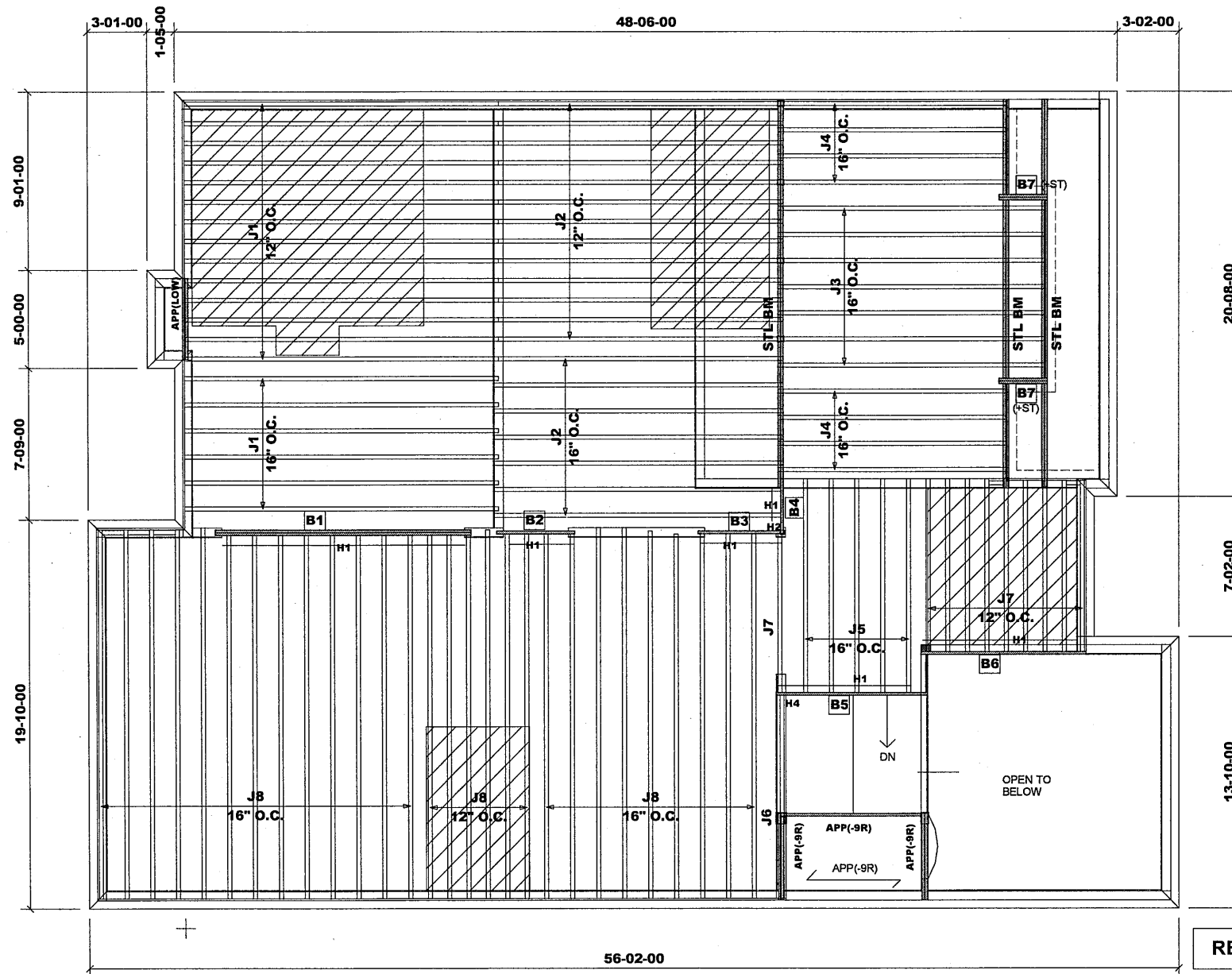




Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1	17-00-00	11 7/8" NI-20	1	20	FF
J2	15-00-00	11 7/8" NI-20	1	20	FF
J3	14-00-00	11 7/8" NI-20	1	7	FF
J4	12-00-00	11 7/8" NI-20	1	8	FF
J5	11-00-00	11 7/8" NI-20	1	5	FF
J6	11-00-00	11 7/8" NI-20	2	2	FF
J7	9-00-00	11 7/8" NI-20	1	10	FF
J8	19-00-00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

HANGER SCHEDULE

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

NOTE:

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

RIMBOARD

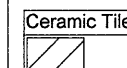
1- 1/8" X 11 7/8" O.S.B.

SUBFLOOR - 3/4" NAILED & GLUED

APP - AS PER PLAN
BBO - BEAM BY OTHERS

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

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



Second Floor Framing

Do not scale - refer to architectural plans for dimensions

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

REVISION: March 16, 2020

SE 007575 - SE 007590

JT/PL: 45147/105729

Builder: Gold Park

Location: Vaughan

Designer: NL

Alpa Roof Trusses Inc.

Salesperson: Derek

LI: 318275(290681)

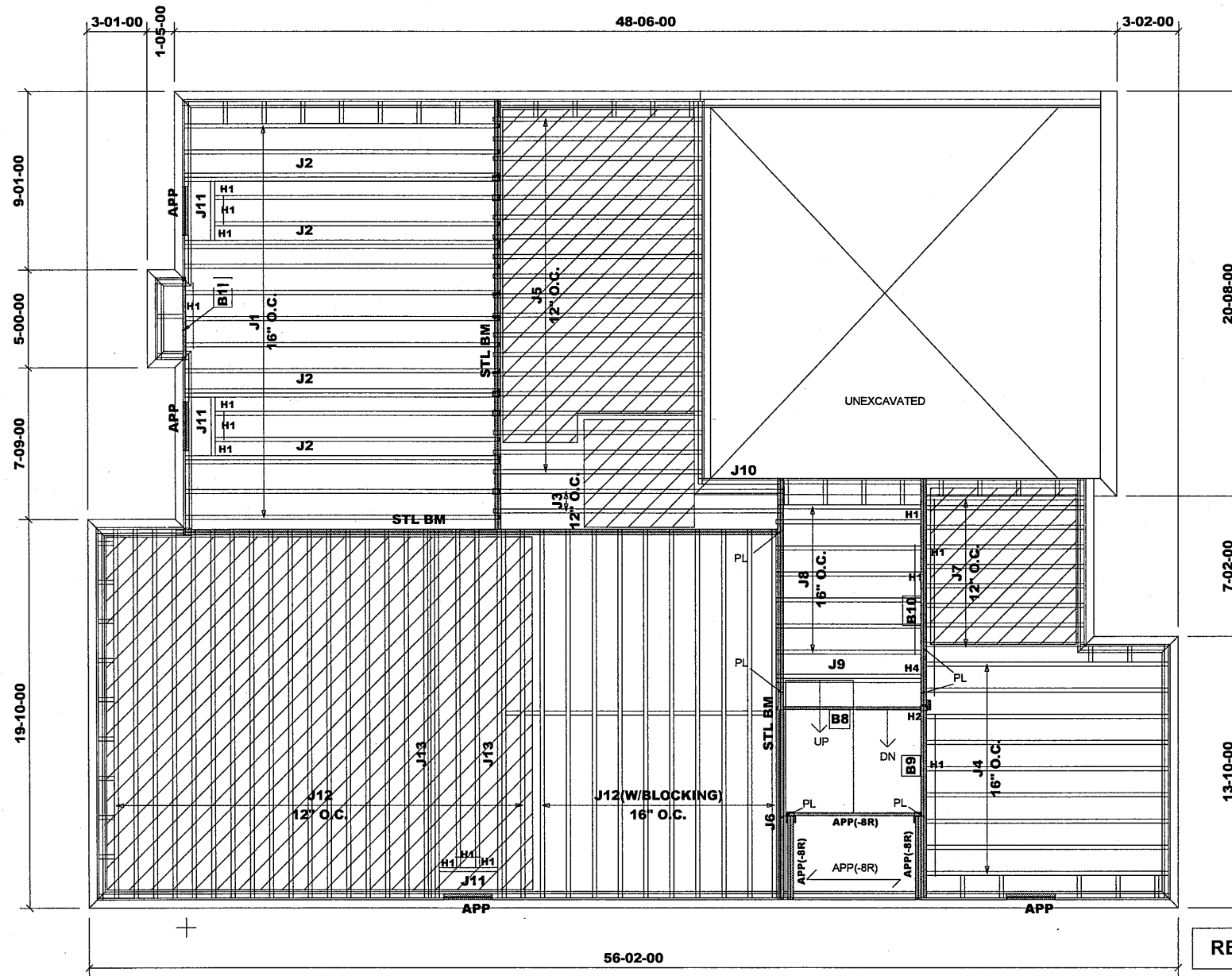
Project: Pine Valley

Date: November 23, 2017

Sheet: 1 of 7

Maple, Ontario

Home Lumber

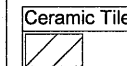


Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1	17-00-00	11 7/8" NI-20	1	13	FF
J2	17-00-00	11 7/8" NI-20	2	8	FF
J3	15-00-00	11 7/8" NI-20	1	2	FF
J4	13-00-00	11 7/8" NI-20	1	9	FF
J5	11-00-00	11 7/8" NI-20	1	19	FF
J6	10-00-00	11 7/8" NI-20	1	1	FF
J7	9-00-00	11 7/8" NI-20	1	9	FF
J8	8-00-00	11 7/8" NI-20	1	7	FF
J9	8-00-00	11 7/8" NI-20	2	2	FF
J10	5-00-00	11 7/8" NI-20	1	1	FF
J11	4-00-00	11 7/8" NI-20	1	3	FF
J12	19-00-00	11 7/8" NI-40x	1	30	FF
J13	19-00-00	11 7/8" NI-40x	2	4	FF
B10	12-00-00	VERSALAM-12 2.0E	2	2	FF
B9	10-00-00	VERSALAM-12 2.0E	2	2	FF
B8	8-00-00	VERSALAM-12 2.0E	1	1	FF
B11	5-00-00	VERSALAM-12 2.0E	1	1	FF

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

HANGER SCHEDULE
H1-----LT251188 (TM)
H2-----HUS1.81/10(FM)
H4-----MIT311.88-2(TM)
NOTE:
TM-----TOP MOUNT HANGERS
FM-----FACE MOUNT HANGERS

Ceramic tile application as per O.B.C. 9.30.6
Blocking panels are required over all interior supports
Squash blocks are required under concentrated loads.



First Floor Framing

Do not scale - refer to architectural plans for dimensions

MODEL: UNIT 5001 - EL.A
+ OPT. LOGGIA
+ W.O.D. CONDITION

REVISION: March 16, 2020

JT/PL: 45147/105729

Builder: Gold Park

Location: Vaughan

Designer: NL

Alpa Roof Trusses Inc.

Salesperson: Derek

LI: 318275(290681)

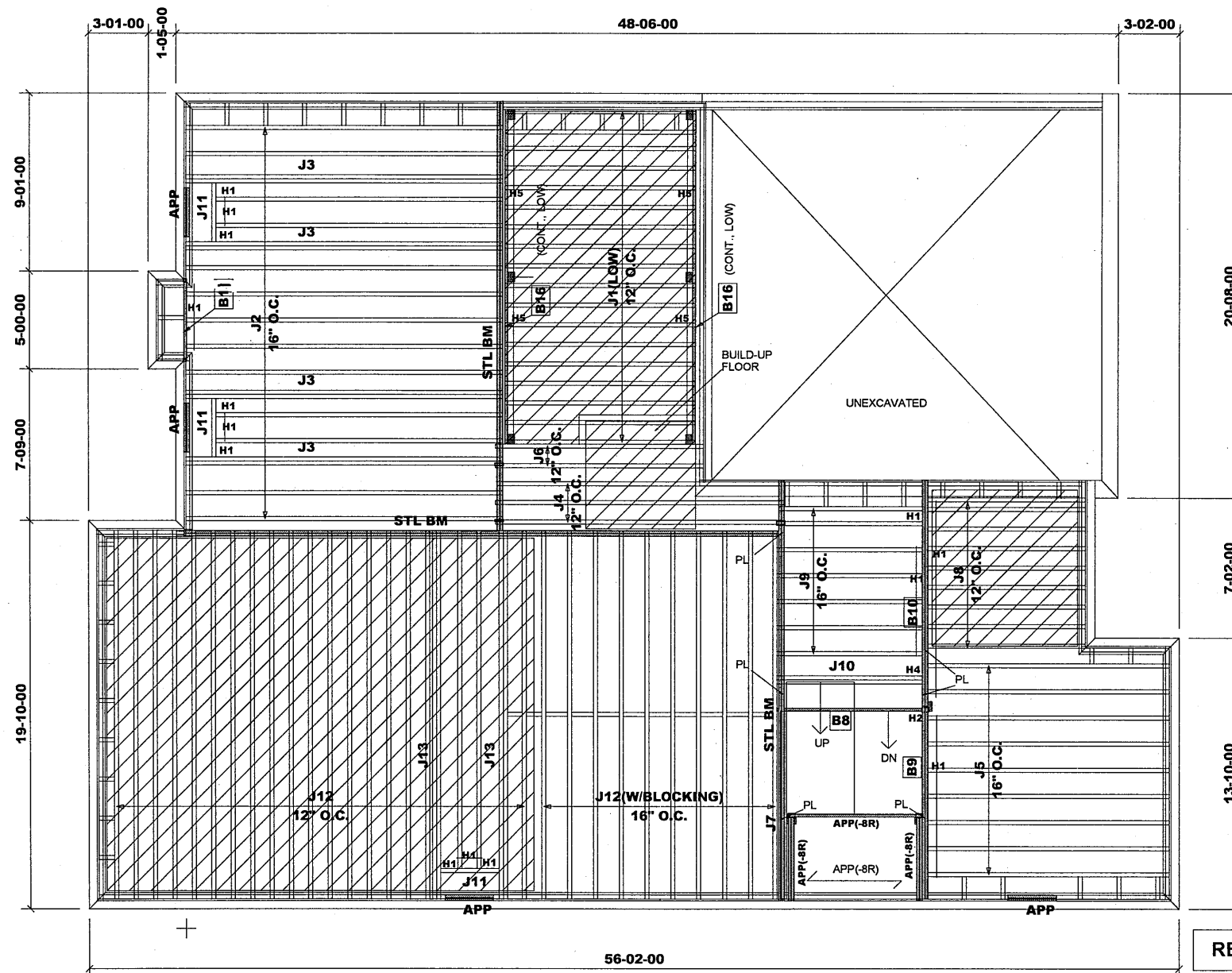
Project: Pine Valley

Date: November 23, 2017

Sheet: 2 of 7

Maple, Ontario

Home Lumber



Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1	10-00-00	9 1/2" NI-20	1	18	FF
J2	17-00-00	11 7/8" NI-20	1	13	FF
J3	17-00-00	11 7/8" NI-20	2	8	FF
J4	15-00-00	11 7/8" NI-20	1	3	FF
J5	13-00-00	11 7/8" NI-20	1	9	FF
J6	11-00-00	11 7/8" NI-20	1	2	FF
J7	10-00-00	11 7/8" NI-20	1	1	FF
J8	9-00-00	11 7/8" NI-20	1	9	FF
J9	8-00-00	11 7/8" NI-20	1	7	FF
J10	8-00-00	11 7/8" NI-20	2	2	FF
J11	4-00-00	11 7/8" NI-20	1	3	FF
J12	19-00-00	11 7/8" NI-40x	1	30	FF
J13	19-00-00	11 7/8" NI-40x	2	4	FF
B16	18-00-00	VERSALAM-10 2.0E	1	2	FF
B10	12-00-00	VERSALAM-12 2.0E	2	2	FF
B9	10-00-00	VERSALAM-12 2.0E	2	2	FF
B8	8-00-00	VERSALAM-12 2.0E	1	1	FF
B11	5-00-00	VERSALAM-12 2.0E	1	1	FF

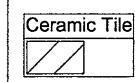
RIMBOARD
 1- 1/8" X 11 7/8" O.S.B.
SUBFLOOR - 3/4" NAILED & GLUED
 APP - AS PER PLAN
 BBO - BEAM BY OTHERS

HANGER SCHEDULE

H1	LT251188 (TM)
H2	HUS1.81/10(FM)
H4	MIT311.88-2(TM)
H5	LT259(TM)

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

Ceramic tile application as per O.B.C. 9.30.6
 Blocking panels are required over all interior supports
 Squash blocks are required under concentrated loads.

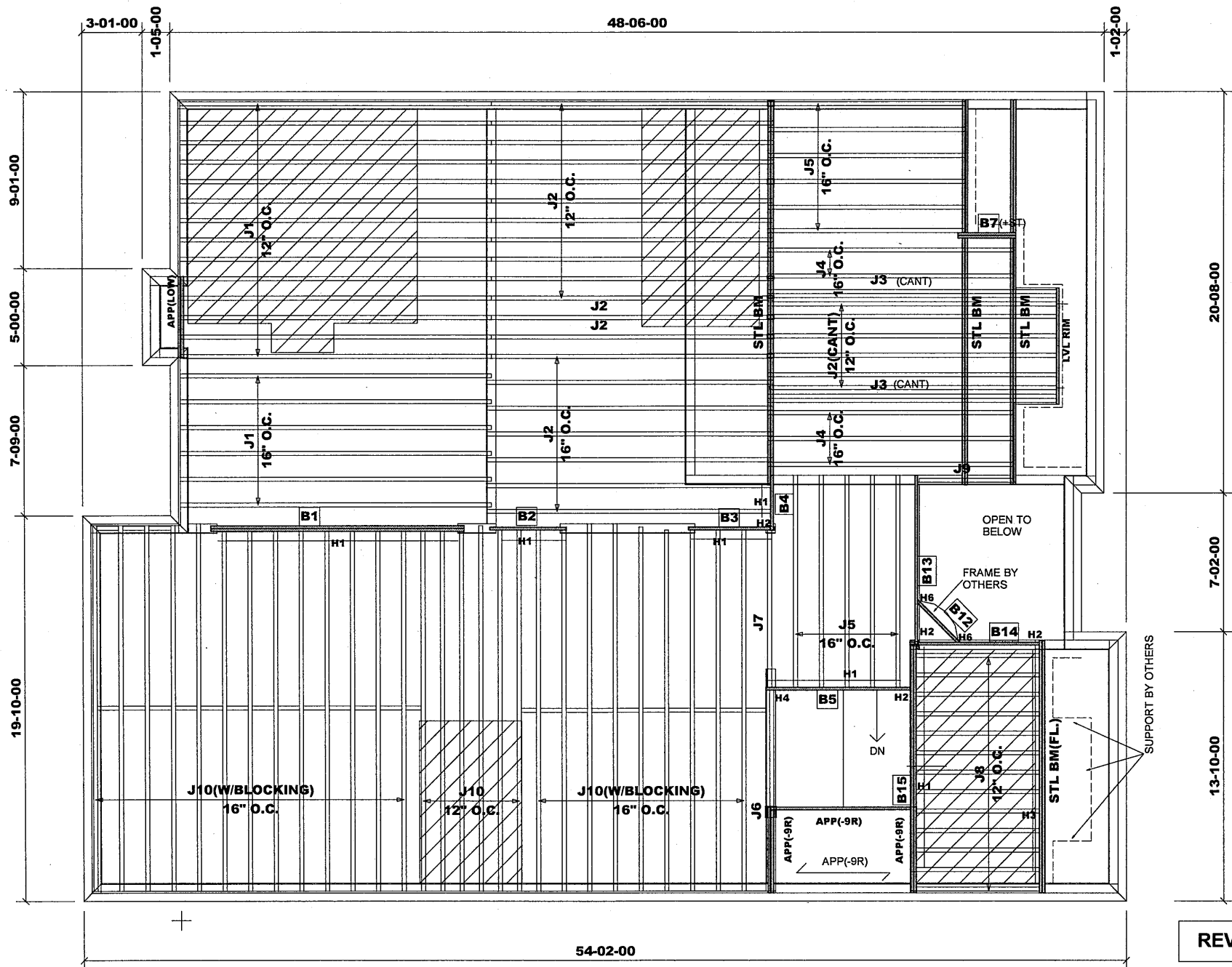


First Floor Framing

Do not scale - refer to architectural plans for dimensions

MODEL: UNIT 5001 - EL.A
W/SUNKEN MUDRM
+ OPT. LOGGIA
+ W.O.D. CONDITION

REVISION: March 16, 2020

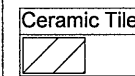


PlotID	Length	Products		Net Qty	Fab Type
		Product	Plies		
J1	17-00-00	11 7/8" NI-20	1	20	FF
J2	15-00-00	11 7/8" NI-20	1	26	FF
J3	15-00-00	11 7/8" NI-20	2	4	FF
J4	13-00-00	11 7/8" NI-20	1	5	FF
J5	11-00-00	11 7/8" NI-20	1	11	FF
J6	11-00-00	11 7/8" NI-20	2	2	FF
J7	9-00-00	11 7/8" NI-20	1	1	FF
J8	7-00-00	11 7/8" NI-20	1	13	MFD
J9	5-00-00	11 7/8" NI-20	1	1	FF
J10	19-00-00	11 7/8" NI-40x	1	28	FF
B1	14-00-00	VERSALAM-12 2.0E	2	2	FF
B15	13-00-00	VERSALAM-12 2.0E	2	2	FF
B13	9-00-00	VERSALAM-12 2.0E	1	1	FF
B5	8-00-00	VERSALAM-12 2.0E	1	1	FF
B14	7-00-00	VERSALAM-12 2.0E	1	1	FF
LVL RIM	6-00-00	VERSALAM-12 2.0E	1	1	FF
B3	5-00-00	VERSALAM-12 2.0E	1	1	FF
B12	4-00-00	VERSALAM-12 2.0E	1	1	FF
B2	4-00-00	VERSALAM-12 2.0E	1	1	FF
B4	3-00-00	VERSALAM-12 2.0E	1	1	FF
B7	3-00-00	VERSALAM-12 2.0E	2	2	FF

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

HANGER SCHEDULE	
H1	LT251188 (TM)
H2	HUS1.81/10(FM)
H3	LF259(FM)
H4	MIT311.88-2(TM)
H6	LSSR1.81Z(FM)
NOTE: TM -----TOP MOUNT HANGERS FM-----FACE MOUNT HANGERS	

Ceramic tile application as per O.B.C. 9.30.6
Provide I-Joist Blocking between cantilevered joists (along bearing) and rimboard closure at ends.
Blocking panels are required over all interior supports
Squash blocks are required under concentrated loads.



Second Floor Framing

Do not scale - refer to architectural plans for dimensions

REVISION: March 16, 2020

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

JT/PL: 45147/105729
LI: 318275(290681)

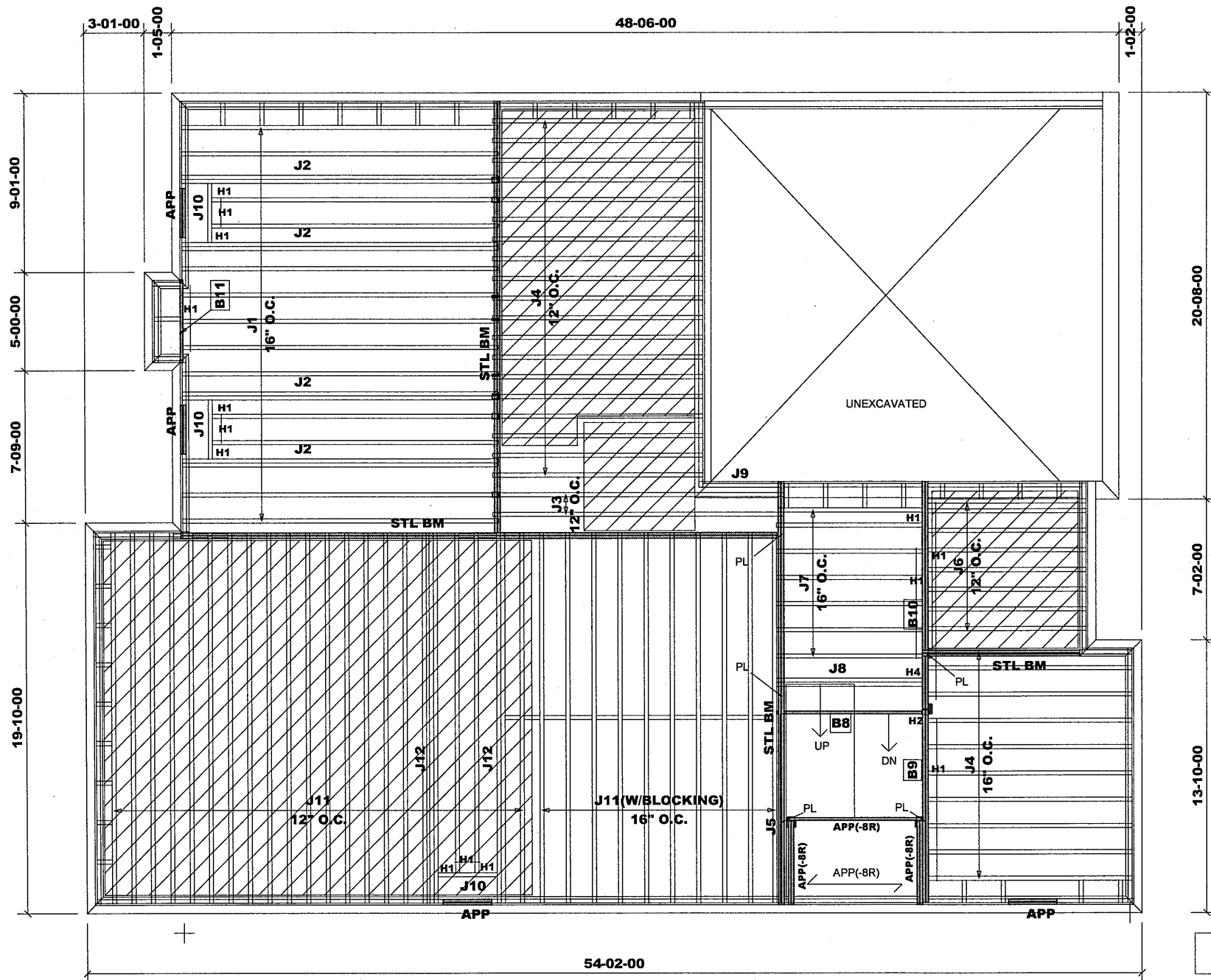
Builder: Gold Park
Project: Pine Valley

Location: Vaughan
Date: November 23, 2017

Designer: NL
Sheet: 4 of 7

Alpa Roof Trusses Inc.
Maple, Ontario

Salesperson: Derek
Home Lumber



Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1	17-00-00	11 7/8" NI-20	1	13	FF
J2	17-00-00	11 7/8" NI-20	2	8	FF
J3	15-00-00	11 7/8" NI-20	1	2	FF
J4	11-00-00	11 7/8" NI-20	1	29	FF
J5	10-00-00	11 7/8" NI-20	1	1	FF
J6	9-00-00	11 7/8" NI-20	1	8	FF
J7	8-00-00	11 7/8" NI-20	1	7	FF
J8	8-00-00	11 7/8" NI-20	2	2	FF
J9	5-00-00	11 7/8" NI-20	1	1	FF
J10	4-00-00	11 7/8" NI-20	1	3	FF
J11	19-00-00	11 7/8" NI-40x	1	30	FF
J12	19-00-00	11 7/8" NI-40x	2	4	FF
B10	12-00-00	VERSALAM-12 2.0E	2	2	FF
B9	10-00-00	VERSALAM-12 2.0E	2	2	FF
B8	8-00-00	VERSALAM-12 2.0E	1	1	FF
B11	5-00-00	VERSALAM-12 2.0E	1	1	FF

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

HANGER SCHEDULE

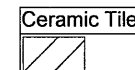
H1-----LT251188 (TM)
H2-----HUS1.81/10(FM)
H4-----MIT311.88-2(TM)

NOTE:

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

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

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



First Floor Framing

Do not scale - refer to architectural plans for dimensions

**MODEL: UNIT 5001 - EL.B
+ OPT. LOGGIA
+ W.O.D. CONDITION**

REVISION: March 16, 2020

JT/PL: 45147/105729

Builder: Gold Park

Location: Vaughan

Designer: NL

Alpa Roof Trusses Inc.

Salesperson: Derek

LI: 318275(290681)

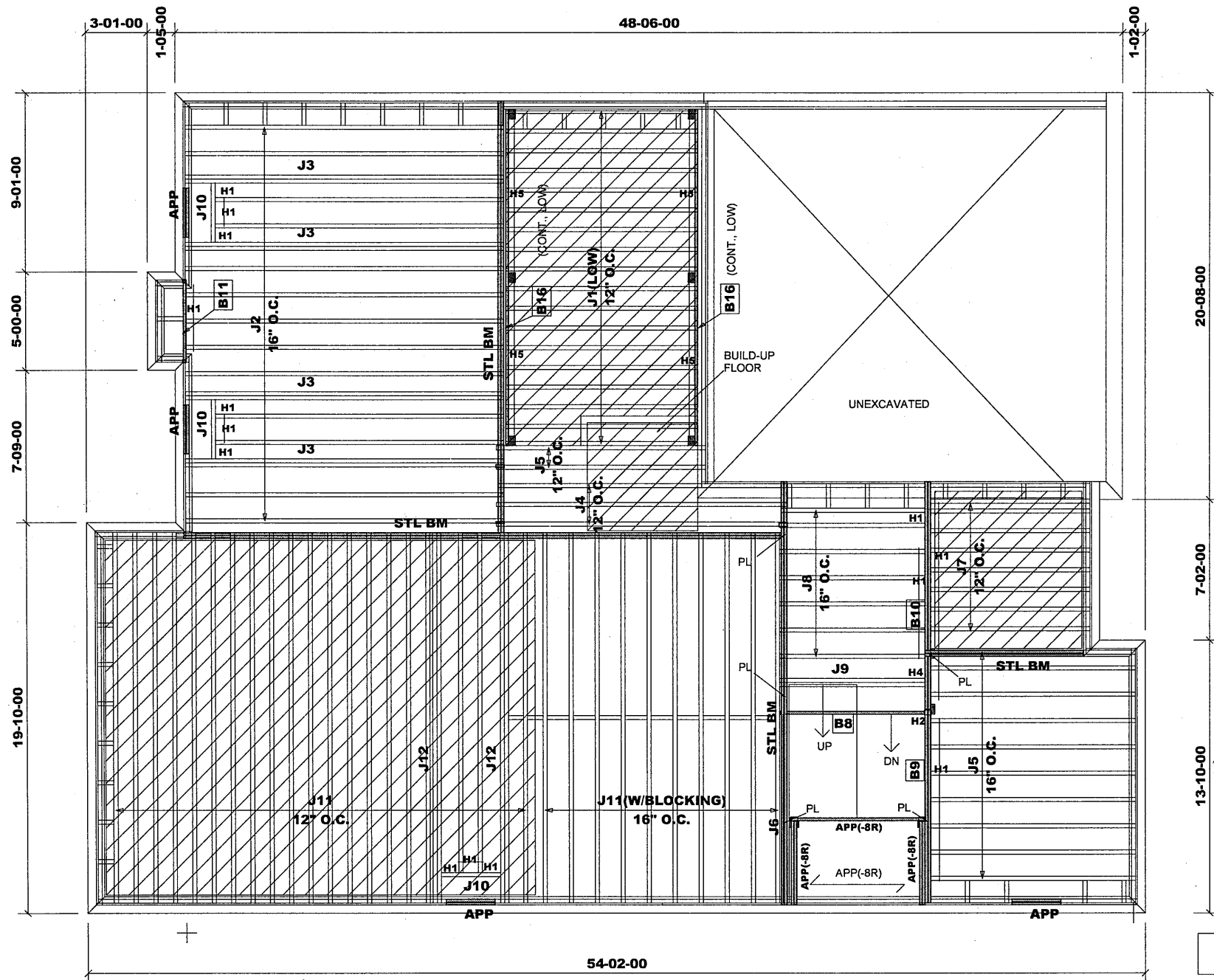
Project: Pine Valley

Date: November 23, 2017

Sheet: 5 of 7

Maple, Ontario

Home Lumber

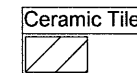


Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1	10-00-00	9 1/2" NI-20	1	18	FF
J2	17-00-00	11 7/8" NI-20	1	13	FF
J3	17-00-00	11 7/8" NI-20	2	8	FF
J4	15-00-00	11 7/8" NI-20	1	3	FF
J5	11-00-00	11 7/8" NI-20	1	12	FF
J6	10-00-00	11 7/8" NI-20	1	1	FF
J7	9-00-00	11 7/8" NI-20	1	8	FF
J8	8-00-00	11 7/8" NI-20	1	7	FF
J9	8-00-00	11 7/8" NI-20	2	2	FF
J10	4-00-00	11 7/8" NI-20	1	3	FF
J11	19-00-00	11 7/8" NI-40x	1	30	FF
J12	19-00-00	11 7/8" NI-40x	2	4	FF
B16	18-00-00	VERSALAM-10 2.0E	1	2	FF
B10	12-00-00	VERSALAM-12 2.0E	2	2	FF
B9	10-00-00	VERSALAM-12 2.0E	2	2	FF
B8	8-00-00	VERSALAM-12 2.0E	1	1	FF
B11	5-00-00	VERSALAM-12 2.0E	1	1	FF

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

HANGER SCHEDULE	
H1-----	LT251188 (TM)
H2-----	HUS1.81/10(FM)
H4-----	MIT311.88-2(TM)
H5-----	LT259(TM)
NOTE:	
TM -----	TOP MOUNT HANGERS
FM -----	FACE MOUNT HANGERS

Ceramic tile application as per O.B.C. 9.30.6
Blocking panels are required over all interior supports
Squash blocks are required under concentrated loads.



REVISION: March 16, 2020

First Floor Framing

Do not scale - refer to architectural plans for dimensions

**MODEL: UNIT 5001 - EL.B
W/SUNKEN MUDRM
+ OPT. LOGGIA
+ W.O.D. CONDITION**

JT/PL: 45147/105729
LI: 318275(290681)

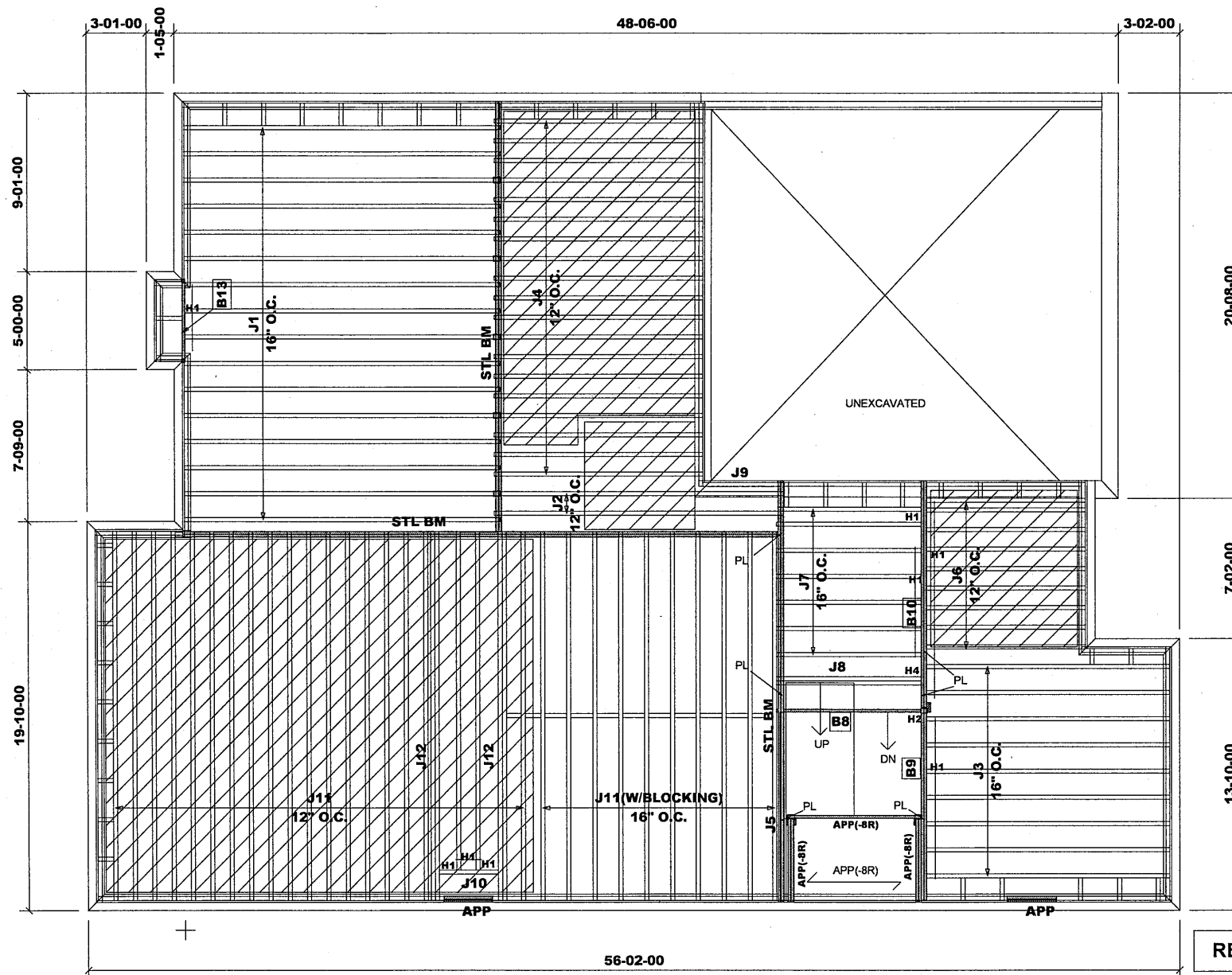
Builder: Gold Park
Project: Pine Valley

Location: Vaughan
Date: November 23, 2017

Designer: NL
Sheet: 6 of 7

Alpa Roof Trusses Inc.
Maple, Ontario

Salesperson: Derek
Home Lumber

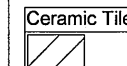


Products					
PlotID	Length	Product	Plies	Net Qty	Fab Type
J1	17-00-00	11 7/8" NI-20	1	16	FF
J2	15-00-00	11 7/8" NI-20	1	2	FF
J3	13-00-00	11 7/8" NI-20	1	9	FF
J4	11-00-00	11 7/8" NI-20	1	19	FF
J5	10-00-00	11 7/8" NI-20	1	1	FF
J6	9-00-00	11 7/8" NI-20	1	9	FF
J7	8-00-00	11 7/8" NI-20	1	7	FF
J8	8-00-00	11 7/8" NI-20	2	2	FF
J9	5-00-00	11 7/8" NI-20	1	1	FF
J10	4-00-00	11 7/8" NI-20	1	1	FF
J11	19-00-00	11 7/8" NI-40x	1	30	FF
J12	19-00-00	11 7/8" NI-40x	2	4	FF
B10	12-00-00	VERSALAM-12 2.0E	2	2	FF
B9	10-00-00	VERSALAM-12 2.0E	2	2	FF
B8	8-00-00	VERSALAM-12 2.0E	1	1	FF
B13	5-00-00	VERSALAM-12 2.0E	1	1	FF

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

HANGER SCHEDULE
H1-----LT251188 (TM)
H2-----HUS1.81/10(FM)
H4-----MIT311.88-2(TM)
NOTE:
TM-----TOP MOUNT HANGERS
FM-----FACE MOUNT HANGERS

Ceramic tile application as per O.B.C. 9.30.6
Blocking panels are required over all interior supports
Squash blocks are required under concentrated loads.



REVISION: March 16, 2020

First Floor Framing

Do not scale - refer to architectural plans for dimensions

MODEL: UNIT 5001 - EL.A
W/L.O.D. & W.O.B. COND.
+ OPT. LOGGIA
EL.B SIMILAR

JT/PL: 45147/105729

Builder: Gold Park

Location: Vaughan

Designer: NL

Alpa Roof Trusses Inc.

Salesperson: Derek

LI: 318275(290681)

Project: Pine Valley

Date: November 23, 2017

Sheet: 7 of 7

Maple, Ontario

Home Lumber

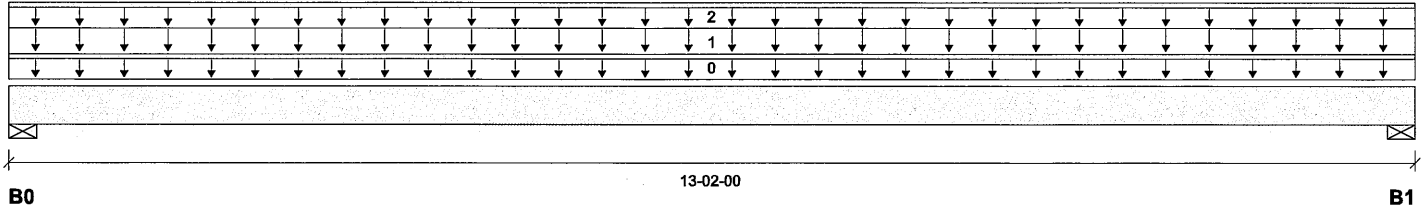


Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED**BC CALC® Member Report
Build 7555**B01 (Floor Beam)**

Dry | 1 span | No cant.

March 16, 2020 15:11:22

Job name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Builder: Gold Park
Code reports: CCMC 12472-RFile name: 290681
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses

Total Horizontal Product Length = 13-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	2677 / 0	1813 / 0		
B1, 3-1/2"	2677 / 0	1813 / 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	13-02-00	Top		12			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	13-02-00	Top	40	20			10-02-00
2		Unf. Lin. (lb/ft)	L	00-00-00	13-02-00	Top		60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	19263 ft-lbs	35392 ft-lbs	54.4%	1	06-07-00
End Shear	5059 lbs	14464 lbs	35.0%	1	01-03-06
Total Load Deflection	L/372 (0.41")	n/a	64.5%	4	06-07-00
Live Load Deflection	L/624 (0.244")	n/a	57.7%	5	06-07-00
Max Defl.	0.41"	n/a	41.0%	4	06-07-00
Span / Depth	12.8				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	6282 lbs	83.4%	42.0%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 3-1/2"	6282 lbs	83.4%	42.0%	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

NAIL ONE PLY TO ANOTHER WITH 3-1/2" SPIRAL NAILS @ 8" O/C,
 STAGGERED IN 2 ROWS



SE007575

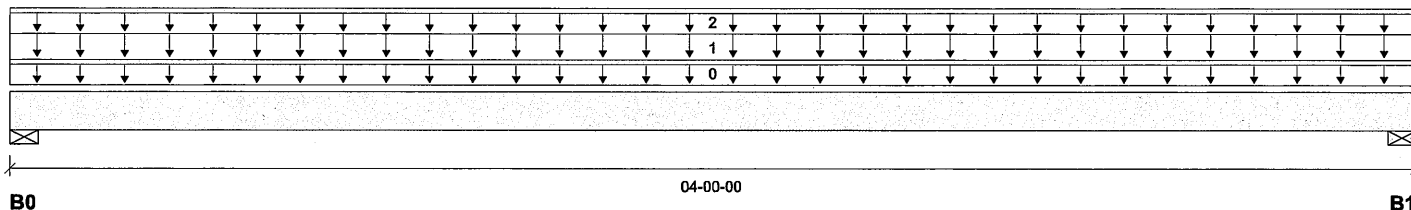
BC CALC® Member Report
Build 7555

B02 (Floor Beam)
Dry | 1 span | No cant.

March 16, 2020 15:11:22

Job name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Builder: Gold Park
Code reports: CCMC 12472-R

File name: 290681
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	813 / 0	539 / 0		
B1, 3-1/2"	813 / 0	539 / 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		6			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	04-00-00	Top	40	20			10-02-00
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	1484 ft-lbs	17696 ft-lbs	8.4%	1	02-00-00
End Shear	680 lbs	7232 lbs	9.4%	1	01-03-06
Total Load Deflection	L/999 (0.005")	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.	0.005"	n/a	n/a	4	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 1-3/4"	1893 lbs	50.2%	25.3%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 1-3/4"	1893 lbs	50.2%	25.3%	Spruce-Pine-Fir

Notes

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



Disclosure

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SE007576

BC CALC® Member Report
Build 7555

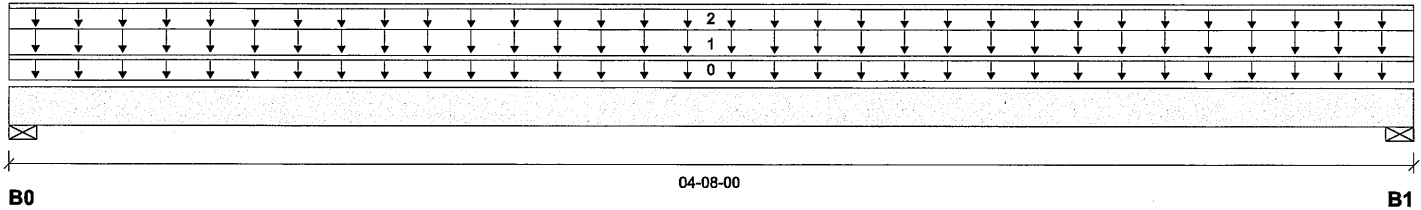
B03 (Floor Beam)

Dry | 1 span | No cant.

March 16, 2020 15:11:22

Job name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Builder: Gold Park
Code reports: CCMC 12472-R

File name: 290681
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses


Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	949 / 0	628 / 0		
B1, 3-1/2"	949 / 0	628 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-08-00	Top		6			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	04-08-00	Top	40	20			10-02-00
2		Unf. Lin. (lb/ft)	L	00-00-00	04-08-00	Top		60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	2096 ft-lbs	17696 ft-lbs	11.8%	1	02-04-00
End Shear	996 lbs	7232 lbs	13.8%	1	01-03-06
Total Load Deflection	L/999 (0.01")	n/a	n/a	4	02-04-00
Live Load Deflection	L/999 (0.006")	n/a	n/a	5	02-04-00
Max Defl.	0.01"	n/a	n/a	4	02-04-00
Span / Depth	4.3				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 3-1/2" x 1-3/4"	2209 lbs	58.6%	29.6%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 1-3/4"	2209 lbs	58.6%	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


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SE007577

B04 (Floor Beam)

Dry | 1 span | No cant.

March 16, 2020 15:11:22

BC CALC® Member Report

Build 7555

Job name: 45147 (5001)

File name: 290681

Address: Pine Valley

Description: Second Floor Framing

City, Province, Postal Code: Vaughan, ON

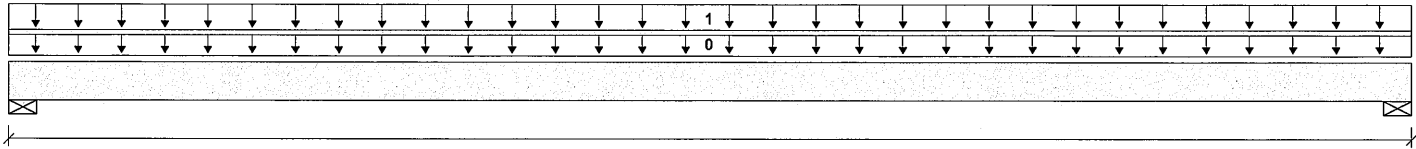
Specifier:

Builder: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



B0

B1

Total Horizontal Product Length = 03-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	490 / 0	193 / 0		
B1, 3-1/2"	490 / 0	193 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	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		6			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	03-00-00	Top	40	15			08-02-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	525 ft-lbs	17696 ft-lbs	3.0%	1	01-06-00
End Shear	142 lbs	7232 lbs	2.0%	1	01-03-06
Total Load Deflection	L/999 (0.001")	n/a	n/a	4	01-06-00
Live Load Deflection	L/999 (0.001")	n/a	n/a	5	01-06-00
Max Defl.	0.001"	n/a	n/a	4	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 1-3/4"	976 lbs	25.9%	13.1%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 1-3/4"	976 lbs	25.9%	13.1%	Spruce-Pine-Fir

Notes

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

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

Design meets User specified (1") Maximum Total load deflection criteria.

Calculations assume member is fully braced.

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2015 and CSA O86.

Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 4


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SE007578

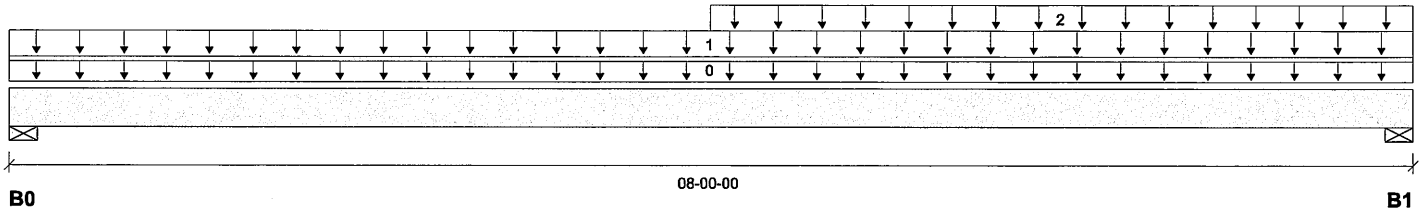
B05 (Floor Beam)

Dry | 1 span | No cant.

March 16, 2020 15:11:22

 BC CALC® Member Report
 Build 7555

 Job name: 45147 (5001)
 Address: Pine Valley
 City, Province, Postal Code: Vaughan, ON
 Builder: Gold Park
 Code reports: CCMC 12472-R

 File name: 290681
 Description: Second Floor Framing
 Specifier:
 Designer: NL
 Company: Alpa Roof Trusses

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1031 / 0	411 / 0		
B1, 3-1/2"	1369 / 0	538 / 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	08-00-00	Top		6			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	08-00-00	Top	40	15			05-06-00
2		Unf. Area (lb/ft²)	L	04-00-00	08-00-00	Top	40	15			04-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	4311 ft-lbs	17696 ft-lbs	24.4%	1	04-05-02
End Shear	1758 lbs	7232 lbs	24.3%	1	06-08-10
Total Load Deflection	L/999 (0.062")	n/a	n/a	4	04-01-00
Live Load Deflection	L/999 (0.045")	n/a	n/a	5	04-01-00
Max Defl.	0.062"	n/a	n/a	4	04-01-00
Span / Depth	7.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 1-3/4"	2060 lbs	54.7%	27.6%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 1-3/4"	2726 lbs	72.3%	36.5%	Spruce-Pine-Fir

Notes

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


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

SE007579

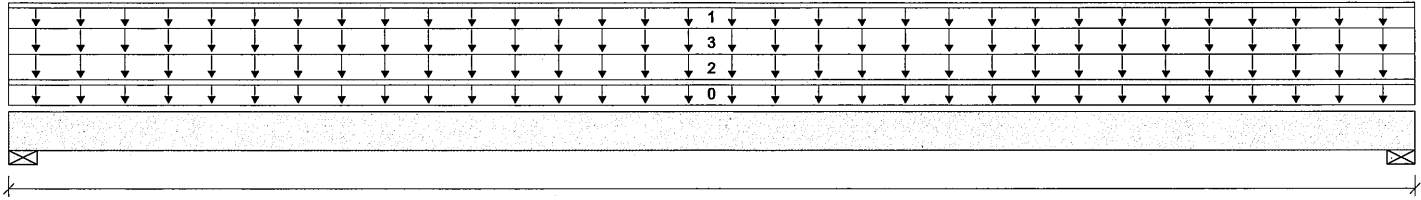
BC CALC® Member Report
Build 7555

B06 (Floor Beam)
Dry | 1 span | No cant.

March 16, 2020 15:11:22

Job name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Builder: Gold Park
Code reports: CCMC 12472-R

File name: 290681
Description: Second Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses



B0 **B1**
Total Horizontal Product Length = 08-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 4"	765 / 0	1347 / 0	1026 / 0	
B1, 4"	765 / 0	1347 / 0	1026 / 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	08-06-00	Top		6			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	08-06-00	Top		60			n/a
2		Unf. Area (lb/ft²)	L	00-00-00	08-06-00	Top	40	20			04-06-00
3		Unf. Area (lb/ft²)	L	00-00-00	08-06-00	Top		14	21		11-06-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	7430 ft-lbs	17696 ft-lbs	42.0%	5	04-03-00
End Shear	2747 lbs	7232 lbs	38.0%	5	01-03-14
Total Load Deflection	L/723 (0.132")	n/a	33.2%	11	04-03-00
Live Load Deflection	L/999 (0.073")	n/a	n/a	15	04-03-00
Max Defl.	0.132"	n/a	13.2%	11	04-03-00
Span / Depth	8.0				

Bearing Supports	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 4" x 1-3/4"	3989 lbs	92.6%	46.7%	Spruce-Pine-Fir
B1	Wall/Plate 4" x 1-3/4"	3989 lbs	92.6%	46.7%	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



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SE007580

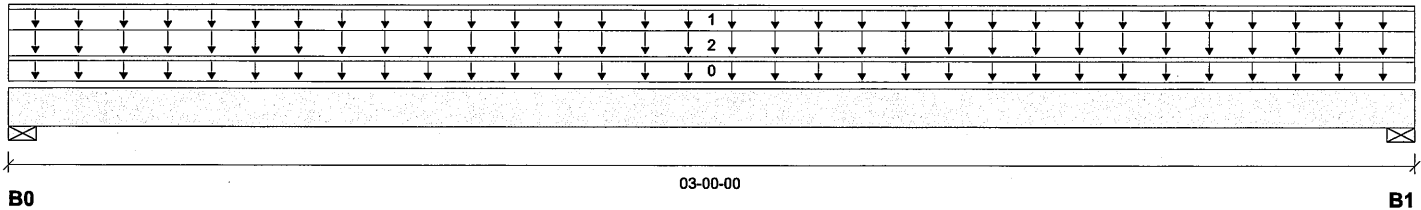


Boise Cascade

**Double 1-3/4" x 11-7/8" VERSA-LAM® 2.0 3100 SP****PASSED****B07 (Floor Beam)**

Dry | 1 span | No cant.

March 16, 2020 15:11:22

BC CALC® Member Report
Build 7555Job name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Builder: Gold Park
Code reports: CCMC 12472-RFile name: 290681
Description: Second Floor Framing
Specifier:
Designer: NL
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	347 / 0	236 / 0	
B1, 3-1/2"	40 / 0	347 / 0	236 / 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
2		Unf. Area (lb/ft²)	L	00-00-00	03-00-00	Top		14	21		07-06-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	446 ft-lbs	35392 ft-lbs	1.3%	5	01-06-00
End Shear	121 lbs	14464 lbs	0.8%	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"	828 lbs	11.0%	5.5%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 3-1/2"	828 lbs	11.0%	5.5%	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 @ 4" O/C,
 STAGGERED IN 2 ROWS



SE007581

BC CALC® Member Report
Build 7555

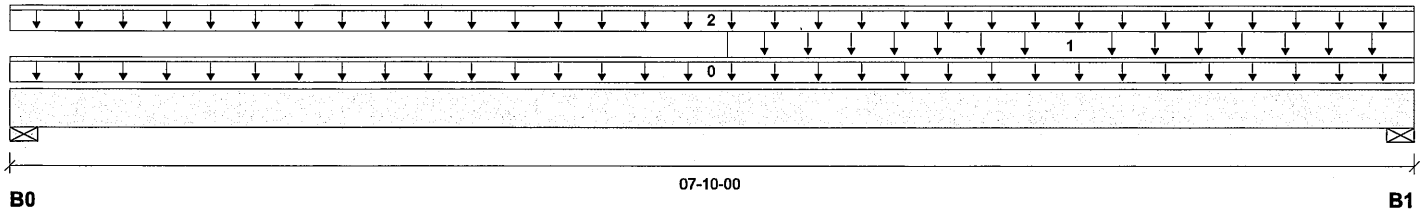
B08 (Floor Beam)

Dry | 1 span | No cant.

March 16, 2020 15:11:22

Job name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Builder: Gold Park
Code reports: CCMC 12472-R

File name: 290681
Description: First Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses


Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	247 / 0	131 / 0		
B1, 3-1/2"	578 / 0	256 / 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	07-10-00	Top		6			00-00-00
1		Unf. Area (lb/ft²)	L	04-00-00	07-10-00	Top	40	15			04-00-00
2		Unf. Lin. (lb/ft)	L	00-00-00	07-10-00	Top	27	14			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1589 ft-lbs	17696 ft-lbs	9.0%	1	04-08-10
End Shear	699 lbs	7232 lbs	9.7%	1	06-06-10
Total Load Deflection	L/999 (0.021")	n/a	n/a	4	04-01-15
Live Load Deflection	L/999 (0.014")	n/a	n/a	5	04-01-15
Max Defl.	0.021"	n/a	n/a	4	04-01-15
Span / Depth	7.5				

Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 3-1/2" x 1-3/4"	534 lbs	14.2%	7.1%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 1-3/4"	1187 lbs	31.5%	15.9%	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


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

SE007582

BC CALC® Member Report
Build 7555

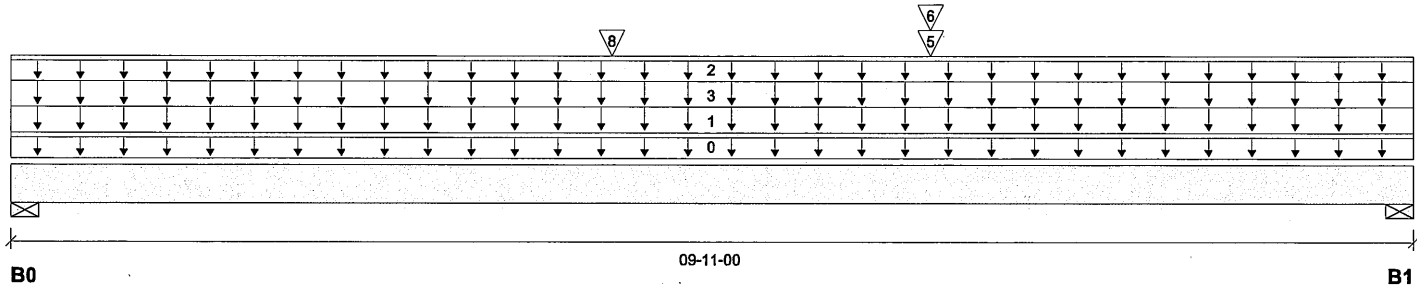
B09 (Floor Beam)

Dry | 1 span | No cant.

March 16, 2020 15:11:22

Job name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Builder: Gold Park
Code reports: CCMC 12472-R

File name: 290681
Description: First Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses



Total Horizontal Product Length = 09-11-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1871 / 0	1948 / 0	857 / 0	
B1, 3"	1707 / 0	2136 / 0	1216 / 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	09-11-00	Top		12			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	09-11-00	Top	40	15			06-06-00
2		Unf. Lin. (lb/ft)	L	00-00-00	09-11-00	Top		120			n/a
3		Unf. Area (lb/ft²)	L	00-00-00	09-11-00	Top		14	21		04-06-00
5		Conc. Pt. (lbs)	L	06-06-00	06-06-00	Top		404	568		n/a
6		Conc. Pt. (lbs)	L	06-06-00	06-06-00	Top		404	568		n/a
8		Conc. Pt. (lbs)	L	04-03-00	04-03-00	Top	1000	375			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	17022 ft-lbs	35392 ft-lbs	48.1%	1	04-09-12
End Shear	5394 lbs	14464 lbs	37.3%	1	08-08-02
Total Load Deflection	L/539 (0.212")	n/a	44.5%	11	05-00-05
Live Load Deflection	L/999 (0.123")	n/a	n/a	15	05-00-05
Max Defl.	0.212"	n/a	21.2%	11	05-00-05
Span / Depth	9.6				


Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	6098 lbs	80.9%	40.8%	Spruce-Pine-Fir
B1	Wall/Plate 3" x 3-1/2"	6448 lbs	99.8%	50.3%	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

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

O/C,

SE007583

B10 (Floor Beam)

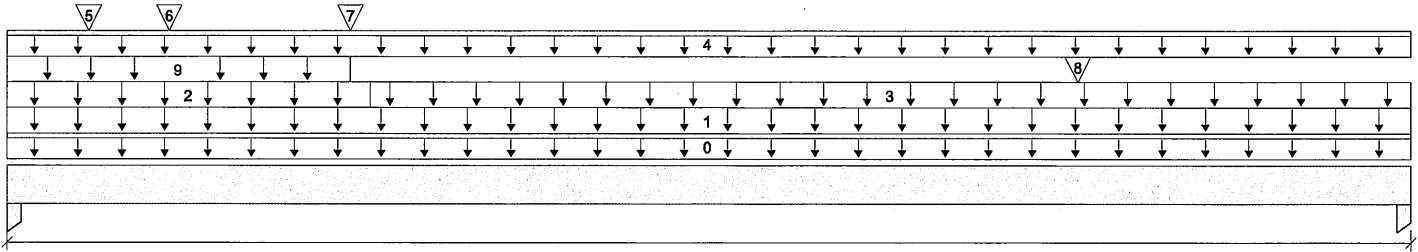
Dry | 1 span | No cant.

March 16, 2020 15:11:22

BC CALC® Member Report

Build 7555

 Job name: 45147 (5001)
 Address: Pine Valley
 City, Province, Postal Code: Vaughan, ON
 Builder: Gold Park
 Code reports: CCMC 12472-R

 File name: 290681
 Description: First Floor Framing
 Specifier:
 Designer: NL
 Company: Alpa Roof Trusses


B0

Total Horizontal Product Length = 11-07-00

B1

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3"	4359 / 0	3398 / 0	1021 / 0	
B1, 3-1/2"	3144 / 0	2199 / 0	273 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	11-07-00	Top		12			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	11-07-00	Top	40	15			04-00-00
2		Unf. Area (lb/ft²)	L	00-00-00	03-00-00	Top	40	15			06-06-00
3		Unf. Area (lb/ft²)	L	03-00-00	11-07-00	Top	40	20			04-02-00
4		Unf. Lin. (lb/ft)	L	00-00-00	11-07-00	Top		60			n/a
5		Conc. Pt. (lbs)	L	00-08-00	00-08-00	Top	829	547			n/a
6		Conc. Pt. (lbs)	L	01-04-00	01-04-00	Top	645	275			n/a
7		Conc. Pt. (lbs)	L	02-10-00	02-10-00	Top	765	1347	1026	(Top board)	n/a
8		Conc. Pt. (lbs)	L	08-10-00	08-10-00	Top	1201	713			n/a
9		Unf. Area (lb/ft²)	L	00-00-00	02-10-00	Top		14	21		04-06-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	22417 ft-lbs	35392 ft-lbs	63.3%	1	05-00-01
End Shear	9341 lbs	14464 lbs	64.6%	1	01-02-14
Total Load Deflection	L/340 (0.395")	n/a	70.7%	11	05-06-10
Live Load Deflection	L/565 (0.237")	n/a	63.7%	15	05-06-10
Max Defl.	0.395"	n/a	39.5%	11	05-06-10
Span / Depth	11.3				


Bearing Supports

	Dim. (LxW)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Column 3" x 3-1/2"	11808 lbs	64.8%	92.2%	Spruce-Pine-Fir
B1	Column 3-1/2" x 3-1/2"	7738 lbs	36.4%	51.8%	Spruce-Pine-Fir

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

SE007584

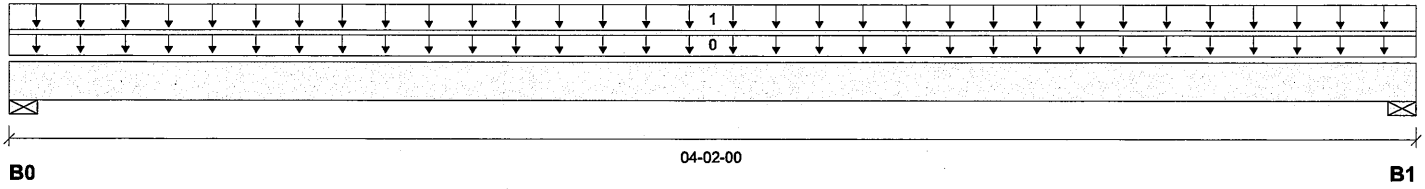
BC CALC® Member Report
Build 7555

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

March 16, 2020 15:11:22

Job name: 45147 (5001)
Address: Pine Valley
City, Province, Postal Code: Vaughan, ON
Builder: Gold Park
Code reports: CCMC 12472-R

File name: 290681
Description: First Floor Framing
Specifier:
Designer: NL
Company: Alpa Roof Trusses



Reaction Summary (Down / Uplift) (lbs)

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

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	04-02-00	Top	1.00	0.65	1.00	1.15	00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	04-02-00	Top	40	15			09-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	1231 ft-lbs	17696 ft-lbs	7.0%	1	02-01-00
End Shear	575 lbs	7232 lbs	7.9%	1	01-03-06
Total Load Deflection	L/999 (0.004")	n/a	n/a	4	02-01-00
Live Load Deflection	L/999 (0.003")	n/a	n/a	5	02-01-00
Max Defl.	0.004"	n/a	n/a	4	02-01-00
Span / Depth	3.7				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 1-3/4"	1492 lbs	39.6%	20.0%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 1-3/4"	1492 lbs	39.6%	20.0%	Spruce-Pine-Fir

Notes

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



Disclosure

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SE007585

B12 (Floor Beam)

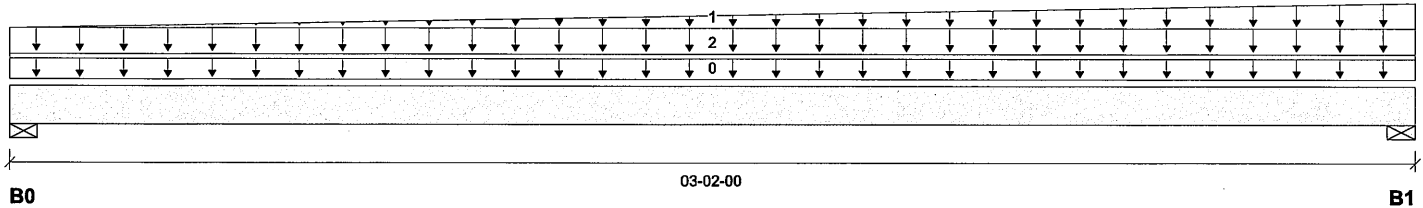
Dry | 1 span | No cant.

March 16, 2020 15:11:22

BC CALC® Member Report

Build 7555

 Job name: 45147 (5001)
 Address: Pine Valley
 City, Province, Postal Code: Vaughan, ON
 Builder: Gold Park
 Code reports: CCMC 12472-R

 File name: 290681
 Description: Second Floor Framing
 Specifier:
 Designer: NL
 Company: Alpa Roof Trusses


Total Horizontal Product Length = 03-02-00

Reaction Summary (Down / Uplift) (lbs)

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

Load Summary

Tag	Description	Load Type	Ref.	Start	End	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	03-02-00	Top		6			00-00-00
1		Trapezoidal (lb/ft)	L	00-00-00	03-02-00	Top	0	0			n/a
2		Unf. Area (lb/ft²)	L	00-00-00	03-02-00	Top	40	15			01-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	125 ft-lbs	17696 ft-lbs	0.7%	1	01-07-14
End Shear	106 lbs	7232 lbs	1.5%	1	01-10-10
Total Load Deflection	L/999 (0")	n/a	n/a	4	01-07-04
Live Load Deflection	L/999 (0")	n/a	n/a	5	01-07-04
Max Defl.	0"	n/a	n/a	4	01-07-04
Span / Depth	2.7				

Bearing Supports

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

Notes

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


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SE007586

B13 (Floor Beam)

Dry | 1 span | No cant.

March 16, 2020 15:11:22

BC CALC® Member Report

Build 7555

Job name: 45147 (5001)

File name: 290681

Address: Pine Valley

Description: Second Floor Framing

City, Province, Postal Code: Vaughan, ON

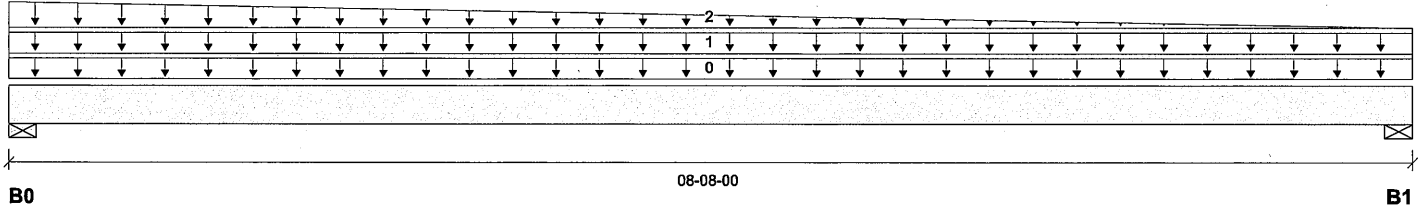
Specifier:

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"	263 / 0	142 / 0		
B1, 3-1/2"	187 / 0	113 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	08-08-00	Top	1.00	0.65	1.00	1.15	00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	08-08-00	Top	27	14			n/a
2		Trapezoidal (lb/ft)	L	00-00-00	08-08-00	Top	50	19			n/a
							0	0			

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	972 ft-lbs	17696 ft-lbs	5.5%	1	04-00-09
End Shear	461 lbs	7232 lbs	6.4%	1	01-03-06
Total Load Deflection	L/999 (0.017")	n/a	n/a	4	04-02-14
Live Load Deflection	L/999 (0.011")	n/a	n/a	5	04-02-14
Max Defl.	0.017"	n/a	n/a	4	04-02-14
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"	573 lbs	15.2%	7.7%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 1-3/4"	423 lbs	11.2%	5.7%	Spruce-Pine-Fir

Notes

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


Disclosure

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SE007587

BC CALC® Member Report
B14 (Floor Beam)

Dry | 1 span | No cant.

March 16, 2020 15:11:22

Build 7555

Job name: 45147 (5001)

File name: 290681

Address: Pine Valley

Description: Second Floor Framing

City, Province, Postal Code: Vaughan, ON

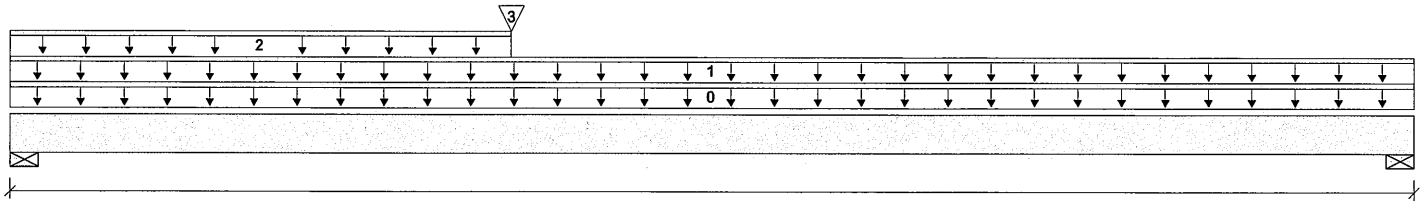
Specifier:

Builder: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



B0

07-00-00

B1

Total Horizontal Product Length = 07-00-00

Reaction Summary (Down / Uplift) (lbs)

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

Load Summary

Tag	Description	Load Type	Ref.	Start	End	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	07-00-00	Top		6			00-00-00
1		Unf. Lin. (lb/ft)	L	00-00-00	07-00-00	Top	27	74			n/a
2		Unf. Lin. (lb/ft)	L	00-00-00	02-06-00	Top	27	14			n/a
3		Conc. Pt. (lbs)	L	02-06-00	02-06-00	Top	118	54			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/ Resistance	Case	Location
Pos. Moment	1145 ft-lbs	17696 ft-lbs	6.5%	1	02-09-00
End Shear	519 lbs	7232 lbs	7.2%	1	01-03-06
Total Load Deflection	L/999 (0.013")	n/a	n/a	4	03-04-14
Live Load Deflection	L/999 (0.005")	n/a	n/a	5	03-03-11
Max Defl.	0.013"	n/a	n/a	4	03-04-14
Span / Depth	6.6				

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"	426 lbs	17.4%	8.8%	Spruce-Pine-Fir

Notes

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


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SE007588

BC CALC® Member Report
B15 (Floor Beam)

March 16, 2020 15:11:22

Build 7555

Job name: 45147 (5001)

File name: 290681

Address: Pine Valley

Description: Second Floor Framing

City, Province, Postal Code: Vaughan, ON

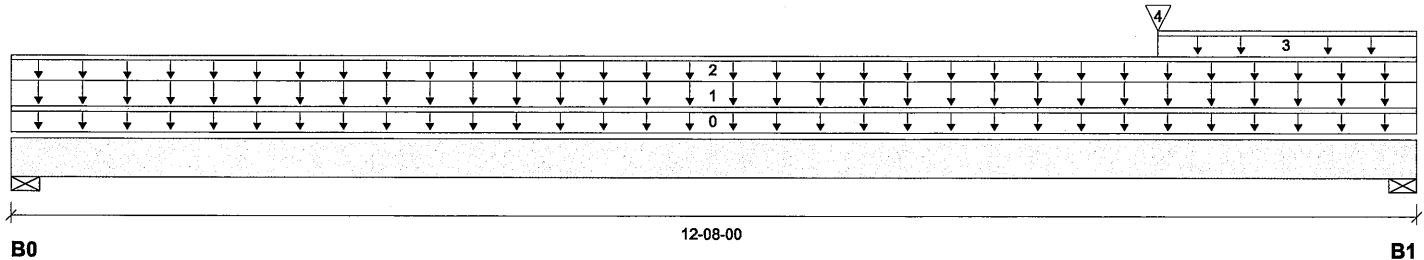
Specifier:

Builder: Gold Park

Designer: NL

Code reports: CCMC 12472-R

Company: Alpa Roof Trusses



Total Horizontal Product Length = 12-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1127 / 0	995 / 0		
B1, 3-1/2"	2078 / 0	1375 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Loc.	Live	Dead	Snow	Wind	Tributary
0	Self-Weight	Unf. Lin. (lb/ft)	L	00-00-00	12-08-00	Top	1.00	0.65	1.00	1.15	00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	12-08-00	Top	40	20			03-06-00
2		Unf. Lin. (lb/ft)	L	00-00-00	12-08-00	Top		60			n/a
3		Unf. Lin. (lb/ft)	L	10-04-00	12-08-00	Top	27	14			n/a
4		Conc. Pt. (lbs)	L	10-04-00	10-04-00	Top	1369	538			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	10448 ft-lbs	35392 ft-lbs	29.5%	1	07-06-01
End Shear	4265 lbs	14464 lbs	29.5%	1	11-04-10
Total Load Deflection	L/699 (0.21")	n/a	34.3%	4	06-06-03
Live Load Deflection	L/999 (0.119")	n/a	n/a	5	06-07-14
Max Defl.	0.21"	n/a	21.0%	4	06-06-03
Span / Depth	12.3				


Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	2935 lbs	38.9%	19.6%	Spruce-Pine-Fir
B1	Wall/Plate 3-1/2" x 3-1/2"	4836 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 @ 12" O/C,
 STAGGERED IN 2 ROWS

SE007589

BC CALC® Member Report

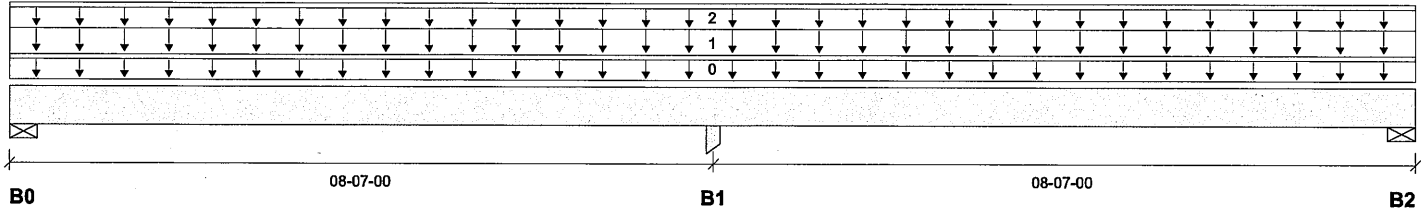
B16 (Floor Beam)

Dry | 2 spans | No cant.

March 16, 2020 15:11:22

Job name: 45147 (5001)
 Address: Pine Valley
 City, Province, Postal Code: Vaughan, ON
 Builder: Gold Park
 Code reports: CCMC 12472-R

File name: 290681
 Description: First Floor Framing
 Specifier:
 Designer: NL
 Company: Alpa Roof Trusses


Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	777 / 104	554 / 0		
B1, 3-1/2"	2089 / 0	1721 / 0		
B2, 3-1/2"	777 / 104	554 / 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	17-02-00	Top		5			00-00-00
1		Unf. Area (lb/ft²)	L	00-00-00	17-02-00	Top	40	20			05-00-00
2		Unf. Lin. (lb/ft)	L	00-00-00	17-02-00	Top		60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand/Resistance	Case	Location
Pos. Moment	2998 ft-lbs	11610 ft-lbs	25.8%	2	03-07-12
Neg. Moment	-4415 ft-lbs	-11610 ft-lbs	38.0%	1	08-07-00
End Shear	1310 lbs	5785 lbs	22.6%	2	01-01-00
Cont. Shear	2168 lbs	5785 lbs	37.5%	1	07-07-12
Total Load Deflection	L/999 (0.091")	n/a	n/a	9	04-00-11
Live Load Deflection	L/999 (0.062")	n/a	n/a	12	04-01-15
Total Neg. Defl.	L/999 (-0.011")	n/a	n/a	9	10-00-07
Max Defl.	0.091"	n/a	n/a	9	04-00-11
Span / Depth	10.6				

Bearing Supports

	Dim. (LxW)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 1-3/4"	1858 lbs	49.3%	24.9%	Spruce-Pine-Fir
B1	Column 3-1/2" x 1-3/4"	5284 lbs	49.7%	70.7%	Spruce-Pine-Fir
B2	Wall/Plate 3-1/2" x 1-3/4"	1858 lbs	49.3%	24.9%	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


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SE007590

Maximum Floor Spans – M4.1, L/360

Design Criteria

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



Maximum Floor Spans

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

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

Notes:

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

The construction details for residential designs are prone to changes.

Details released after April 2014 supersedes N-C301

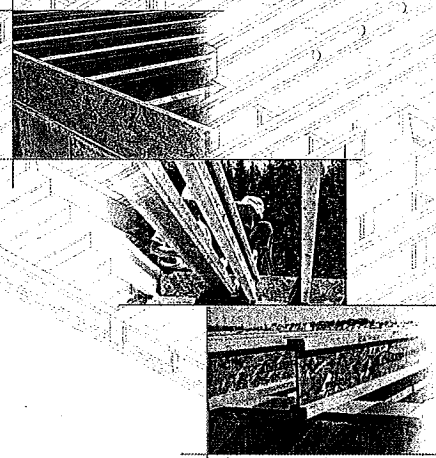
Installation must comply with latest documentation on I-Joist and other Nordic products from the <http://nordic.ca/>

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

(Nordic Request 1810-095)

NORDIC ENGINEERED WOOD

INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



Distributed by:



SAFETY AND CONSTRUCTION PRECAUTIONS



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



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

WARNING

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

Avoid Accidents by Following These Important Guidelines:

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

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

STORAGE AND HANDLING GUIDELINES

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

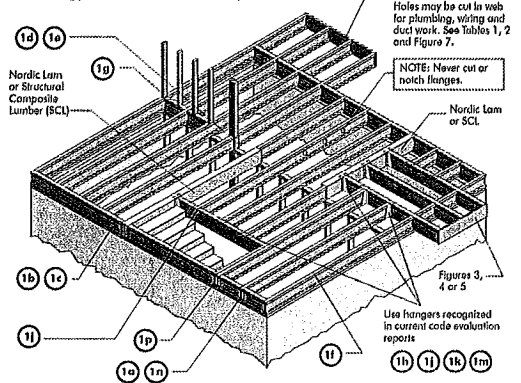


INSTALLING NORDIC I-JOISTS

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

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

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



All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.126" 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

Minimum 1-3/4" bearing required

1d

Pair of Squash Blocks	Maximum Factored Uniform Vertical Load* (plf)
2x Lumber	5,500
1-1/8" Rim Board Plus	4,300

*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.

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.

MAXIMUM FLOOR SPANS

- Maximum clear spans applicable to single-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.35L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in C085-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
- Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
- Tables are based on Unit States Design per CAN/CSA C085-07 Standard, and NBC 2010.
- SI units conversion: 1 inch = 25.4 mm
1 foot = 0.305 m

MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS

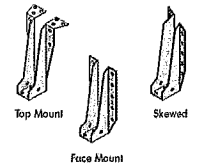
SINGLE AND MULTIPLE SPANS

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

CCMC EVALUATION REPORT 13032-R

I-JOIST HANGERS

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



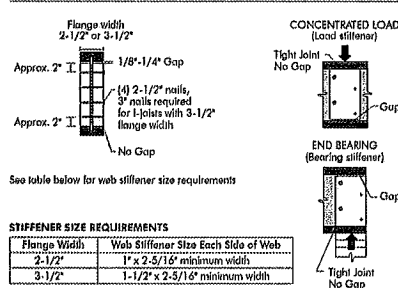
WEB STIFFENERS

RECOMMENDATIONS:

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

SI units conversion: 1 inch = 25.4 mm

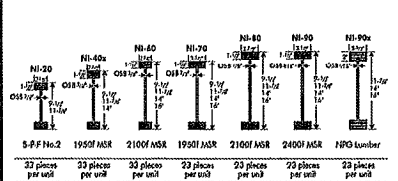
FIGURE 2
WEB STIFFENER INSTALLATION DETAILS



STIFFENER SIZE REQUIREMENTS

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

NORDIC I-JOIST SERIES



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

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

(Nordic Request 1810-095)



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

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

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

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

1e Double I-joist header

1f Top- or face-mount hanger

1g Filler block per detail 1p

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

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

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

1k Top- or face-mount hanger installed per manufacturer's recommendations

1l Top-mount hanger installed per manufacturer's recommendations

1m Multiple I-joist header with full depth filler block shown. Nordic Lumber or SCL headers may also be used. Vary double I-joist capacity to support concentrated loads.

1n Do not bowl-cut joist beyond inside face of wall

1o Attach I-joist per detail 1b

1p Filler block

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

1r One 2-1/2" nails at top and bottom flange. Two 2-1/2" nails from each web to lumber piece. 2x4 min. (1/8" gap minimum)

1s One 2-1/2" nails one side only. Two 2-1/2" nails at 6" o.c.

Notes:

- Support back of I-joist web during nailing to prevent damage to web/flange connection.
- Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
- Filler block is required between joists for full length of spans.
- Not 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.
- The maximum factored load that may be applied to one side of the double I-joist using this detail is 860 lb/ft. Verify double I-joist capacity.

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/>

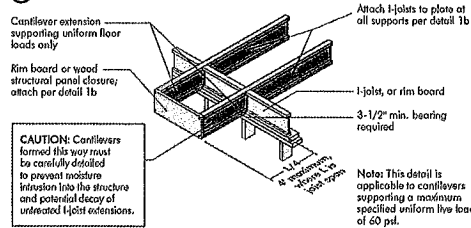
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(Nordic Request 1810-095)

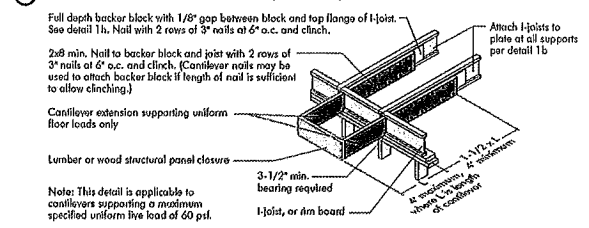


CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

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

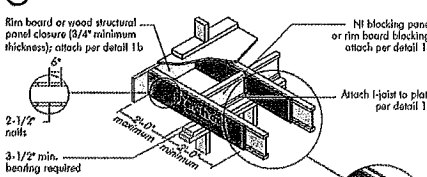


3b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE

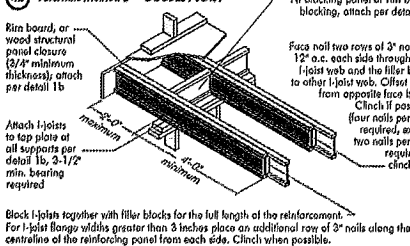


Method 2 — SHEATHING REINFORCEMENT TWO SIDES

- Use same installation as Method 1 but reinforce both sides of I-joist with sheathing.
- Use nailing pattern shown for Method 1 with opposite face nailing offset by 9\"/>

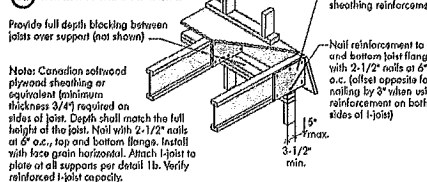
Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4\"/>

4b Alternate Method 2 — DOUBLE I-JOIST

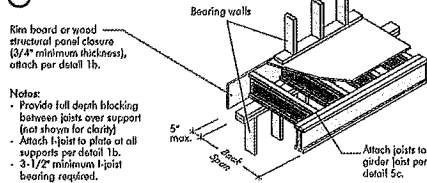


BRICK CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

5a SHEATHING REINFORCEMENT



5b SET-BACK DETAIL



5c SET-BACK CONNECTION

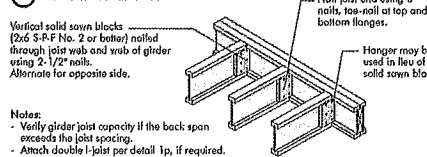


FIGURE 4 (continued)



CANTILEVER REINFORCEMENT METHODS ALLOWED

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

1. N = No reinforcement required.
2. N = Reinforced with 3/4\"/>

FIGURE 5 (continued)



BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

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

1. N = No reinforcement required.
2. N = Reinforced with 3/4\"/>

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.

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

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

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

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

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

OPTIONAL:

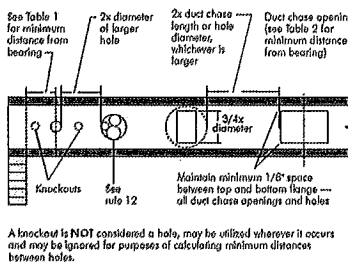
The above table is based on the I-Joist used at its maximum span. If the I-Joist is placed at less than its full maximum span (see Maximum Floor Span), the minimum distance from the centreline of the hole to the face of any support (D) as given above may be reduced as follows:

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

Where:

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

FIGURE 7
FIELD-CUT HOLE LOCATOR



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

Never drill, cut or notch the flange, or over-cut the web.
Holes in webs should be cut with a sharp saw.

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 (8 in.)											
		2	3	4	5	6	7	8	9	10	12	14	16
9-1/2"	N100	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2
	N140	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2
	N170	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2
	N200	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2
11-7/8"	N100	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2
	N140	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2
	N170	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2
	N200	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2
14"	N100	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2
	N140	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2
	N170	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2
	N200	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2
16"	N100	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2
	N140	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2
	N170	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2
	N200	0.7	1.2	1.7	2.2	2.7	3.2	3.7	4.2	4.7	5.2	5.7	6.2

1. Above table may be used for I-Joist spacing of 24 inches on centre or less.
2. Duct chase opening location distance is measured from inside face of support to centre of opening.
3. The above table is based on simple span joists only. For other applications, consult your local distributor.
4. Distances are based on uniform loaded floor joists but must meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/400. For other applications, consult your local distributor.

INSTALLING THE GLUED FLOOR SYSTEM

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

FASTENERS FOR SHEATHING AND SUBFLOORING⁽¹⁾

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

- Fasteners of sheathing and subflooring shall conform to the above table.
- Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to framing.
- Flooring screws shall not be less than 1/8-inch in diameter.
- Special conditions may impose heavy traffic and concentrated loads that require construction in excess of the minimums shown.
- Use only adhesives conforming to CAN/CSB-71.26 Standard, Adhesives for Field-Gluing Plywood to Lumber Framing for Floor System, applied in accordance with the manufacturer's recommendations. If OSB panels with sealed surfaces and edges are to be used, use only solvent-based glues check with panel manufacturer.

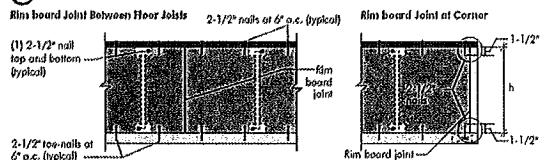
Ref.: NBC-CNBC, National Building Code of Canada 2010, Table 9.23.3.5.

IMPORTANT NOTE:

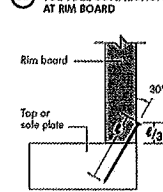
Floor sheathing must be field glued to the I-Joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-Joist spans must be verified with your local distributor.

RIM BOARD INSTALLATION DETAILS

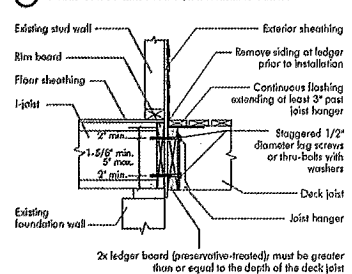
(a) ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



(b) TOE-NAIL CONNECTION AT RIM BOARD



(c) 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL



PRODUCT WARRANTY

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

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



CONSTRUCTION DETAILS FOR RESIDENTIAL FLOORS

N-C303 / September 2013



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

WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

1. The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
2. I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
3. Whenever possible, field-cut holes should be centred on the middle of the web.
4. The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.

5. The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
6. Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole/duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
7. A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
8. Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered section of a joist. Holes of greater size may be permitted subject to verification.

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

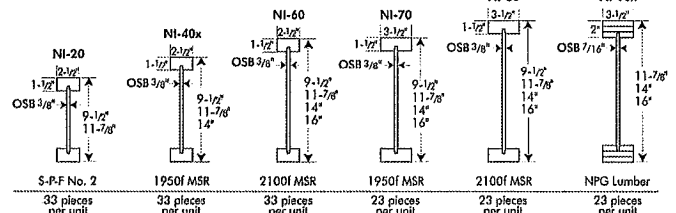


TABLE 1
LOCATION OF CIRCULAR HOLES IN JOIST WEBS

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

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

1. Above table may be used for I-joist spacing of 24 inches on centre or less.
2. Hole location distance is measured from inside face of supports to centre of

1a NI blocking panel

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.

Attach I-joist to top plate per detail 1b

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

1b Rim board

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 NI or rim board blocking panel per detail 1a

Pair of Squash Blocks	Maximum Factored Vertical Load per Pair of Squash Blocks (lbs)
3-1/2" wide	5,500
5-1/2" wide	8,500
2x Lumber	5,500
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.

1f Joist attachment per detail 1b

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

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

NI blocking panel per detail 1a

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

1h Backer block (use if hanger load exceeds 340 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".

1i Nordic Lam or Structural Composite Lumber (SCL)

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

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

1j Top- or face-mount hanger installed per manufacturer's recommendations

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

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

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

Top-mount hanger installed per manufacturer's recommendations

1l Multiple I-joist header with full depth filler block shown. Nordic Lam or SCL headers may also be used. Verify double I-joist capacity to support concentrated loads.

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

Install hanger per manufacturer's recommendations

Maximum support capacity = 1,620 lbs.

1m Do not bavel-cut joist beyond inside face of wall

Attach I-joist per detail 1b

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

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

NI blocking panel

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

1p FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

Filler block

Offset nails from opposite face by 6"

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

NOTES:

- Support back of I-joist web during nailing to prevent damage to web/flange connection.
- Leave a 1/8" to 1/4" gap between top of filler block and bottom of top I-joist flange.
- Filler block is required for joists for full length of span.
- 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.
- The maximum factored load that may be applied to one side of the double joist using this detail is 860 lb/ft. Verify double I-joist capacity.

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

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

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

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

I-joist blocking panel

One 2-1/2" nail one side only

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

FIGURE 2

WEB STIFFENER INSTALLATION DETAILS

CONCENTRATED LOAD (Load stiffener)

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

Approx. 2"

1/8"-1/4" Gap

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

Approx. 2"

No Gap

END BEARING (Bearing stiffener)

Gap

Tight Joint No Gap

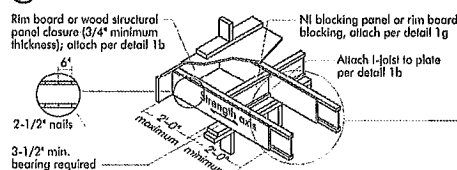
STIFFENER SIZE REQUIREMENTS

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

See the adjacent table for web stiffener size requirements

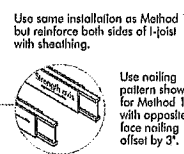
CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

Method 1 — SHEATHING REINFORCEMENT ONE SIDE



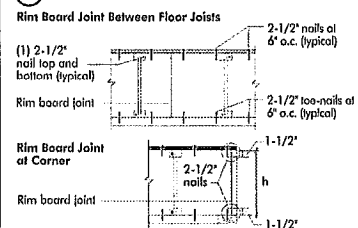
NOTE: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail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

Method 2 — SHEATHING REINFORCEMENT TWO SIDES

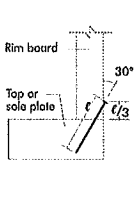


RIM BOARD INSTALLATION DETAILS

8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



8b TOE-NAIL CONNECTION AT RIM BOARD



The construction details for residential designs are prone to changes.

Details released after September 2013 supersedes N-303

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

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

