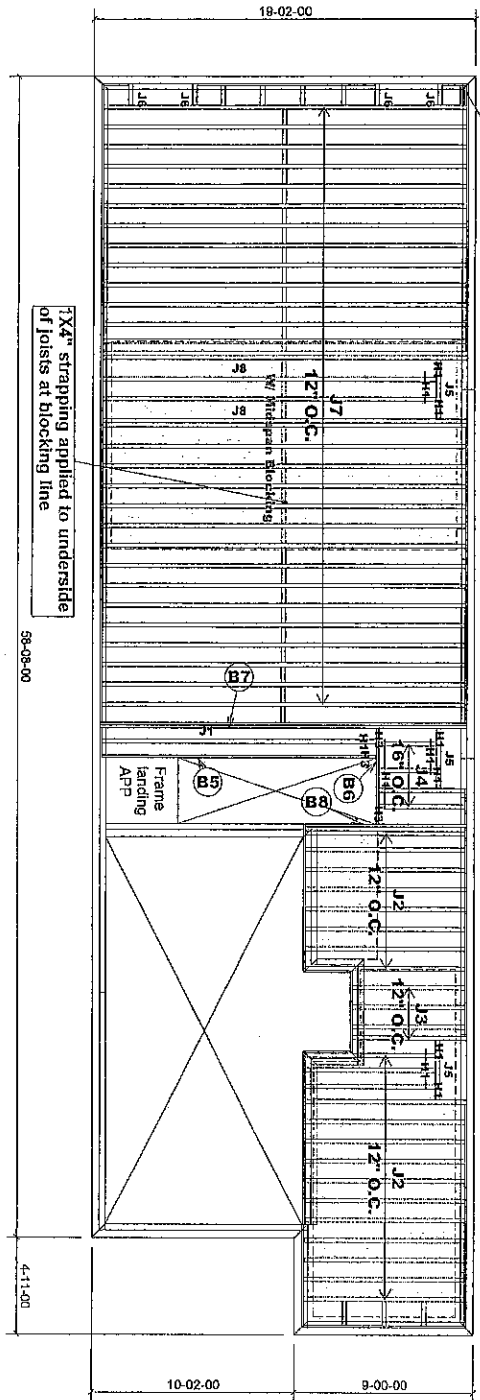


S1 Blocking @24" o/c max and around windows (typ.)

63-07-00



MODEL : 25-10  
ELEVATION A & B  
STANDARD GROUND FLOOR

FIRST FLOOR FRAMING

REVISION		
NO	DATE	PL NO
1.		
2.		

OFFICE USE ONLY  
ENGINEERED FROM  
\$ 137727  
\$ 137734

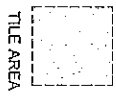
Do not scale - refer to architectural plans for dimensions

Product	Product	Pieces	Net Qty
J1	14-00-00 9 1/2" NI-20	1	1
J2	9-00-00 9 1/2" NI-20	1	22
J3	6-00-00 9 1/2" NI-20	1	4
J4	5-00-00 9 1/2" NI-20	1	4
J5	3-00-00 9 1/2" NI-20	1	3
J6	2-00-00 9 1/2" NI-20	1	4
J7	19-00-00 9 1/2" NI-40x	1	29
J8	19-00-00 9 1/2" NI-40x	2	4
B7	19-00-00 VERSALAM-10 2.0E	2	2
B5	14-00-00 VERSALAM-10 2.0E	1	1
B8	9-00-00 VERSALAM-10 2.0E	1	1
B6	5-00-00 VERSALAM-10 2.0E	1	1

9 1/2" BLOCKING 44 LF

APP - AS PER PLAN  
BBO - BEAM BY OTHERS

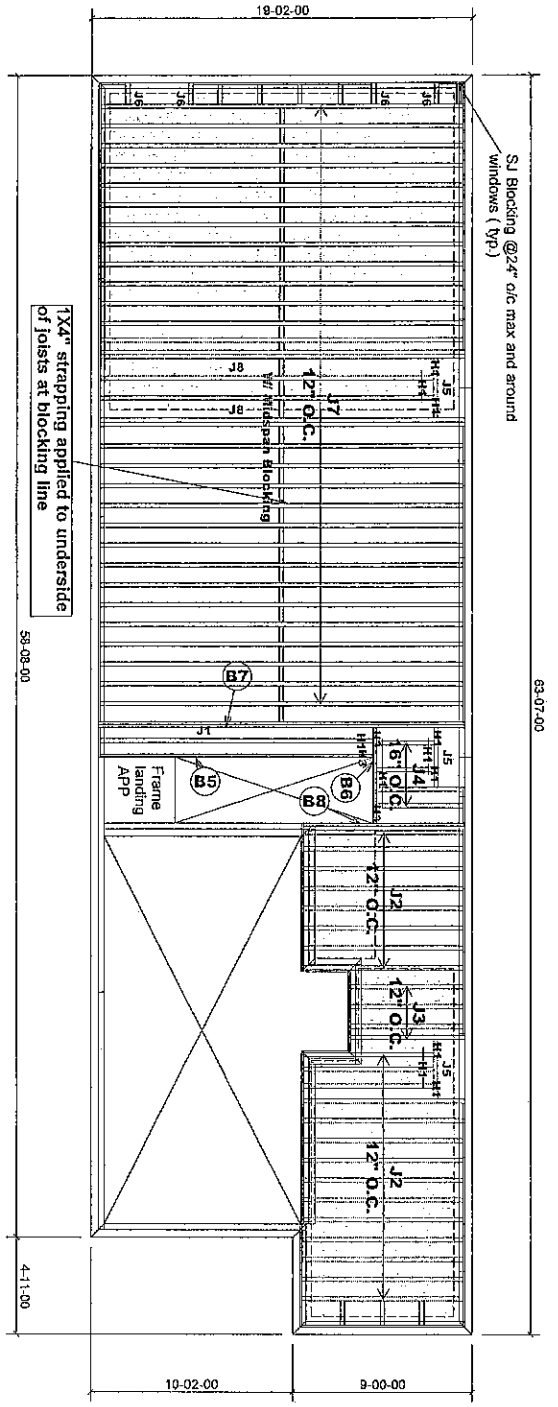
SUBFLOOR - 5/8" NAILED & GLUED RIMBOARD  
1-1/8" X 9 1/2" O.S.B



HANGERS SCHEDULE  
H1 - LT259  
H3 - HUS1.81/10

1-2x6 SP#42 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

JT: 40297/86474  
File: 267732  
Builder: Gold Park Homes  
Project: Huntington & Nashville  
Location: Kleinburg  
Date: May 10/16  
Designer: LA  
Sheet: 1 of 6  
Alpa Roof Trusses Inc.  
Maple, Ontario  
Salesperson: Derek  
Home Lumber



MODEL : 25-10  
ELEVATION A & B  
OPT. GROUND FLOOR

FIRST FLOOR FRAMING

NO	REVISION	DATE	PR. NO.
1.			
2.			

OFFICE USE ONLY  
ENGINEERED FROM  
S

Do not scale - refer to architectural plans for dimensions

ProdID	Length	Product	Pieces	Net Qty
J1	14-00-00	9 1/2" N1-20	1	1
J2	9-00-00	9 1/2" N1-20	1	22
J3	6-00-00	9 1/2" N1-20	1	4
J4	5-00-00	9 1/2" N1-20	1	4
J5	3-00-00	9 1/2" N1-20	1	3
J6	2-00-00	9 1/2" N1-20	1	4
J7	19-00-00	9 1/2" N1-40x	1	29
J8	19-00-00	9 1/2" N1-40x	2	4
B7	19-00-00	VERSALAM-10 2.0E	2	2
B5	14-00-00	VERSALAM-10 2.0E	1	1
B8	9-00-00	VERSALAM-10 2.0E	1	1
B6	5-00-00	VERSALAM-10 2.0E	1	1

9 1/2" BLOCKING 44 LF  
APP - AS PER PLAN  
B80 - BEAM BY OTHERS

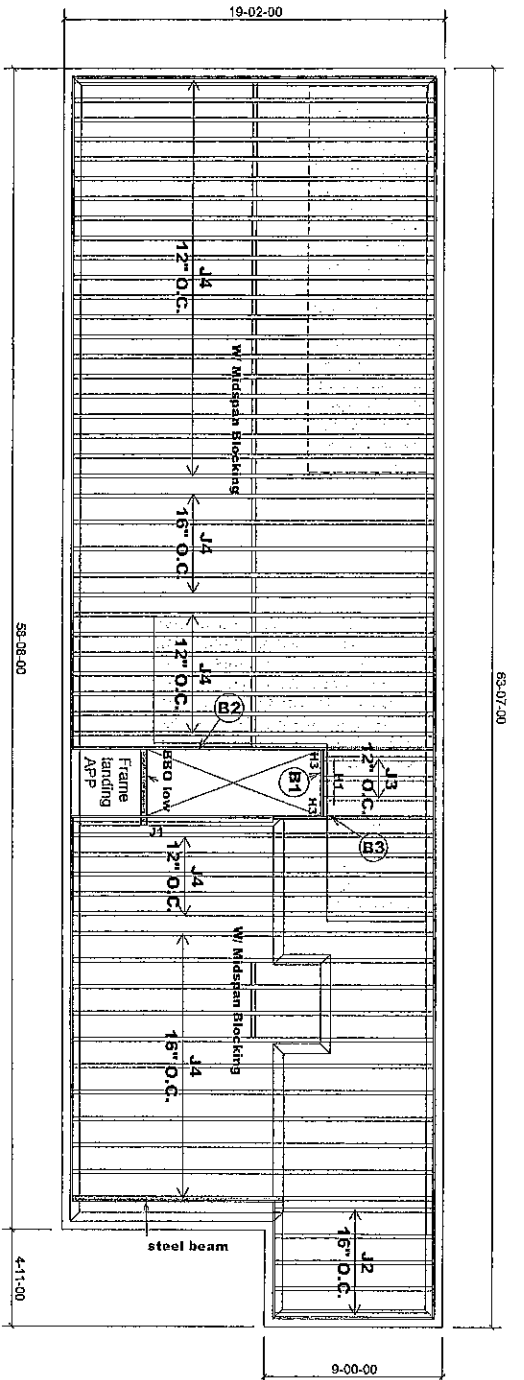
SUBFLOOR - 5/8" NAILED & GLUED  
RIMBOARD  
1-1/8" X 9 1/2" O.S.B

TILE AREA

FRANGERS SCHEDULE
H1 - L17259
H3 - 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

JT: 40297/86474      Builder: Gold Park Homes      Location: Kleinburg      Designer: LA      Salesperson: Derek  
 File: 267732      Project: Huntington & Nashville      Date: May 10/16      Sheet 2 of 6      Maple, Ontario      Home Lumber



MODEL: 25-10  
ELEVATION A  
STANDARD SECOND FLOOR

SECOND FLOOR FRAMING

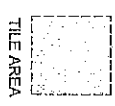
Do not scale - refer to architectural plans for dimensions

Product	Length	Product	Pieces	Net Qty
J1	11'-00"-00	9 1/2" NI-20	1	1
J2	8'-00"-00	9 1/2" NI-20	1	5
J3	6'-00"-00	9 1/2" NI-20	1	3
J4	19'-00"-00	9 1/2" NI-40x	1	49
B2	19'-00"-00	VERSALAM-10 2.0E	1	1
B3	9'-00"-00	VERSALAM-10 2.0E	1	1
B1	4'-00"-00	VERSALAM-10 2.0E	1	1

9 1/2" BLOCKING 40 LF  
APP - AS PER PLAN  
BBO - BEAM BY OTHERS

SUBFLOOR - 5/8" NAILED & GLUED  
RIMBOARD  
1-1/8" X 9 1/2" O.S.B

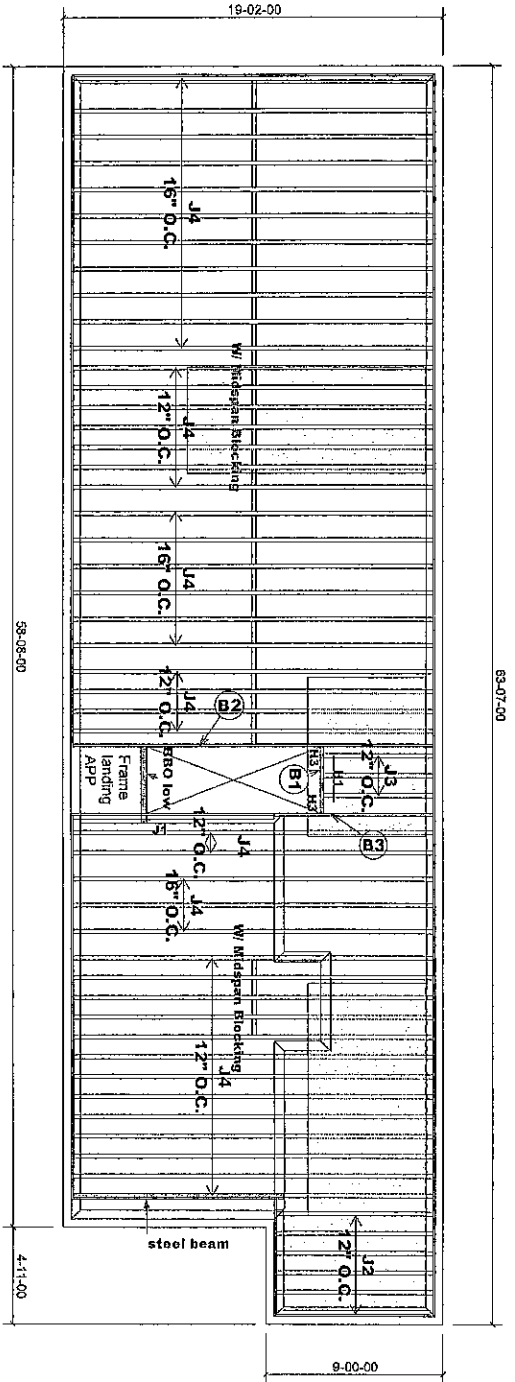
FANGERS SCHEDULE  
H1 - LT259  
H3 - HUS1.81/10



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

JT: 40297/86474      Builder: Gold Park Homes      Location: Kleinburg      Designer: LA      Salesperson: Derek  
File: 267732      Project: Huntington & Nashville      Date: May 10/16      Sheet: 3 of 6      Maple, Ontario      Home Lumber

63-07-00



MODEL : 25-10  
ELEVATION A  
OPT. SECOND FLOOR

SECOND FLOOR FRAMING

Do not scale - refer to architectural plans for dimensions

Product	Product	Pieces	Net Qty
J1	11-00-00 9 1/2" NI-20	1	1
J2	8-00-00 9 1/2" NI-20	1	6
J3	6-00-00 9 1/2" NI-20	1	3
J4	19-00-00 9 1/2" NI-40x	1	46
B2	19-00-00 VERSALAM-10 2.0E	1	1
B3	9-00-00 VERSALAM-10 2.0E	1	1
B1	4-00-00 VERSALAM-10 2.0E	1	1

9 1/2" BLOCKING 40 LF

APP - AS PER PLAN  
BBO - BEAM BY OTHERS

SUBFLOOR - 5/8" NAILED & GLUED  
RIMBOARD

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

FANGERS SCHEDULE

H1 - LT259  
H3 - HUST1.81/10

TILE AREA

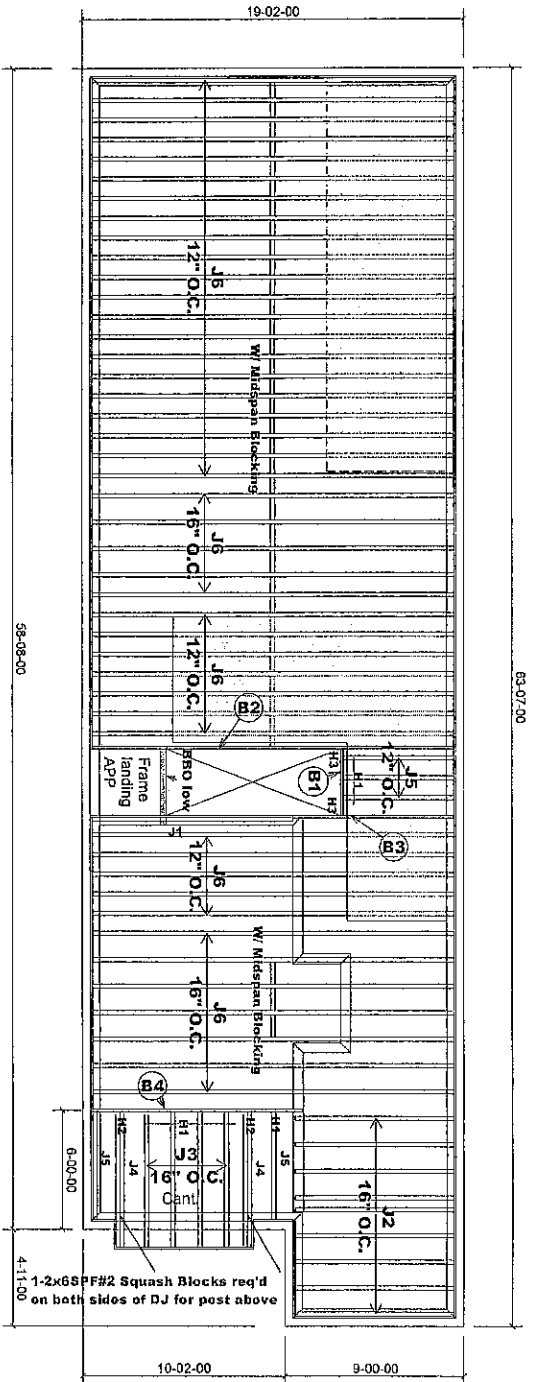
2x6 SPS#2 Squash Block req'd on one side of joists under interior load bearing wall

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

JT: 40297/86474      Builder: Gold Park Homes      Location: Kleinburg      Designer: LA      Salesperson: Derek  
 File: 267732      Project: Huntingtion & Nashville      Date: May 10/16      Sheet: 4 of 6      Maple, Ontario      Home Lumber



MODEL : 25-10  
ELEVATION B  
STANDARD SECOND FLOOR

SECOND FLOOR FRAMING

Provide 1-joist blocking between cantilevered joist (along bearing) and rimboard closure at ends

Do not scale - refer to architectural plans for dimensions

Product	Length	Product	Pieces	Net Qty
J1	11'-00"-00	9 1/2" NI-20	1	1
J2	8'-00"-00	9 1/2" NI-20	1	9
J3	7'-00"-00	9 1/2" NI-20	1	4
J4	7'-00"-00	9 1/2" NI-20	2	4
J5	6'-00"-00	9 1/2" NI-20	1	5
J6	19'-00"-00	9 1/2" NI-40x	1	45
B2	19'-00"-00	VERSALAM-10 2.0E	1	1
B4	11'-00"-00	VERSALAM-10 2.0E	1	1
B3	9'-00"-00	VERSALAM-10 2.0E	1	1
B1	4'-00"-00	VERSALAM-10 2.0E	1	1

9 1/2" BLOCKING 48 LF

APP - AS PER PLAN  
BBO - BEAM BY OTHERS

SUBFLOOR - 5/8" NAILED & GLUED  
RIMBOARD

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

FRANGERS SCHEDULE

- H1 - L17259
- H2 - MIT39.5-2
- H3 - HUS1.81/110



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

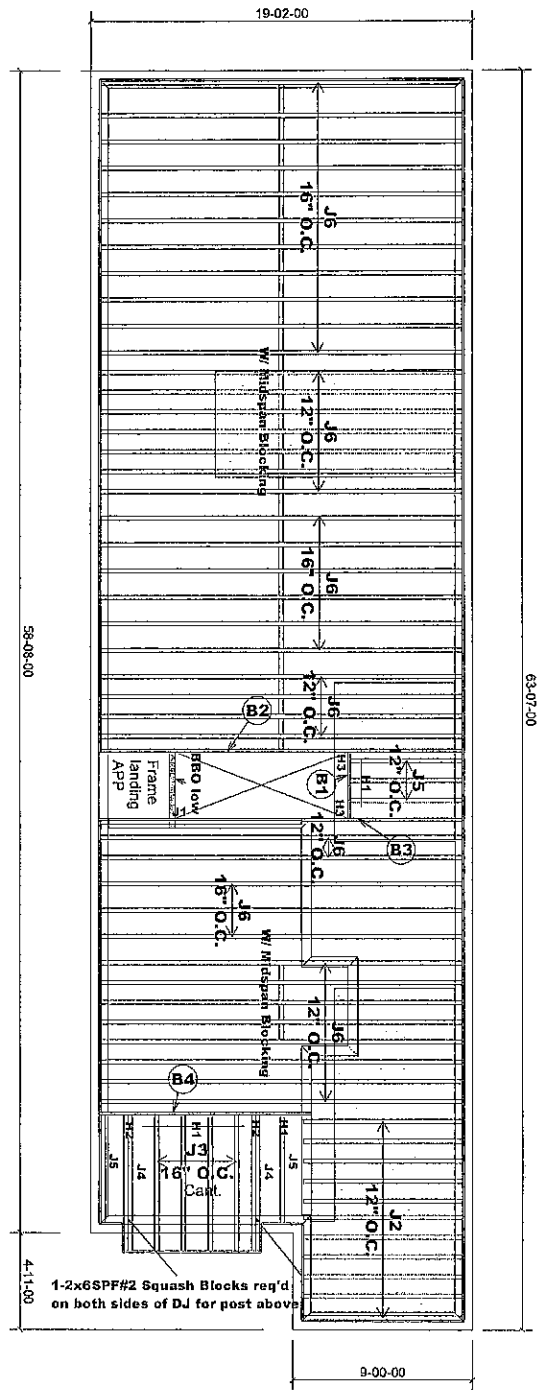
Multiple squash blocks are required under concentrated loads

Joists spacing under ceramic tile is 12" o/c

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

JT: 40297/86474      Builder: Gold Park Homes      Location: Kleinburg      Designer: LA      Alpha Roof Trusses Inc.      Salesperson: Derek

File: 267732      Project: Huntington & Nashville      Date: May 10/16      Sheet: 5 of 6      Maple, Ontario      Home Lumber



MODEL : 25-10  
ELEVATION B  
OPT. SECOND FLOOR

SECOND FLOOR FRAMING

Provide 1 Joist Blocking between cantilevered Joist ( along bearing ) and rimboard closure at ends  
Do not scale - refer to architectural plans for dimensions

ProdID	Length	Product	Pieces	Net Qty
J1	1'-00'-00	9 1/2" NI-20	1	1
J2	8'-00'-00	9 1/2" NI-20	1	11
J3	7'-00'-00	9 1/2" NI-20	1	4
J4	7'-00'-00	9 1/2" NI-20	2	4
J5	6'-00'-00	9 1/2" NI-20	1	5
J6	19'-00'-00	9 1/2" NI-40x	1	41
B2	19'-00'-00	VERSALAM-10 2.0E	1	1
B4	11'-00'-00	VERSALAM-10 2.0E	1	1
B3	9'-00'-00	VERSALAM-10 2.0E	1	1
B1	4'-00'-00	VERSALAM-10 2.0E	1	1

9 1/2" BLOCKING 43 LF

APP - AS PER PLAN  
BBO - BEAM BY OTHERS

SUBFLOOR - 5/8" NAILED & GLUED  
RIMBOARD

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

HANGERS SCHEDULE

H1	LT259
H2	MT39.5-2
H3	HUS1.8/1/10



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

JT: 40297/86474      Builder: Gold Park Homes      Location: Kleinburg      Designer: LA      Alpha Roof Trusses Inc.      Salesperson: Derek  
File: 267732      Project: Huntington & Nashville      Date: May 10/16      Sheet: 6 of 6      Maple, Ontario      Home Lumber

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

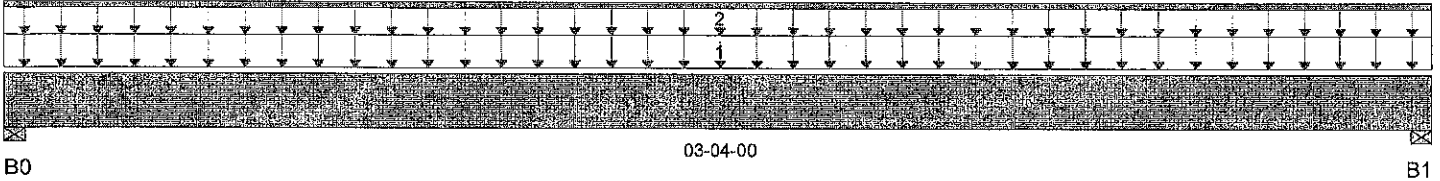
May 10, 2016 11:52:54

BC CALC® Design Report



Build 4516  
 Job Name: 40297  
 Address: Huntington & Nashville  
 City, Province, Postal Code: Kleinburg, ON  
 Customer: Gold Park  
 Code reports: CCMC 12472-R

File Name: 267732.bcc  
 Description: Designs\01  
 Specifier: 25-10  
 Designer: LA  
 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"	111 / 0	164 / 0		
B1, 3-1/2"	111 / 0	164 / 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	03-04-00	40	20			01-08-00
2		Unf. Lin. (lb/ft)	L	00-00-00	03-04-00	0	60			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	230 ft-lbs	12,704 ft-lbs	1.8%	1	01-08-00
End Shear	130 lbs	5,785 lbs	2.2%	1	01-01-00
Total Load Defl.	L/999 (0.001")	n/a	n/a	4	01-08-00
Live Load Defl.	L/999 (0")	n/a	n/a	5	01-08-00
Max Defl.	0.001"	n/a	n/a	4	01-08-00
Span / Depth	3.6	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 Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call 1-800-964-6999 before installation.

**Bearing Supports**

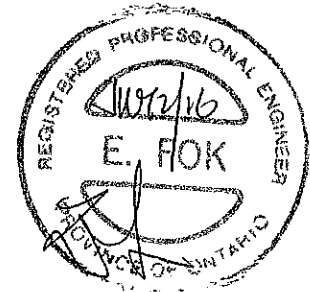
	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 1-3/4"	371 lbs	9.8%	5%	Spruce Pine Fir
B1	Wall/Plate 3-1/2" x 1-3/4"	371 lbs	9.8%	5%	Spruce Pine Fir

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.  
 Design meets Code minimum (L/360) Live load deflection criteria.  
 Design meets User specified (1") Maximum total load deflection criteria.  
 Calculations assume Member is Fully Braced.  
 Resistance Factor phi has been applied to all presented results per CSA 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**

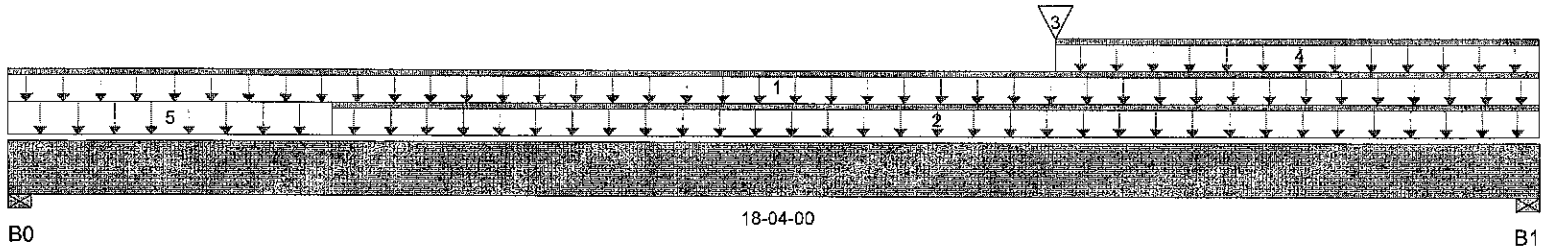
NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS @ O.C., STAGGERED IN TWO ROWS





Build 4516  
 Job Name: 40297  
 Address: Huntington & Nashville  
 City, Province, Postal Code: Kleinburg, ON  
 Customer: Gold Park  
 Code reports: CCMC 12472-R

File Name: 267732.bcc  
 Description: Designs\02  
 Specifier: 25-10  
 Designer: LA  
 Company: ALPA ROOF TRUSSES INC  
 Misc:



Total Horizontal Product Length = 18-04-00

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	467 / 0	669 / 0		
B1, 3-1/2"	383 / 0	879 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1		Unf. Lin. (lb/ft)	L	00-00-00	18-04-00	20	10			n/a
2		Unf. Lin. (lb/ft)	L	03-10-00	18-04-00	0	60			n/a
3		Conc. Pt. (lbs)	L	12-06-00	12-06-00	111	164			n/a
4		Unf. Lin. (lb/ft)	L	12-06-00	18-04-00	20	10			n/a
5		Unf. Area (lb/ft^2)	L	00-00-00	03-10-00	40	15			01-08-00

**Controls Summary**

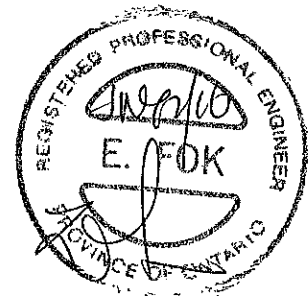
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	5,093 ft-lbs	16,515 ft-lbs	30.8%	0	10-00-12
End Shear	1,095 lbs	7,521 lbs	14.6%	0	17-03-00
Total Load Defl.	L/361 (0.594")	0.894"	66.5%	4	09-03-00
Live Load Defl.	L/1,201 (0.179")	0.596"	30%	5	09-03-00
Max Defl.	0.594"	1"	59.4%	4	09-03-00
Span / Depth	22.6	n/a	n/a		00-00-00

**Bearing Supports**

	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	1,536 lbs	20.4%	10.3%	Spruce Pine Fir
B1	Wall/Plate 3-1/2" x 3-1/2"	1,231 lbs	25.1%	12.7%	Spruce Pine Fir

**Notes**

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



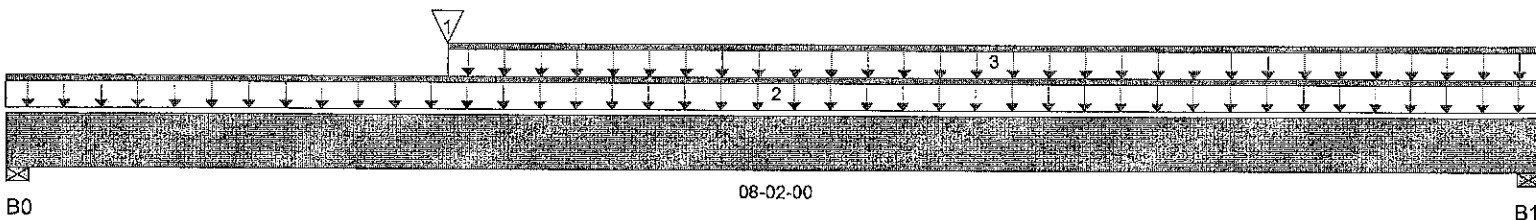
**User Notes** NAIL ONE END TO ANOTHER WITH 3/2" SPACED NAIL @ 12" O.C.; STAGGERED IN 2 ROWS





Build 4516  
 Job Name: 40297  
 Address: Huntington & Nashville  
 City, Province, Postal Code: Kleinburg, ON  
 Customer: Gold Park  
 Code reports: CCMC 12472-R

File Name: 267732.bcc  
 Description: Designs\03  
 Specifier: 25-10  
 Designer: LA  
 Company: ALPA ROOF TRUSSES INC  
 Misc:



Total Horizontal Product Length = 08-02-00

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	203 / 0	200 / 0		
B1, 3-1/2"	188 / 0	143 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1		Conc. Pt. (lbs)	L	02-04-00	02-04-00	111	164			n/a
2		Unf. Lin. (lb/ft)	L	00-00-00	08-02-00	20	10			n/a
3		Unf. Lin. (lb/ft)	L	02-04-00	08-02-00	20	10			n/a

**Controls Summary**

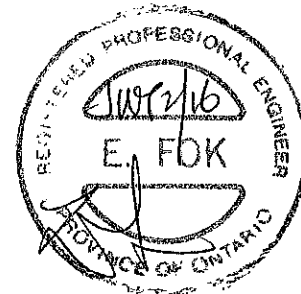
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,063 ft-lbs	12,704 ft-lbs	8.4%	1	03-00-15
End Shear	502 lbs	5,785 lbs	8.7%	1	01-01-00
Total Load Defl.	L/999 (0.032")	n/a	n/a	4	03-11-10
Live Load Defl.	L/999 (0.017")	n/a	n/a	5	03-11-10
Max Defl.	0.032"	n/a	n/a	4	03-11-10
Span / Depth	9.7	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"	555 lbs	14.7%	7.4%	Spruce Pine Fir
B1	Wall/Plate 3-1/2" x 1-3/4"	461 lbs	12.2%	6.2%	Spruce Pine Fir

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.  
 Design meets Code minimum (L/360) Live load deflection criteria.  
 Design meets User specified (1") Maximum total load deflection criteria.  
 Calculations assume Member is Fully Braced.  
 Resistance Factor phi has been applied to all presented results per CSA 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**

BC CALC® Design Report

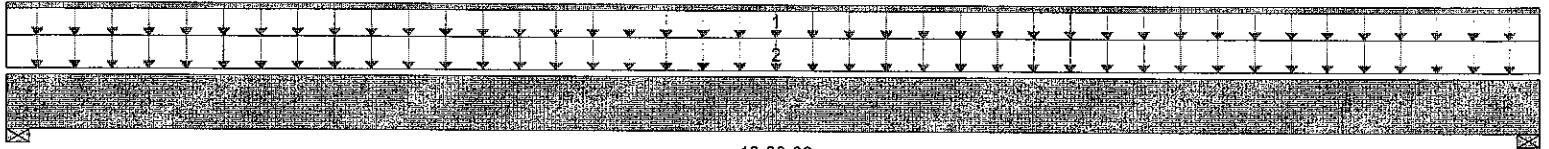


Dry | 1 span | No cantilevers | 0/12 slope (deg)

May 10, 2016 14:30:58

Build 4516  
 Job Name: 40297  
 Address: Huntington & Nashville  
 City, Province, Postal Code: Kleinburg, ON  
 Customer: Gold Park  
 Code reports: CCMC 12472-R

File Name: 267732.bcc  
 Description: Designs\04  
 Specifier: 25-10  
 Designer: LA  
 Company: ALPA ROOF TRUSSES INC  
 Misc:



10-08-00

B0

B1

Total Horizontal Product Length = 10-08-00

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	731 / 0	299 / 0		
B1, 3-1/2"	731 / 0	299 / 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	10-08-00	27	10			n/a
2		Unf. Area (lb/ft^2)	L	00-00-00	10-08-00	40	15			02-09-00

**Controls Summary**

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,590 ft-lbs	12,704 ft-lbs	28.3%	1	05-04-00
End Shear	1,171 lbs	5,785 lbs	20.2%	1	01-01-00
Total Load Defl.	L/649 (0.189")	0.51"	37%	4	05-04-00
Live Load Defl.	L/915 (0.134")	0.34"	39.3%	5	05-04-00
Max Defl.	0.189"	1"	18.9%	4	05-04-00
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 Cascade engineered wood products must be in accordance with current Installation Guide and applicable building codes. To obtain Installation Guide or ask questions, please call 1-800-964-6999 before installation.

**Bearing Supports**

	Dim. (L x W)	Demand	Demand/ Resistance Support	Demand/ Resistance Member	Material
B0	Wall/Plate 3-1/2" x 1-3/4"	1,470 lbs	39%	19.7%	Spruce Pine Fir
B1	Wall/Plate 3-1/2" x 1-3/4"	1,470 lbs	39%	19.7%	Spruce Pine Fir

**Notes**

Design meets Code minimum (L/240) Total load deflection criteria.  
 Design meets Code minimum (L/360) Live load deflection criteria.  
 Design meets User specified (1") Maximum total load deflection criteria.  
 Calculations assume Member is Fully Braced.  
 Resistance Factor phi has been applied to all presented results per CSA 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**

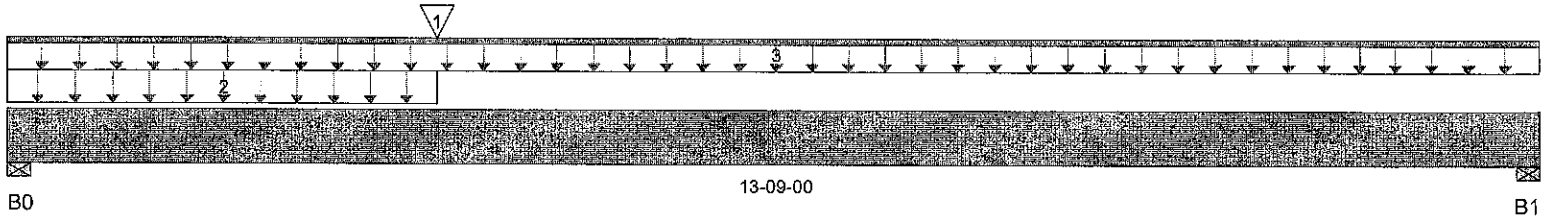
NAIL ONE PLY TO ANOTHER WITH 3 1/2" SPIRAL NAILS @ O.C., STAGGERED IN TWO ROWS





Build 4516  
 Job Name: 40297  
 Address: Huntington & Nashville  
 City, Province, Postal Code: Kleinburg, ON  
 Customer: Gold Park  
 Code reports: CCMC 12472-R

File Name: 267732.bcc  
 Description: Designs\05  
 Specifier: 25-10  
 Designer: LA  
 Company: ALPA ROOF TRUSSES INC  
 Misc:



Total Horizontal Product Length = 13-09-00

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	781 / 0	332 / 0		
B1, 3-1/2"	357 / 0	169 / 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	03-10-00	03-10-00	511	201			n/a
2		Unf. Area (lb/ft^2)	L	00-00-00	03-10-00	40	15			01-08-00
3		Unf. Lin. (lb/ft)	L	00-00-00	13-09-00	27	10			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,326 ft-lbs	12,704 ft-lbs	34.1%	1	03-10-00
End Shear	1,380 lbs	5,785 lbs	23.9%	1	01-01-00
Total Load Defl.	L/470 (0.34")	0.665"	51.1%	4	06-03-13
Live Load Defl.	L/677 (0.236")	0.443"	53.2%	5	06-03-13
Max Defl.	0.34"	1"	34%	4	06-03-13
Span / Depth	16.8	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"	1,587 lbs	42.1%	21.2%	Spruce Pine Fir
B1	Wall/Plate 3-1/2" x 1-3/4"	746 lbs	19.8%	10%	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.

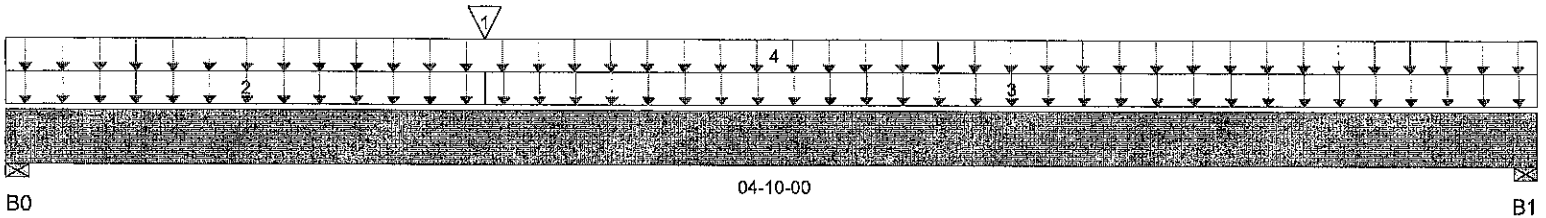


**User Notes**



Build 4516  
 Job Name: 40297  
 Address: Huntington & Nashville  
 City, Province, Postal Code: Kleinburg, ON  
 Customer: Gold Park  
 Code reports: CCMC 12472-R

File Name: 267732.bcc  
 Description: Designs\06  
 Specifier: 25-10  
 Designer: LA  
 Company: ALPA ROOF TRUSSES INC  
 Misc:



Total Horizontal Product Length = 04-10-00

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,038 / 0	426 / 0		
B1, 3-1/2"	809 / 0	325 / 0		

**Load Summary**

Tag Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1	Conc. Pt. (lbs)	L	01-06-00	01-06-00	357	169			n/a
2	Unf. Area (lb/ft^2)	L	00-00-00	01-06-00	40	15			06-09-00
3	Unf. Area (lb/ft^2)	L	01-06-00	04-10-00	40	15			05-00-00
4	Unf. Area (lb/ft^2)	L	00-00-00	04-10-00	40	15			02-02-00

**Controls Summary**

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,946 ft-lbs	12,704 ft-lbs	15.3%	1	01-11-15
End Shear	1,322 lbs	5,785 lbs	22.9%	1	01-01-00
Total Load Defl.	L/999 (0.019")	n/a	n/a	4	02-04-02
Live Load Defl.	L/999 (0.013")	n/a	n/a	5	02-04-02
Max Defl.	0.019"	n/a	n/a	4	02-04-02
Span / Depth	5.5	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 1-3/4"	2,090 lbs	55.5%	28%	Spruce Pine Fir
B1	Wall/Plate 3-1/2" x 1-3/4"	1,621 lbs	43%	21.7%	Spruce Pine Fir

**Notes**

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

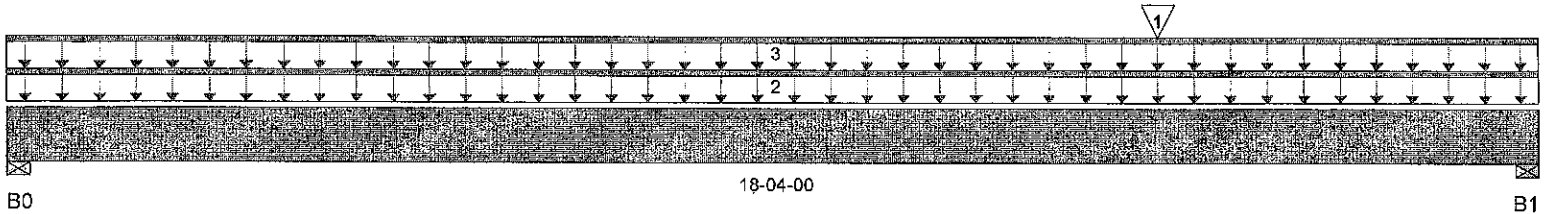


**User Notes**



Build 4516  
 Job Name: 40297  
 Address: Huntington & Nashville  
 City, Province, Postal Code: Kleinburg, ON  
 Customer: Gold Park  
 Code reports: CCMC 12472-R

File Name: 267732.bcc  
 Description: Designs\07  
 Specifier: 25-10  
 Designer: LA  
 Company: ALPA ROOF TRUSSES INC  
 Misc:



Total Horizontal Product Length = 18-04-00

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	684 / 0	375 / 0		
B1, 3-1/2"	1,216 / 0	594 / 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	13-09-00	13-09-00	1,038	426			n/a
2		Unf. Lin. (lb/ft)	L	00-00-00	18-04-00	20	10			n/a
3		Unf. Lin. (lb/ft)	L	00-00-00	18-04-00	27	10			n/a

**Controls Summary**

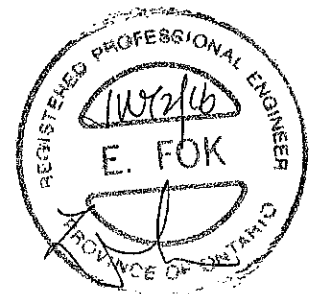
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	10,048 ft-lbs	25,408 ft-lbs	39.5%	1	13-09-00
End Shear	2,450 lbs	11,571 lbs	21.2%	1	17-03-00
Total Load Defl.	L/282 (0.761")	0.894"	85.1%	4	09-09-08
Live Load Defl.	L/424 (0.506")	0.596"	84.9%	5	09-09-08
Max Defl.	0.761"	1"	76.1%	4	09-09-08
Span / Depth	22.6	n/a	n/a		00-00-00

**Bearing Supports**

	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 3-1/2"	1,495 lbs	19.8%	10%	Spruce Pine Fir
B1	Wall/Plate 3-1/2" x 3-1/2"	2,566 lbs	34.1%	17.2%	Spruce Pine Fir

**Notes**

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



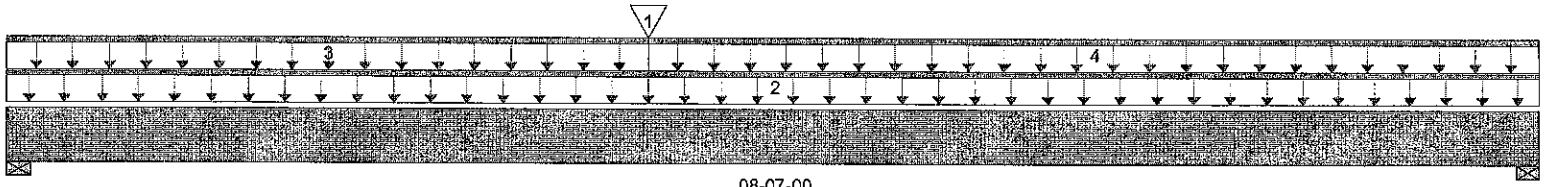
**User Notes**

BC CALC® Design Report



Build 4516  
 Job Name: 40297  
 Address: Huntington & Nashville  
 City, Province, Postal Code: Kleinburg, ON  
 Customer: Gold Park  
 Code reports: CCMC 12472-R

File Name: 267732.bcc  
 Description: Designs\08  
 Specifier: 25-10  
 Designer: LA  
 Company: ALPA ROOF TRUSSES INC  
 Misc:



08-07-00

B0

B1

Total Horizontal Product Length = 08-07-00

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

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	599 / 0	442 / 0		
B1, 3-1/2"	517 / 0	275 / 0		

**Load Summary**

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1		Conc. Pt. (lbs)	L	03-07-00	03-07-00	809	325			n/a
2		Unf. Lin. (lb/ft)	L	00-00-00	08-07-00	20	10			n/a
3		Unf. Lin. (lb/ft)	L	00-00-00	03-07-00	0	60			n/a
4		Unf. Lin. (lb/ft)	L	03-07-00	08-07-00	27	10			n/a

**Controls Summary**

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	4,075 ft-lbs	12,704 ft-lbs	32.1%	1	03-07-00
End Shear	1,317 lbs	5,785 lbs	22.8%	1	01-01-00
Total Load Defl.	L/999 (0.115")	n/a	n/a	4	04-00-14
Live Load Defl.	L/999 (0.074")	n/a	n/a	5	04-02-06
Max Defl.	0.115"	n/a	n/a	4	04-00-14
Span / Depth	10.3	n/a	n/a		00-00-00

**Bearing Supports**

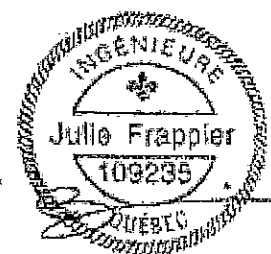
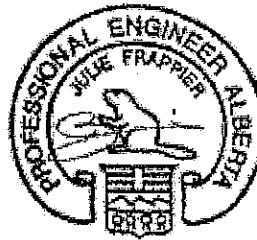
	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 1-3/4"	1,451 lbs	38.5%	19.4%	Spruce Pine Fir
B1	Wall/Plate 3-1/2" x 1-3/4"	1,119 lbs	29.7%	15%	Spruce Pine Fir

**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**



### Maximum Floor Spans

Live Load = 40 psf, Dead Load = 15 psf  
Simple Spans, L/360 Deflection Limit  
5/8" OSB G&N Sheathing

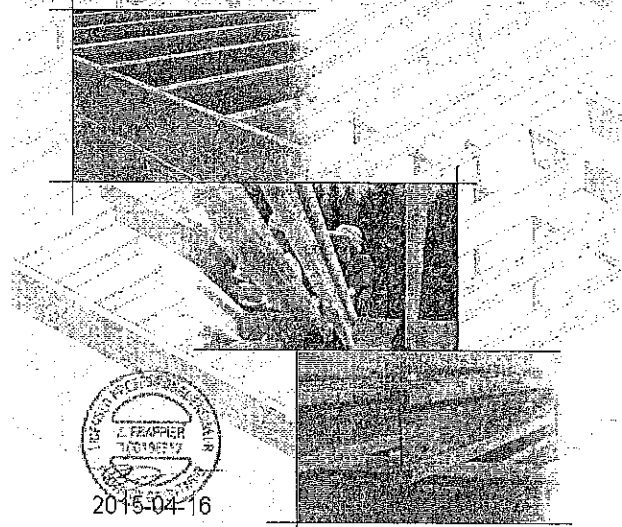
Depth	Series	Bare				1/2" Gypsum Ceiling			
		On Centre Spacing				On Centre Spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
9-1/2"	NI-20	15'-1"	14'-2"	13'-9"	N/A	15'-7"	14'-8"	14'-2"	N/A
	NI-40x	16'-1"	15'-2"	14'-8"	N/A	16'-7"	15'-7"	15'-1"	N/A
	NI-60	16'-3"	15'-4"	14'-10"	N/A	16'-8"	15'-9"	15'-3"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



# INSTALLATION GUIDE FOR RESIDENTIAL FLOORS



Distributed by:



## SAFETY AND CONSTRUCTION PRECAUTIONS

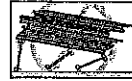
### WARNING

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:



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



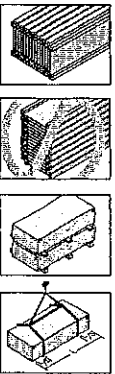
Never stack building materials over unsheathed I-joists. Once sheathed, do not over-stress I-joist with concentrated loads from building materials.

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

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

## STORAGE AND HANDLING GUIDELINES

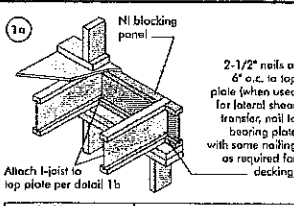
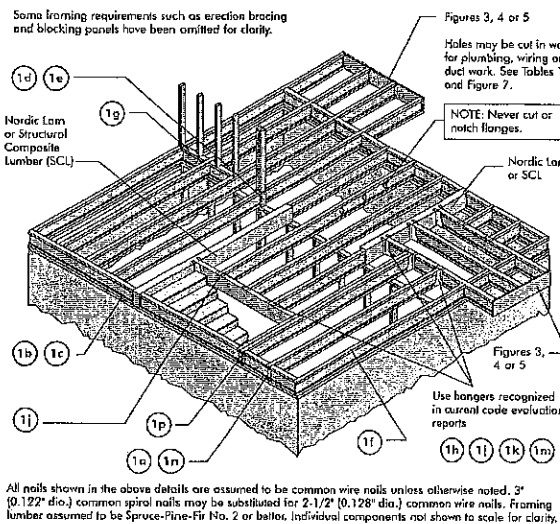
1. Bundle wrap can be slippery when wet. Avoid walking on wrapped bundles.
2. Store, stack, and handle I-joists vertically and level only.
3. Always stack and handle I-joists in the upright position only.
4. Do not store I-joists in direct contact with the ground and/or flatwise.
5. Protect I-joists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



## INSTALLING NORDIC I-JOISTS

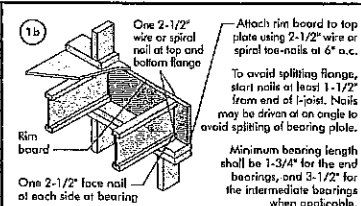
1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contact your supplier.
2. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true vertical alignment.
4. I-joists must be anchored securely to supports before floor sheathing is attached, and supports for multiple span joists must be level.
5. Minimum bearing lengths: 1-3/4 inches for end bearings and 3-1/2 inches for intermediate bearings.
6. When using hangers, seal I-joists firmly in hanger bottoms to minimize settlement.
7. Leave a 1/16-inch gap between the I-joist and end 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 on 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



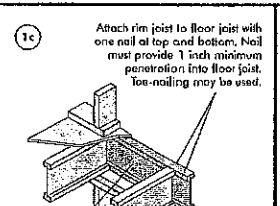
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load <sup>1</sup> (psf)
NI Joists	3,300

<sup>1</sup>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.



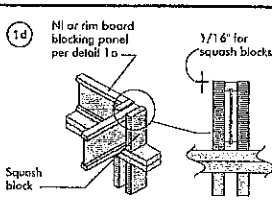
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load <sup>1</sup> (psf)
1-1/8" Rim Board Plus	8,090

<sup>1</sup>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 Vertical Load <sup>1</sup> (psf)
2x Lumber	5,500
1-1/8" Rim Board Plus	4,900

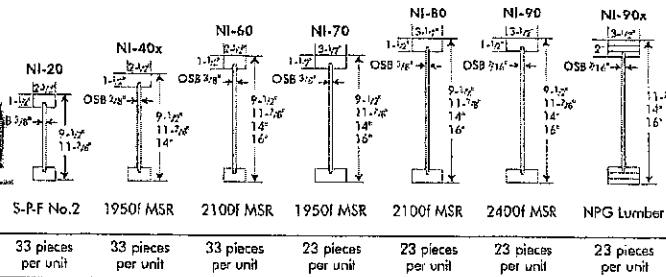
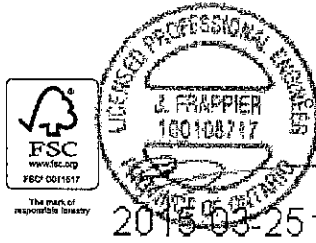
Provide lateral bracing per detail 1a, 1b, or 1c



Pair of Squash Blocks	Maximum Factored Vertical Load <sup>1</sup> (psf)
2x Lumber	5,500
1-1/8" Rim Board Plus	4,900

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





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 centered 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 of approximately the same location shall be permitted if they meet the requirements for a single round hole circumscribed around them.

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

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

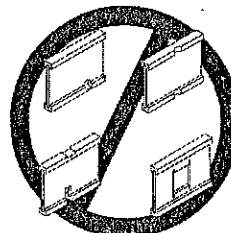
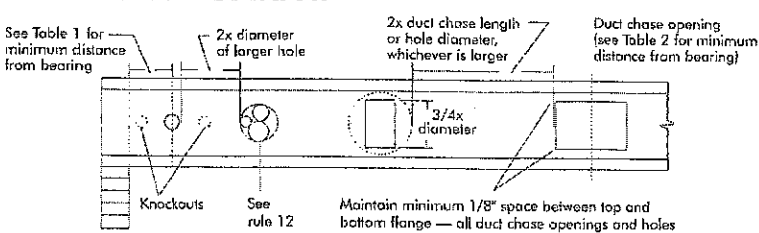
- Above table may be used for I-joist spacing of 24 inches on centre or less.
- Hole location distance is measured from inside face of supports to centre of hole.
- Distances in this chart are based on uniformly loaded joists.
- The above table is based on the I-joists being used at their maximum spans. 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	
9-1/2"	NI-20	4-1"	4-5"	4-10"	5-4"	5-8"	6-1"	6-6"	7-1"	7-5"	
	NI-40x	5-3"	5-8"	6-0"	6-5"	6-10"	7-3"	7-8"	8-2"	8-6"	
	NI-60	5-4"	5-9"	6-2"	6-7"	7-1"	7-5"	8-0"	8-3"	8-9"	
	NI-70	5-1"	5-5"	5-10"	6-3"	6-7"	7-1"	7-6"	8-1"	8-4"	
	NI-80	5-3"	5-8"	6-0"	6-5"	6-10"	7-3"	7-8"	8-2"	8-6"	
11-7/8"	NI-20	5-9"	6-2"	6-6"	7-1"	7-5"	7-9"	8-3"	8-9"	9-4"	
	NI-40x	6-8"	7-2"	7-6"	8-1"	8-6"	9-1"	9-6"	10-1"	10-9"	
	NI-60	7-3"	7-8"	8-0"	8-6"	9-0"	9-3"	9-9"	10-3"	11-0"	
	NI-70	7-1"	7-4"	7-9"	8-3"	8-7"	9-1"	9-6"	10-1"	10-4"	
	NI-80	7-2"	7-1"	8-0"	8-5"	8-10"	9-3"	9-8"	10-2"	10-8"	
14"	NI-60	8-1"	8-7"	9-0"	9-6"	10-1"	10-7"	11-2"	12-0"	12-8"	
	NI-70	8-9"	9-3"	9-8"	10-1"	10-6"	11-1"	11-6"	13-3"	13-0"	
	NI-80	8-7"	9-1"	9-5"	9-10"	10-4"	10-8"	11-2"	11-7"	12-3"	
	NI-90	9-0"	9-3"	9-9"	10-1"	10-7"	11-1"	11-6"	12-1"	12-6"	
	NI-90x	9-4"	9-8"	10-0"	10-6"	10-11"	11-5"	11-9"	12-4"	12-11"	
16"	NI-60	10-3"	10-8"	11-2"	11-6"	12-1"	12-6"	13-2"	14-1"	14-10"	
	NI-70	10-1"	10-5"	11-0"	11-4"	11-10"	12-3"	12-8"	13-3"	14-0"	
	NI-80	10-4"	10-9"	11-3"	11-9"	12-1"	12-7"	13-1"	13-8"	14-4"	
	NI-90	10-9"	11-2"	11-8"	12-0"	12-6"	13-0"	13-6"	14-2"	14-10"	
	NI-90x	11-1"	11-5"	11-10"	12-4"	12-10"	13-2"	13-9"	14-4"	15-2"	

- 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 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 given above may be reduced for shorter spans; contact your local distributor.

FIGURE 7  
**FIELD-CUT HOLE LOCATOR**



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.

## SAFETY AND CONSTRUCTION PRECAUTIONS



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



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

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

### AVOID ACCIDENTS BY FOLLOWING THESE IMPORTANT GUIDELINES:

- Brace and nail each I-joist as it is installed, using hangers, blocking panels, rim board, end/or cross-bridging at joist ends. When I-joists are applied continuous over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
  - 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.
- 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.
- For cantilevered I-joists, brace top and bottom flanges, and brace ends with closure panels, rim board, or cross-bridging.
- 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.

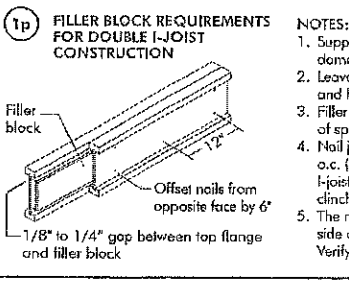
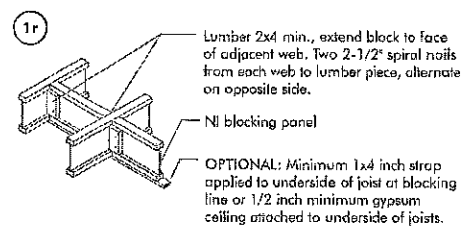
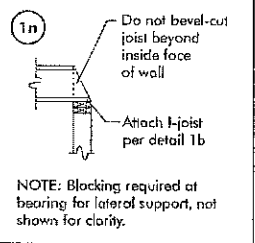
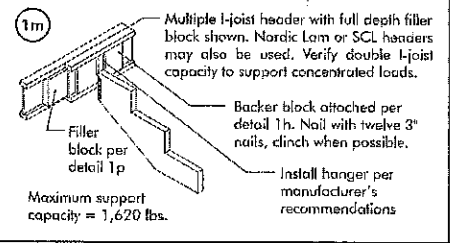
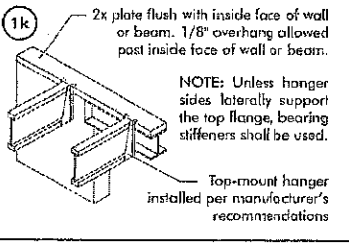
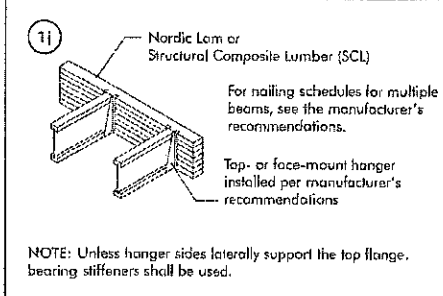
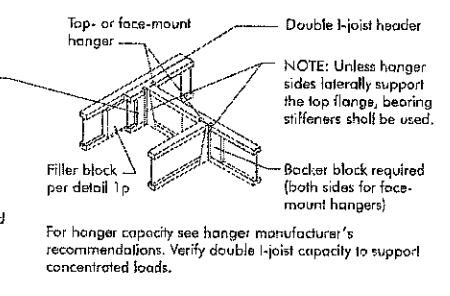
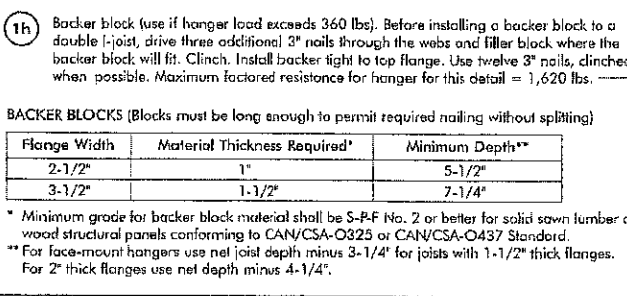
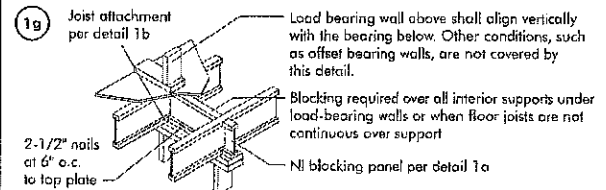
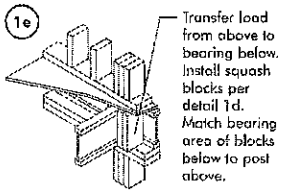
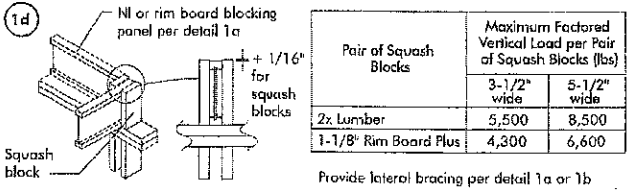
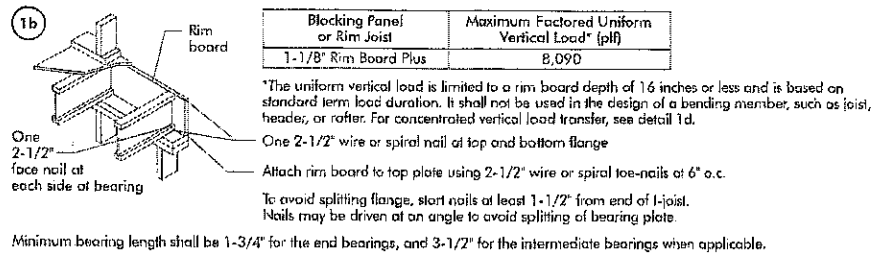
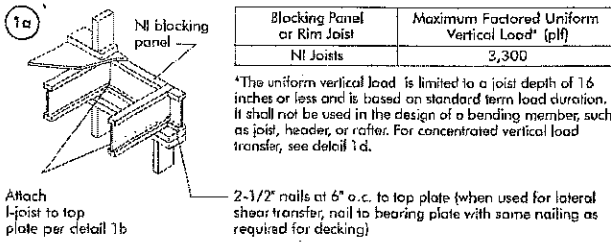
Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines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



## PRODUCT WARRANTY

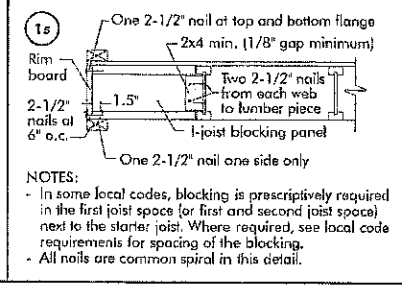
*Chantiers Chibougamau guarantees that, in accordance with our specifications, Nordic products are free from manufacturing defects in material and workmanship.*

*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.*



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

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



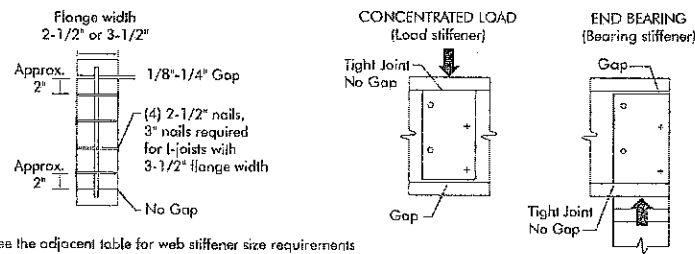
All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 2" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.128" dia.) common wire nails. Framing lumber is assumed to be Spruce-Pine-Fir No. 2 or better. Individual component not shown to scale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

**WEB STIFFENERS**

**RECOMMENDATIONS:**

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

**FIGURE 2 WEB STIFFENER INSTALLATION DETAILS**

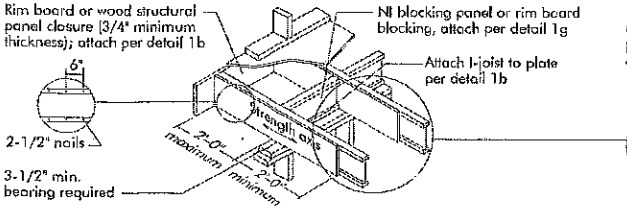


**STIFFENER SIZE REQUIREMENTS**

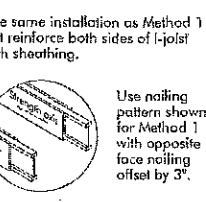
Flange Width	Web Stiffener Size Each Side of Web
2-1/2"	1" x 2-5/16" minimum width
3-1/2"	2-1/2" x 2-5/16" minimum width

**CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET**

**Method 1 — SHEATHING REINFORCEMENT ONE SIDE**

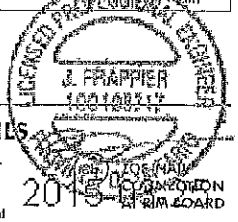
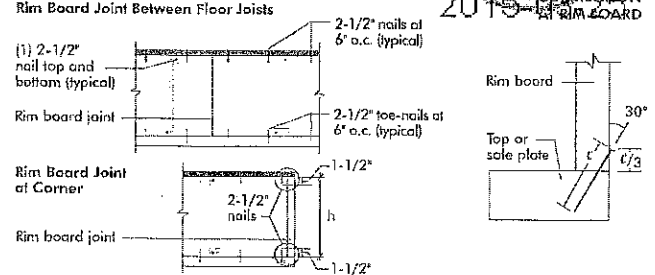


**Method 2 — SHEATHING REINFORCEMENT TWO SIDES**



**RIM BOARD INSTALLATION DETAILS**

**8a) ATTACHMENT DETAILS WHERE RIM BOARDS ABUT**



# WEB HOLES

## RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

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

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

D (in)	Minimum distance from inside face of any support to centre of hole (in)											
	12	14	16	18	20	22	24	26	28	30	32	34
1/2	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8
3/4	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9
1	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
1 1/4	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3
1 1/2	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5
1 3/4	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7
2	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9
2 1/4	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2
2 1/2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4
2 3/4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6
3	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8

- Above table may be used for 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:

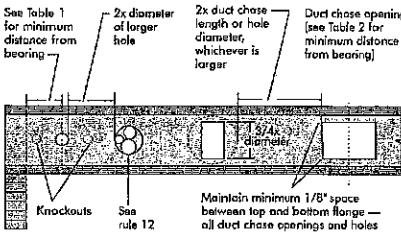
The above table is based on the I-joists used at their maximum span. If the I-joists are placed at less than their full maximum span (see Maximum Span Table), the minimum distance from the centreline of the hole to the face of any support (D) as given above may be reduced as follows:

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

- Where:
- $D_{reduced}$  = Distance from the inside face of any support to centre of hole, reduced for less-than-maximum span applications (D is the distance from the centreline of the hole to the face of the support to edge of the hole).
  - $L_{actual}$  = The actual measured span distance between the inside faces of supports (S).
  - $L_{max}$  = Span Adjustment Factor given in this table.
  - $D$  = The minimum distance from the inside face of any support to centre of hole from this table.
- If  $L_{actual}$  is greater than 1, use 1 in the above calculation for  $L_{actual}$ .



FIGURE 7  
FIELD-CUT HOLE LOCATOR



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

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



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

Holes in webs should be cut with a sharp saw.

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

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

D (in)	Minimum distance from inside face of any support to centre of hole (in)											
	12	14	16	18	20	22	24	26	28	30	32	34
1/2	0.7	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8
3/4	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9
1	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
1 1/4	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3
1 1/2	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5
1 3/4	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7
2	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9
2 1/4	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2
2 1/2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4
2 3/4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6
3	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8

- 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-joint 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 tapped into place with a block and sledgehammer.
- Apply a continuous line of glue (about 1/4-inch diameter) to the top flange of a single I-joist. Apply glue in a 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 squaring-out by applying a thinner line (1/8 inch) than used on I-joint flanges.
- Tap the second row of panels into place, using a block to protect groove edges.
- Stagger end joints in each succeeding row of panels. A 1/8-inch space between all end joints and 1/8-inch at all edges, including T&G edges, is recommended. (Use a spacer tool or an 2-1/2" common nail to ensure accurate and consistent spacing.)
- Complete all nailing of each panel before glue sets. Check the manufacturer's recommendations for cure time. (Warm weather accelerated glue settings.) Use 2" ring- or screw-shank nails for panels 3/4-inch thick or less, and 2-1/2" ring- or screw-shank nails for thicker panels. Space nails per the table below. Closer nail spacing may be required by some codes, or for diaphragm construction. The finished deck can be walked on right away and will carry construction loads without damage to the glue bond.

### FASTENERS FOR SHEATHING AND SUBFLOORING<sup>(1)</sup>

Panel Thickness (in)	Minimum Spacing (in) of Fasteners				
	End	Edge	Interior	Diaphragm	Joist
3/4	2"	1-3/4"	2"	6"	12"
5/8	2"	1-3/4"	2"	6"	12"
3/2	2"	1-3/4"	2"	6"	12"

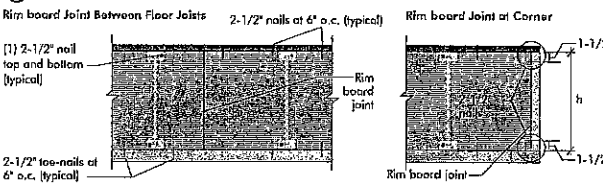
- Fasteners of sheathing and subflooring shall conform to the above table.
- Staples shall not be less than 1/16-inch in diameter or thickness, with not less than a 3/8-inch crown driven with the crown parallel to framing.
- Flooring screws shall not be less than 1/8-inch in diameter.
- Special conditions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

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

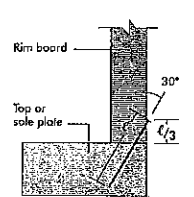
**IMPORTANT NOTE:**  
Floor sheathing must be field glued to the I-joint flanges in order to achieve the maximum spans shown in this document. If sheathing is nailed only, I-joint spans must be verified with your local distributor.

## RIM BOARD INSTALLATION DETAILS

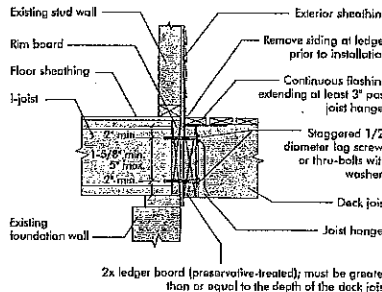
### (8a) ATTACHMENT DETAILS WHERE RIM BOARDS ABUT



### (8b) TOE-NAIL CONNECTION AT RIM BOARD



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



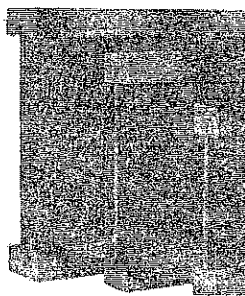
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**CHARTEERS**  
OSB MANUFACTURER

**PRODUCT WARRANTY**

Charter's Composite guarantees that its products are manufactured in accordance with the applicable standards and specifications. This warranty is void if the product is not installed in accordance with the applicable standards and specifications. For more information, contact your local distributor.

Fasteners, Charter's Composite, and other products, when used in accordance with the applicable standards and specifications, will meet or exceed the requirements for the lifetime of the structure.



## MAXIMUM FLOOR SPANS

- Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.5L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGS-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
- Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
- Bearing stiffeners are not required when I-joists are used with the span spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
- Tables are based on Limit States Design per CAN/CSA O86-09 Standard, and NBC 2010.
- SI units conversion: 1 inch = 25.4 mm  
1 foot = 0.305 m

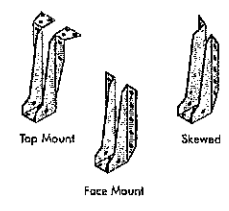
## MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS SIMPLE AND MULTIPLE SPANS

Span	Joist Depth	Simple Span				Multiple Spans			
		19.2" o.c.	16" o.c.	14" o.c.	12" o.c.	19.2" o.c.	16" o.c.	14" o.c.	12" o.c.
12'	NI-20	12'-1"	14'-4"	17'-9"	18'-5"	14'-3"	15'-4"	14'-10"	14'-7"
	NI-40	15'-1"	18'-2"	14'-8"	14'-5"	17'-5"	16'-5"	15'-10"	15'-5"
	NI-60	16'-9"	15'-4"	14'-10"	14'-11"	17'-7"	16'-7"	16'-0"	16'-1"
	NI-70	17'-1"	16-2"	15'-6"	15-7"	18'-7"	17'-4"	16'-9"	16'-10"
14'	NI-20	16'-11"	16'-0"	15'-5"	15'-4"	18'-1"	17'-5"	16'-12"	17'-0"
	NI-40	18'-1"	17'-2"	16'-5"	16'-6"	20'-0"	18'-6"	17'-9"	17'-7"
	NI-50	18'-4"	17'-2"	16'-7"	16'-9"	20'-3"	18'-9"	18'-0"	18'-1"
	NI-70	19'-4"	18'-0"	17'-4"	17-5"	21'-5"	19'-11"	19'-0"	19'-1"
16'	NI-20	18'-9"	18'-2"	17'-6"	17'-7"	21'-9"	20'-2"	19'-3"	19'-4"
	NI-40	20'-4"	18'-9"	17'-11"	18'-0"	22'-5"	20'-9"	19'-10"	19'-11"
	NI-60	20'-1"	18'-7"	17'-10"	17'-11"	22'-2"	20'-8"	19'-8"	19'-4"
	NI-70	20'-5"	18'-11"	18'-1"	18-2"	22'-7"	20'-11"	20'-0"	20'-1"
18'	NI-20	21'-7"	20'-2"	19'-4"	19'-5"	23'-10"	22'-1"	21'-1"	21'-2"
	NI-40	23'-1"	20'-8"	19'-4"	19'-5"	24'-3"	22'-5"	21'-5"	21'-6"
	NI-50	22'-5"	20'-8"	19-9"	19-10"	24'-9"	22'-10"	21'-10"	21'-10"
	NI-60	22'-7"	20'-11"	19-11"	20'-0"	25'-0"	23'-1"	22'-0"	22'-2"
20'	NI-20	22'-9"	20'-8"	19'-9"	19-10"	24'-7"	22'-9"	21'-9"	21'-10"
	NI-40	23'-11"	22'-1"	21'-1"	21'-2"	26'-5"	24'-5"	23'-5"	23'-6"
	NI-50	24'-5"	22'-6"	21'-5"	21'-6"	26'-1"	24'-10"	23'-9"	23'-9"
	NI-60	24'-8"	22'-9"	21'-9"	21'-10"	27'-5"	25'-2"	24'-0"	24'-1"

CCMC EVALUATION REPORT 12032-R

## I-JOIST HANGERS

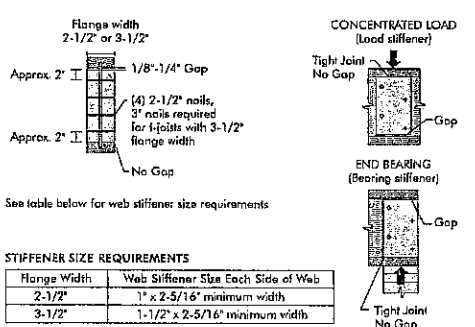
- Hangers shown illustrate the three most commonly used metal hangers to support I-joists.
- All nailing must meet the hanger manufacturer's recommendations.
- Hangers should be selected based on the joist depth, range width and load capacity based on the maximum spans.
- Web stiffeners are required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



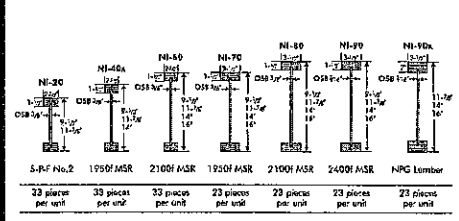
## WEB STIFFENERS

- 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 (C01). 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 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 reaction 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

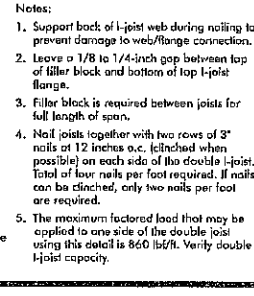
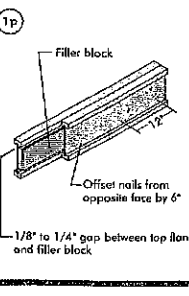
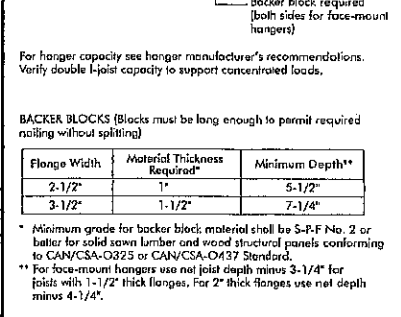
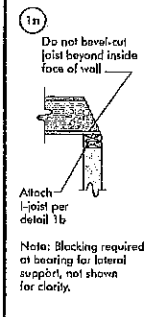
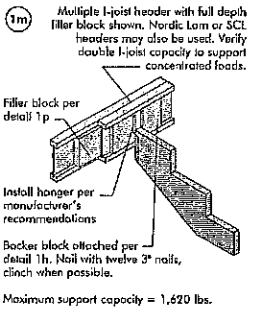
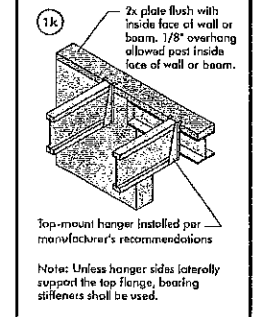
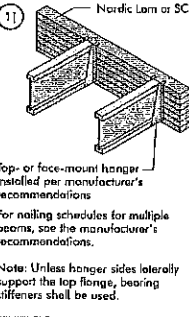
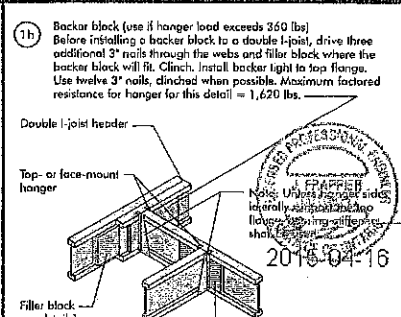
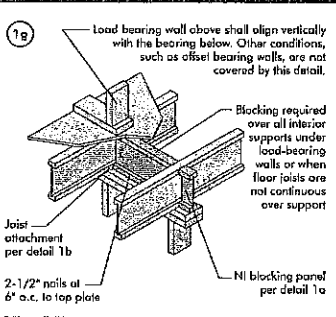
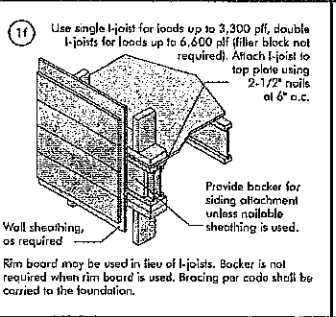
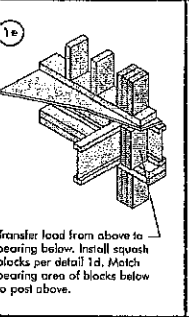
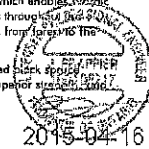


## NORDIC I-JOIST SERIES



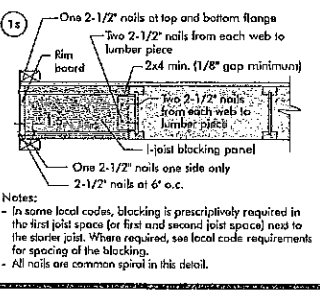
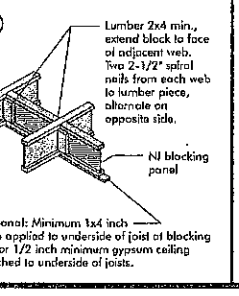
Chantiers Chibougamaou Ltd. harvests its own trees, which enables Nordic products to adhere to strict quality control procedures throughout the manufacturing process. Every phase of the operation, from the finished product, reflects our commitment to quality.

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.



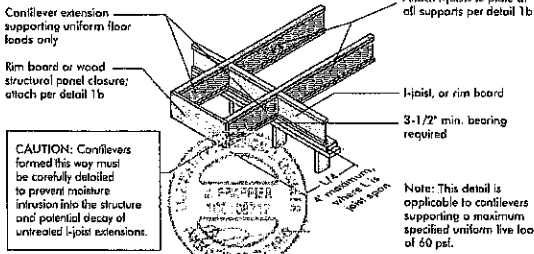
FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

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"



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

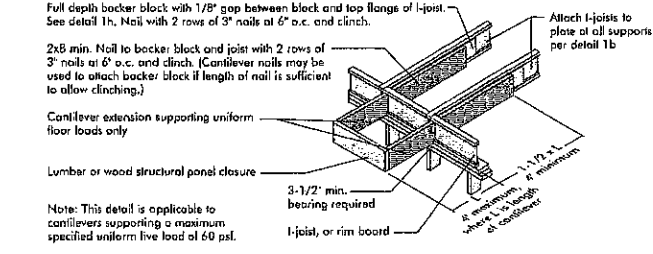
**3a) I-JOIST CANTILEVER DETAIL FOR BALCONIES (No Wall Load)**



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

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

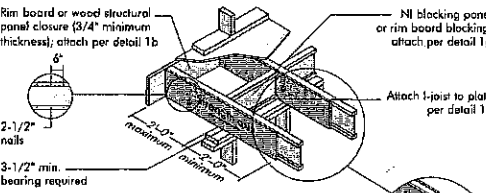
**3b) LUMBER CANTILEVER DETAIL FOR BALCONIES (No Wall Load)**



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

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

**4a) Method 1 — SHEATHING REINFORCEMENT ONE SIDE**

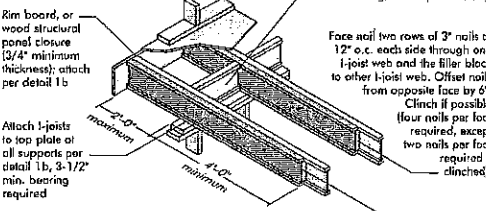


**Method 2 — SHEATHING REINFORCEMENT TWO SIDES**

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

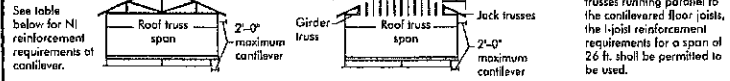
**Notes:** Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4\") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2\"/>

**4b) Alternate Method 2 — DOUBLE I-JOIST**



Block I-joists together with filler blocks for the full length of the reinforcement. For I-joist flange widths greater than 3 inches place an additional row of 3\"/>

**FIGURE 4 (continued)**



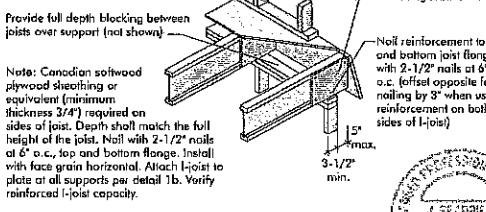
**CANTILEVER REINFORCEMENT METHODS ALLOWED**

CANTILEVER TYPE	SPAN (ft)	ROOF LOADING (UNFACTORED)											
		ROOF TRUSS SPAN						GIRDER TRUSS SPAN					
		12'	16'	20'	24'	28'	12'	16'	20'	24'	28'	32'	
3-1/2\"	26	N	N	1	2	N	N	1	2	X	N	2	X
	28	N	N	1	X	N	N	1	2	X	N	2	X
	30	N	1	1	X	N	N	1	2	X	1	2	X
	32	N	1	2	X	N	N	2	X	X	1	2	X
	34	N	1	2	X	N	N	2	X	X	1	2	X
11-7/8\"	26	N	N	N	1	N	N	1	2	N	N	1	2
	28	N	N	N	1	N	N	1	2	N	N	1	2
	30	N	N	N	1	N	N	1	2	N	N	1	2
	32	N	N	1	2	N	N	1	2	N	N	1	2
	34	N	N	1	2	N	N	1	2	N	N	1	2
14\"	26	N	N	N	N	N	N	N	1	N	N	N	1
	28	N	N	N	N	N	N	N	1	N	N	N	1
	30	N	N	N	N	N	N	N	1	N	N	N	1
	32	N	N	N	1	N	N	1	2	N	N	1	2
	34	N	N	N	1	N	N	1	2	N	N	1	2
16\"	26	N	N	N	N	N	N	N	1	N	N	N	1
	28	N	N	N	N	N	N	N	1	N	N	N	1
	30	N	N	N	N	N	N	N	1	N	N	N	1
	32	N	N	N	N	N	N	N	1	N	N	N	1
	34	N	N	N	1	N	N	1	2	N	N	1	2

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

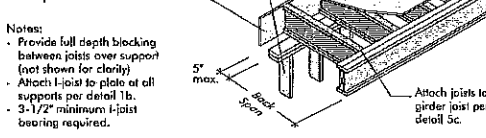
**BRICK CANTILEVER DETAILS FOR VERTICAL BUILDING OFFSET (CONCENTRATED WALL LOAD)**

**5a) SHEATHING REINFORCEMENT**



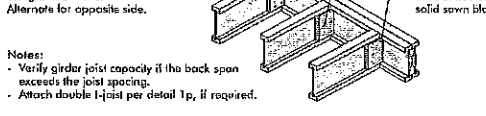
**Notes:** Canadian softwood plywood sheathing or equivalent (minimum thickness 3/4\") required on sides of joist. Depth shall match the full height of the joist. Nail with 2-1/2\"/>

**5b) SET-BACK DETAIL**



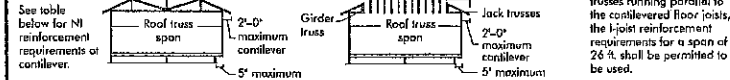
**Notes:** - Provide full depth blocking between joists over support (not shown for clarity). - Attach I-joist to plate at all supports per detail 1b. - 3-1/2\"/>

**5c) SET-BACK CONNECTION**



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

**FIGURE 5 (continued)**



**BRICK CANTILEVER REINFORCEMENT METHODS ALLOWED**

CANTILEVER TYPE	SPAN (ft)	ROOF LOADING (UNFACTORED)											
		ROOF TRUSS SPAN						GIRDER TRUSS SPAN					
		12'	16'	20'	24'	28'	12'	16'	20'	24'	28'	32'	
3-1/2\"	26	1	X	X	X	2	X	X	X	2	X	X	
	28	1	X	X	X	2	X	X	X	2	X	X	
	30	1	X	X	X	2	X	X	X	2	X	X	
	32	2	X	X	X	2	X	X	X	2	X	X	
	34	2	X	X	X	2	X	X	X	2	X	X	
11-7/8\"	26	N	2	X	X	1	X	X	X	1	2	X	
	28	N	2	X	X	1	X	X	X	1	2	X	
	30	N	2	X	X	1	X	X	X	1	2	X	
	32	1	2	X	X	1	X	X	X	1	2	X	
	34	1	2	X	X	2	X	X	X	2	X	X	
14\"	26	N	1	2	X	N	2	X	X	1	2	X	
	28	N	1	2	X	N	2	X	X	1	2	X	
	30	N	1	2	X	N	2	X	X	1	2	X	
	32	N	2	X	X	1	X	X	X	2	X	X	
	34	N	2	X	X	1	X	X	X	2	X	X	
16\"	26	N	1	2	X	N	2	X	X	1	2	X	
	28	N	1	2	X	N	2	X	X	1	2	X	
	30	N	1	2	X	N	2	X	X	1	2	X	
	32	N	2	X	X	1	X	X	X	2	X	X	
	34	N	2	X	X	1	X	X	X	2	X	X	

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