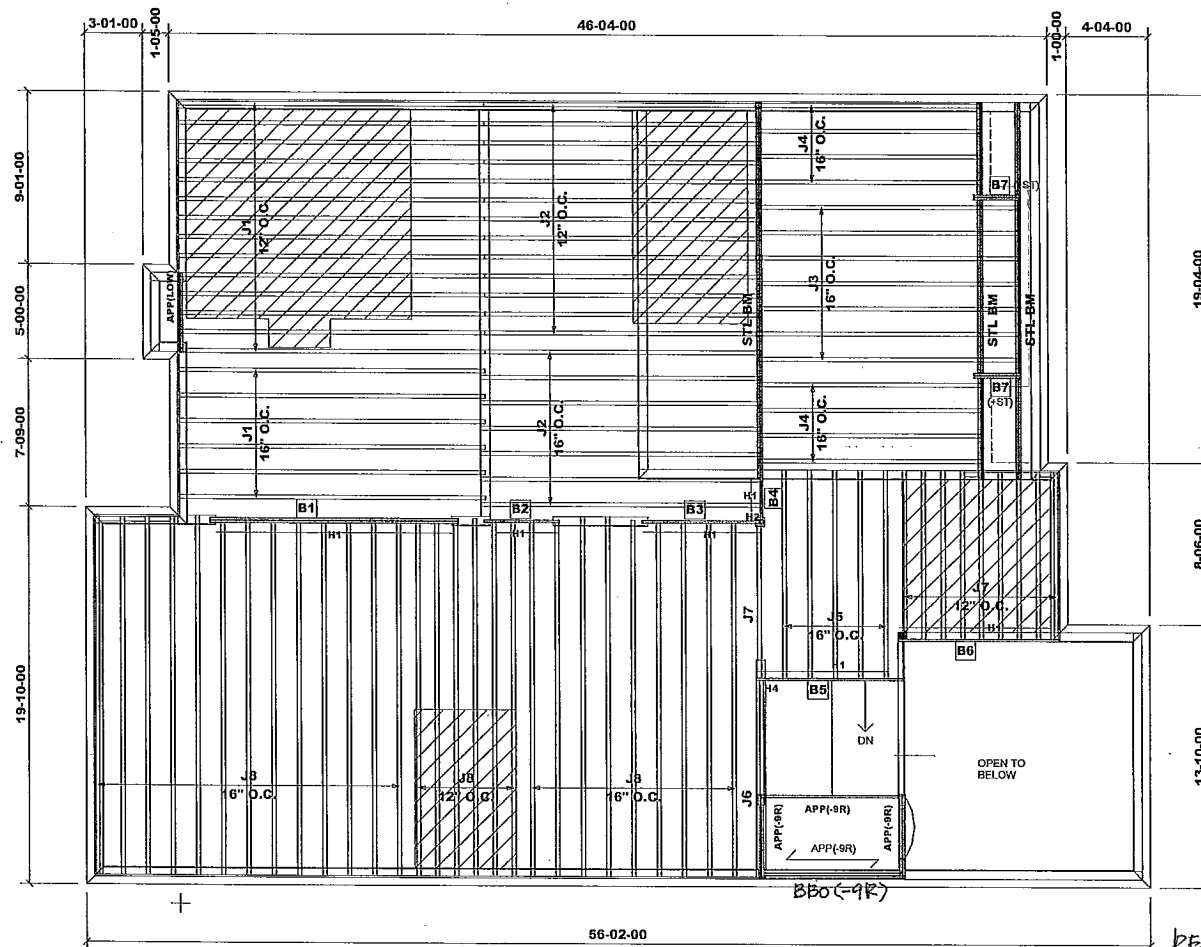




Products				
PlotID	Length	Product	Plies	Net Qty
J1	17-00-00	11 7/8" NI-20	1	20
J2	15-00-00	11 7/8" NI-20	1	20
J3	14-00-00	11 7/8" NI-20	1	7
J4	12-00-00	11 7/8" NI-20	1	8
J5	11-00-00	11 7/8" NI-20	1	5
J6	11-00-00	11 7/8" NI-20	2	2
J7	9-00-00	11 7/8" NI-20	1	10
J8	19-00-00	11 7/8" NI-40x	1	28
B1	14-00-00	VERSALAM-12 2.0E	2	2
B6	9-00-00	VERSALAM-12 2.0E	1	1
B5	8-00-00	VERSALAM-12 2.0E	1	1
B3	7-00-00	VERSALAM-12 2.0E	1	1
B2	4-00-00	VERSALAM-12 2.0E	1	1
B4	3-00-00	VERSALAM-12 2.0E	1	1
B7	3-00-00	VERSALAM-12 2.0E	2	4

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

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.



Second Floor Framing

Do not scale - refer to architectural plans for dimensions

MODEL: UNIT 5001 - EL.A
+ OPT. LOGGIA

REV: DEC. 15, 2017

S.152597-S.152616

JT/PL: 45147/94992

Builder: Gold Park

Location: Vaughan

Designer: NL

Alpa Roof Trusses Inc.

Salesperson: Derek

LI: 290681

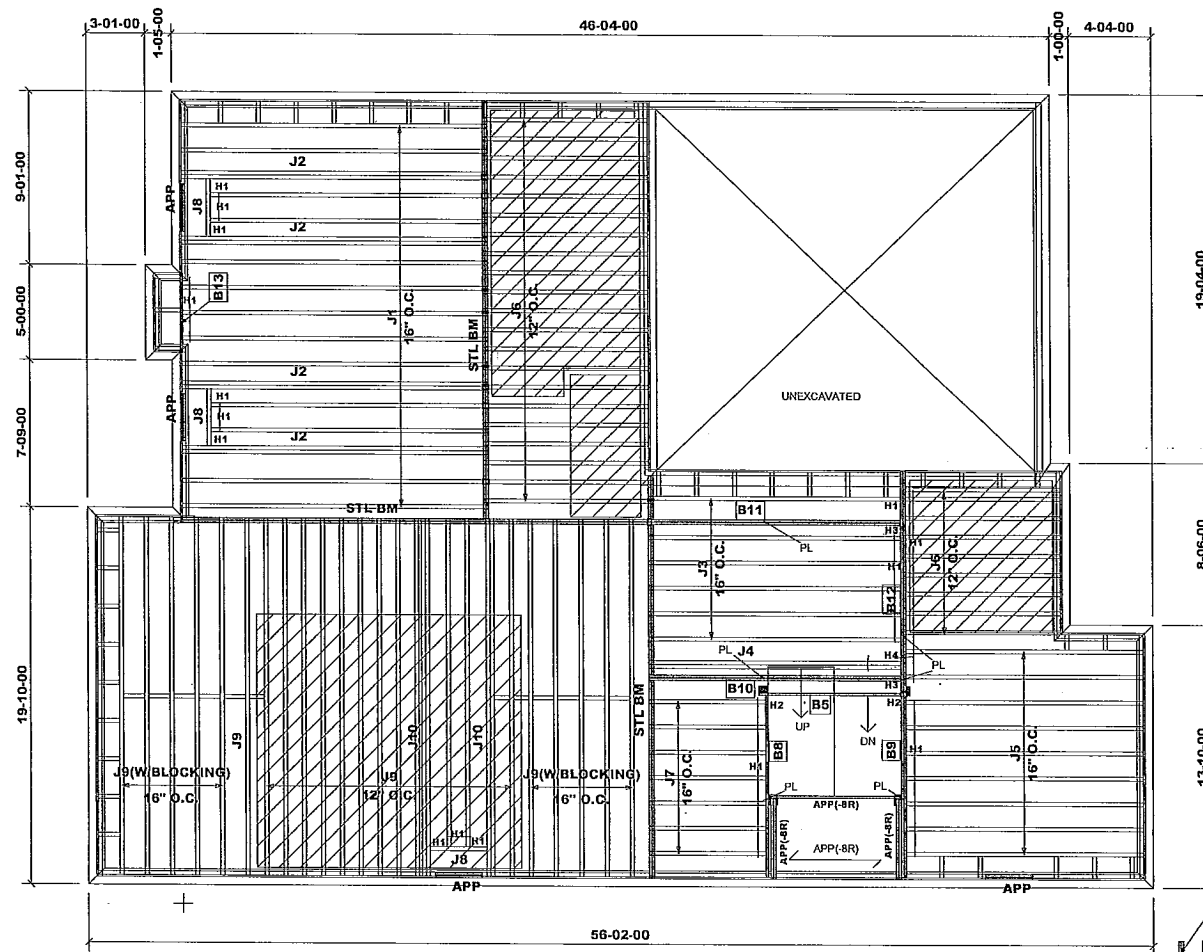
Project: Pine Valley

Date: November 23, 2017

Sheet: 1 of 6

Maple, Ontario

Home Lumber



Products				
PlotID	Length	Product	Pieces	Net Qty
J1	17-00-00	11 7/8" NI-20	1	13
J2	17-00-00	11 7/8" NI-20	2	8
J3	14-00-00	11 7/8" NI-20	1	6
J4	14-00-00	11 7/8" NI-20	2	2
J5	13-00-00	11 7/8" NI-20	1	9
J6	9-00-00	11 7/8" NI-20	1	30
J7	7-00-00	11 7/8" NI-20	1	7
J8	3-00-00	11 7/8" NI-20	1	3
J9	19-00-00	11 7/8" NI-40x	1	23
J10	19-00-00	11 7/8" NI-40x	2	4
B10	14-00-00	VERSALAM-12 2.0E	2	2
B11	14-00-00	VERSALAM-12 2.0E	2	2
B12	12-00-00	VERSALAM-12 2.0E	2	2
B8	10-00-00	VERSALAM-12 2.0E	1	1
B9	10-00-00	VERSALAM-12 2.0E	2	2
B5	8-00-00	VERSALAM-12 2.0E	1	1
B13	5-00-00	VERSALAM-12 2.0E	1	1

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

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.



First Floor Framing

Do not scale - refer to architectural plans for dimensions

**MODEL: UNIT 5001 - EL.A
+ OPT. LOGGIA**

JT/PL: 45147/94992

LI: 290681

Builder: Gold Park

Project: Pine Valley

Location: Vaughan

Date: November 23, 2017

Designer: NL

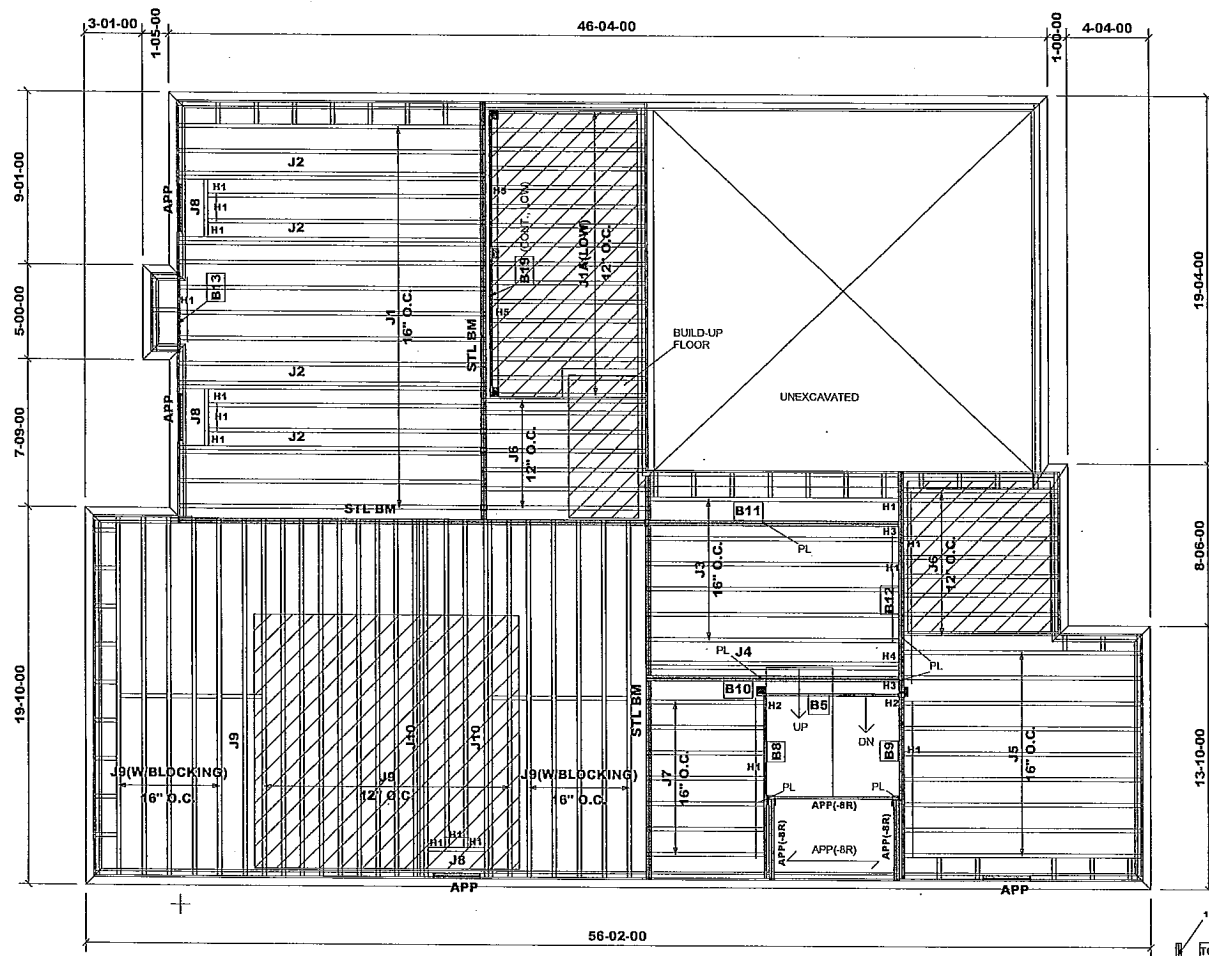
Sheet: 2 of 6

Alpa Roof Trusses Inc.

Maple, Ontario

Salesperson: Derek

Home Lumber



Products				
PlotID	Length	Product	Plies	Net Qty
J1A	9-00-00	9 1/2" NI-20	1	16
J1	17-00-00	11 7/8" NI-20	1	13
J2	17-00-00	11 7/8" NI-20	2	8
J3	14-00-00	11 7/8" NI-20	1	6
J4	14-00-00	11 7/8" NI-20	2	2
J5	13-00-00	11 7/8" NI-20	1	9
J6	9-00-00	11 7/8" NI-20	1	16
J7	7-00-00	11 7/8" NI-20	1	7
J8	3-00-00	11 7/8" NI-20	1	3
J9	19-00-00	11 7/8" NI-40x	1	23
J10	19-00-00	11 7/8" NI-40x	2	4
B19	16-00-00	VERSALAM-10 2.0E	1	1
B10	14-00-00	VERSALAM-12 2.0E	2	2
B11	14-00-00	VERSALAM-12 2.0E	2	2
B12	12-00-00	VERSALAM-12 2.0E	2	2
B8	10-00-00	VERSALAM-12 2.0E	1	1
B9	10-00-00	VERSALAM-12 2.0E	2	2
B5	8-00-00	VERSALAM-12 2.0E	1	1
B13	5-00-00	VERSALAM-12 2.0E	1	1

HANGER SCHEDULE

H1-----LT251188 (TM)
H2-----HUS1.81/10(FM)
H4-----MT31.88-2(TM)
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.



First Floor Framing

Do not scale - refer to architectural plans for dimensions

**MODEL: UNIT 5001 - E.L.A
+ OPT. LOGGIA(SUNKEN)**

JT/PL: 45147/94992

LI: 290681

Builder: Gold Park

Project: Pine Valley

Location: Vaughan

Date: November 24, 2017

Designer: NL

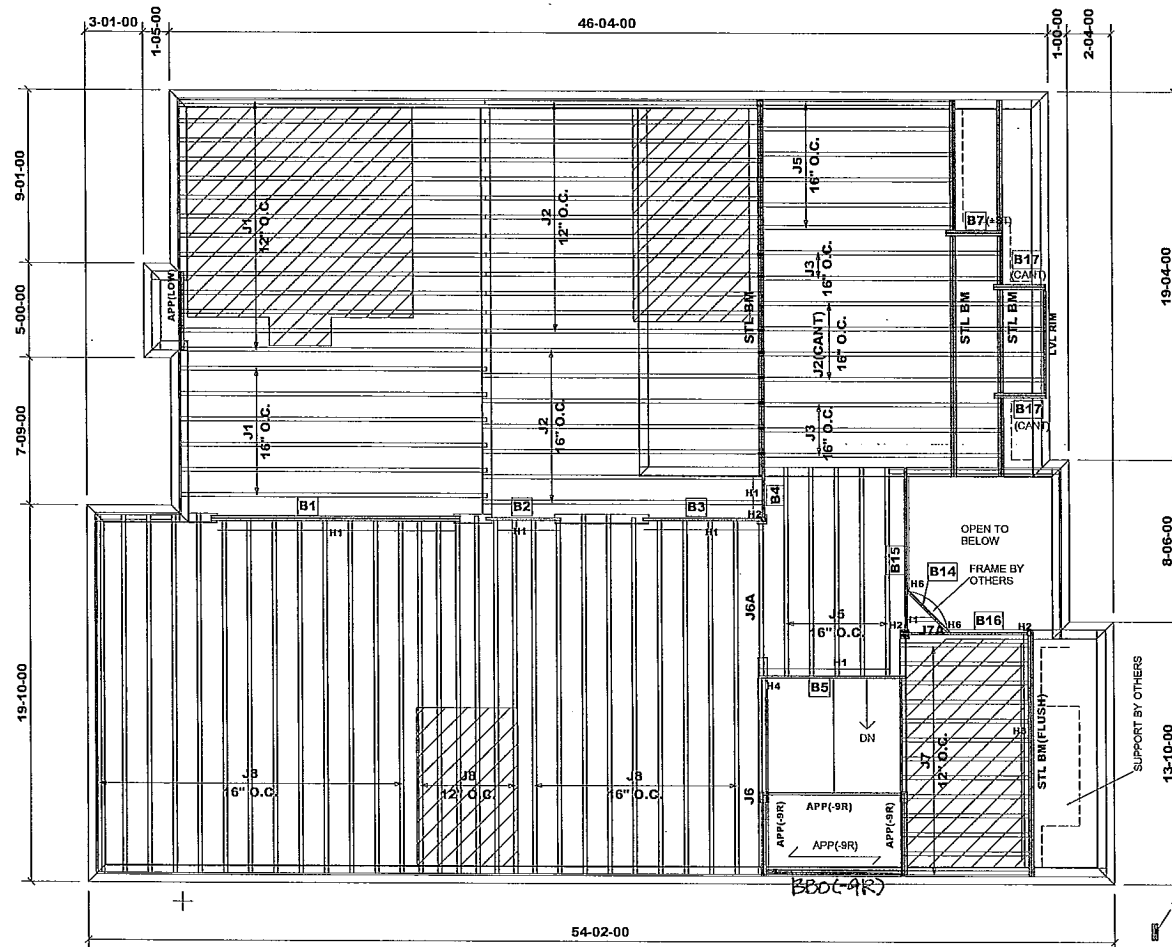
Sheet: 3 of 6

Alpa Roof Trusses Inc.

Maple, Ontario

Salesperson: Derek

Home Lumber



Products				
PlotID	Length	Product	Plies	Net Qty
J1	17'-00"-00	11 7/8" NI-20	1	20
J2	15'-00"-00	11 7/8" NI-20	1	24
J3	13'-00"-00	11 7/8" NI-20	1	5
J5	11'-00"-00	11 7/8" NI-20	1	11
J6	11'-00"-00	11 7/8" NI-20	2	2
J6A	9'-00"-00	11 7/8" NI-20	1	1
J7	7'-00"-00	11 7/8" NI-20	1	13
J7A	2'-00"-00	11 7/8" NI-20	1	1
J8	19'-00"-00	11 7/8" NI-40x	1	28
B1	14'-00"-00	VERSALAM-12 2.0E	2	2
B15	9'-00"-00	VERSALAM-12 2.0E	1	1
B5	8'-00"-00	VERSALAM-12 2.0E	1	1
B16	7'-00"-00	VERSALAM-12 2.0E	1	1
B3	7'-00"-00	VERSALAM-12 2.0E	1	1
LVL RIM	6'-00"-00	VERSALAM-12 2.0E	1	1
B14	4'-00"-00	VERSALAM-12 2.0E	1	1
B2	4'-00"-00	VERSALAM-12 2.0E	1	1
B4	3'-00"-00	VERSALAM-12 2.0E	1	1
B17	3'-00"-00	VERSALAM-12 2.0E	2	4
B7	3'-00"-00	VERSALAM-12 2.0E	2	2

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

HANGER SCHEDULE
H1-----LT251188 (TM)
H2-----HUS1.81/10(FM)
H3-----LF2511(FM)
H4-----MIT311.88-2(TM)
H6-----LSSUI25(FM)

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

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.



Second Floor Framing

Do not scale - refer to architectural plans for dimensions

**MODEL: UNIT 5001 - EL.B
+ OPT. LOGGIA**

REV: DEC. 15, 2017

JT/PL: 45147/94992

Builder: Gold Park

Location: Vaughan

Designer: NL

Alpa Roof Trusses Inc.

Salesperson: Derek

LI: 290681

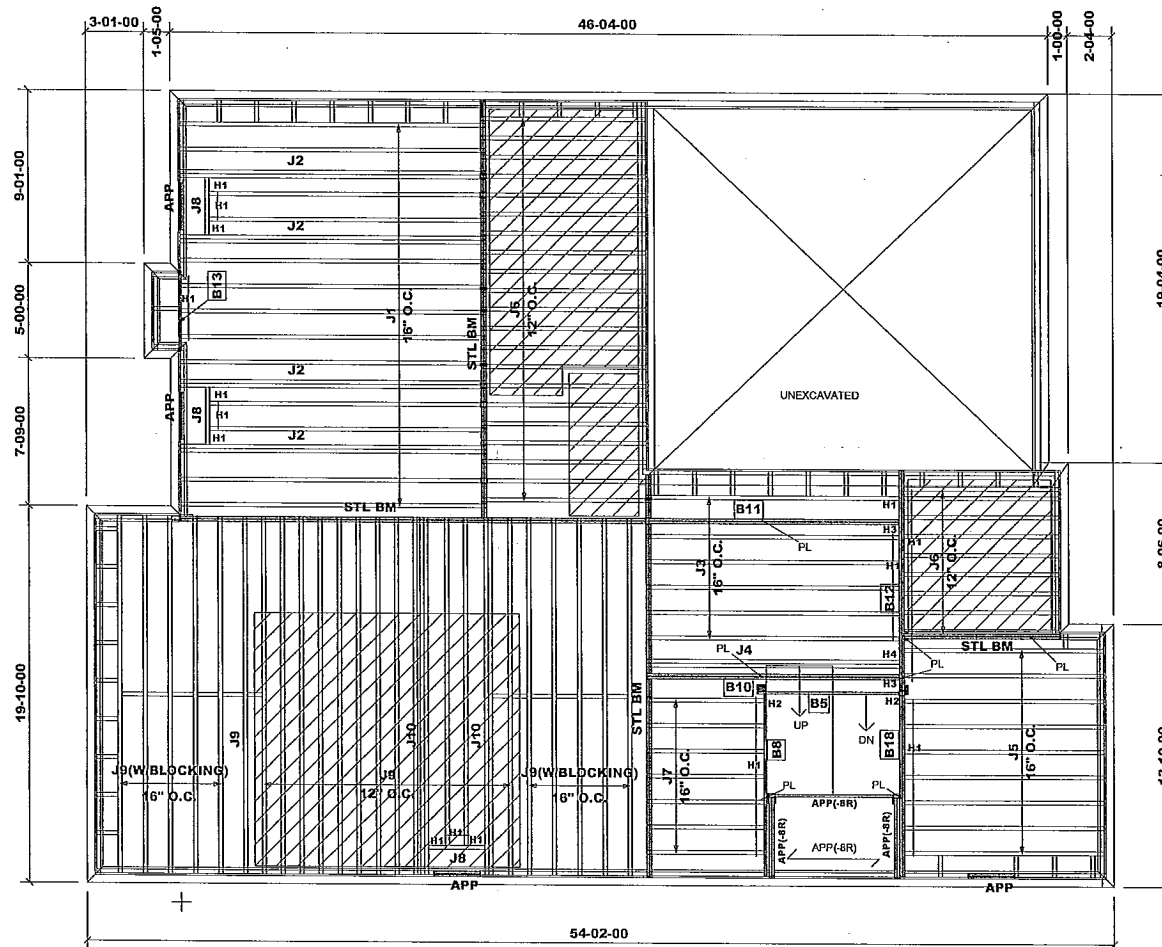
Project: Pine Valley

Date: November 24, 2017

Sheet: 4 of 6

Maple, Ontario

Home Lumber

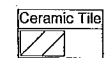


Products				
PlotID	Length	Product	Plies	Net Qty
J1	17-00-00	11 7/8" NI-20	1	13
J2	17-00-00	11 7/8" NI-20	2	8
J3	14-00-00	11 7/8" NI-20	1	6
J4	14-00-00	11 7/8" NI-20	2	2
J5	11-00-00	11 7/8" NI-20	1	9
J6	9-00-00	11 7/8" NI-20	1	30
J7	7-00-00	11 7/8" NI-20	1	7
J8	3-00-00	11 7/8" NI-20	1	3
J9	19-00-00	11 7/8" NI-40x	1	23
J10	19-00-00	11 7/8" NI-40x	2	4
B10	14-00-00	VERSALAM-12 2.0E	2	2
B11	14-00-00	VERSALAM-12 2.0E	2	2
B12	12-00-00	VERSALAM-12 2.0E	2	2
B8	10-00-00	VERSALAM-12 2.0E	1	1
B18	10-00-00	VERSALAM-12 2.0E	2	2
B5	8-00-00	VERSALAM-12 2.0E	1	1
B13	5-00-00	VERSALAM-12 2.0E	1	1

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
 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.



First Floor Framing

Do not scale - refer to architectural plans for dimensions

**MODEL: UNIT 5001 - EL.B
 + OPT. LOGGIA**

11 7/8" BLOCKING
 TOTAL LENGTH: 81"

JT/PL: 45147/94992
 LI: 290681

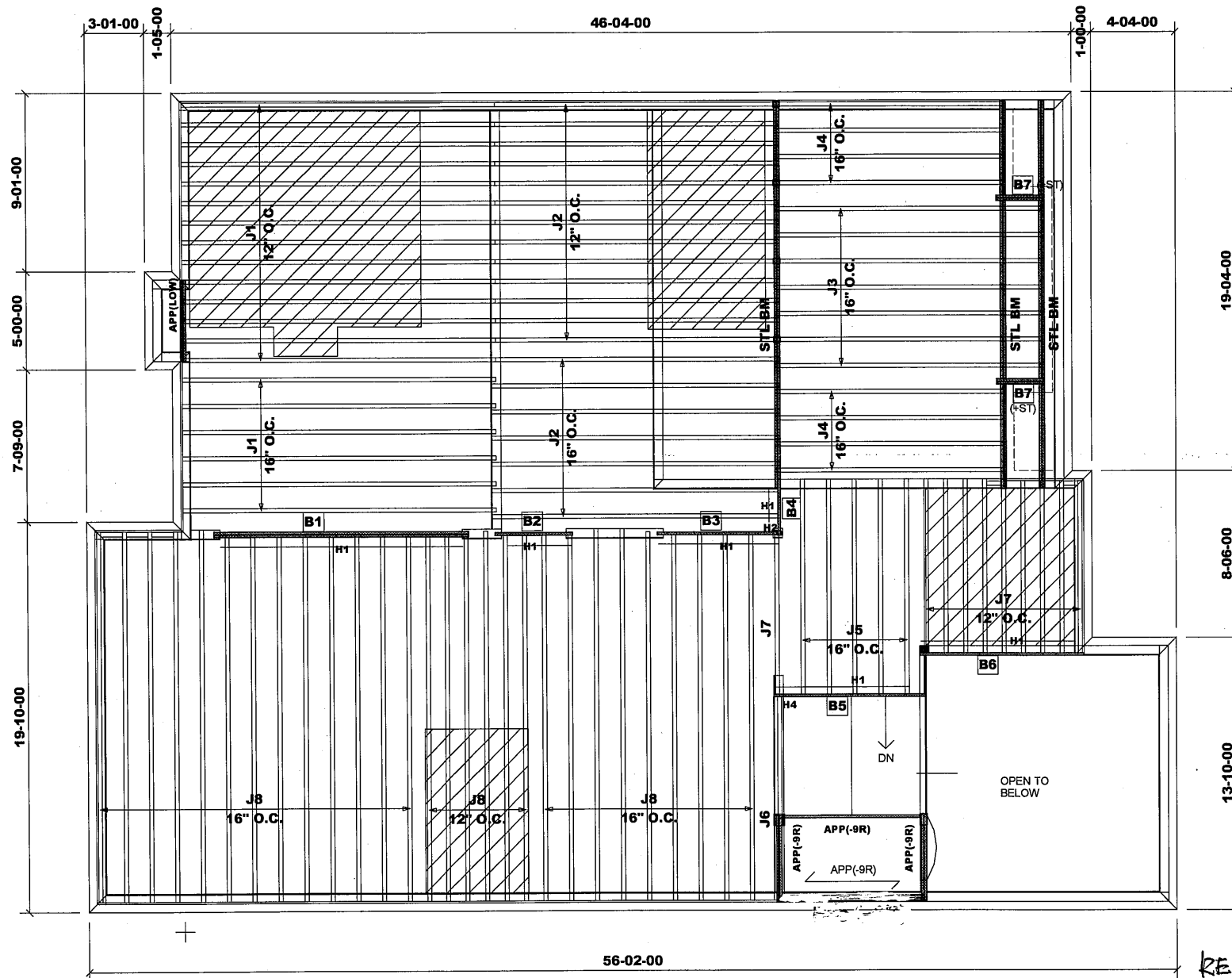
Builder: Gold Park
 Project: Pine Valley

Location: Vaughan
 Date: November 24, 2017

Designer: NL
 Sheet: 5 of 6

Alpa Roof Trusses Inc.
 Maple, Ontario

Salesperson: Derek
 Home Lumber



Products				
PlotID	Length	Product	Plies	Net Qty
J1	17'-00"	11 7/8" NI-20	1	20
J2	15'-00"	11 7/8" NI-20	1	20
J3	14'-00"	11 7/8" NI-20	1	7
J4	12'-00"	11 7/8" NI-20	1	8
J5	11'-00"	11 7/8" NI-20	1	5
J6	11'-00"	11 7/8" NI-20	2	2
J7	9'-00"	11 7/8" NI-20	1	10
J8	19'-00"	11 7/8" NI-40x	1	28
B1	14'-00"	VERSALAM-12 2.0E	2	2
B6	9'-00"	VERSALAM-12 2.0E	1	1
B5	8'-00"	VERSALAM-12 2.0E	1	1
B3	7'-00"	VERSALAM-12 2.0E	1	1
B2	4'-00"	VERSALAM-12 2.0E	1	1
B4	3'-00"	VERSALAM-12 2.0E	1	1
B7	3'-00"	VERSALAM-12 2.0E	2	4

HANGER SCHEDULE

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

NOTE:

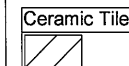
TM -----TOP MOUNT HANGERS
 FM-----FACE MOUNT HANGERS

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

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.



Second Floor Framing

Do not scale - refer to architectural plans for dimensions

MODEL: UNIT 5001 - EL.A
+ OPT. LOGGIA

REV: July 3, 2018

S.152597-S152616

98839/July 3, 2018
 95925/Jan. 2, 2018

JT/PL: 45147/94992

Builder: Gold Park

Location: Vaughan

Designer: NL

Alpa Roof Trusses Inc.

Salesperson: Derek

LI:(290681)

Project: Pine Valley

Date: November 23, 2017

Sheet: 1 of 6

Maple, Ontario

Home Lumber

299729



Boise Cascade

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

Floor Beam\B01



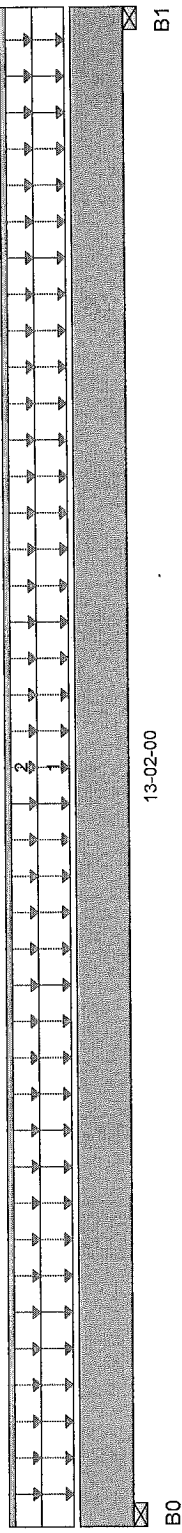
BC CALC® Design Report

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

November 23, 2017 14:39:01

Build 6080
Job Name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290681.bcc
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 13-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Trib.
B0, 3-1/2"	2,677 / 0	1,813 / 0			
B1, 3-1/2"	2,677 / 0	1,813 / 0			

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft^2)	L	00-00-00	13-02-00	40	20			10-02-00
2	Unf. Lin. (lb/ft)	L	00-00-00	13-02-00	n/a	60			n/a

Controls Summary

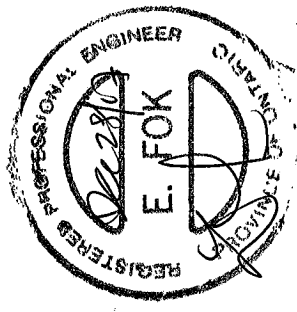
Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
19,263 ft-lbs	35,392 ft-lbs	54.4%	1	06-07-00	
End Shear	5,059 lbs	14,464 lbs	35%	1	01-03-06
Total Load Defl.	L/372 (0.41")	0.635"	64.5%	4	06-07-00
Live Load Defl.	L/624 (0.244")	0.424"	57.7%	5	06-07-00
Max Defl.	0.41"	1"	41%	4	06-07-00
Span / Depth	12.8	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"	6,282 lbs	83.4%	42%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	6,282 lbs	83.4%	42%	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 @ 8" 11
o.c., staggered in 2 rows



S.152597



Boise Cascade

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

Floor Beam\B02



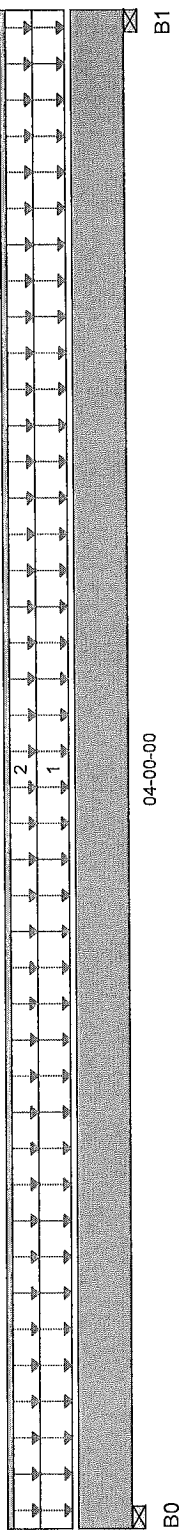
BC CALCO® Design Report

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

November 23, 2017 14:39:32

Build 6080
Job Name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290681.bcc
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 04-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Trib.
B0, 3-1/2"	813 / 0	539 / 0			
B1, 3-1/2"	813 / 0	539 / 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	20			10-02-00
2	Unf. Lin. (lb/ft)	L	00-00-00	04-00-00	40	60			n/a

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Moment	1,484 ft-lbs	17,696 ft-lbs	8.4%	1	02-00-00
End Shear	680 lbs	7,232 lbs	9.4%	1	01-03-06
Total Load Defl.	L/999 (0.005")	n/a	n/a	4	02-00-00
Live Load Defl.	L/999 (0.003")	n/a	n/a	5	02-00-00
Max Defl.	0.005"	n/a	n/a	4	02-00-00
Span / Depth	3.6	n/a	n/a		00-00-00
Squash Blocks	Valid				

Disclosure

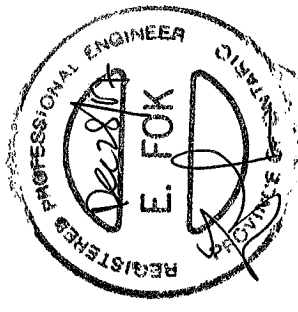
Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance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

Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	1,893 lbs	50.2%	25.3%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	1,893 lbs	50.2%	25.3%	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 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-152598



Boise Cascade

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

Floor Beam\B03



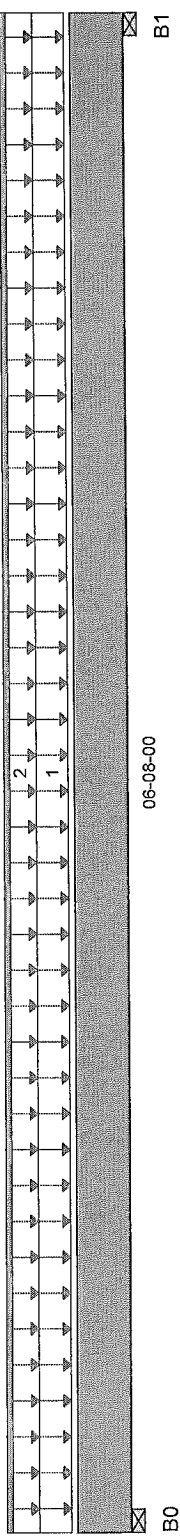
BC CALCO® Design Report

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

November 23, 2017 16:16:54

Build 6080
Job Name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290681.bcc
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



06-08-00

B0 B1

Total Horizontal Product Length = 06-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,356 / 0	898 / 0		
B1, 3-1/2"	1,356 / 0	898 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft²)	L	00-00-00	06-08-00	40	20		1.00 1.15	10-02-00
2	Unf. Lin. (lb/ft)	L	00-00-00	06-08-00	60	60			n/a

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Moment	4,561 ft-lbs	17,696 ft-lbs	25.8%	1	03-04-00
End Shear	1,943 lbs	7,232 lbs	26.9%	1	01-03-06
Total Load Defl.	L/999 (0.046")	n/a	n/a	4	03-04-00
Live Load Defl.	L/999 (0.028")	n/a	n/a	5	03-04-00
Max Defl.	0.046"	n/a	n/a	4	03-04-00
Span / Depth	6.3	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.

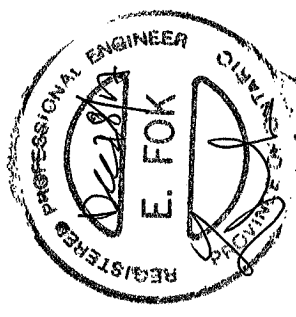
BC CALCO®, BC FRAMER®, AJST™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.

Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	3,156 lbs	83.7%	42.2%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	3,156 lbs	83.7%	42.2%	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 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.152599



Boise Cascade

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

Floor Beam\B04



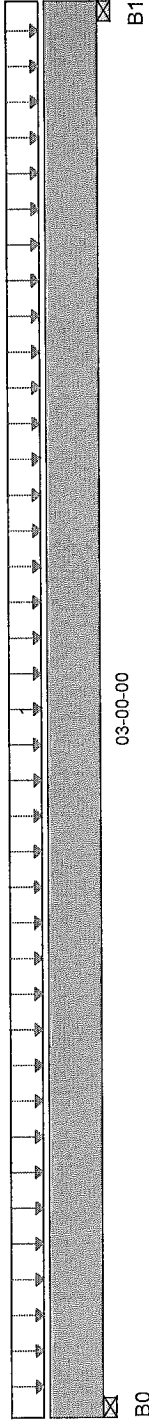
BC CALC® Design Report

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

November 23, 2017 16:18:17

Build 6080
Job Name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290681.bcc
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 03-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing		Live	Dead	Snow	Wind				
B0, 3-1/2"		490 / 0	193 / 0						
B1, 3-1/2"		490 / 0	193 / 0						
Load Summary									
Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft^2)	L	00-00-00	03-00-00	40	15	1.00	1.15	08-02-00

Disclosure

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

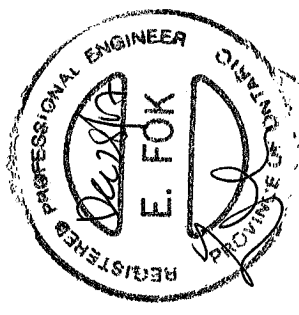
BC CALC®, BC FRAMER®, AJST™, ALLJOIST®, BC RIM BOARD™, BC®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.

Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	976 lbs	25.9%	13.1%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	976 lbs	25.9%	13.1%	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets User specified (1") Maximum Total load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA 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.152600



Boise Cascade

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

Floor Beam\B05



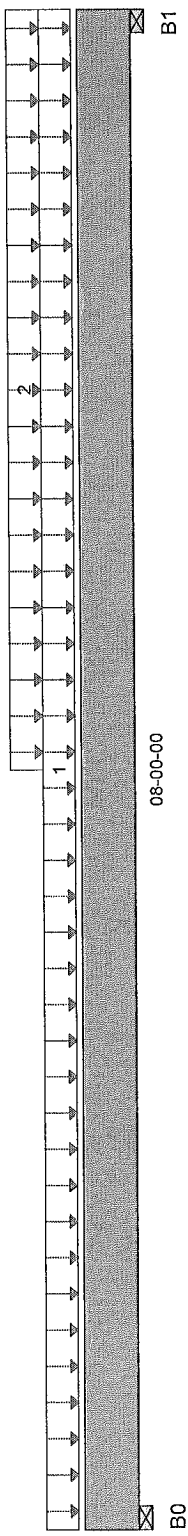
BC CALC® Design Report

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

November 23, 2017 15:05:25

Build 6080
Job Name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290681.bcc
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 08-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B0, 3-1/2"	1,031 / 0	411 / 0
B1, 3-1/2"	1,369 / 0	538 / 0

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft²)	L	00-00-00	08-00-00	40	15			05-06-00
2	Unf. Area (lb/ft²)	L	04-00-00	08-00-00	40	15			04-00-00

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Moment	4,311 ft-lbs	17,696 ft-lbs	24.4%	1	04-05-02
End Shear	1,758 lbs	7,232 lbs	24.3%	1	06-08-10
Total Load Defl.	L/999 (0.062")	n/a	n/a	4	04-01-00
Live Load Defl.	L/999 (0.045")	n/a	n/a	5	04-01-00
Max Defl.	0.062"	n/a	n/a	4	04-01-00
Span / Depth	7.6	n/a	n/a		00-00-00
Squash Blocks	Valid				

Disclosure

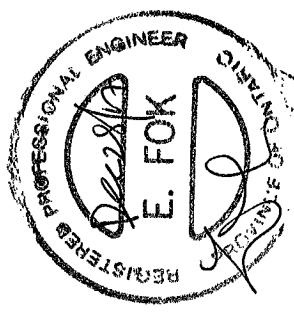
Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance 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

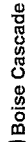
	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	2,060 lbs	54.7%	27.6%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	2,726 lbs	72.3%	36.5%	Spruce Pine Fir

Notes

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



S152601



BC CALC® Design Report

November 23, 2017 16:24:44

File Name: 290681.bcc

Description: Second Floor Framing

Specifier:

Designer: NL

Company: Alpa Roof Trusses

Misc:

Total Horizontal Product Length = 08-06-00

Age Group	Percentage
18-24	10%
25-34	15%
35-44	20%
45-54	25%
55-64	30%
65-74	35%
75-84	40%
85+	45%

Wind

Live Dead Snow Wind Lib

1.00

Disclosure

Location

04

	Demand/ Resistance	Demand/ Resistance
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10
11	11	11
12	12	12
13	13	13
14	14	14
15	15	15
16	16	16
17	17	17
18	18	18
19	19	19
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94	94	94
95	95	95
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97	97	97
98	98	98
99	99	99
100	100	100

Spruce

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

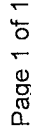
criteria.

results per CSA O86

... as per NBCC

ce Condition.

Part code : Part 4



S152602



Boise Cascade

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

Floor Beam\B07



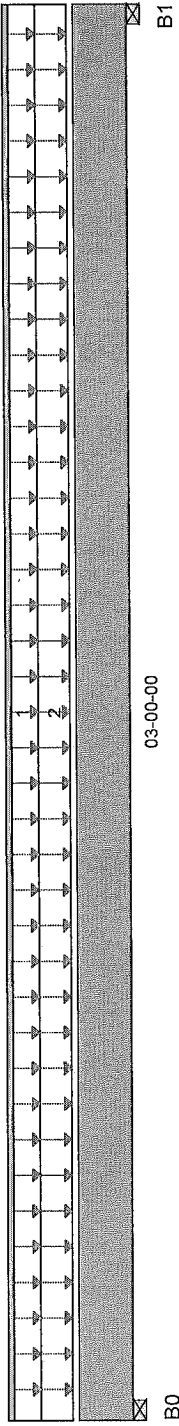
BC CALCO® Design Report

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

November 23, 2017 16:09:48

Build 6080
Job Name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290681.bcc
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 03-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind	Trib.
B0, 3-1/2"	40 / 0	313 / 0	236 / 0		
B1, 3-1/2"	41 / 0	313 / 0	236 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Lin. (lb/ft)	L	00-00-00	03-00-00	27	114			n/a
2	Unf. Area (lb/ft^2)	L	00-00-00	03-00-00	11		21	1.00 1.15	07-06-00

Controls Summary

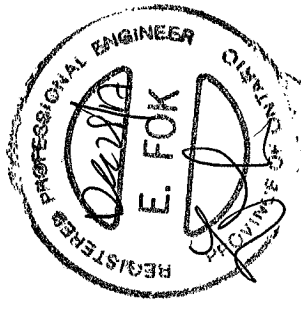
Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Moment	412 ft-lbs	35,392 ft-lbs	1.2%	5	01-06-00
End Shear	112 lbs	14,464 lbs	0.8%	5	01-03-06
Total Load Defl.	L/999 (0")	n/a	n/a	13	01-06-00
Live Load Defl.	L/999 (0")	n/a	n/a	17	01-06-00
Max Defl.	0"	n/a	n/a	13	01-06-00
Span / Depth	2.6	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"	766 lbs	10.2%	5.1%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	766 lbs	10.2%	5.1%	Spruce Pine Fir

Notes

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



S152603



November 24, 2017 09:33:06



BC CALCO® Design Report

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

Build 6080

File Name: 290681.bcc

Job Name: 45147 (5001)

Description: First Floor Framing

Address: Pine Valley

Specifier:

City, Province, Postal Code: Vaughan, ON

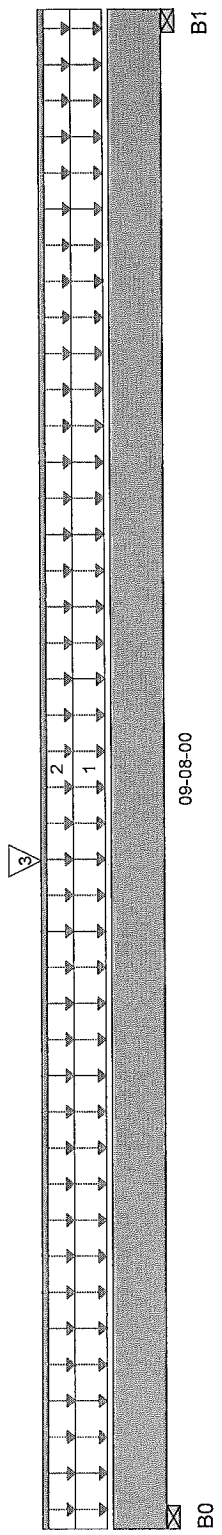
Designer: NL

Customer: Gold Park

Company: Alpa Roof Trusses

Code reports: CCMC 12472-R

Misc:





Boise Cascade

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

Floor Beam\B09



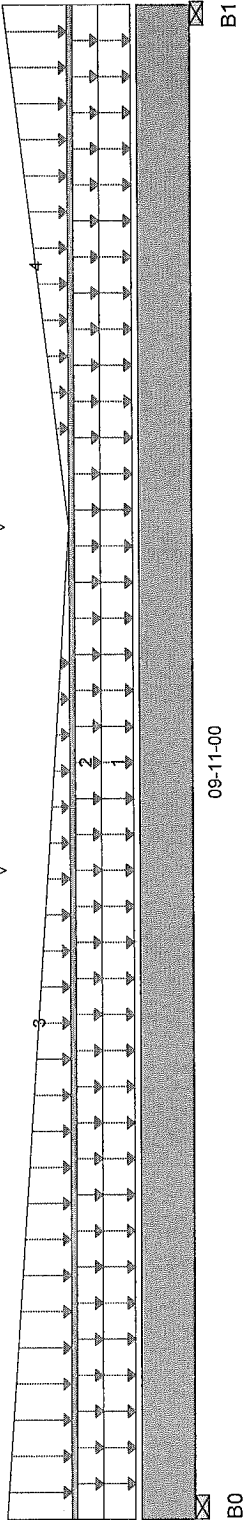
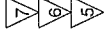
BC CALC® Design Report

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

November 24, 2017 09:33:27

Build 6080
Job Name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290681.bcc
Description: First Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



09-11-00

B1

Total Horizontal Product Length = 09-11-00

Reaction Summary (Down / Uplift) (lbs)

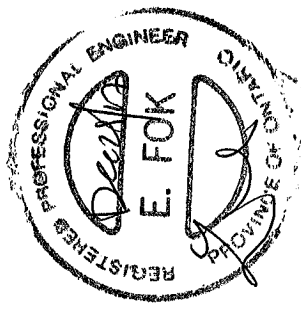
Bearing	Load Type	Live	Dead	Snow	Wind
B0, 3-1/2"	Unf. Area (lb/ft ²)	1,871 / 0	1,651 / 0	508 / 0	
B1, 3"	Unf. Lin. (lb/ft)	1,707 / 0	1,701 / 0	687 / 0	

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft ²)	L	00-00-00	09-11-00	40	15			06-06-00
2	Unf. Lin. (lb/ft)	L	00-00-00	09-11-00		120			n/a
3	Trapezoidal (lb/ft)	L	00-00-00			50	95		n/a
4	Trapezoidal (lb/ft)	L	06-06-00	06-06-00		0	0		n/a
5	Conc. Pt. (lbs)	L	06-06-00	09-11-00		50	95		n/a
6	Conc. Pt. (lbs)	L	06-06-00	06-06-00		170	275		n/a
7	Conc. Pt. (lbs)	L	06-06-00	06-06-00		170	275		n/a
8	Conc. Pt. (lbs)	L	04-03-00	04-03-00	1,000	112	174		n/a
						375			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	13,736 ft-lbs	35,392 ft-lbs	38.8%	1	04-03-00
End Shear	4,226 lbs	14,464 lbs	29.2%	1	01-03-06
Total Load Defl.	L707 (0.161")	0.475"	34%	11	04-11-07
Live Load Defl.	L/999 (0.091")	n/a	n/a	15	04-11-07
Max Defl.	0.161"	1"	16.1%	11	04-11-07
Span / Depth	9.6	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"	5,124 lbs	68%	34.3%	Spruce Pine Fir
B1 Wall/Plate	3" x 3-1/2"	5,030 lbs	77.9%	39.3%	Spruce Pine Fir

Nail one ply to another with

3 1/2" spiral nails @ 12"

O.C., staggered in 2 rows

Notes

5152605



November 23, 2017 16:31:41

File Name: 290681.bcc

Description: First Floor Framing

Specifier:

Designer: NL

Company: Alpa Roof Trusses

Misc:



Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	922 / 0	612 / 0		
B1, 3-1/2"	829 / 0	547 / 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	13-06-00	40	15		01-04-00
2		Conc. Pt. (lbs)	L	06-02-00	06-02-00	1,031	411		n/a
3		Conc. Pt. (lbs)	L	06-02-00	06-02-00		315		n/a

Controls Summary	
Demand	Resistance
Case	Resistance

Pos. Moment	10,470 ft-lbs	35,392 ft-lbs	29.6%	1	06-02-00
End Shear	1,993 lbs	14,464 lbs	13.8%	1	01-03-06
Total Load Defl.	L787 (0.199")	0.652"	30.5%	4	06-06-09
Live Load Defl.	L999 (0.119")	n/a	n/a	5	06-06-09
Max Defl.	0.199"	1"	19.9%	4	06-06-09
Span / Depth	13.2	n/a	n/a		00-00-00
Squash Blocks	Valid				

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

B0	Wall/Plate	3-1/2" x 3-1/2"	2,147 lbs	28.5%	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	1,928 lbs	25.6%	Spruce Pine Fir

Notes

A circular professional engineer seal for E. Fok, Registered Professional Engineer, Ontario. The seal features the text "REGISTERED PROFESSIONAL ENGINEER" and "ONTARIO" around the perimeter. In the center, the name "E. FOK" is printed between two stylized vertical oval shapes. A signature is written across the seal.

5152606



Boise Cascade

Double 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)

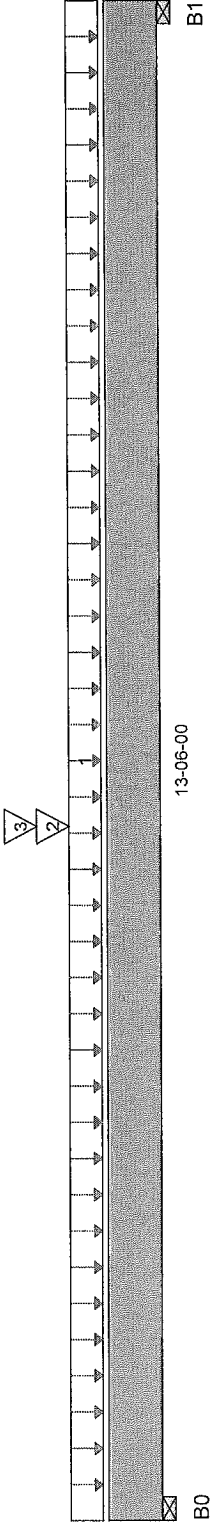
November 23, 2017 16:32:40



BC CALC® Design Report

Build 6080
Job Name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290681.bcc
Description: First Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 13-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,365 / 0	810 / 0		
B1, 3-1/2"	1,201 / 0	713 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft^2)	L	00-00-00	13-06-00	40	15			01-04-00
2	Conc. Pt. (lbs)	L	06-02-00	06-02-00	1,356	898			n/a
3	Conc. Pt. (lbs)	L	06-02-00	06-02-00	490	193			n/a

Controls Summary

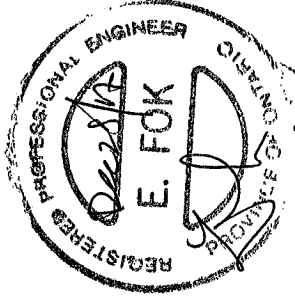
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	15,900 ft-lbs	35,392 ft-lbs	44.9%	1	06-02-00
End Shear	2,907 lbs	14,464 lbs	20.1%	1	01-03-06
Total Load Defl.	L/532 (0.294")	0.652"	45.1%	4	06-06-09
Live Load Defl.	L/847 (0.185")	0.435"	42.5%	5	06-06-09
Max Defl.	0.294"	1"	29.4%	4	06-06-09
Span / Depth	13.2	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"	3,061 lbs	40.6%	20.5%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	2,692 lbs	35.7%	18%	Spruce Pine Fir

Notes

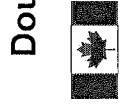
Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets User specified (1") Maximum Total load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented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



5152607



Boise Cascade



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

Floor Beam\B12

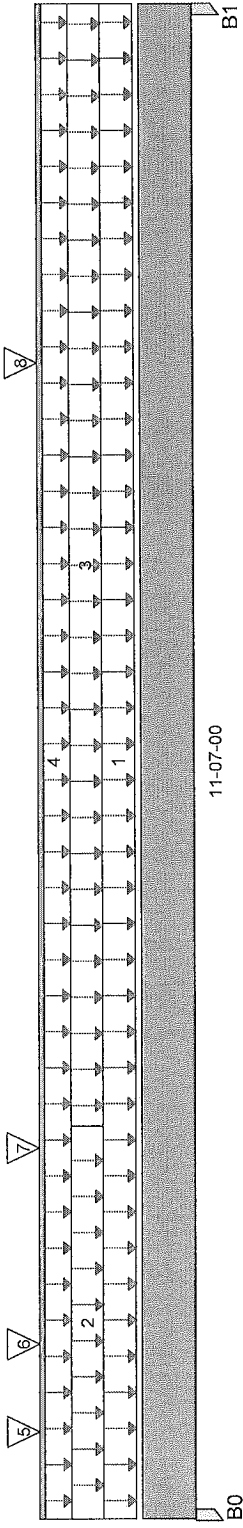
Dry | 1 span | No cantilevers | 0/12 slope (deg)

December 28, 2017 13:23:24

BC CALC® Design Report

Build 6080
Job Name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290681.bcc
Description: First Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 11-07-00

Reaction Summary (Down / Uplift) (lbs)

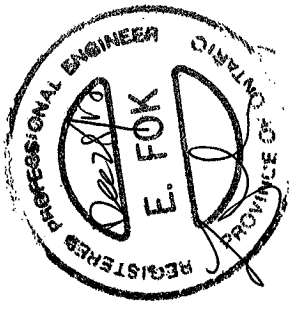
Bearing	Live	Dead	Snow	Wind
B0, 3"	4,994 / 0	3,366 / 0	783 / 0	
B1, 3-1/2"	3,784 / 0	2,385 / 0	243 / 0	

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft^2)	L	00-00-00	11-07-00	40	15		1.00	06-09-00
2	Unf. Area (lb/ft^2)	L	00-00-00	03-00-00	40	15			06-06-00
3	Unf. Area (lb/ft^2)	L	03-00-00	11-07-00	40	20			04-02-00
4	Unf. Lin. (lb/ft)	L	00-00-00	11-07-00		60			n/a
5	Conc. Pt. (lbs)	L	00-08-00	00-08-00	829	547			n/a
6	Conc. Pt. (lbs)	L	01-04-00	01-04-00	645	275			n/a
7	Conc. Pt. (lbs)	L	02-10-00	02-10-00	765	1,201		1,026	n/a
8	Conc. Pt. (lbs)	L	08-10-00	08-10-00	1,201	713			n/a

Controls Summary

Pos. Moment	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
End Shear	24,396 ft-lbs	35,392 ft-lbs	68.9%	1	05-04-07
Total Load Defl.	9,570 lbs	14,464 lbs	66.2%	1	01-02-14
Live Load Defl.	L/318 (0.421")	0.558"	75.5%	11	05-08-13
Max Defl.	L/521 (0.257")	0.372"	69.1%	15	05-08-13
Span / Depth	0.421"	1"	42.1%	11	05-08-13
Squash Blocks	11.3	n/a	n/a		00-00-00
	Valid				



Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Post	3" x 3-1/2"	12,091 lbs	66.4%	94.4%	Spruce Pine Fir
B1 Post	3-1/2" x 3-1/2"	8,778 lbs	41.3%	58.7%	Spruce Pine Fir

Notes

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

S152608



Boise Cascade

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

Floor Beam\B13



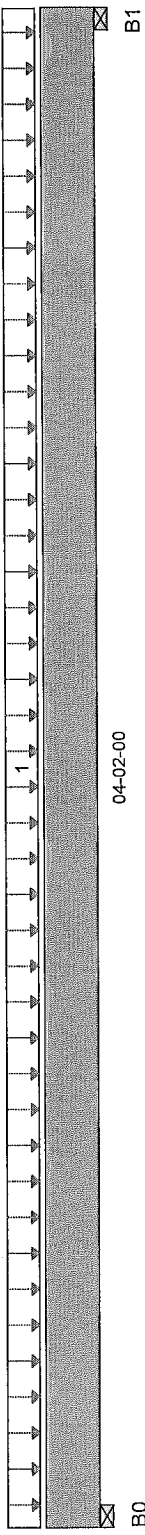
BC CALC® Design Report

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

November 24, 2017 08:55:21

Build 6080
Job Name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290681.bcc
Description: First Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 04-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	750 / 0	294 / 0		
B1, 3-1/2"	750 / 0	294 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft²)	L	00-00-00	04-02-00	40	15		1.00 1.15	09-00-00

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Moment	1,231 ft-lbs	17,696 ft-lbs	7%	1	02-01-00
End Shear	575 lbs	7,232 lbs	7.9%	1	01-03-06
Total Load Defl.	L/999 (0.004")	n/a	n/a	4	02-01-00
Live Load Defl.	L/999 (0.003")	n/a	n/a	5	02-01-00
Max Defl.	0.004"	n/a	n/a	4	02-01-00
Span / Depth	3.7	n/a	n/a		00-00-00
Squash Blocks	Valid				

Disclosure

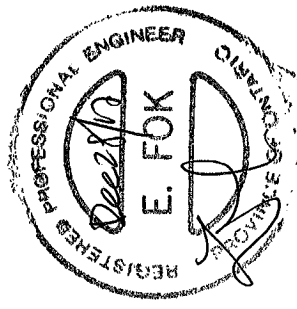
Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance 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"	1,492 lbs	39.6%	20%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	1,492 lbs	39.6%	20%	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.152609



Boise Cascade

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

Floor Beam\B14



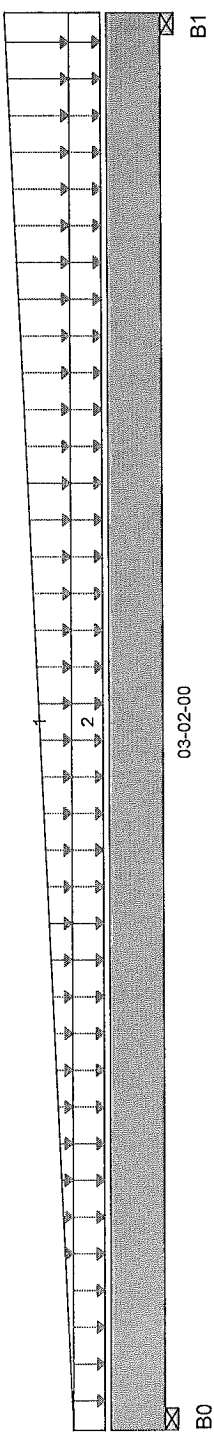
BC CALCO® Design Report

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

November 24, 2017 09:29:07

Build 6080
Job Name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290681.bcc
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 03-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	88 / 0	43 / 0		
B1, 3-1/2"	118 / 0	54 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Trapezoidal (lb/ft)	L	00-00-00	03-02-00	0	0	0	1.00	1.15
2	Unf. Area (lb/ft²)	L	00-00-00	03-02-00	50	19	15		n/a
					40	15			01-00-00

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Moment	125 ft-lbs	17,696 ft-lbs	0.7%	1	01-07-14
End Shear	106 lbs	7,232 lbs	1.5%	1	01-10-10
Total Load Defl.	L/999 (0")	n/a	n/a	4	01-07-04
Live Load Defl.	L/999 (0")	n/a	n/a	5	01-07-04
Max Defl.	0"	n/a	n/a	4	01-07-04
Span / Depth	2.7	n/a	n/a		00-00-00
Squash Blocks	Valid				

Disclosure

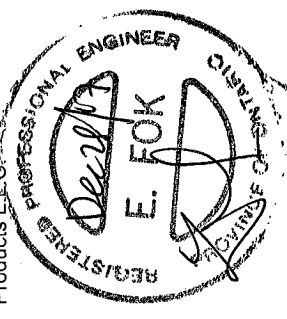
Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance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

Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	185 lbs	4.9%	2.5%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	244 lbs	6.5%	3.3%	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 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





Boise Cascade

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

Floor Beam\B15



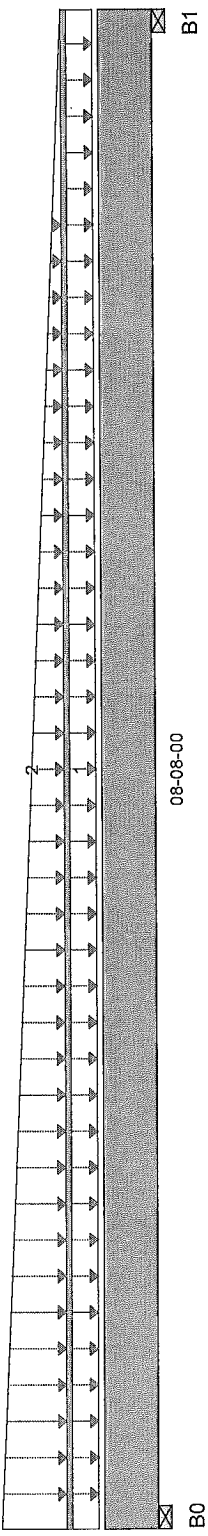
BC CALC® Design Report

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

November 24, 2017 09:29:28

Build 6080
Job Name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290681.bcc
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 08-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	263 / 0	142 / 0		
B1, 3-1/2"	187 / 0	113 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Lin. (lb/ft)	L	00-00-00	08-08-00	27	14		1.00	1.15
2	Trapezoidal (lb/ft)	L	00-00-00	08-08-00	50	19			n/a
					0	0			n/a

Controls Summary

Pos.	Moment	972 ft-lbs	Factored Demand	Resistance	5.5%	Load Case	Location
End Shear	461 lbs	7,232 lbs		6.4%		1	04-00-09
Total Load Defl.	L/999 (0.017")	n/a		n/a		1	01-03-06
Live Load Defl.	L/999 (0.011")	n/a		n/a		4	04-02-14
Max Defl.	0.017"	n/a		n/a		5	04-02-14
Span / Depth	8.3	n/a		n/a		4	04-02-14
Squash Blocks	Valid	n/a		n/a			00-00-00

Disclosure

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

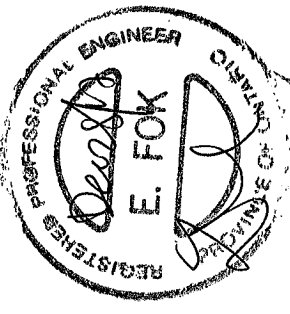
BC CALC®, BC FRAMER®, AJST™, ALLJOIST®, BC RIM BOARD™, BC® , BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.

Bearing Supports

	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	573 lbs	15.2%	7.7%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	423 lbs	11.2%	5.7%	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets User specified (1") Maximum Total load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4



S.152611



Boise Cascade

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

Floor Beam\B16



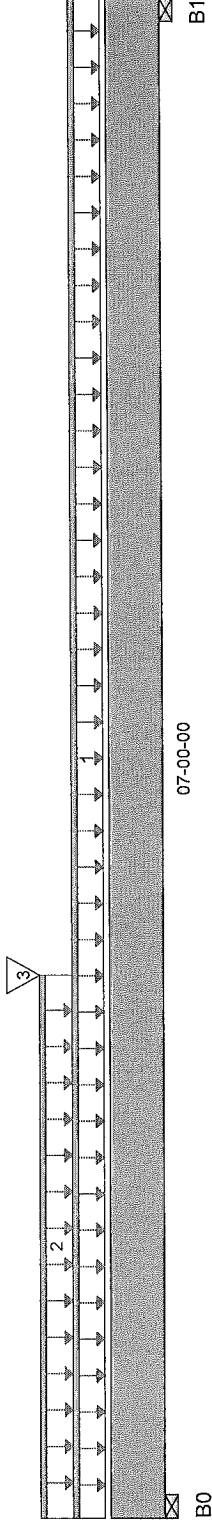
BC CALC® Design Report

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

November 24, 2017 09:29:49

Build 6080
Job Name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290681.bcc
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	228 / 0	345 / 0		
B1, 3-1/2"	146 / 0	304 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Lin. (lb/ft)	L	00-00-00	07-00-00	27	74			n/a
2	Unf. Lin. (lb/ft)	L	00-00-00	02-06-00	27	14			n/a
3	Conc. Pt. (lbs)	L	02-06-00	02-06-00	118	54			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,145 ft-lbs	17,696 ft-lbs	6.5%	1	02-09-00
End Shear	519 lbs	7,232 lbs	7.2%	1	01-03-06
Total Load Defl.	L/999 (0.013")	n/a	n/a	4	03-04-14
Live Load Defl.	L/999 (0.005")	n/a	n/a	5	03-03-11
Max Defl.	0.013"	n/a	n/a	4	03-04-14
Span / Depth	6.6	n/a	n/a		00-00-00
Squash Blocks	Valid				

Disclosure

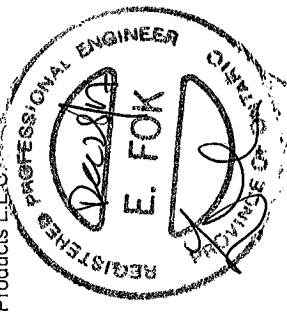
Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance 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"	774 lbs	20.5%	10.4%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	426 lbs	17.4%	8.8%	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



5152612



Boise Cascade

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

Floor Beam\B17



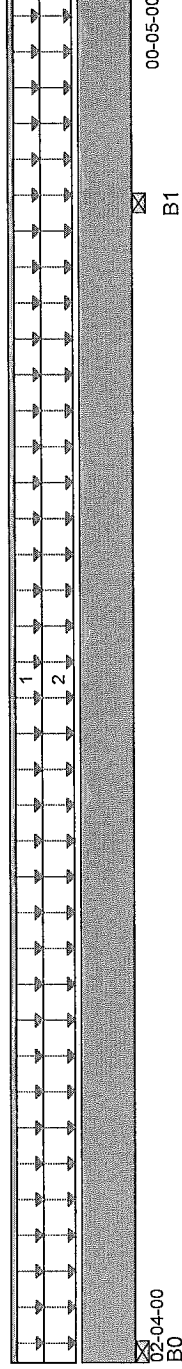
BC CALC® Design Report

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

November 24, 2017 09:31:08

Build 6080
Job Name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290681.bcc
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 02-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	35 / 1	231 / 0	146 / 0	
B1, 3-1/2"	41 / 0	282 / 0	174 / 0	

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Lin. (lb/ft)	L	00-00-00	02-09-00	27	114			n/a
2	Unf. Area (lb/ft²)	L	00-00-00	02-09-00	11	11	21	1.15	05-06-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	219 ft-lbs	35,392 ft-lbs	0.6%	26	01-02-14
Neg. Moment	-36 ft-lbs	-35,392 ft-lbs	0.1%	31	02-04-00
End Shear	11 lbs	9,401 lbs	0.1%	0	01-03-06
Cont. Shear	113 lbs	14,464 lbs	0.8%	30	02-05-12
Total Load Defl.	L/999 (0")	n/a	n/a	66	01-03-02
Live Load Defl.	L/999 (0")	n/a	n/a	90	01-03-06
Total Neg. Defl.	2xL/1,998 (-0")	n/a	n/a	66	02-09-00
Max Defl.	0"	n/a	n/a	66	01-03-02
Cant. Max Defl.	-0"	n/a	n/a	66	02-09-00
Span / Depth	2.1	n/a	n/a		00-00-00
Squash Blocks	Valid	n/a	n/a		

Bearing Supports

	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0 Wall/Plate	3-1/2" x 3-1/2"	525 lbs	7%	3.5%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	634 lbs	8.4%	4.2%	Spruce Pine Fir

Notes

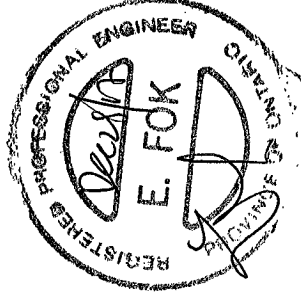
Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Design meets User specified (1") Maximum Total load deflection criteria.
Design meets arbitrary (1") Cantilever Maximum Total load deflection criteria.
Calculations assume member is fully braced.
Resistance Factor phi has been applied to all presented results per CSA O86.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 4

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

Nail one ply to another with
3 1/2" spiral nails @ 6"
o.c. staggered in 2 rows



5152613



Boise Cascade

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

Floor Beam\B18

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

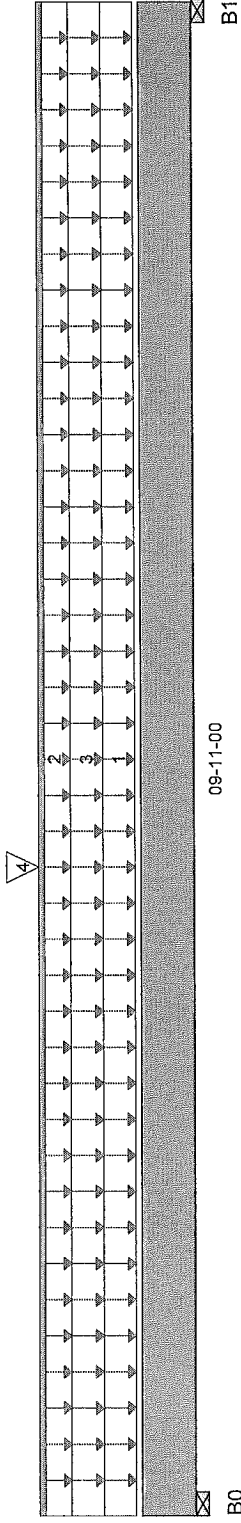
November 24, 2017 09:45:32

BC CALC® Design Report



Build 6080
Job Name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290681.bcc
Description: First Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 09-11-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	2,369 / 0	1,633 / 0		
B1, 3"	2,201 / 0	1,564 / 0		

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft²)	L	00-00-00	09-11-00	40	15		1.00 1.15	05-06-00
2	Unf. Lin. (lb/ft)	L	00-00-00	09-11-00		120			n/a
3	Unf. Area (lb/ft²)	L	00-00-00	09-11-00	40	20			03-06-00
4	Conc. Pt. (lbs)	L	04-03-00	04-03-00	1,000	375			n/a

Controls Summary

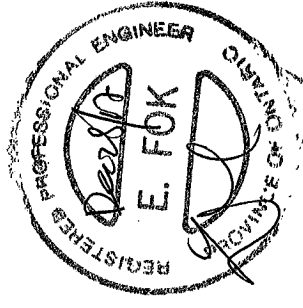
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	14,432 ft-lbs	35,392 ft-lbs	40.8%	1	04-03-00
End Shear	4,447 lbs	14,464 lbs	30.7%	1	01-03-06
Total Load Defl.	L/700 (0.163")	0.475"	34.3%	4	04-11-05
Live Load Defl.	L/999 (0.098")	n/a	n/a	5	04-10-08
Max Defl.	0.163"	1"	16.3%	4	04-11-05
Span / Depth	9.6	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"	5,595 lbs	74.2%	37.4%	Spruce Pine Fir
B1 Wall/Plate	3" x 3-1/2"	5,256 lbs	81.4%	41%	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



S152614



Boise Cascade



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

Floor Beam\B19

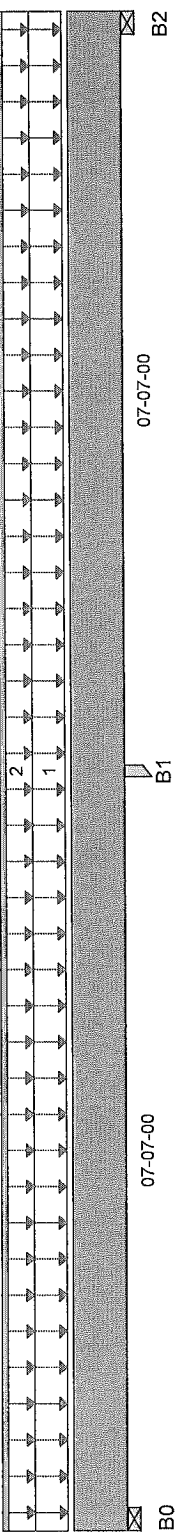
Dry | 2 spans | No cantilevers | 0/12 slope (deg)

November 24, 2017 09:53:39

BC CALCO® Design Report

Build 6080
Job Name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Customer: Gold Park
Code reports: CCMC 12472-R

File Name: 290681.bcc
Description: First Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses
Misc:



Total Horizontal Product Length = 15-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead
B0, 3-1/2"	586 / 78	447 / 0
B1, 3-1/2"	1,563 / 0	1,377 / 0
B2, 3-1/2"	586 / 78	447 / 0

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Unf. Area (lb/ft²)	L	00-00-00	15-02-00	40	20			04-03-00
2	Unf. Lin. (lb/ft)	L	00-00-00	15-02-00		60			n/a

Controls Summary

Pos.	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,021 ft-lbs	11,610 ft-lbs	17.4%	2	03-03-01
Neg. Moment	-2,990 ft-lbs	-11,610 ft-lbs	25.8%	1	07-07-00
End Shear	959 lbs	5,785 lbs	16.6%	2	01-01-00
Cont. Shear	1,618 lbs	5,785 lbs	28%	1	08-06-04
Total Load Defl.	L/999 (0.048")	n/a	n/a	9	03-06-03
Live Load Defl.	L/999 (0.031")	n/a	n/a	12	03-08-05
Total Neg. Defl.	L/999 (-0.005")	n/a	n/a	9	08-09-06
Max Defl.	0.048"	n/a	n/a	9	03-06-03
Span / Depth	9.3	n/a	n/a		00-00-00
Squash Blocks	Valid				

Disclosure

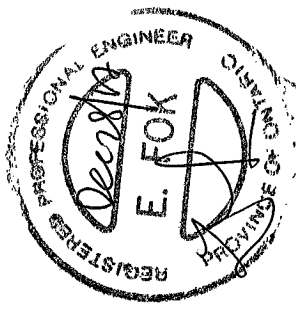
Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of Boise Cascade engineered wood products must be in accordance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

BC CALCO®, 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"	1,438 lbs	38.2%	19.2%	Spruce Pine Fir
B1 Post	3-1/2" x 1-3/4"	4,066 lbs	38.3%	54.4%	Spruce Pine Fir
B2 Wall/Plate	3-1/2" x 1-3/4"	1,438 lbs	38.2%	19.2%	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 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.152615

COMPANY Nov. 23, 2017 16:30	PROJECT 45147(5001) Gold Park Pine Valley, Vaughan 2-NI-20-14'(1ST FL., under stair).wvb
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Loads:

Load	Type	Distribution		Pa-t-tern		Location [lat]		Magnitude [dt]		Unit
						Start	End	Start	End	
Load1	Dead		Full Area					15.00		SSI
Load2	Live		Full Area					40.00		SSI
Load3	Live		Partial UDL			6.33	9.83	180.0	180.0	PLF
Load4	Dead		Partial UDL			6.33	9.83	68.0	68.0	PLF
Self-weight	Dead		Full UDL					4.8		PLF

- 13'-6"

[illegible]

Unfactored:	227	
Dead	519	27
Live		64
Factored:		
Total	1063	131
Bearing:		
Resistance		
Column	3930	3930
Support	5595	5595
Deck		
Deck ratio	0.27	0.33
Joist		0.23
Support	0.19	#
Load case	#2	1-3//
Length	1-3/4	1-3//
Min. req'd	1-3/4	NO
Stiffener	No	NO
Kd	1.00	1.00
KB support	1.00	1.00
fcp sup	759	763
Kcp sup	1.03	1.03

Kzcp sup	1.03
----------	------

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

Supports: All - Lumber Wall, No.1/No.2
Total length: 13'-6.0"; 3/4" nailed and glued OSB sheathing
This section PASSES the design code check.

Limit States Design using CSA O86-14 and Vibration Criterion:

Criterion	Analytic Value V _i	Design Value D _i	Unit	Analysis/Design V _i /D _i
Moment (+)	M _f = 5311	M _d = 4785	lbs-ft	
Perm. Defl'n	M _f = 5315	M _d = 11159	lbs-ft	0.48
Param. Defl'n	0.06	0.45	L/360	0.14
Total Defl'n	0.15	0.45	L/360	0.34
Live Defl'n	0.12	0.77	L/360	0.36
Slope Defl'n	0.17	0.45	L/360	0.38
Bare Defl'n	0.17	1.94	in	0.09
Vib Defl'n	D _{max} = 0.013	D _v = 0.051	in	0.26

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN
Vt	2241	1.00	1.00	-	-	-	-	-
Mt+	5580	1.00	1.00	-	1.000	-	-	-
EI	253.0 million	-	-	-	-	-	-	-

CRITICAL LOAD COMBINATIONS:

Shear : LC #2 = 1.25D + 1.5L
Moment (+) : LC #2 = 1.25D + 1.5L
Deflection: LC #1 = 1.0D (permanent)
LC #2 = 1.0D + 1.0L (live)
LC #2 = 1.0D + 1.0L (total)
LC #2 = 1.0D + 1.0L (dead + joint)
LC #2 = 1.0D + 1.25D + 1.5L

Beating : Support 1C #2 = 1.25D + 1.5L
Support 1C #2 = 1.25D + 1.5L

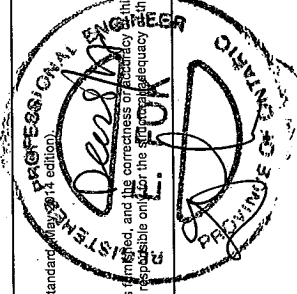
Load Types: Live (use occupancy) Live (storage equipment) f=live
Dead (use occupancy) f=dead
Sawyer, Research, groundwater f=earthquake

All Load Combinations (L55) are listed in the Analysis output

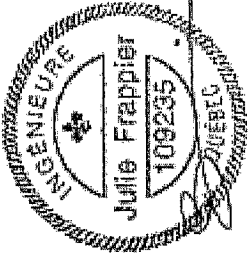
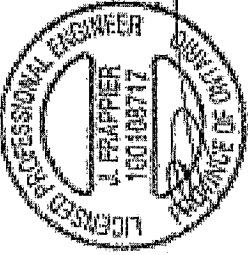
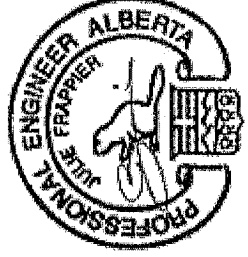
CALL COMBINATIONS:
Deflection: f=lf = 292e06 lb-in²/ply KN = 618e06 lbs/ply
"live" deflection = Deflection from all non-dead loads (live, wind, snow, seismic)

Design Notes:

1. WoodWorks analysis and design are in accordance with the 2010 National Building Code of Canada (NBC Part 4) and the CSA O86-14 Engineering Design in Wood standard (including 2014 edition).
2. Please verify that the default deflection limits are appropriate for your application.
3. Refer to technical documentation for installation guidelines and construction details.
4. Nordic I-joists are listed in CMC evaluation report 13032-R.
5. Joists shall be laterally supported at supports and continuously along the compression edge.
6. The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs attributed to, and the correctness or accuracy of this information is based on the design criteria and loadings shown. Nordic Structures is responsible only for the structural adequacy of the component based on the design criteria and loadings shown.
7. L. MOK
8. REAL ENGINEERING
9. DESIGN



5152616



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

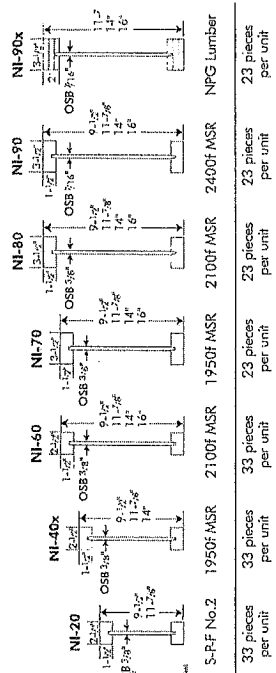
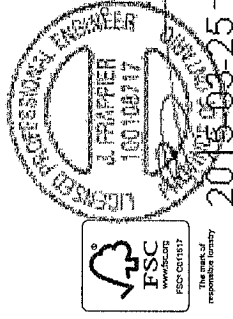
Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing		On Centre Spacing		On Centre Spacing		On Centre Spacing	
9-1/2"	NI-20	12"	17'-1"	15'-5"	14'-6"	13'-5"	17'-1"	15'-5"	14'-6"
	NI-40x	18'-8"	17'-6"	16'-7"	15'-3"	15'-3"	19'-2"	17'-8"	16'-7"
	NI-60	18'-11"	17'-8"	16'-10"	15'-7"	15'-7"	19'-4"	18'-0"	16'-10"
	NI-70	20'-0"	18'-7"	17'-9"	17'-0"	17'-0"	20'-5"	19'-0"	18'-2"
	NI-80	20'-3"	18'-10"	17'-11"	17'-2"	17'-2"	20'-8"	19'-3"	18'-4"
11-7/8"	NI-20	20'-2"	18'-8"	17'-6"	16'-2"	16'-2"	20'-7"	18'-8"	17'-6"
	NI-40x	21'-10"	20'-4"	19'-5"	17'-8"	17'-8"	22'-5"	20'-11"	19'-9"
	NI-60	22'-1"	20'-7"	19'-7"	18'-7"	18'-7"	22'-8"	21'-2"	20'-3"
	NI-70	23'-4"	21'-8"	20'-8"	19'-7"	19'-7"	23'-10"	21'-3"	20'-1"
	NI-80	23'-7"	21'-11"	20'-11"	19'-9"	19'-9"	24'-1"	22'-6"	21'-5"
14"	NI-20	24'-3"	22'-6"	21'-6"	20'-4"	20'-4"	24'-8"	23'-0"	22'-0"
	NI-40x	24'-5"	22'-9"	21'-8"	19'-5"	19'-5"	25'-1"	23'-6"	22'-9"
	NI-60	24'-10"	23'-1"	22'-0"	20'-10"	20'-10"	25'-6"	23'-10"	22'-9"
	NI-70	26'-1"	24'-3"	23'-2"	21'-10"	21'-10"	26'-8"	24'-11"	23'-9"
	NI-80	26'-6"	24'-7"	23'-5"	22'-2"	22'-2"	27'-1"	25'-3"	24'-1"
16"	NI-20	27'-3"	25'-4"	24'-1"	22'-9"	22'-9"	27'-9"	25'-11"	24'-8"
	NI-40x	27'-3"	25'-5"	24'-2"	22'-10"	22'-10"	28'-0"	26'-2"	25'-0"
	NI-60	28'-8"	26'-8"	25'-4"	23'-11"	23'-11"	29'-3"	27'-4"	26'-1"
	NI-70	29'-1"	27'-0"	25'-9"	24'-4"	24'-4"	29'-8"	27'-9"	26'-5"
	NI-90x	29'-11"	27'-10"	26'-6"	25'-0"	25'-0"	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-L274C.



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

Refer to the Installation Guide for Residential Floors for additional information.
ICMC 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

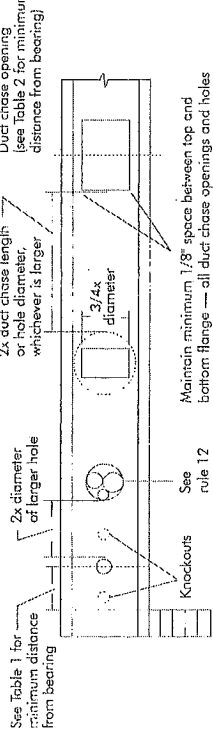
LOCATION OF CIRCULAR HOLES IN JOIST WEBS

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

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:

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

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

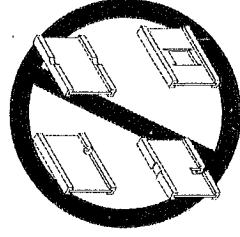
TABLE 2

DUCT CHASE OPENING SIZES AND LOCATIONS

Simple Span Only

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

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.



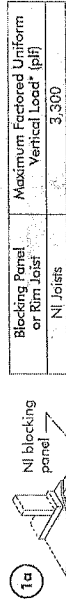
Never stack building materials over unfastened I-joists. Once sheathed, do not over-stress I-joists with concentrated loads from building materials.



PRODUCT WARRANTY

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

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



Attach I-joist to top plate per detail 1b

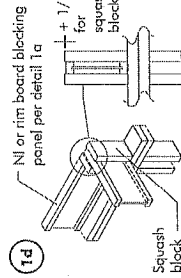
NI blocking panel per detail 1a

Maximum Factored Uniform Vertical Load* (plf) 3,300

Blocking Panel or Rim Joist NI Joists

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

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

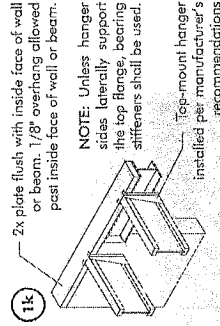


Squash block

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

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

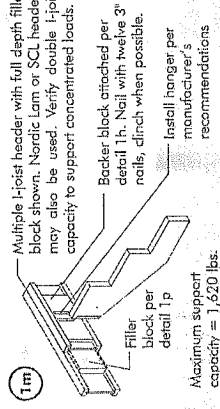
* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-C0925 or CAN/CSA-O437 Standard.
** For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".



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

Top-mount hanger installed per manufacturer's recommendations

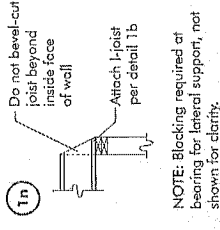
Maximum support capacity = 1,620 lbs.



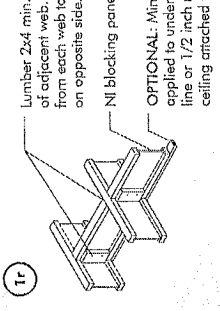
Filler block per detail 1p

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

Install hanger per manufacturer's recommendations



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



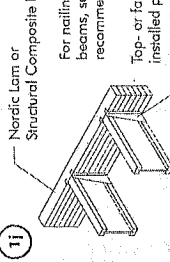
NI blocking panel

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

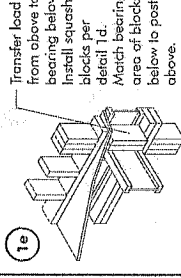
NOTE: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

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

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



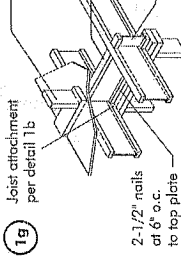
For nailing schedules for multiple beams, see the manufacturer's recommendations.



Top- or face-mount hanger

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

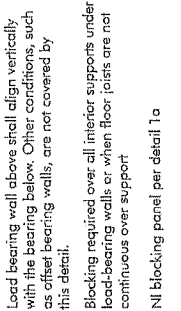
Backer block required (both sides for face-mount hangers)



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



Maximum Factored Uniform Vertical Load* (plf) 8,090

Blocking Panel or Rim Joist 1-1/8" Rim Board Plus

*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

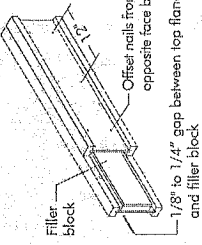
Attach rim board to top plate using 2-1/2" wire or spiral be-nails at 6" o.c.

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

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

WEB STIFFENERS

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION



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

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

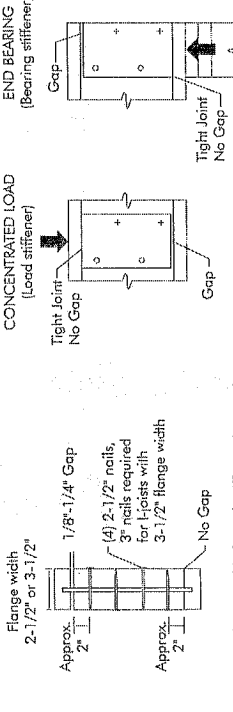
WEB STIFFENERS

RECOMMENDATIONS:

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

WEB STIFFENER INSTALLATION DETAILS

FIGURE 2



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

Approx. 2"

1/8"-1/4" Gap

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

No Gap

CONCENTRATED LOAD (Load stiffener)

Tight Joint No Gap

Gap

END BEARING (Bearing stiffener)

Gap

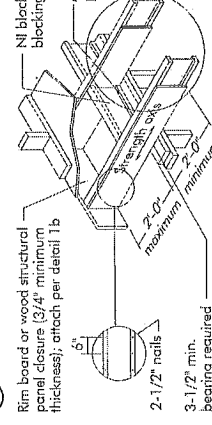
Tight Joint No Gap

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

See the adjacent table for web stiffener size requirements

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

Method 1 — SHEATHING REINFORCEMENT ONE SIDE



NI blocking panel or rim board blocking, attach per detail 1g

Attach I-joist to plate per detail 1b

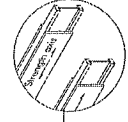
2-1/2" min. bearing required

2-1/2" nails

3-1/2" min. bearing required

Method 2 — SHEATHING REINFORCEMENT TWO SIDES

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

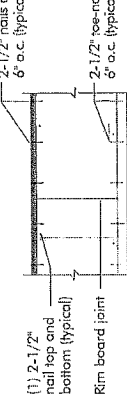


Use nailing pattern shown for Method 1 with opposite face nailing offset by 3".

RIM BOARD INSTALLATION DETAILS

8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

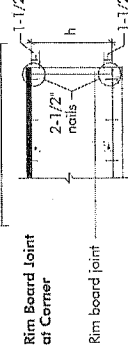
Rim Board Joint Between Floor Joists



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

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

Rim board joint

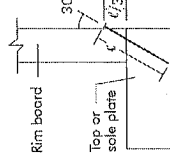


Rim board joint at corner

2-1/2" nails

1-1/2"

1-1/2"



Rim board

Top or sole plate

30°

U/3

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



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

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

2025

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

Cantilever extension supporting uniform floor loads only

Method 7 — SHEATHING REINFORCEMENT ONE SIDE

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

Alternative Method 2 — DOUBLE JOIST

10

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 plate at all supports per detail 1b. Verify

SET-BACK DETAIL

5c SET-BACK CONNECTION

CANTILEVER REINFORCEMENT METHODS ALLOWED

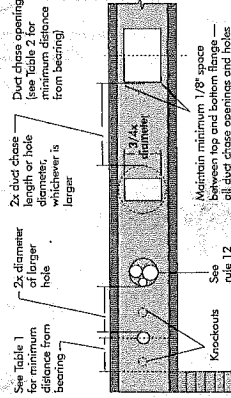
BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

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

FIGURE 7
FIELD-CUT HOLE LOCATOR



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

Knockouts are pre-cored holes provided for the contractor's convenience to install electrical or small plumbing lines. They shall be cut in a workmanlike manner spaced 15 inches on center 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 with a sharp, clean-cutting tool, cut the 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.

INSTALLING THE GLUED FLOOR SYSTEM

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

FASTENERS FOR SHEATHING AND SUBFLOORING(1)

Maximum Span	Minimum Fastener Spacing	Fastener Type	Fastener Spacing	Fastener Type	Fastener Spacing
16'	5/8"	2"	1-3/4"	2"	6"
20'	5/8"	2"	1-3/4"	2"	6"
24'	3/4"	2"	1-3/4"	2"	6"

1. Fasteners of sheathing and subflooring shall conform to the above table.
2. Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to framing.
3. Flooring screws shall not be less than 1/8-inch in diameter.
4. Special conditions may impose heavy traffic and concentrated loads that require construction in excess of the minimums shown.
5. Use only adhesives conforming to CAN/CGSB-27.26 Standard Adhesives for Field-Gluing Plywood to Lumber Framing for Floor System, applied in accordance with the manufacturer's recommendations. If OSB panels are used, use only adhesive-based glue. Check with panel manufacturer.

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

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

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 80 psf

Span Length (ft)	Minimum Distance from Inside Face of Joist Support to Center of Hole (in)									
	2	3	4	5	6	7	8	9	10	11
12	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
14	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
16	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
18	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
20	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
22	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
24	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
26	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
28	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
30	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
32	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
34	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
36	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
38	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
40	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
42	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
44	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
46	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
48	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
50	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
52	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
54	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
56	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
58	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
60	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
62	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
64	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
66	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
68	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
70	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
72	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
74	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
76	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
78	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
80	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0

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

OPTIONAL:

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

Deadload = $\frac{L_{actual}}{L_{span}} \times D$

Where:

L_{actual} = Actual span length
L_{span} = Maximum span length
D = Minimum distance from inside face of support to center of hole

Distance from inside face of support to center of hole, reduced for less than maximum span applied (ft.)

Span Adjustment Factor given in this table.

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

If actual span is greater than 10 ft., use the above calculation for spans 10 ft. or less.

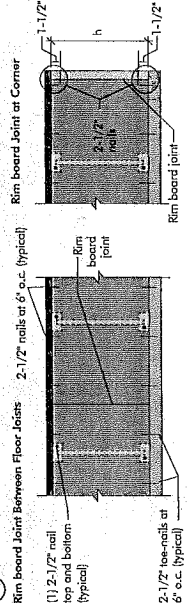
TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS — Simple Span Only

Duct Chase Opening Size (in)	Minimum Distance from Inside Face of Joist Support to Center of Opening (in)									
	2	3	4	5	6	7	8	9	10	11
2-1/2"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
3"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
4"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
6"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
8"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
10"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
12"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
14"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
16"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
18"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
20"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
22"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
24"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
26"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
28"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
30"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
32"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
34"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
36"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
38"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
40"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
42"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
44"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
46"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
48"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
50"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
52"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
54"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
56"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
58"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
60"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
62"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
64"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
66"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
68"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
70"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
72"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
74"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
76"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
78"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
80"	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0

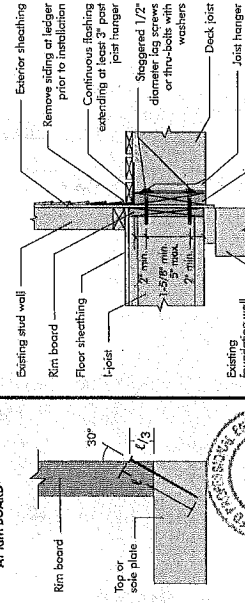
1. Above table may be used for live load spacing of 24 inches on center or less.
2. Duct chase opening location distance is measured from inside face of supports to center of opening.
3. The above table is based on single-span joists only. For other applications, contact your local distributor.
4. The above table is based on a dead load of 40 psf and a live load of 15 psf, and a live load deflection limit of L/480. For other applications, contact your local distributor.

RIM BOARD INSTALLATION DETAILS

8a) ATTACHMENT DETAILS WHERE RIM BOARDS ADJUT



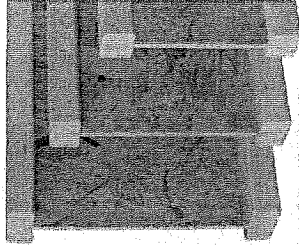
8b) TOE-NAIL CONNECTION AT RIM BOARD



PRODUCT WARRANTY

Our products are guaranteed to be made to the highest standards of quality and performance. We warrant our products to be free from manufacturing defects in material and workmanship.

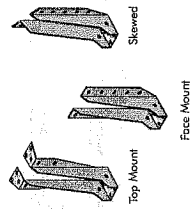
Caution: Observe all safety precautions when using our products. Read and follow all instructions carefully. Do not use our products for purposes not intended by the manufacturer.



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

- | Last Digit | Joni Street | Simplex point | | | | On the way to point | | | | On the way to point | | | |
|------------|-------------|---------------|------|------|------|---------------------|------|------|------|---------------------|------|------|------|
| | | 17 | 16 | 15 | 14 | 18 | 17 | 16 | 15 | 18 | 17 | 16 | 15 |
| 9 1/2 | N20 | 18.5 | 15.2 | 14.6 | 13.5 | 18.5 | 15.2 | 14.6 | 13.5 | 18.5 | 15.2 | 14.6 | 13.5 |
| | N40 | 16.1 | 15.2 | 14.6 | 14.1 | 17.7 | 16.2 | 15.1 | 13.9 | 17.7 | 16.2 | 15.1 | 13.9 |
| | N40 | 16.1 | 15.2 | 14.6 | 14.1 | 17.7 | 16.2 | 15.1 | 13.9 | 17.7 | 16.2 | 15.1 | 13.9 |
| | N10 | 17.5 | 16.1 | 15.5 | 15.6 | 18.4 | 17.3 | 16.1 | 14.7 | 18.4 | 17.3 | 16.1 | 14.7 |
| | N20 | 16.1 | 16.0 | 15.5 | 15.6 | 18.4 | 17.3 | 16.1 | 14.7 | 18.4 | 17.3 | 16.1 | 14.7 |
| 11 1/2 | N40 | 18.1 | 17.0 | 16.5 | 16.4 | 20.0 | 18.1 | 16.5 | 15.9 | 20.0 | 18.1 | 16.5 | 15.9 |
| | N70 | 19.4 | 18.0 | 17.4 | 17.5 | 21.6 | 19.1 | 17.6 | 16.1 | 21.6 | 19.1 | 17.6 | 16.1 |
| | N80 | 19.9 | 18.5 | 17.5 | 17.7 | 21.9 | 20.2 | 19.3 | 18.4 | 21.9 | 20.2 | 19.3 | 18.4 |
| | N90 | 20.2 | 18.6 | 17.6 | 18.0 | 22.5 | 20.5 | 19.6 | 18.7 | 22.5 | 20.5 | 19.6 | 18.7 |
| | N40 | 20.2 | 18.7 | 17.1 | 17.1 | 22.2 | 20.4 | 19.3 | 18.4 | 22.2 | 20.4 | 19.3 | 18.4 |
| 14 | N40 | 20.5 | 18.1 | 18.1 | 18.2 | 22.7 | 20.1 | 20.1 | 20.1 | 22.7 | 20.1 | 20.1 | 20.1 |
| | N80 | 21.1 | 20.1 | 19.4 | 19.5 | 24.3 | 22.5 | 21.5 | 21.5 | 24.3 | 22.5 | 21.5 | 21.5 |
| | N90 | 22.5 | 20.3 | 19.5 | 19.0 | 24.9 | 22.9 | 21.0 | 21.0 | 24.9 | 22.9 | 21.0 | 21.0 |
| | N40 | 22.7 | 20.1 | 19.1 | 20.9 | 26.5 | 23.5 | 22.5 | 22.5 | 26.5 | 23.5 | 22.5 | 22.5 |
| | N70 | 23.5 | 21.1 | 20.5 | 20.0 | 26.0 | 24.0 | 22.1 | 22.1 | 26.0 | 24.0 | 22.1 | 22.1 |
| 16 | N80 | 23.1 | 22.1 | 21.3 | 21.2 | 26.5 | 24.5 | 23.5 | 23.5 | 26.5 | 24.5 | 23.5 | 23.5 |
| | N90 | 23.1 | 22.1 | 21.3 | 21.0 | 26.5 | 24.5 | 23.5 | 23.5 | 26.5 | 24.5 | 23.5 | 23.5 |
| | N30 | 24.5 | 21.9 | 21.9 | 21.9 | 27.3 | 25.3 | 24.0 | 24.0 | 27.3 | 25.3 | 24.0 | 24.0 |

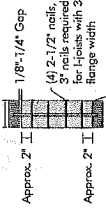
1. Hangers shown illustrate the three most commonly used mild hangers to support I-joists.
2. All railing must meet the hanger manufacturer's recommendations.
3. Hangers should be selected based on the joist depth, flange width and load capacity based on the maximum spans.
4. Web stiffeners are required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



RECOMMENDATIONS:

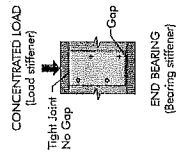
- SI units conversion: 1 inch = 25.4 mm

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



See table below for web 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



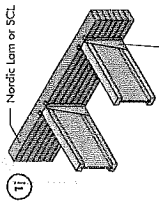
See table below for web stiffener size requirements

[illegible]

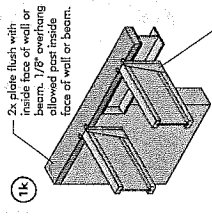
Charnies Chibougoum Ltd. harvests its own trees, which enables specific products to adhere to strict quality control procedures throughout the supply manufacturing process. Every phase of the operation, from forest to the finished product, reflects our commitment to quality.

Nordic Engineered Wood Joists use only finger-jointed timber, rippled lumber in their flanges, ensuring consistent quality, superior strength and longer span carrying capacity.

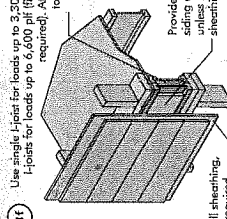
Transfer load from above to bearing below. Install squash blocks per detail 1 d. Match bearing area of blocks below to post above.



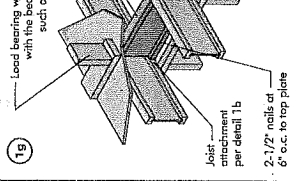
Top- or face-mount hanger—installed per manufacturer's recommendations



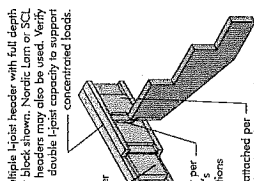
Note: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.



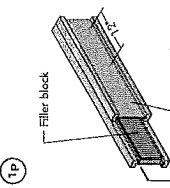
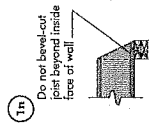
board may be used in lieu of I-joists. Backer is not required when rim board is used. Bracing per code shall be provided to the foundation.



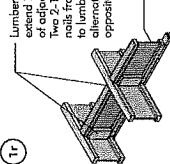
1



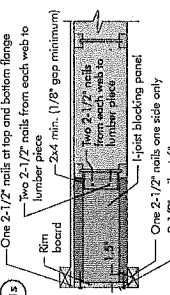
Support capacity = 1,620 lbs.



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



Optional: Minimum 1x4 inch strap applied to underside of joist a minimum of 1/2 inch minimum gypsum attached to underside of joist



notes:
 — In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.
 All joist end connections noted in this detail.

1. Support back of I-joint web during nailing to prevent damage to web/flush connection.
2. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-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. (stitched when possible) on each side of the double I-joint. Total of four nails per foot required. If nails can be directed, only two nails per foot are required.
5. The maximum factored load that may be applied to one side of the double joint using this detail is 860 lb/ft. Verify double I-joint capacity.

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

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