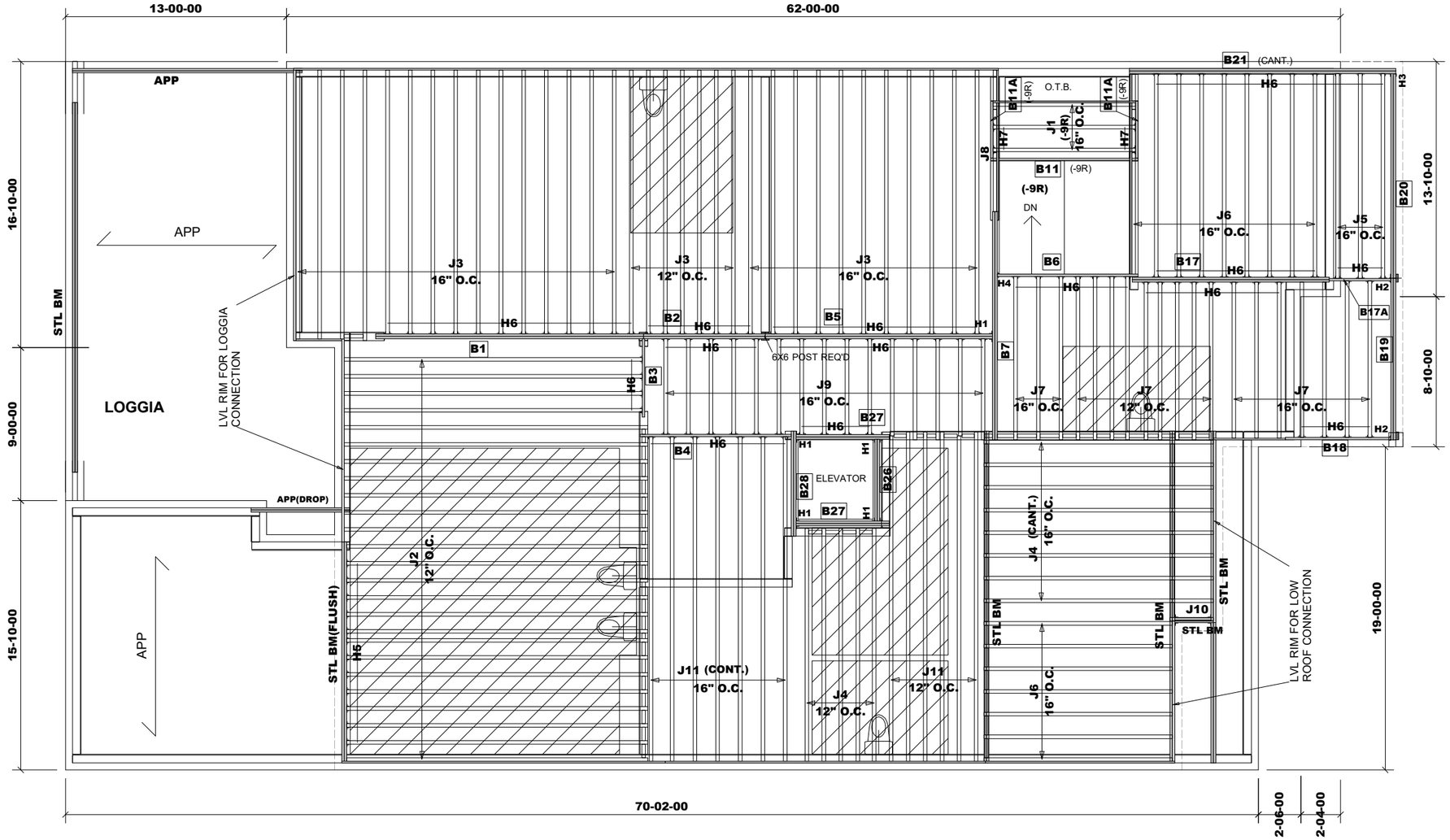


Products				
PlotID	Length	Product	Plies	Net Qty
B1	16-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B2	8-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B3	5-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B4	9-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B5	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B6	9-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B7	14-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B11	9-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B11A	4-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	2
B17	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B17A	4-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B18	7-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B19	10-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B20	13-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B21	16-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B26	5-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B27	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	4
B28	7-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
Bk1	58-00-00	11 7/8" NI-20	1	1
Ca1	47-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
Ca2	9-00-00	1 1/8" x 9 1/2" Rim Board	1	1
Ca3	120-00-00	1 1/8" x 11 7/8" Rim Board	1	1
J1	9-00-00	9 1/2" NI-20	1	3
J2	18-00-00	11 7/8" NI-20	1	25
J3	16-00-00	11 7/8" NI-20	1	33
J4	14-00-00	11 7/8" NI-20	1	13
J5	13-00-00	11 7/8" NI-20	1	3
J6	12-00-00	11 7/8" NI-20	1	16
J7	10-00-00	11 7/8" NI-20	1	19
J8	9-00-00	11 7/8" NI-20	1	1
J9	6-00-00	11 7/8" NI-20	1	15
J10	3-00-00	11 7/8" NI-20	1	1
J11	20-00-00	11 7/8" NI-40x	1	13

Connector Summary			
PlotID	Qty	Manuf	Product
H1	5		HGUS410
H2	2		HUCQ1.81/9-SDS
H3	1		HUCQ410-SDS
H4	1		HUS1.81/10
H5	12		LF259
H6	110		LT251188
H7	4		LT259

RIMBOARD

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

SUBFLOOR - 3/4" NAILED & GLUED **

APP - AS PER PLAN
BBO - BEAM BY OTHERS

DESIGN LOADING:

LIVE LOAD = 40 PSF
DEAD LOAD = 15 PSF
DEAD LOAD @TILE = 20 PSF

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

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

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

Refer to manufacturer's specifications: (Nordic Engineered Wood Products - Construction Details Nordic Joist) NS-DC3 latest edition.

MODEL: 5005MOD - EL.C - LOT 56

Second Floor Framing

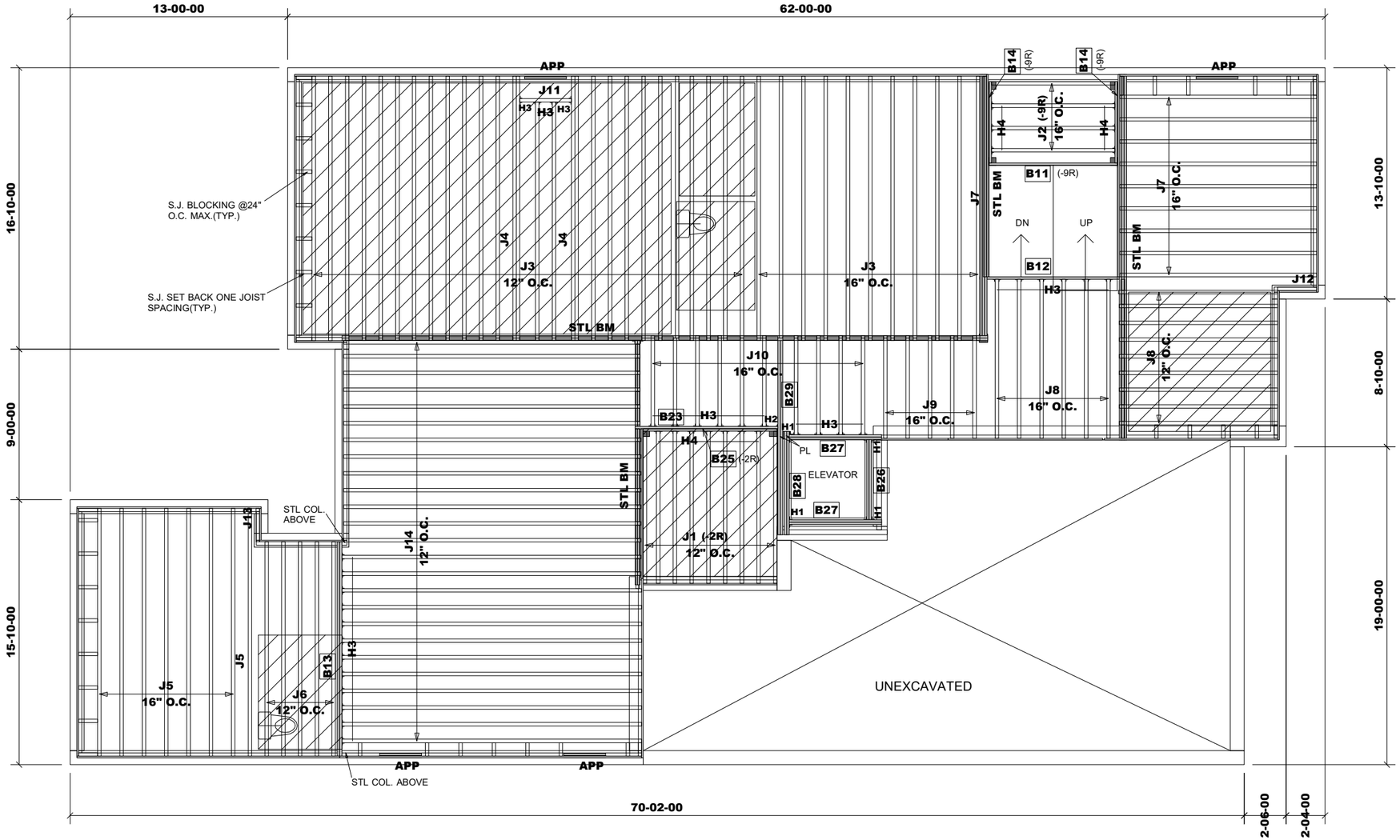
Do not scale - refer to architectural plans for dimensions

Ceramic Tile

SE007862 - SE007907

Job Track:	45147	Builder:	Gold Park	Location:	Vaughan	Sheet:	1 of 2
Layout ID:	290684-360052	Project:	Pine Valley PH.2	SalesPerson:	Derek	Date:	2023/10/25
Plan Log:	123668	Model:	5005MOD-C-LOT 56	Yard:	Home Lumber	Designer:	NL

Mitek V. 8.5.3.233



Products				
PlotID	Length	Product	Plies	Net Qty
B11	9-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B12	9-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B13	13-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B14	5-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	2
B23	9-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	1	1
B25	9-00-00	1-3/4" x 9-1/2" VERSA-LAM® 2.0 3100 SP	1	1
B26	5-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B27	6-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	4
B28	7-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
B29	12-00-00	1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP	2	2
Bk1	82-00-00	11 7/8" NI-20	1	1
Ca1	9-00-00	1 1/8" x 9 1/2" Rim Board	1	1
Ca2	242-00-00	1 1/8" x 11 7/8" Rim Board	1	1
J1	10-00-00	9 1/2" NI-20	1	9
J2	8-00-00	9 1/2" NI-20	1	4
J3	16-00-00	11 7/8" NI-20	1	35
J4	16-00-00	11 7/8" NI-20	2	4
J5	15-00-00	11 7/8" NI-20	1	8
J6	13-00-00	11 7/8" NI-20	1	5
J7	12-00-00	11 7/8" NI-20	1	10
J8	10-00-00	11 7/8" NI-20	1	15
J9	7-00-00	11 7/8" NI-20	1	5
J10	6-00-00	11 7/8" NI-20	1	10
J11	4-00-00	11 7/8" NI-20	1	1
J12	3-00-00	11 7/8" NI-20	1	1
J13	2-00-00	11 7/8" NI-20	1	1
J14	18-00-00	11 7/8" NI-40x	1	25

Connector Summary			
PlotID	Qty	Manuf	Product
H1	4		HGUS410
H2	1		HUS1.81/10
H3	33		LT251188
H4	13		LT259

DESIGN LOADING:

LIVE LOAD = 40 PSF
DEAD LOAD = 15 PSF
DEAD LOAD @TILE = 20 PSF

RIMBOARD

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

SUBFLOOR - 3/4" NAILED & GLUED **

APP - AS PER PLAN
BBO - BEAM BY OTHERS

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

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

Refer to manufacturer's specifications:
(Nordic Engineered Wood Products - Construction Details Nordic Joist) NS-DC3 latest edition.

MODEL: 5005MOD - EL.C - LOT 56

First Floor Framing

Do not scale - refer to architectural plans for dimensions

Ceramic Tile

Job Track:	45147	Builder:	Gold Park	Location:	Vaughan	Sheet:	2 of 2
Layout ID:	290684-360052	Project:	Pine Valley PH.2	SalesPerson:	Derek	Date:	2023/10/25
Plan Log:	123668	Model:	5005MOD-C-LOT 56	Yard:	Home Lumber	Designer:	NL

Mitek V. 8.5.3.233

Boise Cascade

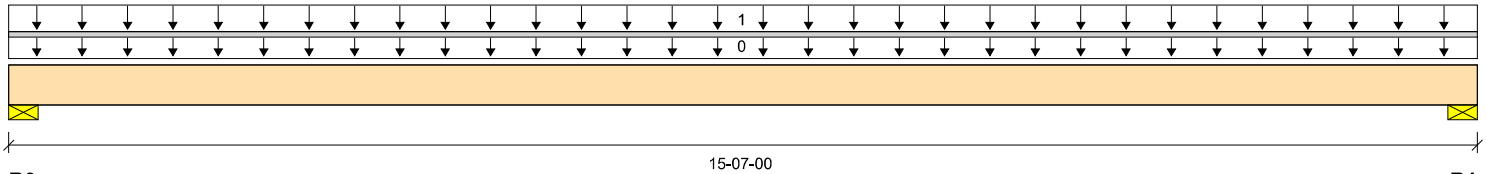
Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP

PASSED

B01 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29
Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 15-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	2708 / 0	1448 / 0		
B1, 3"	2694 / 0	1440 / 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	15-07-00	Top		12			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	15-07-00	Top	40	20			08-08-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	21614 ft-lbs	35392 ft-lbs	61.1%	1	07-09-12
End Shear	4910 lbs	14464 lbs	33.9%	1	01-03-06
Total Load Deflection	L/281 (0.648")	n\a	85.5%	4	07-09-12
Live Load Deflection	L/431 (0.423")	n\a	83.6%	5	07-09-12
Max Defl.	0.648"	n\a	64.8%	4	07-09-12
Span / Depth	15.3				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	5873 lbs	77.9%	39.3%	Spruce-Pine-Fir
B1	Wall/Plate	3" x 3-1/2"	5841 lbs	90.4%	45.6%	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 @ 10" O/C,
STAGGERED IN 2 ROWS

SE007862

Boise Cascade

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

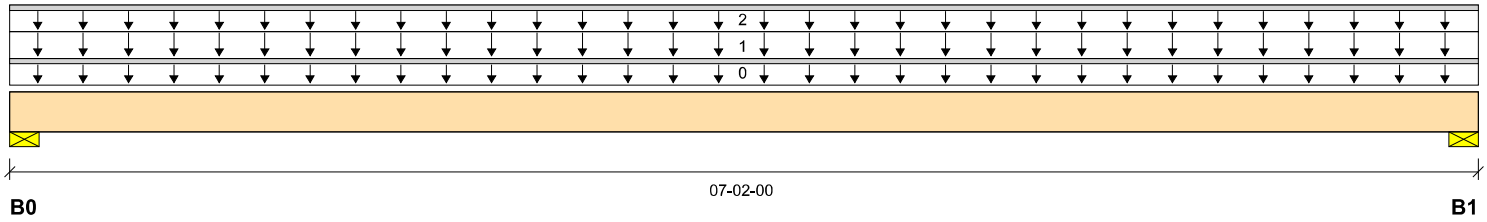
PASSED

B02 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 07-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3"	1577 / 0	1046 / 0		
B1, 3"	1577 / 0	1046 / 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	07-02-00	Top		12			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	07-02-00	Top	40	20			11-00-00
2		Unf. Lin. (lb/ft)	L	00-00-00	07-02-00	Top		60			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5910 ft-lbs	35392 ft-lbs	16.7%	1	03-07-00
End Shear	2402 lbs	14464 lbs	16.6%	1	01-02-14
Total Load Deflection	L/999 (0.036")	n\a	n\a	4	03-07-00
Live Load Deflection	L/999 (0.022")	n\a	n\a	5	03-07-00
Max Defl.	0.036"	n\a	n\a	4	03-07-00
Span / Depth	6.9				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3" x 3-1/2"	3673 lbs	56.9%	28.7%	Spruce-Pine-Fir
B1	Wall/Plate	3" x 3-1/2"	3673 lbs	56.9%	28.7%	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 @ 10" O/C,
STAGGERED IN 2 ROWS

SE007863

Boise Cascade

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

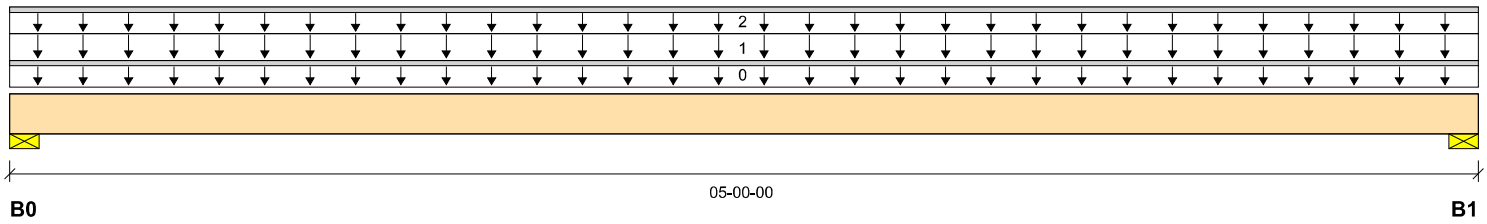
PASSED

B03 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 05-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	967 / 0	648 / 0		
B1, 3-1/2"	967 / 0	648 / 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	05-00-00	Top		6			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	05-00-00	Top	40	20			09-08-00
2		Unf. Lin. (lb/ft)	L	00-00-00	05-00-00	Top		60			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2331 ft-lbs	17696 ft-lbs	13.2%	1	02-06-00
End Shear	1102 lbs	7232 lbs	15.2%	1	01-03-06
Total Load Deflection	L/999 (0.013")	n\a	n\a	4	02-06-00
Live Load Deflection	L/999 (0.008")	n\a	n\a	5	02-06-00
Max Defl.	0.013"	n\a	n\a	4	02-06-00
Span / Depth	4.6				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	2260 lbs	60.0%	30.3%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	2260 lbs	60.0%	30.3%	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

SE007864

Boise Cascade

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

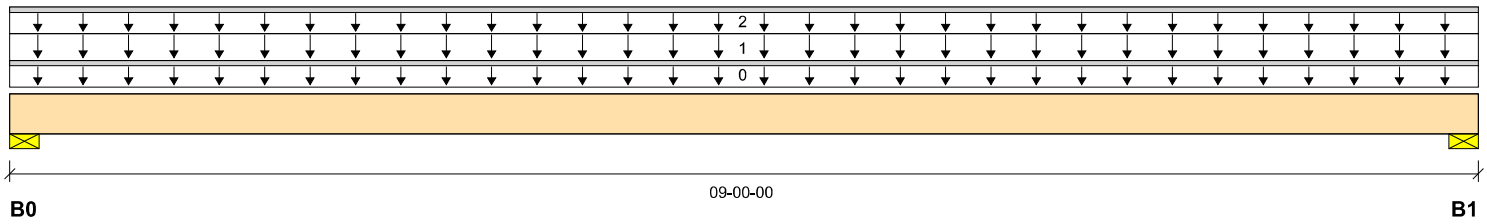
PASSED

B04 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 09-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1350 / 0	803 / 0		
B1, 3-1/2"	1350 / 0	803 / 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	09-00-00	Top		6			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	09-00-00	Top	40	15			07-06-00
2		Unf. Lin. (lb/ft)	L	00-00-00	09-00-00	Top		60			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	6139 ft-lbs	17696 ft-lbs	34.7%	1	04-06-00
End Shear	2167 lbs	7232 lbs	30.0%	1	01-03-06
Total Load Deflection	L/999 (0.117")	n\a	n\a	4	04-06-00
Live Load Deflection	L/999 (0.074")	n\a	n\a	5	04-06-00
Max Defl.	0.117"	n\a	n\a	4	04-06-00
Span / Depth	8.6				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	3029 lbs	80.4%	40.5%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	3029 lbs	80.4%	40.5%	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

SE007865

Boise Cascade

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

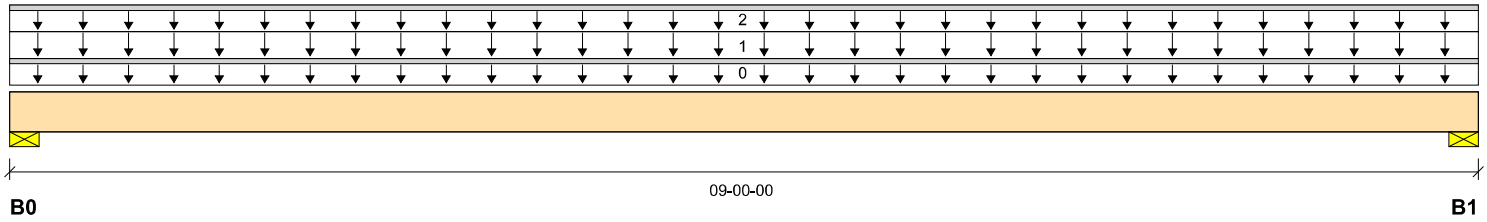
PASSED

B4A (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 09-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	2250 / 0	1168 / 0		
B1, 3-1/2"	2250 / 0	1168 / 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	09-00-00	Top		12			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	09-00-00	Top	40	15			12-06-00
2		Unf. Lin. (lb/ft)	L	00-00-00	09-00-00	Top		60			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	9799 ft-lbs	35392 ft-lbs	27.7%	1	04-06-00
End Shear	3458 lbs	14464 lbs	23.9%	1	01-03-06
Total Load Deflection	L/999 (0.093")	n\a	n\a	4	04-06-00
Live Load Deflection	L/999 (0.061")	n\a	n\a	5	04-06-00
Max Defl.	0.093"	n\a	n\a	4	04-06-00
Span / Depth	8.6				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	4835 lbs	64.2%	32.4%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	4835 lbs	64.2%	32.4%	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

NAIL ONE PLY TO ANOTHER WITH 3-1/2" SPIRAL NAILS @ 6" O/C,
STAGGERED IN 2 ROWS

SE007866

Boise Cascade

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

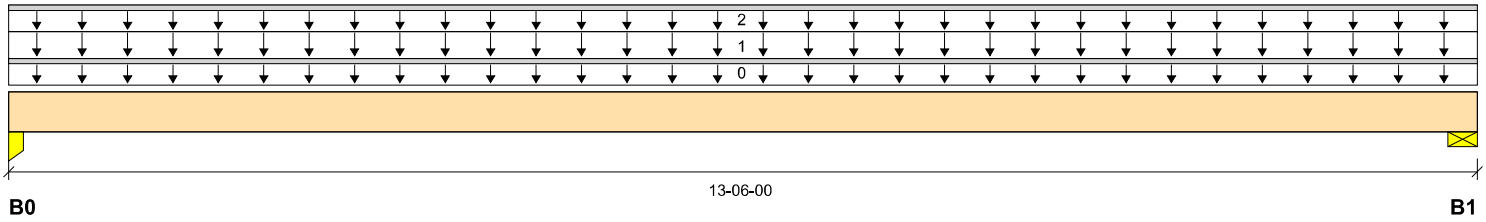
PASSED

B05 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 13-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3"	3095 / 0	2032 / 0		
B1, 3-1/2"	3115 / 0	2045 / 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	13-06-00	Top		12			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	13-06-00	Top	40	20			11-06-00
2		Unf. Lin. (lb/ft)	L	00-00-00	13-06-00	Top		60			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	22842 ft-lbs	35392 ft-lbs	64.5%	1	06-08-12
End Shear	5860 lbs	14464 lbs	40.5%	1	01-02-14
Total Load Deflection	L/305 (0.514")	n\a	78.6%	4	06-08-12
Live Load Deflection	L/506 (0.31")	n\a	71.2%	5	06-08-12
Max Defl.	0.514"	n\a	51.4%	4	06-08-12
Span / Depth	13.2				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Column	3" x 3-1/2"	7184 lbs	39.4%	56.1%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	7228 lbs	95.9%	48.4%	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

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

SE007867

Boise Cascade

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

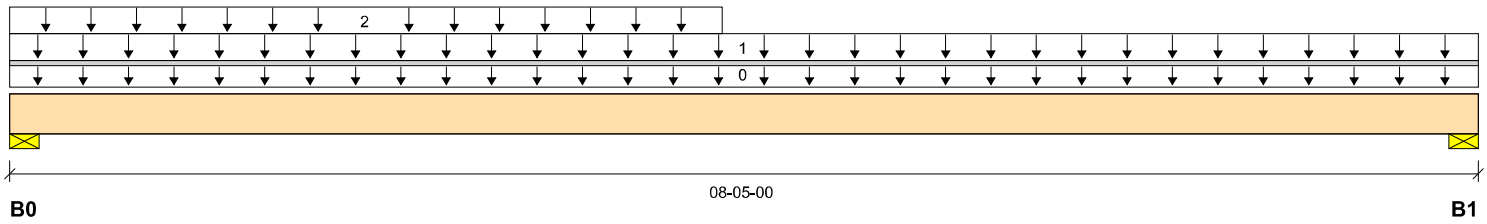
PASSED

B06 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 08-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1346 / 0	635 / 0		
B1, 3-1/2"	991 / 0	502 / 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	08-05-00	Top		6			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	08-05-00	Top	40	20			05-00-00
2		Unf. Area (lb/ft²)	L	00-00-00	04-01-00	Top	40	15			04-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	4666 ft-lbs	17696 ft-lbs	26.4%	1	03-08-13
End Shear	1855 lbs	7232 lbs	25.6%	1	01-03-06
Total Load Deflection	L/999 (0.076")	n\a	n\a	4	04-01-00
Live Load Deflection	L/999 (0.051")	n\a	n\a	5	04-01-00
Max Defl.	0.076"	n\a	n\a	4	04-01-00
Span / Depth	8.0				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	2813 lbs	74.6%	37.6%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	2114 lbs	56.1%	28.3%	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

SE007868

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

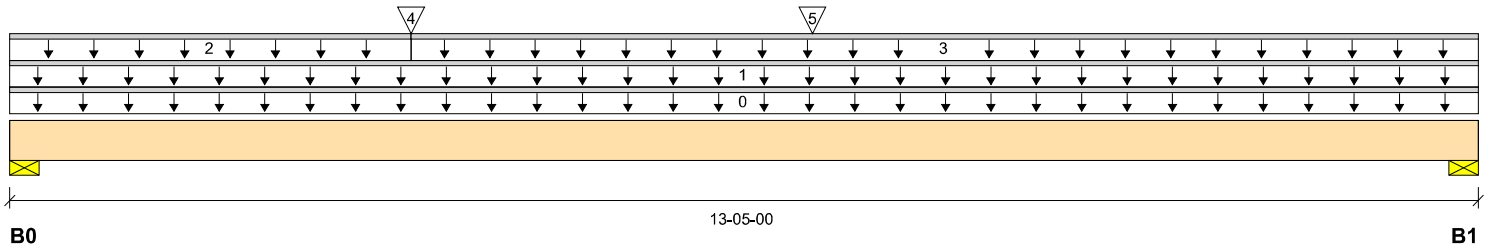
PASSED

B07 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 13-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	2672 / 0	1807 / 0		
B1, 3-1/2"	2415 / 0	1579 / 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	13-05-00	Top		12			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	13-05-00	Top	27	14			n\a
2		Unf. Lin. (lb/ft)	L	00-00-00	03-08-00	Top		60			n\a
3		Unf. Lin. (lb/ft)	L	03-08-00	13-05-00	Top	27	14			n\a
4		Conc. Pt. (lbs)	L	03-08-00	03-08-00	Top	1346	635			n\a
5		Conc. Pt. (lbs)	L	07-04-00	07-04-00	Top	3115	2045			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	30341 ft-lbs	35392 ft-lbs	85.7%	1	07-04-00
End Shear	6077 lbs	14464 lbs	42.0%	1	01-03-06
Total Load Deflection	L/265 (0.586")	n\a	90.4%	4	06-07-12
Live Load Deflection	L/436 (0.356")	n\a	82.5%	5	06-07-12
Max Defl.	0.586"	n\a	58.6%	4	06-07-12
Span / Depth	13.1				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	6266 lbs	83.2%	41.9%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	5596 lbs	74.2%	37.4%	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

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

SE007869

Boise Cascade

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

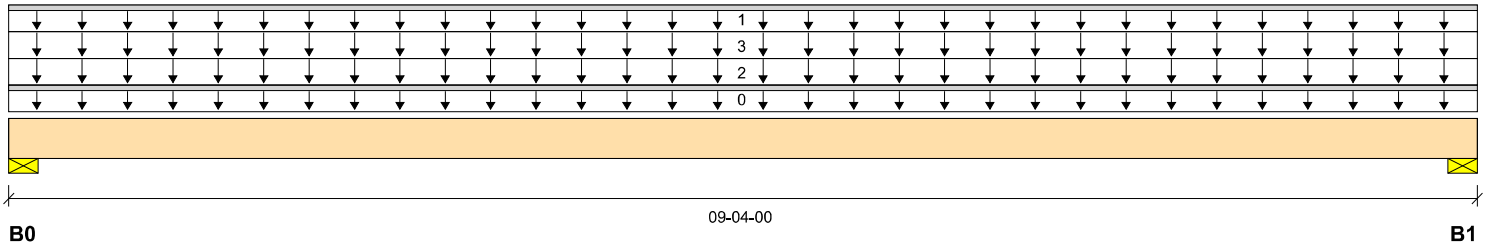
PASSED

B08 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 09-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	126 / 0	1148 / 0	1400 / 0	
B1, 3-1/2"	126 / 0	1148 / 0	1400 / 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	09-04-00	Top		12			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	09-04-00	Top	27	114			n\a
2		Unf. Area (lb/ft²)	L	00-00-00	09-04-00	Top		14	21		05-00-00
3		Unf. Area (lb/ft²)	L	00-00-00	09-04-00	Top		20	78		02-06-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	7724 ft-lbs	35392 ft-lbs	21.8%	5	04-08-00
End Shear	2656 lbs	14464 lbs	18.4%	5	01-03-06
Total Load Deflection	L/999 (0.078")	n\a	n\a	11	04-08-00
Live Load Deflection	L/999 (0.042")	n\a	n\a	15	04-08-00
Max Defl.	0.078"	n\a	n\a	11	04-08-00
Span / Depth	9.0				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	3661 lbs	48.6%	24.5%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	3661 lbs	48.6%	24.5%	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 @ 12" O/C,
STAGGERED IN 2 ROWS - TOP LOADED

SE007870

Boise Cascade

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

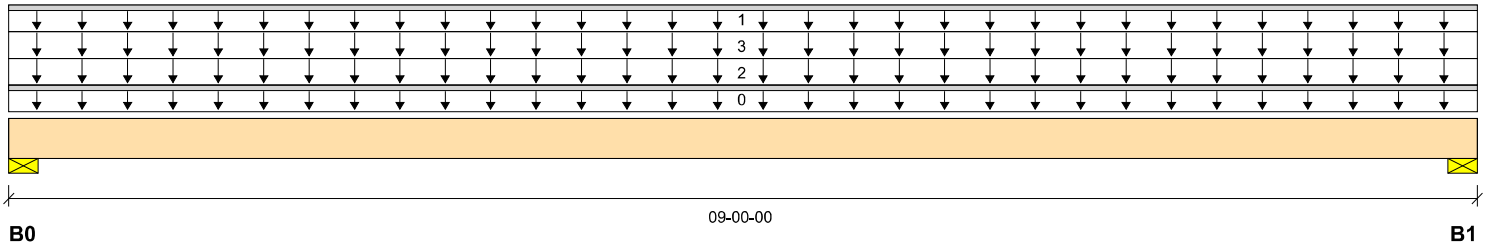
PASSED

B09 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 09-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	121 / 0	783 / 0	540 / 0	
B1, 3-1/2"	122 / 0	783 / 0	540 / 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	09-00-00	Top		12			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	09-00-00	Top	27	114			n\a
2		Unf. Area (lb/ft²)	L	00-00-00	09-00-00	Top		14	21		02-00-00
3		Unf. Area (lb/ft²)	L	00-00-00	09-00-00	Top		20	78		01-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3872 ft-lbs	35392 ft-lbs	10.9%	5	04-06-00
End Shear	1367 lbs	14464 lbs	9.4%	5	01-03-06
Total Load Deflection	L/999 (0.038")	n\a	n\a	11	04-06-00
Live Load Deflection	L/999 (0.017")	n\a	n\a	15	04-06-00
Max Defl.	0.038"	n\a	n\a	11	04-06-00
Span / Depth	8.6				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	1910 lbs	25.4%	12.8%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	1910 lbs	25.4%	12.8%	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

SE007871

Boise Cascade

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

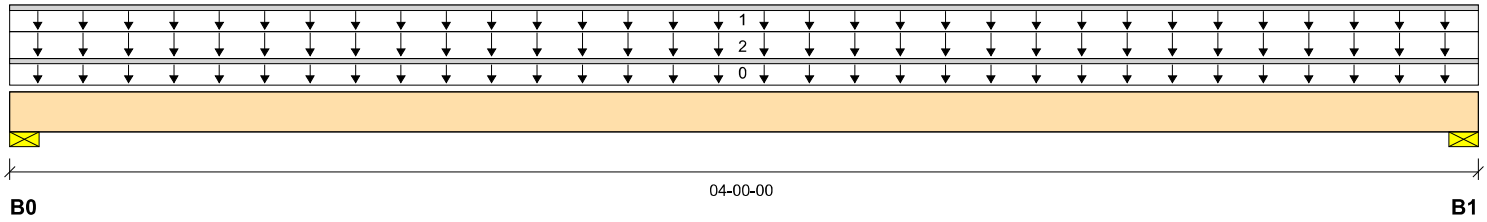
PASSED

B10 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 04-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	54 / 0	560 / 0	462 / 0	
B1, 3-1/2"	54 / 0	560 / 0	462 / 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	04-00-00	Top		12			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	04-00-00	Top	27	114			n\a
2		Unf. Area (lb/ft²)	L	00-00-00	04-00-00	Top		14	21		11-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1134 ft-lbs	35392 ft-lbs	3.2%	5	02-00-00
End Shear	520 lbs	14464 lbs	3.6%	5	01-03-06
Total Load Deflection	L/999 (0.002")	n\a	n\a	11	02-00-00
Live Load Deflection	L/999 (0.001")	n\a	n\a	15	02-00-00
Max Defl.	0.002"	n\a	n\a	11	02-00-00
Span / Depth	3.6				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	1447 lbs	19.2%	9.7%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	1447 lbs	19.2%	9.7%	Spruce-Pine-Fir

Notes

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

SE007872

Boise Cascade

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

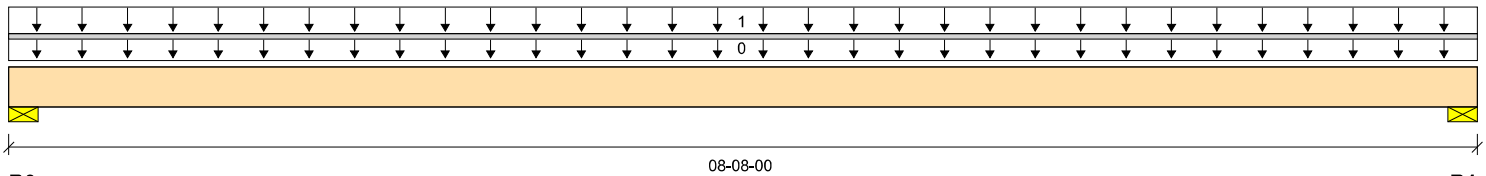
PASSED

B11 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 08-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	867 / 0	346 / 0		
B1, 3-1/2"	867 / 0	346 / 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	08-08-00	Top		5			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	08-08-00	Top	40	15			05-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3367 ft-lbs	11610 ft-lbs	29.0%	1	04-04-00
End Shear	1299 lbs	5785 lbs	22.5%	1	01-01-00
Total Load Deflection	L/999 (0.114")	n\a	n\a	4	04-04-00
Live Load Deflection	L/999 (0.082")	n\a	n\a	5	04-04-00
Max Defl.	0.114"	n\a	n\a	4	04-04-00
Span / Depth	10.4				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	1732 lbs	46.0%	23.2%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	1732 lbs	46.0%	23.2%	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

Disclosure

SE007873

Boise Cascade

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

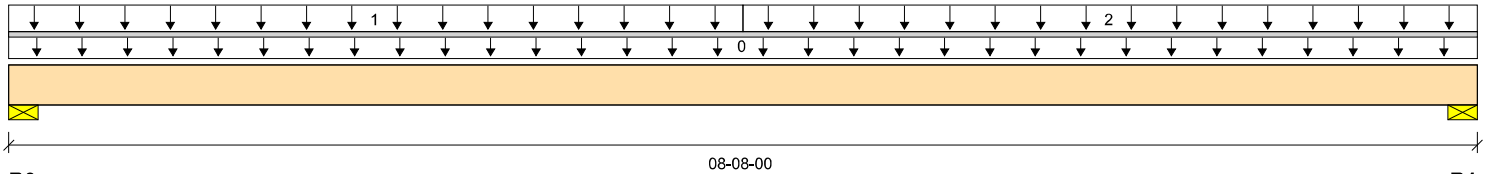
PASSED

B12 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 08-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1117 / 0	445 / 0		
B1, 3-1/2"	1482 / 0	582 / 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	08-08-00	Top		6			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	04-04-00	Top	40	15			05-06-00
2		Unf. Area (lb/ft²)	L	04-04-00	08-08-00	Top	40	15			09-06-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5106 ft-lbs	17696 ft-lbs	28.9%	1	04-08-09
End Shear	1983 lbs	7232 lbs	27.4%	1	07-04-10
Total Load Deflection	L/999 (0.088")	n\a	n\a	4	04-05-02
Live Load Deflection	L/999 (0.063")	n\a	n\a	5	04-05-02
Max Defl.	0.088"	n\a	n\a	4	04-05-02
Span / Depth	8.3				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	2233 lbs	59.3%	29.9%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	2951 lbs	78.3%	39.5%	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

SE007874

Boise Cascade

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

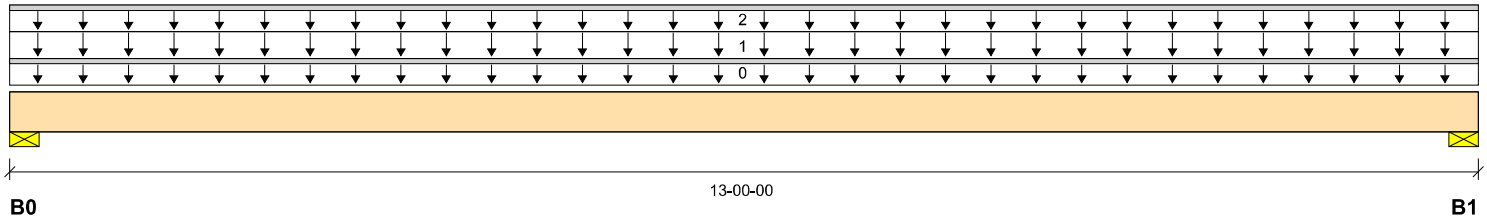
PASSED

B13 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 13-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	2513 / 0	1725 / 0		
B1, 3-1/2"	2513 / 0	1725 / 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	13-00-00	Top		12			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	13-00-00	Top	40	20			09-08-00
2		Unf. Lin. (lb/ft)	L	00-00-00	13-00-00	Top		60			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	17926 ft-lbs	35392 ft-lbs	50.6%	1	06-06-00
End Shear	4758 lbs	14464 lbs	32.9%	1	01-03-06
Total Load Deflection	L/405 (0.372")	n\a	59.3%	4	06-06-00
Live Load Deflection	L/683 (0.22")	n\a	52.7%	5	06-06-00
Max Defl.	0.372"	n\a	37.2%	4	06-06-00
Span / Depth	12.7				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	5926 lbs	78.6%	39.7%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	5926 lbs	78.6%	39.7%	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 @ 9" O/C,
STAGGERED IN 2 ROWS

SE007875

Boise Cascade

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

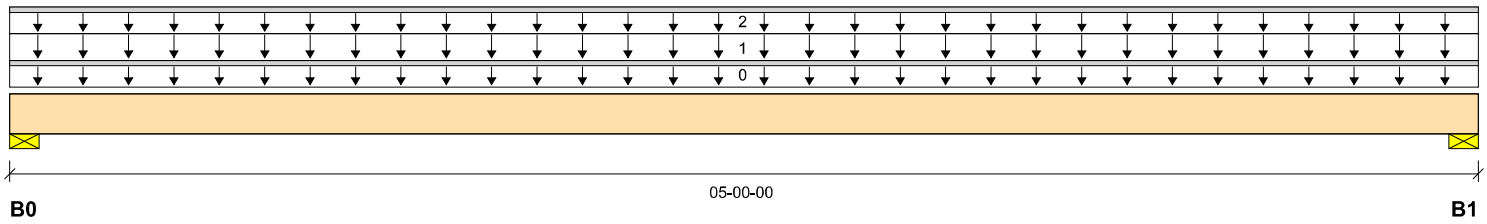
PASSED

B14 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 05-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	867 / 0	637 / 0		
B1, 3-1/2"	867 / 0	637 / 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	05-00-00	Top		5			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	05-00-00	Top	40	15			08-08-00
2		Unf. Lin. (lb/ft)	L	00-00-00	05-00-00	Top		120			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2162 ft-lbs	11610 ft-lbs	18.6%	1	02-06-00
End Shear	1188 lbs	5785 lbs	20.5%	1	01-01-00
Total Load Deflection	L/999 (0.023")	n\a	n\a	4	02-06-00
Live Load Deflection	L/999 (0.013")	n\a	n\a	5	02-06-00
Max Defl.	0.023"	n\a	n\a	4	02-06-00
Span / Depth	5.7				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	2096 lbs	55.6%	28.1%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	2096 lbs	55.6%	28.1%	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

Disclosure

SE007876

Boise Cascade

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

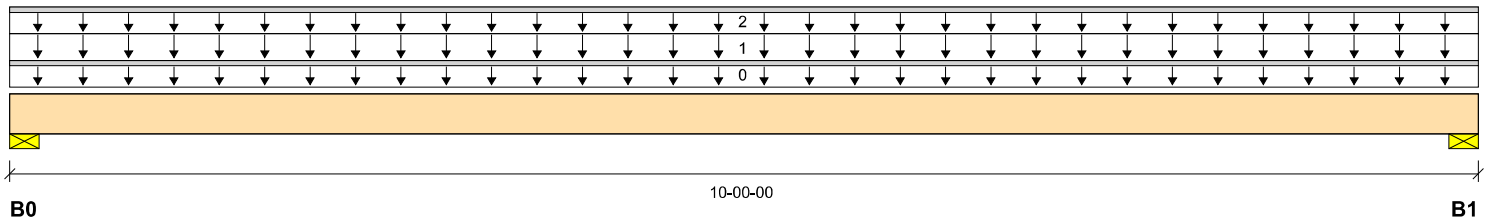
PASSED

B15 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 10-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1067 / 0	730 / 0		
B1, 3-1/2"	1067 / 0	730 / 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	10-00-00	Top		6			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	10-00-00	Top	40	15			05-04-00
2		Unf. Lin. (lb/ft)	L	00-00-00	10-00-00	Top		60			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	5719 ft-lbs	17696 ft-lbs	32.3%	1	05-00-00
End Shear	1869 lbs	7232 lbs	25.8%	1	01-03-06
Total Load Deflection	L/834 (0.137")	n\a	28.8%	4	05-00-00
Live Load Deflection	L/999 (0.081")	n\a	n\a	5	05-00-00
Max Defl.	0.137"	n\a	13.7%	4	05-00-00
Span / Depth	9.6				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	2513 lbs	66.7%	33.6%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	2513 lbs	66.7%	33.6%	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

Disclosure

SE007877

Boise Cascade

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

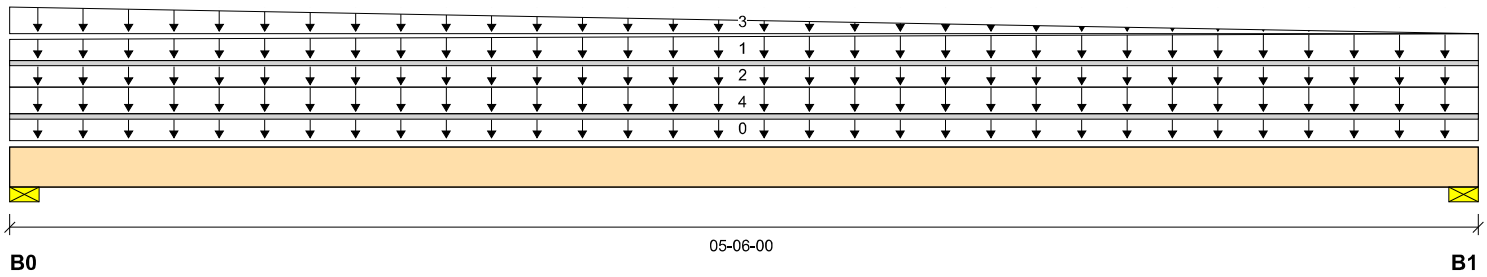
PASSED

B16 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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"	749 / 0	911 / 0	367 / 0	
B1, 3-1/2"	818 / 0	918 / 0	326 / 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		6			00-00-00
1		Trapezoidal (lb/ft)	L	00-00-00		Top	250	125			n\a
					05-06-00		320	160			
2		Unf. Lin. (lb/ft)	L	00-00-00	05-06-00	Top		100			n\a
3		Trapezoidal (lb/ft)	L	00-00-00		Top		28	42		n\a
					05-06-00			0	0		
4		Unf. Area (lb/ft²)	L	00-00-00	05-06-00	Top		14	21		05-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3079 ft-lbs	17696 ft-lbs	17.4%	1	02-09-00
End Shear	2086 lbs	7232 lbs	28.9%	1	04-02-10
Total Load Deflection	L/999 (0.022")	n\a	n\a	11	02-09-00
Live Load Deflection	L/999 (0.012")	n\a	n\a	15	02-09-00
Max Defl.	0.022"	n\a	n\a	11	02-09-00
Span / Depth	5.1				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	2630 lbs	69.8%	35.2%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	2701 lbs	71.7%	36.1%	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

SE007878

Boise Cascade

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

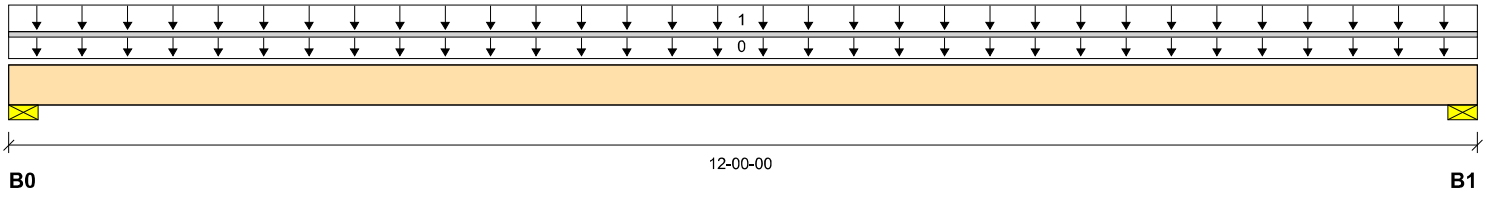
PASSED

B17 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 12-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	2640 / 0	1392 / 0		
B1, 3-1/2"	2640 / 0	1392 / 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. Area (lb/ft²)	L	00-00-00	12-00-00	Top	40	20			11-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	15819 ft-lbs	35392 ft-lbs	44.7%	1	06-00-00
End Shear	4483 lbs	14464 lbs	31.0%	1	01-03-06
Total Load Deflection	L/504 (0.275")	n\a	47.6%	4	06-00-00
Live Load Deflection	L/770 (0.18")	n\a	46.7%	5	06-00-00
Max Defl.	0.275"	n\a	27.5%	4	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"	5700 lbs	75.6%	38.1%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	5700 lbs	75.6%	38.1%	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

SE007879

Boise Cascade

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

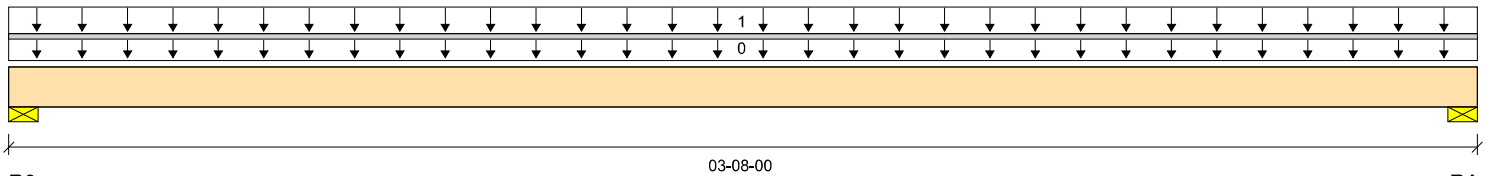
PASSED

B17a (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 03-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2-1/2"	816 / 0	419 / 0		
B1, 2"	797 / 0	410 / 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	03-08-00	Top		6			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	03-08-00	Top	40	20			11-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1375 ft-lbs	17696 ft-lbs	7.8%	1	01-10-04
End Shear	619 lbs	7232 lbs	8.6%	1	01-02-06
Total Load Deflection	L/999 (0.004")	n\a	n\a	4	01-10-04
Live Load Deflection	L/999 (0.003")	n\a	n\a	5	01-10-04
Max Defl.	0.004"	n\a	n\a	4	01-10-04
Span / Depth	3.5				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	2-1/2" x 1-3/4"	1748 lbs	64.9%	32.7%	Spruce-Pine-Fir
B1	Wall/Plate	2" x 1-3/4"	1708 lbs	79.3%	40.0%	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

SE007880

Boise Cascade

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

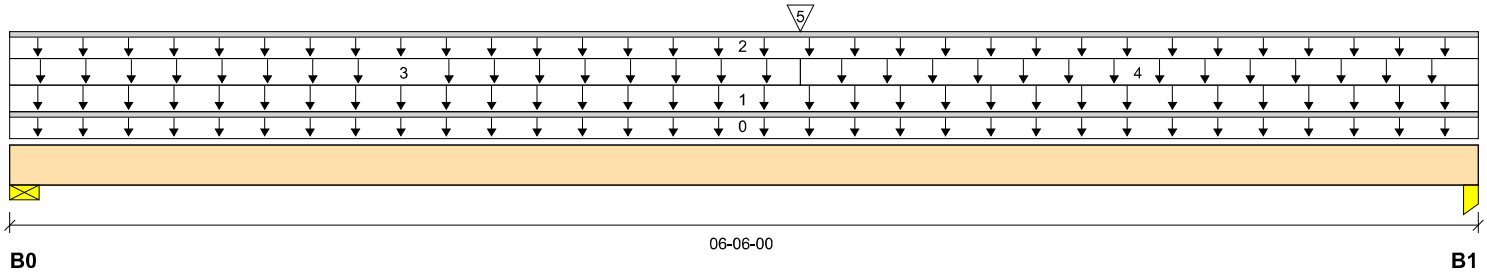
PASSED

B18 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 06-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	663 / 0	1095 / 0	666 / 0	
B1, 2"	638 / 0	1407 / 0	1099 / 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	06-06-00	Top		6			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	06-06-00	Top	40	15			05-00-00
2		Unf. Lin. (lb/ft)	L	00-00-00	06-06-00	Top		100			n\a
3		Unf. Area (lb/ft²)	L	00-00-00	03-06-00	Top		14	21		04-00-00
4		Unf. Area (lb/ft²)	L	03-06-00	06-06-00	Top		20	27		12-06-00
5		Conc. Pt. (lbs)	L	03-06-00	03-06-00	Top		380	458		n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	6117 ft-lbs	17696 ft-lbs	34.6%	5	03-06-00
End Shear	2605 lbs	7232 lbs	36.0%	5	05-04-02
Total Load Deflection	L/999 (0.061")	n\a	n\a	11	03-04-05
Live Load Deflection	L/999 (0.032")	n\a	n\a	15	03-04-05
Max Defl.	0.061"	n\a	n\a	11	03-04-05
Span / Depth	6.2				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	3030 lbs	80.4%	40.6%	Spruce-Pine-Fir
B1	Column	2" x 1-3/4"	4045 lbs	66.6%	94.7%	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

SE007881

Boise Cascade

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

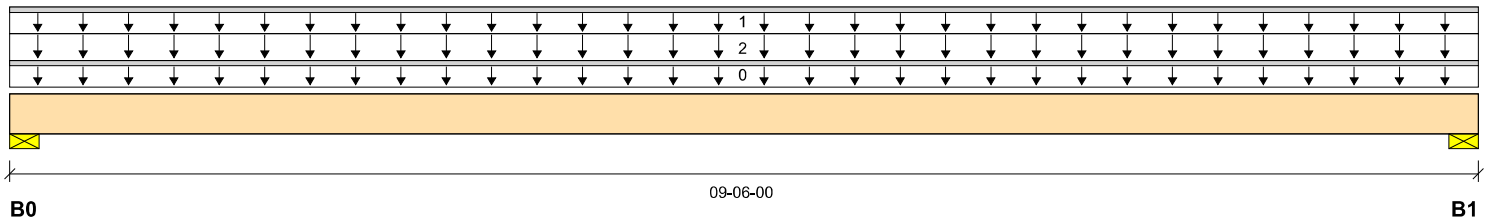
PASSED

B19 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 09-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	128 / 0	789 / 0	257 / 0	
B1, 3-1/2"	128 / 0	789 / 0	257 / 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	09-06-00	Top		12			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	09-06-00	Top	27	114			n\a
2		Unf. Area (lb/ft²)	L	00-00-00	09-06-00	Top		20	27		02-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2375 ft-lbs	23005 ft-lbs	10.3%	0	04-09-00
End Shear	806 lbs	9401 lbs	8.6%	0	01-03-06
Total Load Deflection	L/999 (0.037")	n\a	n\a	11	04-09-00
Live Load Deflection	L/999 (0.012")	n\a	n\a	15	04-09-00
Max Defl.	0.037"	n\a	n\a	11	04-09-00
Span / Depth	9.1				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	1104 lbs	22.5%	11.4%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	1104 lbs	22.5%	11.4%	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

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

SE007882

Boise Cascade

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

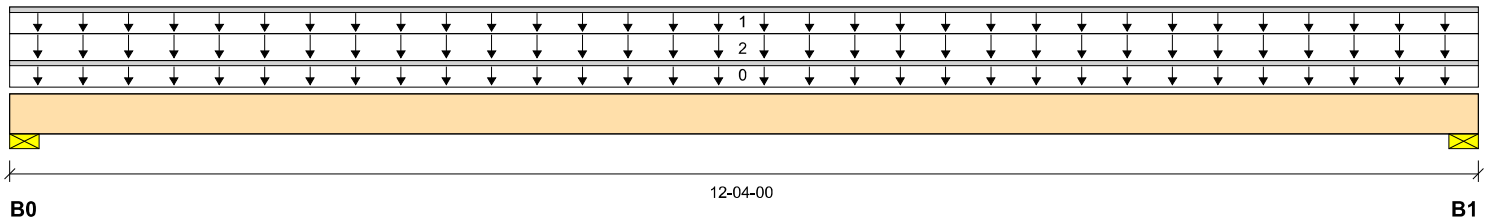
PASSED

B20 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 12-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	166 / 0	1024 / 0	333 / 0	
B1, 3-1/2"	167 / 0	1024 / 0	333 / 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	12-04-00	Top		12			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	12-04-00	Top	27	114			n\a
2		Unf. Area (lb/ft²)	L	00-00-00	12-04-00	Top		20	27		02-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	4097 ft-lbs	23005 ft-lbs	17.8%	0	06-02-00
End Shear	1136 lbs	9401 lbs	12.1%	0	01-03-06
Total Load Deflection	L/999 (0.111")	n\a	n\a	11	06-02-00
Live Load Deflection	L/999 (0.035")	n\a	n\a	15	06-02-00
Max Defl.	0.111"	n\a	n\a	11	06-02-00
Span / Depth	12.0				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	1433 lbs	29.3%	14.8%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	1433 lbs	29.3%	14.8%	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

SE007883

Boise Cascade

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

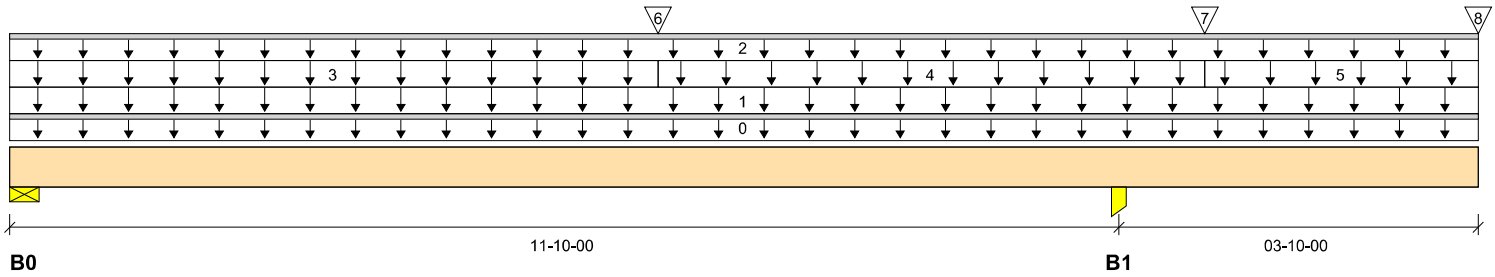
PASSED

B21 (Floor Beam)

BC CALC® Member Report | Dry | 2 spans | R cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 15-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1508 / 213	1897 / 0	1531 / 0	
B1, 5-1/2"	2788 / 0	5972 / 0	3455 / 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	15-08-00	Top		12			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	15-08-00	Top	40	20			06-03-00
2		Unf. Lin. (lb/ft)	L	00-00-00	15-08-00	Top		100			n\a
3		Unf. Area (lb/ft²)	L	00-00-00	06-11-00	Top		14	21		12-06-00
4		Unf. Area (lb/ft²)	L	06-11-00	12-09-00	Top		14	21		04-00-00
5		Unf. Area (lb/ft²)	L	12-09-00	15-08-00	Top		20	27		12-06-00
6		Conc. Pt. (lbs)	L	06-11-00	06-11-00	Top		486	729		n\a
7		Conc. Pt. (lbs)	L	12-09-00	12-09-00	Top		380	458		n\a
8		Conc. Pt. (lbs)	L	15-08-00	15-08-00	Top	166	1024	333		n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	15102 ft-lbs	35392 ft-lbs	42.7%	2	05-04-00
Neg. Moment	-18289 ft-lbs	-35392 ft-lbs	51.7%	28	11-10-00
End Shear	4691 lbs	14464 lbs	32.4%	26	01-03-06
Cont. Shear	6761 lbs	14464 lbs	46.7%	31	10-07-06
Total Load Deflection	2xL/412 (0.223")	n\a	58.2%	58	15-08-00
Live Load Deflection	2xL/572 (-0.161")	n\a	62.9%	78	15-08-00
Total Neg. Defl.	2xL/1998 (-0.086")	n\a	n\a	54	15-08-00
Max Defl.	0.253"	n\a	25.3%	54	05-08-03
Cant. Max Defl.	0.223"	n\a	22.3%	58	15-08-00
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"	6176 lbs	81.9%	41.3%	Spruce-Pine-Fir
B1	Column	5-1/2" x 3-1/2"	15436 lbs	46.2%	65.7%	Spruce-Pine-Fir

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

SE007884

Boise Cascade

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

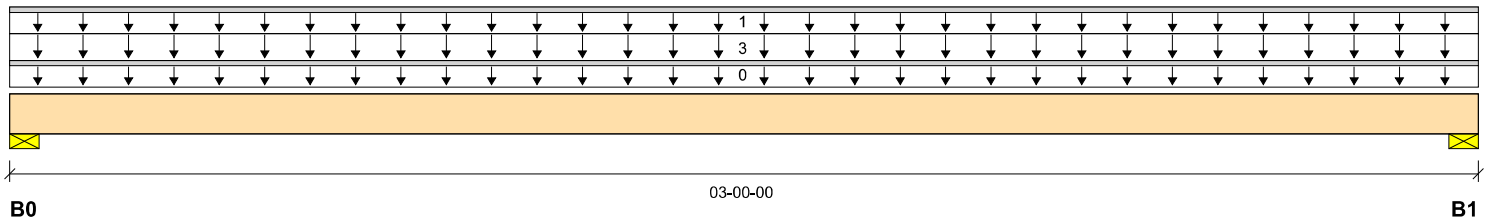
PASSED

B22 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 03-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	40 / 0	429 / 0	324 / 0	
B1, 3-1/2"	40 / 0	429 / 0	324 / 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	03-00-00	Top		12			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	03-00-00	Top	27	114			n\a
3		Unf. Area (lb/ft²)	L	00-00-00	03-00-00	Top		20	27		08-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	572 ft-lbs	35392 ft-lbs	1.6%	5	01-06-00
End Shear	155 lbs	14464 lbs	1.1%	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"	1063 lbs	14.1%	7.1%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	1063 lbs	14.1%	7.1%	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 @ 4" O/C,
STAGGERED IN 2 ROWS

SE007885

Boise Cascade

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

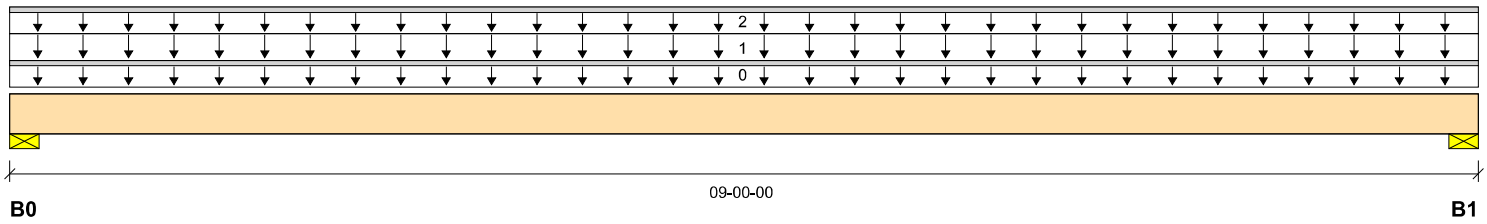
PASSED

B23 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 09-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	540 / 0	500 / 0		
B1, 3-1/2"	540 / 0	500 / 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	09-00-00	Top		6			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	09-00-00	Top	40	15			03-00-00
2		Unf. Lin. (lb/ft)	L	00-00-00	09-00-00	Top		60			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2907 ft-lbs	17696 ft-lbs	16.4%	1	04-06-00
End Shear	1026 lbs	7232 lbs	14.2%	1	01-03-06
Total Load Deflection	L/999 (0.057")	n\a	n\a	4	04-06-00
Live Load Deflection	L/999 (0.029")	n\a	n\a	5	04-06-00
Max Defl.	0.057"	n\a	n\a	4	04-06-00
Span / Depth	8.6				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	1434 lbs	38.1%	19.2%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	1434 lbs	38.1%	19.2%	Spruce-Pine-Fir

Notes

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

SE007886

Boise Cascade

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

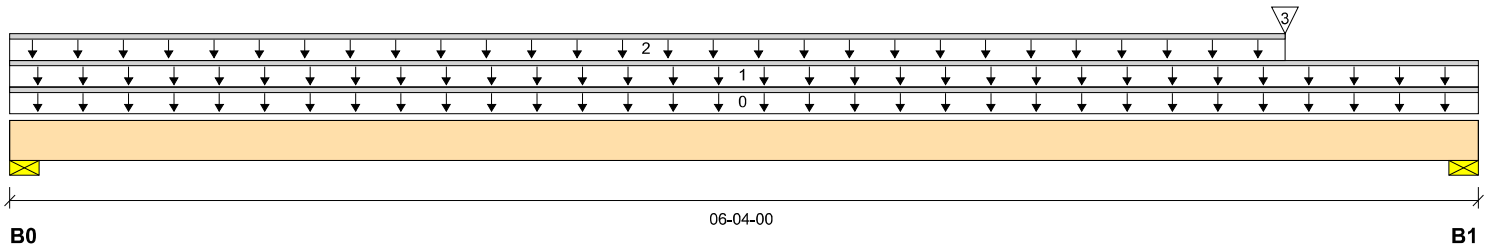
PASSED

B24 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 06-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	226 / 0	349 / 0		
B1, 3-1/2"	634 / 0	735 / 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	06-04-00	Top		6			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	06-04-00	Top	27	74			n\a
2		Unf. Lin. (lb/ft)	L	00-00-00	05-06-00	Top	27	14			n\a
3		Conc. Pt. (lbs)	L	05-06-00	05-06-00	Top	540	500			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1337 ft-lbs	17696 ft-lbs	7.6%	1	03-10-08
End Shear	1040 lbs	7232 lbs	14.4%	1	05-00-10
Total Load Deflection	L/999 (0.013")	n\a	n\a	4	03-04-02
Live Load Deflection	L/999 (0.005")	n\a	n\a	5	03-04-02
Max Defl.	0.013"	n\a	n\a	4	03-04-02
Span / Depth	5.9				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	774 lbs	20.5%	10.4%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	1870 lbs	49.6%	25.0%	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

SE007887

Boise Cascade

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

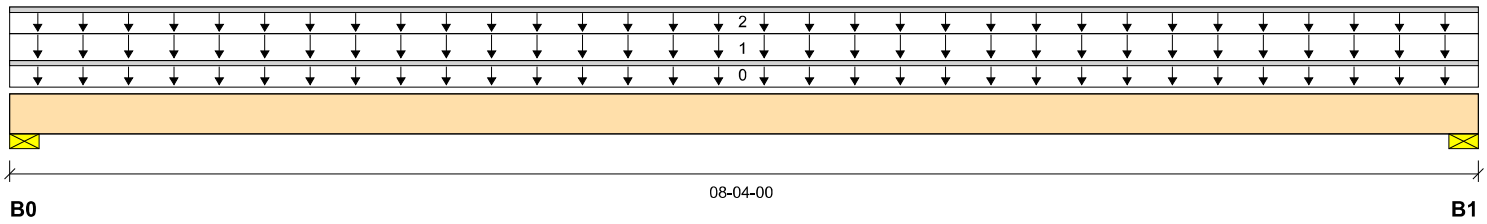
PASSED

B25 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 08-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	792 / 0	666 / 0		
B1, 3-1/2"	792 / 0	666 / 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	08-04-00	Top		5			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	08-04-00	Top	40	20			04-09-00
2		Unf. Lin. (lb/ft)	L	00-00-00	08-04-00	Top		60			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3758 ft-lbs	11610 ft-lbs	32.4%	1	04-02-00
End Shear	1495 lbs	5785 lbs	25.8%	1	01-01-00
Total Load Deflection	L/999 (0.121")	n\a	n\a	4	04-02-00
Live Load Deflection	L/999 (0.066")	n\a	n\a	5	04-02-00
Max Defl.	0.121"	n\a	n\a	4	04-02-00
Span / Depth	9.9				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	2020 lbs	53.6%	27.0%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	2020 lbs	53.6%	27.0%	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

SE007888

Boise Cascade

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

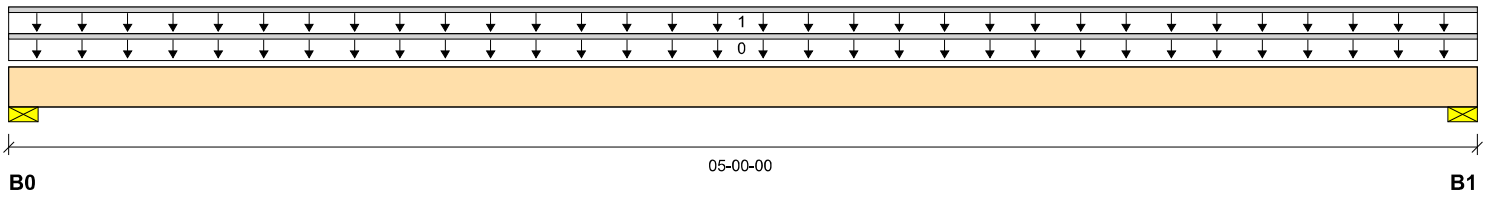
PASSED

B26 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 05-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	67 / 0	215 / 0		
B1, 3-1/2"	67 / 0	215 / 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	05-00-00	Top		12			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	05-00-00	Top	27	74			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	311 ft-lbs	23005 ft-lbs	1.3%	0	02-06-00
End Shear	147 lbs	9401 lbs	1.6%	0	01-03-06
Total Load Deflection	L/999 (0.001")	n\a	n\a	4	02-06-00
Live Load Deflection	L/999 (0")	n\a	n\a	5	02-06-00
Max Defl.	0.001"	n\a	n\a	4	02-06-00
Span / Depth	4.6				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	301 lbs	6.1%	3.1%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	301 lbs	6.1%	3.1%	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 @ 6" O/C,
STAGGERED IN 2 ROWS

SE007889

Boise Cascade

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

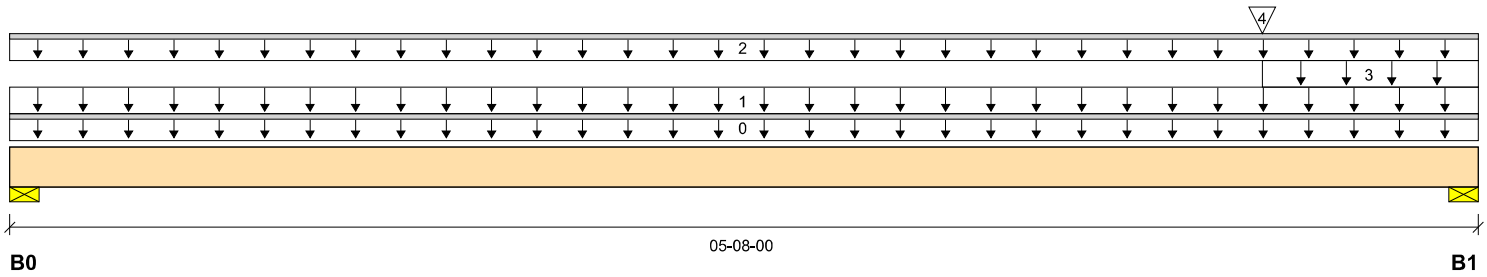
PASSED

B27 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 05-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	824 / 0	637 / 0		
B1, 3-1/2"	958 / 0	843 / 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	05-08-00	Top		12			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	05-08-00	Top	40	20			07-02-00
2		Unf. Lin. (lb/ft)	L	00-00-00	05-08-00	Top		60			n\a
3		Unf. Area (lb/ft²)	L	04-10-00	05-08-00	Top	40	20			02-08-00
4		Conc. Pt. (lbs)	L	04-10-00	04-10-00	Top	68	215			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2506 ft-lbs	35392 ft-lbs	7.1%	1	02-11-03
End Shear	1360 lbs	14464 lbs	9.4%	1	04-04-10
Total Load Deflection	L/999 (0.009")	n\a	n\a	4	02-10-00
Live Load Deflection	L/999 (0.005")	n\a	n\a	5	02-10-00
Max Defl.	0.009"	n\a	n\a	4	02-10-00
Span / Depth	5.3				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	2032 lbs	27.0%	13.6%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	2490 lbs	33.0%	16.7%	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

SE007890

Boise Cascade

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

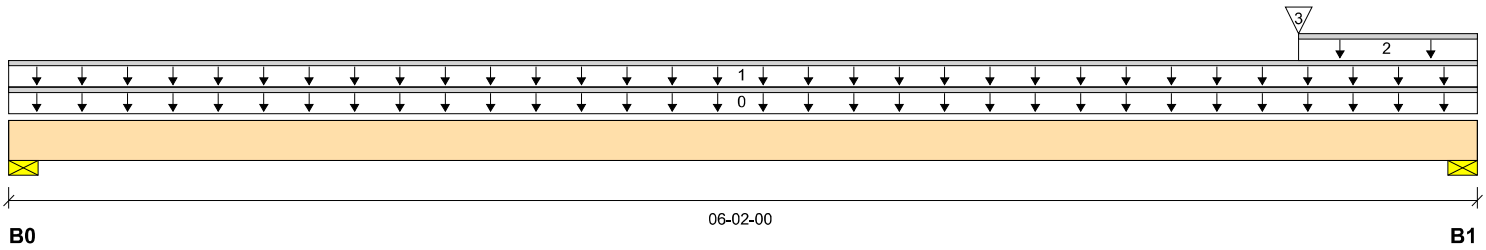
PASSED

B28 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 06-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	159 / 0	324 / 0		
B1, 3-1/2"	852 / 0	854 / 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	06-02-00	Top		12			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	06-02-00	Top	27	74			n\a
2		Unf. Lin. (lb/ft)	L	05-05-00	06-02-00	Top	27	14			n\a
3		Conc. Pt. (lbs)	L	05-05-00	05-05-00	Top	824	637			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1255 ft-lbs	35392 ft-lbs	3.5%	1	04-03-14
End Shear	1048 lbs	14464 lbs	7.2%	1	04-10-10
Total Load Deflection	L/999 (0.006")	n\a	n\a	4	03-03-11
Live Load Deflection	L/999 (0.002")	n\a	n\a	5	03-04-06
Max Defl.	0.006"	n\a	n\a	4	03-03-11
Span / Depth	5.8				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	453 lbs	9.3%	4.7%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	2345 lbs	31.1%	15.7%	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

SE007891

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

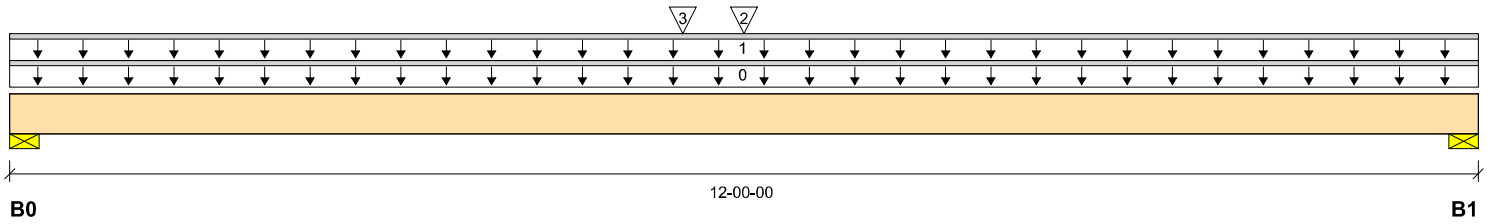
PASSED

B29 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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"	1292 / 0	1267 / 0		
B1, 3-1/2"	1246 / 0	1224 / 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	54	87			n\a
2		Conc. Pt. (lbs)	L	06-00-00	06-00-00	Top	1350	803			n\a
3		Conc. Pt. (lbs)	L	05-06-00	05-06-00	Top	540	500			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	15932 ft-lbs	35392 ft-lbs	45.0%	1	06-00-00
End Shear	3260 lbs	14464 lbs	22.5%	1	01-03-06
Total Load Deflection	L/570 (0.243")	n\a	42.1%	4	06-00-00
Live Load Deflection	L/1075 (0.129")	n\a	33.5%	5	06-00-00
Max Defl.	0.243"	n\a	24.3%	4	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"	3523 lbs	46.7%	23.6%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	3399 lbs	45.1%	22.7%	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

SE007892

Boise Cascade

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

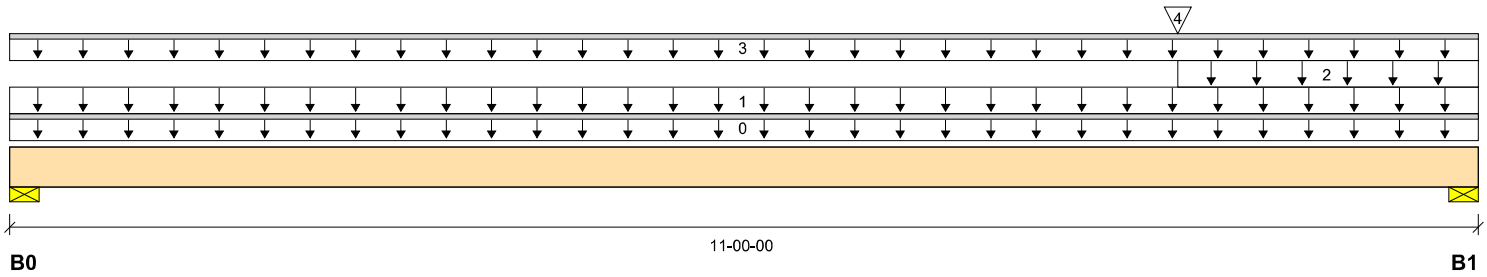
PASSED

B30 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 11-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1335 / 0	1105 / 0		
B1, 3-1/2"	3654 / 0	2291 / 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	11-00-00	Top		18			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	11-00-00	Top	40	20			03-08-00
2		Unf. Area (lb/ft²)	L	08-09-00	11-00-00	Top	40	20			12-06-00
3		Unf. Lin. (lb/ft)	L	00-00-00	11-00-00	Top		60			n\a
4		Conc. Pt. (lbs)	L	08-09-00	08-09-00	Top	2250	1168			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	13225 ft-lbs	55212 ft-lbs	24.0%	1	08-03-06
End Shear	6458 lbs	21696 lbs	29.8%	1	09-08-10
Total Load Deflection	L/999 (0.123")	n\a	n\a	4	05-10-00
Live Load Deflection	L/999 (0.072")	n\a	n\a	5	05-11-06
Max Defl.	0.123"	n\a	n\a	4	05-10-00
Span / Depth	10.7				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 5-1/4"	3384 lbs	29.9%	15.1%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 5-1/4"	8344 lbs	73.8%	37.2%	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 - TOP LOADED

SE007893

Boise Cascade

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

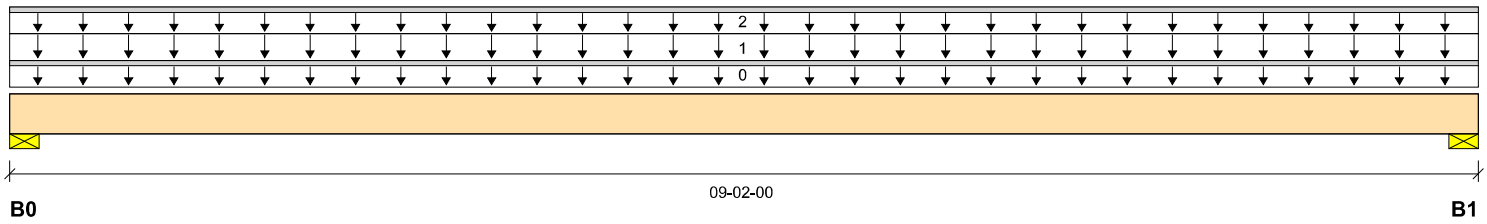
PASSED

B31 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 09-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	642 / 0	623 / 0		
B1, 3-1/2"	642 / 0	623 / 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	09-02-00	Top		6			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	09-02-00	Top	40	20			03-06-00
2		Unf. Lin. (lb/ft)	L	00-00-00	09-02-00	Top		60			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3602 ft-lbs	17696 ft-lbs	20.4%	1	04-07-00
End Shear	1255 lbs	7232 lbs	17.4%	1	01-03-06
Total Load Deflection	L/999 (0.073")	n\a	n\a	4	04-07-00
Live Load Deflection	L/999 (0.037")	n\a	n\a	5	04-07-00
Max Defl.	0.073"	n\a	n\a	4	04-07-00
Span / Depth	8.8				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	1742 lbs	46.2%	23.3%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	1742 lbs	46.2%	23.3%	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

SE007894

Boise Cascade

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

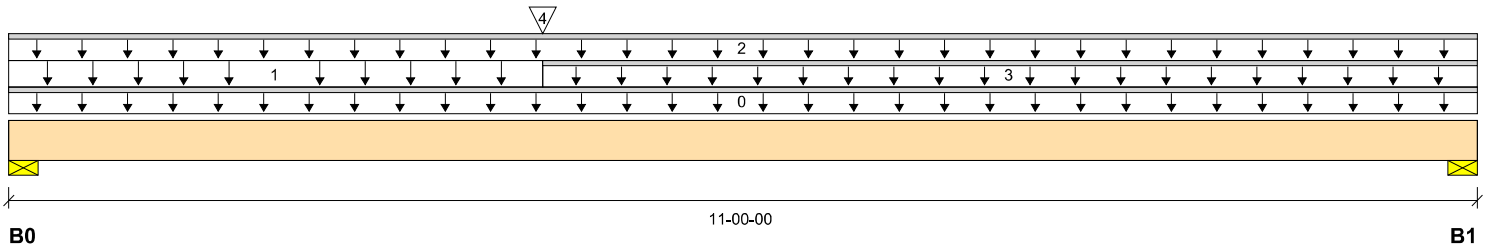
PASSED

B32 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 11-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1551 / 0	890 / 0		
B1, 3-1/2"	697 / 0	471 / 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	11-00-00	Top		6			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	04-00-00	Top	40	15			07-00-00
2		Unf. Lin. (lb/ft)	L	00-00-00	11-00-00	Top	27	14			n\a
3		Unf. Lin. (lb/ft)	L	04-00-00	11-00-00	Top	27	14			n\a
4		Conc. Pt. (lbs)	L	04-00-00	04-00-00	Top	642	623			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	8046 ft-lbs	17696 ft-lbs	45.5%	1	04-00-00
End Shear	2648 lbs	7232 lbs	36.6%	1	01-03-06
Total Load Deflection	L/622 (0.203")	n\a	38.6%	4	05-01-15
Live Load Deflection	L/999 (0.121")	n\a	n\a	5	05-01-15
Max Defl.	0.203"	n\a	20.3%	4	05-01-15
Span / Depth	10.7				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	3438 lbs	91.2%	46.0%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	1635 lbs	43.4%	21.9%	Spruce-Pine-Fir

Notes

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

Disclosure

SE007895

Boise Cascade

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

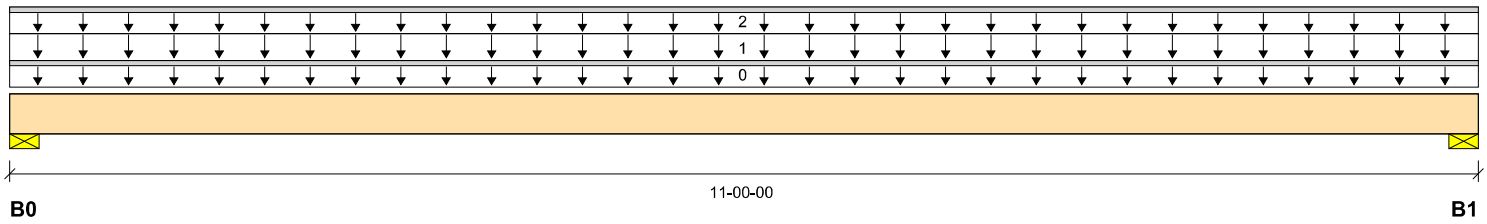
PASSED

B33 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 11-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	660 / 0	611 / 0		
B1, 3-1/2"	660 / 0	611 / 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	11-00-00	Top		6			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	11-00-00	Top	40	15			03-00-00
2		Unf. Lin. (lb/ft)	L	00-00-00	11-00-00	Top		60			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	4428 ft-lbs	17696 ft-lbs	25.0%	1	05-06-00
End Shear	1345 lbs	7232 lbs	18.6%	1	01-03-06
Total Load Deflection	L/963 (0.131")	n\a	24.9%	4	05-06-00
Live Load Deflection	L/999 (0.068")	n\a	n\a	5	05-06-00
Max Defl.	0.131"	n\a	13.1%	4	05-06-00
Span / Depth	10.7				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	1753 lbs	46.5%	23.5%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	1753 lbs	46.5%	23.5%	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

SE007896

Boise Cascade

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

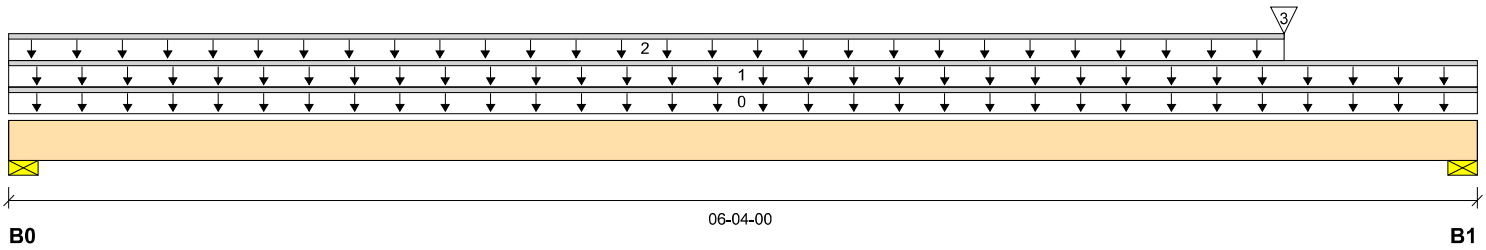
PASSED

B34 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 06-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	238 / 0	170 / 0		
B1, 3-1/2"	742 / 0	645 / 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	06-04-00	Top		6			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	06-04-00	Top	27	14			n\a
2		Unf. Lin. (lb/ft)	L	00-00-00	05-06-00	Top	27	14			n\a
3		Conc. Pt. (lbs)	L	05-06-00	05-06-00	Top	660	611			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1185 ft-lbs	17696 ft-lbs	6.7%	1	04-06-15
End Shear	1041 lbs	7232 lbs	14.4%	1	05-00-10
Total Load Deflection	L/999 (0.011")	n\a	n\a	4	03-04-13
Live Load Deflection	L/999 (0.006")	n\a	n\a	5	03-04-13
Max Defl.	0.011"	n\a	n\a	4	03-04-13
Span / Depth	5.9				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	569 lbs	15.1%	7.6%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	1919 lbs	50.9%	25.7%	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

SE007897

Boise Cascade

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

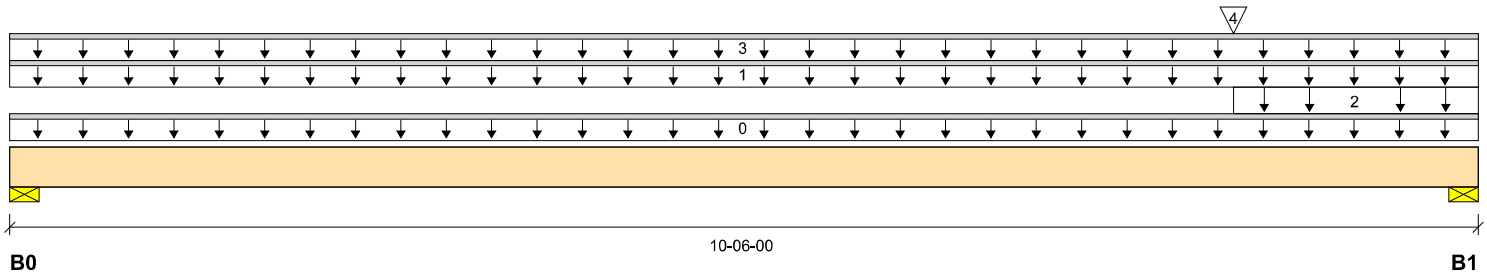
PASSED

B35 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 10-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	540 / 0	670 / 0		
B1, 3-1/2"	2868 / 0	1864 / 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	10-06-00	Top		14			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	10-06-00	Top	27	14			n\a
2		Unf. Area (lb/ft²)	L	08-09-00	10-06-00	Top	40	20			12-06-00
3		Unf. Lin. (lb/ft)	L	00-00-00	10-06-00	Top		60			n\a
4		Conc. Pt. (lbs)	L	08-09-00	08-09-00	Top	2250	1168			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	8264 ft-lbs	36222 ft-lbs	22.8%	1	08-09-00
End Shear	5318 lbs	17356 lbs	30.6%	1	09-05-00
Total Load Deflection	L/999 (0.122")	n\a	n\a	4	05-09-01
Live Load Deflection	L/999 (0.066")	n\a	n\a	5	05-10-08
Max Defl.	0.122"	n\a	n\a	4	05-09-01
Span / Depth	12.7				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 5-1/4"	1648 lbs	14.6%	7.4%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 5-1/4"	6633 lbs	58.7%	29.6%	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 @ 12" O/C,
STAGGERED IN 2 ROWS - TOP LOADED

SE007898

Boise Cascade

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

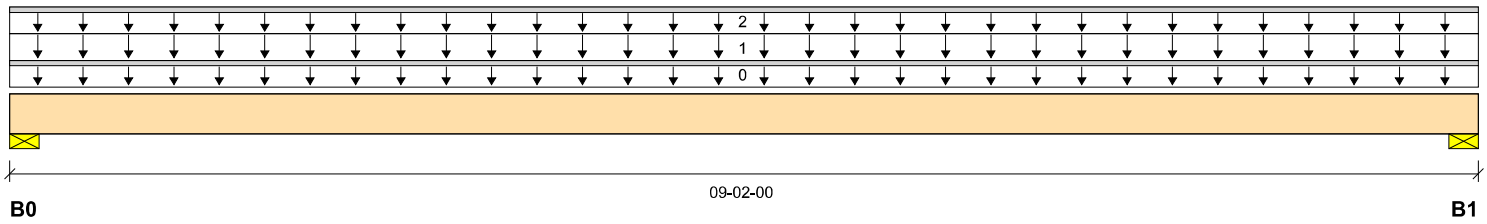
PASSED

B36 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 09-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	642 / 0	618 / 0		
B1, 3-1/2"	642 / 0	618 / 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	09-02-00	Top		5			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	09-02-00	Top	40	20			03-06-00
2		Unf. Lin. (lb/ft)	L	00-00-00	09-02-00	Top		60			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3588 ft-lbs	11610 ft-lbs	30.9%	1	04-07-00
End Shear	1325 lbs	5785 lbs	22.9%	1	01-01-00
Total Load Deflection	L/735 (0.142")	n\a	32.7%	4	04-07-00
Live Load Deflection	L/999 (0.072")	n\a	n\a	5	04-07-00
Max Defl.	0.142"	n\a	14.2%	4	04-07-00
Span / Depth	11.0				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	1735 lbs	46.0%	23.2%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	1735 lbs	46.0%	23.2%	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

Disclosure

SE007899

Boise Cascade

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

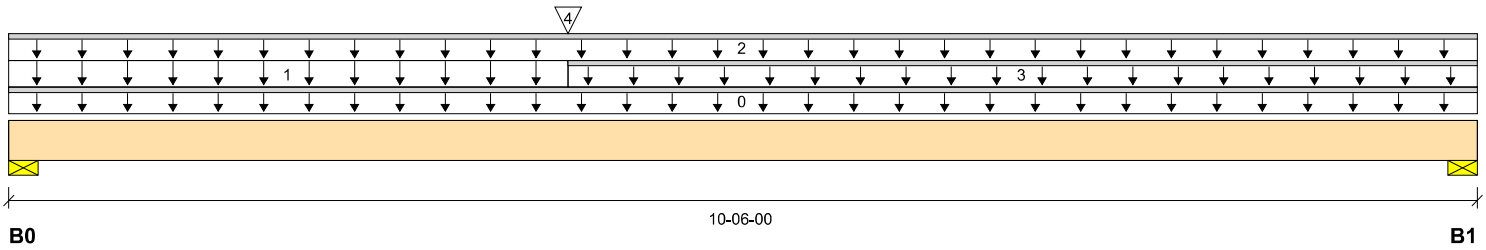
PASSED

B37 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 10-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1517 / 0	861 / 0		
B1, 3-1/2"	704 / 0	471 / 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	10-06-00	Top		5			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	04-00-00	Top	40	15			07-00-00
2		Unf. Lin. (lb/ft)	L	00-00-00	10-06-00	Top	27	14			n\a
3		Unf. Lin. (lb/ft)	L	04-00-00	10-06-00	Top	27	14			n\a
4		Conc. Pt. (lbs)	L	04-00-00	04-00-00	Top	642	623			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	7733 ft-lbs	11610 ft-lbs	66.6%	1	04-00-00
End Shear	2685 lbs	5785 lbs	46.4%	1	01-01-00
Total Load Deflection	L/348 (0.346")	n\a	69.0%	4	04-10-03
Live Load Deflection	L/582 (0.207")	n\a	61.9%	5	04-10-03
Max Defl.	0.346"	n\a	34.6%	4	04-10-03
Span / Depth	12.7				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	3352 lbs	89.0%	44.9%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	1643 lbs	43.6%	22.0%	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

SE007900

Boise Cascade

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

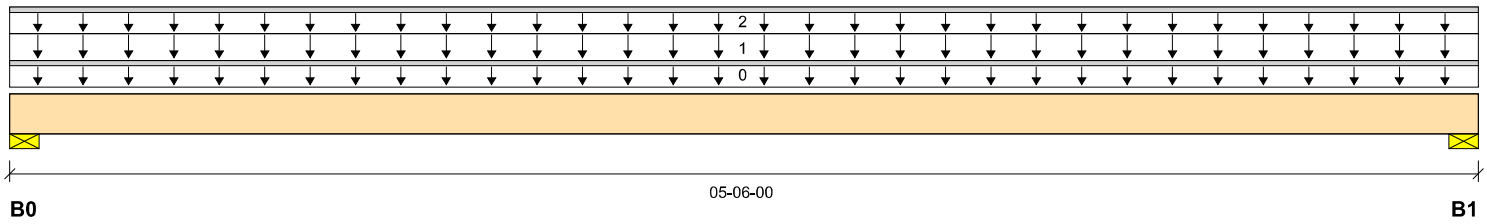
PASSED

B38 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 05-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	605 / 0	481 / 0		
B1, 3-1/2"	605 / 0	481 / 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		5			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	05-06-00	Top	40	20			05-06-00
2		Unf. Lin. (lb/ft)	L	00-00-00	05-06-00	Top		60			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1743 ft-lbs	11610 ft-lbs	15.0%	1	02-09-00
End Shear	914 lbs	5785 lbs	15.8%	1	01-01-00
Total Load Deflection	L/999 (0.023")	n\a	n\a	4	02-09-00
Live Load Deflection	L/999 (0.013")	n\a	n\a	5	02-09-00
Max Defl.	0.023"	n\a	n\a	4	02-09-00
Span / Depth	6.4				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	1508 lbs	40.0%	20.2%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	1508 lbs	40.0%	20.2%	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

Disclosure

SE007901

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

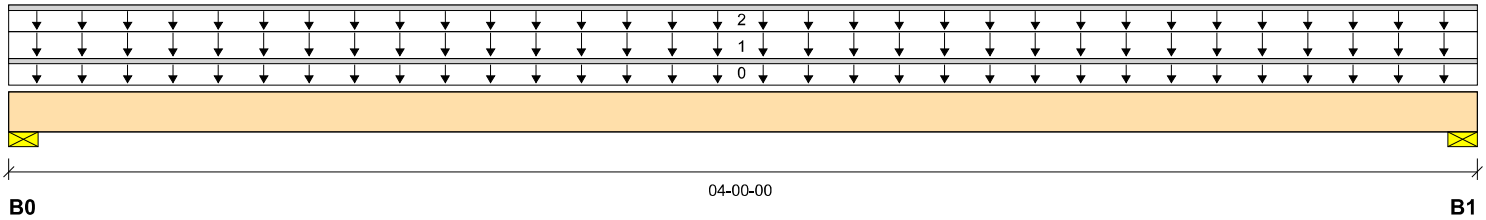
PASSED

B39 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 04-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	440 / 0	350 / 0		
B1, 3-1/2"	440 / 0	350 / 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	04-00-00	Top		5			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	04-00-00	Top	40	20			05-06-00
2		Unf. Lin. (lb/ft)	L	00-00-00	04-00-00	Top		60			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	860 ft-lbs	11610 ft-lbs	7.4%	1	02-00-00
End Shear	503 lbs	5785 lbs	8.7%	1	01-01-00
Total Load Deflection	L/999 (0.006")	n\a	n\a	4	02-00-00
Live Load Deflection	L/999 (0.003")	n\a	n\a	5	02-00-00
Max Defl.	0.006"	n\a	n\a	4	02-00-00
Span / Depth	4.5				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	1097 lbs	29.1%	14.7%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	1097 lbs	29.1%	14.7%	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

SE007902

Boise Cascade

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

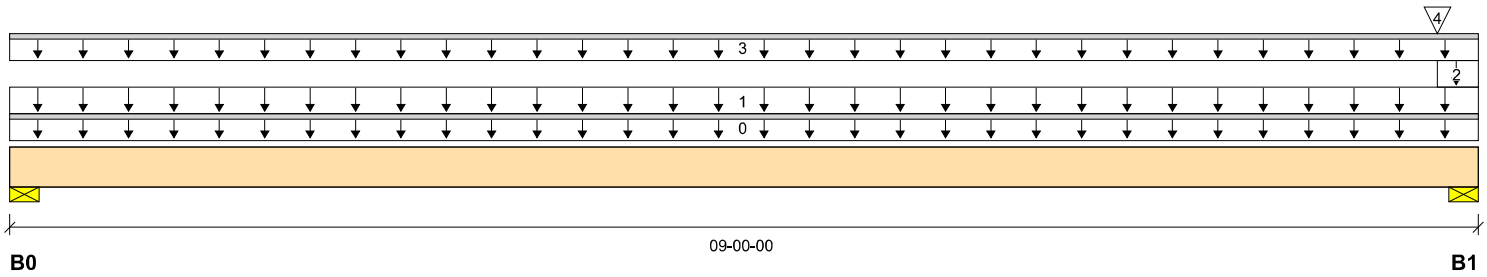
PASSED

B40 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 09-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	660 / 0	654 / 0		
B1, 3-1/2"	3035 / 0	1885 / 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	09-00-00	Top		12			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	09-00-00	Top	40	20			03-08-00
2		Unf. Area (lb/ft²)	L	08-09-00	09-00-00	Top	40	20			12-06-00
3		Unf. Lin. (lb/ft)	L	00-00-00	09-00-00	Top		60			n\a
4		Conc. Pt. (lbs)	L	08-09-00	08-09-00	Top	2250	1168			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	3664 ft-lbs	35392 ft-lbs	10.4%	1	04-06-00
End Shear	1293 lbs	14464 lbs	8.9%	1	01-03-06
Total Load Deflection	L/999 (0.036")	n\a	n\a	4	04-06-00
Live Load Deflection	L/999 (0.018")	n\a	n\a	5	04-06-00
Max Defl.	0.036"	n\a	n\a	4	04-06-00
Span / Depth	8.6				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	1808 lbs	24.0%	12.1%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	6909 lbs	91.7%	46.2%	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

SE007903

Boise Cascade

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

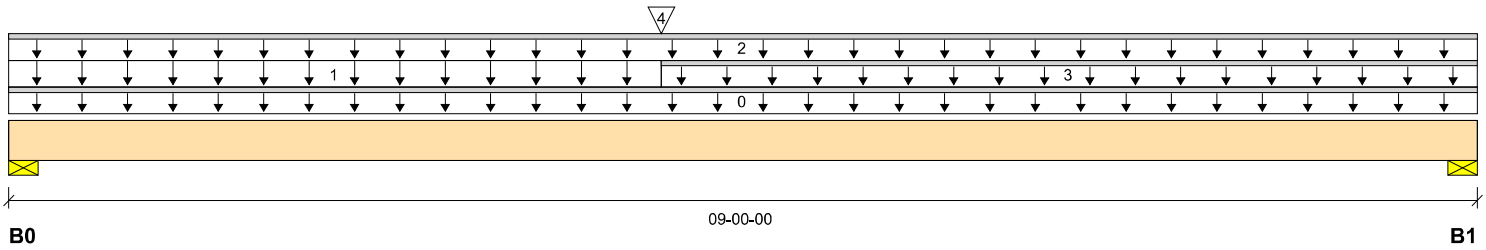
PASSED

B41 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 09-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1403 / 0	789 / 0		
B1, 3-1/2"	737 / 0	504 / 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	09-00-00	Top		6			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	04-00-00	Top	40	15			07-00-00
2		Unf. Lin. (lb/ft)	L	00-00-00	09-00-00	Top	27	14			n\a
3		Unf. Lin. (lb/ft)	L	04-00-00	09-00-00	Top	27	14			n\a
4		Conc. Pt. (lbs)	L	04-00-00	04-00-00	Top	642	623			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	6737 ft-lbs	17696 ft-lbs	38.1%	1	04-00-00
End Shear	2301 lbs	7232 lbs	31.8%	1	01-03-06
Total Load Deflection	L/999 (0.113")	n\a	n\a	4	04-04-03
Live Load Deflection	L/999 (0.068")	n\a	n\a	5	04-02-13
Max Defl.	0.113"	n\a	n\a	4	04-04-03
Span / Depth	8.6				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	3091 lbs	82.0%	41.4%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	1735 lbs	46.0%	23.2%	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

Disclosure

SE007904

Boise Cascade

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

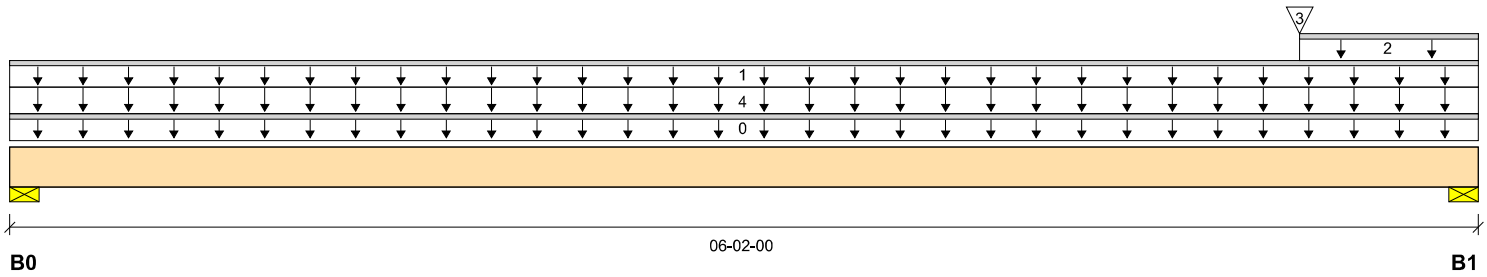
PASSED

B42 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 06-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	631 / 0	558 / 0		
B1, 3-1/2"	1323 / 0	1089 / 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	06-02-00	Top		12			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	06-02-00	Top		60			n\a
2		Unf. Lin. (lb/ft)	L	05-05-00	06-02-00	Top	27	14			n\a
3		Conc. Pt. (lbs)	L	05-05-00	05-05-00	Top	824	637			n\a
4		Unf. Area (lb/ft²)	L	00-00-00	06-02-00	Top	40	20			04-06-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2495 ft-lbs	35392 ft-lbs	7.1%	1	03-05-12
End Shear	1632 lbs	14464 lbs	11.3%	1	04-10-10
Total Load Deflection	L/999 (0.011")	n\a	n\a	4	03-02-06
Live Load Deflection	L/999 (0.006")	n\a	n\a	5	03-02-06
Max Defl.	0.011"	n\a	n\a	4	03-02-06
Span / Depth	5.8				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	1644 lbs	21.8%	11.0%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	3346 lbs	44.4%	22.4%	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

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

SE007905

Boise Cascade

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

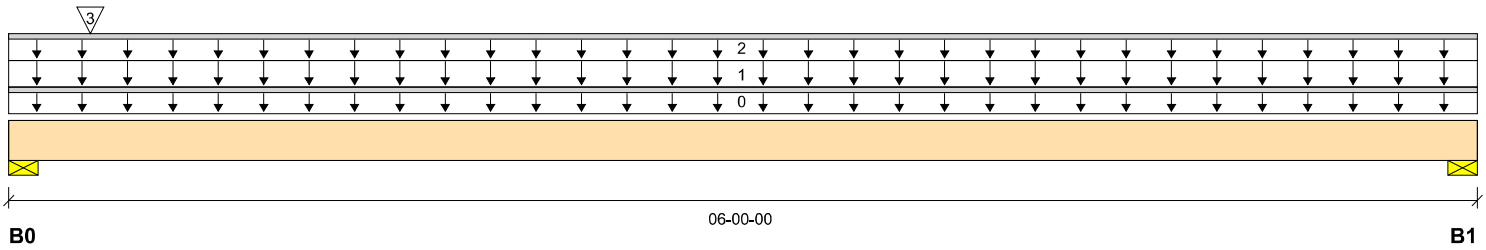
PASSED

B43 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 06-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	2790 / 0	1647 / 0		
B1, 3-1/2"	540 / 0	479 / 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	06-00-00	Top		10			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	06-00-00	Top	40	20			04-06-00
2		Unf. Lin. (lb/ft)	L	00-00-00	06-00-00	Top		60			n\a
3		Conc. Pt. (lbs)	L	00-04-00	00-04-00	Top	2250	1168			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1802 ft-lbs	23220 ft-lbs	7.8%	1	03-00-00
End Shear	900 lbs	11571 lbs	7.8%	1	01-01-00
Total Load Deflection	L/999 (0.014")	n\a	n\a	4	03-00-00
Live Load Deflection	L/999 (0.008")	n\a	n\a	5	03-00-00
Max Defl.	0.014"	n\a	n\a	4	03-00-00
Span / Depth	7.0				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	6244 lbs	82.8%	41.8%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	1409 lbs	18.7%	9.4%	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

NAIL ONE PLY TO ANOTHER WITH 3-1/2" SPIRAL NAILS @ 6" O/C,
STAGGERED IN 2 ROWS

SE007906

Boise Cascade

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

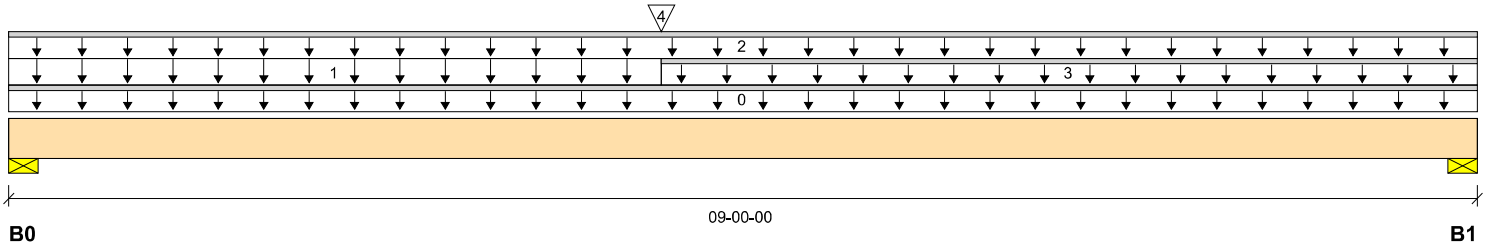
PASSED

B44 (Floor Beam)

BC CALC® Member Report | Dry | 1 span | No cant. | March 25, 2020 15:28:29

Build 7555

Job name:	45147 (5005)	File name:	318279
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 = 09-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1403 / 0	784 / 0		
B1, 3-1/2"	737 / 0	498 / 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	09-00-00	Top		5			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	04-00-00	Top	40	15			07-00-00
2		Unf. Lin. (lb/ft)	L	00-00-00	09-00-00	Top	27	14			n\a
3		Unf. Lin. (lb/ft)	L	04-00-00	09-00-00	Top	27	14			n\a
4		Conc. Pt. (lbs)	L	04-00-00	04-00-00	Top	642	623			n\a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	6724 ft-lbs	11610 ft-lbs	57.9%	1	04-00-00
End Shear	2418 lbs	5785 lbs	41.8%	1	01-01-00
Total Load Deflection	L/465 (0.22")	n\a	51.6%	4	04-02-15
Live Load Deflection	L/776 (0.132")	n\a	46.4%	5	04-02-15
Max Defl.	0.22"	n\a	22.0%	4	04-02-15
Span / Depth	10.8				

Bearing Supports

		Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 1-3/4"	3084 lbs	81.9%	41.3%	Spruce-Pine-Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	1728 lbs	45.9%	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

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.

SE007907

NORDIC
STRUCTURES

Maximum Floor Spans – M2.1, 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:	5/8 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'-1"	14'-3"	13'-10"	-	15'-7"	14'-9"	14'-3"	-
	NI-40x	16'-2"	15'-3"	14'-8"	-	16'-7"	15'-8"	15'-1"	-
	NI-60	16'-4"	15'-4"	14'-10"	-	16'-9"	15'-9"	15'-3"	-
	NI-80	17'-3"	16'-3"	15'-8"	-	17'-8"	16'-7"	16'-0"	-
11-7/8"	NI-20	17'-0"	16'-0"	15'-6"	-	17'-6"	16'-7"	16'-0"	-
	NI-40x	18'-2"	17'-1"	16'-6"	-	18'-9"	17'-6"	16'-11"	-
	NI-60	18'-5"	17'-3"	16'-8"	-	19'-0"	17'-8"	17'-1"	-
	NI-80	19'-9"	18'-3"	17'-7"	-	20'-4"	18'-10"	18'-0"	-
	NI-90	20'-2"	18'-8"	17'-10"	-	20'-9"	19'-2"	18'-4"	-
14"	NI-40x	20'-1"	18'-8"	17'-10"	-	20'-10"	19'-4"	18'-6"	-
	NI-60	20'-6"	18'-11"	18'-2"	-	21'-2"	19'-8"	18'-9"	-
	NI-80	21'-11"	20'-3"	19'-4"	-	22'-7"	20'-11"	20'-0"	-
	NI-90	22'-5"	20'-8"	19'-9"	-	23'-0"	21'-4"	20'-4"	-
16"	NI-60	22'-4"	20'-8"	19'-9"	-	23'-1"	21'-5"	20'-6"	-
	NI-80	23'-11"	22'-1"	21'-1"	-	24'-8"	22'-10"	21'-9"	-
	NI-90	24'-5"	22'-6"	21'-6"	-	25'-1"	23'-2"	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	16'-11"	15'-5"	14'-6"	-	17'-1"	15'-5"	14'-6"	-
	NI-40x	17'-11"	17'-0"	16'-5"	-	18'-5"	17'-4"	16'-7"	-
	NI-60	18'-2"	17'-1"	16'-6"	-	18'-8"	17'-6"	16'-10"	-
	NI-80	19'-5"	18'-0"	17'-5"	-	19'-10"	18'-5"	17'-8"	-
11-7/8"	NI-20	19'-7"	18'-2"	17'-6"	-	20'-3"	18'-8"	17'-6"	-
	NI-40x	21'-1"	19'-7"	18'-8"	-	21'-8"	20'-2"	19'-0"	-
	NI-60	21'-4"	19'-9"	18'-11"	-	21'-11"	20'-5"	19'-6"	-
	NI-80	22'-9"	21'-1"	20'-2"	-	23'-3"	21'-8"	20'-8"	-
	NI-90	23'-3"	21'-6"	20'-6"	-	23'-9"	22'-0"	21'-0"	-
14"	NI-40x	23'-8"	21'-11"	20'-11"	-	24'-4"	22'-8"	20'-11"	-
	NI-60	24'-0"	22'-3"	21'-3"	-	24'-8"	22'-11"	21'-11"	-
	NI-80	25'-7"	23'-9"	22'-7"	-	26'-2"	24'-4"	23'-3"	-
	NI-90	26'-1"	24'-2"	23'-0"	-	26'-8"	24'-9"	23'-7"	-
16"	NI-60	26'-5"	24'-6"	23'-5"	-	27'-2"	25'-3"	24'-2"	-
	NI-80	28'-2"	26'-1"	24'-10"	-	28'-10"	26'-9"	25'-6"	-
	NI-90	28'-8"	26'-6"	25'-3"	-	29'-3"	27'-2"	25'-11"	-

Notes:

1. 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.
2. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
3. Minimum bearing length shall be 1-3/4 inch for end bearings, and 3-1/2 inches for intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
5. Nordic I-joists are listed in CCMC Evaluation Report 13032-R and APA Product Report PR-L274C.

NORDIC
STRUCTURES

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:

1. 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.
2. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
3. Minimum bearing length shall be 1-3/4 inch for end bearings, and 3-1/2 inches for intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used in accordance with this table, except as required for hangers.
5. 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/

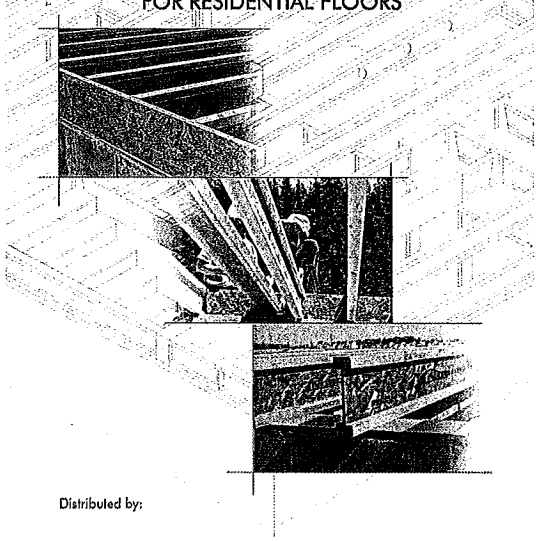
This document does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of its component based on the design criteria and loadings shown on the calculation sheets.

(Nordic Request 1810-095)

N-C301/April 2014

NORDIC
ENGINEERED WOOD

INSTALLATION GUIDE
FOR RESIDENTIAL FLOORS



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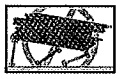
N-C301 / April 2014

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 unsheathed 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.

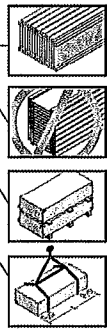
Avoid Accidents by Following these Important Guidelines:

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 continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
   - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
   - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-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

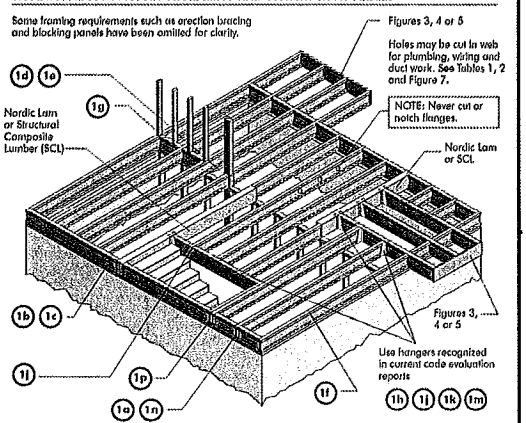
1. Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
2. Store, stack, and handle I-joists vertically and level only.
3. Always stack and handle I-joists in the upright position only.
4. Do not store I-joists in direct contact with the ground and/or flatwise.
5. Protect I-joists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



INSTALLING NORDIC I-JOISTS

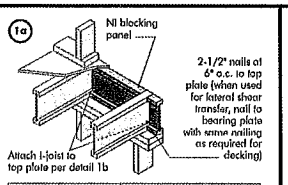
1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contact your supplier.
2. Except for cutting to length, I-joist flanges should **never** be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
4. I-joists must be anchored securely to supports before floor sheathing is attached, and supports for 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 unusual or heavy loads from the I-joist's bottom flange. Whenever possible, suspend all concentrated loads from the top of the I-joist. Or, attach the load to blocking that has been securely fastened to the I-joist webs.
9. Never install I-joists where they will be permanently exposed to weather, or where they will remain in direct contact with concrete or masonry.
10. Restrain ends of floor joists to prevent rollover. Use rim board, rim joists or I-joist blocking panels.
11. For I-joists installed over and beneath bearing walls, use full depth blocking panels, rim board, or squash blocks (cripple members) to transfer gravity loads through the floor system to the wall or foundation below.
12. Due to shrinkage, common framing lumber set on edge may never be used as blocking or rim boards. I-joist blocking 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



All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.

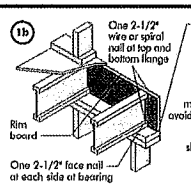
1a



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

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

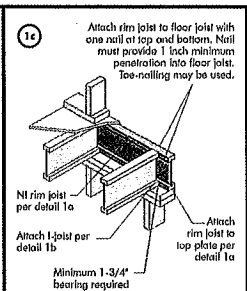
1b



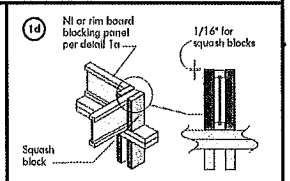
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

*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.

1c



1d



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

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

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)

MAXIMUM FLOOR SPANS

1. Maximum **clear** spans applicable to simple-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.
2. 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 CGSB-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the used of gypsum and/or a row of blocking at mid-span.
3. Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
4. Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
5. This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
6. Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
7. SI units conversion: 1 inch = 25.4 mm
   1 foot = 0.305 m

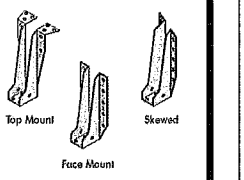
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS
SIMPLE AND MULTIPLE SPANS

Joist Depth	Joist Series	Simple spans On centre spacing				Multiple spans On centre spacing			
		12"	16"	19.2	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	13'-5"	16'-3"	15'-4"	14'-10"	14'-7"
	NI-40c	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'-6"
	NI-70	17'-1"	16'-1"	15'-6"	15'-7"	18'-7"	17'-4"	16'-9"	17'-2"
	NI-80	17'-3"	16'-3"	15'-8"	15'-9"	18'-10"	17'-6"	16'-11"	17'-5"
11-7/8"	NI-20	16'-11"	16'-0"	15'-5"	15'-6"	18'-4"	17'-3"	16'-8"	16'-7"
	NI-40c	18'-1"	17'-0"	16'-5"	16'-6"	20'-0"	18'-6"	17'-9"	17'-7"
	NI-60	18'-4"	17'-3"	16'-7"	16'-9"	20'-3"	18'-9"	18'-0"	18'-9"
	NI-70	19'-6"	18'-0"	17'-4"	17'-5"	21'-6"	19'-11"	19'-0"	19'-8"
	NI-80	19'-9"	18'-3"	17'-6"	17'-7"	21'-9"	20'-2"	19'-3"	19'-11"
	NI-90	20'-2"	18'-7"	17'-10"	17'-11"	22'-3"	20'-7"	19'-8"	19'-9"
	NI-90x	20'-4"	18'-9"	17'-11"	18'-0"	22'-5"	20'-9"	19'-10"	20'-5"
14"	NI-40x	20'-1"	18'-7"	17'-10"	17'-11"	22'-2"	20'-6"	19'-8"	19'-7"
	NI-60	20'-5"	18'-11"	18'-1"	18'-2"	22'-7"	20'-11"	20'-0"	20'-10"
	NI-70	21'-7"	20'-0"	19'-1"	19'-2"	23'-10"	22'-1"	21'-1"	21'-10"
	NI-80	21'-11"	20'-3"	19'-4"	19'-5"	24'-3"	22'-5"	21'-5"	22'-2"
	NI-90	22'-5"	20'-8"	19'-9"	19'-9"	24'-9"	22'-10"	21'-10"	21'-10"
	NI-90x	22'-7"	20'-11"	19'-11"	20'-0"	25'-0"	23'-1"	22'-0"	22'-9"
16"	NI-60	22'-3"	20'-8"	19'-9"	19'-10"	24'-7"	22'-9"	21'-9"	22'-9"
	NI-70	23'-6"	21'-9"	20'-9"	20'-10"	26'-0"	24'-0"	22'-11"	23'-9"
	NI-80	23'-11"	22'-1"	21'-1"	21'-2"	26'-5"	24'-5"	23'-3"	24'-1"
	NI-90	24'-5"	22'-6"	21'-5"	21'-6"	26'-11"	24'-10"	23'-9"	23'-9"
	NI-90x	24'-8"	22'-9"	21'-9"	21'-10"	27'-3"	25'-2"	24'-0"	24'-10"

CCMC EVALUATION REPORT 13032-R

I-JOIST HANGERS

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



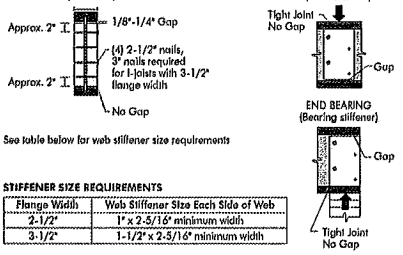
WEB STIFFENERS

RECOMMENDATIONS:

- A *bearing stiffener* is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found of 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

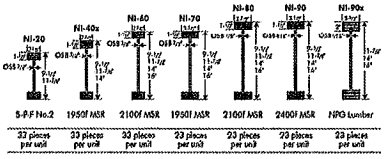


See table below for web stiffener size requirements

STIFFENER SIZE REQUIREMENTS

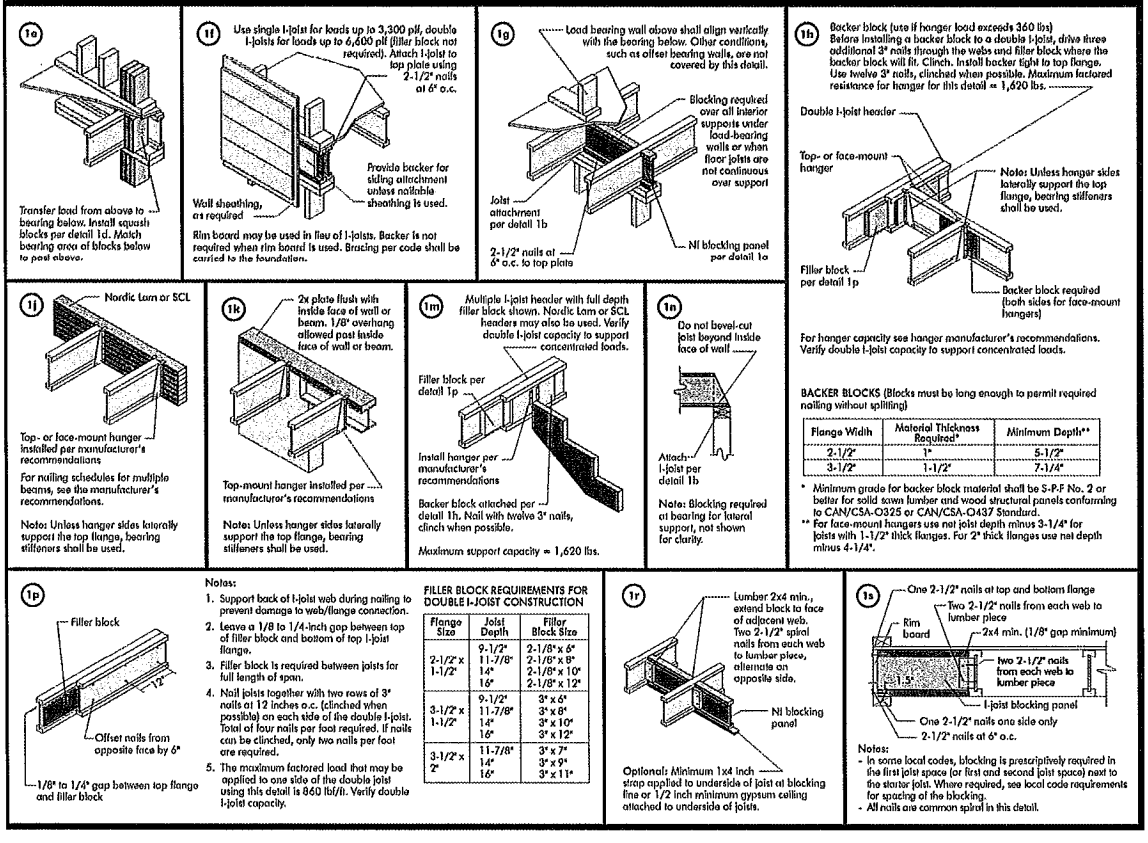
Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-5/16" minimum width
3-1/2"	1-1/2" x 2-5/16" minimum width

NORDIC I-JOIST SERIES



Chantiers Chibougamau 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.

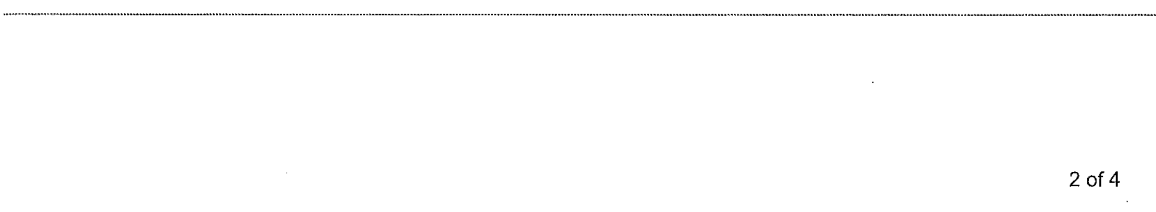
Nordic Engineered Wood I-joists use only finger-jointed black spruce lumber in their flanges, ensuring consistent quality, superior strength, and longer span carrying capacity.



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

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

* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-O325 or CAN/CSA-O437 Standard.
** For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".



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 span.
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 joist using this detail is 860 lbf/ft. Verify double I-joist capacity.

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

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

Notes:
- In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.
- All nails are common spiral in this detail.

The construction details for residential designs are prone to changes.

Details released after April 2014 supersedes N-C301

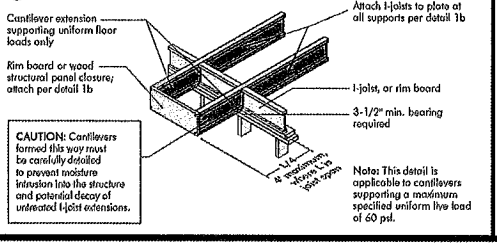
Installation must comply with latest documentation on I-Joist and other Nordic products from the http://nordic.ca/

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.

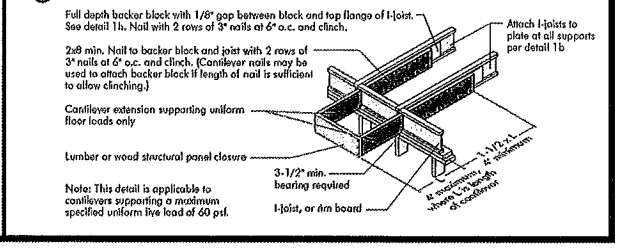
(Nordic Request 1810-095)

CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

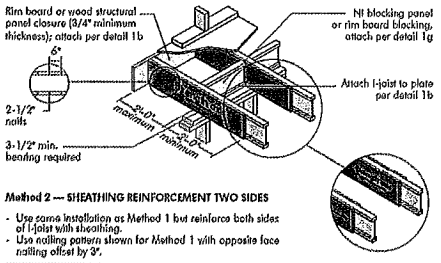


3b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE

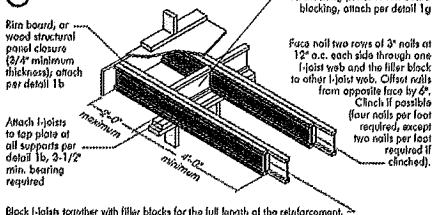


Method 2 — SHEATHING REINFORCEMENT TWO SIDES

- 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 3".

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

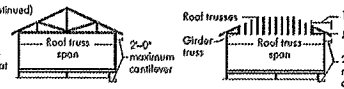
4b Alternate Method 2 — DOUBLE I-JOIST



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

FIGURE 4 (continued)

See table below for NI reinforcement requirements at cantilever.



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

CANTILEVER REINFORCEMENT METHODS ALLOWED

Joist Depth (in.)	Roof Truss Span (ft)	ROOF LOADING (UNFACTORED) LL = 30 psf, DL = 15 psf — Joist Spacing (in.) 12	16	19.2	24	LL = 40 psf, DL = 15 psf — Joist Spacing (in.) 12	16	19.2	24	LL = 50 psf, DL = 15 psf — Joist Spacing (in.) 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	1	2	X	X
	32	N	1	2	X	N	2	X	X	1	X	X	X
	34	N	1	2	X	N	2	X	X	1	X	X	X
	36	N	1	2	X	1	2	X	X	1	X	X	X
11-7/8	26	1	N	N	1	1	N	1	2	2	N	1	2
	28	1	N	N	1	2	N	1	2	2	1	1	X
	30	1	N	N	1	2	N	1	2	X	1	2	X
	32	1	N	1	1	2	N	1	2	X	1	2	X
	34	1	N	1	2	2	1	1	X	X	1	2	X
	36	2	N	1	2	X	1	2	X	X	1	2	X
	38	2	N	1	2	X	1	2	X	X	2	X	X
14	26	N	N	N	N	N	N	N	1	N	N	N	1
	28	N	N	N	N	N	N	N	1	N	N	1	1
	30	N	N	N	N	N	N	N	1	N	N	1	2
	32	N	N	N	1	N	N	N	1	N	N	1	2
	34	N	N	N	1	N	N	1	1	N	N	1	2
	36	N	N	N	1	N	N	1	2	N	1	1	2
	38	N	N	N	1	N	N	1	2	N	1	1	X
	40	N	N	N	1	N	N	1	2	N	1	2	X
16	26	N	N	N	N	N	N	N	N	N	N	N	1
	28	N	N	N	N	N	N	N	1	N	N	N	1
	30	N	N	N	N	N	N	N	1	N	N	N	1
	32	N	N	N	N	N	N	N	1	N	N	1	1
	34	N	N	N	N	N	N	N	1	N	N	1	2
	36	N	N	N	1	N	N	N	1	N	N	1	2
	38	N	N	N	1	N	N	N	1	N	N	1	2
	40	N	N	N	1	N	N	1	2	N	N	1	2

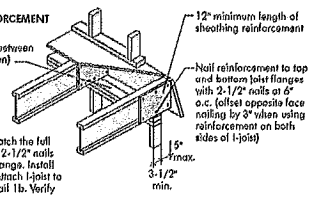
1. N = No reinforcement required.
   1 = NI reinforced with 3/4" wood structural panel on one side only.
   2 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
   X = Try a deeper joist or closer spacing.
2. Maximum design load shall be 18 psf roof dead load, 55 psf floor total load, and 80 plf wall load. Wall load is based on 3'-0" maximum width window or door openings.

For larger openings, or multiple 3'-0" width openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.

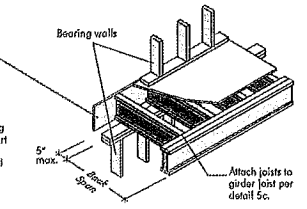
3. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
4. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting walls and the ridge beam. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
5. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

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

5a SHEATHING REINFORCEMENT



5b SET-BACK DETAIL



5c SET-BACK CONNECTION

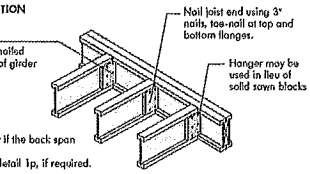
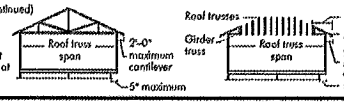


FIGURE 5 (continued)

See table below for NI reinforcement requirements at cantilever.



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

BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

Joist Depth (in.)	Roof Truss Span (ft)	ROOF LOADING (UNFACTORED) LL = 30 psf, DL = 15 psf — Joist Spacing (in.) 12	16	19.2	24	LL = 40 psf, DL = 15 psf — Joist Spacing (in.) 12	16	19.2	24	LL = 50 psf, DL = 15 psf — Joist Spacing (in.) 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	X	X	X	X
	30	1	X	X	X	2	X	X	X	X	X	X	X
	32	2	X	X	X	2	X	X	X	X	X	X	X
	34	2	X	X	X	X	X	X	X	X	X	X	X
	36	2	X	X	X	X	X	X	X	X	X	X	X
11-7/8	26	X	2	X	X	X	X	X	X	X	X	X	X
	28	X	2	X	X	X	X	X	X	X	X	X	X
	30	X	2	X	X	X	X	X	X	X	X	X	X
	32	X	2	X	X	X	X	X	X	X	X	X	X
	34	X	X	X	X	X	X	X	X	X	X	X	X
	36	X	X	X	X	X	X	X	X	X	X	X	X
	38	X	X	X	X	X	X	X	X	X	X	X	X
14	26	N	2	X	X	1	X	X	X	1	X	X	X
	28	N	2	X	X	1	X	X	X	2	X	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
	36	1	X	X	X	2	X	X	X	X	X	X	X
	38	1	X	X	X	2	X	X	X	X	X	X	X
	40	1	X	X	X	2	X	X	X	X	X	X	X
16	26	1	2	X	X	1	X	X	X	2	X	X	X
	28	1	2	X	X	1	X	X	X	2	X	X	X
	30	1	X	X	X	1	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	X	X	X	X
	36	1	X	X	X	2	X	X	X	X	X	X	X
	38	1	X	X	X	2	X	X	X	X	X	X	X
	40	2	X	X	X	2	X	X	X	X	X	X	X

1. N = No reinforcement required.
   1 = NI reinforced with 3/4" wood structural panel on one side only.
   2 = NI reinforced with 3/4" wood structural panel on both sides, or double I-joist.
   X = Try a deeper joist or closer spacing.
2. Maximum design load shall be 18 psf roof dead load, 55 psf floor total load, and 80 plf wall load. Wall load is based on 3'-0" maximum width window or door openings.

For larger openings, or multiple 3'-0" width openings spaced less than 6'-0" o.c., additional joists beneath the opening's cripple studs may be required.

3. Table applies to joists 12" to 24" o.c. that meet the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
4. For conventional roof construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting walls and the ridge beam. When the roof is framed using a ridge board, the Roof Truss Span is equivalent to the distance between the supporting walls as if a truss is used.
5. Cantilevered joists supporting girder trusses or roof beams may require additional reinforcing.

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)

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

1. The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
2. I-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 or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
7. A knockout is **not** considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
8. Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.
9. A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
10. All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
11. Limit three maximum size holes per span, of which one may be a duct chase opening.
12. A group of round holes at approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

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.)												Span adjustment factor
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	
9-1/2"	NI-20	0'-7"	1'-5"	2'-10"	4'-3"	5'-8"	6'-4"	---	---	---	---	---	---	1'-5"
	NI-40x	0'-7"	1'-6"	3'-0"	4'-4"	6'-0"	6'-8"	---	---	---	---	---	---	1'-6"
	NI-60	0'-7"	1'-5"	2'-9"	4'-0"	5'-4"	6'-0"	7'-0"	---	---	---	---	---	1'-5"
	NI-70	0'-7"	1'-4"	2'-7"	3'-9"	5'-0"	5'-7"	6'-7"	---	---	---	---	---	1'-4"
	NI-90	0'-7"	1'-3"	2'-5"	3'-6"	4'-8"	5'-2"	6'-1"	---	---	---	---	---	1'-3"
11-7/8"	NI-20	0'-7"	0'-8"	1'-9"	2'-9"	3'-9"	4'-2"	5'-0"	6'-5"	7'-5"	---	---	---	1'-6"
	NI-40x	0'-7"	0'-8"	1'-10"	2'-11"	4'-0"	4'-5"	5'-5"	7'-0"	8'-1"	---	---	---	1'-6"
	NI-60	0'-7"	1'-8"	3'-0"	4'-3"	5'-8"	6'-3"	7'-3"	9'-10"	10'-0"	---	---	---	1'-6"
	NI-70	0'-7"	1'-3"	2'-6"	3'-9"	5'-0"	5'-6"	7'-2"	8'-4"	10'-0"	11'-2"	---	---	1'-4"
	NI-80	0'-7"	1'-4"	2'-10"	4'-2"	5'-7"	6'-2"	7'-5"	8'-6"	10'-3"	11'-4"	---	---	1'-5"
	NI-90	0'-7"	0'-8"	1'-6"	3'-2"	4'-10"	5'-4"	6'-5"	8'-9"	10'-2"	---	---	---	1'-3"
	NI-90x	0'-7"	0'-8"	0'-9"	2'-5"	4'-1"	4'-6"	5'-5"	---	---	---	---	---	1'-0"
14"	NI-40x	0'-7"	0'-8"	1'-0"	2'-4"	3'-8"	3'-9"	5'-2"	6'-0"	6'-8"	8'-3"	10'-2"	---	1'-1"
	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"	1'-2"
	NI-70	0'-7"	0'-8"	1'-10"	3'-0"	4'-3"	4'-10"	6'-2"	7'-3"	8'-9"	9'-7"	10'-4"	12'-0"	1'-2"
	NI-80	0'-10"	1'-0"	2'-0"	3'-4"	4'-9"	5'-3"	6'-5"	7'-5"	9'-0"	10'-0"	10'-8"	12'-4"	1'-3"
	NI-90	0'-7"	0'-8"	1'-4"	2'-5"	3'-6"	3'-9"	4'-8"	6'-5"	7'-9"	8'-8"	9'-4"	11'-4"	1'-1"
	NI-90x	0'-7"	0'-8"	0'-9"	2'-0"	3'-0"	3'-2"	4'-0"	5'-6"	6'-8"	7'-5"	8'-0"	9'-8"	0'-11"
16"	NI-60	0'-7"	0'-8"	0'-8"	1'-9"	2'-10"	3'-0"	4'-5"	5'-0"	6'-4"	7'-0"	8'-3"	9'-8"	1'-1"
	NI-70	0'-7"	0'-8"	1'-0"	2'-3"	3'-4"	3'-7"	5'-2"	6'-4"	7'-8"	8'-6"	9'-2"	10'-8"	1'-0"
	NI-80	0'-7"	1'-3"	2'-6"	3'-10"	5'-3"	5'-8"	6'-8"	8'-0"	9'-9"	11'-0"	12'-3"	13'-9"	1'-2"
	NI-90	0'-7"	0'-8"	0'-8"	1'-9"	2'-9"	3'-0"	4'-5"	6'-6"	7'-5"	8'-0"	9'-10"	11'-3"	1'-0"
	NI-90x	0'-7"	0'-8"	0'-8"	1'-6"	2'-4"	2'-6"	3'-5"	5'-0"	6'-5"	7'-2"	8'-4"	10'-2"	0'-11"

Joist Depth	Joist Series	Span adjustment factor
9-1/2"	NI-20	1'-5"
	NI-40x	1'-6"
	NI-60	1'-5"
	NI-70	1'-4"
	NI-90	1'-3"
11-7/8"	NI-20	1'-6"
	NI-40x	1'-6"
	NI-60	1'-6"
	NI-70	1'-4"
	NI-80	1'-5"
	NI-90	1'-3"
	NI-90x	1'-0"
14"	NI-40x	1'-1"
	NI-60	1'-2"
	NI-70	1'-2"
	NI-80	1'-3"
	NI-90	1'-1"
	NI-90x	0'-11"
16"	NI-60	1'-1"
	NI-70	1'-0"
	NI-80	1'-2"
	NI-90	1'-0"
	NI-90x	0'-11"

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

OPTIONAL:

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

$D_{reduced} = \frac{I_{actual}}{SAF} \times D$

Where: $D_{reduced}$ = Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span applications (ft). The reduced distance shall not be less than 6 inches from the face of the support to edge of the hole.

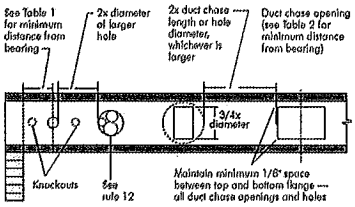
I_{actual} = The actual measured span distance between the inside faces of supports (ft).

SAF = Span Adjustment Factor given in this table.

D = The minimum distance from the inside face of any support to centre of hole from this table.

If $\frac{I_{actual}}{SAF}$ is greater than 1, use 1 in the above calculation for $\frac{I_{actual}}{SAF}$.

FIGURE 7
FIELD-CUT HOLE LOCATOR



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

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

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

Holes in webs should be cut with a sharp saw.

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

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 (ft-in.) — Duct chase length (in.)								
		8	10	12	14	16	18	20	22	24
9-1/2"	NI-20	4'-1"	4'-2"	4'-10"	5'-4"	5'-9"	6'-1"	6'-6"	7'-1"	7'-5"
	NI-40x	5'-3"	5'-9"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"
	NI-60	5'-0"	5'-6"	5'-10"	6'-2"	6'-7"	7'-1"	7'-5"	7'-9"	8'-0"
	NI-70	5'-1"	5'-6"	5'-10"	6'-3"	6'-7"	7'-1"	7'-5"	7'-9"	8'-1"
	NI-90	4'-11"	5'-5"	5'-9"	6'-2"	6'-6"	7'-0"	7'-4"	7'-8"	8'-0"
11-7/8"	NI-20	5'-0"	5'-2"	5'-6"	5'-11"	6'-0"	6'-3"	6'-5"	6'-9"	7'-0"
	NI-40x	6'-8"	7'-2"	7'-7"	8'-1"	8'-5"	8'-9"	9'-1"	9'-6"	10'-1"
	NI-60	6'-5"	7'-0"	7'-5"	7'-9"	8'-0"	8'-4"	8'-7"	9'-0"	9'-5"
	NI-70	7'-1"	7'-6"	7'-9"	8'-3"	8'-7"	9'-1"	9'-6"	10'-1"	10'-6"
	NI-80	7'-2"	7'-7"	8'-0"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-8"
	NI-90	7'-1"	7'-6"	8'-0"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-8"
	NI-90x	6'-7"	7'-1"	7'-6"	7'-11"	8'-4"	8'-8"	9'-0"	9'-5"	9'-10"
14"	NI-40x	7'-7"	8'-1"	8'-6"	8'-10"	9'-2"	9'-6"	10'-1"	10'-7"	11'-2"
	NI-60	8'-0"	8'-6"	9'-0"	9'-4"	9'-8"	10'-1"	10'-6"	11'-1"	11'-7"
	NI-70	8'-1"	8'-7"	9'-0"	9'-5"	9'-9"	10'-2"	10'-7"	11'-1"	11'-7"
	NI-80	8'-2"	8'-7"	9'-0"	9'-5"	9'-9"	10'-2"	10'-7"	11'-1"	11'-7"
	NI-90	8'-2"	8'-7"	9'-0"	9'-5"	9'-9"	10'-2"	10'-7"	11'-1"	11'-7"
	NI-90x	7'-7"	8'-0"	8'-5"	8'-9"	9'-2"	9'-6"	9'-11"	10'-5"	10'-10"
16"	NI-60	10'-3"	10'-8"	11'-2"	11'-4"	12'-1"	12'-6"	13'-2"	13'-9"	14'-5"
	NI-70	10'-4"	10'-8"	11'-0"	11'-4"	11'-10"	12'-3"	12'-8"	13'-3"	14'-0"
	NI-80	10'-4"	10'-8"	11'-0"	11'-4"	11'-8"	12'-1"	12'-7"	13'-1"	13'-8"
	NI-90	10'-4"	10'-8"	11'-0"	11'-4"	11'-8"	12'-1"	12'-7"	13'-1"	13'-8"
	NI-90x	9'-8"	10'-2"	10'-7"	11'-0"	11'-4"	11'-8"	12'-1"	12'-6"	13'-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 supports to centre of opening.
3. The above table is based on simple-span joists only. For other applications, contact your local distributor.
4. Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. For other applications, contact your local distributor.

INSTALLING THE GLUED FLOOR SYSTEM

1. Wipe any mud, dirt, water, or ice from I-joist flanges before gluing.
2. Snap a chalk line across the I-joists four feet in from the wall for panel edge alignment and as a boundary for spreading glue.
3. Spread only enough glue to lay one or two panels at a time, or follow specific recommendations from the glue manufacturer.
4. Lay the first panel with tongue side to the wall, and nail in place. This protects the tongue of the next panel from damage when tapped into place with a block and sledgehammer.
5. Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joist. Apply glue in a winding pattern on wide areas, such as with double I-joists.
6. Apply two lines of glue on I-joists where panel ends butt to assure proper gluing of each end.
7. After the first row of panels is in place, spread glue in the groove of one or two panels at a time before laying the next row. Glue line may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) than used on I-joist flanges.
8. Tap the second row of panels into place, using a block to protect groove edges.
9. Stagger end joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&G edges, is recommended. (Use a spacer tool or an 2-1/2" common nail to assure accurate and consistent spacing.)
10. **Complete all nailing of each panel before glue sets.** Check the manufacturer's recommendations for cure time. (Warm weather accelerates glue setting.) Use 2" ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the glue bond.

FASTENERS FOR SHEATHING AND SUBFLOORING(1)

Maximum Joist Spacing (in.)	Minimum Panel Thickness (in.)	Nail Size and Type — Common Wire or Spiral Nails	Ring Thread Nails or Screws	Staples	Maximum Spacing of Fasteners — Edges	Interm. 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"

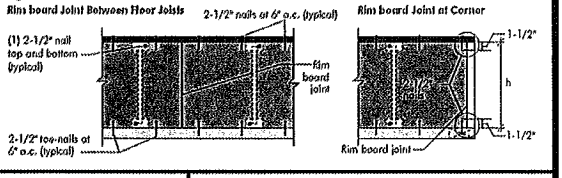
1. Fasteners of sheathing and subflooring shall conform to the above table.
2. Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to framing.
3. Flooring screws shall not be less than 1/8-inch in diameter.
4. Special conditions may impose heavy traffic and concentrated loads that require construction in excess of the minimums shown.
5. Use only adhesives conforming to CAN/CGSB-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.: NRC-CNRC, National Building Code of Canada 2010, Table 9.23.3.5.

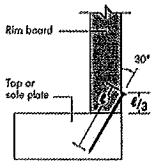
IMPORTANT NOTE:
Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with your local distributor.

RIM BOARD INSTALLATION DETAILS

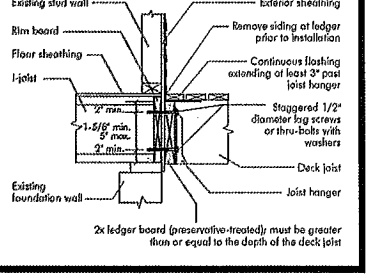
8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



8b TOE-NAIL CONNECTION AT RIM BOARD



8c 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL

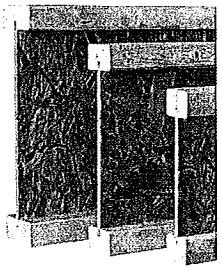


2x ledger board (preservative-treated) must be greater than or equal to the depth of the deck joist

PRODUCT WARRANTY

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

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



CONSTRUCTION DETAILS FOR RESIDENTIAL FLOORS

NORDIC ENGINEERED WOOD

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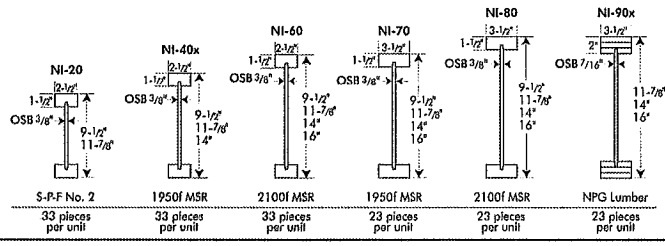
FSC www.fsc.org FSC® C011817 The mark of responsible forestry

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 or duct chase opening)* and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
7. A knockout is **not** considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
8. Holes measuring 1-1/2 inches or smaller 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 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 (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'-6"	10'-3"	11'-4"	---	---	---	---	---	---
	NI-90x	0'-7"	0'-8"	0'-9"	2'-5"	4'-4"	4'-9"	6'-3"	---	---	---	---	---	---	---	---
14"	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"	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"	---	---	---
	NI-90x	0'-7"	0'-8"	0'-8"	2'-0"	3'-9"	4'-2"	5'-5"	7'-3"	8'-5"	9'-2"	---	---	---	---	---
16"	NI-60	0'-7"	0'-8"	0'-8"	1'-6"	2'-10"	3'-2"	4'-2"	5'-6"	6'-4"	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'-9"	2'-0"	3'-6"	4'-0"	5'-0"	6'-9"	7'-9"	8'-4"	10'-2"	11'-6"	12'-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 supports to centre of hole.
3. Distances in this chart are based on uniformly loaded joists.
4. The above table is based on the I-joists being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

TABLE 2

DUCT CHASE OPENING SIZES AND LOCATIONS

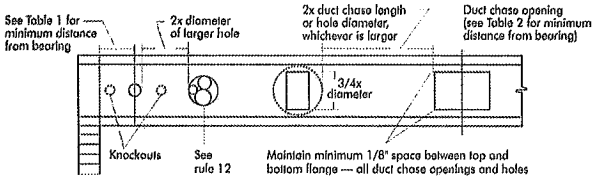
Simple Span Only

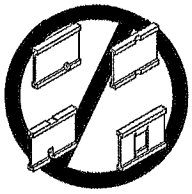
Joist Depth	Joist Series	Minimum Distance from Inside Face of Supports to Centre of Opening (ft - in.) Duct Chase Length (in.) 8	10	12	14	16	18	20	22	24
9-1/2"	NI-20	4'-1"	4'-5"	4'-10"	5'-4"	5'-8"	6'-1"	6'-6"	7'-1"	7'-5"
	NI-40x	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"
	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8'-3"	8'-9"
	NI-70	5'-1"	5'-5"	5'-10"	6'-3"	6'-7"	7'-1"	7'-6"	8'-1"	8'-4"
	NI-80	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"
11-7/8"	NI-20	5'-9"	6'-2"	6'-6"	7'-1"	7'-5"	7'-9"	8'-3"	8'-9"	9'-4"
	NI-40x	6'-8"	7'-2"	7'-6"	8'-1"	8'-6"	9'-1"	9'-6"	10'-1"	10'-9"
	NI-60	7'-3"	7'-8"	8'-0"	8'-6"	9'-0"	9'-3"	9'-9"	10'-3"	11'-0"
	NI-70	7'-1"	7'-4"	7'-9"	8'-3"	8'-7"	9'-1"	9'-6"	10'-1"	10'-4"
	NI-80	7'-2"	7'-7"	8'-0"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-8"
	NI-90x	7'-7"	8'-1"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-8"	11'-2"
14"	NI-40x	8'-1"	8'-7"	9'-0"	9'-6"	10'-1"	10'-7"	11'-2"	12'-0"	12'-8"
	NI-60	8'-9"	9'-3"	9'-8"	10'-1"	10'-6"	11'-1"	11'-6"	13'-3"	13'-0"
	NI-70	8'-7"	9'-1"	9'-5"	9'-10"	10'-4"	10'-8"	11'-2"	11'-7"	12'-3"
	NI-80	9'-0"	9'-3"	9'-9"	10'-1"	10'-7"	11'-1"	11'-6"	12'-1"	12'-6"
	NI-90x	9'-4"	9'-9"	10'-3"	10'-7"	11'-1"	11'-7"	12'-1"	12'-7"	13'-2"
16"	NI-60	10'-3"	10'-8"	11'-2"	11'-6"	12'-1"	12'-6"	13'-2"	14'-1"	14'-10"
	NI-70	10'-1"	10'-5"	11'-0"	11'-4"	11'-10"	12'-3"	12'-8"	13'-3"	14'-0"
	NI-80	10'-4"	10'-9"	11'-3"	11'-9"	12'-1"	12'-7"	13'-1"	13'-8"	14'-4"
	NI-90x	11'-1"	11'-5"	11'-10"	12'-4"	12'-10"	13'-2"	13'-9"	14'-4"	15'-2"

1. Above table may be used for I-joist spacing of 24 inches on centre or less.
2. Duct chase opening location distance is measured from inside face of supports to centre of opening.
3. The above table is based on simple-span joists only. For other applications, contact your local distributor.
4. Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480.
5. The above table is based on the I-joists being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

FIGURE 7

FIELD-CUT HOLE LOCATOR





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

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

Holes in webs should be cut with a sharp saw.

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

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 unsheathed I-joists. Once sheathed, do not over-stress I-joists with concentrated loads from building materials.

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

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

1. Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, and/or cross-bridging at joist ends. When I-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
2. When the building is completed, the floor sheathing will provide lateral support for the top flanges of the I-joists. Until this sheathing is applied, temporary bracing, often called struts, or temporary sheathing must be applied to prevent I-joist rollover or buckling.
   - Temporary bracing or struts must be 1x4 inch minimum, at least 8 feet long and spaced no more than 8 feet on centre, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
   - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-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.

CHANTIERS CHIBOUGAMAU

PRODUCT WARRANTY

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

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

The construction details for residential designs are prone to changes.

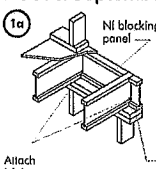
Details released after September 2013 supersedes N-303

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.

(Nordic Request 1810-095)

1a

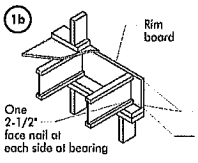


Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
NI Joists	3,300

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

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

1b



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

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

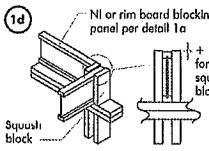
One 2-1/2" wire or spiral nail at top and bottom flange

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

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

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

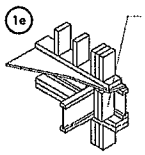
1d



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

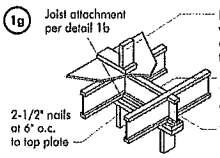
Provide lateral bracing per detail 1a or 1b

1e



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

1g



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

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

1h

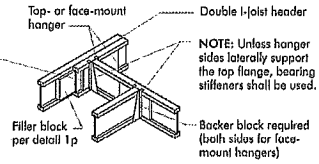
Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double I-joist, drive three additional 3" nails through the web and filler block where the backer block will fit. Clinch. Install backer tight to top flange. Use twelve 3" nails, clinched when possible. Maximum factored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

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

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

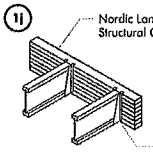
* Minimum grade for backer block material shall be S-P-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-O325 or CAN/CSA-O437 Standard.

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



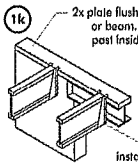
For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

1i

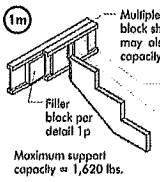


NOTE: Unless hanger sides laterally support the top flange, bearing stiffeners shall be used.

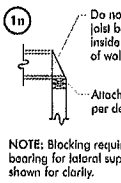
1k



1m

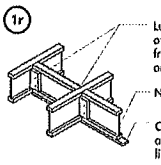


1n

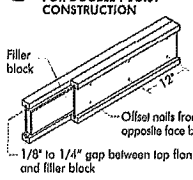


NOTE: Blocking required at bearing for lateral support, not shown for clarity.

1r



1p FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

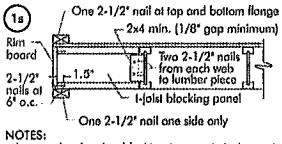


NOTES:

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 span.
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 joist using this detail is 860 lbf/ft. Verify double I-joist capacity.

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

1s



NOTES:

- In some local codes, blocking is prescriptively required in the first joist space (or first and second joist space) next to the starter joist. Where required, see local code requirements for spacing of the blocking.
- All nails are common spiral in this detail.

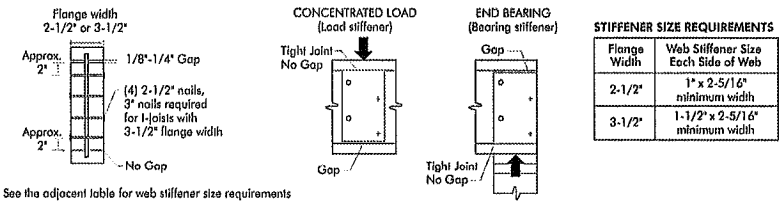
All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.

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 of 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



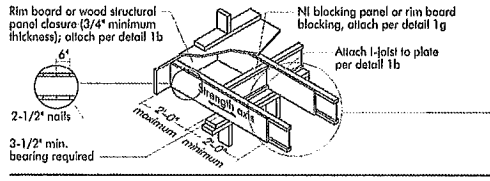
See the adjacent table for web stiffener size requirements

STIFFENER SIZE REQUIREMENTS

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

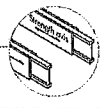
CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

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.



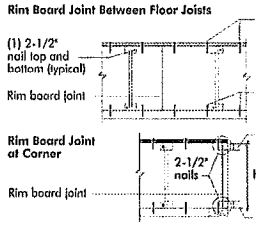
Use nailing pattern shown for Method 1 with opposite face nailing offset by 3".

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

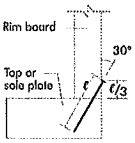
RIM BOARD INSTALLATION DETAILS

8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

Rim Board Joint Between Floor Joists



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.

(Nordic Request 1810-095)