

JT: 40297/79712
 File: 253723

Builder: GOLD PARK
 Project: HUNTINGTON & NASHVILLE
 Location: KLEINBURG
 Date: May 06/15

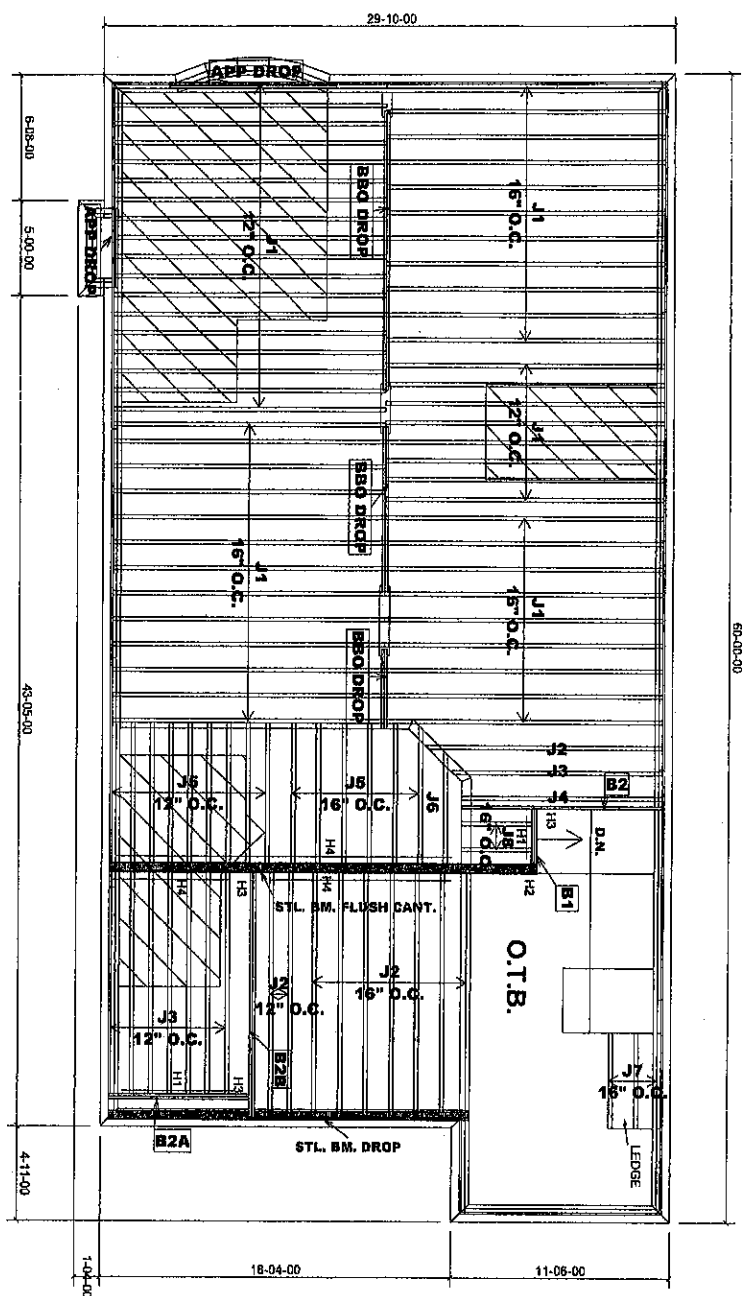
Designer: MQ
 Sheet: 1 of 6
 Salesperson: Derek Frankfort
 Home Lumber

S-129636-8.129650

MODEL : 38-6
 ELEVATION A

SECOND FLOOR FRAMING

Ceramic Tile
 Ceramic Tile



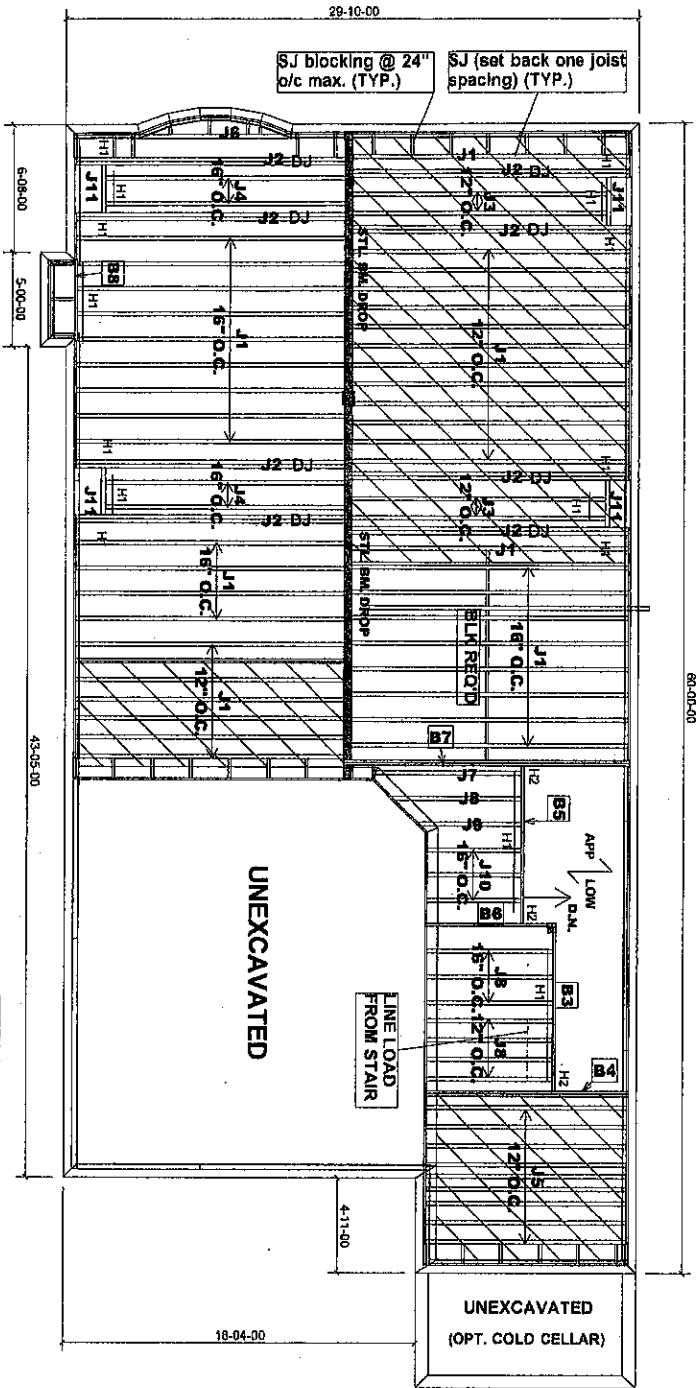
Product	Length	Product	Pieces	Net Qty
J1	15'-00-00	9 1/2" N-20	1	59
J2	13'-00-00	9 1/2" N-20	1	10
J3	12'-00-00	9 1/2" N-20	1	8
J4	11'-00-00	9 1/2" N-20	1	1
J5	8'-00-00	9 1/2" N-20	1	15
J6	6'-00-00	9 1/2" N-20	1	1
J7	5'-00-00	9 1/2" N-20	1	3
J8	4'-00-00	9 1/2" N-20	1	2
B2B	13'-00-00	VERSALAM-10.2.OE	2	2
B2	11'-00-00	VERSALAM-10.2.OE	1	1
B2A	8'-00-00	VERSALAM-10.2.OE	2	2
B1	3'-00-00	VERSALAM-10.2.OE	2	2

RIMBOARD
 1-1/8" X 9 1/2" O.S.B
 SUBFLOOR - 5/8" NAILED & GLUED
 APP - AS PER PLAN
 BBO - BEAM BY OTHERS

FANGERS SCHEDULE

H1	LT259
H2	HUC410
H3	HGUS410
H4	LT259

1-2x6 SPT #2 Squash Block req'd on one side of joists under
 interior load bearing wall
 Multiple squash blocks are required under concentrated
 loads
 Joists spacing under ceramic tile is 12" o/c
 Ceramic tiles application is as per O.B.C. 9.30.6
 Do not scale - refer to architectural plans for dimensions



MODEL : 38-6
ELEVATION A & B

GROUND FLOOR FRAMING

Ceramic Tile
Ceramic Tile

RIMBOARD
1-1/8" X 9-1/2" O.S.B
SUBFLOOR - 5/8" NAILED & GLUED
APP - AS PER PLAN
BBO - BEAM BY OTHERS
BLK - MIDSPAN BLOCKING

ProdID	Length	Product	Pieces	Net Qty
J1	15-00-00	9 1/2" N-20	1	43
J2	15-00-00	9 1/2" N-20	2	16
J3	14-00-00	9 1/2" N-20	1	4
J4	13-00-00	9 1/2" N-20	1	4
J5	11-00-00	9 1/2" N-20	1	9
J6	9-00-00	9 1/2" N-20	1	1
J7	8-00-00	9 1/2" N-20	1	1
J8	7-00-00	9 1/2" N-20	1	8
J9	6-00-00	9 1/2" N-20	1	1
J10	5-00-00	9 1/2" N-20	1	3
J11	3-00-00	9 1/2" N-20	1	4
B7	15-00-00	VERSALAM-10 2.0E	2	2
B4	11-00-00	VERSALAM-10 2.0E	2	2
B3	9-00-00	VERSALAM-10 2.0E	1	1
B5	9-00-00	VERSALAM-10 2.0E	1	1
B6	7-00-00	VERSALAM-10 2.0E	1	1
B8	5-00-00	VERSALAM-10 2.0E	1	1

BLOCKING: 9 1/2" N-20 - 47 FEET

HANGERS SCHEDULE

H1 - L17259
H2 - HUS1.81/10

1-2x6 SPF#2 Squash Block req'd on one side of joists under interior load bearing wall

Multiple squash blocks are required under concentrated loads

Joists spacing under ceramic tile is 12" o/c

Ceramic tiles application is as per O.B.C 9.30.6

Do not scale - refer to architectural plans for dimensions

JT: 4029779712
File: 253723

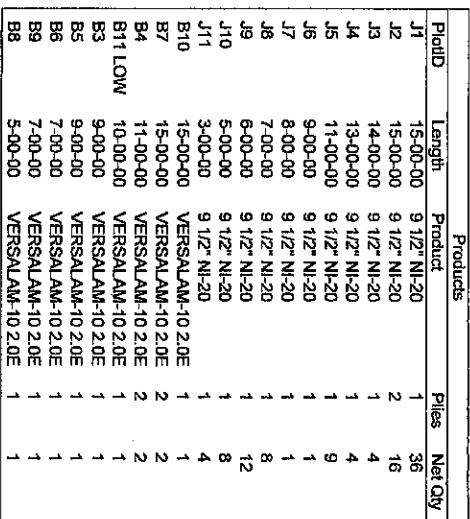
Builder: GOLD PARK
Project: HUNTINGTON & NASHVILLE

Location: KLEINBURG
Date: May 06/15

Designer: MQ
Sheet: 2 of 6

Alpa Roof Trusses Inc.
Maple, Ontario

Salesperson: Derek Frankfort
Home Lumber



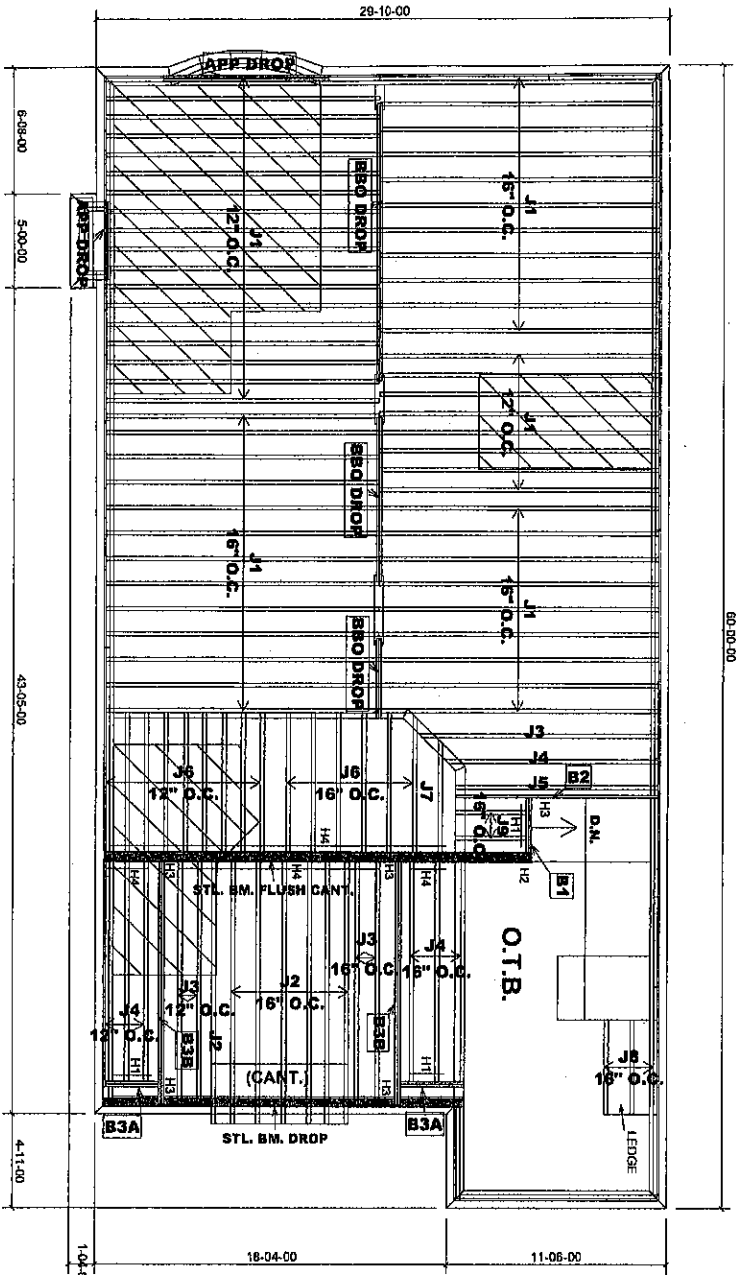
		Products		Piles	Net Qty
P101D	Length	Product			
J1	15-00-00	9 1/2" N1-20	1	36	
J2	15-00-00	9 1/2" N1-20	2	16	
J3	14-00-00	9 1/2" N1-20	1	4	
J4	13-00-00	9 1/2" N1-20	1	4	
J5	11-00-00	9 1/2" N1-20	1	9	
J6	9-00-00	9 1/2" N1-20	1	1	
J7	8-00-00	9 1/2" N1-20	1	1	
J8	7-00-00	9 1/2" N1-20	1	8	
J9	6-00-00	9 1/2" N1-20	1	12	
J10	5-00-00	9 1/2" N1-20	1	8	
J11	3-00-00	9 1/2" N1-20	1	4	
B10	15-00-00	VERSALAM-10 2.0E	1	1	
B7	15-00-00	VERSALAM-10 2.0E	2	2	
B4	11-00-00	VERSALAM-10 2.0E	2	2	
B11 LOW	10-00-00	VERSALAM-10 2.0E	1	1	
B3	9-00-00	VERSALAM-10 2.0E	1	1	
B5	9-00-00	VERSALAM-10 2.0E	1	1	
B6	7-00-00	VERSALAM-10 2.0E	1	1	
B9	7-00-00	VERSALAM-10 2.0E	1	1	
B8	5-00-00	VERSALAM-10 2.0E	1	1	

H2-----HUS1.81/10

Do not scale - refer to architectural plans for dimensions

Alpa Roof Trusses Inc.
Maple, Ontario

Salesperson: Derek Frankfort
Home Lumber



MODEL : 38.6
ELEVATION B

SECOND FLOOR FRAMING

Ceramic Tile
Ceramic Tile

Product	Length	Product	Piles	Net Qty
J1	15-00-00	9 1/2" NI-20	1	59
J2	14-00-00	9 1/2" NI-20	1	7
J3	13-00-00	9 1/2" NI-20	1	5
J4	12-00-00	9 1/2" NI-20	1	7
J5	11-00-00	9 1/2" NI-20	1	1
J6	8-00-00	9 1/2" NI-20	1	15
J7	8-00-00	9 1/2" NI-20	1	1
J8	5-00-00	9 1/2" NI-20	1	3
J9	4-00-00	9 1/2" NI-20	1	2
B1	3-00-00	VERSALAM-10 2.0E	2	4
B2	11-00-00	VERSALAM-10 2.0E	1	1
B3A	4-00-00	VERSALAM-10 2.0E	1	4
B3B	13-00-00	VERSALAM-10 2.0E	2	4
B3C	11-00-00	VERSALAM-10 2.0E	1	4
B3D	4-00-00	VERSALAM-10 2.0E	2	2

RIMBOARD

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

SUBFLOOR - 5/8" NAIL & GLUED

APP - AS PER PLAN

BRO - BEAM BY OTHERS

FRANGERS SCHEDULE

H1 - LT259
H2 - HUC410
H3 - HGUS410
H4 - LF259

T-2x6 SPP-#2 Squash Block req'd on one side of joists under interior load bearing wall

Multiple squash blocks are required under concentrated loads

Joists spacing under ceramic tile is 12" o/c

Ceramic tiles application is as per O.B.C. 9.30.6

Do not scale - refer to architectural plans for dimensions

JT: 4029779712
File: 253723

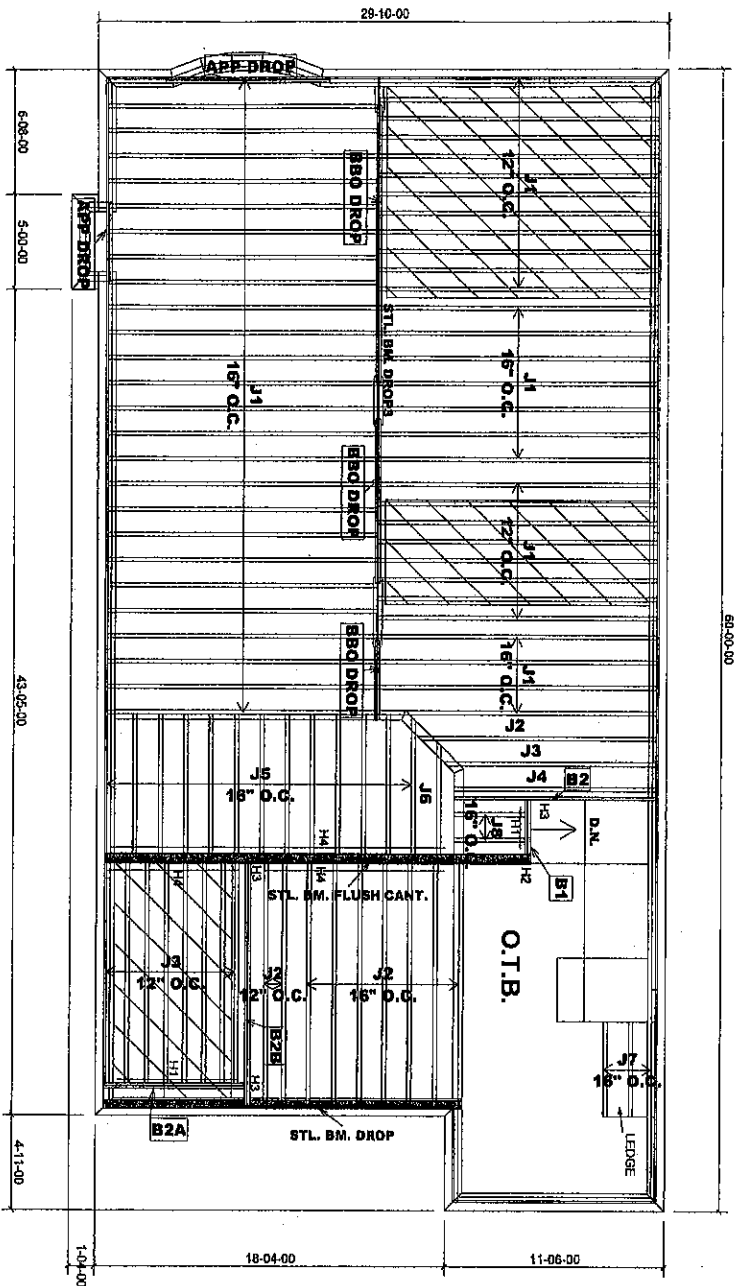
Builder: GOLD PARK
Project: HUNTINGTON & NASHVILLE

Location: KLEINBURG
Date: May 06/15

Designer: MQ
Sheet: 4 of 6

Alpa Roof Trusses Inc.
Maple, Ontario

Salesperson: Derek Frankfort
Home Lumber



MODEL : 38-6
ELEVATION A
W/OPT. 5 BEDRM.

SECOND FLOOR FRAMING

Ceramic Tile
Ceramic Tile

JT: 4029779712
File: 253723

Builder: GOLD PARK
Project: HUNTINGTON & NASHVILLE

Location: KLEINBURG
Date: May 06/15

Designer: MQ
Sheet: 5 of 6

Alpa Roof Trusses Inc.
Maple, Ontario

Salesperson: Derek Frankfort
Home Lumber

Product	Length	Product	Pieces	Net Qty
J1	15'-00"-00	9 1/2" NI-20	1	57
J2	13'-00"-00	9 1/2" NI-20	1	10
J3	12'-00"-00	9 1/2" NI-20	1	9
J4	11'-00"-00	9 1/2" NI-20	1	1
J5	8'-00"-00	9 1/2" NI-20	1	13
J6	6'-00"-00	9 1/2" NI-20	1	1
J7	5'-00"-00	9 1/2" NI-20	1	3
J8	4'-00"-00	9 1/2" NI-20	1	2
B2B	13'-00"-00	VERSALAM-10 2.0E	2	2
B2	11'-00"-00	VERSALAM-10 2.0E	1	1
B2A	8'-00"-00	VERSALAM-10 2.0E	2	2
B1	3'-00"-00	VERSALAM-10 2.0E	2	2

RIMBOARD

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

SUBFLOOR - 5/8" NAILED & GLUED

APP - AS PER PLAN

BBO - BEAM BY OTHERS

HANGERS SCHEDULE

H1 - L1259
H2 - HUC410
H3 - HGUS410
H4 - LP259

1-2x6 SPF#2 Squash Block req'd on one side of joists under interior load bearing wall

Multiple squash blocks are required under concentrated loads

Joists spacing under ceramic tile is 12" o/c

Ceramic tiles application is as per O.B.C. 9.30.6

Do not scale - refer to architectural plans for dimensions

JT: 4029779712
File: 253723

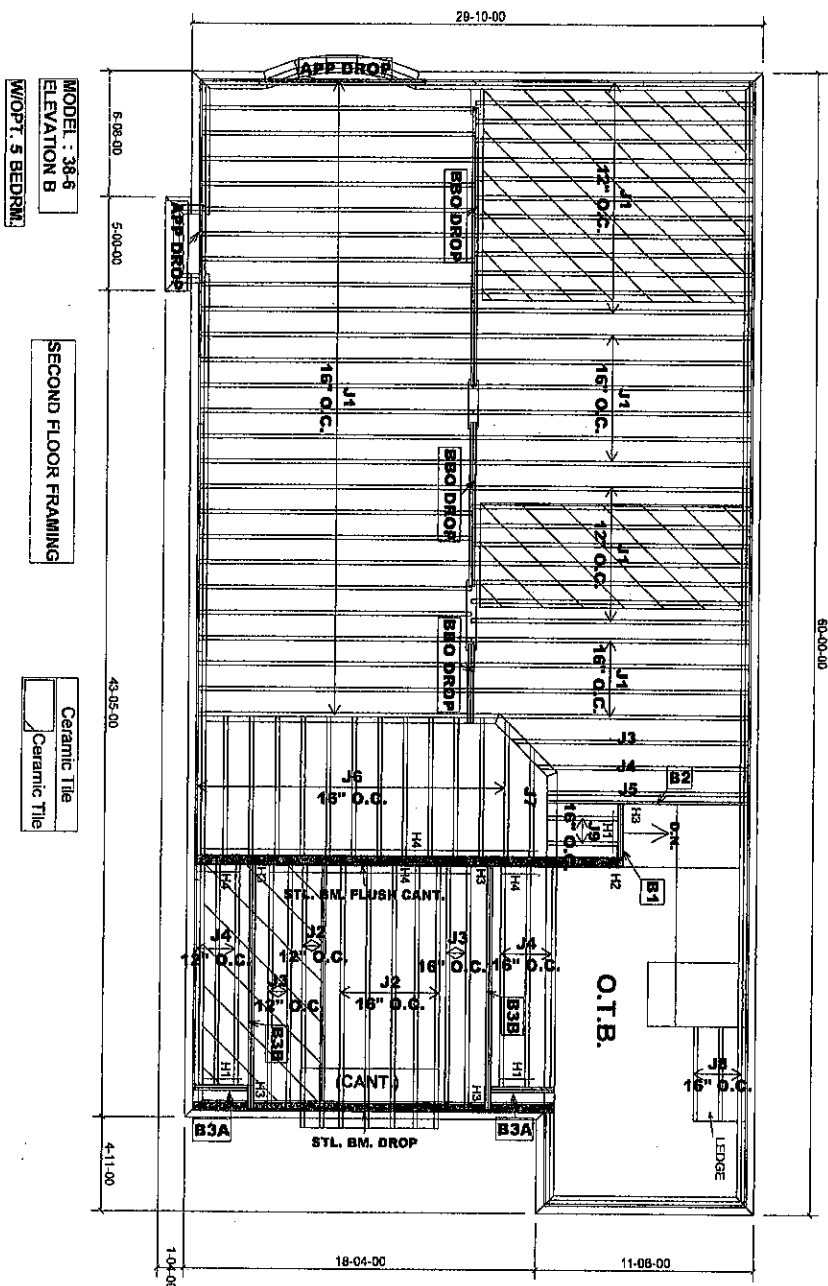
Builder: GOLD PARK
Project: HUNTINGTO

Location: KLEINBURG
Date: May 06/15

Designer: MQ
Sheet: 6 of 6

**Alpa Roof Truss
Maple, Ontario**

Salesperson: Derek Frankfort
Home Lumber



PlatID	Length	Product	Piles	Net Qty
J1	15:00-00	9 1/2" Ni-20	1	5/7
J2	14:00-00	9 1/2" Ni-20	1	7
J3	13:00-00	9 1/2" Ni-20	1	5
J4	12:00-00	9 1/2" Ni-20	1	7
J5	11:00-00	9 1/2" Ni-20	1	1
J6	8:00-00	9 1/2" Ni-20	1	13
J7	6:00-00	9 1/2" Ni-20	1	1
J8	5:00-00	9 1/2" Ni-20	1	3
J9	4:00-00	9 1/2" Ni-20	1	2
B3B	13:00-00	VERSALAM-10.2.0E	2	4
B2	11:00-00	VERSALAM-10.2.0E	1	4
B3A	4:00-00	VERSALAM-10.2.0E	2	4
B1	3:00-00	VERSALAM-10.2.0E	2	2

RIMBOARD

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

SUBFLOOR - 5/8" NAILED & GLUED

APP - AS PER PLAN

EBO - BEAM BY OTHERS

HANGERS SCHEDULE

H1-----LT259

H2 HUCA10
H3 HGISA10

44-1F259

1-2x6 SPF#2 Saurash B.

Interior load bearing wall

Multiple squash blocks a

[illegible]

boils sparring under cer

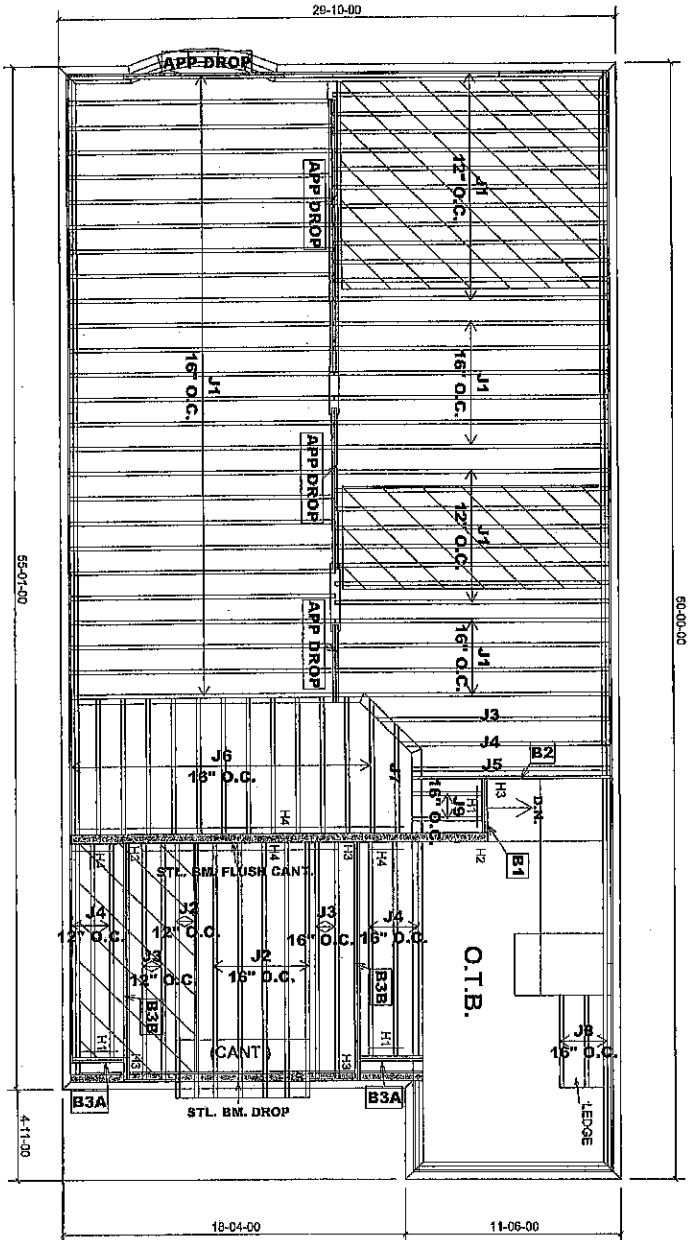
Ceramic tiles application

Do not scale - refer to art

1

of Trusses Inc.

Critério



MODEL : 38-6
ELEVATION B
W/OPT. 5 BEDRM.

SECOND FLOOR FRAMING
W/OPT. MOB COND. (LOT 66)

Ceramic Tile
Ceramic Tile

Products				
PicID	Length	Product	Pieces	Net Qty
J1	15'-00-00	9 1/2" NI-20	1	57
J2	14'-00-00	9 1/2" NI-20	1	7
J3	13'-00-00	9 1/2" NI-20	1	7
J4	12'-00-00	9 1/2" NI-20	1	5
J5	11'-00-00	9 1/2" NI-20	1	1
J6	8'-00-00	9 1/2" NI-20	1	13
J7	6'-00-00	9 1/2" NI-20	1	1
J8	5'-00-00	9 1/2" NI-20	1	3
J9	4'-00-00	9 1/2" NI-20	1	2
B3B	13'-00-00	VERSALAM-10 2 OE	2	4
B2	11'-00-00	VERSALAM-10 2 OE	1	1
B3A	4'-00-00	VERSALAM-10 2 OE	2	4
B1	3'-00-00	VERSALAM-10 2 OE	2	2

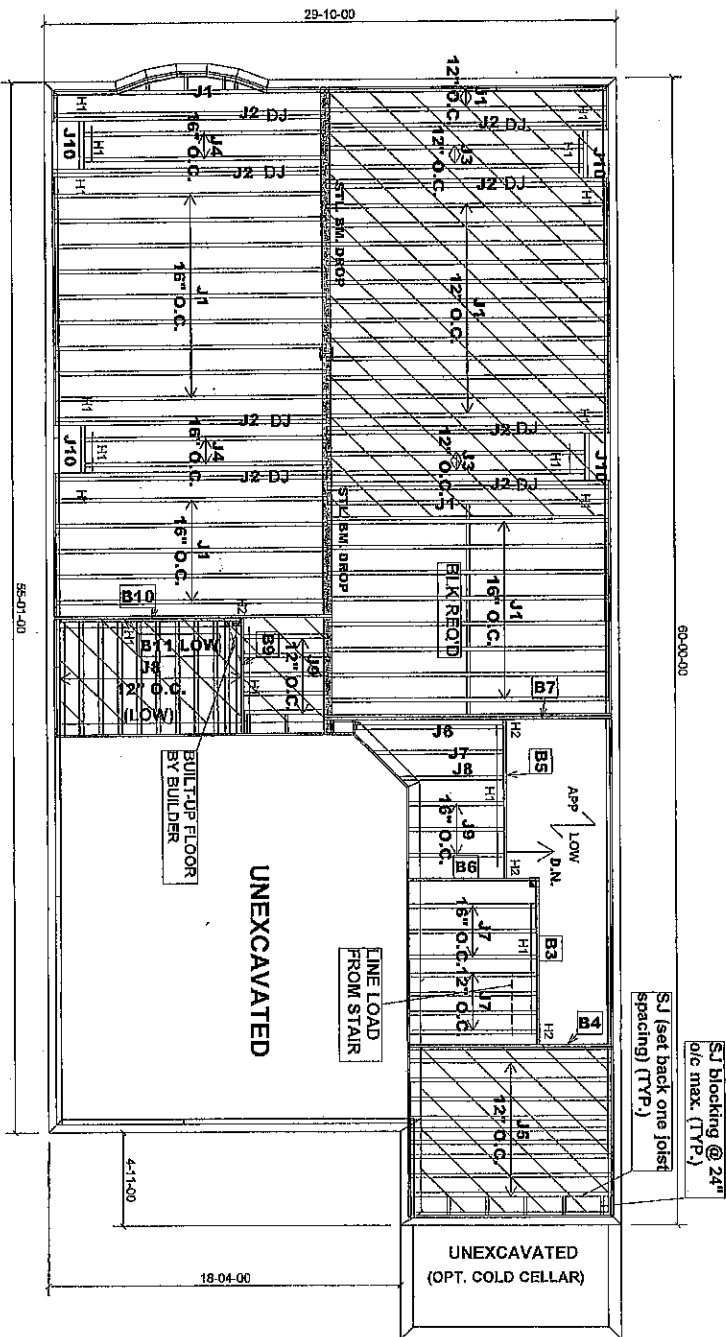
RIMBOARD
1-1/8" X 8 1/2" O.S.B
SUBFLOOR - 5/8" NAILED & GLUED
APP - AS PER PLAN
BBO - BEAM BY OTHERS

FANGERS SCHEDULE

H1	LT259
H2	HUC410
H3	HGUS410
H4	LT259

1-2x6 SPF#2 Squash Block req'd on one side of joists under interior load bearing wall
Multiple squash blocks are required under concentrated loads
Joists spacing under ceramic tile is 12" o/c
Ceramic tiles application is as per O.B.C 9.30.6
Do not scale - refer to architectural plans for dimensions

JT/PL: 40297/89722 Builder: GOLD PARK Location: KLEINBURG Designer: MQ Alpha Roof Trusses Inc. Salesperson: Derek Frankfort
LI: 253723 Project: HUNTINGTON & NASHVILLE Date: Nov. 24 / 16 Sheet: 1 of 2 Maple, Ontario Home Lumber



Products				
ProdID	Length	Product	Piles	Net Qty
J1	15'-00-00	9 1/2" NI-20	2	38
J2	15'-00-00	9 1/2" NI-20	1	16
J3	14'-00-00	9 1/2" NI-20	1	4
J4	13'-00-00	9 1/2" NI-20	1	4
J5	11'-00-00	9 1/2" NI-20	1	9
J6	8'-00-00	9 1/2" NI-20	1	1
J7	7'-00-00	9 1/2" NI-20	1	8
J8	6'-00-00	9 1/2" NI-20	1	12
J9	5'-00-00	9 1/2" NI-20	1	8
J10	3'-00-00	9 1/2" NI-20	1	4
B10	15'-00-00	VERSALAM-10 2.0E	1	1
B7	15'-00-00	VERSALAM-10 2.0E	2	2
B4	11'-00-00	VERSALAM-10 2.0E	2	2
B11 LOW	10'-00-00	VERSALAM-10 2.0E	1	1
B3	9'-00-00	VERSALAM-10 2.0E	1	1
B5	9'-00-00	VERSALAM-10 2.0E	1	1
B6	7'-00-00	VERSALAM-10 2.0E	1	1
B9	7'-00-00	VERSALAM-10 2.0E	1	1

BLOCKING: 9 1/2" NI-20 — 37 FEET

FANGERS SCHEDULE

H1 — LT259
H2 — HUS1.81/10

1-2x6 SPT #2 Squash Block req'd on one side of joists under interior load bearing wall

Multiple squash blocks are required under concentrated loads

Joists spacing under ceramic tile is 12" o/c

Ceramic tiles application is as per O.B.C. 9.30.6

Do not scale - refer to architectural plans for dimensions

MODEL : 38-6
ELEVATION B
W/OPT. SUNKEN
LAUNDRY

GROUND FLOOR FRAMING
W/OPT. WOB COND. (LOT 66)

Ceramic Tile
Ceramic Tile

RIMBOARD
1-1/8" X 9 1/2" O.S.B
SUBFLOOR - 5/8" NAILED & GLUED
APP - AS PER PLAN
BBO - BEAM BY OTHERS
BLK - MIDSPAN BLOCKING

JT/PL: 40297/89722
LI: 253723
Builder: GOLD PARK
Project: HUNTINGTON & NASHVILLE
Location: KLEINBURG
Date: Nov. 24 / 16
Designer: MQ
Sheet: 2 of 2
Alpa Roof Trusses Inc.
Maple, Ontario
Salesperson: Derek Frankfort
Home Lumber

BC CALC® Design Report

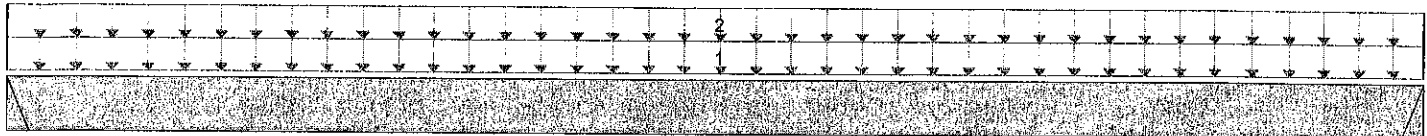


Dry | 1 span | No cantilevers | 0/12 slope (deg)

May-14-15

Build 3272
Job Name: 40297
Address: HUNTINGTON & NASHVILLE
City, Province, Postal Code: KLEINBURG, ON
Customer: GOLD PARK
Code reports: CCMC 12472-R

File Name: 253723.bcc
Description: Designs\01
Specifier: 38-6
Designer: MQ
Company: Alpa Roof Trusses Inc
Misc:



B0

03-00-00

B1

Total Horizontal Product Length = 03-00-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	330 / 0	138 / 0		
B1	330 / 0	138 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1		Unf. Area (lb/ft^2)	L	00-00-00	03-00-00	40	15			03-06-00
2		Unf. Area (lb/ft^2)	L	00-00-00	03-00-00	40	15			02-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	434 ft-lbs	25,408 ft-lbs	0.02	1	01-06-00
End Shear	241 lbs	11,571 lbs	0.02	1	00-11-08
Total Load Defl.	L/999 (0.001")	n/a	n/a	4	01-06-00
Live Load Defl.	L/999 (0.001")	n/a	n/a	5	01-06-00
Span / Depth	3.5	n/a	n/a		00-00-00

Bearing Supports

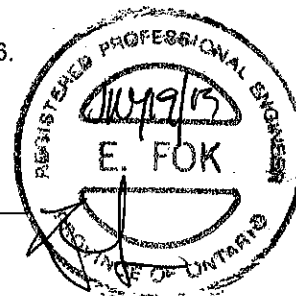
	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Hanger 2" x 3-1/2"	668 lbs	n/a	0.08	Hanger
B1	Hanger 2" x 3-1/2"	668 lbs	n/a	0.08	Hanger

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
Design meets Code minimum (L/360) Live load deflection criteria.
Calculations assume Member is Fully Braced.
Resistance Factor phi has been applied to all presented results per CSA 086.
BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA 086.
Design based on Dry Service Condition.
Importance Factor : Normal Part code : Part 4
Deflections less than 1/8" were ignored in the results.

User Notes

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

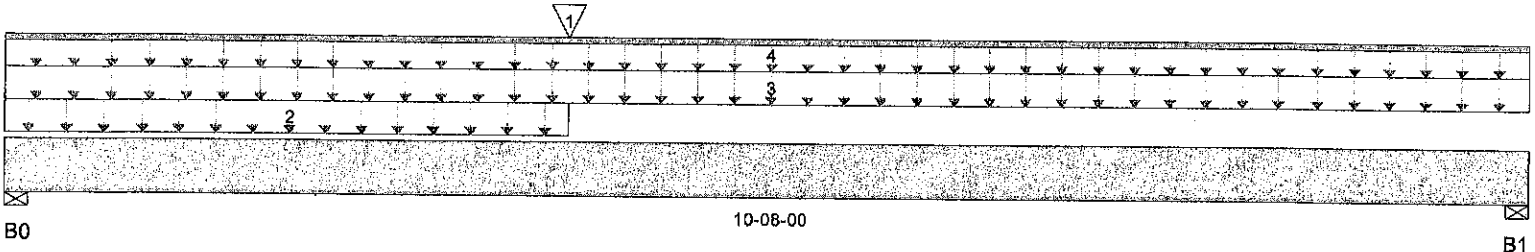


S.129636



Build 3272
 Job Name: 40297
 Address: HUNTINGTON & NASHVILLE
 City, Province, Postal Code: KLEINBURG, ON
 Customer: GOLD PARK
 Code reports: CCMC 12472-R

File Name: 253723.bcc
 Description: Designs\02
 Specifier: 38-6
 Designer: MQ
 Company: Alpa Roof Trusses Inc
 Misc:



Total Horizontal Product Length = 10-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	440 / 0	520 / 0		
B1, 3-1/2"	279 / 0	456 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1		Conc. Pt. (lbs)	L	03-11-00	03-11-00	330	138	1.00	1.15	n/a
2		Unf. Area (lb/ft^2)	L	00-00-00	03-11-00	40	15			00-08-00
3		Unf. Area (lb/ft^2)	L	00-00-00	10-08-00	40	15			00-08-00
4		Unf. Lin. (lb/ft)	L	00-00-00	10-08-00	0	60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,406 ft-lbs	12,704 ft-lbs	0.27	1	03-11-00
End Shear	1,108 lbs	5,785 lbs	0.19	1	01-01-00
Total Load Defl.	L/705 (0.174")	0.51"	0.34	4	05-01-14
Live Load Defl.	L/999 (0.079")	n/a	n/a	5	04-11-12
Span / Depth	12.9	n/a	n/a		00-00-00

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of BOISE 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. \n\nBC CALC®, BC FRAMER®, AJS™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products, LLC.

Bearing Supports

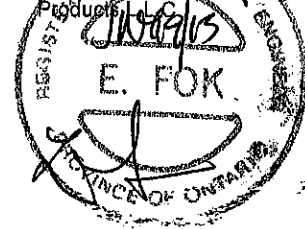
	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	1,309 lbs	0.35	0.18	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	988 lbs	0.26	0.13	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume Member is Fully Braced.
 Resistance Factor phi has been applied to all presented results per CSA 086.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA 086.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 4
 Deflections less than 1/8" were ignored in the results.

User Notes

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



S.129637

BC CALCO® Design Report

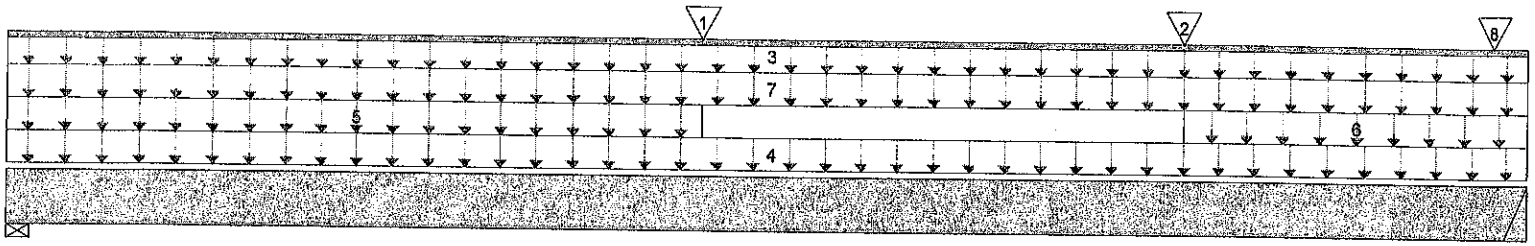


Dry | 1 span | No cantilevers | 0/12 slope (deg)

May 28, 2015 15:41:40

Build 4064
Job Name: 40297
Address: HUNTINGTON & NASHVILLE
City, Province, Postal Code: KLEINBURG, ON
Customer: GOLD PARK
Code reports: CCMC 12472-R

File Name: 253723.bcc
Description: Designs\02A
Specifier: 38-6
Designer: MQ
Company: Alpa Roof Trusses Inc
Misc:



B0

07-04-00

B1

Total Horizontal Product Length = 07-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,156 / 0	1,089 / 0	451 / 0	
B1	1,557 / 0	1,474 / 0	1,274 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Conc. Pt. (lbs)	L	03-04-00	03-04-00	70	70	133		n/a
2		Conc. Pt. (lbs)	L	05-08-00	05-08-00	70	70	133		n/a
3		Unf. Lin. (lb/ft)	L	00-00-00	07-04-00	0	100			n/a
4		Unf. Area (lb/ft²)	L	00-00-00	07-04-00	40	20			06-02-00
5		Unf. Area (lb/ft²)	L	00-00-00	03-04-00	11	10	21		04-09-00
6		Unf. Area (lb/ft²)	L	05-08-00	07-04-00	11	10	21		04-09-00
7		Unf. Area (lb/ft²)	L	00-00-00	07-04-00	11	10	21		00-09-00
8		Conc. Pt. (lbs)	L	07-02-00	07-02-00	443	422	845		n/a

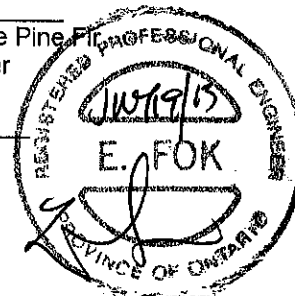
Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	5,465 ft-lbs	25,408 ft-lbs	0.22	1	03-06-10
End Shear	2,370 lbs	11,571 lbs	0.2	1	01-01-00
Total Load Defl.	L/999 (0.071")	n/a	n/a	11	03-08-06
Live Load Defl.	L/999 (0.039")	n/a	n/a	15	03-08-06
Max Defl.	0.071"	n/a	n/a	11	03-08-06
Span / Depth	8.8	n/a	n/a		00-00-00

Bearing Supports

		Dim. (L x W)	Demand	Support	Member	Material
B0	Wall/Plate	3-1/2" x 3-1/2"	3,321 lbs	0.44	0.22	Spruce Pine Fir
B1	Hanger	2" x 3-1/2"	4,816 lbs	n/a	0.56	Hanger

Notes: NAIL ONE PLY TO ANOTHER WITH 3/2" SPWAL NAILS @ 12" O.C., STAGGERED IN 2 ROWS



S.129638

BC CALC® Design Report

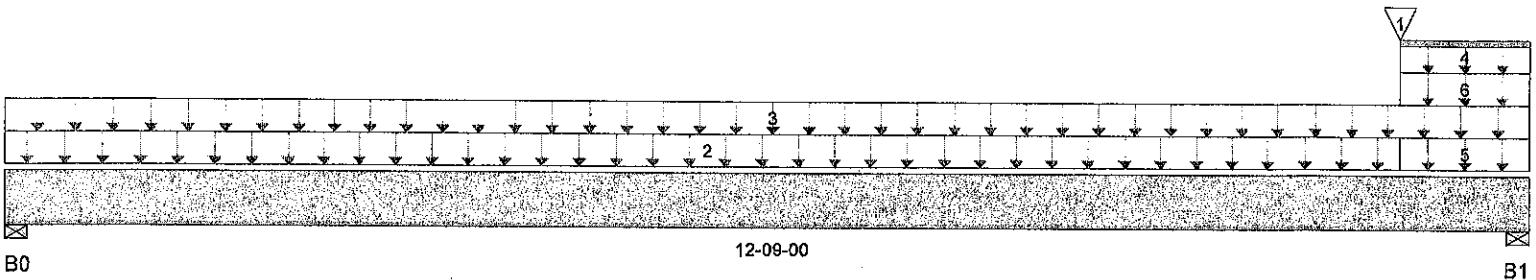


Dry | 1 span | No cantilevers | 0/12 slope (deg)

May 28, 2015 15:41:25

Build 4064
 Job Name: 40297
 Address: HUNTINGTON & NASHVILLE
 City, Province, Postal Code: KLEINBURG, ON
 Customer: GOLD PARK
 Code reports: CCMC 12472-R

File Name: 253723.bcc
 Description: Designs\02B
 Specifier: 38-6
 Designer: MQ
 Company: Alpa Roof Trusses Inc
 Misc:



Total Horizontal Product Length = 12-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	452 / 0	319 / 0	97 / 0	
B1, 3-1/2"	1,916 / 0	1,814 / 0	1,482 / 0	

Load Summary

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Conc. Pt. (lbs)	L	11-08-00	11-08-00	1,557	1,474	1,274		n/a
2	Unf. Area (lb/ft^2)	L	00-00-00	11-08-00	40	20			00-08-00
3	Unf. Area (lb/ft^2)	L	00-00-00	12-09-00	40	15			00-08-00
4	Unf. Lin. (lb/ft)	L	11-08-00	12-09-00	0	100			n/a
5	Unf. Area (lb/ft^2)	L	11-08-00	12-09-00	11	10	21		12-05-00
6	Unf. Area (lb/ft^2)	L	11-08-00	12-09-00	11	10	21		01-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,968 ft-lbs	25,408 ft-lbs	0.2	1	09-04-03
End Shear	5,104 lbs	11,571 lbs	0.44	1	11-08-00
Total Load Defl.	L/755 (0.195")	0.615"	0.32	11	06-10-07
Live Load Defl.	L/999 (0.118")	n/a	n/a	15	06-10-07
Max Defl.	0.195"	1"	0.2	11	06-10-07
Span / Depth	15.5	n/a	n/a		00-00-00

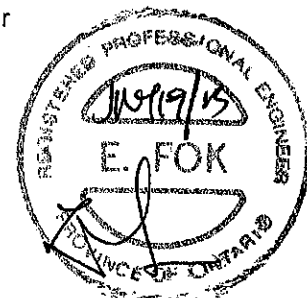
Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Wall/Plate	3-1/2" x 3-1/2"	1,125 lbs	0.15	0.08	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	5,884 lbs	0.78	0.39	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 086.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA 086.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 4
 Deflections less than 1/8" were ignored in the results.

NAIL ON'S PUT TO ANOTHER WITH 3 1/2" SPACER NAILS @ 12" O.C.,
 STAGGERED IN 2 ROWS (TOP LOADED)



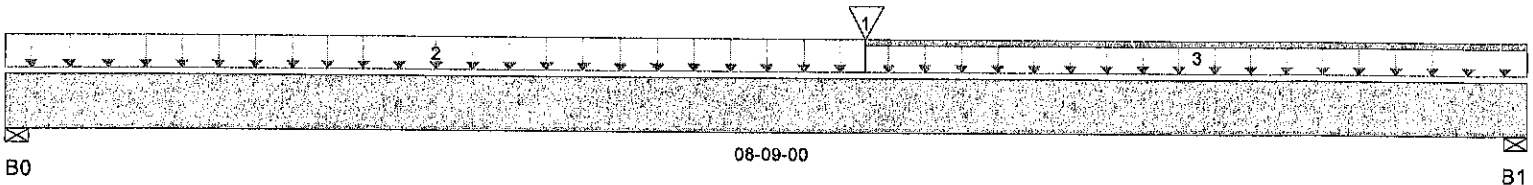
BC CALC® Design Report


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

May-14-15

Build 3272
 Job Name: 40297
 Address: HUNTINGTON & NASHVILLE
 City, Province, Postal Code: KLEINBURG, ON
 Customer: GOLD PARK
 Code reports: CCMC 12472-R

File Name: 253723.bcc
 Description: Designs\03
 Specifier: 38-6
 Designer: MQ
 Company: Alpa Roof Trusses Inc
 Misc:



Total Horizontal Product Length = 08-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	980 / 0	394 / 0		
B1, 3-1/2"	1,547 / 0	623 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Conc. Pt. (lbs)	L	04-11-00	04-11-00	440	165			n/a
2		Unf. Area (lb/ft^2)	L	00-00-00	04-11-00	40	15			03-06-00
3		Unf. Lin. (lb/ft)	L	04-11-00	08-09-00	365	144			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	5,803 ft-lbs	12,704 ft-lbs	0.46	1	04-11-00
End Shear	2,305 lbs	5,785 lbs	0.4	1	07-08-00
Total Load Defl.	L/535 (0.186")	0.415"	0.45	4	04-06-11
Live Load Defl.	L/749 (0.133")	0.276"	0.48	5	04-06-11
Max Defl.	0.186"	1"	0.19	4	04-06-11
Span / Depth	10.5	n/a	n/a		00-00-00

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of BOISE 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. \n\nBC CALC®, BC FRAMER®, AJST™, ALLJOIST®, BC RIM BOARD™, BCI®, BOISE GLULAM™, SIMPLE FRAMING SYSTEM®, VERSA-LAM®, VERSA-RIM PLUS®, VERSA-RIM®, VERSA-STRAND®, VERSA-STUD® are trademarks of Boise Cascade Wood Products L.L.C.

Bearing Supports

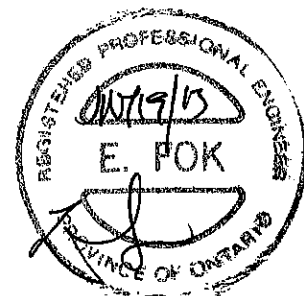
	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	1,962 lbs	0.52	0.26	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	3,100 lbs	0.82	0.41	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Design meets User specified (1") Maximum total load deflection criteria.
 Calculations assume Member is Fully Braced.
 Resistance Factor phi has been applied to all presented results per CSA 086.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA 086.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 4
 Deflections less than 1/8" were ignored in the results.

User Notes

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



S.129640

BC CALC® Design Report

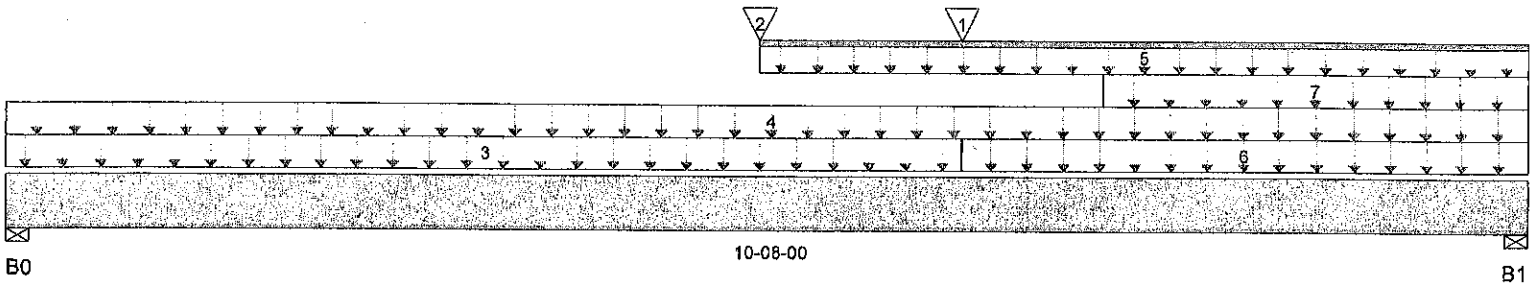


Dry | 1 span | No cantilevers | 0/12 slope (deg)

May-14-15

Build 3272
 Job Name: 40297
 Address: HUNTINGTON & NASHVILLE
 City, Province, Postal Code: KLEINBURG, ON
 Customer: GOLD PARK
 Code reports: CCMC 12472-R

File Name: 253723.bcc
 Description: Designs\04
 Specifier: 38-6
 Designer: MQ
 Company: Alpa Roof Trusses Inc
 Misc:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,252 / 0	634 / 0		
B1, 3-1/2"	2,377 / 0	1,234 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	Conc. Pt. (lbs)	L	06-08-00	06-08-00	1,547	623				n/a
2	Conc. Pt. (lbs)	L	05-03-00	05-03-00	440	165				n/a
3	Unf. Area (lb/ft^2)	L	00-00-00	06-08-00	40	15				00-08-00
4	Unf. Area (lb/ft^2)	L	00-00-00	10-08-00	40	20				00-08-00
5	Unf. Lin. (lb/ft)	L	05-03-00	10-08-00	0	60				n/a
6	Unf. Area (lb/ft^2)	L	06-08-00	10-08-00	40	15				05-06-00
7	Unf. Area (lb/ft^2)	L	07-08-00	10-08-00	40	15				02-06-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	13,193 ft-lbs	25,408 ft-lbs	0.52	1	06-08-00
End Shear	4,270 lbs	11,571 lbs	0.37	1	09-07-00
Total Load Defl.	L/401 (0.305")	0.51"	0.6	4	05-07-04
Live Load Defl.	L/600 (0.204")	0.34"	0.6	5	05-07-04
Span / Depth	12.9	n/a	n/a		00-00-00

Bearing Supports

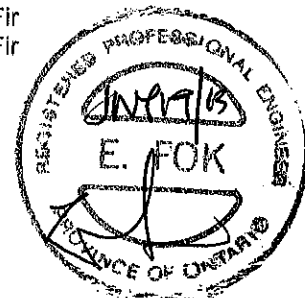
	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Wall/Plate	3-1/2" x 3-1/2"	2,670 lbs	0.35	0.18	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	5,108 lbs	0.68	0.34	Spruce Pine Fir

Notes

Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume Member is Fully Braced.
 Resistance Factor phi has been applied to all presented results per CSA 086.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA 086.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 4
 Deflections less than 1/8" were ignored in the results.

User Notes

NAIL ONE PLY TO ANOTHER WITH 3/2" SPIRAL NAIL
 @ 12" O.C., STRUTTED IN 2 ROWS



S.129641

BC CALC® Design Report

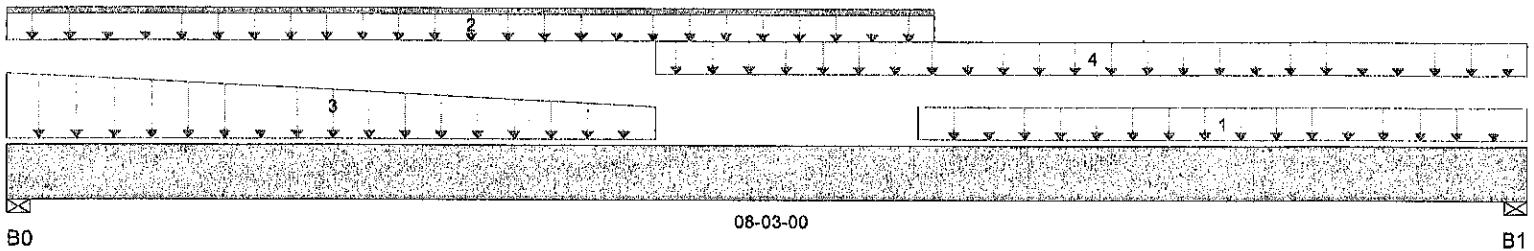


Dry | 1 span | No cantilevers | 0/12 slope (deg)

May-14-15

Build 3272
 Job Name: 40297
 Address: HUNTINGTON & NASHVILLE
 City, Province, Postal Code: KLEINBURG, ON
 Customer: GOLD PARK
 Code reports: CCMC 12472-R

File Name: 253723.bcc
 Description: Designs\05
 Specifier: 38-6
 Designer: MQ
 Company: Alpa Roof Trusses Inc
 Misc:



Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	610 / 0	461 / 0		
B1, 3-1/2"	785 / 0	402 / 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	04-11-00	08-03-00	40	15			02-10-00
2		Unf. Lin. (lb/ft)	L	00-00-00	05-00-00	0	60			n/a
3		Trapezoidal (lb/ft)	L	00-00-00	03-06-00	160	60			n/a
4		Unf. Area (lb/ft^2)	L	03-06-00	08-03-00	40	15			02-10-00

Controls Summary

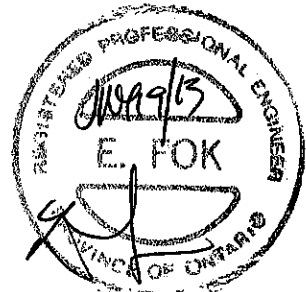
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,763 ft-lbs	12,704 ft-lbs	0.22	1	04-04-10
End Shear	1,313 lbs	5,785 lbs	0.23	1	01-01-00
Total Load Defl.	L/999 (0.087")	n/a	n/a	4	04-01-07
Live Load Defl.	L/999 (0.052")	n/a	n/a	5	04-02-08
Max Defl.	0.087"	n/a	n/a	4	04-01-07
Span / Depth	9.8	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 1-3/4"	1,492 lbs	0.4	0.2	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	1,681 lbs	0.45	0.22	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 086.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA 086.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 4
 Deflections less than 1/8" were ignored in the results.

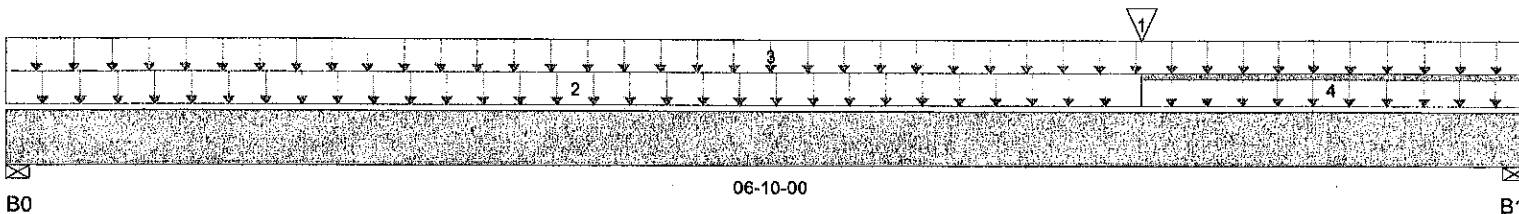


User Notes



Build 3272
 Job Name: 40297
 Address: HUNTINGTON & NASHVILLE
 City, Province, Postal Code: KLEINBURG, ON
 Customer: GOLD PARK
 Code reports: CCMC 12472-R

File Name: 253723.bcc
 Description: Designs\06
 Specifier: 38-6
 Designer: MQ
 Company: Alpa Roof Trusses Inc
 Misc:



Total Horizontal Product Length = 06-10-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	364 / 0	190 / 0		
B1, 3-1/2"	738 / 0	469 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Conc. Pt. (lbs)	L	05-01-00	05-01-00	785	402			n/a
2		Unf. Area (lb/ft^2)	L	00-00-00	05-01-00	40	15			00-08-00
3		Unf. Area (lb/ft^2)	L	00-00-00	06-10-00	40	15			00-08-00
4		Unf. Lin. (lb/ft)	L	05-01-00	06-10-00	0	60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,373 ft-lbs	12,704 ft-lbs	0.19	1	05-01-00
End Shear	1,550 lbs	5,785 lbs	0.27	1	05-09-00
Total Load Defl.	L/999 (0.042")	n/a	n/a	4	03-08-08
Live Load Defl.	L/999 (0.027")	n/a	n/a	5	03-08-08
Span / Depth	8.1	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 1-3/4"	784 lbs	0.21	0.1	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	1,694 lbs	0.45	0.23	Spruce Pine Fir

Notes

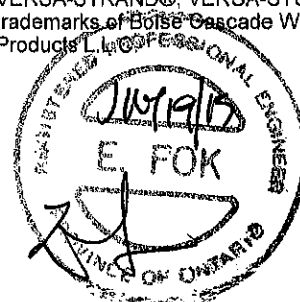
Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume Member is Fully Braced.
 Resistance Factor phi has been applied to all presented results per CSA 086.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA 086.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 4
 Deflections less than 1/8" were ignored in the results.

User Notes

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

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 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. \n\nBC 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.



8-129643

BC CALC® Design Report



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

May-14-15

Build 3272

Job Name:

40297

Address:

HUNTINGTON & NASHVILLE

City, Province, Postal Code: KLEINBURG, ON

Customer:

GOLD PARK

Code reports:

CCMC 12472-R

File Name: 253723.bcc

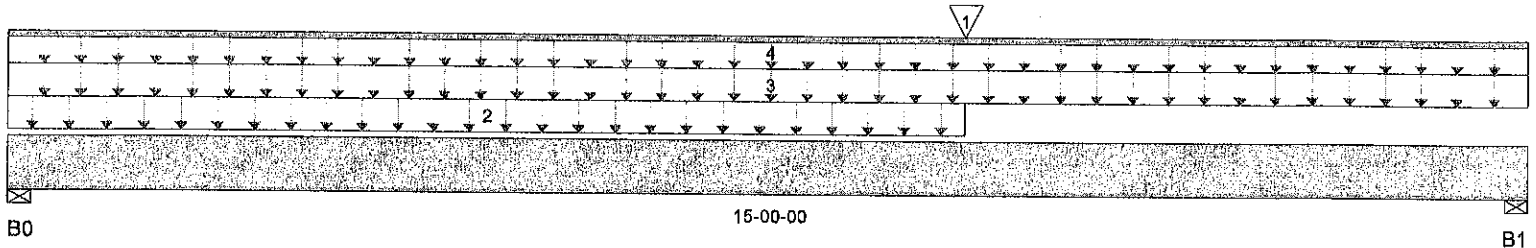
Description: Designs\07

Specifier: 38-6

Designer: MQ

Company: Alpa Roof Trusses Inc

Misc:



Total Horizontal Product Length = 15'-0'-00"

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	598 / 0	832 / 0		
B1, 3-1/2"	663 / 0	917 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1		Conc. Pt. (lbs)	L	09-05-00	09-05-00	610	461			n/a
2		Unf. Area (lb/ft^2)	L	00-00-00	09-05-00	40	15			00-08-00
3		Unf. Area (lb/ft^2)	L	00-00-00	15-00-00	40	15			00-08-00
4		Unf. Lin. (lb/ft)	L	00-00-00	15-00-00	0	60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	9,293 ft-lbs	25,408 ft-lbs	0.37	1	09-05-00
End Shear	1,990 lbs	11,571 lbs	0.17	1	13-11-00
Total Load Defl.	L/363 (0.481")	0.727"	0.66	4	07-07-02
Live Load Defl.	L/816 (0.214")	0.485"	0.44	5	07-10-04
Max Defl.	0.481"	1"	0.48	4	07-07-02
Span / Depth	18.4	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"	1,938 lbs	0.26	0.13	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	2,141 lbs	0.28	0.14	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 086.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA 086.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 4
 Deflections less than 1/8" were ignored in the results.

User Notes NAIL ONE PLY TO ANOTHER WITH 3/2" SPIRAL NAILS
 @ 12" O.C., STRUTTED IN 2 ROWS



5-129644

BC CALC® Design Report

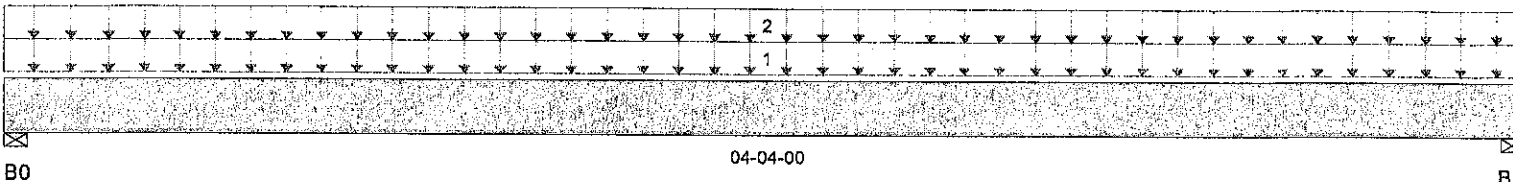


Dry | 1 span | No cantilevers | 0/12 slope (deg)

May-14-15

Build 3272
 Job Name: 40297
 Address: HUNTINGTON & NASHVILLE
 City, Province, Postal Code: KLEINBURG, ON
 Customer: GOLD PARK
 Code reports: CCMC 12472-R

File Name: 253723.bcc
 Description: Designs\08
 Specifier: 38-6
 Designer: MQ
 Company: Alpa Roof Trusses Inc
 Misc:



Total Horizontal Product Length = 04-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	686 / 0	268 / 0		
B1, 3-1/2"	686 / 0	268 / 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/ft²)	L	00-00-00	04-04-00	40	15			07-03-00
2		Unf. Area (lb/ft²)	L	00-00-00	04-04-00	40	15			00-08-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,181 ft-lbs	12,704 ft-lbs	0.09	1	02-02-00
End Shear	682 lbs	5,785 lbs	0.12	1	01-01-00
Total Load Defl.	L/999 (0.009")	n/a	n/a	4	02-02-00
Live Load Defl.	L/999 (0.006")	n/a	n/a	5	02-02-00
Max Defl.	0.009"	n/a	n/a	4	02-02-00
Span / Depth	4.9	n/a	n/a		00-00-00

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of BOISE 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. \n\nBC 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.

Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	1,364 lbs	0.36	0.18	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	1,364 lbs	0.36	0.18	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 086.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA 086.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 4
 Deflections less than 1/8" were ignored in the results.



S-129645

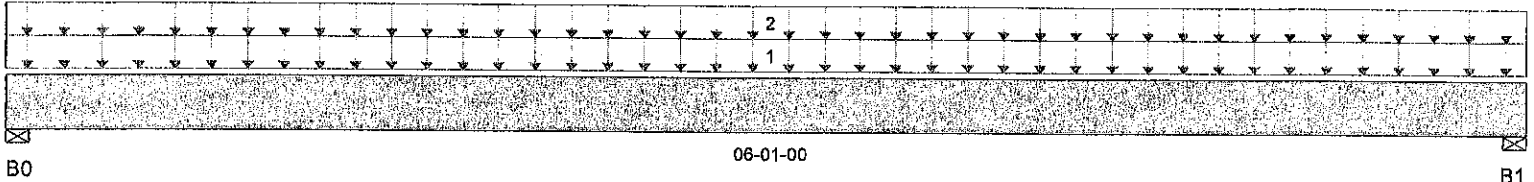
BC CALC® Design Report


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

May-14-15

Build 3272
 Job Name: 40297
 Address: HUNTINGTON & NASHVILLE
 City, Province, Postal Code: KLEINBURG, ON
 Customer: GOLD PARK
 Code reports: CCMC 12472-R

File Name: 253723.bcc
 Description: Designs\09
 Specifier: 38-6
 Designer: MQ
 Company: Alpa Roof Trusses Inc
 Misc:


Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	426 / 0	212 / 0		
B1, 3-1/2"	426 / 0	212 / 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	06-01-00	40	20			02-06-00
2		Unf. Area (lb/ft^2)	L	00-00-00	06-01-00	40	15			01-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,176 ft-lbs	12,704 ft-lbs	0.09	1	03-00-08
End Shear	582 lbs	5,785 lbs	0.1	1	01-01-00
Total Load Defl.	L/999 (0.019")	n/a	n/a	4	03-00-08
Live Load Defl.	L/999 (0.013")	n/a	n/a	5	03-00-08
Max Defl.	0.019"	n/a	n/a	4	03-00-08
Span / Depth	7.1	n/a	n/a		00-00-00

Disclosure

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Bearing Supports

	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	904 lbs	0.24	0.12	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	904 lbs	0.24	0.12	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 086.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA 086.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 4
 Deflections less than 1/8" were ignored in the results.



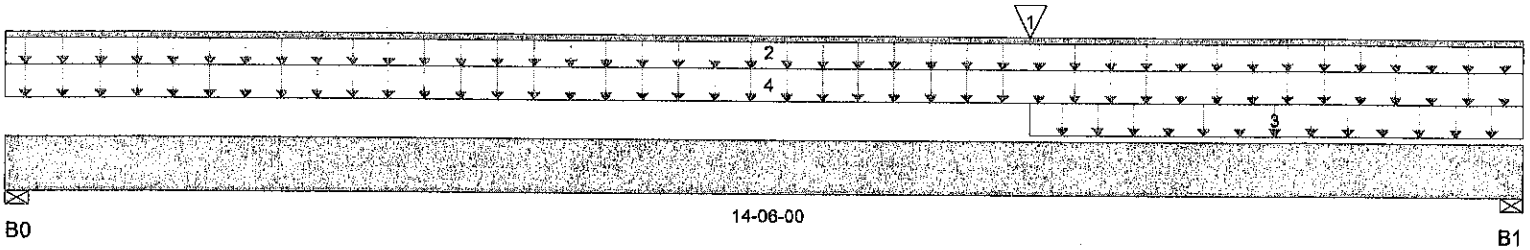
BC CALC® Design Report

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

May-14-15

Build 3272
 Job Name: 40297
 Address: HUNTINGTON & NASHVILLE
 City, Province, Postal Code: KLEINBURG, ON
 Customer: GOLD PARK
 Code reports: CCMC 12472-R

File Name: 253723.bcc
 Description: Designs\10
 Specifier: 38-6
 Designer: MQ
 Company: Alpa Roof Trusses Inc
 Misc:



Total Horizontal Product Length = 14-06-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	350 / 0	620 / 0		
B1, 3-1/2"	589 / 0	740 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1		Conc. Pt. (lbs)	L	09-09-00	09-09-00	426	212			n/a
2		Unf. Lin. (lb/ft)	L	00-00-00	14-06-00	0	60			n/a
3		Unf. Area (lb/ft^2)	L	09-09-00	14-06-00	40	20			00-08-00
4		Unf. Area (lb/ft^2)	L	00-00-00	14-06-00	40	15			00-08-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	6,037 ft-lbs	12,704 ft-lbs	0.48	1	09-09-00
End Shear	1,603 lbs	5,785 lbs	0.28	1	13-05-00
Total Load Defl.	L/281 (0.6")	0.702"	0.85	4	07-07-00
Live Load Defl.	L/655 (0.257")	0.468"	0.55	5	07-08-10
Max Defl.	0.6"	1"	0.6	4	07-07-00
Span / Depth	17.7	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 1-3/4"	869 lbs	0.35	0.18	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	1,809 lbs	0.48	0.24	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 086.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA 086.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 4
 Deflections less than 1/8" were ignored in the results.

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 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. In 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 Ltd.



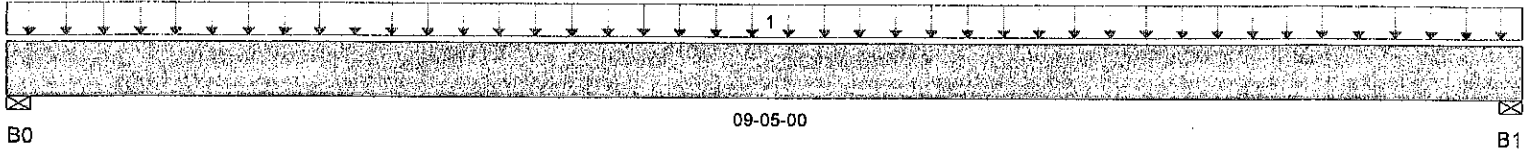
BC CALC® Design Report


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

May-14-15

Build 3272
 Job Name: 40297
 Address: HUNTINGTON & NASHVILLE
 City, Province, Postal Code: KLEINBURG, ON
 Customer: GOLD PARK
 Code reports: CCMC 12472-R

File Name: 253723.bcc
 Description: Designs\11
 Specifier: 38-6
 Designer: MQ
 Company: Alpa Roof Trusses Inc
 Misc:



Total Horizontal Product Length = 09-05-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	581 / 0	313 / 0		
B1, 3-1/2"	581 / 0	313 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1		Unf. Area (lb/ft^2)	L	00-00-00	09-05-00	40	20			03-01-00

Controls Summary	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	2,689 ft-lbs	12,704 ft-lbs	0.21	1	04-08-08
End Shear	972 lbs	5,785 lbs	0.17	1	01-01-00
Total Load Defl.	L/999 (0.11")	n/a	n/a	4	04-08-08
Live Load Defl.	L/999 (0.071")	n/a	n/a	5	04-08-08
Max Defl.	0.11"	n/a	n/a	4	04-08-08
Span / Depth	11.3	n/a	n/a		00-00-00

Disclosure

Completeness and accuracy of input must be verified by anyone who would rely on output as evidence of suitability for particular application. Output here based on building code-accepted design properties and analysis methods. Installation of BOISE 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. \n\nBC 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.

Bearing Supports	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0 Wall/Plate	3-1/2" x 1-3/4"	1,262 lbs	0.33	0.17	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	1,262 lbs	0.33	0.17	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 086.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA 086.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 4
 Deflections less than 1/8" were ignored in the results.



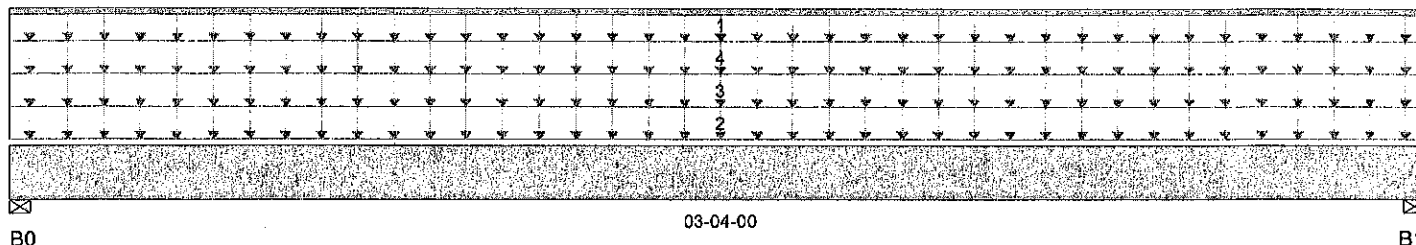
BC CALC® Design Report


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

May-14-15

Build 3272
 Job Name: 40297
 Address: HUNTINGTON & NASHVILLE
 City, Province, Postal Code: KLEINBURG, ON
 Customer: GOLD PARK
 Code reports: CCMC 12472-R

File Name: 253723.bcc
 Description: Designs\03A
 Specifier: 38-6
 Designer: MQ
 Company: Alpa Roof Trusses Inc
 Misc:



Total Horizontal Product Length = 03-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	781 / 0	724 / 0	706 / 0	
B1, 3-1/2"	781 / 0	724 / 0	706 / 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	03-04-00	0	100			n/a
2		Unf. Area (lb/ft^2)	L	00-00-00	03-04-00	40	20			06-02-00
3		Unf. Area (lb/ft^2)	L	00-00-00	03-04-00	11	10	21		19-02-00
4		Unf. Area (lb/ft^2)	L	00-00-00	03-04-00	11	10	21		01-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,506 ft-lbs	25,408 ft-lbs	0.06	1	01-08-00
End Shear	850 lbs	11,571 lbs	0.07	1	01-01-00
Total Load Defl.	L/999 (0.003")	n/a	n/a	11	01-08-00
Live Load Defl.	L/999 (0.002")	n/a	n/a	15	01-08-00
Max Defl.	0.003"	n/a	n/a	11	01-08-00
Span / Depth	3.6	n/a	n/a		00-00-00

Bearing Supports

B0	Wall/Plate	3-1/2" x 3-1/2"	2,430 lbs	0.32	0.16	Spruce Pine Fir
B1	Wall/Plate	3-1/2" x 3-1/2"	2,430 lbs	0.32	0.16	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 086.
 BC CALC® analysis is based on Canadian Limit States Design, as per NBCC and CSA 086.
 Design based on Dry Service Condition.
 Importance Factor : Normal Part code : Part 4
 Deflections less than 1/8" were ignored in the results.

User Notes

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



S-129649

BC CALC® Design Report

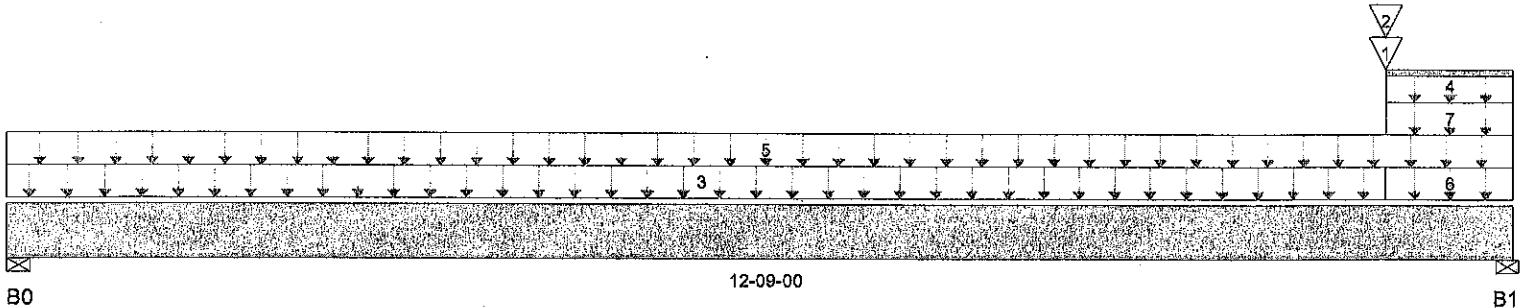


Dry | 1 span | No cantilevers | 0/12 slope (deg)

May-14-15

Build 3272
 Job Name: 40297
 Address: HUNTINGTON & NASHVILLE
 City, Province, Postal Code: KLEINBURG, ON
 Customer: GOLD PARK
 Code reports: CCMC 12472-R

File Name: 253723.bcc
 Description: Designs\03B
 Specifier: 38-6
 Designer: MQ
 Company: Alpa Roof Trusses Inc
 Misc:



Total Horizontal Product Length = 12-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	471 / 0	358 / 0	214 / 0	
B1, 4-1/4"	2,303 / 0	2,204 / 0	3,223 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1	Conc. Pt. (lbs)		L	11-08-00	11-08-00	781	724	706		n/a
2	Conc. Pt. (lbs)		L	11-08-00	11-08-00	1,234	1,184	2,526		n/a
3	Unf. Area (lb/ft^2)		L	00-00-00	11-08-00	40	20			00-08-00
4	Unf. Lin. (lb/ft)		L	11-08-00	12-09-00	0	100			n/a
5	Unf. Area (lb/ft^2)		L	00-00-00	12-09-00	40	20			00-08-00
6	Unf. Area (lb/ft^2)		L	11-08-00	12-09-00	11	10	21		08-00-00
7	Unf. Area (lb/ft^2)		L	11-08-00	12-09-00	11	10	21		01-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	6,590 ft-lbs	25,408 ft-lbs	0.26	5	11-08-00
End Shear	7,839 lbs	11,571 lbs	0.68	5	11-07-04
Total Load Defl.	L/631 (0.232")	0.611"	0.38	11	06-10-07
Live Load Defl.	L/1,013 (0.145")	0.408"	0.36	15	06-10-07
Max Defl.	0.232"	1"	0.23	11	06-10-07
Span / Depth	15.4	n/a	n/a		00-00-00

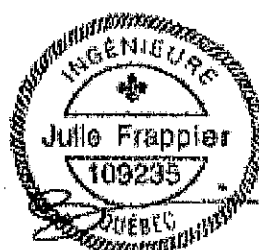
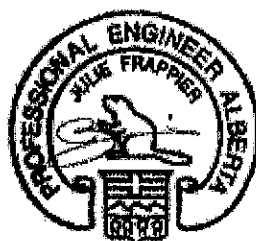
Bearing Supports

	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	3-1/2" x 3-1/2"	1,261 lbs	0.17	0.08	Spruce Pine Fir
B1	4-1/4" x 3-1/2"	8,740 lbs	0.96	0.48	Spruce Pine Fir

Notes NAIL ONE PUT TO ANOTHER WITH 3/2" SPIRAL NAIL
User Notes @ 12" O.C., STRUTTED IN 2 ROWS



S-129650



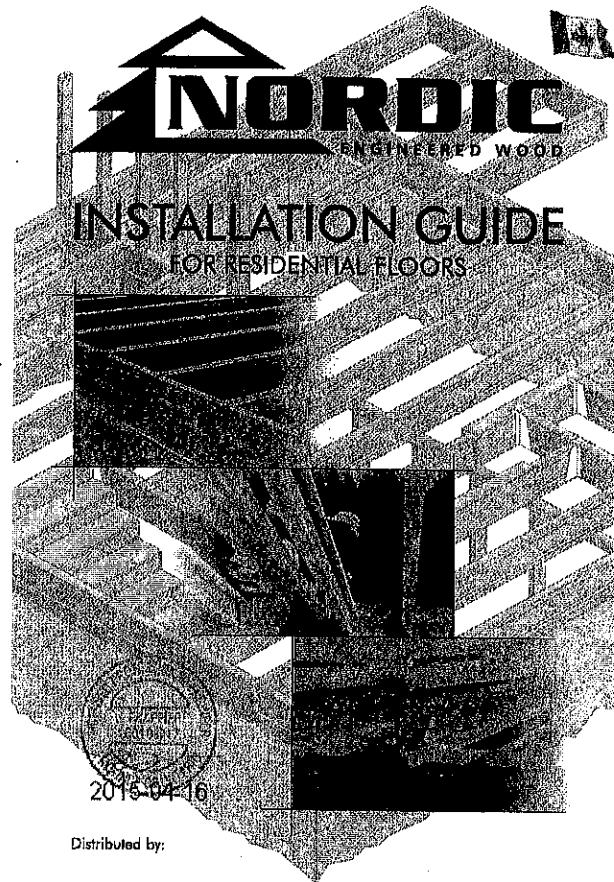
Maximum Floor Spans

Live Load = 40 psf, Dead Load = 15 psf
Simple Spans, L/360 Deflection Limit
5/8" 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'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"	N/A
	NI-70	17'-1"	16'-1"	15'-6"	N/A	17'-5"	16'-5"	15'-10"	N/A
	NI-80	17'-3"	16'-3"	15'-8"	N/A	17'-8"	16'-7"	16'-0"	N/A
11-7/8"	NI-20	16'-11"	16'-0"	15'-5"	N/A	17'-6"	16'-6"	16'-0"	N/A
	NI-40x	18'-1"	17'-0"	16'-5"	N/A	18'-9"	17'-6"	16'-11"	N/A
	NI-60	18'-4"	17'-3"	16'-7"	N/A	19'-0"	17'-8"	17'-1"	N/A
	NI-70	19'-6"	18'-0"	17'-4"	N/A	20'-1"	18'-7"	17'-9"	N/A
	NI-80	19'-9"	18'-3"	17'-6"	N/A	20'-4"	18'-10"	17'-11"	N/A
14"	NI-90x	20'-4"	18'-9"	17'-11"	N/A	20'-10"	19'-3"	18'-5"	N/A
	NI-40x	20'-1"	18'-7"	17'-10"	N/A	20'-10"	19'-4"	18'-6"	N/A
	NI-60	20'-5"	18'-11"	18'-1"	N/A	21'-2"	19'-7"	18'-9"	N/A
	NI-70	21'-7"	20'-0"	19'-1"	N/A	22'-3"	20'-7"	19'-8"	N/A
	NI-80	21'-11"	20'-3"	19'-4"	N/A	22'-7"	20'-11"	20'-0"	N/A
16"	NI-90x	22'-7"	20'-11"	19'-11"	N/A	23'-3"	21'-6"	20'-6"	N/A
	NI-60	22'-3"	20'-8"	19'-9"	N/A	23'-1"	21'-5"	20'-6"	N/A
	NI-70	23'-6"	21'-9"	20'-9"	N/A	24'-3"	22'-5"	21'-5"	N/A
	NI-80	23'-11"	22'-1"	21'-1"	N/A	24'-8"	22'-10"	21'-9"	N/A
	NI-90x	24'-8"	22'-9"	21'-9"	N/A	25'-4"	23'-5"	22'-4"	N/A

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	16'-10"	15'-5"	14'-6"	N/A	17'-1"	15'-5"	14'-6"	N/A
	NI-40x	17'-11"	16'-11"	16'-4"	N/A	18'-5"	17'-4"	16'-7"	N/A
	NI-60	18'-2"	17'-1"	16'-6"	N/A	18'-7"	17'-6"	16'-10"	N/A
	NI-70	19'-2"	17'-10"	17'-2"	N/A	19'-7"	18'-3"	17'-7"	N/A
	NI-80	19'-5"	18'-0"	17'-4"	N/A	19'-10"	18'-5"	17'-8"	N/A
11-7/8"	NI-20	19'-6"	18'-1"	17'-5"	N/A	20'-2"	18'-8"	17'-6"	N/A
	NI-40x	21'-0"	19'-6"	18'-8"	N/A	21'-7"	20'-2"	19'-3"	N/A
	NI-60	21'-4"	19'-9"	18'-11"	N/A	21'-11"	20'-4"	19'-6"	N/A
	NI-70	22'-6"	20'-10"	19'-11"	N/A	23'-0"	21'-5"	20'-5"	N/A
	NI-80	22'-9"	21'-1"	20'-1"	N/A	23'-3"	21'-7"	20'-8"	N/A
14"	NI-90x	23'-4"	21'-8"	20'-8"	N/A	23'-10"	22'-2"	21'-2"	N/A
	NI-40x	23'-7"	21'-11"	20'-11"	N/A	24'-3"	22'-7"	21'-7"	N/A
	NI-60	24'-0"	22'-3"	21'-3"	N/A	24'-8"	22'-11"	21'-11"	N/A
	NI-70	25'-3"	23'-4"	22'-3"	N/A	25'-10"	24'-0"	22'-11"	N/A
	NI-80	25'-7"	23'-8"	22'-7"	N/A	26'-2"	24'-4"	23'-2"	N/A
16"	NI-90x	26'-4"	24'-4"	23'-3"	N/A	26'-10"	24'-11"	23'-9"	N/A
	NI-60	26'-5"	24'-6"	23'-4"	N/A	27'-2"	25'-3"	24'-2"	N/A
	NI-70	27'-9"	25'-8"	24'-6"	N/A	28'-5"	26'-5"	25'-2"	N/A
	NI-80	28'-2"	26'-1"	24'-10"	N/A	28'-10"	26'-9"	25'-6"	N/A
	NI-90x	29'-0"	26'-10"	25'-7"	N/A	29'-7"	27'-5"	26'-2"	N/A

- 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 5/8 inch for a joist spacing of 19.2 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, and NBC 2010.
- 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.



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SAFETY AND CONSTRUCTION PRECAUTIONS

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 center, and must be secured with a minimum of two 2-1/2" nails fastened to the top surface of each I-joist. Nail the bracing to a lateral restraint at the end of each bay. Lap ends of adjoining bracing over at least two I-joists.
 - Or, sheathing (temporary or permanent) can be nailed to the top flange of the first 4 feet of I-joists at the end of the bay.
3. For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-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 various accidents. Follow these installation guidelines carefully.

STORAGE AND HANDLING GUIDELINES

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



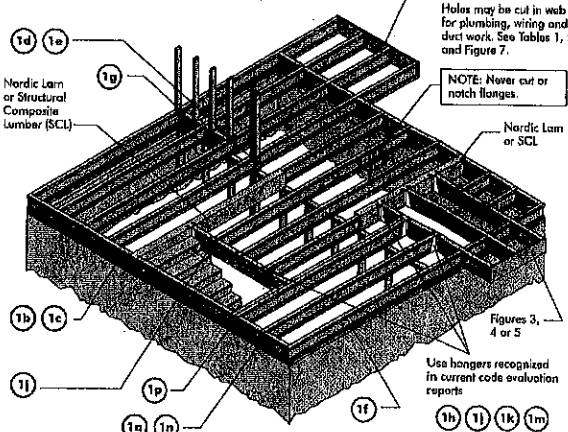
INSTALLING NORDIC I-JOISTS

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

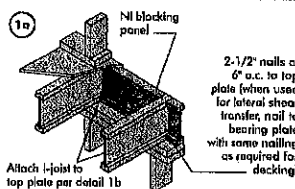
FIGURE 1

TYPICAL NORDIC I-JOIST FLOOR FRAMING AND CONSTRUCTION DETAILS

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

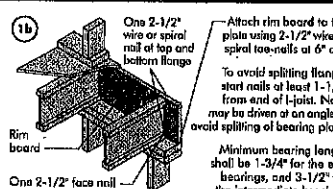


All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.125" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.



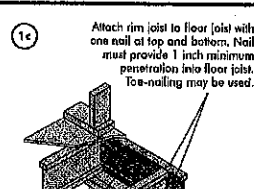
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
Ni Joist	3,300

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



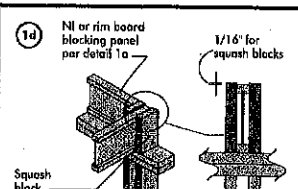
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	6,090

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



Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	6,090

*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* (plf)
3-1/2" wide	5,500
5-1/2" wide	6,600

*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.



	NI-20	NI-40x	NI-60	NI-70	NI-80	NI-90	NI-90x
	1-1/2" x 2-1/2" x 11-7/8"	1-1/2" x 3-1/2" x 11-7/8"	1-1/2" x 3-1/2" x 11-7/8"	1-1/2" x 3-1/2" x 11-7/8"	1-1/2" x 3-1/2" x 11-7/8"	1-1/2" x 3-1/2" x 11-7/8"	1-1/2" x 3-1/2" x 11-7/8"
	OSB 1/2" x 11-7/8"	OSB 1/2" x 11-7/8"	OSB 1/2" x 11-7/8"	OSB 1/2" x 11-7/8"	OSB 1/2" x 11-7/8"	OSB 1/2" x 11-7/8"	OSB 1/2" x 11-7/8"
	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
	S-PF No.2	1950F MSR	2100F MSR	1950F MSR	2100F MSR	2400F MSR	NPG Lumber

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

WEB HOLE SPECIFICATIONS

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

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

- The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller are permitted anywhere in a cantilevered 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 (ft - in.)											
		Round Hole Diameter (in.)											
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4
1-1/2"	NI-20	0'-7"	1'-6"	2'-10"	4'-3"	5'-8"	6'-0"	---	---	---	---	---	---
	NI-40x	0'-7"	1'-6"	3'-0"	4'-4"	6'-0"	6'-4"	---	---	---	---	---	---
	NI-60	1'-3"	2'-6"	4'-0"	5'-4"	7'-0"	7'-5"	---	---	---	---	---	---
	NI-70	2'-0"	3'-4"	4'-9"	6'-3"	8'-0"	8'-4"	---	---	---	---	---	---
1-7/8"	NI-80	2'-3"	3'-6"	5'-0"	6'-6"	8'-2"	8'-6"	---	---	---	---	---	---
	NI-20	0'-7"	0'-8"	1'-0"	2'-4"	3'-8"	4'-0"	5'-0"	6'-6"	7'-9"	---	---	---
	NI-40x	0'-7"	0'-8"	1'-3"	2'-8"	4'-0"	4'-4"	5'-5"	7'-0"	8'-4"	---	---	---
	NI-60	0'-7"	1'-8"	3'-0"	4'-3"	5'-9"	6'-0"	7'-3"	8'-10"	10'-0"	---	---	---
2"	NI-70	1'-3"	2'-6"	4'-0"	5'-4"	6'-9"	7'-2"	8'-4"	10'-0"	11'-2"	---	---	---
	NI-80	1'-6"	2'-10"	4'-2"	5'-6"	7'-0"	7'-5"	8'-6"	10'-3"	11'-4"	---	---	---
	NI-90	0'-7"	0'-8"	1'-5"	3'-2"	4'-10"	5'-4"	6'-9"	8'-9"	10'-2"	---	---	---
	NI-90x	0'-7"	0'-8"	0'-9"	2'-5"	4'-4"	4'-9"	6'-3"	---	---	---	---	---
4"	NI-40x	0'-7"	0'-8"	0'-8"	1'-0"	2'-4"	2'-9"	3'-9"	5'-2"	6'-0"	6'-6"	8'-3"	10'-2"
	NI-60	0'-7"	0'-8"	1'-8"	3'-0"	4'-3"	4'-8"	5'-8"	7'-2"	8'-0"	8'-8"	10'-4"	11'-9"
	NI-70	0'-8"	1'-10"	3'-0"	4'-5"	5'-10"	6'-2"	7'-3"	8'-9"	9'-9"	10'-4"	12'-0"	13'-5"
	NI-80	0'-10"	2'-0"	3'-4"	4'-9"	6'-2"	6'-5"	7'-6"	9'-0"	10'-0"	10'-8"	12'-4"	13'-9"
5"	NI-90	0'-7"	0'-8"	0'-10"	2'-5"	4'-0"	4'-5"	5'-9"	7'-5"	8'-8"	9'-4"	11'-4"	12'-11"
	NI-90x	0'-7"	0'-8"	0'-8"	2'-0"	3'-9"	4'-2"	5'-5"	7'-3"	8'-5"	9'-2"	---	---
	NI-60	0'-7"	0'-8"	0'-8"	1'-6"	2'-10"	3'-2"	4'-2"	5'-6"	6'-4"	7'-0"	8'-6"	10'-2"
	NI-70	0'-7"	1'-0"	2'-3"	3'-6"	4'-10"	5'-3"	6'-3"	7'-8"	8'-6"	9'-2"	10'-8"	12'-0"
16"	NI-80	0'-7"	1'-3"	2'-6"	3'-10"	5'-3"	5'-6"	6'-6"	8'-0"	9'-0"	9'-5"	11'-0"	12'-3"
	NI-90	0'-7"	0'-8"	0'-8"	1'-9"	3'-3"	3'-8"	4'-9"	6'-5"	7'-5"	8'-0"	9'-10"	11'-3"
	NI-90x	0'-7"	0'-8"	0'-9"	2'-0"	3'-6"	4'-0"	5'-0"	6'-9"	7'-9"	8'-4"	10'-2"	11'-6"
	NI-90x	0'-7"	0'-8"	0'-9"	2'-0"	3'-6"	4'-0"	5'-0"	6'-9"	7'-9"	8'-4"	10'-2"	11'-6"

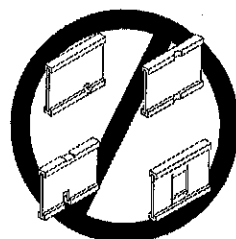
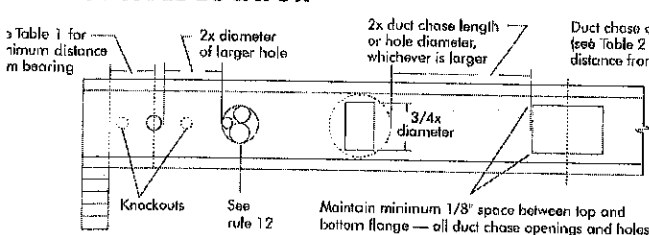
Above table may be used for I-joist spacing of 24 inches on centre or less.
Hole location distance is measured from inside face of supports to centre of hole.
Distances in this chart are based on uniformly loaded joists.
The above table is based on the I-joists being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

TABLE 2
DUCT CHASE OPENING SIZES AND LOCATIONS
Simple Span Only

Joist Depth	Joist Series	Minimum distance from inside face of supports to centre of opening (ft - in.)											
		Duct Chase Length (in.)											
		8	10	12	14	16	18	20	22	24	26	28	30
9-1/2"	NI-20	4'-1"	4'-5"	4'-10"	5'-4"	5'-8"	6'-1"	6'-6"	7'-1"	7'-5"	7'-9"	8'-4"	8'-8"
	NI-40x	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"	9'-0"	9'-4"	9'-8"
	NI-60	5'-4"	5'-9"	6'-2"	6'-7"	7'-1"	7'-5"	8'-0"	8'-4"	8'-8"	9'-2"	9'-6"	10'-0"
	NI-70	5'-1"	5'-5"	5'-10"	6'-3"	6'-7"	7'-1"	7'-5"	8'-0"	8'-4"	8'-8"	9'-2"	9'-6"
11-7/8"	NI-80	5'-3"	5'-8"	6'-0"	6'-5"	6'-10"	7'-3"	7'-8"	8'-2"	8'-6"	9'-0"	9'-4"	9'-8"
	NI-20	5'-9"	6'-2"	6'-6"	7'-1"	7'-5"	7'-9"	8'-3"	8'-7"	9'-1"	9'-5"	9'-9"	10'-3"
	NI-40x	6'-8"	7'-2"	7'-6"	8'-1"	8'-6"	9'-1"	9'-5"	9'-9"	10'-3"	10'-7"	11'-1"	11'-5"
	NI-60	7'-3"	7'-8"	8'-0"	8'-6"	9'-0"	9'-4"	9'-8"	10'-2"	10'-6"	11'-0"	11'-4"	11'-8"
14"	NI-70	7'-1"	7'-4"	7'-9"	8'-3"	8'-7"	9'-1"	9'-5"	9'-9"	10'-3"	10'-7"	11'-1"	11'-5"
	NI-80	7'-2"	7'-7"	8'-0"	8'-5"	8'-10"	9'-3"	9'-8"	10'-2"	10'-6"	11'-0"	11'-4"	11'-8"
	NI-90	7'-6"	7'-11"	8'-4"	8'-9"	9'-2"	9'-7"	10'-1"	10'-5"	10'-9"	11'-3"	11'-7"	12'-1"
	NI-90x	7'-7"	8'-1"	8'-5"	8'-10"	9'-4"	9'-8"	10'-2"	10'-6"	11'-0"	11'-4"	11'-8"	12'-2"
16"	NI-40x	8'-1"	8'-7"	9'-0"	9'-6"	10'-1"	10'-7"	11'-2"	11'-8"	12'-3"	12'-8"	13'-3"	13'-8"
	NI-60	8'-9"	9'-3"	9'-8"	10'-1"	10'-6"	11'-1"	11'-6"	12'-1"	12'-6"	13'-1"	13'-6"	14'-1"
	NI-70	8'-7"	9'-1"	9'-5"	10'-1"	10'-6"	11'-1"	11'-6"	12'-1"	12'-6"	13'-1"	13'-6"	14'-1"
	NI-80	9'-0"	9'-3"	9'-9"	10'-1"	10'-7"	11'-1"	11'-6"	12'-1"	12'-6"	13'-1"	13'-6"	14'-1"
16"	NI-90	9'-2"	9'-8"	10'-0"	10'-6"	11'-1"	11'-6"	12'-1"	12'-6"	13'-1"	13'-6"	14'-1"	14'-6"
	NI-90x	9'-4"	9'-9"	10'-3"	10'-7"	11'-1"	11'-6"	12'-1"	12'-6"	13'-1"	13'-6"	14'-1"	14'-6"
	NI-60	10'-3"	10'-8"	11'-2"	11'-6"	12'-1"	12'-6"	13'-1"	13'-6"	14'-1"	14'-6"	15'-1"	15'-6"
	NI-70	10'-1"	10'-5"	11'-0"	11'-4"	11'-9"	12'-3"	12'-8"	13'-3"	13'-8"	14'-3"	14'-8"	15'-3"
16"	NI-80	10'-4"	10'-9"	11'-3"	11'-8"	12'-2"	12'-7"	13'-1"	13'-6"	14'-1"	14'-6"	15'-1"	15'-6"
	NI-90	10'-5"	11'-2"	11'-8"	12'-0"	12'-6"	13'-0"	13'-6"	14'-1"	14'-6"	15'-1"	15'-6"	16'-1"
	NI-90x	11'-1"	11'-5"	11'-10"	12'-4"	12'-10"	13'-4"	13'-9"	14'-4"	14'-9"	15'-4"	15'-9"	16'-4"

- Above table may be used for I-joist 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.
- The above table is based on the I-joists being used at their maximum spans. The minimum distance as given above may be reduced for shorter spans; contact your local distributor.

FIGURE 7 ELD-CUT HOLE LOCATOR



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

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

Holes in webs should be cut with a sharp saw.

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

SAFETY AND CONSTRUCTION PRECAUTIONS

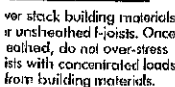


WARNING: I-joists are not stable until completely installed, and will not carry any load until fully braced and sheathed.

AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

- 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.
- 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.
- For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-briding.
- 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.
- 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.



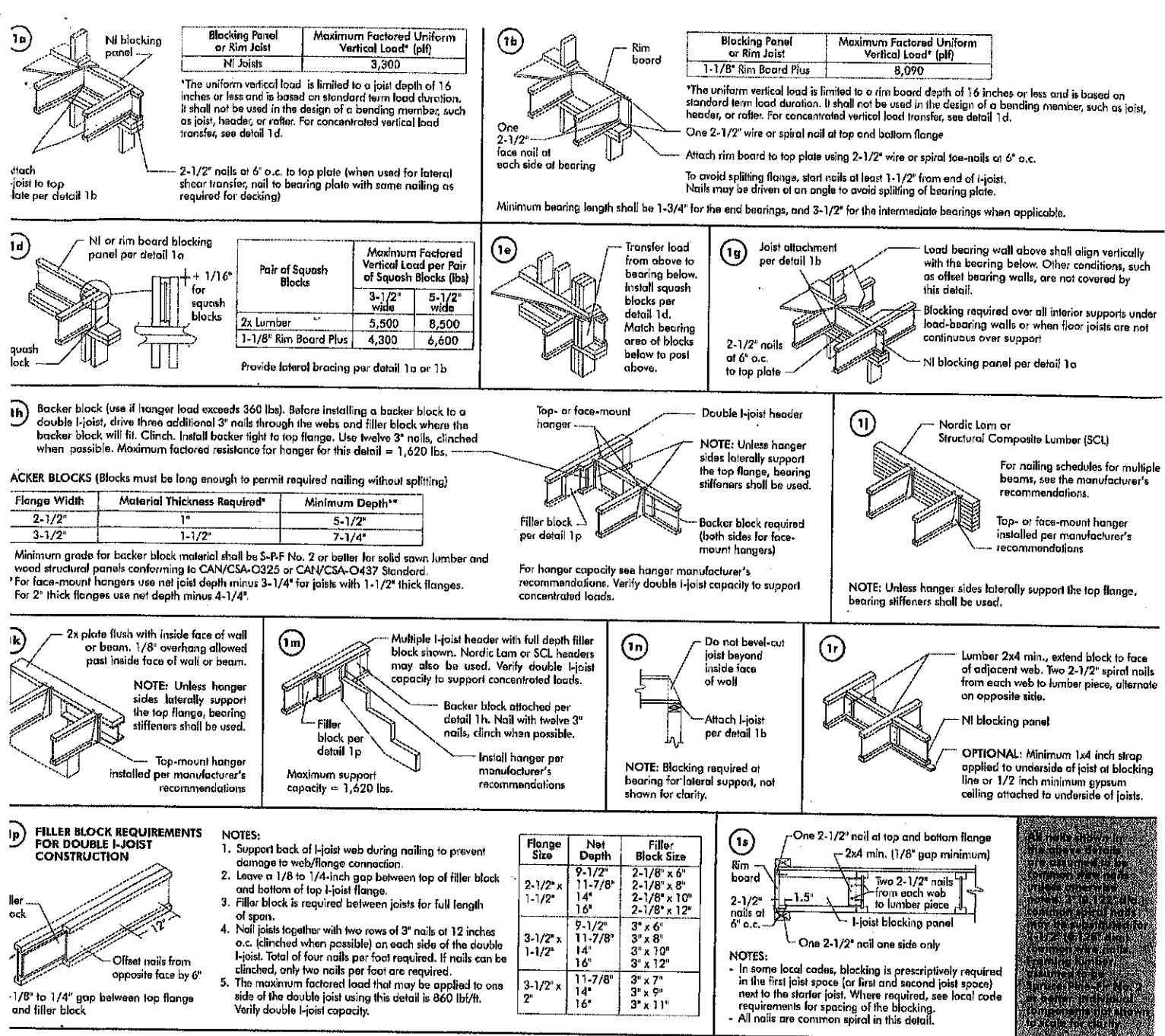
Never stack building materials or unsheathed I-joists. Once installed, do not over-stress joists with concentrated loads from building materials.



PRODUCT WARRANTY

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

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



WEB STIFFENERS

RECOMMENDATIONS:

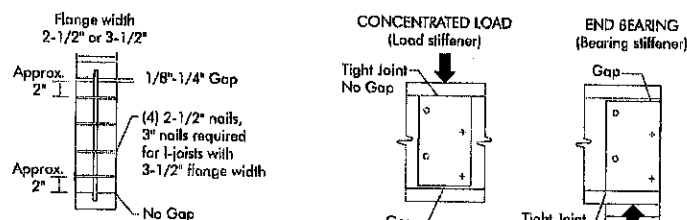
A **bearing stiffener** is required in all engineered applications with factored reactions greater than shown in the I-joist properties table found in the I-joist Construction Guide (C101). The gap between the stiffener and the flange is at the top.

A **bearing stiffener** is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.

A **load stiffener** is required at locations where a factored concentrated load greater than 2,370 lbs is applied to the top flange between supports, or in the case of a cantilever, anywhere between the cantilever tip and the support. These values are for standard term load duration, and may be adjusted for other load durations as permitted by the code. The gap between the stiffener and the flange is at the bottom.

FIGURE 2

WEB STIFFENER INSTALLATION DETAILS



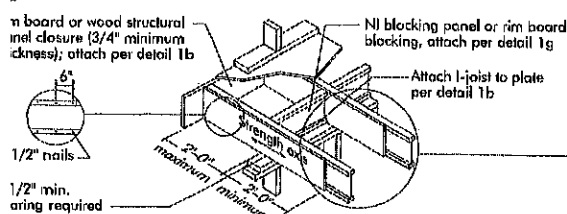
See the adjacent table for web stiffener size requirements.

STIFFENER SIZE REQUIREMENTS

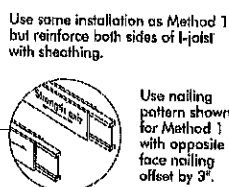
Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-5/16" minimum width
3-1/2"	1-1/2" x 2-5/16" minimum width

ANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET

Method 1 — SHEATHING REINFORCEMENT ONE SIDE



Method 2 — SHEATHING REINFORCEMENT TWO SIDES

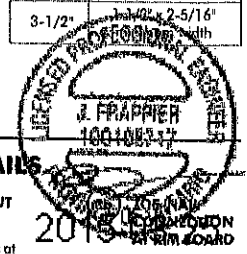
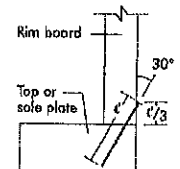
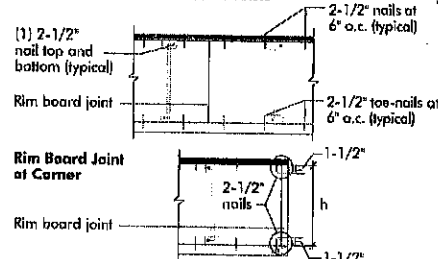


NOTE: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall attach the full height of the joist. Nail with 2-1/2" nails at 6" o.c., top and bottom flange. Install with face grain horizontal. Attach joist to plate at all supports per detail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

RIM BOARD INSTALLATION DETAILS

8a ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

Rim Board Joint Between Floor Joists



WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- The distance between the inside edge of the support and the centreline of any hole or duct chase opening shall be in compliance with the requirements of Table 1 or 2, respectively.
- I-joist top and bottom flanges must NEVER be cut, notched, or otherwise modified.
- Whenever possible, field-cut holes should be centred on the middle of the web.
- The maximum size hole or the maximum depth of a duct chase opening that can be cut into an I-joist web shall equal the clear distance between the flanges of the I-joist minus 1/4 inch. A minimum of 1/8 inch should always be maintained between the top or bottom of the hole or opening and the adjacent I-joist flange.
- The sides of square holes or longest sides of rectangular holes should not exceed 3/4 of the diameter of the maximum round hole permitted at that location.
- Where more than one hole is necessary, the distance between adjacent hole edges shall exceed twice the diameter of the largest round hole or twice the size of the largest square hole (or twice the length of the longest side of the longest rectangular hole or duct chase opening) and each hole and duct chase opening shall be sized and located in compliance with the requirements of Tables 1 and 2, respectively.
- A knockout is not considered a hole, may be utilized anywhere it occurs, and may be ignored for purposes of calculating minimum distances between holes and/or duct chase openings.
- Holes measuring 1-1/2 inches or smaller shall be permitted anywhere in a cantilevered 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 (ft.-in.)	Span adjustment factor
2	2	2	1
2	3	2	1
2	4	2	1
2	5	2	1
2	6	2	1
2	6-1/2	2	1
2	7	2	1
2	8	2	1
2	8-5/8	2	1
2	9	2	1
2	10	2	1
2	10-3/4	2	1
2	11	2	1
2	12	2	1
2	12-3/4	2	1

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

Reduced = $\frac{L_{actual}}{L_{max}} \times D$

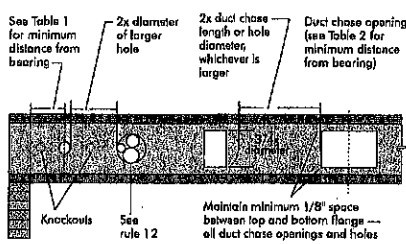
Where:

- L_{actual} = Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span applications.
- L_{max} = The actual measured span distance between the inside faces of supports (ft.).
- SAF = Span Adjustment Factor given in this table.
- D = The minimum distance from the inside face of any support to centre of hole from this table.

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



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

Holes in webs should be cut with a sharp saw.

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

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

Joist Depth	Joist Series	Minimum distance from inside face of any support to centre of opening (ft.-in.)	Duct chase length (ft.)
2	2	6	10
2	3	6	10
2	4	6	10
2	5	6	10
2	6	6	10
2	6-1/2	6	10
2	7	6	10
2	8	6	10
2	8-5/8	6	10
2	9	6	10
2	10	6	10
2	10-3/4	6	10
2	11	6	10
2	12	6	10
2	12-3/4	6	10

- Above table may be used for I-joist 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-joist flanges before gluing.
- Snap a chalk line across the I-joists four feet in from the wall for panel edge alignment and as a boundary for spreading glue.
- 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 sledhammer.
- Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joist. Apply glue in a winding pattern on wide areas, such as with double I-joists.
- Apply two lines of glue on I-joists where panel ends butt to assure proper gluing of each end.
- After the first row of panels is in place, spread glue in the groove of one or two panels at a time before laying the next row. Glue line may be continuous or spaced, but avoid squeeze-out by applying a thinner line (1/8 inch) than used on I-joist flanges.
- Top the second row of panels into place, using a block to protect groove edges.
- Stagger and joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&G edges, is recommended. (Use a spacer tool or an 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 Spacing of Fasteners (ft.)	Minimum Panel Thickness (in.)	Common Nail Size and Type	Minimum Spacing of Fasteners (ft.)
10	5/8	2"	6"
12	5/8	2"	6"
14	5/8	2"	6"
16	5/8	2"	6"
18	5/8	2"	6"
20	5/8	2"	6"
22	5/8	2"	6"
24	5/8	2"	6"
26	5/8	2"	6"
28	5/8	2"	6"
30	5/8	2"	6"
32	5/8	2"	6"
34	5/8	2"	6"
36	5/8	2"	6"
38	5/8	2"	6"
40	5/8	2"	6"
42	5/8	2"	6"
44	5/8	2"	6"
46	5/8	2"	6"
48	5/8	2"	6"
50	5/8	2"	6"
52	5/8	2"	6"
54	5/8	2"	6"
56	5/8	2"	6"
58	5/8	2"	6"
60	5/8	2"	6"
62	5/8	2"	6"
64	5/8	2"	6"
66	5/8	2"	6"
68	5/8	2"	6"
70	5/8	2"	6"
72	5/8	2"	6"
74	5/8	2"	6"
76	5/8	2"	6"
78	5/8	2"	6"
80	5/8	2"	6"
82	5/8	2"	6"
84	5/8	2"	6"
86	5/8	2"	6"
88	5/8	2"	6"
90	5/8	2"	6"
92	5/8	2"	6"
94	5/8	2"	6"
96	5/8	2"	6"
98	5/8	2"	6"
100	5/8	2"	6"

- 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.

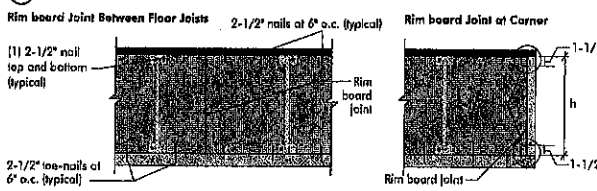
Ref.: NRC-CNRC, National Building Code of Canada 2010, Table 9.2.8.3.5.

IMPORTANT NOTE:

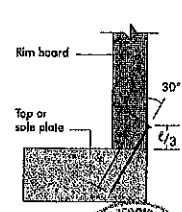
Floor sheathing must be field glued to the I-joist flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joist spans must be verified with your local distributor.

RIM BOARD INSTALLATION DETAILS

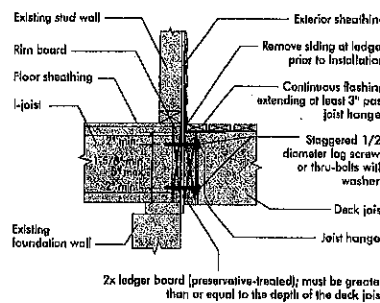
(8a) ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



(8b) TOE-NAIL CONNECTION AT RIM BOARD

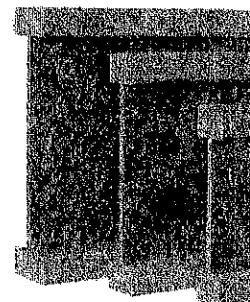


(8c) 2X LEDGER TO RIM BOARD ATTACHMENT DETAIL

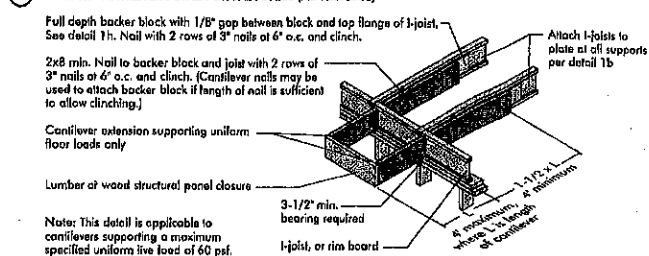


PRODUCT WARRANTY

Customer: This warranty is given by the manufacturer of the product and is not a contract. It is subject to the terms and conditions of the warranty. The manufacturer is not responsible for any damage or loss resulting from the use of the product. The manufacturer is not responsible for any damage or loss resulting from the use of the product. The manufacturer is not responsible for any damage or loss resulting from the use of the product.



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

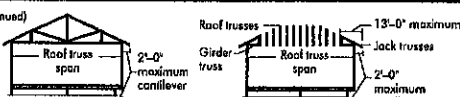
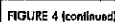
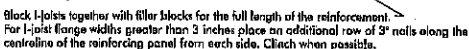


4a Method 1 --- SHEATHING REINFORCEMENT ONE SIDE



- 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.



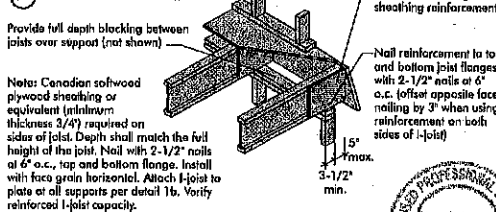
For hip roofs with the jack trusses running parallel to the cantilevered floor joists, the l-joint reinforcement requirements for a span of 26 ft. shall be permitted to be used.

CANTILEVER REINFORCEMENT METHODS ALLOWED

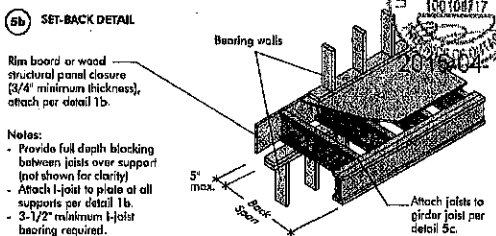
[illegible]

1. N = No reinforcement required.
2. 1" NI reinforced with 3/4" wood structural panel on one side only.
3. 2" reinforced with 3/4" wood structural panel on both sides, or double-joint.
4. "X" tie or deeper joist or cleat spacing.
5. 10 psf dead load; 20 psf floor total load, and 80 psf wind load. Wind load is based on 3'-0" minimum width window or door openings.
6. For larger openings, or multiple 3'-0" wide openings spaced less than 6'-0" o.c., additional joint between the opening's sillsplines may be required.
7. Sill splines are tested 12" to 24" o.c. that meet the floor system requirements for a design live load of 40 psf over a 3'-0" wide band and a live load deflection limit of L/480. Use 12" o.c. requirements for lesser spacing.
8. For conventional construction using a ridge beam, the Roof Truss Span column above is equivalent to the distance between the supporting walls and the ridge beam. When the roof is framed directly to the Ridge Truss Span it is equivalent to the distance between the supporting walls as it is used.
9. Cantilevered joists supporting either trusses or roof beams may require additional reinforcement.

5d SHEATHING REINFORCEMENT

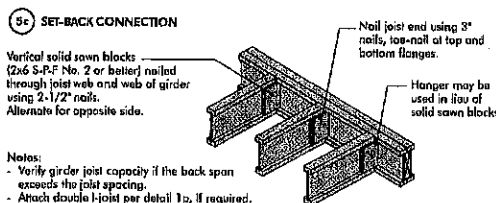


Notes: Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4") required on sides of joist. Depth shall be height of the joist. Nail with at 6" o.c., top and bottom with face grain horizontal. plate at all supports per design reinforced 1-joist capacity.



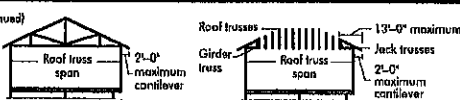
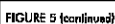
Notes:

- Provi
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- Affec
supp
- 3-1/2
baor



Notes:

- Verify girder joist capacity if the back span exceeds the joist spacing.
- Attach double I-joist per detail 12, if required



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[illegible]

- | | | |
|--|---|--|
| <p>1. $N =$ No reinforcement required.</p> <p>2. $N =$ N reinforced with $3/4"$ wood structural panel on one side only.</p> <p>3. $N =$ N reinforced with $3/4"$ wood structural panel on both sides (two double flanges).</p> <p>4. $K =$ K a deeper joist or closer spacing.</p> <p>5. Maximum design load dead l_d is 15 psf roof dead load, 35 psf floor live load, and 80 psf wall live load. l_d is based on 2' x 4' maximum window or roof openings.</p> | <p>For larger openings, or multiple 3' or 4' width openings spaced less than 6'-0", additional joists beneath the opening's cripple studs may be required.</p> <p>7. T_d is the distance to joists $24"$ or $36"$ on center, the floor span requirements for a design live load of 40 psf and dead load of 15 psf, and a 1/2" load deflection limit of L/480. Use 15 psf l_d requirements for base spacing.</p> | <p>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.</p> <p>For a roof T framed using a ridge board, the Roof Truss Span column above is the distance between the supporting walls as if T truss is used.</p> <p>8. T_d covered joists supporting gladder trusses or roof beams may require additional bracing.</p> |
|--|---|--|

MAXIMUM FLOOR SPANS

- Maximum clear spans applicable to single-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CG95-71.26 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 C086-09 Standard, and NBC 2010.
- SI units conversion: 1 inch = 25.4 mm
1 foot = 0.305 m

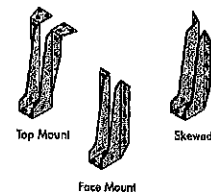
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS SIMPLE AND MULTIPLE SPANS

Joist Depth	Joist Series	Simple spans				Multiple spans			
		On center spacing				On center spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
12"	NI-20	11.1'	14.4'	17.7'	22.0'	11.1'	14.4'	17.7'	22.0'
16"	NI-24	14.4'	18.8'	23.1'	28.8'	14.4'	18.8'	23.1'	28.8'
19.2"	NI-28	17.7'	23.1'	28.8'	35.4'	17.7'	23.1'	28.8'	35.4'
24"	NI-32	22.0'	28.8'	35.4'	44.0'	22.0'	28.8'	35.4'	44.0'

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.



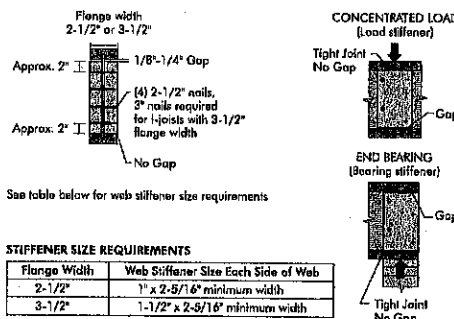
WEB STIFFENERS

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



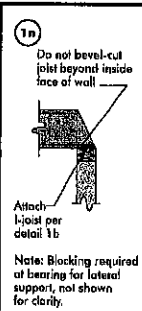
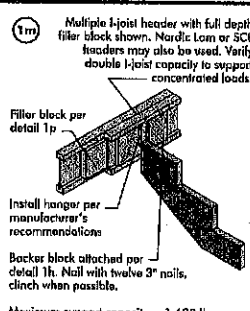
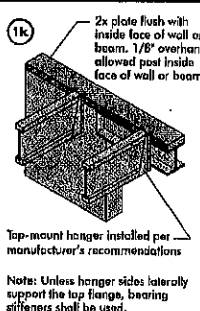
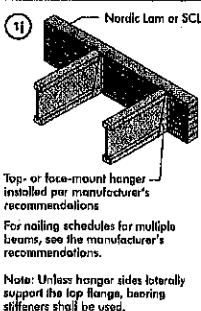
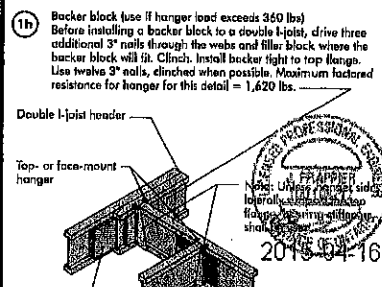
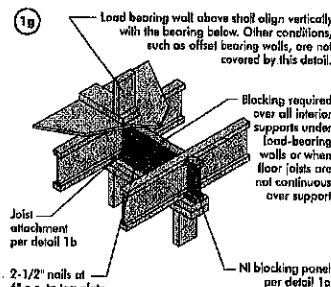
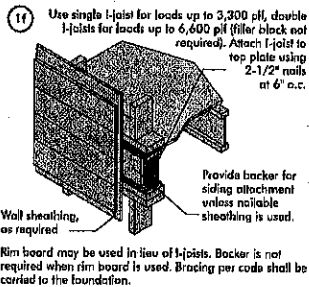
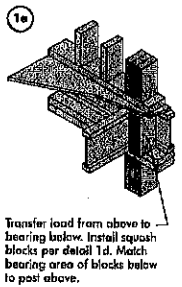
NORDIC I-JOIST SERIES

NI-20	NI-24	NI-28	NI-32	NI-36	NI-40	NI-44
12" x 19.2"	16" x 24"	19.2" x 28.8"	24" x 35.4"	28.8" x 44.0"	35.4" x 52.8"	44.0" x 64.0"
3-1/2" No. 2	3-1/2" No. 2	3-1/2" No. 2	3-1/2" No. 2	3-1/2" No. 2	3-1/2" No. 2	3-1/2" No. 2
23 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit	23 pieces per unit

Chimera Chilbougoum 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

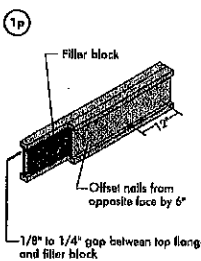


For hanger capacity see hanger manufacturer's recommendations. Verify double I-joist capacity to support concentrated loads.

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-F No. 2 or better for solid sawn lumber and wood structural panels conforming to CAN/CSA-C085 or CAN/CSA-C087 Standard.
** For face-mount hangers use nail joist depth minus 3-1/4" for joists with 1-1/2" thick flanges. For 2" thick flanges use nail depth minus 4-1/4".



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

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

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

