

FLOOR LOADING:

LIVE : 40 PSF
DEAD : 15 PSF
DEAD : 20 PSF (TILE AREAS ONLY)

HANGERS SCHEDULE

H1-----	IUS2.56/9.5
H2-----	HUS1.81/10
H3-----	IUS3.56/9.5
H4-----	HU410-2

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.

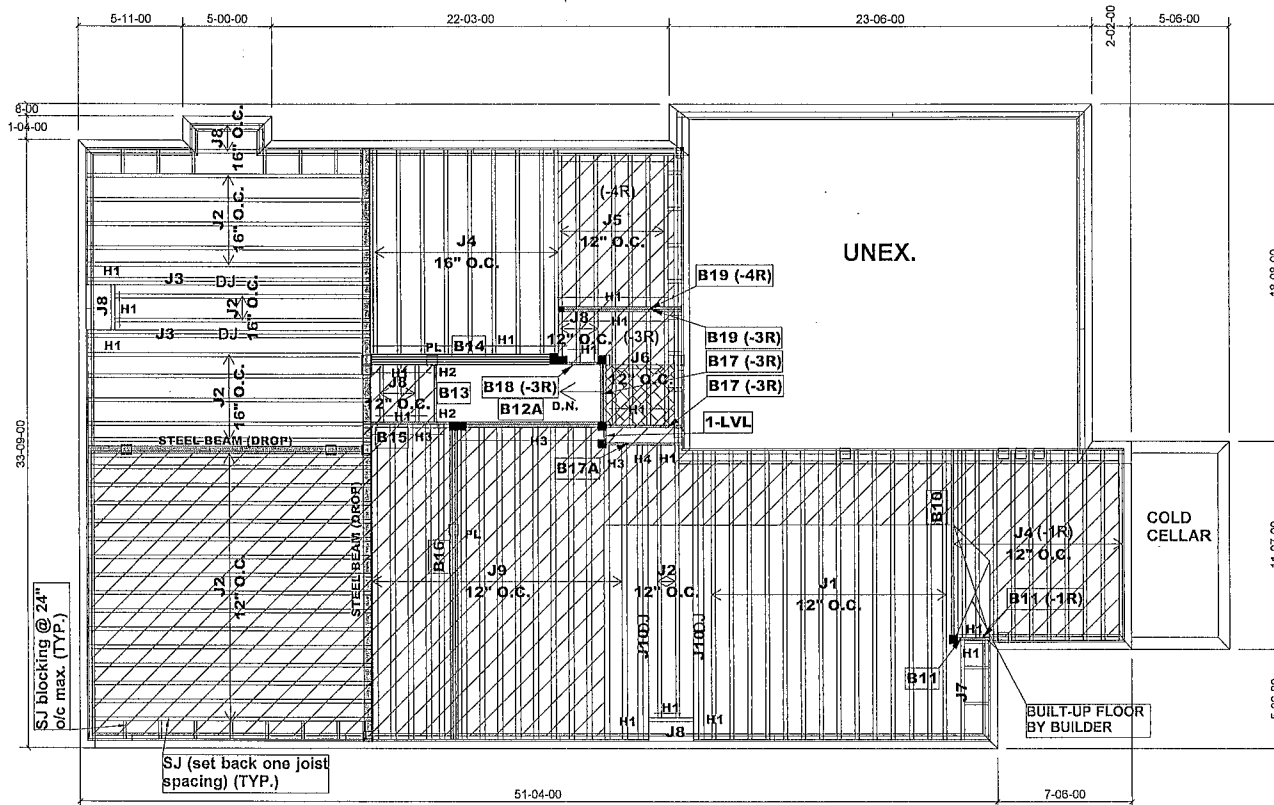
Ceramic Tile Application as per O.B.C. 9.30.6

Do not scale - refer to architectural plans for dimensions.

T.1511126 - T.1511145 & T.1611001 - T.1611003 + T.1803006 - T.1803009

Salesperson: Mario
Tamarack Lumber

Tamarack Lumber



**S42-15 ELEV.A & B & C
FIRST FLOOR FRAMING
W/ SUNKEN LAUNDRY (-3R)
& UPGRADED REAR ELEVATION**

Hatch Legend	
	Build up by Builder
	Ceramic Tile

FLOOR LOADING:
LIVE : 40 PSF
DEAD : 15 PSF
DEAD : 20 PSF (TILE AREAS ONLY)

Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	9 1/2" NI-40x	1	14
J2	16-00-00	9 1/2" NI-40x	1	30
J3	16-00-00	9 1/2" NI-40x	2	4
J4	12-00-00	9 1/2" NI-40x	1	20
J5	10-00-00	9 1/2" NI-40x	1	7
J6	8-00-00	9 1/2" NI-40x	1	4
J7	6-00-00	9 1/2" NI-40x	1	1
J8	4-00-00	9 1/2" NI-40x	1	10
J9	18-00-00	9 1/2" NI-80	1	15
J10	18-00-00	9 1/2" NI-80	2	4
B16	18-00-00	VERSALAM-10 2.0E	3	3
B10	12-00-00	VERSALAM-10 2.0E	1	1
B14	12-00-00	VERSALAM-10 2.0E	4	4
B12A	10-00-00	VERSALAM-10 2.0E	2	2
B19 (-3R)	8-00-00	VERSALAM-10 2.0E	1	1
B19 (-4R)	8-00-00	VERSALAM-10 2.0E	1	1
B15	6-00-00	VERSALAM-10 2.0E	1	1
B17 (-3R)	6-00-00	VERSALAM-10 2.0E	1	1
B17A	6-00-00	VERSALAM-10 2.0E	1	1
B11	4-00-00	VERSALAM-10 2.0E	1	1
B11 (-1R)	4-00-00	VERSALAM-10 2.0E	1	1
B13	4-00-00	VERSALAM-10 2.0E	1	1
B17 (-3R)	4-00-00	VERSALAM-10 2.0E	1	1
B18 (-3R)	4-00-00	VERSALAM-10 2.0E	1	1
1-LVL	2-00-00	VERSALAM-10 2.0E	1	1

HANGERS SCHEDULE

H1-----IUS2.56/9.5
H2-----HUS1.81/10
H3-----IUS3.56/9.5
H4-----HU410-2

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.

Ceramic Tile Application as per O.B.C. 9.30.6

Do not scale - refer to architectural plans for dimensions.

97055-March 8/18

JT:44997/94450

Builder: Bayview Wellington

Location: Bradford

Designer: MQ/SG

Alpa Roof Trusses Inc.
Maple, Ontario

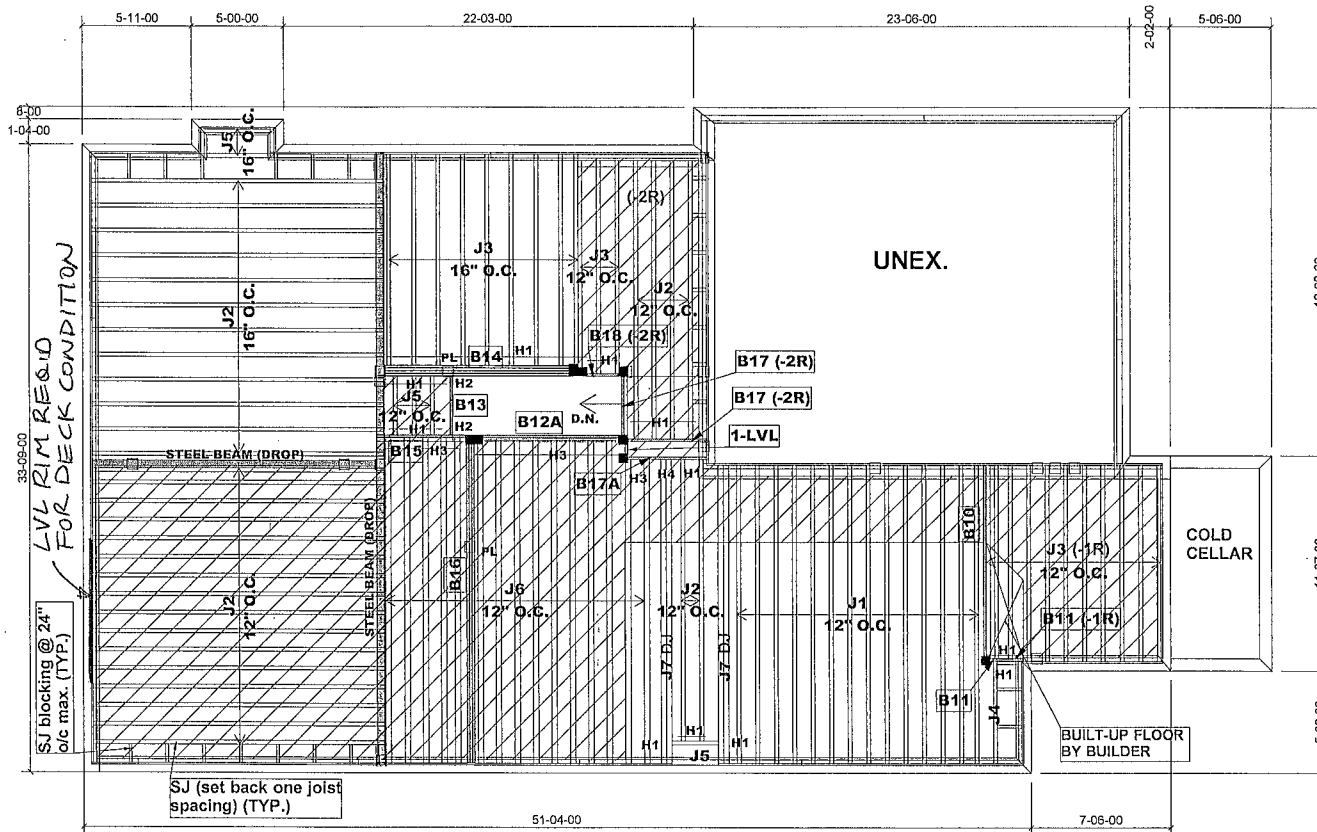
Salesperson: Mario
Tamarack Lumber

File: 289512(260907)

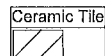
Project: Green Valley Estates East

Date: Oct. 14 / 2017

Sheet: 2 of 7



**S42-15 ELEV.A & B & C
FIRST FLOOR FRAMING
WOD & WOB CONDITION
& UPGRADED REAR ELEVATION**



FLOOR LOADING:
LIVE : 40 PSF
DEAD : 15 PSF
DEAD : 20 PSF (TILE AREAS ONLY)

Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	9 1/2" NI-40x	1	14
J2	16-00-00	9 1/2" NI-40x	1	34
J3	12-00-00	9 1/2" NI-40x	1	23
J4	6-00-00	9 1/2" NI-40x	1	1
J5	4-00-00	9 1/2" NI-40x	1	6
J6	18-00-00	9 1/2" NI-80	1	15
J7	18-00-00	9 1/2" NI-80	2	4
B16	18-00-00	VERSALAM-10 2.0E	3	3
B10	12-00-00	VERSALAM-10 2.0E	1	1
B14	12-00-00	VERSALAM-10 2.0E	4	4
B12A	10-00-00	VERSALAM-10 2.0E	2	2
B15	6-00-00	VERSALAM-10 2.0E	1	1
B17 (-2R)	6-00-00	VERSALAM-10 2.0E	1	1
B17A	6-00-00	VERSALAM-10 2.0E	1	1
B11	4-00-00	VERSALAM-10 2.0E	1	1
B11 (-1R)	4-00-00	VERSALAM-10 2.0E	1	1
B13	4-00-00	VERSALAM-10 2.0E	1	1
B17 (-2R)	4-00-00	VERSALAM-10 2.0E	1	1
B18 (-2R)	4-00-00	VERSALAM-10 2.0E	1	1
1-LVL	2-00-00	VERSALAM-10 2.0E	1	1

HANGERS SCHEDULE

H1-----IUS2.56/9.5
H2-----HUS1.81/10
H3-----IUS3.56/9.5
H4-----HU410-2

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.

Ceramic Tile Application as per O.B.C. 9.30.6

Do not scale - refer to architectural plans for dimensions.

97055-March 8/18-revised

JT:44997/94450

Builder: Bayview Wellington

Location: Bradford

Designer: MQ/SG

Alpa Roof Trusses Inc.
Maple, Ontario

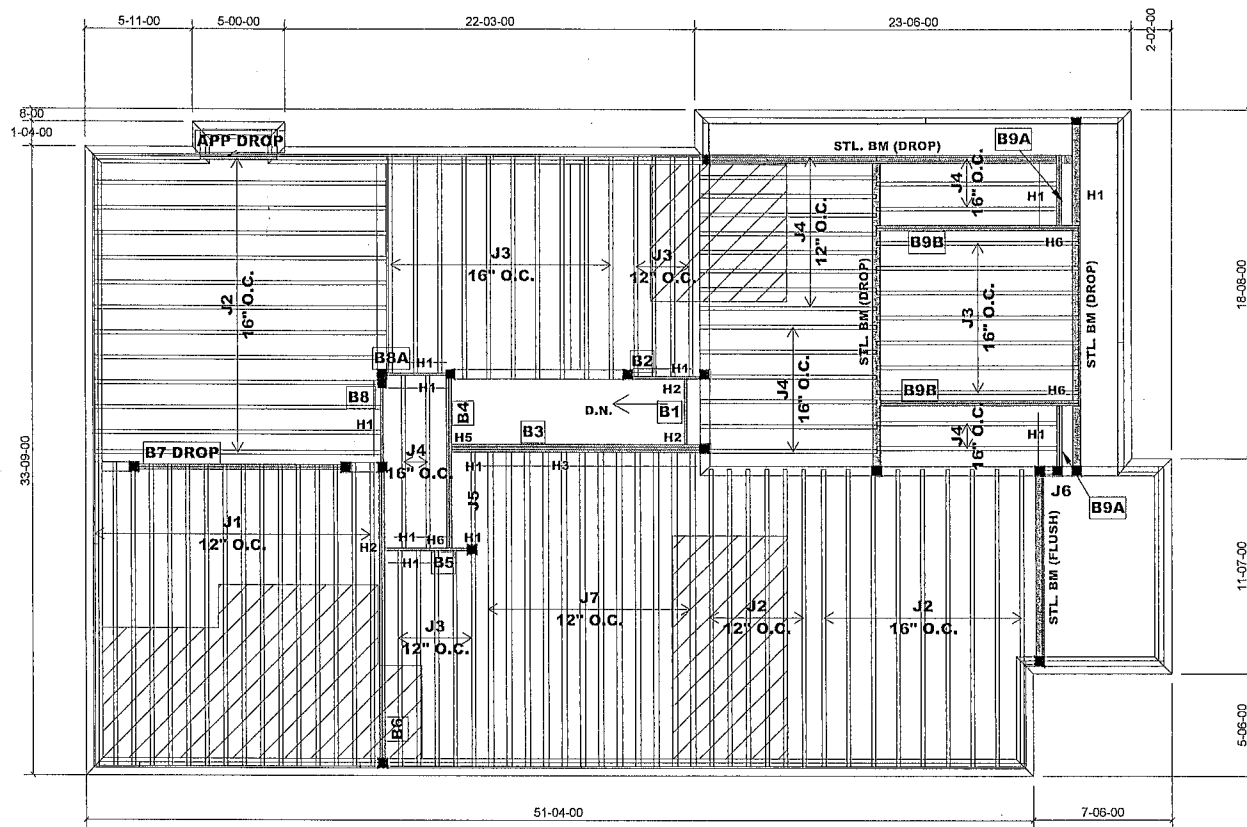
Salesperson: Mario
Tamarack Lumber

File: 289512(260907)

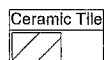
Project: Green Valley Estates East

Date: Oct. 14 / 2017

Sheet: 3 of 7



S42-15 ELEV.A
SECOND FLOOR FRAMING
4 BEDROOM & MEDIA LOFT
OR OPT. 5 BEDROOM
& UPGRADED REAR ELEVATION



FLOOR LOADING:
 LIVE : 40 PSF
 DEAD : 15 PSF
 DEAD : 20 PSF (TILE AREAS ONLY)

Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	9 1/2" NI-40x	1	16
J2	16-00-00	9 1/2" NI-40x	1	28
J3	12-00-00	9 1/2" NI-40x	1	26
J4	10-00-00	9 1/2" NI-40x	1	22
J5	6-00-00	9 1/2" NI-40x	1	1
J6	2-00-00	9 1/2" NI-40x	1	1
J7	18-00-00	9 1/2" NI-80	1	12
B6	18-00-00	VERSALAM-10 2.0E	2	2
B3	14-00-00	VERSALAM-10 2.0E	3	3
B7 DROP	12-00-00	VERSALAM-10 2.0E	2	2
B9B	12-00-00	VERSALAM-10 2.0E	2	4
B4	10-00-00	VERSALAM-10 2.0E	2	2
B2	6-00-00	VERSALAM-10 2.0E	1	1
B5	6-00-00	VERSALAM-10 2.0E	1	1
B8	6-00-00	VERSALAM-10 2.0E	1	1
B8A	6-00-00	VERSALAM-10 2.0E	1	1
B1	4-00-00	VERSALAM-10 2.0E	1	1
B9A	4-00-00	VERSALAM-10 2.0E	2	4

HANGERS SCHEDULE

H1-----IUS2.56/9.5
 H2-----HUS1.81/10
 H3-----IUS3.56/9.5
 H5-----HGUS5.50/10
 H6-----HGUS410

RIMBOARD

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

SUBFLOOR : 5/8" NAILED & GLUED

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.

Ceramic Tile Application as per O.B.C. 9.30.6

Do not scale - refer to architectural plans for dimensions.

97055- March 8/18

JT:44997/94450

Builder: Bayview Wellington

Location: Bradford

Designer: MQ/SG

Alpa Roof Trusses Inc.
 Maple, Ontario

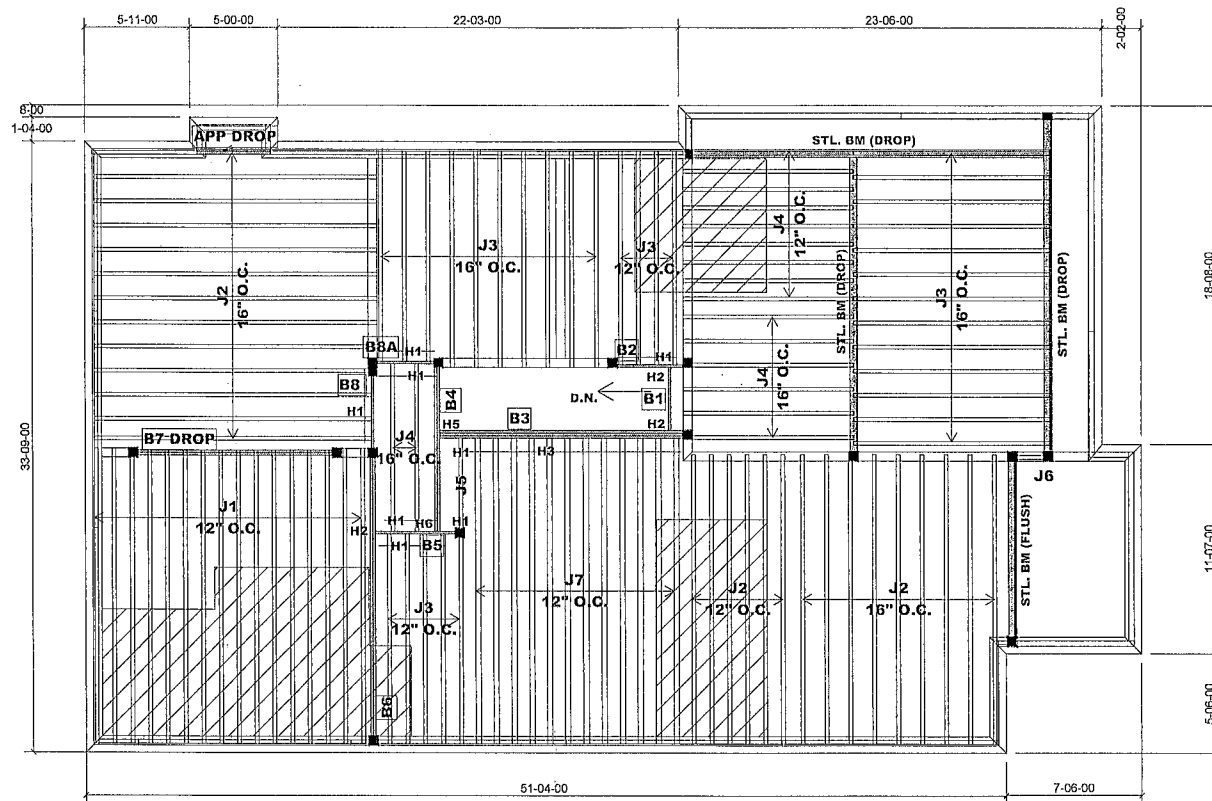
Salesperson: Mario
 Tamarack Lumber

File: 289512(260907)

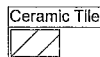
Project: Green Valley Estates East

Date: Oct. 14 / 2017

Sheet: 5 of 7



S42-15 ELEV.B
SECOND FLOOR FRAMING
4 BEDROOM & MEDIA LOFT
OR OPT. 5 BEDROOM
& UPGRADED REAR ELEVATION



FLOOR LOADING:
 LIVE : 40 PSF
 DEAD : 15 PSF
 DEAD : 20 PSF (TILE AREAS ONLY)

Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	9 1/2" NI-40x	1	16
J2	16-00-00	9 1/2" NI-40x	1	28
J3	12-00-00	9 1/2" NI-40x	1	32
J4	10-00-00	9 1/2" NI-40x	1	17
J5	6-00-00	9 1/2" NI-40x	1	1
J6	2-00-00	9 1/2" NI-40x	1	1
J7	18-00-00	9 1/2" NI-80	1	12
B6	18-00-00	VERSALAM-10 2.0E	2	2
B3	14-00-00	VERSALAM-10 2.0E	3	3
B7 DROP	12-00-00	VERSALAM-10 2.0E	2	2
B4	10-00-00	VERSALAM-10 2.0E	2	2
B2	6-00-00	VERSALAM-10 2.0E	1	1
B5	6-00-00	VERSALAM-10 2.0E	1	1
B8	6-00-00	VERSALAM-10 2.0E	1	1
B8A	6-00-00	VERSALAM-10 2.0E	1	1
B1	4-00-00	VERSALAM-10 2.0E	1	1

HANGERS SCHEDULE

H1-----IUS2.56/9.5
 H2-----HUS1.81/10
 H3-----IUS3.56/9.5
 H5-----HGUS5.50/10
 H6-----HGUS410

RIMBOARD

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

SUBFLOOR : 5/8" NAILED & GLUED

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.

Ceramic Tile Application as per O.B.C. 9.30.6

Do not scale - refer to architectural plans for dimensions.

97035 - March 8/18

JT:44997/94450

Builder: Bayview Wellington

Location: Bradford

Designer: MQ/SG

Alpa Roof Trusses Inc.
 Maple, Ontario

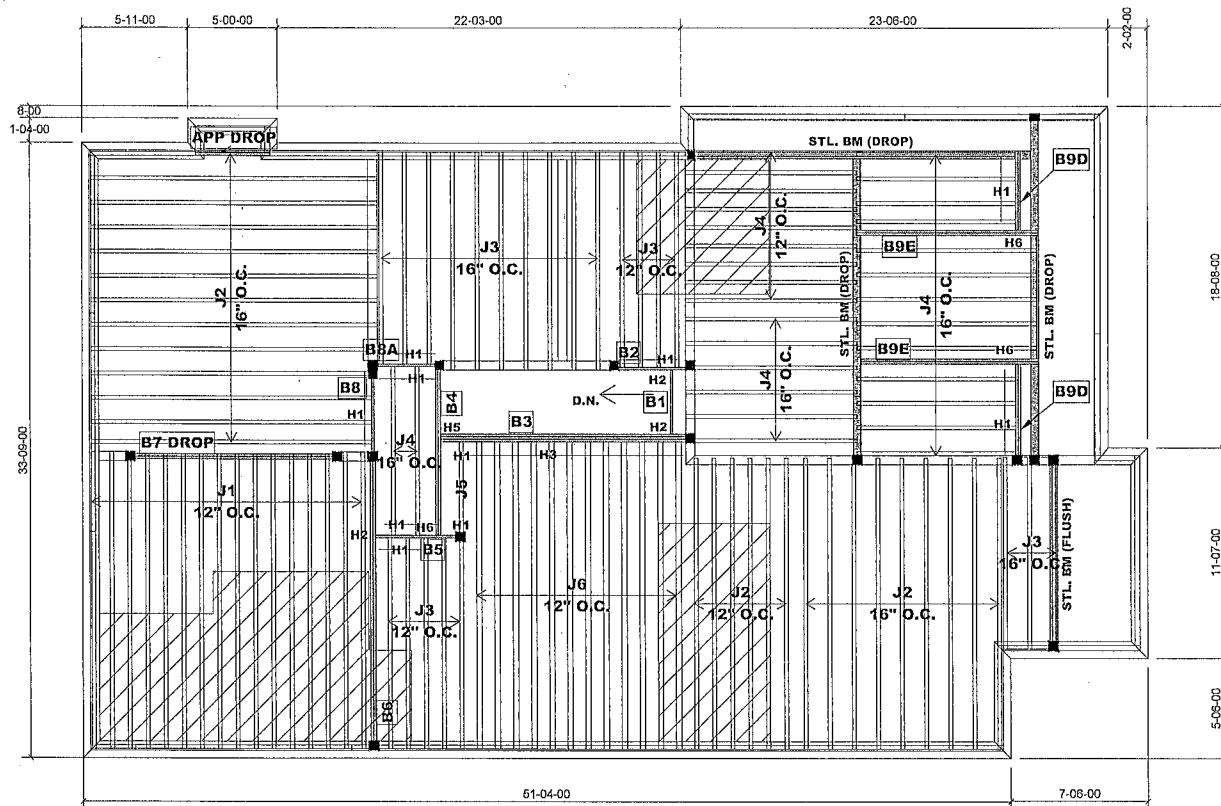
Salesperson: Mario
 Tamarack Lumber

File: 289512(260907)

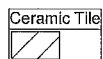
Project: Green Valley Estates East

Date: Oct. 14 / 2017

Sheet: 6 of 7



S42-15 ELEV.C
SECOND FLOOR FRAMING
4 BEDROOM & MEDIA LOFT
OR OPT. 5 BEDROOM
& UPGRADED REAR ELEVATION



FLOOR LOADING:
 LIVE : 40 PSF
 DEAD : 15 PSF
 DEAD : 20 PSF (TILE AREAS ONLY)

Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	9 1/2" NI-40x	1	16
J2	16-00-00	9 1/2" NI-40x	1	28
J3	12-00-00	9 1/2" NI-40x	1	22
J4	10-00-00	9 1/2" NI-40x	1	30
J5	6-00-00	9 1/2" NI-40x	1	1
J6	18-00-00	9 1/2" NI-80	1	12
B6	18-00-00	VERSALAM-10 2.0E	2	2
B3	14-00-00	VERSALAM-10 2.0E	3	3
B7 DROP	12-00-00	VERSALAM-10 2.0E	2	2
B4	10-00-00	VERSALAM-10 2.0E	2	2
B9E	10-00-00	VERSALAM-10 2.0E	2	4
B2	6-00-00	VERSALAM-10 2.0E	1	1
B5	6-00-00	VERSALAM-10 2.0E	1	1
B8	6-00-00	VERSALAM-10 2.0E	1	1
B8A	6-00-00	VERSALAM-10 2.0E	1	1
B9D	6-00-00	VERSALAM-10 2.0E	2	4
B1	4-00-00	VERSALAM-10 2.0E	1	1

HANGERS SCHEDULE

H1-----IUS2.56/9.5
 H2-----HUS1.81/10
 H3-----IUS3.56/9.5
 H5-----HGUS5.50/10
 H6-----HGUS410

RIMBOARD

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

SUBFLOOR : 5/8" NAILED & GLUED

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.

Ceramic Tile Application as per O.B.C. 9.30.6

Do not scale - refer to architectural plans for dimensions.

97055-March 8/18

JT:44997/94450

Builder: Bayview Wellington

Location: Bradford

Designer: MQ/SG

Alpa Roof Trusses Inc.
 Maple, Ontario

Salesperson: Mario
 Tamarack Lumber

File: 289512(260907)

Project: Green Valley Estates East

Date: Oct. 14 / 2017

Sheet: 7 of 7



Boise Cascade

BC CALC® Design Report



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

Floor Beam\9D

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

October 16, 2017 14:01:18

Build 6080

Job Name:

Address:

City, Province, Postal Code:BRADFORD , ON

Customer:

Code reports:

38514

GREEN VALLEY ESTATES

CCMC 12472-R

File Name: 260907.bcc

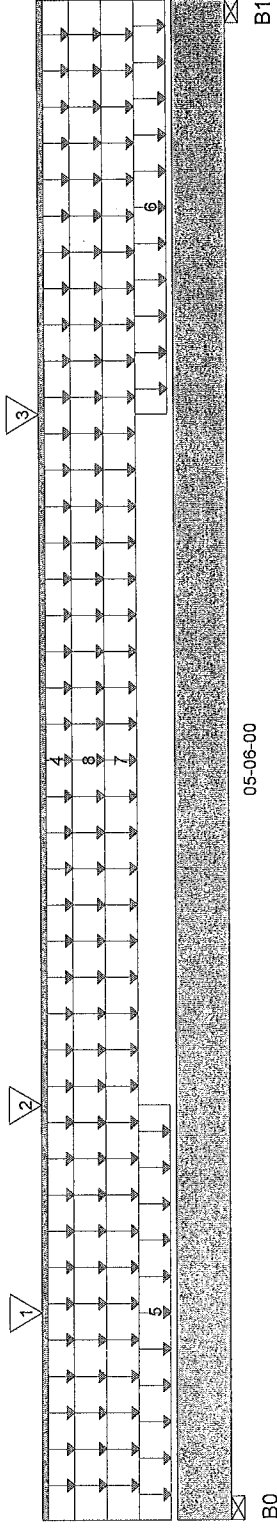
Description: Designs\9D

Specifier: S42-15

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 05-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	992 / 0	949 / 0	1,363 / 0	
B1, 3-1/2"	793 / 0	741 / 0	751 / 0	

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Conc. Pt. (lbs)	L	00-09-00	00-09-00	250	262	772	1.00	1.15
2	Conc. Pt. (lbs)	L	01-06-00	01-06-00	73	69	224		n/a
3	Conc. Pt. (lbs)	L	04-00-00	04-00-00	73	69	224		n/a
4	Unf. Lin. (lb/ft)	L	00-00-00	05-06-00	0	100			n/a
5	Unf. Area (lb/ft^2)	L	00-00-00	01-06-00	11	10	32	32	04-07-00
6	Unf. Area (lb/ft^2)	L	04-00-00	05-06-00	11	10	32	32	04-07-00
7	Unf. Area (lb/ft^2)	L	00-00-00	05-06-00	11	10	32	32	02-06-00
8	Unf. Area (lb/ft^2)	L	00-00-00	05-06-00	40	15			05-00-00

Controls Summary

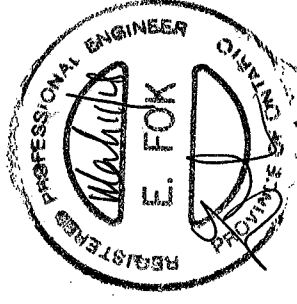
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,889 ft-lbs	23,220 ft-lbs	12.4%	1	02-07-02
End Shear	2,180 lbs	11,571 lbs	18.8%	5	01-01-00
Total Load Defl.	L/999 (0.021")	n/a	n/a	11	02-08-01
Live Load Defl.	L/999 (0.013")	n/a	n/a	15	02-08-01
Max Defl.	0.021"	n/a	n/a	11	02-08-01
Span / Depth	6.4	n/a	n/a		00-00-00
Squash Blocks	Valid				

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Resistance Member	Material
B0 Wall/Plate	3-1/2" x 3-1/2"	3,727 lbs	49.5%	24.9%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	2,492 lbs	33.1%	16.7%	Spruce Pine Fir

Notes

Nail one ply to another with
3 1/2" spiral nails @ (2")
o.c. staggered in 2 rows



Site Copy

T11803006



Boise Cascade



BC CALC® Design Report

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

Floor Beam\9E

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

October 16, 2017 14:04:46

Build 6080

Job Name:

Address:

City, Province, Postal Code:BRADFORD , ON

Customer:

Code reports:

38514

GREEN VALLEY ESTATES

City, Province, Postal Code:BRADFORD , ON

Customer:

Code reports:

File Name: 260907.bcc

Description: Designs\9E

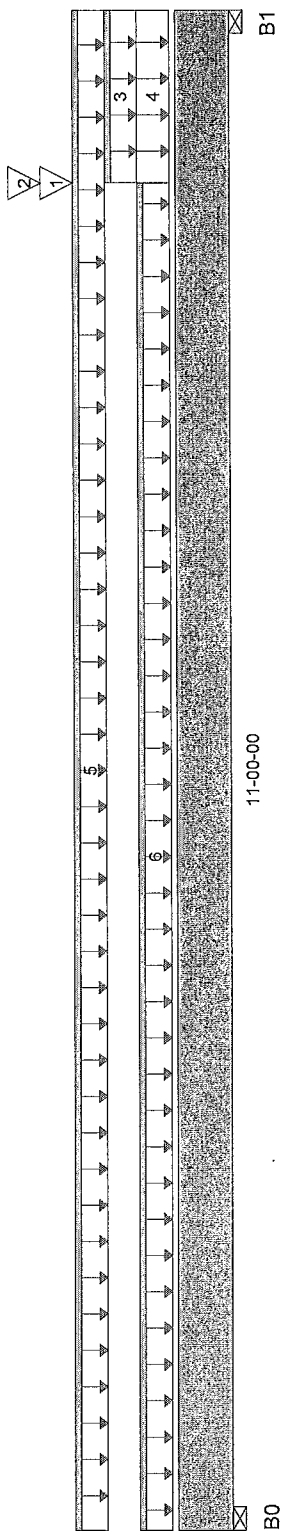
Specifier: S42-15

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:

CCMC 12472-R



Total Horizontal Product Length = 11-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	388 / 0	254 / 0	122 / 0	
B1, 3-1/2"	1,151 / 0	1,103 / 0	1,206 / 0	

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Conc. Pt. (lbs)	L	09-09-00	09-09-00	793	741	751	1.00 1.15	n/a
2	Conc. Pt. (lbs)	L	09-09-00	09-09-00	147	140	455		n/a
3	Unf. Lin. (lb/ft)	L	09-09-00	11-00-00	0	100			n/a
4	Unf. Area (lb/ft²)	L	09-09-00	11-00-00	11	10	32		03-00-00
5	Unf. Lin. (lb/ft)	L	00-00-00	11-00-00	27	10			n/a
6	Unf. Lin. (lb/ft)	L	00-00-00	09-09-00	27	10			n/a

Controls Summary

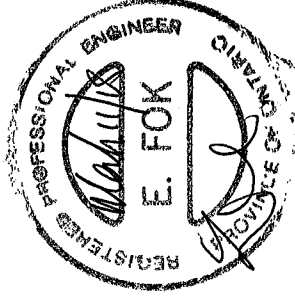
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,694 ft-lbs	23,220 ft-lbs	15.9%	1	08-01-08
End Shear	3,371 lbs	11,571 lbs	29.1%	5	09-11-00
Total Load Defl.	L/999 (0.107")	n/a	n/a	11	05-11-08
Live Load Defl.	L/999 (0.067")	n/a	n/a	15	05-11-08
Max Defl.	0.107"	n/a	n/a	11	05-11-08
Span / Depth	13.3	n/a	n/a		00-00-00
Squash Blocks	Valid				

Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Wall/Plate	3-1/2" x 3-1/2"	961 lbs	12.8%	6.4%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	3,763 lbs	49.9%	25.2%	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
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
Nail one ply to another with 3 1/2" spiral nails @ 12" o.c, staggered in 2 rows



Site Copy

T-1803007



Boise Cascade

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

Floor Beam\12A



BC CALC® Design Report

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

October 14, 2017 13:57:32

Build 6080

Job Name:

Address:

City, Province, Postal Code: BRADFORD, ON

Customer:

Code reports:

38514

GREEN VALLEY ESTATES

File Name: 260907.bcc

Description: Designs\12A

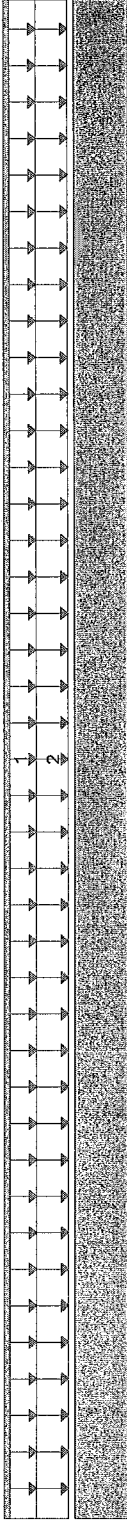
Specifier: S42-15

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:

CCMC 12472-R



08-04-00

B1

Total Horizontal Product Length = 08-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,472 / 0	1,026 / 0		
B1, 3-1/2"	1,472 / 0	1,026 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Lin. (lb/ft)	L	00-00-00	08-04-00	0	60		1.00 1.15	n/a
2	Unf. Area (lb/ft²)	L	00-00-00	08-04-00	40	20			08-10-00

Controls Summary

Pos.	Moment	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
1	6,495 ft-lbs	23,220 ft-lbs	28%	1	04-02-00	
End Shear	2,583 lbs	11,571 lbs	22.3%	1	01-01-00	
Total Load Defl.	L/999 (0.104")	n/a	n/a	4	04-02-00	
Live Load Defl.	L/999 (0.061")	n/a	n/a	5	04-02-00	
Max Defl.	0.104"	n/a	n/a	4	04-02-00	
Span / Depth	9.9	n/a	n/a		00-00-00	
Squash Blocks	Valid					

Bearing Supports

	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0 Wall/Plate	3-1/2" x 3-1/2"	3,491 lbs	46.3%	23.4%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	3,491 lbs	46.3%	23.4%	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 O86.

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

O86.

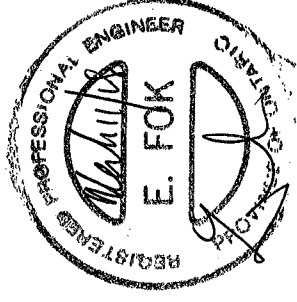
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 4

User Notes

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

@ 9" O.C., STAGGERED IN TWO ROWS



Site Copy

7.1803008



Boise Cascade

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

Floor Beam\17A



BC CALC® Design Report

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

October 14, 2017 13:58:32

Build 6080

Job Name:

Address:

City, Province, Postal Code:BRADFORD , ON

Customer:

Code reports:

38514

GREEN VALLEY ESTATES

City, Province, Postal Code:BRADFORD , ON

Customer:

CCMC 12472-R

File Name: 260907.bcc

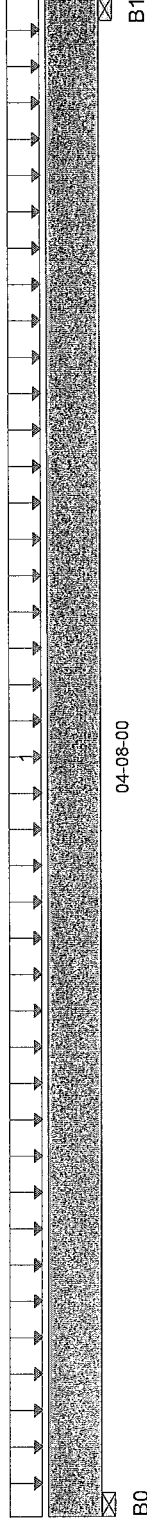
Description: Designs\17A

Specifier: S42-15

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 04-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	824 / 0	423 / 0		
B1, 3-1/2"	824 / 0	423 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft²)	L	00-00-00	04-08-00	40	20	0.65	1.00 1.15	08-10-00

Controls Summary

Pos.	Moment	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
End Shear	946 lbs	11,610 ft-lbs	14.4%	1	02-04-00	
Total Load Defl.	L/999 (0.015")	5,785 lbs	16.4%	1	01-01-00	
Live Load Defl.	L/999 (0.01")	n/a	n/a	4	02-04-00	
Max Defl.	0.015"	n/a	n/a	5	02-04-00	
Span / Depth	5.3	n/a	n/a	4	02-04-00	
Squash Blocks	Valid	n/a	n/a		00-00-00	

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.

Bearing Supports

	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	1,766 lbs	46.9%	23.6%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	1,766 lbs	46.9%	23.6%	Spruce Pine Fir

Notes

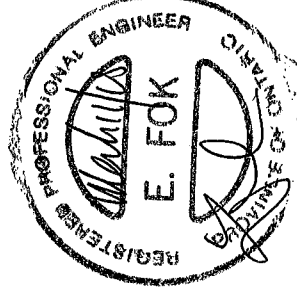
Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States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



Site Copy

T.1803009



Boise Cascade

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

Floor Beam\09A

November 14, 2016 09:19:50



BC CALCC® Design Report

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

uild 5613

Job Name: 38514

Address: GREEN VALLEY ESTATES

City, Province, Postal Code: BRADFORD, ON

Customer:

Code reports: CCMC 12472-R

File Name: 260907.bcc

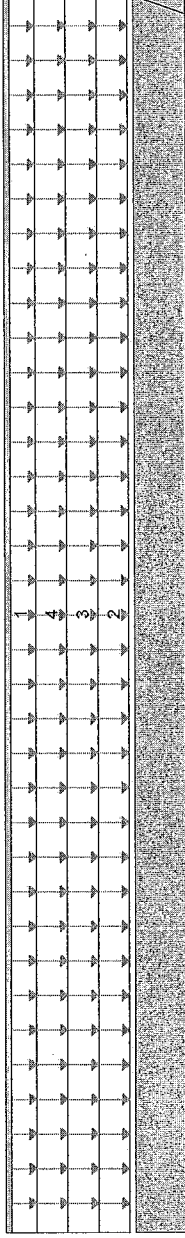
Description: Designs\09A

Specifier: S42-15

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



03-09-00

B1

B0

Total Horizontal Product Length = 03-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	521 / 0	472 / 0	357 / 0	
B1	488 / 0	442 / 0	334 / 0	

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Lin. (lb/ft)	L	00-00-00	03-09-00	0	100			n/a
2	Unf. Area (lb/ft²)	L	00-00-00	03-09-00	40	15			05-02-00
3	Unf. Area (lb/ft²)	L	00-00-00	03-09-00	11	10		32	03-08-00
4	Unf. Area (lb/ft²)	L	00-00-00	03-09-00	11	10		32	02-00-00

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,168 ft-lbs	25,408 ft-lbs	4.6%	1	01-11-04
End Shear	684 lbs	11,571 lbs	5.9%	1	01-01-00
Total Load Defl.	L/999 (0.004")	n/a	n/a	11	01-11-04
Live Load Defl.	L/999 (0.002")	n/a	n/a	15	01-11-04
Max Defl.	0.004"	n/a	n/a	11	01-11-04
Span / Depth	4.3	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	3-1/2" x 3-1/2"	1,551 lbs	20.6%	10.4%	Spruce Pine Fir
B1 Hanger	2" x 3-1/2"	1,451 lbs	n/a	17%	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 O86.
BC CALCC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

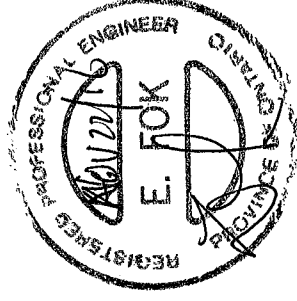
Design based on Drv Service Condition.

Importance Factor : Normal Part code : Part 4

User Notes

NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS @ 8" O.C.,
STAGGERED IN TWO ROWS

Page 1 of 2



T-1611001



Boise Cascade

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

Floor Beam\09B

BC CALC® Design Report

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

November 14, 2016 09:24:05

uild 5613

Job Name:

Address:

City, Province, Postal Code:BRADFORD, ON

Customer:

Code reports:

38514

GREEN VALLEY ESTATES

City, Province, Postal Code:BRADFORD, ON

Customer:

CCMC 12472-R

File Name: 260907.bcc

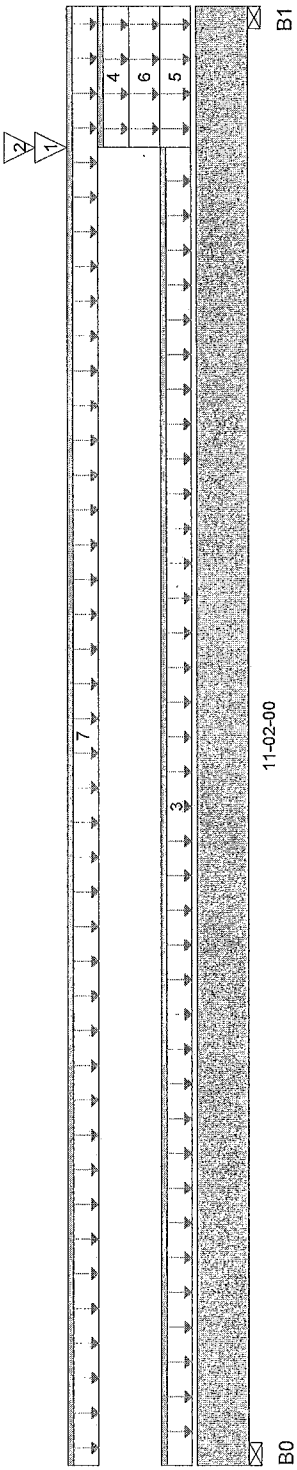
Description: Designs\09B

Specifier: S42-15

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 11-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	386 / 0	249 / 0	142 / 0	
B1, 3-1/2"	1,322 / 0	1,253 / 0	1,823 / 0	

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Conc. Pt. (lbs)	L	10-01-00	10-01-00	929	868		1,359	n/a
2	Conc. Pt. (lbs)	L	10-01-00	10-01-00	101	112		298	n/a
3	Unf. Lin. (lb/ft)	L	00-00-00	10-01-00	27	10			n/a
4	Unf. Lin. (lb/ft)	L	10-01-00	11-02-00	0	100			n/a
5	Unf. Area (lb/ft²)	L	10-01-00	11-02-00	11	10		32	07-09-00
6	Unf. Area (lb/ft²)	L	10-01-00	11-02-00	11	10		32	01-00-00
7	Unf. Lin. (lb/ft)	L	00-00-00	11-02-00	27	10			n/a

Controls Summary

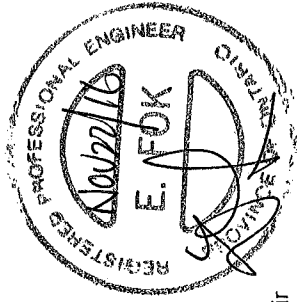
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,814 ft-lbs	25,408 ft-lbs	15%	5	10-01-00
End Shear	4,153 lbs	11,571 lbs	35.9%		10-01-00
Total Load Defl.	L/999 (0.111")	n/a	n/a	11	06-00-01
Live Load Defl.	L/999 (0.071")	n/a	n/a	15	06-00-01
Max Defl.	0.111"	n/a	n/a	11	06-00-01
Span / Depth	13.5	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Resistance Member	Demand / Resistance Member	Material
B0 Wall/Plate	3-1/2" x 3-1/2"	961 lbs	12.8%		6.4%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	4,962 lbs	65.8%		33.2%	Spruce Pine Fir

Notes

NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS @ 12" O.C.,
STAGGERED IN TWO ROWS



T-1611003



Boise Cascade

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

Floor Beam\01

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

October 30, 2015 11:19:39

BC CALC® Design Report



Julid 4137

Job Name: 38514

Address: GREEN VALLEY ESTATES

City, Province, Postal Code: BRADFORD, ON

Customer:

Code reports: CCMC 12472-R

File Name: 260907.bcc

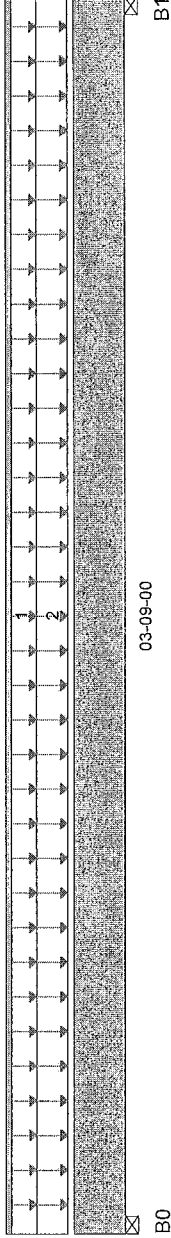
Description: Designs\01

Specifier: S42-15

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 03-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	476 / 0	187 / 0		
B1, 3-1/2"	476 / 0	187 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Lin. (lb/ft)	L	00-00-00	03-09-00	27	10			n/a
2	Unf. Area (lb/ft²)	L	00-00-00	03-09-00	40	15			05-08-00

Controls Summary

	Factored Demand	Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	684 ft-lbs	12,704 ft-lbs	0.05	1	01-10-08
End Shear	400 lbs	5,785 lbs	0.07	1	01-01-00
Total Load Defl.	L/999 (0.004")	n/a	n/a	4	01-10-08
Live Load Defl.	L/999 (0.003")	n/a	n/a	5	01-10-08
Max Defl.	0.004"	n/a	n/a	4	01-10-08
Span / Depth	4.2	n/a	n/a		00-00-00

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 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.

Bearing Supports

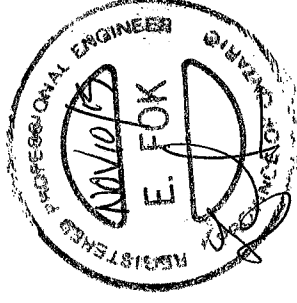
	Dim. (L x W)	Demand	Resistance Support	Demand/Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	947 lbs	0.25	0.13	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	947 lbs	0.25	0.13	Spruce Pine Fir

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 086.
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



T-151126



Boise Cascade

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

Floor Beam\02

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

October 30, 2015 11:19:39

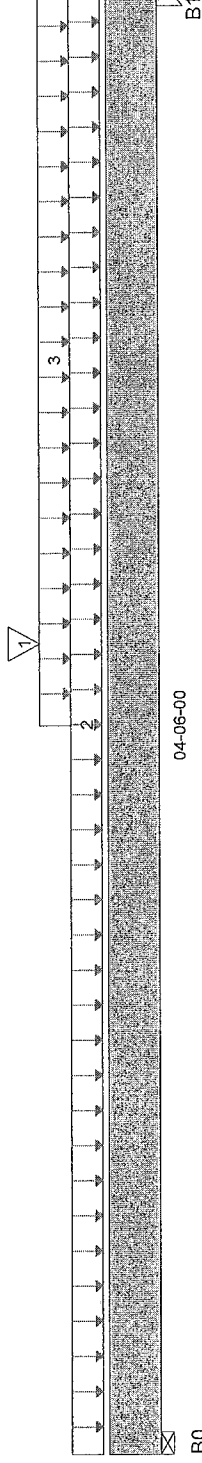


BC CALC® Design Report

Jild 4137

File Name: 260907.bcc
Description: Designs\02
Specifier: S42-15
Designer: MQ
Company: ALPA ROOF TRUSSES
Misc:

Job Name: 38514
Address: GREEN VALLEY ESTATES
City, Province, Postal Code: BRADFORD, ON
Customer:
Code reports: CCMC 12472-R



Total Horizontal Product Length = 04-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Load Type	Live	Dead	Wind
B0, 3-1/2"	Conc. Pt. (lbs)	789 / 0	381 / 0	
B1, 3-1/2"	Unf. Area (lb/ft^2)	947 / 0	441 / 0	

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Conc. Pt. (lbs)	L	02-06-00	02-06-00	476	187			n/a
	Unf. Area (lb/ft^2)	L	00-00-00	04-06-00	40	20			06-00-00
	Unf. Area (lb/ft^2)	L	02-03-00	04-06-00	40	15			02-00-00

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,159 ft-lbs	19,364 ft-lbs	0.11	1	02-06-00
End Shear	1,107 lbs	7,232 lbs	0.15	1	03-02-10
Total Load Defl.	L/999 (0.008")	n/a	n/a	4	02-03-06
Live Load Defl.	L/999 (0.006")	n/a	n/a	5	02-03-06
Max Defl.	0.008"	n/a	n/a	4	02-03-06
Span / Depth	4.1	n/a	n/a		00-00-00

Disclosure

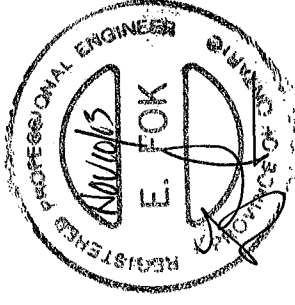
Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of BOISE engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call 1-800-964-6999 before installation.

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	1,659 lbs	0.44	0.22	Spruce Pine Fir
B1 Post	3-1/2" x 1-3/4"	1,972 lbs	0.19	0.26	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 O86.
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.



T-151127



Boise Cascade

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

Floor Beam\03

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

October 30, 2015 11:19:39



BC CALC® Design Report

Build 4137

Job Name: 38514

Address: GREEN VALLEY ESTATES

City, Province, Postal Code: BRADFORD, ON

Customer:

Code reports: CCMC 12472-R

File Name: 260907.bcc

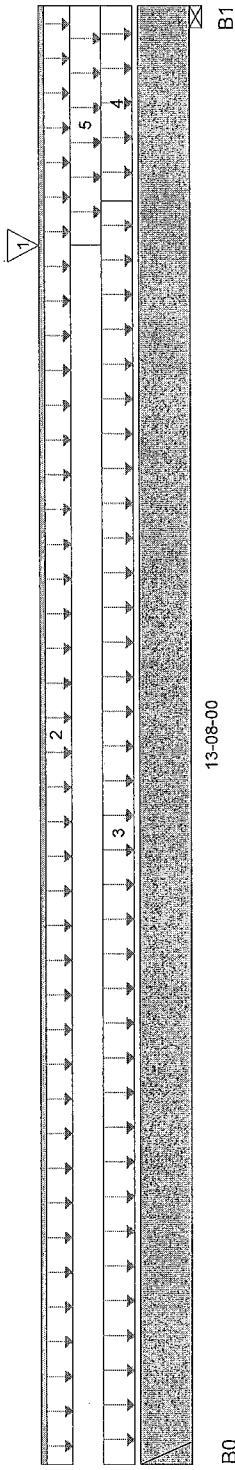
Description: Designs\03

Specifier: S42-15

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



13-08-00

Total Horizontal Product Length = 13-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	2,432 / 0	1,421 / 0		
B1, 3-1/2"	2,962 / 0	1,707 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
2	Conc. Pt. (lbs)	L	11-05-00	11-05-00	476	187			n/a
3	Unf. Lin. (lb/ft)	L	00-00-00	13-08-00	0	60			n/a
4	Unf. Area (lb/ft²)	L	00-00-00	11-10-00	40	15			08-08-00
5	Unf. Area (lb/ft²)	L	11-10-00	13-08-00	40	20			08-08-00
	Unf. Area (lb/ft²)	L	11-05-00	13-08-00	40	15			02-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	18,407 ft-lbs	39,636 ft-lbs	0.46	1	07-00-01
End Shear	5,507 lbs	17,366 lbs	0.32	1	12-07-00
Total Load Defl.	L/284 (0.563")	0.667"	0.84	4	06-10-01
Live Load Defl.	L/449 (0.357")	0.444"	0.8	5	06-10-01
Max Defl.	0.563"	1"	0.56	4	06-10-01
Span / Depth	16.8	n/a	n/a	4	00-00-00

Bearing Supports

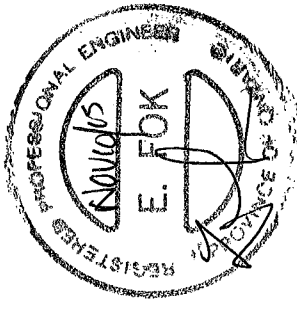
	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Hanger	2" x 5-1/4"	5,424 lbs	n/a	0.42	Hanger
B1 Wall/Plate	3-1/2" x 5-1/4"	6,577 lbs	0.58	0.29	Spruce Pine Fir

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 086.
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 RLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS
@ 6" O.C., STAGGERED IN 2 ROWS



T-151128



Boise Cascade

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

Floor Beam\04

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

October 30, 2015 11:19:39



BC CALC® Design Report

Julid 4137

Job Name: 38514

Address: GREEN VALLEY ESTATES

City, Province, Postal Code: BRADFORD, ON

Customer:

Code reports: CCMC 12472-R

File Name: 260907.bcc

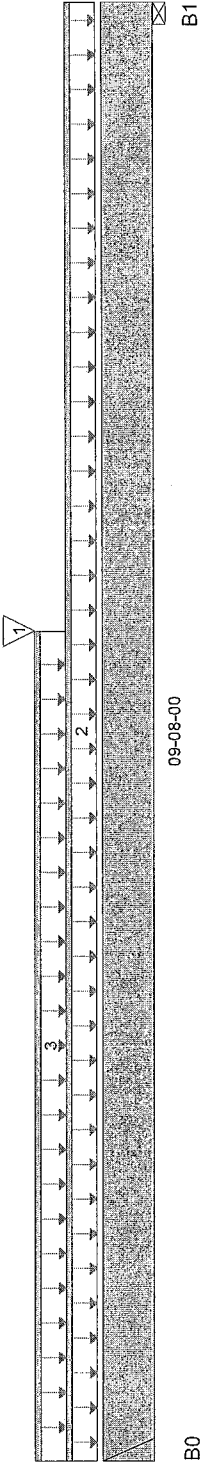
Description: Designs\04

Specifier: S42-15

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 09-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	1,261 / 0	732 / 0		
B1, 3-1/2"	1,581 / 0	933 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Conc. Pt. (lbs)	L	05-06-00	05-06-00	2,432	1,421			n/a
	Unf. Lin. (lb/ft)	L	00-00-00	09-08-00	27	10			n/a
3	Unf. Lin. (lb/ft)	L	00-00-00	05-06-00	27	10			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	13,363 ft-lbs	25,408 ft-lbs	0.53	1	05-06-00
End Shear	3,467 lbs	11,571 lbs	0.3	1	08-07-00
Total Load Defl.	L/463 (0.242")	0.467"	0.52	4	04-11-03
Live Load Defl.	L/734 (0.153")	0.311"	0.49	5	04-11-03
Max Defl.	0.242"	n/a	n/a	4	04-11-03
Span / Depth	11.8	n/a	n/a		00-00-00

Bearing Supporting

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Hanger	2" x 3-1/2"	2,807 lbs	n/a	0.33	Hanger
B1 Wall/Plate	3-1/2" x 3-1/2"	3,538 lbs	0.47	0.24	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 086.

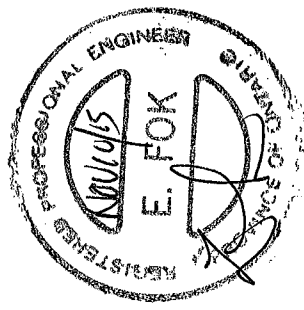
Design based on Dry Service Condition.

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 1/2" O.C., STAGGERED IN TWO ROWS



7-1511129



Boise Cascade

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

Floor Beam\05



RC CALC® Design Report

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

October 30, 2015 11:19:40

uild 4137

38514

Job Name: GREEN VALLEY ESTATES

Address: City, Province, Postal Code: BRADFORD, ON

Customer:

Code reports: CCMC 12472-R

File Name: 260907.bcc

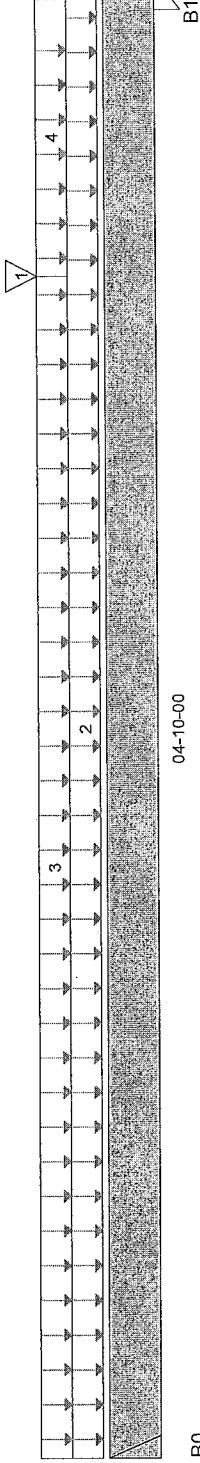
Description: Designs\05

Specifier: S42-15

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



04-10-00

Total Horizontal Product Length = 04-10-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	1,224 / 0	581 / 0		
B1, 3-1/2"	2,090 / 0	1,090 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Conc. Pt. (lbs)	L	03-11-00	03-11-00	1,261	732			n/a
3	Unf. Area (lb/ft^2)	L	00-00-00	04-10-00	40	20			06-00-00
4	Unf. Area (lb/ft^2)	L	00-00-00	03-11-00	40	15			05-00-00
	Unf. Area (lb/ft^2)	L	03-11-00	04-10-00	40	15			03-00-00

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Moment	3,346 ft-lbs	12,704 ft-lbs	0.26	1	02-10-00
End Shear	3,278 lbs	5,785 lbs	0.57	1	03-09-00
Total Load Defl.	L/999 (0.035")	n/a	n/a	4	02-05-05
Live Load Defl.	L/999 (0.023")	n/a	n/a	5	02-05-05
Max Defl.	0.035"	n/a	n/a	4	02-05-05
Span / Depth	5.7	n/a	n/a		00-00-00

Demand/Resistance

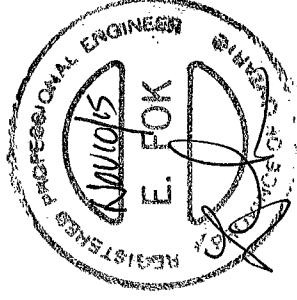
Bearing	Support	Demand	Resistance	Member	Material
B0	2" x 1-3/4"	2,562 lbs	n/a	0.6	Hanger
B1	3-1/2" x 1-3/4"	4,497 lbs	0.42	0.6	Spruce Pine Fir

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 086.
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



T-15113



Boise Cascade

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

Floor Beam\06



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

October 30, 2015 11:19:40

BC CALC® Design Report

uild 4137

Job Name:

Address:

City, Province, Postal Code:BRADFORD , ON

Customer:

Code reports:

38514

GREEN VALLEY ESTATES

City, Province, Postal Code:BRADFORD , ON

Customer:

CCMC 12472-R

File Name: 260907.bcc

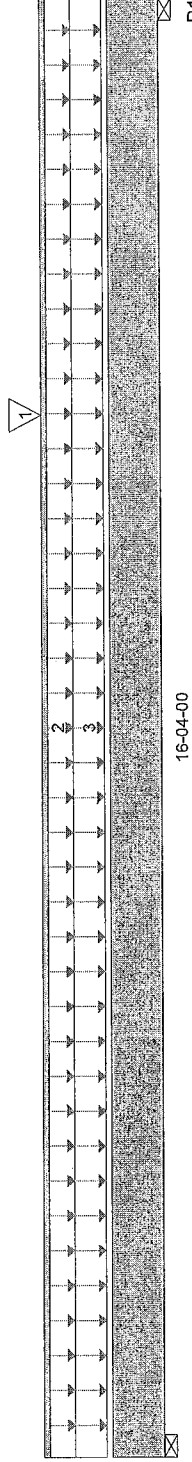
Description: Designs\06

Specifier: S42-15

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



16-04-00

Total Horizontal Product Length = 16-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	669 / 0	894 / 0		
B1, 3-1/2"	1,208 / 0	1,151 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Conc. Pt. (lbs)	L	11-08-00	11-08-00	1,224	581			n/a
3	Unf. Lin. (lb/ft)	L	00-00-00	16-04-00	0	60			n/a
	Unf. Area (lb/ft²)	L	00-00-00	16-04-00	40	20			01-00-00

Controls Summary

Pos. Moment	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
12,558 ft-lbs	25,408 ft-lbs	0.49	1	11-08-00	11-08-00
End Shear	3,065 lbs	11,571 lbs	0.26	1	15-03-00
Total Load Defl.	L/249 (0.764")	0.794"	0.96	4	08-08-04
Live Load Defl.	L/499 (0.382")	0.529"	0.72	5	08-10-04
Max Defl.	0.764"	n/a	n/a	4	08-08-04
Span / Depth	20.1	n/a	n/a		00-00-00

Bearing Supports

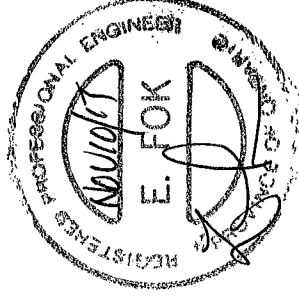
	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	3-1/2" x 3-1/2"	2,121 lbs	0.28	0.14	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	3,251 lbs	0.43	0.22	Spruce Pine Fir

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 086.
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
@ 12" O.C., STAGGERED IN TWO ROWS





Boise Cascade

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

Floor Beam\07

BC CALC® Design Report



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

October 30, 2015 11:19:40

Julid 4137

38514

Job Name: GREEN VALLEY ESTATES

Address: City, Province, Postal Code: BRADFORD, ON

Customer:

Code reports: CCMC 12472-R

File Name: 260907.bcc

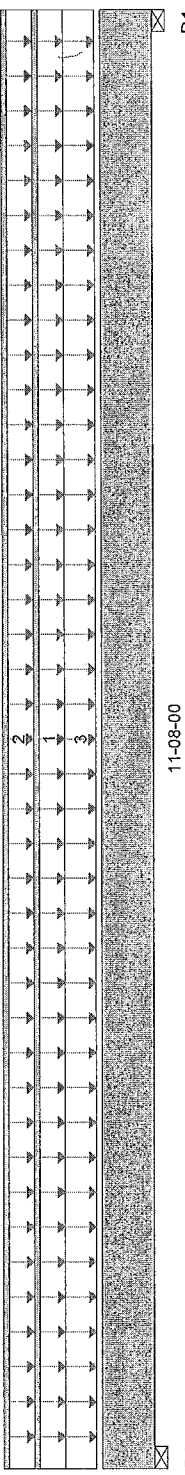
Description: Designs\07

Specifier: S42-15

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



11-08-00

Total Horizontal Product Length = 11-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	2,063 / 0	1,417 / 0		
B1, 3-1/2"	2,063 / 0	1,417 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Lin. (lb/ft)	L	00-00-00	11-08-00	0	60			n/a
	Unf. Lin. (lb/ft)	L	00-00-00	11-08-00	27	10			n/a
3	Unf. Area (lb/ft²)	L	00-00-00	11-08-00	40	20			08-02-00

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Moment	13,100 ft-lbs	25,408 ft-lbs	0.52	1	05-10-00
End Shear	3,962 lbs	11,571 lbs	0.34	1	01-01-00
Total Load Defl.	L/318 (0.424")	0.56"	0.76	4	05-10-00
Live Load Defl.	L/536 (0.251")	0.374"	0.67	5	05-10-00
Max Defl.	0.424"	1"	0.42	4	05-10-00
Span / Depth	14.2	n/a	n/a		00-00-00

Bearing Supports

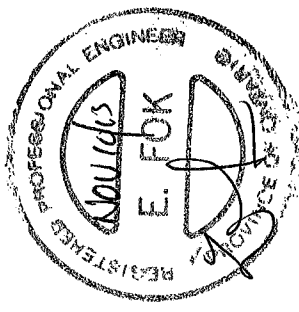
	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0	3-1/2" x 3-1/2"	4,866 lbs	0.65	0.33	Spruce Pine Fir
B1	3-1/2" x 3-1/2"	4,866 lbs	0.65	0.33	Spruce Pine Fir

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 086.
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

JAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS
@ 12" O.C., STAGGERED IN 2 ROWS (Top loaded)





Boise Cascade

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

Floor Beam\08

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

October 30, 2015 11:19:40

RC CALCO® Design Report



Build 4137

38514

Job Name: GREEN VALLEY ESTATES

Address: City, Province, Postal Code: BRADFORD, ON

Customer:

Code reports: CCMC 12472-R

File Name: 260907.bcc

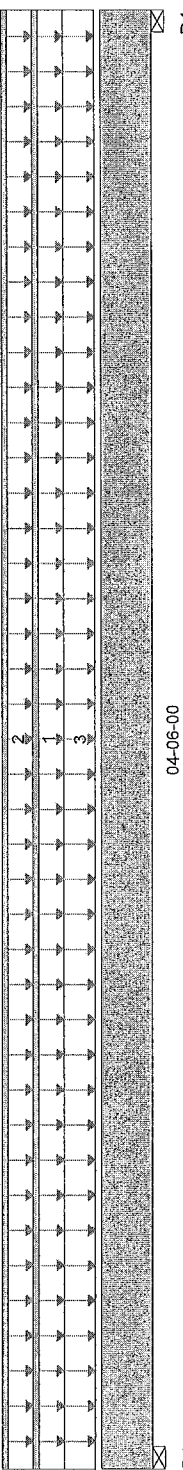
Description: Designs\08

Specifier: S42-15

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



04-06-00

B1

Total Horizontal Product Length = 04-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	781 / 0	438 / 0		
B1, 3-1/2"	781 / 0	438 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Lin. (lb/ft)	L	00-00-00	04-06-00	0	60		1.15	n/a
	Unf. Lin. (lb/ft)	L	00-00-00	04-06-00	27	10			n/a
3	Unf. Area (lb/ft^2)	L	00-00-00	04-06-00	40	15			08-00-00

Controls Summary

Pos.	Moment	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
1	891 lbs	1,560 ft-lbs	12,704 ft-lbs	0.12	1	02-03-00
	Total Load Defl.	L/999 (0.013")	5,785 lbs	0.15	1	01-01-00
	Live Load Defl.	L/999 (0.008")	n/a	n/a	4	02-03-00
	Max Defl.	0.013"	n/a	n/a	5	02-03-00
	Span / Depth	5.1	n/a	n/a	4	02-03-00
						00-00-00

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 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.

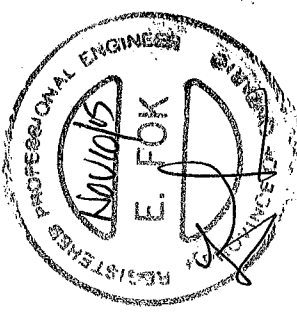
Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	1,719 lbs	0.46	0.23	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	1,719 lbs	0.46	0.23	Spruce Pine Fir

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 CALCO® analysis is based on Canadian Limit States Design. as per NBCC and CSA 086.
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

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



T-151133



Boise Cascade

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

Floor Beam\08A

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

October 30, 2015 11:19:41



RC CALC® Design Report

Build 4137

Job Name:

Address:

City, Province, Postal Code:BRADFORD , ON

Customer:

Code reports:

38514

GREEN VALLEY ESTATES

City, Province, Postal Code:BRADFORD , ON

Customer:

* CCMC 12472-R

File Name: 260907.bcc

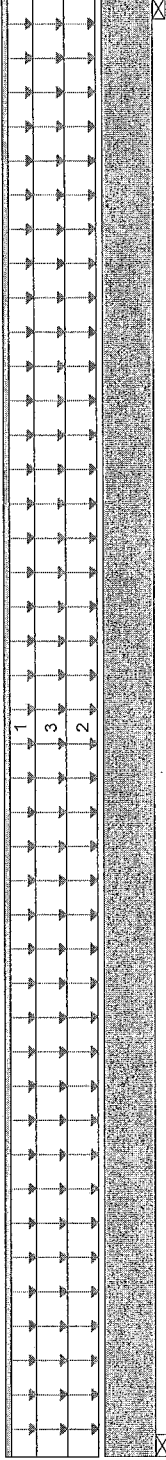
Description: Designs\08A

Specifier: S42-15

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



04-04-00

B0

B1

Total Horizontal Product Length = 04-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	953 / 0	498 / 0		
B1, 3-1/2"	953 / 0	498 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Lin. (lb/ft)	L	00-00-00	04-04-00	0	60			n/a
2	Unf. Area (lb/ft²)	L	00-00-00	04-04-00	40	15			06-00-00
3	Unf. Area (lb/ft²)	L	00-00-00	04-04-00	40	15			05-00-00

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,778 ft-lbs	12,704 ft-lbs	0.14	1	02-02-00
End Shear	1,026 lbs	5,785 lbs	0.18	1	01-01-00
Total Load Defl.	L/999 (0.014")	n/a	n/a	4	02-02-00
Live Load Defl.	L/999 (0.009")	n/a	n/a	5	02-02-00
Max Defl.	0.014"	n/a	n/a	4	02-02-00
Span / Depth	4.9	n/a	n/a		00-00-00

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 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.

Bearing Supports	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	2,052 lbs	0.54	0.27	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	2,052 lbs	0.54	0.27	Spruce Pine Fir

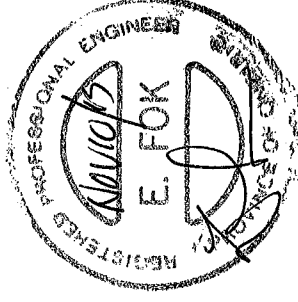
BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.

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 086.
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

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



T-151134



Boise Cascade

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

Floor Beam\10

RC CALC® Design Report

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

October 30, 2015 11:19:41

Build 4137

Job Name:

Address:

City, Province, Postal Code:BRADFORD, ON

Customer:

Code reports:

38514

GREEN VALLEY ESTATES

City, Province, Postal Code:BRADFORD, ON

Customer:

CCMC 12472-R

File Name: 260907.bcc

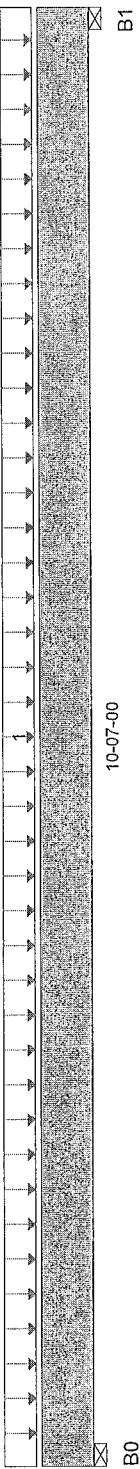
Description: Designs\10

Specifier: S42-15

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 10-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	282 / 0	167 / 0		
B1, 3-1/2"	282 / 0	167 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft^2)	L	00-00-00	10-07-00	40	20		1.00 1.15	01-04-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
os. Moment	1,529 ft-lbs	12,704 ft-lbs	0.12	1	05-03-08
End Shear	502 lbs	5,785 lbs	0.09	1	01-01-00
Total Load Defl.	L/999 (0.08")	n/a	n/a	4	05-03-08
Live Load Defl.	L/999 (0.05")	n/a	n/a	5	05-03-08
Max Defl.	0.08"	n/a	n/a	4	05-03-08
Span / Depth	12.8	n/a	n/a		00-00-00

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 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.

Bearing Supports

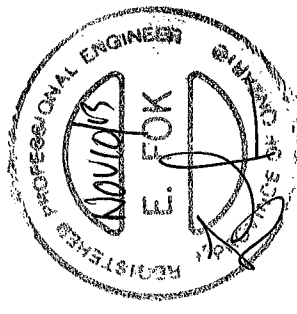
	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	632 lbs	0.17	0.08	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	632 lbs	0.17	0.08	Spruce Pine Fir

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 086.
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



T-151136



Boise Cascade

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

Floor Beam\11

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

October 30, 2015 11:19:41

BC CALC® Design Report



Build 4137

Job Name: 38514

Address: GREEN VALLEY ESTATES

City, Province, Postal Code: BRADFORD, ON

Customer:

Code reports: CCMC 12472-R

File Name: 260907.bcc

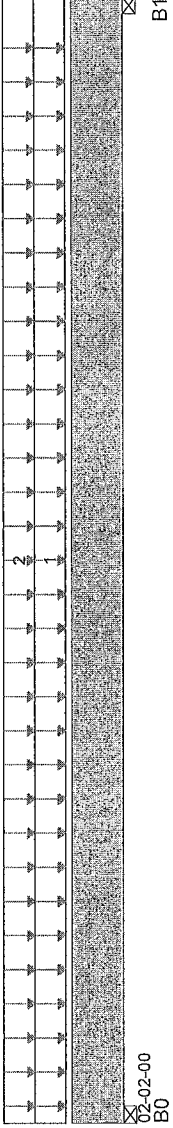
Description: Designs\11

Specifier: S42-15

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 02-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	361 / 0	186 / 0		
B1, 3-1/2"	361 / 0	186 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft²)	L	00-00-00	02-02-00	40	20			05-04-00
2	Unf. Area (lb/ft²)	L	00-00-00	02-02-00	40	20			03-00-00

Controls Summary

Pos. Moment	Factored Demand	Resistance	Demand / Resistance	Load Case	Location
0 lbs	261 ft-lbs	n/a	0.02	1	01-01-00
End Shear	0 lbs	n/a	n/a		00-00-00
Total Load Defl.	L/999 (0")	n/a	n/a	4	01-01-00
Live Load Defl.	L/999 (0")	n/a	n/a	5	01-01-00
Max Defl.	0"	n/a	n/a	4	01-01-00
Span / Depth	2.2	n/a	n/a		00-00-00

Disclosure

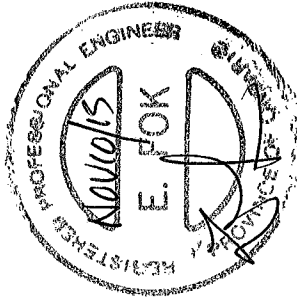
Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of BOISE engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call 1-800-964-6999 before installation.

Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	774 lbs	0.21	0.1	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	774 lbs	0.21	0.1	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
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 086.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.



154137



Boise Cascade

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

Floor Beam\13

October 30, 2015 11:19:41



RC CALC® Design Report

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

uild 4137

Job Name:

Address:

City, Province, Postal Code: BRADFORD, ON

Customer:

Code reports:

38514

GREEN VALLEY ESTATES

City, Province, Postal Code: BRADFORD, ON

Customer:

CCMC 12472-R

File Name: 260907.bcc

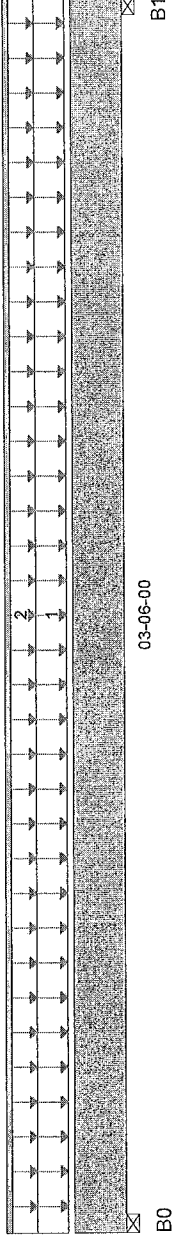
Description: Designs\13

Specifier: S42-15

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"	450 / 0	184 / 0		
B1, 3-1/2"	450 / 0	184 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft²)	L	00-00-00	03-06-00	40	15		1.00	05-09-00
2	Unf. Lin. (lb/ft)	L	00-00-00	03-06-00	27	14		1.15	n/a

Controls Summary

Pos. Moment	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
End Shear	598 ft-lbs	12,704 ft-lbs	0.05	1	01-09-00
Total Load Defl.	345 lbs	5,785 lbs	0.06	1	01-01-00
Live Load Defl.	L/999 (0.003")	n/a	n/a	4	01-09-00
Max Defl.	L/999 (0.002")	n/a	n/a	5	01-09-00
Span / Depth	0.003"	n/a	n/a	4	01-09-00
	3.8	n/a	n/a		00-00-00

Disclosure

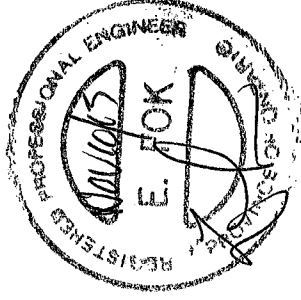
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Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	904 lbs	0.24	0.12	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	904 lbs	0.24	0.12	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 086.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 4
 Deflections less than 1/8" were ignored in the results.



T-1511139



Boise Cascade

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

Floor Beam\14

RC CALC® Design Report



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

October 30, 2015 11:19:42

Build 4137

Job Name:

Address:

City, Province, Postal Code: BRADFORD, ON

Customer:

Code reports:

38514

GREEN VALLEY ESTATES

City, Province, Postal Code: BRADFORD, ON

Customer:

CCMC 12472-R

File Name: 260907.bcc

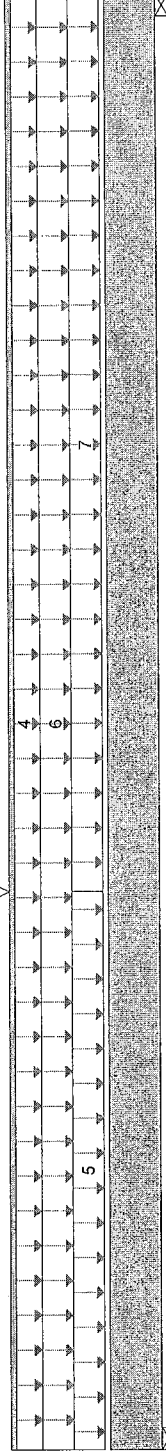
Description: Designs\14

Specifier: S42-15

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



11-06-00

B1

Total Horizontal Product Length = 11-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	4,047 / 0	2,666 / 0		
B1, 3"	3,751 / 0	2,400 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Conc. Pt. (lbs)	L	04-05-00	04-05-00	450	184			n/a
2	Conc. Pt. (lbs)	L	04-05-00	04-05-00	953	498			n/a
3	Conc. Pt. (lbs)	L	04-05-00	04-05-00	1,581	933			n/a
4	Unf. Lin. (lb/ft)	L	00-00-00	11-06-00	0	120			n/a
5	Unf. Area (lb/ft²)	L	00-00-00	04-05-00	40	20			02-00-00
6	Unf. Area (lb/ft²)	L	00-00-00	11-06-00	40	15			06-00-00
7	Unf. Area (lb/ft²)	L	04-05-00	11-06-00	40	15			06-00-00

Controls Summary

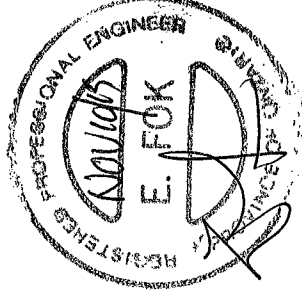
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	31,425 ft-lbs	52,848 ft-lbs	0.59	1	04-05-00
End Shear	8,518 lbs	23,142 lbs	0.37	1	01-01-00
Total Load Defl.	L/291 (0.456")	0.554"	0.82	4	05-06-10
Live Load Defl.	L/474 (0.28")	0.369"	0.76	5	05-06-10
Max Defl.	0.456"	1"	0.46	4	05-06-10
Span / Depth	14	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Resistance Member	Material
B0 Wall/Plate	3-1/2" x 7"	9,403 lbs	0.62	0.31	Spruce Pine Fir
B1 Wall/Plate	3" x 7"	8,625 lbs	0.67	0.34	Spruce Pine Fir

Notes

NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS @ 10" O.C., STAGGERED IN 2 ROWS, PLUS 1/2" Ø BOLTS, NOTED & BOLTS @ 40" O.C., STAGGERED IN 2 ROWS



7-151140



Boise Cascade

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

Floor Beam\15

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

October 30, 2015 11:19:42



BC CALC® Design Report

uild 4137

Job Name:

Address:

City, Province, Postal Code:BRADFORD , ON

Customer:

Code reports:

38514

GREEN VALLEY ESTATES

City, Province, Postal Code:BRADFORD , ON

Customer:

CCMC 12472-R

File Name: 260907.bcc

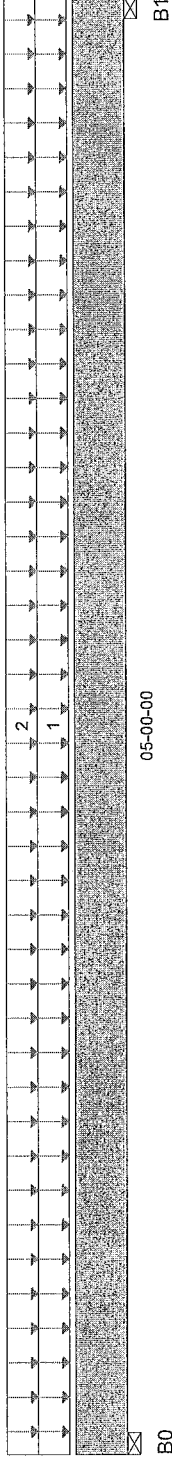
Description: Designs\15

Specifier: S42-15

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 05-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,067 / 0	545 / 0		
B1, 3-1/2"	1,067 / 0	545 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft^2)	L	00-00-00	05-00-00	40	20			02-00-00
2	Unf. Area (lb/ft^2)	L	00-00-00	05-00-00	40	20			08-00-00

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,353 ft-lbs	12,704 ft-lbs	0.19	1	02-06-00
End Shear	1,293 lbs	5,785 lbs	0.22	1	01-01-00
Total Load Defl.	L/999 (0.025")	n/a	n/a	4	02-06-00
Live Load Defl.	L/999 (0.016")	n/a	n/a	5	02-06-00
Max Defl.	0.025"	n/a	n/a	4	02-06-00
Span / Depth	5.7	n/a	n/a		00-00-00

Disclosure

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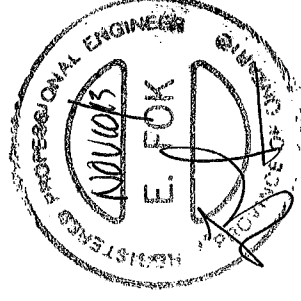
BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance	Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	2,282 lbs	0.61	0.31	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	2,282 lbs	0.61	0.31	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 086.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.





Boise Cascade

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

Floor Beam\16

RC CALC® Design Report

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

October 30, 2015 11:19:42



uild 4137

Job Name:

Address:

City, Province, Postal Code:BRADFORD , ON

Customer:

Code reports:

38514

GREEN VALLEY ESTATES

City, Province, Postal Code:BRADFORD , ON

Customer:

CCMC 12472-R

File Name: 260907.bcc

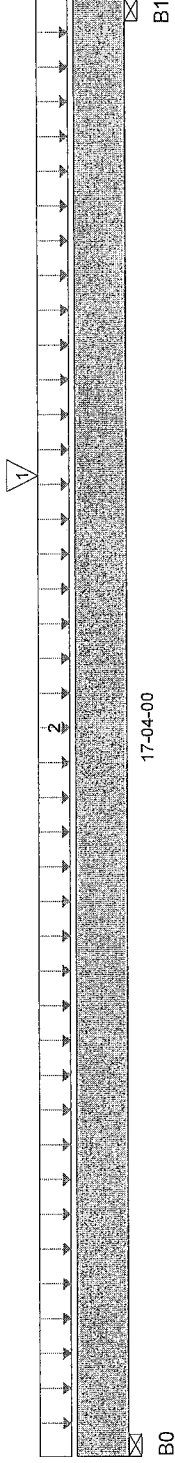
Description: Designs\16

Specifier: S42-15

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 17-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,020 / 0	650 / 0		
B1, 3-1/2"	1,763 / 0	1,037 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Conc. Pk. (lbs)	L	11-08-00	11-08-00	2,090	1,090			n/a
2	Unf. Area (lb/ft ²)	L	00-00-00	17-04-00	40	20			01-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	19,781 ft-lbs	39,636 ft-lbs	0.5	1	11-08-00
End Shear	3,830 lbs	17,356 lbs	0.22	1	16-03-00
Total Load Defl.	L/254 (0.797")	0.844"	0.94	4	09-04-03
Live Load Defl.	L/403 (0.502")	0.562"	0.89	5	09-04-03
Max Defl.	0.797"	1"	0.8	4	09-04-03
Span / Depth	21.3	n/a	n/a		00-00-00

Bearing Supports

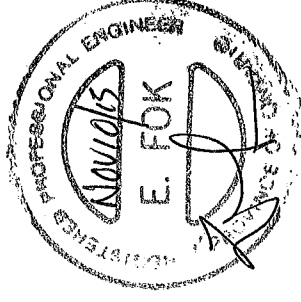
	Dim. (L x W)	Demand	Demand / Resistance Support	Resistance Member	Material
B0 Wall/Plate	3-1/2" x 5-1/4"	2,342 lbs	0.21	0.1	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 5-1/4"	3,941 lbs	0.35	0.18	Spruce Pine Fir

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 086.
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
@ (Z) O.C.. STAGGERED IN TWO ROWS



T-1511142



Boise Cascade

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

Floor Beam\17

RC CALC® Design Report



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

October 30, 2015 11:19:42

uild 4137

Job Name: 38514

Address: GREEN VALLEY ESTATES

City, Province, Postal Code: BRADFORD, ON

Customer:

Code reports: CCMC 12472-R

File Name: 260907.bcc

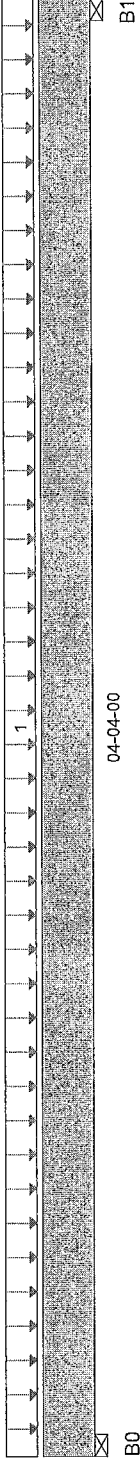
Description: Designs\17

Specifier: S42-15

Designer: MQ

Company: ALPA ROOF TRUSSES

Misc:



Total Horizontal Product Length = 04-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	672 / 0	346 / 0		
B1, 3-1/2"	672 / 0	346 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft²)	L	00-00-00	04-04-00	40	20		1.00 1.15	07-09-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
os. Moment	1,248 ft-lbs	12,704 ft-lbs	0.1	1	02-02-00
End Shear	720 lbs	5,785 lbs	0.12	1	01-01-00
Total Load Defl.	L/999 (0.01")	n/a	n/a	4	02-02-00
Live Load Defl.	L/999 (0.006")	n/a	n/a	5	02-02-00
Max Defl.	0.01"	n/a	n/a	4	02-02-00
Span / Depth	4.9	n/a	n/a		00-00-00

Disclosure

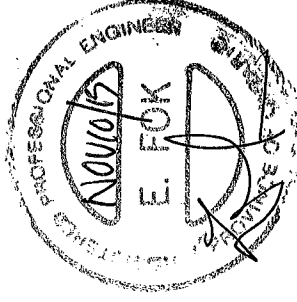
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Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	1,440 lbs	0.38	0.19	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	1,440 lbs	0.38	0.19	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 086.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.



7-1511643



Boise Cascade

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

Floor Beam\18

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

October 30, 2015 11:19:42

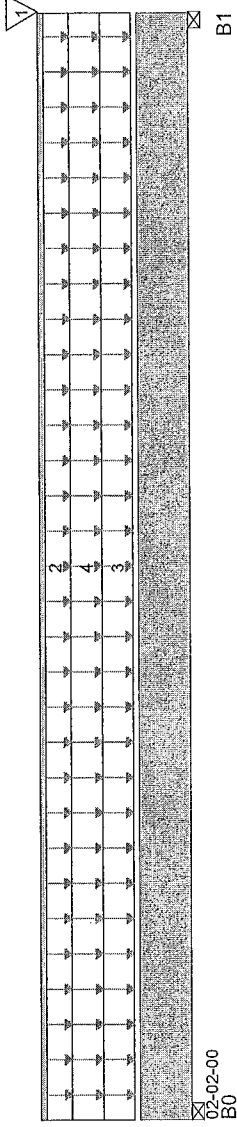
BC CALC® Design Report



uild 4137

File Name: 260907.bcc
Description: Designs\18
Specifier: S42-15
Designer: MQ
Company: ALPA ROOF TRUSSES
Misc:

Job Name: 38514
Address: GREEN VALLEY ESTATES
City, Province, Postal Code: BRADFORD, ON
Customer:
Code reports: CCMC 12472-R



Total Horizontal Product Length = 02-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	520 / 0	363 / 0		
B1, 3-1/2"	1,309 / 0	744 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
2	Conc. Pt. (lbs)	L	02-02-00	02-02-00	789	381			n/a
3	Unf. Lin. (lb/ft)	L	00-00-00	02-02-00	0	120			n/a
4	Unf. Area (lb/ft^2)	L	00-00-00	02-02-00	40	20			06-00-00
	Unf. Area (lb/ft^2)	L	00-00-00	02-02-00	40	15			06-00-00

Controls Summary

Pos. Moment	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
End Shear	415 ft-lbs	12,704 ft-lbs	0.03	1	01-01-00
Total Load Defl.	0 lbs	n/a	n/a	4	00-00-00
Live Load Defl.	L/999 (0.001")	n/a	n/a	5	01-01-00
Max Defl.	0.001"	n/a	n/a	4	01-01-00
Span / Depth	2.2	n/a	n/a		00-00-00

Disclosure

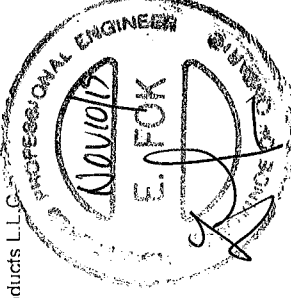
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Demand/Resistance Support

Bearing Supports	Dim. (L x W)	Demand	Demand/Resistance Support	Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	1,233 lbs	0.33	0.17	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	2,893 lbs	0.77	0.39	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 086.
Design based on Drv Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.



T-1511149



Boise Cascade

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

Floor Beam\19

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

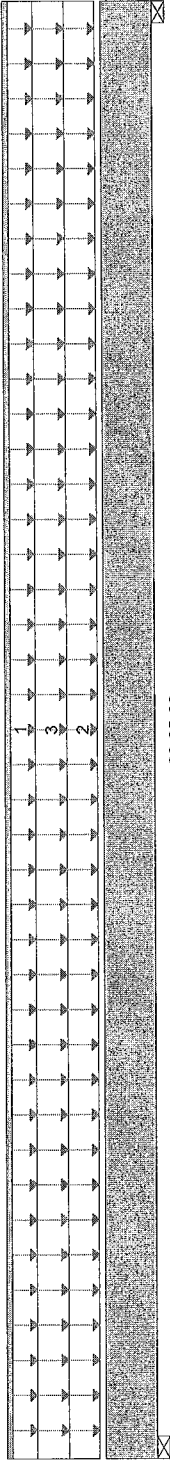
October 30, 2015 11:19:43

BC CALC® Design Report



Build 4137
Job Name: 38514
Address: GREEN VALLEY ESTATES
City, Province, Postal Code: BRADFORD, ON
Customer: CCMC 12472-R
Code reports: CCMC 12472-R

File Name: 260907.bcc
Description: Designs\19
Specifier: S42-15
Designer: MQ
Company: ALPA ROOF TRUSSES
Misc:



06-05-00

B1

Total Horizontal Product Length = 06-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,005 / 0	711 / 0		
B1, 3-1/2"	1,005 / 0	711 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Lin. (lb/ft)	L	00-00-00	06-05-00	0	60			n/a
2	Unf. Area (lb/ft^2)	L	00-00-00	06-05-00	40	20			04-03-00
3	Unf. Area (lb/ft^2)	L	00-00-00	06-05-00	40	20			03-07-00

Controls Summary

Pos. Moment	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
End Shear	3,314 ft-lbs	12,704 ft-lbs	0.26	1	03-02-08
Total Load Defl.	1,587 lbs	5,785 lbs	0.27	1	01-01-00
Live Load Defl.	L/999 (0.061")	n/a	n/a	4	03-02-08
Max Defl.	L/999 (0.036")	n/a	n/a	5	03-02-08
Span / Depth	0.061"	n/a	n/a	4	03-02-08
	7.5	n/a	n/a		00-00-00

Disclosure

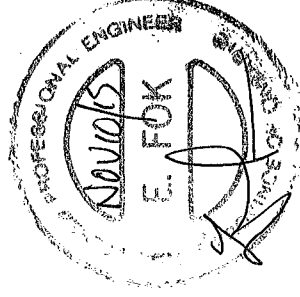
Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of BOISE engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call 1-800-964-6999 before installation.

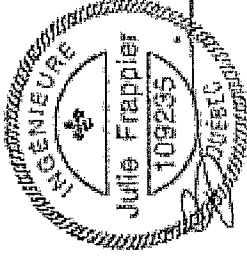
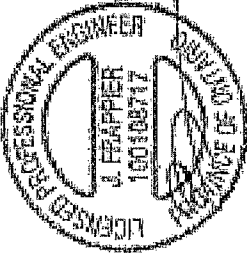
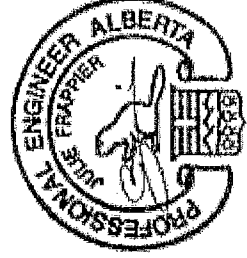
Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	2,396 lbs	0.64	0.32	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	2,396 lbs	0.64	0.32	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 086.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.





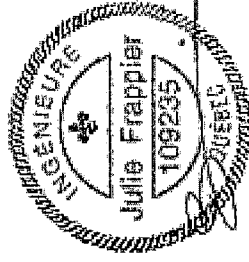
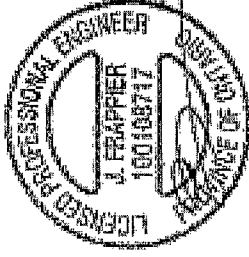
Maximum Floor Spans

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

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

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

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



Maximum Floor Spans

Live Load = 40 psf, Dead Load = 30 psf
Simple Spans, L/360 Deflection Limit
5/8" OSB G&N Sheathing

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

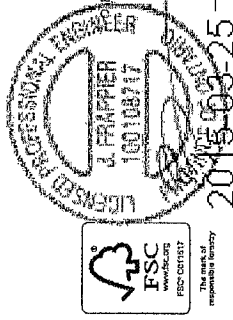
Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing		On Centre Spacing		On Centre Spacing		On Centre Spacing	
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	16'-4"	14'-10"	13'-11"	N/A	16'-4"	14'-10"	13'-11"	N/A
	NI-40x	17'-11"	16'-10"	15'-7"	N/A	18'-5"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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 30 psf. The ultimate limit states are based on the factored loads of $1.50L + 1.25D$. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/360 and a total load deflection limit of L/240.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



W W W . n o r d i c e w o o d . c o m

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



WEB HOLE SPECIFICATIONS

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.
- 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.

TABLE 1

LOCATION OF CIRCULAR HOLES IN JOIST WEBS

Simple or Multiple Span for Dead Loads up to 15 psf and Live Loads up to 40 psf

Joist Depth	Joist Series	Minimum Distance from Inside Face of Any Support to Centre of Hole (ft - in.)											
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4
9-1/2"	NL-20	0-7"	1-6"	2-10"	4-3"	5-8"	6-0"	---	---	---	---	---	12-3/4"
	NL-40x	0-7"	1-6"	3-0"	4-4"	5-8"	6-4"	---	---	---	---	---	---
	NL-60	1-3"	2-6"	4-0"	5-4"	7-0"	7-5"	---	---	---	---	---	---
	NL-80	2-0"	3-4"	4-9"	6-3"	8-0"	8-4"	---	---	---	---	---	---
11-7/8"	NL-20	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---
	NL-40x	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---
	NL-60	0-7"	1-3"	2-6"	4-0"	5-4"	5-9"	6-0"	7-3"	8-10"	10-0"	---	---
	NL-80	1-6"	2-10"	4-2"	5-6"	7-0"	7-5"	8-6"	10-3"	11-4"	---	---	---
14"	NL-20	0-7"	0-8"	1-5"	3-2"	4-10"	5-4"	6-9"	8-9"	10-2"	---	---	---
	NL-40x	0-7"	0-8"	0-9"	2-5"	4-4"	4-9"	6-3"	9-2"	---	---	---	---
	NL-60	0-7"	0-8"	1-8"	3-0"	4-3"	4-8"	5-8"	7-2"	8-0"	---	---	---
	NL-80	0-7"	0-8"	1-10"	3-0"	4-3"	5-10"	6-2"	7-3"	8-9"	---	---	---
16"	NL-20	0-7"	0-8"	0-10"	2-5"	4-9"	6-2"	6-5"	7-6"	9-0"	10-0"	---	---
	NL-40x	0-7"	0-8"	0-10"	2-5"	4-9"	6-2"	6-5"	7-6"	9-0"	10-0"	---	---
	NL-60	0-7"	0-8"	0-10"	2-5"	4-9"	6-2"	6-5"	7-6"	9-0"	10-0"	---	---
	NL-80	0-7"	0-8"	0-10"	2-5"	4-9"	6-2"	6-5"	7-6"	9-0"	10-0"	---	---

- 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.
- The above table is based on the I-joists being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

FIELD-CUT HOLE LOCATOR

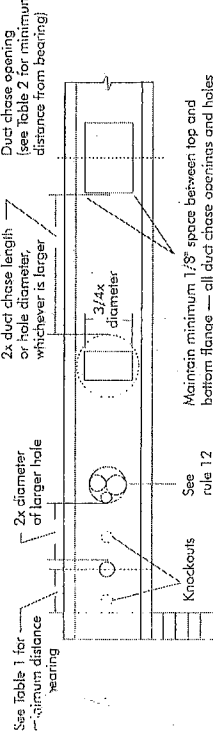
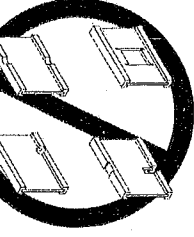


FIGURE 7



SAFETY AND CONSTRUCTION PRECAUTIONS



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



Use of stock building materials for unheated I-joists. Once installed, do not over-stress 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 nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bracing at joist ends. When I-joists are applied continuously 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 I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
 - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
- For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bracing.
- Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, start building materials over beams or walls only.
- 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.

TABLE 2

DUCT CHASE OPENING SIZES AND LOCATIONS

Simple Span Only

Joist Depth	Joist Series	Minimum distance from inside face of supports to centre of opening (ft - in.)											
		8	10	12	14	16	18	20	22	24	26	28	30
9-1/2"	NL-20	4-1"	4-5"	4-10"	5-4"	5-8"	6-1"	6-5"	7-1"	7-5"	7-9"	8-3"	8-7"
	NL-40x	5-3"	5-8"	6-0"	6-5"	6-10"	7-3"	7-8"	8-2"	8-6"	9-0"	9-4"	9-8"
	NL-60	5-4"	5-9"	6-2"	6-7"	7-1"	7-5"	8-0"	8-4"	8-8"	9-2"	9-6"	10-0"
	NL-80	5-1"	5-5"	5-10"	6-3"	6-7"	7-1"	7-6"	8-0"	8-4"	8-8"	9-2"	9-6"
11-7/8"	NL-20	5-0"	5-4"	5-9"	6-2"	6-6"	7-1"	7-5"	7-9"	8-3"	8-7"	9-1"	9-5"
	NL-40x	6-8"	7-2"	7-6"	8-1"	8-6"	9-1"	9-5"	9-9"	10-3"	10-7"	11-1"	11-5"
	NL-60	7-3"	7-8"	8-0"	8-6"	8-9"	9-4"	9-8"	10-2"	10-6"	11-0"	11-4"	11-8"
	NL-80	7-1"	7-6"	7-9"	8-3"	8-7"	9-1"	9-5"	9-9"	10-3"	10-7"	11-1"	11-5"
14"	NL-20	7-2"	7-7"	8-0"	8-5"	8-10"	9-3"	9-8"	10-1"	10-6"	11-0"	11-4"	11-8"
	NL-40x	9-0"	9-5"	9-9"	10-3"	10-7"	11-1"	11-5"	11-9"	12-3"	12-7"	13-1"	13-5"
	NL-60	9-2"	9-7"	10-0"	10-5"	10-9"	11-3"	11-7"	12-1"	12-5"	12-9"	13-3"	13-7"
	NL-80	9-2"	9-7"	10-0"	10-5"	10-9"	11-3"	11-7"	12-1"	12-5"	12-9"	13-3"	13-7"
16"	NL-20	10-3"	10-8"	11-2"	11-6"	12-0"	12-4"	12-8"	13-2"	13-6"	14-0"	14-4"	14-8"
	NL-40x	12-1"	12-6"	13-0"	13-4"	13-8"	14-2"	14-6"	15-0"	15-4"	15-8"	16-2"	16-6"
	NL-60	12-1"	12-6"	13-0"	13-4"	13-8"	14-2"	14-6"	15-0"	15-4"	15-8"	16-2"	16-6"
	NL-80	12-1"	12-6"	13-0"	13-4"	13-8"	14-2"	14-6"	15-0"	15-4"	15-8"	16-2"	16-6"

- Above table 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 live 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 as given above may be reduced for shorter spans; contact your local distributor.

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

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

Holes in webs should be cut with a sharp saw.

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

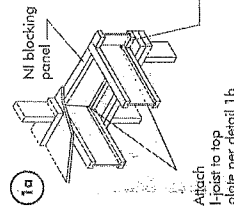


PRODUCT WARRANTY

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

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

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

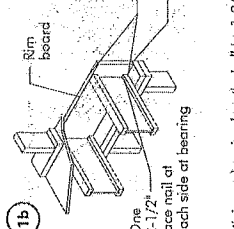


1a NI blocking panel per detail 1a

*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 1c.

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

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



1b Rim board blocking panel per detail 1b

One 2-1/2" face nail at each side of bearing

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 1c.

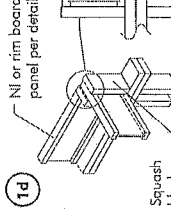
One 2-1/2" wire or spiral nail at top and bottom flange

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

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

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

Pair of Squash Blocks	Maximum Factored Vertical Load Per Pair of Squash Blocks (lbs)
3-1/2" wide	5,500
5-1/2" wide	8,500

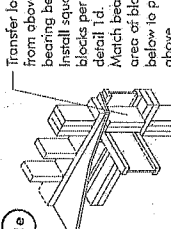


1d NI or rim board blocking panel per detail 1a

2x Lumber

1-1/8" Rim Board Plus

Provide lateral bracing per detail 1a or 1b



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

Joist attachment per detail 1b

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

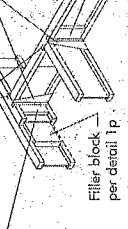
Blocking required over all interior supports under load-bearing walls or when floor joists are not continuous over support

2-1/2" nails at 6" o.c. to top plate

NI blocking panel per detail 1a

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

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



1m Multiple l-joint header with full depth filler block shown. Nordic Lam or SCL headers may also be used. Verify double l-joint capacity to support concentrated loads.

Backer block attached per detail 1h. Nail with twelve 3" nails, clinch when possible.

Install hanger per manufacturer's recommendations

Filler block per detail 1p

Top- or face-mount hanger

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

Backer block required (both sides for face-mount hangers)

Double l-joint header

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

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

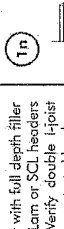
NI blocking panel

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

* Minimum grade for backer block material shall be S-PF No. 2 or better for solid sawn lumber and steel structural panels conforming to CAN/CSA-S325 or CAN/CSA-Q437 Standard.

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

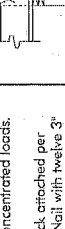
1k 2x plate flush with inside face of wall or beam. 1/8" overhang allowed past inside face of wall or beam.



1n Do not bevel-cut joist beyond inside face of wall. Attach l-joint per detail 1b

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

1p Filler block requirements for double l-joint construction

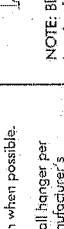


1s One 2-1/2" nail at top and bottom flange. Rim board. Two 2-1/2" nails from each web to lumber piece. 2-1/2" nails at 6" o.c. to lumber piece. 1-joint blocking panel. One 2-1/2" nail one side only.

NOTE: 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.

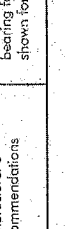
1r Lumber 2x4 min., extend block to face of adjacent web. Two 2-1/2" spiral nails from each web to lumber piece, alternate on opposite side.



1t 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.

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

1u Nordic Lam or Structural Composite Lumber (SCL)

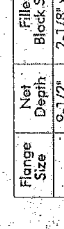


1u Nordic Lam or Structural Composite Lumber (SCL)

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

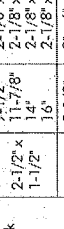
Top- or face-mount hanger installed per manufacturer's recommendations

1v Top- or face-mount hanger installed per manufacturer's recommendations



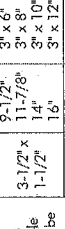
1v Top- or face-mount hanger installed per manufacturer's recommendations

1w Backer block required (both sides for face-mount hangers)



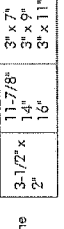
1w Backer block required (both sides for face-mount hangers)

1x Double l-joint header



1x Double l-joint header

1y Transfer load from above to bearing below



1y Transfer load from above to bearing below

1z Match bearing area of blocks below to post above



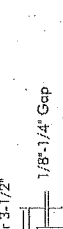
1z Match bearing area of blocks below to post above

1aa Do not bevel-cut joist beyond inside face of wall



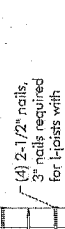
1aa Do not bevel-cut joist beyond inside face of wall

1ab Attach l-joint per detail 1b



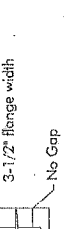
1ab Attach l-joint per detail 1b

1ac Multiple l-joint header with full depth filler block shown



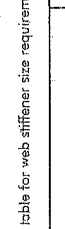
1ac Multiple l-joint header with full depth filler block shown

1ad Backer block attached per detail 1h



1ad Backer block attached per detail 1h

1ae Install hanger per manufacturer's recommendations



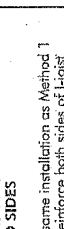
1ae Install hanger per manufacturer's recommendations

1af Filler block per detail 1p



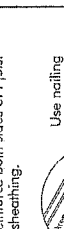
1af Filler block per detail 1p

1ag Top- or face-mount hanger



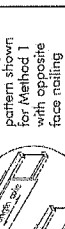
1ag Top- or face-mount hanger

1ah Backer block required (both sides for face-mount hangers)



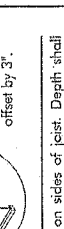
1ah Backer block required (both sides for face-mount hangers)

1ai Double l-joint header



1ai Double l-joint header

1aj Transfer load from above to bearing below



1aj Transfer load from above to bearing below

1ak Match bearing area of blocks below to post above



1ak Match bearing area of blocks below to post above

1al Do not bevel-cut joist beyond inside face of wall



1al Do not bevel-cut joist beyond inside face of wall

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

CAUTION: Canilevers formed this way must be carefully detailed to prevent moisture intrusion into the structure and potential decay of untreated l-joint extensions.



Note: This detail is applicable to canilevers supporting a maximum specified uniform live load of 60 psf.

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE

Method 2 — SHEATHING REINFORCEMENT TWO SIDES

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

Albuquerque Method 2 — DOB 11-1-1918

[illegible][illegible]

5a SHEATHING REINFORCEMENT

Nail reinforcement to top and bottom joist flanges with 2 1/2" nails at 6" o/c (bottom flange only)

Nail reinforcement to both sides of 1 joist

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

Note: Canadian sawed plywood sheathing or equivalent (minimum 1/2" thick) must be used. Begin nail match the full sides of joist.

15'

5'

height of the joist. Nail with 2-1/2" nails at 6" o.c. top and bottom flange. Install with face grain horizontal. Attach joist to plate at all supports per detail 1b. Verify

75940977

5b SET-BACK DETAIL

Rim board or wood structural panel closure

Bearing walls

20' 150"

(3/4" minimum thickness)

Diagram illustrating a full-depth lap joint between two joists. The diagram shows two joists overlapping, with the top joist labeled "Attach joists to wall per detail 1b." and the bottom joist labeled "Back Sawn". The overlap is labeled "5' min." and "not shown for clarity". The diagram also shows the "Back Sawn" joist and the "Attach joists to wall per detail 1b." label.

1

SC SET-BACK CONNECTION

Nail joist and using 3" nails, vertical at top and bottom flanges.

Hanger may be used in lieu of solid sawn blocks

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

Alternate for opposite side.



Notes:

- Verify girder joist capacity if the back span exceeds the joist spacing.
- Attach double haist per detail 10, if required.

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

to allow clinching.)

Cantilever extension supporting uniform floor loads only

Lumber or wood structural panel closure

3-1/2" min. _____
bearing required

l-joints, or rim bearing

Note: This detail is applicable to cantilevers supporting a maximum specified uniform live load of 60 psf.

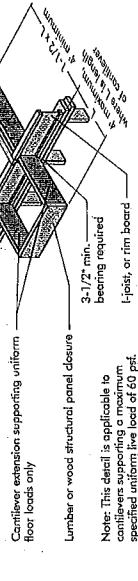
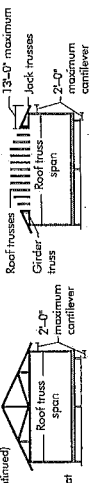


FIGURE 4 (continued)

See table below for Ni reinforcements at requirements at cantilever.



For hip roofs with the jack trusses running parallel to the cantilevered floor joists, the I-joist reinforcement requirements for a span of 226 ft. shall be permitted to be used.

CANTILEVER REINFORCEMENT METHODS ALLOWED

[illegible]

1. No. 10 reinforcement spaced at 12" o.c.
2. No. 10 reinforcement spaced at 12" o.c. parallel to one side only.
3. No. 10 reinforcement spaced at 12" o.c. parallel to one side only.
4. For conventional roof construction using ridge beams, the Roof Truss Span column above is equivalent to the distance between the roof trusses.
5. When the roof is formed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls or if a truss is used, the distance between trusses.
6. Confirmed joists requiring similar trusses or roof beams may require additional

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Diagram illustrating the shear reinforcement details for a beam-column joint. The diagram shows a cross-section of a joint where a beam is supported by a column. The reinforcement details include:

- Shear reinforcement:** Provided in the beam, consisting of two parallel bars (top and bottom) with 2-1/2" rails at 6" o.c. (offset opposite face).
- Reinforcement on both sides of joint:** Reinforcement is provided on both sides of the joint, with a 15" dimension indicated for the offset.
- Condition:** Condition satisfied (Note: Condition satisfied or equivalent (minimum) on both sides of joint. Design shall match the full length of joint).
- Labels:**
 - Shear reinforcement
 - Reinforcement on both sides of joint
 - Condition satisfied (Note: Condition satisfied or equivalent (minimum) on both sides of joint. Design shall match the full length of joint).

height of the joist. Nail with 2-1/2" nails at 6" o.c. top and bottom flange. Install with face grain horizontal. Attach joist to plate at all supports per detail 1b. Verify

75940977

5b SET-BACK DETAIL

Rim board or wood structural panel closure

Bearing walls

20' 150"

(3/4" minimum thickness)

Diagram illustrating a full-depth lap joint between two joists. The diagram shows two joists overlapping, with the top joist's end grain facing the viewer. A 5" dimension is indicated for the lap length. Labels include: "Attach joists to floor joists per detail 1b.", "5\"", "Back Sawn", and "max.". Below the diagram, a note states: "Note: Provide full depth blocking between joists over support (not shown for clarity)."

1

SC SET-BACK CONNECTION

Nail joint and using 3" nails, vertical at top and bottom flanges.

Hanger may be used in lieu of solid sawn blocks

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

Alternate for opposite side.

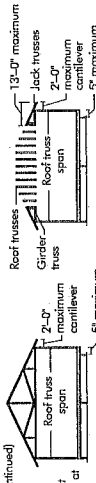


Notes:

- Verify girder joist capacity if the back span exceeds the joist spacing.
- Attach double haist per detail D-6, if required.

FIGURE 5 (continued)

See table below for NI reinforcements requirements at cantilever.



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

BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

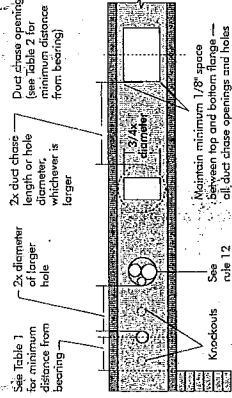
ID	NAME	UNIT	JH	LL = 30 PE DB = 15 mm		LL = 40 PE DB = 15 mm		LL = 50 PE DB = 15 mm	
				POST SPACING [m]		POST SPACING [m]		POST SPACING [m]	
1	0.20	1.1776	1	1	1	1	1	1	1
2	0.20	1.1776	1	1	1	1	1	1	1
3	0.20	1.1776	1	1	1	1	1	1	1
4	0.20	1.1776	1	1	1	1	1	1	1
5	0.20	1.1776	1	1	1	1	1	1	1
6	0.20	1.1776	1	1	1	1	1	1	1
7	0.20	1.1776	1	1	1	1	1	1	1
8	0.20	1.1776	1	1	1	1	1	1	1
9	0.20	1.1776	1	1	1	1	1	1	1
10	0.20	1.1776	1	1	1	1	1	1	1
11	0.20	1.1776	1	1	1	1	1	1	1
12	0.20	1.1776	1	1	1	1	1	1	1
13	0.20	1.1776	1	1	1	1	1	1	1
14	0.20	1.1776	1	1	1	1	1	1	1
15	0.20	1.1776	1	1	1	1	1	1	1
16	0.20	1.1776	1	1	1	1	1	1	1
17	0.20	1.1776	1	1	1	1	1	1	1
18	0.20	1.1776	1	1	1	1	1	1	1
19	0.20	1.1776	1	1	1	1	1	1	1
20	0.20	1.1776	1	1	1	1	1	1	1
21	0.20	1.1776	1	1	1	1	1	1	1
22	0.20	1.1776	1	1	1	1	1	1	1
23	0.20	1.1776	1	1	1	1	1	1	1
24	0.20	1.1776	1	1	1	1	1	1	1
25	0.20	1.1776	1	1	1	1	1	1	1
26	0.20	1.1776	1	1	1	1	1	1	1
27	0.20	1.1776	1	1	1	1	1	1	1
28	0.20	1.1776	1	1	1	1	1	1	1
29	0.20	1.1776	1	1	1	1	1	1	1
30	0.20	1.1776	1	1	1	1	1	1	1
31	0.20	1.1776	1	1	1	1	1	1	1
32	0.20	1.1776	1	1	1	1	1	1	1
33	0.20	1.1776	1	1	1	1	1	1	1
34	0.20	1.1776	1	1	1	1	1	1	1
35	0.20	1.1776	1	1	1	1	1	1	1
36	0.20	1.1776	1	1	1	1	1	1	1
37	0.20	1.1776	1	1	1	1	1	1	1
38	0.20	1.1776	1	1	1	1	1	1	1
39	0.20	1.1776	1	1	1	1	1	1	1
40	0.20	1.1776	1	1	1	1	1	1	1
41	0.20	1.1776	1	1	1	1	1	1	1
42	0.20	1.1776	1	1	1	1	1	1	1
43	0.20	1.1776	1	1	1	1	1	1	1
44	0.20	1.1776	1	1	1	1	1	1	1
45	0.20	1.1776	1	1	1	1	1	1	1
46	0.20	1.1776	1	1	1	1	1	1	1

[illegible]

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

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

FIGURE 7
FIELD-CUT HOLE LOCATOR



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

Knockouts are pre-cored holes provided for the contractor's convenience to install a support. They are not to be used for any other purpose. They are 1-1/2 inches in diameter and are spaced 15 inches on centre along the length of the I-joint. Where possible, it is preferable to use knockouts instead of field-cut holes.



Never drill, cut or notch the flanges, 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 acceptable. Do not drill the rectangular hole by drilling a 1-inch diameter hole in each of the four corners and then making the cuts between the holes. This is another good method to minimize damage to the I-joint.

INSTALLING THE GLUED FLOOR SYSTEM

1. Wipe any mud, dirt, water, or ice from I-joint flanges before gluing.
2. Snap a chalk line across the I-joints four feet in from the wall for panel edge alignment and as a boundary for spreading glue.
3. Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from the glue manufacturer.
4. Lay the first panel with tongue side to the wall and nail in place. This protects the tongue of the next panel from damage when spreading the glue. The panel should be placed with the black edge against the wall.
5. Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joint. Apply glue in a winding pattern on wide areas, such as with double I-joints.
6. Apply two lines of glue on I-joints where panel ends butt to ensure proper gluing of each end.
7. After the first row of panels is in place, spread glue in the groove of one or two panels at a time before laying the next row. Glue line may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) then used on I-joint flanges.
8. Put the second row of panels into place, using a block to protect groove edges.
9. Sagger and joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including TAG edges, is recommended. (Use a sparrow tool or an 2-1/2" common nail to assure accurate and consistent spacing.)
10. Complete all nailing of each panel before glue sets. Check the manufacturer's recommendations for cure time. (Warm weather accelerates glue setting.) Use 2" rings or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The OSB panel can be walked on right away and will carry construction loads without damage to the glue bond.

FASTENERS FOR SHEATHING AND SUBFLOORING(1)

Minimum Spacing Between Fasteners (inches)	Minimum Spacing Between Fasteners (inches)	Minimum Spacing Between Fasteners (inches)	Minimum Spacing Between Fasteners (inches)
16"	2"	1-3/4"	2"
20"	2"	1-3/4"	2"
24"	2"	1-3/4"	2"

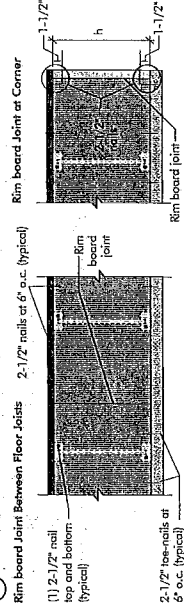
1. Fasteners of sheathing and subflooring shall conform to the above table.
2. Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/16-inch crown driven with the crown parallel to framing.
3. Flooring screws shall not be less than 1/8-inch in diameter.
4. Special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

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

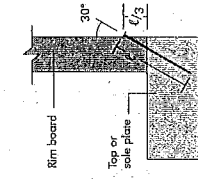
© 2010, NRC-CNRC, National Building Code of Canada 2010, Table 9.23.3.5.

RIM BOARD INSTALLATION DETAILS

8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



8b TOE-NAIL CONNECTION AT RIM BOARD



8c 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL

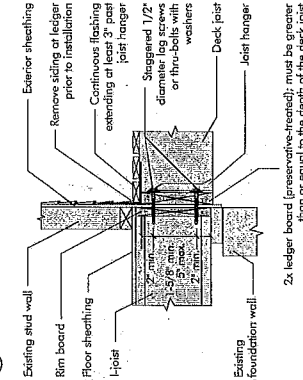


TABLE 1
LOCATION OF CIRCULAR HOLES IN JOIST WEBS
Simple or Multiple Span for Dead Loads up to 15 psf and Live Loads up to 40 psf

Span (ft)	Minimum distance from inside face of I-joint support to centre of hole (inches)									
	2	3	4	5	6	7	8	9	10	11
2	12	12	12	12	12	12	12	12	12	12
3	12	12	12	12	12	12	12	12	12	12
4	12	12	12	12	12	12	12	12	12	12
5	12	12	12	12	12	12	12	12	12	12
6	12	12	12	12	12	12	12	12	12	12
7	12	12	12	12	12	12	12	12	12	12
8	12	12	12	12	12	12	12	12	12	12
9	12	12	12	12	12	12	12	12	12	12
10	12	12	12	12	12	12	12	12	12	12
11	12	12	12	12	12	12	12	12	12	12

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

OPTIONAL:

The above table is based on the I-joint used at their maximum span. If the I-joint is placed at less than their full maximum span, the maximum span may be reduced as follows:

Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span application:

Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span application:

Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span application:

Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span application:

Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span application:

Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span application:

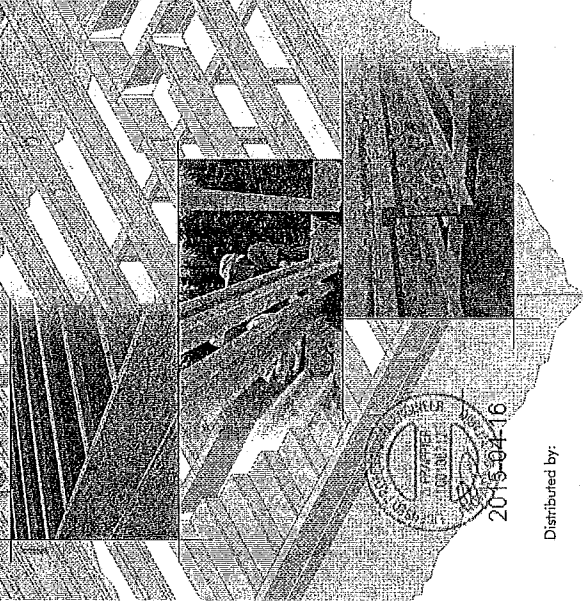
TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only

Span (ft)	Minimum distance from inside face of I-joint support to centre of opening (inches)									
	2	3	4	5	6	7	8	9	10	11
2	12	12	12	12	12	12	12	12	12	12
3	12	12	12	12	12	12	12	12	12	12
4	12	12	12	12	12	12	12	12	12	12
5	12	12	12	12	12	12	12	12	12	12
6	12	12	12	12	12	12	12	12	12	12
7	12	12	12	12	12	12	12	12	12	12
8	12	12	12	12	12	12	12	12	12	12
9	12	12	12	12	12	12	12	12	12	12
10	12	12	12	12	12	12	12	12	12	12
11	12	12	12	12	12	12	12	12	12	12

1. Above table may be used for I-joint spacing of 24 inches on centre or less.
2. Duct chase opening location distance is measured from inside face of supports to centre of opening.
3. Distance in this chart are based on uniformly loaded joist.
4. Distances are based on a live load deflection limit of L/480. For other applications, contact your local distributor.



INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



Distributed by:



N-C301 / November 2014

SAFETY AND CONSTRUCTION PRECAUTIONS



WARNING

- I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.
- Avoid Accidents by Following these Important Guidelines:**
1. Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-briding at joist ends. When I-joists are applied continuous blocking will be required at the interior support.
 2. When the building is completed, the floor sheathing will provide lateral bracing for the I-joists. Until then, temporary bracing, often called studs, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
 - Temporary bracing or studs must be 1 1/4 inch minimum, at least 8 feet long and spaced no more than 8 feet on center, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
 3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-briding.
 4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
 5. Never install a damaged I-joist.
- Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for I-joists, or failure to follow these guidelines can result in serious accidents. Follow these installation guidelines carefully.



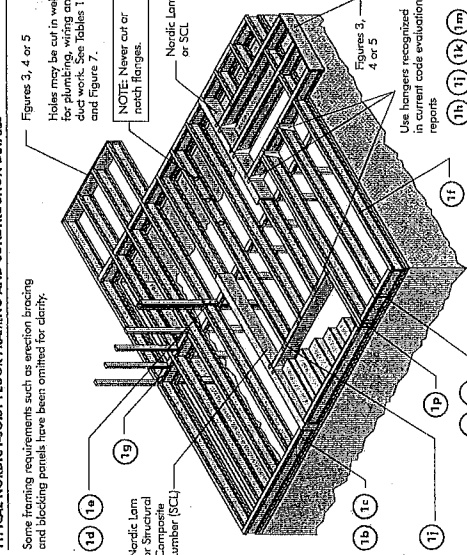
STORAGE AND HANDLING GUIDELINES

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

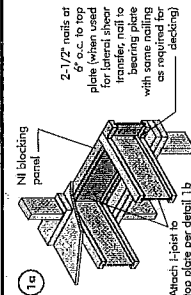
INSTALLING NORDIC I-JOISTS

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

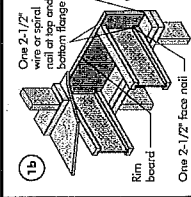


All calls shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.125 dia.) for 2-1/2" (0.128 dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.



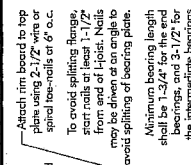
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joist	3,300

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



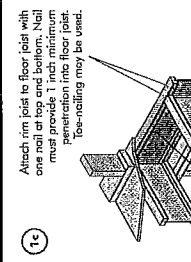
Blocking Panel or Rim Joist	Max
NI Joist	3,300

*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.



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

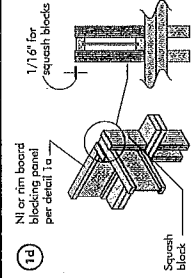
*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.



NI rim joist
per detail 1 a

Attach

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



Pair of Squash Blocks	Maximum Factored Vertical p Pair of Squash Blocks (lbs)	
	3-1/2" wide	5-1/2" wide

*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.

