

Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1	17-00-00	11 7/8" NI-20	1	9	MFD
J2	16-00-00	11 7/8" NI-20	1	17	MFD
J3	14-00-00	11 7/8" NI-20	1	8	MFD
J4	13-00-00	11 7/8" NI-20	1	7	MFD
J5	12-00-00	11 7/8" NI-20	1	15	MFD
J6	8-00-00	11 7/8" NI-20	1	8	MFD
J7	19-00-00	11 7/8" NI-40x	1	28	MFD
B8	17-00-00	VERSALAM-12 2.0E	1	1	MFD
B2	16-00-00	VERSALAM-12 2.0E	2	2	MFD
B25	14-00-00	VERSALAM-12 2.0E	2	2	MFD
B6	14-00-00	VERSALAM-12 2.0E	2	2	MFD
B7	12-00-00	VERSALAM-12 2.0E	1	1	MFD
B20	12-00-00	VERSALAM-12 2.0E	2	2	MFD
B26	12-00-00	VERSALAM-12 2.0E	2	2	MFD
B5	9-00-00	VERSALAM-12 2.0E	1	1	MFD
B1	5-00-00	VERSALAM-12 2.0E	1	1	MFD

#### HANGER SCHEDULE

H1-----LT251188 (TM)  
H2-----HUS1.81/10(FM)  
H3-----HGUS410(FM)  
H4-----HU9X(FM)  
H5-----HU310(FM)

#### NOTE:

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

#### RIMBOARD

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

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

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

Blocking panels are required over all interior supports  
Squash blocks are required under concentrated loads.

MODEL: UNIT 4003 - EL.B  
- LOT 116

### Second Floor Framing

Do not scale - refer to architectural plans for dimensions

SE007443 - SE007465  
SE007704 - SE007706

JT/PL: 45147/106152  
LI: 318638((290676))

Builder: Gold Park  
Project: Pine Valley

Location: Vaughan  
Date: March 24, 2020

Designer: NL  
Sheet: 1 of 2

Alpa Roof Trusses Inc.  
Maple, Ontario

Salesperson: Derek  
Home Lumber



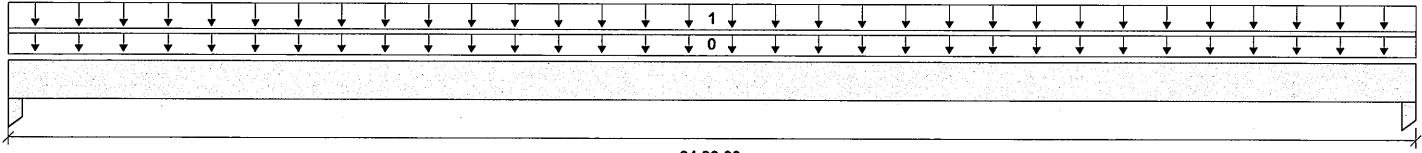
BC CALC® Member Report  
Build 7555

B01 (Floor Beam)  
Dry | 1 span | No cant.

March 17, 2020 11:45:11

Job name: 45147 (4003)  
Address: Pine Valley  
City, Province, Postal Code: Vaughan, ON  
Builder: Gold Park  
Code reports: CCMC 12472-R

File name: 290676  
Description: Second Floor Framing  
Specifier:  
Designer: NL  
Company: Alpa Roof Trusses



B0  
Total Horizontal Product Length = 04-09-00  
B1

### Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	760 / 0	299 / 0		
B1, 3-1/2"	760 / 0	299 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-09-00	Top		6			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	04-09-00	Top	40	15			08-00-00

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1468 ft-lbs	17696 ft-lbs	8.3%	1	02-04-08
End Shear	697 lbs	7232 lbs	9.6%	1	01-03-06
Total Load Deflection	L/999 (0.007")	n/a	n/a	4	02-04-08
Live Load Deflection	L/999 (0.005")	n/a	n/a	5	02-04-08
Max Defl.	0.007"	n/a	n/a	4	02-04-08
Span / Depth	4.3				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Column 3-1/2" x 1-3/4"	1514 lbs	14.3%	20.3%	Spruce-Pine-Fir
B1	Column 3-1/2" x 1-3/4"	1514 lbs	14.3%	20.3%	Spruce-Pine-Fir

### Notes

Design meets Code minimum (L/240) Total load deflection criteria.  
Design meets Code minimum (L/360) Live load deflection criteria.  
Design meets User specified (1") Maximum Total load deflection criteria.  
Calculations assume member is fully braced.  
Resistance Factor phi has been applied to all presented results per CSA O86.  
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.  
Design based on Dry Service Condition.  
Importance Factor : Normal Part code : Part 4



### Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA).  
Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is 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 (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

SE007443

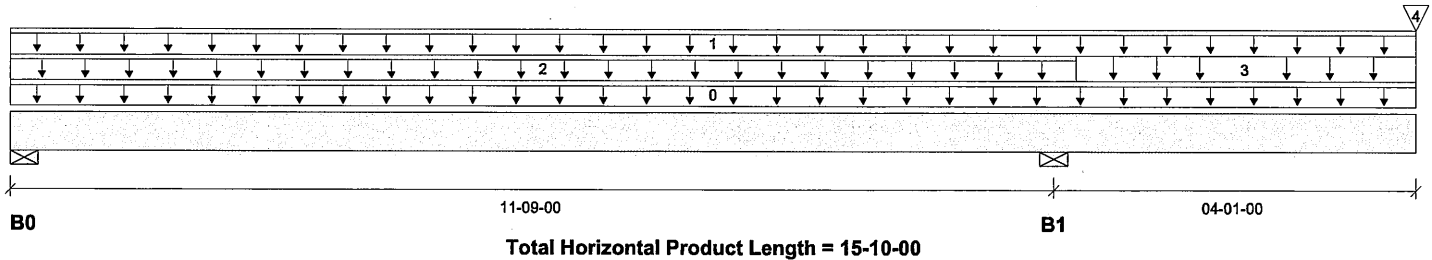


Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****B02 (Floor Beam)**

Dry | 2 spans | R cant.

March 17, 2020 11:45:11

BC CALC® Member Report  
Build 7555Job name: 45147 (4003)  
Address: Pine Valley  
City, Province, Postal Code: Vaughan, ON  
Builder: Gold Park  
Code reports: CCMC 12472-RFile name: 290676  
Description: Second Floor Framing  
Specifier:  
Designer: NL  
Company: Alpa Roof Trusses**Reaction Summary (Down / Uplift) (lbs)**

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	323 / 318	104 / 0		
B1, 3-1/2"	1659 / 0	833 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	15-10-00	Top		12			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	15-10-00	Top	27	14			n/a
2		Unf. Lin. (lb/ft)	L	00-00-00	12-00-00	Top	27	14			n/a
3		Unf. Area (lb/ft²)	L	12-00-00	15-10-00	Top	40	15			01-00-00
4		Conc. Pt. (lbs)	L	15-10-00	15-10-00	Top	760	299			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1307 ft-lbs	35392 ft-lbs	3.7%	2	04-08-08
Neg. Moment	-7446 ft-lbs	-35392 ft-lbs	21.0%	1	11-09-00
End Shear	447 lbs	14464 lbs	3.1%	2	01-03-06
Cont. Shear	2037 lbs	14464 lbs	14.1%	1	12-10-10
Total Load Deflection	2xL/558 (0.176")	n/a	43.0%	10	15-10-00
Live Load Deflection	2xL/720 (0.136")	n/a	50.0%	13	15-10-00
Total Neg. Defl.	L/999 (-0.063")	n/a	n/a	10	07-01-06
Max Defl.	-0.063"	n/a	n/a	10	07-01-06
Cant. Max Defl.	0.176"	n/a	17.6%	10	15-10-00
Span / Depth	11.6				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	615 lbs	8.2%	4.1%	Spruce-Pine-Fir
B0	Uplift	383 lbs			
B1	Wall/Plate 3-1/2" x 3-1/2"	3530 lbs	n/a	23.6%	Unspecified

**Cautions**

Uplift of 383 lbs found at bearing B0. (4x2.5A)

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

SE007444

B03 (Floor Beam)

Dry | 1 span | No cant.

March 17, 2020 11:45:11

BC CALC® Member Report

Build 7555

Job name: 45147 (4003)

File name: 290676

Address: Pine Valley

Description: Second Floor Framing

City, Province, Postal Code: Vaughan, ON

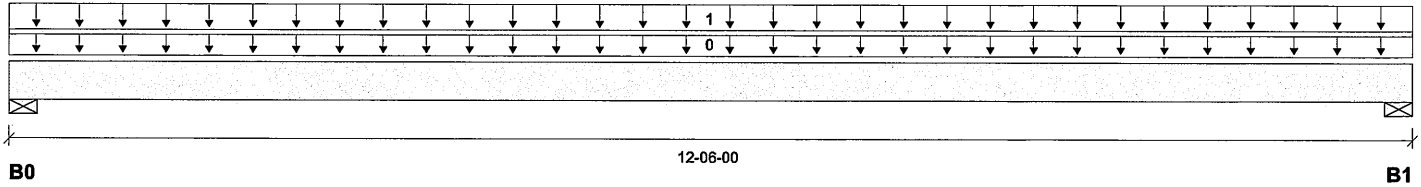
Specifier:

Builder: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 12-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	2125 / 0	1138 / 0		
B1, 3-1/2"	2125 / 0	1138 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-06-00	Top		12			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	12-06-00	Top	40	20			08-06-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	13368 ft-lbs	35392 ft-lbs	37.8%	1	06-03-00
End Shear	3665 lbs	14464 lbs	25.3%	1	01-03-06
Total Load Deflection	L/572 (0.253")	n/a	42.0%	4	06-03-00
Live Load Deflection	L/878 (0.165")	n/a	41.0%	5	06-03-00
Max Defl.	0.253"	n/a	25.3%	4	06-03-00
Span / Depth	12.2				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	4610 lbs	61.2%	30.8%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 3-1/2"	4610 lbs	61.2%	30.8%	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 2015 and CSA O86.  
 Design based on Dry Service Condition.  
 Importance Factor : Normal Part code : Part 4

NAIL ONE PLY TO ANOTHER WITH 3-1/2" SPIRAL NAILS @ 10" O/C,  
 STAGGERED IN 2 ROWS



SE007445

**BC CALC® Member Report**
**B04 (Floor Beam)**

March 17, 2020 11:45:11

Build 7555

Job name: 45147 (4003)

File name: 290676

Address: Pine Valley

Description: Second Floor Framing

City, Province, Postal Code: Vaughan, ON

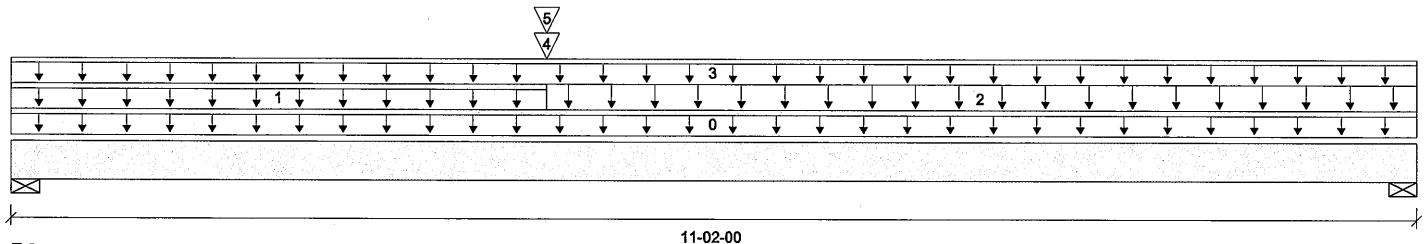
Specifier:

Builder: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 11-02-00

**Reaction Summary (Down / Uplift) (lbs)**

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	2533 / 0	1597 / 0		
B1, 3-1/2"	2380 / 0	1433 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-02-00	Top		12			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	04-03-00	Top	54	27			n/a
2		Unf. Area (lb/ft²)	L	04-03-00	11-02-00	Top	40	15			06-06-00
3		Unf. Lin. (lb/ft)	L	00-00-00	11-02-00	Top		60			n/a
4		Conc. Pt. (lbs)	L	04-03-00	04-03-00	Top	760	299			n/a
5		Conc. Pt. (lbs)	L	04-03-00	04-03-00	Top	2125	1138			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	21466 ft-lbs	35392 ft-lbs	60.7%	1	04-03-00
End Shear	5533 lbs	14464 lbs	38.3%	1	01-03-06
Total Load Deflection	L/453 (0.284")	n/a	53.0%	4	05-04-12
Live Load Deflection	L/716 (0.179")	n/a	50.2%	5	05-04-12
Max Defl.	0.284"	n/a	28.4%	4	05-04-12
Span / Depth	10.8				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	5796 lbs	76.9%	38.8%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 3-1/2"	5361 lbs	n/a	35.9%	Unspecified

**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 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 4

 NAIL ONE PLY TO ANOTHER WITH 3-1/2" SPIRAL NAILS @ 10" O/C,  
 STAGGERED IN 2 ROWS


SE007446

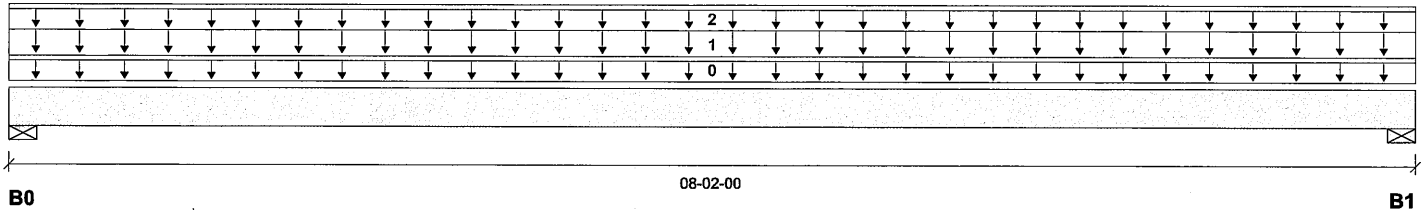
BC CALC® Member Report  
Build 7555

**B05 (Floor Beam)**  
Dry | 1 span | No cant.

March 17, 2020 11:45:11

Job name: 45147 (4003)  
Address: Pine Valley  
City, Province, Postal Code: Vaughan, ON  
Builder: Gold Park  
Code reports: CCMC 12472-R

File name: 290676  
Description: Second Floor Framing  
Specifier:  
Designer: NL  
Company: Alpa Roof Trusses



### Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	653 / 0	596 / 0		
B1, 3-1/2"	653 / 0	596 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-02-00	Top		6			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	08-02-00	Top	40	20			04-00-00
2		Unf. Lin. (lb/ft)	L	00-00-00	08-02-00	Top		60			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3138 ft-lbs	17696 ft-lbs	17.7%	1	04-01-00
End Shear	1184 lbs	7232 lbs	16.4%	1	01-03-06
Total Load Deflection	L/999 (0.05")	n/a	n/a	4	04-01-00
Live Load Deflection	L/999 (0.026")	n/a	n/a	5	04-01-00
Max Defl.	0.05"	n/a	n/a	4	04-01-00
Span / Depth	7.8				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 3-1/2" x 1-3/4"	1725 lbs	45.8%	23.1%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 1-3/4"	1725 lbs	45.8%	23.1%	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 2015 and CSA O86.  
Design based on Dry Service Condition.  
Importance Factor : Normal Part code : Part 4



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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

**SE007447**

**BC CALC® Member Report**
**Build 7555**
**Job name:** 45147 (4003)

**Address:** Pine Valley

**City, Province, Postal Code:** Vaughan, ON

**Builder:** Gold Park

**Code reports:** CCMC 12472-R

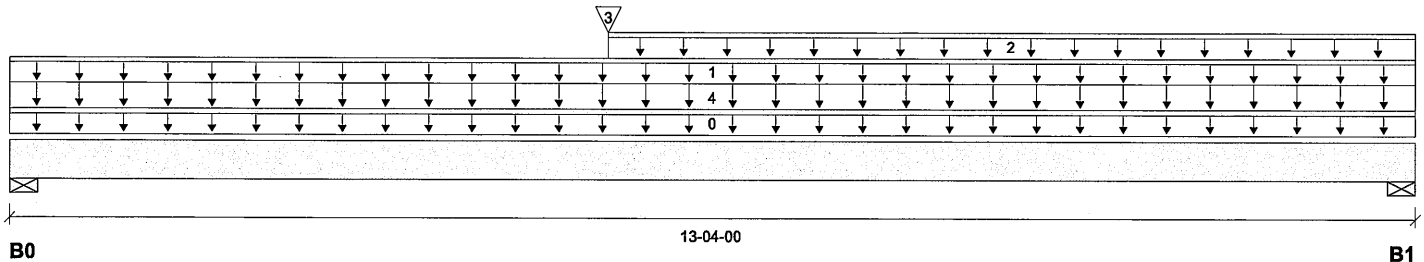
**B06 (Floor Beam)**
**Dry | 1 span | No cant.**
**File name:** 290676

**Description:** Second Floor Framing

**Specifier:**
**Designer:** NL

**Company:** Alpa Roof Trusses

March 17, 2020 11:45:11


**Total Horizontal Product Length = 13-04-00**
**Reaction Summary (Down / Uplift) (lbs)**

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	2035 / 0	1455 / 0		
B1, 3-1/2"	2025 / 0	1409 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	13-04-00	Top		12			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	13-04-00	Top		60			n/a
2		Unf. Lin. (lb/ft)	L	05-08-00	13-04-00	Top	27	14			n/a
3		Conc. Pt. (lbs)	L	05-08-00	05-08-00	Top	653	596			n/a
4		Unf. Area (lb/ft²)	L	00-00-00	13-04-00	Top	40	15			06-00-00

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	17468 ft-lbs	35392 ft-lbs	49.4%	1	05-08-00
End Shear	4151 lbs	14464 lbs	28.7%	1	01-03-06
Total Load Deflection	L/423 (0.366")	n/a	56.8%	4	06-06-13
Live Load Deflection	L/728 (0.212")	n/a	49.4%	5	06-06-13
Max Defl.	0.366"	n/a	36.6%	4	06-06-13
Span / Depth	13.0				


**Bearing Supports**

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	4871 lbs	64.6%	32.6%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 3-1/2"	4799 lbs	63.7%	32.1%	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 2015 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

SE007448



**B07 (Floor Beam)**

Dry | 2 spans | L cant.

March 17, 2020 11:45:11

BC CALC® Member Report

Build 7555

Job name: 45147 (4003)

File name: 290676

Address: Pine Valley

Description: Second Floor Framing

City, Province, Postal Code: Vaughan, ON

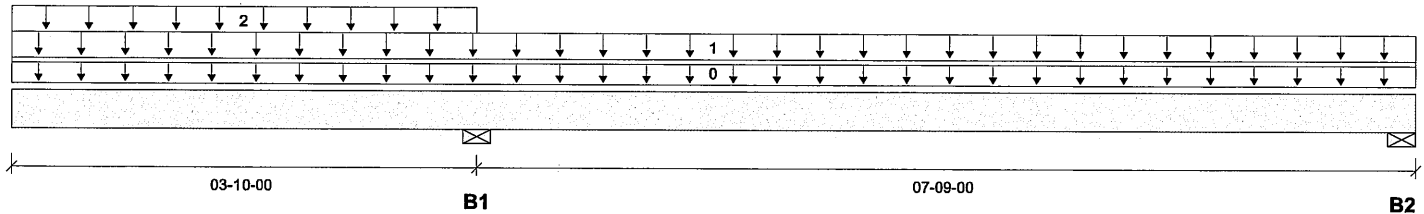
Specifier:

Builder: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 11-07-00

**Reaction Summary (Down / Uplift) (lbs)**

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	974 / 0	417 / 0		
B2, 3-1/2"	319 / 137	87 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-07-00	Top		6			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	11-07-00	Top	40	15			02-00-00
2		Unf. Area (lb/ft²)	L	00-00-00	03-10-00	Top	40	15			01-06-00

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	913 ft-lbs	17696 ft-lbs	5.2%	3	08-00-10
Neg. Moment	-2080 ft-lbs	-17696 ft-lbs	11.8%	2	03-10-00
End Shear	375 lbs	7232 lbs	5.2%	3	10-03-10
Cont. Shear	764 lbs	7232 lbs	10.6%	2	02-08-06
Total Load Deflection	2xL/1998 (0.06")	n/a	n/a	9	00-00-00
Live Load Deflection	2xL/1998 (0.048")	n/a	n/a	12	00-00-00
Total Neg. Defl.	L/999 (-0.014")	n/a	n/a	9	06-09-10
Max Defl.	-0.014"	n/a	n/a	9	06-09-10
Cant. Max Defl.	0.06"	n/a	n/a	9	00-00-00
Span / Depth	7.6				



Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1 Wall/Plate	3-1/2" x 1-3/4"	1983 lbs	52.6%	26.5%	Spruce-Pine-Fir
B2 Wall/Plate	3-1/2" x 1-3/4"	587 lbs	15.6%	7.9%	Spruce-Pine-Fir
B2 Uplift		127 lbs			

**Cautions**

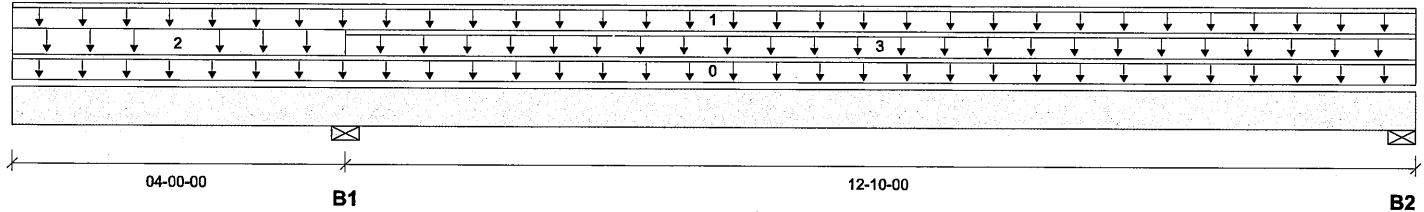
Uplift of 127 lbs found at bearing B2.

BC CALC® Member Report  
Build 7555

**B08 (Floor Beam)**  
Dry | 2 spans | L cant.

March 17, 2020 11:45:11

Job name: 45147 (4003)  
Address: Pine Valley  
City, Province, Postal Code: Vaughan, ON  
Builder: Gold Park  
Code reports: CCMC 12472-R

File name: 290676  
Description: Second Floor Framing  
Specifier:  
Designer: NL  
Company: Alpa Roof Trusses


Total Horizontal Product Length = 16-10-00

**Reaction Summary (Down / Uplift) (lbs)**

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	1578 / 0	724 / 0		
B2, 3-1/2"	353 / 169	152 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	16-10-00	Top		6			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	16-10-00	Top	27	14			n/a
2		Unf. Area (lb/ft²)	L	00-00-00	04-00-00	Top	40	15			06-00-00
3		Unf. Lin. (lb/ft)	L	04-00-00	16-10-00	Top	27	14			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1934 ft-lbs	17696 ft-lbs	10.9%	3	10-11-15
Neg. Moment	-4304 ft-lbs	-17696 ft-lbs	24.3%	1	04-00-00
End Shear	561 lbs	7232 lbs	7.8%	3	15-06-10
Cont. Shear	1541 lbs	7232 lbs	21.3%	1	02-10-06
Total Load Deflection	2xL/528 (0.182")	n/a	45.5%	9	00-00-00
Live Load Deflection	2xL/611 (0.157")	n/a	59.0%	12	00-00-00
Total Neg. Defl.	L/999 (-0.071")	n/a	n/a	9	08-08-10
Max Defl.	0.072"	n/a	n/a	10	10-08-00
Cant. Max Defl.	0.182"	n/a	18.2%	9	00-00-00
Span / Depth	12.7				



Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 1-3/4"	3272 lbs	86.8%	43.8%	Spruce-Pine-Fir
B2	Wall/Plate 3-1/2" x 1-3/4"	719 lbs	19.1%	9.6%	Spruce-Pine-Fir
B2	Uplift	117 lbs			

**Cautions**

Uplift of 117 lbs found at bearing B2. (43)

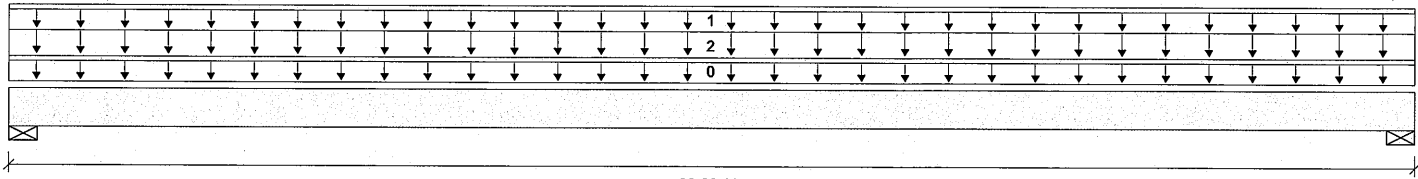
BC CALC® Member Report  
Build 7555

**B09 (Floor Beam)**  
Dry | 1 span | No cant.

March 17, 2020 11:45:11

Job name: 45147 (4003)  
Address: Pine Valley  
City, Province, Postal Code: Vaughan, ON  
Builder: Gold Park  
Code reports: CCMC 12472-R

File name: 290676  
Description: Second Floor Framing  
Specifier:  
Designer: NL  
Company: Alpa Roof Trusses



**B0** **B1**  
Total Horizontal Product Length = 03-00-00

### Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	40 / 0	357 / 0	252 / 0	
B1, 3-1/2"	40 / 0	357 / 0	252 / 0	

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	03-00-00	Top	1.00	0.65	1.00	1.15	00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	03-00-00	Top	27	114			n/a
2		Unf. Area (lb/ft²)	L	00-00-00	03-00-00	Top		14	21		08-00-00

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	466 ft-lbs	35392 ft-lbs	1.3%	5	01-06-00
End Shear	126 lbs	14464 lbs	0.9%	5	01-03-06
Total Load Deflection	L/999 (0")	n/a	n/a	11	01-06-00
Live Load Deflection	L/999 (0")	n/a	n/a	15	01-06-00
Max Defl.	0"	n/a	n/a	11	01-06-00
Span / Depth	2.6				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	865 lbs	11.5%	5.8%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 3-1/2"	865 lbs	11.5%	5.8%	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 2015 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 @ 4" O/C,  
STAGGERED IN 2 ROWS



**B10 (Floor Beam)**

Dry | 1 span | No cant.

March 17, 2020 11:45:11

BC CALC® Member Report

Build 7555

Job name: 45147 (4003)

File name: 290676

Address: Pine Valley

Description: First Floor Framing

City, Province, Postal Code: Vaughan, ON

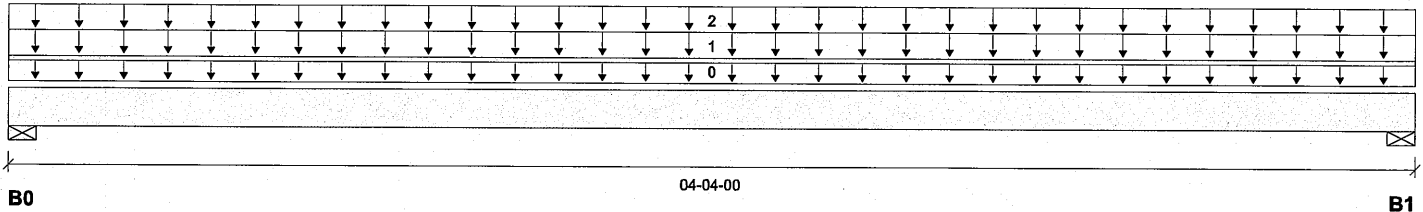
Specifier:

Builder: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 04-04-00

**Reaction Summary (Down / Uplift) (lbs)**

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	997 / 0	446 / 0		
B1, 3-1/2"	997 / 0	446 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-04-00	Top	1.00	0.65	1.00	1.15	
1		Unf. Area (lb/ft²)	L	00-00-00	04-04-00	Top	40	15			06-00-00
2		Unf. Area (lb/ft²)	L	00-00-00	04-04-00	Top	40	20			05-06-00

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1778 ft-lbs	17696 ft-lbs	10.1%	1	02-02-00
End Shear	839 lbs	7232 lbs	11.6%	1	01-03-06
Total Load Deflection	L/999 (0.007")	n/a	n/a	4	02-02-00
Live Load Deflection	L/999 (0.005")	n/a	n/a	5	02-02-00
Max Defl.	0.007"	n/a	n/a	4	02-02-00
Span / Depth	3.9				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 1-3/4"	2053 lbs	54.5%	27.5%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 1-3/4"	2053 lbs	54.5%	27.5%	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 2015 and CSA O86.  
 Design based on Dry Service Condition.  
 Importance Factor : Normal Part code : Part 4


**Disclosure**

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is 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 (800)232-0788 before installation.

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**SE007452**

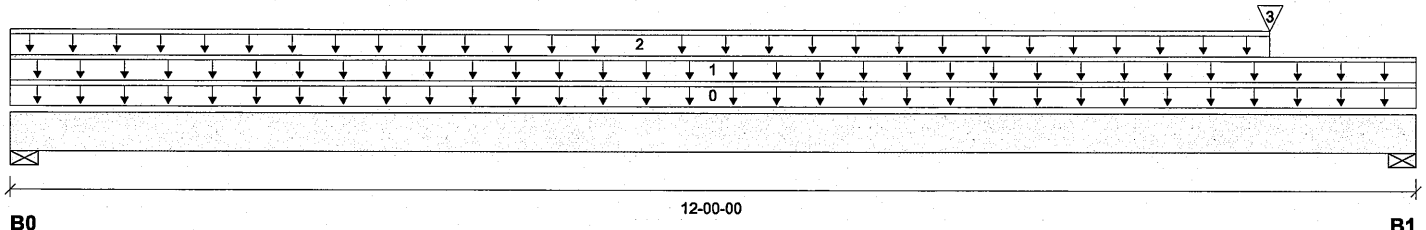
BC CALC® Member Report  
Build 7555

**B11 (Floor Beam)**  
Dry | 1 span | No cant.

March 17, 2020 11:45:11

Job name: 45147 (4003)  
Address: Pine Valley  
City, Province, Postal Code: Vaughan, ON  
Builder: Gold Park  
Code reports: CCMC 12472-R

File name: 290676  
Description: First Floor Framing  
Specifier:  
Designer: NL  
Company: Alpa Roof Trusses



Total Horizontal Product Length = 12-00-00

### Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	411 / 0	243 / 0		
B1, 3-1/2"	1200 / 0	594 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-00-00	Top		6			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	12-00-00	Top	27	14			n/a
2		Unf. Lin. (lb/ft)	L	00-00-00	10-09-00	Top	27	14			n/a
3		Conc. Pt. (lbs)	L	10-09-00	10-09-00	Top	997	446			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3218 ft-lbs	17696 ft-lbs	18.2%	1	07-05-11
End Shear	2394 lbs	7232 lbs	33.1%	1	10-08-10
Total Load Deflection	L/999 (0.115")	n/a	n/a	4	06-03-09
Live Load Deflection	L/999 (0.074")	n/a	n/a	5	06-03-09
Max Defl.	0.115"	n/a	n/a	4	06-03-09
Span / Depth	11.7				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 1-3/4"	920 lbs	24.4%	12.3%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 1-3/4"	2543 lbs	67.5%	34.0%	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 2015 and CSA O86.  
Design based on Dry Service Condition.  
Importance Factor : Normal Part code : Part 4



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**SE007453**

B12 (Floor Beam)

Dry | 1 span | No cant.

March 17, 2020 11:45:11

BC CALC® Member Report

Build 7555

Job name: 45147 (4003)

File name: 290676

Address: Pine Valley

Description: First Floor Framing

City, Province, Postal Code: Vaughan, ON

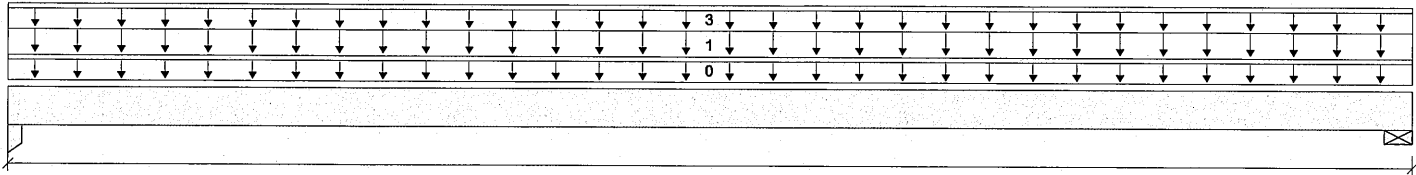
Specifier:

Builder: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



06-08-00

B0

Total Horizontal Product Length = 06-08-00

B1

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1323 / 0	683 / 0		
B1, 3-1/2"	1323 / 0	683 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-08-00	Top	1.00	0.65	1.00	1.15	
1		Unf. Area (lb/ft²)	L	00-00-00	06-08-00	Top	40	20			09-03-00
3		Unf. Lin. (lb/ft)	L	00-00-00	06-08-00	Top	27	14			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4104 ft-lbs	17696 ft-lbs	23.2%	1	03-04-00
End Shear	1748 lbs	7232 lbs	24.2%	1	01-03-06
Total Load Deflection	L/999 (0.041")	n/a	n/a	4	03-04-00
Live Load Deflection	L/999 (0.027")	n/a	n/a	5	03-04-00
Max Defl.	0.041"	n/a	n/a	4	03-04-00
Span / Depth	6.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Column 3-1/2" x 1-3/4"	2839 lbs	26.7%	38.0%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 1-3/4"	2839 lbs	75.3%	38.0%	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 2015 and CSA O86.  
 Design based on Dry Service Condition.  
 Importance Factor : Normal Part code : Part 4



Disclosure

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 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 (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

SE007454

**B13 (Floor Beam)**

Dry | 1 span | No cant.

March 17, 2020 11:45:11

BC CALC® Member Report

Build 7555

Job name: 45147 (4003)

File name: 290676

Address: Pine Valley

Description: First Floor Framing

City, Province, Postal Code: Vaughan, ON

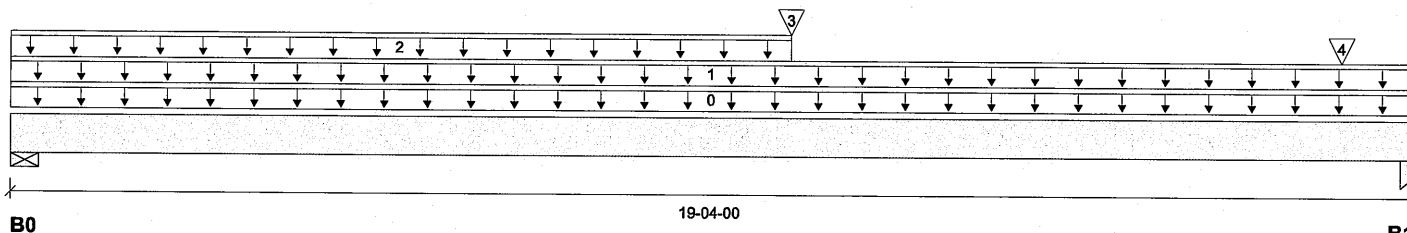
Specifier:

Builder: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 19-04-00

**Reaction Summary (Down / Uplift) (lbs)**

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	967 / 0	586 / 0		
B1, 3-1/2"	2165 / 0	1196 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	19-04-00	Top		12			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	19-04-00	Top	27	14			n/a
2		Unf. Lin. (lb/ft)	L	00-00-00	10-09-00	Top	27	14			n/a
3		Conc. Pt. (lbs)	L	10-09-00	10-09-00	Top	997	446			n/a
4		Conc. Pt. (lbs)	L	18-04-00	18-04-00	Top	1323	683			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	15410 ft-lbs	35392 ft-lbs	43.5%	1	10-09-00
End Shear	3843 lbs	14464 lbs	26.6%	1	18-00-10
Total Load Deflection	L/355 (0.638")	n/a	67.6%	4	09-10-05
Live Load Deflection	L/554 (0.408")	n/a	64.9%	5	09-10-05
Max Defl.	0.638"	n/a	63.8%	4	09-10-05
Span / Depth	19.1				


**Bearing Supports**

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	2184 lbs	29.0%	14.6%	Spruce-Pine-Fir
B1	Column 3-1/2" x 3-1/2"	4743 lbs	22.3%	31.7%	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 2015 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

SE007455

BC CALC® Member Report

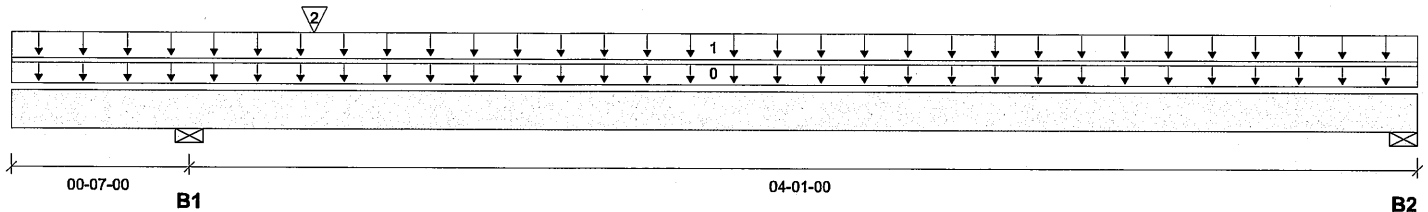
**B14 (Floor Beam)**

Dry | 2 spans | L cant.

March 17, 2020 11:45:11

Build 7555  
 Job name: 45147 (4003)  
 Address: Pine Valley  
 City, Province, Postal Code: Vaughan, ON  
 Builder: Gold Park  
 Code reports: CCMC 12472-R

File name: 290676  
 Description: First Floor Framing  
 Specifier:  
 Designer: NL  
 Company: Alpa Roof Trusses



Total Horizontal Product Length = 04-08-00

**Reaction Summary (Down / Uplift) (lbs)**

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	855 / 0	339 / 0		
B2, 3-1/2"	399 / 7	158 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-08-00	Top		5			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	04-08-00	Top	40	15			04-00-00
2		Conc. Pt. (lbs)	L	01-00-00	01-00-00	Top	500	194			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	813 ft-lbs	11610 ft-lbs	7.0%	3	02-02-06
Neg. Moment	-55 ft-lbs	-11610 ft-lbs	0.5%	1	00-07-00
End Shear	448 lbs	5785 lbs	7.7%	3	03-07-00
Cont. Shear	564 lbs	5785 lbs	9.8%	1	01-06-04
Total Load Deflection	L/999 (0.006")	n/a	n/a	10	02-05-01
Live Load Deflection	L/999 (0.005")	n/a	n/a	13	02-05-01
Total Neg. Defl.	2xL/1998 (-0.003")	n/a	n/a	10	00-00-00
Max Defl.	0.006"	n/a	n/a	10	02-05-01
Cant. Max Defl.	-0.003"	n/a	n/a	10	00-00-00
Span / Depth	4.9				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 3-1/2" x 1-3/4"	1705 lbs	45.3%	22.8%	Spruce-Pine-Fir
B2	Wall/Plate 3-1/2" x 1-3/4"	796 lbs	21.1%	10.7%	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.  
 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 2015 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.


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**SE007456**



**B15 (Floor Beam)**

Dry | 1 span | No cant.

March 17, 2020 11:45:11

BC CALC® Member Report

Build 7555

Job name: 45147 (4003)

File name: 290676

Address: Pine Valley

Description: First Floor Framing

City, Province, Postal Code: Vaughan, ON

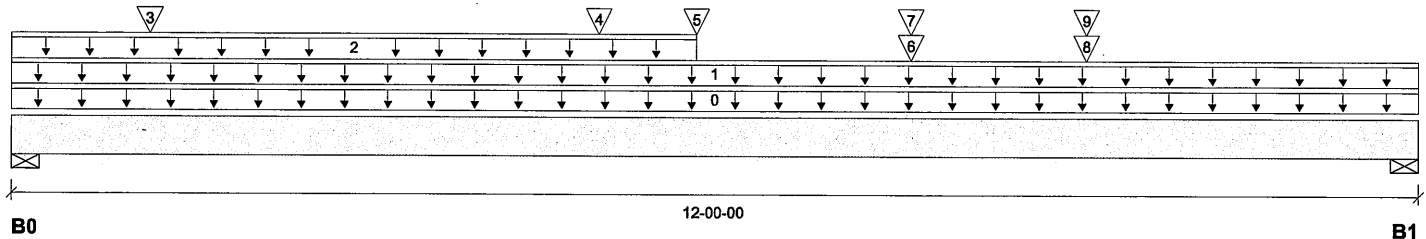
Specifier:

Builder: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 12-00-00

**Reaction Summary (Down / Uplift) (lbs)**

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1588 / 0	1210 / 0		
B1, 3-1/2"	1969 / 0	1680 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-00-00	Top		10			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	12-00-00	Top	27	74			n/a
2		Unf. Lin. (lb/ft)	L	00-00-00	05-10-00	Top	27	14			n/a
3		Conc. Pt. (lbs)	L	01-02-00	01-02-00	Top	250	94			n/a
4		Conc. Pt. (lbs)	L	05-00-00	05-00-00	Top	400	150			n/a
5		Conc. Pt. (lbs)	L	05-10-00	05-10-00	Top	399	158			n/a
6		Conc. Pt. (lbs)	L	07-08-00	07-08-00	Top	400	150			n/a
7		Conc. Pt. (lbs)	L	07-08-00	07-08-00	Top	974	417			n/a
8		Conc. Pt. (lbs)	L	09-02-00	09-02-00	Top	653	596			n/a
9		Conc. Pt. (lbs)	L	09-02-00	09-02-00	Top		240			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	16347 ft-lbs	23220 ft-lbs	70.4%	1	07-08-00
End Shear	4896 lbs	11571 lbs	42.3%	1	10-11-00
Total Load Deflection	L/262 (0.528")	n/a	91.6%	4	06-02-02
Live Load Deflection	L/453 (0.306")	n/a	79.5%	5	06-02-02
Max Defl.	0.528"	n/a	52.8%	4	06-02-02
Span / Depth	14.6				



Bearing Supports	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	3895 lbs	51.7%	26.1%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 3-1/2"	5054 lbs	67.1%	33.8%	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 2015 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

SE007457

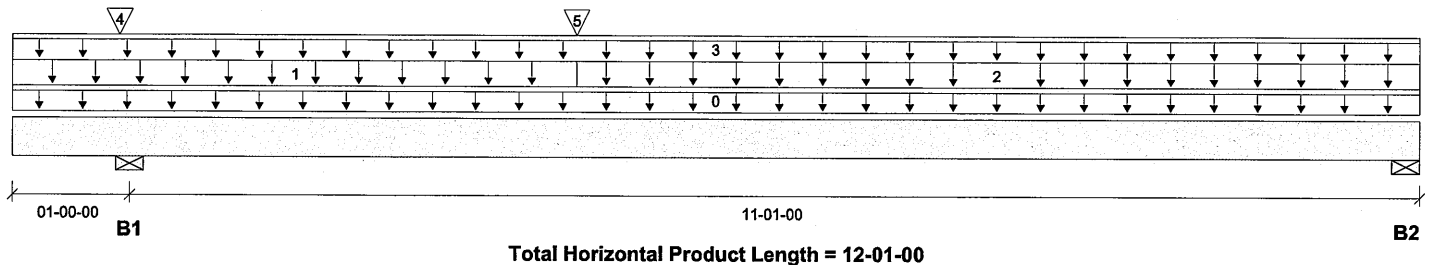
BC CALC® Member Report  
Build 7555

**B16 (Floor Beam)**  
Dry | 2 spans | L cant.

March 17, 2020 11:45:11

Job name: 45147 (4003)  
Address: Pine Valley  
City, Province, Postal Code: Vaughan, ON  
Builder: Gold Park  
Code reports: CCMC 12472-R

File name: 290676  
Description: First Floor Framing  
Specifier:  
Designer: NL  
Company: Alpa Roof Trusses



### Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	2467 / 0	1876 / 0		
B2, 3-1/2"	1835 / 6	1470 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-01-00	Top		14			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	04-10-00	Top	40	15			03-00-00
2		Unf. Area (lb/ft²)	L	04-10-00	12-01-00	Top	40	20			06-00-00
3		Unf. Lin. (lb/ft)	L	00-00-00	12-01-00	Top		60			n/a
4		Conc. Pt. (lbs)	L	00-11-00	00-11-00	Top	394	151			n/a
5		Conc. Pt. (lbs)	L	04-10-00	04-10-00	Top	1582	1208			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	16392 ft-lbs	36222 ft-lbs	45.3%	3	04-10-00
Neg. Moment	-165 ft-lbs	-36222 ft-lbs	0.5%	1	01-00-00
End Shear	3937 lbs	17356 lbs	22.7%	3	11-00-00
Cont. Shear	4628 lbs	17356 lbs	26.7%	1	01-11-04
Total Load Deflection	L/421 (0.309")	n/a	57.0%	10	06-03-06
Live Load Deflection	L/757 (0.172")	n/a	47.6%	13	06-03-06
Total Neg. Defl.	2xL/1998 (-0.092")	n/a	n/a	10	00-00-00
Max Defl.	0.309"	n/a	30.9%	10	06-03-06
Cant. Max Defl.	-0.092"	n/a	n/a	10	00-00-00
Span / Depth	13.7				



### Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 3-1/2" x 5-1/4"	6045 lbs	53.5%	27.0%	Spruce-Pine-Fir
B2	Wall/Plate 3-1/2" x 5-1/4"	4590 lbs	40.6%	20.5%	Spruce-Pine-Fir

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

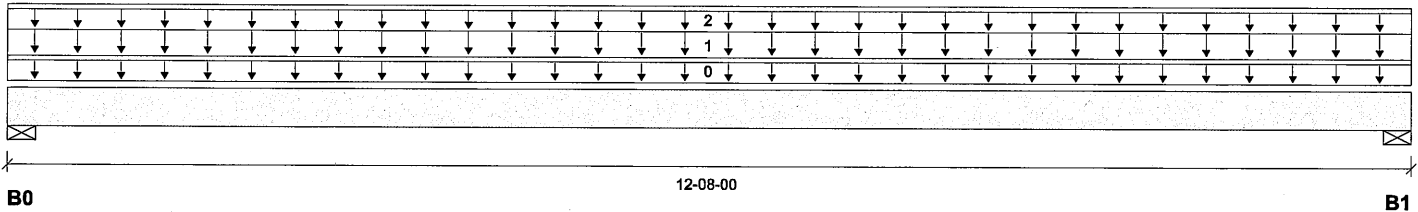
**B17 (Floor Beam)**

Dry | 1 span | No cant.

March 17, 2020 11:45:11

 BC CALC® Member Report  
 Build 7555

 Job name: 45147 (4003)  
 Address: Pine Valley  
 City, Province, Postal Code: Vaughan, ON  
 Builder: Gold Park  
 Code reports: CCMC 12472-R

 File name: 290676  
 Description: First Floor Framing  
 Specifier:  
 Designer: NL  
 Company: Alpa Roof Trusses


Total Horizontal Product Length = 12-08-00

**Reaction Summary (Down / Uplift) (lbs)**

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1393 / 0	941 / 0		
B1, 3-1/2"	1393 / 0	941 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-08-00	Top		6			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	12-08-00	Top	40	15			05-06-00
2		Unf. Lin. (lb/ft)	L	00-00-00	12-08-00	Top		60			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	9607 ft-lbs	17696 ft-lbs	54.3%	1	06-04-00
End Shear	2605 lbs	7232 lbs	36.0%	1	01-03-06
Total Load Deflection	L/388 (0.377")	n/a	61.8%	4	06-04-00
Live Load Deflection	L/651 (0.225")	n/a	55.3%	5	06-04-00
Max Defl.	0.377"	n/a	37.7%	4	06-04-00
Span / Depth	12.3				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 1-3/4"	3266 lbs	86.7%	43.7%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 1-3/4"	3266 lbs	86.7%	43.7%	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 2015 and CSA O86.  
 Design based on Dry Service Condition.  
 Importance Factor : Normal Part code : Part 4


**Disclosure**

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA). Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is 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 (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

**SE007459**

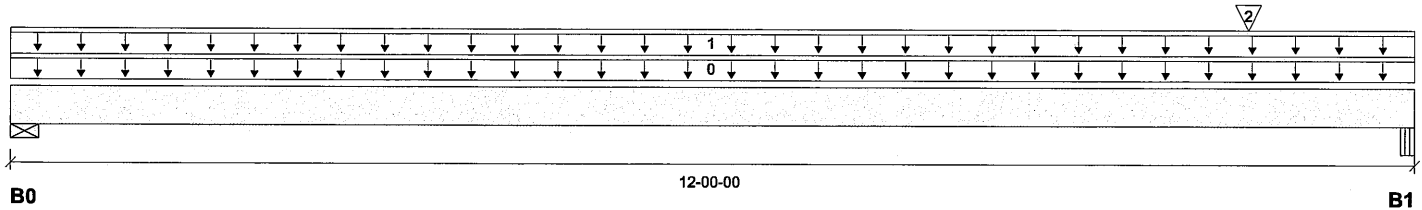
BC CALC® Member Report  
Build 7555

**B18 (Floor Beam)**  
Dry | 1 span | No cant.

March 17, 2020 11:45:11

Job name: 45147 (4003)  
Address: Pine Valley  
City, Province, Postal Code: Vaughan, ON  
Builder: Gold Park  
Code reports: CCMC 12472-R

File name: 290676  
Description: First Floor Framing  
Specifier:  
Designer: NL  
Company: Alpa Roof Trusses



### Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	467 / 0	655 / 0		
B1, 3-1/2"	1574 / 0	1402 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-00-00	Top	1.00	0.65	1.00	1.15	00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	12-00-00	Top	54	87			n/a
2		Conc. Pt. (lbs)	L	10-07-00	10-07-00	Top	1393	941			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	5510 ft-lbs	17696 ft-lbs	31.1%	1	07-08-02
End Shear	3861 lbs	7232 lbs	53.4%	1	10-08-10
Total Load Deflection	L/688 (0.201")	n/a	34.9%	4	06-04-07
Live Load Deflection	L/999 (0.093")	n/a	n/a	5	06-04-07
Max Defl.	0.201"	n/a	20.1%	4	06-04-07
Span / Depth	11.7				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 1-3/4"	1520 lbs	40.3%	20.3%	Spruce-Pine-Fir
B1	Beam 3-1/2" x 1-3/4"	4113 lbs	n/a	55.0%	Unspecified

### 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 2015 and CSA O86.  
Design based on Dry Service Condition.  
Importance Factor : Normal Part code : Part 4



### Disclosure

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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 (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

**SE007460**

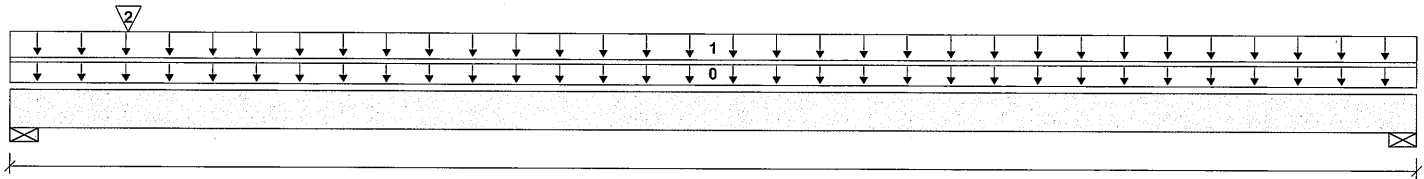
BC CALC® Member Report  
Build 7555

**B19 (Floor Beam)**  
Dry | 1 span | No cant.

March 17, 2020 11:45:11

Job name: 45147 (4003)  
Address: Pine Valley  
City, Province, Postal Code: Vaughan, ON  
Builder: Gold Park  
Code reports: CCMC 12472-R

File name: 290676  
Description: First Floor Framing  
Specifier:  
Designer: NL  
Company: Alpa Roof Trusses



**B1** **B1**  
Total Horizontal Product Length = 08-01-00

### Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	2826 / 0	2088 / 0		
B1, 3-1/2"	1083 / 0	601 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-01-00	Top		5			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	08-01-00	Top	40	20			06-00-00
2		Conc. Pt. (lbs)	L	00-08-00	00-08-00	Top	1969	1680			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	4934 ft-lbs	11610 ft-lbs	42.5%	1	03-05-14
End Shear	3631 lbs	5785 lbs	62.8%	1	01-01-00
Total Load Deflection	L/606 (0.151")	n/a	39.6%	4	03-10-05
Live Load Deflection	L/999 (0.095")	n/a	n/a	5	03-11-06
Max Defl.	0.151"	n/a	15.1%	4	03-10-05
Span / Depth	9.6				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B1	Wall/Plate 3-1/2" x 1-3/4"	6850 lbs	n/a	91.7%	Unspecified
B1	Wall/Plate 3-1/2" x 1-3/4"	2375 lbs	63.0%	31.8%	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 2015 and CSA O86.  
Design based on Dry Service Condition.  
Importance Factor : Normal Part code : Part 4



### Disclosure

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BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

**SE007461**

**B20 (Floor Beam)**

Dry | 1 span | No cant.

March 17, 2020 11:45:11

BC CALC® Member Report

Build 7555

Job name: 45147 (4003)

File name: 290676

Address: Pine Valley

Description: Second Floor Framing

City, Province, Postal Code: Vaughan, ON

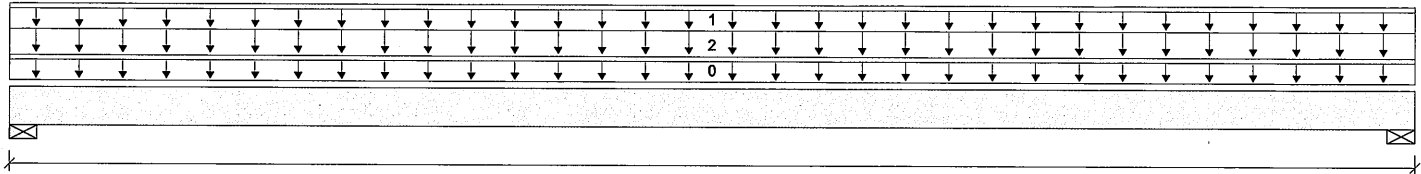
Specifier:

Builder: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



B0

12-00-00

B1

Total Horizontal Product Length = 12-00-00

**Reaction Summary (Down / Uplift) (lbs)**

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	162 / 0	936 / 0	630 / 0	
B1, 3-1/2"	162 / 0	936 / 0	630 / 0	

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-00-00	Top		12			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	12-00-00	Top	27	74			n/a
2		Unf. Area (lb/ft²)	L	00-00-00	12-00-00	Top		14	21		05-00-00

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	6320 ft-lbs	35392 ft-lbs	17.9%	5	06-00-00
End Shear	1791 lbs	14464 lbs	12.4%	5	01-03-06
Total Load Deflection	L/999 (0.113")	n/a	n/a	11	06-00-00
Live Load Deflection	L/999 (0.05")	n/a	n/a	15	06-00-00
Max Defl.	0.113"	n/a	n/a	11	06-00-00
Span / Depth	11.7				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	2277 lbs	30.2%	15.2%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 3-1/2"	2277 lbs	30.2%	15.2%	Spruce-Pine-Fir

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.  
 Design meets Code minimum (L/360) Live load deflection criteria.  
 Design meets User specified (1") Maximum Total load deflection criteria.  
 Calculations assume member is fully braced.  
 Resistance Factor phi has been applied to all presented results per CSA O86.  
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 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



**B21 (Floor Beam)**

Dry | 1 span | No cant.

March 17, 2020 11:45:11

BC CALC® Member Report

Build 7555

Job name: 45147 (4003)

File name: 290676

Address: Pine Valley

Description: Second Floor Framing

City, Province, Postal Code: Vaughan, ON

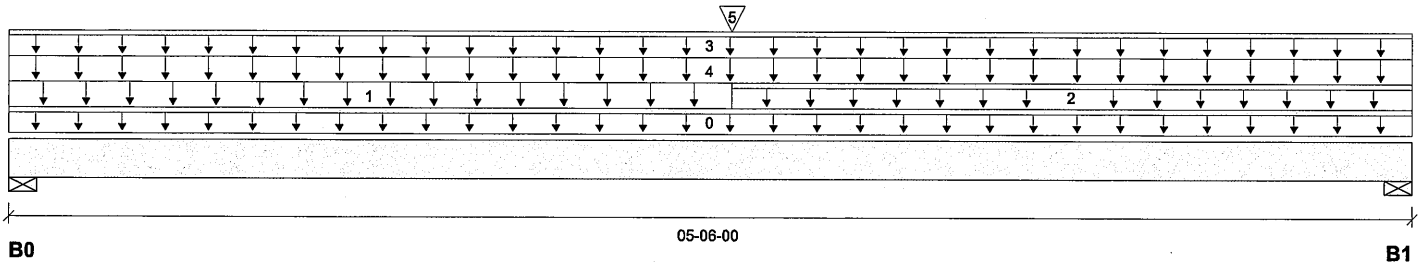
Specifier:

Builder: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 05-06-00

**Reaction Summary (Down / Uplift) (lbs)**

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	362 / 0	1260 / 0	982 / 0	
B1, 3-1/2"	164 / 0	1170 / 0	982 / 0	

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	05-06-00	Top		12			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	02-10-00	Top	40	20			04-00-00
2		Unf. Lin. (lb/ft)	L	02-10-00	05-06-00	Top	27	14			n/a
3		Unf. Lin. (lb/ft)	L	00-00-00	05-06-00	Top		100			n/a
4		Unf. Area (lb/ft²)	L	00-00-00	05-06-00	Top		14	21		17-00-00
5		Conc. Pt. (lbs)	L	02-10-00	02-10-00	Top		240			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3963 ft-lbs	35392 ft-lbs	11.2%	5	02-09-07
End Shear	1829 lbs	14464 lbs	12.6%	5	01-03-06
Total Load Deflection	L/999 (0.013")	n/a	n/a	11	02-08-13
Live Load Deflection	L/999 (0.006")	n/a	n/a	15	02-08-13
Max Defl.	0.013"	n/a	n/a	11	02-08-13
Span / Depth	5.1				


**Bearing Supports**

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	3409 lbs	45.2%	22.8%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 3-1/2"	3098 lbs	41.1%	20.7%	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 2015 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

SE007463

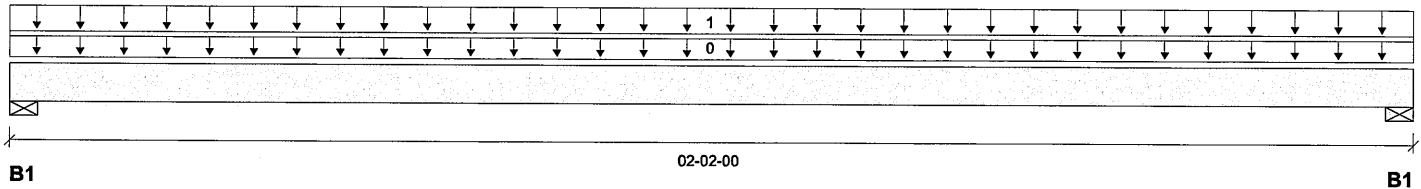
BC CALC® Member Report  
Build 7555

B22 (Floor Beam)  
Dry | 1 span | No cant.

March 17, 2020 11:45:11

Job name: 45147 (4003)  
Address: Pine Valley  
City, Province, Postal Code: Vaughan, ON  
Builder: Gold Park  
Code reports: CCMC 12472-R

File name: 290676  
Description: First Floor Framing  
Specifier:  
Designer: NL  
Company: Alpa Roof Trusses



Total Horizontal Product Length = 02-02-00

### Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	152 / 0	81 / 0		
B1, 3-1/2"	152 / 0	81 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	02-02-00	Top	1.00	0.65	1.00	1.15	00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	02-02-00	Top	40	20			03-06-00

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	111 ft-lbs	11610 ft-lbs	1.0%	1	01-01-00
End Shear	0 lbs	-1 lbs	n/a	-1	00-00-00
Total Load Deflection	L/999 (0")	n/a	n/a	4	01-01-00
Live Load Deflection	L/999 (0")	n/a	n/a	5	01-01-00
Max Defl.	0"	n/a	n/a	4	01-01-00
Span / Depth	2.2				

### Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 1-3/4"	329 lbs	n/a	4.4%	Unspecified
B1	Wall/Plate 3-1/2" x 1-3/4"	329 lbs	8.7%	4.4%	Spruce-Pine-Fir

### Notes

Design meets Code minimum (L/240) Total load deflection criteria.  
Design meets Code minimum (L/360) Live load deflection criteria.  
Design meets User specified (1") Maximum Total load deflection criteria.  
Calculations assume member is fully braced.  
Resistance Factor phi has been applied to all presented results per CSA O86.  
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.  
Design based on Dry Service Condition.  
Importance Factor : Normal Part code : Part 4



### Disclosure

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA).  
Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is 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 (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

SE007464



BC CALC® Member Report

**B23 (Floor Beam)**  
Dry | 1 span | No cant.

March 17, 2020 11:45:11

Build 7555

Job name: 45147 (4003)

File name: 290676

Address: Pine Valley

Description: First Floor Framing

City, Province, Postal Code: Vaughan, ON

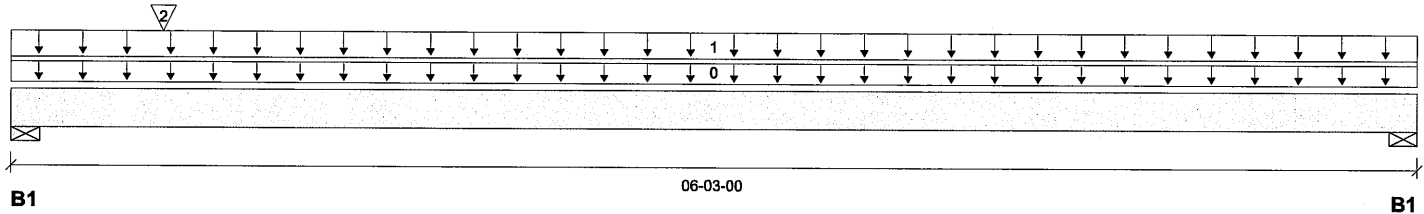
Specifier:

Builder: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 06-03-00

**Reaction Summary (Down / Uplift) (lbs)**

Bearing	Live	Dead	Snow	Wind
B1, 3-1/2"	2571 / 0	1943 / 0		
B1, 3-1/2"	898 / 0	517 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	06-03-00	Top	1.00	0.65	1.00	1.15	
1		Unf. Area (lb/ft²)	L	00-00-00	06-03-00	Top	40	20			06-00-00
2		Conc. Pt. (lbs)	L	00-08-00	00-08-00	Top	1969	1680			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	3406 ft-lbs	11610 ft-lbs	29.3%	1	02-04-05
End Shear	3067 lbs	5785 lbs	53.0%	1	01-01-00
Total Load Deflection	L/999 (0.06")	n/a	n/a	4	02-11-03
Live Load Deflection	L/999 (0.037")	n/a	n/a	5	03-00-00
Max Defl.	0.06"	n/a	n/a	4	02-11-03
Span / Depth	7.3				

**Bearing Supports**

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B1	Wall/Plate 3-1/2" x 1-3/4"	6285 lbs	n/a	84.1%	Unspecified
B1	Wall/Plate 3-1/2" x 1-3/4"	1993 lbs	52.9%	26.7%	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 2015 and CSA O86.  
Design based on Dry Service Condition.  
Importance Factor : Normal Part code : Part 4


**Disclosure**

Use of the Boise Cascade Software is subject to the terms of the End User License Agreement (EULA).  
Completeness and accuracy of input must be reviewed and verified by a qualified engineer or other appropriate expert to assure its adequacy, prior to anyone relying on such output as evidence of suitability for a particular application. The output here is 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 (800)232-0788 before installation.

BC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, BC FloorValue®, VERSA-LAM®, VERSA-RIM PLUS®,

**SE007465**

BC CALC® Member Report

Build 7555

Job name: 45147 (4003)

Address: Pine Valley

City, Province, Postal Code: Vaughan, ON

Builder: Gold Park

Code reports: CCMC 12472-R

## B24 (Floor Beam)

Dry | 1 span | No cant.

March 24, 2020 10:59:02

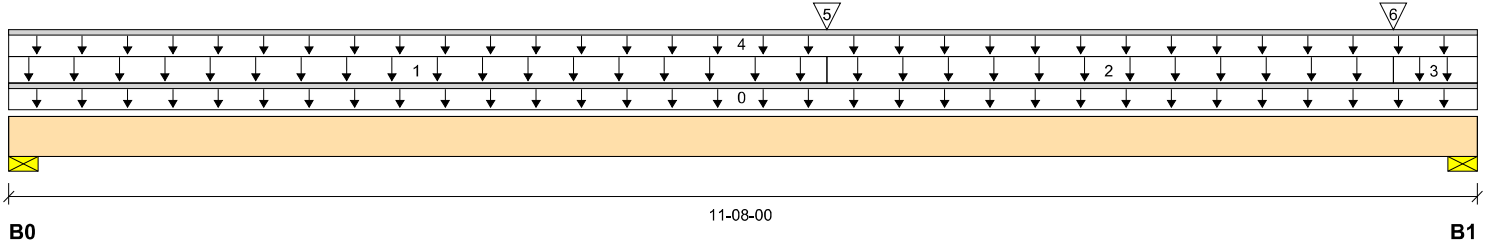
File name: 318267

Description: First Floor Framing

Specifier:

Designer: NL

Company: Alpa Roof Trusses



Total Horizontal Product Length = 11-08-00

## Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	2606 / 0	1423 / 0		
B1, 3-1/2"	2687 / 0	1510 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-08-00	Top		12			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	06-06-00	Top	40	20			09-03-00
2		Unf. Area (lb/ft²)	L	06-06-00	11-00-00	Top	40	20			05-09-00
3		Unf. Area (lb/ft²)	L	11-00-00	11-08-00	Top	40	20			06-00-00
4		Unf. Lin. (lb/ft)	L	00-00-00	11-08-00	Top	27	14			n/a
5		Conc. Pt. (lbs)	L	06-06-00	06-06-00	Top	967	586			n/a
6		Conc. Pt. (lbs)	L	11-00-00	11-00-00	Top	411	243			n/a

## Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	17531 ft-lbs	35392 ft-lbs	49.5%	1	06-06-00
End Shear	5104 lbs	14464 lbs	35.3%	1	10-04-10
Total Load Deflection	L/493 (0.273")	n/a	48.7%	4	05-10-03
Live Load Deflection	L/767 (0.175")	n/a	46.9%	5	05-10-03
Max Defl.	0.273"	n/a	27.3%	4	05-10-03
Span / Depth	11.3				

## Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	5687 lbs	75.5%	38.1%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 3-1/2"	5918 lbs	78.5%	39.6%	Spruce-Pine-Fir

## Notes

Design meets Code minimum (L/240) Total load deflection criteria.  
Design meets Code minimum (L/360) Live load deflection criteria.  
Design meets User specified (1") Maximum Total load deflection criteria.  
Calculations assume member is fully braced.  
Resistance Factor phi has been applied to all presented results per CSA O86.  
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 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" O/C,  
STAGGERED IN 2 ROWS



## B25 (Floor Beam)

Dry | 1 span | No cant.

March 24, 2020 10:59:02

BC CALC® Member Report

Build 7555

Job name: 45147 (4003)

File name: 318267

Address: Pine Valley

Description: Second Floor Framing

City, Province, Postal Code: Vaughan, ON

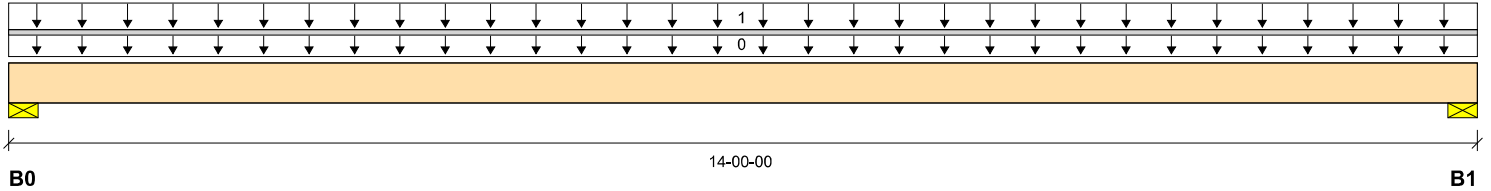
Specifier:

Builder: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 14-00-00

## Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	2380 / 0	1274 / 0		
B1, 3-1/2"	2380 / 0	1274 / 0		

## Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	14-00-00	Top		12			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	14-00-00	Top	40	20			08-06-00

## Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	16906 ft-lbs	35392 ft-lbs	47.8%	1	07-00-00
End Shear	4218 lbs	14464 lbs	29.2%	1	01-03-06
Total Load Deflection	L/402 (0.404")	n/a	59.7%	4	07-00-00
Live Load Deflection	L/617 (0.263")	n/a	58.3%	5	07-00-00
Max Defl.	0.404"	n/a	40.4%	4	07-00-00
Span / Depth	13.7				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	5163 lbs	68.5%	34.5%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 3-1/2"	5163 lbs	68.5%	34.5%	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 2015 and CSA O86.  
Design based on Dry Service Condition.  
Importance Factor : Normal Part code : Part 4



NAIL ONE PLY TO ANOTHER WITH 3-1/2" SPIRAL NAILS @ 10" O/C,  
STAGGERED IN 2 ROWS

## B26 (Floor Beam)

Dry | 1 span | No cant.

March 24, 2020 10:59:02

BC CALC® Member Report

Build 7555

Job name: 45147 (4003)

File name: 318267

Address: Pine Valley

Description: Second Floor Framing

City, Province, Postal Code: Vaughan, ON

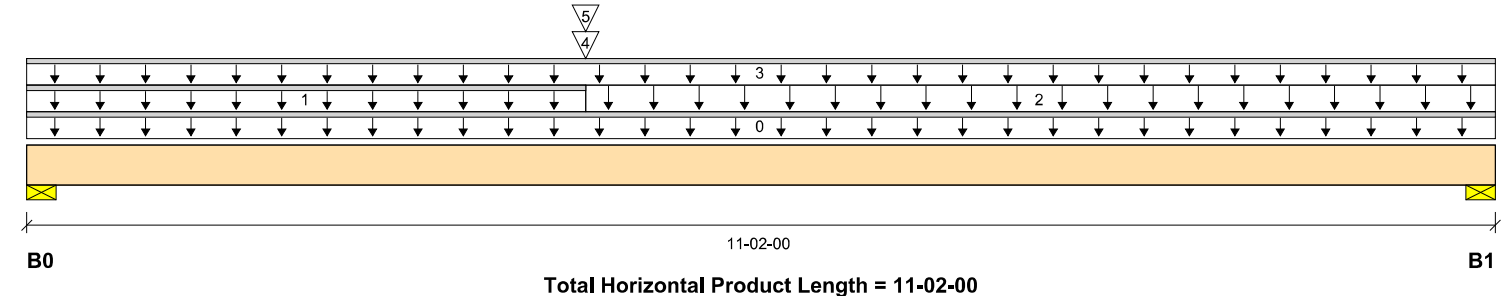
Specifier:

Builder: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



### Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	2692 / 0	1682 / 0		
B1, 3-1/2"	2476 / 0	1484 / 0		

### Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-02-00	Top		12			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	04-03-00	Top	54	27			n/a
2		Unf. Area (lb/ft²)	L	04-03-00	11-02-00	Top	40	15			06-06-00
3		Unf. Lin. (lb/ft)	L	00-00-00	11-02-00	Top		60			n/a
4		Conc. Pt. (lbs)	L	04-03-00	04-03-00	Top	760	299			n/a
5		Conc. Pt. (lbs)	L	04-03-00	04-03-00	Top	2380	1274			n/a

### Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	22853 ft-lbs	35392 ft-lbs	64.6%	1	04-03-00
End Shear	5878 lbs	14464 lbs	40.6%	1	01-03-06
Total Load Deflection	L/428 (0.3")	n/a	56.0%	4	05-04-12
Live Load Deflection	L/676 (0.19")	n/a	53.2%	5	05-04-12
Max Defl.	0.3"	n/a	30.0%	4	05-04-12
Span / Depth	10.8				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	6141 lbs	81.5%	41.1%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 3-1/2"	5568 lbs	n/a	37.3%	Unspecified

### 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 2015 and CSA O86.  
Design based on Dry Service Condition.  
Importance Factor : Normal Part code : Part 4

NAIL ONE PLY TO ANOTHER WITH 3-1/2" SPIRAL NAILS @ 10" O/C,  
STAGGERED IN 2 ROWS



## Maximum Floor Spans – M4.1, L/360

### Design Criteria

Spans:	Simple span
Loads:	Live load = 40 psf and dead load = 20 psf
Deflection limits:	L/360 under live load and L/240 under total load
Sheathing:	3/4 in. nailed-glued oriented strand board (OSB) sheathing



### Maximum Floor Spans

Joist depth	Joist series	Bare On centre spacing				1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-11"	15'-0"	14'-6"	13'-5"	16'-5"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-10"	17'-5"	16'-5"	15'-10"	14'-11"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-7"	16'-7"	16'-0"	15'-4"
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	16'-1"
11-7/8"	NI-20	17'-11"	16'-11"	16'-3"	15'-8"	18'-7"	17'-5"	16'-10"	16'-1"
	NI-40x	19'-4"	17'-11"	17'-3"	16'-7"	19'-11"	18'-6"	17'-9"	17'-0"
	NI-60	19'-7"	18'-2"	17'-6"	16'-9"	20'-2"	18'-9"	17'-11"	17'-2"
	NI-80	21'-1"	19'-6"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
	NI-90	21'-6"	19'-10"	18'-11"	17'-11"	22'-0"	20'-4"	19'-5"	18'-4"
14"	NI-40x	21'-5"	19'-11"	18'-11"	18'-0"	22'-1"	20'-7"	19'-7"	18'-7"
	NI-60	21'-10"	20'-2"	19'-3"	18'-3"	22'-6"	20'-10"	19'-11"	18'-10"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
	NI-90	23'-10"	22'-1"	21'-0"	19'-10"	24'-5"	22'-7"	21'-6"	20'-4"
16"	NI-60	23'-9"	22'-0"	21'-0"	19'-10"	24'-6"	22'-9"	21'-8"	20'-7"
	NI-80	25'-6"	23'-7"	22'-5"	21'-2"	26'-2"	24'-3"	23'-1"	21'-10"
	NI-90	26'-0"	24'-0"	22'-10"	21'-6"	26'-7"	24'-8"	23'-5"	22'-2"

Joist depth	Joist series	Mid-span blocking with 1x4 inch strap On centre spacing				Mid-span blocking and 1/2 in. gypsum ceiling On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	17'-1"	15'-5"	14'-6"	13'-5"	17'-1"	15'-5"	14'-6"	13'-5"
	NI-40x	18'-8"	17'-6"	16'-7"	14'-11"	19'-2"	17'-8"	16'-7"	14'-11"
	NI-60	18'-11"	17'-8"	16'-10"	15'-7"	19'-5"	18'-0"	16'-10"	15'-7"
	NI-80	20'-3"	18'-10"	17'-11"	17'-2"	20'-8"	19'-3"	18'-4"	17'-5"
11-7/8"	NI-20	20'-3"	18'-8"	17'-6"	16'-1"	20'-7"	18'-8"	17'-6"	16'-1"
	NI-40x	21'-10"	20'-4"	19'-0"	17'-0"	22'-5"	20'-10"	19'-0"	17'-0"
	NI-60	22'-1"	20'-7"	19'-8"	18'-7"	22'-8"	21'-2"	20'-3"	18'-8"
	NI-80	23'-8"	22'-0"	20'-11"	19'-10"	24'-1"	22'-6"	21'-6"	20'-4"
	NI-90	24'-1"	22'-5"	21'-4"	20'-2"	24'-7"	22'-11"	21'-10"	20'-8"
14"	NI-40x	24'-5"	22'-9"	20'-11"	18'-8"	25'-1"	22'-11"	20'-11"	18'-8"
	NI-60	24'-10"	23'-2"	22'-1"	20'-10"	25'-6"	23'-10"	22'-9"	21'-4"
	NI-80	26'-6"	24'-8"	23'-6"	22'-2"	27'-1"	25'-3"	24'-1"	22'-9"
	NI-90	27'-0"	25'-1"	23'-11"	22'-7"	27'-6"	25'-8"	24'-6"	23'-2"
16"	NI-60	27'-3"	25'-5"	24'-3"	22'-11"	28'-0"	26'-2"	25'-0"	23'-1"
	NI-80	29'-1"	27'-1"	25'-9"	24'-4"	29'-8"	27'-9"	26'-5"	25'-0"
	NI-90	29'-7"	27'-6"	26'-2"	24'-9"	30'-2"	28'-2"	26'-10"	25'-5"

### Notes:

- The tabulated clear spans are based on CSA O86-14 and NBC 2015, and are applicable to residential floor construction meeting the above design criteria.
- For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Minimum bearing length shall be 1-3/4 inch for end bearings, and 3-1/2 inches for intermediate bearings.
- Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
- Nordic I-joists are listed in CCMC Evaluation Report 13032-R and APA Product Report PR-L274C.

The construction details for residential designs are prone to changes.

Details released after April 2014 supersedes N-C301

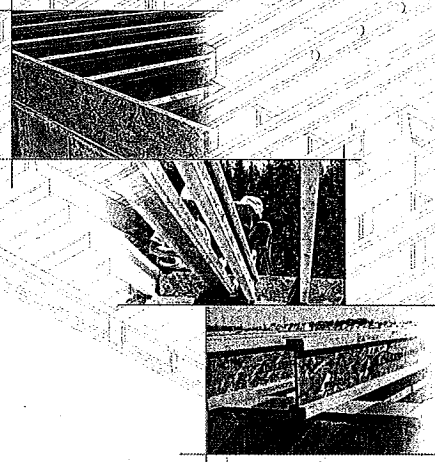
Installation must comply with latest documentation on I-Joist and other Nordic products from the <http://nordic.ca/>

This document does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of its component based on the design criteria and loadings shown on the calculation sheets.

(Nordic Request 1810-095)

# NORDIC ENGINEERED WOOD

## INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



Distributed by:



### 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-joist 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-bridging at joist ends. When I-joists are applied continuously over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
  - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
  - Or, sheathing (temporary or permanent) can be nailed to the top flanges 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-bridging.
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.

### STORAGE AND HANDLING GUIDELINES

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

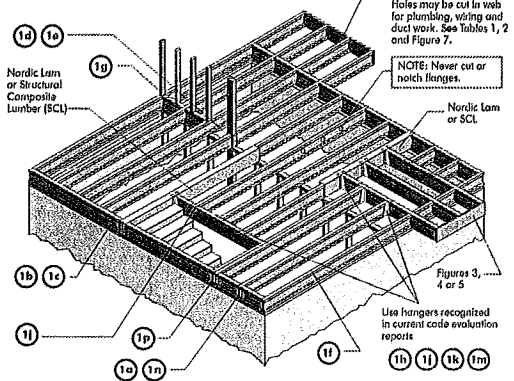


### INSTALLING NORDIC I-JOISTS

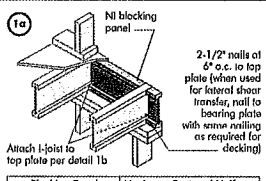
1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contact your supplier.
2. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
4. I-joists must be anchored securely to supports before floor sheathing is attached, and supports for multiple-span joists must be level.
5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
6. When using hangers, seat I-joists firmly in hanger bottoms to minimize settlement.
7. Leave a 1/16-inch gap between the I-joist end and a header.
8. Concentrated loads greater than those that can normally be expected in residential construction should only be applied to the top surface of the top flange. Normal concentrated loads include track lighting fixtures, audio equipment and security cameras. Never suspend unbraced or heavy loads from the I-joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the I-joist. Or, attach the load to blocking that has been securely fastened to the I-joist webs.
9. Never install I-joists where they will be permanently exposed to weather, or where they will remain in direct contact with concrete or masonry.
10. Restrain ends of floor joists to prevent rollover. Use rim board, rim joists or I-joist blocking panels.
11. For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (cripple members) to transfer gravity loads through the floor system to the wall or foundation below.
12. Due to shrinkage, common framing lumber set on edge may never be used as blocking or rim boards. I-joist blocking panels or other engineered wood products – such as rim board – must be cut to fit between the I-joists, and an I-joist-compatible depth selected.
13. Provide permanent lateral support of the bottom flange of all I-joists at interior supports of multiple-span joists. Similarly, support the bottom flange of all cantilevered I-joists at the end support next to the cantilever extension. In the completed structure, the gypsum wallboard ceiling provides this lateral support. Until the final finished ceiling is applied, temporary bracing or struts must be used.
14. If square-edge panels are used, edges must be supported between I-joists with 2x4 blocking. Glue panels to blocking to minimize squeaks. Blocking is not required under structural finish flooring, such as wood strip flooring, or if a separate underlayment layer is installed.
15. Nail spacing: Space nails installed to the flange's top face in accordance with the applicable building code requirements or approved building plans.

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

Some framing requirements such as erection bracing and blocking panels have been omitted for clarity.

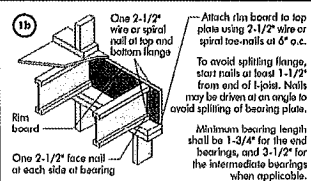


All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.125" dia.) common spiral nails may be substituted for 2-1/2" (0.120" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.



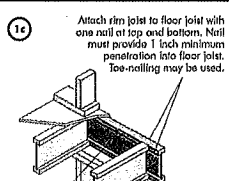
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
Ni Joists	3,300

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



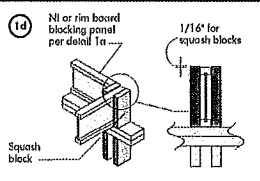
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

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



Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
Ni rim joist per detail 1a	3,300

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



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

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

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## MAXIMUM FLOOR SPANS

- Maximum clear spans applicable to single-span or multiple-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 and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in C085-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
- Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
- Bearing stiffeners are not required when 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 uniform loads, an engineering analysis may be required based on the use of the design properties.
- Tables are based on Unit States Design per CAN/CSA C085-07 Standard, and NBC 2010.
- SI units conversion: 1 inch = 25.4 mm  
1 foot = 0.305 m

## MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS

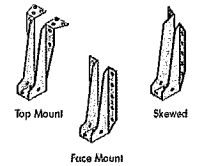
### SINGLE AND MULTIPLE SPANS

Joist Depth	Joist Series	Simple spans				Multiple spans			
		On centre spacing				On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	Ni-20	15'-1"	14'-2"	13'-9"	12'-5"	16'-3"	15'-4"	14'-10"	14'-7"
	Ni-40x	16'-1"	15'-2"	14'-8"	14'-9"	17'-5"	16'-5"	15'-10"	15'-5"
	Ni-60	16'-3"	15'-4"	14'-10"	14'-11"	17'-7"	16'-7"	16'-0"	16'-4"
	Ni-80	17'-1"	16'-1"	15'-4"	15'-7"	18'-7"	17'-4"	16'-9"	17'-2"
11-7/8"	Ni-20	16'-11"	16'-0"	15'-5"	15'-4"	18'-4"	17'-3"	16'-8"	16'-7"
	Ni-40x	18'-1"	17'-0"	16'-5"	16'-8"	20'-0"	18'-9"	17'-9"	17'-7"
	Ni-60	18'-4"	17'-3"	16'-7"	16'-9"	20'-3"	19'-0"	18'-0"	18'-9"
	Ni-80	19'-6"	18'-0"	17'-4"	17'-5"	21'-6"	19'-11"	19'-0"	19'-8"
14"	Ni-20	19'-9"	18'-3"	17'-4"	17'-7"	21'-9"	20'-2"	19'-3"	19'-11"
	Ni-40x	20'-2"	18'-7"	17'-10"	17'-11"	22'-3"	20'-7"	19'-8"	19'-9"
	Ni-60	20'-4"	18'-9"	17'-11"	18'-0"	22'-5"	20'-9"	19'-10"	20'-5"
	Ni-80	21'-1"	19'-1"	18'-1"	18'-2"	22'-7"	20'-11"	20'-10"	20'-10"
16"	Ni-20	20'-5"	18'-11"	18'-1"	18'-2"	22'-7"	20'-11"	20'-10"	20'-10"
	Ni-40x	21'-7"	20'-0"	19'-1"	19'-2"	23'-10"	22'-1"	21'-1"	21'-10"
	Ni-60	21'-11"	20'-3"	19'-4"	19'-5"	24'-3"	22'-5"	21'-5"	22'-2"
	Ni-80	22'-3"	20'-8"	19'-9"	19'-9"	24'-9"	22'-10"	21'-10"	21'-10"

CCMC EVALUATION REPORT 13032-R

## I-JOIST HANGERS

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



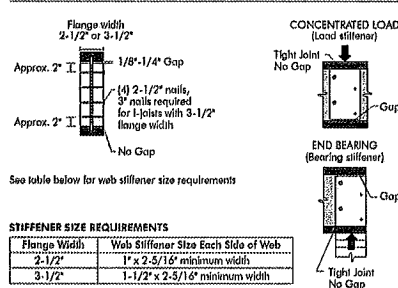
## WEB STIFFENERS

### 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.

SI units conversion: 1 inch = 25.4 mm

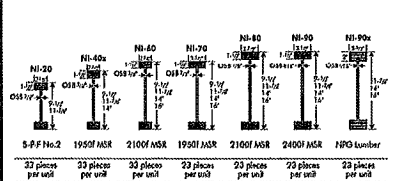
FIGURE 2  
WEB STIFFENER INSTALLATION DETAILS



### STIFFENER SIZE REQUIREMENTS

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

## NORDIC I-JOIST SERIES



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

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

(Nordic Request 1810-095)



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

**1b** Use single I-joist for loads up to 3,300 plf, double I-joists for loads up to 6,600 plf (filler block not required). Attach I-joist to top plate using 2-1/2" nails at 6" o.c.

**1c** Load bearing wall above shall align vertically with the bearing below. Other conditions, such as offset bearing walls, are not covered by this detail.

**1d** Blocking required over all interior supports under load-bearing walls or when floor joists are not continuous over support.

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

**1f** Double I-joist header

**1g** Top- or face-mount hanger

**1h** Filler block per detail 1p

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

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

**1k** Backer blocks (Blocks must be long enough to permit required nailing without spilling)

**1l** Notes: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

**1m** Notes: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

**1n** Notes: Blocking required at bearing for lateral support, not shown for clarity.

**1o** Notes: Blocking required at bearing for lateral support, not shown for clarity.

**1p** Notes: 1. Support back of I-joist web during nailing to prevent damage to web/flange connection. 2. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange. 3. Filler block is required between joists for full length of spans. 4. Nail joists together with two rows of 3" nails at 12 inches o.c. (clinched when possible) on each side of the double I-joist. Total of four nails per foot required. If nails can be clinched, only two nails per foot are required. 5. The maximum factored load that may be applied to one side of the double I-joist using this detail is 860 lb/ft. Verify double I-joist capacity.

**1q** Notes: 1. Lumber 2x4 min., extend block to face of adjacent web. 2. Two 2-1/2" spigot nails from each web to lumber piece, alternate on opposite side. 3. NI blocking panel. 4. Optional: Minimum 1x4 inch strip applied to underside of joist at blocking line or 1/2 inch minimum gypsum ceiling attached to underside of joist.

**1r** Notes: 1. One 2-1/2" nails at top and bottom flange. 2. Two 2-1/2" nails from each web to lumber piece. 3. 2x4 min. (1/8" gap minimum) 4. Two 2-1/2" nails from each web to lumber piece. 5. One 2-1/2" nails one side only. 6. 2-1/2" nails at 6" o.c.

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

**1b** Use single I-joist for loads up to 3,300 plf, double I-joists for loads up to 6,600 plf (filler block not required). Attach I-joist to top plate using 2-1/2" nails at 6" o.c.

**1c** Load bearing wall above shall align vertically with the bearing below. Other conditions, such as offset bearing walls, are not covered by this detail.

**1d** Blocking required over all interior supports under load-bearing walls or when floor joists are not continuous over support.

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

**1f** Double I-joist header

**1g** Top- or face-mount hanger

**1h** Filler block per detail 1p

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

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

**1k** Backer blocks (Blocks must be long enough to permit required nailing without spilling)

**1l** Notes: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

**1m** Notes: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

**1n** Notes: Blocking required at bearing for lateral support, not shown for clarity.

**1o** Notes: Blocking required at bearing for lateral support, not shown for clarity.

**1p** Notes: 1. Support back of I-joist web during nailing to prevent damage to web/flange connection. 2. Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange. 3. Filler block is required between joists for full length of spans. 4. Nail joists together with two rows of 3" nails at 12 inches o.c. (clinched when possible) on each side of the double I-joist. Total of four nails per foot required. If nails can be clinched, only two nails per foot are required. 5. The maximum factored load that may be applied to one side of the double I-joist using this detail is 860 lb/ft. Verify double I-joist capacity.

**1q** Notes: 1. Lumber 2x4 min., extend block to face of adjacent web. 2. Two 2-1/2" spigot nails from each web to lumber piece, alternate on opposite side. 3. NI blocking panel. 4. Optional: Minimum 1x4 inch strip applied to underside of joist at blocking line or 1/2 inch minimum gypsum ceiling attached to underside of joist.

**1r** Notes: 1. One 2-1/2" nails at top and bottom flange. 2. Two 2-1/2" nails from each web to lumber piece. 3. 2x4 min. (1/8" gap minimum) 4. Two 2-1/2" nails from each web to lumber piece. 5. One 2-1/2" nails one side only. 6. 2-1/2" nails at 6" o.c.



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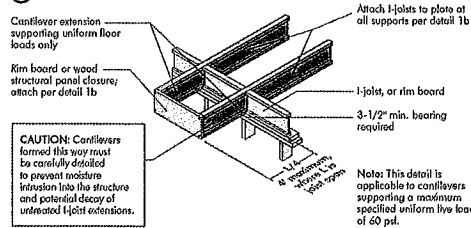
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(Nordic Request 1810-095)

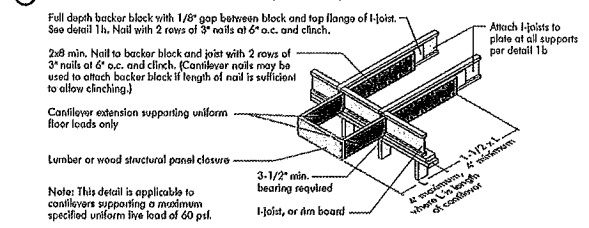


### CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

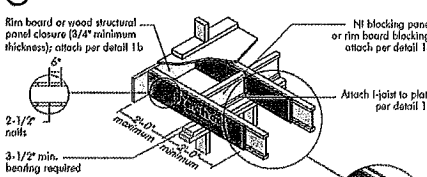


#### 3b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



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

#### 4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE

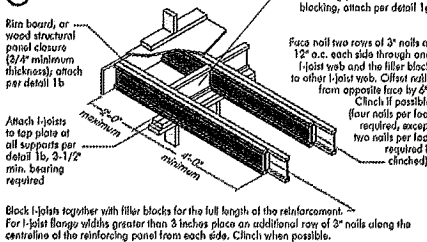


#### Method 2 — SHEATHING REINFORCEMENT TWO SIDES

- Use same 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 9\"/>

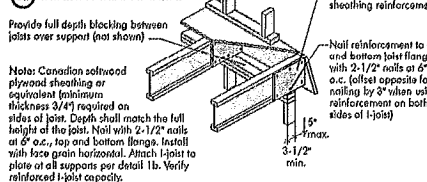
Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4\"/>

#### 4b Alternate Method 2 — DOUBLE I-JOIST

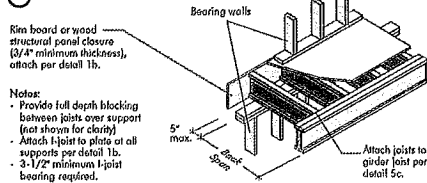


### BRICK CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

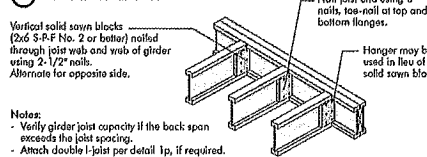
#### 5a SHEATHING REINFORCEMENT



#### 5b SET-BACK DETAIL



#### 5c SET-BACK CONNECTION



#### FIGURE 4 (continued)



#### CANTILEVER REINFORCEMENT METHODS ALLOWED

Joint Depth (in.)	Roof Truss Span (ft)	ROOF LOADING (UNFACTORED)											
		LL = 30 psf, DL = 15 psf				LL = 40 psf, DL = 15 psf				LL = 50 psf, DL = 15 psf			
		Joint Spacing (in.)				Joint Spacing (in.)				Joint Spacing (in.)			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2	26	N	N	1	2	N	1	2	X	N	2	X	X
	28	N	N	1	X	N	1	2	X	N	2	X	X
	30	N	1	1	X	N	1	2	X	N	1	2	X
	32	N	1	2	X	N	2	X	X	N	1	2	X
	34	N	1	2	X	N	2	X	X	N	1	1	X
11-7/8	26	N	1	2	X	N	1	2	X	N	1	1	X
	28	N	1	2	X	N	1	2	X	N	1	1	X
	30	N	1	2	X	N	1	2	X	N	1	1	X
	32	N	1	2	X	N	1	2	X	N	1	1	X
	34	N	1	2	X	N	1	2	X	N	1	1	X
14	26	N	N	N	N	N	N	N	N	N	N	N	N
	28	N	N	N	N	N	N	N	N	N	N	N	N
	30	N	N	N	N	N	N	N	N	N	N	N	N
	32	N	N	N	N	N	N	N	N	N	N	N	N
	34	N	N	N	N	N	N	N	N	N	N	N	N
16	26	N	N	N	N	N	N	N	N	N	N	N	N
	28	N	N	N	N	N	N	N	N	N	N	N	N
	30	N	N	N	N	N	N	N	N	N	N	N	N
	32	N	N	N	N	N	N	N	N	N	N	N	N
	34	N	N	N	N	N	N	N	N	N	N	N	N

- N = No reinforcement required.
- 1 = N1 reinforced with 3/4\"/>

#### FIGURE 5 (continued)



#### BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

Joint Depth (in.)	Roof Truss Span (ft)	ROOF LOADING (UNFACTORED)											
		LL = 30 psf, DL = 15 psf				LL = 40 psf, DL = 15 psf				LL = 50 psf, DL = 15 psf			
		Joint Spacing (in.)				Joint Spacing (in.)				Joint Spacing (in.)			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2	26	1	X	X	X	2	X	X	X	2	X	X	X
	28	1	X	X	X	2	X	X	X	2	X	X	X
	30	1	X	X	X	2	X	X	X	2	X	X	X
	32	2	X	X	X	2	X	X	X	2	X	X	X
	34	2	X	X	X	2	X	X	X	2	X	X	X
11-7/8	26	1	X	X	X	2	X	X	X	2	X	X	X
	28	1	X	X	X	2	X	X	X	2	X	X	X
	30	1	X	X	X	2	X	X	X	2	X	X	X
	32	1	X	X	X	2	X	X	X	2	X	X	X
	34	1	X	X	X	2	X	X	X	2	X	X	X
14	26	N	2	X	X	N	2	X	X	N	2	X	X
	28	N	2	X	X	N	2	X	X	N	2	X	X
	30	1	2	X	X	1	X	X	X	2	X	X	X
	32	1	X	X	X	1	X	X	X	2	X	X	X
	34	1	X	X	X	2	X	X	X	2	X	X	X
16	26	1	X	X	X	2	X	X	X	2	X	X	X
	28	1	X	X	X	2	X	X	X	2	X	X	X
	30	1	X	X	X	2	X	X	X	2	X	X	X
	32	1	X	X	X	2	X	X	X	2	X	X	X
	34	1	X	X	X	2	X	X	X	2	X	X	X

- N = No reinforcement required.
- 1 = N1 reinforced with 3/4\"/>



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## WEB HOLES

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

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

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

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of hole (8 in.)												Span adjustment factor
		2	3	4	5	6	7	8	9	10	11	12	13	
9-1/2"	N100	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N140	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N170	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N200	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
11-7/8"	N100	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N140	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N170	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N200	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
14"	N100	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N140	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N170	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N200	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
16"	N100	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N140	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N170	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N200	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0

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 support to centre of hole.  
3. Distances in this chart are based on uniformly loaded joists.

### OPTIONAL:

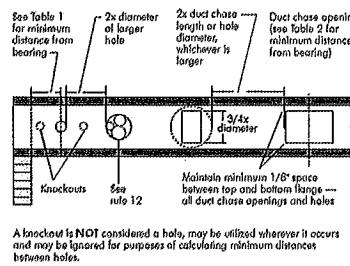
The above table is based on the I-Joist used at first maximum span. If the I-Joists are placed at less than their full maximum span (see Maximum Floor Span), the minimum distance from the centreline of the hole to the face of any support (D) as given above may be reduced as follows:

$$\text{Reduced } D = \frac{\text{Actual Span}}{\text{Full Span}} \times D$$

Where:

- Reduced = Distance from the inside face of any support to centre of hole, reduced for first span maximum span applications (D).
- Actual = The actual measured span distance between the inside faces of supports (S).
- Full = Span Adjustment Factor given in this table.
- The minimum distance from the inside face of any support to centre of hole from this table.
- If Actual is greater than 1, use 1 in the above calculation for Actual.

FIGURE 7  
FIELD-CUT HOLE LOCATOR



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

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

Holes in webs should be cut with a sharp saw.

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

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of opening (8 in.)												Span adjustment factor
		2	3	4	5	6	7	8	9	10	11	12	13	
9-1/2"	N100	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N140	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N170	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N200	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
11-7/8"	N100	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N140	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N170	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N200	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
14"	N100	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N140	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N170	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N200	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
16"	N100	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N140	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N170	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0
	N200	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2	1.0

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 support to centre of opening.  
3. The above table is based on simple span joists only. For other applications, consult your local distributor.  
4. Distances are based on uniform 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/400. For other applications, consult your local distributor.

## INSTALLING THE GLUED FLOOR SYSTEM

- Wipe any mud, dirt, water, or ice from I-Joist flanges before gluing.
- Snap a chalk line across the I-Joists four feet from the wall for panel edge alignment and as a boundary for spreading glue.
- Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from the glue manufacturer.
- Lay the first panel with tongue side to the wall, and nail in place. This protects the tongue of the next panel from damage when tapped into place with a block and sledgehammer.
- Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-Joist. Apply glue in a wavy pattern on wide areas, such as with double I-Joists.
- Apply two lines of glue on I-Joists where panel ends butt to assure proper gluing of each end.
- 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.
- Tap the second row of panels into place, using a block to protect groove edges.
- Stagger and joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8 inch at all edges, including T&G edges, is recommended. (Use a spacer block or an 1/8" common nail to assure accurate and consistent spacing.)
- 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<sup>(1)</sup>

Maximum Joist Spacing (in.)	Minimum Panel Thickness (in.)	Nail Size and Type				Maximum Spacing of Fasteners	
		Common Wire or Spiral Nails	Ring Threaded Nails or Screws	Staples		Edges	Interior Supports
16	5/8	2"	1-3/4"	2"		6"	12"
20	5/8	2"	1-3/4"	2"		6"	12"
24	3/4	2"	1-3/4"	2"		6"	12"

- Fasteners of sheathing and subflooring shall conform to the above table.
- 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.
- Flooring screws shall not be less than 1/8-inch in diameter.
- Special conditions may impose heavy traffic and concentrated loads that require construction in excess of the minimums shown.
- Use only adhesives conforming to CAN/CSB-71.26 Standard, Adhesives for Field-Gluing Plywood to Lumber Framing for Floor System, applied in accordance with the manufacturer's recommendations. If OSB panels with sealed surfaces and edges are to be used, use only solvent-based glues check with panel manufacturer.

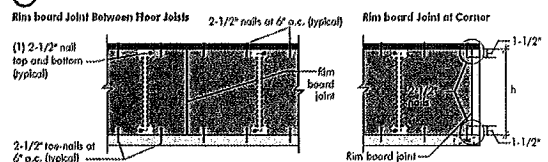
Ref.: NBC-CNBC, National Building Code of Canada 2010, Table 9.23.3.5.

### IMPORTANT NOTE:

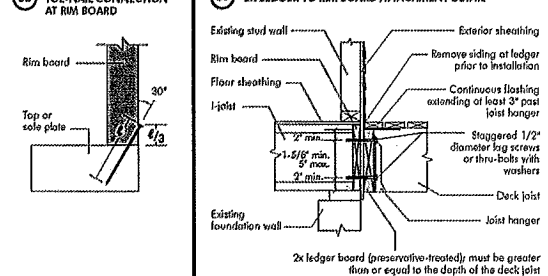
Floor sheathing must be field glued to the I-Joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-Joist spans must be verified with your local distributor.

## RIM BOARD INSTALLATION DETAILS

### (a) ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



### (b) TOE-NAIL CONNECTION AT RIM BOARD



## PRODUCT WARRANTY

Chattler Clivogren guarantees that, in accordance with our specifications, Nordic products are free from manufacturing defect in material and workmanship.

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



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

### WEB HOLE SPECIFICATIONS

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

1. The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
2. I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
3. Whenever possible, field-cut holes should be centred on the middle of the web.
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 longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
6. Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole/duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
7. A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
8. Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.

9. A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
10. All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
11. Limit three maximum size holes per span, of which one may be a duct chase opening.
12. A group of round holes of approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

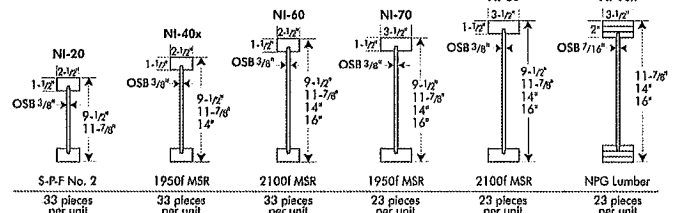
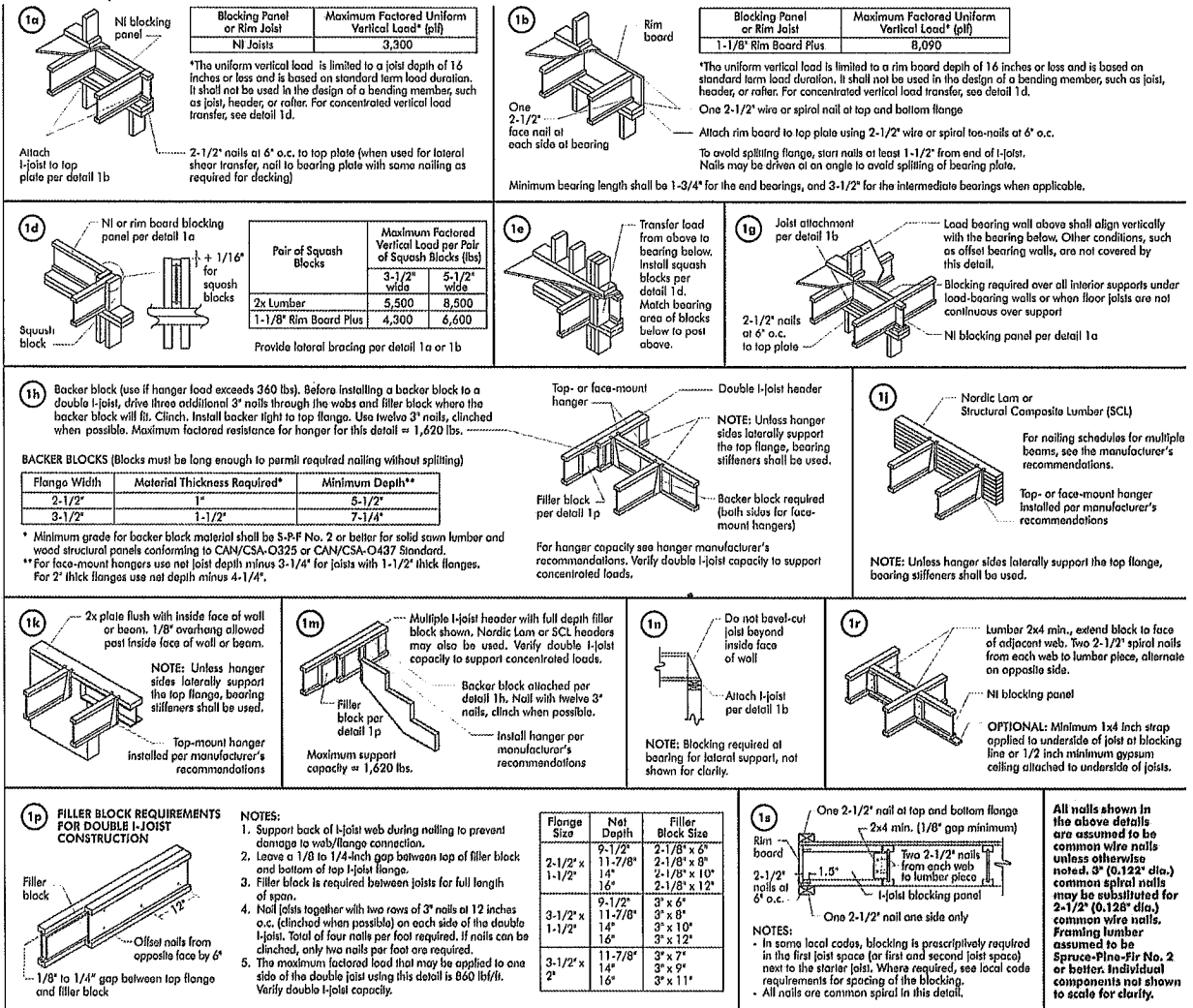


TABLE 1

### LOCATION OF CIRCULAR HOLES IN JOIST WEBS

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

Joist Depth	Joist Series	Minimum Distance from Inside Face of Any Support to Centre of Hole (ft - in.)														
		Round Hole Diameter (in.)														
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-3/4
9-1/2"	NI-20	0'-7"	1'-6"	2'-10"	4'-3"	5'-8"	6'-0"	...	...	...	...	...	...	...	...	...
	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-70	2'-0"	3'-4"	4'-9"	6'-3"	8'-0"	8'-4"	...	...	...	...	...	...	...	...	...
	NI-80	2'-3"	3'-6"	5'-0"	6'-6"	8'-2"	8'-8"	...	...	...	...	...	...	...	...	...
11-7/8"	NI-20	0'-7"	0'-8"	1'-0"	2'-4"	3'-8"	4'-0"	5'-0"	6'-6"	7'-9"	...	...	...	...	...	...
	NI-40x	0'-7"	0'-8"	1'-3"	2'-8"	4'-0"	4'-4"	5'-5"	7'-0"	8'-4"	...	...	...	...	...	...
	NI-60	0'-7"	1'-8"	3'-0"	4'-3"	5'-9"	6'-0"	7'-3"	8'-10"	10'-0"	...	...	...	...	...	...
	NI-70	1'-3"	2'-6"	4'-0"	5'-4"	6'-9"	7'-2"	8'-4"	10'-0"	11'-2"	...	...	...	...	...	...
	NI-80	1'-6"	2'-10"	4'-2"	5'-6"	7'-0"	7'-5"	8'-8"	10'-3"	11'-4"	...	...	...	...	...	...
14"	NI-90x	0'-7"	0'-8"	0'-8"	1'-0"	2'-4"	4'-1"	4'-9"	6'-3"	...	...	...	...	...	...	...
	NI-40x	0'-7"	0'-8"	0'-8"	1'-0"	2'-4"	2'-9"	3'-9"	5'-2"	6'-0"	6'-6"	8'-3"	10'-2"	...	...	...
	NI-60	0'-7"	0'-8"	1'-8"	3'-0"	4'-3"	4'-8"	5'-8"	7'-2"	8'-0"	8'-8"	10'-4"	11'-9"	...	...	...
	NI-70	0'-8"	1'-10"	3'-0"	4'-5"	5'-10"	6'-2"	7'-3"	8'-9"	9'-9"	10'-4"	10'-8"	12'-0"	13'-5"	...	...
	NI-80	0'-10"	2'-0"	3'-4"	4'-9"	6'-2"	6'-5"	7'-6"	9'-0"	10'-0"	10'-8"	12'-4"	13'-9"	...	...	...
16"	NI-90x	0'-7"	0'-8"	0'-8"	2'-0"	3'-9"	4'-2"	5'-5"	7'-3"	8'-5"	9'-2"	...	...	...	...	...
	NI-60	0'-7"	0'-8"	0'-8"	1'-6"	2'-10"	3'-2"	4'-2"	6'-4"	6'-8"	7'-0"	8'-5"	9'-8"	10'-2"	12'-2"	13'-9"
	NI-70	0'-7"	1'-0"	2'-3"	3'-6"	4'-10"	5'-3"	6'-3"	7'-8"	8'-6"	9'-2"	10'-8"	12'-0"	12'-4"	14'-0"	15'-6"
	NI-80	0'-7"	1'-3"	2'-6"	3'-10"	5'-3"	5'-6"	6'-6"	8'-0"	9'-0"	9'-5"	11'-0"	12'-3"	12'-9"	14'-5"	16'-0"
	NI-90x	0'-7"	0'-8"	0'-8"	2'-0"	3'-6"	4'-0"	5'-0"	6'-9"	7'-2"	8'-4"	10'-2"	11'-6"	12'-0"	...	...



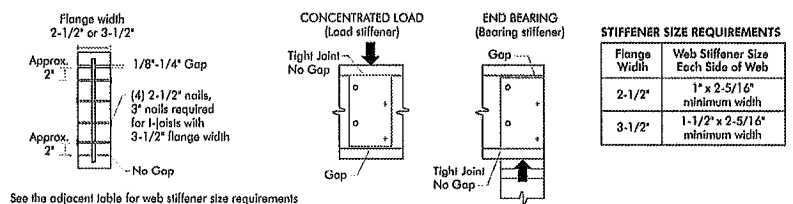
## WEB STIFFENERS

## RECOMMENDATIONS:

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

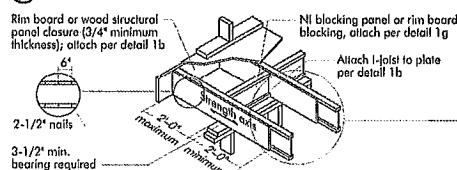
FIGURE 2

## WEB STIFFENER INSTALLATION DETAILS



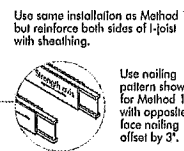
## CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

## Method 1 — SHEATHING REINFORCEMENT ONE SIDE



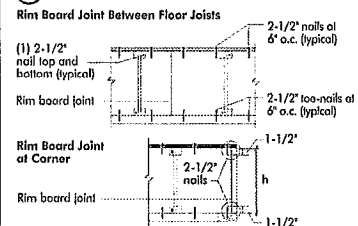
NOTE: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail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

## Method 2 — SHEATHING REINFORCEMENT TWO SIDES

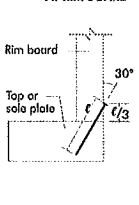


## RIM BOARD INSTALLATION DETAILS

## 8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



## 8b TOE-NAIL CONNECTION AT RIM BOARD



The construction details for residential designs are prone to changes.

Details released after September 2013 supersedes N-303

Installation must comply with latest documentation on I-Joist and other Nordic products from the <http://nordic.ca/>

This document does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of its component based on the design criteria and loadings shown on the calculation sheets.

