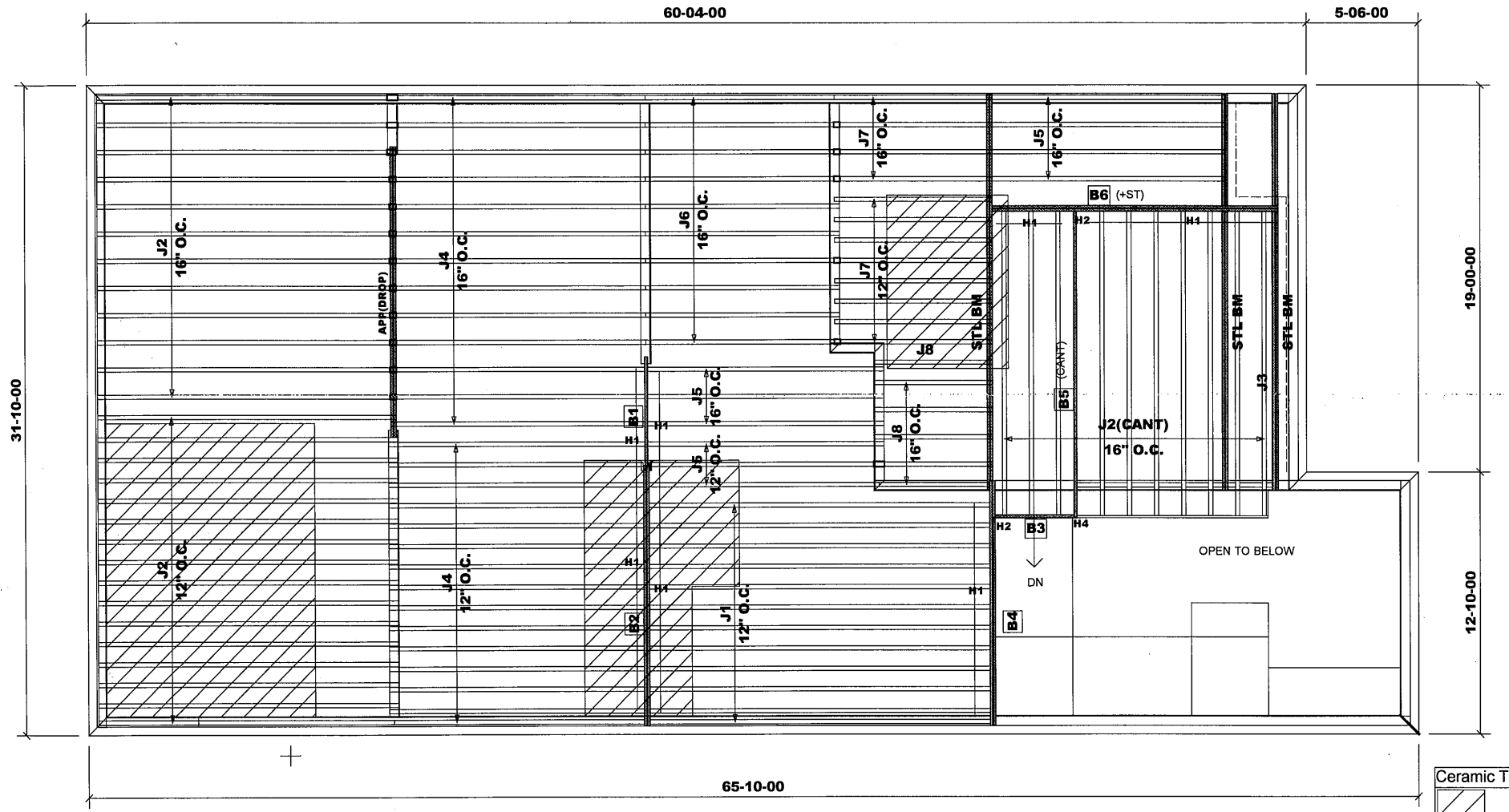




Products				
PlotID	Length	Product	Plies	Net Qty
J1	17-00-00	11 7/8" NI-20	1	12
J2	15-00-00	11 7/8" NI-20	1	38
J3	14-00-00	11 7/8" NI-20	1	1
J4	13-00-00	11 7/8" NI-20	1	28
J5	12-00-00	11 7/8" NI-20	1	10
J6	10-00-00	11 7/8" NI-20	1	10
J7	8-00-00	11 7/8" NI-20	1	12
J8	6-00-00	11 7/8" NI-20	1	6
B5	16-00-00	VERSALAM-12 2.0E	1	1
B6	15-00-00	VERSALAM-12 2.0E	2	2
B2	13-00-00	VERSALAM-12 2.0E	2	2
B4	12-00-00	VERSALAM-12 2.0E	2	2
B1	6-00-00	VERSALAM-12 2.0E	1	1
B3	4-00-00	VERSALAM-12 2.0E	1	1

HANGER SCHEDULE	
H1	LT251188 (TM)
H2	HUS1.81/10(FM)
H4	HU9X (FM)
NOTE:	
TM	TOP MOUNT HANGERS
FM	FACE MOUNT HANGERS

RIMBOARD	
1-	1/8" X 11 7/8" O.S.B.
SUBFLOOR - 3/4" NAILED & GLUED	
APP	AS PER PLAN
BBO	BEAM BY OTHERS

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

Provide I-Joist Blocking between cantilevered joists (along bearing) and rimboard closure at ends.

1-2X6 SPF#2 Squash Block req'd on one side of each joist under interior load bearing wall. Multiple Squash Blocks are req'd under concentrated loads.

REVISION: June 29, 2018

MODEL: UNIT 4005 - EL.A
+ OPT. LOGGIA

Second Floor Framing

Do not scale - refer to architectural plans for dimensions

11 7/8" BLOCKING

TOTAL LENGTH: 14'

ENGINEERING FILE NO.

S- 152634 - 152650

JT/PL: 45147/98839

LI: 299723(290670)

Builder: Gold Park

Project: Pine Valley

Location: Vaughan

Date: November 9, 2017

Designer: NL

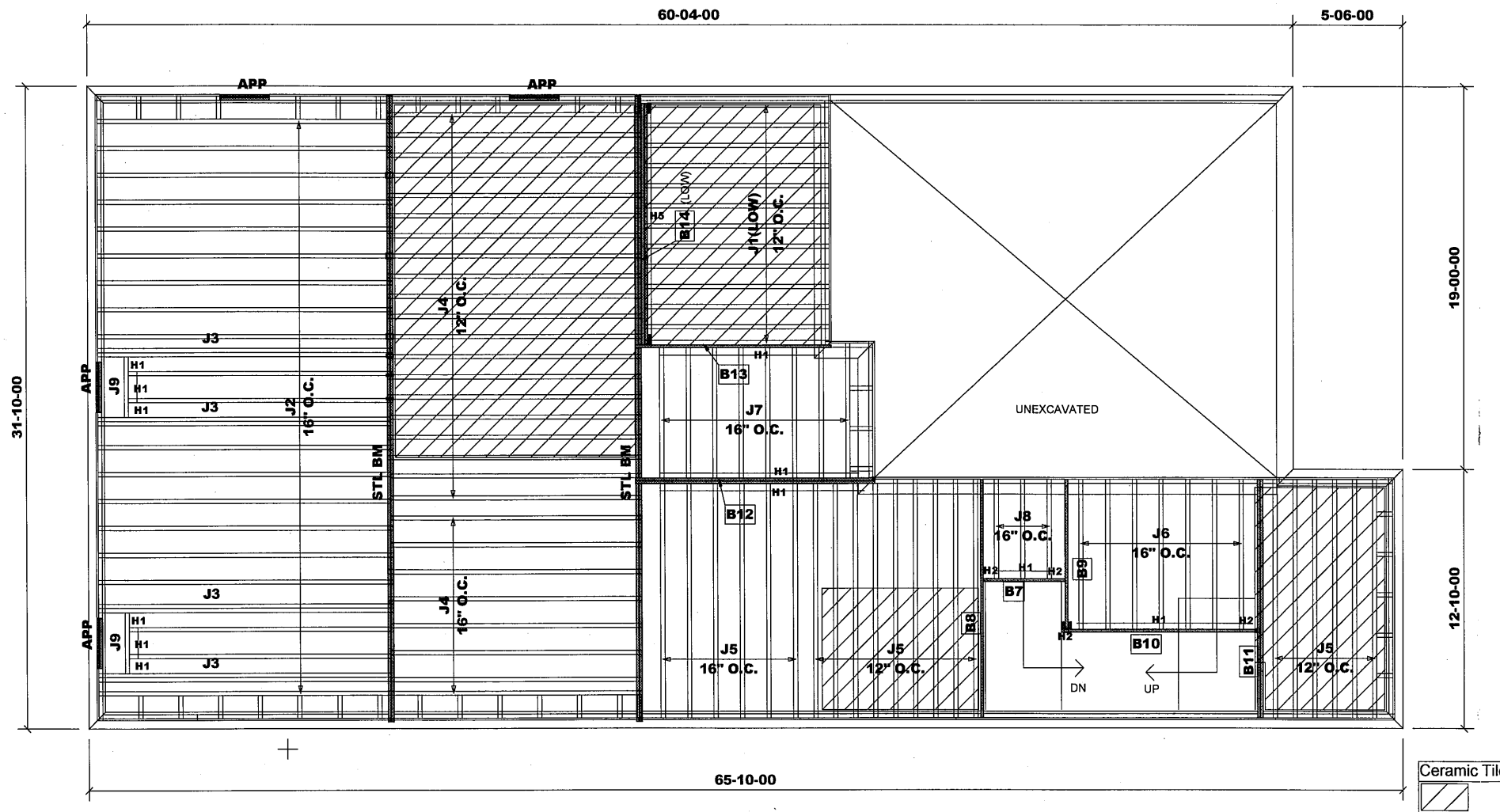
Sheet: 1 of 8

Alpa Roof Trusses Inc.

Maple, Ontario

Salesperson: Derek

Home Lumber



Products				
PlotID	Length	Product	Plies	Net Qty
J1	10-00-00	9 1/2" NI-20	1	13
J2	15-00-00	11 7/8" NI-20	1	20
J3	15-00-00	11 7/8" NI-20	2	8
J4	13-00-00	11 7/8" NI-20	1	28
J5	12-00-00	11 7/8" NI-20	1	21
J6	8-00-00	11 7/8" NI-20	1	7
J7	7-00-00	11 7/8" NI-20	1	8
J8	5-00-00	11 7/8" NI-20	1	3
J9	3-00-00	11 7/8" NI-20	1	2
B8	12-00-00	VERSALAM-12 2.0E	1	1
B14	12-00-00	VERSALAM-10 2.0E	2	2
B11	12-00-00	VERSALAM-12 2.0E	2	2
B12	12-00-00	VERSALAM-12 2.0E	2	2
B10	10-00-00	VERSALAM-12 2.0E	1	1
B13	10-00-00	VERSALAM-12 2.0E	1	1
B9	8-00-00	VERSALAM-12 2.0E	1	1
B7	5-00-00	VERSALAM-12 2.0E	1	1

HANGER SCHEDULE

H1-----LT251188 (TM)
H2-----HUS1.81/10(FM)
H5-----LT259(TM)

NOTE:
TM -----TOP MOUNT HANGERS
FM-----FACE MOUNT HANGERS

RIMBOARD

1- 1/8" X 9 1/2" O.S.B.
1- 1/8" X 11 7/8" O.S.B.

SUBFLOOR - 3/4" NAILED & GLUED

APP - AS PER PLAN
BBO - BEAM BY OTHERS

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

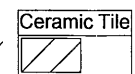
1-2X6 SPF#2 Squash Block req'd on one side of each joist under interior load bearing wall. Multiple Squash Blocks are req'd under concentrated loads.

**MODEL: UNIT 4005 - EL.A
+ OPT. LOGGIA**

First Floor Framing

Do not scale - refer to architectural plans for dimensions

11 7/8" BLOCKING
TOTAL LENGTH: 51'



98839/June 29, 2018
95915

JT/PL: 45147/95234

Builder: Gold Park

Location: Vaughan

Designer: NL

Alpa Roof Trusses Inc.

Salesperson: Derek

LI:(290670 >

Project: Pine Valley

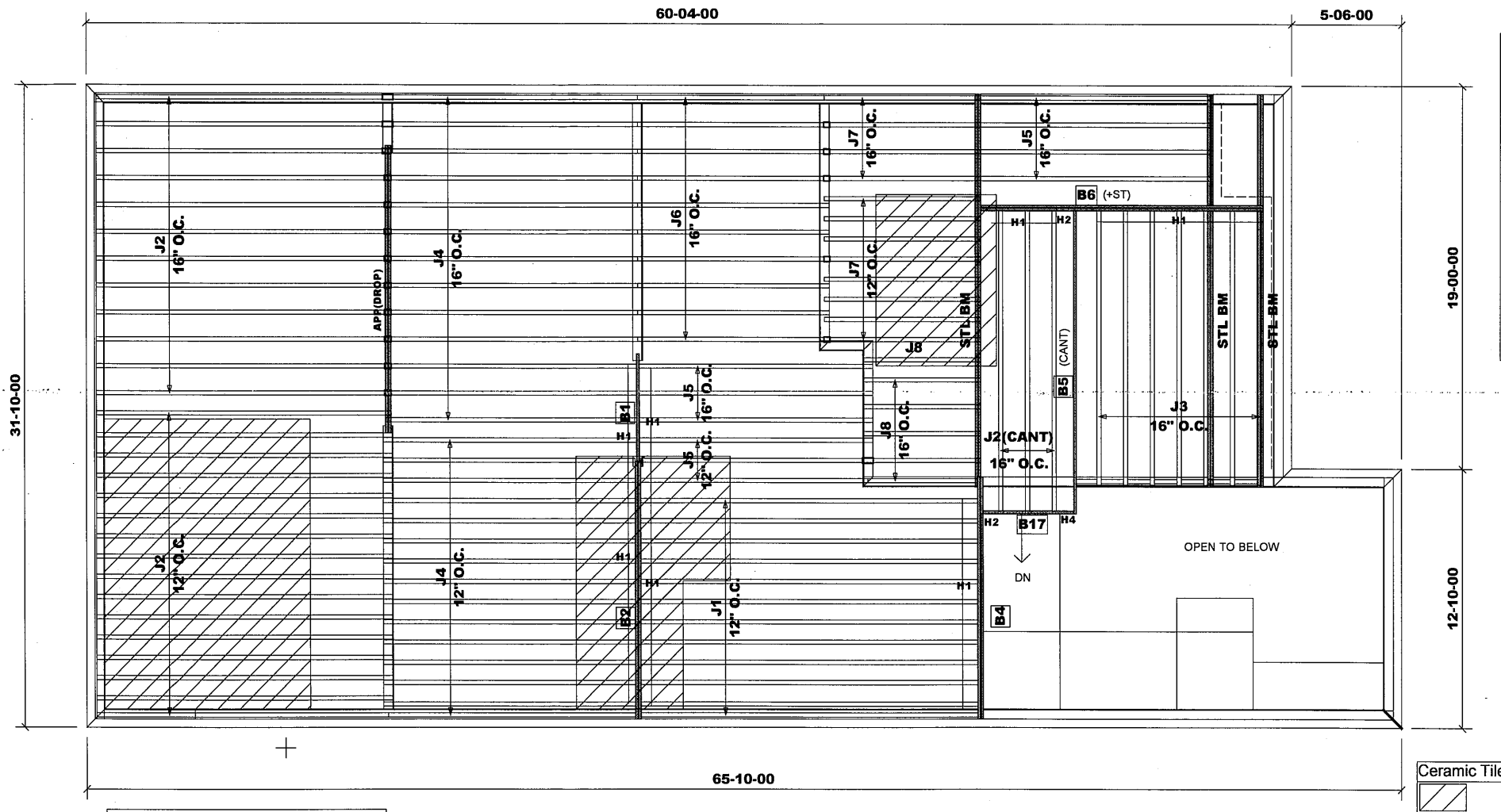
Date: November 9, 2017

Sheet: 2 of 8

Maple, Ontario

Home Lumber

299723



Products				
PlotID	Length	Product	Plies	Net Qty
J1	17'-00-00	11 7/8" NI-20	1	12
J2	15'-00-00	11 7/8" NI-20	1	31
J3	14'-00-00	11 7/8" NI-20	1	7
J4	13'-00-00	11 7/8" NI-20	1	28
J5	12'-00-00	11 7/8" NI-20	1	10
J6	10'-00-00	11 7/8" NI-20	1	10
J7	8'-00-00	11 7/8" NI-20	1	12
J8	6'-00-00	11 7/8" NI-20	1	6
B5	16'-00-00	VERSALAM-12 2.0E	1	1
B6	15'-00-00	VERSALAM-12 2.0E	2	2
B2	13'-00-00	VERSALAM-12 2.0E	2	2
B4	12'-00-00	VERSALAM-12 2.0E	2	2
B1	6'-00-00	VERSALAM-12 2.0E	1	1
B17	5'-00-00	VERSALAM-12 2.0E	1	1

HANGER SCHEDULE	
H1	LT251188 (TM)
H2	HUS1.81/10(FM)
H4	HU9X (FM)
NOTE:	
TM	TOP MOUNT HANGERS
FM	FACE MOUNT HANGERS

RIMBOARD	
1-	1/8" X 11 7/8" O.S.B.
SUBFLOOR - 3/4" NAILED & GLUED	
APP	AS PER PLAN
BBO	BEAM BY OTHERS

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

Provide I-Joist Blocking between cantilevered joists (along bearing) and rimboard closure at ends.

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REVISION: June 29, 2018

MODEL: UNIT 4005 - EL.A
+ OPT. LOGGIA(W/OPT. 5 BEDRM)

Second Floor Framing

Do not scale - refer to architectural plans for dimensions

11 7/8" BLOCKING

TOTAL LENGTH: 5'

JT/PL: 45147/98839

LI: 299723(290670)

Builder: Gold Park

Project: Pine Valley

Location: Vaughan

Date: November 9, 2017

Designer: NL

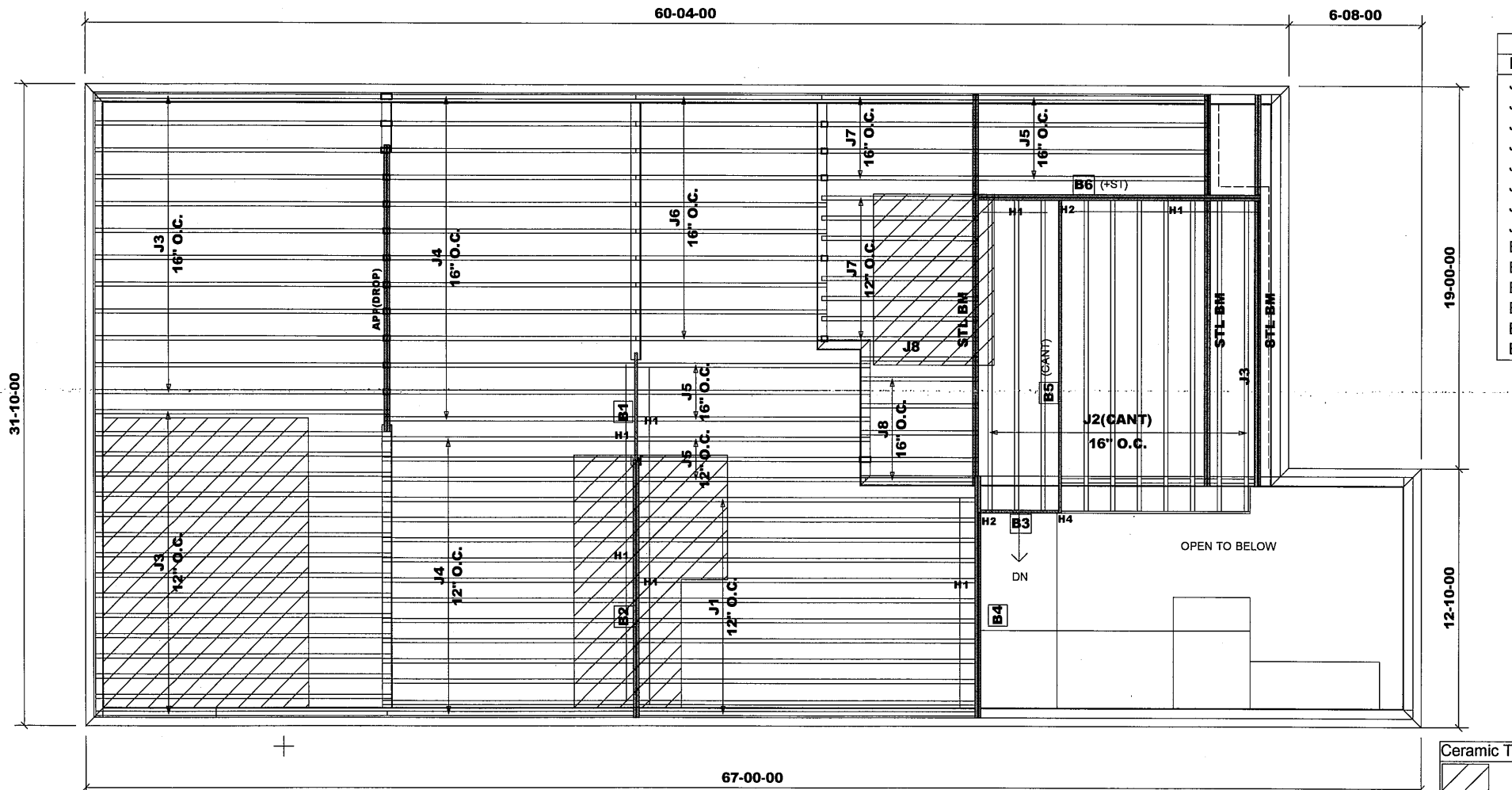
Sheet: 3 of 8

Alpa Roof Trusses Inc.

Maple, Ontario

Salesperson: Derek

Home Lumber



Products				
PlotID	Length	Product	Plies	Net Qty
J1	17'-00-00	11 7/8" NI-20	1	12
J2	16'-00-00	11 7/8" NI-20	1	10
J3	15'-00-00	11 7/8" NI-20	1	29
J4	13'-00-00	11 7/8" NI-20	1	28
J5	12'-00-00	11 7/8" NI-20	1	10
J6	10'-00-00	11 7/8" NI-20	1	10
J7	8'-00-00	11 7/8" NI-20	1	12
J8	6'-00-00	11 7/8" NI-20	1	6
B5	16'-00-00	VERSALAM-12 2.0E	1	1
B6	15'-00-00	VERSALAM-12 2.0E	2	2
B2	13'-00-00	VERSALAM-12 2.0E	2	2
B4	12'-00-00	VERSALAM-12 2.0E	2	2
B1	6'-00-00	VERSALAM-12 2.0E	1	1
B3	4'-00-00	VERSALAM-12 2.0E	1	1

HANGER SCHEDULE	
H1	LT251188 (TM)
H2	HUS1.81/10(FM)
H4	HU9X (FM)
NOTE:	
TM	TOP MOUNT HANGERS
FM	FACE MOUNT HANGERS

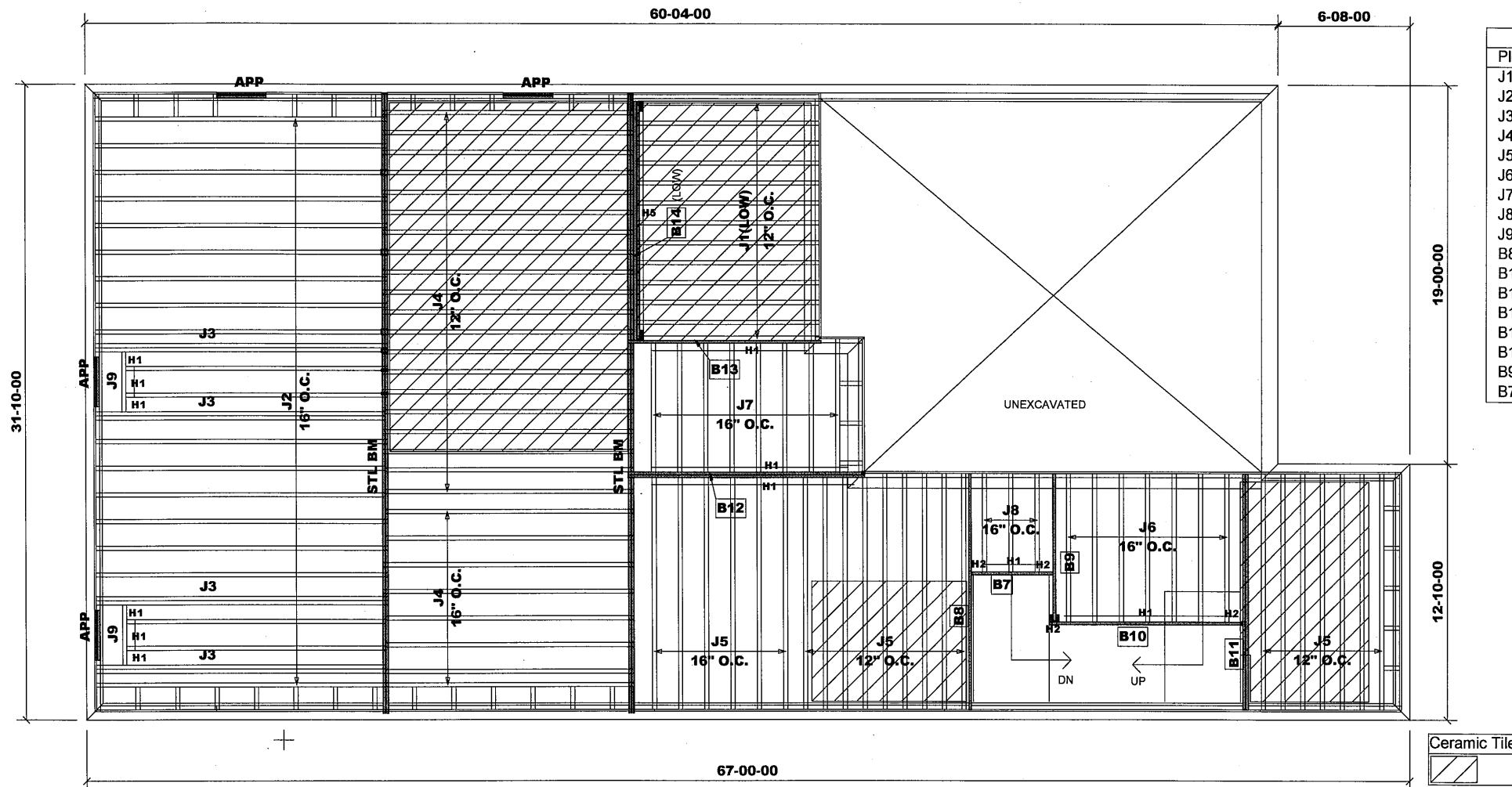
RIMBOARD
1- 1/8" X 11 7/8" O.S.B.
SUBFLOOR - 3/4" NAILED & GLUED
APP - AS PER PLAN
BBO - BEAM BY OTHERS

Ceramic tile application as per O.B.C. 9.30.6
Provide I-Joist Blocking between cantilevered joists (along bearing) and rimboard closure at ends.
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REVISION: June 29, 2018
MODEL: UNIT 4005 - EL.B
+ OPT. LOGGIA

Second Floor Framing
Do not scale - refer to architectural plans for dimensions

11 7/8" BLOCKING
TOTAL LENGTH: 14'



Products				
PlotID	Length	Product	Plies	Net Qty
J1	10-00-00	9 1/2" NI-20	1	13
J2	15-00-00	11 7/8" NI-20	1	20
J3	15-00-00	11 7/8" NI-20	2	8
J4	13-00-00	11 7/8" NI-20	1	28
J5	12-00-00	11 7/8" NI-20	1	22
J6	8-00-00	11 7/8" NI-20	1	7
J7	7-00-00	11 7/8" NI-20	1	8
J8	5-00-00	11 7/8" NI-20	1	3
J9	3-00-00	11 7/8" NI-20	1	2
B8	12-00-00	VERSALAM-12 2.0E	1	1
B14	12-00-00	VERSALAM-10 2.0E	2	2
B11	12-00-00	VERSALAM-12 2.0E	2	2
B12	12-00-00	VERSALAM-12 2.0E	2	2
B10	10-00-00	VERSALAM-12 2.0E	1	1
B13	10-00-00	VERSALAM-12 2.0E	1	1
B9	8-00-00	VERSALAM-12 2.0E	1	1
B7	5-00-00	VERSALAM-12 2.0E	1	1

HANGER SCHEDULE

H1-----LT251188 (TM)
H2-----HUS1.81/10(FM)
H5-----LT259(TM)

NOTE:

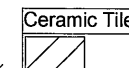
TM -----TOP MOUNT HANGERS
FM-----FACE MOUNT HANGERS

RIMBOARD

1- 1/8" X 9 1/2" O.S.B.
1- 1/8" X 11 7/8" O.S.B.

SUBFLOOR - 3/4" NAILED & GLUED

APP - AS PER PLAN
BBO - BEAM BY OTHERS



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

1-2X6 SPF#2 Squash Block req'd on one side of each joist under interior load bearing wall. Multiple Squash Blocks are req'd under concentrated loads.

**MODEL: UNIT 4005 - EL.B+C
+ OPT. LOGGIA**

First Floor Framing

Do not scale - refer to architectural plans for dimensions

11 7/8" BLOCKING

TOTAL LENGTH: 51'

98829
98915

JT/PL: 45147/95234

Builder: Gold Park

Location: Vaughan

Designer: NL

Alpa Roof Trusses Inc.

Salesperson: Derek

LI: (290670)

Project: Pine Valley

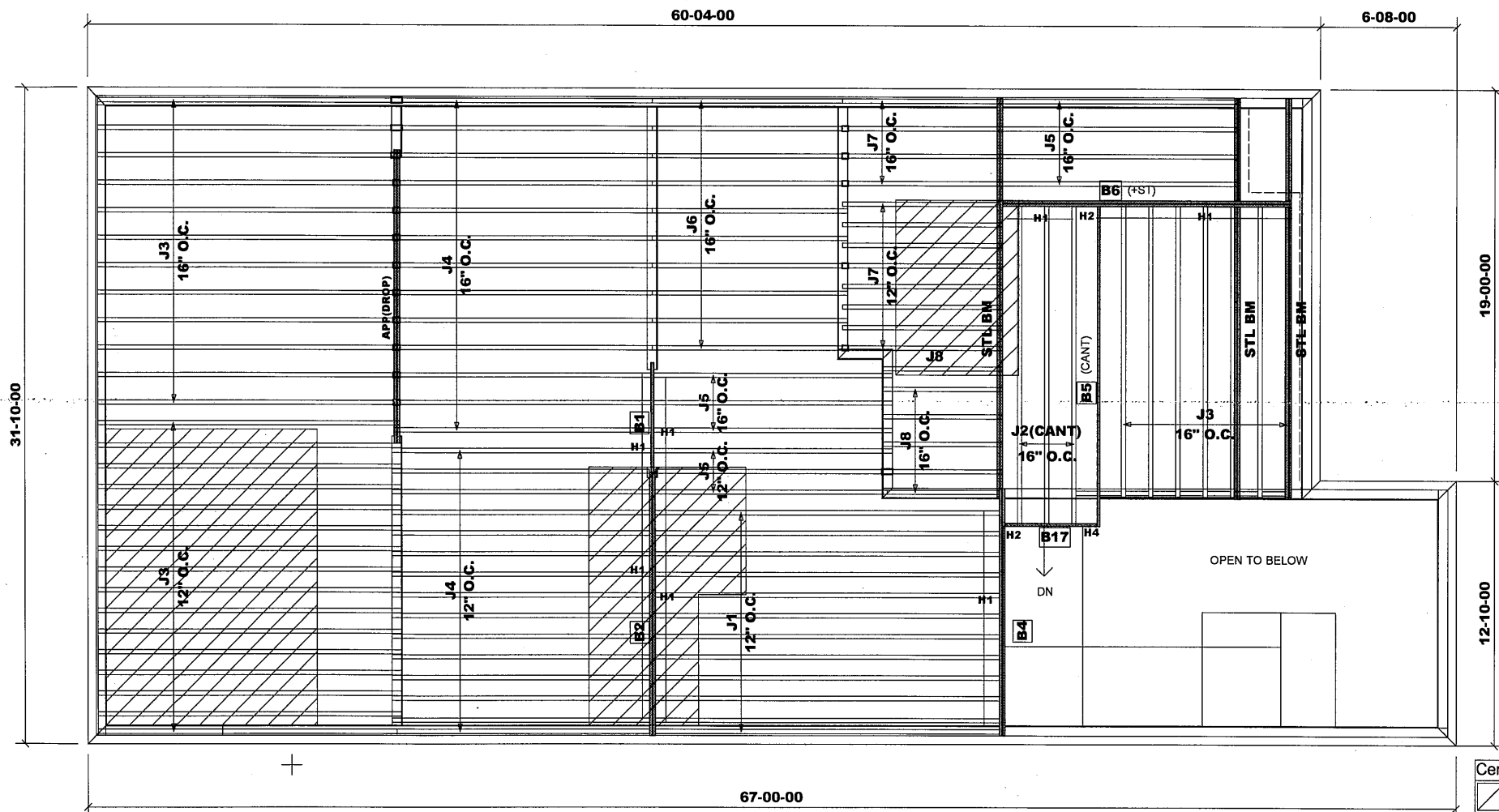
Date: November 9, 2017

Sheet: 5 of 8

Maple, Ontario

Home Lumber

299723



Products				
PlotID	Length	Product	Plies	Net Qty
J1	17'-00"-00	11 7/8" NI-20	1	12
J2	16'-00"-00	11 7/8" NI-20	1	3
J3	15'-00"-00	11 7/8" NI-20	1	35
J4	13'-00"-00	11 7/8" NI-20	1	28
J5	12'-00"-00	11 7/8" NI-20	1	10
J6	10'-00"-00	11 7/8" NI-20	1	10
J7	8'-00"-00	11 7/8" NI-20	1	12
J8	6'-00"-00	11 7/8" NI-20	1	6
B5	16'-00"-00	VERSALAM-12 2.0E	1	1
B6	15'-00"-00	VERSALAM-12 2.0E	2	2
B2	13'-00"-00	VERSALAM-12 2.0E	2	2
B4	12'-00"-00	VERSALAM-12 2.0E	2	2
B1	6'-00"-00	VERSALAM-12 2.0E	1	1
B17	5'-00"-00	VERSALAM-12 2.0E	1	1

HANGER SCHEDULE

H1-----LT251188 (TM)
H2-----HUS1.81/10(FM)
H4-----HU9X (FM)

NOTE:

TM -----TOP MOUNT HANGERS
FM-----FACE MOUNT HANGERS

RIMBOARD

1- 1/8" X 11 7/8" O.S.B.

SUBFLOOR - 3/4" NAILED & GLUED

APP - AS PER PLAN
BBO - BEAM BY OTHERS

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

Provide I-Joist Blocking between cantilevered joists (along bearing) and rimboard closure at ends.

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REVISION: June 29, 2018

MODEL: UNIT 4005 - EL.B
+ OPT. LOGGIA(W/OPT. 5 BEDRM)

Second Floor Framing

Do not scale - refer to architectural plans for dimensions

11 7/8" BLOCKING

TOTAL LENGTH: 5'

JT/PL: 45147/98839

LI: 299723(290670)

Builder: Gold Park

Project: Pine Valley

Location: Vaughan

Date: November 9, 2017

Designer: NL

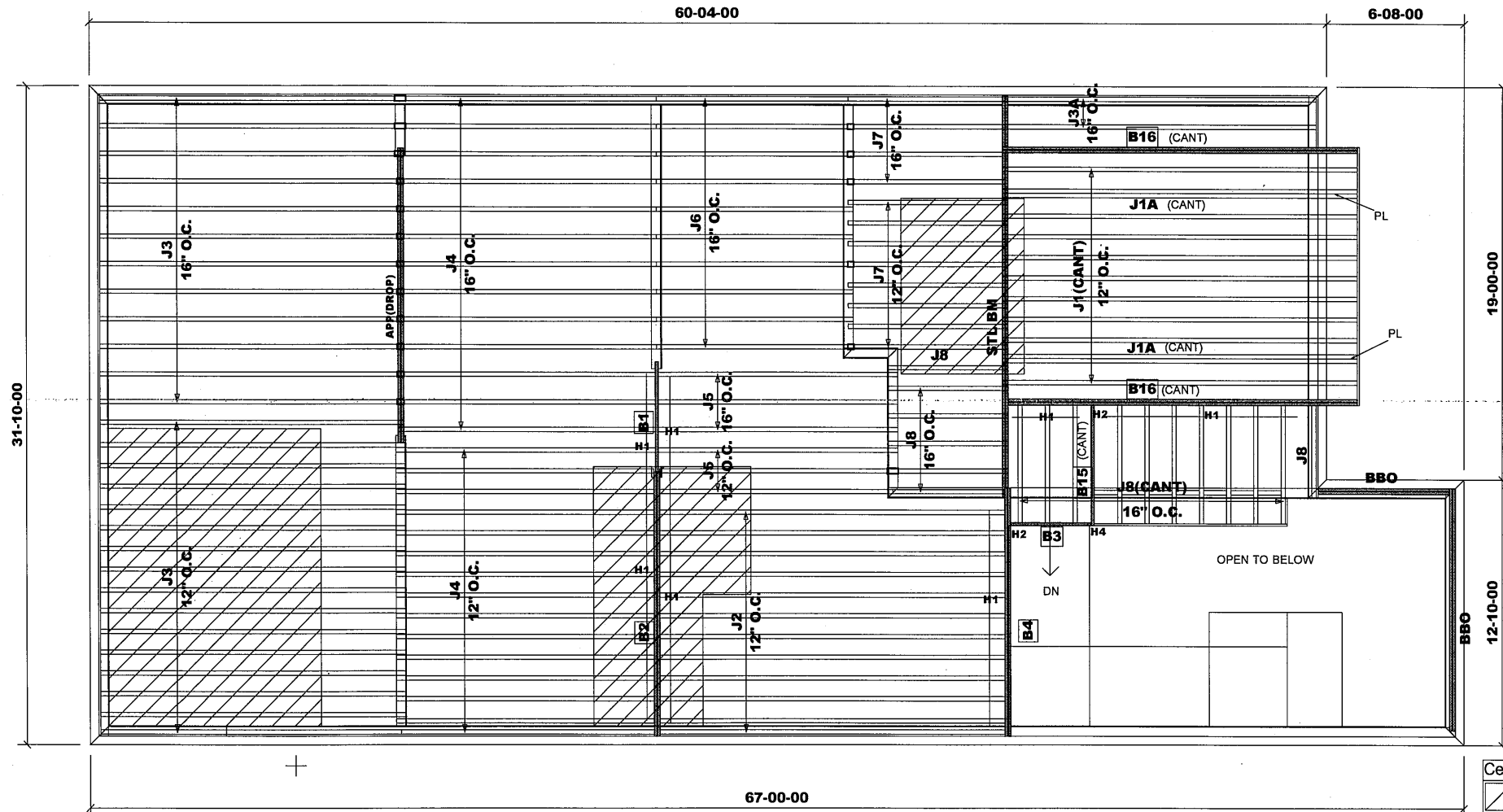
Sheet: 6 of 8

Alpa Roof Trusses Inc.

Maple, Ontario

Salesperson: Derek

Home Lumber



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-20	1	9
J1A	18-00-00	11 7/8" NI-20	2	4
J2	17-00-00	11 7/8" NI-20	1	12
J3A	16-00-00	11 7/8" NI-20	1	2
J3	15-00-00	11 7/8" NI-20	1	28
J4	13-00-00	11 7/8" NI-20	1	28
J5	12-00-00	11 7/8" NI-20	1	6
J6	10-00-00	11 7/8" NI-20	1	10
J7	8-00-00	11 7/8" NI-20	1	12
J8	6-00-00	11 7/8" NI-20	1	17
B16	18-00-00	VERSALAM-12 2.0E	2	4
B2	13-00-00	VERSALAM-12 2.0E	2	2
B4	12-00-00	VERSALAM-12 2.0E	2	2
B1	6-00-00	VERSALAM-12 2.0E	1	1
B15	6-00-00	VERSALAM-12 2.0E	1	1
B3	4-00-00	VERSALAM-12 2.0E	1	1

HANGER SCHEDULE	
H1	LT251188 (TM)
H2	HUS1.81/10(FM)
H4	HU9X (FM)
NOTE:	
TM	TOP MOUNT HANGERS
FM	FACE MOUNT HANGERS

RIMBOARD	
1	1/8" X 11 7/8" O.S.B.
SUBFLOOR - 3/4" NAILED & GLUED	
APP	AS PER PLAN
BBO	BEAM BY OTHERS

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

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REVISION: June 29, 2018

MODEL: UNIT 4005 - EL.C
+ OPT. LOGGIA

Second Floor Framing

Do not scale - refer to architectural plans for dimensions

11 7/8" BLOCKING
TOTAL LENGTH: 26'

JT/PL: 45147/98839

Builder: Gold Park

Location: Vaughan

Designer: NL

Alpa Roof Trusses Inc.

Salesperson: Derek

LI: 299723(290670)

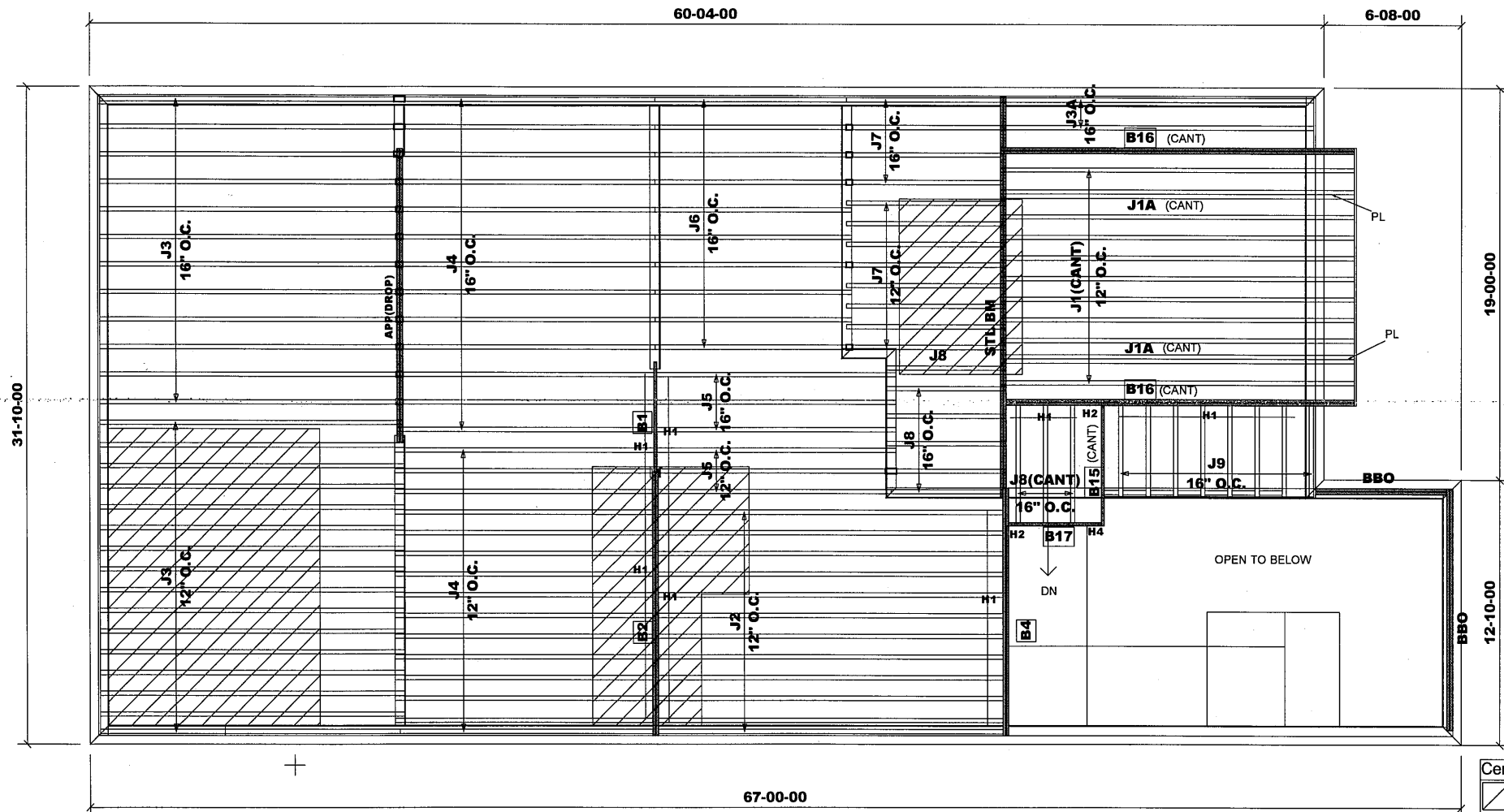
Project: Pine Valley

Date: November 9, 2017

Sheet: 7 of 8

Maple, Ontario

Home Lumber



Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-20	1	9
J1A	18-00-00	11 7/8" NI-20	2	4
J2	17-00-00	11 7/8" NI-20	1	12
J3A	16-00-00	11 7/8" NI-20	1	2
J3	15-00-00	11 7/8" NI-20	1	28
J4	13-00-00	11 7/8" NI-20	1	28
J5	12-00-00	11 7/8" NI-20	1	6
J6	10-00-00	11 7/8" NI-20	1	10
J7	8-00-00	11 7/8" NI-20	1	12
J8	6-00-00	11 7/8" NI-20	1	9
J9	5-00-00	11 7/8" NI-20	1	8
B16	18-00-00	VERSALAM-12 2.0E	2	4
B2	13-00-00	VERSALAM-12 2.0E	2	2
B4	12-00-00	VERSALAM-12 2.0E	2	2
B1	6-00-00	VERSALAM-12 2.0E	1	1
B15	6-00-00	VERSALAM-12 2.0E	1	1
B17	5-00-00	VERSALAM-12 2.0E	1	1

HANGER SCHEDULE

H1-----LT251188 (TM)
H2-----HUS1.81/10(FM)
H4-----HU9X (FM)

NOTE:

TM-----TOP MOUNT HANGERS
FM-----FACE MOUNT HANGERS

RIMBOARD

1- 1/8" X 11 7/8" O.S.B.

SUBFLOOR - 3/4" NAILED & GLUED

APP - AS PER PLAN
BBO - BEAM BY OTHERS

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

Provide I-Joist Blocking between cantilevered joists (along bearing) and rimboard closure at ends.

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REVISION: June 29, 2018

MODEL: UNIT 4005 - E.L.C
+ OPT. LOGGIA(W/OPT. 5 BEDRM)

Second Floor Framing

Do not scale - refer to architectural plans for dimensions

11 7/8" BLOCKING

TOTAL LENGTH: 17'

JT/PL: 45147/98839

Builder: Gold Park

Location: Vaughan

Designer: NL

Alpa Roof Trusses Inc.

Salesperson: Derek

LI: 299723(290670)

Project: Pine Valley

Date: November 9, 2017

Sheet: 8 of 8

Maple, Ontario

Home Lumber



Boise Cascade

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

Floor Beam\B01



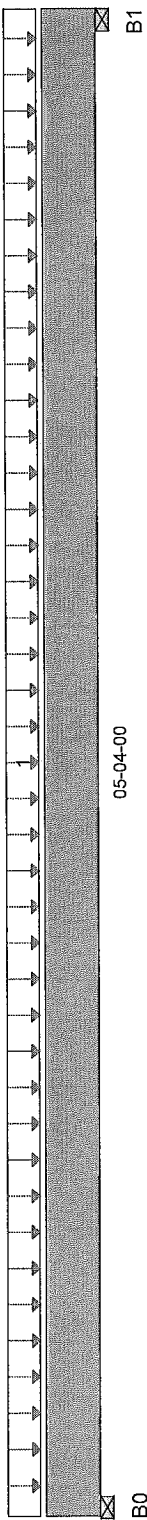
BC CALCO® Design Report

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

November 9, 2017 14:32:08

Build 6080
Job Name: 45147 (4005)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290670.bcc
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 05-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3"	1,296 / 0	664 / 0		
B1, 3-1/2"	1,317 / 0	675 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft²)	L	00-00-00	05-04-00	40	20		1.00 1.15	12-03-00

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,169 ft-lbs	17,696 ft-lbs	17.9%	1	02-07-12
End Shear	1,475 lbs	7,232 lbs	20.4%	1	01-02-14
Total Load Defl.	L/999 (0.02")	n/a	n/a	4	02-07-12
Live Load Defl.	L/999 (0.013")	n/a	n/a	5	02-07-12
Max Defl.	0.02"	n/a	n/a	4	02-07-12
Span / Depth	5	n/a	n/a		00-00-00
Squash Blocks	Valid				

Disclosure

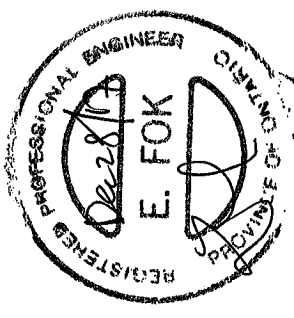
Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance 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" x 1-3/4"	2,775 lbs	85.9%	43.3%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	2,819 lbs	74.8%	37.7%	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets User specified (1") Maximum Total load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALCO® 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



S.152634



Boise Cascade



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

Floor Beam\B02

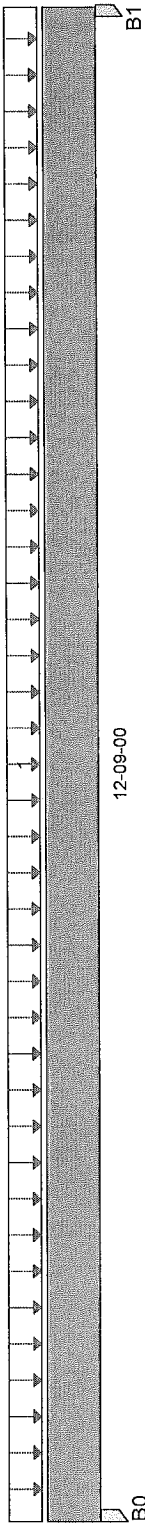
Dry | 1 span | No cantilevers | 0/12 slope (deg)

November 9, 2017 15:59:59

BC CALC® Design Report

Build 6080
Job Name: 45147 (4005)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290670.bcc
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 12-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	3,837 / 0	1,996 / 0		
B1, 3"	3,812 / 0	1,983 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft²)	L	00-00-00	12-09-00	40	20		1.00 1.15	15-00-00

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Moment	24,529 ft-lbs	35,392 ft-lbs	69.3%	1	06-04-12
End Shear	6,598 lbs	14,464 lbs	45.6%	1	01-03-06
Total Load Defl.	L/304 (0.486")	0.617"	78.8%	4	06-04-12
Live Load Defl.	L/463 (0.32")	0.411"	77.8%	5	06-04-12
Max Defl.	0.486"	1"	48.6%	4	06-04-12
Span / Depth	12.5	n/a	n/a		00-00-00
Squash Blocks	Valid				

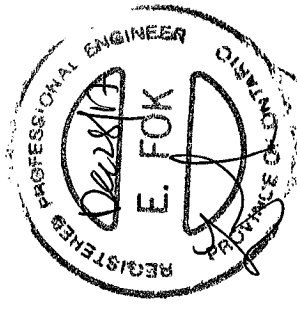
Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Post	3-1/2" x 3-1/2"	8,251 lbs	38.8%	55.2%	Spruce Pine Fir
B1 Post	3" x 3-1/2"	8,197 lbs	45%	64%	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 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 @ 9"
o.c. staggered in 2 rows



S152635



Boise Cascade

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

Floor Beam\B03



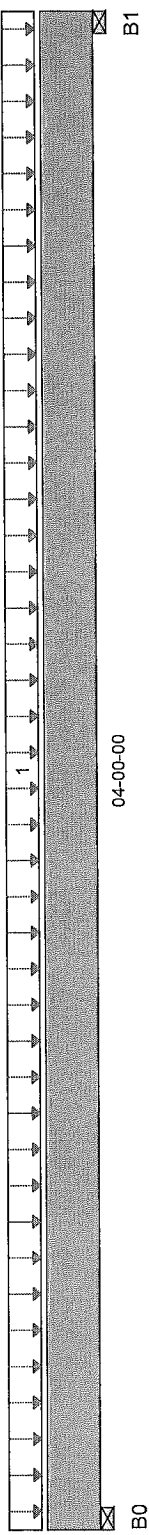
BC CALC® Design Report

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

November 9, 2017 16:54:02

Build 6080
Job Name: 45147 (4005)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290670.bcc
Description: Second Floor Framing
Specifier: NL
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 04-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	360 / 0	147 / 0		
B1, 3-1/2"	360 / 0	147 / 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	04-00-00	40	15	1.00	1.15	04-06-00

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Moment	567 ft-lbs	17,696 ft-lbs	3.2%	1	02-00-00
End Shear	260 lbs	7,232 lbs	3.6%	1	01-03-06
Total Load Defl.	L/999 (0.002")	n/a	n/a	4	02-00-00
Live Load Defl.	L/999 (0.001")	n/a	n/a	5	02-00-00
Max Defl.	0.002"	n/a	n/a	4	02-00-00
Span / Depth	3.6	n/a	n/a		00-00-00
Squash Blocks	Valid				

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.

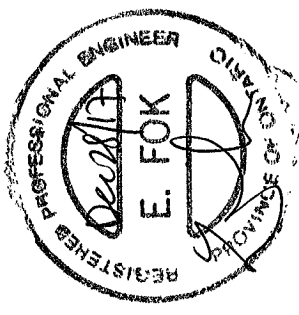
Bearing Supports

	Dim. (L x W)	Demand	Demand/ Resistance Support	Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	724 lbs	19.2%	9.7%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	724 lbs	19.2%	9.7%	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets User specified (1") Maximum Total load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA 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



S152636



Boise Cascade

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

Floor Beam\B04



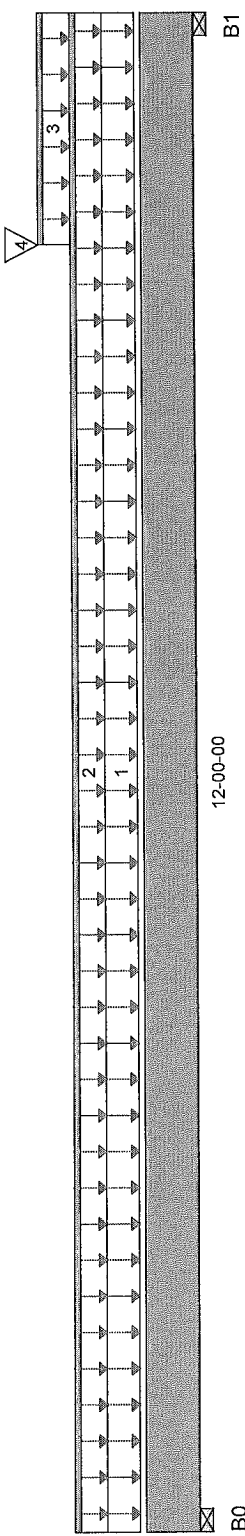
BC CALCO Design Report

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

November 9, 2017 16:56:40

Build 6080
Job Name: 45147 (4005)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290670.bcc
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 12-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	2,160 / 0	1,507 / 0		
B1, 3-1/2"	2,500 / 0	1,651 / 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	12-00-00	40	20		1.00 1.15	08-09-00
2	Unf. Lin. (lb/ft)	L	00-00-00	12-00-00		60			n/a
3	Unf. Lin. (lb/ft)	L	10-02-00	12-00-00	27	14			n/a
4	Conc. Pt. (lbs)	L	10-02-00	10-02-00	410	168			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	14,591 ft-lbs	35,392 ft-lbs	41.2%	1	06-01-11
End Shear	4,670 lbs	14,464 lbs	32.3%	1	10-08-10
Total Load Defl.	L/537 (0.258")	0.577"	44.7%	4	06-00-00
Live Load Defl.	L/905 (0.153")	0.385"	39.8%	5	06-00-00
Max Defl.	0.258"	1"	25.8%	4	06-00-00
Span / Depth	11.7	n/a	n/a		00-00-00
Squash Blocks	Valid				

Bearing Supports

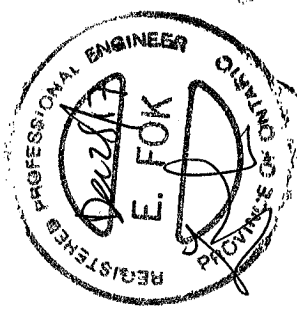
	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Wall/Plate	3-1/2" x 3-1/2"	5,124 lbs	68%	34.3%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	5,813 lbs	77.1%	38.9%	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets User specified (1") Maximum Total load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALCO 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 @ 9"
o.c., staggered in 2 rows



S152637



Boise Cascade



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

Floor Beam\B05

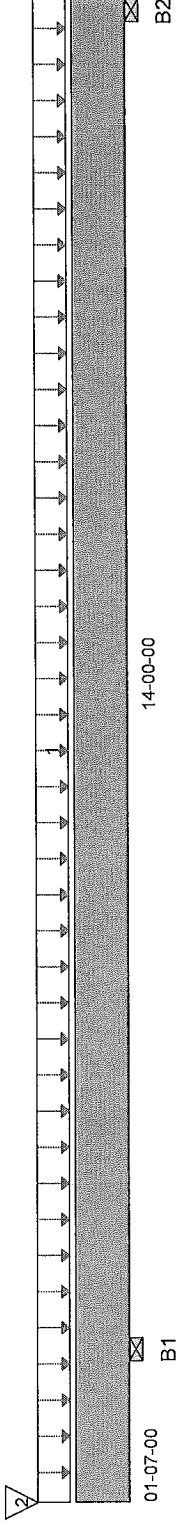
Dry | 2 spans | Left cantilever | 0/12 slope (deg)

November 9, 2017 16:56:45

BC CALC® Design Report

Build 6080
Job Name: 45147 (4005)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290670.bcc
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	858 / 0	387 / 0		
B2, 3-1/2"	379 / 46	166 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft²)	L	00-00-00	15-07-00	40	15		1.00	1.15
2	Conc. Pt. (lbs)	L	00-00-00	00-00-00	360	147			01-04-00 n/a

Controls Summary

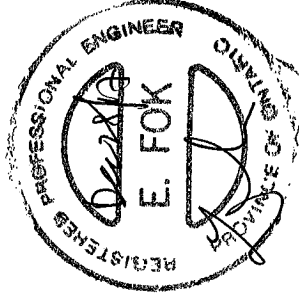
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,504 ft-lbs	17,696 ft-lbs	14.2%	3	08-08-05
Neg. Moment	-1,287 ft-lbs	-17,696 ft-lbs	7.3%	2	01-07-00
End Shear	632 lbs	7,232 lbs	8.7%	3	14-03-10
Cont. Shear	774 lbs	7,232 lbs	10.7%	2	00-05-06
Total Load Defl.	L/999 (0.12")	n/a	n/a	10	08-06-02
Live Load Defl.	L/999 (0.088")	n/a	n/a	13	08-06-02
Total Neg. Defl.	2xL/1,998 (-0.041")	n/a	n/a	10	00-00-00
Max Defl.	0.12"	n/a	n/a	10	08-06-02
Cant. Max Defl.	-0.041"	n/a	n/a	10	00-00-00
Span / Depth	13.9	n/a	n/a		00-00-00
Squash Blocks	Valid				

Bearing Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Wall/Plate	3-1/2" x 1-3/4"	1,770 lbs	47%	23.7%	Spruce Pine Fir
B2 Wall/Plate	3-1/2" x 1-3/4"	776 lbs	20.6%	10.4%	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets User specified (1") Maximum Total load deflection criteria.
Design meets arbitrary (1") Cantilever 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 2010 and CSA O86.

Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Cantilevers require sheathed bottom flanges, blocking at cantilever support and closure at ends.



S.152638



Boise Cascade

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

Floor Beam\B06



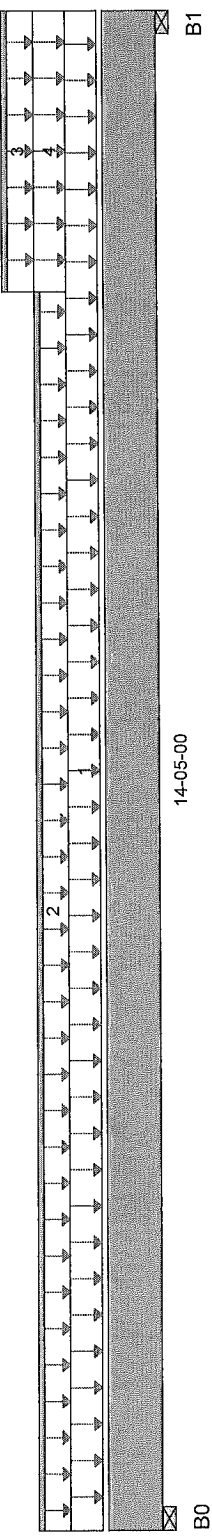
BC CALC® Design Report

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

November 9, 2017 16:23:00

Build 6080
Job Name: 45147 (4005)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290670.bcc
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 14-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	2,279 / 0	1,026 / 0	68 / 0	
B1, 3-1/2"	2,219 / 0	1,594 / 0	785 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft^2)	35,392 ft-lbs	L	00-00-00	14-05-00	40	15			07-03-00
2	Unf. Lin. (lb/ft)	14,464 lbs	L	00-00-00	11-09-00	27	14			n/a
3	Unf. Lin. (lb/ft)	0.698"	L	11-09-00	14-05-00		100			n/a
4	Unf. Area (lb/ft^2)	0.465"	L	11-09-00	14-05-00		11			15-03-00

Controls Summary

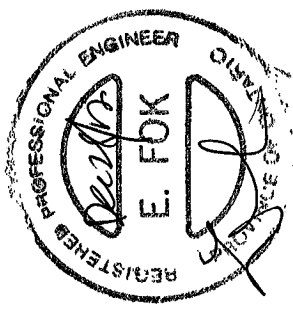
Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	16,338 ft-lbs	35,392 ft-lbs	46.2%	1	07-04-00
End Shear	4,329 lbs	14,464 lbs	29.9%	1	13-01-10
Total Load Defl.	L/400 (0.418")	0.698"	59.9%	11	07-04-00
Live Load Defl.	L/589 (0.284")	0.465"	61.1%	15	07-02-01
Max Defl.	0.418"	1"	41.8%	11	07-04-00
Span / Depth	14.1	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"	4,735 lbs	62.8%	31.7%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	5,713 lbs	75.8%	38.2%	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets User specified (1") Maximum Total load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA 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



S.152639



Boise Cascade

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

Floor Beam\B07



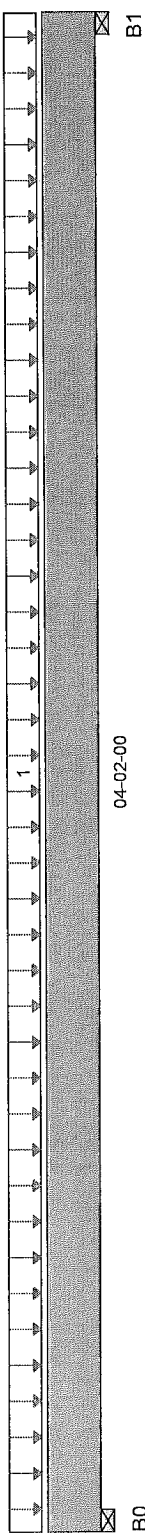
BC CALC® Design Report

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

November 9, 2017 16:46:05

Build 6080
Job Name: 45147 (4005)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290670.bcc
Description: First Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 04-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	333 / 0	138 / 0		
B1, 3-1/2"	333 / 0	138 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft²)	L	00-00-00	04-02-00	40	15		1.00 1.15	04-00-00

Controls Summary

Pos.	Moment	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
End Shear	259 lbs	17,696 ft-lbs	7,232 lbs	3.1%	1	02-01-00
Total Load Defl.	L/999 (0.002")	n/a	n/a	3.6%	1	01-03-06
Live Load Defl.	L/999 (0.001")	n/a	n/a	n/a	4	02-01-00
Max Defl.	0.002"	n/a	n/a	n/a	5	02-01-00
Span / Depth	3.7	n/a	n/a	n/a	4	02-01-00
Squash Blocks	Valid	n/a	n/a	n/a		00-00-00

Disclosure

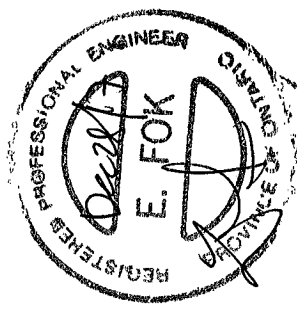
Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance 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	Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	672 lbs	17.8%	9%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	672 lbs	17.8%	9%	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets User specified (1") Maximum Total load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA 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





Boise Cascade

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

Floor Beam\B08



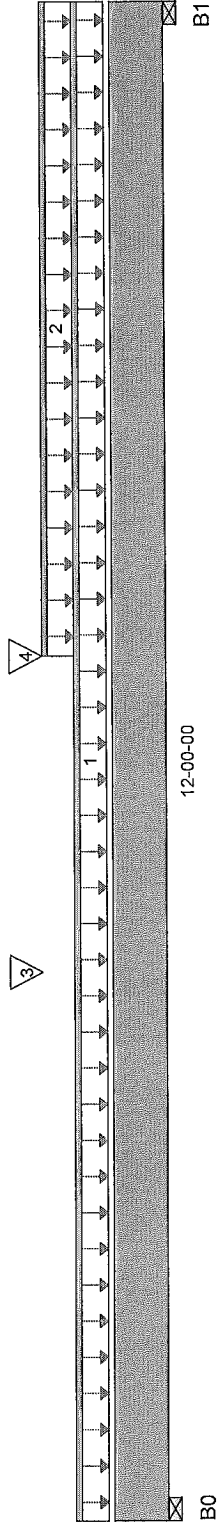
BC CALCO Design Report

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

November 9, 2017 15:20:54

Build 6080
Job Name: 45147 (4005)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290670.bcc
Description: First Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 12'-00'-00"

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	681 / 0	685 / 0		
B1, 3-1/2"	656 / 0	689 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Lin. (lb/ft)	L	00-00-00	12-00-00	27	74			n/a
2	Unf. Lin. (lb/ft)	L	06-10-00	12-00-00	27	14			n/a
3	Conc. Pt. (lbs)	L	04-04-00	04-04-00	540	203			n/a
4	Conc. Pt. (lbs)	L	06-10-00	06-10-00	333	138			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	6,538 ft-lbs	17,696 ft-lbs	36.9%	1	05-08-14
End Shear	1,697 lbs	7,232 lbs	23.5%	1	01-03-06
Total Load Defl.	L/610 (0.227")	0.577"	39.3%	4	05-10-12
Live Load Defl.	L/999 (0.122")	n/a	n/a	5	05-10-12
Max Defl.	0.227"	1"	22.7%	4	05-10-12
Span / Depth	11.7	n/a	n/a		00-00-00
Squash Blocks	Valid				

Disclosure

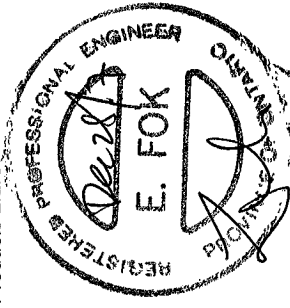
Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance 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	Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	1,877 lbs	49.8%	25.1%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	1,844 lbs	48.9%	24.7%	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets User specified (1") Maximum Total load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALCO 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



S152641



Boise Cascade

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

Floor Beam\B09



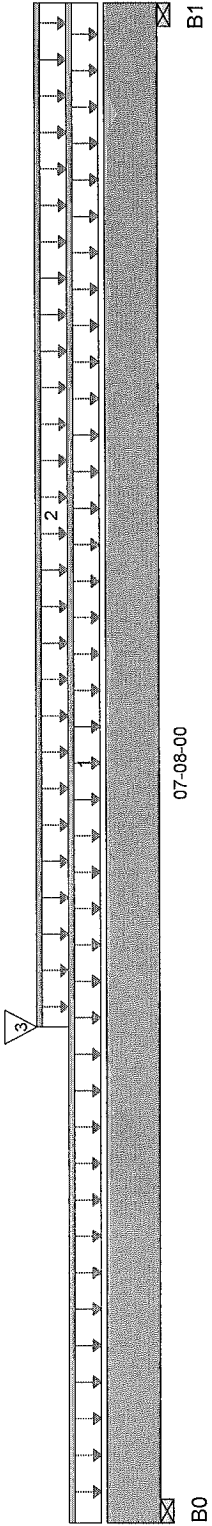
BC CALC® Design Report

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

November 9, 2017 15:21:25

Build 6080
Job Name: 45147 (4005)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290670.bcc
Description: First Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 07-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	377 / 0	195 / 0		
B1, 3-1/2"	302 / 0	169 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Lin. (lb/ft)	L	00-00-00	07-08-00	27	14		1.00	1.15
2	Unf. Lin. (lb/ft)	L	02-06-00	07-08-00	27	14			n/a
3	Conc. Pt. (lbs)	L	02-06-00	02-06-00	333	138			n/a

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,635 ft-lbs	17,696 ft-lbs	9.2%	1	02-06-00
End Shear	726 lbs	7,232 lbs	10%	1	01-03-06
Total Load Defl.	L/999 (0.021")	n/a	n/a	4	03-08-09
Live Load Defl.	L/999 (0.014")	n/a	n/a	5	03-08-09
Max Defl.	0.021"	n/a	n/a	4	03-08-09
Span / Depth	7.3	n/a	n/a		00-00-00
Squash Blocks	Valid				

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.

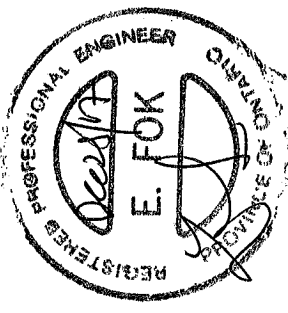
Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	810 lbs	21.5%	10.8%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	664 lbs	17.6%	8.9%	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets User specified (1") Maximum Total load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA 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

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.



S-152642



Boise Cascade

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

Floor Beam\B10

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

November 9, 2017 15:22:24



BC CALC® Design Report

Build 6080

Job Name:

Address:

City, Province, Postal Code: Vaughan, ON

Customer:

Code reports:

45147 (4005)

Pine Valley

Gold Park

CCMC 12472-R

File Name: 290670.bcc

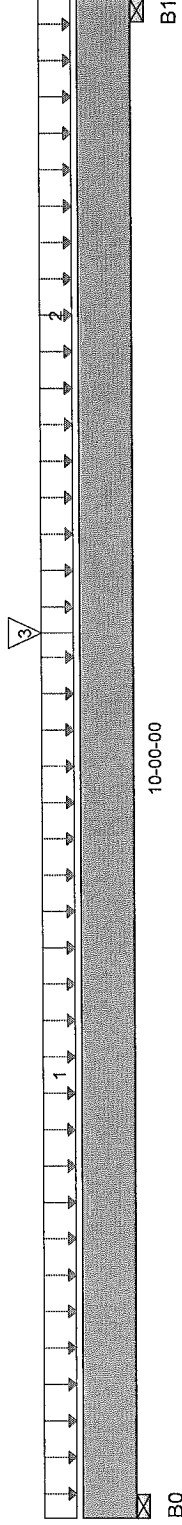
Description: First Floor Framing

Specifier:

Designer: NL

Company: Alpa Roof Trusses

Misc:



Total Horizontal Product Length = 10-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,093 / 0	440 / 0		
B1, 3-1/2"	1,304 / 0	519 / 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	05-10-00	40	15			04-00-00
2	Unf. Area (lb/ft^2)	L	05-10-00	10-00-00	40	15			05-00-00
3	Conc. Pt. (lbs)	L	05-10-00	05-10-00	630	236			n/a

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	6,785 ft-lbs	17,696 ft-lbs	38.3%	1	05-10-00
End Shear	2,091 lbs	7,232 lbs	28.9%	1	08-08-10
Total Load Defl.	L/778 (0.147")	0.477"	30.8%	4	05-01-07
Live Load Defl.	L/999 (0.105")	n/a	n/a	5	05-01-07
Max Defl.	0.147"	1"	14.7%	4	05-01-07
Span / Depth	9.6	n/a	n/a		00-00-00
Squash Blocks	Valid				

Disclosure

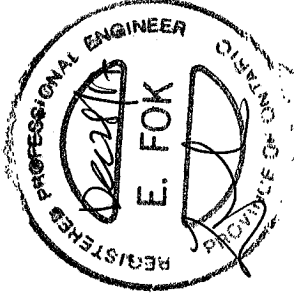
Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance 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"	2,188 lbs	58.1%	29.3%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	2,605 lbs	69.1%	34.9%	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets User specified (1") Maximum Total load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA 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



8.152643



Boise Cascade

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

Floor Beam\B11

November 9, 2017 15:23:28



BC CALC® Design Report

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

Build 6080

Job Name:

45147 (4005)

Address:

Pine Valley

City, Province, Postal Code: Vaughan, ON

Customer:

Gold Park

Code reports:

CCMC 12472-R

File Name: 290670.bcc

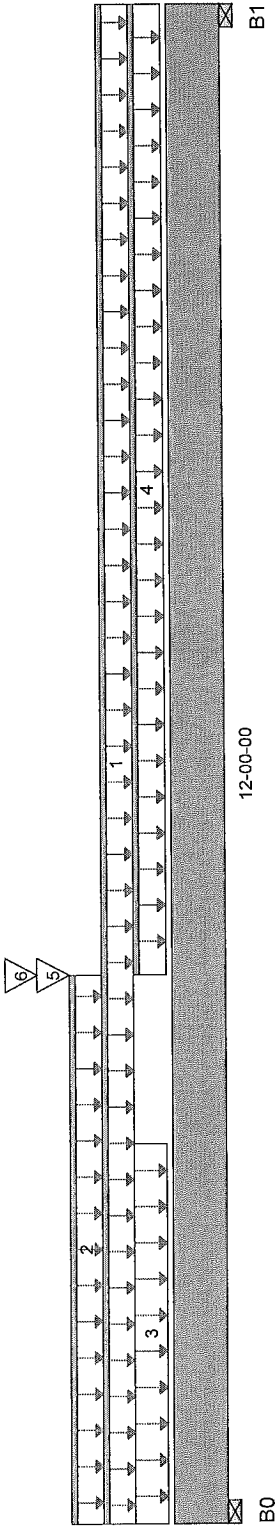
Description: First Floor Framing

Specifier:

Designer: NL

Company: Alpa Roof Trusses

Misc:



Total Horizontal Product Length = 12-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,666 / 0	966 / 0		
B1, 3-1/2"	939 / 0	523 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Lin. (lb/ft)	L	00-00-00	12-00-00	27	14			n/a
2	Unf. Lin. (lb/ft)	L	00-00-00	04-04-00		60			n/a
3	Unf. Area (lb/ft²)	L	00-00-00	03-00-00	40	15			03-06-00
4	Unf. Lin. (lb/ft)	L	04-04-00	12-00-00	27	14			n/a
5	Conc. Pt. (lbs)	L	04-04-00	04-04-00	350	132			n/a
6	Conc. Pt. (lbs)	L	04-04-00	04-04-00	1,304	519			n/a

Controls Summary

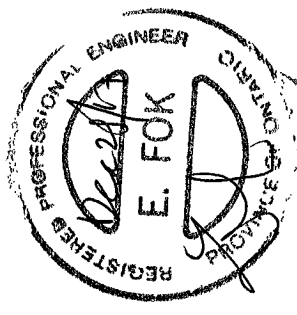
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	11,488 ft-lbs	35,392 ft-lbs	32.5%	1	04-04-00
End Shear	3,163 lbs	14,464 lbs	21.9%	1	01-03-06
Total Load Defl.	L/826 (0.168")	0.577"	29.1%	4	05-06-06
Live Load Defl.	L/999 (0.11")	n/a	n/a	5	05-06-06
Max Defl.	0.168"	1"	16.8%	4	05-06-06
Span / Depth	11.7	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"	3,706 lbs	49.2%	24.8%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	2,062 lbs	27.4%	13.8%	Spruce Pine Fir

Notes

Nail one ply to another with
3 1/2" spiral nails @ 12"
o.c, staggered in 2 rows



S.152644



Boise Cascade

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

Floor Beam\B112

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

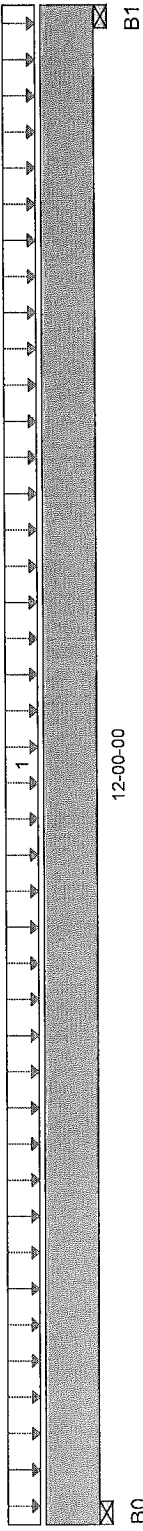
November 9, 2017 15:24:06



BC CALCO® Design Report

Build 6080
Job Name: 45147 (4005)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290670.bcc
Description: First Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 12-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	2,240 / 0	1,192 / 0		
B1, 3-1/2"	2,240 / 0	1,192 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft²)	L	00-00-00	12-00-00	40	20		1.00 1.15	09-04-00

Controls Summary

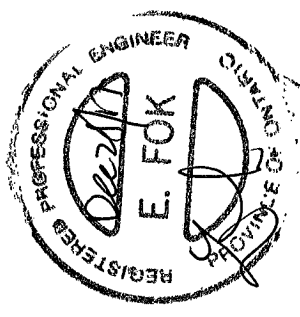
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	13,461 ft-lbs	35,392 ft-lbs	38%	1	06-00-00
End Shear	3,815 lbs	14,464 lbs	26.4%	1	01-03-06
Total Load Defl.	L/592 (0.234")	0.577"	40.5%	4	06-00-00
Live Load Defl.	L/908 (0.153")	0.385"	39.7%	5	06-00-00
Max Defl.	0.234"	1"	23.4%	4	06-00-00
Span / Depth	11.7	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"	4,850 lbs	64.4%	32.5%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	4,850 lbs	64.4%	32.5%	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets User specified (1") Maximum Total load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALCO® 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 @ (2")
o.c., staggered in 2 rows



5152645



Boise Cascade

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

Floor Beam\B13



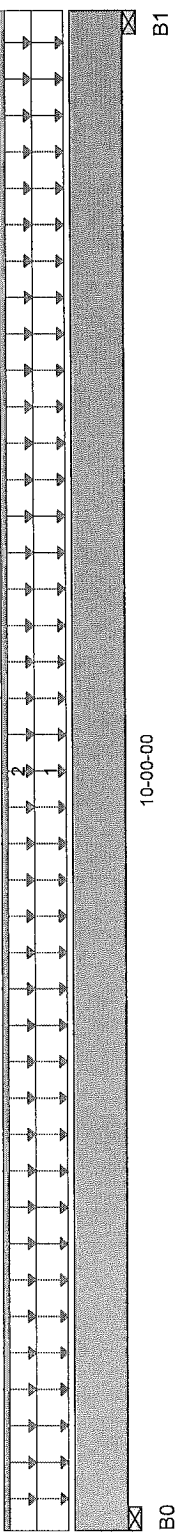
BC CALC® Design Report

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

November 9, 2017 15:24:41

Build 6080
Job Name: 45147 (4005)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290670.bcc
Description: First Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



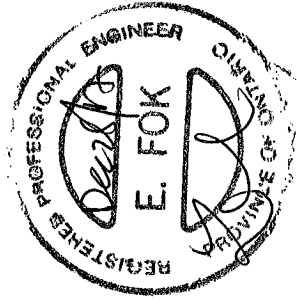
Reaction Summary (Down / Uplift) (lbs)					
Bearing	Live	Dead	Snow	Wind	
B0, 3-1/2"	1,200 / 0	930 / 0			
B1, 3-1/2"	1,200 / 0	930 / 0			

Load Summary					
Tag Description	Load Type	Ref.	Start	End	Live
1	Unf. Area (lb/ft^2)	L	00-00-00	10-00-00	40
2	Unf. Lin. (lb/ft)	L	00-00-00	10-00-00	60

Controls Summary					
Pos.	Moment	Factored Demand	Factored Resistance	Demand / Resistance	Location
1	6,743 ft-lbs	17,696 ft-lbs	38.1%	1	05-00-00
2	2,203 lbs	7,232 lbs	30.5%	1	01-03-06
3	Total Load Defl.	L/704 (0.163")	0.477"	4	05-00-00
4	Live Load Defl.	L/999 (0.092")	n/a	5	05-00-00
5	Max Defl.	0.163"	1"	4	05-00-00
6	Span / Depth	9.6	n/a	4	00-00-00
7	Squash Blocks	Valid			

Bearing Supports					
	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	2,963 lbs	78.6%	39.6%
B1	Wall/Plate	3-1/2" x 1-3/4"	2,963 lbs	78.6%	39.6%

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 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 4



S.152646



Boise Cascade

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

Floor Beam\B14



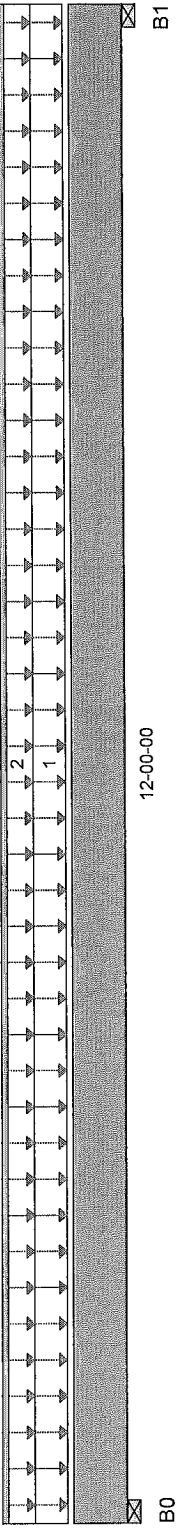
BC CALC® Design Report

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

November 9, 2017 16:23:16

Build 6080
Job Name: 45147 (4005)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290670.bcc
Description: First Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Trib.
B0, 3-1/2"	1,200 / 0	1,018 / 0			
B1, 3-1/2"	1,200 / 0	1,018 / 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	12-00-00	40	20		1.00 1.15	05-00-00
2	Unf. Lin. (lb/ft)	L	00-00-00	12-00-00	60	60			n/a

Controls Summary

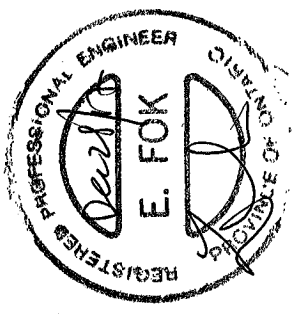
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	8,526 ft-lbs	23,220 ft-lbs	36.7%	1	06-00-00
End Shear	2,518 lbs	11,571 lbs	21.8%	1	01-01-00
Total Load Defl.	L/469 (0.295")	0.577"	51.1%	4	06-00-00
Live Load Defl.	L/867 (0.16")	0.385"	41.5%	5	06-00-00
Max Defl.	0.295"	1"	29.5%	4	06-00-00
Span / Depth	14.6	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"	3,072 lbs	40.8%	20.6%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	3,072 lbs	40.8%	20.6%	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 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 @ (2")
o.c. staggered in 2 rows



S.152647



Boise Cascade



BC CALC® Design Report

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

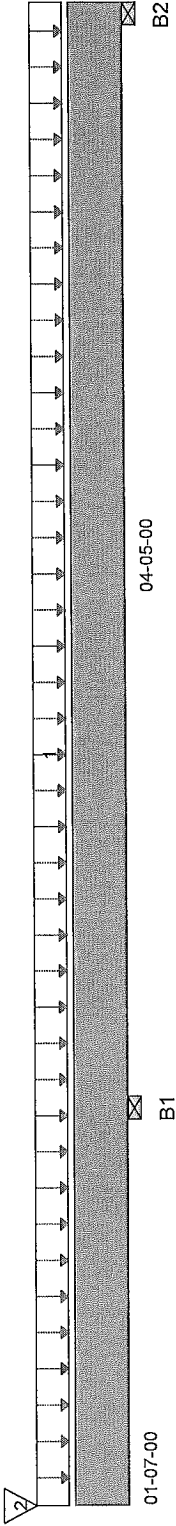
Floor Beam\B15

Dry | 2 spans | Left cantilever | 0/12 slope (deg)

November 9, 2017 16:24:40

Build 6080
Job Name: 45147 (4005)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290670.bcc
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 06-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Trib.
B1, 3-1/2"	708 / 0	306 / 0			
B2, 3-1/2"	124 / 152	0 / 3			

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft²)	L	00-00-00	06-00-00	40	15			01-04-00
2	Conc. Pt. (lbs)	L	00-00-00	00-00-00	360	147			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	123 ft-lbs	17,696 ft-lbs	0.7%	6	04-02-10
Neg. Moment	-1,287 ft-lbs	-17,696 ft-lbs	7.3%	1	01-07-00
End Shear	214 lbs	7,232 lbs	3%	5	04-08-10
Cont. Shear	774 lbs	7,232 lbs	10.7%	1	00-05-06
Total Load Defl.	2xL/1,998 (0.009")	n/a	n/a	9	00-00-00
Live Load Defl.	2xL/1,998 (0.007")	n/a	n/a	12	00-00-00
Total Neg. Defl.	L/999 (-0.003")	n/a	n/a	9	03-03-12
Max Defl.	-0.003"	n/a	n/a	9	03-03-12
Cant. Max Defl.	0.009"	n/a	n/a	9	00-00-00
Span / Depth	4.2	n/a	n/a		00-00-00
Squash Blocks	Valid				

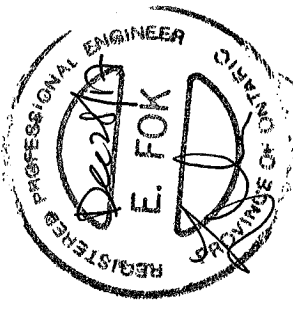
Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1 Wall/Plate	3-1/2" x 1-3/4"	1,445 lbs	38.3%	19.3%	Spruce Pine Fir
B2 Wall/Plate	3-1/2" x 1-3/4"	183 lbs	4.9%	2.5%	Spruce Pine Fir

Cautions

Uplift of 232 lbs found at span 2 - Right.

Notes



S.152648



Boise Cascade



BC CALC® Design Report

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

Floor Beam\B16

Dry | 2 spans | Right cantilever | 0/12 slope (deg)

November 9, 2017 16:44:04

Build 6080

Job Name:

45147 (4005)

Address:

Pine Valley

City, Province, Postal Code: Vaughan, ON

Customer:

Gold Park

Code reports:

CCMC 12472-R

File Name: 290670.bcc

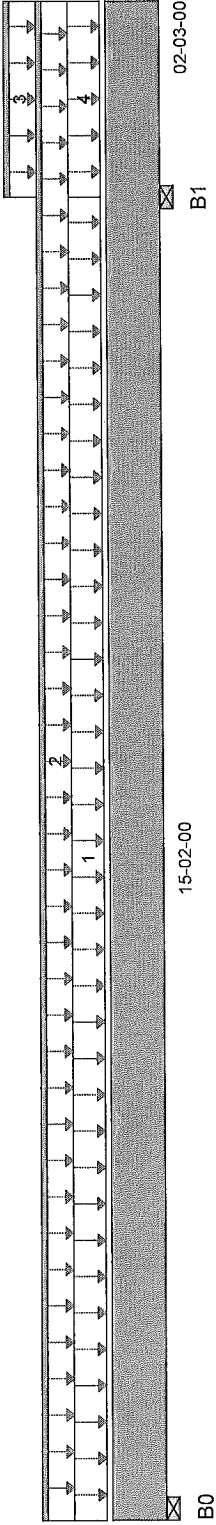
Description: Second Floor Framing

Specifier:

Designer: NL

Company: Alpa Roof Trusses

Misc:



Total Horizontal Product Length = 17'-05"

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	978 / 5	456 / 0	0 / 30	
B1, 3-1/2"	1,014 / 0	952 / 0	425 / 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	15-02-00	40	15			02-06-00
2	Unf. Lin. (lb/ft)	L	00-00-00	17-05-00	27	14			n/a
3	Unf. Lin. (lb/ft)	L	15-02-00	17-05-00		100			n/a
4	Unf. Area (lb/ft ²)	L	15-02-00	17-05-00	11		27	1.00 1.15	06-06-00

Controls Summary

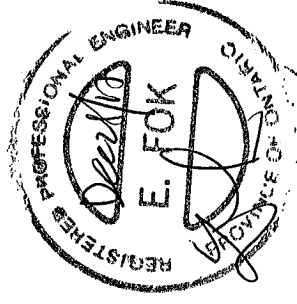
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	7,219 ft-lbs	35,392 ft-lbs	20.4%	8	07-06-11
Neg. Moment	-1,326 ft-lbs	-35,392 ft-lbs	3.7%	15	15-02-00
End Shear	1,690 lbs	14,464 lbs	11.7%	8	01-03-06
Cont. Shear	1,773 lbs	14,464 lbs	12.3%	1	14-00-06
Total Load Defl.	L/869 (0.206")	0.747"	27.6%	23	07-07-14
Live Load Defl.	L/1,231 (0.146")	0.498"	29.2%	33	07-07-14
Total Neg. Defl.	2xL/1,998 (-0.094")	n/a	n/a	23	17-05-00
Max Defl.	0.206"	1"	20.6%	23	07-07-14
Cant. Max Defl.	-0.094"	n/a	n/a	23	17-05-00
Span / Depth	15.1	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"	2,036 lbs	27%	13.6%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	2,924 lbs	38.8%	19.6%	Spruce Pine Fir

Notes

Nail one ply to another with
3 1/2" spiral nails @ 12"
o.c., staggered in 2 rows



S.152649



Boise Cascade

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

Floor Beam\B17

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

November 9, 2017 16:45:36



BC CALC® Design Report

Build 6080

Job Name: 45147 (4005)

Address: Pine Valley

City, Province, Postal Code: Vaughan, ON

Customer: Gold Park

Code reports: CCMC 12472-R

File Name: 290670.bcc

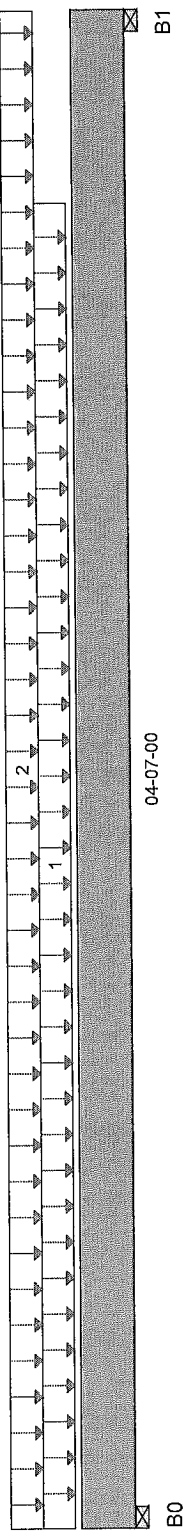
Description: Second Floor Framing

Specifier:

Designer: NL

Company: Alpa Roof Trusses

Misc:



Total Horizontal Product Length = 04-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	410 / 0	168 / 0		
B1, 3-1/2"	333 / 0	139 / 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	04-00-00	40	15			03-06-00
2	Unf. Area (lb/ft ²)	L	00-00-00	04-07-00	40	15			01-00-00

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.

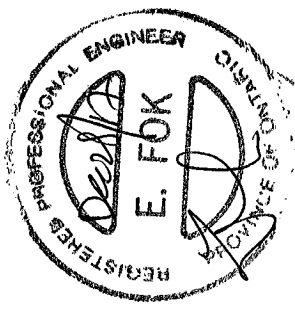
BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.

Bearing Supports

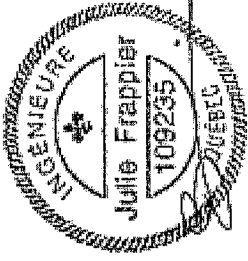
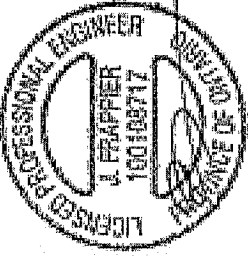
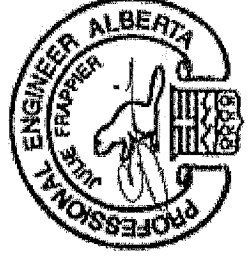
	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	825 lbs	21.9%	11%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	672 lbs	17.8%	9%	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum Total load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA 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



S.152650



Maximum Floor Spans

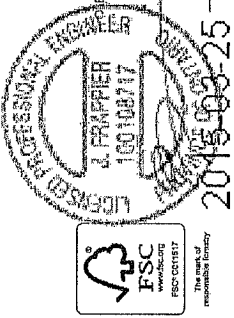
Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/360 Deflection Limit
3/4" OSB G&N Sheathing

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

1. Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of L/360 and a total load deflection limit of L/240.
2. Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
6. Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



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 centerline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- Whenever possible, field-cut holes should be centered 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

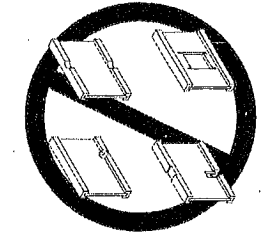
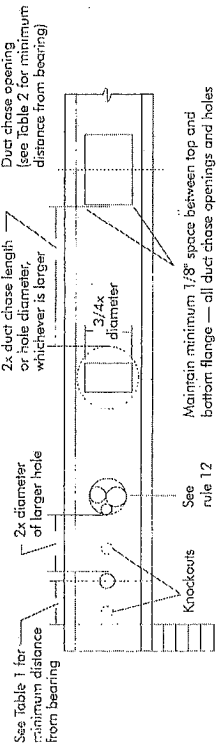
LOCATION OF CIRCULAR HOLES IN JOIST WEBS

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
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"	4-8"	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"	1-3"	2-8"	4-0"	4-4"	5-5"	7-0"	8-4"	---	---
	NL-60	0-7"	1-8"	3-0"	4-3"	5-9"	6-0"	7-3"	8-10"	10-0"	---	---
	NL-80	1-3"	2-6"	4-0"	5-4"	6-9"	7-2"	8-4"	10-0"	11-2"	---	---
14"	NL-20	1-6"	2-10"	4-2"	5-6"	7-0"	7-5"	8-6"	10-3"	11-4"	---	---
	NL-40x	0-7"	0-8"	1-5"	3-2"	4-10"	5-4"	6-9"	8-9"	10-2"	---	---
	NL-60	0-7"	0-8"	0-9"	2-5"	4-4"	4-9"	6-3"	---	---	---	---
	NL-80	0-7"	0-8"	1-0"	2-4"	3-9"	3-9"	5-2"	6-0"	8-3"	10-2"	---
16"	NL-20	0-7"	0-8"	1-8"	3-0"	4-3"	4-8"	5-8"	7-2"	8-0"	---	---
	NL-40x	0-7"	0-8"	1-10"	3-0"	4-5"	5-10"	6-2"	7-3"	8-9"	---	---
	NL-60	0-10"	2-0"	3-4"	4-9"	6-2"	6-5"	7-6"	9-0"	10-0"	---	---
	NL-80	0-7"	0-8"	0-10"	2-5"	4-0"	4-5"	5-9"	7-5"	8-8"	11-4"	12-11"
18"	NL-20	0-7"	0-8"	0-8"	2-0"	3-2"	4-2"	5-5"	7-3"	8-5"	---	---
	NL-40x	0-7"	0-8"	0-8"	1-6"	2-10"	3-2"	4-2"	5-6"	6-4"	7-0"	8-5"
	NL-60	0-7"	1-0"	2-3"	3-6"	4-10"	5-3"	6-3"	7-8"	8-6"	9-2"	10-8"
	NL-80	0-7"	1-3"	2-6"	3-10"	4-3"	5-6"	6-6"	8-0"	9-0"	9-5"	11-0"
20"	NL-20	0-7"	0-8"	0-8"	1-9"	3-3"	3-8"	4-9"	6-5"	7-5"	8-0"	9-10"
	NL-40x	0-7"	0-8"	0-8"	2-0"	3-6"	4-0"	5-0"	6-9"	8-4"	10-2"	11-6"
	NL-60	0-7"	0-8"	0-8"	2-0"	3-6"	4-0"	5-0"	6-9"	8-4"	10-2"	11-6"
	NL-80	0-7"	0-8"	0-8"	2-0"	3-6"	4-0"	5-0"	6-9"	8-4"	10-2"	11-6"

- 1. Above table may be used for I-joist spacing of 24 inches on centre or less.
- 2. Hole location distance is measured from inside face of supports to centre of hole.
- 3. Distances in this chart are based on uniformly loaded joists.
- 4. 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



SAFETY AND CONSTRUCTION PRECAUTIONS



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



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

- WARNING:** I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.
- AVOID ACCIDENTS BY FOLLOWING THESE INSTALLATION GUIDELINES:**
 - 1. 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.
 - 2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
 - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
 - 3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bracing.
 - 4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
 - 5. Never install a damaged I-joist.
- Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines carefully.

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	24	24
9-1/2"	NL-20	4-1"	4-5"	4-10"	5-4"	5-8"	6-1"	6-4"	7-1"	7-5"	7-5"	7-5"
	NL-40x	5-3"	5-8"	6-0"	6-5"	6-10"	7-3"	7-8"	8-2"	8-6"	8-6"	8-6"
	NL-60	5-4"	5-9"	6-2"	6-7"	7-1"	7-5"	8-0"	8-4"	8-9"	8-9"	8-9"
	NL-80	5-1"	5-5"	5-10"	6-3"	6-7"	7-1"	7-6"	8-1"	8-4"	8-4"	8-4"
11-7/8"	NL-20	5-0"	5-6"	6-6"	7-1"	7-5"	7-9"	8-3"	8-9"	9-4"	9-4"	9-4"
	NL-40x	6-8"	7-2"	7-6"	8-0"	8-6"	9-1"	9-6"	10-1"	10-9"	10-9"	10-9"
	NL-60	7-3"	7-8"	8-0"	8-6"	9-0"	9-3"	9-9"	10-3"	11-0"	11-0"	11-0"
	NL-80	7-1"	7-4"	7-9"	8-3"	8-7"	9-1"	9-6"	10-1"	10-8"	10-8"	10-8"
14"	NL-20	7-6"	7-7"	8-0"	8-4"	8-9"	9-2"	9-7"	10-1"	10-7"	10-7"	10-7"
	NL-40x	8-1"	8-1"	8-5"	8-10"	9-4"	9-8"	10-2"	10-8"	11-2"	11-2"	11-2"
	NL-60	8-1"	8-1"	8-5"	9-0"	9-6"	10-1"	10-7"	11-2"	12-0"	12-0"	12-0"
	NL-80	8-7"	9-3"	9-8"	10-1"	10-6"	11-1"	11-6"	12-3"	13-0"	13-0"	13-0"
16"	NL-20	8-7"	9-1"	9-5"	9-10"	10-4"	10-8"	11-2"	11-7"	12-3"	12-3"	12-3"
	NL-40x	9-0"	9-3"	9-9"	10-1"	10-7"	11-1"	11-6"	12-1"	12-6"	12-6"	12-6"
	NL-60	9-2"	9-8"	10-0"	10-6"	10-11"	11-5"	11-9"	12-4"	12-9"	12-9"	12-9"
	NL-80	9-4"	9-9"	10-3"	10-7"	11-1"	11-7"	12-1"	12-7"	13-2"	13-2"	13-2"
18"	NL-20	10-3"	10-8"	11-2"	11-6"	12-1"	12-6"	13-2"	14-1"	14-10"	14-10"	14-10"
	NL-40x	10-4"	10-9"	11-0"	11-4"	11-10"	12-3"	12-8"	13-3"	14-0"	14-0"	14-0"
	NL-60	10-4"	10-9"	11-3"	11-9"	12-1"	12-7"	13-1"	13-8"	14-4"	14-4"	14-4"
	NL-80	10-9"	11-2"	11-8"	12-0"	12-6"	13-0"	13-6"	14-2"	14-10"	14-10"	14-10"
20"	NL-20	11-1"	11-5"	11-10"	12-4"	12-9"	13-2"	13-9"	14-4"	15-2"	15-2"	15-2"
	NL-40x	11-1"	11-5"	11-10"	12-4"	12-9"	13-2"	13-9"	14-4"	15-2"	15-2"	15-2"
	NL-60	11-1"	11-5"	11-10"	12-4"	12-9"	13-2"	13-9"	14-4"	15-2"	15-2"	15-2"
	NL-80	11-1"	11-5"	11-10"	12-4"	12-9"	13-2"	13-9"	14-4"	15-2"	15-2"	15-2"

- 1. Above table may be used for I-joist 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. The above table is based on simple-span joists only. For other applications, contact your local distributor.
- 4. Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480.
- 5. 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 predrilled 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. Storing 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.



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



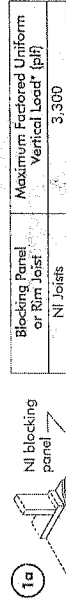
Never stack building materials over unfastened I-joists. Once sheathed, do not over-stress I-joists with concentrated loads from building materials.



PRODUCT WARRANTY

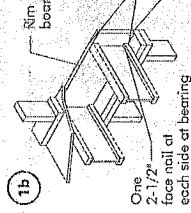
Charters Chibongwana guarantees that, in accordance with our specifications, Nordic products are free from manufacturing defects in material and workmanship.

Furthermore, Charters Chibongwana 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.



Attach I-joist to top plate per detail 1b

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



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

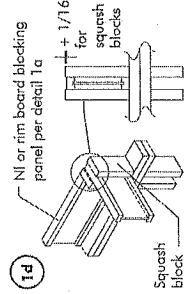
*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

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

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

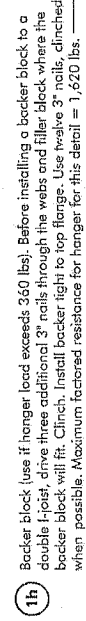
To avoid splitting flange, start nails at least 1-1/2" from end of I-joist. Nails may be driven at an angle to avoid splitting of bearing plate.

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



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

Provide lateral bracing per detail 1a or 1b



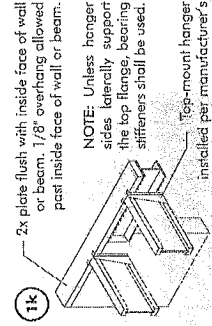
Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double I-joist, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch. Install backer tight to top flange. Use twelve 3" nails, clinched when possible. Maximum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

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

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

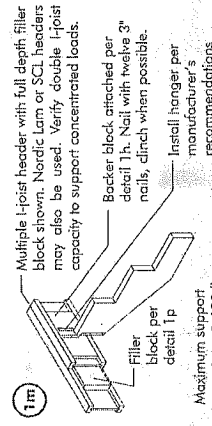
* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-Q325 or CAN/CSA-Q337 Standard.

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



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

Top-mount hanger installed per manufacturer's recommendations

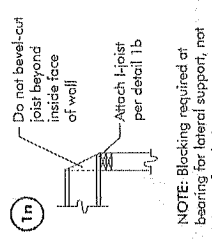


Multiple I-joist header with full depth filler block shown. Nordic Lam or SCL headers may also be used. Verify double I-joist capacity to support concentrated loads.

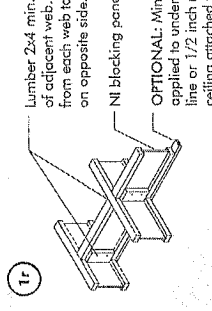
Backer block attached per detail 1h. Nail with twelve 3" nails, clinch when possible.

Install hanger per manufacturer's recommendations

Maximum support capacity = 1,620 lbs.



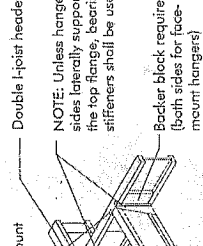
NOTE: Blocking required at bearing for lateral support, not shown for clarity.



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 sides.

NI blocking panel

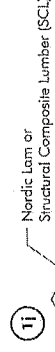
NOTE: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.



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

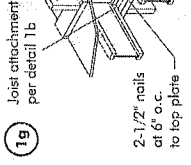
Backer block required: (both sides for face-mount hangers)

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



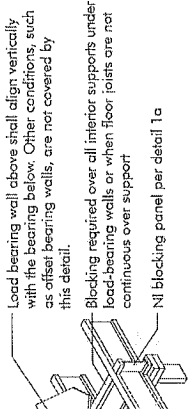
For nailing schedules for multiple beams, see the manufacturer's recommendations.

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



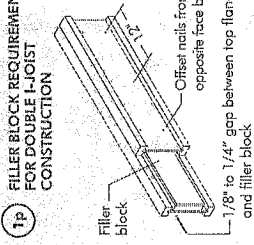
2-1/2" nails at 6" o.c. to top plate

NI blocking panel per detail 1a



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



NOTE: 1. Support back of I-joist web during nailing to prevent damage to web/flange connection.

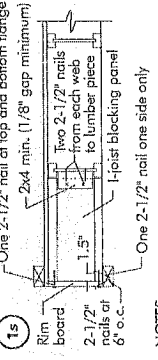
2. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.

3. Filler block is required between joists for full length of span.

4. Nail joists together with two rows of 3" nails at 12 inches o.c. (clinch when possible) on each side of the double I-joist. Total of four nails per foot required. If nails can be clinched, only two nails per foot are required.

5. The maximum factored load that may be applied to one side of the double joist using this detail is 860 lb/ft. Verify double I-joist capacity.

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



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

2x4 min. (1/8" gap minimum)

Two 2-1/2" nails from each web to lumber piece

1-joist blocking panel

One 2-1/2" nail one side only

NOTE: In some local codes, blocking is prescriptively required in the first joist space (for first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.

All nails are common spiral in this detail.

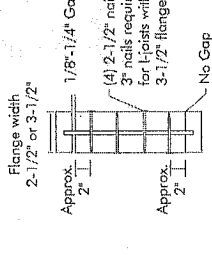
All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.125" dia.) common spiral nails may be substituted for 2-1/2" (0.125" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for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

WEB STIFFENERS

RECOMMENDATIONS:

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

FIGURE 2 WEB STIFFENER INSTALLATION DETAILS



CONCENTRATED LOAD (Load stiffener)

Tight Joint No Gap

Gap

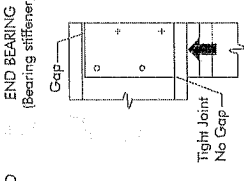
Flange width 2-1/2" or 3-1/2"

Approx. 2"

1/8"-1/4" Gap

(4) 2-1/2" nails, 3" nails required for I-joists with 3-1/2" flange width

No Gap



END BEARING (Bearing stiffener)

Gap

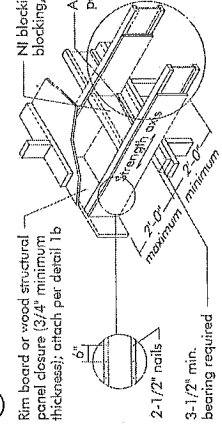
Tight Joint No Gap

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

See the adjacent table for web stiffener size requirements

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

Method 1 — SHEATHING REINFORCEMENT ONE SIDE



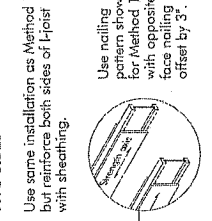
Rim board or wood structural panel closure (3/4" minimum thickness); attach per detail 1b

Attach I-joist to plate per detail 1b

2-1/2" nails

3-1/2" min. Bearing required

Method 2 — SHEATHING REINFORCEMENT TWO SIDES



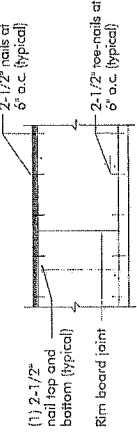
Use same installation as Method 1 but reinforce both sides of I-joist with sheathing.

Use nailing pattern shown for Method 1 with opposite face nailing offset by 3".

RIM BOARD INSTALLATION DETAILS

8c ATTACHMENT DETAILS WHERE RIM BOARDS ABOUT

Rim Board Joint Between Floor Joists

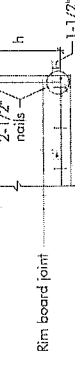


(1) 2-1/2" nail top and bottom (typical)

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

Rim board joint

Rim Board Joint at Corner



2-1/2" nails

1-1/2" h

Rim board joint

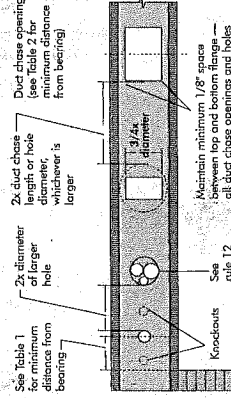
NOTE: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail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

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

1. The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
2. I-joint top and bottom flanges must NEVER be cut, notched, or otherwise modified.
3. Where 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 longer sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
6. Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the larger round hole or twice 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 continuous length of a joist. Holes of greater size may be permitted subject to verification.
9. A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
10. All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
11. Limit three maximum size holes per span, of which one may be a duct chase opening.
12. A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

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 electrical or small plumbing lines. They are not to be used for anything other than their intended purpose. They 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 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 rounded corners is recommended. Starting from the top or bottom flange, drill a 3/4 inch diameter hole in each of the four corners and then making the cut between the holes 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 call in place. This protects the tongue of the next panel from damage when tapping this piece with a block and straightener.
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, spaced 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. Top the second row of panels into place, using a block to protect groove edges.
9. Stagger 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 T&G edges, is recommended. (Use a spacer tool or an 2-1/2" common nail to assure accurate and consistent spacing.)
10. Complete all nailing of each panel before glue sets. Check the manufacturer's recommendations for cure time. (Warm weather accelerates glue setting.) Use 2" ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the glue bond.

FASTENERS FOR SHEATHING AND SUBFLOORING(1)

Maximum Fastener Spacing	Minimum Fastener Spacing	Nails and Spikes				Maximum Spacing of Fasteners at Corners, Edges, and Supports
		Common Nails or Spiral Nails	Ring-Shank Nails or Screws	Staples		
16"	5/8"	2"	1-3/4"	2"	6"	12"
20"	5/8"	2"	1-3/4"	2"	6"	12"
24"	3/4"	2"	1-3/4"	2"	6"	12"

1. Fasteners of sheathing and subflooring shall conform to the above table.
2. Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/16-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 minimum shown.
5. Use only adhesives conforming to CAN/CSSB-71.26 Standard, Adhesives for Field-Gluing Plywood to Joist Framing for Floor System, applied in accordance with the manufacturer's instructions. If OSB or Gypsum board surface and edges are to be used, use only polymer-based glues, check with panel manufacturer.

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

IMPORTANT NOTE:
Floor sheathing must be field glued to the I-joint flanges in order to achieve the maximum performance of the floor system. If sheathing is nailed only, I-joint spans must be verified with your local distributor.

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	Minimum Distances from Inside Face of Any Support to Centre of Hole (in)									
	1	2	3	4	5	6	7	8	9	10
12"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
14"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
16"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
18"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
20"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
22"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
24"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
26"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
28"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
30"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
32"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
34"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
36"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
38"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
40"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

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

OPTIONAL:

This chart table is based on the joists used at their maximum span. If the joists are placed at less than their full maximum span (see Manufacturer's literature for joist spans), the minimum distance from the centreline of the hole to the face of any support (D) as given above may be reduced as follows:

$$\text{Reduced } D = \frac{\text{Actual } D}{\text{Span Adjustment Factor}}$$

Where:

- Actual = Distance from the inside face of any support to centre of hole, reduced for less than maximum span application.
- Span Adjustment Factor = The actual measured span distance between the inside faces of supports (ft).
- D = Minimum distance from the centreline of any support to centre of hole from this table.
- Factor = Ratio of actual span to full span. In the above calculation for Actual.

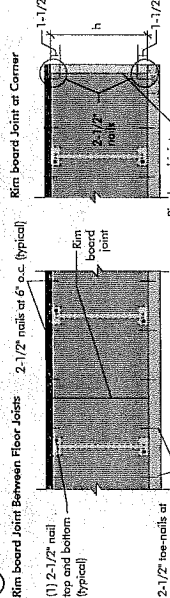
TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only

Joist Depth	Minimum Distances from Inside Face of Any Support to Centre of Opening (in)									
	1	2	3	4	5	6	7	8	9	10
12"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
14"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
16"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
18"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
20"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
22"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
24"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
26"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
28"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
30"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
32"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
34"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
36"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
38"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
40"	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

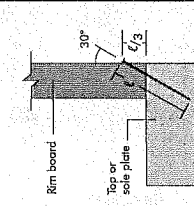
1. Above table may be used for joist spacing of 24 inches on centre or less.
2. Duct chase opening location distances is measured from inside face of supports to centre of opening.
3. The above table is based on simple span joists only. For other applications, consult your local distributor.
4. The above table is based on a dead load of 15 psf and a live load deflection limit of L/480. For other applications, consult your local distributor.

RIM BOARD INSTALLATION DETAILS

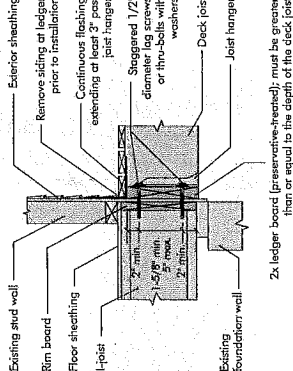
8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



8b TOE-NAIL CONNECTION AT RIM BOARD



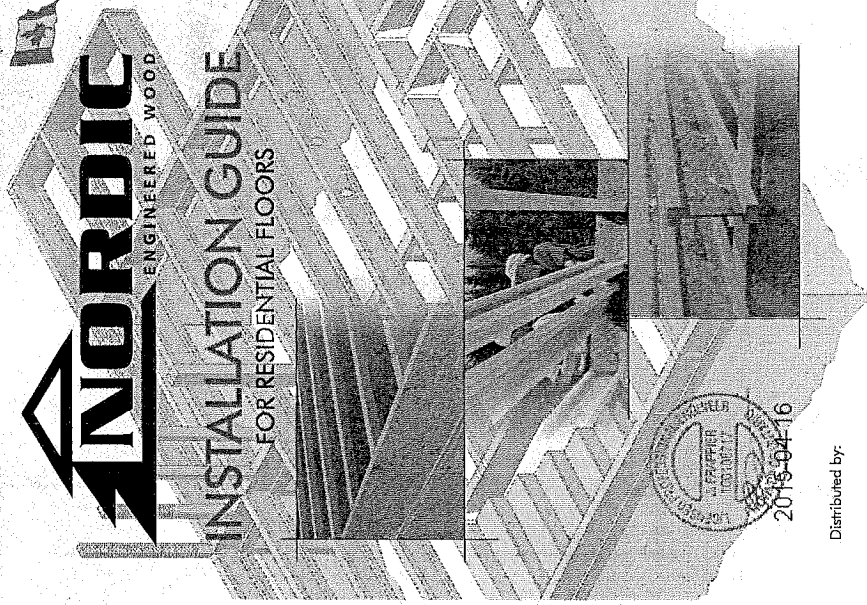
8c 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL



PRODUCT WARRANTY

Our products are made to the highest standards and are guaranteed to be free from manufacturing defects in material and workmanship.

For more information, please contact your local distributor or visit our website at www.manufacturer.com.



INSTALLATION GUIDEFOR RESIDENTIAL FLOORS



2015-04-16

Distributed by:



SAFETY AND CONSTRUCTION PRECAUTIONS



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

Avoid Accidents by Following these Important Guidelines:

1. Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-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.
2. When the building is completed, the floor sheathing will provide lateral support for the top flange of the I-joists. Until this sheathing is applied, temporary bracing or shoring, or temporary sheathing must be applied to prevent I-joist rollover or buckling.



- Temporary bracing or shoring must be 1x4 inch minimum, at least 8 feet long and spaced no more than 6 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-bracing.
- 4. Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
- 5. Never install a damaged I-joist.

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

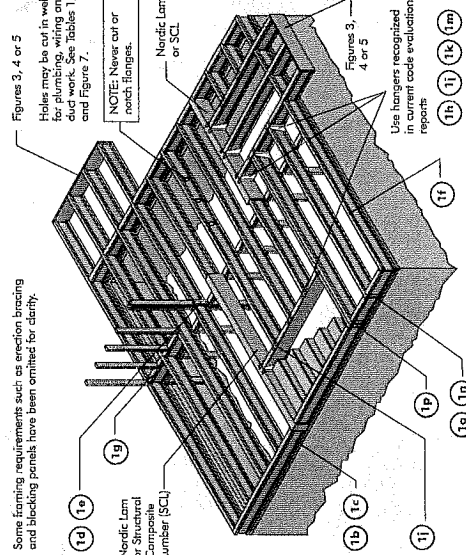
STORAGE AND HANDLING GUIDELINES

1. Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
2. Store, stack, and handle I-joists vertically and level only.
3. Always stack and handle I-joists in the upright position only.
4. Do not store I-joists in direct contact with the ground and/or finished.
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.

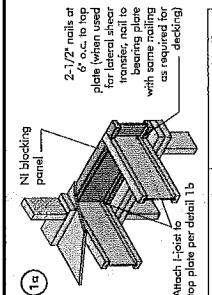
INSTALLING NORDIC I-JOISTS

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

FIGURE 1 TYPICAL NORDIC I-JOIST FRAMING AND CONSTRUCTION DETAILS

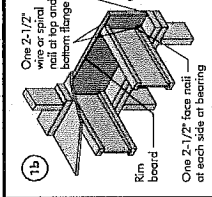


All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.125 dia) common spiral nails may be substituted for 2-1/2" (0.125 dia) common wire nails. Minimum lumber dimensions to be specified in No. 2 or better. Manufacturer's comments not shown to scale for clarity.



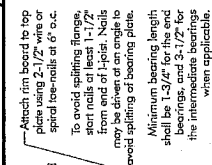
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* [kN]
Ni Joists	3,300

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



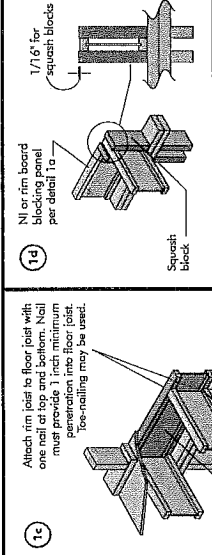
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* [kN]
1-1/8" Rim Board Plus	8,000

*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* [kN]
1-1/8" Rim Board Plus	8,000

*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 Load per Pair of Squash Blocks [kN]
2x Lumber	8,500
1-1/8" Rim Board Plus	4,900

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

MAXIMUM FLOOR SPANS

- Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 pcf and dead load of 10 pcf per 1.50. The serviceability limit states include the consideration of floor vibration and a live load deflection limit of $L/480$. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches or more. OSB shall be installed in accordance with CAN/CSA C806-09 Standard. No concrete topping or bridging element will be assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
- Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
- Bearing stiffeners are not required when joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniform loads on an engineering analysis may be required based on the use of the design properties.
- Tables are based on Limit States Design per CAN/CSA C806-09 Standard, and NBC 2010.
- Units conversion: 1 inch = 25.4 mm
1 foot = 0.305 m

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

Joist Depth	Span	Simple Span	On Center Spacing	On Center Spacing
N-20	9'-1/2"	12'-0"	16"	12'-0"
N-20	11'-7/8"	14'-0"	16"	14'-0"
N-20	14'-0"	16'-0"	16"	16'-0"
N-20	16'-0"	18'-0"	16"	18'-0"
N-20	18'-0"	20'-0"	16"	20'-0"
N-20	20'-0"	22'-0"	16"	22'-0"
N-20	22'-0"	24'-0"	16"	24'-0"
N-20	24'-0"	26'-0"	16"	26'-0"
N-20	26'-0"	28'-0"	16"	28'-0"
N-20	28'-0"	30'-0"	16"	30'-0"
N-20	30'-0"	32'-0"	16"	32'-0"
N-20	32'-0"	34'-0"	16"	34'-0"
N-20	34'-0"	36'-0"	16"	36'-0"
N-20	36'-0"	38'-0"	16"	38'-0"
N-20	38'-0"	40'-0"	16"	40'-0"
N-20	40'-0"	42'-0"	16"	42'-0"
N-20	42'-0"	44'-0"	16"	44'-0"
N-20	44'-0"	46'-0"	16"	46'-0"
N-20	46'-0"	48'-0"	16"	48'-0"
N-20	48'-0"	50'-0"	16"	50'-0"
N-20	50'-0"	52'-0"	16"	52'-0"
N-20	52'-0"	54'-0"	16"	54'-0"
N-20	54'-0"	56'-0"	16"	56'-0"
N-20	56'-0"	58'-0"	16"	58'-0"
N-20	58'-0"	60'-0"	16"	60'-0"
N-20	60'-0"	62'-0"	16"	62'-0"
N-20	62'-0"	64'-0"	16"	64'-0"
N-20	64'-0"	66'-0"	16"	66'-0"
N-20	66'-0"	68'-0"	16"	68'-0"
N-20	68'-0"	70'-0"	16"	70'-0"
N-20	70'-0"	72'-0"	16"	72'-0"
N-20	72'-0"	74'-0"	16"	74'-0"
N-20	74'-0"	76'-0"	16"	76'-0"
N-20	76'-0"	78'-0"	16"	78'-0"
N-20	78'-0"	80'-0"	16"	80'-0"
N-20	80'-0"	82'-0"	16"	82'-0"
N-20	82'-0"	84'-0"	16"	84'-0"
N-20	84'-0"	86'-0"	16"	86'-0"
N-20	86'-0"	88'-0"	16"	88'-0"
N-20	88'-0"	90'-0"	16"	90'-0"
N-20	90'-0"	92'-0"	16"	92'-0"
N-20	92'-0"	94'-0"	16"	94'-0"
N-20	94'-0"	96'-0"	16"	96'-0"
N-20	96'-0"	98'-0"	16"	98'-0"
N-20	98'-0"	100'-0"	16"	100'-0"

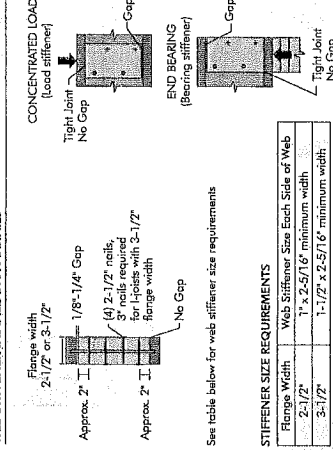
WEB STIFFENERS

RECOMMENDATIONS:

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

Units conversion: 1 inch = 25.4 mm

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS



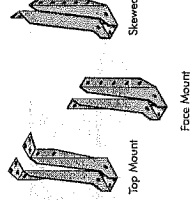
See table below for web stiffener size requirements

STIFFENER SIZE REQUIREMENTS

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

I-JOIST HANGERS

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

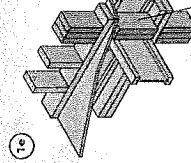


NORDIC I-JOIST SERIES

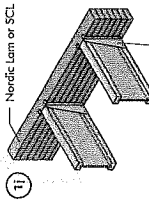
SAF No. 2	1959 ASR	2109 ASR	1959 ASR	2109 ASR	2409 ASR	NBC Lumber
33 pieces per unit	33 pieces per unit	33 pieces per unit	33 pieces per unit	33 pieces per unit	33 pieces per unit	33 pieces per unit
NL-20	NL-20	NL-20	NL-20	NL-20	NL-20	NL-20
NL-24	NL-24	NL-24	NL-24	NL-24	NL-24	NL-24
NL-28	NL-28	NL-28	NL-28	NL-28	NL-28	NL-28
NL-32	NL-32	NL-32	NL-32	NL-32	NL-32	NL-32
NL-36	NL-36	NL-36	NL-36	NL-36	NL-36	NL-36
NL-40	NL-40	NL-40	NL-40	NL-40	NL-40	NL-40
NL-44	NL-44	NL-44	NL-44	NL-44	NL-44	NL-44
NL-48	NL-48	NL-48	NL-48	NL-48	NL-48	NL-48
NL-52	NL-52	NL-52	NL-52	NL-52	NL-52	NL-52
NL-56	NL-56	NL-56	NL-56	NL-56	NL-56	NL-56
NL-60	NL-60	NL-60	NL-60	NL-60	NL-60	NL-60
NL-64	NL-64	NL-64	NL-64	NL-64	NL-64	NL-64
NL-68	NL-68	NL-68	NL-68	NL-68	NL-68	NL-68
NL-72	NL-72	NL-72	NL-72	NL-72	NL-72	NL-72
NL-76	NL-76	NL-76	NL-76	NL-76	NL-76	NL-76
NL-80	NL-80	NL-80	NL-80	NL-80	NL-80	NL-80
NL-84	NL-84	NL-84	NL-84	NL-84	NL-84	NL-84
NL-88	NL-88	NL-88	NL-88	NL-88	NL-88	NL-88
NL-92	NL-92	NL-92	NL-92	NL-92	NL-92	NL-92
NL-96	NL-96	NL-96	NL-96	NL-96	NL-96	NL-96
NL-100	NL-100	NL-100	NL-100	NL-100	NL-100	NL-100

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

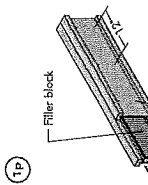
Nordic Engineered Wood I-joists use only finger-jointed black spruce or fir lumber in their flanges, ensuring consistent quality, superior strength and longer span carrying capacity.



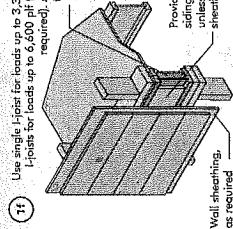
Transfer load from above to bearing below. Install squish blocks per detail 1d. Match bearing area of blocks below to just above.



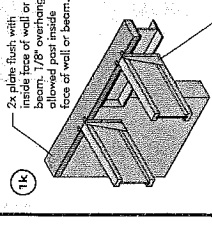
Top- or face-mount hanger - installed per manufacturer's recommendations. For nailing schedule for multiple beams, see the manufacturer's recommendations. Note: Unless hanger sides laterally support the joist, bearing stiffeners shall be used.



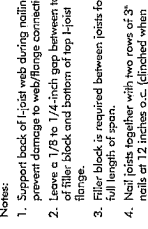
1/8" to 1/4" gap between top flange and filler block.



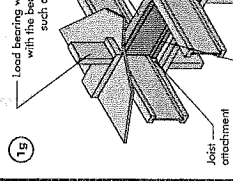
Use single I-joist for loads up to 3,300 pcf, double I-joists for loads up to 6,600 pcf. Attach I-joist to top plate using 2-1/2" nails at 6" o.c.



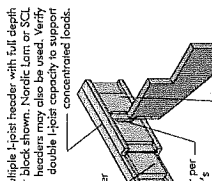
Provide backer for siding attachment unless attachable sheathing is used.



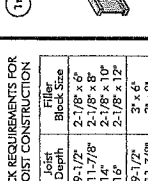
2x plate flush with inside face of wall or beam, 1/8" overhang allowed past inside face of wall or beam.



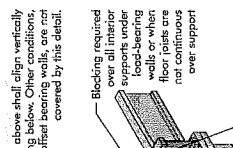
Load bearing wall above shall align vertically with the bearing below. Other conditions, such as offset bearing walls, are not covered by this detail.



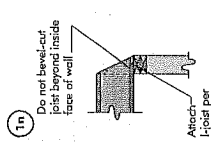
Blocking required over all interior supports under load-bearing walls or when floor joists are not continuous over support.



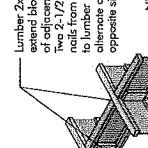
NI blocking panel per detail 1b. Do not level-cut joist beyond inside face of wall.



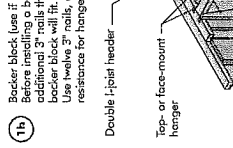
Double I-joist header. Top- or face-mount hanger.



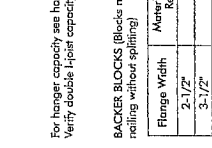
Filler block, required (both sides for face-mount hangers). Filler block, per detail 1p.



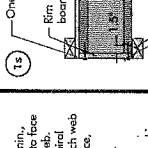
Backer block (blocks must be long enough to permit required nailing without splitting). Backer block, required (both sides for face-mount hangers).



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



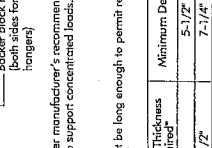
Filler block attached per detail 1h. Nail with twelve 3" nails, attach when possible. Maximum support capacity = 1,620 lbs.



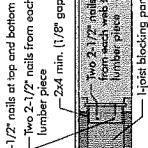
Lumber 2x4 min. and back to face of wall. Two 2-1/2" nails from each web to lumber piece, alternate on opposite side.



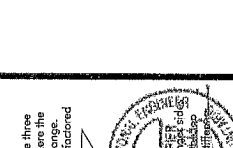
NI blocking panel. Optional: Minimum 1x4 inch strap applied to underside of joist at blocking for spacing of joists.



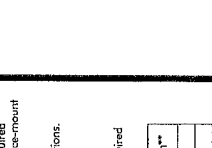
One 2-1/2" nails at top and bottom flange. One 2-1/2" nails at top and bottom flange.



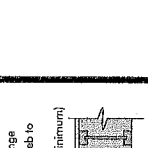
One 2-1/2" nails at top and bottom flange. One 2-1/2" nails at top and bottom flange.



Backer block (blocks must be long enough to permit required nailing without splitting). Backer block, required (both sides for face-mount hangers).



Filler block, required (both sides for face-mount hangers). Filler block, per detail 1p.



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



Double I-joist header. Top- or face-mount hanger.



Filler block, required (both sides for face-mount hangers). Filler block, per detail 1p.



Backer block (blocks must be long enough to permit required nailing without splitting). Backer block, required (both sides for face-mount hangers).



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



Filler block attached per detail 1h. Nail with twelve 3" nails, attach when possible. Maximum support capacity = 1,620 lbs.



Lumber 2x4 min. and back to face of wall. Two 2-1/2" nails from each web to lumber piece, alternate on opposite side.