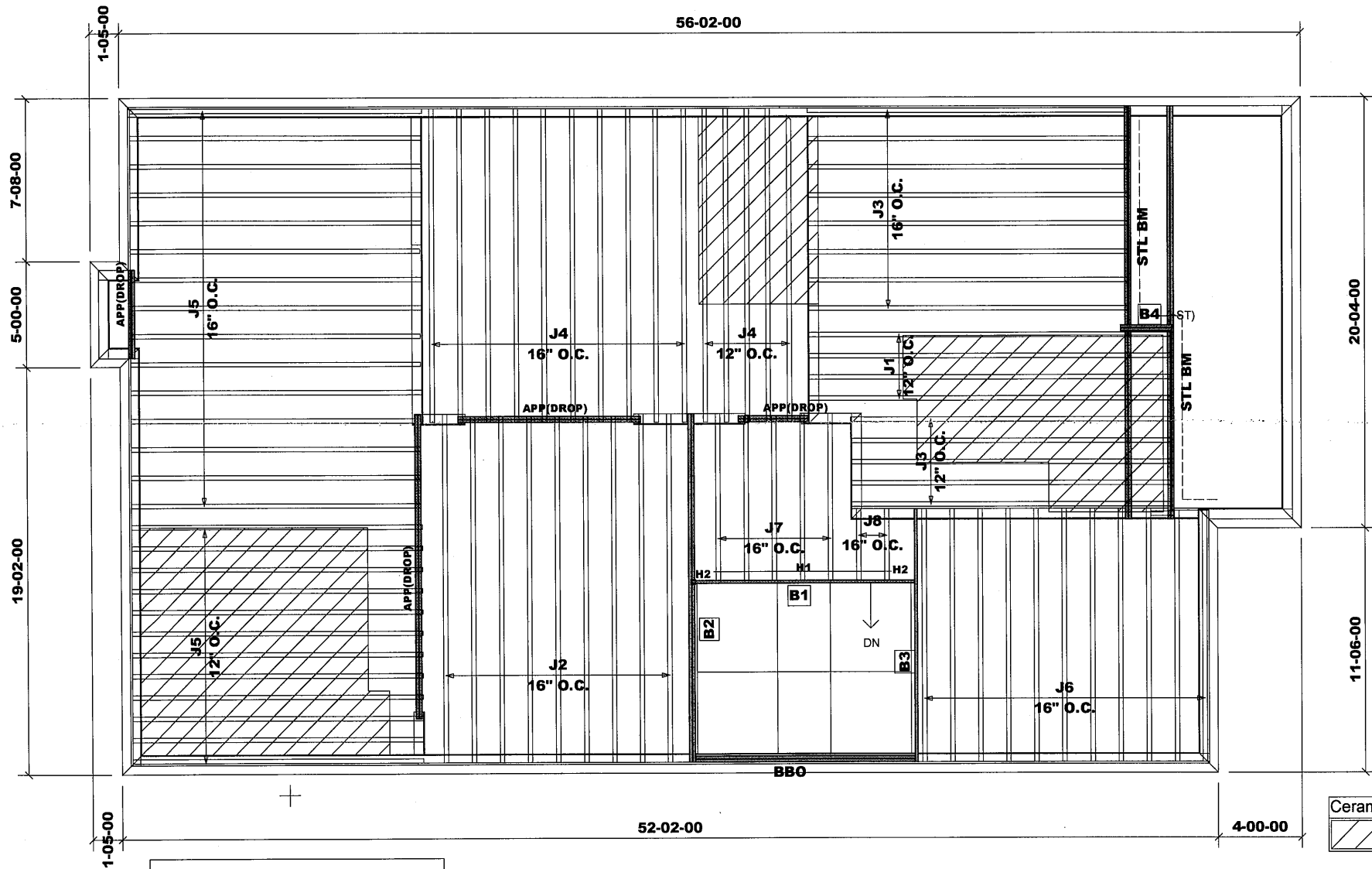




Products				
PlotID	Length	Product	Plies	Net Qty
J1	18-00-00	11 7/8" NI-20	1	4
J2	17-00-00	11 7/8" NI-20	1	9
J3	16-00-00	11 7/8" NI-20	1	13
J4	15-00-00	11 7/8" NI-20	1	15
J5	14-00-00	11 7/8" NI-20	1	27
J6	12-00-00	11 7/8" NI-20	1	11
J7	8-00-00	11 7/8" NI-20	1	5
J8	4-00-00	11 7/8" NI-20	1	2
B2	17-00-00	VERSALAM-12 2.0E	2	2
B3	12-00-00	VERSALAM-12 2.0E	1	1
B1	11-00-00	VERSALAM-12 2.0E	1	1
B4	3-00-00	VERSALAM-12 2.0E	2	2

HANGER SCHEDULE

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

NOTE:

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

RIMBOARD

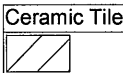
1- 1/8" X 11 7/8" O.S.B.

SUBFLOOR - 3/4" NAILED & GLUED

APP - AS PER PLAN
BBO - BEAM BY OTHERS

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

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 4002 - EL.A
+ OPT. LOGGIA

Second Floor Framing

Do not scale - refer to architectural plans for dimensions

ENGINEERING FILE NO.

S - 152689 - 152705

JT/PL: 45147/98839

Builder: Gold Park

Location: Vaughan

Designer: NL

Alpa Roof Trusses Inc.

Salesperson: Derek

LI: 299721(290669)

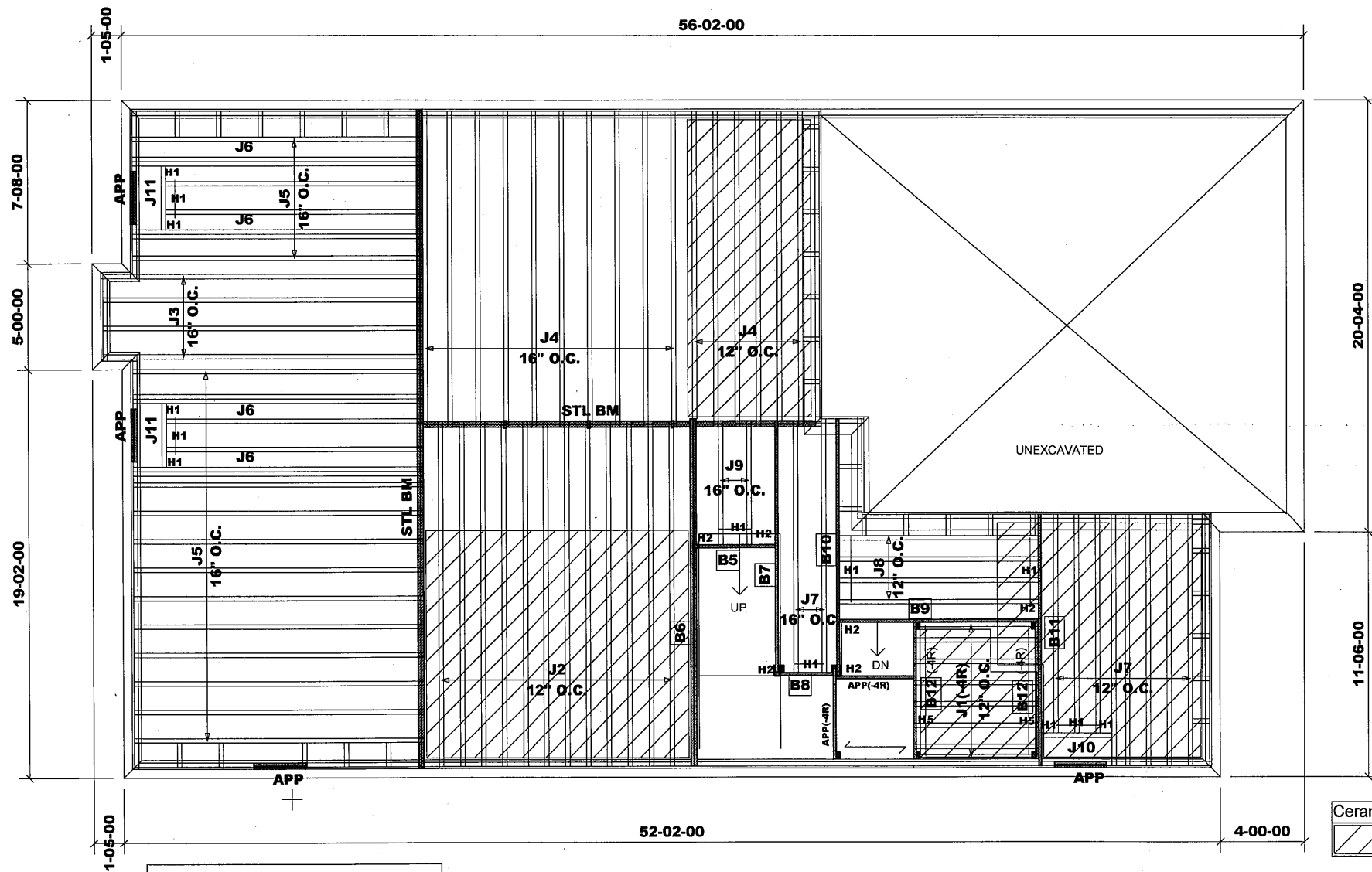
Project: Pine Valley

Date: June 29, 2018

Sheet: 1 of 6

Maple, Ontario

Home Lumber



Products				
PlotID	Length	Product	Plies	Net Qty
J1	6-00-00	9 1/2" NI-20	1	8
J2	17-00-00	11 7/8" NI-20	1	12
J3	16-00-00	11 7/8" NI-20	1	4
J4	15-00-00	11 7/8" NI-20	1	16
J5	14-00-00	11 7/8" NI-20	1	17
J6	14-00-00	11 7/8" NI-20	2	8
J7	12-00-00	11 7/8" NI-20	1	10
J8	10-00-00	11 7/8" NI-20	1	4
J9	6-00-00	11 7/8" NI-20	1	2
J10	4-00-00	11 7/8" NI-20	1	1
J11	3-00-00	11 7/8" NI-20	1	2
B6	17-00-00	VERSALAM-12 2.0E	2	2
B10	13-00-00	VERSALAM-12 2.0E	1	1
B11	12-00-00	VERSALAM-12 2.0E	1	1
B7	12-00-00	VERSALAM-12 2.0E	1	1
B9	10-00-00	VERSALAM-12 2.0E	1	1
B12	7-00-00	VERSALAM-10 2.0E	1	2
B5	4-00-00	VERSALAM-12 2.0E	1	1
B8	4-00-00	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.

REVISION: December 18, 2017

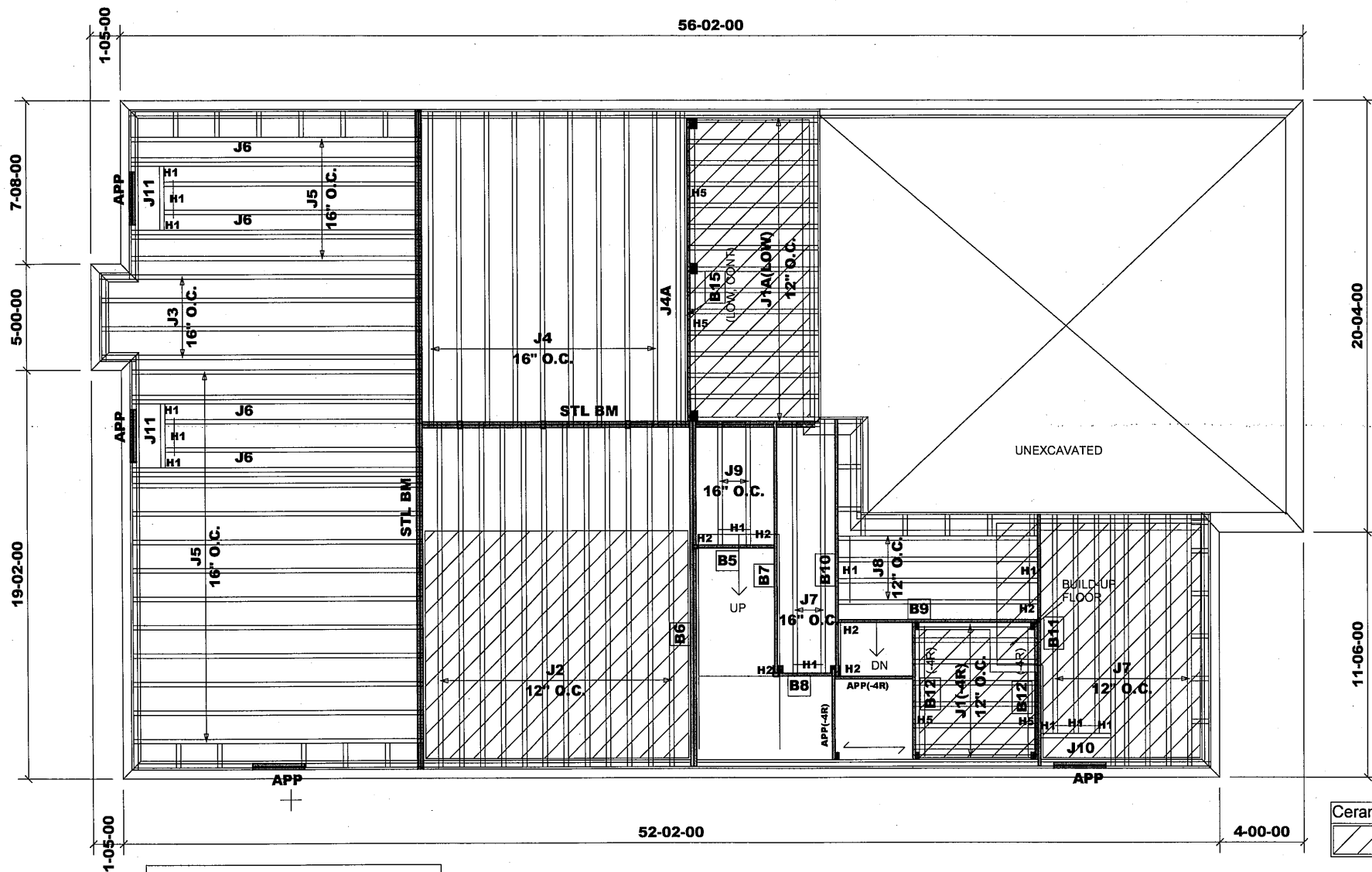
MODEL: UNIT 4002 - EL.A
+ OPT. LOGGIA

First Floor Framing

Do not scale - refer to architectural plans for dimensions

11 7/8" BLOCKING
TOTAL LENGTH: 48'

98879/June 28, 2018
95915



Products				
PlotID	Length	Product	Plies	Net Qty
J1A	7'-00"	9 1/2" NI-20	1	15
J1	6'-00"	9 1/2" NI-20	1	8
J2	17'-00"	11 7/8" NI-20	1	12
J3	16'-00"	11 7/8" NI-20	1	4
J4	15'-00"	11 7/8" NI-20	1	9
J4A	15'-00"	11 7/8" NI-20	2	2
J5	14'-00"	11 7/8" NI-20	1	17
J6	14'-00"	11 7/8" NI-20	2	8
J7	12'-00"	11 7/8" NI-20	1	10
J8	10'-00"	11 7/8" NI-20	1	4
J9	6'-00"	11 7/8" NI-20	1	2
J10	4'-00"	11 7/8" NI-20	1	1
J11	3'-00"	11 7/8" NI-20	1	2
B6	17'-00"	VERSALAM-12 2.0E	2	2
B15	15'-00"	VERSALAM-10 2.0E	1	1
B10	13'-00"	VERSALAM-12 2.0E	1	1
B11	12'-00"	VERSALAM-12 2.0E	1	1
B7	12'-00"	VERSALAM-12 2.0E	1	1
B9	10'-00"	VERSALAM-12 2.0E	1	1
B12	7'-00"	VERSALAM-10 2.0E	1	2
B5	4'-00"	VERSALAM-12 2.0E	1	1
B8	4'-00"	VERSALAM-12 2.0E	1	1

HANGER SCHEDULE

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

NOTE:

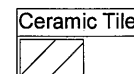
TM -----TOP MOUNT HANGERS
FM -----FACE MOUNT HANGERS

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



REVISION: December 18, 2017

MODEL: UNIT 4002 - EL.A
+ OPT. LOGGIA(W/SUNKEN)

First Floor Framing

Do not scale - refer to architectural plans for dimensions

11 7/8" BLOCKING

TOTAL LENGTH: 40'

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.

JT/PL: 45147/95234

Builder: Gold Park

Location: Vaughan

Designer: NL

Alpa Roof Trusses Inc.

Salesperson: Derek

LI: 290669

Project: Pine Valley

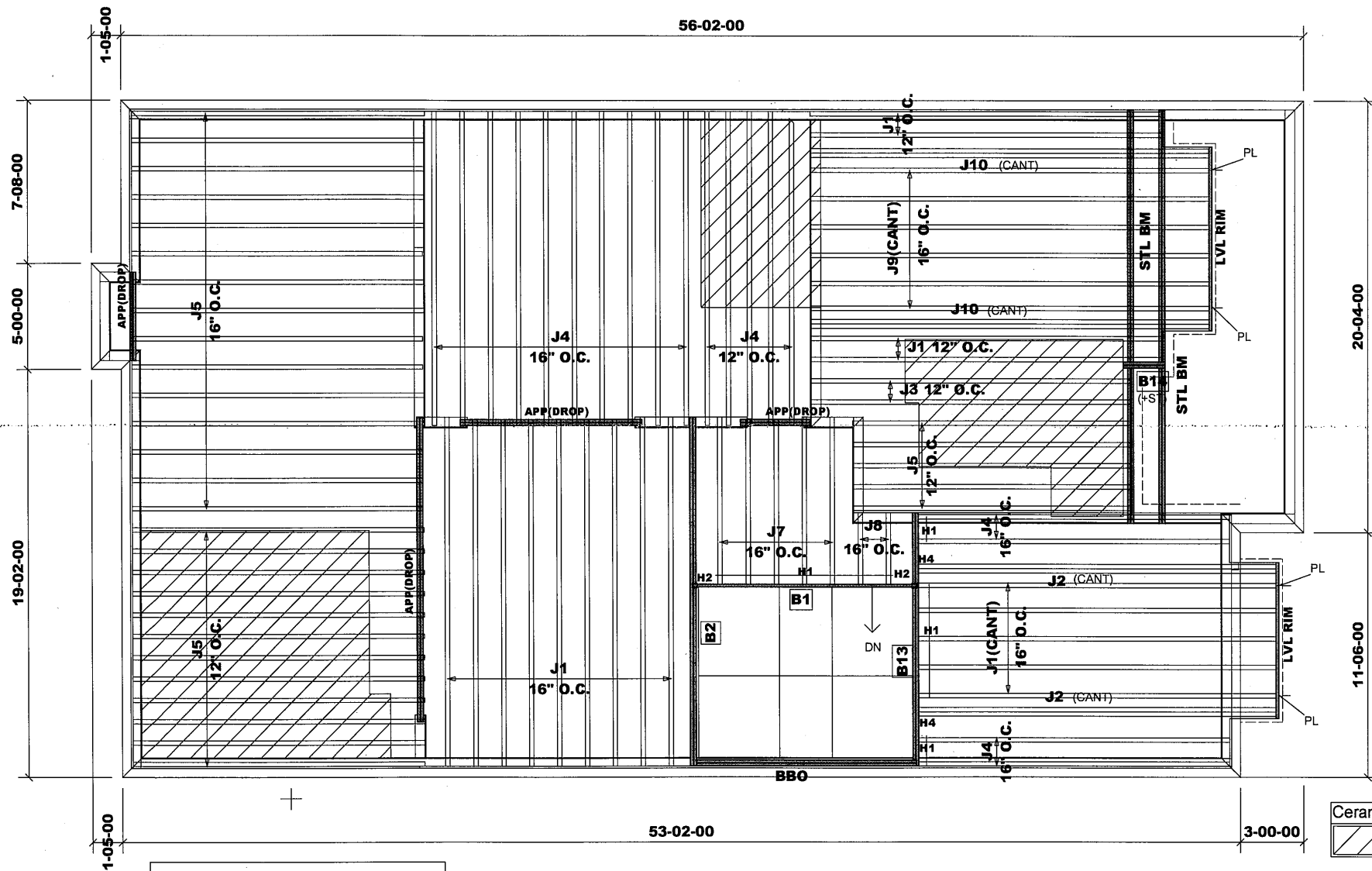
Date: November 9, 2017

Sheet: 3 of 6

Maple, Ontario

Home Lumber

98879
95915



Products				
PlotID	Length	Product	Plies	Net Qty
J1	17-00-00	11 7/8" NI-20	1	18
J2	17-00-00	11 7/8" NI-20	2	4
J3	16-00-00	11 7/8" NI-20	1	2
J4	15-00-00	11 7/8" NI-20	1	19
J5	14-00-00	11 7/8" NI-20	1	32
J7	8-00-00	11 7/8" NI-20	1	5
J8	4-00-00	11 7/8" NI-20	1	2
J9	19-00-00	11 7/8" NI-40x	1	6
J10	19-00-00	11 7/8" NI-40x	2	4
B2	17-00-00	VERSALAM-12 2.0E	2	2
B13	12-00-00	VERSALAM-12 2.0E	2	2
B1	11-00-00	VERSALAM-12 2.0E	1	1
LVL RIM	9-00-00	VERSALAM-12 2.0E	1	1
LVL RIM	8-00-00	VERSALAM-12 2.0E	1	1
B14	2-00-00	VERSALAM-12 2.0E	2	2

HANGER SCHEDULE

H1-----LT251188 (TM)
H2-----HUS1.81/10(FM)
H4-----MIT311.88-2(TM)

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.

JT/PL: 45147/98839

Builder: Gold Park

Location: Vaughan

Designer: NL

Alpa Roof Trusses Inc.

Salesperson: Derek

LI: 299721(290669)

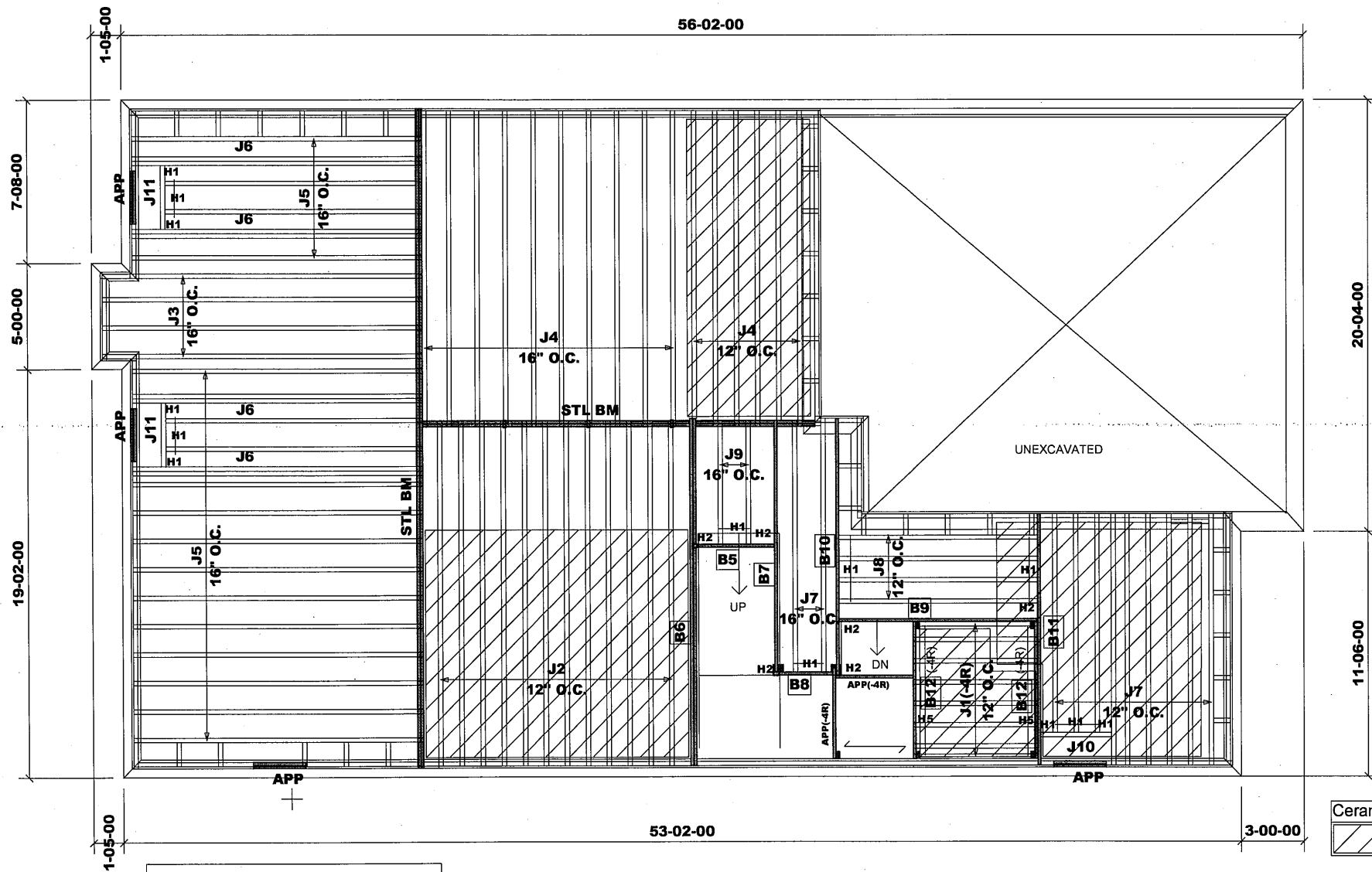
Project: Pine Valley

Date: June 29, 2018

Sheet: 4 of 6

Maple, Ontario

Home Lumber



Products				
PlotID	Length	Product	Plies	Net Qty
J1	6-00-00	9 1/2" NI-20	1	8
J2	17-00-00	11 7/8" NI-20	1	12
J3	16-00-00	11 7/8" NI-20	1	4
J4	15-00-00	11 7/8" NI-20	1	16
J5	14-00-00	11 7/8" NI-20	1	17
J6	14-00-00	11 7/8" NI-20	2	8
J7	12-00-00	11 7/8" NI-20	1	11
J8	10-00-00	11 7/8" NI-20	1	4
J9	6-00-00	11 7/8" NI-20	1	2
J10	4-00-00	11 7/8" NI-20	1	1
J11	3-00-00	11 7/8" NI-20	1	2
B6	17-00-00	VERSALAM-12 2.0E	2	2
B10	13-00-00	VERSALAM-12 2.0E	1	1
B11	12-00-00	VERSALAM-12 2.0E	1	1
B7	12-00-00	VERSALAM-12 2.0E	1	1
B9	10-00-00	VERSALAM-12 2.0E	1	1
B12	7-00-00	VERSALAM-10 2.0E	1	2
B5	4-00-00	VERSALAM-12 2.0E	1	1
B8	4-00-00	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.

REVISION: December 18, 2017

MODEL: UNIT 4002 - EL.B
+ OPT. LOGGIA

First Floor Framing

Do not scale - refer to architectural plans for dimensions

11 7/8" BLOCKING

TOTAL LENGTH: 48'

98839
95915

JT/PL: 45147/95234

Builder: Gold Park

Location: Vaughan

Designer: NL

Alpa Roof Trusses Inc.

Salesperson: Derek

LI: 290669

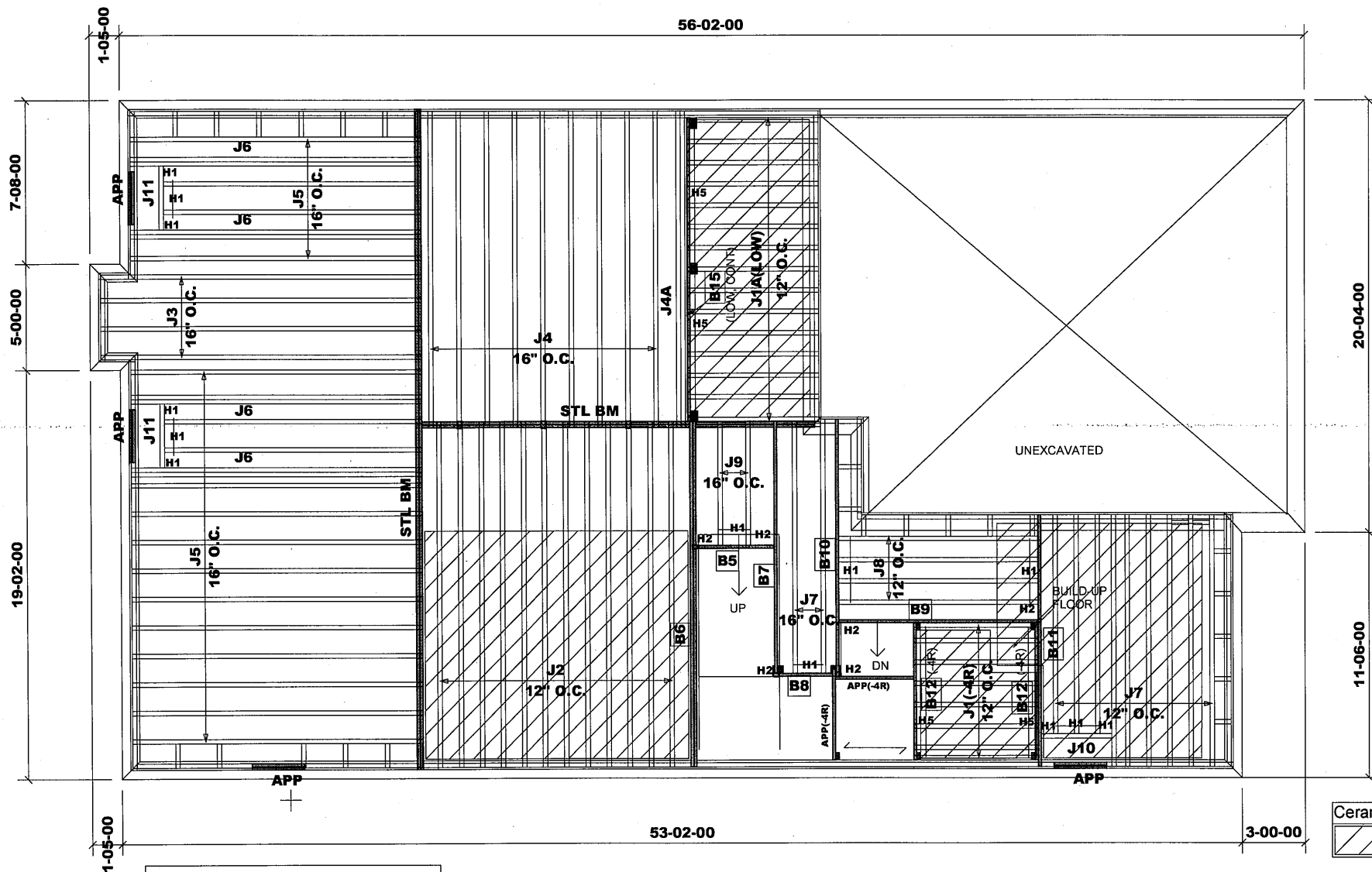
Project: Pine Valley

Date: November 9, 2017

Sheet: 5 of 6

Maple, Ontario

Home Lumber



Products				
PlotID	Length	Product	Plies	Net Qty
J1A	7-00-00	9 1/2" NI-20	1	15
J1	6-00-00	9 1/2" NI-20	1	8
J2	17-00-00	11 7/8" NI-20	1	12
J3	16-00-00	11 7/8" NI-20	1	4
J4	15-00-00	11 7/8" NI-20	1	9
J4A	15-00-00	11 7/8" NI-20	2	2
J5	14-00-00	11 7/8" NI-20	1	17
J6	14-00-00	11 7/8" NI-20	2	8
J7	12-00-00	11 7/8" NI-20	1	11
J8	10-00-00	11 7/8" NI-20	1	4
J9	6-00-00	11 7/8" NI-20	1	2
J10	4-00-00	11 7/8" NI-20	1	1
J11	3-00-00	11 7/8" NI-20	1	2
B6	17-00-00	VERSALAM-12 2.0E	2	2
B15	15-00-00	VERSALAM-10 2.0E	1	1
B10	13-00-00	VERSALAM-12 2.0E	1	1
B11	12-00-00	VERSALAM-12 2.0E	1	1
B7	12-00-00	VERSALAM-12 2.0E	1	1
B9	10-00-00	VERSALAM-12 2.0E	1	1
B12	7-00-00	VERSALAM-10 2.0E	1	2
B5	4-00-00	VERSALAM-12 2.0E	1	1
B8	4-00-00	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.

REVISION: December 18, 2017

MODEL: UNIT 4002 - EL.B
+ OPT. LOGGIA(W/SUNKEN)

First Floor Framing

Do not scale - refer to architectural plans for dimensions

11 7/8" BLOCKING

TOTAL LENGTH: 40'

JT/PL: 45147/95234

Builder: Gold Park

Location: Vaughan

Designer: NL

Alpa Roof Trusses Inc.

Salesperson: Derek

LI: 290669

Project: Pine Valley

Date: November 9, 2017

Sheet: 6 of 6

Maple, Ontario

Home Lumber



Boise Cascade

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

Floor Beam\B01



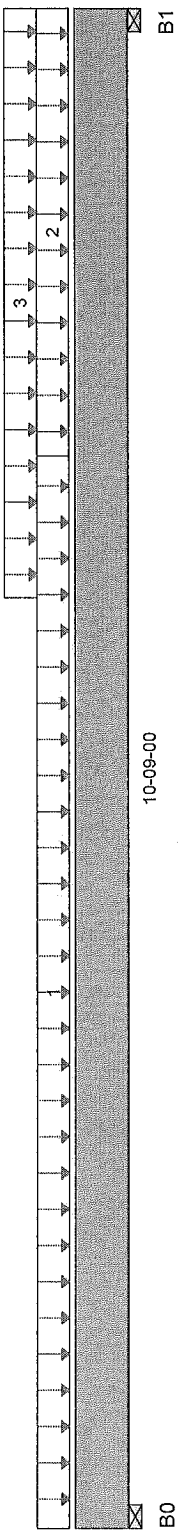
BC CALC® Design Report

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

November 8, 2017 15:50:27

Build 6080
Job Name: 45147 (4002)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290669.bcc
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 10-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	902 / 0	371 / 0		
B1, 3-1/2"	982 / 0	400 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1 Standard Load	Unf. Area (lb/ft^2)	L	00-00-00	07-07-00	40	15			04-00-00
2	Unf. Area (lb/ft^2)	L	07-07-00	10-09-00	40	15			02-00-00
3	Unf. Area (lb/ft^2)	L	06-07-00	10-09-00	40	15			02-06-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,704 ft-lbs	17,696 ft-lbs	26.6%	1	05-07-01
End Shear	1,509 lbs	7,232 lbs	20.9%	1	09-05-10
Total Load Defl.	L/959 (0.129")	0.515"	25%	4	05-05-01
Live Load Defl.	L/999 (0.091")	n/a	n/a	5	05-05-01
Max Defl.	0.129"	1"	12.9%	4	05-05-01
Span / Depth	10.4	n/a	n/a		00-00-00
Squash Blocks	Valid				

Disclosure

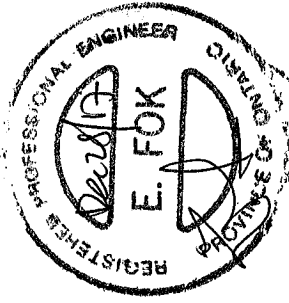
Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance 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"	1,816 lbs	48.2%	24.3%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	1,973 lbs	52.4%	26.4%	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.
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®, AUS™, 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. 152689



Boise Cascade

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

Floor Beam\B02

November 8, 2017 15:51:21

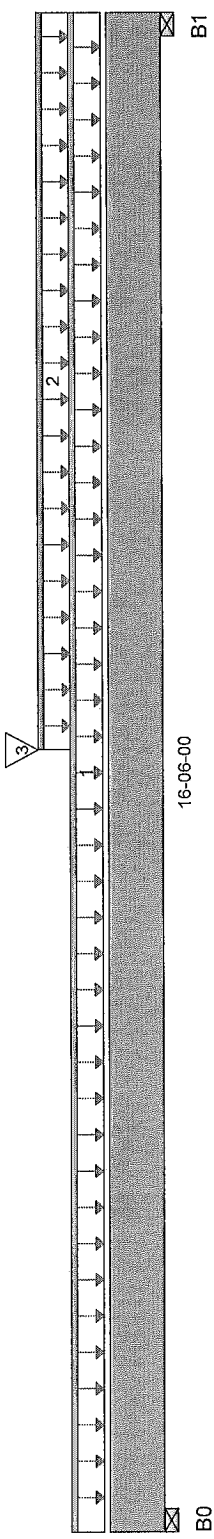
BC CALC® Design Report

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



Build 6080
Job Name: 45147 (4002)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290669.bcc
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 16-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	710 / 0	916 / 0		
B1, 3-1/2"	853 / 0	987 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Lin. (lb/ft)	L	00-00-00	16-06-00	27	74			n/a
2	Unf. Lin. (lb/ft)	L	08-06-00	16-06-00	27	14			n/a
3	Conc. Pt. (lbs)	L	08-06-00	08-06-00	902	371			n/a

Controls Summary

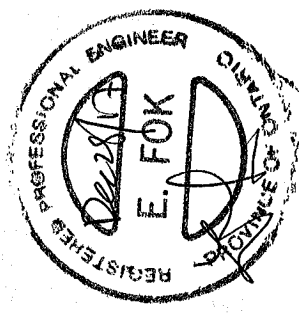
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	12,939 ft-lbs	35,392 ft-lbs	36.6%	1	08-06-00
End Shear	2,249 lbs	14,464 lbs	15.5%	1	15-02-10
Total Load Defl.	L/487 (0.396")	0.802"	49.3%	4	08-03-04
Live Load Defl.	L/973 (0.198")	0.535"	37%	5	08-03-04
Max Defl.	0.396"	1"	39.6%	4	08-03-04
Span / Depth	16.2	n/a	n/a		00-00-00
Squash Blocks	Valid				

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	3-1/2" x 3-1/2"	2,211 lbs	29.3%	14.8%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	2,513 lbs	33.3%	16.8%	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



5152696



Boise Cascade

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

Floor Beam\B03

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

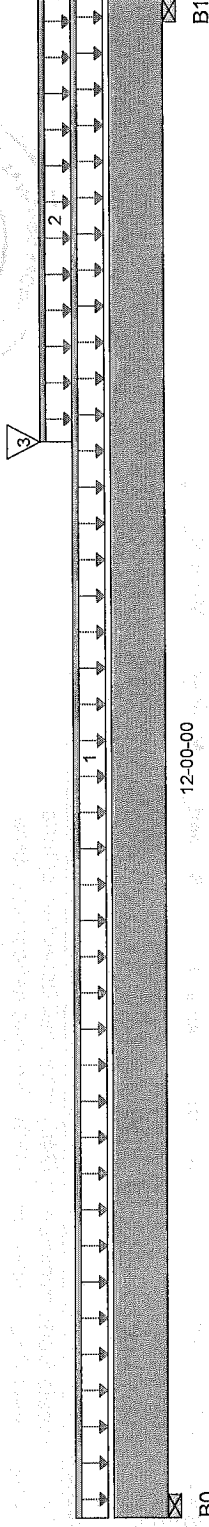
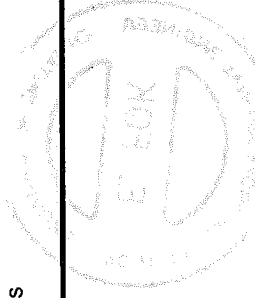
November 8, 2017 15:52:11

BC CALC® Design Report



Build 6080
Job Name: 45147 (4002)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290669.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"	453 / 0	600 / 0		
B1, 3-1/2"	948 / 0	809 / 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	08-06-00	12-00-00	27	14			n/a
3	Conc. Pt. (lbs)	L	08-06-00	08-06-00	982	400			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	6,747 ft-lbs	17,696 ft-lbs	38.1%	1	08-06-00
End Shear	2,179 lbs	7,232 lbs	30.1%	1	10-08-10
Total Load Defl.	L/649 (0.214")	0.577"	37%	4	06-04-04
Live Load Defl.	L/999 (0.112")	n/a	n/a	5	06-05-10
Max Defl.	0.214"	1"	21.4%	4	06-04-04
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.

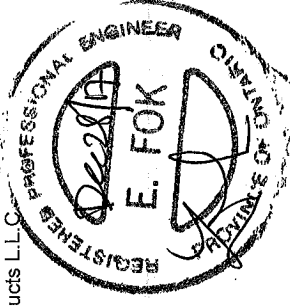
Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	1,429 lbs	37.9%	19.1%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	2,433 lbs	64.6%	32.6%	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



S152691



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 09:07:47

Build 6080

Job Name:

45147 (4002)

Address:

Pine Valley

City, Province, Postal Code: Vaughan, ON

Customer:

Gold Park

Code reports:

CCMC 12472-R

File Name: 290669.bcc

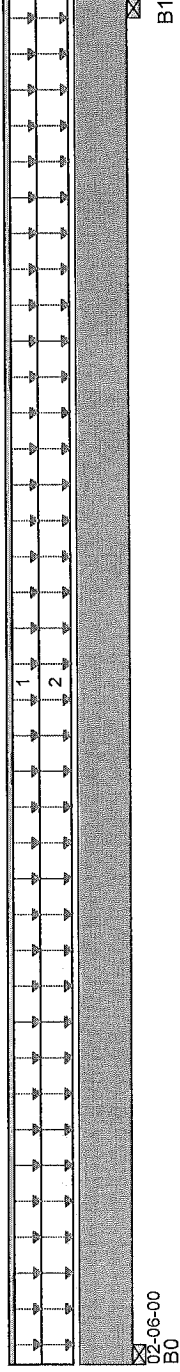
Description: Second Floor Framing

Specifier:

Designer: NL

Company: Alpa Roof Trusses

Misc:



Total Horizontal Product Length = 02-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	34 / 0	336 / 0	341 / 0	
B1, 3-1/2"	34 / 0	336 / 0	341 / 0	

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Lin. (lb/ft)	L	00-00-00	02-06-00	27	114			n/a
2	Unf. Area (lb/ft²)	L	00-00-00	02-06-00	11		21	1.00 1.15	13-00-00

Controls Summary

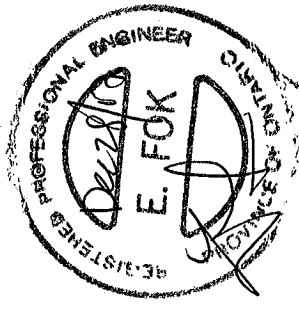
Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Moment	396 ft-lbs	35,392 ft-lbs	1.1%	5	01-03-00
End Shear	24 lbs	14,464 lbs	0.2%	5	01-03-06
Total Load Defl.	L/999 (0")	n/a	n/a	13	01-03-00
Live Load Defl.	L/999 (0")	n/a	n/a	17	01-03-00
Max Defl.	0"	n/a	n/a	13	01-03-00
Span / Depth	2.1	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"	949 lbs	12.6%	6.4%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	949 lbs	12.6%	6.4%	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.
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 @ 6" o.c, staggered in 2 rows





Boise Cascade

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

Floor Beam\B05



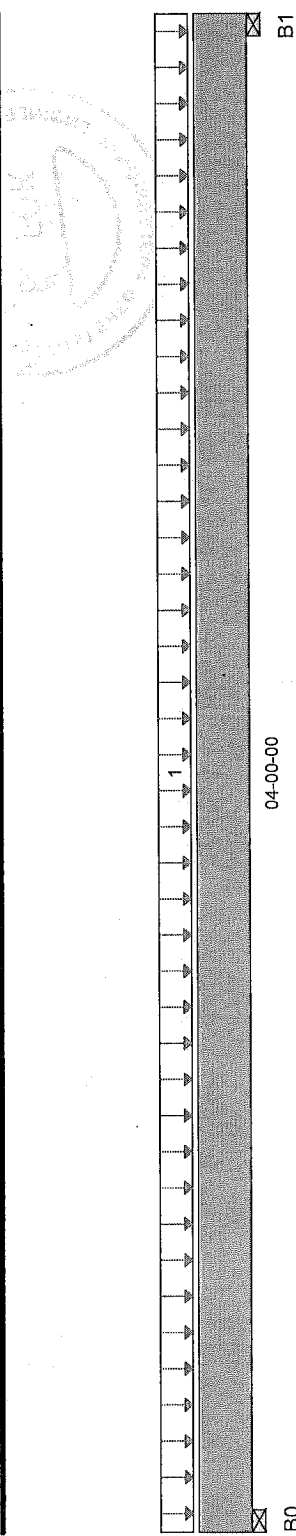
BC CALC® Design Report

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

November 9, 2017 09:11:35

Build 6080
Job Name: 45147 (4002)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290669.bcc
Description: First Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



04-00-00

B1

Total Horizontal Product Length = 04-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	560 / 0	222 / 0		
B1, 3-1/2"	560 / 0	222 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft²)	L	00-00-00	04-00-00	40	15	1.00	1.15	07-00-00

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Moment	876 ft-lbs	17,696 ft-lbs	5%	1	02-00-00
End Shear	402 lbs	7,232 lbs	5.6%	1	01-03-06
Total Load Defl.	L/999 (0.003")	n/a	n/a	4	02-00-00
Live Load Defl.	L/999 (0.002")	n/a	n/a	5	02-00-00
Max Defl.	0.003"	n/a	n/a	4	02-00-00
Span / Depth	3.6	n/a	n/a		00-00-00
Squash Blocks	Valid				

Disclosure

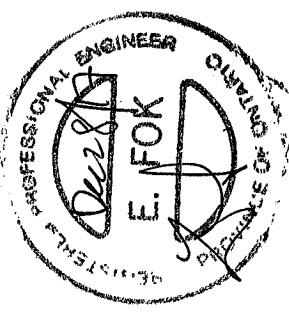
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Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	1,118 lbs	29.7%	15%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	1,118 lbs	29.7%	15%	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®, AUS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.

S.152693



Boise Cascade

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

Floor Beam\B06

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

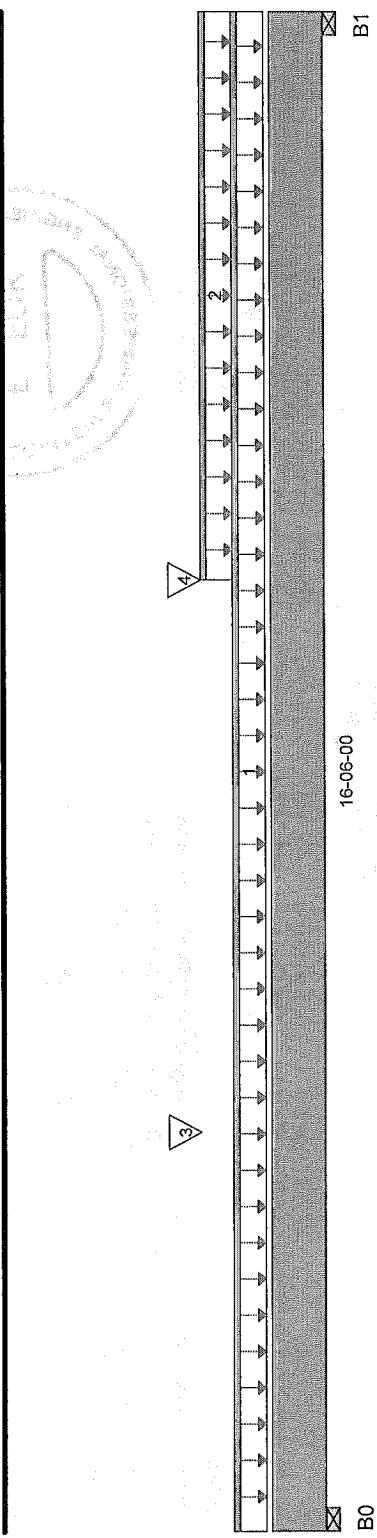
November 9, 2017 09:12:21

BC CALC® Design Report



Build 6080
Job Name: 45147 (4002)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290669.bcc
Description: First Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 16'-06"-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	895 / 0	971 / 0		
B1, 3-1/2"	862 / 0	977 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Lin. (lb/ft)	L	00-00-00	16-06-00	27	74			n/a
2	Unf. Lin. (lb/ft)	L	10-04-00	16-06-00	27	14			n/a
3	Conc. Pt. (lbs)	L	04-04-00	04-04-00	585	220			n/a
4	Conc. Pt. (lbs)	L	10-04-00	10-04-00	560	222			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	11,067 ft-lbs	35,392 ft-lbs	31.3%	1	09-04-12
End Shear	2,367 lbs	14,464 lbs	16.4%	1	01-03-06
Total Load Defl.	L/500 (0.385")	0.802"	48%	4	08-03-04
Live Load Defl.	L/997 (0.193")	0.535"	36.1%	5	08-03-04
Max Defl.	0.385"	1"	38.5%	4	08-03-04
Span / Depth	16.2	n/a	n/a		00-00-00
Squash Blocks	Valid				

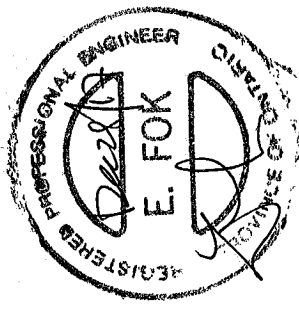
Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Wall/Plate	3-1/2" x 3-1/2"	2,556 lbs	33.9%	17.1%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	2,514 lbs	33.4%	16.8%	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.152694



Boise Cascade

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

Floor Beam\B07



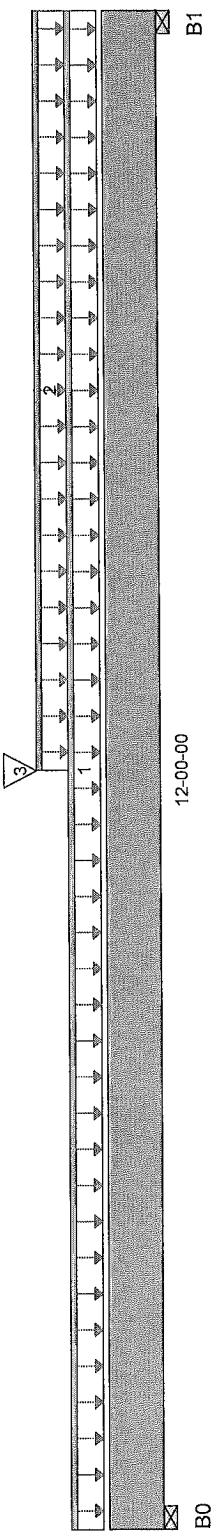
BC CALC® Design Report

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

November 9, 2017 09:13:45

Build 6080
Job Name: 45147 (4002)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290669.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"	481 / 0	251 / 0		
B1, 3-1/2"	565 / 0	295 / 0		

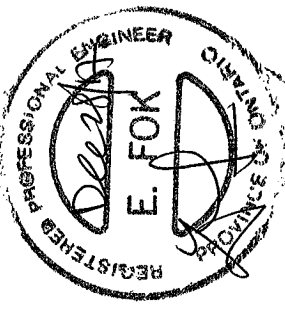
Load Summary

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	1.00	1.15	n/a
2	Unf. Lin. (lb/ft)	L	06-00-00	12-00-00	27	14			n/a
3	Conc. Pt. (lbs)	L	06-00-00	06-00-00	560	222			n/a

Disclosure

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BC CALC®, BC FRAMER®, AJSTM®, 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"	1,036 lbs	27.5%	13.9%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	1,216 lbs	32.3%	16.3%	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
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

S152695



Boise Cascade

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

Floor Beam\B08

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

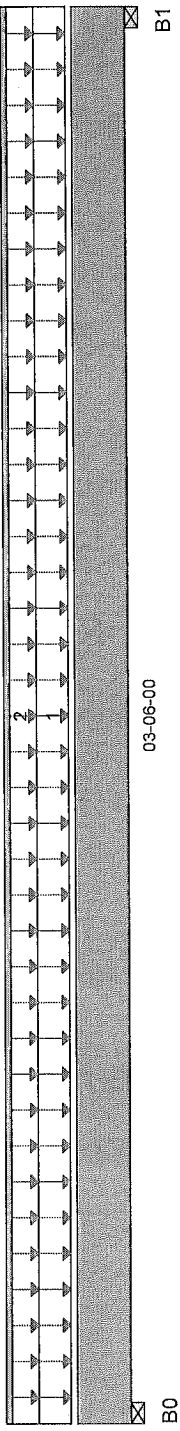
November 9, 2017 09:14:07

BC CALC® Design Report



Build 6080
Job Name: 45147 (4002)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290669.bcc
Description: First Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 03-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Trib.
B0, 3-1/2"	420 / 0	273 / 0			
B1, 3-1/2"	420 / 0	273 / 0			

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft²)	L	00-00-00	03-06-00	40	15			06-00-00
2	Unf. Lin. (lb/ft)	L	00-00-00	03-06-00	40	60			n/a

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Moment	642 ft-lbs	17,696 ft-lbs	3.6%	1	01-09-00
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	01-09-00
Live Load Defl.	L/999 (0.001")	n/a	n/a	5	01-09-00
Max Defl.	0.002"	n/a	n/a	4	01-09-00
Span / Depth	3.1	n/a	n/a		00-00-00
Squash Blocks	Valid				

Disclosure

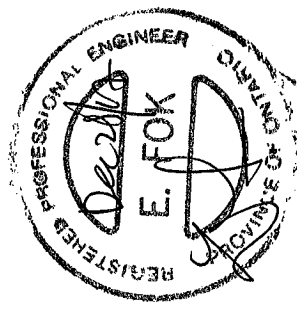
Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance 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"	971 lbs	25.8%	13%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	971 lbs	25.8%	13%	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets User specified (1") Maximum Total load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA 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\B09

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

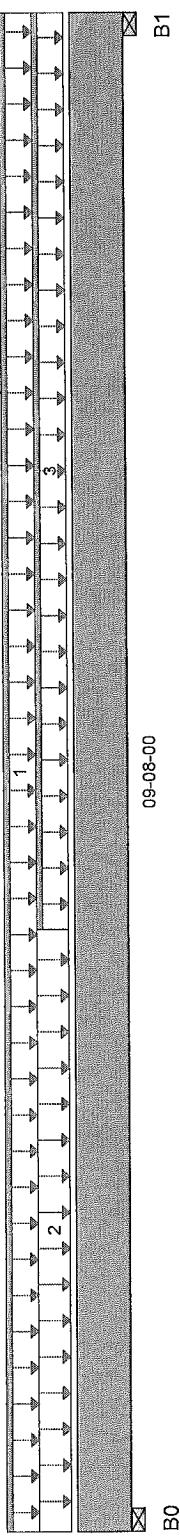
November 9, 2017 09:15:03

BC CALC® Design Report



Build 6080
Job Name: 45147 (4002)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290669.bcc
Description: First Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



B0 09-08-00 B1

Total Horizontal Product Length = 09-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	318 / 0	269 / 0		
B1, 3-1/2"	173 / 0	360 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Lin. (lb/ft)	L	00-00-00	09-08-00	27	14			n/a
2	Unf. Area (lb/ft^2)	L	00-00-00	03-10-00	40	15			01-06-00
3	Unf. Lin. (lb/ft)	L	03-10-00	09-08-00		60			n/a

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,633 ft-lbs	17,696 ft-lbs	9.2%	1	04-08-04
End Shear	579 lbs	7,232 lbs	8%	1	01-03-06
Total Load Defl.	L/999 (0.038")	n/a	n/a	4	04-09-15
Live Load Defl.	L/999 (0.016")	n/a	n/a	5	04-08-04
Max Defl.	0.038"	n/a	n/a	4	04-09-15
Span / Depth	9.3	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.

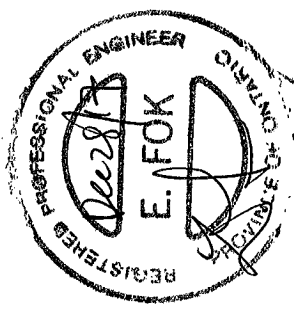
BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.

Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	814 lbs	21.6%	10.9%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	504 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.
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.152697



Boise Cascade

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

Floor Beam\B10



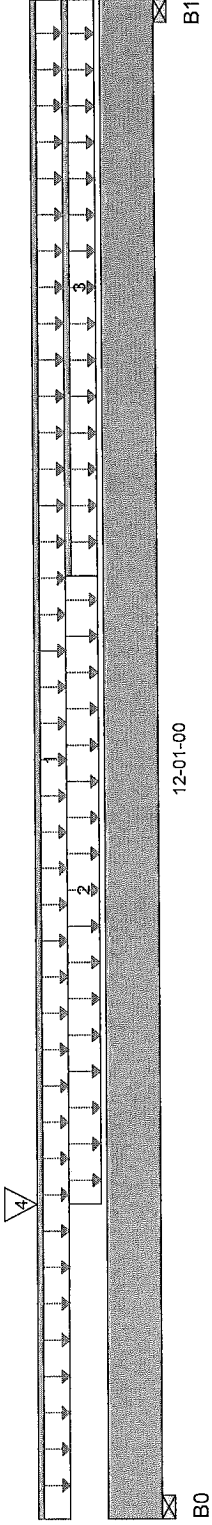
BC CALC® Design Report

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

November 9, 2017 09:16:38

Build 6080
Job Name: 45147 (4002)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290669.bcc
Description: First Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 12-01-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,031 / 0	644 / 0		
B1, 3-1/2"	737 / 0	431 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Lin. (lb/ft)	L	00-00-00	12-01-00	27	14			n/a
2	Unf. Area (lb/ft^2)	L	02-06-00	07-06-00	40	20			05-00-00
3	Unf. Lin. (lb/ft)	L	07-06-00	12-01-00	27	14			n/a
4	Conc. Pt. (lbs)	L	02-06-00	02-06-00	318	269			n/a

Disclosure

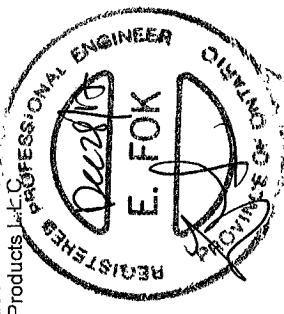
Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance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

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCi®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products Ltd. 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"	2,351 lbs	62.4%	31.5%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	1,645 lbs	43.7%	22%	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
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-152698



Boise Cascade

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

Floor Beam\B11

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

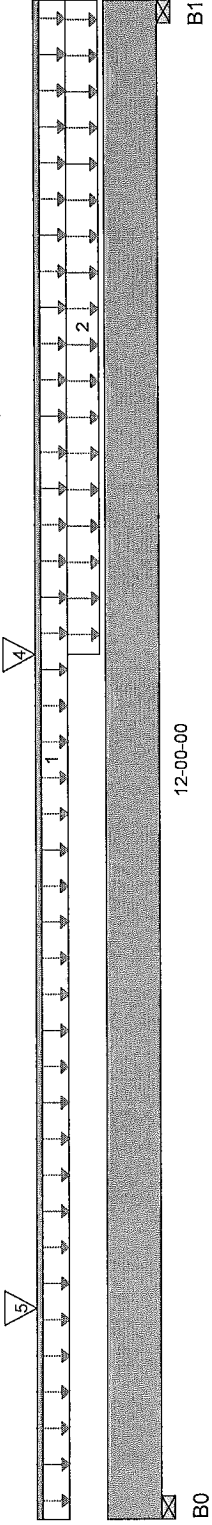
November 9, 2017 09:18:14

BC CALC® Design Report



Build 6080
Job Name: 45147 (4002)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290669.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"	867 / 0	950 / 0		
B1, 3-1/2"	1,143 / 0	1,127 / 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. Area (lb/ft^2)	L	06-10-00	12-00-00	40	20			05-00-00
4	Conc. Pt. (lbs)	L	06-10-00	06-10-00	173	360			n/a
5	Conc. Pt. (lbs)	L	01-08-00	01-08-00	480	240			n/a

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	7,887 ft-lbs	17,696 ft-lbs	44.6%	1	06-10-00
End Shear	2,398 lbs	7,232 lbs	33.2%	1	10-08-10
Total Load Defl.	L/511 (0.271")	0.577"	46.9%	4	06-02-04
Live Load Defl.	L/999 (0.124")	n/a	n/a	5	06-02-04
Max Defl.	0.271"	1"	27.1%	4	06-02-04
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

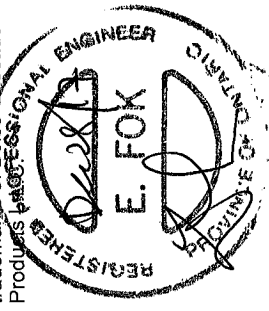
	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	2,488 lbs	66%	33.3%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	3,123 lbs	82.9%	41.8%	Spruce Pine Fir

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



5152699



Boise Cascade

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

Floor Beam\B12



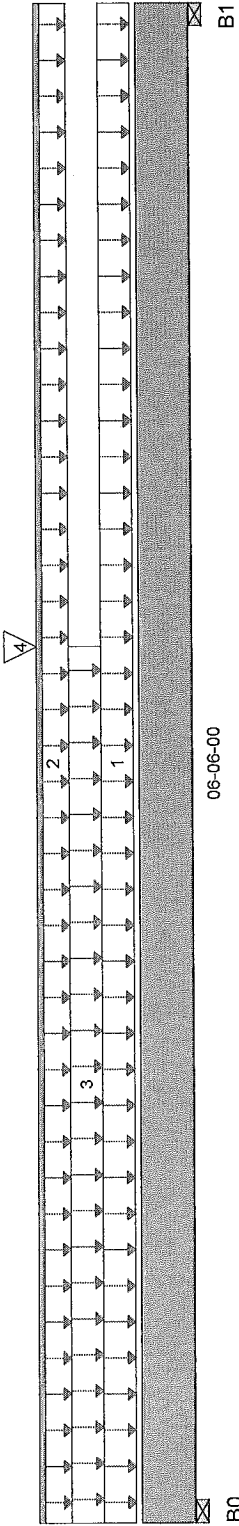
BC CALCO® Design Report

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

November 9, 2017 11:10:18

Build 6080
Job Name: 45147 (4002)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290669.bcc
Description: First Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 06-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	696 / 0	523 / 0		
B1, 3-1/2"	587 / 0	482 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft²)	L	00-00-00	06-06-00	40	20		1.00 1.15	03-02-00
2	Unf. Lin. (lb/ft)	L	00-00-00	06-06-00		60			n/a
3	Unf. Area (lb/ft²)	L	00-00-00	03-09-00	40	15			02-00-00
4	Conc. Pt. (lbs)	L	03-09-00	03-09-00	160	60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,466 ft-lbs	11,610 ft-lbs	21.2%	1	03-04-00
End Shear	1,149 lbs	5,785 lbs	19.9%	1	01-01-00
Total Load Defl.	L/999 (0.046")	n/a	n/a	4	03-03-00
Live Load Defl.	L/999 (0.026")	n/a	n/a	5	03-03-00
Max Defl.	0.046"	n/a	n/a	4	03-03-00
Span / Depth	7.6	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.

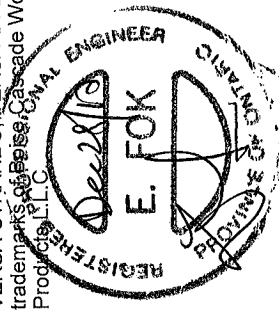
Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	1,699 lbs	45.1%	22.7%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	1,483 lbs	39.4%	19.8%	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.152700



Boise Cascade



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

Floor Beam\B13

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

November 9, 2017 10:22:26

BC CALC® Design Report

Build 6080

Job Name:

45147 (4002)

Address:

Pine Valley

City, Province, Postal Code: Vaughan, ON

Customer:

Gold Park

Code reports:

CCMC 12472-R

File Name: 290669.bcc

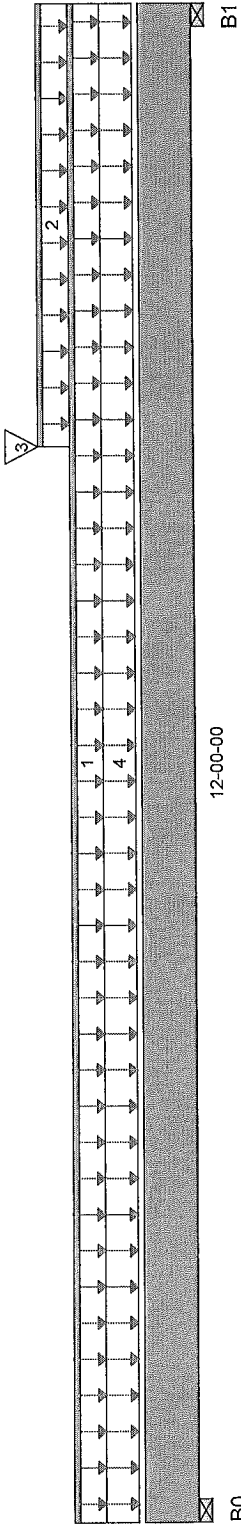
Description: Second Floor Framing

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"	2,111 / 0	1,235 / 0		
B1, 3-1/2"	2,606 / 0	1,444 / 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	1.00	0.65		1.00 1.15	n/a
2	Unf. Lin. (lb/ft)	L	08-06-00	12-00-00	27	14			n/a
3	Conc. Pt. (lbs)	L	08-06-00	08-06-00	982	400			n/a
4	Unf. Area (lb/ft²)	L	00-00-00	12-00-00	40	15			07-07-00

Controls Summary

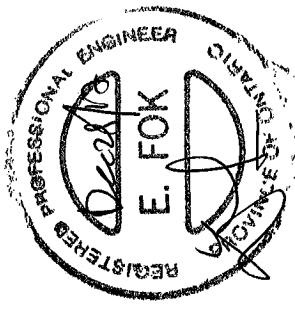
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	15,073 ft-lbs	35,392 ft-lbs	42.6%	1	06-11-01
End Shear	4,759 lbs	14,464 lbs	32.9%	1	10-08-10
Total Load Defl.	L/527 (0.263")	0.577"	45.5%	4	06-01-09
Live Load Defl.	L/823 (0.168")	0.385"	43.8%	5	06-01-09
Max Defl.	0.263"	1"	26.3%	4	06-01-09
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"	4,709 lbs	62.5%	31.5%	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 @ 10"
o.c, staggered in 2 rows



S152701



Boise Cascade



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

Floor Beam\B14

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

November 9, 2017 10:40:49

BC CALC® Design Report

Build 6080

Job Name:

Address:

City, Province, Postal Code: Vaughan, ON

Customer:

Code reports:

45147 (4002)

Pine Valley

Gold Park

CCMC 12472-R

File Name: 290669.bcc

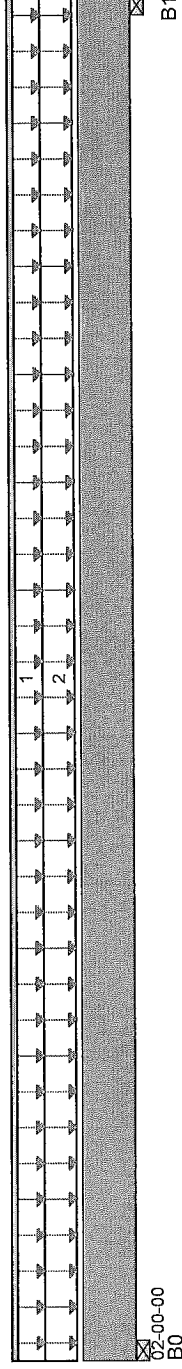
Description: Second Floor Framing

Specifier:

Designer: NL

Company: Alpa Roof Trusses

Misc:



Total Horizontal Product Length = 02-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Trib.
B0, 3-1/2"	27 / 0	225 / 0	189 / 0		
B1, 3-1/2"	27 / 0	225 / 0	189 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Lin. (lb/ft)	L	00-00-00	02-00-00	27	114			n/a
2	Unf. Area (lb/ft²)	L	00-00-00	02-00-00	11		21	1.00 1.15	09-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	172 ft-lbs	35,392 ft-lbs	0.5%	5	01-00-00
End Shear	163 lbs	14,464 lbs	1.1%	5	01-03-06
Total Load Defl.	L/999 (0")	n/a	n/a	13	01-00-00
Max Defl.	0"	n/a	n/a	13	01-00-00
Span / Depth	1.6	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"	578 lbs	7.7%	3.9%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	578 lbs	7.7%	3.9%	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total 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.

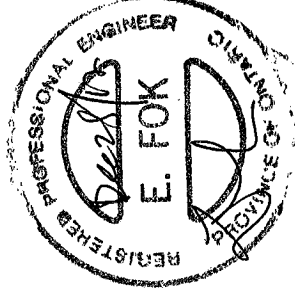
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA

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 @ 6"
o.c. staggered in 2 rows





Dry	2 spans	No cantilevers	0/12 slope (deg)

November 9, 2017 10:47:42

File Name: 290669.bcc

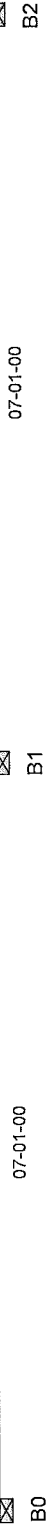
Description: First Floor Framing

Specifier:

Designer: NL

Company: Alpa Roof Trusses

Misc:



Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	420 / 56	363 / 0		
B1, 3-1/2"	1,114 / 0	1,112 / 0		
B2, 3-1/2"	420 / 56	363 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	1.00	0.65	1.00	1.15
1	Unf. Area (lb/ft^2)	L	00-00-00	14-02-00	40	20		03-03-00
2	Unf. Lin. (lb/ft)	L	00-00-00	14-02-00		60		n/a

Disclosure

Pos. Moment	1,404 ft-lbs	11,610 ft-lbs	12.1%	2	03-00-12	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.
Neg. Moment	-2,098 ft-lbs	-11,610 ft-lbs	18.1%	1	07-01-00	
End Shear	697 lbs	5,785 lbs	12%	2	01-01-00	
Cont. Shear	1,196 lbs	5,785 lbs	20.7%	1	06-01-12	
Total Load Defl.	L/999 (0.029")	n/a	n/a	9	03-03-09	
Live Load Defl.	L/999 (0.018")	n/a	n/a	12	03-05-08	
Total Neg. Defl.	L/999 (-0.003")	n/a	n/a	10	06-00-13	
Max Defl.	0.029"	n/a	n/a	9	03-03-09	
Span / Depth	8.7	n/a	n/a		00-00-00	
Squash Blocks	Valid					
BC CAL C® RC FRAMER® AJS™						

Valid

BC: CAI C® BC FRAMER® AJS™.

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

	Wall/Plate	3-1/2" x 1-3/4"	1,084 lbs	28.8%	Spruce Pine Fir	14.5%
B0	Wall/Plate	3-1/2" x 1-3/4"	1,084 lbs	28.8%	Spruce Pine Fir	14.5%
B1	Wall/Plate	3-1/2" x 1-3/4"	3,061 lbs	81.2%	Spruce Pine Fir	41%
B2	Wall/Plate	3-1/2" x 1-3/4"	1,084 lbs	28.8%	Spruce Pine Fir	14.5%

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.

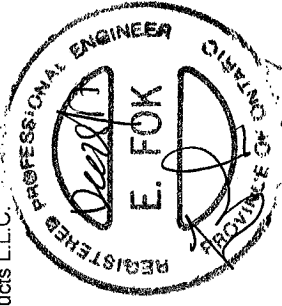
Resistance Factor phi has been applied to all presented results per CSA O86.

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA Q86.

Design based on Drv Service Condition.

Design based on Life Science Component

Importance Factor : Normal	Part code : Part 4
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NORDIC STRUCTURES

COMPANY
Nov. 9, 2017 1009

PROJECT
45147(0002)
9000 Main
St. Catharines, Vaughan
1-NI-40X-18/CANT... 2ND FLJAWO

Design Check Calculation Sheet

Nordic Size - Canada 6.4

Loads:

Load	Type	Distribution	Pat-	Location [ft]	Magnitude	Unit
Load1	Dead	Full Area	NO	Start	15.00	lbs
Load2	Live	Full Area	Yes	19.00	45.00	psf
Load3	Dead	Point	NO	19.00	1.00	lbs
Load4	Dead	Point	NO	19.00	3.00	lbs
Load5	Snow	Point	Yes	19.00	56	lbs
Load6	Snow	Point	Yes	19.00	184	lbs
Load7	Dead	Full UDL	NO	19.00	2.9	psf
Self-weights	Dead	Full UDL	NO	19.00	2.9	psf

Load magnitude does not include Normal Importance factor from OSB Table 3-2.3.2, which is applied during analysis.

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

19	18-11.1"
16-7.1"	18-11.1"
542	542
274	274
1616	1616
4734	4734
6199	6199
0.38	0.38
0.19	0.19
0.40	0.40
3-1/2	3-1/2
1.00	1.00
1.00	1.00
1.769	1.769
1.113	1.113

Maximum reaction on at least one support is from a different load combination than the critical one for bearing design, shown here, due to kg factor. See Analysis results for reaction from critical load combination.

Bearing for wall supports is perpendicular-to-grain bearing on top plate. No stud design included.

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

Supports: All Lumber Wall, No JAG2
Total length: 18' 5/8" nailed and glued OSB sheathing
This section PASSES the design code check.

Limit States Design using CSA 086-14 and Vibration Criterion:

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	V _r = 598	V _r = 2359	lbs	V _r /V _r = 0.43
Moment (+)	M _r = 1254	M _r = 5125	lb-ft	M _r /M _r = 0.25
Moment (-)	M _r = 1824	M _r = 8170	lb-ft	M _r /M _r = 0.30
Deflection:				
Interior Perm	0.05 < 41/999	0.55 = L/360	in	0.09
Interior Term	0.28 = L/710	0.83 = L/240	in	0.34
Cantile. Perm	-0.00 < 41/999	0.19 = L/180	in	0.01
Cantile. Term	-0.09 = L/302	0.25 = L/120	in	0.40
Bare Def'n	-0.11 = L/253	0.19 = L/180	in	0.71
Vibration	L _{max} = 18'-5/8"	L _v = 17'-5"	ft	LC
Def'n	0.034	0.038	mm	LC

Additional Data:

FACTORS:	1/F	KD	KH	K2	K1	K3	KN	LCH
V _r	2336	1.00	1.00	1.00	1.00	1.00	1.00	14
M _r	5255	0.99	1.00	1.00	1.00	1.00	1.00	15
LC	371.1	million						410

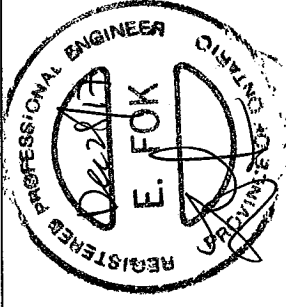
CRITICAL LOAD COMBINATIONS:

Moment (+) : LC 110 = 1.250 + 1.51 + (1.011.05)
Moment (-) : LC 15 = 1.250 + (1.011.58 + 1.01)
Deflection : LC 110 = 1.00 + 1.00 (permanent) + 1.00 (live)
LC 110 = 1.00 + 1.00 (pattern) + 1.00 (total)
LC 110 = 1.00 + 1.00 (pattern) + 1.00 (total)
LC 110 = 1.00 + 1.00 (pattern) + 1.00 (total)
Bearing : Support 1 : LC 110 = 1.40 + 1.9L + (1.011.05)
Support 2 : LC 110 = 1.40 + 1.9L + (1.011.05)
Load Types: Dead, Wind, Snow, Earth/Groundwater, Seismic
Load Retention: Live, occupancy, Service/Storage equipment, Fire
All Load Combinations (LC) are listed in the Analysis output

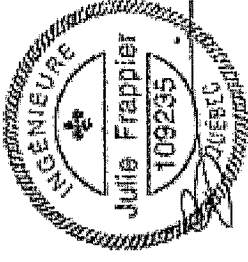
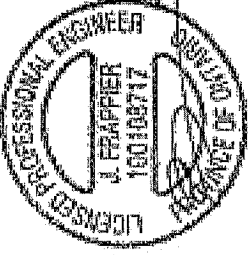
CALCULATIONS: Prefr = 44866 lbs-in2 No. 6 18x66 lbs
"Live" deflection = Deflection from all non-dead loads (live, wind, snow, ...)

Design Notes:

- WoodWorks analysis and design are in accordance with the 2010 National Building Code of Canada (NBC Part 4) and the CSA 086-14 Engineering Design in Wood standard (May 2014 edition).
- Please verify that the default deflection limits are appropriate for your application.
- Refer to technical documentation for installation guidelines and construction details.
- Design is based on the assumption of a continuous span over two supports.
- Joists shall be laterally supported at supports and continuously along the compression edge.
- The design assumptions and specifications have been provided by the client. Any damage resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



5152705



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

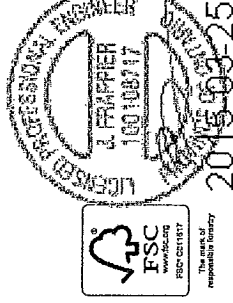
Depth	Series	Mid-Span Blocking			Mid-Span Blocking and 1/2" Gypsum Ceiling		
		On Centre Spacing			On Centre Spacing		
9-1/2"	NI-20	12"	17'-1"	15'-5"	12"	15'-5"	14'-6"
	NI-40x	18'-8"	17'-6"	16'-7"	19'-2"	17'-8"	16'-7"
	NI-60	18'-11"	17'-8"	16'-10"	19'-4"	18'-0"	16'-10"
	NI-70	20'-0"	18'-7"	17'-9"	20'-5"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

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of $1.50L + 1.25D$. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of $L/360$ and a total load deflection limit of $L/240$.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-1274C.



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

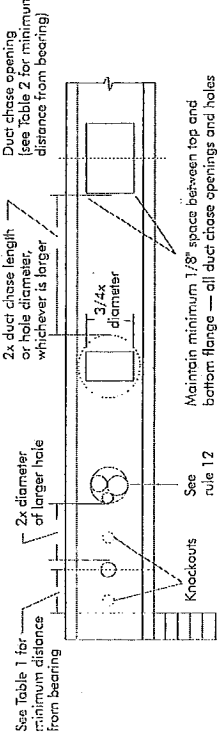
1. Above table may be used for I-joist spacing of 24 inches on centre or less.

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.

FIGURE 7 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 IMPORTANT GUIDELINES:

- Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bracing at joist ends. When I-joists are applied continuously over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
- When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
 - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2x12" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
- For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bracing.
- Install and fully nail permanent sheathing to each I-joist before placing loads on the floor system. Then, stack building materials over beams or walls only.
- Never install a damaged I-joist.

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

TABLE 2

DUCT CHASE OPENING SIZES AND LOCATIONS
Simple Span Only

Joist Depth	Joist Series	Minimum Distance from Inside Face of Supports to Centre of Opening (ft - in.)										
		8	10	12	14	16	18	20	22	24	26	28
9-1/2"	NL-20	4-1"	4-5"	4-10"	5-4"	5-8"	6-1"	6-6"	7-1"	7-5"	---	---
	NL-40x	5-3"	5-8"	6-0"	6-5"	6-10"	7-3"	7-8"	8-2"	8-6"	---	---
	NL-60	5-4"	5-9"	6-2"	6-7"	7-1"	7-5"	8-0"	8-3"	8-9"	---	---
	NL-80	5-1"	5-5"	5-10"	6-3"	6-7"	7-1"	7-6"	8-1"	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"	---	---
	NL-40x	6-8"	7-2"	7-6"	8-1"	8-6"	9-1"	9-6"	10-1"	10-9"	---	---
	NL-60	7-3"	7-8"	8-0"	8-6"	9-0"	9-3"	9-9"	10-3"	11-0"	---	---
	NL-80	7-1"	7-6"	7-9"	8-3"	8-7"	9-1"	9-6"	10-1"	10-4"	---	---
14"	NL-20	7-6"	7-11"	8-4"	8-9"	9-2"	9-7"	10-1"	10-7"	10-11"	---	---
	NL-40x	8-1"	8-7"	9-0"	9-6"	10-1"	10-7"	11-2"	11-8"	12-3"	---	---
	NL-60	8-9"	9-3"	9-8"	10-1"	10-6"	11-1"	11-6"	12-1"	12-6"	---	---
	NL-80	8-7"	9-1"	9-6"	10-1"	10-7"	11-1"	11-6"	12-1"	12-6"	---	---
16"	NL-20	9-2"	9-8"	10-0"	10-6"	10-11"	11-5"	12-0"	12-4"	12-11"	---	---
	NL-40x	10-3"	10-8"	11-2"	11-6"	12-1"	12-6"	13-2"	14-1"	14-10"	---	---
	NL-60	10-1"	10-5"	11-0"	11-4"	11-10"	12-3"	12-8"	13-3"	14-0"	---	---
	NL-80	10-4"	10-9"	11-3"	11-8"	12-1"	12-7"	13-1"	13-8"	14-4"	---	---

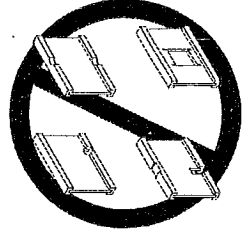
1. Above table may be used for I-joist spacing of 24 inches on centre or less.

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

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

Holes in webs should be cut with a sharp saw.

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



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



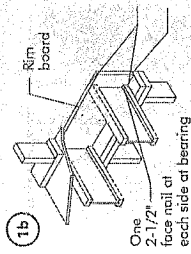
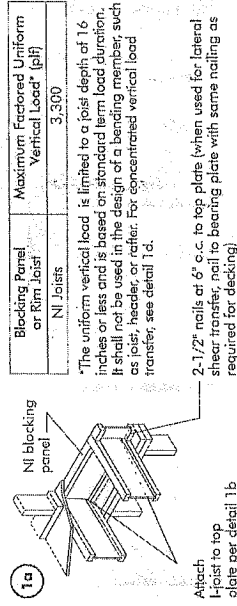
Never stack building materials over unfastened I-joists. Once sheathed, do not over-stress I-joists with concentrated loads from building materials.



PRODUCT WARRANTY

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

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



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

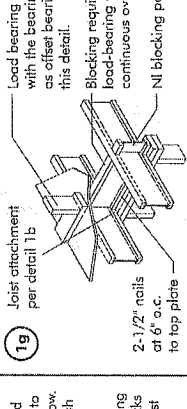
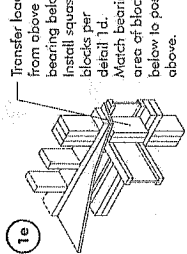
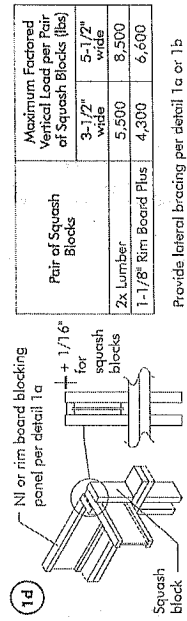
*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

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 be-nails at 6" o.c.

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

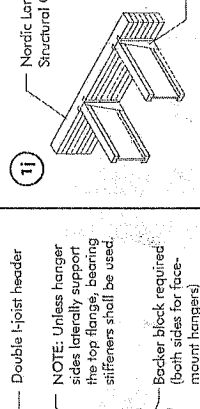
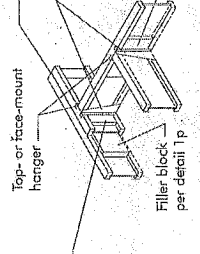
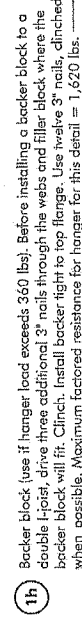
Minimum bearing length shall be 1-3/4" for the end bearings, and 3-1/2" for the intermediate bearings when applicable.



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 1a



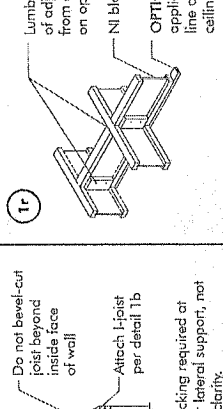
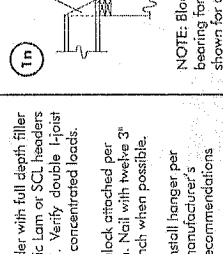
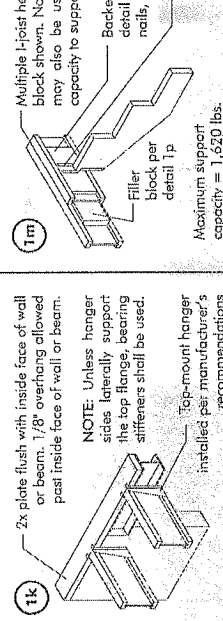
For nailing schedules for multiple beams, see the manufacturer's recommendations.

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

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

* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-C0925 or CAN/CSA-Q437 Standard.

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



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

NI blocking panel

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

WEB STIFFENERS

FILLER BLOCK REQUIREMENTS FOR DOUBLE L-JOIST CONSTRUCTION

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

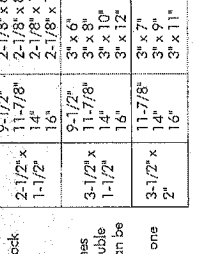
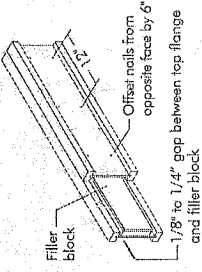
NOTE: 1. Support back of l-joint web during nailing to prevent damage to web/flange connection.

2. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top l-joint 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 l-joint. 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 l-joint capacity.



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.

WEB STIFFENERS

RECOMMENDATIONS:

A bearing stiffener is required in all engineered applications with factored reactions greater than shown in the l-joint properties table found in the l-joint Construction Guide (C101). The gap between the stiffener and the flange is at the top.

A bearing stiffener is required when the l-joint 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.

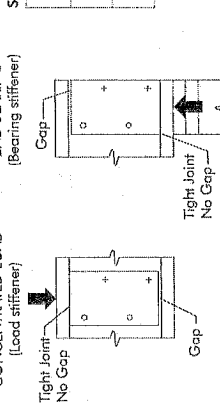
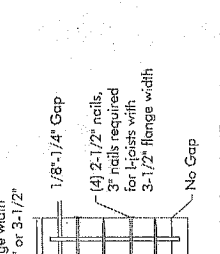
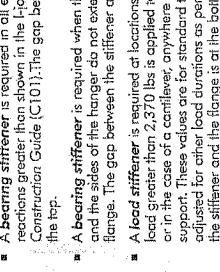
A load stiffener is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

WEB STIFFENERS

CONCENTRATED LOAD

CONCENTRATED LOAD (Load stiffener)

END BEARING (Bearing stiffener)

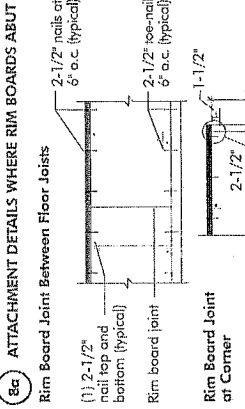
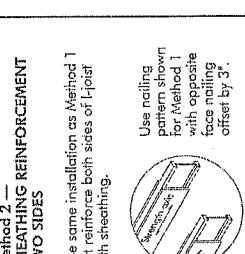
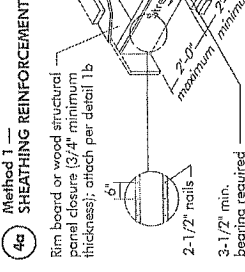


CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

Method 1 — SHEATHING REINFORCEMENT ONE SIDE

Method 2 — SHEATHING REINFORCEMENT TWO SIDES

Use same installation as Method 1 but reinforce both sides of l-joint with sheathing.



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

NOTE: Connection 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 l-joint to plate at all supports per detail 1b. Verify reinforced l-joint capacity.

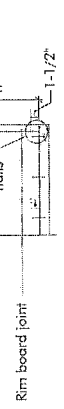


FIGURE 2 WEB STIFFENER INSTALLATION DETAILS

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

All nails shown in the above details are common wire nails unless otherwise noted. 3" (10-122" dia.) common spiral nails may be substituted for 2-1/2" (10-128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.

RIM BOARD INSTALLATION DETAILS

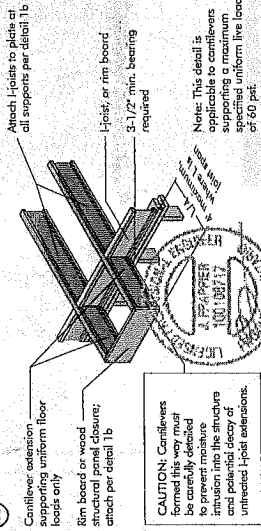
ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

Rim Board Joint Between Floor Joists



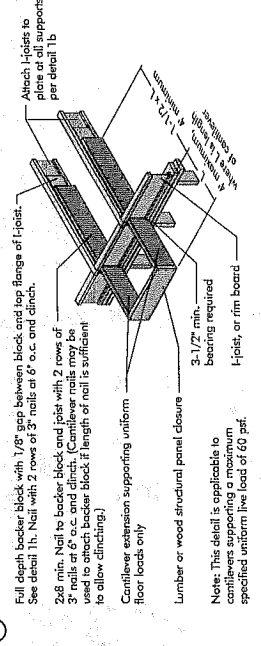
CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

5a L-IJOIST CANTILEVER DETAIL FOR BALCONIES (NO WALL LOAD)



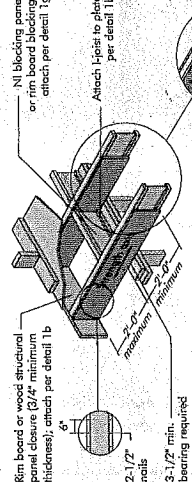
CAUTION: Cantilevers formed this way must be carefully detailed to prevent the transfer of loads from the structure and potential decay of untreated I-joist extensions.

5b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE

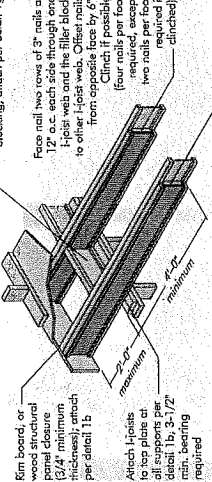


Method 2 — SHEATHING REINFORCEMENT TWO SIDES

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

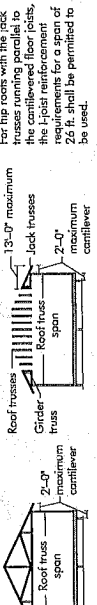
Note: Canadian shored sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c. top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail 1b. Verify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

4b Alternate Method 2 — DOUBLE I-JOIST



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

FIGURE 4 (continued)

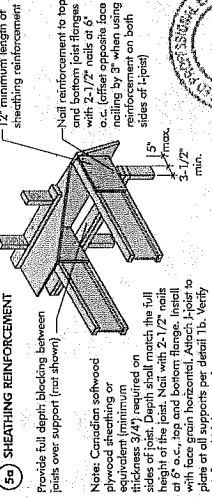


CANTILEVER REINFORCEMENT METHODS ALLOWED

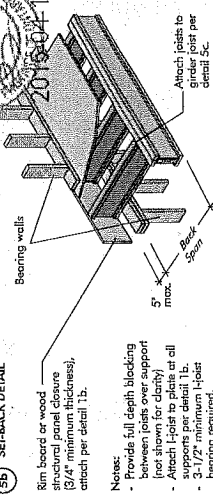
JOIST DEPTH (in.)	JOIST SPACING (in.)										ROOF TRUSS SPAN (in.)									
	12	16	19.2	24	24	12	16	19.2	24	24	12	16	19.2	24	24	12	16	19.2	24	24
9 1/2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
11 7/8	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
14	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
16	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

1. N = No reinforcement required.
2. N = Reinforced with 3/4" wood structural panel on one side only.
3. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf. Maximum design load shall be 15 psf roof dead load, 35 psf floor live load, and 80 psf total load. Requirements for lesser spacing, maximum width window or door openings.
4. For larger openings, or multiple 3-0" width openings spaced less than 6-0" o.c., additional joist beneath the opening's cripple must be provided.
5. For conventional roof construction using a ridge beam, the roof truss span column above is equivalent to the ridge beam. When the roof is framed using a ridge board, the roof truss span is equivalent to the distance between the supporting walls as if a ridge beam were used.
6. Cantilevered joist supporting girder trusses or roof beams may require additional reinforcing.

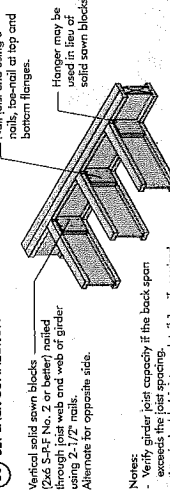
5a SHEATHING REINFORCEMENT



5b SET-BACK DETAIL

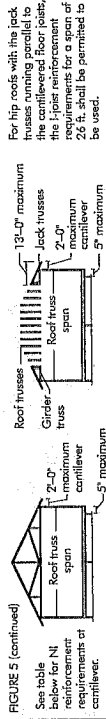


5c SET-BACK CONNECTION



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

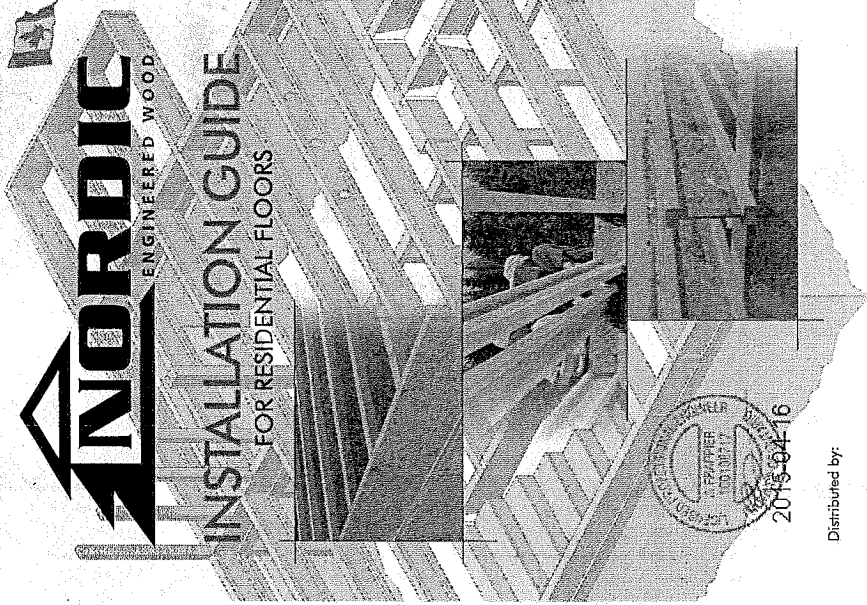
FIGURE 5 (continued)



BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	JOIST SPACING (in.)										ROOF TRUSS SPAN (in.)									
	12	16	19.2	24	24	12	16	19.2	24	24	12	16	19.2	24	24	12	16	19.2	24	24
9 1/2	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
11 7/8	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
14	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
16	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

1. N = No reinforcement required.
2. N = Reinforced with 3/4" wood structural panel on one side only.
3. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf. Maximum design load shall be 15 psf roof dead load, 35 psf floor live load, and 80 psf total load. Requirements for lesser spacing, maximum width window or door openings.
4. For larger openings, or multiple 3-0" width openings spaced less than 6-0" o.c., additional joist beneath the opening's cripple must be provided.
5. For conventional roof construction using a ridge beam, the roof truss span column above is equivalent to the ridge beam. When the roof is framed using a ridge board, the roof truss span is equivalent to the distance between the supporting walls as if a ridge beam were used.
6. Cantilevered joist supporting girder trusses or roof beams may require additional reinforcing.



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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 continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
2. When the building is completed, the floor sheathing will provide lateral support to the I-joists. Temporary bracing, often called studs, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
- Temporary bracing or studs must be 1-1/2 inch minimum, at least 8 feet long and spaced no more than 5 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.



Do not walk on I-joists until fully fastened and braced. Stacking building materials over unbraced I-joists can result in I-joist failure.

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

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

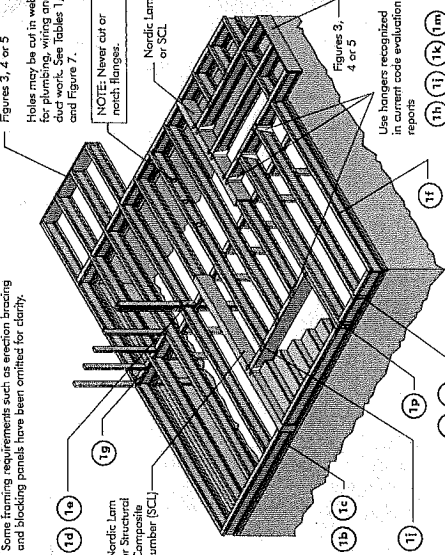
STORAGE AND HANDLING GUIDELINES

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

INSTALLING NORDIC I-JOISTS

1. Before laying our floor system components, verify that I-joist flange widths match hanger widths. If not, consult 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 must be level.
5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
6. When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement.
7. Leave a 1/16-inch gap between the I-joist and end 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 support unusual or heavy loads from the I-joist's bottom flange. Whenever possible, support heavy loads from the top of the I-joist. Or, anchor the load to blocking that has been securely fastened to the I-joist webs.
9. Never install I-joists where they will be permanently exposed to weather, or where they will remain in direct contact with concrete or masonry.
10. Restrain ends of floor joists to prevent rollover. Use rim board, rim joists or I-joist blocking panels.
11. For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (cripple members) to transfer gravity loads through the floor system to the wall or foundation below.
12. Due to shrinkage, common framing lumber set on edge may never be used as blocking or rim boards. I-joist blocking panels or other solid wood products—such as rim board—must be cut to fit between the I-joists, and an I-joist-compatible depth selected.
13. Provide permanent lateral support of the bottom flange of all I-joists at interior supports of multiple-span joists. Similarly, provide permanent lateral support of the top flange of all cantilevered I-joists. For cantilevered I-joists, provide temporary bracing or studs must be used.
14. If exposed edge cavities are used, edges must be supported between I-joists with 2x4 blocking. Glue panels to blocking to maintain soaks. Blocking is not required under structural finish flooring, such as wood strip flooring, or if a separate underlayment layer is installed.
15. Nail spacing: Space nails installed to the flange's top face in accordance with the applicable building code requirements or approved building plans.

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



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

1a Attach I-joist to top plate per detail 1a

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

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

1b One 2-1/2" face nail

Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	9,000

*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 post, header, or rafter. For concentrated vertical load transfer, see detail 1d.

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

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

Pair of Squash Blocks (flat)	Pair of Squash Blocks (flat)	2x Lumber	1-1/8" Rim Board Plus
5,500	5,500	4,300	6,600

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

MAXIMUM FLOOR SPANS
SIMPLE AND MULTIPLE SPANS

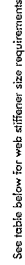
7. SI units conversion:
1 inch = 25.4 mm
1 foot = 0.305 m

CCMC EVALUATION REPORT 13032-R

RECOMMENDATIONS:-

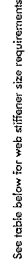
- SI units conversion: 1 inch = 25.4 mm

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

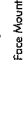


3-1/2"	1-1/2" x 2-5/16" minimum width
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WEB STIFFENER INSTALLATION DETAILS



4. Web stiffeners are required when the sides of the hangers do not laterally brace the top flange of the I-joint.



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

-
- Diagram of a filler block with dimensions and labels:
- Top width: $1\frac{1}{2}$
 - Offset nails from opposite face by $\frac{1}{8}$
 - Labels: Filler block, Offset nails from opposite face by $\frac{1}{8}$
 - Bottom gap: $1\frac{1}{8}$ to $1\frac{1}{4}$ gap between top flange and filler block
 - Circle with '1p' inside

- Top-mount hanger installed per manufacturer's recommendations

- [illegible]

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

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

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

-
- Diagram illustrating the assembly of a blocking strip joint. The diagram shows two blocking panels being joined by a strip of lumber. The lumber is applied to the underside of the joint, with nails from each web to the lumber piece, alternating on opposite sides. The blocking panels are labeled "Blocking panel". The lumber is labeled "Lumber 2x4 min., extend block to face of adjacent web." The strip applied to the underside of the joint is labeled "Strip applied to underside of joint of blocking line or 1/2 inch minimum gypsum ceiling". The minimum length of the strip is labeled "Optimised: Minimum 1x4 inch".

- Notes:
- 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.