

ProductID	Length	Product	Pieces	Net Qty
J1	18'-00-00	11 7/8" NI-20	1	2
J2	16'-00-00	11 7/8" NI-20	1	35
J3	15'-00-00	11 7/8" NI-20	1	8
J4	12'-00-00	11 7/8" NI-20	1	29
J5	11'-00-00	11 7/8" NI-20	1	7
J6	9'-00-00	11 7/8" NI-20	1	18
J7	8'-00-00	11 7/8" NI-20	1	23
J8	19'-00-00	11 7/8" NI-40X	1	6
J9	19'-00-00	11 7/8" NI-40X	2	4
J10	22'-00-00	VERSALAM-12.0E	3	3
B1	18'-00-00	VERSALAM-12.0E	4	4
B2	15'-00-00	VERSALAM-12.0E	3	3
B3	13'-00-00	VERSALAM-12.0E	2	2
B4	11'-00-00	VERSALAM-12.0E	2	2
B5	9'-00-00	VERSALAM-12.0E	1	1
B6	8'-00-00	VERSALAM-12.0E	1	1
B7	8'-00-00	VERSALAM-12.0E	1	1
B8	7'-00-00	VERSALAM-12.0E	2	2
B9	4'-00-00	VERSALAM-12.0E	2	2
B10	4'-00-00	VERSALAM-12.0E	2	4

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

HANGER SCHEDULE
H1-----L7251188 (TM)
H2-----HUST18710(FM)
NOTE:
TM-----TOP MOUNT HANGERS
FM-----FACE MOUNT HANGERS

Ceramic tile application as per O.B.C. 8.30.6
Provide 1-loist Blocking between cantilevered joists (along bearing) and rimboard closure at ends.
1-2X6 SPF#2 Squash Block req'd on one side of each joist under interior load bearing wall. Multiple Squash Blocks are req'd under concentrated loads.

Second Floor Framing

Do not scale - refer to architectural plans for dimensions

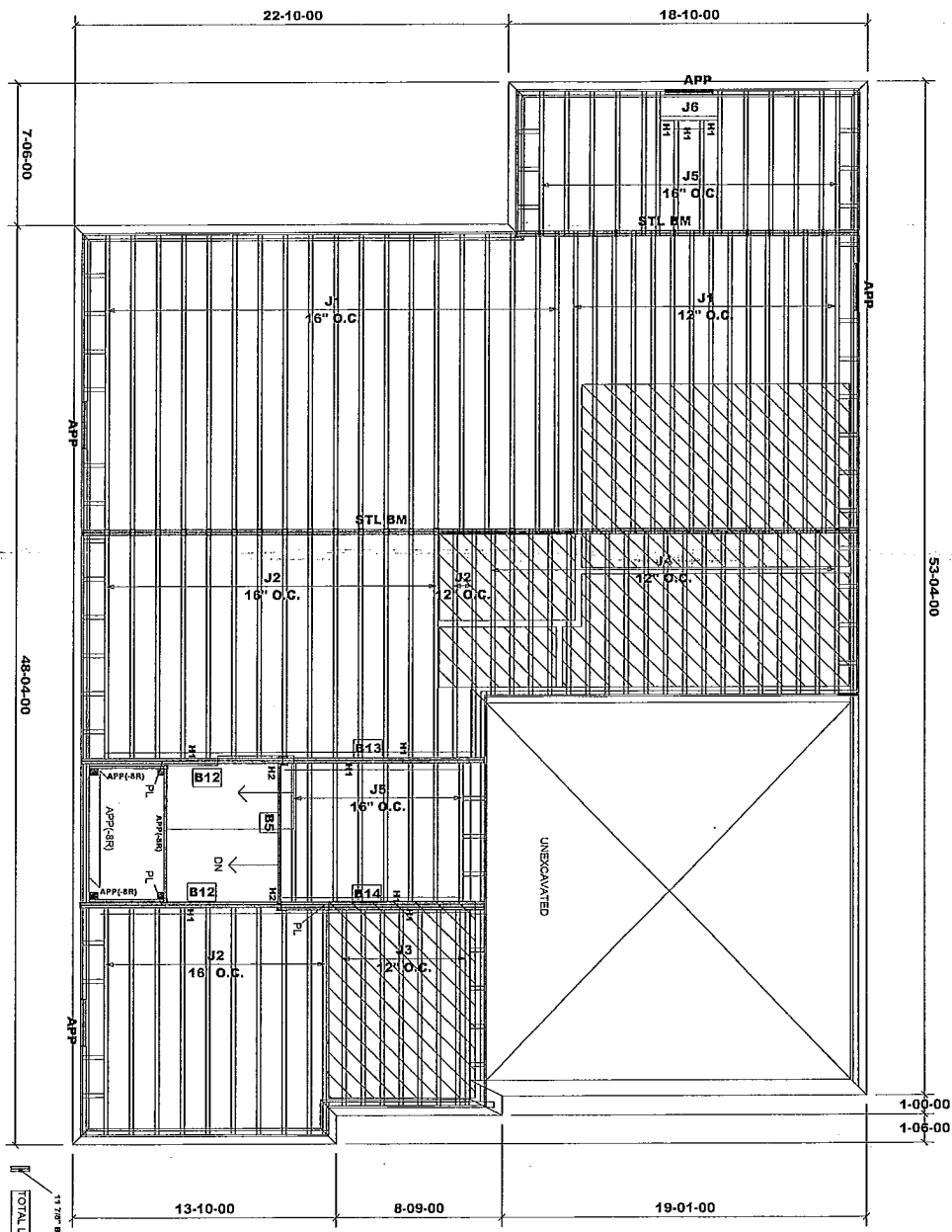
MODEL: UNIT 5002 - ELA
+ OPT. LOGGIA

REVISION: July 3, 2018

ENGINEERING FILE NO.
S-152578 - 152596

S-151256

JT/PL: 45147/98839 Builder: Gold Park Location: Vaughan Designer: NL Alpha Roof Trusses Inc. Salesperson: Derek
LI: 299730(290682) Project: Pine Valley Date: November 24, 2017 Sheet: 1 of 8 Maple, Ontario Home Lumber

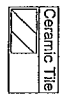


Product	Piles	Net Qty
J1 16'-00-00 11 7/8" NI-20	1	34
J2 12'-00-00 11 7/8" NI-20	1	26
J3 11'-00-00 11 7/8" NI-20	1	8
J4 9'-00-00 11 7/8" NI-20	1	19
J5 8'-00-00 11 7/8" NI-20	1	22
J6 3'-00-00 11 7/8" NI-20	1	1
B12 11'-00-00 VERSALAM-12.2 OE	2	4
B13 11'-00-00 VERSALAM-12.2 OE	2	2
B14 11'-00-00 VERSALAM-12.2 OE	3	3
B5 8'-00-00 VERSALAM-12.2 OE	1	1

HANGER SCHEDULE
 H1-----LT251188 (TM)
 H2-----HUST1.81/10(FM)
 NOTE:
 TM-----TOP MOUNT HANGERS
 FM-----FACE MOUNT HANGERS

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

Ceramic tile application as per O.B.C. 9.30.6
 1-2X6 SPF#2 Squash Block req'd on one side of each joist under interior load bearing wall. Multiple Squash Blocks are req'd under concentrated loads.

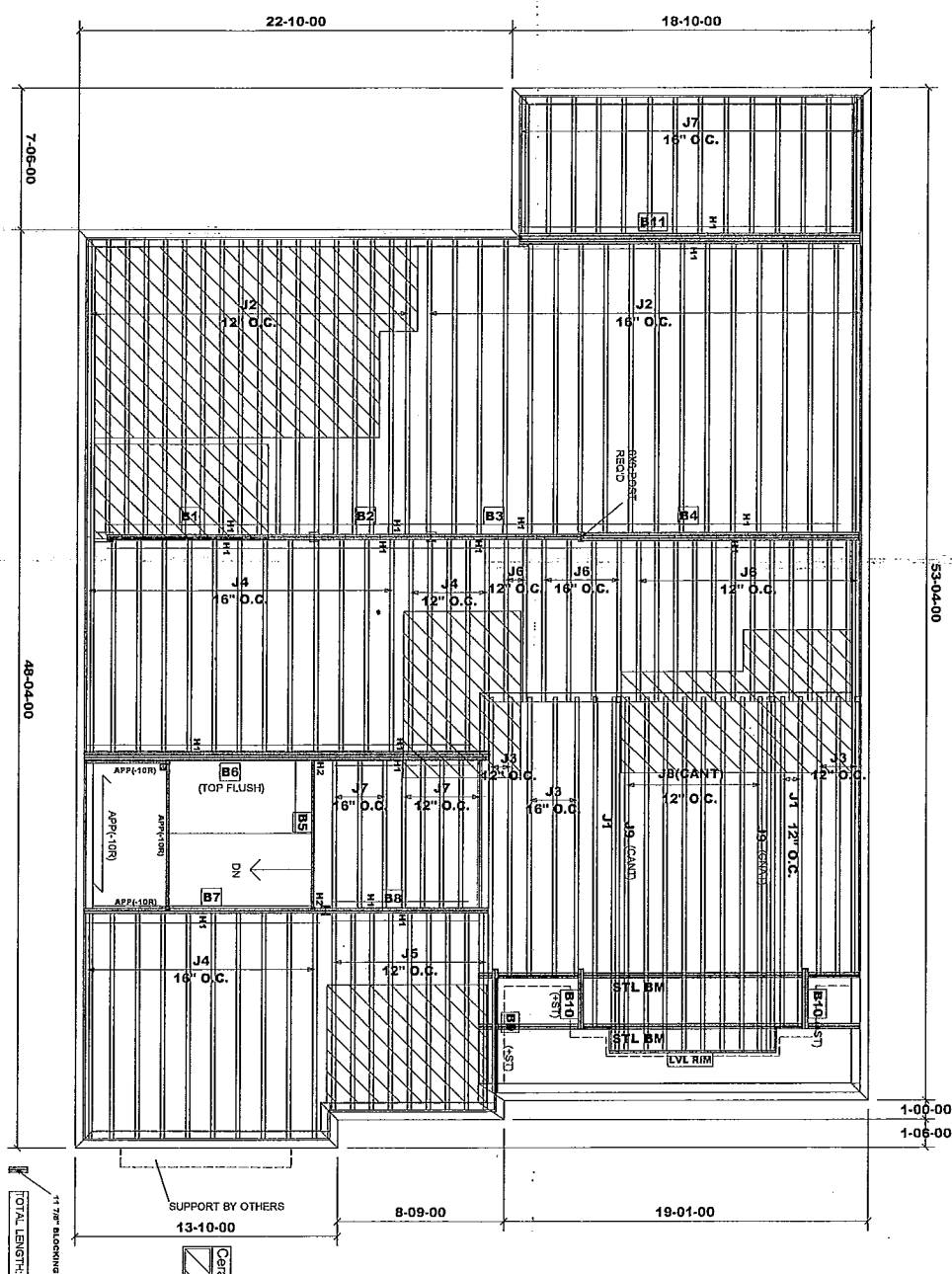


First Floor Framing

Do not scale - refer to architectural plans for dimensions
MODEL: UNIT 5002 - EL.A
+ OPT. LOGGIA

JT/PL: 45147/94992 Builder: Gold Park Location: Vaughan Designer: NL Salesperson: Derek
 LI: (290682) Project: Pine Valley Date: November 24, 2017 Sheet: 2 of 8 Maple, Ontario Home Lumber

98839
 9295



Product	Product	Piles	Net Qty
J1	18'-00'-00	11 7/8" N-20	1
J2	16'-00'-00	11 7/8" N-20	1
J3	15'-00'-00	11 7/8" N-20	1
J4	12'-00'-00	11 7/8" N-20	1
J5	11'-00'-00	11 7/8" N-20	1
J6	9'-00'-00	11 7/8" N-20	1
J7	8'-00'-00	11 7/8" N-20	1
J8	19'-00'-00	11 7/8" N-20	1
J9	19'-00'-00	11 7/8" N-20	1
B6	22'-00'-00	VERSALAM-14 2.0E	3
B11	18'-00'-00	VERSALAM-12 2.0E	3
B4	15'-00'-00	VERSALAM-12 2.0E	3
B7	13'-00'-00	VERSALAM-12 2.0E	2
B1	11'-00'-00	VERSALAM-12 2.0E	2
LVL RIM	9'-00'-00	VERSALAM-12 2.0E	1
B8	9'-00'-00	VERSALAM-12 2.0E	1
B5	8'-00'-00	VERSALAM-12 2.0E	1
B3	8'-00'-00	VERSALAM-12 2.0E	1
B2	7'-00'-00	VERSALAM-12 2.0E	2
B9	7'-00'-00	VERSALAM-12 2.0E	2
B10	4'-00'-00	VERSALAM-12 2.0E	2

RIMBOARD
1- 1/8" X 11 7/8" O.S.B.
SUBFLOOR - 3/4" NAILED & GLUED
APP - AS PER PLAN
B80 - BEAM BY OTHERS

HANGER SCHEDULE
H1 - L7251188 (TM)
H2 - HUST18110(FM)
NOTE: TOP MOUNT HANGERS
TM - FACE MOUNT HANGERS

Ceramic tile application as per O.B.C. 9.30.5
Provide 1-Joist Blocking between cantilevered joists (along bearing) and rimboard closure at ends.
1-2X6 SPF#2 Squash Block req'd on one side of each joist under interior load bearing wall. Multiple Squash Blocks are req'd under concentrated loads.

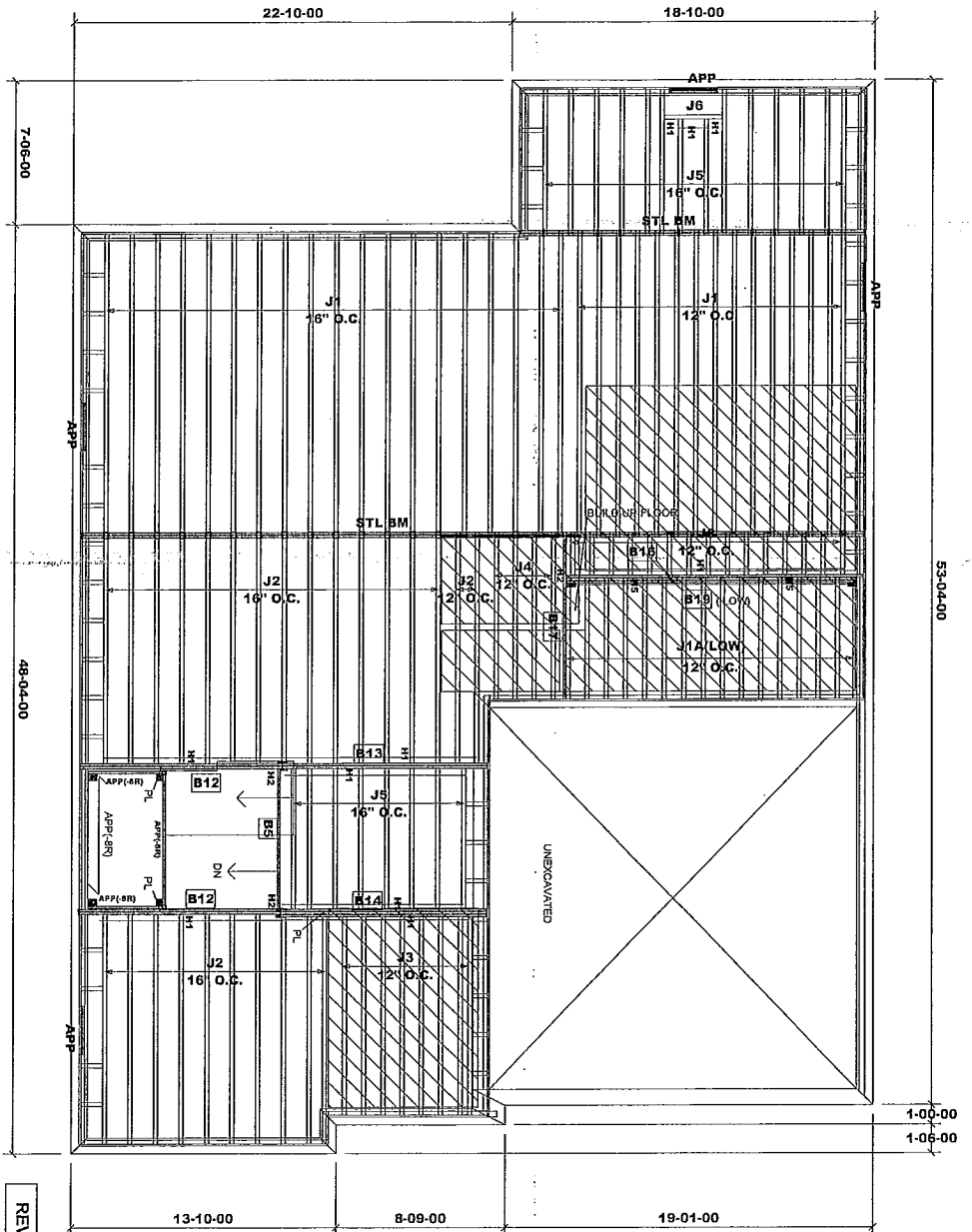
Second Floor Framing

Do not scale - refer to architectural plans for dimensions

MODEL: UNIT 5002 - ELA
+ OPT. LOGGIA(OPT. 2ND FL.)

REVISION: July 3, 2018

JT/PL: 45147/98839
Builder: Gold Park
Project: Pine Valley
Location: Vaughan
Date: November 24, 2017
Designer: NL
Sheet: 3 of 8
Alpa Roof Trusses Inc.
Maple, Ontario
Salesperson: Derek
Home Lumber



Product	Plies	Net Qty
J1A 7'-00'-00 9 1/2\" N1-20	1	16
J1 16'-00'-00 11 7/8\" N1-20	1	34
J2 12'-00'-00 11 7/8\" N1-20	1	26
J3 11'-00'-00 11 7/8\" N1-20	1	8
J4 9'-00'-00 11 7/8\" N1-20	1	4
J5 8'-00'-00 11 7/8\" N1-20	1	22
J6 3'-00'-00 11 7/8\" N1-20	1	16
B16 16'-00'-00 VERSALAM-12 2.0E	1	1
B19 16'-00'-00 VERSALAM-10 2.0E	2	2
B12 11'-00'-00 VERSALAM-12 2.0E	2	4
B13 11'-00'-00 VERSALAM-12 2.0E	2	2
B14 11'-00'-00 VERSALAM-12 2.0E	3	3
B17 9'-00'-00 VERSALAM-12 2.0E	1	1
B5 8'-00'-00 VERSALAM-12 2.0E	1	1

Product	Plies	Net Qty
H1 1'-10\" X 9 1/2\" O.S.B.	1	16
H2 1'-10\" X 11 7/8\" O.S.B.	1	26
H3 1'-10\" X 11 7/8\" O.S.B.	1	8
H4 9'-00'-00 11 7/8\" N1-20	1	4
H5 8'-00'-00 11 7/8\" N1-20	1	22
H6 3'-00'-00 11 7/8\" N1-20	1	16
H7 16'-00'-00 VERSALAM-12 2.0E	1	1
H8 16'-00'-00 VERSALAM-10 2.0E	2	2
H9 11'-00'-00 VERSALAM-12 2.0E	2	4
H10 11'-00'-00 VERSALAM-12 2.0E	2	2
H11 11'-00'-00 VERSALAM-12 2.0E	3	3
H12 9'-00'-00 VERSALAM-12 2.0E	1	1
H13 8'-00'-00 VERSALAM-12 2.0E	1	1

Product	Plies	Net Qty
RIMBOARD 1'-10\" X 9 1/2\" O.S.B.	1	16
RIMBOARD 1'-10\" X 11 7/8\" O.S.B.	1	26
RIMBOARD 1'-10\" X 11 7/8\" O.S.B.	1	8
RIMBOARD 9'-00'-00 11 7/8\" N1-20	1	4
RIMBOARD 8'-00'-00 11 7/8\" N1-20	1	22
RIMBOARD 3'-00'-00 11 7/8\" N1-20	1	16
RIMBOARD 16'-00'-00 VERSALAM-12 2.0E	1	1
RIMBOARD 16'-00'-00 VERSALAM-10 2.0E	2	2
RIMBOARD 11'-00'-00 VERSALAM-12 2.0E	2	4
RIMBOARD 11'-00'-00 VERSALAM-12 2.0E	2	2
RIMBOARD 11'-00'-00 VERSALAM-12 2.0E	3	3
RIMBOARD 9'-00'-00 VERSALAM-12 2.0E	1	1
RIMBOARD 8'-00'-00 VERSALAM-12 2.0E	1	1

Ceramic tile application as per O.B.C. 9.30.6
 1.2X6 SPF#2 Sqaush Block rest on one side of each
 joist under interior floor loading wall. Multiple Sqaush
 Blocks are rest under concentrated loads.

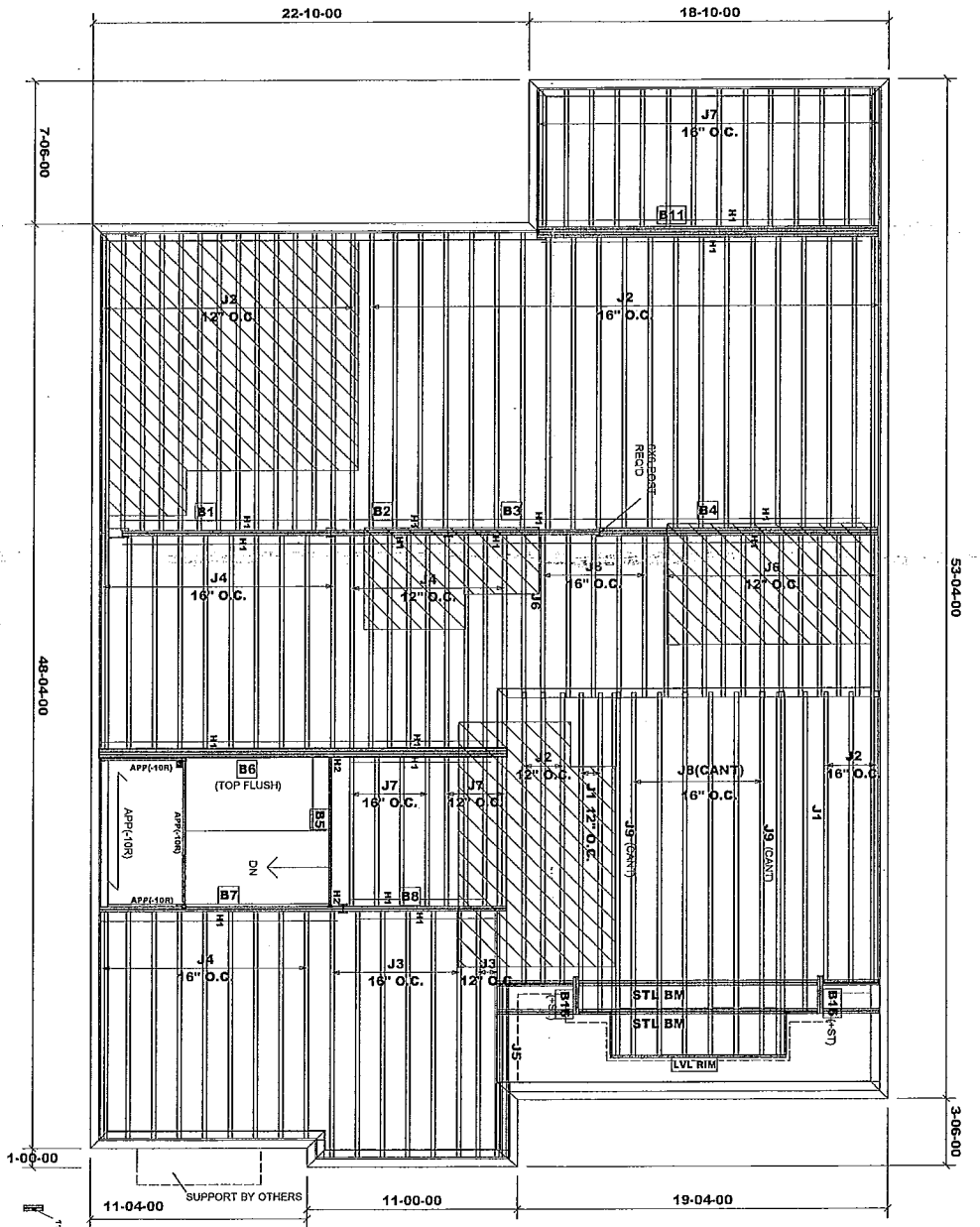
First Floor Framing

Do not scale - refer to architectural plans for dimensions

REVISION: July 3, 2018

MODEL: UNIT 5002 - ELA
 + OPT. LOGGIA(SUNKEN)

JT/PL: 45147/98839 Builder: Gold Park Location: Vaughan Designer: NL Salesperson: Derek
 LI: 299730(290682) Project: Pine Valley Date: November 24, 2017 Sheet: 4 of 8 Maple, Ontario Home Lumber



Product	Piles	Net Qty
J1 17'-00-00 11 7/8\"	1	3
J2 16'-00-00 11 7/8\"	1	41
J3 13'-00-00 11 7/8\"	1	8
J4 12'-00-00 11 7/8\"	1	28
J5 10'-00-00 11 7/8\"	1	18
J6 9'-00-00 11 7/8\"	1	23
J7 8'-00-00 11 7/8\"	1	6
J8 19'-00-00 11 7/8\"	2	4
J9 19'-00-00 11 7/8\"	2	3
B1 18'-00-00 VERSALAM-14 2.0E	3	4
B2 15'-00-00 VERSALAM-12 2.0E	2	3
B3 13'-00-00 VERSALAM-12 2.0E	2	2
B4 11'-00-00 VERSALAM-12 2.0E	1	1
B5 10'-00-00 VERSALAM-12 2.0E	2	2
B6 9'-00-00 VERSALAM-12 2.0E	1	1
B7 8'-00-00 VERSALAM-12 2.0E	1	1
B8 7'-00-00 VERSALAM-12 2.0E	2	2
B9 2'-00-00 VERSALAM-12 2.0E	2	4

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

HANGER SCHEDULE
H1 - 17511188 (TM)
H2 - HUS1.8710(FM)
NOTE: TOP MOUNT HANGERS
FM - FACE MOUNT HANGERS

Ceramic tile application as per O.B.C. 9.30.6
Provide 1-joist blocking between cantilevered joists (along bearing) and rimboard closure at ends.
1-2X6 SP#2 Squash Block req'd on one side of each joist under interior load bearing wall. Multiple Squash Blocks are req'd under concentrated loads.

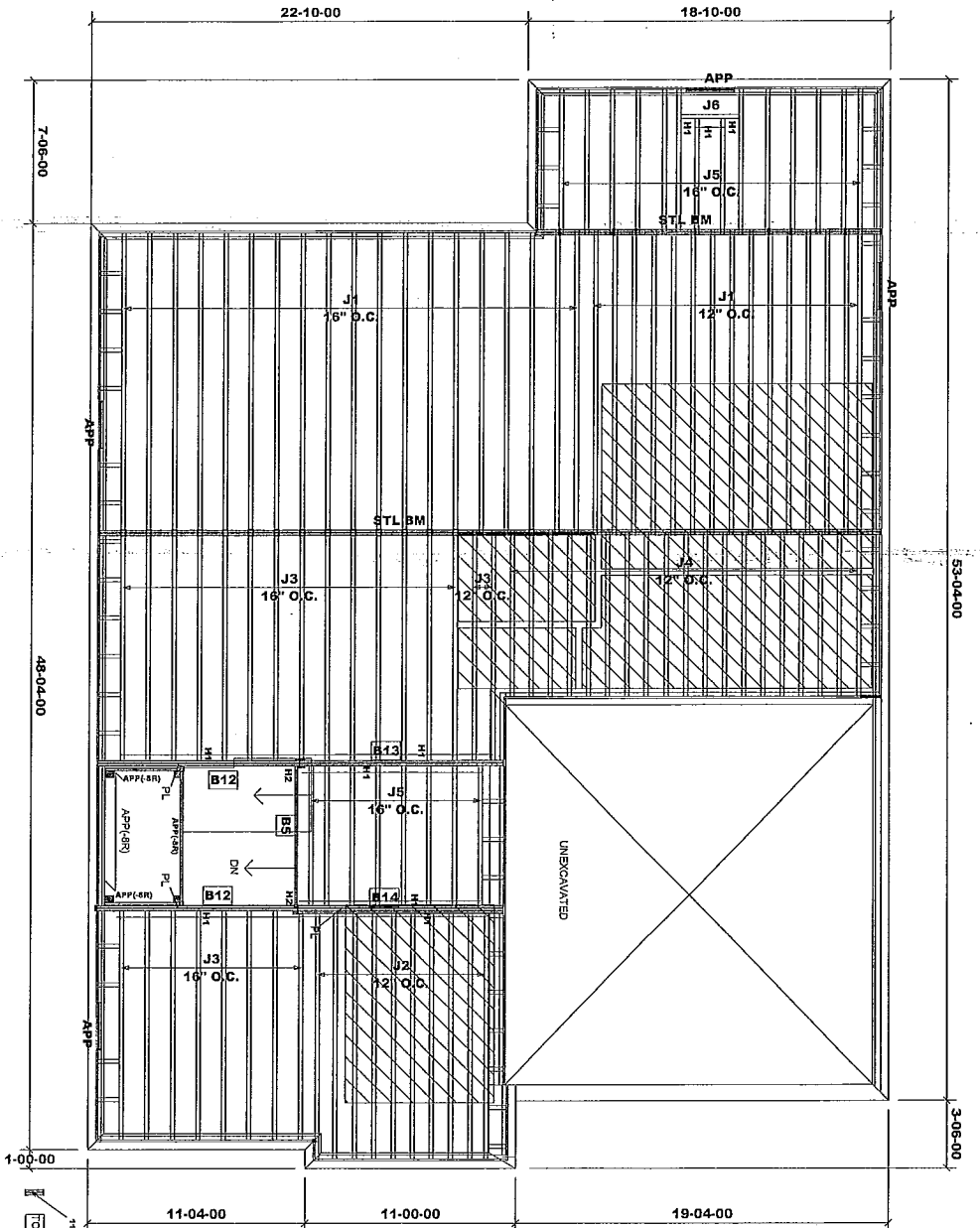
Second Floor Framing

Do not scale - refer to architectural plans for dimensions

MODEL: UNIT 5002 - EL.B
+ OPT. LOGGIA

REVISION: July 3, 2018

JT/PL: 45147/98839
Builder: Gold Park
Location: Vaughan
Date: November 24, 2017
Designer: NL
Sheet: 5 of 8
Alpa Roof Trusses Inc.
Maple, Ontario
Salesperson: Derek
Home Lumber



Product	Length	Product	Flies	Net Qty
J1	16'-00-00	1 7/8" N-20	1	34
J2	13'-00-00	1 7/8" N-20	1	10
J3	12'-00-00	1 7/8" N-20	1	24
J4	9'-00-00	1 7/8" N-20	1	19
J5	8'-00-00	1 7/8" N-20	1	22
J6	3'-00-00	1 7/8" N-20	1	1
B12	11'-00-00	VERSALAM-12.2OE	2	4
B13	11'-00-00	VERSALAM-12.2OE	2	2
B14	11'-00-00	VERSALAM-12.2OE	3	3
B5	8'-00-00	VERSALAM-12.2OE	1	1

HANGER SCHEDULE
H1-----L72S1188 (TM)
H2-----HUST1.8(100FM)
NOTE: TOP MOUNT HANGERS
FM-----FACE MOUNT HANGERS

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

Ceramic tile application as per O.B.C. 9.30.6
1-2X6 SPF#2 Squash Block, naid on one side of each joist under interior load bearing wall. Multiple Squash Blocks are req'd under concentrated loads.



First Floor Framing

Do not scale - refer to architectural plans for dimensions

MODEL: UNIT 5002 - ELB
+ OPT. LOGGIA

JT/PL: 45147/94992 Builder: Gold Park Location: Vaughan Designer: NL Salesperson: Derek
LI: (290682) Project: Pine Valley Date: November 24, 2017 Sheet: 6 of 8 Maple, Ontario Home Lumber

98839
98915
29730

RIMBOARD

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

SUPERLOOR - 3/4" NAILLED & GLUED

APP - AS PER PLAN

BBO - BEAM BY OTHERS

HANGER SCHEDULE

H1-----L2S1188 (TM)

H2-----HUST.811(DP.M)

NOTE:

TM-----TOP MOUNT HANGERS

FM-----FACE MOUNT HANGERS

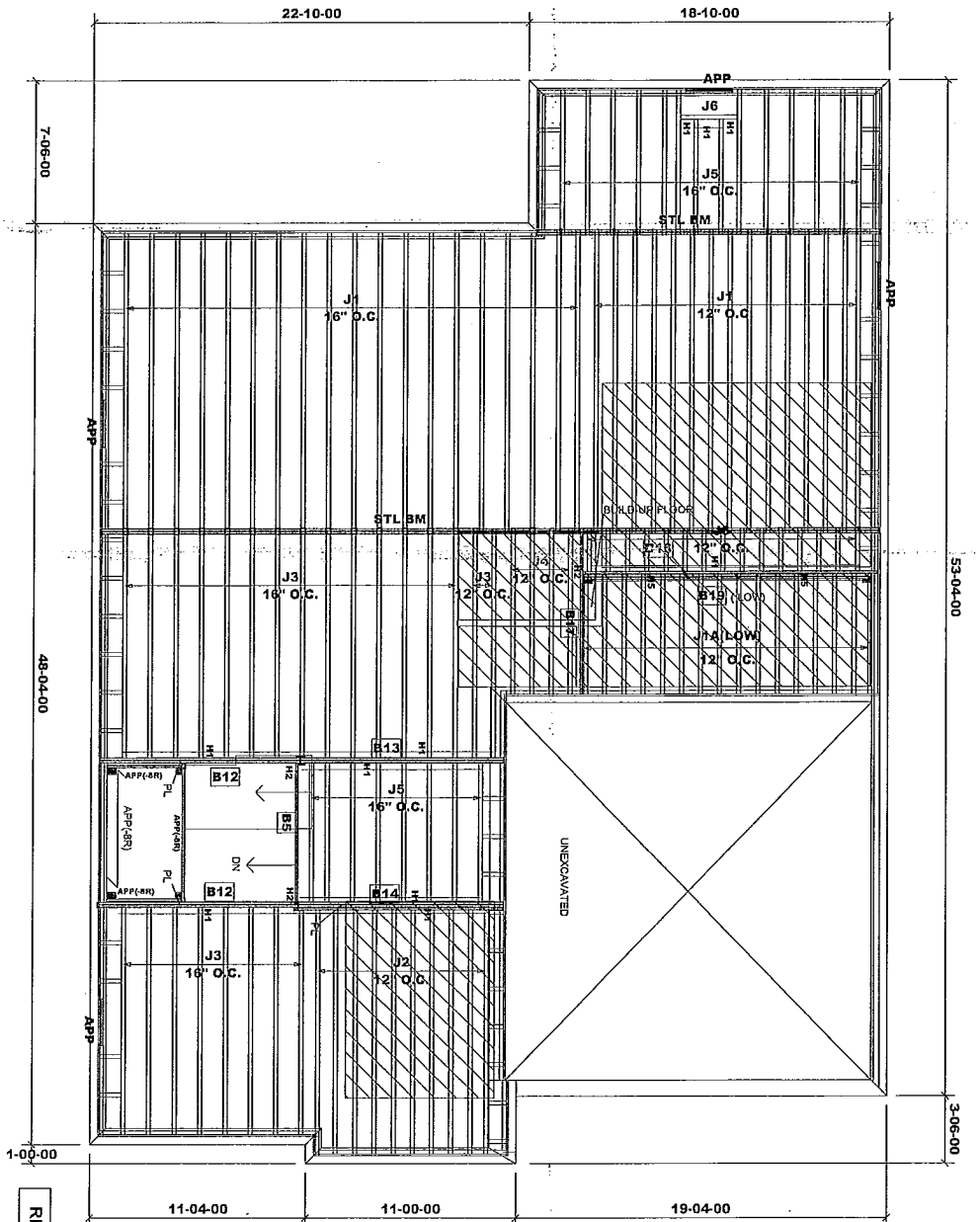
Ceramic tile application as per O.B.C. 9.30.6

Do not scale - refer to architectural plans for dimensions

**MODEL: UNIT 5002 - EL.B
+ OPT. LOGGIA(OPT. 2ND FL.)**

REVISION: July 3, 2018

Salesperson: Derek
Home Lumber



Product	Length	Product	Piles	Net Qty
J1A	7'-00-00	9 1/2\" N-20	1	16
J1	16'-00-00	11 7/8\" N-20	1	34
J2	13'-00-00	11 7/8\" N-20	1	10
J3	12'-00-00	11 7/8\" N-20	1	24
J4	9'-00-00	11 7/8\" N-20	1	4
J5	8'-00-00	11 7/8\" N-20	1	22
J6	3'-00-00	11 7/8\" N-20	1	16
B16	16'-00-00	VERSALAM-12.2.0E	1	1
B19	16'-00-00	VERSALAM-10.2.0E	2	2
B12	11'-00-00	VERSALAM-12.2.0E	2	2
B13	11'-00-00	VERSALAM-12.2.0E	2	2
B14	11'-00-00	VERSALAM-12.2.0E	3	3
B17	9'-00-00	VERSALAM-12.2.0E	1	1
B5	8'-00-00	VERSALAM-12.2.0E	1	1

HANGER SCHEDULE
H1-----AL75S188 (TM)
H2-----HUS14176(M)
H5-----L1259(TM)
NOTE:
TM-----TOP MOUNT HANGERS
FM-----FACE MOUNT HANGERS

RIMBOARD
1- 1/8\" X 9 1/2\" O.S.B.
1- 1/8\" X 11 7/8\" O.S.B.
SUBFLOOR - 3/4\" NAILLED & GLUED
APP - AS PER PLAN
BBO - BEAM BY OTHERS



Ceramic tile application as per O.B.C. 9.30.6
1-2X6 SFRZ Squash Block req'd on one side of each
block under interior load bearing wall. Multiple Squash
Blocks are req'd under concentrated loads.

11 7/8\" BLOCKING
TOTAL LENGTH: 65'

Do not scale - refer to architectural plans for dimensions

REVISION: July 3, 2018

MODEL: UNIT 5002 - EL.B
+ OPT. LOGGIA(SUNKEN)

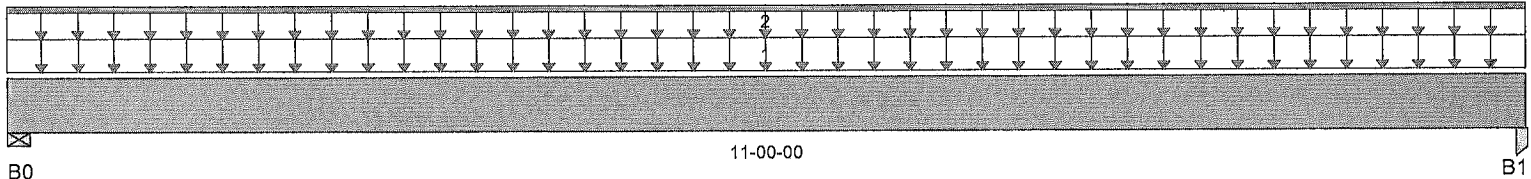
JT/PL: 45147/98839 Builder: Gold Park Location: Vaughan Designer: NL Salesperson: Derek
LI: 299730(290682) Project: Pine Valley Date: November 24, 2017 Sheet: 8 of 8 Maple, Ontario Home Lumber

BC CALC® Design Report


Build 6080

Name: 45147 (5002)
 Address: Pine Valley
 City, Province, Postal Code: Vaughan, ON
 Customer: Gold Park
 Code reports: CCMC 12472-R

File Name: 290682.bcc
 Description: Second Floor Framing
 Specifier:
 Designer: NL
 Company: Alpa Roof Trusses
 Misc:



Total Horizontal Product Length = 11-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	3,018 / 0	1,907 / 0		
B1, 3"	2,995 / 0	1,892 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Area (lb/ft^2)	L	00-00-00	11-00-00	40	20			13-08-00
2		Unf. Lin. (lb/ft)	L	00-00-00	11-00-00		60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	17,525 ft-lbs	35,392 ft-lbs	49.5%	1	05-06-04
End Shear	5,307 lbs	14,464 lbs	36.7%	1	01-03-06
Total Load Defl.	L/493 (0.258")	0.529"	48.7%	4	05-06-04
Live Load Defl.	L/804 (0.158")	0.353"	44.8%	5	05-06-04
Max Defl.	0.258"	1"	25.8%	4	05-06-04
Span / Depth	10.7	n/a	n/a		00-00-00
Squash Blocks	Valid				

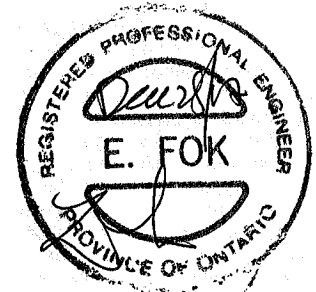
Bearing Supports

			Demand/ Resistance Support	Demand/ Resistance Member	Material
Bearing Supports		Dim. (L x W)	Demand		
B0	Wall/Plate	3-1/2" x 3-1/2"	6,910 lbs	91.7%	46.2%
B1	Post	3" x 3-1/2"	6,858 lbs	37.7%	53.5%

Notes

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

Nail one ply to another with
 3 1/2" spiral nails @ 10" o.c, staggered in 2 rows

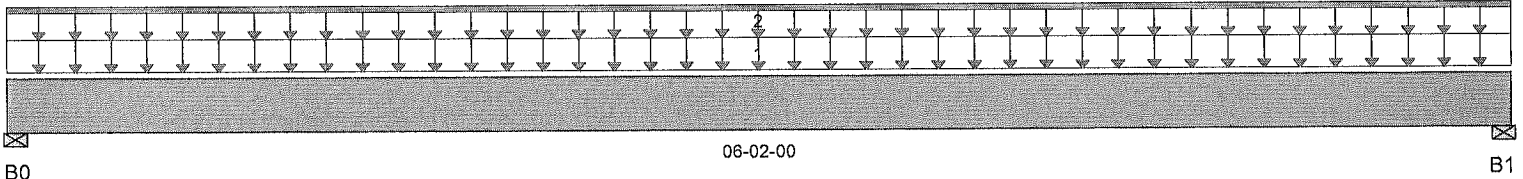


BC CALC® Design Report


Build 6080

Name: 45147 (5002)
 Address: Pine Valley
 City, Province, Postal Code: Vaughan, ON
 Customer: Gold Park
 Code reports: CCMC 12472-R

File Name: 290682.bcc
 Description: Second Floor Framing
 Specifier:
 Designer: NL
 Company: Alpa Roof Trusses
 Misc:



Total Horizontal Product Length = 06-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3"	1,686 / 0	1,065 / 0		
B1, 3"	1,686 / 0	1,065 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Area (lb/ft ²)	L	00-00-00	06-02-00	40	20			13-08-00
2		Unf. Lin. (lb/ft)	L	00-00-00	06-02-00		60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	5,248 ft-lbs	35,392 ft-lbs	14.8%	1	03-01-00
End Shear	2,308 lbs	14,464 lbs	16%	1	01-02-14
Total Load Defl.	L/999 (0.023")	n/a	n/a	4	03-01-00
Live Load Defl.	L/999 (0.014")	n/a	n/a	5	03-01-00
Max Defl.	0.023"	n/a	n/a	4	03-01-00
Span / Depth	5.9	n/a	n/a		00-00-00
Squash Blocks	Valid				

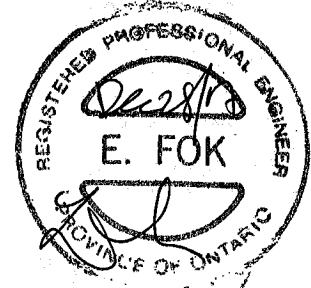
Bearing Supports

	Dim. (L x W)	Demand	Demand / Resistance Support	Demand / Resistance Member	Material
B0	Wall/Plate 3" x 3-1/2"	3,859 lbs	59.7%	30.1%	Spruce Pine Fir
B1	Wall/Plate 3" x 3-1/2"	3,859 lbs	59.7%	30.1%	Spruce Pine Fir

Notes

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

Nail one ply to another with
 3 1/2" spiral nails @ 10"
 o.c, staggered in 2 rows



S.152579

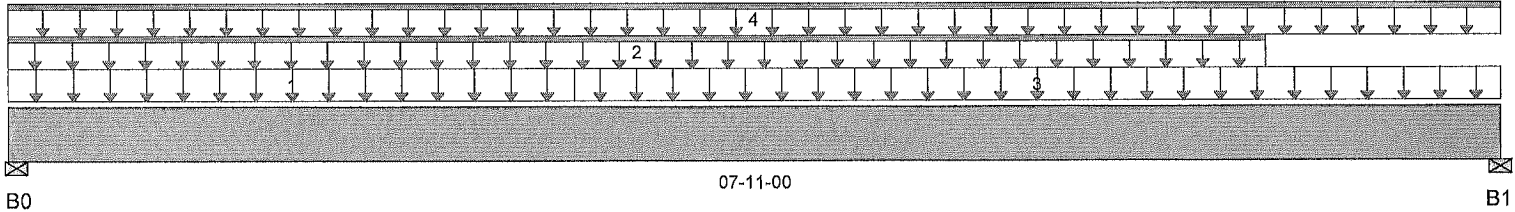
BC CALC® Design Report



Build 6080

Name: 45147 (5002)
 Address: Pine Valley
 City, Province, Postal Code: Vaughan, ON
 Customer: Gold Park
 Code reports: CCMC 12472-R

File Name: 290682.bcc
 Description: Second Floor Framing
 Specifier:
 Designer: NL
 Company: Alpa Roof Trusses
 Misc:



Total Horizontal Product Length = 07-11-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3"	1,974 / 0	1,510 / 0		
B1, 2"	1,665 / 0	1,280 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Area (lb/ft^2)	L	00-00-00	03-00-00	40	20			13-08-00
2		Unf. Lin. (lb/ft)	L	00-00-00	06-08-00		60			n/a
3		Unf. Area (lb/ft^2)	L	03-00-00	07-11-00	40	20			10-02-00
4		Unf. Lin. (lb/ft)	L	00-00-00	07-11-00		60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	8,055 ft-lbs	35,392 ft-lbs	22.8%	1	03-09-10
End Shear	3,204 lbs	14,464 lbs	22.2%	1	01-02-14
Total Load Defl.	L/999 (0.062")	n/a	n/a	4	03-11-11
Live Load Defl.	L/999 (0.035")	n/a	n/a	5	03-11-11
Max Defl.	0.062"	n/a	n/a	4	03-11-11
Span / Depth	7.7	n/a	n/a		00-00-00
Squash Blocks	Valid				

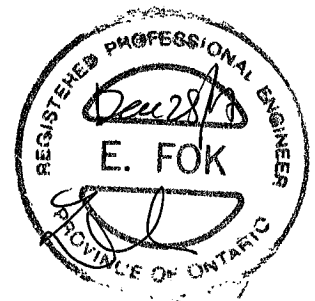
Bearing Supports

			Demand/ Resistance Support	Demand/ Resistance Member	
Bearing Supports		Dim. (L x W)	Demand		Material
B0	Wall/Plate	3" x 3-1/2"	4,848 lbs	75.1%	37.8%
B1	Wall/Plate	2" x 3-1/2"	4,098 lbs	95.2%	48%

Notes

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

Nail one ply to another with
 3 1/2" spiral nails @ 10"
 o.c, staggered in 2 rows



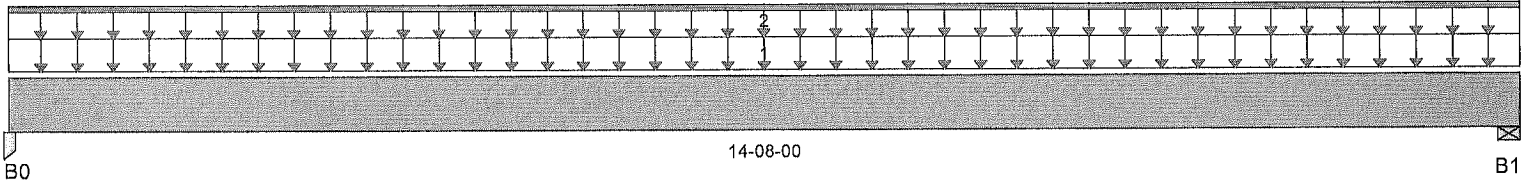
S.152580

BC CALC® Design Report


Build 6080

Name: 45147 (5002)
 Address: Pine Valley
 City, Province, Postal Code: Vaughan, ON
 Customer: Gold Park
 Code reports: CCMC 12472-R

File Name: 290682.bcc
 Description: Second Floor Framing
 Specifier:
 Designer: NL
 Company: Alpa Roof Trusses
 Misc:



Total Horizontal Product Length = 14-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 2"	3,538 / 0	2,337 / 0		
B1, 3-1/2"	3,599 / 0	2,377 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Area (lb/ft ²)	L	00-00-00	14-08-00	40	20			12-02-00
2		Unf. Lin. (lb/ft)	L	00-00-00	14-08-00		60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	29,064 ft-lbs	55,212 ft-lbs	52.6%	1	07-03-04
End Shear	6,920 lbs	21,696 lbs	31.9%	1	01-01-14
Total Load Defl.	L/328 (0.524")	0.717"	73.1%	4	07-03-04
Live Load Defl.	L/545 (0.315")	0.478"	66%	5	07-03-04
Max Defl.	0.524"	1"	52.4%	4	07-03-04
Span / Depth	14.5	n/a	n/a		00-00-00
Squash Blocks	Valid				

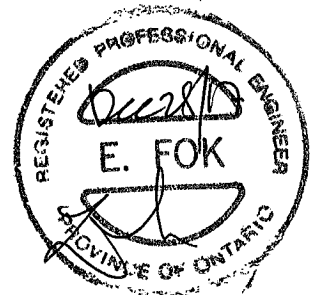
Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Post	2" x 5-1/4"	8,229 lbs	45.2%	64.2%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 5-1/4"	8,370 lbs	74%	37.3%	Spruce Pine Fir

Notes

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

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

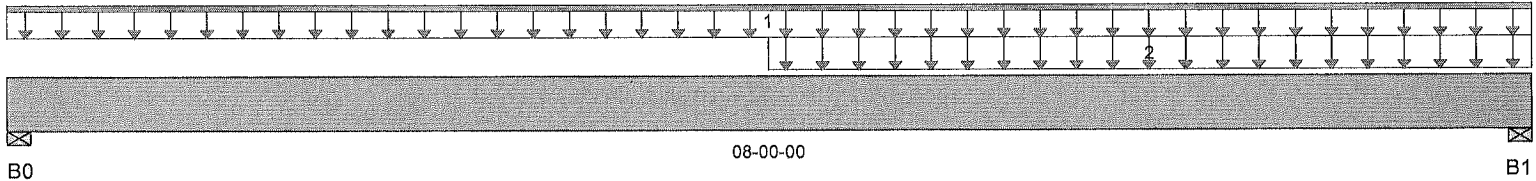


BC CALC® Design Report


Build 6080

Name: 45147 (5002)
 Address: Pine Valley
 City, Province, Postal Code: Vaughan, ON
 Customer: Gold Park
 Code reports: CCMC 12472-R

File Name: 290682.bcc
 Description: Second Floor Framing
 Specifier:
 Designer: NL
 Company: Alpa Roof Trusses
 Misc:



Total Horizontal Product Length = 08-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	278 / 0	144 / 0		
B1, 3-1/2"	658 / 0	286 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Lin. (lb/ft)	L	00-00-00	08-00-00	27	14			n/a
2		Unf. Area (lb/ft^2)	L	04-00-00	08-00-00	40	15			04-06-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,859 ft-lbs	17,696 ft-lbs	10.5%	1	04-09-03
End Shear	808 lbs	7,232 lbs	11.2%	1	06-08-10
Total Load Defl.	L/999 (0.026")	n/a	n/a	4	04-03-01
Live Load Defl.	L/999 (0.018")	n/a	n/a	5	04-03-01
Max Defl.	0.026"	n/a	n/a	4	04-03-01
Span / Depth	7.6	n/a	n/a		00-00-00
Squash Blocks	Valid				

Disclosure

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

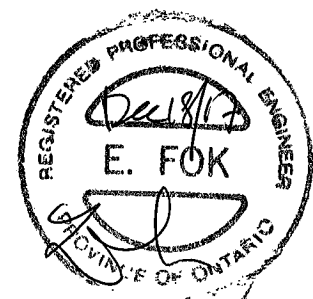
Bearing Supports

B0	Wall/Plate	3-1/2" x 1-3/4"	596 lbs	15.8%	8%	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	1,346 lbs	35.7%	18%	Spruce Pine Fir

Notes

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

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

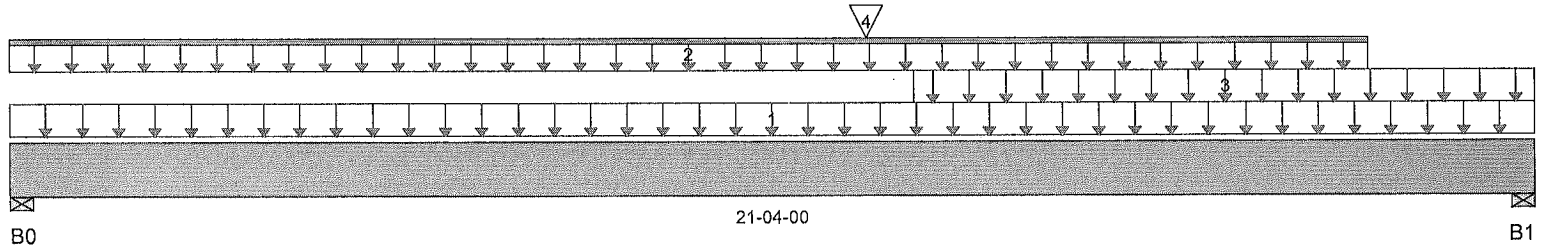


BC CALC® Design Report


Build 6080

Name: 45147 (5002)
 Address: Pine Valley
 City, Province, Postal Code: Vaughan, ON
 Customer: Gold Park
 Code reports: CCMC 12472-R

File Name: 290682.bcc
 Description: Second Floor Framing
 Specifier:
 Designer: NL
 Company: Alpa Roof Trusses
 Misc:



Total Horizontal Product Length = 21-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	2,954 / 0	2,306 / 0		
B1, 3-1/2"	3,831 / 0	2,512 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
2	Unf. Area (lb/ft^2)		L	00-00-00	21-04-00	40	20			06-00-00
3	Unf. Lin. (lb/ft)		L	00-00-00	19-00-00		60			n/a
4	Unf. Area (lb/ft^2)		L	12-08-00	21-04-00	40	15			04-00-00
4	Conc. Pt. (lbs)		L	12-00-00	12-00-00	278	144			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	42,064 ft-lbs	75,349 ft-lbs	55.8%	1	12-00-00
End Shear	7,644 lbs	25,578 lbs	29.9%	1	19-10-08
Total Load Defl.	L/257 (0.976")	1.044"	93.5%	4	10-08-03
Live Load Defl.	L/444 (0.564")	0.696"	81%	5	11-00-02
Max Defl.	0.976"	1"	97.6%	4	10-08-03
Span / Depth	17.9	n/a	n/a		00-00-00
Squash Blocks	Valid				

Bearing Supports

B0	Wall/Plate	3-1/2" x 5-1/4"	7,313 lbs	64.7%	32.6%	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 5-1/4"	8,886 lbs	78.6%	39.6%	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum Total load deflection criteria.
 Calculations assume member is fully braced.
 Resistance Factor phi has been applied to all presented results per CSA O86.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA C86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 4

Nail one ply to another with
 3 1/2" spiral nails @ 10"
 o.c, staggered in 2 rows



BC CALC® Design Report


Build 6080

Name: 45147 (5002)

Address: Pine Valley

City, Province, Postal Code: Vaughan, ON

Customer: Gold Park

Code reports: CCMC 12472-R

File Name: 290682.bcc

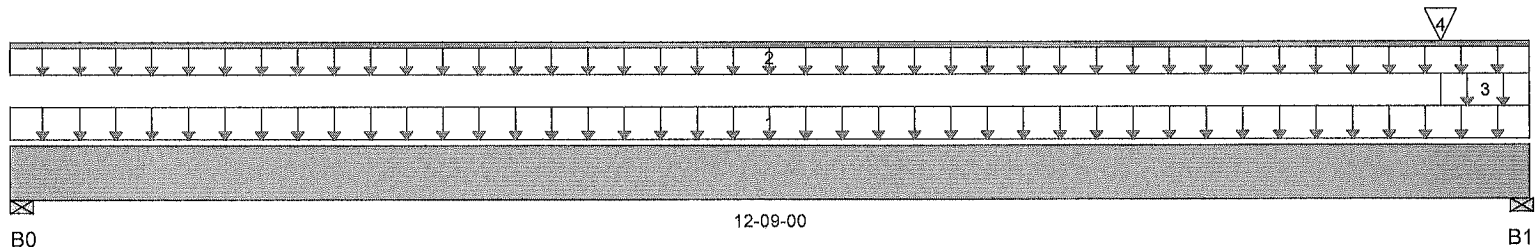
Description: Second Floor Framing

Specifier:

Designer: NL

Company: Alpa Roof Trusses

Misc:



Total Horizontal Product Length = 12-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,610 / 0	1,264 / 0		
B1, 3"	2,313 / 0	1,573 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
2		Unf. Area (lb/ft ²)	L	00-00-00	12-09-00	40	20			06-02-00
3		Unf. Lin. (lb/ft)	L	00-00-00	12-09-00		60			n/a
3		Unf. Area (lb/ft ²)	L	12-00-00	12-09-00	40	20			04-00-00
4		Conc. Pt. (lbs)	L	12-00-00	12-00-00	658	286			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	12,086 ft-lbs	35,392 ft-lbs	34.1%	1	06-06-11
End Shear	3,925 lbs	14,464 lbs	27.1%	1	11-06-02
Total Load Defl.	L/604 (0.245")	0.617"	39.7%	4	06-04-12
Live Load Defl.	L/1,072 (0.138")	0.411"	33.6%	5	06-04-12
Max Defl.	0.245"	1"	24.5%	4	06-04-12
Span / Depth	12.5	n/a	n/a		00-00-00
Squash Blocks	Valid				

Bearing Supports

B0	Wall/Plate	3-1/2" x 3-1/2"	3,994 lbs	53%	26.7%	Spruce Pine Fir
B1	Wall/Plate	3" x 3-1/2"	5,436 lbs	84.2%	42.4%	Spruce Pine Fir

Notes

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

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

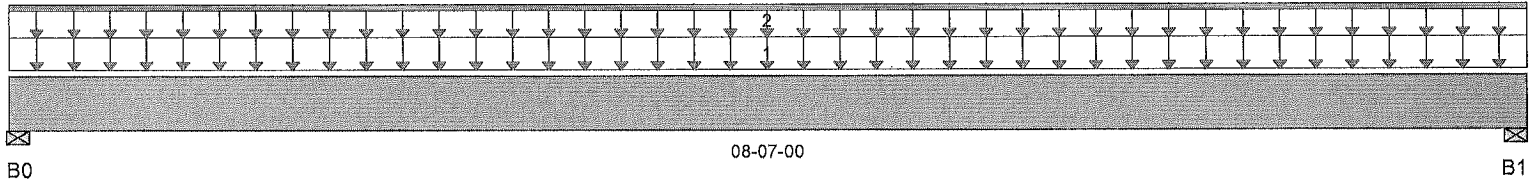


BC CALC® Design Report


Build 6080

Name: 45147 (5002)
 Address: Pine Valley
 City, Province, Postal Code: Vaughan, ON
 Customer: Gold Park
 Code reports: CCMC 12472-R

File Name: 290682.bcc
 Description: Second Floor Framing
 Specifier:
 Designer: NL
 Company: Alpa Roof Trusses
 Misc:



Total Horizontal Product Length = 08-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3"	1,623 / 0	1,119 / 0		
B1, 3-1/2"	1,639 / 0	1,130 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Area (lb/ft^2)	L	00-00-00	08-07-00	40	20			09-06-00
2		Unf. Lin. (lb/ft)	L	00-00-00	08-07-00		60			n/a

Controls Summary

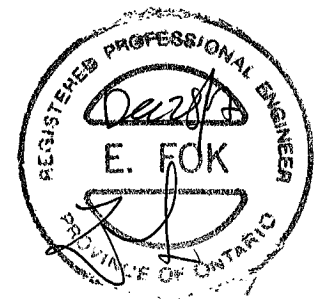
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	7,483 ft-lbs	35,392 ft-lbs	21.1%	1	04-03-04
End Shear	2,721 lbs	14,464 lbs	18.8%	1	01-02-14
Total Load Defl.	L/999 (0.066")	n/a	n/a	4	04-03-04
Live Load Defl.	L/999 (0.039")	n/a	n/a	5	04-03-04
Max Defl.	0.066"	n/a	n/a	4	04-03-04
Span / Depth	8.3	n/a	n/a		00-00-00
Squash Blocks	Valid				

Bearing Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0 Wall/Plate	3" x 3-1/2"	3,833 lbs	59.3%	29.9%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	3,871 lbs	51.4%	25.9%	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 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 4

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



BC CALC® Design Report



Build 6080

Name: 45147 (5002)

Address: Pine Valley

City, Province, Postal Code: Vaughan, ON

Customer: Gold Park

Code reports: CCMC 12472-R

File Name: 290682.bcc

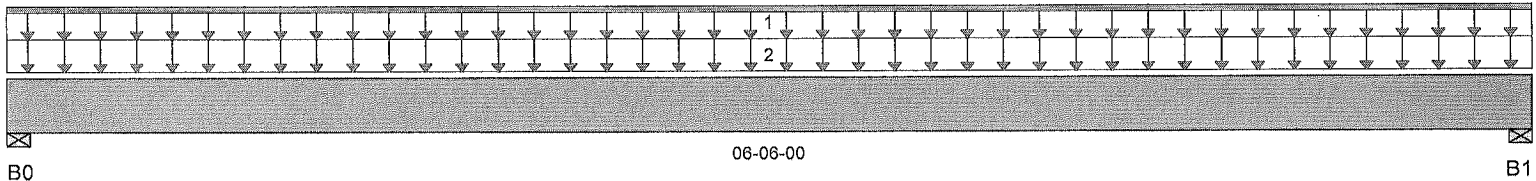
Description: Second Floor Framing

Specifier:

Designer: NL

Company: Alpa Roof Trusses

Misc:



Total Horizontal Product Length = 06-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	88 / 0	892 / 0	921 / 0	
B1, 3-1/2"	88 / 0	892 / 0	921 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Lin. (lb/ft)	L	00-00-00	06-06-00	27	114			n/a
2		Unf. Area (lb/ft^2)	L	00-00-00	06-06-00		11	21		13-06-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,568 ft-lbs	35,392 ft-lbs	10.1%	5	03-03-00
End Shear	1,539 lbs	14,464 lbs	10.6%	5	01-03-06
Total Load Defl.	L/999 (0.017")	n/a	n/a	13	03-03-00
Live Load Defl.	L/999 (0.008")	n/a	n/a	17	03-03-00
Max Defl.	0.017"	n/a	n/a	13	03-03-00
Span / Depth	6.1	n/a	n/a		00-00-00
Squash Blocks	Valid				

Bearing Supports

	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	2,541 lbs	33.7%	17% Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	2,541 lbs	33.7%	17% Spruce Pine Fir

Notes

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

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



BC CALC® Design Report


Build 6080

Name: 45147 (5002)

Address: Pine Valley

City, Province, Postal Code: Vaughan, ON

Customer: Gold Park

Code reports: CCMC 12472-R

File Name: 290682.bcc

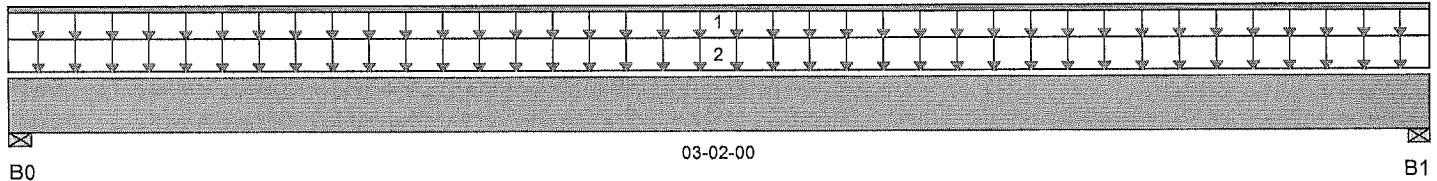
Description: Second Floor Framing

Specifier:

Designer: NL

Company: Alpa Roof Trusses

Misc:



Total Horizontal Product Length = 03-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	43 / 0	348 / 0	283 / 0	
B1, 3-1/2"	43 / 0	348 / 0	283 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Lin. (lb/ft)	L	00-00-00	03-02-00	27	114			n/a
2		Unf. Area (lb/ft^2)	L	00-00-00	03-02-00		11	21		08-06-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	509 ft-lbs	35,392 ft-lbs	1.4%	5	01-07-00
End Shear	168 lbs	14,464 lbs	1.2%	5	01-03-06
Total Load Defl.	L/999 (0")	n/a	n/a	13	01-07-00
Live Load Defl.	L/999 (0")	n/a	n/a	17	01-07-00
Max Defl.	0"	n/a	n/a	13	01-07-00
Span / Depth	2.7	n/a	n/a		00-00-00
Squash Blocks	Valid				

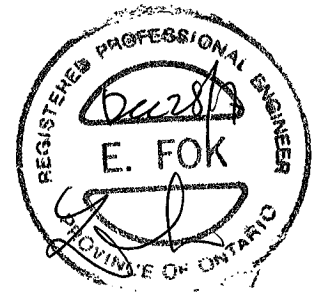
Bearing Supports

				Demand/ Resistance Support	Demand/ Resistance Member	
Bearing Supports		Dim. (L x W)	Demand			Material
B0	Wall/Plate	3-1/2" x 3-1/2"	880 lbs	11.7%	5.9%	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	880 lbs	11.7%	5.9%	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 2010 and CSA O86.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 4

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



S.152587

BC CALC® Design Report


Build 6080

Name: 45147 (5002)

Address: Pine Valley

City, Province, Postal Code: Vaughan, ON

Customer: Gold Park

Code reports: CCMC 12472-R

File Name: 290682.bcc

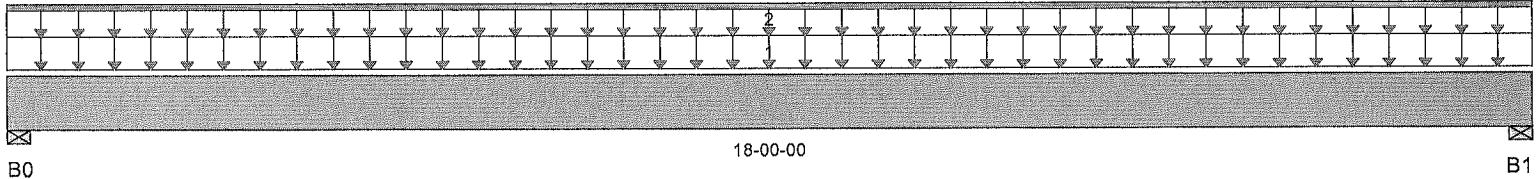
Description: Second Floor Framing

Specifier:

Designer: NL

Company: Alpa Roof Trusses

Misc:



Total Horizontal Product Length = 18-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	4,200 / 0	2,857 / 0		
B1, 3-1/2"	4,200 / 0	2,857 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Area (lb/ft^2)	L	00-00-00	18-00-00	40	20			11-08-00
2		Unf. Lin. (lb/ft)	L	00-00-00	18-00-00		60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	42,185 ft-lbs	73,615 ft-lbs	57.3%	1	09-00-00
End Shear	8,466 lbs	28,927 lbs	29.3%	1	01-03-06
Total Load Defl.	L/246 (0.855")	0.877"	97.5%	4	09-00-00
Live Load Defl.	L/414 (0.509")	0.585"	87%	5	09-00-00
Max Defl.	0.855"	1"	85.5%	4	09-00-00
Span / Depth	17.7	n/a	n/a		00-00-00
Squash Blocks	Valid				

Bearing Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0 Wall/Plate	3-1/2" x 7"	9,871 lbs	65.5%	33%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 7"	9,871 lbs	65.5%	33%	Spruce Pine Fir

Notes

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

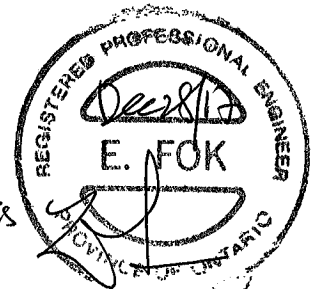
Nail one ply to another with

3 1/2" spiral nails @ 6"

o.c., staggered in 2 rows, plus 1/2" φ BOULTS

NUTS & WASHERS @ 4" o.c.,

STAGGERED IN 2 ROWS



S-152588

BC CALC® Design Report


Build 6080

Name:

45147 (5002)

Address:

Pine Valley

City, Province, Postal Code:

Vaughan, ON

Customer:

Gold Park

Code reports:

CCMC 12472-R

File Name: 290682.bcc

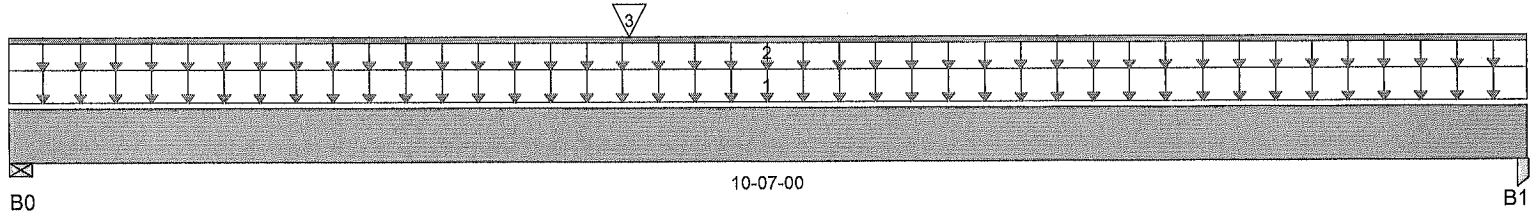
Description: First Floor Framing

Specifier:

Designer: NL

Company: Alpa Roof Trusses

Misc:



Total Horizontal Product Length = 10-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	2,014 / 0	1,138 / 0		
B1, 3"	1,787 / 0	1,050 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	Unf. Area (lb/ft^2)		L	00-00-00	10-07-00	40	15			06-04-00
2	Unf. Lin. (lb/ft)		L	00-00-00	10-07-00		60			n/a
	Conc. Pt. (lbs)		L	04-04-00	04-04-00	1,120	420			n/a

Controls Summary

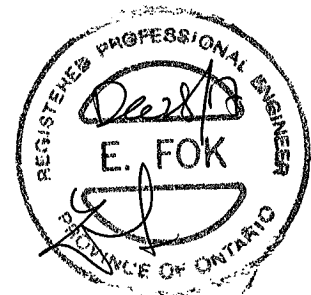
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	12,721 ft-lbs	35,392 ft-lbs	35.9%	1	04-04-00
End Shear	3,688 lbs	14,464 lbs	25.5%	1	01-03-06
Total Load Defl.	L/762 (0.16")	0.508"	31.5%	4	05-03-05
Live Load Defl.	L/999 (0.104")	n/a	n/a	5	05-01-06
Max Defl.	0.16"	1"	16%	4	05-03-05
Span / Depth	10.3	n/a	n/a		00-00-00
Squash Blocks	Valid				

Bearing Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0 Wall/Plate	3-1/2" x 3-1/2"	4,443 lbs	59%	29.7%	Spruce Pine Fir
B1 Post	3" x 3-1/2"	3,994 lbs	21.9%	31.2%	Spruce Pine Fir

Notes

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

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



S-152589

BC CALC® Design Report


Build 6080

Name:

45147 (5002)

Address:

Pine Valley

City, Province, Postal Code:

Vaughan, ON

Customer:

Gold Park

Code reports:

CCMC 12472-R

File Name: 290682.bcc

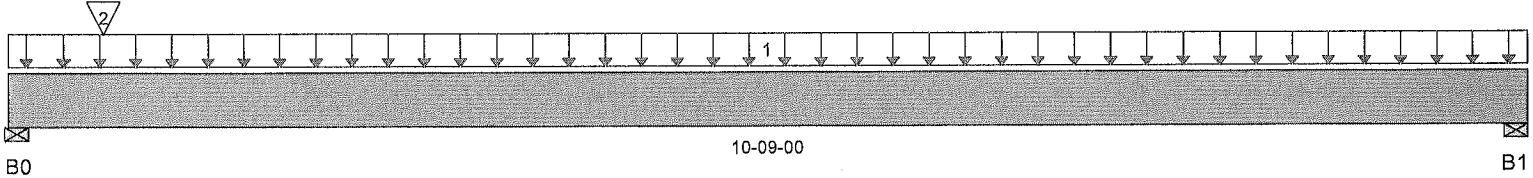
Description: First Floor Framing

Specifier:

Designer: NL

Company: Alpa Roof Trusses

Misc:



Total Horizontal Product Length = 10-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3"	2,873 / 0	1,425 / 0		
B1, 3-1/2"	2,194 / 0	1,158 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Area (lb/ft^2)	L	00-00-00	10-09-00	40	20			10-00-00
2		Conc. Pt. (lbs)	L	00-08-00	00-08-00	767	304			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	11,914 ft-lbs	35,392 ft-lbs	33.7%	1	05-02-11
End Shear	4,133 lbs	14,464 lbs	28.6%	1	01-02-14
Total Load Defl.	L/744 (0.167")	0.517"	32.3%	4	05-04-04
Live Load Defl.	L/999 (0.109")	n/a	n/a	5	05-04-04
Max Defl.	0.167"	1"	16.7%	4	05-04-04
Span / Depth	10.4	n/a	n/a		00-00-00
Squash Blocks	Valid				

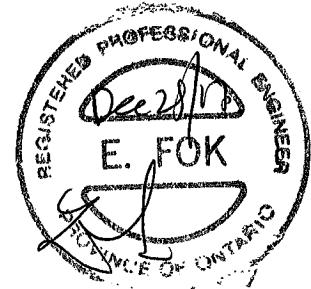
Bearing Supports

				Demand/ Resistance Support	Demand/ Resistance Member	
Bearing Supports		Dim. (L x W)	Demand			Material
B0	Wall/Plate	3" x 3-1/2"	6,091 lbs	94.3%	47.5%	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	4,739 lbs	62.9%	31.7%	Spruce Pine Fir

Notes

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

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



S.152590

BC CALC® Design Report


Build 6080

Name: 45147 (5002)

Address: Pine Valley

City, Province, Postal Code: Vaughan, ON

Customer: Gold Park

Code reports: CCMC 12472-R

File Name: 290682.bcc

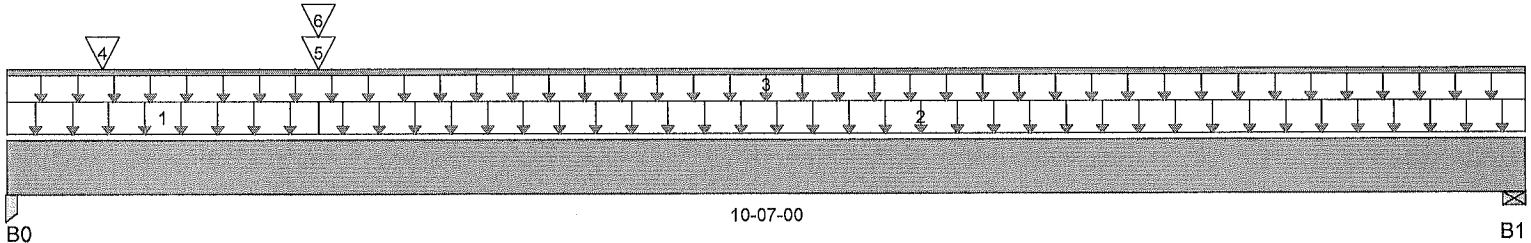
Description: First Floor Framing

Specifier:

Designer: NL

Company: Alpa Roof Trusses

Misc:



Total Horizontal Product Length = 10-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3"	5,509 / 0	3,723 / 0		
B1, 3-1/2"	2,754 / 0	1,931 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Area (lb/ft^2)	L	00-00-00	02-02-00	40	20			10-00-00
2		Unf. Area (lb/ft^2)	L	02-02-00	10-07-00	40	20			09-03-00
3		Unf. Lin. (lb/ft)	L	00-00-00	10-07-00		60			n/a
4		Conc. Pt. (lbs)	L	00-08-00	00-08-00	346	146			n/a
5		Conc. Pt. (lbs)	L	02-02-00	02-02-00	2,313	1,573			n/a
6		Conc. Pt. (lbs)	L	02-02-00	02-02-00	1,623	1,119			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	22,752 ft-lbs	55,212 ft-lbs	41.2%	1	03-02-01
End Shear	11,337 lbs	21,696 lbs	52.3%	1	01-02-14
Total Load Defl.	L/604 (0.202")	0.508"	39.8%	4	04-11-07
Live Load Defl.	L/999 (0.119")	n/a	n/a	5	04-11-07
Max Defl.	0.202"	1"	20.2%	4	04-11-07
Span / Depth	10.3	n/a	n/a		00-00-00
Squash Blocks	Valid				

Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Post	3" x 5-1/4"	12,918 lbs	47.3%	67.2%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 5-1/4"	6,544 lbs	57.9%	29.2%	Spruce Pine Fir

Notes

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

Nail one ply to another with
 3 1/2" spiral nails @ 10"
 o.c, staggered in 2 rows



BC CALC® Design Report


Build 6080

Name:

45147 (5002)

Address:

Pine Valley

City, Province, Postal Code:

Vaughan, ON

Customer:

Gold Park

Code reports:

CCMC 12472-R

File Name: 290682.bcc

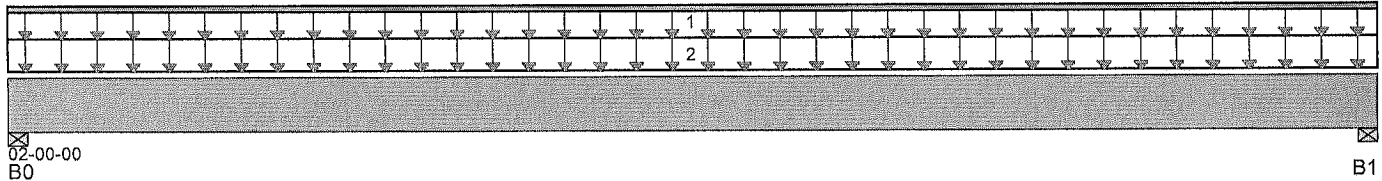
Description: Second Floor Framing

Specifier:

Designer: NL

Company: Alpa Roof Trusses

Misc:



Total Horizontal Product Length = 02-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	27 / 0	170 / 0	84 / 0	
B1, 3-1/2"	27 / 0	170 / 0	84 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Lin. (lb/ft)	L	00-00-00	02-00-00	27	114			n/a
2		Unf. Area (lb/ft^2)	L	00-00-00	02-00-00		11	21		04-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	71 ft-lbs	23,005 ft-lbs	0.3%	0	01-00-00
End Shear	67 lbs	9,401 lbs	0.7%	0	01-03-06
Span / Depth	1.6	n/a	n/a		00-00-00
Squash Blocks	Valid				

Bearing Supports

				Demand/ Resistance Support	Demand/ Resistance Member	
Bearing Supports		Dim. (L x W)	Demand			Material
B0	Wall/Plate	3-1/2" x 3-1/2"	238 lbs	4.9%	2.5%	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	238 lbs	4.9%	2.5%	Spruce Pine Fir

Notes

Calculations assume member is fully braced.

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

BC CALC® analysis is based on Canadian Limit States Design, as per NBCC 2010 and CSA O86.

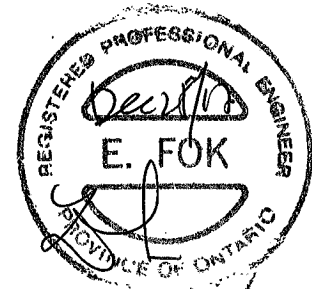
Design based on Dry Service Condition.

Importance Factor : Normal Part code : Part 4

Nail one ply to another with

3 1/2" spiral nails @ 6"

o.c, staggered in 2 rows

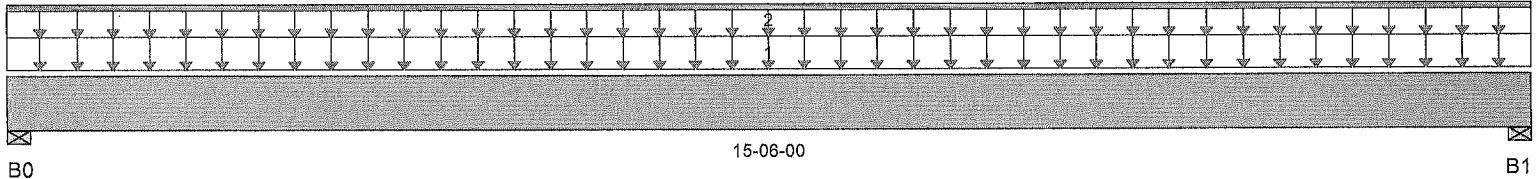


BC CALC® Design Report


Build 6080

Name: 45147 (5002)
 Address: Pine Valley
 City, Province, Postal Code: Vaughan, ON
 Customer: Gold Park
 Code reports: CCMC 12472-R

File Name: 290682.bcc
 Description: First Floor Framing
 Specifier:
 Designer: NL
 Company: Alpa Roof Trusses
 Misc:



Total Horizontal Product Length = 15-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	465 / 0	744 / 0		
B1, 3-1/2"	465 / 0	744 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Area (lb/ft^2)	L	00-00-00	15-06-00	40	20			01-06-00
2		Unf. Lin. (lb/ft)	L	00-00-00	15-06-00		60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	5,940 ft-lbs	17,696 ft-lbs	33.6%	1	07-09-00
End Shear	1,359 lbs	7,232 lbs	18.8%	1	01-03-06
Total Load Defl.	L/491 (0.368")	0.752"	48.9%	4	07-09-00
Live Load Defl.	L/1,276 (0.141")	0.501"	28.2%	5	07-09-00
Max Defl.	0.368"	1"	36.8%	4	07-09-00
Span / Depth	15.2	n/a	n/a		00-00-00
Squash Blocks	Valid				

Disclosure

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

Bearing Supports

				Demand/ Resistance Support	Demand/ Resistance Member	Material
Bearing Supports		Dim. (L x W)	Demand			
B0	Wall/Plate	3-1/2" x 1-3/4"	1,628 lbs	43.2%	21.8%	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 1-3/4"	1,628 lbs	43.2%	21.8%	Spruce Pine Fir

Notes

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

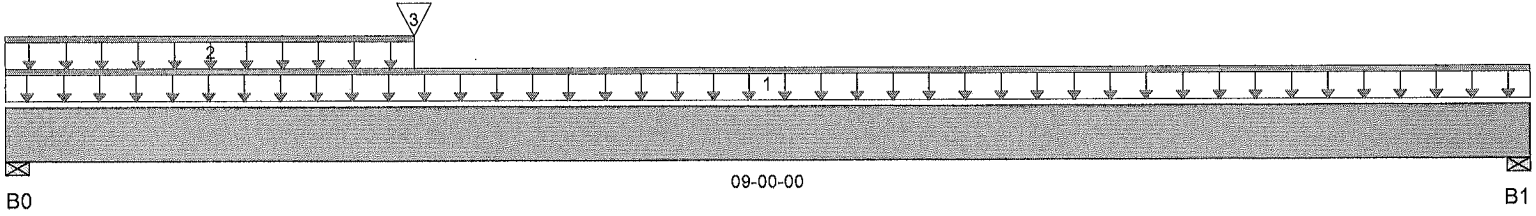


BC CALC® Design Report


Build 6080

Name: 45147 (5002)
 Address: Pine Valley
 City, Province, Postal Code: Vaughan, ON
 Customer: Gold Park
 Code reports: CCMC 12472-R

File Name: 290682.bcc
 Description: First Floor Framing
 Specifier:
 Designer: NL
 Company: Alpa Roof Trusses
 Misc:



Total Horizontal Product Length = 09-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	525 / 0	943 / 0		
B1, 3-1/2"	248 / 0	555 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	Unf. Lin. (lb/ft)		L	00-00-00	09-00-00	27	74			n/a
	Unf. Lin. (lb/ft)		L	00-00-00	02-05-00	27	14			n/a
	Conc. Pt. (lbs)		L	02-05-00	02-05-00	465	744			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,509 ft-lbs	11,502 ft-lbs	21.8%	0	02-05-00
End Shear	1,152 lbs	4,701 lbs	24.5%	0	01-03-06
Total Load Defl.	L/999 (0.067")	n/a	n/a	4	04-01-14
Live Load Defl.	L/999 (0.023")	n/a	n/a	5	04-01-14
Max Defl.	0.067"	n/a	n/a	4	04-01-14
Span / Depth	8.6	n/a	n/a		00-00-00
Squash Blocks	Valid				

Disclosure

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

Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	1,321 lbs	53.9%	27.2%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	776 lbs	31.7%	16%	Spruce Pine Fir

Notes

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



S.152594

NORDIC STRUCTURES

COMPANY
Nov. 24, 2017 14:35

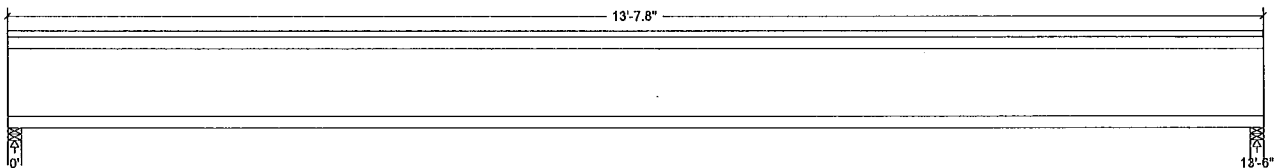
PROJECT
45147(5002)
Gold Park
Pine Valley, Vaughan
1-NI-20-8(1ST FL., under stair).wwb

Design Check Calculation Sheet Nordic Sizer - Canada 6.4

Loads:

Load	Type	Distribution	Pat- tern	Location [ft] Start End	Magnitude Start End	Unit
Load1	Dead	Full Area			15.00	psf
Load2	Live	Full Area			40.00	psf
Load3	Live	Partial UDL		0.07 3.66	160.0 160.0	plf
Load4	Dead	Partial UDL		0.07 3.66	60.0 60.0	plf
Self-weight	Dead	Full UDL			2.4	plf

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



Unfactored:			
Dead	304		146
Live	767		346
Factored:			
Total	1531		702
Bearing:			
Resistance			
Joist	1965		1965
Support	2798		2798
Des ratio			
Joist	0.78		0.36
Support	0.55		0.25
Load case	#2		#2
Length	1-3/4		1-3/4
Min req'd	1-3/4		1-3/4
Stiffener	No		No
Kd	1.00		1.00
KB support	1.00		1.00
fcp sup	769		769
Kzcp sup	1.03		1.03

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

Nordic 11-7/8" NI-20 Floor joist @ 12" o.c.

Supports: All - Lumber Wall, No.1/No.2
Total length: 13'-7.8"; 3/4" nailed and glued OSB sheathing
This section PASSES the design code check.

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

Criterion	Analysis Value	Design Value	Unit	Analysis/Design
Shear	Vf = 1531	Vr = 2241	lbs	Vf/Vr = 0.68
Moment (+)	Mf = 3010	Mr = 5580	lbs-ft	Mf/Mr = 0.54
Perm. Defl'n	0.07 = <L/999	0.45 = L/360	in	0.16
Live Defl'n	0.18 = L/908	0.45 = L/360	in	0.40
Total Defl'n	0.25 = L/644	0.68 = L/240	in	0.37
Bare Defl'n	0.22 = L/742	0.45 = L/360	in	0.48
Vibration	Lmax = 13'-6	Lv = 18'-0	ft	
Defl'n	= 0.020	= 0.050	in	0.40

Additional Data:

FACTORS:	f/E	KD	KH	KZ	KL	KT	KS	KN	LC#
Vr	2241	1.00	1.00	-	-	-	-	-	#2
Mr+	5580	1.00	1.00	-	1.000	-	-	-	#2
EI	253.0 million	-	-	-	-	-	-	-	#2

CRITICAL LOAD COMBINATIONS:

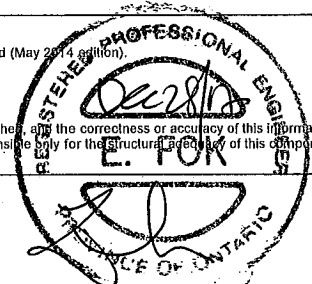
Shear : LC #2 = 1.25D + 1.5L
Moment (+) : LC #2 = 1.25D + 1.5L
Deflection: LC #1 = 1.0D (permanent)
LC #2 = 1.0D + 1.0L (live)
LC #2 = 1.0D + 1.0L (total)
LC #2 = 1.0D + 1.0L (bare joist)
Bearing : Support 1 - LC #2 = 1.25D + 1.5L
Support 2 - LC #2 = 1.25D + 1.5L
Load Types: D=dead W=wind S=snow H=earth, groundwater E=earthquake
L=live(use, occupancy) Ls=live(storage, equipment) f=fire
All Load Combinations (LCs) are listed in the Analysis output

CALCULATIONS:

Deflection: E_{ieff} = 318e06 lb-in² K = 6.18e06 lbs
"Live" deflection = Deflection from all non-dead loads (live, wind, snow...)

Design Notes:

- WoodWorks analysis and design are in accordance with the 2010 National Building Code of Canada (NBC Part 4) and the CSA O86-14 Engineering Design in Wood standard (May 2014 edition).
- Please verify that the default deflection limits are appropriate for your application.
- Refer to technical documentation for installation guidelines and construction details.
- Nordic I-joists are listed in CCMC evaluation report 13032-R.
- Joists shall be laterally supported at supports and continuously along the compression edge.
- The design assumptions and specifications have been provided by the client. Any damages resulting from faulty or incorrect information, specifications, and/or designs furnished, and the correctness or accuracy of this information is their responsibility. This analysis does not constitute a record of the structural integrity of the building nor suitability of the design assumptions made. Nordic Structures is responsible only for the structural adequacy of this component based on the design criteria and loadings shown.



S.152596

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

July 3, 2018 10:33:23

BC CALC® Design Report



Build 6536

Job Name:

45147 (5002)

Address:

Pine Valley

City, Province, Postal Code: Vaughan, ON

Customer:

Gold Park

Code reports:

CCMC 12472-R

File Name: 290682.bcc

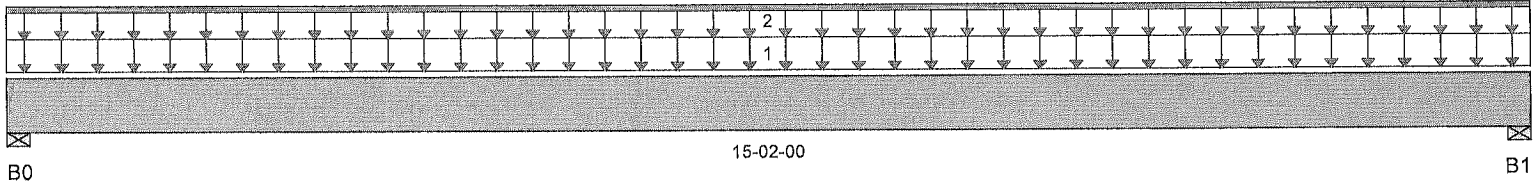
Description: First Floor Framing

Specifier:

Designer: NL

Company: Alpa Roof Trusses

Misc:



Total Horizontal Product Length = 15-02-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,011 / 0	1,034 / 0		
B1, 3-1/2"	1,011 / 0	1,034 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Area (lb/ft^2)	L	00-00-00	15-02-00	40	20			03-04-00
2		Unf. Lin. (lb/ft)	L	00-00-00	15-02-00		60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	10,015 ft-lbs	23,220 ft-lbs	43.1%	1	07-07-00
End Shear	2,407 lbs	11,571 lbs	20.8%	1	01-01-00
Total Load Defl.	L/311 (0.568")	0.735"	77.2%	4	07-07-00
Live Load Defl.	L/629 (0.281")	0.49"	57.3%	5	07-07-00
Max Defl.	0.568"	1"	56.8%	4	07-07-00
Span / Depth	18.6	n/a	n/a		00-00-00

Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Wall/Plate	3-1/2" x 3-1/2"	2,809 lbs	37.3%	18.8%	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	2,809 lbs	37.3%	18.8%	Spruce Pine Fir

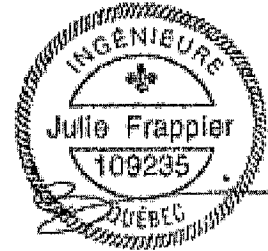
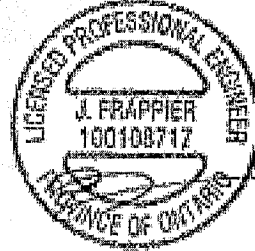
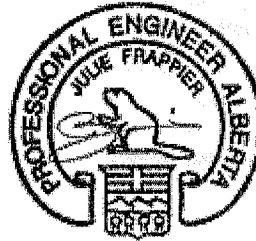
Notes

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

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



S-157256

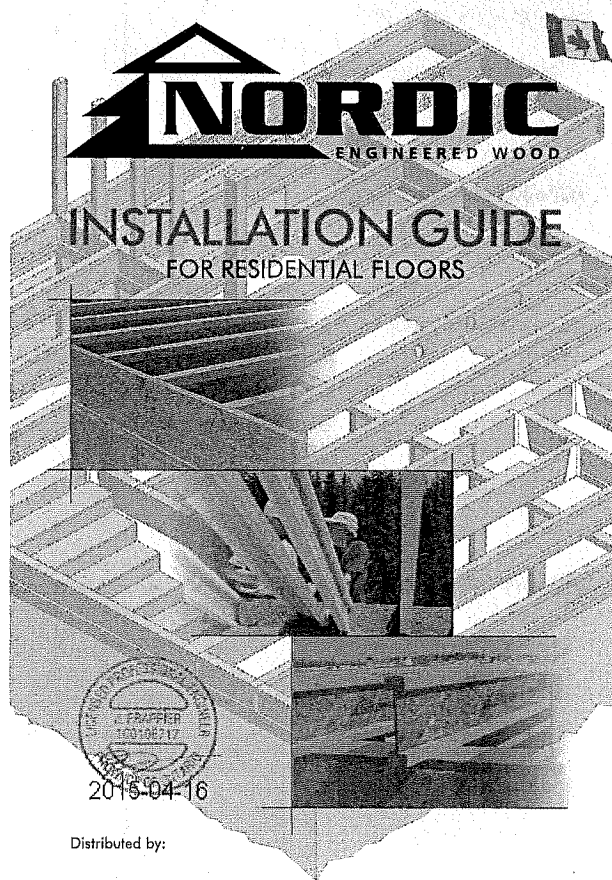


Maximum Floor Spans

Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/360 Deflection Limit
3/4" OSB G&N Sheathing

Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-10"	15'-0"	14'-5"	13'-5"	16'-4"	15'-5"	14'-6"	13'-5"
	NI-40x	17'-0"	16'-0"	15'-5"	14'-6"	17'-5"	16'-5"	15'-10"	15'-2"
	NI-60	17'-2"	16'-2"	15'-7"	14'-11"	17'-6"	16'-7"	15'-11"	15'-3"
	NI-70	18'-0"	16'-11"	16'-3"	15'-7"	18'-5"	17'-3"	16'-7"	15'-11"
	NI-80	18'-3"	17'-1"	16'-5"	15'-9"	18'-8"	17'-5"	16'-9"	16'-1"
11-7/8"	NI-20	17'-10"	16'-10"	16'-2"	15'-6"	18'-6"	17'-4"	16'-9"	16'-1"
	NI-40x	19'-4"	17'-11"	17'-3"	16'-6"	19'-11"	18'-6"	17'-9"	17'-0"
	NI-60	19'-7"	18'-2"	17'-5"	16'-9"	20'-2"	18'-9"	17'-11"	17'-2"
	NI-70	20'-9"	19'-2"	18'-3"	17'-5"	21'-4"	19'-9"	18'-10"	17'-10"
	NI-80	21'-1"	19'-5"	18'-6"	17'-7"	21'-7"	20'-0"	19'-0"	18'-0"
14"	NI-90x	21'-8"	20'-0"	19'-1"	18'-0"	22'-2"	20'-6"	19'-6"	18'-6"
	NI-40x	21'-5"	19'-10"	18'-11"	17'-11"	22'-1"	20'-6"	19'-7"	18'-7"
	NI-60	21'-10"	20'-2"	19'-3"	18'-2"	22'-5"	20'-10"	19'-11"	18'-10"
	NI-70	23'-0"	21'-3"	20'-3"	19'-2"	23'-8"	21'-11"	20'-10"	19'-9"
	NI-80	23'-5"	21'-7"	20'-7"	19'-5"	24'-0"	22'-3"	21'-2"	20'-0"
16"	NI-90x	24'-1"	22'-3"	21'-2"	20'-0"	24'-8"	22'-10"	21'-9"	20'-7"
	NI-60	23'-9"	22'-0"	20'-11"	19'-10"	24'-6"	22'-9"	21'-8"	20'-6"
	NI-70	25'-1"	23'-2"	22'-0"	20'-10"	25'-9"	23'-10"	22'-9"	21'-6"
	NI-80	25'-6"	23'-6"	22'-4"	21'-2"	26'-1"	24'-2"	23'-1"	21'-10"
	NI-90x	26'-4"	24'-3"	23'-1"	21'-10"	26'-11"	24'-11"	23'-8"	22'-5"
Depth	Series	Mid-Span Blocking				Mid-Span Blocking and 1/2" Gypsum Ceiling			
		On Centre Spacing				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"	15'-3"	19'-2"	17'-8"	16'-7"	15'-3"
	NI-60	18'-11"	17'-8"	16'-10"	15'-7"	19'-4"	18'-0"	16'-10"	15'-7"
	NI-70	20'-0"	18'-7"	17'-9"	17'-0"	20'-5"	19'-0"	18'-2"	17'-0"
	NI-80	20'-3"	18'-10"	17'-11"	17'-2"	20'-8"	19'-3"	18'-4"	17'-5"
11-7/8"	NI-20	20'-2"	18'-8"	17'-6"	16'-2"	20'-7"	18'-8"	17'-6"	16'-2"
	NI-40x	21'-10"	20'-4"	19'-5"	17'-8"	22'-5"	20'-11"	19'-9"	17'-8"
	NI-60	22'-1"	20'-7"	19'-7"	18'-7"	22'-8"	21'-2"	20'-3"	18'-8"
	NI-70	23'-4"	21'-8"	20'-8"	19'-7"	23'-10"	22'-3"	21'-3"	20'-1"
	NI-80	23'-7"	21'-11"	20'-11"	19'-9"	24'-1"	22'-6"	21'-5"	20'-4"
14"	NI-90x	24'-3"	22'-6"	21'-6"	20'-4"	24'-8"	23'-0"	22'-0"	20'-9"
	NI-40x	24'-5"	22'-9"	21'-8"	19'-5"	25'-1"	23'-6"	21'-9"	19'-5"
	NI-60	24'-10"	23'-1"	22'-0"	20'-10"	25'-6"	23'-10"	22'-9"	21'-4"
	NI-70	26'-1"	24'-3"	23'-2"	21'-10"	26'-8"	24'-11"	23'-9"	22'-6"
	NI-80	26'-6"	24'-7"	23'-5"	22'-2"	27'-1"	25'-3"	24'-1"	22'-9"
16"	NI-90x	27'-3"	25'-4"	24'-1"	22'-9"	27'-9"	25'-11"	24'-8"	23'-4"
	NI-60	27'-3"	25'-5"	24'-2"	22'-10"	28'-0"	26'-2"	25'-0"	23'-8"
	NI-70	28'-8"	26'-8"	25'-4"	23'-11"	29'-3"	27'-4"	26'-1"	24'-8"
	NI-80	29'-1"	27'-0"	25'-9"	24'-4"	29'-8"	27'-9"	26'-5"	25'-0"
	NI-90x	29'-11"	27'-10"	26'-6"	25'-0"	30'-6"	28'-5"	27'-2"	25'-8"

- Maximum clear span applicable to simple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of $1.50L + 1.25D$. The serviceability limit states include the consideration for floor vibration, a live load deflection limit of $L/360$ and a total load deflection limit of $L/240$.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 3/4 inch for a joist spacing of 24 inches or less. The composite floor may include 1/2 inch gypsum ceiling and/or one row of blocking at mid-span with strapping. Strapping shall be minimum 1x4 inch strap applied to underside of joists at blocking line or 1/2 inch gypsum ceiling attached to joists.
- Minimum bearing length shall be 1-3/4 inches for the end bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniformly distributed loads, an engineering analysis may be required based on the use of the design properties. Tables are based on Limit States Design per CSA O86-09, NBC 2010, and OBC 2012.
- Joists shall be laterally supported at supports and continuously along the compression edge. Refer to technical documentation for installation guidelines and construction details. Nordic I-joists are listed in CCMC evaluation report 13032-R and APA Product Report PR-L274C.



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 unshathed I-joists. Once shathed, do not overstress 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.

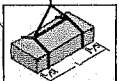
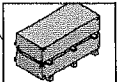
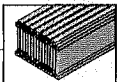
Avoid Accidents by Following these Important Guidelines:

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

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

STORAGE AND HANDLING GUIDELINES

1. Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
2. Store, stack, and handle I-joists vertically and level only.
3. Always stack and handle I-joists in the upright position only.
4. Do not store I-joists in direct contact with the ground and/or flatwise.
5. Protect I-joists from weather, and use spacers to separate bundles.
6. Bundled units should be kept intact until time of installation.
 - 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.

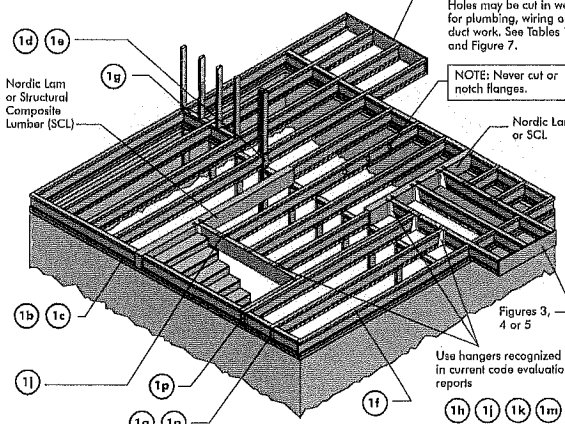


INSTALLING NORDIC I-JOISTS

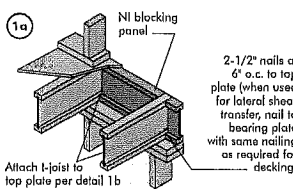
1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contact your supplier.
2. Except for cutting to length, I-joist flanges should **never** be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of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

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

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

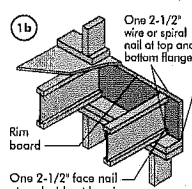


All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for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



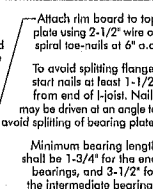
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (psf)
Ni Joists	3,300

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



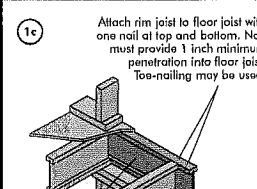
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (psf)
1-1/8" Rim Board Plus	8,090

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



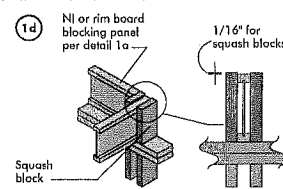
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (psf)
1-1/8" Rim Board Plus	8,090

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



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

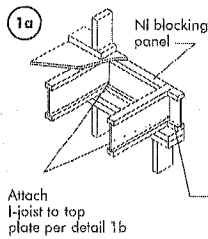
*The uniform vertical load is limited to a rim board depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.



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

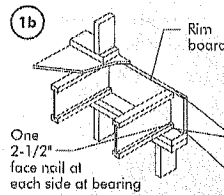
*The uniform vertical load is limited to a joist depth of 16 inches or less and is based on standard term load duration. It shall not be used in the design of a bending member, such as joist, header, or rafter. For concentrated vertical load transfer, see detail 1d.

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



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

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

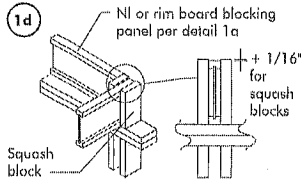


Blocking Panel or Rim Board	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

*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.

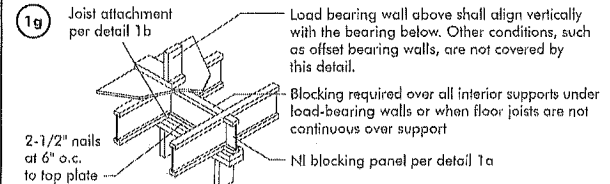
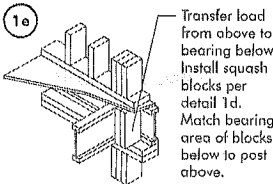
One 2-1/2" wire or spiral nail at top and bottom flange
Attach rim board to top plate using 2-1/2" wire or spiral toe-nails at 6" o.c.
To avoid splitting flange, start nails at least 1-1/2" from end of I-joist.
Nails may be driven at an angle to avoid splitting of bearing plate.

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



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



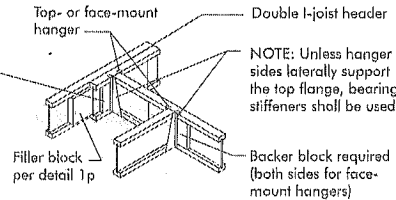
1h Backer block (use if hanger load exceeds 360 lbs). Before installing a backer block to a double I-joist, drive three additional 3" nails through the webs and filler block where the backer block will fit. Clinch. Install backer tight to top flange. Use twelve 3" nails, clinched when possible. Maximum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

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

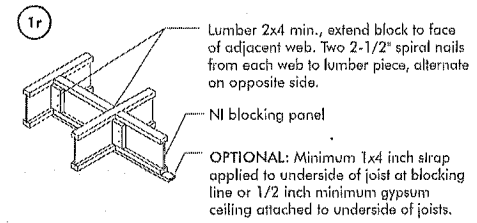
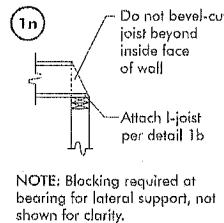
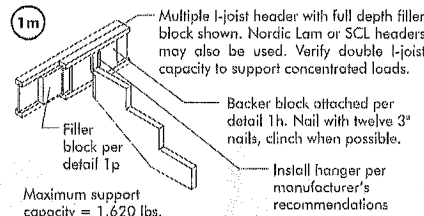
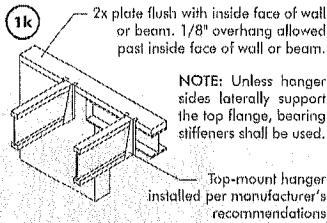
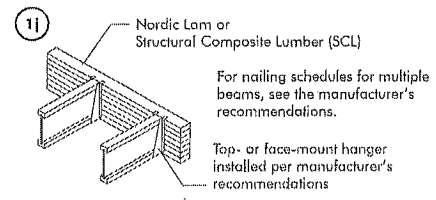
Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

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

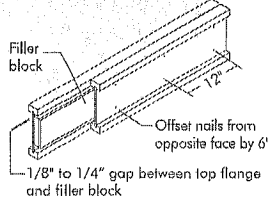
** For face-mount hangers use net joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use net depth minus 4-1/4".



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

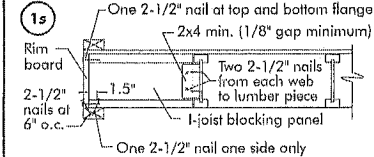


1p FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION



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

Flange Size	Net 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.

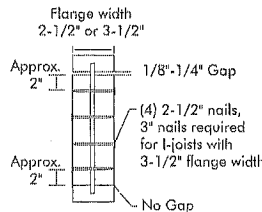
All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for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

WEB STIFFENERS

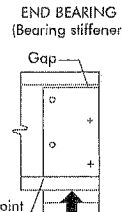
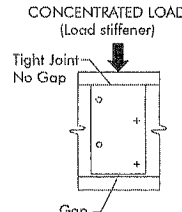
RECOMMENDATIONS:

- A **bearing stiffener** is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found 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 3,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS



See the adjacent table for web stiffener size requirements

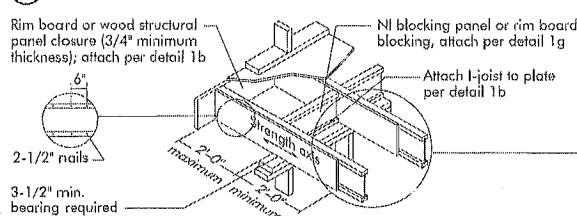


STIFFENER SIZE REQUIREMENTS

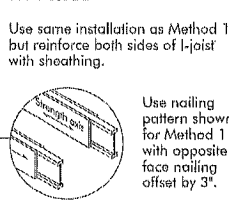
Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-5/16" minimum width
3-1/2"	1-1/4" x 2-5/16" minimum width

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

Method 1 — SHEATHING REINFORCEMENT ONE SIDE



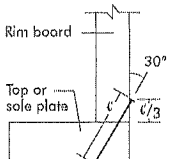
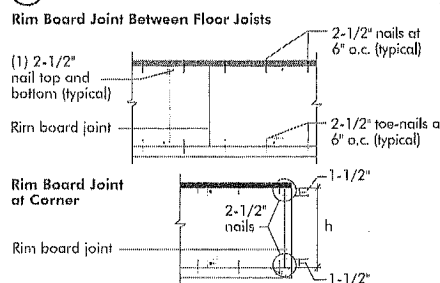
Method 2 — SHEATHING REINFORCEMENT TWO SIDES



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

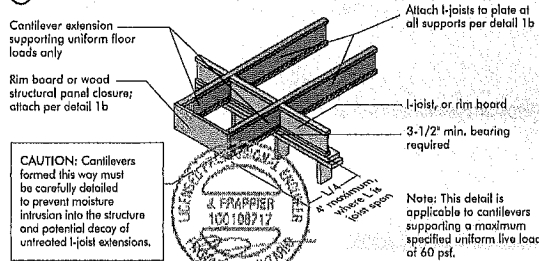
RIM BOARD INSTALLATION DETAILS

8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



CANTILEVER DETAILS FOR BALCONIES (NO WALL LOAD)

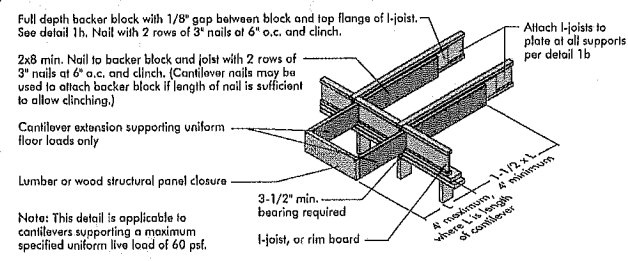
3a I-JOIST CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



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

Note: This detail is applicable to cantilevers supporting a maximum specified uniform live load of 60 psf.

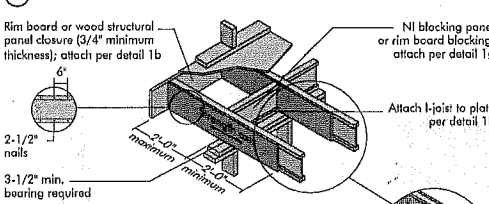
3b LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)



Note: This detail is applicable to cantilevers supporting a maximum specified uniform live load of 60 psf.

CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

4a Method 1 — SHEATHING REINFORCEMENT ONE SIDE

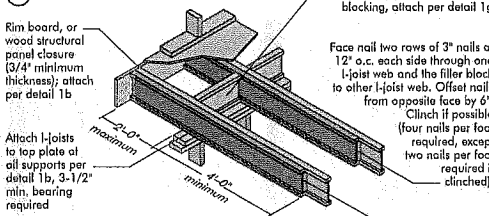


Method 2 — SHEATHING REINFORCEMENT TWO SIDES

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

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

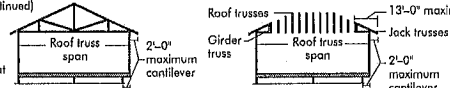
4b Alternate Method 2 — DOUBLE I-JOIST



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

FIGURE 4 (continued)

See table below for NI reinforcement requirements at cantilever.



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

CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft.)	ROOF LOADING (UNFACTORED)											
		LL = 30 psf, DL = 15 psf				LL = 40 psf, DL = 15 psf				LL = 50 psf, DL = 15 psf			
		JOIST SPACING (in.)				JOIST SPACING (in.)				JOIST SPACING (in.)			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2"	26	N	N	N	1	N	N	N	1	N	N	N	1
	28	N	N	N	1	N	N	N	1	N	N	N	1
	30	N	N	N	1	N	N	N	1	N	N	N	1
	32	N	N	N	1	N	N	N	1	N	N	N	1
	34	N	N	N	1	N	N	N	1	N	N	N	1
11-7/8"	26	N	N	N	1	N	N	N	1	N	N	N	1
	28	N	N	N	1	N	N	N	1	N	N	N	1
	30	N	N	N	1	N	N	N	1	N	N	N	1
	32	N	N	N	1	N	N	N	1	N	N	N	1
	34	N	N	N	1	N	N	N	1	N	N	N	1
14"	26	N	N	N	1	N	N	N	1	N	N	N	1
	28	N	N	N	1	N	N	N	1	N	N	N	1
	30	N	N	N	1	N	N	N	1	N	N	N	1
	32	N	N	N	1	N	N	N	1	N	N	N	1
	34	N	N	N	1	N	N	N	1	N	N	N	1
16"	26	N	N	N	1	N	N	N	1	N	N	N	1
	28	N	N	N	1	N	N	N	1	N	N	N	1
	30	N	N	N	1	N	N	N	1	N	N	N	1
	32	N	N	N	1	N	N	N	1	N	N	N	1
	34	N	N	N	1	N	N	N	1	N	N	N	1

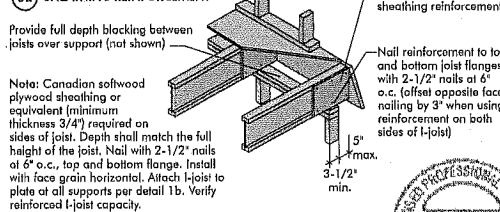
- N = No reinforcement required.
- 1 = NI reinforced with 3/4\" wood structural panel on one side only.
- 2 = NI reinforced with 3/4\" wood structural panel on both sides, or double I-joist.
- X = Try a deeper joist or closer spacing.
- Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 psf wall load. Wall load is based on 3'-0\" maximum width window or door openings.

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

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

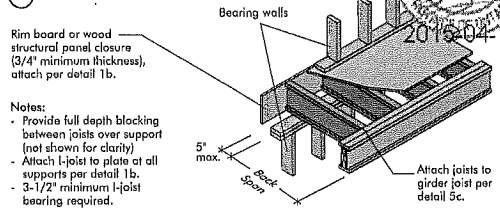
BRICK CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)

5a SHEATHING REINFORCEMENT



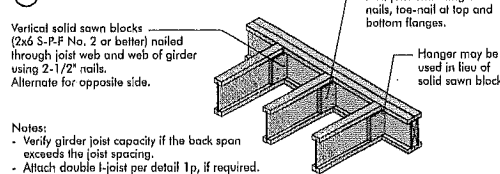
Note: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4\") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2\" nails at 6\" o.c., top and bottom flange. Install with face grain horizontal. Attach I-joist to plate at all supports per detail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

5b SET-BACK DETAIL



- Notes:
- Provide full depth blocking between joists over support (not shown for clarity).
 - Attach I-joist to plate at all supports per detail 1b.
 - 3-1/2\" minimum I-joist bearing required.

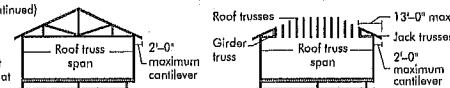
5c SET-BACK CONNECTION



- Notes:
- Verify girder joist capacity if the back span exceeds the joist spacing.
 - Attach double I-joist per detail 1p, if required.

FIGURE 5 (continued)

See table below for NI reinforcement requirements at cantilever.



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

BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED

JOIST DEPTH (in.)	ROOF TRUSS SPAN (ft.)	ROOF LOADING (UNFACTORED)											
		LL = 30 psf, DL = 15 psf				LL = 40 psf, DL = 15 psf				LL = 50 psf, DL = 15 psf			
		JOIST SPACING (in.)				JOIST SPACING (in.)				JOIST SPACING (in.)			
		12	16	19.2	24	12	16	19.2	24	12	16	19.2	24
9-1/2"	26	N	N	N	1	N	N	N	1	N	N	N	1
	28	N	N	N	1	N	N	N	1	N	N	N	1
	30	N	N	N	1	N	N	N	1	N	N	N	1
	32	N	N	N	1	N	N	N	1	N	N	N	1
	34	N	N	N	1	N	N	N	1	N	N	N	1
11-7/8"	26	N	N	N	1	N	N	N	1	N	N	N	1
	28	N	N	N	1	N	N	N	1	N	N	N	1
	30	N	N	N	1	N	N	N	1	N	N	N	1
	32	N	N	N	1	N	N	N	1	N	N	N	1
	34	N	N	N	1	N	N	N	1	N	N	N	1
14"	26	N	N	N	1	N	N	N	1	N	N	N	1
	28	N	N	N	1	N	N	N	1	N	N	N	1
	30	N	N	N	1	N	N	N	1	N	N	N	1
	32	N	N	N	1	N	N	N	1	N	N	N	1
	34	N	N	N	1	N	N	N	1	N	N	N	1
16"	26	N	N	N	1	N	N	N	1	N	N	N	1
	28	N	N	N	1	N	N	N	1	N	N	N	1
	30	N	N	N	1	N	N	N	1	N	N	N	1
	32	N	N	N	1	N	N	N	1	N	N	N	1
	34	N	N	N	1	N	N	N	1	N	N	N	1

- N = No reinforcement required.
- 1 = NI reinforced with 3/4\" wood structural panel on one side only.
- 2 = NI reinforced with 3/4\" wood structural panel on both sides, or double I-joist.
- X = Try a deeper joist or closer spacing.
- Maximum design load shall be: 15 psf roof dead load, 55 psf floor total load, and 80 psf wall load. Wall load is based on 3'-0\" maximum width window or door openings.

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

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

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-joint 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-joint web shall equal the clear distance between the flanges of the I-joint 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-joint 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 conformed 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 (in.)												Span adjustment factor
		2	3	4	5	6	8	10	12	14	16	18	20	
5-1/2"	N-50	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	1.0
	N-50A	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	1.0
	N-50B	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	1.0
	N-50C	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	1.0
11-7/8"	N-110	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	1.0
	N-110A	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	1.0
	N-110B	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	1.0
	N-110C	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	1.0
14"	N-140	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	1.0
	N-140A	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	1.0
	N-140B	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	1.0
	N-140C	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	1.0
16"	N-160	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	1.0
	N-160A	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	1.0
	N-160B	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	1.0
	N-160C	0.7	1.0	1.3	1.6	1.9	2.2	2.5	2.8	3.1	3.4	3.7	4.0	1.0

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

OPTIONAL:

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

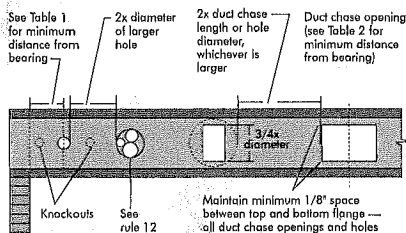
$$D_{reduced} = \frac{L_{actual}}{L_{max}} \times D$$

Where:

- $D_{reduced}$ = Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span applications. The distance shall not be less than 6 inches from the face of the support to edge of the hole.
- L_{actual} = The actual measured span distance between the inside faces of supports (ft).
- L_{max} = Span Adjustment Factor given in this table.
- D = The minimum distance from the inside face of any support to centre of hole from this table.

If L_{actual} is greater than 1, use 1 in the above calculation for L_{actual} .

FIGURE 7
FIELD-CUT HOLE LOCATOR



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

Knockouts are preformed 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-joint. 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-joint.

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 (in.)											
		5	10	12	14	16	18	20	22	24	26	28	30
5-1/2"	N-50	4.1	4.3	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3
	N-50A	4.1	4.3	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3
	N-50B	4.1	4.3	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3
	N-50C	4.1	4.3	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3
11-7/8"	N-110	4.1	4.3	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3
	N-110A	4.1	4.3	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3
	N-110B	4.1	4.3	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3
	N-110C	4.1	4.3	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3
14"	N-140	4.1	4.3	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3
	N-140A	4.1	4.3	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3
	N-140B	4.1	4.3	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3
	N-140C	4.1	4.3	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3
16"	N-160	4.1	4.3	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3
	N-160A	4.1	4.3	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3
	N-160B	4.1	4.3	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3
	N-160C	4.1	4.3	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3

- Above table may be used for I-joint spacing of 24 inches on centre or less.
- Duct chase opening location distance is measured from inside face of supports to centre of opening.
- The above table is based on simple-span joists only. For other applications, contact your local distributor.
- Distances are based on uniformly loaded floor joists that meet the span requirements for a design live load of 40 psf and dead load of 15 psf, and a live load deflection limit of L/480. For other applications, contact your local distributor.

INSTALLING THE GLUED FLOOR SYSTEM

- Wipe any mud, dirt, water, or ice from I-joint 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 topped 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-joint. Apply glue in a winding 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-joint flanges.
- Tap the second row of panels into place, using a block to protect groove edges.
- Stagger end joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&G edges, is recommended. (Use a spacer tool or an 2-1/2" common nail to assure accurate and consistent spacing.)
- 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 Thread or Screws	Staples	Edges	Intermediate 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/CGSB-71.26 Standard, Adhesives for Field-Gluing Plywood to Lumber Framing for Floor System, applied in accordance with the manufacturer's recommendations. If OSB panels with sealed surfaces and edges are to be used, use only solvent-based glues; check with panel manufacturer.

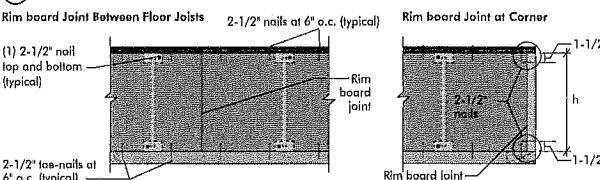
Ref.: NRC-CNRC, National Building Code of Canada 2010, Table 9.23.3.5.

IMPORTANT NOTE:

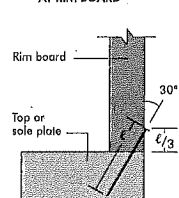
Floor sheathing must be field glued to the I-joint flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joint spans must be verified with your local distributor.

RIM BOARD INSTALLATION DETAILS

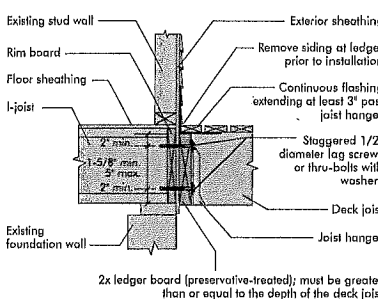
(8a) ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



(8b) TOE-NAIL CONNECTION AT RIM BOARD



(8c) 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL

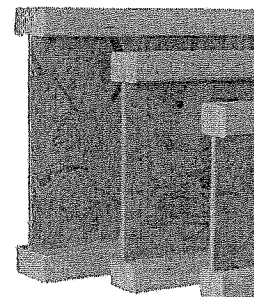


2015-04-16

PRODUCT WARRANTY

Chamber's Challengemaster guarantees that, in accordance with our specifications, Chamber's products are free from manufacturing defects in material and workmanship.

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



MAXIMUM FLOOR SPANS

- Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- 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 CGS-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 Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
- SI units conversion: 1 inch = 25.4 mm
1 foot = 0.305 m

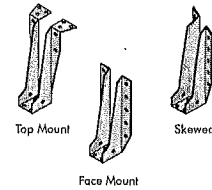
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS SIMPLE AND MULTIPLE SPANS

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

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.



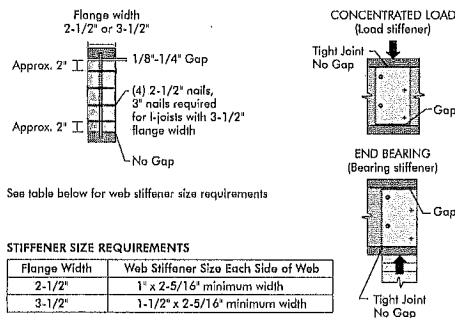
WEB STIFFENERS

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



See table below for web stiffener size requirements

STIFFENER SIZE REQUIREMENTS

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

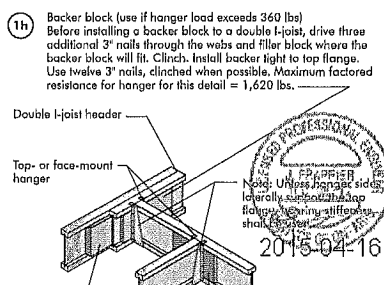
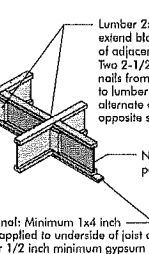
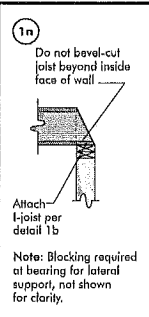
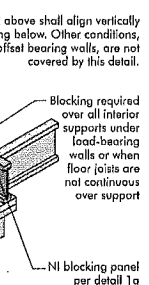
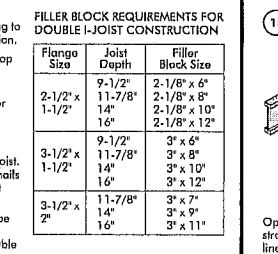
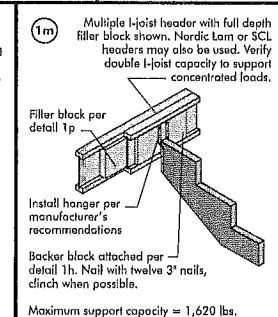
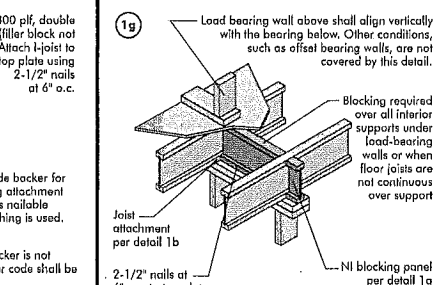
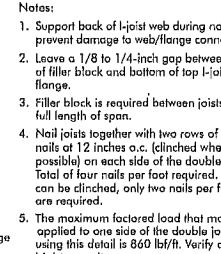
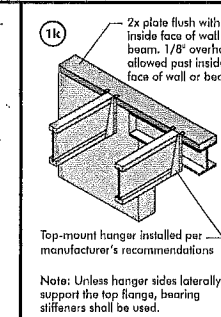
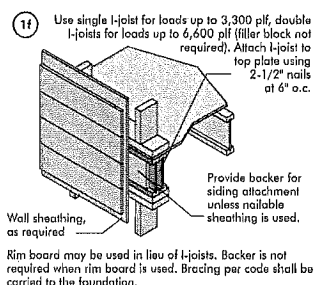
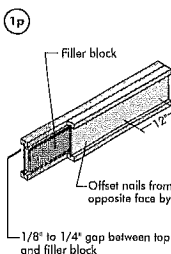
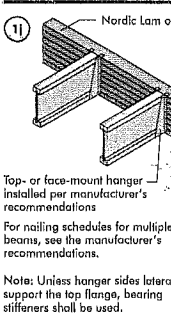
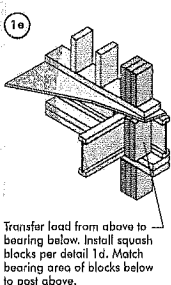
NORDIC I-JOIST SERIES

NI-20	NI-40x	NI-60	NI-70	NI-80	NI-90	NI-90x
OSB 1/2" x 11'-0"	OSB 1/2" x 11'-0"	OSB 1/2" x 11'-0"	OSB 1/2" x 11'-0"	OSB 1/2" x 11'-0"	OSB 1/2" x 11'-0"	OSB 1/2" x 11'-0"
5-1/2" No. 2	1950F MSR	2100F MSR	1950F MSR	2100F MSR	2400F MSR	NPG Lumber
33 pieces per unit	33 pieces per unit	33 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit

Chantiers Chibougamau Ltd. harvests its own trees, which enables Nordic products to adhere to strict quality control procedures throughout the manufacturing process. Every phase of the operation, from the raw log 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.

2015-04-16



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

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".

