

		Products		
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-40x	1	67
J2	14-00-00	9 1/2" NI-40x	1	12 .
J3	12-00-00	9 1/2" NI-40x	1	36
J4	8-00-00	9 1/2" NI-40x	1	6
J5	6-00-00	9 1/2" NI-40x	1	12
J6	4-00-00	9 1/2" NI-40x	1	8
B11A DROP	18-00-00	VERSALAM-14 2.0E	3	3
B8	16-00-00	VERSALAM-10 2.0E	1	1
B9	16-00-00	VERSALAM-10 2.0E	4	4
B6	14-00-00	VERSALAM-10 2.0E	4	4
B12 DROP	12-00-00	VERSALAM-10 2.0E	2	2
B3	10-00-00	VERSALAM-10 2.0E	1	1
B2	8-00-00	VERSALAM-10 2.0E	1	1
B5	8-00-00	VERSALAM-10 2.0E	1	1
B13	6-00-00	VERSALAM-10 2.0E	1	1
B4	6-00-00	VERSALAM-10 2.0E	1	1
B7	6-00-00	VERSALAM-10 2.0E	1	1
B11 DROP	6-00-00	VERSALAM-10 2.0E	2	2
B1	4-00-00	VERSALAM-10 2.0E	1	1
B10 DROP	4-00-00	VERSALAM-10 2.0E	2	2

HANGERS SCHEDULE -IUS2.56/9.5 -HUS1.81/10 --HGUS410 --LSSUH310 RIMBOARD 1-1/8" X 9 1/2" O.S.B SUBFLOOR: 5/8" NAILED & GLUED BBO---- BEAM BY OTHERS APP----AS PER PLAN

--1 - 2 X 6 SPF # 2 squash block reg'd on one side of each joist under interior load bearing walls. --Multiple squash blocks are reg'd under concentrated loads.

Do not scale - refer to architectural plans for dimensions

Ceramic tile application as per O.B.C. 9.30.6

S50-2

ELEV. 'A' & 'B'

SECOND FLOOR FRAMING

Alpa Roof Trusses Inc. Maple, Ontario

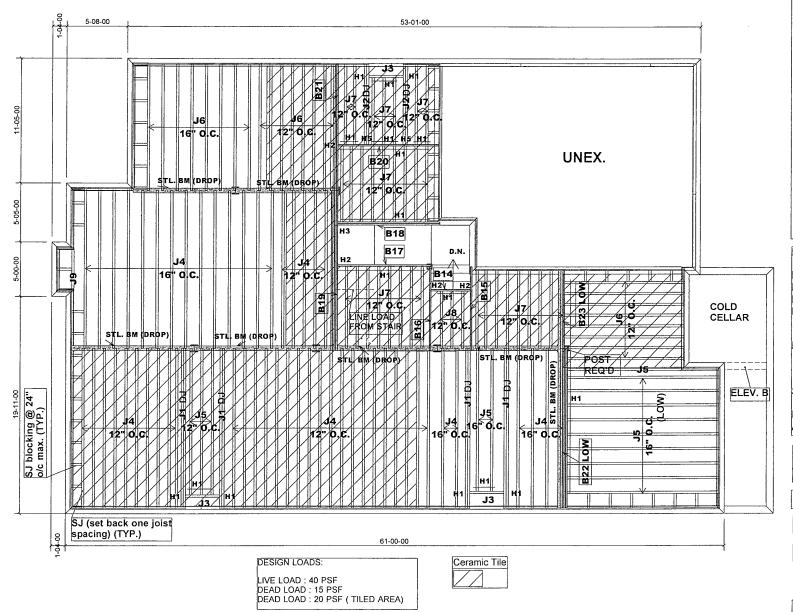
Salesperson: Mario Tamarack Lumber

JT:38514/84786 Builder: Bayview Wellington

File:(263959) 293765 Project: Green Valley Estates

Date: Jan. 26 / 2016

Sheet: 1 of 3



		Products		
PlotID	Length	Product	Plies	Net Qty
J1	16-00-00	9 1/2" NI-20	2	8
J2	8-00-00	9 1/2" NI-20	2	4
J3	4-00-00	9 1/2" NI-20	1	3
J4	16-00-00	9 1/2" NI-40x	1	54
J5	14-00-00	9 1/2" NI-40x	1	15
J6	12-00-00	9 1/2" NI-40x	1	24
J7	8-00-00	9 1/2" NI-40x	1	33
J8	6-00-00	9 1/2" NI-40x	1	3
J9	4-00-00	9 1/2" NI-40x	1	1
B22 LOW	16-00-00	VERSALAM-10 2.0E	3	3
B19	16-00-00	VERSALAM-10 2.0E	4	4
B21	12-00-00	VERSALAM-10 2.0E	2	2
B17	10-00-00	VERSALAM-10 2.0E	1	1
B20	10-00-00	VERSALAM-10 2.0E	1	1
B18	10-00-00	VERSALAM-10 2.0E	2	2
B15	8-00-00	VERSALAM-10 2.0E	1	1
B16	8-00-00	VERSALAM-10 2.0E	1	1
B23 LOW	8-00-00	VERSALAM-10 2.0E	1	1
B14	4-00-00	VERSALAM-10 2.0E	1	1

HANGERS SCHEDULE

H1------IUS2.56/9.5 H2-----HUS1.81/10 H3-----HGUS410 H5-----HU310-2

RIMBOARD

1-1/8" X 9 1/2" O.S.B

SUBFLOOR: 5/8" NAILED & GLUED

BBO---- BEAM BY OTHERS
APP----AS PER PLAN

-1 - 2 X 6 SPF # 2 squash block req'd on one side of each joist under interior load bearing walls.

---Multiple squash blocks are req'd under concentrated loads.

Do not scale - refer to architectural plans for dimensions

Ceramic tile application as per O.B.C. 9.30.6

S50-2

ELEV. 'A' & 'B'

FIRST FLOOR FRAMING

AND W/OPT. W.O.D. COND.

96434

JT:38514/84786 Builder: Bayview Wellington

File:(263959) 293765

Project: Green Valley Estates

Location: Bradford

Date: Jan. 26 / 2016

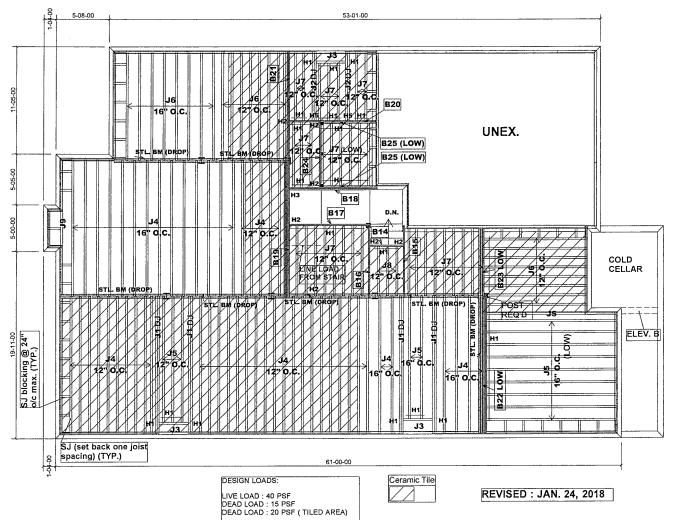
Designer: MQ

Sheet: 2 of 3

Alpa Roof Trusses Inc. Maple, Ontario

Salesperson: Mario Tamarack Lumber





Products							
PlotID	Length	Product	Plies	Net Qty			
J1	16-00-00	9 1/2" NI-20	2	8			
J2	8-00-00	9 1/2" NI-20	2	4			
J3	4-00-00	9 1/2" NI-20	1	3			
J4	16-00-00	9 1/2" NI-40x	1	54			
J5	14-00-00	9 1/2" NI-40x	1	15			
J6	12-00-00	9 1/2" NI-40x	1	24			
J7	8-00-00	9 1/2" NI-40x	1	33			
J8	6-00-00	9 1/2" NI-40x	1	3			
J9	4-00-00	9 1/2" NI-40x	1	1			
B22 LOW	16-00-00	VERSALAM-10 2.0E	3	3			
B19	16-00-00	VERSALAM-10 2.0E	4	4			
B21	12-00-00	VERSALAM-10 2.0E	2	2			
B17	10-00-00	VERSALAM-10 2.0E	1	1			
B20	10-00-00	VERSALAM-10 2.0E	1	1			
B18	10-00-00	VERSALAM-10 2.0E	2	2			
B15	8-00-00	VERSALAM-10 2.0E	1	1			
B16	8-00-00	VERSALAM-10 2.0E	1	1			
B23 LOW	8-00-00	VERSALAM-10 2.0E	1	1			
B24	8-00-00	VERSALAM-10 2.0E	1	1			
B25 (LOW)	8-00-00	VERSALAM-10 2.0E	1	1			
B25 (LOW)	6-00-00	VERSALAM-10 2.0E	1	1			
B14	4-00-00	VERSALAM-10 2.0E	1	1			

RIMBOARD

1-1/8" X 9 1/2" O.S.B

SUBFLOOR: 5/8" NAILED & GLUED

BBO---- BEAM BY OTHERS APP----AS PER PLAN

-1 - 2 X 6 SPF # 2 squash block req'd on one side of each joist under interior load bearing walls.

Do not scale - refer to architectural plans for dimensions

Ceramic tile application as per O.B.C. 9.30.6

S50-2

ELEV. 'A' & 'B'

FIRST FLOOR FRAMING

W/OPT. SUNKEN COND. (-1R)/(-2R) AND MORE

AND W/OPT. W.O.D. COND.

96434

JT:38514/84786

File: (263959) 293765

Builder: Bayview Wellington

Project: Green Valley Estates

Location: Bradford

Date: Jan. 26 / 2016

Designer: MQ

Sheet: 3 of 3

Alpa Roof Trusses Inc. Maple, Ontario Salesperson: Mario Tamarack Lumber





Floor Beam\01

BC CALC® Design Report



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

January 29, 2016 16:32:59

**Build 4516** 

Job Name:

38514

Address: **GREEN VALLEY ESTATES** 

City, Province, Postal Code:BRADFORD, ON

Customer:

Code reports:

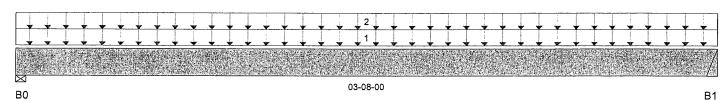
CCMC 12472-R

File Name: 263959.bcc Description: Designs\01 Specifier: S50-2

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



R0

Total Horizontal Product Length = 03-08-00

Reaction Summary (	Down / Uplift) (lbs)				
Bearing	Live	Dead	Snow	Wind	
B0, 3-1/2"	480 / 0	189 / 0			
B1	449 / 0	177 / 0			

Load Summary			Live	Dead	Snow Wind	Trib.
Tag Description	Load Type	Ref. Start	End 1.00	0.65	1.00 1.15	
1	Unf. Area (lb/ft^2)	L 00-00-00	03-08-00 40	15		03-04-00
2	Unf. Area (lb/ft^2)	L 00-00-00	03-08-00 40	15		03-00-00

	Factored	Factored	Demand /	Load	Location
Controls Summary	Demand	Resistance	Resistance	Case	
Pos. Moment	701 ft-lbs	12,704 ft-lbs	5.5%	1	01-10-12
End Shear	410 lbs	5,785 lbs	7.1%	1	01-01-00
Total Load Defl.	L/999 (0.004")	n/a	n/a	4	01-10-12
Live Load Defl.	L/999 (0.003")	n/a	n/a	5	01-10-12
Max Defl.	0.004"	n/a	n/a	4	01-10-12
Span / Depth	4.2	n/a	n/a		00-00-00

Beari	ng Supports	Dim. (L <b>x W</b> )	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
В0	Wall/Plate	3-1/2" x 1-3/4"	957 lbs	25.4%	12.8%	Spruce Pine Fir
B1	Hanger	2" x 1-3/4"	894 lbs	n/a	20.9%	Hanger

#### **Notes**

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 4 Deflections less than 1/8" were ignored in the results.

#### **User Notes**

NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS @ O.C., STAGGERED IN TWO ROWS

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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Floor Beam\02

R1

BC CALC® Design Report



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

January 29, 2016 16:33:11

**Build 4516** 

Job Name: Address:

38514

**GREEN VALLEY ESTATES** 

City, Province, Postal Code: BRADFORD, ON

Customer:

Code reports:

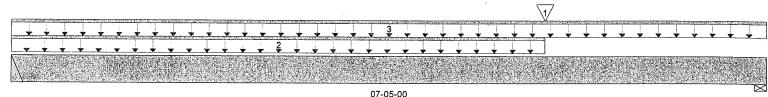
CCMC 12472-R

File Name: 263959.bcc Description: Designs\02 Specifier: S50-2

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



B0

Total Horizontal Product Length = 07-05-00

Reaction Summary (D	own / Uplift) (lbs)				
Bearing	Live	Dead	Snow	Wind	
В0	313 / 0	136 / 0			
B1, 3-1/2"	478 / 0	203 / 0			

Load Summary			Live	Dead	Snow Wind	Trib.
Tag Description	Load Type	Ref. Start	End 1.00	0.65	1.00 1.15	
1	Conc. Pt. (lbs)	L 05-03-00	05-03-00 449	177		n/a
2	Unf. Lin. (lb/ft)	L 00-00-00	05-03-00 27	10		n/a
3	Unf. Lin. (lb/ft)	L 00-00-00	07-05-00 27	10		n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,746 ft-lbs	12,704 ft-lbs	13.7%	1	05-03-00
End Shear	907 lbs	5,785 lbs	15.7%	1	06-04-00
Total Load Defl.	L/999 (0.04")	n/a	n/a	4	03-10-02
Live Load Defl.	L/999 (0.028")	n/a	n/a	5	03-10-02
Max Defl.	0.04"	n/a	n/a	4	03-10-02
Span / Depth	8.9	n/a	n/a		00-00-00

Beari	ng Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Hanger	2" x 1-3/4"	639 lbs	n/a	15%	Hanger
B1	Wall/Plate	3-1/2" x 1-3/4"	971 lbs	25.8%	13%	Spruce Pine Fir

# **Notes**

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 4 Deflections less than 1/8" were ignored in the results.

#### 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







Floor Beam\03

BC CALC® Design Report



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

January 29, 2016 10:38:20

Build 4516

Job Name:

38514

Address:

**GREEN VALLEY ESTATES** 

City, Province, Postal Code:BRADFORD, ON

Customer:

Code reports:

CCMC 12472-R

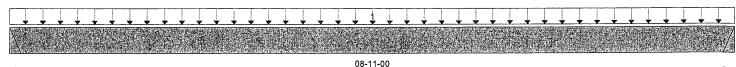
File Name: 263959.bcc

Description: Designs\03 Specifier: S50-2

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



B<sub>0</sub>

В1

Total Horizontal Product Length = 08-11-00

Reaction Summary (Dow	vn / Uplift) (!bs)				
Bearing	Live	Dead	Snow	Wind	
В0	446 / 0	189 / 0			
B1	446 / 0	189 / 0			

Load Summary					Live	Dead	Snow	Wind	Trib.
Tag Description	Load Type	Ref.	Start	End	1.00	0.65	1.00	1.15	
1	Unf. Area (lb/ft^2)	L	00-00-00	08-11-00	40	15			02-06-00

Factored Factored		Factored	Demand /	Load	Location
Controls Summary	Demand	Resistance	Resistance	Case	
Pos. Moment	1,923 ft-lbs	12,704 ft-lbs	15.1%	1	04-05-08
End Shear	710 lbs	5,785 lbs	12.3%	1	00-11-08
Total Load Defl.	L/999 (0.074")	n/a	n/a	4	04-05-08
Live Load Defl.	L/999 (0.052")	n/a	n/a	5	04-05-08
Max Defl.	0.074"	n/a	n/a	4	04-05-08
Span / Depth	11	n/a	n/a		00-00-00

Bearir	ng Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Hanger	2" x 1-3/4"	905 lbs	n/a	21.2%	Hanger
B1	Hanger	2" x 1-3/4"	905 lbs	n/a	21.2%	Hanger

#### **Notes**

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 4

Deflections less than 1/8" were ignored in the results.

#### **User Notes**

NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS O.C., STAGGERED IN TWO ROWS

#### **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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Floor Beam\04

BC CALC® Design Report



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

January 29, 2016 10:43:56

**Build 4516** 

Job Name: Address:

38514

**GREEN VALLEY ESTATES** 

City, Province, Postal Code:BRADFORD, ON

Customer:

Code reports:

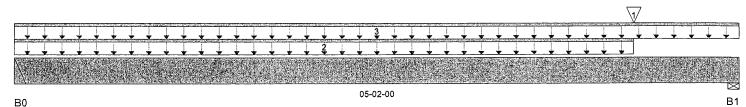
CCMC 12472-R

File Name: 263959.bcc Description: Designs\04 Specifier: S50-2

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 05-02-00

Reaction Summary (Down / Uplift) (lbs)									
Bearing	Live	Dead	Snow	Wind					
B0	184 / 0	83 / 0							
B1, 3-1/2"	521 / 0	227 / 0							

Load Summary					Live	Dead	Snow	Wind	Trib.
Tag Description	Load Type	R	ef. Start	End	1.00	0.65	1.00	1.15	
1	Conc. Pt. (lbs)	L	04-05-00	04-05-00	446	189			n/a
2	Unf. Lin. (lb/ft)	L	00-00-00	04-05-00	27	10			n/a
3	Unf. Lin. (lb/ft)	L	00-00-00	05-02-00	27	10			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	601 ft-lbs	12,704 ft-lbs	4.7%	1	03-04-13
End Shear	620 lbs	5,785 lbs	10.7%	1	04-01-00
Total Load Defl.	L/999 (0.007")	n/a	n/a	4	02-08-00
Live Load Defl.	L/999 (0.005")	n/a	n/a	5	02-08-00
Max Defl.	0.007"	, n/a	n/a	4	02-08-00
Span / Depth	6.1	n/a	n/a		00-00-00

Bearin	ng Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Hanger	2" x 1-3/4"	379 lbs	n/a	8.9%	Hanger
B1	Wall/Plate	3-1/2" x 1-3/4"	1,065 lbs	28.3%	14.3%	Spruce Pine Fir

#### Notes

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

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

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 4 Deflections less than 1/8" were ignored in the results.

#### **User Notes**

NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS O.C., STAGGERED IN TWO ROWS

#### 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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Floor Beam\05

BC CALC® Design Report



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

January 29, 2016 10:37:53

**Build 4516** 

Job Name:

38514

Address:

**GREEN VALLEY ESTATES** City, Province, Postal Code:BRADFORD, ON

Customer:

Code reports:

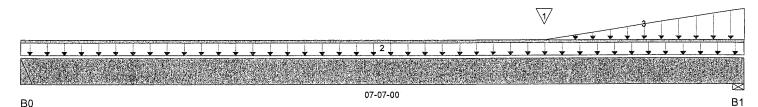
CCMC 12472-R

File Name: 263959.bcc Description: Designs\05 Specifier: S50-2

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 07-07-00

Reaction Summary (Down / Uplift) (Ibs) Wind Dead Snow B0 116/0 61/0 B1, 3-1/2" 178 / 0 85/0

Load Summary				Live	Dead	Snow	Wind	Trib.	
Tag Description	Load Type	Ret	f. Start	End	1.00	0.65	1.00	1.15	
1	Conc. Pt. (lbs)	L	05-06-00	05-06-00	47	18			n/a
2	Unf. Lin. (lb/ft)	L	00-00-00	07-07-00	27	10			n/a
3	Trapezoidal (lb/ft)	L	05-06-00		0	0			n/a
	, , ,			07-07-00	40	15			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	501 ft-lbs	12,704 ft-lbs	3.9%	1	04-02-11
End Shear	288 lbs	5,785 lbs	5%	1	06-06-00
Total Load Defl.	L/999 (0.014")	n/a	n/a	4	03-09-09
Live Load Defl.	L/999 (0.009")	n/a	n/a	5	03-10-07
Max Defl.	0.014"	n/a	n/a	4	03-09-09
Span / Depth	9.2	n/a	n/a		00-00-00

Bear	ing Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Hanger	2" x 1-3/4"	249 lbs	n/a	5.8%	Hanger
B1	Wall/Plate	3-1/2" x 1-3/4"	373 lbs	9.9%	5%	Spruce Pine Fir

#### **Notes**

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 4 Deflections less than 1/8" were ignored in the results.

## **User Notes**







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

Floor Beam\06

BC CALC® Design Report



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

January 29, 2016 16:35:02

Build 4516

Job Name:

38514

Address: GREEN VALLEY ESTATES

City, Province, Postal Code:BRADFORD, ON

Customer:

Code reports:

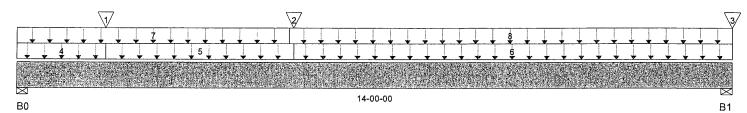
CCMC 12472-R

File Name: 263959.bcc

Description: Designs\06 Specifier: S50-2 Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 14-00-00

	Total Florizonital Florida Cangui - 14-00-00									
Reaction Summary (Down / Uplift) (lbs)										
Bearing	Live	Dead	Snow	Wind						
B0, 3-1/2"	3,358 / 0	1,516 / 0								
B1, 3-1/2"	3,415 / 0	1,668 / 0								

Load Summary					Live	Dead	Snow	Wind	Trib.
Tag Description	Load Type	Re	f. Start	End	1.00	0.65	1.00	1.15	
1	Conc. Pt. (lbs)	L	01-09-00	01-09-00	184	83 ·			n/a
2	Conc. Pt. (lbs)	L	05-05-00	05-05-00	313	136 ·			n/a
3	Conc. Pt. (lbs)	L	14-00-00	14-00-00	116	61			n/a
4	Unf. Area (lb/ft^2)	L	00-00-00	01-09-00	40	15			02-06-00
5	Unf. Area (lb/ft^2)	L	01-09-00	05-05-00	40	15			03-00-00
6	Unf. Area (lb/ft^2)	L	05-05-00	14-00-00	40	15			03-11-00
7	Unf. Area (lb/ft^2)	L	00-00-00	05-04-00	40	15			07-06-00
8	Unf. Area (lb/ft^2)	L	05-04-00	14-00-00	40	20			07-06-00

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	23,383 ft-lbs	52,848 ft-lbs	44.2%	1	06-09-14
End Shear	6,053 lbs	23,142 lbs	26.2%	1	01-01-00
Total Load Defl.	L/300 (0.541")	0.677"	80%	4	06-11-05
Live Load Defl.	L/442 (0.367")	0.451"	81.4%	5	06-11-05
Max Defl.	0.541"	n/a	n/a	4	06-11-05
Span / Depth	17.1	n/a	n/a		00-00-00

Beari	ng Supports	Dim. (L x W)	Demand	Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 7"	6,932 lbs	46%	23.2%	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 7"	7,208 lbs	47.8%	24.1%	Spruce Pine Fir

#### Notes

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

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

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Drv Service Condition.

Importance Factor: Normal Part code: Part 4
Deflections less than 1/8" were ignored in the results.

# User Notes Page 1 of 2

NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS

O.C., STAGGERED IN 2 ROWS, THIS 1/2" & BOUTS, NOTE &

WASHELL @ SHO" O.C., STAGGERED IN 2 ROWS







Floor Beam\07

BC CALC® Design Report



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

January 29, 2016 10:38:03

**Build 4516** 

Job Name:

38514

Address: **GREEN VALLEY ESTATES** 

City, Province, Postal Code:BRADFORD, ON

Customer:

Code reports:

CCMC 12472-R

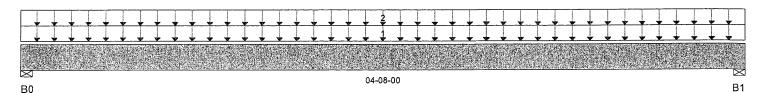
File Name: 263959.bcc Description: Designs\07

Specifier: S50-2

Designer: MQ

ALPA ROOF TRUSSES Company:

Misc:



Total Horizontal Product Length = 04-08-00

Reaction Summary (Down / Uplift) (lbs) Wind Bearing Live Dead Snow 980 / 0 379 / 0 B0, 3-1/2" B1, 3-1/2" 980 / 0 379 / 0

Load Summary		Live	Dead	Snow Wind	Trib.	
Tag Description	Load Type	Ref. Start	End 1.00	0.65	1.00 1.15	
1	Unf. Area (lb/ft^2)	L 00-00-00	04-08-00 40	15		03-00-00
2	Unf. Area (lb/ft^2)	L 00-00-00	04-08-00 40	15		07-06-00

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,844 ft-lbs	12,704 ft-lbs	14.5%	1	02-04-00
End Shear	1,041 lbs	5,785 lbs	18%	1	01-01-00
Total Load Defl.	L/999 (0.016")	n/a	n/a	4	02-04-00
Live Load Defl.	L/999 (0.012")	n/a	n/a	5	02-04-00
Max Defl.	0.016"	n/a	n/a	4	02-04-00
Span / Depth	5.3	n/a	n/a		00-00-00

Bearin	ng Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material	
B0	Wall/Plate	3-1/2" x 1-3/4"	1,943 lbs	51.6%	26%	Spruce Pine	
B1	Wall/Plate	3-1/2" x 1-3/4"	1,943 lbs	51.6%	26%	Spruce Pine	

#### 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

PROFESSION.

# Products L.L.C.

#### Notes

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 4 Deflections less than 1/8" were ignored in the results.

## **User Notes**

NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS O.C., STAGGERED IN TWO ROWS





Floor Beam\08

BC CALC® Design Report



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

January 29, 2016 10:38:24

Build 4516

Job Name:

38514

Address: GREEN VALLEY ESTATES

City, Province, Postal Code:BRADFORD, ON

Customer:

Code reports:

CCMC 12472-R

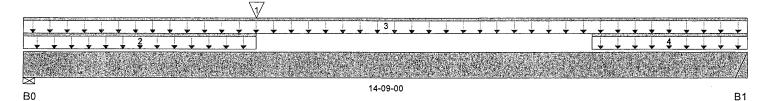
File Name: 263959.bcc Description: Designs\08

Specifier: S50-2

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 14-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing Live Dead Snow Wind

B0, 3-1/2" 625 / 0 284 / 0

B1 433 / 0 203 / 0

Load Summary					Live	Dead	Snow	Wind	Trib.
Tag Description	Load Type	R	ef. Start	End	1.00	0.65	1.00	1.15	
1	Conc. Pt. (lbs)	L	04-09-00	04-09-00	446	189			n/a
2	Unf. Lin. (lb/ft)	L	00-00-00	04-09-00	27	10			n/a
3	Unf. Lin. (lb/ft)	L	00-00-00	14-09-00	27	10			n/a
4	Unf. Lin. (lb/ft)	L	11-07-00	14-09-00	27	10			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,579 ft-lbs	12,704 ft-lbs	36%	1	04-09-00
End Shear	1,170 lbs	5,785 lbs	20.2%	1	01-01-00
Total Load Defl.	L/398 (0.435")	0.721"	60.3%	4	07-01-03
Live Load Defl.	L/582 (0.297")	0.481"	61.9%	5	07-01-03
Max Defl.	0.435" ·	1"	43.5%	4	07-01-03
Span / Depth	18.2	n/a	n/a		00-00-00

Bear	ring Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	1,292 lbs	34.3%	17.3%	Spruce Pine Fir
B1	Hanger	2" x 1-3/4"	904 lbs	n/a	21.2%	Hanger

## Notes

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Drv Service Condition.

Importance Factor: Normal Part code: Part 4
Deflections less than 1/8" were ignored in the results.

# **User Notes**







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

Floor Beam\09

BC CALC® Design Report



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

January 29, 2016 10:41:47

**Build 4516** 

Job Name:

38514

Address: **GREEN VALLEY ESTATES** 

City, Province, Postal Code:BRADFORD, ON

Customer:

Code reports:

CCMC 12472-R

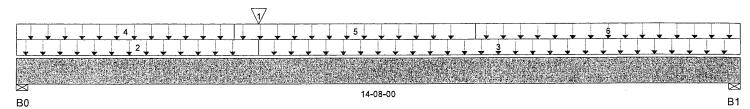
File Name: 263959.bcc

Description: Designs\09 Specifier: S50-2

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 14-08-00

Total Florizontal Floridate Length 14 00 00								
Reaction Summary (Down / Uplift) (Ibs)								
Bearing	Live	Dead	Snow	Wind				
B0, 3-1/2"	3,517 / 0	1,566 / 0						
B1, 3-1/2"	2,594 / 0	1,196 / 0						

Load Summary			L	_ive	Dead	Snow Wind	Trib.
Tag Description	Load Type	Ref. Start	End 1.	.00	0.65	1.00 1.15	
1	Conc. Pt. (lbs)	L 04-11-00	04-11-00 4	133	203		n/a
2	Unf. Area (lb/ft^2)	L 00-00-00	04-11-00 4	10	15		07-06-00
3	Unf. Area (lb/ft^2)	L 04-11-00	14-08-00 4	10	15		01-09-00
4	Unf. Area (lb/ft^2)	L 00-00-00	04-05-00 4	10	15		06-00-00
5	Unf. Area (lb/ft^2)	L 04-05-00	09-04-00 4	10	20		06-00-00
6	Unf. Area (lb/ft^2)	L 09-04-00	14-08-00 4	10	15		06-00-00

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	21,475 ft-lbs	52,848 ft-lbs	40.6%	1	06-03-09
End Shear	6,054 lbs	23,142 lbs	26.2%	1	01-01-00
Total Load Defl.	L/311 (0.549")	0.71"	77.3%	4	07-01-08
Live Load Defl.	L/457 (0.373")	0.474"	78.8%	5	07-01-08
Max Defl.	0.549"	1"	54.9%	4	07-01-08
Span / Depth	17.9	n/a	n/a		00-00-00

Bea	ring Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 7"	7,232 lbs	48%	24.2%	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 7"	5.387 lbs	35.7%	18%	Spruce Pine Fir

#### **Notes**

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 4 Deflections less than 1/8" were ignored in the results.

**USER NOTES:** 

NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS

O.C., STAGGERED IN 2 ROWS, PWS 1/2 BOUTS, NUTS &
Page 1 of 2 WOSHELLS @ 4-0"O.C., STAGLERED IN 2 ROWS Page 1 of 2







Floor Beam\10

BC CALC® Design Report



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

January 29, 2016 10:41:59

**Build 4516** 

Job Name:

38514

Address:

**GREEN VALLEY ESTATES** 

City, Province, Postal Code:BRADFORD, ON

Customer:

Code reports:

CCMC 12472-R

File Name: 263959.bcc

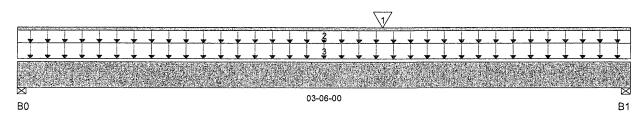
Description: Designs\10

Specifier: S50-2

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 03-06-00

Reaction Summary (Down / Uplift) (lbs)							
Bearing	Live	Dead	Snow	Wind			
B0, 3-1/2"	1,106 / 0	624 / 0					
B1, 3-1/2"	1,674 / 0	886 / 0					

Load Summary					Live	Dead	Snow	Wind	Trib.
Tag Description	Load Type	R	ef. Start	End	1.00	0.65	1.00	1.15	
1	Conc. Pt. (lbs)	L	02-01-00	02-01-00	2,594	1,196			n/a
2	Unf. Lin. (lb/ft)	L	00-00-00	03-06-00	0	60			n/a
3	Unf. Area (lb/ft^2)	L	00-00-00	03-06-00	40	15			01-04-00

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,110 ft-lbs	25,408 ft-lbs	16.2%	1	02-01-00
End Shear	3,410 lbs	11,571 lbs	29.5%	1	02-05-00
Total Load Defl.	L/999 (0.008")	n/a	n/a	4	01-10-00
Live Load Defl.	L/999 (0.005")	n/a	n/a	5	01-10-00
Max Defl.	0.008"	n/a	n/a	4	01-10-00
Span / Depth	3.8	n/a	n/a		00-00-00

Beari	ng Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	2,440 lbs	32.4%	16.3%	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	3,618 lbs	48%	24.2%	Spruce Pine Fir

#### **Notes**

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 4

Deflections less than 1/8" were ignored in the results.

#### **User Notes**

NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS O.C.. STAGGERED IN TWO ROWS







Floor Beam\11

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

January 29, 2016 10:42:13

BC CALC® Design Report



Job Name: 38514

Address: **GREEN VALLEY ESTATES** 

City, Province, Postal Code:BRADFORD, ON

Customer:

**Build 4516** 

Code reports:

CCMC 12472-R

File Name: 263959.bcc Description: Designs\11 Specifier: S50-2

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:

⊠ B0	04-06-00	⊠ B1

Total Horizontal Product Length = 04-06-00

Reaction Summary (Down / Uplift) ( lbs ) Bearing Wind Dead Snow Live B0, 3-1/2" 1,350 / 0 528 / 0 B1, 3-1/2" 1,350 / 0 528 / 0

Trib. Live Dead Snow Wind **Load Summary** 1.00 0.65 1.00 1.15 Tag Description Load Type Ref. Start End 15-00-00 Unf. Area (lb/ft^2) 00-00-00 04-06-00 40 15

	Factored	Factored	Demand /	Load	Location
Controls Summary	Demand	Resistance	Resistance	Case	
Pos. Moment	2,437 ft-lbs	25,408 ft-lbs	9.6%	1	02-03-00
End Shear	1,392 lbs	11,571 lbs	12%	1	01-01-00
Total Load Defl.	L/999 (0.01")	n/a	n/a	4	02-03-00
Live Load Defl.	L/999 (0.007")	n/a	n/a	5	02-03-00
Max Defl.	0.01"	n/a	n/a	4	02-03-00
Span / Depth	5.1	n/a	n/a		00-00-00

Bea	ring Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	2,685 lbs	35.6%	18%	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	2,685 lbs	35.6%	18%	Spruce Pine Fir

#### **Notes**

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 4 Deflections less than 1/8" were ignored in the results.

#### **User Notes**

NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS

O.C., STAGGERED IN TWO ROWS ( TOP LOADED)







# Triple 1-3/4" x 14" VERSA-LAM® 2.0 3100 SP

Floor Beam\11A

January 29, 2016 10:47:07

BC CALC® Design Report



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

DC CALCO Design Nepo

Build 4516

Job Name:

38514

Address: GREEN VALLEY ESTATES

City, Province, Postal Code:BRADFORD, ON

Customer:

Code reports:

CCMC 12472-R

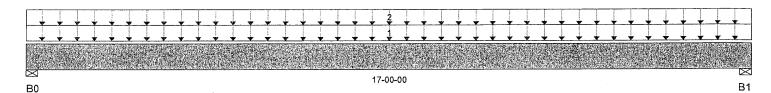
File Name: 263959.bcc

Description: Designs\11A Specifier: S50-2

Specifier: S50 Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 17-00-00

 Reaction Summary (Down / Uplift) (lbs)

 Bearing
 Live
 Dead
 Snow
 Wind

 B0, 3-1/2"
 5,100 / 0
 2,412 / 0

 B1, 3-1/2"
 5,100 / 0
 2,412 / 0

Load Summary Tag Description	Load Type	Ref. Start	Live End 1.00	Dead 0.65	Snow Wind 1.00 1.15	Trib.
1	Unf. Area (lb/ft^2)	L 00-00-00	17-00-00 40	20		07-06-00
2	Unf. Area (lb/ft^2)	L 00-00-00	17-00-00 40	15		07-06-00

	Factored	Factored	Demand /	Load	Location
Controls Summary	Demand	Resistance	Resistance	Case	
Pos. Moment	42,916 ft-lbs	82,449 ft-lbs	52.1%	1	08-06-00
End Shear	8,835 lbs	25,578 lbs	34.5%	1	01-05-08
Total Load Defl.	L/320 (0.62")	0.827"	75%	4	08-06-00
Live Load Defl.	L/472 (0.421")	0.551"	76.3%	5	08-06-00
Max Defl.	0.62"	1"	62%	4	08-06-00
Span / Depth	14.2	n/a	n/a		00-00-00

Bea	ring Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 5-1/4"	10,665 lbs	94.3%	47.6%	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 5-1/4"	10.665 lbs	94.3%	47.6%	Spruce Pine Fir

#### **Notes**

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 4
Deflections less than 1/8" were ignored in the results.

#### **User Notes**

NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS

@ (ZI) O.C. STAGGERED IN TWO ROWS (TOP WEDED)







Floor Beam\12

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

January 29, 2016 10:42:26

BC CALC® Design Report



Job Name:

38514

Address:

**GREEN VALLEY ESTATES** 

City, Province, Postal Code:BRADFORD, ON

Customer:

**Build 4516** 

Code reports:

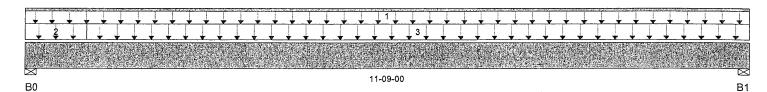
CCMC 12472-R

File Name: 263959.bcc Description: Designs\12 Specifier: S50-2

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 11-09-00

Reaction Summary (Down / Uplift) (lbs) Bearing Wind Live Dead Snow B0, 3-1/2" 1,528 / 0 1,014 / 0 B1, 3-1/2" 1,528 / 0 983 / 0

Load Summary			Live	Dead	Snow Wind	Trib.
Tag Description	Load Type	Ref. Start	End 1.00	0.65	1.00 1.15	
1	Unf. Lin. (lb/ft)	L 00-00-00	11-09-00 0	60		n/a
2	Unf. Area (lb/ft^2)	L 00-00-00	01-00-00 40	20		06-06-00
3	Unf. Area (lb/ft^2)	L 01-00-00	11-09-00 40	- 15		06-06-00

	Factored	Factored	Demand /	Load	Location
Controls Summary	Demand	Resistance	Resistance	Case	
Pos. Moment	9,551 ft-lbs	25,408 ft-lbs	37.6%	1	05-10-08
End Shear	3,303 lbs	11,571 lbs	28.5%	1	01-01-00
Total Load Defl.	L/433 (0.313")	0.565"	55.4%	4	05-10-08
Live Load Defl.	L/713 (0.19")	0.376"	50.5%	5	05-10-08
Max Defl.	0.313"	1"	31.3%	4	05-10-08
Span / Depth	14.3	n/a	n/a		00-00-00

Bearing Supports		Dim. (L x W)	Demand	Resistance Support	Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	3,558 lbs	47.2%	23.8%	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	3,520 lbs	46.7%	23.6%	Spruce Pine Fir

## Notes

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 4 Deflections less than 1/8" were ignored in the results.

**User Notes** 

NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS @ (2') O.C., STAGGERED IN TWO ROWS







Floor Beam\13

BC CALC® Design Report



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

January 29, 2016 10:42:40

Build 4516

Job Name:

38514

Address:

**GREEN VALLEY ESTATES** 

City, Province, Postal Code:BRADFORD, ON

Customer:

Code reports:

CCMC 12472-R

File Name: 263959.bcc

Description: Designs\13
Specifier: S50-2

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:

A second second second		
	04-07-00	
В0	04-07-00	В

Total Horizontal Product Length = 04-07-00

 Reaction Summary (Down / Uplift) (lbs)

 Bearing
 Live
 Dead
 Snow
 Wind

 B0, 3-1/2"
 878 / 0
 478 / 0

 B1, 3-1/2"
 878 / 0
 478 / 0

Load Summary Tag Description	Load Type	Ref. Start	End	Live 1.00	Dead 0.65	Snow Wind 1.00 1.15	Trib.
1	Unf. Lin. (lb/ft)	L 00-00-00	04-07-00	0	60		n/a
2	Unf. Area (lb/ft^2)	L 00-00-00	04-07-00	40	15		09-07-00

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,778 ft-lbs	12,704 ft-lbs	14%	1	02-03-08
End Shear	1,010 lbs	5,785 lbs	17.5%	1	01-01-00
Total Load Defl.	L/999 (0.015")	n/a	n/a	4	02-03-08
Live Load Defl.	L/999 (0.01")	n/a	n/a	5	02-03-08
Max Defl.	0.015"`	n/a	n/a	4	02-03-08
Span / Depth	5.2	n/a	n/a		00-00-00

Beari	ing Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material	•
B0	Wall/Plate	3-1/2" x 1-3/4"	1,915 lbs	50.8%	25.6%	Spruce Pine F	
B1	Wall/Plate	3-1/2" x 1-3/4"	1,915 lbs	50.8%	25.6%	Spruce Pine F	

#### 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.

#### Notes

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 4
Deflections less than 1/8" were ignored in the results.





Floor Beam\14

BC CALC® Design Report



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

January 29, 2016 10:43:21

**Build 4516** 

Job Name:

38514

Address:

**GREEN VALLEY ESTATES** 

City, Province, Postal Code:BRADFORD, ON

Customer:

Code reports:

CCMC 12472-R

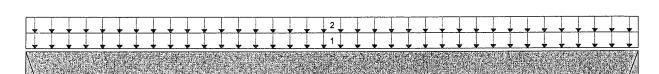
File Name: 263959.bcc

Description: Designs\14

Specifier: S50-2 Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



В0

03-08-00 Total Horizontal Product Length = 03-08-00

В1

Reaction Summary (Down / Uplift) (Ibs)							
Bearing	Live	Dead	Snow	Wind			
B0	458 / 0	208 / 0					
B1	458 / 0	208 / 0					

Load Summary				e Dead	Snow Wind	Trib.
Tag Description	Load Type	Ref. Start	End 1.0	0.65	1.00 1.15	
1	Unf. Area (lb/ft^2)	L 00-00-00	03-08-00 40	20	•	03-00-00
2	Unf. Area (lb/ft^2)	L 00-00-00	03-08-00 40	15		03-03-00

Oznatina la Communica	Factored	Factored	Demand /	Load	Location
Controls Summary	Demand	Resistance	Resistance	Case	
Pos. Moment	773 ft-Ibs	12,704 ft-lbs	6.1%	1	01-10-00
End Shear	452 lbs	5,785 lbs	7.8%	1	00-11-08
Total Load Defl.	L/999 (0.005")	n/a	n/a	4	01-10-00
Live Load Defl.	L/999 (0.003")	n/a	n/a	5	01-10-00
Max Defl.	0.005"	n/a	n/a	4	01-10-00
Span / Depth	4.4	n/a	n/a		00-00-00

Bearin	ng Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Hanger	2" x 1-3/4"	948 lbs	n/a	22.2%	Hanger
B1	Hanger	2" x 1-3/4"	948 lbs	n/a	22.2%	Hanger

#### Notes

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 4 Deflections less than 1/8" were ignored in the results.

#### **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.







Floor Beam\15

BC CALC® Design Report



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

January 29, 2016 10:43:27

Build 4516

Job Name: 38514

Address: GREEN VALLEY ESTATES

City, Province, Postal Code:BRADFORD, ON

Customer:

Code reports:

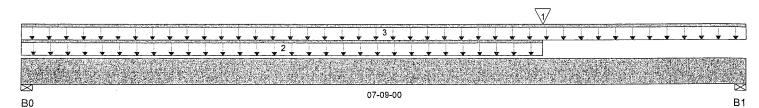
CCMC 12472-R

File Name: 263959.bcc
Description: Designs\15
Specifier: S50-2

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 07-09-00

		TOTAL TIOTIZZOTICAL T	reduct zerigar er				
Reaction Summary (Down / Uplift) (lbs)							
Bearing	Live	Dead	Snow	Wind			
B0, 3-1/2"	324 / 0	179 / 0					
B1, 3-1/2"	494 / 0	253 / 0					

Load Summary			Live	Dead	Snow Wind	Trib.
Tag Description	Load Type	Ref. Start	End 1.00	0.65	1.00 1.15	
1	Conc. Pt. (lbs)	L 05-07-00	05-07-00 458	208		n/a
2	Unf. Lin. (lb/ft)	L 00-00-00	05-07-00 27	14		n/a
3	Unf. Lin. (lb/ft)	L 00-00-00	07-09-00 27	14		n/a

	Factored	Factored	Demand /	Load	Location
Controls Summary	Demand	Resistance	Resistance	Case	
Pos. Moment	1,900 ft-lbs	12,704 ft-lbs	15%	1	05-07-00
End Shear	988 lbs	5,785 lbs	17.1%	1	06-08-00
Total Load Defl.	L/999 (0.047")	n/a	n/a	4	04-01-04
Live Load Defl.	L/999 (0.031")	n/a	n/a	5	04-01-04
Max Defl.	0.047"	n/a	n/a	4	04-01-04
Span / Depth	9.2	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 1-3/4"	710 lbs	18.8%	9.5%	Spruce Pine Fir	
B1	Wall/Plate	3-1/2" x 1-3/4"	1,057 lbs	28.1%	14.2%	Spruce Pine Fir	

## **Notes**

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 4
Deflections less than 1/8" were ignored in the results.

## 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.







Floor Beam\16

BC CALC® Design Report



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

January 29, 2016 10:44:10

Build 4516

Job Name:

38514

Address: GREEN VALLEY ESTATES

City, Province, Postal Code:BRADFORD, ON

Customer:

Code reports:

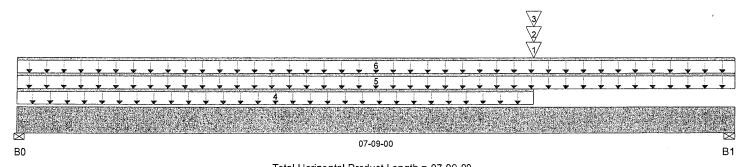
CCMC 12472-R

File Name: 263959.bcc Description: Designs\16 Specifier: S50-2

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



	rotal Honzontal Product Length = 07-09-00
Position Summany (Down / Unlift) / Ik-	

Reaction Summary (Down / Uplift) (Ibs)									
Bearing	Live	Dead	Snow	Wind					
B0, 2-5/8"	584 / 0	517 / 0							
B1, 3-1/2"	1,235 / 0	796 / 0							

Load Summary					Live	Dead	Snow	Wind	Trib.
Tag Description	Load Type	Re	f. Start	End	1.00	0.65	1.00	1.15	
1	Conc. Pt. (lbs)	L	05-07-00	05-07-00	458	208			n/a
2	Conc. Pt. (lbs)	L	05-07-00	05-07-00	480	189			n/a
3	Conc. Pt. (lbs)	L	05-07-00	05-07-00	521	227			n/a
4	Unf. Lin. (lb/ft)	L	00-00-00	05-07-00	27	14			n/a
5	Unf. Lin. (lb/ft)	L	00-00-00	07-09-00	27	14			n/a
6	Unf. Lin. (lb/ft)	L	00-00-00	07-09-00	0	60			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	5,195 ft-lbs	12,704 ft-lbs	40.9%	1	05-07-00
End Shear	2,696 lbs	5,785 lbs	46.6%	1	06-08-00
Total Load Defl.	L/999 (0.124")	n/a	n/a	4	04-01-14
Live Load Defl.	L/999 (0.074")	n/a	n/a	5	04-01-14
Max Defl.	0.124"	n/a	n/a	4	04-01-14
Span / Depth	9.3	n/a	n/a		00-00-00

Bearing Supports		Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material	
B0	Wall/Plate	2-5/8" x 1-3/4"	1,523 lbs	53.9%	27.2%	Spruce Pine Fir	
B1	Wall/Plate	3-1/2" x 1-3/4"	2,847 lbs	75.6%	38.1%	Spruce Pine Fir	

**Notes** 







Floor Beam\17

BC CALC® Design Report



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

January 29, 2016 10:45:31

**Build 4516** 

Job Name:

38514

Address:

**GREEN VALLEY ESTATES** 

City, Province, Postal Code:BRADFORD, ON

Customer:

B0

Code reports:

CCMC 12472-R

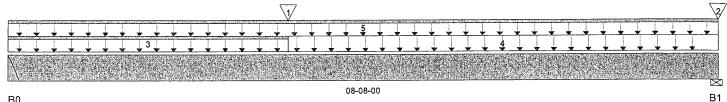
File Name: 263959.bcc

Description: Designs\17 Specifier: S50-2

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 08-08-00

	Total Florizorital Floridos Congain Co Co Co										
Reaction Summary (Down / Uplift) (lbs)											
Bearing	Live	Dead	Snow	Wind							
B0	1,762 / 0	1,034 / 0									
B1, 3-5/8"	1,740 / 0	1,000 / 0									

Load Summary					Live	Dead	Snow	Wind 1.15	Trib.
Tag Description	Load Type	Ref	f. Start	End	1.00	0.65	1.00		
1	Conc. Pt. (lbs)	L	03-05-00	03-05-00	620	210			n/a
2	Conc. Pt. (lbs)	L	08-08-00	08-08-00	620	210			n/a
3	Unf, Lin. (lb/ft)	L	00-00-00	03-05-00	416	185			n/a
4	Unf. Area (lb/ft^2)	L	03-05-00	08-08-00	40	20			04-00-00
5	Unf. Lin. (lb/ft)	L	00-00-00	08-08-00	0	60			n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	7,575 ft-lbs	12,704 ft-lbs	59.6%	1	03-05-00
End Shear	3,038 lbs	5,785 lbs	52.5%	1	00-11-08
Total Load Defl.	L/400 (0.25")	0.416"	60.1%	4	04-01-09
Live Load Defl.	L/642 (0.156")	0.277"	56.1%	5	04-00-13
Max Defl.	0.25"	1"	25%	4	04-01-09
Span / Depth	10.5	n/a	n/a		00-00-00

Bearii	ng Supports	Dim. (L x W)	Dim. (L x W) Demand		Demand/ Resistance Member	Material	
B0	Hanger	2" x 1-3/4"	3,935 lbs	n/a	92.1%	Hanger	
B1	Wall/Plate	3-5/8" x 1-3/4"	3,860 lbs	98.9%	49.9%	Spruce Pine Fir	

#### **Notes**

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

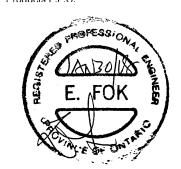
Design based on Drv Service Condition.

Importance Factor: Normal Part code: Part 4 Deflections less than 1/8" were ignored in the results.

## 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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Floor Beam\18

BC CALC® Design Report

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

January 29, 2016 11:04:10

Build 4516

Job Name:

38514

Address:

**GREEN VALLEY ESTATES** 

City, Province, Postal Code:BRADFORD, ON

Customer:

Code reports:

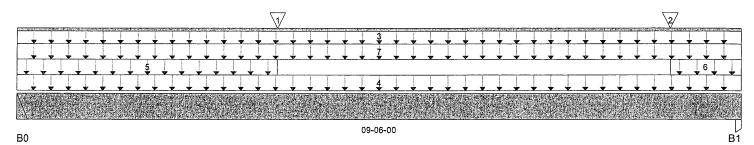
CCMC 12472-R

File Name: 263959.bcc Description: Designs\18 Specifier: S50-2

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 09-06-00

Reaction Summary (Down / Uplift) (lbs) Bearing Wind Live Dead Snow B0 1,818 / 0 1,361 / 0 B1, 3-1/2" 2,029 / 0 1,446 / 0

Load Summary					Live	Dead	Snow	Wind	Trib.
Tag Description	Load Type	Re	ef. Start	End	1.00	0.65	1.00	1.15	
1	Conc. Pt. (lbs)	L	03-05-00	03-05-00	620	210			n/a
2	Conc. Pt. (lbs)	L	08-07-00	08-07-00	620	210			n/a
3	Unf. Lin. (lb/ft)	L	00-00-00	09-06-00	0	120			n/a
4	Unf. Area (lb/ft^2)	L	00-00-00	09-06-00	40	20			03-09-00
5	Unf. Area (lb/ft^2)	L	00-00-00	03-05-00	40	15			03-02-00
6	Unf. Area (lb/ft^2)	Ĺ	08-07-00	09-06-00	40	15			03-02-00
7	Unf. Area (lb/ft^2)	L	00-00-00	09-06-00	40	15			01-08-00

	Factored	Factored	Demand /	Load	Location
Controls Summary	Demand	Resistance	Resistance	Case	
Pos. Moment	9,721 ft-lbs	25,408 ft-lbs	38.3%	1	03-10-10
End Shear	3,864 lbs	11,571 lbs	33.4%	1	08-05-00
Total Load Defl.	L/524 (0.21")	0.458"	45.8%	4	04-07-01
Live Load Defl.	L/999 (0.119")	n/a	n/a	5	04-07-01
Max Defl.	0.21"	1"	21%	4	04-07-01
Span / Depth	11.6	n/a	n/a		00-00-00

Beari	ng Supports	Dim. (L x W)	Demand	Resistance Support	Resistance Member	Material
B0	Hanger	2" x 3-1/2"	4,430 lbs	n/a	51.9%	Hanger
B1	Post	3-1/2" x 3-1/2"	4,851 lbs	22.8%	32.5%	Spruce Pine Fir

Notes

NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS

121 O.C., STAGGERED IN 2 ROWS







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

Floor Beam\19

BC CALC® Design Report



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

January 29, 2016 11:05:24

Build 4516

Job Name:

38514

Address: GREEN VALLEY ESTATES

City, Province, Postal Code:BRADFORD , ON

Customer:

Code reports:

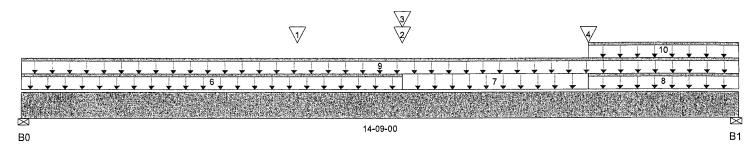
CCMC 12472-R

File Name: 263959.bcc Description: Designs\19

Specifier: S50-2 Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 14-09-0	
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Reaction Summary (I	Down / Uplift) (lbs)				
Bearing	Live	Dead	Snow	Wind	
B0, 2-5/8"	1,959 / 0	1,226 / 0			
B1, 2-5/8"	3,129 / 0	2,248 / 0			

Load Summary					Live	Dead	Snow	Wind	Trib.
Tag Description	Load Type	Re	f. Start	End	1.00	0.65	1.00	1.15	
1	Conc. Pt. (lbs)	L	05-08-00	05-08-00	374	140			n/a
2	Conc. Pt. (lbs)	L	07-10-00	07-10-00	1,762	1,034			n/a
3	Conc. Pt. (lbs)	L	07-10-00	07-10-00	260	98			n/a
4	Conc. Pt. (lbs)	L	11-08-00	11-08-00	1,818	1,361 ·			n/a
6	Unf. Lin. (lb/ft)	L	00-00-00	07-10-00	27	10			n/a
7	Unf. Area (lb/ft^2)	L	07-10-00	11-08-00	40	15			02-00-00
8	Unf. Lin. (lb/ft)	L	11-08-00	14-09-00	20	10			n/a
9	Unf. Lin. (lb/ft)	L	00-00-00	14-09-00	20	10			n/a
10	Unf. Lin. (lb/ft)	L	11-08-00	14-09-00	0	60			n/a

	Factored	Factored	Demand /	Load	Location
Controls Summary	Demand	Resistance	Resistance	Case	
Pos. Moment	29,066 ft-lbs	52,848 ft-lbs	55%	1	07-10-00
End Shear	7,318 lbs	23,142 lbs	31.6%	1	13-08-14
Total Load Defl.	L/246 (0.705")	0.722"	97.7%	4	07-08-06
Live Load Defl.	L/400 (0.433")	0.481"	89.9%	5	07-08-06
Max Defl.	0.705"	1"	70.5%	4	07-08-06
Span / Depth	18.2	n/a	n/a		00-00-00

Bear	ing Supports	Dim. (L x W)	Demand	Resistance Support	Resistance Member	Material
B0	Wall/Plate	2-5/8" x 7"	4,471 lbs	39.6%	19.9%	Spruce Pine Fir
B1	Wall/Plate	2-5/8" x 7"	7,504 lbs	66.4%	33.5%	Spruce Pine Fir

**Notes** 

NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS

(2" O.C., STAGGERED IN 2 ROWS, PWS /2" A BOUTS, NUTS & WASHENS & 40" O.C., STAGLESSON IN 2 ROWS







Floor Beam\20

BC CALC® Design Report

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

January 29, 2016 10:46:21

**Build 4516** 

Address:

Job Name:

38514

**GREEN VALLEY ESTATES** 

City, Province, Postal Code:BRADFORD, ON

Customer:

Code reports:

CCMC 12472-R

File Name: 263959.bcc Description: Designs\20 Specifier: S50-2

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:

B0	09-04-00	—————————————————————————————————————

Total Horizontal Product Length = 09-04-00

Reaction Summary (Down / Uplift) (Ibs) Dead Snow Wind B0 1,381 / 0 713 / 0 B1, 3-1/2" 1,419/0 732 / 0

Load Summary			Live	Dead	Snow Wind	Trib.
Tag Description	Load Type	Ref. Start	End 1.00	0.65	1.00 1.15	
1	Unf. Area (lb/ft^2)	L 00-00-00	09-04-00 40	20		07-06-00

	Factored	Factored	Demand /	Load	Location
Controls Summary	Demand	Resistance	Resistance	Case	
Pos. Moment	6,516 ft-lbs	12,704 ft-lbs	51.3%	1	04-07-04
End Shear	2,346 lbs	5,785 lbs	40.6%	1	00-11-08
Total Load Defl.	L/402 (0.268")	0.45"	59.7%	4	04-07-04
Live Load Defl.	L/610 (0.177")	0.3"	59%	5	04-07-04
Max Defl.	0.268"	1"	26.8%	4	04-07-04
Span / Depth	11.4	n/a	n/a		00-00-00

Bearir	ng Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Hanger	2" x 1-3/4"	2,963 lbs	n/a	69.4%	Hanger
B1	Wall/Plate	3-1/2" x 1-3/4"	3,043 lbs	80.8%	40.7%	Spruce Pine Fir

#### **Notes**

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 4 Deflections less than 1/8" were ignored in the results.

#### **Disclosure**

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Floor Beam\21

January 29, 2016 10:46:34

BC CALC® Design Report



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

**Build 4516** 

Job Name:

38514

Address:

**GREEN VALLEY ESTATES** 

City, Province, Postal Code:BRADFORD, ON

Customer:

Code reports:

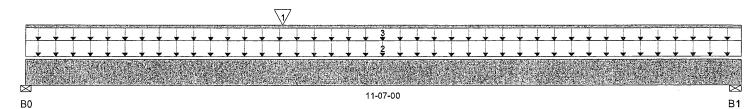
CCMC 12472-R

File Name: 263959.bcc Description: Designs\21 Specifier: S50-2

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 11-07-00

Reaction Summary (Down / Uplift) (Ibs) Bearing Live Dead Snow Wind B0, 2" 1,112 / 0 969 / 0 B1, 3-1/2" 733 / 0 782 / 0

Load Summary				Live	Dead	Snow Wind	Trib.
Tag Description	Load Type	Ref. Start	End	1.00	0.65	1.00 1.15	
1	Conc. Pt. (lbs)	L 04-02-00	04-02-00	1,381	713		n/a
2	Unf. Area (lb/ft^2)	L 00-00-00	11-07-00	40	20		01-00-00
3	Unf. Lin. (lb/ft)	L 00-00-00	11-07-00	0	60		n/a

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	10,200 ft-lbs	25,408 ft-lbs	40.1%	1	04-02-00
End Shear	2,714 lbs	11,571 lbs	23.5%	1	00-11-08
Total Load Defl.	L/471 (0.286")	0.563"	50.9%	4	05-05-07
Live Load Defl.	L/864 (0.156")	0.375"	41.7%	5	05-04-04
Max Defl.	0.286"	1"	28.6%	4	05-05-07
Span / Depth	14.2	n/a	n/a		00-00-00

Beari	ing Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	2" x 3-1/2"	2,879 lbs	66.8%	33.7%	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	2,077 lbs	27.6%	13.9%	Spruce Pine Fir

#### Notes

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 4 Deflections less than 1/8" were ignored in the results.

**User Notes** 

NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS (a) O.C., STAGGERED IN TWO ROWS







Floor Beam\22

BC CALC® Design Report



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

January 29, 2016 10:46:44

**Build 4516** 

Job Name:

Address:

City, Province, Postal Code:BRADFORD, ON

Customer:

Code reports:

38514

**GREEN VALLEY ESTATES** 

CCMC 12472-R

File Name: 263959.bcc Description: Designs\22 Specifier: S50-2

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:

	14-08-00	$\boxtimes$
B0		B1

Total Horizontal Product Length = 14-08-00

Reaction Summary (Down / Uplift) ( lbs )									
Bearing	Live	Dead	Snow	Wind					
B0, 3-1/2"	2,145 / 0	913 / 0							
B1, 3-1/2"	2.034 / 0	915 / 0							

Load Summary			Live	Live Dead	Snow Wind	Trib.
Tag Description	Load Type	Ref. Start	End 1.00	0.65	1.00 1.15	
1	Unf. Area (lb/ft^2)	L 00-00-00	12-11-00 40	15		07-04-00
2	Unf. Area (lb/ft^2)	L 12-11-00	14-08-00 40	20		05-07-00

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	14,968 ft-lbs	39,636 ft-lbs	37.8%	1	07-04-07
End Shear	3,714 lbs	17,356 lbs	21.4%	1	01-01-00
Total Load Defl.	L/335 (0.508")	0.71"	71.6%	4	07-04-07
Live Load Defl.	L/479 (0.356")	0.474"	75.2%	5	07-04-07
Max Defl.	0.508"	1"	50.8%	4	07-04-07
Span / Depth	17.9	n/a	n/a		00-00-00

Beari	ng Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
В0	Wall/Plate	3-1/2" x 5-1/4"	4,359 lbs	38.6%	19.4%	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 5-1/4"	4,196 lbs	37.1%	18.7%	Spruce Pine Fir

#### **Notes**

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 4 Deflections less than 1/8" were ignored in the results.

**User Notes** 

NAIL ONE PLY, TO ANOTHER WITH 3 1/2" SPIRAL NAILS O.C., STAGGERED IN TWO ROWS







Floor Beam\23

BC CALC® Design Report



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

January 29, 2016 10:46:50

**Build 4516** 

Job Name:

38514

Address:

**GREEN VALLEY ESTATES** 

City, Province, Postal Code:BRADFORD, ON

Customer:

B1, 3-1/2"

Code reports:

CCMC 12472-R

File Name: 263959.bcc Description: Designs\23 S50-2

Specifier: Designer:

MQ

Company: ALPA ROOF TRUSSES

Misc:

	07-03-00	
B0	0/-03**00	B1

Total Horizontal Product Length = 07-03-00

810 / 0

Reaction Summary (Down / Uplift) (Ibs) **Bearing** Dead Wind Live Snow B0, 3-1/2' 810 / 0 422 / 0

422 / 0

Live Dead Snow Wind Trib. **Load Summary** Tag Description 0.65 Load Type Ref. Start End 1.00 1.00 Unf. Area (lb/ft^2) 00-00-00 07-03-00 40 20 05-07-00

	Factored	Factored	Demand /	Load	Location
Controls Summary	Demand	Resistance	Resistance	Case	
Pos. Moment	2,771 ft-lbs	12,704 ft-lbs	21.8%	1	03-07-08
End Shear	1,222 lbs	5,785 lbs	21.1%	1	01-01-00
Total Load Defl.	L/999 (0.065")	n/a	n/a	4	03-07-08
Live Load Defl.	L/999 (0.043")	n/a	n/a	5	03-07-08
Max Defl.	0.065"	n/a	n/a	4	03-07-08
Span / Depth	8.6	n/a	n/a		00-00-00

Beari	ing Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material	1
B0	Wall/Plate	3-1/2" x 1-3/4"	1,742 lbs	46.2%	23.3%	Spruce Pine Fir	
B1	Wall/Plate	3-1/2" x 1-3/4"	1,742 lbs	46.2%	23.3%	Spruce Pine Fi	r A

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.

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.

Design meets User specified (1") Maximum total load deflection criteria.

Calculations assume Member is Fully Braced.

Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 4 Deflections less than 1/8" were ignored in the results.

**User Notes** 

NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS

O.C., STAGGERED IN TWO ROWS







Floor Beam\24

BC CALC® Design Report



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

January 29, 2016 10:46:59

**Build 4516** 

Job Name:

38514

Address:

**GREEN VALLEY ESTATES** 

City, Province, Postal Code: BRADFORD, ON

Customer:

Code reports:

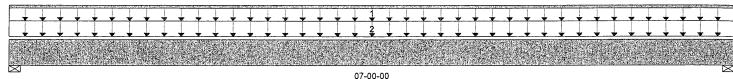
CCMC 12472-R

File Name: 263959.bcc Description: Designs\24 S50-2

Specifier: Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



B0

В1

Total Horizontal	Product	Length =	07-00-00

Reaction Summary (Down / Uplift) (lbs)									
Bearing	Live	Dead	Snow	Wind					
B0, 3-1/2"	374 / 0	171 / 0							
B1, 3-1/2"	374 / 0	171 / 0							

Load Summary					Live	Dead	Snow	Wind	Trib.
Tag Description	Load Type	R	ef. Start	End	1.00	0.65	1.00	1.15	
1	Unf. Lin. (lb/ft)	L	00-00-00	07-00-00	27	14			n/a
2	Unf. Area (lb/ft^2)	L	00-00-00	07-00-00	40	15			02-00-00

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,185 ft-lbs	12,704 ft-lbs	9.3%	1	03-06-00
End Shear	535 lbs	5,785 lbs	9.3%	1	01-01-00
Total Load Defl.	L/999 (0.026")	n/a	n/a	4	03-06-00
Live Load Defl.	L/999 (0.018")	n/a	n/a	5	03-06-00
Max Defl.	0.026"	n/a	n/a	4	03-06-00
Span / Depth	8.3	n/a	n/a		00-00-00

Bearir	ng Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material	
B0	Wall/Plate	3-1/2" x 1-3/4"	775 lbs	20.6%	10.4%	Spruce Pine F	
B1	Wall/Plate	3-1/2" x 1-3/4"	775 lbs	20.6%	10.4%	Spruce Pine F	

#### 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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#### Notes

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

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

Design meets User specified (1") Maximum total load deflection criteria.

Calculations assume Member is Fully Braced.

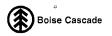
Resistance Factor phi has been applied to all presented results per CSA 086.

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

Design based on Dry Service Condition.

Importance Factor: Normal Part code: Part 4 Deflections less than 1/8" were ignored in the results.





Floor Beam\25

BC CALC® Design Report



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

January 24, 2018 15:15:07

Build 6080

Job Name: Address:

38514

GREEN VALLEY ESTATES

City, Province, Postal Code:BRADFORD, ON

Customer:

Code reports:

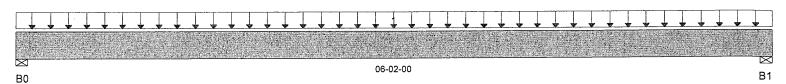
CCMC 12472-R

File Name: 263959.bcc Description: Designs\25 Specifier: S50-2

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 06-02-00

Reaction Summary	(Down / Uplift) (lbs)				
Bearing	Live	Dead	Snow	Wind	
B0, 3-1/2"	432 / 0	231 / 0			
B1. 3-1/2"	432 / 0	231 / 0			

Load Summary			L	_ive	Dead	Snow	Wind	Trib.
Tag Description	Load Type	Ref. Start	End 1	.00	0.65	1.00	1.15	
1	Unf. Area (lb/ft^2)	L 00-00-00	06-02-00 4	10	20			03-06-00

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,236 ft-lbs	11,610 ft-lbs	10.6%	1	03-01-00
End Shear	607 lbs	5,785 lbs	10.5%	1	01-01-00
Total Load Defl.	L/999 (0.021")	n/a	n/a	4	03-01-00
Live Load Defl.	L/999 (0.013")	n/a	n/a	5	03-01-00
Max Defl.	0.021"`	n/a	n/a	4	03-01-00
Span / Depth	7.2	n/a	n/a		00-00-00
Squash Blocks	Valid				

Bear	ing Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	936 lbs	24.8%	12.5%	Spruce Pine Fi
B1	Wall/Plate	3-1/2" x 1-3/4"	936 lbs	24.8%	12.5%	Spruce Pine Fi

#### **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 4

#### **User Notes**

NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS @ O.C., STAGGERED IN TWO ROWS

## Disclosure

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NORDIC **STRUCTURES** 

COMPANY ALPA RT MQ Jan. 29, 2016 10:19 PROJECT 38514 SJ 7-8-0.wwb

550-2 elev. A.B.

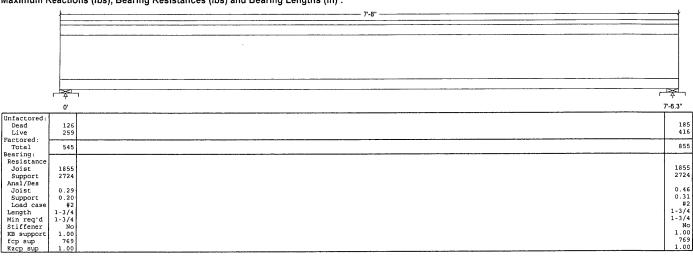
J7@ 1st FL.

**Design Check Calculation Sheet** Nordic Sizer - Canada 6.3

#### Loads:

ı	Load	Туре	Distribution	Pat-	Location	[ft]	Magnitud	ie	Unit
ł				tern	Start	End	Start	End	
۱	Load2	Live	Full Area				40.00		psf
l	Load3	Dead	Full Area	1 1			20.00		psf
l	Load4	Live	Point		5.42		374		lbs
l	Load5	Dead	Point		5.42		140		lbs
l	Self-weight	Dead	Full UDL				2.7		plf

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



Nordic 9-1/2" NI-40x Floor joist @ 12" o.c. Supports: All - Lumber Sill plate, No.1/No.2 Total length: 7"-8.0"; 5/8" nailed and glued OSB sheathing This section PASSES the design code check.

#### Limit States Design using CSA-086-09 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 855	Vr = 1895	lbs	Vf/Vr = 0.45
Moment(+)	Mf = 1654	Mr = 4824	lbs-ft	Mf/Mr = 0.34
Perm, Defl'n	0.01 = <l 999<="" td=""><td>0.25 = L/360</td><td>in</td><td>0.05</td></l>	0.25 = L/360	in	0.05
Live Defl'n	0.03 = <l 999<="" td=""><td>0.19 = L/480</td><td>in</td><td>0.15</td></l>	0.19 = L/480	in	0.15
Total Defl'n	0.04 = <l 999<="" td=""><td>0.38 = L/240</td><td>in</td><td>0.11</td></l>	0.38 = L/240	in	0.11
Bare Defl'n	0.03 = <l 999<="" td=""><td>0.25 × L/360</td><td>in</td><td>0.13</td></l>	0.25 × L/360	in	0.13
Vibration	Lmax = 7'-6	Lv = 16'-3	ft	
Defl'n	= 0.009	≃ 0.079	in	0.12

## Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	1895	1.00	1.00	-	-	-	-	-	#2
Mr+	4824	1.00	1.00	-	1.000	-	-	-	#2
RT	218 1 m	illion	_	-	-	-	-	-	#2

A T	1033	1.00	1.00	_	-	-	-	_	11 2
Mr+	4824	1.00	1.00	-	1.000	-	-	-	#2
EI	218.1	million	-	-	-	-	-	-	#2
CRITICAL	LOAD COM	MBINATIONS	3:						

Sileai	:	21	# 2	=	1.230 + 1.36
Moment (+)	:	LC	#2	=	1.25D + 1.5L
Deflection	:	LC	#1	-	1.0D (permanent)
		LC	#2	=	1.0D + 1.0L (live)

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

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

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

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

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

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

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

All Load Combinations (LCs) are listed in the Analysis output

CALCHETORS:

CALCULATIONS:

Deflection: Elcomp = 258e06 lb-in2 K = 4.94e06 lbs

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

#### Design Notes:

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

2. NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS

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

4. Refer to technical documentation for installation guidelines and construction details.

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

6. Notes the ball selection is upported at a greater and construction details.

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

7. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnist their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible on the design criteria and loadings shown.







## Maximum Floor Spans

Live Load = 40 psf, Dead Load = 15 psf Simple Spans, L/360 Deflection Limit 5/8" OSB G&N Sheathing







			В	are			1/2" Gyps	um Ceiling	
Depth	Series		On Centi	e Spacing			On Centr	e Spacing	
·		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
9-1/2"	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	N/A
	NI-70	17'-1"	16'-1"	15'-6"	N/A	17'-5"	.16'-5"	15'-10"	N/A
	NI-80	17'-3"	16'-3"	15'-8"	N/A	17'-8"	16'-7"	16'-0"	N/A
	NI-20	16'-11"	16'-0"	15'-5"	N/A	17'-6"	16'-6"	16'-0"	N/A
	NI-40x	18'-1"	17'-0"	16'-5"	N/A	18'-9"	17'-6"	16'-11"	N/A
44 77 /011	NI-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17'-8"	17'-1"	N/A
11-7/8"	Ni-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A
	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A
	NI-40x	20'-1"	18'-7"	17'-10"	N/A	20'-10"	19'-4"	18'-6"	N/A
	NI-60	20'-5"	18'-11"	18'-1"	N/A	21'-2"	19'-7"	18'-9"	N/A
14"	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A
	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A
4.57	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A
16"	NI-80	23'-11"	22'-1"	21'-1"	N/A	24'-8"	22'-10"	21'-9"	N/A
	NI-90x	24'-8"	22'-9"	21'-9"	N/A	25'-4"	23'-5"	22'-4"	N/A

			Mid-Spa	n Blocking		Mid-S	pan Blocking an	d 1/2" Gypsum	Ceiling
Depth	Series		On Cent	re Spacing			On Centi	e Spacing	
·		12"	16"	19.2"	24"	12"	16"	19.2"	24"
	NI-20	16'-10"	15'-5"	14'-6"	N/A	17'-1"	15'-5"	14'-6"	N/A
	NI-40x	17'-11"	16'-11"	16'-4"	N/A	18'-5"	17'-4"	16'-7"	N/A
9-1/2"	NI-60	18'-2"	17'-1"	16'-6"	N/A	18'-7"	17'-6"	16'-10"	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
	NI-20	19'-6"	18'-1"	17'-5"	N/A	20'-2"	18'-8"	17'-6"	N/A
	NI-40x	21'-0"	19'-6"	18'-8"	N/A	21'-7"	20'-2"	19'-3"	N/A
44 7 /0#	NI-60	21'-4"	19'-9"	18'-11"	N/A	21'-11"	On Centre Spacing           12"         16"         19.2"           17'-1"         15'-5"         14'-6"           18'-5"         17'-4"         16'-7"           18'-7"         17'-6"         16'-10"           19'-7"         18'-3"         17'-7"           19'-10"         18'-5"         17'-8"           20'-2"         18'-8"         17'-6"           21'-7"         20'-2"         19'-3"           21'-11"         20'-4"         19'-6"           23'-0"         21'-5"         20'-5"           23'-3"         21'-7"         20'-8"           23'-10"         22'-2"         21'-2"           24'-3"         22'-7"         21'-7"           24'-8"         22'-11"         21'-11"           25'-10"         24'-0"         22'-11"           26'-2"         24'-4"         23'-2"           26'-10"         24'-11"         23'-9"           27'-2"         25'-3"         24'-2"           28'-5"         26'-5"         25'-2"           28'-10"         26'-9"         25'-6"	N/A	
11-7/8"	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-5"	20'-5"	N/A
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"	20'-8"	N/A
	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
	NI-40x	23'-7"	21'-11"	20'-11"	N/A	24'-3"	22'-7"	21'-7"	N/A
	NI-60	24'-0"	22'-3"	21'-3"	N/A	24'-8"	22'-11"	21'-11"	N/A
14"	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-11"	N/A
	NI-80	25'-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A
	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	25'-3"	24'-2"	N/A
16"	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A
10	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"	19.2" 14'-6" 16'-7" 16'-10" 17'-7" 17'-8" 17'-6" 19'-3" 19'-6" 20'-5" 20'-8" 21'-2" 21'-7" 21'-11" 22'-11" 23'-2" 24'-2" 25'-6"	N/A

- 1. Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/360 and a total load deflection limit of L/240.
- 2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- 3. Minimum bearing length shall be 1-3/4 inches for the end bearings.
- 4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- 5. This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- 6. Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.

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efer to the Installation Guide for Residential Floors for additional information. CMC EVALUATION REPORT 13032-R

#### NI-70 3-1*7*7 TOTE SOLD 2 3 4 1-12-1-1 B 3:8" - 1 NI\_40\* 1-17 3 OSB 716 OSB 3/6\* OSB ₹16" → -NI-20 1-12-0-1 OSB 3/6\* 058 3/8"→ 1-12/1 0.1;7\* 11-7;6\* 14\* 16\* 14" 11-48 A FRAPPIER 160108717 FŞC 1950f MSR 2100f MSR 1950f MSR 2100f MSR 2400f MSR NPG Lumber 5-P-F No.2 33 pieces 33 pieces 33 pieces 23 pieces 23 pieces 23 pieces 23 pieces

#### **NEB HOLE SPECIFICATIONS**

JULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified. Whenever possible, field-cut holes should be centred on the middle of the web.
- The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist 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 langest side of the langest 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 are permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.
- A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above
- All holes and duct chase openings shall be cut in a workman-lik 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.

#### ABLE 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

			Minimum Distance from Inside Face of Any Support to Centre of Hale (ft - in.)													
Joist Depth	Joist Round Hole Diame		eter (in.	)												
Depin	501103	2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4
	NI-20	0'-7"	1'-6"	2'-10"	4'-3"	5'-8"	6'-0"									
	NI-40x	0'-7"	1'-6"	31-01E	4'-4"	6'-0"	6'-4"									
9-1/2"	NI-60	1'-3"	2'-6"	4'-0"	5'-4"	7'-0"	7'-5"									
	NI-70	2'-0"	3'-4"	4'-9"	6'-3"	8'-0"	8'-4"									
	NI-80	2'-3"	3'-6"	5'-0"	6'-6"	8'-2"	8'-8"									
	NI-20	0'-7"	0'-8"	1'-0"	2'-4"	3'-8"	4'-0"	5'-0"	6'-6"	7'-9"						
	NI-40x	0'-7"	0'-8"	1'-3"	2'-8"	4'-0"	4'-4"	5'-5"	7'-0"	8'-4"						
	NI-60	0'-7"	1'-8"	3'-0"	4'-3"	5'-9"	6'-0"	7'-3"	8'-10"	10'-0"						
11-7/8"	NI-70	1'-3"	2'-6"	4'-0"	5'-4"	6'-9"	7'-2"	8'-4"	10'-0"	11'-2"		***	***			
	NI-80	1'-ó"	2'-10"	4'-2"	5'-6"	7'-0"	7'-5"	8'-6"	10'-3"	71'-4"						•~•
	:NI-90 .	0'-7"	0'-8"	1'-5"	3'-2"	4'-10"	5'-4"	6'-9"	8'-9"	10'-2"			•••			
	NI-90x	0'-7"	(1-8"	0'-9"	2'-5"	4'-4"	4'-9"	6'-3"								
	NI-40x	0'-7"	0'-8"	0'-8"	1'-0"	2'-4"	2'-9"	3'-9"	5'-2"	6'-0"	6'-6"	8'-3"	10'-2"			
	NI-60	0:-7"	0'-8"	1'-8"	3'-0°	4'-3"	4'-8"	5'-8"	7'-2"	8'-0"	8'-8"	10'-4"	11'-9"			
14"	NI-70	0'-8"	1'-10"	3'-0"	4'-5"	5'-10"	6'-2"	7'-3"	8'-9"	9'-9"	10'-4"	12'-0"	13'-5"			
	NI-80	0'-10"	2'-0"	3'-4"	4'-9"	6'-2"	6'-5"	7'-6"	9'-0"	10'-0"	10'-8"	12'-4"	13'-9"			
	NI-90	0'-7"	0'-8"	0'-10"	2'-5"	4'-0"	4'-5"	5'-9"	7'-5"	8'-8"	9'-4"	11'-4"	12'-11"			
	NI-90x	0'-7"	0'-8"	0'-8"	2'-0"	3'-9".	4'-2"	5'-5"	7'-3"	8'-5"	9'-2"					
	NI-60	0'-7"	0'-8"	0'-8"	1'-6"	2'-10"	3'-2"	4'-2"	5'-6"	6'-4"	7'-0"	8'-5"	9'-8"	10'-2"	12'-2"	13'-9"
	NI-70	G'-7"	1,-0.	2'-3"	3'-6"	4'-10"	5'-3"	6'-3"	7'-8"	8'-6"	9'-2"	10'-8"	12'-0"	12'-4"	14'-0"	15'-6"
16	NJ-30	0'-7"	1'-3"	2-6"	3'-10"	5'-3"	5'-6"	6'-6"	8'-0"	9'-0"	9'-5"	11'-0"	12'-3"	12'-9"	14'-5"	16'-0"
	NI-90	0'-7"	0'-8"	0'-8"	1'-9"	3'-3"	3'-8"	4'-9"	6'-5"	7'-5"	8'-0"	9'-10"	11'-3"	11'-9"	13'-9"	15'-4"
	NI-90x	0'-7"	0'-8"	0'-9"	2'-0"	3'-6"	4'-0"	51-0°	6'-9"	7'-9"	8'-4"	10'-2"	11'-6"	12'-0"		

- Above table may be used for 1-joist spacing of 24 inches on centre or less.
  Hole location distance is measured from inside face of supports to centre of hole.
  Distances in this chart are based on uniformly loaded joists.
  The above table is based on the 1-joists being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans, contact your local distributor

#### TABLE 2

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

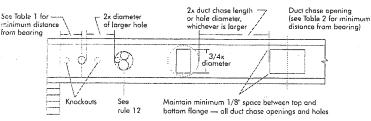
Simple Span Only

		Minim	um distar	ice from in	side face	of suppo	orts to co	entre of	pening	(ft - in.)
Joist Depth	Joist Series				Duct Ch	ase Leng	th (in.)			
o cpiii	00.100	8	10	12	14	16	18	20	22	24
	NJ-20	4'-1"	4'-5"	4'-10"	5'-4"	5'-8"	6'-1"	6'-6"	7'-1"	7'-5"
	NI-40x	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"
9-1/2"	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8'-3"	8'-9"
, ., _	NI-70	5'-1"	5'-5"	5'-10"	6'-3"	6'-7"	7'-1"	7'-6"	8'-1"	8'-4"
	NI-80	5'-3"	5'-8"	ó'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"
	NI-20	5'-9"	6'-2"	6'-6"	7'-1"	7'-5"	7'-9"	8'-3"	8'-9"	9'-4"
	NI-40x	6'-8"	7'-2"	7'-6"	8'-1"	8'-6"	9'-1"	9'-6"	10'-1"	10'-9"
	NI-60	7'-3"	7'-8"	8'-0"	8'-6"	9'-0"	9'-3"	9'-9"	10'-3"	11'-0"
11-7/8	NI-70	7'-1"	7'-4"	ブータ*	8'-3"	8'-7"	9'-1"	9'-6"	10'-1"	10'-4"
	NI-80	7'-2"	7'-7"	8'-0"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-8"
	NI-90	7'-6"	7'-11"	8'-4"	8'-9"	9'-2"	9'-7"	10'-1"	10'-7"	10'-11"
	NI-90x	7'-7"	8'-1"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-8"	11'-2"
	NI-40x	8'-1"	8'-7"	9'-0"	9'-6"	10'-1"	10'-7"	11'-2"	12'-0"	12'-8"
	NI-60	8'-9"	9'-3"	9'-8"	10'-1"	10'-6"	11'-1"	11'-6"	13'-3"	13'-0"
1.40	NI-70	8'-7"	9'-1"	9'-5"	9'-10"	10'-4"	10'-8"	11'-2"	11'-7"	12'-3"
14"	NI-80	9'-0"	9'-3"	9'-9"	10'-1"	10'-7"	11'-1"	11'-6"	12'-1"	12'-6"
i	NI-90	9'-2"	9'-8"	10'-0"	10'-6"	10'-11"	11'-5"	11'-9"	12'-4"	12'-11"
	NI-90x	9'-4"	9'-9"	10'-3"	10'-7"	11'-1"	11'-7"	12'-1"	12'-7"	13'-2"
	NI-60	10'-3"	10'-8"	11'-2"	11'-6"	12'-1"	12'-6"	13'-2"	14'-1"	14'-10"
	NI-70	10'-1"	10'-5"	11'-0"	11'-4"	11'-10"	12'-3"	12'-8"	13'-3"	14'-0"
16"	NI-80	10'-4"	10'-9"	11'-3"	11'-9"	12'-1"	12'-7"	13'-1"	13'-8"	14'-4"
	NI-90	10'-9"	11'-2"	11'-8"	12'-0"	12'-6"	13'-0"	13'-6"	14'-2"	14'-10"
	NI-90x	11'-1"	11'-5"	11'-10"	12'-4"	12'-10"	13'-2"	13'-9"	14'-4"	15'-2"

- Above lable may be used for I-joist spacing of 24 inches on centre or less.
   Duct chase opening location distance is measured from inside face of supports to centre of opening.
   The above table is based on simple-span joists only. For other applications, contact your local distributor
   Distances are based on uniformly loaded floor joists that meet the span requirements for a design liv load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480.
   The above table is based on the I-joists being used at their maximum spans. The minimum distance of given above may be reduced for shorter spans; contact your local distributor.

FIGURE 7

#### FIELD-CUT HOLE LOCATOR





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

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

Holes in webs should be cut with a sharp saw.

For rectangular holes, avoid over-cutting the corners, as this can cause unnecessary stress concentrations. Slightly rounding the corners is recommended. Starting the rectangular hole by drilling a 1-inch diameter hal 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.

#### SAFETY AND CONSTRUCTION PRECAUTIONS



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



Never stack building materials over unsheathed 1-joists. Once sheathed, do not over-stress I-joists with concentrated loads from building materials

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

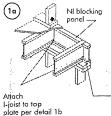
#### AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

- Brace and not each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends.
   When I-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
- 2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
  - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2\* nails fastened to the top surface of each l-joist. Noil the bracing to a lateral restraint at the end of each bay. Lap ends of adjaining bracing over at least two 1-joists.
- Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of 1-joists at the end of the bay. 3. For cantilevered 1-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
- Install and fully noil permanent sheathing to each 1-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.



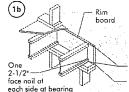




Blocking Panel	Maximum Factored Uniform				
or Rim Joist	Vertical Load* (plf)				
NI Joists	3,300				

\*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.

2-1/2" nails at 6" o.c. to top plate (when used for lateral shear transfer, nail to bearing plate with same nailing as required for decking)



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

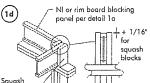
\*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

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

Minimum bearing length shall be 1-3/4" for the end bearings, and 3-1/2" for the intermediate bearings when applicable

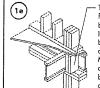
Attach rim board to top plate using 2-1/2" wire or spiral toe-nails at 6" o.c.

To avoid splitting flange, start nails at least 1-1/2" from end of I-joist Nails may be driven at an angle to avoid splitting of bearing plate.

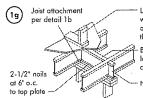


1	Pair of Squash Blocks	Vertical Lo	ı Factored ad per Pair Blocks (lbs)
		3-1/2" wide	5-1/2" wide
	2x Lumber	5,500	8,500
	1-1/8" Rim Board Plus	4,300	6,600

Provide lateral bracing per detail 1a or 1b



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



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

Blocking required over all interior supports under load-bearing walls or when floor joists are not continuous over support

NI blocking panel per detail la

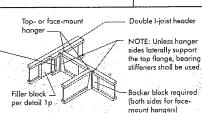
(1h)

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

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

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

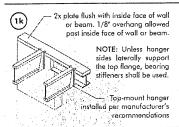
- \* Minimum grade for backer block material shall be S-P-F-No. 2 or better for solid sawn fumber and wood structural panels conforming to CAN/CSA-O325 or CAN/CSA-O437 Standard.
- For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".

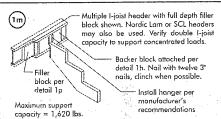


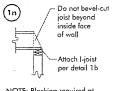
For hanger capacity see hanger manufacturer's recommendations. Verify double 1-joist capacity to support concentrated loads.

(1j) Structural Composite Lumber (SCL) For nailing schedules for multiple beams, see the manufacturer's recommendations. Ton- or face-mount hanger installed per manufacturer's recommendations

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

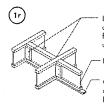






NOTE: Blocking required at bearing for lateral support, not shown for clarity.

CONCENTRATED LOAD

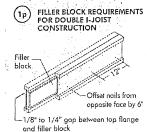


Lumber 2x4 min., extend block to face of adjacent web. Two 2-1/2" spiral nails from each web to lumber piece, alternate on opposite side.

NI blocking panel

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

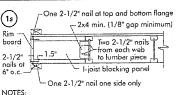
All nails shown in



- 1. Support back of I-joist web during nailing to preventdornage 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 flance.
- 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 t-joist. Total of four nails per foot required. If nails can be clinched, only two nails per foot are required. The maximum factored load that may be applied to one
- side of the double joist using this detail is 860 lbf/ft Verify double I-joist capacity.

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



 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.

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 and the 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.

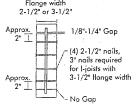
#### **WEB STIFFENERS**

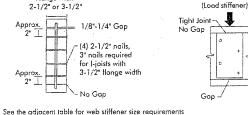
#### RECOMMENDATIONS:

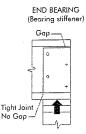
- A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found of the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at
- A bearing stiffener is required when the I-joist is supported in a honger 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 contilever, anywhere between the contilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

#### FIGURE 2

## WEB STIFFENER INSTALLATION DETAILS



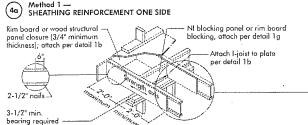




#### STIFFENER SIZE REQUIREMENTS Web Stiffener Size



# CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET



Method 2 — SHEATHING REINFORCEMENT TWO SIDES

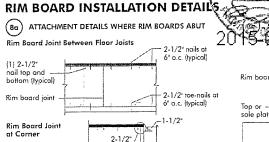
Use same installation as Method 1 but reinforce both sides of I-joist with sheathing.



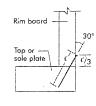
with opposite face nailing offset by 3".

Rim board joint

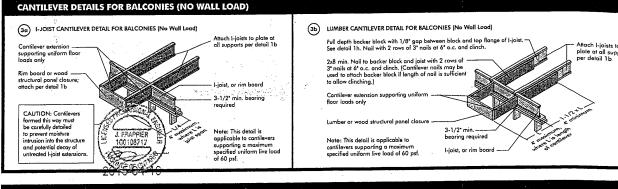
NOTE: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain harizontal. Attach I-joist to plate at all supports per detail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

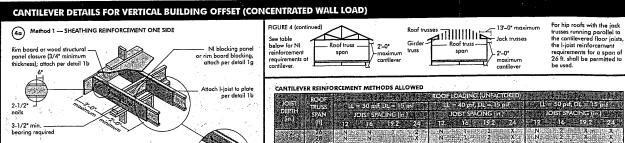


nails



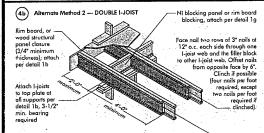






 Use same installation as Method 1 but reinforce both sides of I-joist with sheathing.
 Use notiling pattern shown for Method 1 with opposite face nailing offset by 3". Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4\*) required on sides of joist. Depth shall match the full height of the joist. Noil with 2-1/2\* nails at 6\* o.c., top and bottom Range. Intall with face groin horizontal. Attach I-joist to plate at all supports per detail 1b. Verify reinforced I-joist capacity.

Method 2 — SHEATHING REINFORCEMENT TWO SIDES



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

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

Bearing walls

(5b) SET-BACK DETAIL

lotes:
Provide full depth blacking
between joists over support
(not shown for clarity)
Attach I-joist to plate at all
supports per detail 1 b.
3-1/2\* minimum I-joist

(5c) SET-BACK CONNECTION

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

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

Alternate for opposite side.

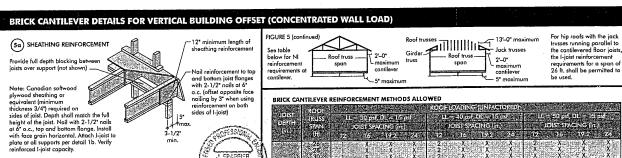
bearing required.

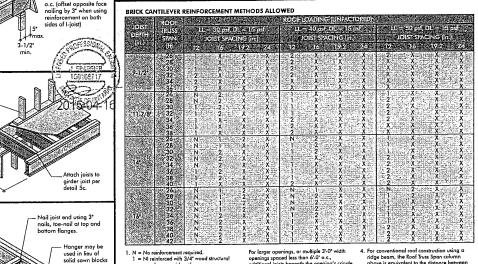
Rim board or wood structural panel closure (3/4" minimum thickness), attach per detail 1b.

26 28 30 32

- 1. N = No reinforcement required.
  1 = NI reinforced with 3/4" wood structural
- 1 = NI reinforced with 3/4" wood structural panel on one side only.
  2 = NI reinforced with 3/4" wood structural panel on both sides, or double 1-joist.
  X = Try a deeper joint or closer spacing.
  2. Maximum design load shell bes: 15 par foot dead load, 5 par floor toll load, and 80 pli wall load. Wall load is based on 3-0" maximum with window or face coasting.
- For larger openings, or multiple 3°-0° width openings spoced less than 6°-0° a.c., additional joins beneath the opening's cripple studs may be required.

  3. Toble applies to joins 12° to 24° o.c. that must be floor spon requirements for a design live load of 40 ps and dead flood of 15 ps, and a live load delilaction limit of U/480. Use
- For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting wall and the ridge beam. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a trust is used.





- - | N = No inforcement required.
    | 1 = NI rainforced with 3/d\* wood structural panel from a side only.
    | 2 = NI rainforced with 3/d\* wood structural panel from the side only.
    | 3 = NI rainforced with 3/d\* wood structural panel on both sides, or double lipinit.
    | X = To side of the s
- For larger openings, or multiple 3'-0" width openings spaced less than 6'-0" o.c.,
- openings spaced less than 6-0° c.c. diditional joists beneath the opening's cripple studs may be required.

  3. Toble applies to joists 12° to 24° c.c. that meet the floor span requirements for a design live load of 40 par and deed load of 15 par, and a live load deflection limit of 1/480. Use 12° c.c. requirements for thesset spacing.
- 4. For conventional roof construction using a ridge beam, the Roof Trus Span column above is equivalent to the distance between the supporting well and the ridge beam. When the roof is formed using a ridge board, when the roof is formed using a ridge board distance between the supporting wells as if a truss is used.

  5. Conflewered joists supporting gider Invseep roof beams may require additional reinforcing.



#### WEB HOLES

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

- The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- 1-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- 3. Whenever possible, field-cut holes should be centred on the middle of the web. The maximum size hole or the maximum depth of a duct chase opening that can be out into an I-joist wab shall equal the clear distance between the flanges of the I-joist main I/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.
- The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- 3/4 or ine dameter or ine maximum round now periminal at intal recumon. 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 squere hole (or twice the large) of the langest side of the largest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a contillevered section of a joist. Holes of greater size may be permitted subject to verification.
- A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it
  meets the requirements of rule number 6 above.
- 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
- 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.

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

	Minimum distance from inside tace of any support to derrite of non-tit-fit.	
10-50-50-5	Round hole dignetor (in l	
	7 7 7 7 5 6 6 74 7 8 8 8 5 /8 9 10 10 34 11 17 12 4	
4/NI-20 XX	10.27 1 Long 2.10 4.3 5.8 5.8 5.0 3 1 m 2.4 5	<b>3/6</b> €
2N1900	0.7 11.6 3.0 2.4 6.0 6.4	53.1
3 NI-60 33	13: 26: 40: 54: 70: 75:	
<b>第NH70</b> 達		2000
50NI-80 55	22 (1997) 6120 5 6 2 8 8 2 19 8 8 19 19 19 19 19 19 19 19 19 19 19 19 19	Capa F
12 M-50 SE	0.00 0.8 1.0 24 2.5 1.0 2.0 8.0 2.2 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	蒙江
<b>第175年</b>	OT VICE TO LEGISLATION OF THE PROPERTY OF THE	X 16
<b>本门</b>	12 22 20 CO SE 10 72 RA 100 112 C 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	200.17
NI.an	PA 210 42 FA 70 75 BR 103 D4	TOTAL.
NL On		W. 17.
N 9076		<b>地形10.</b>
SN-40x	0.7 0.8 0.8 1.0 2.4 2.9 3.9 5.2 6.0 8.6 8.3 10.2	100
≥ NI-605	0.7 0.8 18 3.0 4.3 4.8 5.8 7.2 8.0 8.8 10.4 11.9	36.18-
NI-70 S	08 1.10 3.0 7.5 5.10 6.2 7.3 8.9 9.9 10-4 12-0 13-5	
SINE80	0.10 2.0 3.4 4.9 82 8.5 7.6 9.0 10.8 12.4 13.9	A CONTRACTOR
14.90	0.7 0.8 0.10 25 4.0 45 5.7 75 88 74 114 120 - 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3 200
E M•Aπ.≅	G/ U.8 U.S / G S /	with 10.
NI-DU E	0.000 0	绿bo.
200	07 08 08 08 00 22 28 28 05 75 80 90 113 117 139 154	714
NI On	0.7 0.8 0.0 2.0 3.6 4.0 5.0 6.9 7.9 84 10.2 11.6 12-0	<b>多彩21</b> 。
	0.70 N.80 N.40 N.70 N.40 N.70 N.80 N.80 N.80 N.80 N.80 N.80 N.80 N.8	No.   0.2   1.6   2.0   2.1   2.1   2.2

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

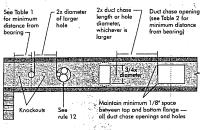
#### OPTIONAL:

The above table is based on the Lioists used at their maximum span. If the Lipists are placed at less than their full maximum span (see Maximum FPS) source, the minimum distance from the centraline of the hole to the face of any support (D) as given above may be reduced as follows:

# D<sub>reduced</sub> = Lactual x D SAF Where: D<sub>reduced</sub> =

# Distance from the inside face of any support to centre of hole, reduced for less-than-madiations shall not be last fina 6 inches from the face of the support to edge of the hole. The octual measured span distance between the inside faces of support let. Span Adjustment Factor given in this toble. The minimum distance from the inside face of any support to centre of hole from this toble is a span of the factor of the f L<sub>actual</sub> = SAF = D = TABLE 2 DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only

#### FIGURE 7 FIELD-CUT HOLE LOCATOR



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

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



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

for rectangular holes, avoid over-cutting the corners, as this can cause unnecessar stress concentrations. Slighthy rounding the cransrs is recommended. Starting the cretangular 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.



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- Above table margh was did ri-joist spacing of 24 inches on centre or less.

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

  The above table is based on simple, span joist only, for other opplications, contact your local distributor.

  Distances are based on uniformly loaded loor joists that meet the span requirements for a design live load of 40 psf and deed load of 15 gsf, and a live load delletion limit of 1480. For either opplications, control your local distributor.

#### INSTALLING THE GLUED FLOOR SYSTEM

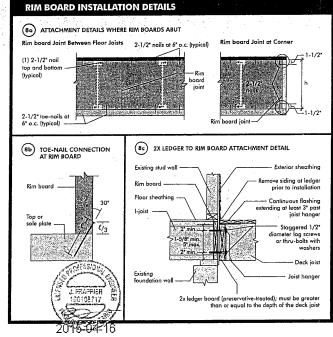
- 1. Wipe any mud, dirt, water, or ice from 1-joist flanges before gluing.
- Snap a chalk line across the I-joists four feet in from the wall for panel edge alignment and as a boundary for spreading glue.
- 3. Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from the glue manufacturer.
- 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 1-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 loying 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 1-joist flanges.
- 8. Tap the second row of panels into place, using a block to protect groove edges.
- Stagger end joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&G edges, is recommended. (Use a spacer tool or an 2-1/2" common noil to assive accurate and consistent spacing.)
- 10. Complete all notiling of each panel before glue sets. Check the manufacturer's recommendations for cure lime. (Warm weather accelerates glue setting) Use 2" ring- or screw-shank noils for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank noils for thicker panels. Space noils per the table below. Closer and spacing may be required by some codes, or for disphragm construction. The finished deck can be walked on right eave and will corny construction loads without damage to the

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

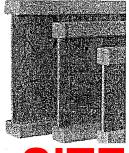
Maximum Ninumum	) N	all Size and T	ype.	Maximu	
			Skeples		i John
16 5/8	2.	1-3/4"	2*	6.	12*
20 10 10 5/8	2*	1-3/4*	2*	6*	12*
24 11 3/4	2-	1-3/4*	2*	6*	12*

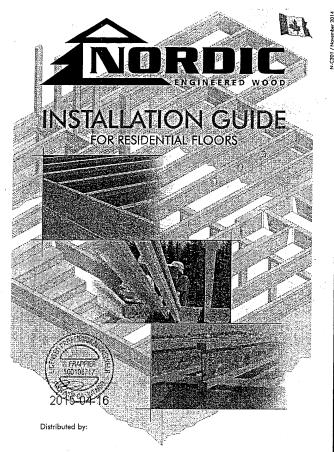
- 1. Fasteners of sheathing and subflooring shall conform to the above table
- 2. Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to framing.
- 3. Flooring screws shall not be less than 1/8-inch in diameter.
- Special 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
- 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.











J. FRAPPIER

15-04-16

#### SAFETY AND CONSTRUCTION PRECAUTIONS



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



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

#### WAPNING

l-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:

- Brace and noil each I-joist as it is installed, using hongers, 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.
- When the building is completed, the floor sheathing will provide lateral support for the top flanges of the Ljoists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or bucking.
  - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2? noils fastened to the top surface of each 1-joist, Nail the bracing to a lateral retartaint at the end of each boy. Lap ends of adjoining bracing over at least two 1-joists.
- Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
- For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
- Install and fully noil 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 Ljoists, 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

- 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.
- Do not store I-joists in direct contact with the ground and/or flatwise
   Protect I-joists from weather, and use spacers to separate bundles.
- 6. Bundled units should be kept intact until time of installation.
- When handling I-joists with a crane on the job site, take a fewsimple precautions to prevent damage to the I-joists and injury to your work crew.
  - Pick I-joists in bundles as shipped by the supplier
  - Orient the bundles so that the webs of the I-joists are vertical.
- Pick the bundles at the 5th points, using a spreader bar if necessary.
- B. Do not handle 1-joists in a horizontal orientation
- 9. NEVER USE OR TRY TO REPAIR A DAMAGED I-JOIST.





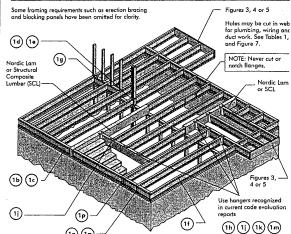




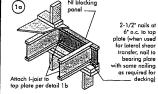
## INSTALLING NORDIC I-JOISTS

- Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, confidence supplier.
   Except for cutting to iength, I-joist flanges should never be cut, drilled, or notched.
- Except for cutting to length, 1-joist flanges should never be cut, drilled, or notched.
   Install 1-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
- Install 1-lasts so that top and bottom longes are within 1/2 inch at true vertical dilgament.
   Includes a securely to supports before floor sheathing is attached, and supports for
- be level.
- 5, Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearing
- 6. When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement.
- 7. Leave a 1/16-inch gap between the 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 carners. Never suspend unusual or heavy loads from the I-joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the I-joist. Or, attach the load to blocking that has been securely fastened to the I-joist webs.
- Never install I-joists where they will be permanently exposed to weather, or where they will remain in direct contact with concrete or masonry.
- 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. Lipiat blocking panels or other engineered wood products such as rim board must be cut to fit between the Lipists, and an Lipist-compatible depth selected.
- 13. Provide permanent lateral support of the bottom flunge of all I-joists at interior supports of multiple-span joists. Similarly, support the bottom flonge of all contlevered I-joists at the end support next to the contilever extension. In the completed structure, the gypsum wallboard ceiling provides this lateral support. Until the finol 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



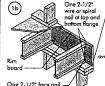
All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3° (9.122° dia.) common spiral nails may be substituted for 2-1/2° (0.128° dia.) common wire nails. Framing Jumber assumed to be Spruce-Pine-Fir No. 2 or bette. Individuol components not shown to scale for clarity.



Blacking Panel Maximum Factored Uniform or Rim Joist Vertical Load\* (pif)

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.

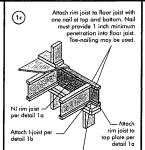


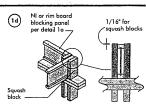
Attach rim board to top plate using 2-1/2\* wire or spiral toe-nails at 6\* o.c.
To avoid splitting flange, start nails at least 1-1/2\* from end of 1-joist. Nails may be driven at an angle to roid splitting of bearing plate.

d Minimum bearing length shall be 1-3/4" for the end bearings, and 3-1/2" for the end bearings, and 3-1/2" for the intermediate bearings when applicable.

Blacking 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 1 d.





| Pair of Squash Blocks | Maximum Factored Vertical prior of Squash Blocks (Ibs) | 3-1/2\* wide | 5-1/2\* wide | 5-1/2\* wide | 5-500 | 8-500 | 1-1/8\* Rim Board Plus | 4,300 | 6,600 |

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



#### **MAXIMUM FLOOR SPANS**

- Maximum clear spans applicable to simple-span or rifuliple-span residential floor construction with a design tive load of 40 pd and deed load of 15 pd. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideratio for floor whartion 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 ariented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGBS-7.1.26
  Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the used of gypsum and/or a row of blocking at mid-span.
- Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
- Bearing stiffeners are not required when I-joists are used with the spons and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications
  with other than uniform loads, an engineering analysis may
  be required based on the use of the design properties.
- Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
- 7. SI units conversion: 1 inch = 25.4 mm 1 foot = 0.305 m

MAXIMUM FLOOR SPANS FOR NORDIC 1-JOISTS SIMPLE AND MULTIPLE SPANS

			5 mple	Spens .		THE REAL PROPERTY.	Walip	e aprores	
			On contr				Dutanti	especing	
		1206	76	192	27,00	12	and Park		7.1
<b>克克(教育教育)</b>	NI-20	115-15	14'-2'	13-9	13'-5'-	16'-3"	15'-4"	14'-10'	14'-7'-
	NJ-40x	16'-1"	15'-21	14'-8'	14'.9"	37'-5"	16'-5"	- 15'-10"	15'-5"
9-1/2	NI-60	16'3'	15'-4"	14'-10"	14'-11'-	47.7	16.7	16-0	16-1"
	NI-70	17.11	16-11	15'-6'	15'-7"	18'-7	17-4	16-9	16-10
STATE OF THE PARTY.	NL80	17-3	16'-3'	15'-B'	15-9	18'-10"	17-6*	16-11	17-0
2000年1990年1990年1	# NJ-2023	16-11	16'-0'	15.5	2-15'-6'	18'4'	17'3'	16'-B'	16-7
	NI40x	18-1	17:0	16'-5'	16'-6"	20-0	18'-6"	17'-9"	17-7
	NL60%	18-4	17'-3'-	16'7	16' 9"	20-3	18-9	18-0	18-1
11.7/8	NI-70	19-6	18'-0"	17'-4"	17'-5'	211.6	19'-11'	19-0	19-1
	- NI-BO	19.9	18'-3"	17-6	17.7	211.9	20-21	19'-3'	19'-4'
200	NI-90	20-21	1847	17!-10°	17:11	22:3	20-7	1948	19-9"
55.5	NL90	20-4	18-9	47:43*	8.0	221.51	20-9	19-10	19:11
45040000000	NI-4DC	20-1	18-7	17:10:	= 17-11*	22 2 4	20.6	19.8	19-45-16
	SNI-60.65	20.5	18-11	7B-7	18-2	22'-7'	20-13"	20'-0"	20-1-
	NL70	211.71	20-0	19-1	19:-2'	23'-10"	22415	21'-1"	21.21
4 American	NI-80	211.11	20-3	19'4'	1945	24'-3"	22'-5'	21'-5'	21'-6'
	NL90	22-5	20-8	19.9	19-10	241.9"	22:10	211-10	21'-10"
	NI-90a	22-7	20-11	19:11:	20'-0"	25-0	23'-1'	22'-0"	22'-2'
este assemi	> NI-60>x	22-31	20'-8'	19-9	19.10	2417	22.9	21.9	21:10
	NL702	23-6	21,91	20.9	- 20'-10'	26'-0"	24'-0"	22-111	23'-0'
* 17	NI-80	23-11	22'1'	21'-1"	21-2	26'-5"	24-5	23'-3"	23'-4
1000	NI-90	24'-5'	22'-6'	21.5	21:-6	26'-11'	24-10	23-9	23'-9"
	NI On.	24'-8'	2250	71.9	21'-10"	27:34	25-2	24'-0"	24'.1"

CCMC EVALUATION REPORT 13032-R

#### 1-JOIST HANGERS

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



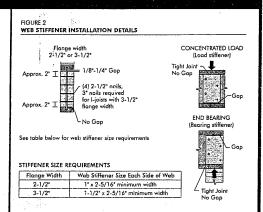


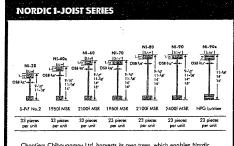


#### **WEB STIFFENERS**

#### RECOMMENDATIONS:

- ➤ A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found of the I-joist Construction Guide (C101). The gap between the stiffener and the flonge 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 o cantilever, anywhere between the cantilever ndard 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

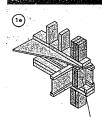




Chantiers Chibougamou Ltd. harvests its own trees, which enables Noville products to adhere to strict quality control procedures through the SASE manufacturing process. Every phase of the operation, from fetrage to the finished product, reflects our commitment to quality.

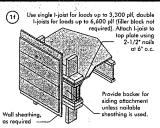
Nordic Engineered Wood Lipists use only finger-jointed back spruce IPPIER lumber in their flonges, ensuring consistent quality, superior special lunger span corrying capacity.



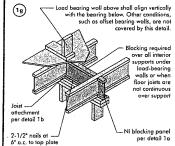


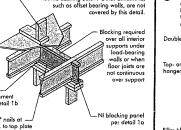
Transfer load from above to -bearing below. Install squash blocks per detail 1d. Match bearing area of blocks below to post above.

(i)



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



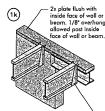




Top- or face-mount hanger installed per manufacturer' recommendations

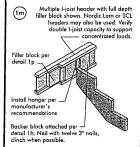
For nailing schedules for multiple beams, see the manufacturer's

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



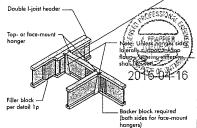
Top-mount hanger installed per

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



Do not bevel-cut joist beyond inside face of wall \_\_\_\_\_

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



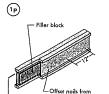
For hanger capacity see hanger manulacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

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

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

- Minimum grade for backer block material shall be S.P.F No. 2 or better for salid sown lumber and wood structural panels conforming to CAN/CSA-0325 or CAN/CSA-0437 Standard.

  For foce-mount hangers use net joist depth minus 3-1,4° for joists with 1-1/2° thick flonges. For 2° thick flonges use net depth minus 4-1/4°.

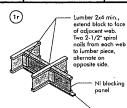


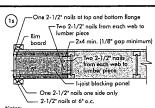
—1/8" to 1/4" gap between top flonge and filler block

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

# 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* 11-7/8* 14" 16*	2-1/8" x 6" 2-1/8" x 8" 2-1/8" x 10" 2-1/8" x 12"
3-1/2" x 1-1/2"	9-1/2" 11-7/8" 14" 16"	3" x 6" 3" x 8" 3" x 10" 3" x 12"
3-1/2" x 2"	11-7/8* 14* 16*	3" x 7" 3" x 9" 3" x 11"





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