

MODEL : 38-1
ELEVATION A

SECOND FLOOR FRAMING

Ceramic Tile
Ceramic Tile

PL# 85974 April 21 / 2016

Revised : April 21 / 2016

JT: 40297/797/12 Builder: GOLD PARK Location: KLEINBURG Designer: MQ
 File: 274881 Project: HUNTINGTON & NASHVILLE Date: May 12/15 Sheet: 1 of 4
 Alpha Roof Trusses Inc. Salesperson: Derek Frankfort
 Maple, Ontario Home Lumber

Products			
ProdID	Length	Product	Piles Net Qty
J1	14-00-00	9 1/2" NI-20	1 17
J2	12-00-00	9 1/2" NI-20	1 20
J3	11-00-00	9 1/2" NI-20	1 25
J4	10-00-00	9 1/2" NI-20	1 24
J5	9-00-00	9 1/2" NI-20	1 12
J6	5-00-00	9 1/2" NI-20	1 2
B1	12-00-00	VERSALAM-10.2.0E	1 1
B2	11-00-00	VERSALAM-10.2.0E	1 1
B4	10-00-00	VERSALAM-10.2.0E	1 1
B3	9-00-00	VERSALAM-10.2.0E	1 1

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

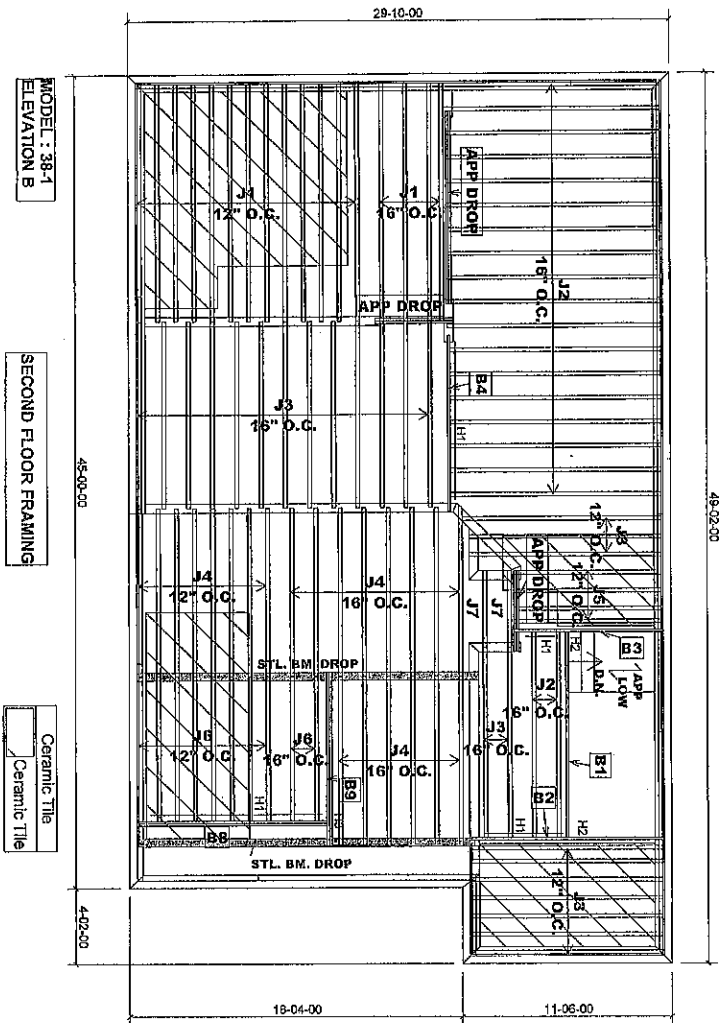
H1	L1759
H2	HU1.81/10

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

S-129521-S-129529





Products				
ProdID	Length	Product	Pieces	Net Qty
J1	14'-00.00	9 1/2" NI-20	1	17
J2	12'-00.00	9 1/2" NI-20	1	20
J3	11'-00.00	9 1/2" NI-20	1	25
J4	10'-00.00	9 1/2" NI-20	1	22
J5	9'-00.00	9 1/2" NI-20	1	4
J6	8'-00.00	9 1/2" NI-20	1	10
J7	5'-00.00	9 1/2" NI-20	1	2
B1	12'-00.00	VERSALAM-10 2.0E	1	1
B2	11'-00.00	VERSALAM-10 2.0E	1	1
B3	10'-00.00	VERSALAM-10 2.0E	2	2
B4	10'-00.00	VERSALAM-10 2.0E	1	1
B5	9'-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	L7259
H2	HUS1.81/10
H3	HOU5410

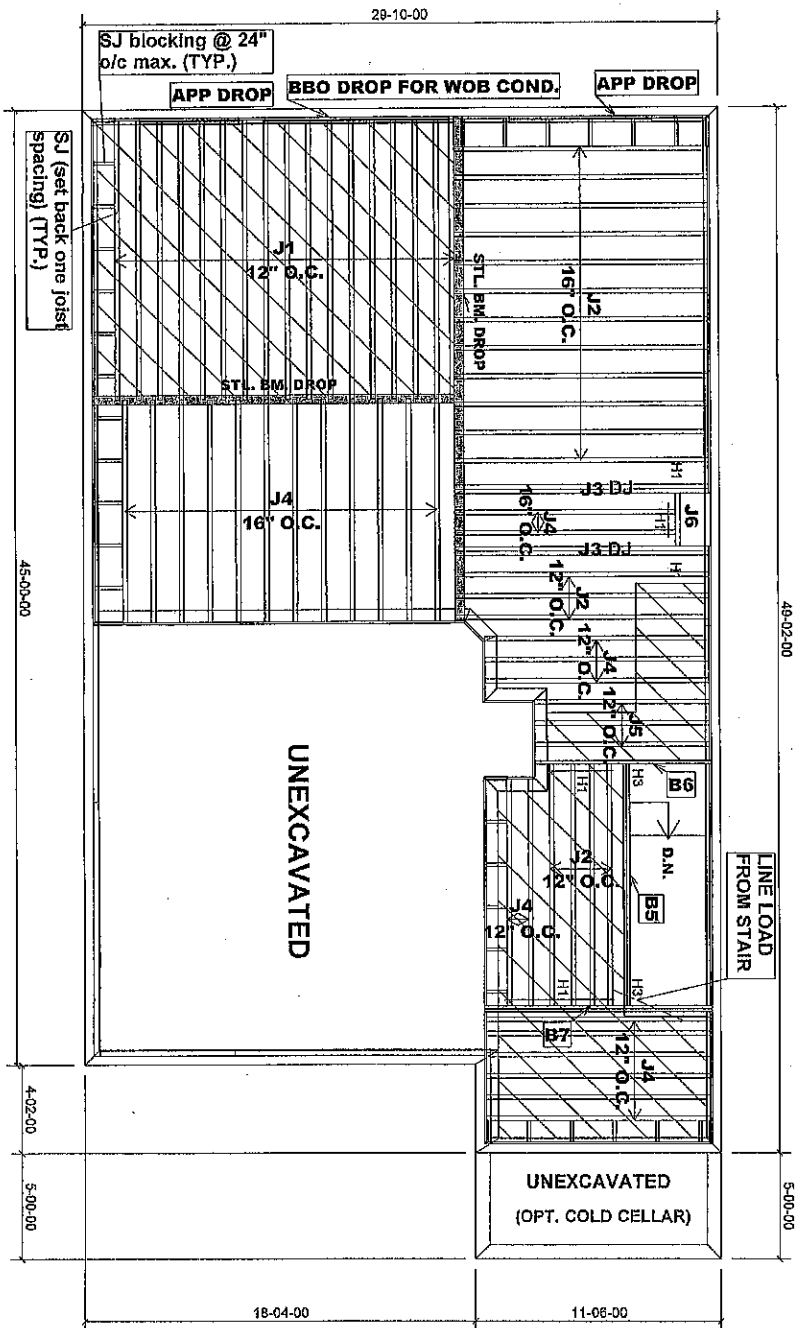
1-2x6 SPP#2 Squash Block req'd on one side of joists under interior load bearing wall
 Multiple squash blocks are required under concentrated loads
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Do not scale - refer to architectural plans for dimensions

PL# 85974 April 21 / 2016

Revised : April 21 / 2016

JT: 40297/79712 Builder: GOLD PARK Location: KLEINBURG Designer: MQ
 File: 274881 Project: HUNTINGTON & NASHVILLE Date: May 12/15 Sheet: 3 of 4
 Alpha Roof Trusses Inc. Salesperson: Derek Frankfort
 Maple, Ontario Home Lumber



MODEL : 38-1
ELEVATION A & B
W/OPT. LOB/WOB COND.

GROUND FLOOR FRAMING

Ceramic Tile
Ceramic Tile

JT/PL-40297/79712/89318RV Builder: GOLD PARK Location: KLEINBURG Designer: MQ
 LI: 274881 Project: HUNTINGTON & NASHVILLE Date: Nov. 03/16 Sheet: 4 of 4
 Alpha Roof Trusses Inc. Salesperson: Derek Frankfort
 Maple, Ontario Home Lumber

Products				
ProdID	Length	Product	Pieces	Net Qty
J1	14'-00-00	9 1/2" NI-20	1	17
J2	12'-00-00	9 1/2" NI-20	1	19
J3	12'-00-00	9 1/2" NI-20	2	4
J4	11'-00-00	9 1/2" NI-20	1	25
J5	9'-00-00	9 1/2" NI-20	1	3
J6	3'-00-00	9 1/2" NI-20	1	1
B5	12'-00-00	VERSALAM-10 2.0E	2	2
B7	11'-00-00	VERSALAM-10 2.0E	2	2
B6	9'-00-00	VERSALAM-10 2.0E	1	1

BLOCKING: 9 1/2" NI-20 - 38 FEET

HANGERS SCHEDULE

H1 - LT259
H3 - HGUS410

RIMBOARD

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

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

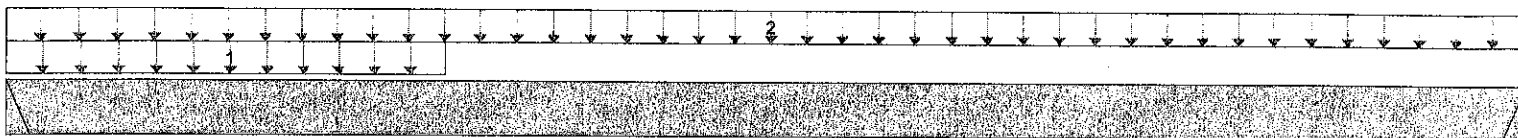
BC CALC® Design Report


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

May-13-15

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

File Name: 253716.bcc
 Description: Designs\01
 Specifier: 38-1
 Designer: MQ
 Company: Alpa Roof Trusses Inc
 Misc:



B0

11-08-00

B1

Total Horizontal Product Length = 11-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	463 / 0	202 / 0		
B1	204 / 0	105 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Area (lb/ft^2)	L	00-00-00	03-04-00	40	15			02-08-00
2		Unf. Area (lb/ft^2)	L	00-00-00	11-08-00	40	15			00-08-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	1,585 ft-lbs	12,704 ft-lbs	0.12	1	04-03-01
End Shear	688 lbs	5,785 lbs	0.12	1	00-11-08
Total Load Defl.	L/999 (0.106")	n/a	n/a	4	05-06-04
Live Load Defl.	L/999 (0.071")	n/a	n/a	5	05-06-04
Span / Depth	14.5	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 1-3/4"	946 lbs	n/a	0.22	Hanger
B1 Hanger	2" x 1-3/4"	437 lbs	n/a	0.1	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
 @ 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 L.L.C.

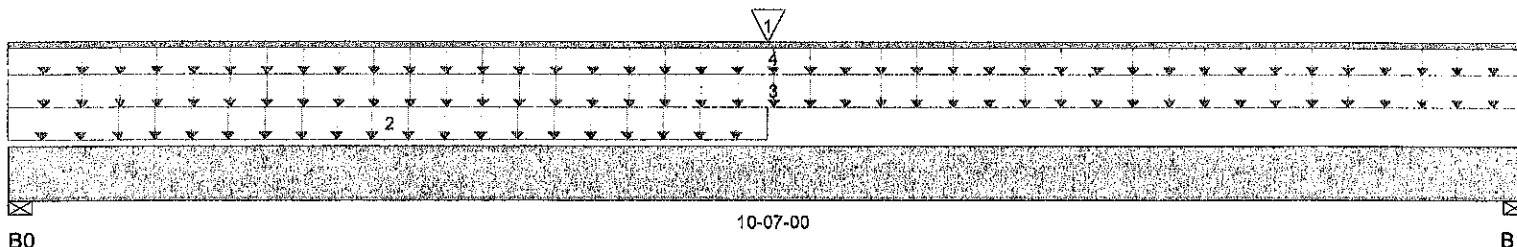


S.129521



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

File Name: 253716.bcc
 Description: Designs\02
 Specifier: 38-1
 Designer: MQ
 Company: Alpa Roof Trusses Inc
 Misc:



Total Horizontal Product Length = 10-07-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,178 / 0	817 / 0		
B1, 3-1/2"	533 / 0	574 / 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	05-03-00	05-03-00	204	105			n/a
2		Unf. Area (lb/ft^2)	L	00-00-00	05-03-00	40	15			05-10-00
3		Unf. Area (lb/ft^2)	L	00-00-00	10-07-00	40	20			00-08-00
4		Unf. Lin. (lb/ft)	L	00-00-00	10-07-00	0	60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	5,888 ft-lbs	12,704 ft-lbs	0.46	1	04-08-12
End Shear	2,142 lbs	5,785 lbs	0.37	1	01-01-00
Total Load Defl.	L/411 (0.296")	0.506"	0.58	4	05-01-07
Live Load Defl.	L/736 (0.165")	0.338"	0.49	5	04-11-14
Span / Depth	12.8	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"	2,789 lbs	0.74	0.37	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	1,517 lbs	0.4	0.2	Spruce Pine Fir

Notes

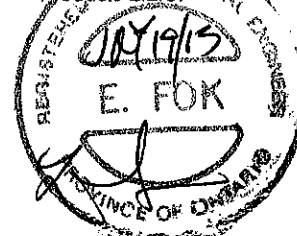
Design meets Code minimum (L/240) Total load deflection criteria.
 Design meets Code minimum (L/360) Live load deflection criteria.
 Calculations assume Member is Fully Braced.
 Resistance Factor phi has been applied to all presented results per CSA 086.
 BC CALC® analysis is based on Canadian Limit 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

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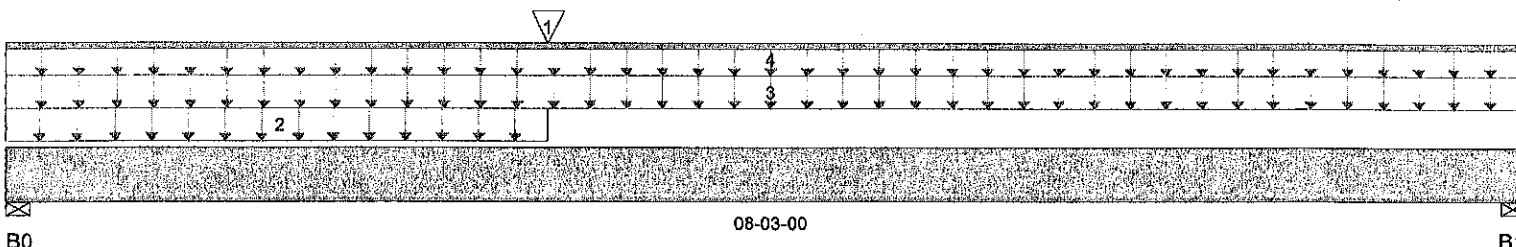
BC CALC® Design Report


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

May-13-15

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

File Name: 253716.bcc
 Description: Designs\03
 Specifier: 38-1
 Designer: MQ
 Company: Alpa Roof Trusses Inc
 Misc:



Total Horizontal Product Length = 08-03-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	986 / 0	669 / 0		
B1, 3-1/2"	378 / 0	433 / 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	02-11-00	02-11-00	463	202			n/a
2		Unf. Area (lb/ft^2)	L	00-00-00	02-11-00	40	15			05-10-00
3		Unf. Area (lb/ft^2)	L	00-00-00	08-03-00	40	20			00-08-00
4		Unf. Lin. (lb/ft)	L	00-00-00	08-03-00	0	60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	3,698 ft-lbs	12,704 ft-lbs	0.29	1	02-11-00
End Shear	1,668 lbs	5,785 lbs	0.29	1	01-01-00
Total Load Defl.	L/999 (0.103")	n/a	n/a	4	03-10-03
Live Load Defl.	L/999 (0.057")	n/a	n/a	5	03-09-06
Max Defl.	0.103"	n/a	n/a	4	03-10-03
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"	2,315 lbs	0.61	0.31	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	1,107 lbs	0.29	0.15	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.

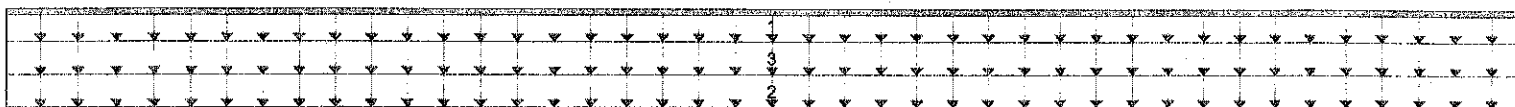


User Notes



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

File Name: 253716.bcc
 Description: Designs\04
 Specifier: 38-1
 Designer: MQ
 Company: Alpa Roof Trusses Inc
 Misc:



B0 09-09-00 B1

Total Horizontal Product Length = 09-09-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,300 / 0	803 / 0		
B1, 3-1/2"	1,300 / 0	803 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live 1.00	Dead 0.65	Snow 1.00	Wind 1.15	Trib.
1		Unf. Lin. (lb/ft)	L	00-00-00	09-09-00	0	60			n/a
2		Unf. Area (lb/ft^2)	L	00-00-00	09-09-00	40	15			00-08-00
3		Unf. Area (lb/ft^2)	L	00-00-00	09-09-00	40	15			06-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	6,540 ft-lbs	12,704 ft-lbs	0.51	1	04-10-08
End Shear	2,298 lbs	5,785 lbs	0.4	1	01-01-00
Total Load Defl.	L/385 (0.289")	0.465"	0.62	4	04-10-08
Live Load Defl.	L/623 (0.179")	0.31"	0.58	5	04-10-08
Span / Depth	11.7	n/a	n/a		00-00-00

Disclosure

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Bearing Supports

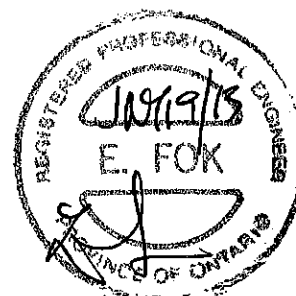
	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0	Wall/Plate 3-1/2" x 1-3/4"	2,954 lbs	0.78	0.4	Spruce Pine Fir
B1	Wall/Plate 3-1/2" x 1-3/4"	2,954 lbs	0.78	0.4	Spruce Pine Fir

Notes

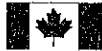
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User Notes

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



BC CALC® Design Report

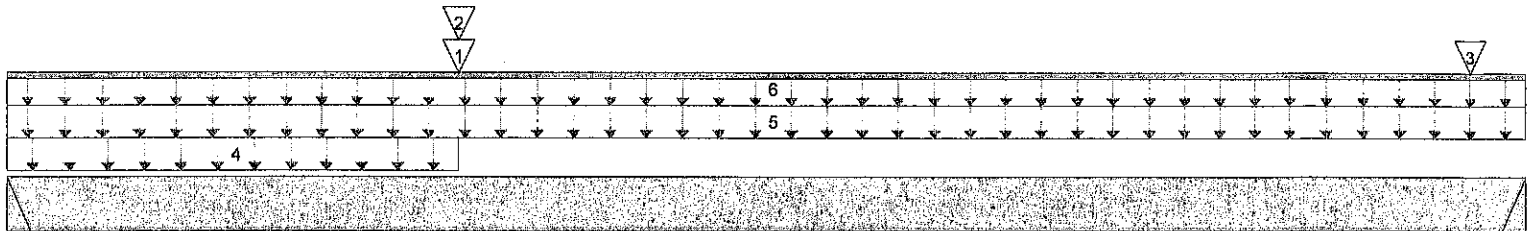


Dry | 1 span | No cantilevers | 0/12 slope (deg)

May-13-15

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

File Name: 253716.bcc
 Description: Designs\05
 Specifier: 38-1
 Designer: MQ
 Company: Alpa Roof Trusses Inc
 Misc:



11-04-00

B0

B1

Total Horizontal Product Length = 11-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0	875 / 0	742 / 0		
B1	814 / 0	719 / 0		

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1		Conc. Pt. (lbs)	L	03-04-00	03-04-00	240	90			n/a
2		Conc. Pt. (lbs)	L	03-04-00	03-04-00	440	165			n/a
3		Conc. Pt. (lbs)	L	10-11-00	10-11-00	440	165			n/a
4		Unf. Area (lb/ft^2)	L	00-00-00	03-04-00	40	15			02-00-00
5		Unf. Area (lb/ft^2)	L	00-00-00	11-04-00	40	20			00-08-00
6		Unf. Lin. (lb/ft)	L	00-00-00	11-04-00	0	60			n/a

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	5,560 ft-lbs	25,408 ft-lbs	0.22	1	03-04-00
End Shear	1,951 lbs	11,571 lbs	0.17	1	00-11-08
Total Load Defl.	L/799 (0.167")	0.556"	0.3	4	05-05-01
Live Load Defl.	L/999 (0.085")	n/a	n/a	5	05-02-07
Span / Depth	14.1	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"	2,240 lbs	n/a	0.26	Hanger
B1 Hanger	2" x 3-1/2"	2,119 lbs	n/a	0.25	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 3/2" SPIRAL NAILS @ 12" O.C., STAGGERED IN 2 ROWS



S.129525

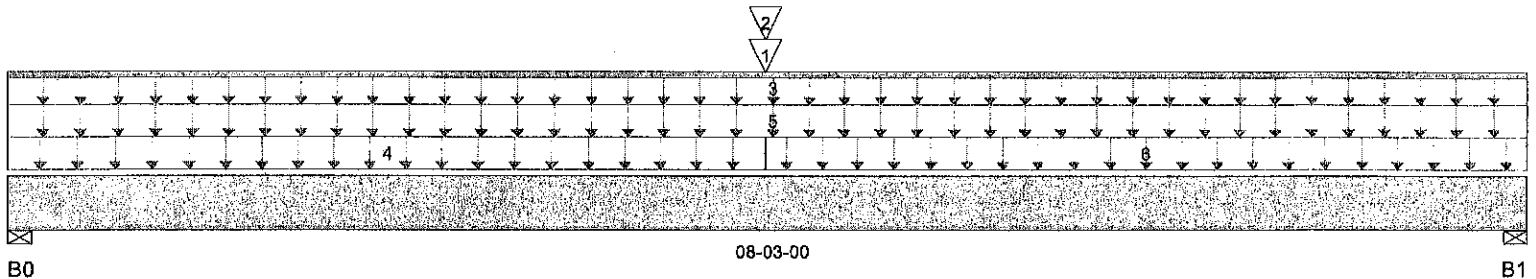
BC CALC® Design Report


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

May-13-15

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

File Name: 253716.bcc
 Description: Designs\06
 Specifier: 38-1
 Designer: MQ
 Company: Alpa Roof Trusses Inc
 Misc:



Total Horizontal Product Length = 08-03-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,430 / 0	1,118 / 0		
B1, 3-1/2"	969 / 0	877 / 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	04-01-00	04-01-00	875	742			n/a
2		Conc. Pt. (lbs)	L	04-01-00	04-01-00	240	90			n/a
3		Unf. Lin. (lb/ft)	L	00-00-00	08-03-00	0	60			n/a
4		Unf. Area (lb/ft^2)	L	00-00-00	04-01-00	40	20			05-10-00
5		Unf. Area (lb/ft^2)	L	00-00-00	08-03-00	40	20			00-08-00
6		Unf. Area (lb/ft^2)	L	04-01-00	08-03-00	40	15			00-08-00

Controls Summary

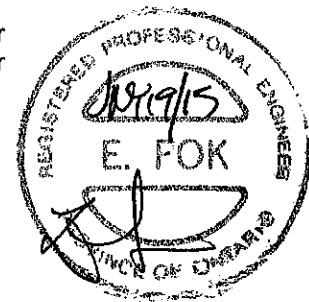
	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	8,391 ft-lbs	12,704 ft-lbs	0.66	1	04-01-00
End Shear	2,857 lbs	5,785 lbs	0.49	1	01-01-00
Total Load Defl.	L/405 (0.231")	0.39"	0.59	4	04-01-00
Live Load Defl.	L/734 (0.127")	0.26"	0.49	5	04-01-00
Span / Depth	9.8	n/a	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"	3,543 lbs	0.94	0.47	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 1-3/4"	2,549 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


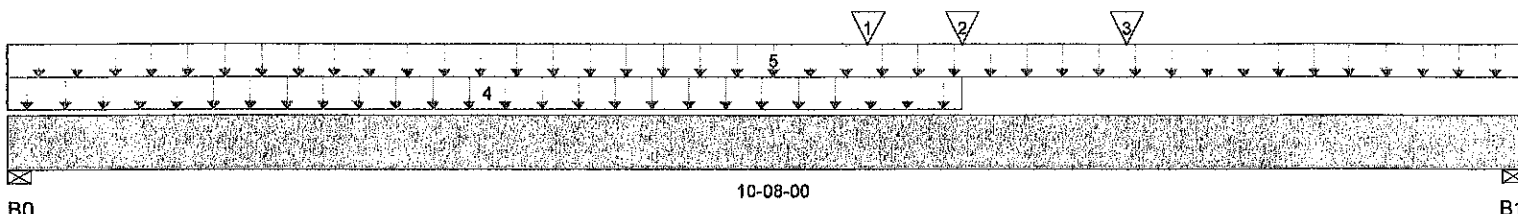
BC CALC® Design Report


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

May-13-15

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

File Name: 253716.bcc
 Description: Designs\07
 Specifier: 38-1
 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"	1,916 / 0	1,094 / 0		
B1, 3-1/2"	1,819 / 0	1,095 / 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	06-00-00	06-00-00	641	282			n/a
2		Conc. Pt. (lbs)	L	06-08-00	06-08-00	814	719			n/a
3		Conc. Pt. (lbs)	L	07-10-00	07-10-00	440	165			n/a
4		Unf. Area (lb/ft^2)	L	00-00-00	06-08-00	40	20			05-10-00
5		Unf. Area (lb/ft^2)	L	00-00-00	10-08-00	40	20			00-08-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	14,325 ft-lbs	25,408 ft-lbs	0.56	1	06-00-00
End Shear	4,023 lbs	11,571 lbs	0.35	1	09-07-00
Total Load Defl.	L/348 (0.352")	0.51"	0.69	4	05-06-07
Live Load Defl.	L/554 (0.221")	0.34"	0.65	5	05-04-10
Max Defl.	0.352"	1"	0.35	4	05-06-07
Span / Depth	12.9	n/a	n/a		00-00-00

Bearing Supports

	Dlm. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Wall/Plate	3-1/2" x 3-1/2"	4,241 lbs	0.56	0.28	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	4,098 lbs	0.54	0.27	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 PUT TO ANOTHER WITH 3/4" SPIRAL NAILS @ 12" O.C.,
 STRUTTED IN 2 ROWS



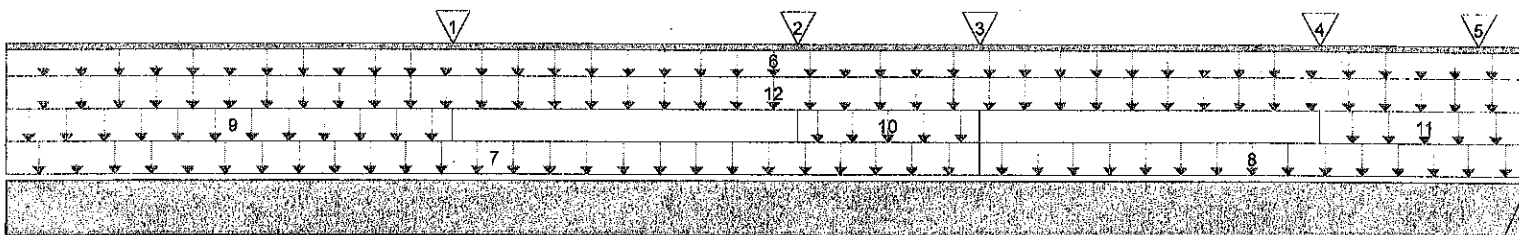
BC CALC® Design Report


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

May-13-15

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

File Name: 253716.bcc
 Description: Designs\08
 Specifier: 38-1
 Designer: MQ
 Company: Alpa Roof Trusses Inc
 Misc:



B0

10-04-00

B1

Total Horizontal Product Length = 10-04-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	1,275 / 0	1,367 / 0	739 / 0	
B1	1,575 / 0	1,606 / 0	1,353 / 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	03-00-00	03-00-00	68	69	131		n/a
2	Conc. Pt. (lbs)		L	05-04-00	05-04-00	68	69	131		n/a
3	Conc. Pt. (lbs)		L	06-07-00	06-07-00	68	69	131		n/a
4	Conc. Pt. (lbs)		L	08-11-00	08-11-00	68	69	131		n/a
5	Conc. Pt. (lbs)		L	10-00-00	10-00-00	341	329	651		n/a
6	Unf. Lin. (lb/ft)		L	00-00-00	10-04-00	0	100			n/a
7	Unf. Area (lb/ft^2)		L	00-00-00	06-07-00	40	20			04-03-00
8	Unf. Area (lb/ft^2)		L	06-07-00	10-04-00	40	15			04-03-00
9	Unf. Area (lb/ft^2)		L	00-00-00	03-00-00	11	10	21		04-08-00
10	Unf. Area (lb/ft^2)		L	05-04-00	06-07-00	11	10	21		04-08-00
11	Unf. Area (lb/ft^2)		L	08-11-00	10-04-00	11	10	21		04-08-00
12	Unf. Area (lb/ft^2)		L	00-00-00	10-04-00	11	10	21		01-08-00

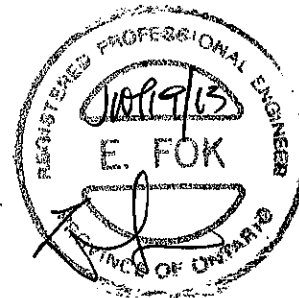
Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	9,655 ft-lbs	25,408 ft-lbs	0.38	1	05-04-00
End Shear	3,369 lbs	11,571 lbs	0.29	1	09-04-08
Total Load Defl.	L/466 (0.258")	0.5"	0.52	11	05-02-04
Live Load Defl.	L/856 (0.14")	0.333"	0.42	15	05-02-04
Max Defl.	0.258"	1"	0.26	11	05-02-04
Span / Depth	12.6	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"	3,991 lbs	0.53	0.27	Spruce Pine Fir
B1	Hanger	2" x 3-1/2"	5,047 lbs	n/a	0.59	Hanger

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



S-129528

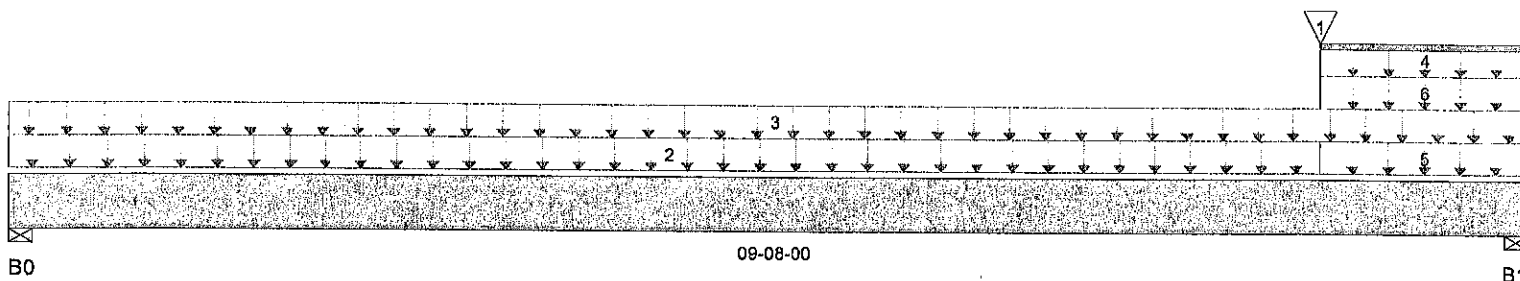
BC CALC® Design Report


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

May-13-15

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

File Name: 253716.bcc
 Description: Designs\09
 Specifier: 38-1
 Designer: MQ
 Company: Alpa Roof Trusses Inc
 Misc:



Total Horizontal Product Length = 09-08-00

Reaction Summary (Down / Uplift) (lbs)

Bearing	Live	Dead	Snow	Wind
B0, 3-1/2"	454 / 0	350 / 0	179 / 0	
B1, 3-1/2"	1,777 / 0	1,823 / 0	1,510 / 0	

Load Summary

Tag	Description	Load Type	Ref.	Start	End	Live	Dead	Snow	Wind	Trib.
1		Conc. Pt. (lbs)	L	08-04-00	08-04-00	1,575	1,606	1,353		n/a
2		Unf. Area (lb/ft^2)	L	00-00-00	08-04-00	40	15			00-08-00
3		Unf. Area (lb/ft^2)	L	00-00-00	09-08-00	40	15			00-08-00
4		Unf. Lin. (lb/ft)	L	08-04-00	09-08-00	0	100			n/a
5		Unf. Area (lb/ft^2)	L	08-04-00	09-08-00	11	10	21		11-00-00
6		Unf. Area (lb/ft^2)	L	08-04-00	09-08-00	11	10	21		01-00-00

Controls Summary

	Factored Demand	Factored Resistance	Demand / Resistance	Load Case	Location
Pos. Moment	5,723 ft-lbs	25,408 ft-lbs	0.23	1	08-04-00
End Shear	4,981 lbs	11,571 lbs	0.43	1	08-07-00
Total Load Defl.	L/999 (0.108")	n/a	n/a	11	05-04-10
Live Load Defl.	L/999 (0.064")	n/a	n/a	15	05-03-05
Max Defl.	0.108"	n/a	n/a	11	05-04-10
Span / Depth	11.6	n/a	n/a		00-00-00

Bearing Supports

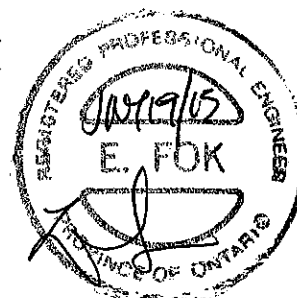
	Dim. (L x W)	Demand	Demand/Resistance Support	Demand/Resistance Member	Material
B0 Wall/Plate	3-1/2" x 3-1/2"	1,207 lbs	0.16	0.08	Spruce Pine Fir
B1 Wall/Plate	3-1/2" x 3-1/2"	5,700 lbs	0.76	0.38	Spruce Pine Fir

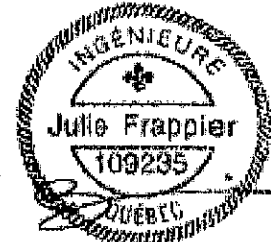
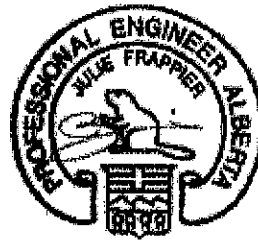
Notes

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. S-129529
 STRUTTED IN 2 ROWS





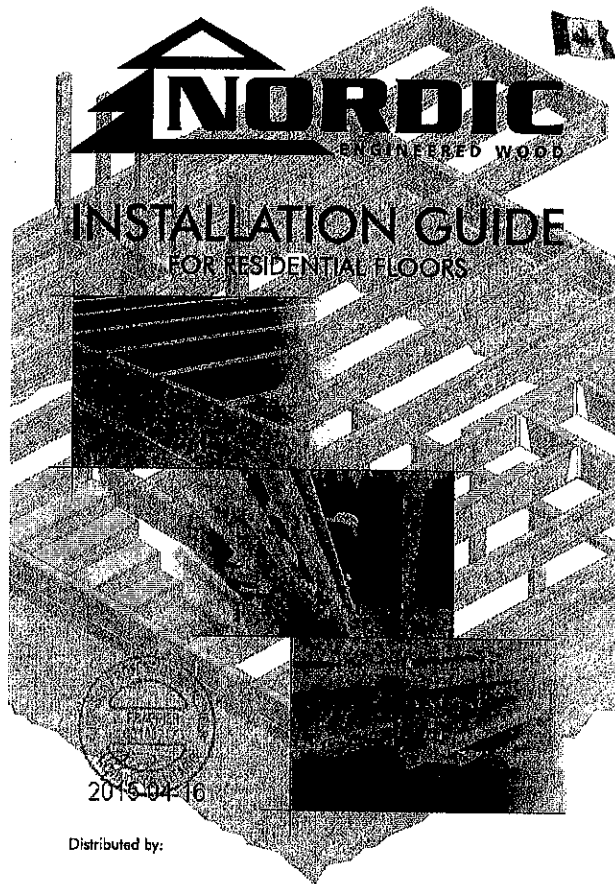
Maximum Floor Spans

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-bridging of 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-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.

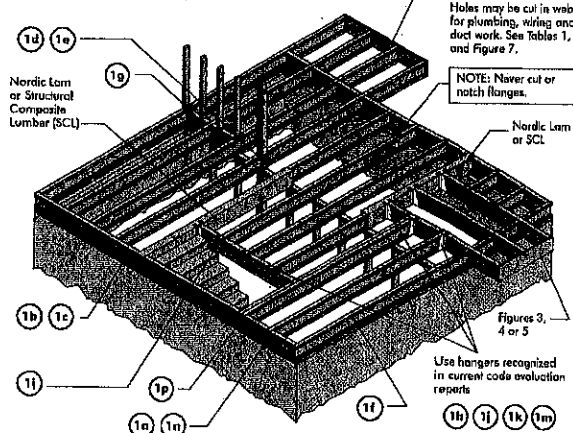


INSTALLING NORDIC I-JOISTS

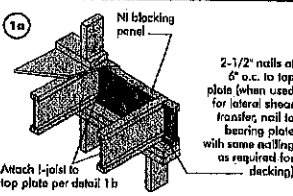
1. Before laying out floor system components, verify that I-joist flange widths match hanger widths. If not, contact your supplier.
2. Except for cutting to length, I-joist flanges should never be cut, drilled, or notched.
3. Install I-joists so that top and bottom flanges are within 1/2 inch of true 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 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 (s/p/sq members) to transfer gravity loads through the floor system to the wall or foundation below.
12. Due to shrinkage, common framing lumber set on edge may never be used as blocking or rim boards. I-joist blocking panels or other engineered wood products—such as rim board—must be cut to fit between the I-joists, and an I-joist-compatible depth selected.
13. Provide permanent lateral support of the bottom flange of all I-joists at interior supports of multiple-span joists. Similarly, support the bottom flange of all cantilevered I-joists at the end support next to the cantilever extension. In the completed structure, the gypsum wallboard ceiling provides this lateral support. Until the final finished ceiling is applied, temporary bracing or struts must be used.
14. If square-edge panels are used, edges must be supported between I-joists with 2x4 blocking. Glue panels to blocking to minimize squeaks. Blocking is not required under structural finish flooring, such as wood strip flooring, or if a separate underlayment layer is installed.
15. Nail spacing: Space nails installed to the flange's top face in accordance with the applicable building code requirements or approved building plans.

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

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

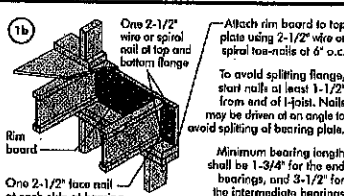


All nails shown in the above details are assumed to be common wire nails unless otherwise noted. 3" (0.122" dia.) common spiral nails may be substituted for 2-1/2" (0.126" dia.) common wire nails. Framing lumber assumed to be Spruce-Pine-Fir No. 2 or better. Individual components not shown to scale for clarity.



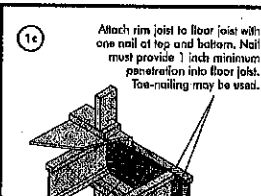
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
Ni Joist	3,300

*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.



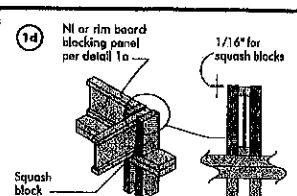
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

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



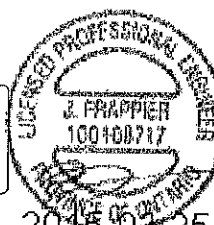
Blocking Panel or Rim Joist	Maximum Factored Uniform Vertical Load* (plf)
1-1/8" Rim Board Plus	8,090

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



Pair of Squash Blocks	Maximum Factored Uniform Vertical Load* (plf)
2x Lumber	3,300
1-1/8" Rim Board Plus	4,300

*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.



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
1-1/2"	NI-20	0-7"	1-6"	2-10"	4-3"	5-8"	6-0"	---	---	---	---	---	---	---	---	---	---	---
1-1/2"	NI-40x	0-7"	1-6"	3-0"	4-4"	6-0"	6-4"	---	---	---	---	---	---	---	---	---	---	---
1-1/2"	NI-60	1-3"	2-6"	4-0"	5-4"	7-0"	7-5"	---	---	---	---	---	---	---	---	---	---	---
1-1/2"	NI-70	2-0"	3-4"	4-9"	6-3"	8-0"	8-4"	---	---	---	---	---	---	---	---	---	---	---
1-1/2"	NI-80	2-3"	3-6"	5-0"	6-6"	8-2"	8-8"	---	---	---	---	---	---	---	---	---	---	---
1-7/8"	NI-20	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---	---	---	---	---	---
1-7/8"	NI-40x	0-7"	0-8"	1-3"	2-8"	4-0"	4-4"	5-5"	7-0"	8-4"	---	---	---	---	---	---	---	---
1-7/8"	NI-60	0-7"	1-8"	3-0"	4-3"	5-9"	6-0"	7-3"	8-10"	10-0"	---	---	---	---	---	---	---	---
1-7/8"	NI-70	1-3"	2-6"	4-0"	5-4"	6-9"	7-2"	8-4"	10-0"	11-2"	---	---	---	---	---	---	---	---
1-7/8"	NI-80	1-6"	2-10"	4-2"	5-6"	7-0"	7-5"	8-6"	10-3"	11-4"	---	---	---	---	---	---	---	---
1-7/8"	NI-90	0-7"	0-8"	1-5"	3-2"	4-10"	5-4"	6-9"	8-9"	10-2"	---	---	---	---	---	---	---	---
1-7/8"	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"	8-3"	10-2"	---	---	---	---	---	---
4"	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"	---	---	---	---	---
4"	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"	---	---	---	---	---
4"	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"	---	---	---	---	---
4"	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"	---	---	---	---	---
4"	NI-90x	0-7"	0-8"	0-8"	2-0"	3-9"	4-2"	5-5"	7-3"	8-5"	9-2"	---	---	---	---	---	---	---
5"	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"	---	---
5"	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"	---	---
5"	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"	---	---
5"	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"	---	---
5"	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"	---	---	---	---

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

WEB 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.

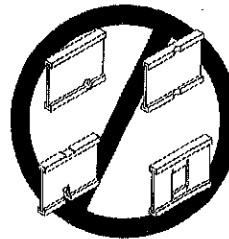
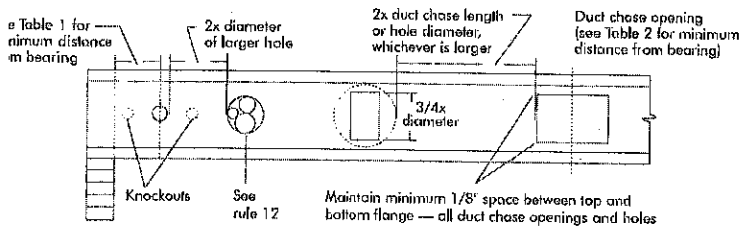
- A 1-1/2 inch hole or smaller can be placed anywhere in the web provided that it meets the requirements of rule number 6 above.
- All holes and duct chase openings shall be cut in a workman-like manner in accordance with the restrictions listed above and as illustrated in Figure 7.
- Limit three maximum 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	11	12	12-3/4
1-1/2"	NI-20	0-7"	1-6"	2-10"	4-3"	5-8"	6-0"	---	---	---	---	---	---	---	---	---	---	---
1-1/2"	NI-40x	0-7"	1-6"	3-0"	4-4"	6-0"	6-4"	---	---	---	---	---	---	---	---	---	---	---
1-1/2"	NI-60	1-3"	2-6"	4-0"	5-4"	7-0"	7-5"	---	---	---	---	---	---	---	---	---	---	---
1-1/2"	NI-70	2-0"	3-4"	4-9"	6-3"	8-0"	8-4"	---	---	---	---	---	---	---	---	---	---	---
1-1/2"	NI-80	2-3"	3-6"	5-0"	6-6"	8-2"	8-8"	---	---	---	---	---	---	---	---	---	---	---
1-7/8"	NI-20	0-7"	0-8"	1-0"	2-4"	3-8"	4-0"	5-0"	6-6"	7-9"	---	---	---	---	---	---	---	---
1-7/8"	NI-40x	0-7"	0-8"	1-3"	2-8"	4-0"	4-4"	5-5"	7-0"	8-4"	---	---	---	---	---	---	---	---
1-7/8"	NI-60	0-7"	1-8"	3-0"	4-3"	5-9"	6-0"	7-3"	8-10"	10-0"	---	---	---	---	---	---	---	---
1-7/8"	NI-70	1-3"	2-6"	4-0"	5-4"	6-9"	7-2"	8-4"	10-0"	11-2"	---	---	---	---	---	---	---	---
1-7/8"	NI-80	1-6"	2-10"	4-2"	5-6"	7-0"	7-5"	8-6"	10-3"	11-4"	---	---	---	---	---	---	---	---
1-7/8"	NI-90	0-7"	0-8"	1-5"	3-2"	4-10"	5-4"	6-9"	8-9"	10-2"	---	---	---	---	---	---	---	---
1-7/8"	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"	8-3"	10-2"	---	---	---	---	---	---
4"	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"	---	---	---	---	---
4"	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"	---	---	---	---	---
4"	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"	---	---	---	---	---
4"	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"	---	---	---	---	---
4"	NI-90x	0-7"	0-8"	0-8"	2-0"	3-9"	4-2"	5-5"	7-3"	8-5"	9-2"	---	---	---	---	---	---	---
5"	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"	---	---
5"	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"	---	---
5"	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"	---	---
5"	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"	---	---
5"	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.

FIGURE 7 FIELD-CUT HOLE LOCATOR



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

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

Holes in webs should be cut with a sharp saw.

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

SAFETY AND CONSTRUCTION PRECAUTIONS



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



Never stack building materials or unsheathed I-joists. Once sheathed, do not over-stress 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, and/or cross-bridging at joist ends. When I-joists are applied continuously over interior supports and a load-bearing wall is planned at that location, blocking will be required at the interior support.
- 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. Top 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-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.

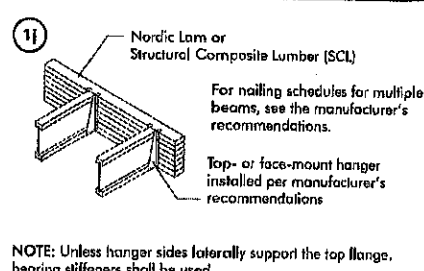
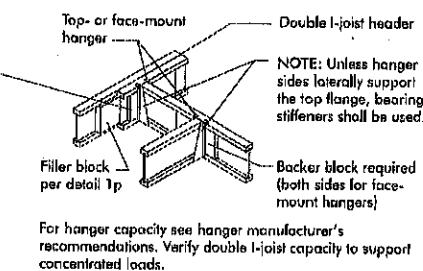
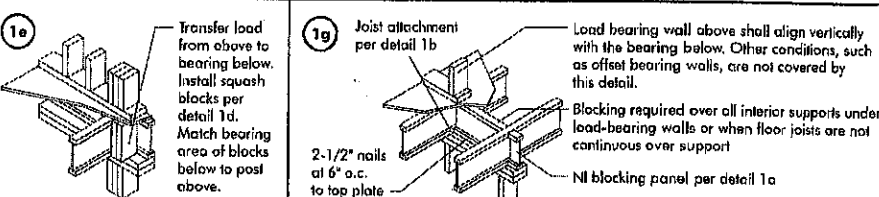
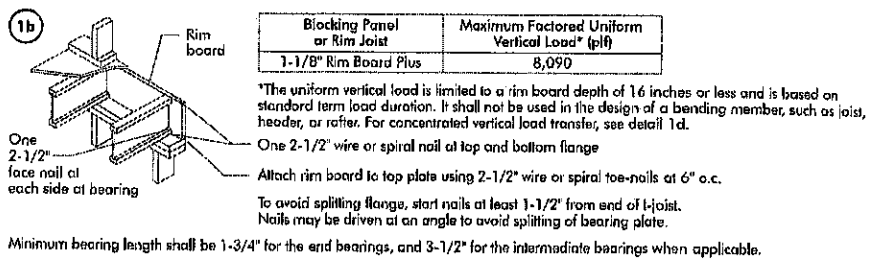
Improper storage or installation, failure to follow applicable building codes, failure to follow span ratings for Nordic I-joists, failure to follow allowable hole sizes and locations, or failure to use web stiffeners when required can result in serious accidents. Follow these installation guidelines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



PRODUCT WARRANTY

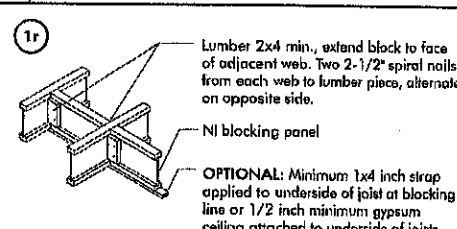
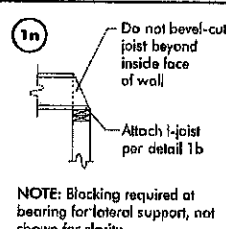
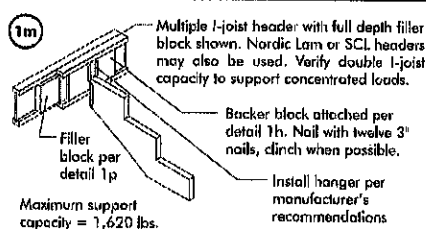
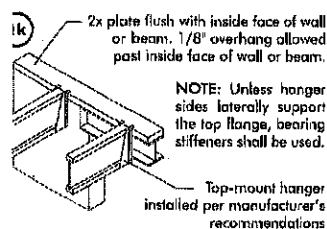
Chantiers Chibougamau guarantees that, in accordance with our specifications, Nordic products are free from manufacturing defects in material and workmanship.

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.



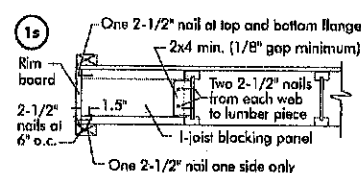
Flange Width	Material Thickness Required*	Minimum Depth**
2-1/2"	1"	5-1/2"
3-1/2"	1-1/2"	7-1/4"

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



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

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



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

VEB STIFFENERS

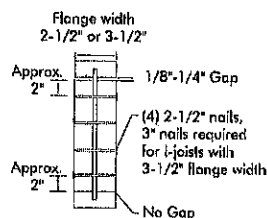
RECOMMENDATIONS:

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

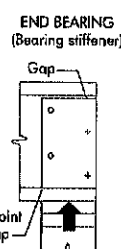
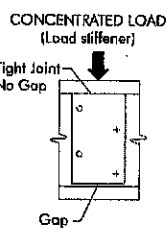
A bearing stiffener is required when the I-joist is supported in a hanger and the sides of the hanger do not extend up to, and support, the top flange. The gap between the stiffener and flange is at the top.

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



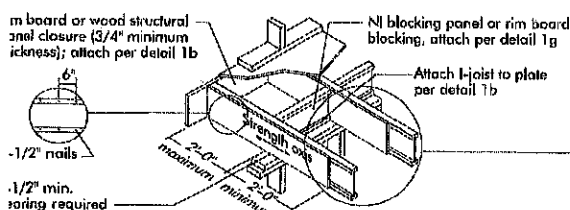
See the adjacent table for web stiffener size requirements.



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**

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°.

RIM BOARD INSTALLATION DETAILS

(B4) ATTACHMENT DETAILS WHERE RIM BOARDS ABUT

Rim Board Joint Between Floor Joists

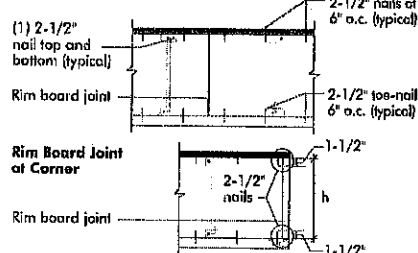


Diagram illustrating the joint between a rim board and a top or sole plate. The joint is shown at a 30-degree angle. The dimensions are labeled as $t/3$ and $t/2$.

OTE: 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 joist to plate at all supports per detail 1b. Verify reinforced 1-joist capacity.

WEB HOLES

RULES FOR CUTTING HOLES AND DUCT CHASE OPENINGS:

- The distance between the inside edge of the support and the centerline 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 non-ventilated 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 center of hole (ft.-in.) (Round hole diameter (in.))															Span Adjustment Factor
		2	3	4	5	6	6-1/4	7	8	8-5/8	9	10	10-3/4	11	12	12-1/4	
12	2	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	1.0
16	2	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	1.0
20	2	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	1.0
24	2	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	1.0
28	2	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	1.0
32	2	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	1.0
36	2	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50	1.0
40	2	24	26	28	30	32	34	36	38	40	42	44	46	48	50	52	1.0
44	2	26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	1.0
48	2	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56	1.0
52	2	30	32	34	36	38	40	42	44	46	48	50	52	54	56	58	1.0
56	2	32	34	36	38	40	42	44	46	48	50	52	54	56	58	60	1.0
60	2	34	36	38	40	42	44	46	48	50	52	54	56	58	60	62	1.0
64	2	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	1.0
68	2	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	1.0
72	2	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	1.0
76	2	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	1.0
80	2	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	1.0
84	2	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	1.0
88	2	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	1.0
92	2	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	1.0
96	2	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	1.0
100	2	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	1.0
104	2	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	1.0
108	2	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86	1.0
112	2	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	1.0
116	2	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	1.0
120	2	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	1.0
124	2	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94	1.0
128	2	68	70	72	74	76	78	80	82	84	86	88	90	92	94	96	1.0
132	2	70	72	74	76	78	80	82	84	86	88	90	92	94	96	98	1.0
136	2	72	74	76	78	80	82	84	86	88	90	92	94	96	98	100	1.0
140	2	74	76	78	80	82	84	86	88	90	92	94	96	98	100	102	1.0
144	2	76	78	80	82	84	86	88	90	92	94	96	98	100	102	104	1.0
148	2	78	80	82	84	86	88	90	92	94	96	98	100	102	104	106	1.0
152	2	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	1.0
156	2	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110	1.0
160	2	84	86	88	90	92	94	96	98	100	102	104	106	108	110	112	1.0
164	2	86	88	90	92	94	96	98	100	102	104	106	108	110	112	114	1.0
168	2	88	90	92	94	96	98	100	102	104	106	108	110	112	114	116	1.0
172	2	90	92	94	96	98	100	102	104	106	108	110	112	114	116	118	1.0
176	2	92	94	96	98	100	102	104	106	108	110	112	114	116	118	120	1.0
180	2	94	96	98	100	102	104	106	108	110	112	114	116	118	120	122	1.0
184	2	96	98	100	102	104	106	108	110	112	114	116	118	120	122	124	1.0
188	2	98	100	102	104	106	108	110	112	114	116	118	120	122	124	126	1.0
192	2	100	102	104	106	108	110	112	114	116	118	120	122	124	126	128	1.0
196	2	102	104	106	108	110	112	114	116	118	120	122	124	126	128	130	1.0
200	2	104	106	108	110	112	114	116	118	120	122	124	126	128	130	132	1.0
204	2	106	108	110	112	114	116	118	120	122	124	126	128	130	132	134	1.0
208	2	108	110	112	114	116	118	120	122	124	126	128	130	132	134	136	1.0
212	2	110	112	114	116	118	120	122	124	126	128	130	132	134	136	138	1.0
216	2	112	114	116	118	120	122	124	126	128	130	132	134	136	138	140	1.0
220	2	114	116	118	120	122	124	126	128	130	132	134	136	138	140	142	1.0
224	2	116	118	120	122	124	126	128	130	132	134	136	138	140	142	144	1.0
228	2	118	120	122	124	126	128	130	132	134	136	138	140	142	144	146	1.0
232	2	120	122	124	126	128	130	132	134	136	138	140	142	144	146	148	1.0
236	2	122	124	126	128	130	132	134	136	138	140	142	144	146	148	150	1.0
240	2	124	126	128	130	132	134	136	138	140	142	144	146	148	150	152	1.0
244	2	126	128	130	132	134	136	138	140	142	144	146	148	150	152	154	1.0
248	2	128	130	132	134	136	138	140	142	144	146	148	150	152	154	156	1.0
252	2	130	132	134	136	138	140	142	144	146	148	150	152	154	156	158	1.0
256	2	132	134	136	138	140	142	144	146	148	150	152	154	156	158	160	1.0
260	2	134	136	138	140	142	144	146	148	150	152	154	156	158	160	162	1.0
264	2	136	138	140	142	144	146	148	150	152	154	156	158	160	162	164	1.0
268	2	138	140	142	144	146	148	150	152	154	156	158	160	162	164	166	1.0
272	2	140	142	144	146	148	150	152	154	156	158	160	162	164	166	168	1.0
276	2	142	144	146	148	150	152	154	156	158	160	162	164	166	168	170	1.0
280	2	144	146	148	150	152	154	156	158	160	162	164	166	168	170	172	1.0
284	2	146	148	150	152	154	156	158	160	162	164	166	168	170	172	174	1.0
288	2	148	150	152	154	156	158	160	162	164	166	168	170	172	174	176	1.0
292	2	150	152	154	156	158	160	162	164	166	168	170	172	174	176	178	1.0
296	2	152	154	156	158	160	162	164	166	168	170	172	174	176	178	180	1.0
300	2	154	156	158	160	162	164	166	168	170	172	174	176	178	180	182	1.0
304	2	156	158	160	162	164	166	168	170	172	174	176	178	180	182	184	1.0
308	2	158	160	162	164	166	168	170	172	174	176	178	180	182	184	186	1.0
312	2	160	162	164	166	168	170	172	174	176	178	180	182	184	186	188	1.0
316	2	162	164	166	168	170	172	174	176	178	180	182	184	186	188	190	1.0
320	2	164	166	168	170	172	174	176	178	180	182	184	186	188	190	192	1.0
324	2	166	168	170	172	174	176	178	180	182	184	186	188	190	192	194	1.0
328	2	168	170	172	174	176	178	180	182	184	186	188	190	192	194	196	1.0
332	2	170	172	174	176	178	180	182	184	186	188	190	192	194	196	198	1.0
336	2	172	174	176	178	180	182	184	186	188	190	192	194	196	198	200	1.0

MAXIMUM FLOOR SPANS

- Maximum clear spans applicable to simple-span or multiple-span residential floor construction with a design live load of 40 psf and dead load of 15 psf. The ultimate limit states are based on the factored loads of 1.50L + 1.25D. The serviceability limit states include the consideration for floor vibration and a live load deflection limit of L/480. For multiple-span applications, the end spans shall be 40% or more of the adjacent span.
- Spans are based on a composite floor with glued-nailed oriented strand board (OSB) sheathing with a minimum thickness of 5/8 inch for a joist spacing of 19.2 inches or less, or 3/4 inch for joist spacing of 24 inches. Adhesive shall meet the requirements given in CGS-71.26 Standard. No concrete topping or bridging element was assumed. Increased spans may be achieved with the use of gypsum and/or a row of blocking at mid-span.
- Minimum bearing length shall be 1-3/4 inches for the end bearings, and 3-1/2 inches for the intermediate bearings.
- Bearing stiffeners are not required when I-joists are used with the spans and spacings given in this table, except as required for hangers.
- This span chart is based on uniform loads. For applications with other than uniform loads, an engineering analysis may be required based on the use of the design properties.
- Tables are based on Limit States Design per CAN/CSA Q86-09 Standard, and NBC 2010.
- SI units conversion: 1 inch = 25.4 mm
1 foot = 0.305 m

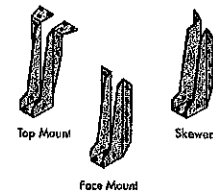
MAXIMUM FLOOR SPANS FOR NORDIC I-JOISTS SIMPLE AND MULTIPLE SPANS

Joist Depth	Joist Series	Simple spans				Multiple spans			
		On centre spacing				On centre spacing			
		12"	16"	19.2"	24"	12"	16"	19.2"	24"
10"	NI-10	12'	16'	19.2'	24'	12'	16'	19.2'	24'
12"	NI-12	12'	16'	19.2'	24'	12'	16'	19.2'	24'
14"	NI-14	12'	16'	19.2'	24'	12'	16'	19.2'	24'
16"	NI-16	12'	16'	19.2'	24'	12'	16'	19.2'	24'
18"	NI-18	12'	16'	19.2'	24'	12'	16'	19.2'	24'
20"	NI-20	12'	16'	19.2'	24'	12'	16'	19.2'	24'
22"	NI-22	12'	16'	19.2'	24'	12'	16'	19.2'	24'
24"	NI-24	12'	16'	19.2'	24'	12'	16'	19.2'	24'
26"	NI-26	12'	16'	19.2'	24'	12'	16'	19.2'	24'
28"	NI-28	12'	16'	19.2'	24'	12'	16'	19.2'	24'
30"	NI-30	12'	16'	19.2'	24'	12'	16'	19.2'	24'
32"	NI-32	12'	16'	19.2'	24'	12'	16'	19.2'	24'
34"	NI-34	12'	16'	19.2'	24'	12'	16'	19.2'	24'
36"	NI-36	12'	16'	19.2'	24'	12'	16'	19.2'	24'
38"	NI-38	12'	16'	19.2'	24'	12'	16'	19.2'	24'
40"	NI-40	12'	16'	19.2'	24'	12'	16'	19.2'	24'
42"	NI-42	12'	16'	19.2'	24'	12'	16'	19.2'	24'
44"	NI-44	12'	16'	19.2'	24'	12'	16'	19.2'	24'
46"	NI-46	12'	16'	19.2'	24'	12'	16'	19.2'	24'
48"	NI-48	12'	16'	19.2'	24'	12'	16'	19.2'	24'
50"	NI-50	12'	16'	19.2'	24'	12'	16'	19.2'	24'
52"	NI-52	12'	16'	19.2'	24'	12'	16'	19.2'	24'
54"	NI-54	12'	16'	19.2'	24'	12'	16'	19.2'	24'
56"	NI-56	12'	16'	19.2'	24'	12'	16'	19.2'	24'
58"	NI-58	12'	16'	19.2'	24'	12'	16'	19.2'	24'
60"	NI-60	12'	16'	19.2'	24'	12'	16'	19.2'	24'
62"	NI-62	12'	16'	19.2'	24'	12'	16'	19.2'	24'
64"	NI-64	12'	16'	19.2'	24'	12'	16'	19.2'	24'
66"	NI-66	12'	16'	19.2'	24'	12'	16'	19.2'	24'
68"	NI-68	12'	16'	19.2'	24'	12'	16'	19.2'	24'
70"	NI-70	12'	16'	19.2'	24'	12'	16'	19.2'	24'
72"	NI-72	12'	16'	19.2'	24'	12'	16'	19.2'	24'
74"	NI-74	12'	16'	19.2'	24'	12'	16'	19.2'	24'
76"	NI-76	12'	16'	19.2'	24'	12'	16'	19.2'	24'
78"	NI-78	12'	16'	19.2'	24'	12'	16'	19.2'	24'
80"	NI-80	12'	16'	19.2'	24'	12'	16'	19.2'	24'
82"	NI-82	12'	16'	19.2'	24'	12'	16'	19.2'	24'
84"	NI-84	12'	16'	19.2'	24'	12'	16'	19.2'	24'
86"	NI-86	12'	16'	19.2'	24'	12'	16'	19.2'	24'
88"	NI-88	12'	16'	19.2'	24'	12'	16'	19.2'	24'
90"	NI-90	12'	16'	19.2'	24'	12'	16'	19.2'	24'
92"	NI-92	12'	16'	19.2'	24'	12'	16'	19.2'	24'
94"	NI-94	12'	16'	19.2'	24'	12'	16'	19.2'	24'
96"	NI-96	12'	16'	19.2'	24'	12'	16'	19.2'	24'
98"	NI-98	12'	16'	19.2'	24'	12'	16'	19.2'	24'
100"	NI-100	12'	16'	19.2'	24'	12'	16'	19.2'	24'

CEMC EVALUATION REPORT 13012-R

1-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 hanger do not laterally brace the top flange of the I-joist.



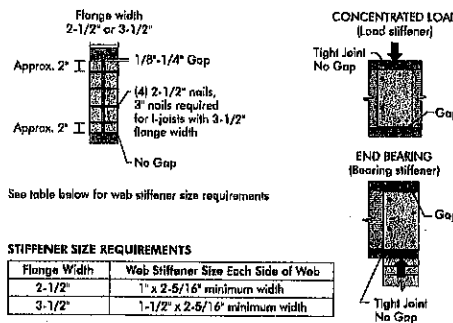
WEB STIFFENERS

RECOMMENDATIONS:

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

SI units conversion: 1 inch = 25.4 mm

FIGURE 2
WEB STIFFENER INSTALLATION DETAILS



STIFFENER SIZE REQUIREMENTS

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

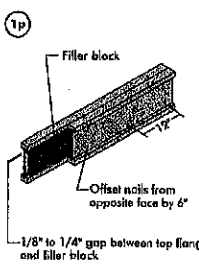
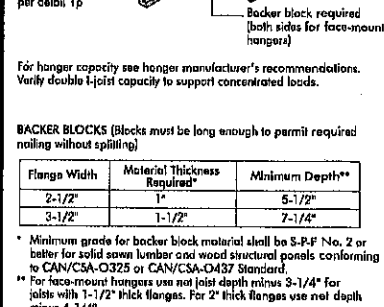
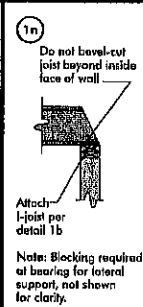
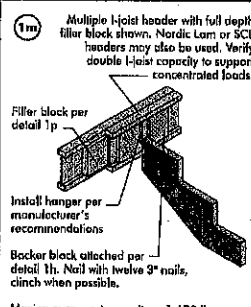
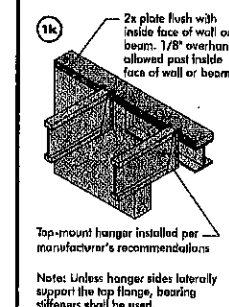
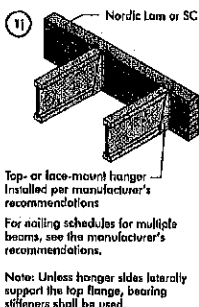
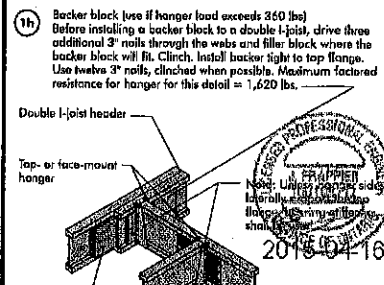
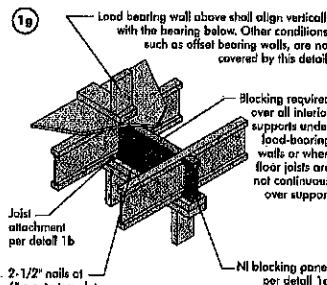
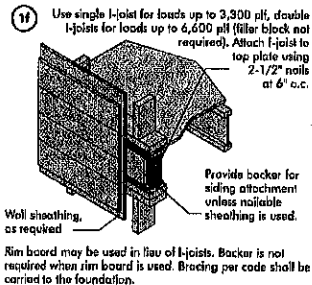
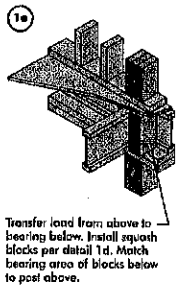
NORDIC I-JOIST SERIES

NI-20	NI-40a	NI-60	NI-70	NI-80	NI-90	NI-100
OSB No. 2	OSB No. 2	OSB No. 2	OSB No. 2	OSB No. 2	OSB No. 2	OSB No. 2
5-8 F No. 2	1960 F MSR	2100 F MSR	1960 F MSR	2100 F MSR	2400 F MSR	2400 F MSR
33 pieces per unit	33 pieces per unit	33 pieces per unit	33 pieces per unit	33 pieces per unit	33 pieces per unit	33 pieces per unit

Chantiers Chibougamou 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 forest to the finished product, reflects our commitment to quality.

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

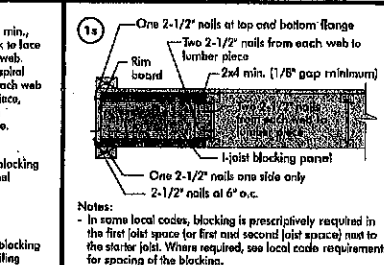
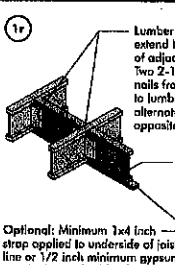
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- Notes:
- Support back of I-joist web during nailing to prevent damage to web/flange connection.
 - Leave a 1/8 to 1/4-inch gap between top of filler block and bottom of top I-joist flange.
 - Filler block is required between joists for full length of span.
 - Nail joists together with two rows of 3\"/>

FILLER BLOCK REQUIREMENTS FOR DOUBLE I-JOIST CONSTRUCTION

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



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