span / Depth	10.3	n/a	n/a		00-00-00

Bearing Supports

B0	Wall/Plate	4-3/8" x 3-1/2"	1,172 lbs	14.3%	6.3%	Unspecified
B1	Wall/Plate	7-1/2" x 3-1/2"	12,145 lbs	86.6%	37.9%	Unspecified

Notes


DWG NO. TAM 47111 - 17
 STRUCTURAL
 COMPONENT ONLY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

Description: Designs\Flush Beams\2ND FLOOR\Flush Beams\B6(i

Specifier:

Designer: AJ

Company:

Misc:

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

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

Calculations assume member is fully braced.

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

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

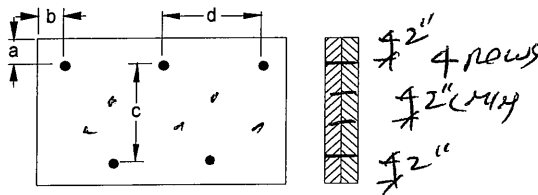
CONFORMS TO OBC 2012

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Connection Diagram



a minimum = 2" c = 7-7/8"
b minimum = 3" d = 4"

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: 16d 1" Nails

3 1/2" ARDOX SPIRAL

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

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DWONG.TAM 42111-17
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

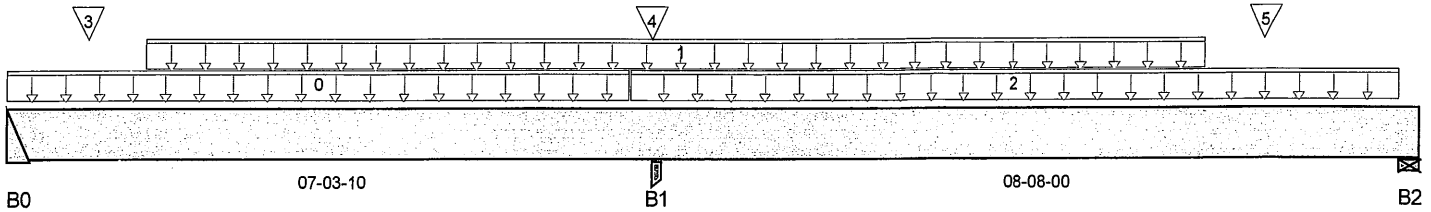
Description: Designs\Flush Beams\1st Floor\Flush Beams\B7(i2313)

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 15-11-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	1,579 / 178	734 / 0		
B1, 5-1/4"	3,719 / 0	1,998 / 0		
B2, 5-1/2"	855 / 184	379 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	User Load	Unf. Lin. (lb/ft)	L	00-00-00	07-00-02	240	120			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-06-12	13-06-12	263	132			n/a
2	FC4 Floor Material	Unf. Lin. (lb/ft)	L	07-00-02	15-08-14	20	10			n/a
3	J3(i2246)	Conc. Pt. (lbs)	L	00-10-12	00-10-12	327	164			n/a
4	14(i953)	Conc. Pt. (lbs)	L	07-02-14	07-02-14	75	58			n/a
5	J3(i2237)	Conc. Pt. (lbs)	L	14-02-12	14-02-12	370	185			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	5,139 ft-lbs	38,727 ft-lbs	13.3%	2	03-05-12
Neg. Moment	-6,066 ft-lbs	-38,727 ft-lbs	15.7%	1	07-03-10
End Shear	2,493 lbs	14,464 lbs	17.2%	2	01-01-14
Cont. Shear	4,277 lbs	14,464 lbs	29.6%	1	06-01-02
Total Load Defl.	L/999 (0.031")	n/a	n/a	9	03-05-12
Live Load Defl.	L/999 (0.023")	n/a	n/a	12	03-06-12
Total Neg. Defl.	L/999 (-0.008")	n/a	n/a	9	09-08-12
Max Defl.	0.031"	n/a	n/a	9	03-05-12
Span / Depth	8.4	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 3-1/2"	3,285 lbs	n/a	38.5%	Hanger
B1 Post	5-1/4" x 3-1/2"	8,076 lbs	54.1%	36%	Unspecified
B2 Wall/Plate	5-1/2" x 3-1/2"	1,757 lbs	17.1%	7.5%	Unspecified

Notes


 DWG NO. TAM 50156.17
 STRUCTURAL
 COMPONENT ONLY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY12.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B7(i2313

Specifier:

Designer:

Company:

Msc:

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

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

Calculations assume member is fully braced.

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

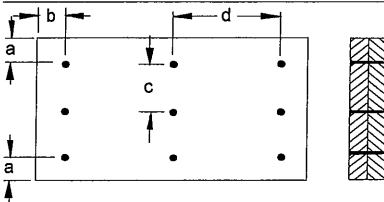
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

Connection Diagram



a minimum = 2" c = 3-15/16"
b minimum = 3" d = 6"

Calculated Side Load = 512.9 lb/ft

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

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

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DWG NO. TAM 50156-17
STRUCTURAL
COMPONENT ONLY



Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B8(i2229)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

July 10, 2017 17:54:53

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

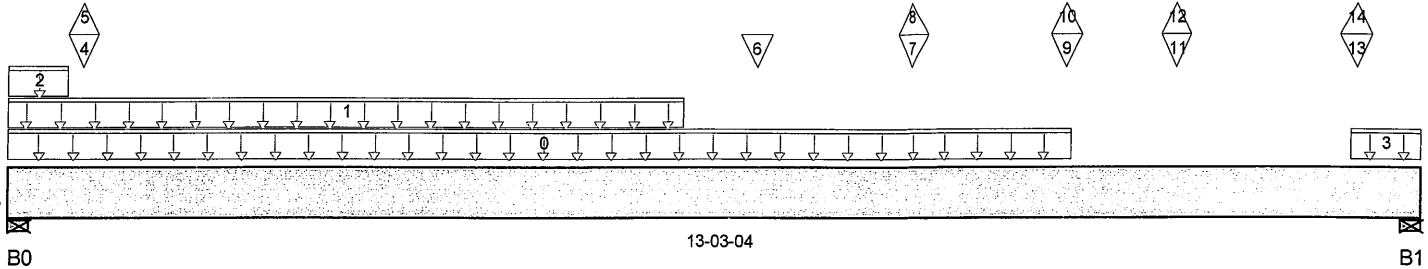
Description: Designs\Flush Beams\1st Floor\Flush Beams\B8(i2229)

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 13-03-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 7'-1/4"	6,413 / 50	3,536 / 0	0 / 10	
B1, 8"	6,623 / 191	3,578 / 0	0 / 43	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-00-00	22	11			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-00-00	06-03-12	312	161			n/a
2	11(i944)	Unf. Lin. (lb/ft)	L	00-00-00	00-06-12	572	286			n/a
3	10(i942)	Unf. Lin. (lb/ft)	L	12-07-04	13-03-04	303	232			n/a
4	11(i944)	Conc. Pt. (lbs)	L	00-08-04	00-08-04	3,537	1,885			n/a
5	11(i944)	Conc. Pt. (lbs)	L	00-08-04	00-08-04	-5				n/a
6	J2(i2325)	Conc. Pt. (lbs)	L	06-11-12	06-11-12	399	201			n/a
7	-	Conc. Pt. (lbs)	L	08-05-05	08-05-05	436	274	-15		n/a
8	-	Conc. Pt. (lbs)	L	08-05-05	08-05-05	-9				n/a
9	-	Conc. Pt. (lbs)	L	09-11-03	09-11-03	1,906	880	-12		n/a
10	-	Conc. Pt. (lbs)	L	09-11-03	09-11-03	-180				n/a
11	J1(i2357)	Conc. Pt. (lbs)	L	10-11-12	10-11-12	398	177	-13		n/a
12	J1(i2357)	Conc. Pt. (lbs)	L	10-11-12	10-11-12	-12				n/a
13	-	Conc. Pt. (lbs)	L	12-07-13	12-07-13	3,615	1,936	-13		n/a
14	-	Conc. Pt. (lbs)	L	12-07-13	12-07-13	-35				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	17,424 ft-lbs	60,415 ft-lbs	28.8%	21	07-09-12
End Shear	6,236 lbs	21,696 lbs	28.7%	21	11-07-06
Total Load Defl.	L/642 (0.227")	0.606"	37.4%	56	06-09-12
Live Load Defl.	L/989 (0.147")	0.404"	36.4%	83	06-09-12
Max Defl.	0.227"	n/a	n/a	56	06-09-12
Span / Depth	12.3	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
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Boise Cascade

Triple 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 1st Floor\Flush Beams\B8(i2229)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

July 10, 2017 17:54:53

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports:

CCMC 12472-R

File Name: DEWBERRY 12.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B8(i2229

Specifier:

Designer:

Company:

Misc:

B0	Wall/Plate	7-1/4" x 5-1/4"	14,040 lbs	69.1%	30.2%	Unspecified
B1	Wall/Plate	8" x 5-1/4"	14,407 lbs	64.2%	28.1%	Unspecified

Disclosure

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Notes

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

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

Calculations assume member is fully braced.

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

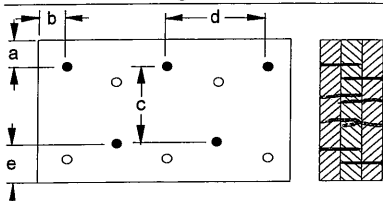
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

CONFORMS TO CBC 2012

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Connection Diagram

a minimum = 1" c = 3-7/8"
b minimum = 3" d = 4"
e minimum = 2"

Calculated Side Load = 582.9 lb/ft

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

Nailing schedule applies to both sides of the member.

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL

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DWG NO. TAM50157-17
**STRUCTURAL
COMPONENT ONLY**

BC CALC® Design Report


Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

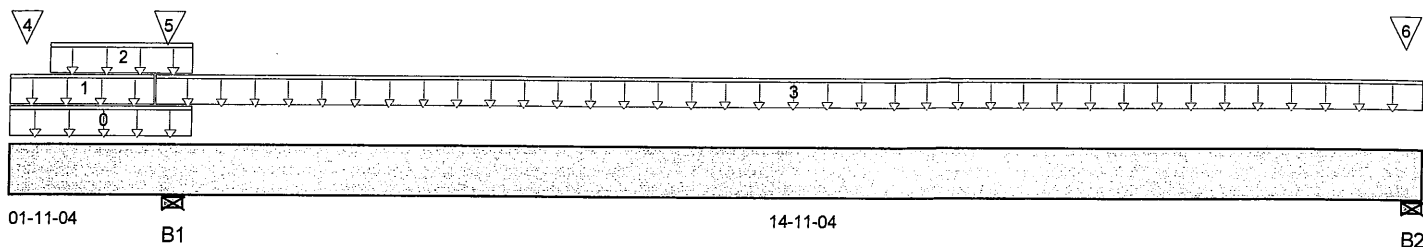
Description: Designs\Flush Beams\1st Floor\Flush Beams\B9(i2177)

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 16-10-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	2,103 / 0	2,172 / 0	457 / 0	
B2, 5-1/2"	499 / 19	322 / 0	0 / 16	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	User Load	Unf. Lin. (lb/ft)	L	00-00-00	02-02-00	33	130	78		n/a
1	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-08-08	29	15			n/a
2	E28(i928)	Unf. Lin. (lb/ft)	L	00-05-08	02-02-00		81			n/a
3	FC4 Floor Material	Unf. Lin. (lb/ft)	L	01-08-08	16-10-08	53	27			n/a
4	-	Conc. Pt. (lbs)	L	00-02-03	00-02-03		67	36		n/a
5	E28(i928)	Conc. Pt. (lbs)	L	01-10-04	01-10-04	1,547	1,292	236		n/a
6	10(i942)	Conc. Pt. (lbs)	L	16-07-12	16-07-12	90	68			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,014 ft-lbs	38,727 ft-lbs	7.8%	45	09-06-15
Neg. Moment	-884 ft-lbs	-25,173 ft-lbs	3.5%	0	01-11-04
End Shear	745 lbs	14,464 lbs	5.1%	45	15-05-02
Cont. Shear	867 lbs	14,464 lbs	6%	13	03-01-14
Total Load Defl.	L/999 (0.08")	n/a	n/a	108	09-03-08
Live Load Defl.	L/999 (0.055")	n/a	n/a	160	09-03-08
Total Neg. Defl.	2xL/1,998 (-0.029")	n/a	n/a	108	00-00-00
Max Defl.	0.08"	n/a	n/a	108	09-03-08
Span / Depth	14.7	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B1 Wall/Plate	5-1/2" x 3-1/2"	6,097 lbs	59.3%	26%	Unspecified
B2 Wall/Plate	5-1/2" x 3-1/2"	1,151 lbs	11.2%	4.9%	Unspecified

Notes


BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B9(i2177

Specifier:

Designer:

Company:

Misc:

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

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

Calculations assume member is fully braced.

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

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

CONFORMS TO CBC 2012

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

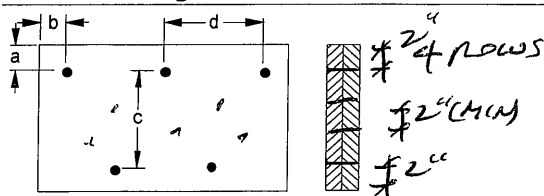
Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.

Disclosure

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Connection Diagram



a minimum = 2" c = 7-7/8"
b minimum = 3" 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: 16d Nails

3 1/2" ARDOX SPIRAL



DWB NO. TAM 50158-17
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

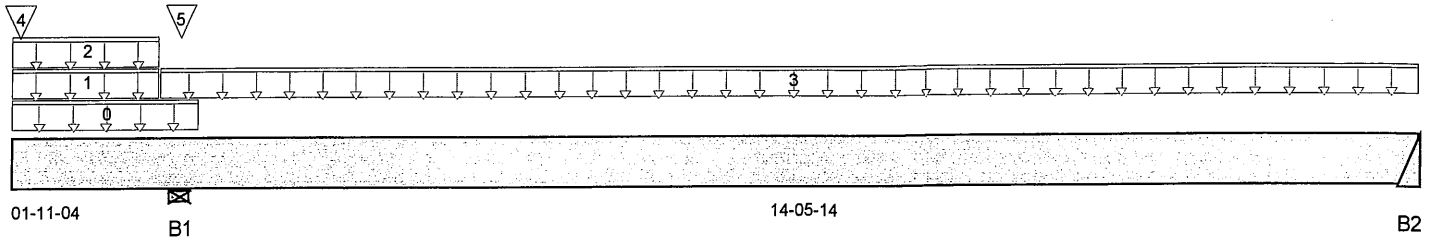
Description: Designs\Flush Beams\1st Floor\Flush Beams\B10(i2218)

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 16-05-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 5-1/2"	1,865 / 0	2,012 / 0	442 / 0	
B2	195 / 9	153 / 0	0 / 14	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	User Load	Unf. Lin. (lb/ft)	L	00-00-00	02-02-00	33	130	78		n/a
1	E26(i934)	Unf. Lin. (lb/ft)	L	00-00-00	01-08-08		81			n/a
2	FC4 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	01-08-08	24	12			n/a
3	FC4 Floor Material	Unf. Lin. (lb/ft)	L	01-08-08	16-05-02	27	13			n/a
4	FC4 Floor Material	Conc. Pt. (lbs)	L	00-01-02	00-01-02			27		n/a
5	E25(i931)	Conc. Pt. (lbs)	L	01-11-04	01-11-04	1,534	1,320	232		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,582 ft-lbs	38,727 ft-lbs	4.1%	45	09-08-09
Neg. Moment	-642 ft-lbs	-25,173 ft-lbs	2.5%	0	01-11-04
End Shear	401 lbs	14,464 lbs	2.8%	45	15-03-04
Cont. Shear	488 lbs	14,464 lbs	3.4%	13	03-01-14
Total Load Defl.	L/999 (0.041")	n/a	n/a	108	09-04-00
Live Load Defl.	L/999 (0.026")	n/a	n/a	160	09-01-11
Total Neg. Defl.	2xL/1,998 (-0.014")	n/a	n/a	108	00-00-00
Max Defl.	0.041"	n/a	n/a	108	09-04-00
Span / Depth	14.5	n/a	n/a		00-00-00

Bearing Supports

Loading Supports						
B1	Wall/Plate	5-1/2" x 3-1/2"	5,533 lbs	53.8%	23.6%	Unspecified
B2	Hanger	2" x 3-1/2"	484 lbs	n/a	5.7%	Hanger

Notes



BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

Description: Designs\Flush Beams\1st Floor\Flush Beams\B10(i2218)

Specifier:

Designer:

Company:

Msc:

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

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

Calculations assume member is fully braced.

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

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

CONFORMS TO CBC 2012

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

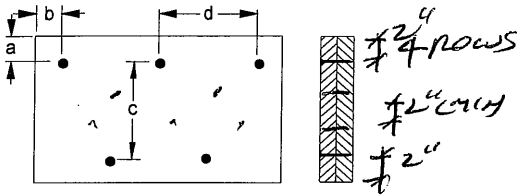
Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

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Connection Diagram



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

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: 16d Nails

3 1/2" ARDOX SPIRAL



DWG NO. TAM 50159-17
STRUCTURAL
COMPONENT ONLY



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

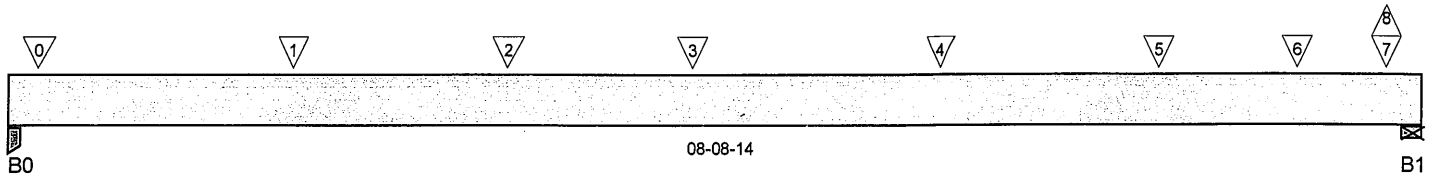
Description: Designs\Flush Beams\Basement\Flush Beams\B11(i2227

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 08-08-14

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4-3/8"	3,741 / 0	2,072 / 0		
B1, 5-1/2"	3,336 / 219	1,832 / 0	0 / 27	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	-	Conc. Pt. (lbs)	L	00-02-02	00-02-02	2,863	1,579			n/a
1	J4(i2159)	Conc. Pt. (lbs)	L	01-08-14	01-08-14	360	180			n/a
2	J4(i2183)	Conc. Pt. (lbs)	L	03-00-14	03-00-14	332	166			n/a
3	J4DJ(i2292)	Conc. Pt. (lbs)	L	04-02-06	04-02-06	377	188			n/a
4	J5(i2257)	Conc. Pt. (lbs)	L	05-08-14	05-08-14	361	180			n/a
5	J4DJ(i2158)	Conc. Pt. (lbs)	L	07-01-06	07-01-06	341	170			n/a
6	B3(i2247)	Conc. Pt. (lbs)	L	07-11-10	07-11-10	115	123			n/a
7	-	Conc. Pt. (lbs)	L	08-06-02	08-06-02	2,316	1,207	-27		n/a
8	-	Conc. Pt. (lbs)	L	08-06-02	08-06-02	-219				n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,804 ft-lbs	38,727 ft-lbs	12.4%	1	04-02-06
End Shear	2,048 lbs	14,464 lbs	14.2%	1	07-03-08
Total Load Defl.	L/999 (0.04")	n/a	n/a	56	04-03-09
Live Load Defl.	L/999 (0.026")	n/a	n/a	83	04-03-09
Max Defl.	0.04"	n/a	n/a	56	04-03-09
Span / Depth	8.1	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	4-3/8" x 3-1/2"	8,201 lbs	66%	43.9%	Unspecified
B1 Wall/Plate	5-1/2" x 3-1/2"	7,293 lbs	70.9%	31.1%	Unspecified

Notes



BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports:

CCMC 12472-R

File Name: DEWBERRY 12.mmdl

Description: Designs\Flush Beams\Basement\Flush Beams\B11(i22

Specifier:

Designer:

Company:

Msc:

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

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

Calculations assume member is fully braced.

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

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

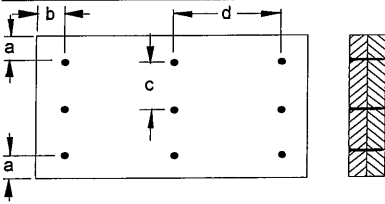
CONFORMS TO OBC 2012

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

Connection Diagram



a minimum = 2" c = 3-15/16"
b minimum = 3" d = 6"

Calculated Side Load = 555.3 lb/ft

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

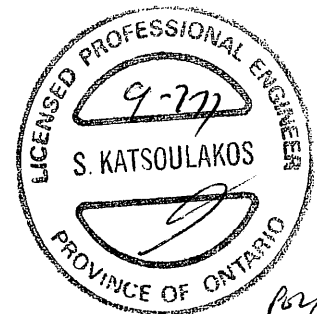
Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL

Disclosure

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DW000.YAM50160-17
**STRUCTURAL
COMPONENT ONLY**



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP UPPER FLOOR\...B12(i3884)

BC CALC® Design Report



Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 14, 2017 11:58:26

Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

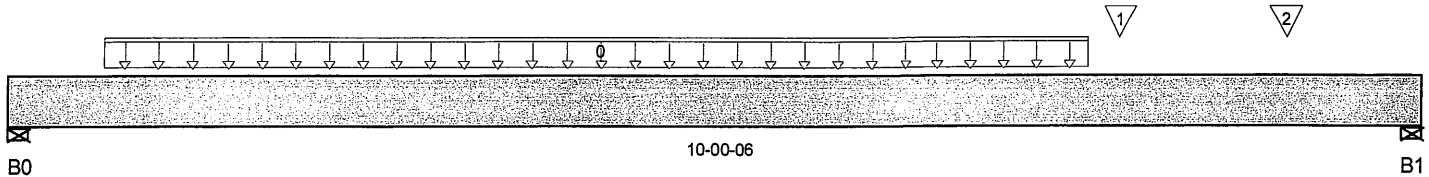
Description: Designs\Flush Beams\UPPER FLOOR\Flush Beams\B12

Specifier:

Designer: AJ

Company:

Misc:



Total Horizontal Product Length = 10-00-06

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4-3/8"	2,515 / 0	1,318 / 0		
B1, 4"	2,615 / 0	1,369 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	00-08-02	07-08-02	542	270			n/a
1	-	Conc. Pt. (lbs)	L	07-10-11	07-10-11	649	325			n/a
2	-	Conc. Pt. (lbs)	L	09-00-14	09-00-14	689	345			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	13,587 ft-lbs	38,727 ft-lbs	35.1%	1	05-00-14
End Shear	5,074 lbs	14,464 lbs	35.1%	1	08-08-08
Total Load Defl.	L/722 (0.157")	0.473"	33.2%	4	05-00-14
Live Load Defl.	L/999 (0.103")	n/a	n/a	5	05-00-14
Max Defl.	0.157"	n/a	n/a	4	05-00-14
Span / Depth	9.6	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4-3/8" x 3-1/2"	5,420 lbs	66.3%	29%	Unspecified
B1 Wall/Plate	4" x 3-1/2"	5,633 lbs	75.4%	33%	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



DWONG, YAM #110-17
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

Description: Designs\Flush Beams\UPPER FLOOR\Flush Beams\B

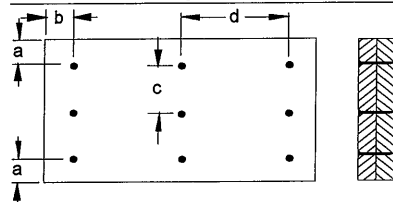
Specifier:

Designer: AJ

Company:

Misc:

Connection Diagram



a minimum = 2" c = 3-15/16"
b minimum = 3" d = 3"

Calculated Side Load = 626.2 lb/ft

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

Connectors are: 16d Nails
3 1/2" ARDOX SPIRAL

Disclosure

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DWNO, TAM 47110-17
STRUCTURAL
COMPONENT ONLY

UPPER FLOOR\Flush Beams\B13(i5496)

BC CALC® Design Report

Dry | 1 span | No cant.

March 2, 2018 09:35:23

Build 6215

Job name:

File name: DEWBERRY 12.mmdl

Address:

Description: UPPER FLOOR\Flush Beams\B13(i5496)

City, Province, Postal Code: WAT...WN

Specifier:

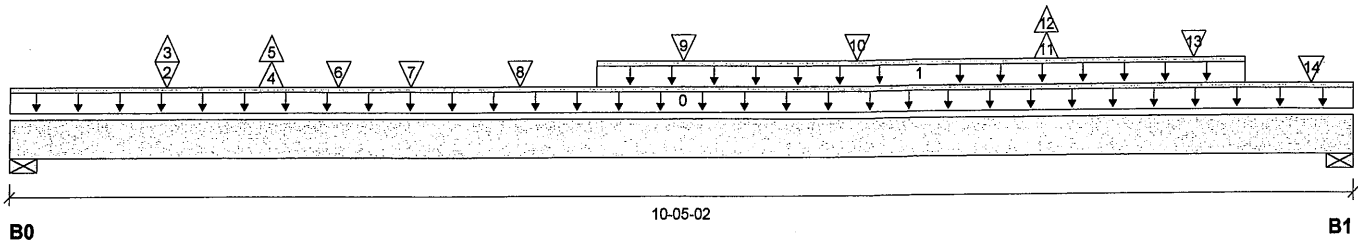
Customer:

Designer: AJ

Code reports:

CCMC 12472-R

Company:



Total Horizontal Product Length = 10-05-02

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4"	2,116 / 27	1,168 / 0	0 / 35	
B1, 2-1/8"	2,122 / 16	1,173 / 0	0 / 33	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-05-02		18			00-00-00
1	Smoothed Load	Unf. Lin. (lb/ft)	L	04-06-08	09-07-04	168	84			n/a
2	-	Conc. Pt. (lbs)	L	01-02-08	01-02-08	454	220			n/a
3	-	Conc. Pt. (lbs)	L	01-02-08	01-02-08	-13				n/a
4	-	Conc. Pt. (lbs)	L	02-00-04	02-00-04	350	195	-34		n/a
5	-	Conc. Pt. (lbs)	L	02-00-04	02-00-04	-15				n/a
6	J3(i5552)	Conc. Pt. (lbs)	L	02-06-08	02-06-08	273	136			n/a
7	J5(i5475)	Conc. Pt. (lbs)	L	03-01-04	03-01-04	170	85			n/a
8	-	Conc. Pt. (lbs)	L	03-11-06	03-11-06	546	273			n/a
9	J3(i5538)	Conc. Pt. (lbs)	L	05-02-08	05-02-08	376	188			n/a
10	J3(i5449)	Conc. Pt. (lbs)	L	06-06-08	06-06-08	376	188			n/a
11	-	Conc. Pt. (lbs)	L	08-00-10	08-00-10	438	240	-34		n/a
12	-	Conc. Pt. (lbs)	L	08-00-10	08-00-10	-15				n/a
13	J3(i5558)	Conc. Pt. (lbs)	L	09-02-08	09-02-08	283	141			n/a
14	J5(i5516)	Conc. Pt. (lbs)	L	10-01-04	10-01-04	122	61			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	12,484 ft-lbs	55,212 ft-lbs	22.6%	21	05-02-08
End Shear	4,493 lbs	21,696 lbs	20.7%	21	01-03-14
Total Load Deflection	L/999 (0.109")	n/a	n/a	56	05-02-08
Live Load Deflection	L/999 (0.07")	n/a	n/a	83	05-02-08
Max Defl.	0.109"	n/a	n/a	56	05-02-08
Span / Depth	10.1				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 4" x 5-1/4"	4,633 lbs	41.3%	18.1%	Unspecified
B1	Wall/Plate 2-1/8" x 5-1/4"	4,649 lbs	78.0%	34.2%	Unspecified





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

PASSED

UPPER FLOOR\Flush Beams\B13(i5496)

Dry | 1 span | No cant.

March 2, 2018 09:35:23

BC CALC® Design Report

Build 6215

Job name:

Address:

City, Province, Postal Code: WAT...WN

Customer:

Code reports: CCMC 12472-R

File name: DEWBERRY 12.mmdl

Description: UPPER FLOOR\Flush Beams\B13(i5496)

Specifier:

Designer: AJ

Company:

Notes

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

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

Calculations assume member is fully braced.

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

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

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

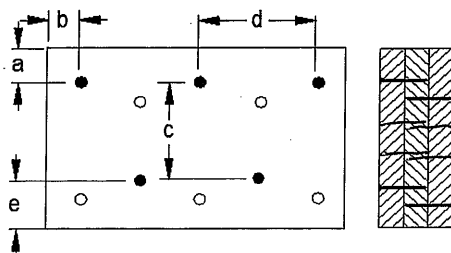
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

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

Nailing schedule applies to both sides of the member.

Connection Diagram



a minimum = 1"

b minimum = 3"

c = 6-7/8"

d = 4"

e minimum = 2"

Calculated Side Load = 523.0 lb/ft

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

Nailing schedule applies to both sides of the member.

Connectors are: 16d ¹⁰⁰ Nails

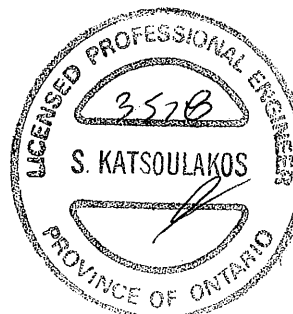
3-1/2" ARDOX SPIRAL

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.

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DWG NO. TAM 11850-18
STRUCTURAL
COMPONENT ONLY





Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLOOR\...B13A(i3693)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 6, 2017 11:41:47

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

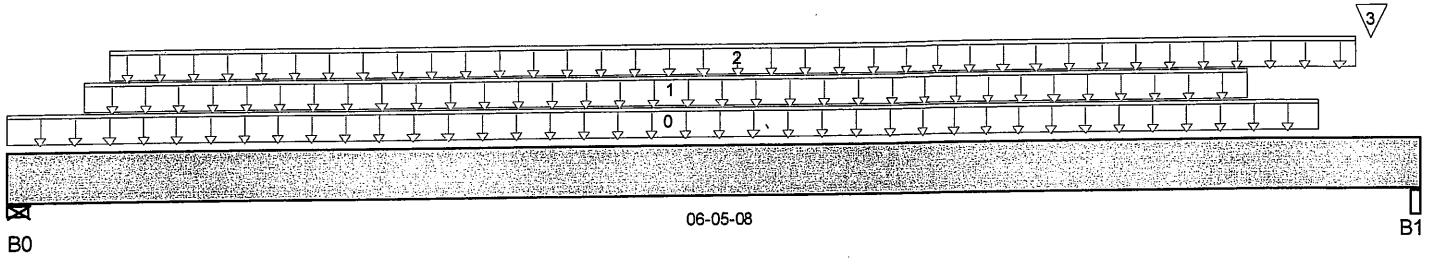
Description: Designs\Flush Beams\2ND FLOOR\Flush Beams\B13A(i

Specifier:

Designer: AJ

Company:

Misc:



Total Horizontal Product Length = 06-05-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	874 / 0	1,043 / 0	297 / 0	
B1, 3-1/2"	735 / 0	943 / 0	297 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	E18(i940)	Unf. Lin. (lb/ft)	L	00-00-00	06-00-00	31	102			n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	00-04-02	05-08-02	218	110			n/a
2	User Load	Unf. Lin. (lb/ft)	L	00-05-08	06-02-00	44	120	104		n/a
3	E17(i930)	Conc. Pt. (lbs)	L	06-02-12	06-02-12		28			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,923 ft-lbs	38,727 ft-lbs	10.1%	1	03-07-02
End Shear	2,100 lbs	14,464 lbs	14.5%	1	05-02-02
Total Load Defl.	L/999 (0.018")	n/a	n/a	35	03-04-02
Live Load Defl.	L/999 (0.009")	n/a	n/a	51	03-04-02
Max Defl.	0.018"	n/a	n/a	35	03-04-02
Span / Depth	5.9	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	5-1/2" x 3-1/2"	2,764 lbs	26.9%	11.8%	Unspecified
B1 Beam	3-1/2" x 3-1/2"	2,428 lbs	18.2%	16.2%	Unspecified

Notes



DWB NO. TAM 50163-17
STRUCTURAL
COMPONENT ONLY



Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP 2ND FLOOR...B13A(i3693)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 6, 2017 11:41:47

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

Description: Designs\Flush Beams\2ND FLOOR\Flush Beams\B13\

Specifier:

Designer: AJ

Company:

Msc:

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

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

Calculations assume member is fully braced.

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

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

Unbalanced snow loads determined from building geometry were used in selected products verification.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

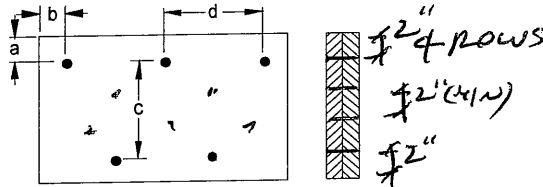
CONFORMS TO CBC 2012

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

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Connection Diagram



a minimum = 2" c = 7-7/8"
b minimum = 3" d = 4"

Calculated Side Load = 383.9 lb/ft

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

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL



DWG NO. TAM 50163.17
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

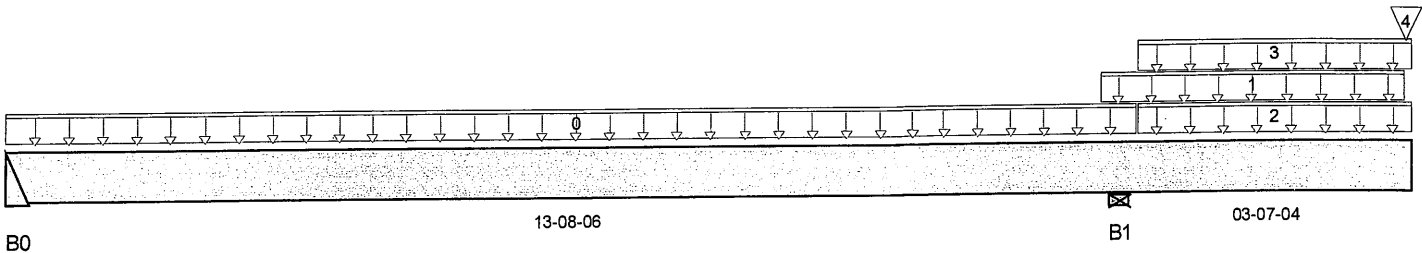
Description: Designs\Flush Beams\2nd Floor\Flush Beams\B14(i2155

Specifier:

Designer:

Company:

Misc:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	184 / 21	105 / 0	0 / 37	
B1, 5-1/2"	374 / 0	761 / 0	334 / 0	

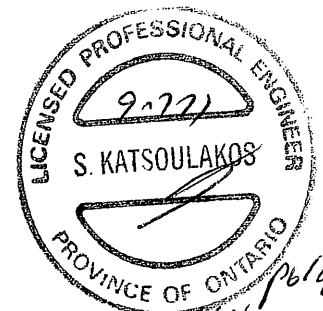
Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC5 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	13-11-02	27	13			n/a
1	User Load	Unf. Lin. (lb/ft)	L	13-05-10	17-02-08	33	30	78		n/a
2	User Load	Unf. Lin. (lb/ft)	L	13-11-02	17-03-10		100			n/a
3	FC5 Floor Material	Unf. Lin. (lb/ft)	L	13-11-02	17-03-10	12	6			n/a
4	FC5 Floor Material	Conc. Pt. (lbs)	L	17-02-08	17-02-08			6		n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,114 ft-lbs	38,727 ft-lbs	2.9%	44	05-09-01
Neg. Moment	-2,089 ft-lbs	-38,727 ft-lbs	5.4%	49	13-08-06
End Shear	324 lbs	14,464 lbs	2.2%	44	01-01-14
Cont. Shear	770 lbs	14,464 lbs	5.3%	49	14-11-00
Total Load Defl.	2xL/1,998 (0.038")	n/a	n/a	154	17-03-10
Live Load Defl.	2xL/1,998 (0.022")	n/a	n/a	206	17-03-10
Total Neg. Defl.	L/999 (-0.015")	n/a	n/a	154	09-03-08
Max Defl.	0.022"	n/a	n/a	107	06-01-05
Span / Depth	13.7	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 3-1/2"	407 lbs	n/a	4.8%	Hanger
B1 Wall/Plate	5-1/2" x 3-1/2"	1,678 lbs	16.3%	7.1%	Unspecified

Notes


 DWG NO. TAM50164-17
 STRUCTURAL
 COMPONENT ONLY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

Description: Designs\Flush Beams\2nd Floor\Flush Beams\B14(i21

Specifier:

Designer:

Company:

Msc:

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

Design meets User specified (2xL/360) Live load deflection criteria.

Calculations assume member is fully braced.

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

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

CONFORMS TO OBC 2012

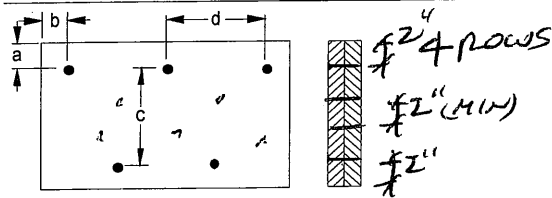
Unbalanced snow loads determined from building geometry were used in selected product's verification.

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

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

Connection Diagram



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

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: 16d Nails

3 1/2" ARDOX SPIRAL

Disclosure

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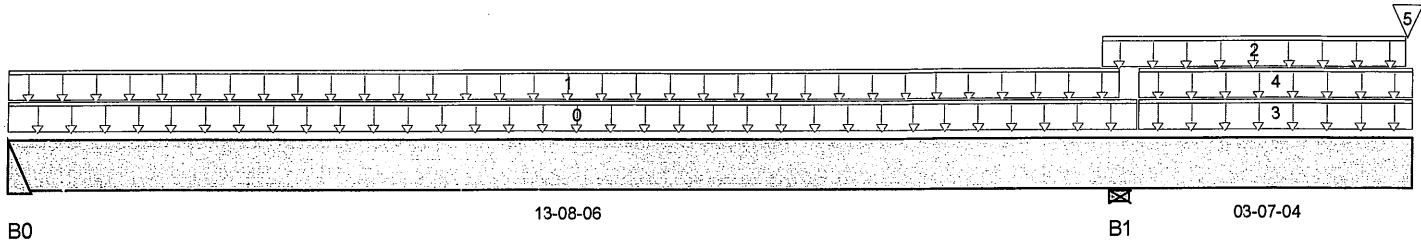


DWG NO. TAM 50164-17
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report


Build 5033
 Job Name:
 Address:
 City, Province, Postal Code: WATERDOWN,
 Customer:
 Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl
 Description: Designs\Flush Beams\2nd Floor\Flush Beams\B15(i2337
 Specifier:
 Designer:
 Company:
 Misc:



13-08-06

B1

03-07-04

Total Horizontal Product Length = 17-03-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	184 / 24	103 / 0	0 / 40	
B1, 5-1/2"	391 / 0	772 / 0	351 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	FC5 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	13-11-02	15	7			n/a
1	FC5 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	13-08-06	12	6			n/a
2	User Load	Unf. Lin. (lb/ft)	L	13-05-10	17-02-08	33	30	78		n/a
3	User Load	Unf. Lin. (lb/ft)	L	13-11-02	17-03-10		100			n/a
4	FC5 Floor Material	Unf. Lin. (lb/ft)	L	13-11-02	17-03-10	15	8			n/a
5	FC5 Floor Material	Conc. Pt. (lbs)	L	17-02-08	17-02-08	8	7	19		n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,099 ft-lbs	38,727 ft-lbs	2.8%	44	05-06-15
Neg. Moment	-2,216 ft-lbs	-38,727 ft-lbs	5.7%	49	13-08-06
End Shear	322 lbs	14,464 lbs	2.2%	44	01-01-14
Cont. Shear	808 lbs	14,464 lbs	5.6%	49	14-11-00
Total Load Defl.	2xL/1,998 (0.042")	n/a	n/a	154	17-03-10
Live Load Defl.	2xL/1,998 (0.025")	n/a	n/a	206	17-03-10
Total Neg. Defl.	L/999 (-0.017")	n/a	n/a	154	09-01-06
Max Defl.	0.021"	n/a	n/a	107	06-01-05
Span / Depth	13.7	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 3-1/2"	405 lbs	n/a	4.7%	Hanger
B1 Wall/Plate	5-1/2" x 3-1/2"	1,727 lbs	16.8%	7.4%	Unspecified

Notes


BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

Description: Designs\Flush Beams\2nd Floor\Flush Beams\B15(i23

Specifier:

Designer:

Company:

Misc:

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

Design meets User specified (2xL/360) Live load deflection criteria.

Calculations assume member is fully braced.

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

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

CONFORMS TO OBC 2012

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

Design based on Dry Service Condition.

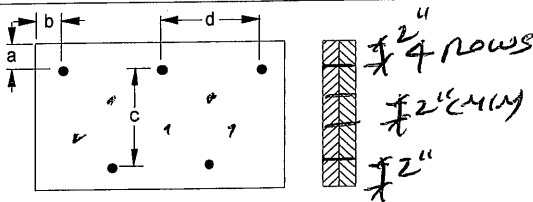
Importance Factor: Normal Part code: Part 9

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

Disclosure

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Connection Diagram



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

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: 16d Nails

3 1/2" ARDOX SPIRAL

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.



BC CALC® Design Report


Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

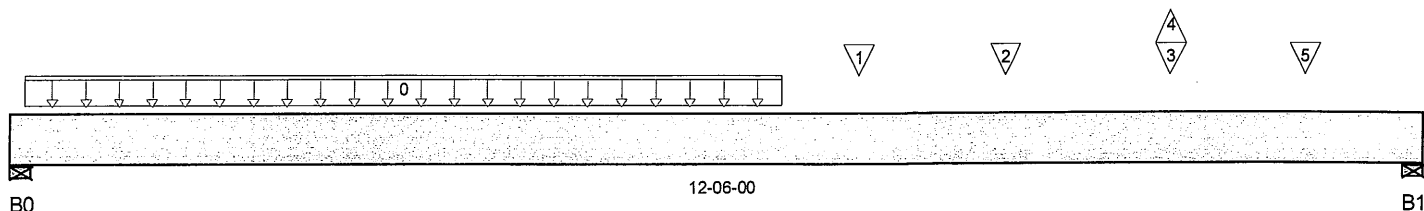
Description: Designs\Flush Beams\2nd Floor\Flush Beams\B16(i2258

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 12-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4"	3,543 / 5	1,888 / 0		
B1, 4"	3,211 / 23	1,756 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	00-01-08	06-09-08	575	287			n/a
1	-	Conc. Pt. (lbs)	L	07-05-08	07-05-08	820	410			n/a
2	-	Conc. Pt. (lbs)	L	08-09-08	08-09-08	825	412			n/a
3	-	Conc. Pt. (lbs)	L	10-03-03	10-03-03	834	452			n/a
4	-	Conc. Pt. (lbs)	L	10-03-03	10-03-03	-28				n/a
5	J2(i2215)	Conc. Pt. (lbs)	L	11-05-08	11-05-08	399	199			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	22,779 ft-lbs	60,415 ft-lbs	37.7%	1	06-01-08
End Shear	6,769 lbs	21,696 lbs	31.2%	1	01-03-14
Total Load Defl.	L/511 (0.281")	0.598"	47%	6	06-03-08
Live Load Defl.	L/784 (0.183")	0.399"	45.9%	8	06-03-08
Max Defl.	0.281"	n/a	n/a	6	06-03-08
Span / Depth	12.1	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4" x 5-1/4"	7,674 lbs	68.4%	30%	Unspecified
B1 Wall/Plate	4" x 5-1/4"	7,012 lbs	62.5%	27.4%	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

 DWG NO. FAM 50166-17
**STRUCTURAL
 COMPONENT ONLY**

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

Description: Designs\Flush Beams\2nd Floor\Flush Beams\B16(i22

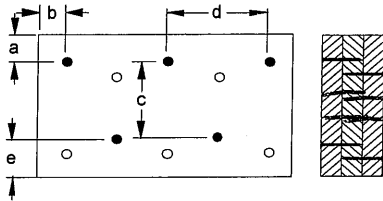
Specifier:

Designer:

Company:

Msc:

Connection Diagram



a minimum = 1"
b minimum = 3"
c = 8-7/8"
d = 6"
e minimum = 2"

Calculated Side Load = 586.6 lb/ft

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

Nailing schedule applies to both sides of the member.

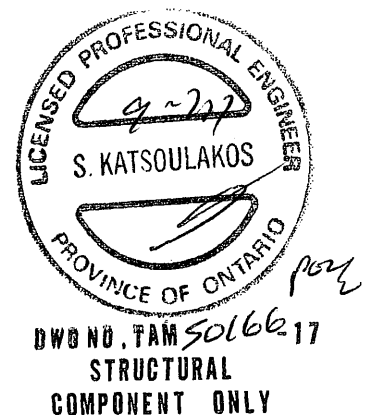
Connectors are: 16d ¹⁰⁰ Nails

3 1/2" ARDOX SPIRAL

Disclosure

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Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

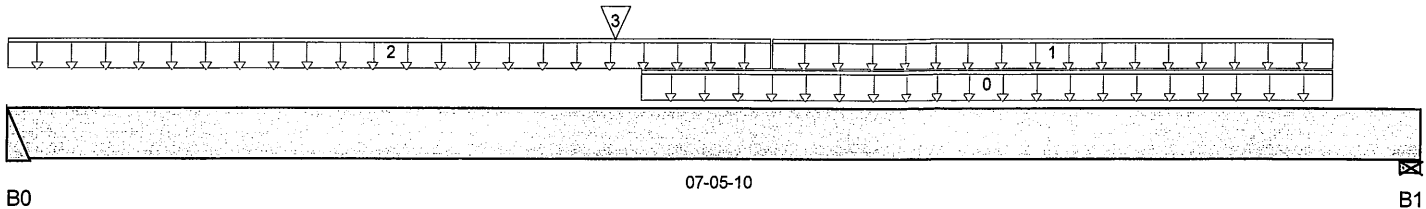
Description: Designs\Flush Beams\2nd Floor\Flush Beams\B17(i2146

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 07-05-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	321 / 0	211 / 0		
B1, 5-1/2"	696 / 0	401 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	User Load	Unf. Lin. (lb/ft)	L	03-03-14	07-00-02	240	120			n/a
1	FC5 Floor Material	Unf. Lin. (lb/ft)	L	04-00-02	07-00-02	10	5			n/a
2	FC5 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	04-00-02	28	14			n/a
3	B18(i2153)	Conc. Pt. (lbs)	L	03-02-03	03-02-03	23	25			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,244 ft-lbs	38,727 ft-lbs	5.8%	1	04-02-07
End Shear	991 lbs	14,464 lbs	6.9%	1	06-00-04
Total Load Defl.	L/999 (0.013")	n/a	n/a	4	03-09-12
Live Load Defl.	L/999 (0.008")	n/a	n/a	5	03-09-12
Max Defl.	0.013"	n/a	n/a	4	03-09-12
Span / Depth	7	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 3-1/2"	745 lbs	n/a	8.7%	Hanger
B1 Wall/Plate	5-1/2" x 3-1/2"	1,544 lbs	15%	6.6%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

CONFORMS TO OBC 2012


DWG NO. TAM 50167-17
 STRUCTURAL
 COMPONENT ONLY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

Description: Designs\Flush Beams\2nd Floor\Flush Beams\B17(i21

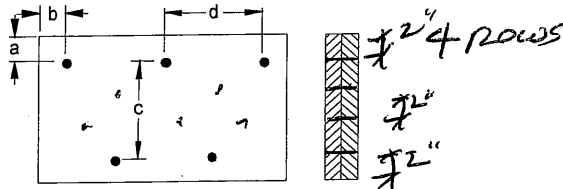
Specifier:

Designer:

Company:

Misc:

Connection Diagram



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

Calculated Side Load = 8.8 lb/ft

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

Connectors are: 16d Nails

3 1/2" ARDOX SPIRAL

Disclosure

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DWG NO. TAM 50162.17
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 14, 2017 12:05:29

Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

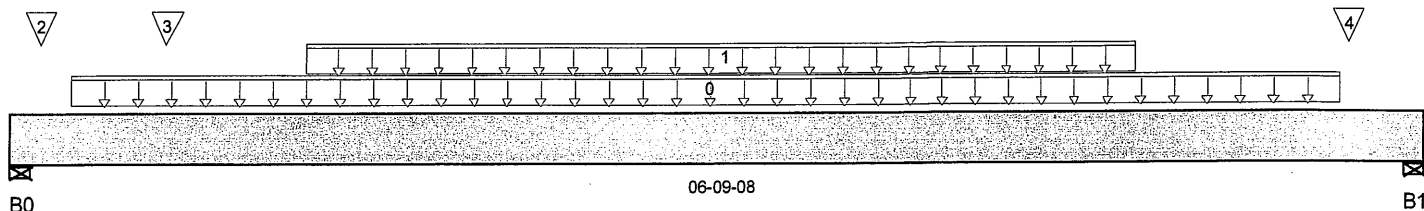
Description: Designs\Dropped Beams\UPPER FLOOR\Dropped Beam

Specifier:

Designer: AJ

Company:

Msc:



Total Horizontal Product Length = 06-09-08

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,308 / 0	1,633 / 0	874 / 0	
B1, 5"	1,332 / 0	1,649 / 0	873 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	User Load	Unf. Lin. (lb/ft)	L	00-03-08	06-04-12	55	150	180		n/a
1	Smoothed Load	Unf. Lin. (lb/ft)	L	01-05-00	05-05-00	283	141			n/a
2	B15(i4086)	Conc. Pt. (lbs)	L	00-01-12	00-01-12	325	730	326		n/a
3	J3(i4061)	Conc. Pt. (lbs)	L	00-09-00	00-09-00	274	137			n/a
4	-	Conc. Pt. (lbs)	L	06-05-02	06-05-02	575	855	326		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,706 ft-lbs	38,727 ft-lbs	12.2%	1	03-05-00
End Shear	2,189 lbs	14,464 lbs	15.1%	1	01-03-06
Total Load Defl.	L/999 (0.025")	n/a	n/a	35	03-04-00
Live Load Defl.	L/999 (0.014")	n/a	n/a	51	03-04-00
Max Defl.	0.025"	n/a	n/a	35	03-04-00
Span / Depth	6.3	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	3-1/2" x 3-1/2"	4,440 lbs	44.6%	29.7%	Unspecified
B1 Wall/Plate	5" x 3-1/2"	4,496 lbs	31.6%	21.1%	Unspecified

Notes



DWG NO. TAM 47109-17
STRUCTURAL
COMPONENT ONLY



BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports:

CCMC 12472-R

File Name: DEWBERRY 12.mmdl

Description: Designs\Dropped Beams\UPPER FLOOR\Dropped Be

Specifier:

Designer: AJ

Company:

Msc:

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: 00-01-00, Bottom: 00-01-00.

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

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

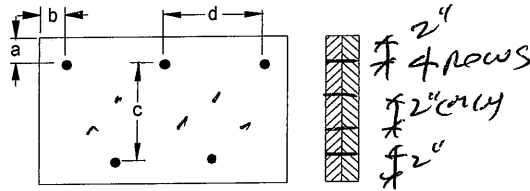
CONFORMS TO OBC 2012

Unbalanced snow loads determined from building geometry were used in selected products verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9

Connection Diagram



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

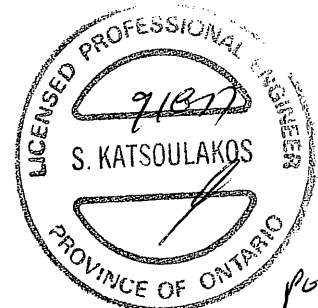
Connectors are: 16d ~~Sinker~~ Nails

3 1/2" ARDOX SPIRAL

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here 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 1-800-964-6999 before installation.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.



DWNO, TAM 47109-17
**STRUCTURAL
COMPONENT ONLY**

BC CALC® Design Report


Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmd

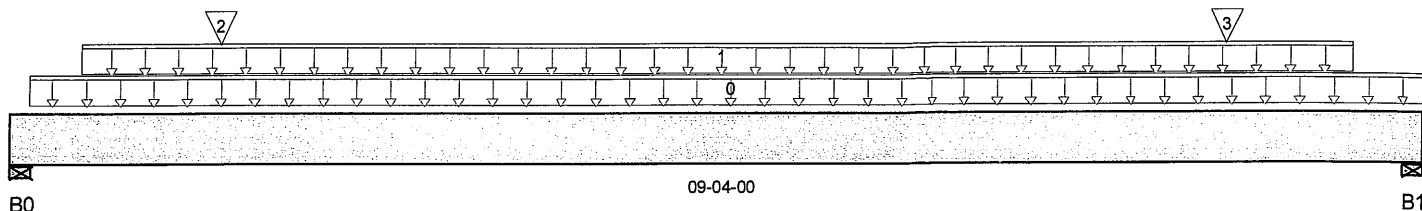
Description: Designs\Dropped Beams\2nd Floor\Dropped Beams\B19

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 09-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	1,452 / 0	1,243 / 0	232 / 0	
B1, 5-1/2"	1,540 / 0	1,288 / 0	236 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
0	Smoothed Load	Unf. Lin. (lb/ft)	L	00-01-08	09-04-00	304	152			n/a
1	User Load	Unf. Lin. (lb/ft)	L	00-05-08	08-10-08		100			n/a
2	User Load	Conc. Pt. (lbs)	L	01-04-08	01-04-08	99	90	234		n/a
3	User Load	Conc. Pt. (lbs)	L	08-00-08	08-00-08	99	90	234		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	7,513 ft-lbs	38,727 ft-lbs	19.4%	1	04-09-08
End Shear	3,114 lbs	14,464 lbs	21.5%	1	01-05-06
Total Load Defl.	L/999 (0.073")	n/a	n/a	35	04-07-08
Live Load Defl.	L/999 (0.04")	n/a	n/a	51	04-07-08
Max Defl.	0.073"	n/a	n/a	35	04-07-08
Span / Depth	8.6	n/a	n/a		00-00-00

Bearing Supports

B0	Wall/Plate	5-1/2" x 3-1/2"	3,848 lbs	24.6%	16.4%	Unspecified
B1	Wall/Plate	5-1/2" x 3-1/2"	4,037 lbs	25.8%	17.2%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

CONFORMS TO OBC 2012

Unbalanced snow loads determined from building geometry were used in selected products verification.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 9





BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

Description: Designs\Dropped Beams\2nd Floor\Dropped Beams\B

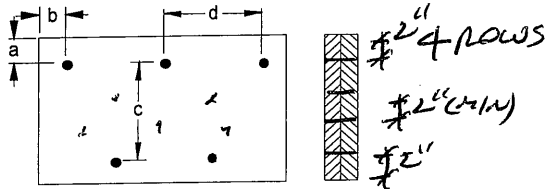
Specifier:

Designer:

Company:

Misc:

Connection Diagram



a minimum = 2" c = 7-7/8"
b minimum = 3" 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: 16d ^{16d} Nails
3 1/2" ARDOX SPIRAL

Disclosure

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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.



DW000, FAM50169-17
STRUCTURAL
COMPONENT ONLY

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

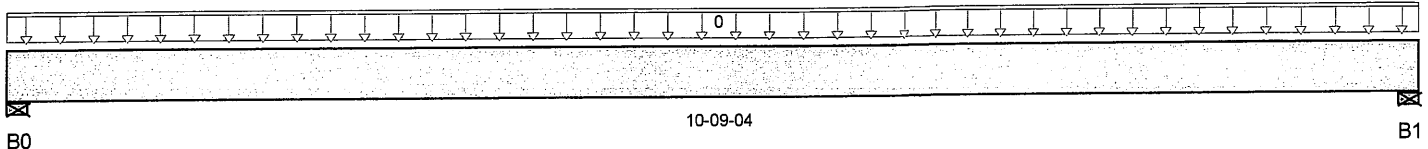
Description: Designs\Flush Beams\Basement\Flush Beams\B20L(i212

Specifier:

Designer:

Company:

Misc:



Total Horizontal Product Length = 10-09-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-3/8"	91 / 0	71 / 0		
B1, 4-3/8"	93 / 0	73 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
0 FC2 Floor Material	Unf. Lin. (lb/ft)	L	00-00-00	10-09-04	17	9			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	565 ft-lbs	12,704 ft-lbs	4.4%	1	05-03-10
End Shear	183 lbs	5,785 lbs	3.2%	1	00-11-14
Total Load Defl.	L/999 (0.031")	n/a	n/a	4	05-03-10
Live Load Defl.	L/999 (0.018")	n/a	n/a	5	05-03-10
Max Defl.	0.031"	n/a	n/a	4	05-03-10
Span / Depth	13.1	n/a	n/a		00-00-00

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	2-3/8" x 1-3/4"	224 lbs	10.1%	4.4%	Unspecified
B1 Wall/Plate	4-3/8" x 1-3/4"	231 lbs	5.7%	2.5%	Unspecified

Notes

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

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

Calculations assume member is fully braced.

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

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 9

CONFORMS TO OBC 2012

Disclosure

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DW000.TAM 50170-17
STRUCTURAL
COMPONENT ONLY

2ND FLOOR\Flush Beams\B24(i5495)

Dry | 1 span | No cant.

March 2, 2018 10:07:01

BC CALC® Design Report

Build 6215

Job name:

File name: DEWBERRY 12.mmdl

Address:

Description: 2ND FLOOR\Flush Beams\B24(i5495)

City, Province, Postal Code: WAT...WN

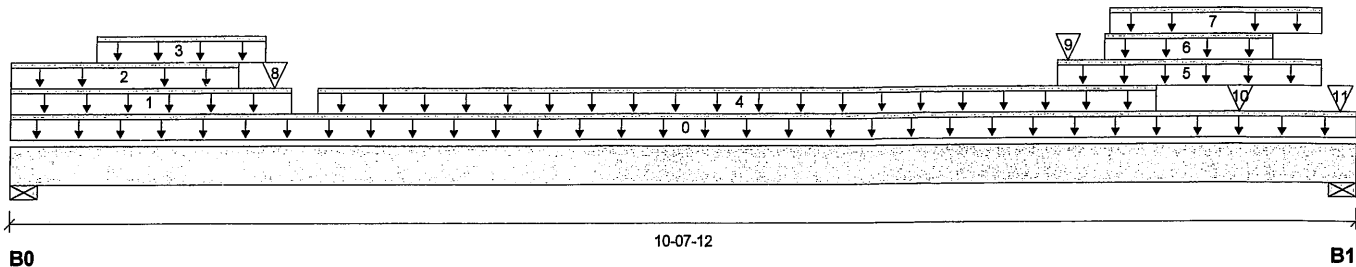
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



Total Horizontal Product Length = 10-07-12

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 5-1/2"	3,066 / 0	3,129 / 0	1,325 / 0	
B1, 3-1/4"	3,068 / 0	3,035 / 0	1,246 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	10-07-12		18			00-00-00
1	E31(i4088)	Unf. Lin. (lb/ft)	L	00-00-00	02-02-08		81			n/a
2	E31(i4088)	Unf. Lin. (lb/ft)	L	00-00-00	01-09-08	55	150	180		n/a
3	E31(i4088)	Unf. Lin. (lb/ft)	L	00-08-00	02-00-00	220	110			n/a
4	Smoothed Load	Unf. Lin. (lb/ft)	L	02-05-00	09-01-00	287	143			n/a
5	E15(i938)	Unf. Lin. (lb/ft)	L	08-03-08	10-04-08		81			n/a
6	E15(i938)	Unf. Lin. (lb/ft)	L	08-08-00	10-00-00	217	109			n/a
7	E15(i938)	Unf. Lin. (lb/ft)	L	08-08-08	10-04-08	55	150	180		n/a
8	-	Conc. Pt. (lbs)	L	02-00-14	02-00-14	1,754	1,943	970		n/a
9	E15(i938)	Conc. Pt. (lbs)	L	08-04-08	08-04-08	1,331	1,666	927		n/a
10	J3(i5282)	Conc. Pt. (lbs)	L	09-09-00	09-09-00	322	161			n/a
11	E32(i4183)	Conc. Pt. (lbs)	L	10-06-04	10-06-04		82	52		n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	18,038 ft-lbs	55,212 ft-lbs	32.7%	1	05-09-00
End Shear	8,448 lbs	21,696 lbs	38.9%	1	01-05-06
Total Load Deflection	L/678 (0.178")	n/a	35.4%	35	05-05-00
Live Load Deflection	L/999 (0.1")	n/a	n/a	51	05-05-00
Max Defl.	0.178"	n/a	n/a	35	05-05-00
Span / Depth	10.1				

Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 5-1/2" x 5-1/4"	9,174 lbs	59.5%	26.0%	Unspecified
B1	Wall/Plate 3-1/4" x 5-1/4"	9,019 lbs	99.0%	43.3%	Unspecified



DWG NO. TAM11849.18
STRUCTURAL
COMPONENT ONLY



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

PASSED

BC CALC® Design Report

Build 6215

Job name:

Address:

City, Province, Postal Code: WAT...WN

Customer:

Code reports: CCMC 12472-R

Dry | 1 span | No cant.

March 2, 2018 10:07:01

File name: DEWBERRY 12.mmdl

Description: 2ND FLOOR\Flush Beams\B24(i5495)

Specifier:

Designer: AJ

Company:

Notes

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

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

Calculations assume member is fully braced.

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

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

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

Design based on Dry Service Condition.

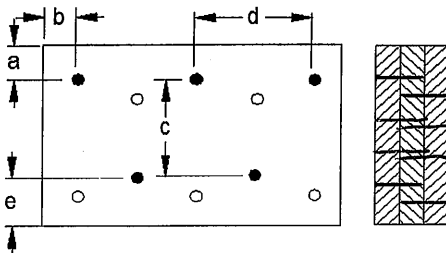
CONFORMS TO OBC 2012

Importance Factor : Normal Part code : Part 9

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

Nailing schedule applies to both sides of the member.

Connection Diagram



a minimum = 1"
b minimum = 3"

c = 6-7/8"
d = 4"
e minimum = 2"

Calculated Side Load = 527.4 lb/ft

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

Nailing schedule applies to both sides of the member.

Connectors are: 16d Nails

3-1/2" ARDOX SPIRAL

Disclosure

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

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

DWG NO. TAM 11849-18
STRUCTURAL
COMPONENT ONLY



UPPER FLOOR Flush Beams B25(i4120)

Dry | 1 span | No cant.

March 7, 2018 10:50:49

BC CALC® Design Report

Build 6215

Job name:

File name: DEWBERRY 12.mmdl

Address:

Description: UPPER FLOOR Flush Beams B25(i4120)

City, Province, Postal Code: WAT...WN

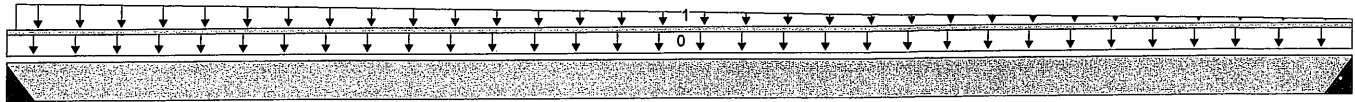
Specifier:

Customer:

Designer: AJ

Code reports: CCMC 12472-R

Company:



03-09-10

B0

B1

Total Horizontal Product Length = 03-09-10

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2"	29 / 0	26 / 0		
B1, 2"	17 / 0	20 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-09-10		6			00-00-00
1	FC5 Floor Material	Trapezoidal (lb/ft)	L	00-00-05	03-09-10	21	11			n/a
						3	1			

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	54 ft-lbs	17,696 ft-lbs	0.3%	1	01-09-02
End Shear	60 lbs	7,232 lbs	0.8%	1	01-01-14
Total Load Deflection	L/999 (0")	n/a	n/a	6	01-10-04
Live Load Deflection	L/999 (0")	n/a	n/a	8	01-10-04
Max Defl.	0"	n/a	n/a	6	01-10-04
Span / Depth	3.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0 Hanger	2" x 1-3/4"	75 lbs	n/a	1.8%	LSSUI25
B1 Hanger	2" x 1-3/4"	50 lbs	n/a	1.2%	LS90

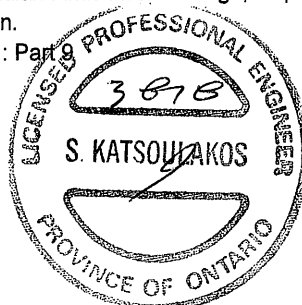
Cautions

Hanger model LSSUI25 and seat length were input by the user. Hanger has not been analyzed for adequate capacity. *OK*

Hanger model LS90 and seat length were input by the user. Hanger has not been analyzed for adequate capacity. *OK*

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: 00-03-14, Bottom: 00-03-14.
 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 8

CONFORMS TO OBC 2012

Disclosure

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

DWG NO. TAM 14124-18
 STRUCTURAL
 COMPONENT ONLY



Single 1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP 1ST FLOOR\...\B28L(i3669)

Dry | 1 span | No cantilevers | 0/12 slope (deg)

September 6, 2017 11:39:53

BC CALC® Design Report



Build 5033

Job Name:

Address:

City, Province, Postal Code: WATERDOWN,

Customer:

Code reports: CCMC 12472-R

File Name: DEWBERRY 12.mmdl

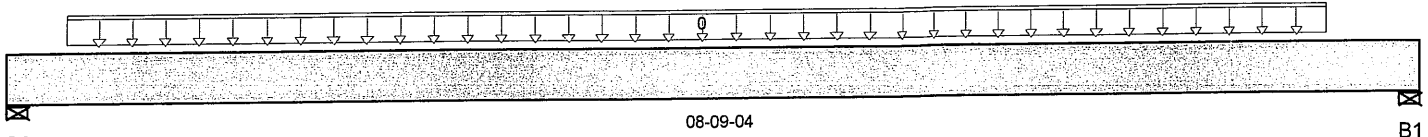
Description: Designs\Dropped Beams\1ST FLOOR\Dropped Beams\B

Specifier:

Designer: AJ

Company:

Misc:



Total Horizontal Product Length = 08-09-04

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4-3/8"	161 / 0	101 / 0		
B1, 4-3/8"	153 / 0	97 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
0 User Load	Unf. Lin. (lb/ft)	L	00-04-06	08-02-06	40	20	1.00	1.15	n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	757 ft-lbs	5,224 ft-lbs	14.5%	1	04-04-10
End Shear	344 lbs	5,785 lbs	5.9%	1	07-07-06
Total Load Defl.	L/999 (0.026")	n/a	n/a	4	04-04-10
Live Load Defl.	L/999 (0.016")	n/a	n/a	5	04-04-10
Max Defl.	0.026"	n/a	n/a	4	04-04-10
Span / Depth	10.3	n/a	n/a		00-00-00

Disclosure

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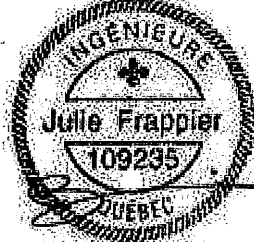
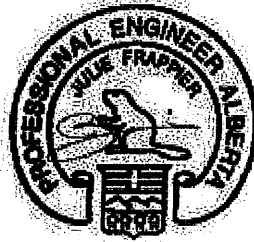
Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	4-3/8" x 1-3/4"	368 lbs	5.9%	3.9%	Unspecified
B1 Wall/Plate	4-3/8" x 1-3/4"	351 lbs	5.6%	3.8%	Unspecified

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: 08-00-08, Bottom: 08-00-08.
 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





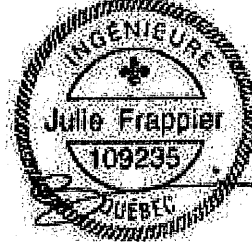
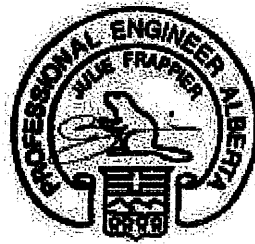
Maximum Floor Spans

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.



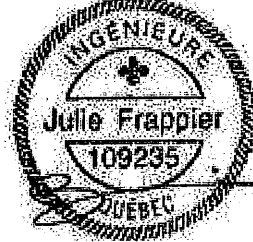
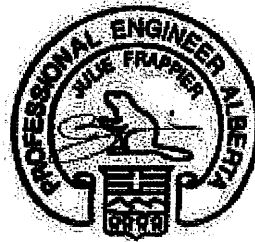
Maximum Floor Spans

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"
14"	NI-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"
	NI-40x	21'-5"	19'-10"	18'-11"	17'-11"	22'-1"	20'-6"	19'-7"	18'-7"
	NI-60	21'-10"	20'-2"	19'-3"	18'-2"	22'-5"	20'-10"	19'-11"	18'-10"
	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"	20'-10"	19'-9"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
16"	NI-90x	24'-1"	22'-3"	21'-2"	20'-0"	24'-8"	22'-10"	21'-9"	20'-7"
	NI-60	23'-9"	22'-0"	20'-11"	19'-10"	24'-6"	22'-9"	21'-8"	20'-6"
	NI-70	25'-1"	23'-2"	22'-0"	20'-10"	25'-9"	23'-10"	22'-9"	21'-6"
	NI-80	25'-6"	23'-6"	22'-4"	21'-2"	26'-1"	24'-2"	23'-1"	21'-10"
	NI-90x	26'-4"	24'-3"	23'-1"	21'-10"	26'-11"	24'-11"	23'-8"	22'-5"

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

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



Maximum Floor Spans

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

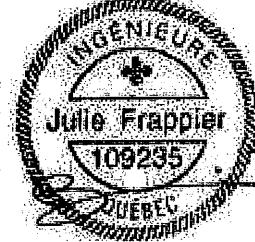
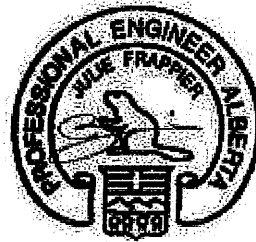
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-1"	13'-3"	N/A	15'-7"	14'-1"	13'-3"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	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



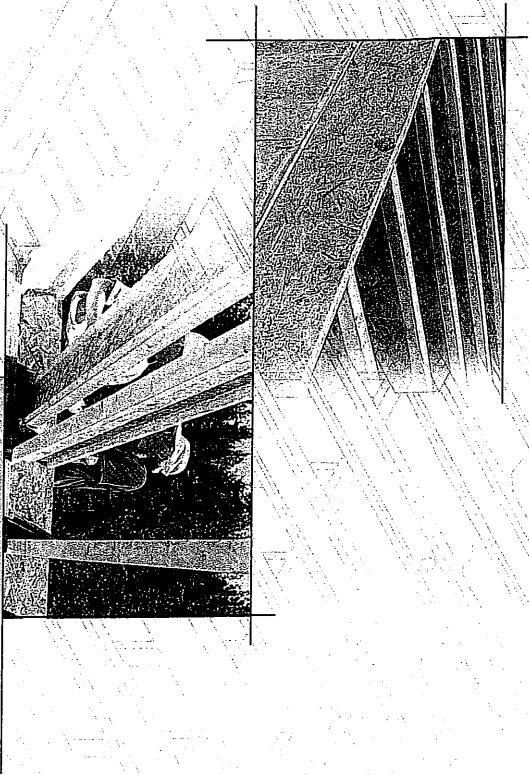
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-7"	14'-2"	13'-4"	12'-4"	15'-7"	14'-2"	13'-4"	12'-4"
	NI-40x	17'-0"	16'-0"	15'-1"	13'-11"	17'-5"	16'-1"	15'-1"	13'-11"
	NI-60	17'-2"	16'-2"	15'-5"	14'-3"	17'-6"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



INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



Distributed by:



NI-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:



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

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

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



- Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on center, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.

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

3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.

4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.

5. Never install a damaged I-joist.

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

STORAGE AND HANDLING GUIDELINES

1. Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.

2. Store, stack, and handle I-joists vertically and level only.

3. Always stack and handle I-joists in the upright position only.

4. Do not store I-joists in direct contact with the ground and/or flatwise.

5. Protect I-joists from weather, and use spacers to separate bundles.

6. Bundled units should be kept intact until time of installation.

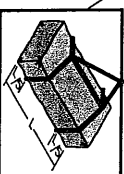
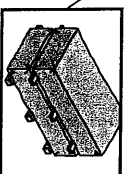
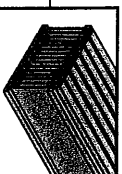
7. When handling I-joists with a crane on the job site, take a few simple precautions to prevent damage to the I-joists and injury to your work crew.

- Pick I-joists in bundles as shipped by the supplier.

- Orient the bundles so that the webs of the I-joists are vertical.

8. Do not handle I-joists in a horizontal orientation.

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



MAXIMUM FLOOR SPANS

1. Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in 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.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
6. Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
7. SI units conversion: 1 inch = 25.4 mm
1 foot = 0.305 m

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.

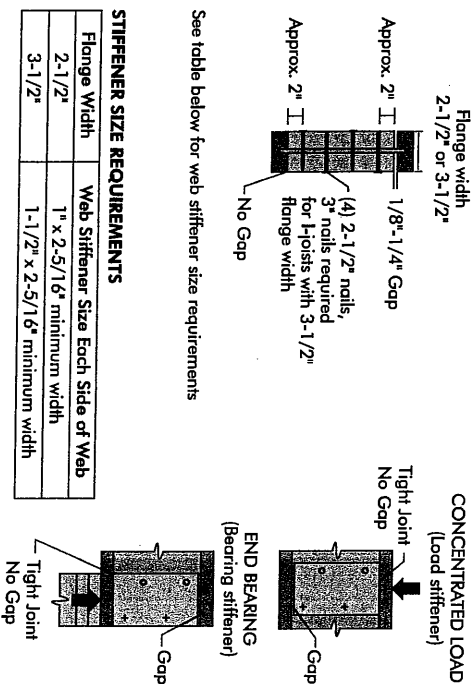
SI units conversion: 1 inch = 25.4 mm

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

Joist Depth	Joist Series	Simple spans				Multiple spans			
		On centre spacing				On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
12"	NI-20	4.2	3.2	2.8	2.4	4.2	3.2	2.8	2.4
16"	NI-40	6.2	4.8	4.2	3.6	6.2	4.8	4.2	3.6
19.2"	NI-60	8.2	6.4	5.6	4.8	8.2	6.4	5.6	4.8
24"	NI-80	10.2	8.0	7.0	6.0	10.2	8.0	7.0	6.0
30"	NI-100	12.2	9.6	8.4	7.2	12.2	9.6	8.4	7.2
36"	NI-120	14.2	11.2	9.8	8.4	14.2	11.2	9.8	8.4
42"	NI-140	16.2	12.8	11.2	9.6	16.2	12.8	11.2	9.6
48"	NI-160	18.2	14.4	12.6	10.8	18.2	14.4	12.6	10.8
54"	NI-180	20.2	16.0	14.0	12.0	20.2	16.0	14.0	12.0
60"	NI-200	22.2	17.6	15.4	13.2	22.2	17.6	15.4	13.2
66"	NI-220	24.2	19.2	16.8	14.4	24.2	19.2	16.8	14.4
72"	NI-240	26.2	20.8	18.2	15.6	26.2	20.8	18.2	15.6
78"	NI-260	28.2	22.4	19.6	16.8	28.2	22.4	19.6	16.8
84"	NI-280	30.2	24.0	21.0	18.0	30.2	24.0	21.0	18.0
90"	NI-300	32.2	25.6	22.4	19.2	32.2	25.6	22.4	19.2
96"	NI-320	34.2	27.2	23.8	20.4	34.2	27.2	23.8	20.4
102"	NI-340	36.2	28.8	25.2	21.6	36.2	28.8	25.2	21.6
108"	NI-360	38.2	30.4	26.6	22.8	38.2	30.4	26.6	22.8
114"	NI-380	40.2	32.0	28.0	24.0	40.2	32.0	28.0	24.0
120"	NI-400	42.2	33.6	29.4	25.2	42.2	33.6	29.4	25.2
126"	NI-420	44.2	35.2	30.8	26.4	44.2	35.2	30.8	26.4
132"	NI-440	46.2	36.8	32.2	27.6	46.2	36.8	32.2	27.6
138"	NI-460	48.2	38.4	33.6	28.8	48.2	38.4	33.6	28.8
144"	NI-480	50.2	40.0	35.0	30.0	50.2	40.0	35.0	30.0
150"	NI-500	52.2	41.6	36.4	31.2	52.2	41.6	36.4	31.2
156"	NI-520	54.2	43.2	37.8	32.4	54.2	43.2	37.8	32.4
162"	NI-540	56.2	44.8	39.2	33.6	56.2	44.8	39.2	33.6
168"	NI-560	58.2	46.4	40.6	34.8	58.2	46.4	40.6	34.8
174"	NI-580	60.2	48.0	42.0	36.0	60.2	48.0	42.0	36.0
180"	NI-600	62.2	49.6	43.4	37.2	62.2	49.6	43.4	37.2
186"	NI-620	64.2	51.2	44.8	38.4	64.2	51.2	44.8	38.4
192"	NI-640	66.2	52.8	46.2	39.6	66.2	52.8	46.2	39.6
198"	NI-660	68.2	54.4	47.6	40.8	68.2	54.4	47.6	40.8
204"	NI-680	70.2	56.0	49.0	42.0	70.2	56.0	49.0	42.0
210"	NI-700	72.2	57.6	50.4	43.2	72.2	57.6	50.4	43.2
216"	NI-720	74.2	59.2	51.8	44.4	74.2	59.2	51.8	44.4
222"	NI-740	76.2	60.8	53.2	45.6	76.2	60.8	53.2	45.6
228"	NI-760	78.2	62.4	54.6	46.8	78.2	62.4	54.6	46.8
234"	NI-780	80.2	64.0	56.0	48.0	80.2	64.0	56.0	48.0
240"	NI-800	82.2	65.6	57.4	49.2	82.2	65.6	57.4	49.2
246"	NI-820	84.2	67.2	58.8	50.4	84.2	67.2	58.8	50.4
252"	NI-840	86.2	68.8	60.2	51.6	86.2	68.8	60.2	51.6
258"	NI-860	88.2	70.4	61.6	52.8	88.2	70.4	61.6	52.8
264"	NI-880	90.2	72.0	63.0	54.0	90.2	72.0	63.0	54.0
270"	NI-900	92.2	73.6	64.4	55.2	92.2	73.6	64.4	55.2
276"	NI-920	94.2	75.2	65.8	56.4	94.2	75.2	65.8	56.4
282"	NI-940	96.2	76.8	67.2	57.6	96.2	76.8	67.2	57.6
288"	NI-960	98.2	78.4	68.6	58.8	98.2	78.4	68.6	58.8
294"	NI-980	100.2	80.0	70.0	60.0	100.2	80.0	70.0	60.0
300"	NI-1000	102.2	81.6	71.4	61.2	102.2	81.6	71.4	61.2

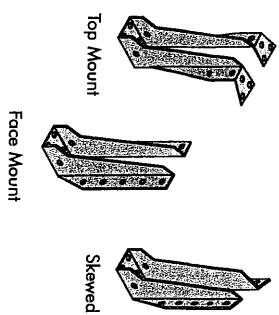
CCMC EVALUATION REPORT 13032-R

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS



I-JOIST HANGERS

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



NORDIC I-JOIST SERIES

Series	Depth	Flange Width	Web Thickness	Top Flange Thickness	Bottom Flange Thickness	Top Flange Spacing	Bottom Flange Spacing	Top Flange Nail Spacing	Bottom Flange Nail Spacing
NI-20	20"	2-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-40	40"	4-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-60	60"	6-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-80	80"	8-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-100	100"	10-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-120	120"	12-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-140	140"	14-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-160	160"	16-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-180	180"	18-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-200	200"	20-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-220	220"	22-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-240	240"	24-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-260	260"	26-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-280	280"	28-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-300	300"	30-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-320	320"	32-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-340	340"	34-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-360	360"	36-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-380	380"	38-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-400	400"	40-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-420	420"	42-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-440	440"	44-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-460	460"	46-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-480	480"	48-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-500	500"	50-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-520	520"	52-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-540	540"	54-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-560	560"	56-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-580	580"	58-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-600	600"	60-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-620	620"	62-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-640	640"	64-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-660	660"	66-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-680	680"	68-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-700	700"	70-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-720	720"	72-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-740	740"	74-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-760	760"	76-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-780	780"	78-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-800	800"	80-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-820	820"	82-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-840	840"	84-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-860	860"	86-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-880	880"	88-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-900	900"	90-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-920	920"	92-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-940	940"	94-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-960	960"	96-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-980	980"	98-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"
NI-1000	1000"	100-1/2"	1/8"	1/4"	1/4"	12"	12"	12"	12"

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

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

2015-04-16

INSTALLING NORDIC I-JOISTS

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

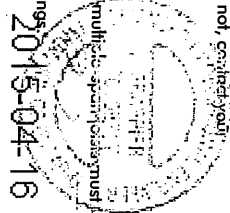
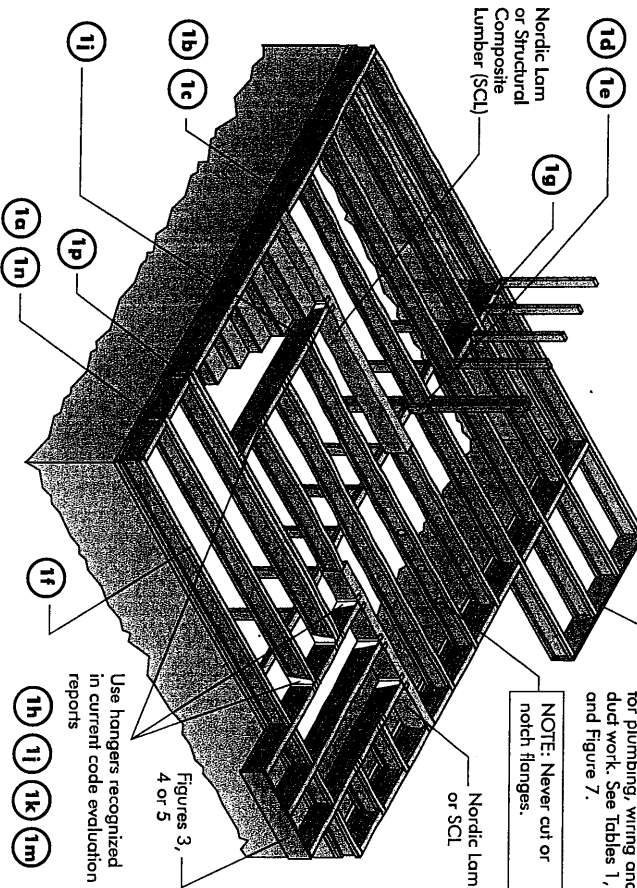


FIGURE 1
TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS

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



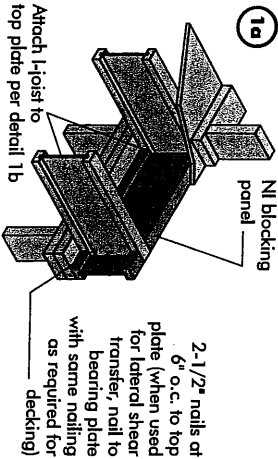
Figures 3, 4 or 5
Holes may be cut in web for plumbing, wiring and duct work. See Tables 1, 2 and Figure 7.

NOTE: Never cut or notch flanges.

Use hangers recognized in current code evaluation reports

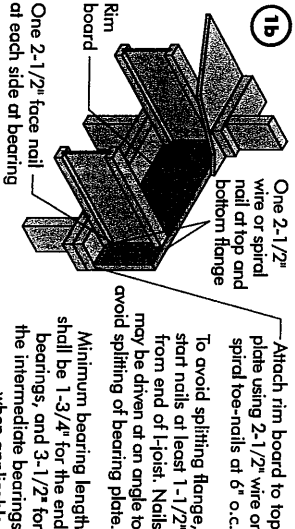
Figures 3, 4 or 5

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



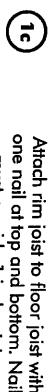
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

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

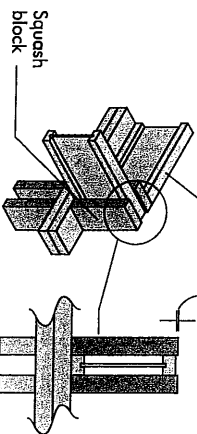
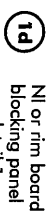
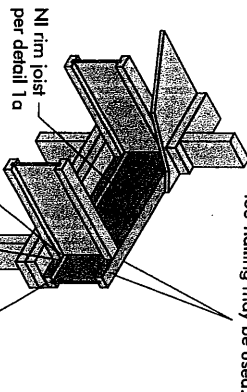


Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

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

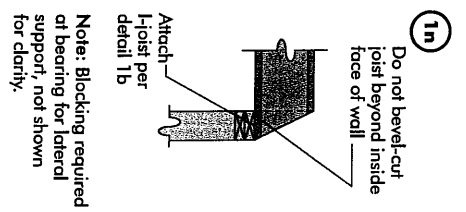
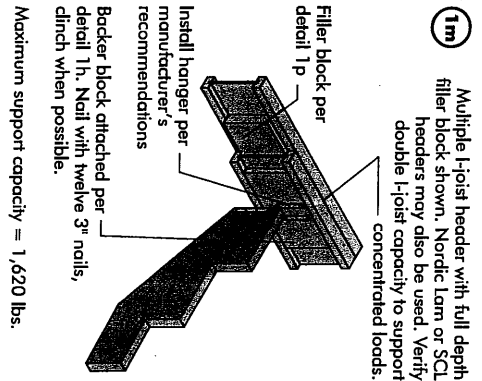
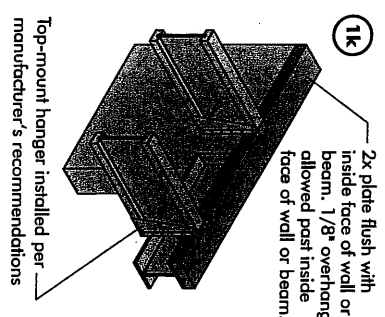
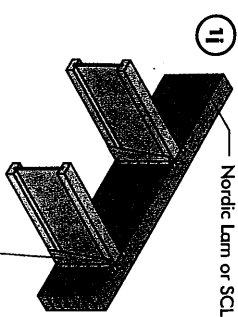
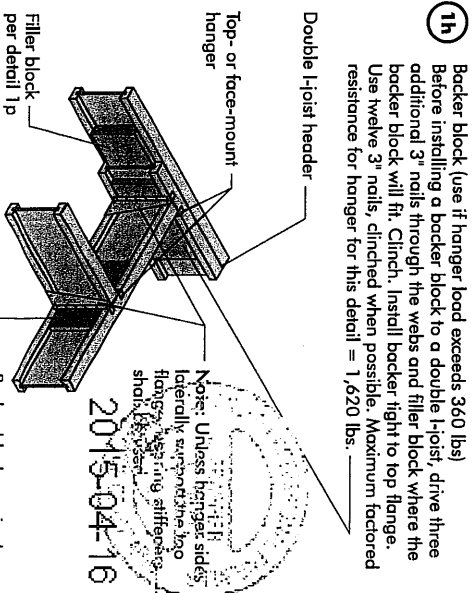
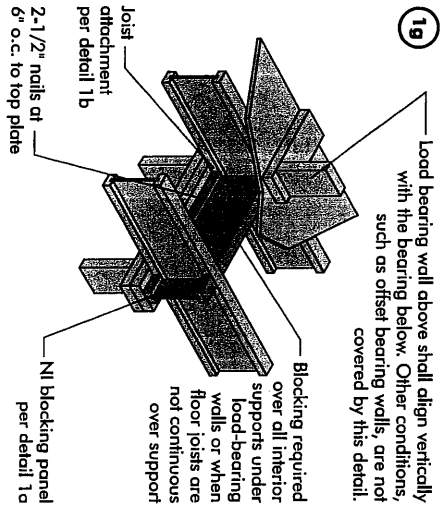
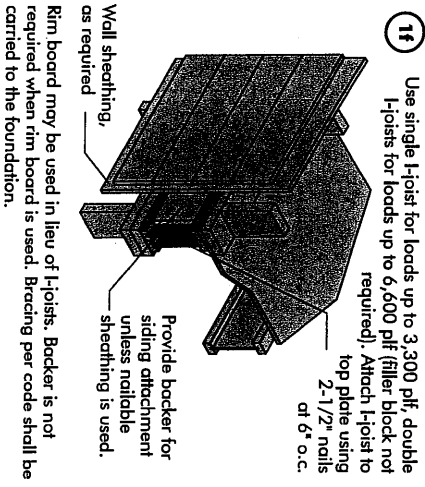
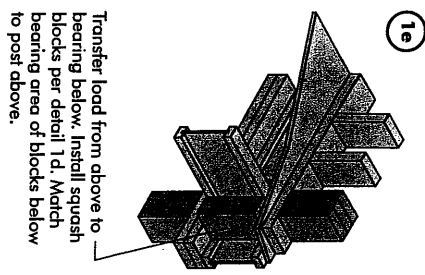


Attach rim joist to floor joist with one nail at top and bottom. Nail must provide 1 inch minimum penetration into floor joist. Toe-nailing may be used.



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

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



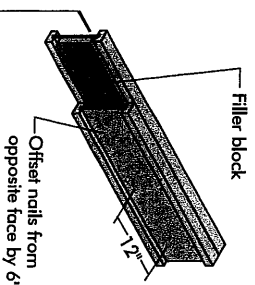
BACKER BLOCKS (Blocks must be long enough to permit required nailing without splitting)

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.

1p



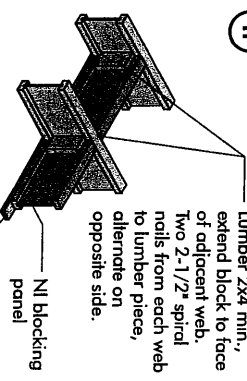
Notes:

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 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

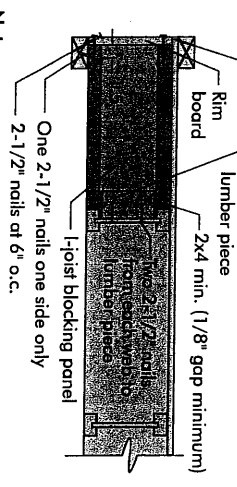
Flange Size	Joist Depth	Filler Block Size
2-1/2" x 1-1/2"	9-1/2" x 14"	2-1/8" x 6"
2-1/2" x 1-1/2"	11-7/8" x 14"	2-1/8" x 8"
3-1/2" x 1-1/2"	11-7/8" x 14"	2-1/8" x 10"
3-1/2" x 1-1/2"	11-7/8" x 16"	2-1/8" x 12"
3-1/2" x 2"	11-7/8" x 14"	3" x 6"
3-1/2" x 2"	11-7/8" x 16"	3" x 8"
3-1/2" x 2"	11-7/8" x 18"	3" x 10"
3-1/2" x 2"	11-7/8" x 20"	3" x 12"
3-1/2" x 2"	11-7/8" x 24"	3" x 7"
3-1/2" x 2"	11-7/8" x 28"	3" x 9"
3-1/2" x 2"	11-7/8" x 32"	3" x 11"

1r



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.

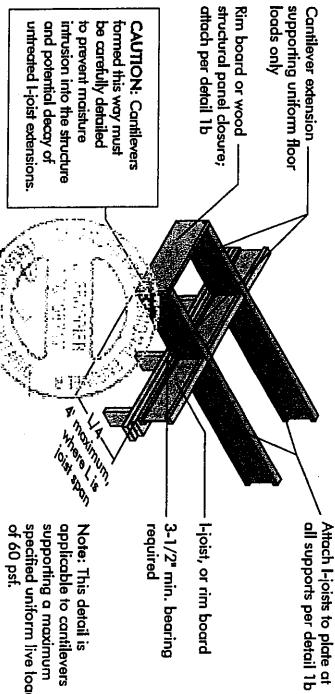
1s



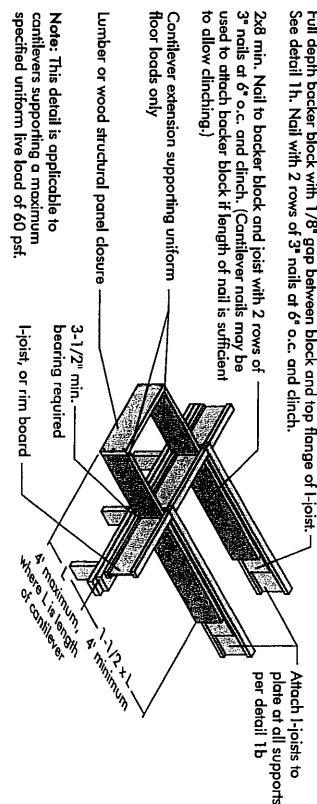
Notes:
 - In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.
 - All nails are common spiral in this detail.

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

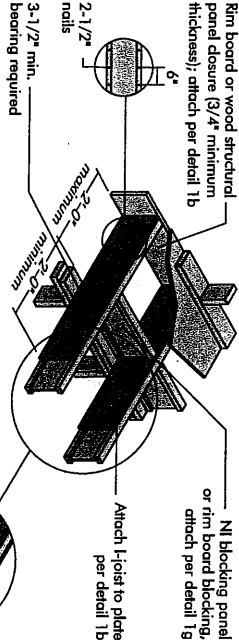


35b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



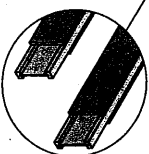
CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

49 Method 1 — SHEATHING REINFORCEMENT ONE SIDE



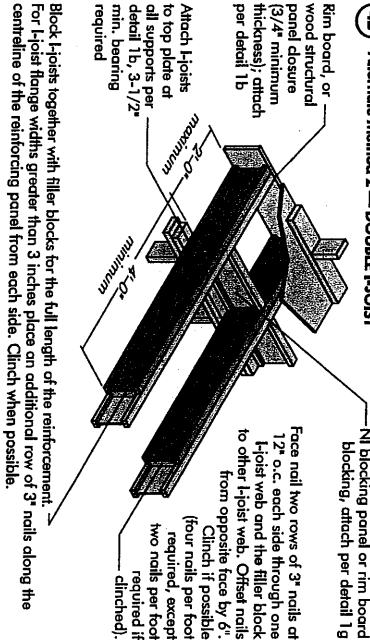
Method 2 — SHEATHING REINFORCEMENT TWO SIDES

- 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".



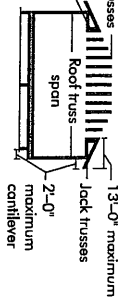
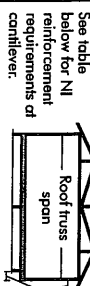
Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c. top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail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

45b 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 centerline of the reinforcing panel from each side. Clinch when possible.

FIGURE 4 (continued)



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

CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS				ROOF LOADING (UNFACTORED)			
	LL = 30 psf, DL = 15 psf	JOIST SPACING (in.)	LL = 40 psf, DL = 15 psf	JOIST SPACING (in.)	LL = 50 psf, DL = 15 psf	JOIST SPACING (in.)	LL = 60 psf, DL = 15 psf	JOIST SPACING (in.)
12	X	12	X	12	X	12	X	12
16	X	16	X	16	X	16	X	16
19.2	X	19.2	X	19.2	X	19.2	X	19.2
24	X	24	X	24	X	24	X	24
28	X	28	X	28	X	28	X	28
30	X	30	X	30	X	30	X	30
32	X	32	X	32	X	32	X	32
34	X	34	X	34	X	34	X	34
36	X	36	X	36	X	36	X	36
38	X	38	X	38	X	38	X	38
40	X	40	X	40	X	40	X	40
42	X	42	X	42	X	42	X	42
44	X	44	X	44	X	44	X	44
46	X	46	X	46	X	46	X	46
48	X	48	X	48	X	48	X	48
50	X	50	X	50	X	50	X	50
52	X	52	X	52	X	52	X	52
54	X	54	X	54	X	54	X	54
56	X	56	X	56	X	56	X	56
58	X	58	X	58	X	58	X	58
60	X	60	X	60	X	60	X	60
62	X	62	X	62	X	62	X	62
64	X	64	X	64	X	64	X	64
66	X	66	X	66	X	66	X	66
68	X	68	X	68	X	68	X	68
70	X	70	X	70	X	70	X	70
72	X	72	X	72	X	72	X	72
74	X	74	X	74	X	74	X	74
76	X	76	X	76	X	76	X	76
78	X	78	X	78	X	78	X	78
80	X	80	X	80	X	80	X	80
82	X	82	X	82	X	82	X	82
84	X	84	X	84	X	84	X	84
86	X	86	X	86	X	86	X	86
88	X	88	X	88	X	88	X	88
90	X	90	X	90	X	90	X	90
92	X	92	X	92	X	92	X	92
94	X	94	X	94	X	94	X	94
96	X	96	X	96	X	96	X	96
98	X	98	X	98	X	98	X	98
100	X	100	X	100	X	100	X	100

1. N = No reinforcement required.
2. X = NI reinforced with 3/4" wood structural panel on one side only.
3. X = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
4. For larger openings, or multiple 3'-0" wide openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.
5. 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 12" o.c. requirements for lesser spacing.
6. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS

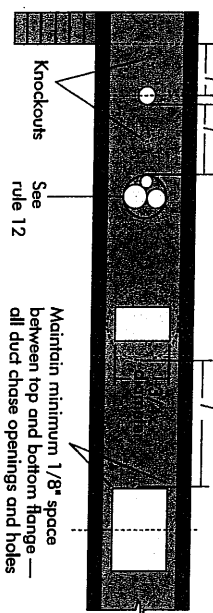
1. The distance between the inside edge of the support and the centerline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
2. Joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
3. Whenever possible, field-cut holes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

See table 1 for minimum distance from bearing

2x diameter of larger hole

2x duct chase length or hole diameter, whichever is longer

Duct chase opening (see Table 2 for minimum distance from bearing)



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

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



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

Holes in webs should be cut with a sharp saw.

For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Startting 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

[illegible]

1. Above table may be used for I-joist spacing of 24 inches on centre or less.
2. Hole location distance is measured from inside face of supports to centre of hole
3. Distances in this chart are based on uniformly loaded joists.

OPTIONAL:

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

$$\text{Reduced } D = \frac{\text{Actual } D}{2}$$
$$V_{\text{reduced}} = \frac{V_{\text{actual}}}{SAE} \times D$$

Where:

Actual

3 D

Distance from the inside face of any support to centre of hole reduced for less-than-maximum span applications (H). The total span distance shall not be less than 6 inches from the face of the support to edge of the hole.

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

Span Adjustment Factor given in this table.

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

If actual is greater than 1, use 1 in the above calculation for $\frac{H}{L}$.

SAF

SAF

2015-04

Maximum Fiber Spacing:
 1.2 in.
 1.2 in. (ft). The reduced
 2015-04-16

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

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of opening (ft-in.)									
		Duct chase length (ft-in.)									
		8	10	12	14	16	18	20	22	24	
12	1	1	1	1	1	1	1	1	1	1	
12	2	1	1	1	1	1	1	1	1	1	
12	3	1	1	1	1	1	1	1	1	1	
12	4	1	1	1	1	1	1	1	1	1	
12	5	1	1	1	1	1	1	1	1	1	
12	6	1	1	1	1	1	1	1	1	1	
12	7	1	1	1	1	1	1	1	1	1	
12	8	1	1	1	1	1	1	1	1	1	
12	9	1	1	1	1	1	1	1	1	1	
12	10	1	1	1	1	1	1	1	1	1	
12	11	1	1	1	1	1	1	1	1	1	
12	12	1	1	1	1	1	1	1	1	1	
12	13	1	1	1	1	1	1	1	1	1	
12	14	1	1	1	1	1	1	1	1	1	
12	15	1	1	1	1	1	1	1	1	1	
12	16	1	1	1	1	1	1	1	1	1	
12	17	1	1	1	1	1	1	1	1	1	
12	18	1	1	1	1	1	1	1	1	1	
12	19	1	1	1	1	1	1	1	1	1	
12	20	1	1	1	1	1	1	1	1	1	
12	21	1	1	1	1	1	1	1	1	1	
12	22	1	1	1	1	1	1	1	1	1	
12	23	1	1	1	1	1	1	1	1	1	
12	24	1	1	1	1	1	1	1	1	1	
12	25	1	1	1	1	1	1	1	1	1	
12	26	1	1	1	1	1	1	1	1	1	
12	27	1	1	1	1	1	1	1	1	1	
12	28	1	1	1	1	1	1	1	1	1	
12	29	1	1	1	1	1	1	1	1	1	
12	30	1	1	1	1	1	1	1	1	1	
12	31	1	1	1	1	1	1	1	1	1	
12	32	1	1	1	1	1	1	1	1	1	
12	33	1	1	1	1	1	1	1	1	1	
12	34	1	1	1	1	1	1	1	1	1	
12	35	1	1	1	1	1	1	1	1	1	
12	36	1	1	1	1	1	1	1	1	1	
12	37	1	1	1	1	1	1	1	1	1	
12	38	1	1	1	1	1	1	1	1	1	
12	39	1	1	1	1	1	1	1	1	1	
12	40	1	1	1	1	1	1	1	1	1	
12	41	1	1	1	1	1	1	1	1	1	
12	42	1	1	1	1	1	1	1	1	1	
12	43	1	1	1	1	1	1	1	1	1	
12	44	1	1	1	1	1	1	1	1	1	
12	45	1	1	1	1	1	1	1	1	1	
12	46	1	1	1	1	1	1	1	1	1	
12	47	1	1	1	1	1	1	1	1	1	
12	48	1	1	1	1	1	1	1	1	1	
12	49	1	1	1	1	1	1	1	1	1	
12	50	1	1	1	1	1	1	1	1	1	
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12	59	1	1	1	1	1	1	1	1	1	
12	60	1	1	1	1	1	1	1	1	1	
12	61	1	1	1	1	1	1	1	1	1	
12	62	1	1	1	1	1	1	1	1	1	
12	63	1	1	1	1	1	1	1	1	1	
12	64	1	1	1	1	1	1	1	1	1	
12	65	1	1	1	1	1	1	1	1	1	
12	66	1	1	1	1	1	1	1	1	1	
12	67	1	1	1	1	1	1	1	1	1	
12	68	1	1	1	1	1	1	1	1	1	
12	69	1	1	1	1	1	1	1	1	1	
12	70	1	1	1	1	1	1	1	1	1	
12	71	1	1	1	1	1	1	1	1	1	
12	72	1	1	1	1	1	1	1	1	1	
12	73	1	1	1	1	1	1	1	1	1	
12	74	1	1	1	1	1	1	1	1	1	
12	75	1	1	1	1	1	1	1	1	1	
12	76	1	1	1	1	1	1	1	1	1	
12	77	1	1	1	1	1	1	1	1	1	
12	78	1	1	1	1	1	1	1	1	1	
12	79	1	1	1	1	1	1	1	1	1	
12	80	1	1	1	1	1	1	1	1	1	
12	81	1	1	1	1	1	1	1	1	1	
12	82	1	1	1	1	1	1	1	1	1	
12	83	1	1	1	1	1	1	1	1	1	
12	84	1	1	1	1	1	1	1	1	1	
12	85	1	1	1	1	1	1	1	1	1	
12	86	1	1	1	1	1	1	1	1	1	
12	87	1	1	1	1	1	1	1	1	1	
12	88	1	1	1	1	1	1	1	1	1	
12	89	1	1	1	1	1	1	1	1	1	
12	90	1	1	1	1	1	1	1	1	1	
12	91	1	1	1	1	1	1	1	1	1	
12	92	1	1	1	1	1	1	1	1	1	
12	93	1	1	1	1	1	1	1	1	1	
12	94	1	1	1	1	1	1	1	1	1	
12	95	1	1	1	1	1	1	1	1	1	
12	96	1	1	1	1	1	1	1	1	1	
12	97	1	1	1	1	1	1	1	1	1	
12	98	1	1	1	1	1	1	1	1	1	
12	99	1	1	1	1	1	1	1	1	1	
12	100	1	1	1	1	1	1	1	1	1	

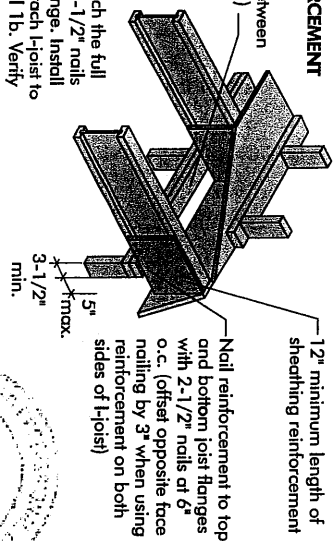
1. Above table may be used for 1-joint spacing of 24 inches on centre or less.
2. Do not close opening location distance is measured from inside face of supports to centre of opening.
3. The above table is based on simple-span joist only. For other applications, contact your local distributor.
4. Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of 1/480. For other applications, contact your local distributor.

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.

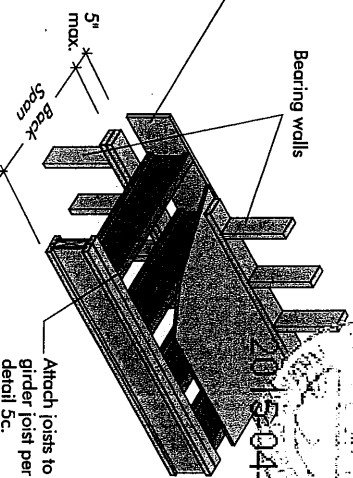


5b SET-BACK DETAIL

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

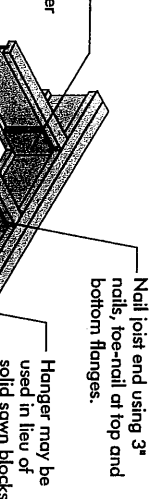
Notes:

- 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.



Notes:

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

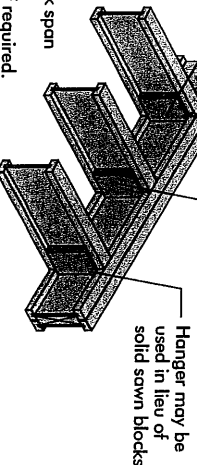
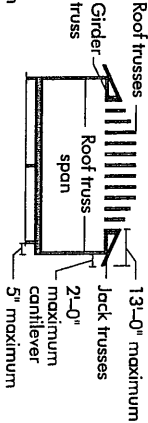
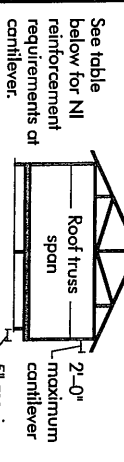


FIGURE 5 (continued)



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.

BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft)	LL = 30 psf, DL = 15 psf				LL = 40 psf, DL = 15 psf				LL = 50 psf, DL = 15 psf			
		JOIST SPACING (in.)				JOIST SPACING (in.)				JOIST SPACING (in.)			
12	12	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
14	14	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
16	16	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
18	18	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
20	20	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
22	22	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
24	24	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
26	26	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
28	28	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
30	30	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
32	32	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
34	34	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
36	36	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
38	38	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
40	40	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
42	42	12	16	19.2	24	12	16	19.2	24	12	16	19.2	24

1. N = No reinforcement required.
2. N = NI reinforced with 3/4" wood structural panel on one side only.
3. N = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
4. N = Try a deeper joist or closer spacing.
5. 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.
6. 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.
7. 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.
8. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is formed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
9. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

INSTALLING THE GLUED FLOOR SYSTEM

1. Wipe any mud, dirt, water, or ice from I-joist flanges before gluing.
2. Snap a chalk line across the I-joists four feet in from the wall for panel edge alignment and as a boundary for spreading glue.
3. Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from the glue manufacturer.
4. Lay the first panel with tongue side to the wall, and nail in place. This protects the tongue of the next panel from damage when topped into place with a block and sledgehammer.
5. Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joist. Apply glue in a winding pattern on wide areas, such as with double I-joists.
6. Apply two lines of glue on I-joists where panel ends butt to assure proper gluing of each end.
7. After the first row of panels is in place, spread glue in the groove of one or two panels at a time before laying the next row. Glue line may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) than used on I-joist flanges.
8. Tap the second row of panels into place, using a block to protect groove edges.
9. Stagger end joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&G edges, is recommended. (Use a spacer tool or an 2-1/2" common nail to assure accurate and consistent spacing.)
10. **Complete all nailing of each panel before glue sets.** Check the manufacturer's recommendations for cure time. (Warm weather accelerates glue setting.) Use 2" ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the glue bond.

FASTENERS FOR SHEATHING AND SUBFLOORING(1)

Maximum Joist Spacing (in.)	Minimum Panel Thickness (in.)	Common Wire or Spiral Nails	Nail Size and Type	Maximum Spacing of Fasteners
16	5/8	2"	1-3/4"	2"
20	5/8	2"	1-3/4"	2"
24	3/4	2"	1-3/4"	2"

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.

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

IMPORTANT NOTE:

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

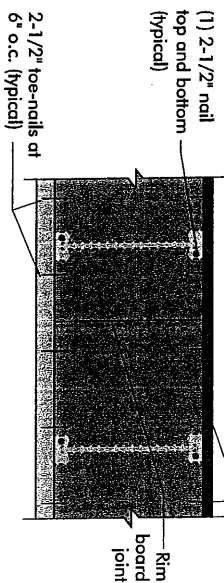
RIM BOARD INSTALLATION DETAILS

8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

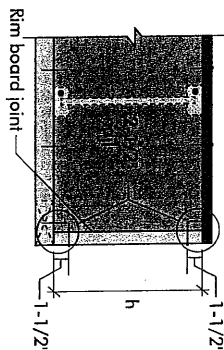
Rim board Joint Between Floor Joists

2-1/2" nails at 6" o.c. (typical)

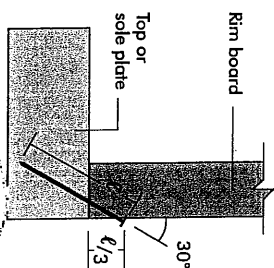
(1) 2-1/2" nail top and bottom (typical)



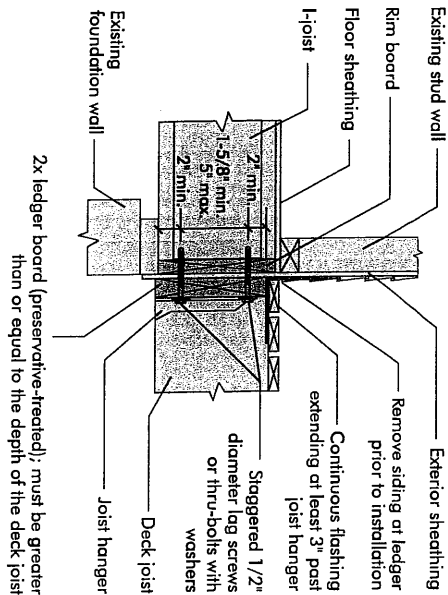
Rim board Joint at Corner



8b TOE-NAIL CONNECTION AT RIM BOARD



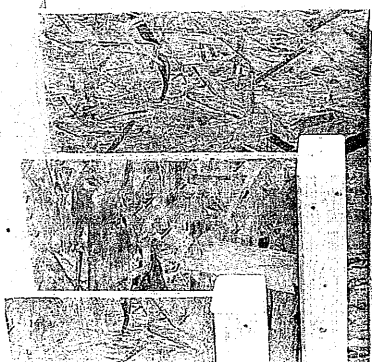
8c 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL



2015-04-16

PRODUCT WARRANTY

Customer acknowledges that this is a warranty and not a guarantee. No other warranties, express or implied, shall apply to this product. The manufacturer's warranty is the only warranty that applies to this product. The manufacturer's warranty is the only warranty that applies to this product. The manufacturer's warranty is the only warranty that applies to this product.

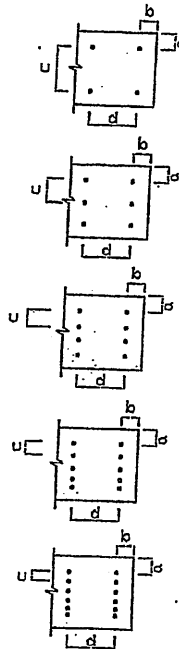


MICRO CITY ENGINEERING SERVICES INC.

TEL: (519) 287 - 2242

R.R. #1, P.O. BOX 61, GLENCOE, ONTARIO, N0L 1M0

LVL HEADER AND CONVENTIONAL LUMBER NAILING DETAILS		
DETAIL NUMBER	NUMBER OF ROWS	SPACING (INCHES o/c) "d"
A	2	12
B	2	8
C	2	6
D	2	4
1A	3	12
1B	3	8
1C	3	6
1D	3	4
2A	4	12
2B	4	8
2C	4	6
2D	4	4
3A	5	12
3B	5	8
3C	5	6
3D	5	4
4A	6	12
4B	6	8
4C	6	6
4D	6	4



NOTES:

- (1) MINIMUM LUMBER EDGE DISTANCE "a" = 1"
- (2) MINIMUM LUMBER END DISTANCE "b" = 2"
- (3) MINIMUM NAIL ROW SPACING "c" = 2"
- (4) STAGGER NAILS "d/2" BETWEEN PLYS FOR MULTI-PLY MEMBERS (3 PLY OR MORE)
- (5) ALL NAILS ARE 3-1/2" ARDOX SPIRAL NAILS
- (6) DO NOT USE AIR-DRIVEN NAILS



DWG NO TAMN1001.14

STRUCTURAL

COMPONENT ONLY

TO BE USED ONLY
WITH BEAM CALCS
BEARING THE
STAMP BELOW

PROVIDE NAILING

DETAIL # X SEE

DWG #TAMN1001-14